

DESIGN & TECHNICAL MANUAL

AIRSTAGE™ VR-II Variable Refrigerant Flow System

Simultaneous cooling & heating operation with
Heat Recovery System



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1. GENERAL INFORMATION

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1. GENERAL INFORMATION



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1. MODEL LINE UP

1-1. OUTDOOR UNIT

- Extensive line up from 6Ton to 24Ton.

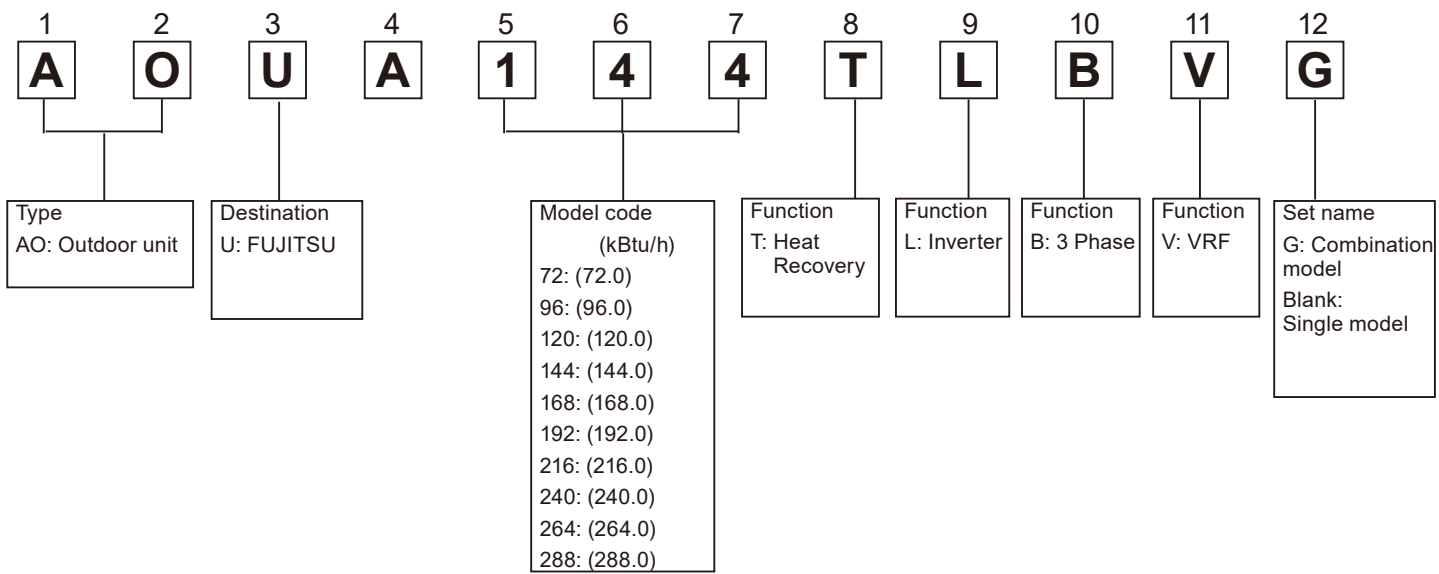
■ LINE UP (SINGLE)

Ton	Capacity (Btu/h)	Model name	Chassis
6	72,000	AOUA72TLBV	
8	96,000	AOUA96TLBV	
10	120,000	AOUA120TLBV	

■ LINE UP (COMBINATION)

Ton	Capacity (Btu/h)	Set model name	Unit1 (Model name)	Unit2 (Model name)	Unit3 (Model name)	Maximum connectable indoor unit
6	72,000	AOUA72TLBV	AOUA72TLBV	-	-	14
8	96,000	AOUA96TLBV	AOUA96TLBV	-	-	16
10	120,000	AOUA120TLBV	AOUA120TLBV	-	-	18
12	144,000	AOUA144TLBVG	AOUA72TLBV	AOUA72TLBV	-	22
14	168,000	AOUA168TLBVG	AOUA96TLBV	AOUA72TLBV	-	26
16	192,000	AOUA192TLBVG	AOUA120TLBV	AOUA72TLBV	-	30
18	216,000	AOUA216TLBVG	AOUA120TLBV	AOUA96TLBV	-	34
20	240,000	AOUA240TLBVG	AOUA120TLBV	AOUA120TLBV	-	37
22	264,000	AOUA264TLBVG	AOUA96TLBV	AOUA96TLBV	AOUA72TLBV	41
24	288,000	AOUA288TLBVG	AOUA96TLBV	AOUA96TLBV	AOUA96TLBV	45

■ MODEL DESIGNATION






1-2. INDOOR UNIT

Various combinations of types and capacities, ranging from 4,000 to 96,000 Btu/h.

■ LINE UP (1/3)

Capacity		Compact cassette	Circular flow cassette	Cassette	Mini duct	Slim duct/slim concealed floor	Medium static pressure duct
Btu/h	Model code						
4,000	4	●			●		
7,500	7	●				●	
9,500	9	●				●	
12,000	12	●				●	
14,000	14	●				●	
18,000	18	●	●	●		●	
24,000	24	●	●	●			●
30,000	30		●	●			●
36,000	36		●	●			●
48,000	48		●				
60,000	60						
72,000	72						
96,000	96						

Compact cassette	Circular flow cassette	Cassette
AUUA4TLAV1 AUUA7TLAV AUUA9TLAV AUUA12TLAV AUUA14TLAV AUUA18TLAV AUUA24TLAV  Grid type grille: UTG-CCGV  Standard type grille: UTG-CCGV	AUUB18TLAV1 AUUB24TLAV1 AUUB30TLAV1 AUUB36TLAV1 AUUB48TLAV1	AUUB18TLAV AUUB24TLAV AUUB30TLAV AUUB36TLAV 

Mini duct	Slim duct/slim concealed floor	Medium static pressure duct
ARUL4TLAV1 	ARUL7TLAV ARUL9TLAV ARUL12TLAV ARUL14TLAV ARUL18TLAV  	ARUM24TLAV ARUM30TLAV ARUM36TLAV 

■ LINE UP (2/3)







Capacity		High static pressure duct	Vertical air handler	Compact floor	Floor / ceiling	Ceiling
Btu/h	Model code					
4,000	4			●		
7,500	7			●		
9,500	9			●		
12,000	12		●	●	●	
14,000	14			●	●	
18,000	18		●		●	
24,000	24		●		●	
30,000	30		●			●
36,000	36	●	●			●
48,000	48	●	●			
60,000	60	●	●			
72,000	72	●				
96,000	96	●				

High static pressure duct	Vertical air handler	Compact floor
ARUH36TLAV ARUH48TLAV ARUH60TLAV ARUH72TLAV1 ARUH96TLAV	ARUV12TLAV ARUV18TLAV ARUV24TLAV ARUV30TLAV ARUV36TLAV ARUV48TLAV ARUV60TLAV	AGUA4TLAV1 AGUA7TLAV1 AGUA9TLAV1 AGUA12TLAV1 AGUA14TLAV1

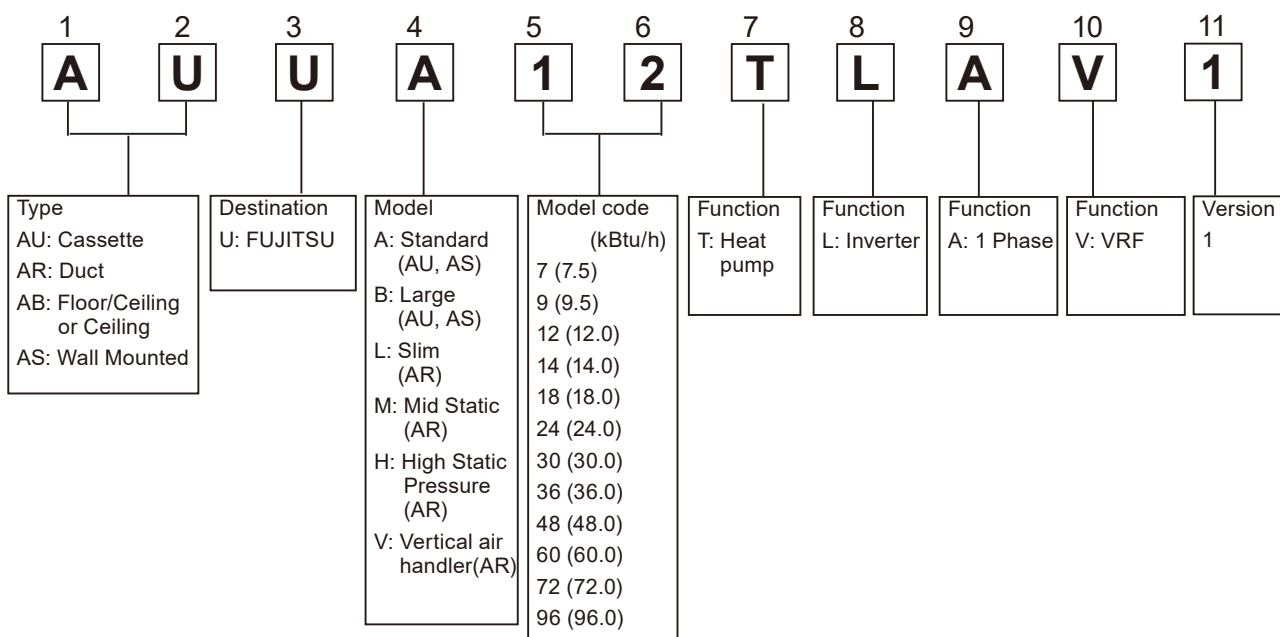
Floor / Ceiling	Ceiling
ABUA12TLAV ABUA14TLAV ABUA18TLAV ABUA24TLAV	ABUA30TLAV ABUA36TLAV

■ LINE UP (3/3)

Capacity		Wall mounted
Btu/h	Model code	
4,000	4	●
7,500	7	●
9,500	9	●
12,000	12	●
14,000	14	●
18,000	18	●
24,000	24	●
30,000	30	●
34,000	36	●
48,000	48	
60,000	60	
72,000	72	
96,000	96	

Wall mounted	
ASUA4TLAV1 ASUA7TLAV1 ASUA9TLAV1	
ASUA12TLAV1 ASUA14TLAV1	
ASUB18TLAV1 ASUB24TLAV1	
ASUB30TLAV1 ASUB36TLAV1	
ASUA7TLAV ASUA9TLAV ASUA12TLAV ASUA14TLAV	
ASUB18TLAV ASUB24TLAV	

■ MODEL DESIGNATION




1-3. CONTROLLER


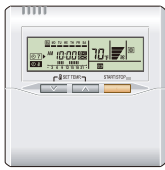





■ LINE UP

Type	Model	
System Controller	UTY-APGXZ1	Option: UTY-PEGXZ1, UTY-PPGXP2
System Controller Lite	UTY-ALGXZ1	Option: UTY-PLGXA2, UTY-PLGXR2, UTY-PLGXE2, UTY-PLGXP2, UTY-PLGXX2
Touch Panel Controller	UTY-DTGYZ1	Option: UTY-PTGXA
Central Remote Controller	UTY-DCGY	
Wired Remote Controller (Touch panel)	UTY-RNRUZ2	
Wired Remote Controller	UTY-RNKU	
Simple Remote Controller (With operation mode)	UTY-RSRY	
Simple Remote Controller (Without operation mode)	UTY-RHRY	
Simple Remote Controller (With operation mode)	UTY-RSKU	
Simple Remote Controller (Without operation mode)	UTY-RHKU	
Wireless Remote Controller	UTY-LNHU	

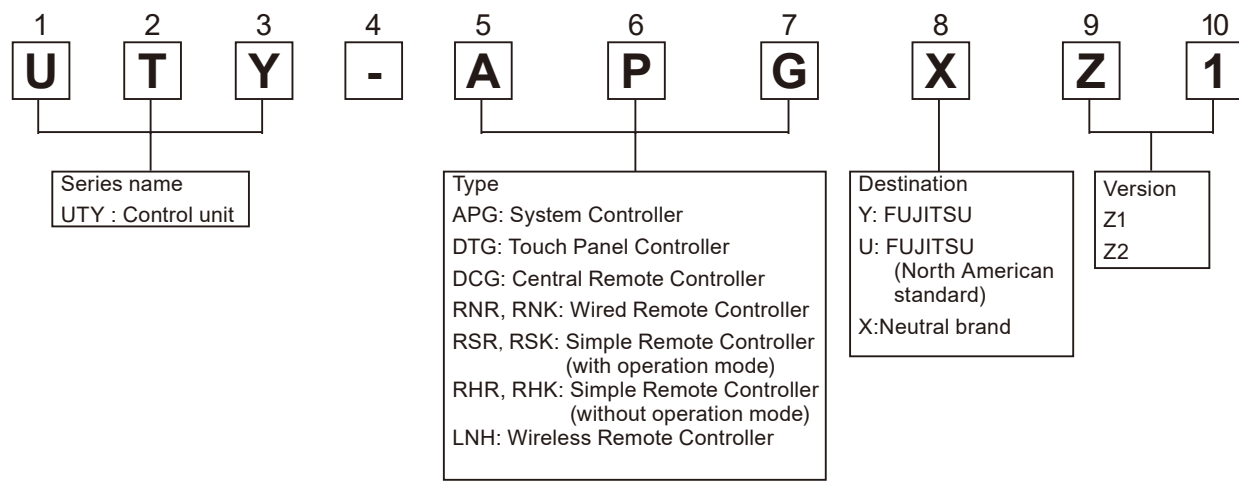
■ CENTRAL CONTROL

System Controller / System Controller Lite	Touch Panel Controller	Central Remote Controller
 <p>UTY-APGXZ1 UTY-ALGXZ1</p>	 <p>UTY-DTGYZ1</p>	 <p>UTY-DCGY</p>

■ INDIVIDUAL CONTROL


Wired Remote Controller	Simple Remote Controller	
<p>(Touch panel)</p>   <p>UTY-RNRUZ2 UTY-RNKU</p>	<p>(With operation mode)</p>  	<p>(Without operation mode)</p>   <p>UTY-RSRY UTY-RSKU UTY-RHRY UTY-RHKU</p>
Wireless Remote Controller		
 <p>UTY-LNHU</p>		

■ MODEL DESIGNATION



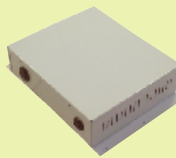
1-4. ADAPTOR / CONVERTOR / MAINTENANCE TOOL

Network Convertor
Model: UTY-VTGX




For two wire type and three wire type remote controller. Split type systems can be controlled from a central controller via the convertor.

Network Convertor
Model: UTY-VGGXZ1



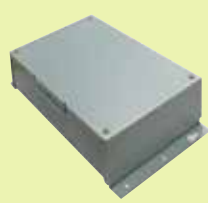
For three wire type remote controller. Split type systems can be controlled from a central controller via the convertor.

Network Convertor for LONWORKS®
Model: UTY-VLGX



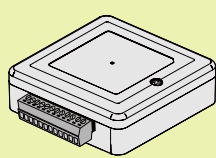
For connection between VRF network system and a LONWORKS® open network for management of small to medium-sized BMS.

Modbus® Convertor for VRF
Model: UTY-VMGX




For connection between VRF network system and a Modbus® open network.

Thermostat Convertor
Model: UTY-TTRX




For control Fujitsu General products using a third-party thermostat.

BACnet® Gateway (Hardware)
Model: UTY-VBGX



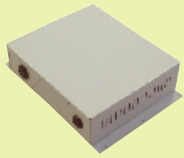
For connection between VRF network system to the BMS system using BACnet® protocol. Supports max.128 indoor units.

BACnet® Gateway (Software)
Model: UTY-ABGXZ1



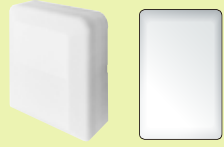
The central control of maximum 1600 indoor units can be realized by connecting the VRF network system to the BACnet®, a global standard of the open network.

Signal Amplifier
Model: UTY-VSGXZ1



If the total length of transmission line exceeds 1,640 ft. (500 m), or the number of units exceeds 64, Signal Amplifier will be necessary to use.

External Switch Controller
Models: UTY-TERX, UTY-TEKX



Air conditioner switching can be controlled by connecting other external sensor switches.

Service Tool**Model: UTY-ASGXZ1**

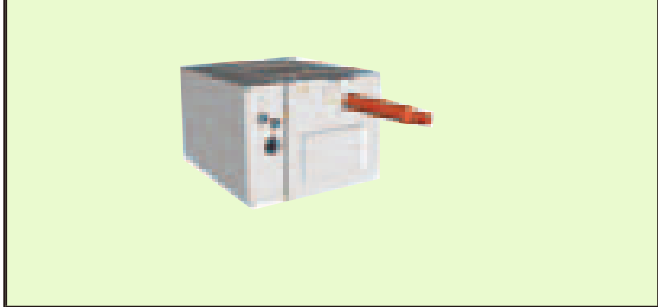
Extensive monitoring and analysis functions for installation and maintenance. Operation status and error history can be grasped promptly and adequately.

Web Monitoring Tool**Model: UTY-AMGXZ1**

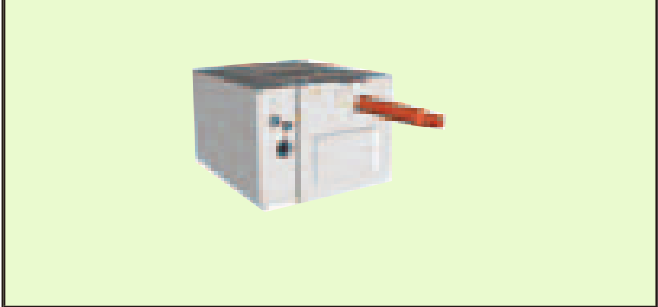
Trouble free operation at all times by web monitoring system. The operation status of the VRF network system within the building can be monitored in real time over the Internet.

1-5. RB UNIT

Single type
Model: UTP-RU01AH



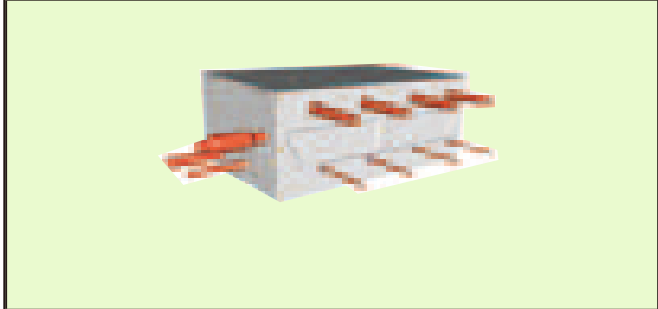
Single type
Model: UTP-RU01BH



Single type
Model: UTP-RU01CH



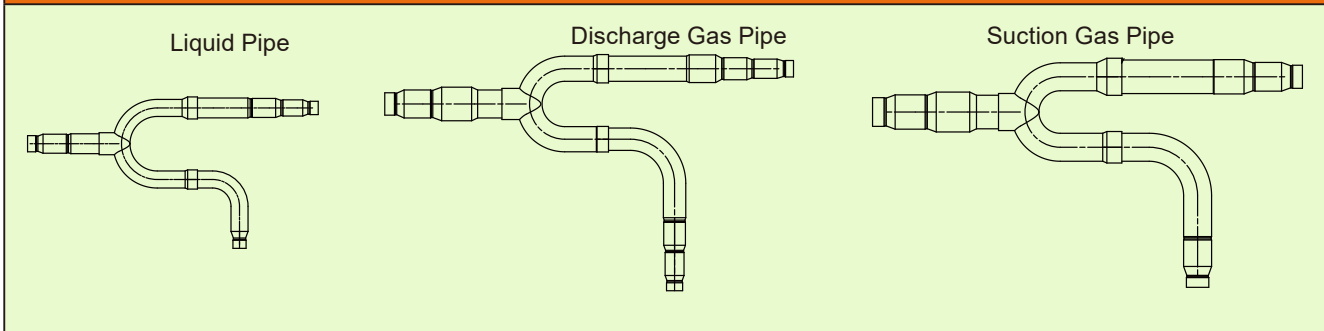
Multi type
Model: UTP-RU04BH



1-6. BRANCH KIT

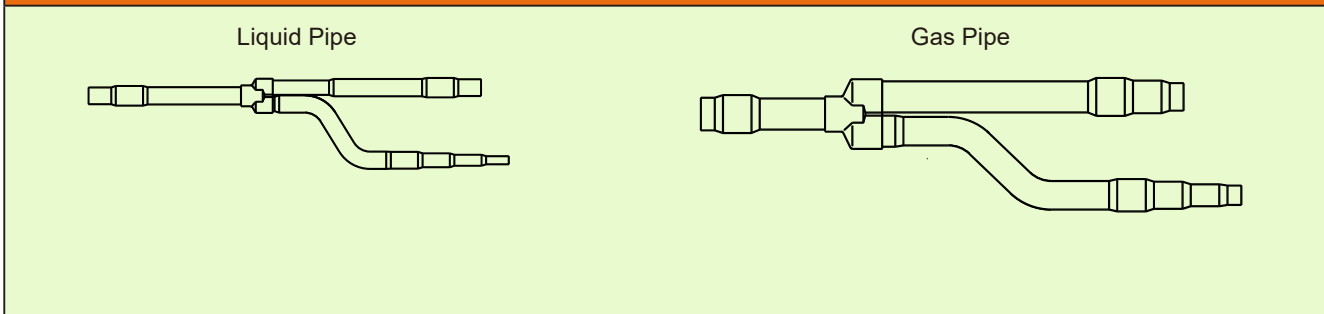
1-6-1. OUTDOOR UNIT BRANCH KIT

Outdoor Unit Branch Kit Model: UTP-DX567A

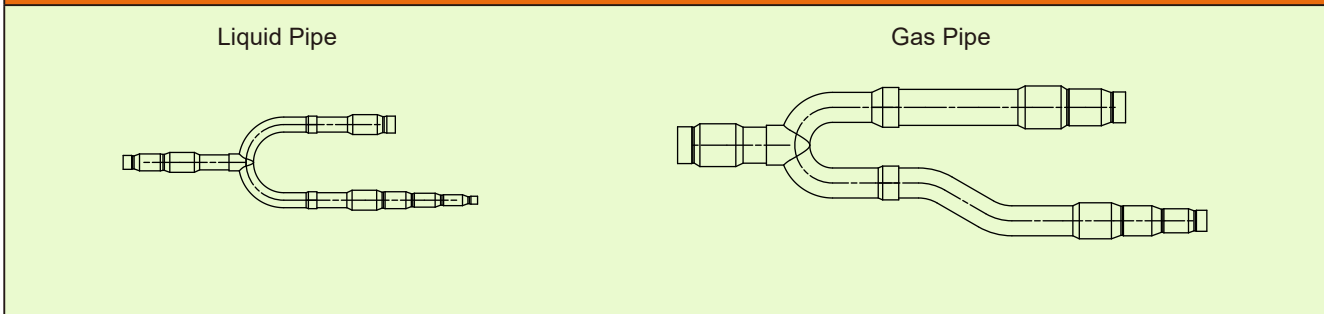


1-6-2. SEPARATION TUBE

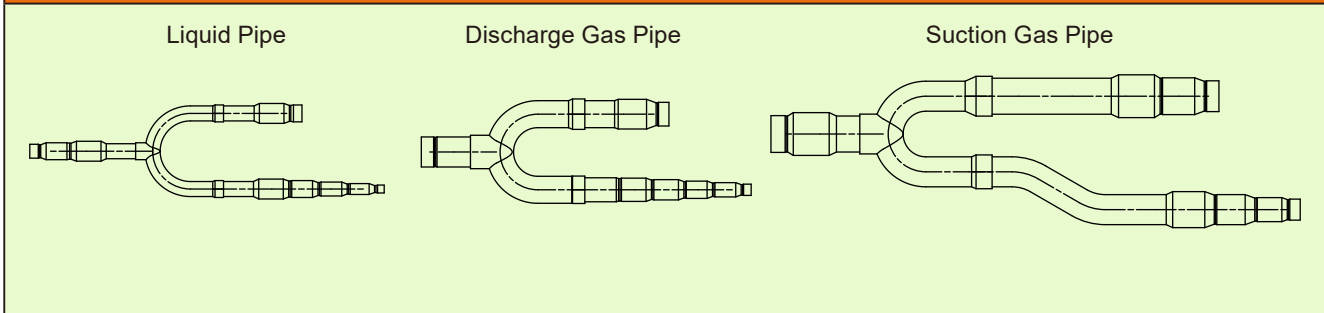
Separation Tube (for 2 pipes) Model: UTR-BP567X



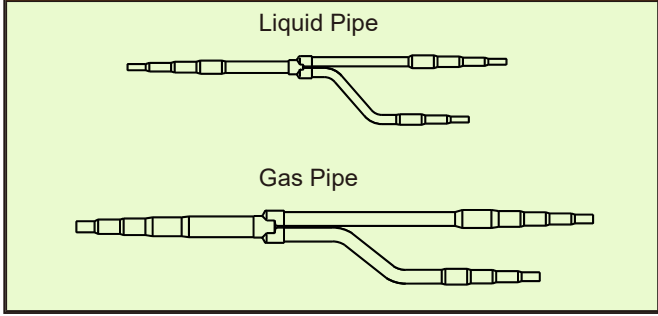
Separation Tube (for 2 pipes) Model: UTP-AX567A



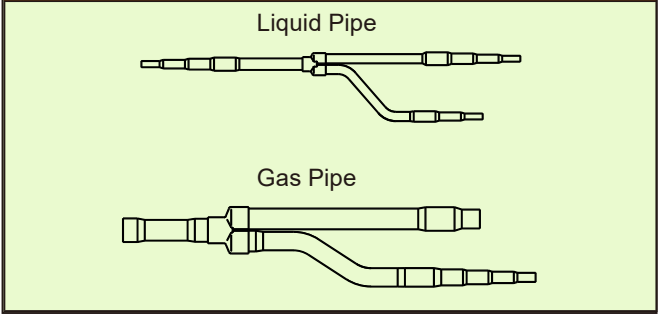
Separation Tube (for 3 pipes) Model: UTP-BX567A



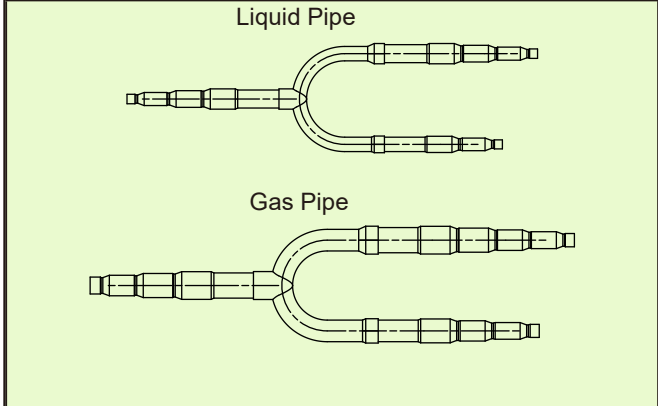
Separation Tube (for 2 pipes)
Model: UTR-BP090X



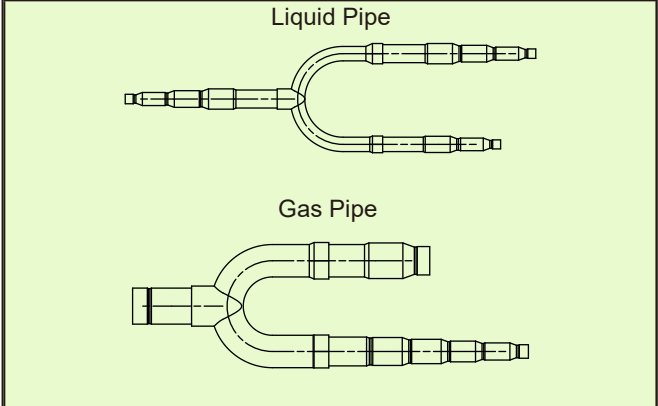
Separation Tube (for 2 pipes)
Model: UTR-BP180X



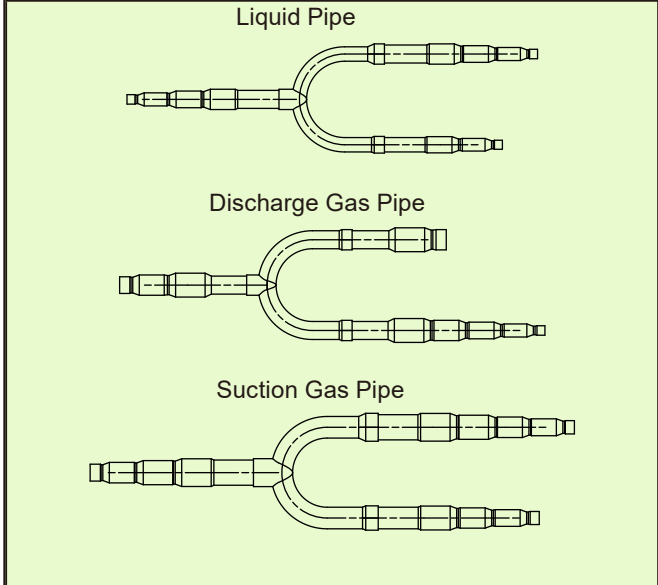
Separation Tube (for 2 pipes)
Model: UTP-AX090A



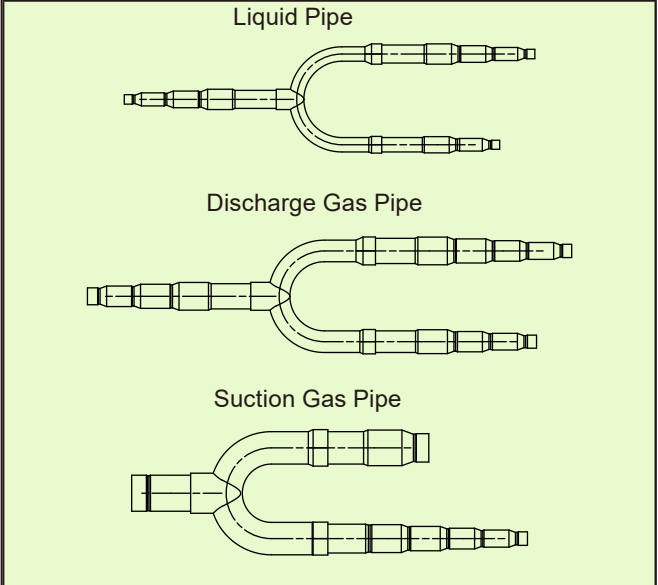
Separation Tube (for 2 pipes)
Model: UTP-AX180A



Separation Tube (for 3 pipes)
Model: UTP-BX090A



Separation Tube (for 3 pipes)
Model: UTP-BX180A



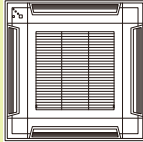
1-6-3.HEADER

Header			
Model: UTR-H0906L	Model: UTR-H1806L	Model: UTR-H0908L	Model : UTR-H1808L
<p>Liquid Pipe</p>	<p>Liquid Pipe</p>	<p>Liquid Pipe</p>	<p>Liquid Pipe</p>
<p>Gas Pipe</p>	<p>Gas Pipe</p>	<p>Gas Pipe</p>	<p>Gas Pipe</p>

Header			
Model: UTP-J0906A	Model: UTP-J1806A	Model: UTP-J0908A	Model: UTP-J1808A
<p>Liquid Pipe</p>	<p>Liquid Pipe</p>	<p>Liquid Pipe</p>	<p>Liquid Pipe</p>
<p>Discharge Gas Pipe</p>	<p>Discharge Gas Pipe</p>	<p>Discharge Gas Pipe</p>	<p>Discharge Gas Pipe</p>
<p>Suction Gas Pipe</p>	<p>Suction Gas Pipe</p>	<p>Suction Gas Pipe</p>	<p>Suction Gas Pipe</p>

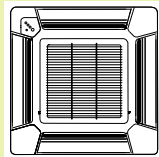
1-7. CASSETTE GRILLE

Grid type grille
Model: UTG-CCGVG



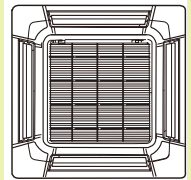
For Compact Cassette type

Standard type grille
Model: UTG-CCGV



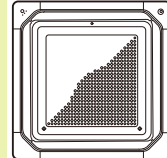
For Compact Cassette type

Cassette grille
Model: UTG-LCGV



For Cassette type


Cassette grille
Models: UTG-LCGVCW
UTG-LCGVCB




For Circular flow cassette type

1-8. OTHER (optional parts)

Flange (Square)
 Model: UTD-SF045T
 For Medium Static Pressure Duct type

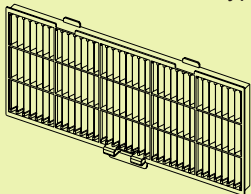


Flange (Round)
 Model: UTD-RF204
 For Medium Static Pressure Duct type
 For Ceiling type



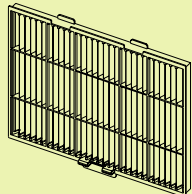
x 4 pcs

Air Filter
 Model: UTD-LF25NA
 For Medium Static Pressure Duct type




x 2 pcs

Air Filter
 Model: UTD-LF60KA
 For High Static Pressure Duct type




x 2 pcs

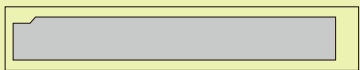
Drain Pump Unit
 Model: UTZ-PU1NBA
 For Medium Static Pressure Duct type




Drain Pump Unit
 Model: UTZ-PU1EBA
 For Ceiling type



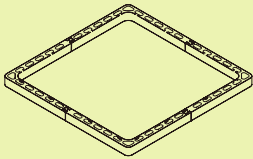
Air outlet shutter plate
 Model: UTR-YDZB
 For Compact Cassette type



Air outlet shutter plate
 Model: UTR-YDZK
 For Cassette type
 For Circular flow cassette type

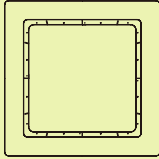


Panel spacer Model : UTG-BKXA-W



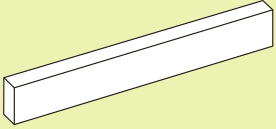
For Cassette type
For Circular flow cassette type

Wide panel Model : UTG-AKXA-W




For Cassette type
For Circular flow cassette type

Half concealed kit Model : UTR-STA




For Compact Floor type

IR Receiver Unit Model: UTB-YWC




For all Duct type

IR Receiver Unit Model: UTY-LRHYB1




For Cassette type

IR Receiver Unit Model: UTY-LBHXD




For Circular Flow Cassette type

Human Sensor Kit Model: UTY-SHZXC



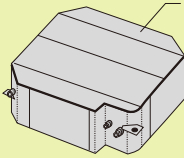
For Circular Flow Cassette type

Remote Sensor Unit Model: UTY-XSZX



Remote sensing unit provides greater flexibility for optimum temperature sensing.

Insulation Kit for High Humidity Environments
Models: UTZ-KXGC *1
 UTZ-KXRA *2



*1 For Compact cassette type
 *2 For Cassette type
 For Circular flow cassette type

Install when the condition under the roof is over 80% in humidity and over 30°C in temperature.

Fresh air intake kit
Model: UTZ-VXRA



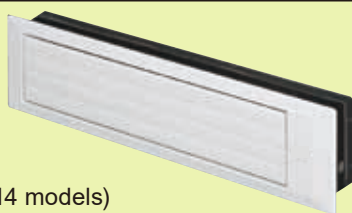
For Cassette type
For Circular flow cassette type

Fresh air intake kit
Model: UTZ-VXAA



For Compact Cassette type

Auto louver grille kit
Model: UTD-GXTA-W



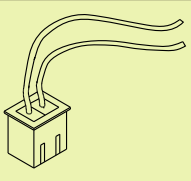
For Slim Duct (7-14 models)
For Mini Duct

Auto louver grille kit
Models: UTD-GXSA-W *1
UTD-GXSB-W *2



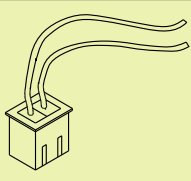
*1 For Slim Duct (7-14 models)
*2 For Slim Duct (18 model)

External connect kit
Model: UTY-XWZXZ6



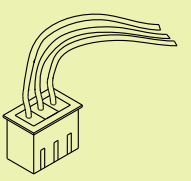
For Outdoor unit / RB unit

External connect kit
Model: UTY-XWZXZ7



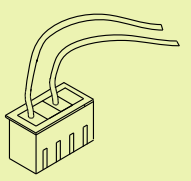
For Indoor unit / Central remote controller

External connect kit
Model: UTY-XWZXZ8



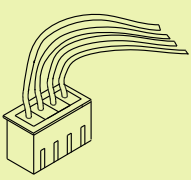
For Central remote controller

External connect kit
Model: UTY-XWZXZ9



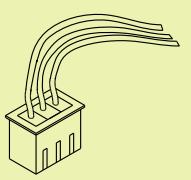
For Outdoor unit

External connect kit
Model: UTY-XWZXZA



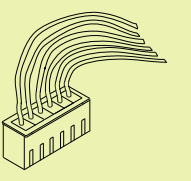
For Touch panel controller / Central remote controller

External connect kit
Model: UTY-XWZXZB



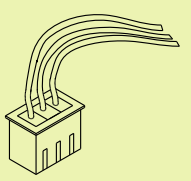
For Indoor unit / RB unit

External connect kit
Model: UTY-XWZXZC



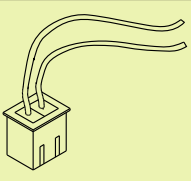
For Indoor unit

External connect kit
Model: UTY-XWZXZD



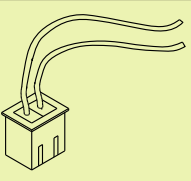
For Indoor unit

External connect kit
Model: UTY-XWZXZE



For Indoor unit

External connect kit
Model: UTY-XWZXZF



For Outdoor unit



2. MODEL SELECTION

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2. MODEL SELECTION

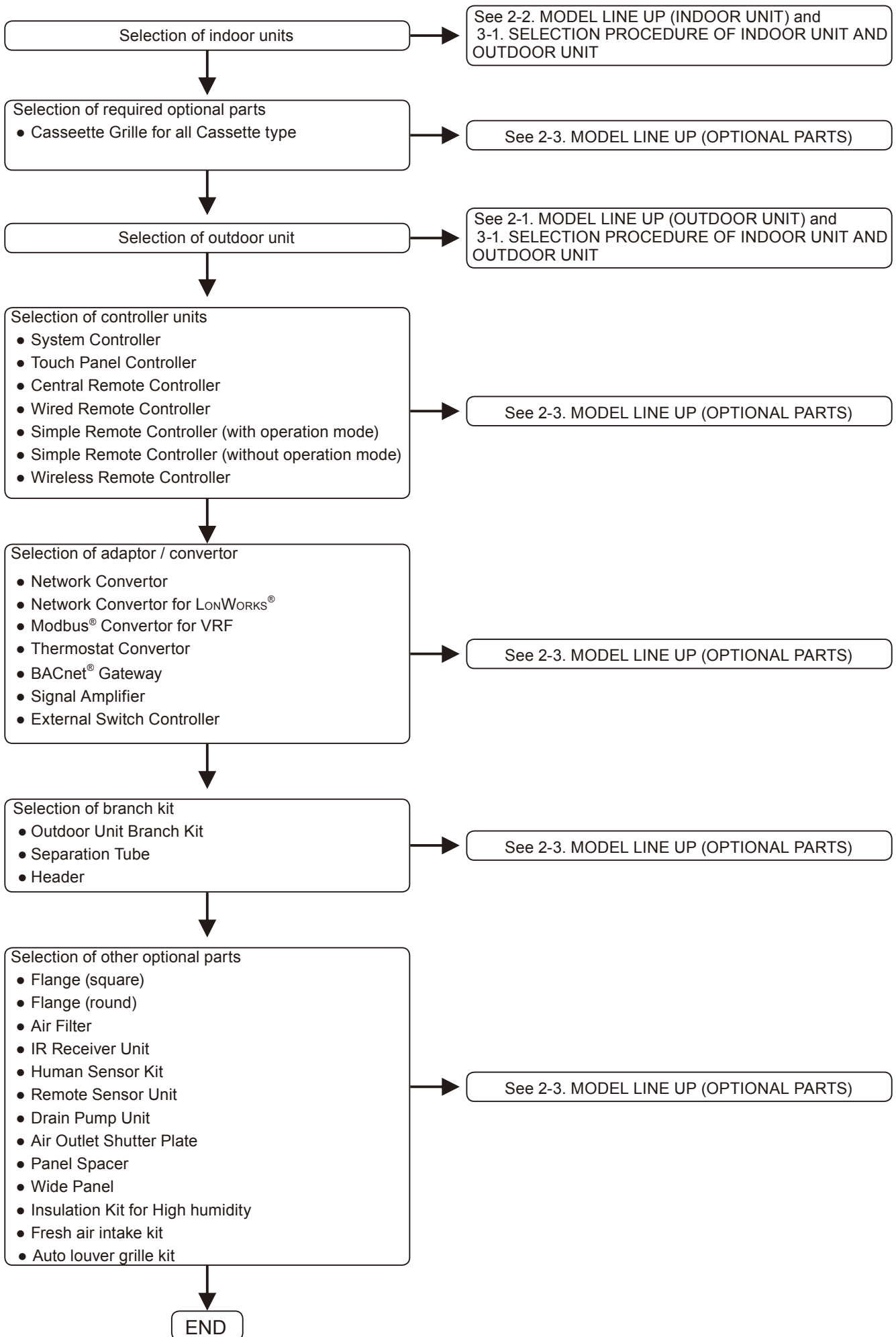
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1. MODEL SELECTION PROCEDURE



2. MODEL LINE UP

2-1. OUTDOOR UNIT

■ LINE UP

Ton	Capacity (Btu/h)	Model name	Unit1 (Ton)	Unit2 (Ton)	Unit3 (Ton)	Maximum connectable indoor unit	Indoor unit connectable capacity (Btu/h)
	Cooling						
6	72,000	AOUA72TLBV	6	-	-	14	36,000 to 108,000
8	96,000	AOUA96TLBV	8	-	-	16	48,000 to 144,000
10	120,000	AOUA120TLBV	10	-	-	18	60,000 to 180,800
12	144,000	AOUA144TLBVG	6	6	-	22	72,000 to 216,000
14	168,000	AOUA168TLBVG	8	6	-	26	84,000 to 252,000
16	192,000	AOUA192TLBVG	10	6	-	30	96,000 to 288,000
18	216,000	AOUA216TLBVG	10	8	-	34	108,000 to 324,000
20	240,000	AOUA240TLBVG	10	10	-	37	120,000 to 360,000
22	264,000	AOUA264TLBVG	8	8	6	41	132,000 to 396,000
24	288,000	AOUA288TLBVG	8	8	8	45	144,000 to 432,000

2-2. INDOOR UNIT

■ LINE UP (1/2)

Type	Rated capacity (Btu/h)		Model name	Remarks
	Cooling	Heating		
Compact cassette	4,000	4,400	AUUA4TLAV1	UTG-CCGVG (Grid type grille) UTG-CCGV (Standard type grille)
	7,500	9,500	AUUA7TLAV	
	9,500	10,900	AUUA9TLAV	
	12,000	13,500	AUUA12TLAV	
	14,000	15,600	AUUA14TLAV	
	18,000	20,000	AUUA18TLAV	
Circular flow cassette	24,000	27,000	AUUA24TLAV	UTG-LCGVCW (Cassette grille) UTG-LCGVCB (Cassette grille)
	18,000	20,000	AUUB18TLAV1	
	24,000	27,000	AUUB24TLAV1	
	30,000	34,000	AUUB30TLAV1	
	36,000	40,000	AUUB36TLAV1	
Cassette	48,000	54,000	AUUB48TLAV1	UTG-LCGV (Cassette grille)
	18,000	20,000	AUUB18TLAV	
	24,000	27,000	AUUB24TLAV	
	30,000	34,000	AUUB30TLAV	
Mini duct	36,000	40,000	AUUB36TLAV	
	4,000	4,400	ARUL4TLAV1	
Slim duct / Slim concealed floor	7,500	9,500	ARUL7TLAV	
	9,500	10,900	ARUL9TLAV	
	12,000	13,500	ARUL12TLAV	
	14,000	15,600	ARUL14TLAV	
	18,000	20,000	ARUL18TLAV	
Medium static pressure duct	24,000	27,000	ARUM24TLAV	
	30,000	34,000	ARUM30TLAV	
	36,000	40,000	ARUM36TLAV	
High static pressure duct	36,000	40,000	ARUH36TLAV	
	48,000	54,000	ARUH48TLAV	
	60,000	67,000	ARUH60TLAV	
	72,000	81,000	ARUH72TLAV1	
	96,000	108,000	ARUH96TLAV	
Vertical air handler	12,000	13,500	ARUV12TLAV	
	18,000	20,000	ARUV18TLAV	
	24,000	27,000	ARUV24TLAV	
	30,000	34,000	ARUV30TLAV	
	36,000	40,000	ARUV36TLAV	
	48,000	54,000	ARUV48TLAV	
	60,000	67,000	ARUV60TLAV	
Compact floor	12,000	13,500	AGUA12TLAV	
	4,000	4,400	AGUA4TLAV1	
	7,500	9,500	AGUA7TLAV1	
	9,500	10,900	AGUA9TLAV1	
	12,000	13,500	AGUA12TLAV1	
	14,000	15,600	AGUA14TLAV1	
Floor / Ceiling	12,000	13,500	ABUA12TLAV	
	14,000	15,600	ABUA14TLAV	
	18,000	20,000	ABUA18TLAV	
	24,000	27,000	ABUA24TLAV	
Ceiling	30,000	34,000	ABUA30TLAV	
	36,000	40,000	ABUA36TLAV	

■ LINE UP (2/2)

Type	Rated capacity (Btu/h)		Model name	Remarks
	Cooling	Heating		
Wall mounted	4,000	4,400	ASUA4TLAV1	
	7,500	9,500	ASUA7TLAV ASUA7TLAV1	
	9,500	10,900	ASUA9TLAV ASUA9TLAV1	
	12,000	13,500	ASUA12TLAV ASUA12TLAV1	
	14,000	15,600	ASUA14TLAV ASUA14TLAV1	
	18,000	20,000	ASUB18TLAV ASUB18TLAV1	
	24,000	27,000	ASUB24TLAV ASUB24TLAV1	
	30,000	34,000	ASUB30TLAV1	
	34,000	38,000	ASUB36TLAV1	

2-3. OPTIONAL PARTS

■ CONTROLLER

Items	Model name	Remarks
System Controller	UTY-APGXZ1	Option: UTY-PEGXZ1, UTY-PPGXP2
System Controller Lite	UTY-ALGXZ1	Option: UTY-PLGXA2, UTY-PLGXR2, UTY-PLGXE2, UTY-PLGXP2, UTY-PLGXX2
Touch Panel Controller	UTY-DTGYZ1	Option: UTY-PTGXA
	UTY-DTGY	
Central Remote Controller	UTY-DCGY	
Wired Remote Controller (Touch panel)	UTY-RNRUZ2	2-wire type
Wired Remote Controller	UTY-RNKU	3-wire type
Simple Remote Controller (With operation mode)	UTY-RSRY	2-wire type
Simple Remote Controller (Without operation mode)	UTY-RHRY	
Simple Remote Controller (With operation mode)	UTY-RSKU	3-wire type
Simple Remote Controller (Without operation mode)	UTY-RHKU	
Wireless Remote Controller	UTY-LNHU	

■ ADAPTOR / CONVERTOR / MAINTENANCE TOOL

Items	Model name	Remarks
Network Convertor	UTY-VTGX	
	UTY-VGGXZ1	
Network Convertor for LonWorks®	UTY-VLGX	
Modbus® Convertor for VRF	UTY-VMGX	
Thermostat Convertor	UTY-TTRX	
BACnet® Gateway (Hardware)	UTY-VBGX	
BACnet® Gateway (Software)	UTY-ABGXZ1	
Signal Amplifier	UTY-VSGXZ1	
External Switch Controller	UTY-TERX	2-wire type
	UTY-TEKX	3-wire type
Service Tool	UTY-ASGXZ1	
Web Monitoring Tool	UTY-AMGXZ1	

■ RB UNIT

Items	Model name	Total cooling capacity of indoor units (Btu/h) *1	
RB Unit	Single type	UTP-RU01AH	27,000 or less
		UTP-RU01BH	60,000 or less
	UTP-RU01CH	96,000 or less	
	Multi type	UTP-RU04BH	191,000 or less

■ BRANCH KIT

Items	Model name	Total cooling capacity of indoor units (x) (Btu/h) *1
Outdoor Unit Branch Kit	UTP-DX567A	-
Separation Tube (for 2pipes)	UTR-BP090X UTP-AX090A	$x < 96,500$
	UTR-BP180X UTP-AX180A	$96,500 \leq x < 193,000$
	UTR-BP567X UTP-AX567A	$193,000 \leq x$
	Separation Tube (for 3pipes)	UTP-BX090A
UTP-BX180A		$96,500 \leq x < 193,000$
UTP-BX567A		$193,000 \leq x$
Header (for 2pipes)	UTR-H0906L	$x < 96,500$
	UTR-H1806L	$96,500 \leq x < 193,000$
	UTR-H0908L	$x < 96,500$
	UTR-H1808L	$96,500 \leq x < 193,000$
Header (for 3pipes)	UTP-J0906A	$x < 96,500$
	UTP-J1806A	$96,500 \leq x < 193,000$
	UTP-J0908A	$x < 96,500$
	UTP-J1808A	$96,500 \leq x < 193,000$

*1 : Total cooling capacity of indoor units means the total value of indoor unit cooling capacity connected downstream.

■ CASSETTE GRILLE

Items	Model name	Remarks
Cassete Grille	UTG-LCGVCW	For Circular Flow Cassete type
	UTG-LCGVCB	
	UTG-CCGVG	For Compact Cassete type
	UTG-CCGV	
	UTG-LCGV	For Cassete type

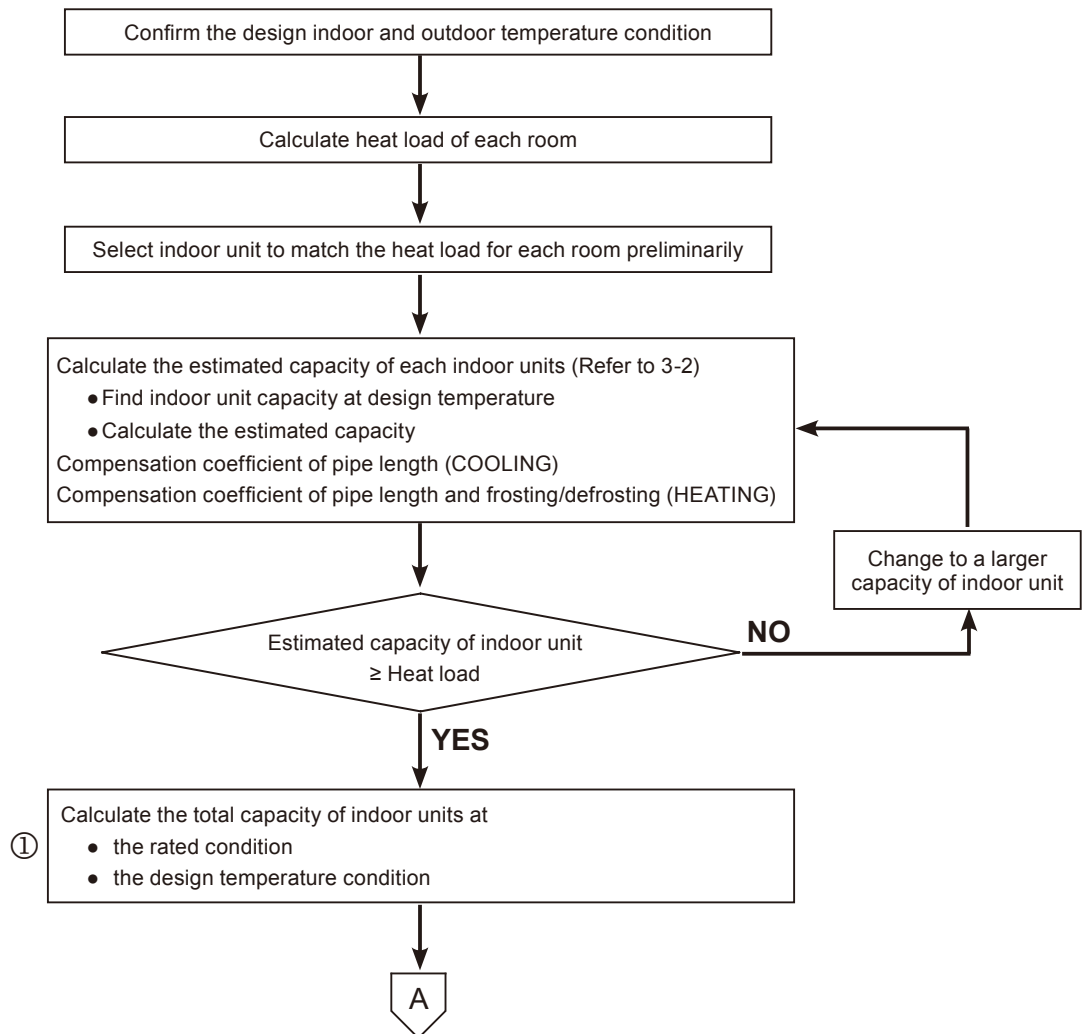
■ OTHERS

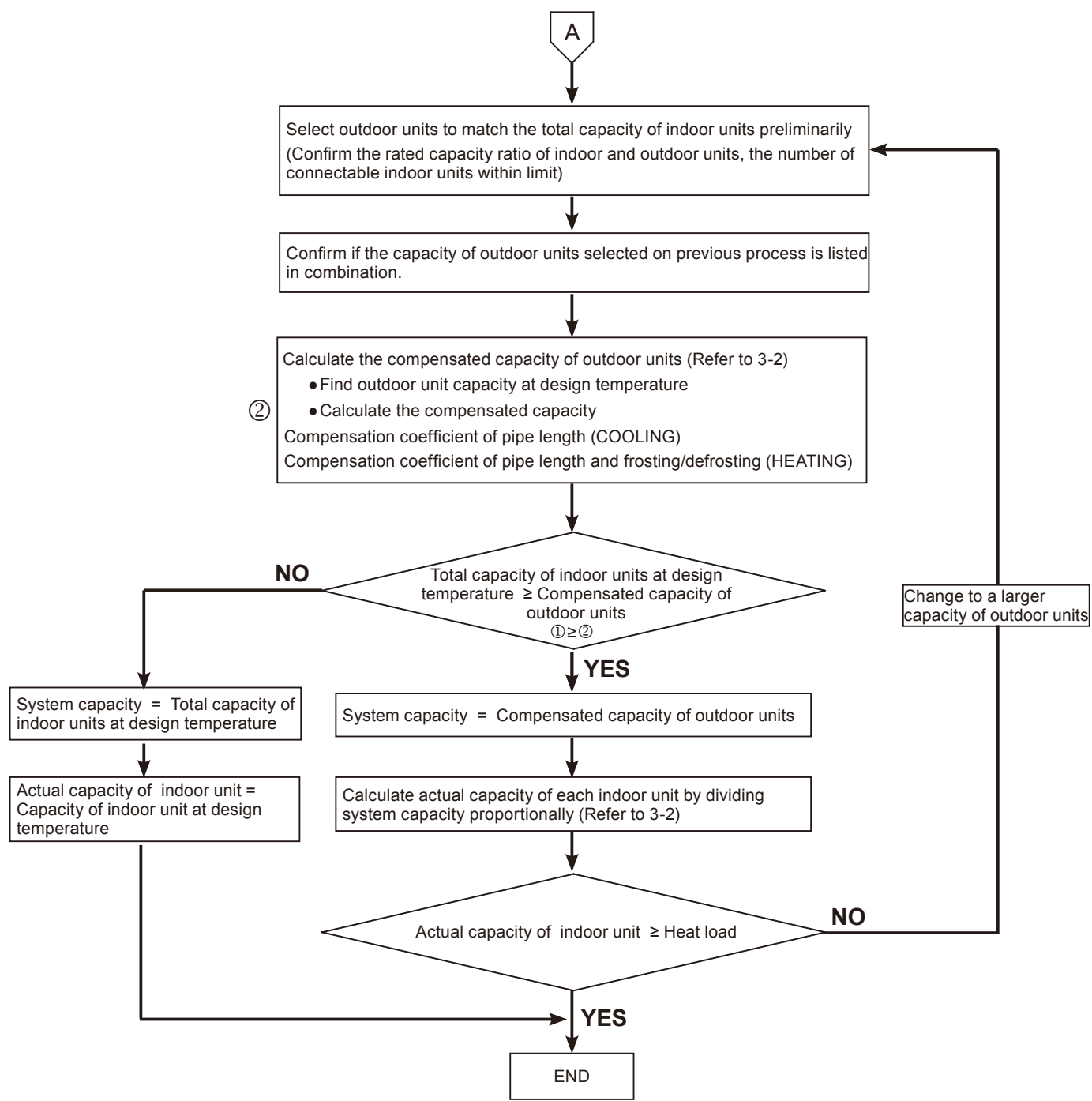
Items	Model name	Remarks
Flange (Square)	UTD-SF045T	For Medium Static Pressure Duct type
Flange (Round)	UTD-RF204	For Medium Static Pressure Duct type For Ceiling type
Air Filter	UTD-LF25NA	For Medium Static Pressure Duct type
	UTD-LF60KA	For High Static Pressure Duct type
Drain Pump Unit	UTZ-PU1NBA	For Medium Static Pressure Duct type
	UTZ-PU1EBA	For Ceiling type
Air Outlet Shutter Plate	UTR-YDZB	For Compact Cassete type
	UTR-YDZK	For Cassete type For Circular Flow Cassete type
Panel Spacer	UTG-BKXA-W	For Cassete type
		For Circular Flow Cassete type
Wide Panel	UTG-AKXA-W	For Cassete type
		For Circular Flow Cassete type
Half concealed kit	UTR-STA	For Compact Floor type
IR Receiver Unit	UTB-YWC	For all Duct type
	UTY-LRHYB1	For Cassete type
	UTY-LBHxD	For Circular Flow Cassete type
Human sensor kit	UTY-SHZXC	For Circular Flow Cassete type
Remote Sensor Unit	UTD-XSZX	For all Duct type
Insulation Kit for High Humidity	UTZ-KXGC	For Compact Cassete type
	UTZ-KXRA	For Circular Flow Cassete type For Cassete type
Fresh air intake kit	UTZ-VXAA	For Compact Cassete type
	UTZ-VXRA	For Cassete type
Auto louver grille kit	UTD-GXSA-W	For Slim Duct type (7-14 models)
	UTD-GXSB-W	For Slim Duct type (18 model)
	UTD-GXTA-W	For Slim Duct type (7-14 models) For Mini Duct type
External connect kit	UTY-XWZXZ6	For Outdoor unit / RB unit
	UTY-XWZXZ7	For Indoor unit / Central remote controller
	UTY-XWZXZ8	For Central remote controller
	UTY-XWZXZ9	For Outdoor unit
	UTY-XWZXZA	For Touch panel controller / Central remote controller
	UTY-XWZXZB	For Indoor unit / RB unit
	UTY-XWZXZC	For Indoor unit
	UTY-XWZXZD	For Indoor unit
	UTY-XWZXZE	For Indoor unit
UTY-XWZXZF	For Outdoor unit	

3. MODEL SELECTION AND CAPACITY CALCULATION

3-1. SELECTION PROCEDURE OF INDOOR UNIT AND OUTDOOR UNIT

Please select indoor units and outdoor unit and make the capacity of each indoor unit be larger than cooling and heating load.





3-2. METHOD OF CAPACITY CALCULATION

The capacity calculation method which takes the effects of air temperature, pipe length and frosting/defrosting into consideration is shown below.

1. Calculate the estimated capacity of each indoor unit.

(1) Find **capacity of indoor unit at rated condition (TCin)r and at design temperature (TCin)d** [from 7. CAPACITY TABLE COOLING (INDOOR UNIT) or 8. CAPACITY TABLE HEATING (INDOOR UNIT)]

(2) Find the following compensation coefficient [From 6. CAPACITY COMPENSATION COEFFICIENT].

- **Compensation coefficient of pipe length**
- **Compensation coefficient of frosting/defrosting** (Heating calculation only)

(3) Calculate **the estimated capacity of indoor unit (TCin)e.**

COOLING:

$$\begin{aligned} \text{Estimated capacity of indoor unit (TCin)e} \\ &= \text{Capacity of indoor unit at design temperature (TCin)d} \\ &\quad \times \text{Compensation coefficient of pipe length} \end{aligned}$$

HEATING:

$$\begin{aligned} \text{Estimated capacity of indoor unit (TCin)e} \\ &= \text{Capacity of indoor unit at design temperature (TCin)d} \\ &\quad \times \text{Compensation coefficient of pipe length} \\ &\quad \times \text{Compensation coefficient of frosting/defrosting} \end{aligned}$$

2. Calculate the compensated capacity of outdoor unit.

(4) Find **capacity of outdoor unit at rated condition (TCout)r** [From 2. MODEL LINE UP].

(5) Calculate **total rated capacity of indoor units** : $\sum(\text{TCin)r}$
and **ratio to the rated capacity of outdoor unit** : $\sum(\text{TCin)r} / (\text{TCout)r}$.

(6) Find capacity of outdoor unit at design temperature (TCout)d [using result of (5) and 4. CAPACITY TABLE (OUTDOOR UNIT)].

(7) Calculate the compensated capacity of outdoor unit (TCout)c.

COOLING:

$$\begin{aligned} \text{Compensated capacity of outdoor unit (TCout)c} \\ &= \text{Capacity of outdoor unit at design temperature (TCout)d} \\ &\quad \times \text{Compensation coefficient of pipe length} \end{aligned}$$

HEATING:

$$\begin{aligned} \text{Compensated capacity of outdoor unit (TCout)c} \\ &= \text{Capacity of outdoor unit at design temperature (TCout)d} \\ &\quad \times \text{Compensation coefficient of pipe length} \\ &\quad \times \text{Compensation coefficient of frosting/defrosting} \end{aligned}$$

3. Decide system capacity.

(8) Calculate **total capacity of indoor units at design temperature** $\sum(\text{TCin)d}$.

(9) **System capacity** = the smaller one of (TCout)c and $\sum(\text{TCin)d}$ (7) or (8)

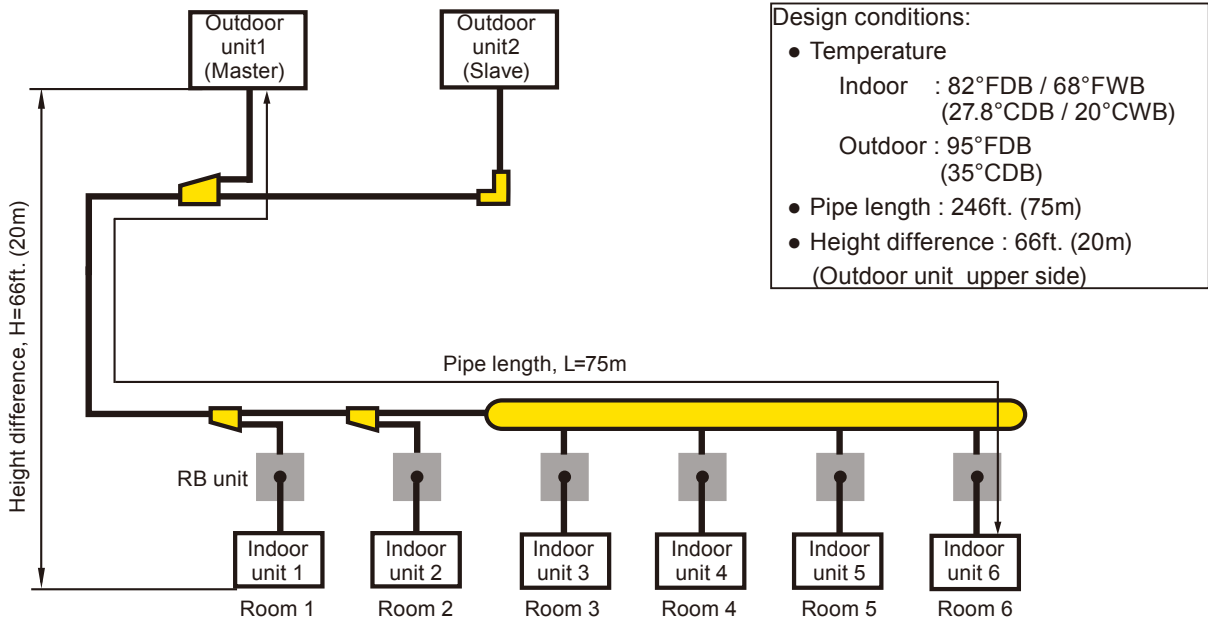
4. Calculate actual capacity of each indoor unit.

(10) Calculate actual capacity of each indoor unit by dividing system capacity proportionally.

$$\begin{aligned} \text{Actual capacity of indoor unit} &= (\text{System capacity}) \times (\text{Rated capacity of indoor unit}) / (\text{Total rated} \\ &\quad \text{capacity of indoor unit}) \\ &= (\text{System capacity}) \times (\text{TCin)r} / \sum(\text{TCin)r} \dots \dots (9) \times (1) / (5) \end{aligned}$$

3-3. THE EXAMPLE OF CALCULATION

Fig.1 Outline of the system



● Selection of indoor unit

			Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Remark
A-1	Cooling heat load	kBtu/h	33.0	33.0	33.0	27.5	27.5	22.0	
A-2	Indoor unit models		AUUB36	AUUB36	AUUB36	AUUB30	AUUB30	AUUB24	
A-3	Capacity of indoor unit ($TC_{in,r}$)	kBtu/h	36.0	36.0	36.0	30.0	30.0	24.0	See 7
A-4	Capacity at design temperature ($TC_{in,d}$)	kBtu/h	37.7	37.7	37.7	31.4	31.4	25.1	See 7
A-5	Compensation coefficient of pipe length		0.90						See 6
A-6	Estimated capacity of indoor unit ($TC_{in,e}$)	kBtu/h	33.9	33.9	33.9	28.3	28.3	22.6	(A-4) x (A-5)
A-7	Total capacity of indoor unit $\sum(TC_{in,r})$	kBtu/h	192.0						Sum of A-3
A-8	Total capacity at design temperature $\sum(TC_{in,d})$	kBtu/h	201.0						Sum of A-4

● Preliminary selection of outdoor unit

				Remark
B-1	Outdoor unit model		14Ton : AOUA168TLBVG (AOUA96TLBV + AOUA72TLBV)	
B-2	Nominal capacity ($TC_{out,r}$)	kBtu/h	168.0	See 2
B-3	Total capacity of indoor unit / Nominal capacity of outdoor unit $\sum(TC_{in,r}) / (TC_{out,r})$	%	114.3	(A-7) / (B-2)
B-4	Capacity at design temperature ($TC_{out,d}$)	kBtu/h	177.1	See Fig.2 2)
B-5	Compensation coefficient of pipe length		0.90	See 2-6
B-6	Compensated capacity of outdoor unit ($TC_{out,c}$)	kBtu/h	159.4	(B-4) x (B-5)

● Decide system capacity

				Remark
C-1	System capacity	kBtu/h	159.4	Smaller one of (A-8) and (B-6)

● Calculate actual capacity of each indoor unit

		Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Remark	
	Actual capacity of each indoor unit	kBtu/h	29.9	29.9	29.9	24.9	24.9	19.9	(C-1) x (A-3) / (A-7)

Since the capacities of indoor units are smaller than the cooling heat loads, change to a larger capacity of outdoor units and calculate again.

● Change to a larger capacity of outdoor unit

				Remark
B'-1	Outdoor unit model		16Ton : AOUA192TLBVG (AOUA120TLBV + AOUA72TLBV)	
B'-2	Nominal capacity $(TC_{out})_r$	kBtu/h	192.0	See 2
B'-3	Total capacity of indoor unit / Nominal capacity of outdoor unit $\Sigma(TC_{in})_r / (TC_{out})_r$	%	100.0	(A-7) / (B'-2)
B'-4	Capacity at design temperature $(TC_{out})_d$	kBtu/h	196.2	See Fig.2 3)
B'-5	Compensation coefficient of pipe length		0.90	See 6
B'-6	Compensated capacity of outdoor unit $(TC_{out})_c$	kBtu/h	176.6	(B'-4) x (B'-5)

● Decide system capacity

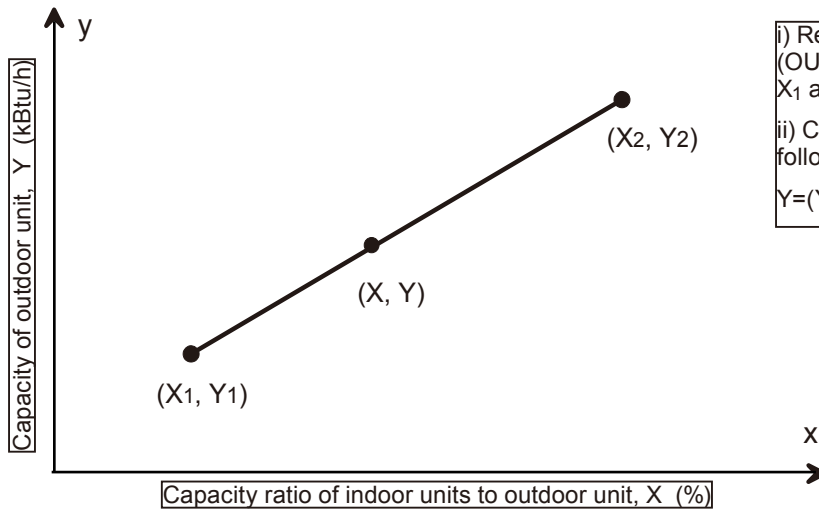
				Remark
C'-1	System capacity	kBtu/h	176.6	Smaller one of (A-8) and (B'-6)

● Calculate actual capacity of each indoor unit

		Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Remark
Actual capacity of each indoor unit	kBtu/h	33.1	33.1	33.1	27.6	27.6	22.1	(C'-1) x (A-3) / (A-7)

Actual capacity of all indoor units is larger than cooling heat load of each room.

1) Equation for capacity calculation of outdoor unit.



i) Refer to 4. CAPACITY TABLE (OUTDOOR UNIT) to find Y₁ and Y₂ using X₁ and X₂.
 ii) Calculate capacity of outdoor unit using following equation:
 $Y = (Y_2 - Y_1) / (X_2 - X_1) \times (X - X_1) + Y_1$

2) Cooling capacity table of 14Ton outdoor units: AOUA168TLBVG (AOUA96TLBV + AOUA72TLBV)

Total rated cooling capacity of indoor unit	Outdoor temp. (°FDB)	Indoor temperature (°FDB / °FWB)									
		68 / 59		80 / 67		82 / 68		86 / 72		90 / 73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
201.6 (120%) X ₂	50	128.5	7.58	198.0	11.19	200.5	11.18	210.9	11.13	213.5	11.11
	95	128.5	10.05	177.1	14.46	179.1	14.51	187.3	14.70	189.3	14.75
	115	128.5	14.03	158.4	17.42	Y ₂	17.49	167.8	17.76	169.7	17.83
184.8 (110%) X ₁	50	117.8	7.02	184.8	10.57	193.3	11.02	205.6	11.16	208.1	11.14
	95	117.8	9.27	173.6	14.37	175.6	14.42	183.6	14.61	185.6	14.66
	115	117.8	12.50	155.5	17.31	Y ₁	17.38	164.8	17.65	166.6	17.71

Capacity ratio of indoor units to outdoor unit	X ₁ = 110 %	X = 114.3 %	X ₂ = 120 %
Capacity of outdoor units (kBtu/h)	Y ₁ = 175.6	Y	Y ₂ = 179.1

$Y = (179.1 - 175.6) / (120 - 110) \times (114.3 - 110) + 175.6 = \mathbf{177.1 \text{ (kBtu/h)}}$

3) Cooling capacity table of 16Ton outdoor units: AOUA192TLBVG (AOUA120TLBV + AOUA72TLBV)

Total rated cooling capacity of indoor unit	Outdoor temp. (°FDB)	Indoor temperature (°FDB / °FWB)									
		68 / 59		80 / 67		82 / 68		86 / 72		90 / 73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
211.2 (110%)	50	134.6	7.88	211.2	11.87	220.9	12.37	236.5	12.66	239.5	12.65
	95	153.7	11.75	198.6	16.26	200.8	16.33	209.7	16.60	212.0	16.67
	115	153.7	16.58	177.6	19.42	179.6	19.50	187.7	19.83	189.8	19.91
192.0 (100%) X	50	139.8	8.15	192.0	10.87	200.8	11.33	229.5	12.67	232.3	12.66
	95	139.8	10.77	192.0	15.78	196.2	16.18	205.0	16.46	207.2	16.53
	115	139.8	14.47	173.9	19.26	Y	19.34	183.8	19.68	185.8	19.76

Capacity ratio of indoor units to outdoor unit	X = 100 %
Capacity of outdoor units (kBtu/h)	Y = 196.2

$Y = \mathbf{196.2 \text{ (kBtu/h)}}$

Fig.2 Method for calculation of capacity of outdoor unit from capacity tables

4. CAPACITY TABLE COOLING (OUTDOOR UNIT)

COOLING CAPACITY
in kBtu/h

MODEL : AOUA72TLBV

MODEL SELECTION

MODEL SELECTION

Total rated capacity of indoor unit	Outdoor temp. (°FDB)	Indoor temperature (°FDB / °FWB)															
		68 / 59		73 / 61		75 / 63		79 / 64		80 / 67		82 / 68		86 / 72		90 / 73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
108.0 (150%)	50	68.8	3.52	78.6	3.97	85.2	4.23	86.4	4.23	89.9	4.22	91.1	4.21	95.9	4.18	97.1	4.17
	59	68.8	3.62	78.6	4.10	84.6	4.32	85.7	4.32	89.2	4.31	90.4	4.30	95.1	4.27	96.3	4.27
	70	68.8	3.83	78.6	4.33	83.3	4.49	84.4	4.49	87.9	4.48	89.0	4.47	93.7	4.45	94.9	4.44
	73	68.8	3.90	78.6	4.41	82.9	4.55	84.0	4.54	87.4	4.53	88.6	4.53	93.1	4.52	94.1	4.53
	77	68.8	4.01	78.6	4.54	82.2	4.63	83.4	4.63	86.5	4.66	87.5	4.67	91.5	4.72	92.5	4.73
	81	68.8	4.13	78.6	4.72	81.0	4.79	82.0	4.81	84.9	4.85	85.9	4.86	89.9	4.91	90.9	4.92
	86	68.8	4.30	77.2	5.00	79.2	5.03	80.1	5.05	83.0	5.09	84.0	5.11	87.8	5.16	88.8	5.17
	91	68.8	4.66	75.4	5.24	77.3	5.27	78.3	5.29	81.1	5.33	82.0	5.35	85.8	5.41	86.7	5.42
	95	68.8	4.99	73.9	5.43	75.8	5.47	76.7	5.49	79.4	5.55	80.3	5.57	84.0	5.64	84.9	5.65
	99	68.8	5.37	72.3	5.64	74.1	5.69	75.0	5.71	77.7	5.77	78.6	5.79	82.2	5.87	83.2	5.89
	104	68.6	5.87	70.3	5.91	72.1	5.96	73.0	5.99	75.6	6.05	76.5	6.07	80.0	6.16	80.9	6.18
109	66.6	6.13	68.3	6.19	70.0	6.24	70.9	6.26	73.4	6.34	74.3	6.36	77.8	6.46	78.6	6.48	
115	64.1	6.46	65.8	6.52	67.5	6.57	68.3	6.60	70.8	6.68	71.7	6.71	75.0	6.81	75.9	6.84	
100.8 (140%)	50	64.2	3.30	73.4	3.73	82.5	4.16	84.9	4.24	88.4	4.22	89.6	4.22	94.2	4.19	95.4	4.19
	59	64.2	3.40	73.4	3.84	82.5	4.28	84.3	4.32	87.7	4.31	88.9	4.31	93.5	4.28	94.7	4.28
	70	64.2	3.59	73.4	4.06	81.9	4.49	83.1	4.49	86.4	4.48	87.6	4.48	92.1	4.46	93.3	4.45
	73	64.2	3.66	73.4	4.14	81.5	4.55	82.6	4.55	86.0	4.54	87.1	4.54	91.7	4.52	92.8	4.52
	77	64.2	3.76	73.4	4.25	80.9	4.63	82.0	4.63	85.2	4.64	86.2	4.65	90.2	4.70	91.2	4.71
	81	64.2	3.88	73.4	4.38	79.8	4.77	80.8	4.79	83.7	4.83	84.7	4.85	88.6	4.90	89.6	4.91
	86	64.2	4.04	73.4	4.67	78.1	5.01	79.0	5.03	81.9	5.07	82.8	5.09	86.6	5.14	87.6	5.15
	91	64.2	4.25	73.0	5.09	76.3	5.25	77.2	5.27	80.0	5.32	80.9	5.33	84.6	5.39	85.5	5.40
	95	64.2	4.54	73.4	5.41	74.8	5.45	75.7	5.47	78.4	5.53	79.3	5.54	82.9	5.62	83.8	5.63
	99	64.2	4.87	71.4	5.62	73.2	5.66	74.1	5.69	76.7	5.75	77.6	5.77	81.2	5.85	82.1	5.86
	104	64.2	5.35	69.4	5.89	71.2	5.94	72.0	5.96	74.6	6.03	75.5	6.05	79.0	6.14	79.9	6.16
109	64.2	5.87	67.6	6.16	69.1	6.21	70.0	6.24	72.5	6.31	73.4	6.34	76.8	6.43	77.7	6.45	
115	63.4	6.43	65.0	6.49	66.7	6.55	67.5	6.57	70.0	6.65	70.8	6.68	74.1	6.78	75.0	6.81	
93.6 (130%)	50	59.6	3.09	68.1	3.49	76.6	3.88	80.9	4.08	86.7	4.23	87.8	4.22	92.4	4.20	93.6	4.20
	59	59.6	3.18	68.1	3.59	76.6	4.00	80.9	4.21	86.1	4.32	87.2	4.31	91.7	4.29	92.9	4.29
	70	59.6	3.36	68.1	3.79	76.6	4.23	80.9	4.45	84.8	4.49	85.9	4.48	90.4	4.47	91.5	4.46
	73	59.6	3.42	68.1	3.86	76.6	4.31	80.9	4.53	84.4	4.54	85.5	4.54	89.9	4.52	91.1	4.52
	77	59.6	3.52	68.1	3.97	76.6	4.43	80.9	4.63	83.8	4.63	84.8	4.64	88.7	4.68	89.7	4.70
	81	59.6	3.62	68.1	4.09	76.6	4.57	79.5	4.77	82.4	4.81	83.3	4.83	87.2	4.88	88.1	4.89
	86	59.6	3.77	68.1	4.26	76.6	4.97	77.8	5.01	80.6	5.05	81.5	5.07	85.3	5.12	86.2	5.14
	91	59.6	3.94	68.1	4.60	75.1	5.23	76.0	5.25	78.7	5.29	79.7	5.31	83.3	5.37	84.2	5.38
	95	59.6	4.12	68.1	4.92	73.7	5.42	74.5	5.44	77.2	5.50	78.1	5.52	81.7	5.59	82.6	5.61
	99	59.6	4.40	68.1	5.29	72.1	5.64	73.0	5.66	75.6	5.72	76.5	5.74	80.0	5.82	80.9	5.84
	104	59.6	4.83	68.1	5.82	70.1	5.91	71.0	5.93	73.6	6.00	74.4	6.02	77.8	6.11	78.7	6.13
109	59.6	5.30	66.5	6.13	68.2	6.18	69.0	6.21	71.5	6.28	72.3	6.31	75.7	6.40	76.6	6.42	
115	59.6	5.92	64.1	6.46	65.7	6.51	66.5	6.54	69.0	6.62	69.8	6.63	73.1	6.75	73.9	6.78	
86.4 (120%)	50	55.0	2.87	62.9	3.24	70.7	3.61	74.7	3.79	84.8	4.24	85.9	4.23	90.4	4.21	91.5	4.21
	59	55.0	2.96	62.9	3.34	70.7	3.71	74.7	3.90	84.2	4.32	85.3	4.32	89.7	4.30	90.8	4.30
	70	55.0	3.12	62.9	3.53	70.7	3.93	74.7	4.13	83.0	4.49	84.1	4.49	88.4	4.47	89.6	4.47
	73	55.0	3.18	62.9	3.59	70.7	4.00	74.7	4.21	82.6	4.55	83.7	4.54	88.0	4.53	89.1	4.53
	77	55.0	3.27	62.9	3.69	70.7	4.11	74.7	4.32	82.0	4.63	83.1	4.63	87.0	4.66	88.0	4.68
	81	55.0	3.36	62.9	3.80	70.7	4.24	74.7	4.46	80.9	4.79	81.8	4.80	85.6	4.86	86.5	4.87
	86	55.0	3.50	62.9	3.96	70.7	4.44	74.7	4.79	79.1	5.03	80.0	5.04	83.7	5.10	84.6	5.11
	91	55.0	3.66	62.9	4.14	70.7	4.84	74.7	5.22	77.3	5.27	78.3	5.29	81.8	5.35	82.7	5.36
	95	55.0	3.80	62.9	4.42	70.7	5.18	73.3	5.41	75.9	5.47	76.8	5.49	80.3	5.56	81.1	5.58
	99	55.0	3.97	62.9	4.73	70.7	5.58	71.8	5.63	74.3	5.69	75.2	5.71	78.6	5.79	79.5	5.81
	104	55.0	4.34	62.9	5.19	69.0	5.88	69.8	5.90	72.3	5.97	73.2	5.99	76.6	6.08	77.4	6.10
109	55.0	4.75	62.9	5.70	67.1	6.15	67.9	6.18	70.3	6.25	71.2	6.27	74.5	6.37	75.3	6.39	
115	55.0	5.31	62.9	6.38	64.7	6.48	65.5	6.51	67.9	6.59	68.7	6.61	71.9	6.72	72.8	6.74	
79.2 (110%)	50	50.5	2.66	57.7	3.00	64.8	3.33	68.5	3.50	79.2	4.00	82.8	4.17	88.1	4.22	89.2	4.22
	59	50.5	2.74	57.7	3.08	64.8	3.43	68.5	3.60	79.2	4.12	82.8	4.30	87.5	4.31	88.6	4.31
	70	50.5	2.89	57.7	3.26	64.8	3.62	68.5	3.81	79.2	4.36	82.1	4.49	86.3	4.48	87.3	4.48
	73	50.5	2.94	57.7	3.32	64.8	3.69	68.5	3.88	79.2	4.44	81.7	4.55	85.9	4.54	86.9	4.54
	77	50.5	3.02	57.7	3.41	64.8	3.79	68.5	3.99	79.2	4.57	81.1	4.63	85.1	4.64	86.1	4.65
	81	50.5	3.11	57.7	3.51	64.8	3.91	68.5	4.11	79.1	4.76	80.1	4.78	83.7	4.83	84.7	4.85
	86	50.5	3.24	57.7	3.65	64.8	4.07	68.5	4.28	77.5	5.00	78.4	5.02	82.0	5.08	82.9	5.09
	91	50.5	3.38	57.7	3.82	64.8	4.30	68.5	4.63	75.8	5.24	76.7	5.26	80.2	5.32	81.1	5.33
	95	50.5	3.51	57.7	3.97	64.8	4.60	68.5	4.95	74.4	5.44	75.2	5.46	78.7	5.53	79.5	5.55
	99	50.5	3.66	57.7	4.21	64.8	4.93	68.5	5.33	72.9	5.66	73.7	5.68	77.1	5.76	77.9	5.78
	104	50.5	3.88	57.7	4.61	64.8	5.42	68.5	5.86	71.0	5.93	71.8	5.95	75.1	6.04	75.9	6.06
109	50.5	4.24	57.7	5.06	64.8	5.95	66.6	6.14	69.0	6.21	69.8	6.23	73.1	6.33	73.9	6.35	
115	50.5	4.73	57.7	5.65	63.5	6.44	64.3	6.47	66.7	6.55	67.5	6.57	70.6	6.67	71.4	6.70	
64.8 (90%)	50	45.9	2.45	52.4	2.75	58.9	3.06	62.2	3.21	72.0	3.67	75.3	3.82	85.5	4.23	86.6	4.23
	59	45.9	2.52	52.4	2.83	58.9	3.15	62.2	3.30	72.0	3.78	75.3	3.93	84.9	4.32	86.0	4.32
	70	45.9	2.65	52.4	2.99	58.9	3.32	62.2	3.49	72.0	3.99	75.3	4.16	83.8	4.49	84.8	4.49
	73	45.9	2.70	52.4	3.04	58.9	3.38	62.2	3.56	72.0	4.07	75.3	4.24	83.4	4.55	84.4	4.54
	77	45.9	2.77	52.4	3.12	58.9	3.48	62.2	3.65	72.0	4.18	75.3	4.36	82.8	4.63	83.9	4.63
	81	45.9	2.85	52.4	3.22	58.9	3.58	62.2	3.76	72.0	4.31	75.3	4.49	81.6	4.80	82.6	4.82
	86	45.9	2.97	52.4	3.35	58.9	3.73	62.2	3.92	72.0	4.55	75.3	4.84	80.0	5.04	80.9	5.06
	91	45.9	3.10	52.4	3.50	58.9	3.90	62.2	4.10	72.0	4.96	74.8	5.22	78.3	5.29	79.1	5.30
	95	45.9	3.22	52.4	3.64	58.9	4.06	62.2	4.36								

COOLING CAPACITY in kBtu/h

MODEL : AOUA96TLBV

MODEL SELECTION
MODEL SELECTION

Total rated capacity of indoor unit	Outdoor temp. (°FDB)	Indoor temperature (°FDB / °FWB)																Total rated capacity of indoor unit	Outdoor temp. (°FDB)	Indoor temperature (°FDB / °FWB)															
		68 / 59		73 / 61		75 / 63		79 / 64		80 / 67		82 / 68		86 / 72		90 / 73				68 / 59		73 / 61		75 / 63		79 / 64		80 / 67		82 / 68		86 / 72		90 / 73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
144.0 (150%)	50	91.8	5.00	104.8	5.65	113.6	6.02	115.2	6.02	119.9	6.00	121.5	5.99	127.8	5.95	129.5	5.94	50	61.2	3.47	69.9	3.91	78.6	4.34	83.0	4.56	96.0	5.21	100.4	5.43	114.1	6.02	115.5	6.02	
	59	91.8	5.15	104.8	5.83	112.8	6.15	114.3	6.14	119.0	6.13	120.6	6.12	126.9	6.08	128.5	6.07	59	61.2	3.57	69.9	4.02	78.6	4.47	83.0	4.70	96.0	5.37	100.4	5.60	113.3	6.15	114.7	6.14	
	70	91.8	5.45	104.8	6.16	111.1	6.39	112.6	6.38	117.2	6.37	118.8	6.36	125.0	6.33	126.6	6.32	70	61.2	3.77	69.9	4.24	78.6	4.72	83.0	4.96	96.0	5.68	100.4	5.92	111.8	6.39	113.1	6.38	
	73	91.8	5.55	104.8	6.28	110.5	6.47	112.0	6.47	116.6	6.45	118.1	6.45	124.2	6.43	125.6	6.44	73	61.2	3.84	69.9	4.32	78.6	4.81	83.0	5.06	96.0	5.79	100.4	6.03	111.2	6.47	112.6	6.47	
	77	91.8	5.70	104.8	6.46	109.7	6.59	111.2	6.59	115.3	6.62	116.7	6.64	121.7	6.71	123.5	6.72	77	61.2	3.94	69.9	4.44	78.6	4.94	83.0	5.20	96.0	5.95	100.4	6.20	110.5	6.59	111.8	6.59	
	81	91.8	5.88	104.8	6.71	108.0	6.82	109.4	6.84	113.3	6.90	114.6	6.92	119.9	6.99	121.3	7.00	81	61.2	4.06	69.9	4.57	78.6	5.09	83.0	5.35	96.0	6.13	100.4	6.39	108.9	6.83	110.1	6.85	
	86	91.8	6.13	103.0	7.11	105.6	7.16	106.9	7.18	110.7	7.24	112.0	7.26	117.2	7.34	118.5	7.35	86	61.2	4.22	69.9	4.78	78.6	5.30	83.0	5.58	96.0	6.47	100.4	6.89	106.7	7.18	107.9	7.20	
	91	91.8	6.63	100.6	7.45	103.1	7.50	104.4	7.52	108.1	7.59	109.4	7.61	114.4	7.69	115.7	7.71	91	61.2	4.41	69.9	4.98	78.6	5.55	83.0	5.83	96.0	7.06	99.8	7.44	104.4	7.52	105.5	7.55	
	95	91.8	7.10	98.6	7.73	101.0	7.79	102.3	7.82	105.9	7.90	107.2	7.92	112.1	8.02	113.3	8.05	95	61.2	4.58	69.9	5.17	78.6	5.77	83.0	6.20	96.0	7.56	98.0	7.72	102.5	7.82	103.6	7.85	
	99	91.8	7.64	96.5	8.04	98.9	8.10	100.1	8.13	103.7	8.22	104.9	8.25	109.7	8.36	110.9	8.38	99	61.2	4.76	69.9	5.38	78.6	6.17	83.0	6.63	95.0	8.00	96.1	8.03	100.4	8.14	101.5	8.17	
	104	91.4	8.36	93.8	8.43	96.1	8.49	97.3	8.53	100.8	8.62	102.0	8.65	106.7	8.78	107.9	8.80	104	61.2	5.03	69.9	5.79	78.6	6.76	83.0	7.29	92.5	8.39	93.6	8.47	97.9	8.54	99.0	8.57	
109	88.7	8.74	91.0	8.82	93.3	8.89	94.5	8.93	97.9	9.03	99.1	9.06	103.7	9.20	104.9	9.23	109	61.2	5.37	69.9	6.34	78.6	7.42	83.0	8.01	90.0	8.78	91.1	8.82	95.3	8.95	96.3	8.98		
115	85.5	9.21	87.7	9.29	89.9	9.37	91.1	9.41	94.4	9.52	95.5	9.56	100.0	9.71	101.2	9.75	115	61.2	5.97	69.9	7.08	78.6	8.31	83.0	8.97	87.0	9.26	88.0	9.30	92.1	9.44	93.1	9.48		
134.4 (140%)	50	85.7	4.70	97.9	5.30	110.0	5.91	113.3	6.03	117.9	6.01	119.4	6.00	125.7	5.97	127.2	5.96	50	55.1	3.16	62.9	3.56	70.7	3.95	74.7	4.15	86.4	4.73	90.4	4.93	106.0	5.71	110.0	5.91	
	59	85.7	4.83	97.9	5.47	110.0	6.09	112.4	6.15	117.0	6.13	118.5	6.13	124.7	6.09	126.3	6.08	59	55.1	3.25	62.9	3.66	70.7	4.06	74.7	4.27	86.4	4.87	90.4	5.08	106.0	5.89	110.0	6.09	
	70	85.7	5.11	97.9	5.78	109.3	6.39	110.8	6.39	115.3	6.38	116.8	6.37	122.9	6.34	124.4	6.33	70	55.1	3.43	62.9	3.86	70.7	4.29	74.7	4.51	86.4	5.15	90.4	5.37	106.0	6.23	109.3	6.39	
	73	85.7	5.21	97.9	5.89	108.7	6.47	110.2	6.47	114.7	6.46	116.2	6.45	122.9	6.43	123.8	6.43	73	55.1	3.49	62.9	3.93	70.7	4.37	74.7	4.59	86.4	5.25	90.4	5.47	106.0	6.35	108.9	6.47	
	77	85.7	5.35	97.9	6.05	107.9	6.59	109.4	6.59	113.7	6.60	115.0	6.62	120.3	6.68	121.7	6.70	77	55.1	3.59	62.9	4.04	70.7	4.49	74.7	4.72	86.4	5.39	90.4	5.62	106.0	6.53	108.1	6.59	
	81	85.7	5.51	97.9	6.24	106.5	6.79	107.8	6.81	111.7	6.87	113.0	6.89	118.2	6.96	119.5	6.98	81	55.1	3.69	62.9	4.16	70.7	4.62	74.7	4.86	86.4	5.56	90.4	5.79	105.7	6.78	106.9	6.80	
	86	85.7	5.74	97.9	6.64	104.1	7.13	105.4	7.15	109.2	7.22	110.5	7.24	115.6	7.31	116.8	7.33	86	55.1	3.84	62.9	4.33	70.7	4.81	74.7	5.06	86.4	5.79	90.4	6.04	103.6	7.12	104.7	7.14	
	91	85.7	6.04	97.9	7.25	101.7	7.47	103.0	7.50	106.7	7.57	107.9	7.59	112.9	7.67	114.1	7.69	91	55.1	4.01	62.9	4.52	70.7	5.03	74.7	5.29	86.4	6.11	90.4	6.49	101.4	7.47	102.5	7.49	
	95	85.7	6.46	97.3	7.70	99.7	7.76	100.9	7.79	104.5	7.87	105.7	7.89	110.6	7.99	111.8	8.02	95	55.1	4.16	62.9	4.69	70.7	5.23	74.7	5.50	86.4	6.54	90.4	6.95	99.6	7.75	100.7	7.78	
	99	85.7	6.93	95.2	8.01	97.6	8.07	98.8	8.10	102.3	8.19	103.5	8.21	108.3	8.32	109.5	8.35	99	55.1	4.33	62.9	4.89	70.7	5.45	74.7	5.78	86.4	7.02	90.4	7.47	97.7	8.07	98.8	8.10	
	104	85.7	7.62	92.6	8.39	94.9	8.46	96.0	8.49	99.5	8.59	100.7	8.62	105.3	8.74	106.5	8.77	104	55.1	4.57	62.9	5.16	70.7	5.88	74.7	6.31	86.4	7.71	90.4	8.22	95.3	8.47	96.3	8.50	
109	85.7	8.38	89.8	8.78	92.2	8.85	93.3	8.89	96.7	8.99	97.8	9.02	102.4	9.16	103.5	9.19	109	55.1	4.87	62.9	5.55	70.7	6.44	74.7	6.93	86.4	8.48	88.7	8.74	92.8	8.87	93.8	8.91		
115	84.5	9.17	86.7	9.25	88.8	9.33	90.0	9.37	93.3	9.48	94.4	9.52	98.8	9.67	99.9	9.71	115	55.1	5.28	62.9	6.18	70.7	7.19	74.7	7.74	84.8	9.18	85.8	9.22	89.8	9.36	90.8	9.40		
124.8 (130%)	50	79.5	4.39	90.9	4.96	102.2	5.52	107.9	5.81	115.6	6.02	117.1	6.01	123.2	5.98	124.8	5.97	50	48.9	2.86	55.9	3.21	62.9	3.56	66.4	3.73	76.8	4.25	80.3	4.43	94.3	5.12	97.8	5.30	
	59	79.5	4.52	90.9	5.10	102.2	5.69	107.9	5.98	114.8	6.14	116.3	6.14	122.3	6.11	123.8	6.10	59	48.9	2.94	55.9	3.30	62.9	3.66	66.4	3.84	76.8	4.38	80.3	4.56	94.3	5.28	97.8	5.46	
	70	79.5	4.77	90.9	5.40	102.2	6.02	107.9	6.33	113.1	6.38	114.6	6.38	120.6	6.35	122.1	6.35	70	48.9	3.10	55.9	3.48	62.9	3.86	66.4	4.05	76.8	4.63	80.3	4.82	94.3	5.58	97.8	5.77	
	73	79.5	4.86	90.9	5.50	102.2	6.13	107.9	6.45	112.5	6.47	114.0	6.46	119.9	6.44	121.4	6.43	73	48.9	3.15	55.9	3.54	62.9	3.93	66.4	4.13	76.8	4.71	80.3	4.94	94.3	5.69	97.8	5.89	
	77	79.5	5.00	90.9	5.65	102.2	6.30	107.4	6.59	111.7	6.59	113.1	6.59	118.3	6.66	119.7	6.68	77	48.9	3.23	55.9	3.64	62.9	4.04	66.4	4.24	76.8	4.84	80.3	5.04	94.3	5.85	97.8	6.05	
	81	79.5	5.15	90.9	5.82	102.2	6.50	106.1	6.78	109.9	6.85	111.2	6.87	116.3	6.94	117.6	6.96	81	48.9	3.33	55.9	3.74	62.9	4.16	66.4	4.36	76.8	4.99	80.3	5.20	94.3	6.03	97.8	6.23	
	86	79.5	5.36	90.9	6.07	102.2	7.06	103.7	7.13	107.5	7.19	108.7	7.21	113.7	7.29	115.0	7.31	86	48.9	3.46	55.9	3.89	62.9	4.33	66.4	4.54	76.8	5.19	80.3	5.41	94.3	6.31	97.8	6.64	
	91	79.5	5.61	90.9	6.54	100.1	7.44	101.4	7.47	105.0	7.54	106.2	7.56	111.1	7.64	112.4	7.66	91	48.9	3.61	55.9	4.06	62.9	4.52	66.4	4.75	76.8	5.43	80.3	5.66	94.3	6.88	97.8	7.24	
	95	79.5	5.86	90.9	7.00	98.2	7.72	99.4	7.75	103.0	7.83	104.2	7.86	108.9	7.96	110.1	7.98	95	48.9	3.74	55.9	4.22	62.9	4.69	66.4	4.93	76.8	5.64	80.3	5.94	94.3	7.37	97.4	7.70	
	99	79.5	6.27	90.9	7.54	96.2	8.03	97.3	8.06	100.8	8.15	102.0	8.18	106.7	8.29	107.8	8.31	99	48.9	3.89	55.9	4.39	62.9	4.89	66.4	5.14	76.8	5.99	80.3	6.35	94.3	7.95	95.5	8.00	
	104</																																		

COOLING CAPACITY in kBtu/h

MODEL : AOUA120TLBV

MODEL SELECTION

MODEL SELECTION

Total rated capacity of indoor unit	Outdoor temp. (°FDB)	Indoor temperature (°FDB / °FWB)															
		68 / 59		73 / 61		75 / 63		79 / 64		80 / 67		82 / 68		86 / 72		90 / 73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
180.0 (150%)	50	114.7	6.44	131.0	7.28	143.5	7.86	145.6	7.86	151.7	7.85	153.8	7.85	162.1	7.83	164.2	7.83
	59	114.7	6.62	131.0	7.49	142.4	8.01	144.4	8.01	150.5	8.01	152.5	8.01	160.8	8.00	162.9	7.99
	70	114.7	6.99	131.0	7.91	140.2	8.31	142.2	8.31	148.1	8.32	150.2	8.32	158.1	8.32	159.8	8.36
	73	114.7	7.12	131.0	8.06	139.5	8.41	141.4	8.41	147.3	8.42	149.3	8.43	156.0	8.58	157.7	8.61
	77	114.7	7.32	131.0	8.28	138.3	8.56	140.0	8.61	144.9	8.73	146.6	8.77	153.1	8.92	154.8	8.95
	81	114.7	7.53	131.0	8.61	135.9	8.90	137.5	8.94	142.3	9.06	143.9	9.10	150.2	9.26	151.8	9.29
	86	114.7	7.84	129.6	9.22	132.7	9.32	134.2	9.37	138.8	9.51	140.4	9.55	146.5	9.73	148.0	9.77
	91	114.7	8.39	126.2	9.68	129.2	9.78	130.7	9.83	135.2	9.98	136.7	10.03	142.7	10.21	144.2	10.25
	95	114.7	9.07	123.5	10.05	126.4	10.16	127.9	10.21	132.3	10.36	133.8	10.41	139.7	10.59	141.1	10.64
	99	114.7	9.81	120.7	10.42	123.6	10.53	125.1	10.58	129.4	10.74	130.8	10.79	136.6	10.98	138.0	11.02
	104	114.5	10.78	117.3	10.89	120.1	11.00	121.5	11.05	125.7	11.21	127.1	11.26	132.7	11.46	134.1	11.51
109	111.0	11.24	113.7	11.36	116.5	11.47	117.9	11.53	121.9	11.69	123.3	11.74	128.8	11.94	130.1	11.99	
115	106.8	11.80	109.5	11.92	112.1	12.04	113.4	12.10	117.4	12.27	118.7	12.32	124.0	12.53	125.3	12.58	
168.0 (140%)	50	107.1	6.04	122.3	6.83	137.5	7.61	143.0	7.86	149.0	7.86	151.0	7.85	159.2	7.84	161.3	7.83
	59	107.1	6.22	122.3	7.03	137.5	7.84	141.9	8.01	147.9	8.01	149.9	8.01	157.9	8.00	160.0	8.00
	70	107.1	6.56	122.3	7.42	137.5	8.28	139.8	8.31	145.6	8.31	147.6	8.32	155.5	8.31	157.0	8.31
	73	107.1	6.68	122.3	7.56	137.1	8.40	139.1	8.41	144.8	8.42	146.8	8.42	153.7	8.53	155.4	8.56
	77	107.1	6.86	122.3	7.77	136.1	8.55	138.0	8.56	142.9	8.68	144.5	8.72	151.0	8.87	152.6	8.90
	81	107.1	7.07	122.3	8.00	134.0	8.85	135.6	8.89	140.3	9.01	141.9	9.05	148.8	9.21	149.8	9.25
	86	107.1	7.36	122.3	8.45	130.9	9.26	132.4	9.31	137.0	9.45	138.5	9.50	144.6	9.68	146.1	9.72
	91	107.1	7.69	122.3	8.92	127.5	9.73	129.0	9.78	133.5	9.92	135.0	9.97	140.9	10.15	142.4	10.20
	95	107.1	8.16	121.9	10.00	124.8	10.10	126.3	10.15	130.6	10.30	132.1	10.35	137.9	10.54	139.4	10.58
	99	107.1	8.81	119.2	10.37	122.1	10.47	123.5	10.53	127.8	10.68	129.2	10.73	134.9	10.92	136.3	10.97
	104	107.1	9.70	115.8	10.83	118.6	10.94	120.0	11.00	124.2	11.16	125.6	11.21	131.1	11.40	132.5	11.45
109	107.1	10.69	112.4	11.30	115.1	11.42	116.5	11.47	120.5	11.63	121.9	11.69	127.2	11.89	128.6	11.94	
115	105.6	11.74	108.2	11.86	110.8	11.98	112.2	12.04	116.1	12.21	117.4	12.26	122.6	12.47	123.9	12.52	
156.0 (130%)	50	99.4	5.65	113.6	6.38	127.7	7.11	134.9	7.47	146.1	7.86	148.0	7.86	156.0	7.85	158.0	7.84
	59	99.4	5.81	113.6	6.57	127.7	7.31	134.9	7.69	145.0	8.01	146.9	8.01	154.8	8.01	156.8	8.00
	70	99.4	6.13	113.6	6.93	127.7	7.73	134.9	8.13	142.8	8.31	144.7	8.31	152.4	8.31	154.4	8.31
	73	99.4	6.25	113.6	7.06	127.7	7.87	134.9	8.28	142.1	8.41	144.0	8.42	151.2	8.47	152.8	8.51
	77	99.4	6.41	113.6	7.25	127.7	8.08	134.9	8.51	140.6	8.62	142.2	8.66	148.6	8.81	150.2	8.85
	81	99.4	6.60	113.6	7.46	127.7	8.33	133.4	8.83	138.1	8.96	139.7	9.00	145.9	9.15	147.4	9.19
	86	99.4	6.87	113.6	7.77	127.7	8.64	130.4	9.25	134.9	9.39	136.4	9.44	142.4	9.61	143.9	9.66
	91	99.4	7.18	113.6	8.26	125.7	9.66	127.1	9.71	131.5	9.86	133.0	9.91	138.8	10.09	140.3	10.14
	95	99.4	7.48	113.6	8.93	123.0	10.04	124.5	10.09	128.7	10.24	130.2	10.29	135.9	10.47	137.3	10.52
	99	99.4	7.88	113.6	9.65	120.4	10.41	121.8	10.46	126.0	10.62	127.4	10.63	133.0	10.86	134.4	10.91
	104	99.4	8.67	113.6	10.65	117.0	10.88	118.4	10.93	122.4	11.09	123.8	11.14	129.3	11.34	130.7	11.39
109	99.4	9.54	110.9	11.24	113.6	11.35	114.9	11.41	118.9	11.57	120.2	11.62	125.1	11.83	126.9	11.88	
115	99.4	10.71	106.8	11.80	109.4	11.92	110.9	11.95	115.8	12.10	117.2	12.11	122.1	12.41	123.3	12.46	
144.0 (120%)	50	91.8	5.26	104.8	5.93	117.9	6.60	124.5	6.94	142.8	7.86	144.7	7.86	152.4	7.85	154.4	7.85
	59	91.8	5.41	104.8	6.10	117.9	6.79	124.5	7.14	141.7	8.01	143.6	8.01	151.2	8.01	153.2	8.01
	70	91.8	5.70	104.8	6.44	117.9	7.17	124.5	7.54	139.7	8.31	141.6	8.31	149.0	8.32	150.9	8.31
	73	91.8	5.81	104.8	6.56	117.9	7.31	124.5	7.68	139.0	8.41	140.8	8.41	148.3	8.42	150.0	8.44
	77	91.8	5.96	104.8	6.73	117.9	7.50	124.5	7.89	137.9	8.56	139.5	8.60	145.8	8.75	147.4	8.78
	81	91.8	6.14	104.8	6.93	117.9	7.73	124.5	8.13	135.6	8.89	137.2	8.93	143.3	9.09	144.8	9.13
	86	91.8	6.38	104.8	7.21	117.9	8.05	124.5	8.69	132.6	9.32	134.1	9.36	139.9	9.54	141.4	9.58
	91	91.8	6.67	104.8	7.54	117.9	8.76	124.5	9.56	129.3	9.79	130.7	9.83	136.5	10.02	137.9	10.06
	95	91.8	6.95	104.8	7.90	117.9	9.47	122.4	10.01	126.6	10.16	128.0	10.21	133.7	10.40	135.1	10.45
	99	91.8	7.26	104.8	8.53	117.9	10.25	119.8	10.39	123.9	10.54	125.3	10.59	130.8	10.79	132.2	10.83
	104	91.8	7.72	104.8	9.39	115.0	10.80	116.5	10.86	120.5	11.02	121.9	11.07	127.2	11.27	128.6	11.32
109	91.8	8.48	104.8	10.35	111.8	11.27	113.1	11.33	117.0	11.50	118.4	11.55	123.6	11.75	124.9	11.80	
115	91.8	9.50	104.8	11.64	107.8	11.84	109.0	11.90	112.8	12.07	114.1	12.13	119.2	12.34	120.5	12.39	
132.0 (110%)	50	84.1	4.87	96.1	5.48	108.1	6.10	114.1	6.41	132.0	7.33	138.0	7.64	148.4	7.86	150.3	7.85
	59	84.1	5.00	96.1	5.64	108.1	6.27	114.1	6.59	132.0	7.54	138.0	7.86	147.3	8.01	149.2	8.01
	70	84.1	5.27	96.1	5.95	108.1	6.62	114.1	6.96	132.0	7.97	138.0	8.30	145.2	8.31	147.1	8.32
	73	84.1	5.37	96.1	6.05	108.1	6.74	114.1	7.09	132.0	8.12	137.3	8.41	144.5	8.42	146.3	8.42
	77	84.1	5.51	96.1	6.22	108.1	6.92	114.1	7.28	132.0	8.34	136.3	8.55	142.7	8.67	144.3	8.71
	81	84.1	5.67	96.1	6.40	108.1	7.13	114.1	7.50	132.0	8.71	134.3	8.85	140.3	9.01	141.8	9.05
	86	84.1	5.90	96.1	6.66	108.1	7.41	114.1	7.81	129.9	9.23	131.4	9.28	137.1	9.46	138.6	9.50
	91	84.1	6.16	96.1	6.96	108.1	7.76	114.1	8.32	126.7	9.70	128.2	9.75	133.8	9.93	135.2	9.98
	95	84.1	6.41	96.1	7.25	108.1	8.27	114.1	9.00	124.2	10.08	125.6	10.13	131.1	10.32	132.5	10.36
	99	84.1	6.70	96.1	7.58	108.1	8.93	114.1	9.73	121.6	10.46	122.9	10.51	128.4	10.70	129.7	10.75
	104	84.1	7.11	96.1	8.25	108.1	9.84	114.1	10.73	118.3	10.93	119.6	10.98	124.9	11.18	126.2	11.23
109	84.1	7.58	96.1	9.07	108.1	10.85	111.1	11.24	114.9	11.41	116.2	11.46	121.4	11.67	122.7	11.72	
115	84.1	8.38	96.1	10.17	105.9	11.76	107.1	11.81	110.9	11.98	112.1	12.04	117.1	12.25	118.4	12.31	
120.0 (100%)	50	76.5	4.47	87.4	5.03	98.2	5.59	103.7	5.87	120.0	6.71	125.5	6.99	143.9	7.86	145.7	7.86
	59	76.5	4.60	87.4	5.17	98.2	5.75	103.7	6.04	120.0	6.91	125.5	7.20	142.9	8.01	144.7	8.01
	70	76.5	4.84	87.4	5.45	98.2	6.07	103.7	6.38	120.0	7.29	125.5	7.60	141.0	8.31	142.7	8.31
	73	76.5	4.93	87.4	5.55	98.2	6.18	103.7	6.49	120.0	7.43	125.5	7.74	140.3	8.41	142.0	8.41
	77	76.5	5.06	87.4	5.70	98.2	6.34	103.7	6.67	120.0	7.63</						

COOLING CAPACITY in kBtu/h

MODEL : AOUA168RLBVG

MODEL SELECTION
MODEL SELECTION

Total rated capacity of indoor unit	Outdoor temp. (°FDB)	Indoor temperature (°FDB / °FWB)																				
		68 / 59		73 / 61		75 / 63		79 / 64		80 / 67		82 / 68		86 / 72		90 / 73						
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP					
252.0 (150%)	50	160.6	9.29	183.4	10.50	198.9	11.18	201.6	11.17	209.8	11.14	212.6	11.12	223.7	11.05	226.5	11.03					
	235.2 (140%)	50	149.9	8.72	171.2	9.85	192.6	10.98	198.2	11.19	206.3	11.15	209.0	11.14	219.1	11.07	222.6	11.05				
		218.4 (130%)	50	139.2	8.15	159.0	9.20	178.8	10.25	188.8	10.78	202.3	11.17	205.0	11.16	215.6	11.10	218.3	11.08			
			201.6 (120%)	50	128.5	7.58	146.8	8.55	165.0	9.52	174.3	10.01	198.0	11.19	200.5	11.18	210.9	11.13	213.5	11.11		
				184.8 (110%)	50	117.8	7.02	134.5	7.91	151.3	8.79	159.7	9.24	184.8	10.57	193.3	11.02	205.6	11.16	208.1	11.14	
					84.0 (50%)	50	53.5	3.61	61.1	4.02	68.8	4.42	72.6	4.62	84.0	5.23	87.8	5.43	103.1	6.24	106.9	6.44

TC : Total Capacity kBtu/h.

IP : Input Power kW (Compressor + Outdoor fan motor).

The data is based on the following conditions. Pipe length : 25ft. (7.5m) , Height difference : 0ft. (0m)

COOLING CAPACITY in kBtu/h

MODEL : AOQA192TLBVG

MODEL SELECTION
MODEL SELECTION

Total rated capacity of indoor unit	Outdoor temp. (°FDB)	Indoor temperature (°FDB / °FWB)																								
		68 / 59		73 / 61		75 / 63		79 / 64		80 / 67		82 / 68		86 / 72		90 / 73										
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP									
288.0 (150%)	50	183.5	10.49	209.6	11.86	228.8	12.74	232.0	12.74	241.6	12.72	244.9	12.71	258.0	12.66	261.3	12.65									
	268.8 (140%)	50	171.3	9.85	195.7	11.13	220.0	12.40	228.0	12.70	237.4	12.73	240.6	12.72	253.4	12.68	256.7	12.67								
		249.6 (130%)	50	159.1	9.21	181.7	10.39	204.3	11.58	215.8	12.18	232.8	12.74	235.9	12.73	248.4	12.70	251.5	12.69							
			230.4 (120%)	50	146.8	8.57	167.7	9.66	188.6	10.76	199.1	11.31	227.6	12.74	230.6	12.74	242.8	12.72	245.8	12.71						
				211.2 (110%)	50	134.6	7.93	153.7	8.93	172.9	9.93	182.6	10.44	211.2	11.94	220.9	12.44	236.5	12.73	239.5	12.72					
					192.0 (100%)	50	122.4	7.29	139.8	8.20	157.2	9.11	166.0	9.57	192.0	10.93	200.8	11.39	229.5	12.74	232.3	12.74				
						172.8 (90%)	50	110.1	6.65	125.8	7.47	141.5	8.29	149.4	8.73	172.8	9.93	180.7	10.34	212.0	11.98	219.9	12.40			
							153.6 (80%)	50	97.9	6.01	111.8	6.74	125.7	7.47	132.8	7.83	153.6	8.92	160.6	9.29	188.5	10.75	195.5	11.12		
								134.4 (70%)	50	85.6	5.37	97.8	6.01	110.0	6.64	116.2	6.97	134.4	7.92	140.6	8.24	164.9	9.52	171.1	9.84	
									115.2 (60%)	50	73.4	4.73	83.8	5.27	94.3	5.82	99.6	6.10	115.2	6.91	120.5	7.19	141.4	8.28	146.6	8.56
										96.0 (50%)	50	61.2	4.09	69.9	4.54	78.6	5.00	83.0	5.23	96.0	5.91	100.4	6.14	117.8	7.05	122.2

TC : Total Capacity kBtu/h.

IP : Input Power kW (Compressor + Outdoor fan motor).

The data is based on the following conditions. Pipe length : 25ft. (7.5m) , Height difference : 0ft. (0m)

COOLING CAPACITY in kBtu/h

MODEL : AOUA216TLBVG

MODEL SELECTION
MODEL SELECTION

Total rated capacity of indoor unit	Outdoor temp. (°FDB)	Indoor temperature (°FDB / °FWB)																				
		68 / 59		73 / 61		75 / 63		79 / 64		80 / 67		82 / 68		86 / 72		90 / 73						
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP					
324.0 (150%)	50	206.5	12.06	235.9	13.63	257.2	14.64	260.8	14.63	271.6	14.60	275.3	14.59	290.0	14.53	293.7	14.51					
	302.4 (140%)	50	192.7	11.32	220.1	12.79	247.6	14.26	256.3	14.64	266.9	14.62	270.5	14.61	284.8	14.56	288.5	14.54				
		280.8 (130%)	50	179.0	10.59	204.4	11.95	229.9	13.31	242.7	14.00	261.7	14.63	265.2	14.62	279.2	14.58	282.8	14.56			
			259.2 (120%)	50	165.2	9.85	188.7	11.11	212.2	12.37	224.1	13.00	255.9	14.64	259.3	14.63	272.9	14.60	276.4	14.59		
				237.6 (110%)	50	151.4	9.11	173.0	10.27	194.5	11.42	205.4	12.00	237.6	13.73	248.5	14.31	265.9	14.62	269.2	14.61	
					108 (50%)	50	68.8	4.69	78.6	5.21	88.4	5.74	93.4	6.00	108.0	6.79	112.9	7.05	129.5	8.10	137.5	8.36

TC : Total Capacity kBtu/h.

IP : Input Power kW (Compressor + Outdoor fan motor).

The data is based on the following conditions. Pipe length : 25ft. (7.5m) , Height difference : 0ft. (0m)

COOLING CAPACITY in kBtu/h

MODEL : AOUA240TLBVG

MODEL SELECTION

MODEL SELECTION

Total rated capacity of indoor unit	Outdoor temp. (°FDB)	Indoor temperature (°FDB / °FWB)																								
		68 / 59		73 / 61		75 / 63		79 / 64		80 / 67		82 / 68		86 / 72		90 / 73										
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP									
360.0 (150%)	50	229.4	13.36	262.1	15.10	287.1	16.30	291.2	16.30	303.4	16.29	307.5	16.29	324.2	16.25	328.5	16.24									
	336.0 (140%)	50	214.1	12.54	244.6	14.17	275.1	15.79	286.1	16.30	298.0	16.30	302.1	16.30	318.4	16.27	322.5	16.26								
		312.0 (130%)	50	198.8	11.73	227.1	13.24	255.4	14.74	269.7	15.51	292.1	16.30	296.1	16.30	311.9	16.28	316.0	16.27							
			288.0 (120%)	50	183.5	10.91	209.6	12.30	235.8	13.70	248.9	14.40	285.6	16.30	289.4	16.30	304.8	16.29	308.7	16.29						
				264.0 (110%)	50	168.2	10.09	192.2	11.37	216.1	12.65	228.2	13.29	264.0	15.20	276.1	15.85	296.8	16.30	300.6	16.30					
					240.0 (100%)	50	153.0	9.28	174.7	10.44	196.5	11.60	207.4	12.19	240.0	13.92	251.0	14.51	287.8	16.30	291.5	16.30				
						216.0 (90%)	50	137.7	8.46	157.2	9.51	176.8	10.55	186.7	11.08	216.0	12.64	225.9	13.17	265.1	16.30	268.4	16.30			
							192.0 (80%)	50	122.4	7.65	139.8	8.58	157.2	9.50	166.0	10.97	192.0	11.36	200.8	11.83	235.6	16.30	238.4	16.30		
								168.0 (70%)	50	107.0	6.83	122.3	7.64	137.5	8.46	145.2	8.87	168.0	10.08	175.7	10.49	206.1	12.12	213.8	12.53	
									144.0 (60%)	50	91.8	6.02	104.8	6.71	117.9	7.41	124.5	7.76	144.0	8.80	150.6	9.15	176.7	10.55	183.3	10.90
										120.0 (50%)	50	76.5	5.20	87.4	5.78	98.2	6.36	103.7	6.65	120.0	7.52	125.5	7.81	147.3	8.98	152.8

TC : Total Capacity kBtu/h.

IP : Input Power kW (Compressor + Outdoor fan motor).

The data is based on the following conditions. Pipe length : 25ft. (7.5m) , Height difference : 0ft. (0m)

COOLING CAPACITY in kBtu/h

MODEL : AOQA264TLBVG

MODEL SELECTION

MODEL SELECTION

Total rated capacity of indoor unit	Outdoor temp. (°FDB)	Indoor temperature (°FDB / °FWB)																																											
		68 / 59		73 / 61		75 / 63		79 / 64		80 / 67		82 / 68		86 / 72		90 / 73																													
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP																												
396.0 (150%)	50	252.4	14.79	288.3	16.72	312.5	17.81	316.8	17.80	329.7	17.74	334.1	17.71	351.6	17.60	356.0	17.56	264.0 (100%)	50	168.3	10.27	192.2	11.55	216.1	12.84	228.2	13.49	264.0	15.42	276.1	16.07	313.7	17.81	317.5	17.80										
	369.6 (140%)	59	252.4	15.23	288.3	17.23	310.1	18.18	314.4	18.17	327.2	18.11	331.5	18.09	348.9	17.98	353.3		17.95	237.6 (90%)	50	151.4	9.36	173.0	10.52	194.5	11.68	205.4	12.26	237.6	14.00	248.5	14.58	291.6	16.90	302.4	17.48								
		343.2 (130%)	70	252.4	16.11	288.3	18.22	305.5	18.89	309.7	18.88	322.3	18.83	326.6	18.81	343.7	18.72		348.0		18.69	211.2 (80%)	50	134.6	8.46	153.8	9.49	172.9	10.52	182.6	11.04	211.2	12.58	220.9	13.10	259.2	15.16	268.8	15.68						
			316.8 (120%)	77	252.4	16.41	288.3	18.57	303.9	19.13	308.1	19.12	320.6	19.08	324.9	19.06	341.6		19.01		345.4		19.05	184.8 (70%)	50	117.8	7.76	134.5	8.69	151.3	9.62	159.8	10.09	184.8	11.48	193.3	11.95	226.8	13.82	235.2	14.28				
				290.4 (110%)	81	252.4	16.87	288.3	19.09	301.5	19.49	305.7	19.48	317.2	19.58	320.9	19.64		335.7		19.83		339.4		19.88	158.4 (60%)	50	101.0	6.65	115.3	7.42	129.7	8.20	136.9	8.58	158.4	9.74	165.7	10.13	194.4	11.67	201.6	12.06		
					132.0 (50%)	86	252.4	17.38	288.3	19.85	297.1	20.16	300.7	20.22	311.6	20.40	315.2		20.45		329.8		20.66		333.4		20.71	132.0 (50%)	50	84.1	5.75	96.1	6.39	108.1	7.03	114.1	7.36	132.0	8.32	138.0	8.64	162.0	9.93	168.0	10.26

TC : Total Capacity kBtu/h.

IP : Input Power kW (Compressor + Outdoor fan motor).

The data is based on the following conditions. Pipe length : 25ft. (7.5m) , Height difference : 0ft. (0m)

HEATING CAPACITY in kBtu/h

MODEL : AOUA120TLBV

MODEL SELECTION

MODEL SELECTION

Total rated capacity of indoor unit	Outdoor temp.		Indoor temperature °FDB																																						
			61		64		68		70		72		75		79																										
	*FDB	*FWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP																									
202.5 (150%)	-2.7	-4.0	96.1	10.20	95.1	10.26	93.9	10.33	93.3	10.36	92.7	10.40	91.8	10.46	90.6	10.53	-2.7	-4.0	92.7	10.40	91.8	10.46	90.7	10.53	90.1	10.56	89.5	10.60	88.7	10.65	87.6	10.73									
	189.0 (140%)	5.0	3.2	104.5	10.42	103.7	10.49	102.7	10.57	102.2	10.62	101.7	10.66	100.9	10.73	99.9	10.81	5.0	3.2	101.4	10.68	100.6	10.75	99.7	10.83	99.2	10.88	98.7	10.92	98.0	10.99	97.0	11.08								
		175.5 (130%)	10.4	8.6	111.5	10.58	110.8	10.65	109.9	10.75	109.4	10.80	109.0	10.85	108.3	10.92	107.4	11.02	10.4	8.6	108.5	10.90	107.8	10.97	107.0	11.07	106.5	11.11	106.1	11.16	105.4	11.24	104.6	11.34							
			162.0 (120%)	15.8	14.0	119.0	10.73	118.4	10.81	117.5	10.92	117.1	10.98	116.7	11.03	116.0	11.11	115.2	11.22	15.8	14.0	116.1	11.11	115.4	11.19	114.6	11.30	114.2	11.35	113.8	11.41	113.2	11.49	109.9	11.28						
				148.5 (110%)	17.0	15.0	120.5	10.76	119.8	10.84	119.0	10.95	118.6	11.01	118.2	11.06	117.5	11.15	116.7	11.26	17.0	15.0	117.5	11.15	116.9	11.23	116.1	11.34	115.7	11.40	115.3	11.45	114.7	11.54	109.9	11.14					
					135.0 (100%)	23.0	21.2	129.7	10.94	129.1	11.03	128.3	11.15	127.9	11.21	127.5	11.27	126.9	11.36	126.1	11.49	23.0	21.2	126.7	11.40	126.1	11.49	125.3	11.61	124.9	11.67	124.5	11.73	124.1	11.77	121.1	11.47				
						121.5 (90%)	26.6	24.8	135.3	11.04	134.7	11.13	133.9	11.26	133.5	11.32	133.1	11.39	132.5	11.49	131.7	11.62	26.6	24.8	132.2	11.54	131.6	11.64	130.8	11.77	130.4	11.83	129.4	11.83	129.4	11.83	129.4	11.83			
							108.0 (80%)	30.2	28.4	141.1	11.14	140.5	11.24	139.7	11.37	139.3	11.44	138.9	11.51	138.2	11.61	137.4	11.74	30.2	28.4	137.7	11.69	137.1	11.79	136.3	11.92	135.0	11.88	134.4	11.92	134.4	11.92	134.4	11.92		
								94.5 (70%)	35.6	33.8	150.0	11.28	149.4	11.39	148.5	11.53	148.1	11.61	147.6	11.68	147.0	11.79	146.1	11.93	35.6	33.8	146.2	11.91	145.6	12.02	144.6	11.69	143.5	11.68	142.4	11.68	142.4	11.68	142.4	11.68	
									81.0 (60%)	41.0	39.2	159.1	11.43	158.4	11.54	157.5	11.70	157.0	11.77	156.6	11.85	155.9	11.96	154.9	12.11	41.0	39.2	154.8	12.13	154.7	12.13	154.6	12.13	154.6	12.13	154.6	12.13	154.6	12.13	154.6	12.13
										67.5 (50%)	47.0	43.0	165.7	11.53	164.9	11.65	163.9	11.81	163.4	11.88	162.9	11.96	162.2	12.08	161.1	12.24	47.0	43.0	160.1	12.21	151.7	11.50	140.6	10.57	135.0	10.11	129.4	9.66	121.1	8.99	109.9

TC : Total Capacity kBtu/h.

IP : Input Power kW (Compressor + Outdoor fan motor).

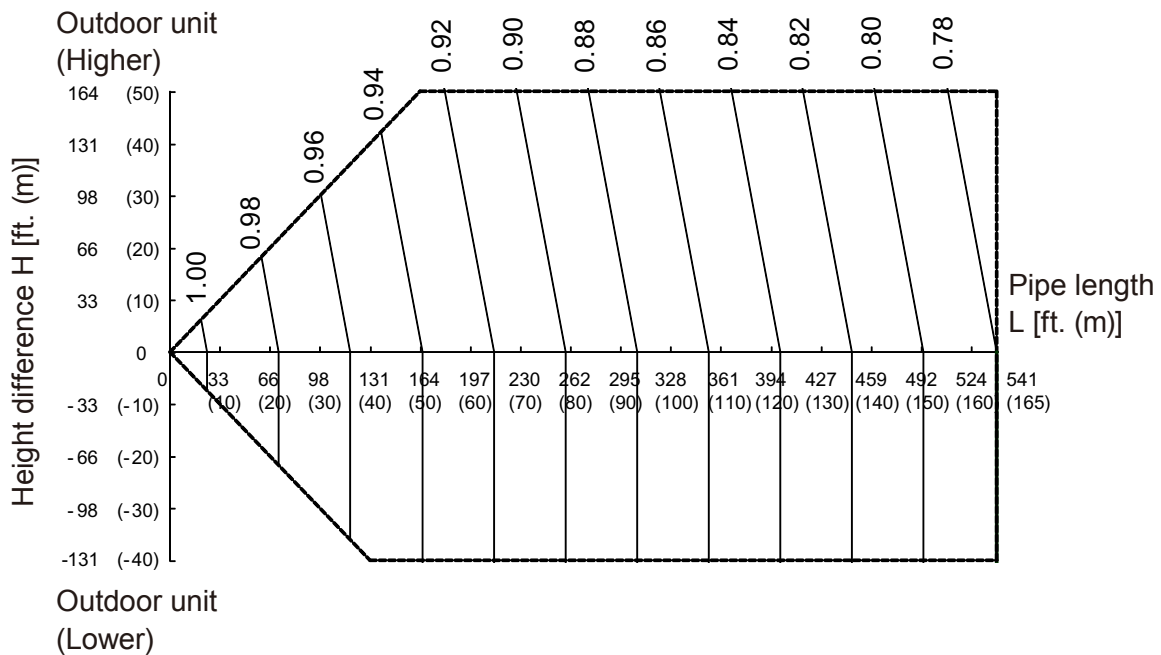
The data is based on the following conditions. Pipe length : 25ft. (7.5m) , Height difference : 0ft. (0m)

6. CAPACITY COMPENSATION COEFFICIENT

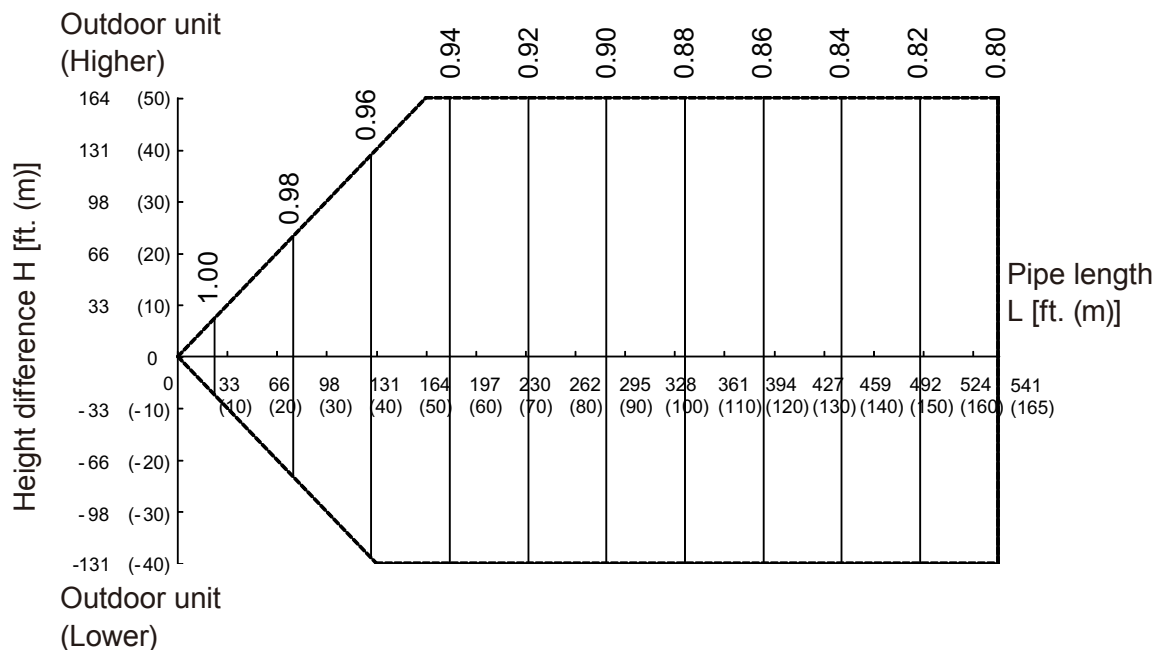
■ COMPENSATION COEFFICIENT OF PIPE LENGTH

The figures give the compensation coefficient of pipe length owing to installation position (pipe length, height difference). Pipe length and height difference are the length and the height difference between the master outdoor unit and indoor unit.

● Cooling



● Heating



■ COMPENSATION COEFFICIENT OF FROSTING / DEFROSTING (HEATING OPERATION)

To take the effects of accumulated frost and defrosting operation on heating capacity into consideration, the capacity of outdoor units should be corrected by compensation coefficient shown in the table below.

Outdoor temperature	°FDB / °FWB	-2.7 / -4	5 / 3	16 / 14	19 / 18	32 / 30	36 / 34	41 / 39	45 / 43
	°CDB / °CWB	-19.3 / -20	-15 / -16	-9 / -10	-7 / -8	0 / -1	2 / 1	5 / 4	7 / 6
Compensation coefficient		0.96	0.95	0.94	0.93	0.88	0.90	0.97	1.00

7. CAPACITY TABLE COOLING (INDOOR UNIT)

7-1. COMPACT CASSETTE TYPE

COOLING CAPACITY
in kBtu/h

MODEL : AUUA4TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.3	5.1	3.6
59	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.3	5.1	3.6
70	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.3	5.1	3.6
73	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.3	5.1	3.6
77	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.3	5.0	3.6
81	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.2	4.9	3.6
86	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.8	3.2	4.8	3.5
91	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.7	3.2	4.7	3.5
95	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.6	3.1	4.6	3.5
99	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.5	3.1	4.5	3.4
104	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.4	3.1	4.4	3.4
109	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.1	3.1	4.3	3.0	4.3	3.4
115	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	3.9	3.0	4.0	3.1	4.2	3.0	4.2	3.3

MODEL : AUUA7TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
59	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
70	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
73	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.5	7.0
77	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.4	6.9
81	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.1	6.2	9.2	6.9
86	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.9	6.1	9.0	6.8
91	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.7	6.1	8.8	6.7
95	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.6	6.0	8.7	6.7
99	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.4	6.0	8.5	6.6
104	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.2	5.9	8.3	6.6
109	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.7	6.0	8.0	5.8	8.1	6.5
115	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.4	5.7	7.5	5.9	7.8	5.7	7.9	6.4

MODEL : AUUA9TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
59	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
70	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
73	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
77	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.7	7.2	11.9	7.9
81	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.5	7.2	11.7	7.8
86	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.3	7.1	11.4	7.7
91	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.1	7.0	11.2	7.6
95	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	10.9	6.9	11.0	7.6
99	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	10.7	6.8	10.8	7.5
104	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	10.4	6.7	10.5	7.4
109	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.7	6.8	10.2	6.7	10.3	7.3
115	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.3	6.5	9.4	6.7	9.9	6.5	10.0	7.2

MODEL : AUUA12TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.3	10.3
59	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.3	10.3
70	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.3	10.3
73	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.2	10.3
77	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.0	10.2
81	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.6	9.2	14.7	10.1
86	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.3	9.1	14.4	10.0
91	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.0	9.0	14.1	9.9
95	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	13.7	8.9	13.9	9.8
99	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	13.5	8.8	13.6	9.7
104	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	13.2	8.7	13.3	9.6
109	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.3	8.8	12.8	8.6	13.0	9.5
115	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	11.8	8.4	11.9	8.7	12.5	8.4	12.6	9.3

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

COOLING CAPACITY in kBtu/h

MODEL : AUUA14TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.2	10.7	17.9	11.9
59	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.2	10.7	17.9	11.9
70	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.2	10.7	17.9	11.9
73	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.2	10.7	17.8	11.8
77	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.2	10.7	17.5	11.7
81	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.0	10.6	17.2	11.6
86	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	16.7	10.5	16.8	11.5
91	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	16.3	10.4	16.5	11.4
95	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	16.0	10.3	16.2	11.2
99	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	15.7	10.2	15.9	11.1
104	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	15.4	10.0	15.5	11.0
109	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.4	10.1	15.0	9.9	15.1	10.9
115	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	13.8	9.7	13.9	10.0	14.5	9.7	14.7	10.7

MODEL : AUUA18TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	22.1	13.2	23.0	14.6
59	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	22.1	13.2	23.0	14.6
70	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	22.1	13.2	23.0	14.6
73	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	22.1	13.2	22.8	14.5
77	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	22.1	13.2	22.5	14.4
81	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	21.9	13.1	22.1	14.2
86	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	21.4	12.9	21.6	14.0
91	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	21.0	12.7	21.2	13.9
95	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	20.6	12.6	20.8	13.7
99	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	20.2	12.4	20.4	13.6
104	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	19.7	12.3	19.9	13.4
109	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.5	12.4	19.3	12.1	19.5	13.2
115	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	17.7	11.9	17.9	12.2	18.7	11.9	18.9	13.0

MODEL : AUUA24TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.5	18.1	30.6	20.1
59	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.5	18.1	30.6	20.1
70	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.5	18.1	30.6	20.1
73	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.5	18.1	30.5	20.0
77	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.5	18.1	30.0	19.8
81	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.2	18.0	29.5	19.6
86	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	28.6	17.8	28.9	19.4
91	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	27.9	17.5	28.2	19.2
95	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	27.5	17.3	27.7	19.0
99	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	27.0	17.1	27.2	18.8
104	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	26.3	16.9	26.6	18.5
109	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	24.6	17.1	25.7	16.7	26.0	18.3
115	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	23.6	16.3	23.8	16.8	24.9	16.4	25.2	18.0

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

7-2. CIRCULAR FLOW CASSETTE TYPE

COOLING CAPACITY
in kBtu/h

MODEL : AUUB18TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	22.1	14.8	23.0	16.6
59	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	22.1	14.8	23.0	16.6
70	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	22.1	14.8	23.0	16.6
73	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	22.1	14.8	22.8	16.5
77	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	22.1	14.8	22.5	16.4
81	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	21.9	14.8	22.1	16.3
86	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	21.4	14.6	21.6	16.1
91	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	21.0	14.4	21.2	16.0
95	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	20.6	14.3	20.8	15.8
99	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	20.2	14.2	20.4	15.7
104	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	19.7	14.0	19.9	15.5
109	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.5	14.2	19.3	13.8	19.5	15.4
115	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	17.7	13.5	17.9	14.0	18.7	13.6	18.9	15.2

MODEL : AUUB24TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.5	18.1	30.6	20.0
59	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.5	18.1	30.6	20.0
70	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.5	18.1	30.6	20.0
73	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.5	18.1	30.5	19.9
77	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.5	18.1	30.0	19.7
81	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.2	17.9	29.5	19.5
86	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	28.6	17.7	28.9	19.3
91	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	27.9	17.5	28.2	19.1
95	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	27.5	17.3	27.7	18.9
99	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	27.0	17.1	27.2	18.7
104	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	26.3	16.8	26.6	18.4
109	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	24.6	17.0	25.7	16.6	26.0	18.2
115	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	23.6	16.3	23.8	16.7	24.9	16.3	25.2	17.9

MODEL : AUUB30TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.9	23.4	38.3	26.0
59	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.9	23.4	38.3	26.0
70	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.9	23.4	38.3	26.0
73	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.9	23.4	38.1	26.0
77	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.9	23.4	37.5	25.7
81	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.5	23.3	36.8	25.5
86	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	35.7	23.0	36.1	25.2
91	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	34.9	22.7	35.3	25.0
95	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	34.3	22.5	34.7	24.7
99	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	33.7	22.3	34.0	24.5
104	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	32.9	22.0	33.2	24.2
109	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	30.8	22.3	32.1	21.7	32.4	23.9
115	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	29.5	21.2	29.8	21.9	31.1	21.3	31.5	23.6

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

COOLING CAPACITY in kBtu/h

MODEL : AUUB36TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	44.2	27.1	45.9	29.9
59	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	44.2	27.1	45.9	29.9
70	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	44.2	27.1	45.9	29.9
73	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	44.2	27.1	45.7	29.8
77	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	44.2	27.1	44.9	29.6
81	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	43.8	26.9	44.2	29.3
86	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	42.8	26.5	43.3	28.9
91	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	41.9	26.2	42.4	28.6
95	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	41.2	25.9	41.6	28.3
99	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	40.4	25.6	40.9	28.0
104	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	39.5	25.2	39.9	27.7
109	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	36.9	25.6	38.5	24.9	38.9	27.3
115	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	35.4	24.4	35.8	25.1	37.4	24.5	37.8	26.9

MODEL : AUUB48TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	59.0	36.2	61.2	40.1
59	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	59.0	36.2	61.2	40.1
70	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	59.0	36.2	61.2	40.1
73	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	59.0	36.2	60.9	40.0
77	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	59.0	36.2	59.9	39.6
81	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	58.4	36.0	58.9	39.2
86	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	57.1	35.5	57.7	38.7
91	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	55.9	35.0	56.5	38.3
95	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	54.9	34.7	55.5	37.9
99	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	53.9	34.3	54.5	37.5
104	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	52.6	33.8	53.2	37.1
109	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	49.2	34.2	51.4	33.3	51.9	36.6
115	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	47.2	32.7	47.7	33.6	49.8	32.8	50.4	36.0

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

7-3. CASSETTE TYPE

COOLING CAPACITY
in kBtu/h

■ MODEL : AUUB18TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	22.1	15.5	23.0	17.4
59	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	22.1	15.5	23.0	17.4
70	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	22.1	15.5	23.0	17.4
73	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	22.1	15.5	22.8	17.4
77	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	22.1	15.5	22.5	17.3
81	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	21.9	15.5	22.1	17.1
86	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	21.4	15.3	21.6	17.0
91	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	21.0	15.1	21.2	16.8
95	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	20.6	15.0	20.8	16.7
99	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	20.2	14.9	20.4	16.6
104	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	19.7	14.7	19.9	16.4
109	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.5	14.9	19.3	14.6	19.5	16.3
115	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	17.7	14.2	17.9	14.7	18.7	14.4	18.9	16.1

■ MODEL : AUUB24TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.5	19.5	30.6	21.8
59	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.5	19.5	30.6	21.8
70	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.5	19.5	30.6	21.8
73	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.5	19.5	30.5	21.7
77	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.5	19.5	30.0	21.6
81	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.2	19.4	29.5	21.4
86	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	28.6	19.2	28.9	21.2
91	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	27.9	19.0	28.2	21.0
95	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	27.5	18.8	27.7	20.8
99	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	27.0	18.6	27.2	20.6
104	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	26.3	18.4	26.6	20.4
109	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	24.6	18.6	25.7	18.2	26.0	20.2
115	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	23.6	17.7	23.8	18.3	24.9	17.9	25.2	19.9

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

MODEL SELECTION

MODEL SELECTION

COOLING CAPACITY in kBtu/h

MODEL : AUUB30TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.9	24.4	38.3	27.3
59	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.9	24.4	38.3	27.3
70	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.9	24.4	38.3	27.3
73	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.9	24.4	38.1	27.2
77	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.9	24.4	37.5	27.0
81	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.5	24.3	36.8	26.8
86	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	35.7	24.0	36.1	26.5
91	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	34.9	23.7	35.3	26.2
95	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	34.3	23.5	34.7	26.0
99	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	33.7	23.3	34.0	25.8
104	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	32.9	23.0	33.2	25.5
109	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	30.8	23.3	32.1	22.7	32.4	25.2
115	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	29.5	22.2	29.8	22.9	31.1	22.4	31.5	24.9

MODEL : AUUB36TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	44.2	28.5	45.9	31.7
59	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	44.2	28.5	45.9	31.7
70	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	44.2	28.5	45.9	31.7
73	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	44.2	28.5	45.7	31.6
77	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	44.2	28.5	44.9	31.4
81	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	43.8	28.3	44.2	31.1
86	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	42.8	28.0	43.3	30.8
91	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	41.9	27.7	42.4	30.4
95	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	41.2	27.4	41.6	30.1
99	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	40.4	27.1	40.9	29.9
104	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	39.5	26.8	39.9	29.5
109	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	36.9	27.1	38.5	26.4	38.9	29.2
115	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	35.4	25.8	35.8	26.7	37.4	26.0	37.8	28.8

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

7-4. MINI DUCT TYPE

COOLING CAPACITY
in kBtu/h

■ **MODEL : ARUL4TLAV1**

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	5.1	3.5
59	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	5.1	3.5
70	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	5.1	3.5
73	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	5.1	3.5
77	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	5.0	3.5
81	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	4.9	3.4
86	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.8	3.1	4.8	3.4
91	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.7	3.0	4.7	3.3
95	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.6	3.0	4.6	3.3
99	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.5	3.0	4.5	3.3
104	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.4	2.9	4.4	3.2
109	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.1	3.0	4.3	2.9	4.3	3.2
115	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	3.9	2.8	4.0	2.9	4.2	2.9	4.2	3.2

MODEL SELECTION

MODEL SELECTION

TC : Total Capacity kBtu/h.
SHC : Sensible Heat Capacity kBtu/h.

COOLING CAPACITY in kBtu/h

MODEL : ARUL18TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	22.1	14.2	23.0	15.8
59	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	22.1	14.2	23.0	15.8
70	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	22.1	14.2	23.0	15.8
73	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	22.1	14.2	22.8	15.7
77	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	22.1	14.2	22.5	15.6
81	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	21.9	14.1	22.1	15.4
86	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	21.4	13.9	21.6	15.3
91	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	21.0	13.7	21.2	15.1
95	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	20.6	13.6	20.8	15.0
99	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	20.2	13.5	20.4	14.8
104	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	19.7	13.3	19.9	14.7
109	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.5	13.5	19.3	13.1	19.5	14.5
115	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	17.7	12.8	17.9	13.2	18.7	12.9	18.9	14.3

MODEL SELECTION

MODEL SELECTION

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

7-6. MEDIUM STATIC PRESSURE DUCT TYPE

COOLING CAPACITY
in kBtu/h

MODEL : ARUM24TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.5	18.8	30.6	20.9
59	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.5	18.8	30.6	20.9
70	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.5	18.8	30.6	20.9
73	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.5	18.8	30.5	20.9
77	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.5	18.8	30.0	20.7
81	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.2	18.7	29.5	20.5
86	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	28.6	18.5	28.9	20.3
91	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	27.9	18.3	28.2	20.1
95	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	27.5	18.1	27.7	19.9
99	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	27.0	17.9	27.2	19.7
104	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	26.3	17.7	26.6	19.5
109	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	24.6	17.9	25.7	17.4	26.0	19.2
115	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	23.6	17.0	23.8	17.6	24.9	17.1	25.2	19.0

MODEL : ARUM30TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.9	21.7	38.3	23.9
59	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.9	21.7	38.3	23.9
70	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.9	21.7	38.3	23.9
73	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.9	21.7	38.1	23.8
77	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.9	21.7	37.5	23.6
81	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.5	21.6	36.8	23.3
86	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	35.7	21.3	36.1	23.0
91	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	34.9	21.0	35.3	22.7
95	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	34.3	20.7	34.7	22.5
99	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	33.7	20.5	34.0	22.2
104	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	32.9	20.1	33.2	21.9
109	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	30.8	20.4	32.1	19.8	32.4	21.6
115	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	29.5	19.5	29.8	20.0	31.1	19.5	31.5	21.2

MODEL : ARUM36TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	44.2	27.7	45.9	30.8
59	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	44.2	27.7	45.9	30.8
70	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	44.2	27.7	45.9	30.8
73	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	44.2	27.7	45.7	30.7
77	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	44.2	27.7	44.9	30.4
81	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	43.8	27.6	44.2	30.1
86	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	42.8	27.2	43.3	29.8
91	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	41.9	26.9	42.4	29.4
95	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	41.2	26.6	41.6	29.2
99	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	40.4	26.3	40.9	28.9
104	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	39.5	25.9	39.9	28.5
109	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	36.9	26.3	38.5	25.6	38.9	28.2
115	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	35.4	25.1	35.8	25.8	37.4	25.2	37.8	27.8

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

7-7. HIGH STATIC PRESSURE DUCT TYPE

COOLING CAPACITY
in kBtu/h

MODEL : ARUH36TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	44.2	27.9	45.9	30.9
59	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	44.2	27.9	45.9	30.9
70	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	44.2	27.9	45.9	30.9
73	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	44.2	27.9	45.7	30.9
77	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	44.2	27.9	44.9	30.6
81	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	43.8	27.7	44.2	30.3
86	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	42.8	27.4	43.3	30.0
91	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	41.9	27.0	42.4	29.6
95	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	41.2	26.7	41.6	29.3
99	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	40.4	26.5	40.9	29.1
104	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	39.5	26.1	39.9	28.7
109	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	36.9	26.4	38.5	25.8	38.9	28.4
115	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	35.4	25.2	35.8	26.0	37.4	25.3	37.8	28.0

MODEL : ARUH48TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	59.0	37.2	61.2	41.3
59	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	59.0	37.2	61.2	41.3
70	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	59.0	37.2	61.2	41.3
73	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	59.0	37.2	60.9	41.1
77	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	59.0	37.2	59.9	40.8
81	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	58.4	36.9	58.9	40.4
86	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	57.1	36.5	57.7	39.9
91	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	55.9	36.0	56.5	39.5
95	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	54.9	35.6	55.5	39.1
99	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	53.9	35.3	54.5	38.8
104	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	52.6	34.8	53.2	38.3
109	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	49.2	35.2	51.4	34.3	51.9	37.8
115	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	47.2	33.6	47.7	34.6	49.8	33.8	50.4	37.3

MODEL : ARUH60TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	73.7	48.4	76.5	53.9
59	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	73.7	48.4	76.5	53.9
70	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	73.7	48.4	76.5	53.9
73	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	73.7	48.4	76.1	53.8
77	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	73.7	48.4	74.9	53.3
81	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	72.9	48.1	73.7	52.9
86	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	71.4	47.5	72.1	52.3
91	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	69.9	47.0	70.6	51.8
95	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	68.6	46.5	69.3	51.3
99	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	67.4	46.1	68.1	50.9
104	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	65.8	45.5	66.5	50.4
109	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	61.5	46.1	64.2	44.9	64.9	49.8
115	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	59.0	43.9	59.6	45.3	62.3	44.2	62.9	49.1

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

COOLING CAPACITY in kBtu/h

MODEL : ARUH72TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	88.5	54.0	91.8	59.7
59	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	88.5	54.0	91.8	59.7
70	45.7	34.9	52.2	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	88.5	54.0	91.8	59.7
73	45.7	34.9	52.2	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	88.5	54.0	91.4	59.5
77	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	88.5	54.0	89.9	58.9
81	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	87.5	53.6	88.4	58.4
86	45.7	34.9	52.2	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	85.7	52.9	86.6	57.7
91	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	83.8	52.2	84.7	57.0
95	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	82.4	51.6	83.2	56.4
99	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	80.9	51.0	81.7	55.8
104	45.7	34.9	52.2	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	79.0	50.3	79.8	55.1
109	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	73.8	51.0	77.0	49.6	77.9	54.4
115	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	70.7	48.6	71.5	50.0	74.7	48.7	75.5	53.5

MODEL : ARUH96TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	118.0	70.7	122.4	77.9
59	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	118.0	70.7	122.4	77.9
70	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	118.0	70.7	122.4	77.9
73	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	118.0	70.7	121.8	77.7
77	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	118.0	70.7	119.9	76.9
81	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	116.7	70.2	117.9	76.1
86	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	114.2	69.2	115.4	75.2
91	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	111.8	68.2	112.9	74.2
95	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	109.8	67.4	110.9	73.4
99	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	107.8	66.7	108.9	72.6
104	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	105.3	65.7	106.4	71.7
109	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	98.4	66.5	102.7	64.7	103.8	70.7
115	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	94.3	63.5	95.4	65.3	99.6	63.5	100.7	69.6

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

COOLING CAPACITY in kBtu/h

MODEL : ARUV36TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	37.7	27.5	44.2	28.6	45.9	31.9
59	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	37.7	27.5	44.2	28.6	45.9	31.9
70	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	37.7	27.5	44.2	28.6	45.9	31.9
73	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	37.7	27.5	44.2	28.6	45.7	31.8
77	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	37.7	27.5	44.2	28.6	44.9	31.5
81	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	37.7	27.5	43.8	28.4	44.2	31.2
86	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	37.7	27.5	42.8	28.1	43.3	30.9
91	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	37.7	27.5	41.9	27.8	42.4	30.6
95	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	37.7	27.5	41.2	27.5	41.6	30.3
99	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	37.7	27.5	40.4	27.2	40.9	30.0
104	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	37.7	27.5	39.5	26.9	39.9	29.7
109	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	36.0	26.2	36.9	27.2	38.5	26.5	38.9	29.3
115	22.8	18.7	26.1	22.7	29.4	23.6	31.1	27.1	35.4	25.9	35.8	26.8	37.4	26.1	37.8	28.9

MODEL : ARUV48TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	50.2	35.9	59.0	37.5	61.2	41.6
59	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	50.2	35.9	59.0	37.5	61.2	41.6
70	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	50.2	35.9	59.0	37.5	61.2	41.6
73	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	50.2	35.9	59.0	37.5	60.9	41.5
77	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	50.2	35.9	59.0	37.5	59.9	41.1
81	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	50.2	35.9	58.4	37.2	58.9	40.8
86	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	50.2	35.9	57.1	36.8	57.7	40.3
91	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	50.2	35.9	55.9	36.3	56.5	39.9
95	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	50.2	35.9	54.9	35.9	55.5	39.5
99	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	50.2	35.9	53.9	35.6	54.5	39.1
104	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	50.2	35.9	52.6	35.1	53.2	38.7
109	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	48.0	34.2	49.2	35.5	51.4	34.6	51.9	38.2
115	30.4	24.4	34.8	29.7	39.2	30.8	41.4	35.3	47.2	33.9	47.7	34.9	49.8	34.1	50.4	37.7

MODEL : ARUV60TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	62.8	45.7	73.7	47.6	76.5	52.9
59	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	62.8	45.7	73.7	47.6	76.5	52.9
70	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	62.8	45.7	73.7	47.6	76.5	52.9
73	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	62.8	45.7	73.7	47.6	76.1	52.8
77	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	62.8	45.7	73.7	47.6	74.9	52.3
81	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	62.8	45.7	72.9	47.3	73.7	51.9
86	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	62.8	45.7	71.4	46.7	72.1	51.3
91	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	62.8	45.7	69.9	46.1	70.6	50.8
95	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	62.8	45.7	68.6	45.7	69.3	50.3
99	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	62.8	45.7	67.4	45.2	68.1	49.8
104	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	62.8	45.7	65.8	44.6	66.5	49.3
109	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	60.0	43.5	61.5	45.2	64.2	44.1	64.9	48.7
115	38.1	31.0	43.5	37.8	49.0	39.2	51.8	45.0	59.0	43.1	59.6	44.5	62.3	43.4	62.9	48.0

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

7-9. COMPACT FLOOR TYPE

COOLING CAPACITY
in kBtu/h

MODEL : AGUA4TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	5.1	3.4
59	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	5.1	3.4
70	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	5.1	3.4
73	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	5.1	3.4
77	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	5.0	3.4
81	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	4.9	3.3
86	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.8	3.0	4.8	3.3
91	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.7	3.0	4.7	3.3
95	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.6	3.0	4.6	3.2
99	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.5	2.9	4.5	3.2
104	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.4	2.9	4.4	3.2
109	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.1	2.9	4.3	2.8	4.3	3.1
115	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	3.9	2.8	4.0	2.9	4.2	2.8	4.2	3.1

MODEL : AGUA7TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.2	5.7	9.6	6.2
59	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.2	5.7	9.6	6.2
70	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.2	5.7	9.6	6.2
73	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.2	5.7	9.5	6.2
77	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.2	5.7	9.4	6.2
81	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.1	5.6	9.2	6.1
86	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	8.9	5.5	9.0	6.0
91	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	8.7	5.5	8.8	6.0
95	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	8.6	5.4	8.7	5.9
99	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	8.4	5.3	8.5	5.8
104	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	8.2	5.3	8.3	5.8
109	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.7	5.3	8.0	5.2	8.1	5.7
115	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.4	5.1	7.5	5.2	7.8	5.1	7.9	5.6

MODEL : AGUA9TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
59	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
70	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
73	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
77	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.7	7.2	11.9	7.9
81	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.5	7.2	11.7	7.8
86	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.3	7.1	11.4	7.7
91	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.1	7.0	11.2	7.6
95	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	10.9	6.9	11.0	7.5
99	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	10.7	6.8	10.8	7.5
104	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	10.4	6.7	10.5	7.4
109	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.7	6.8	10.2	6.6	10.3	7.3
115	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.3	6.5	9.4	6.7	9.9	6.5	10.0	7.2

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

COOLING CAPACITY in kBtu/h

MODEL : AGUA12TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.7	9.4	15.3	10.4
59	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.7	9.4	15.3	10.4
70	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.7	9.4	15.3	10.4
73	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.7	9.4	15.2	10.4
77	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.7	9.4	15.0	10.3
81	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.6	9.3	14.7	10.2
86	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.3	9.2	14.4	10.1
91	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.0	9.1	14.1	10.0
95	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	13.7	9.0	13.9	9.9
99	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	13.5	8.9	13.6	9.8
104	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	13.2	8.8	13.3	9.7
109	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.3	8.9	12.8	8.7	13.0	9.6
115	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	11.8	8.5	11.9	8.7	12.5	8.5	12.6	9.4

MODEL : AGUA14TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.2	10.8	17.9	12.0
59	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.2	10.8	17.9	12.0
70	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.2	10.8	17.9	12.0
73	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.2	10.8	17.8	12.0
77	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.2	10.8	17.5	11.9
81	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.0	10.8	17.2	11.8
86	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	16.7	10.6	16.8	11.7
91	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	16.3	10.5	16.5	11.5
95	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	16.0	10.4	16.2	11.4
99	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	15.7	10.3	15.9	11.3
104	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	15.4	10.2	15.5	11.2
109	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.4	10.3	15.0	10.0	15.1	11.0
115	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	13.8	9.8	13.9	10.1	14.5	9.9	14.7	10.9

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

7-11. CEILING TYPE

COOLING CAPACITY
in kBtu/h

MODEL : ABUA30TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.9	24.6	38.3	27.5
59	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.9	24.6	38.3	27.5
70	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.9	24.6	38.3	27.5
73	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.9	24.6	38.1	27.4
77	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.9	24.6	37.5	27.2
81	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.5	24.5	36.8	27.0
86	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	35.7	24.2	36.1	26.7
91	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	34.9	23.9	35.3	26.5
95	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	34.3	23.7	34.7	26.2
99	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	33.7	23.5	34.0	26.0
104	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	32.9	23.2	33.2	25.8
109	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	30.8	23.5	32.1	22.9	32.4	25.5
115	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	29.5	22.4	29.8	23.1	31.1	22.6	31.5	25.1

MODEL : ABUA36TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	44.2	27.8	45.9	30.8
59	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	44.2	27.8	45.9	30.8
70	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	44.2	27.8	45.9	30.8
73	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	44.2	27.8	45.7	30.7
77	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	44.2	27.8	44.9	30.5
81	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	43.8	27.6	44.2	30.2
86	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	42.8	27.3	43.3	29.8
91	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	41.9	26.9	42.4	29.5
95	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	41.2	26.6	41.6	29.2
99	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	40.4	26.4	40.9	28.9
104	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	39.5	26.0	39.9	28.6
109	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	36.9	26.3	38.5	25.7	38.9	28.3
115	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	35.4	25.1	35.8	25.9	37.4	25.2	37.8	27.8

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

7-12. WALL MOUNTED TYPE

COOLING CAPACITY in kBtu/h

MODEL : ASUA4TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.1	5.1	3.4
59	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.1	5.1	3.4
70	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.1	5.1	3.4
73	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.1	5.1	3.4
77	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.1	5.0	3.3
81	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.0	4.9	3.3
86	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.8	3.0	4.8	3.3
91	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.7	3.0	4.7	3.2
95	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.6	2.9	4.6	3.2
99	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.5	2.9	4.5	3.2
104	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.4	2.9	4.4	3.1
109	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.1	2.9	4.3	2.8	4.3	3.1
115	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	3.9	2.8	4.0	2.8	4.2	2.8	4.2	3.1

MODEL : ASUA7TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
59	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
70	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
73	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.5	7.0
77	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.4	6.9
81	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.1	6.2	9.2	6.9
86	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.9	6.2	9.0	6.8
91	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.7	6.1	8.8	6.7
95	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.6	6.0	8.7	6.7
99	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.4	6.0	8.5	6.6
104	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.2	5.9	8.3	6.6
109	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.7	6.0	8.0	5.8	8.1	6.5
115	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.4	5.7	7.5	5.9	7.8	5.8	7.9	6.4

MODEL : ASUA9TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.7	8.4	12.1	9.5
59	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.7	8.4	12.1	9.5
70	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.7	8.4	12.1	9.5
73	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.7	8.4	12.1	9.5
77	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.7	8.4	11.9	9.4
81	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.5	8.4	11.7	9.3
86	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.3	8.3	11.4	9.2
91	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.1	8.2	11.2	9.2
95	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	10.9	8.2	11.0	9.1
99	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	10.7	8.1	10.8	9.0
104	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	10.4	8.0	10.5	8.9
109	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.7	8.1	10.2	7.9	10.3	8.9
115	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.3	7.7	9.4	8.0	9.9	7.8	10.0	8.8

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

COOLING CAPACITY in kBtu/h

MODEL : ASUA12TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.7	9.6	15.3	10.6
59	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.7	9.6	15.3	10.6
70	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.7	9.6	15.3	10.6
73	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.7	9.6	15.2	10.6
77	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.7	9.6	15.0	10.5
81	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.6	9.5	14.7	10.4
86	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.7	12.6	9.2	14.3	9.4	14.4	10.3
91	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.0	9.3	14.1	10.2
95	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	13.7	9.2	13.9	10.1
99	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	13.5	9.1	13.6	10.0
104	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	13.2	9.0	13.3	9.9
109	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.3	9.1	12.8	8.9	13.0	9.8
115	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	11.8	8.7	11.9	8.9	12.5	8.7	12.6	9.7

MODEL : ASUA14TLAV1

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.2	11.4	17.9	12.7
59	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.2	11.4	17.9	12.7
70	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.2	11.4	17.9	12.7
73	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.2	11.4	17.8	12.6
77	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.2	11.4	17.5	12.5
81	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.0	11.3	17.2	12.4
86	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	16.7	11.2	16.8	12.3
91	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	16.3	11.0	16.5	12.2
95	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	16.0	10.9	16.2	12.1
99	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	15.7	10.8	15.9	12.0
104	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	15.4	10.7	15.5	11.8
109	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.4	10.8	15.0	10.5	15.1	11.7
115	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	13.8	10.3	13.9	10.6	14.5	10.4	14.7	11.5

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

COOLING CAPACITY in kBtu/h

MODEL : ASUB18TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.2	23.0	15.7
59	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.2	23.0	15.7
70	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.2	23.0	15.7
73	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.2	22.8	15.7
77	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.2	22.5	15.6
81	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	21.9	14.1	22.1	15.4
86	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	21.4	13.9	21.6	15.3
91	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	21.0	13.7	21.2	15.1
95	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	20.6	13.6	20.8	15.0
99	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	20.2	13.5	20.4	14.8
104	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	19.7	13.3	19.9	14.7
109	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.5	13.5	19.3	13.1	19.5	14.5
115	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	17.7	12.8	17.9	13.2	18.7	12.9	18.9	14.3

MODEL : ASUB24TLAV

Outdoor temperature (°FDB)	Indoor temperature															
	68°FDB / 59°FWB		73°FDB / 61°FWB		75°FDB / 63°FWB		79°FDB / 64°FWB		80°FDB / 67°FWB		82°FDB / 68°FWB		86°FDB / 72°FWB		90°FDB / 73°FWB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.5	18.7	30.6	20.8
59	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.5	18.7	30.6	20.8
70	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.5	18.7	30.6	20.8
73	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.5	18.7	30.5	20.8
77	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.5	18.7	30.0	20.6
81	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.2	18.6	29.5	20.4
86	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	28.6	18.4	28.9	20.2
91	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	27.9	18.2	28.2	20.0
95	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	27.5	18.0	27.7	19.8
99	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	27.0	17.8	27.2	19.6
104	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	26.3	17.6	26.6	19.4
109	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	24.6	17.8	25.7	17.3	26.0	19.1
115	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	23.6	17.0	23.8	17.5	24.9	17.1	25.2	18.9

TC : Total Capacity kBtu/h.

SHC : Sensible Heat Capacity kBtu/h.

8. CAPACITY TABLE HEATING (INDOOR UNIT)

8-1. COMPACT CASSETTE TYPE

**HEATING CAPACITY
in kBtu/h**

MODEL : AUUA4TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3
5.0	3.2	2.7	2.6	2.6	2.6	2.6	2.6	2.6
10.4	8.6	3.0	2.9	2.9	2.9	2.9	2.9	2.9
15.8	14.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2
17.0	15.0	3.3	3.3	3.3	3.2	3.2	3.2	3.2
23.0	21.2	3.7	3.6	3.6	3.6	3.6	3.6	3.6
26.6	24.8	3.8	3.8	3.8	3.8	3.8	3.8	3.6
30.2	28.4	4.0	4.0	4.0	4.0	4.0	3.9	3.6
32.0	30.2	4.2	4.1	4.1	4.1	4.1	3.9	3.6
35.6	33.8	4.3	4.3	4.3	4.3	4.2	3.9	3.6
41.0	39.2	4.7	4.7	4.6	4.4	4.2	4.0	3.6
47.0	43.0	4.9	4.9	4.6	4.4	4.2	4.0	3.6
48.2	46.0	5.1	4.9	4.6	4.4	4.2	4.0	3.6
53.6	51.1	5.1	4.9	4.6	4.4	4.2	4.0	3.6
59.0	56.3	5.1	4.9	4.6	4.4	4.2	4.0	3.6

MODEL : AUUA7TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
5.0	3.2	5.7	5.7	5.7	5.7	5.7	5.7	5.6
10.4	8.6	6.4	6.4	6.3	6.3	6.3	6.3	6.3
15.8	14.0	7.0	7.0	6.9	6.9	6.9	6.9	6.8
17.0	15.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0
23.0	21.2	7.9	7.9	7.8	7.8	7.8	7.7	7.7
26.6	24.8	8.3	8.3	8.2	8.2	8.2	8.2	7.8
30.2	28.4	8.7	8.7	8.6	8.6	8.6	8.5	7.8
32.0	30.2	9.0	8.9	8.8	8.8	8.8	8.5	7.8
35.6	33.8	9.4	9.3	9.3	9.2	9.0	8.5	7.8
41.0	39.2	10.1	10.1	9.9	9.5	9.1	8.6	7.9
47.0	43.0	10.6	10.5	9.9	9.5	9.1	8.6	7.9
48.2	46.0	10.9	10.6	9.9	9.5	9.1	8.6	7.9
53.6	51.1	11.1	10.6	9.9	9.5	9.1	8.6	7.9
59.0	56.3	11.1	10.6	9.9	9.5	9.1	8.6	7.9

MODEL : AUUA9TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6
5.0	3.2	6.6	6.5	6.5	6.5	6.5	6.5	6.5
10.4	8.6	7.3	7.3	7.3	7.3	7.2	7.2	7.2
15.8	14.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8
17.0	15.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0
23.0	21.2	9.0	9.0	9.0	8.9	8.9	8.9	8.8
26.6	24.8	9.5	9.5	9.4	9.4	9.4	9.4	8.9
30.2	28.4	10.0	10.0	9.9	9.9	9.9	9.7	8.9
32.0	30.2	10.3	10.2	10.1	10.1	10.1	9.7	8.9
35.6	33.8	10.8	10.7	10.6	10.6	10.3	9.7	8.9
41.0	39.2	11.6	11.6	11.3	10.9	10.5	9.8	9.0
47.0	43.0	12.1	12.1	11.3	10.9	10.5	9.8	9.0
48.2	46.0	12.6	12.1	11.3	10.9	10.5	9.8	9.0
53.6	51.1	12.8	12.1	11.3	10.9	10.5	9.8	9.0
59.0	56.3	12.8	12.1	11.3	10.9	10.5	9.8	9.0

MODEL : AUUA12TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

TC : Total Capacity kBtu/h.

MODEL SELECTION

MODEL SELECTION

HEATING CAPACITY in kBtu/h

MODEL : AUUA14TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

MODEL : AUUA18TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

MODEL : AUUA24TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

TC : Total Capacity kBtu/h.

8-2. CIRCULAR FLOW CASSETTE TYPE

**HEATING CAPACITY
in kBtu/h**

MODEL : AUUB18TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

MODEL : AUUB24TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

MODEL : AUUB30TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	17.7	17.7	17.7	17.6	17.6	17.6	17.5
5.0	3.2	20.5	20.4	20.4	20.3	20.3	20.3	20.2
10.4	8.6	22.8	22.7	22.6	22.6	22.5	22.5	22.4
15.8	14.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5
17.0	15.0	25.4	25.3	25.2	25.1	25.1	25.0	24.9
23.0	21.2	28.2	28.1	28.0	27.9	27.8	27.7	27.6
26.6	24.8	29.7	29.6	29.4	29.4	29.3	29.2	27.8
30.2	28.4	31.2	31.1	30.9	30.8	30.8	30.4	27.8
32.0	30.2	32.1	31.9	31.6	31.5	31.4	30.4	27.8
35.6	33.8	33.6	33.4	33.1	33.0	32.3	30.4	27.8
41.0	39.2	36.1	36.0	35.3	34.0	32.6	30.7	28.1
47.0	43.0	37.9	37.6	35.3	34.0	32.6	30.7	28.1
48.2	46.0	39.1	37.9	35.3	34.0	32.6	30.7	28.1
53.6	51.1	39.8	37.9	35.3	34.0	32.6	30.7	28.1
59.0	56.3	39.8	37.9	35.3	34.0	32.6	30.7	28.1

TC : Total Capacity kBtu/h.

MODEL
SELECTION

MODEL
SELECTION

HEATING CAPACITY in kBtu/h

■ MODEL : AUUB36TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	20.8	20.8	20.8	20.7	20.7	20.7	20.6
5.0	3.2	24.1	24.0	24.0	23.8	23.8	23.8	23.7
10.4	8.6	26.9	26.8	26.6	26.6	26.5	26.5	26.4
15.8	14.0	29.4	29.3	29.1	29.1	29.0	28.9	28.8
17.0	15.0	29.9	29.8	29.7	29.5	29.5	29.4	29.3
23.0	21.2	33.2	33.1	32.9	32.8	32.7	32.6	32.4
26.6	24.8	35.0	34.8	34.6	34.6	34.4	34.3	32.7
30.2	28.4	36.7	36.6	36.3	36.2	36.2	35.7	32.7
32.0	30.2	37.7	37.5	37.2	37.1	37.0	35.7	32.7
35.6	33.8	39.5	39.2	39.0	38.9	38.0	35.7	32.7
41.0	39.2	42.5	42.4	41.5	40.0	38.4	36.1	33.1
47.0	43.0	44.5	44.3	41.5	40.0	38.4	36.1	33.1
48.2	46.0	46.1	44.5	41.5	40.0	38.4	36.1	33.1
53.6	51.1	46.8	44.5	41.5	40.0	38.4	36.1	33.1
59.0	56.3	46.8	44.5	41.5	40.0	38.4	36.1	33.1

■ MODEL : AUUB48TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	28.1	28.1	28.1	27.9	27.9	27.9	27.8
5.0	3.2	32.5	32.4	32.4	32.2	32.2	32.2	32.0
10.4	8.6	36.3	36.1	35.9	35.9	35.8	35.8	35.6
15.8	14.0	39.7	39.5	39.4	39.4	39.2	39.0	38.8
17.0	15.0	40.4	40.2	40.0	39.9	39.9	39.7	39.5
23.0	21.2	44.8	44.6	44.5	44.3	44.1	43.9	43.8
26.6	24.8	47.2	47.0	46.7	46.7	46.5	46.3	44.1
30.2	28.4	49.6	49.4	49.1	48.9	48.9	48.2	44.1
32.0	30.2	50.9	50.6	50.3	50.1	49.9	48.2	44.1
35.6	33.8	53.3	53.0	52.6	52.5	51.3	48.2	44.1
41.0	39.2	57.4	57.2	56.0	54.0	51.8	48.7	44.6
47.0	43.0	60.1	59.8	56.0	54.0	51.8	48.7	44.6
48.2	46.0	62.2	60.1	56.0	54.0	51.8	48.7	44.6
53.6	51.1	63.2	60.1	56.0	54.0	51.8	48.7	44.6
59.0	56.3	63.2	60.1	56.0	54.0	51.8	48.7	44.6

TC : Total Capacity kBtu/h.

8-3. CASSETTE TYPE

**HEATING CAPACITY
in kBtu/h**

■ MODEL : AUUB18TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

■ MODEL : AUUB24TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

TC : Total Capacity kBtu/h.

HEATING CAPACITY in kBtu/h

■ MODEL : AUUB30TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	17.7	17.7	17.7	17.6	17.6	17.6	17.5
5.0	3.2	20.5	20.4	20.4	20.3	20.3	20.3	20.2
10.4	8.6	22.8	22.7	22.6	22.6	22.5	22.5	22.4
15.8	14.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5
17.0	15.0	25.4	25.3	25.2	25.1	25.1	25.0	24.9
23.0	21.2	28.2	28.1	28.0	27.9	27.8	27.7	27.6
26.6	24.8	29.7	29.6	29.4	29.4	29.3	29.2	27.8
30.2	28.4	31.2	31.1	30.9	30.8	30.8	30.4	27.8
32.0	30.2	32.1	31.9	31.6	31.5	31.4	30.4	27.8
35.6	33.8	33.6	33.4	33.1	33.0	32.3	30.4	27.8
41.0	39.2	36.1	36.0	35.3	34.0	32.6	30.7	28.1
47.0	43.0	37.9	37.6	35.3	34.0	32.6	30.7	28.1
48.2	46.0	39.1	37.9	35.3	34.0	32.6	30.7	28.1
53.6	51.1	39.8	37.9	35.3	34.0	32.6	30.7	28.1
59.0	56.3	39.8	37.9	35.3	34.0	32.6	30.7	28.1

■ MODEL : AUUB36TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	20.8	20.8	20.8	20.7	20.7	20.7	20.6
5.0	3.2	24.1	24.0	24.0	23.8	23.8	23.8	23.7
10.4	8.6	26.9	26.8	26.6	26.6	26.5	26.5	26.4
15.8	14.0	29.4	29.3	29.1	29.1	29.0	28.9	28.8
17.0	15.0	29.9	29.8	29.7	29.5	29.5	29.4	29.3
23.0	21.2	33.2	33.1	32.9	32.8	32.7	32.6	32.4
26.6	24.8	35.0	34.8	34.6	34.6	34.4	34.3	32.7
30.2	28.4	36.7	36.6	36.3	36.2	36.2	35.7	32.7
32.0	30.2	37.7	37.5	37.2	37.1	37.0	35.7	32.7
35.6	33.8	39.5	39.2	39.0	38.9	38.0	35.7	32.7
41.0	39.2	42.5	42.4	41.5	40.0	38.4	36.1	33.1
47.0	43.0	44.5	44.3	41.5	40.0	38.4	36.1	33.1
48.2	46.0	46.1	44.5	41.5	40.0	38.4	36.1	33.1
53.6	51.1	46.8	44.5	41.5	40.0	38.4	36.1	33.1
59.0	56.3	46.8	44.5	41.5	40.0	38.4	36.1	33.1

TC : Total Capacity kBtu/h.

MODEL SELECTION

MODEL SELECTION

8-4. MINI DUCT TYPE

**HEATING CAPACITY
in kBtu/h**

■ **MODEL : ARUL4TLAV1**

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3
5.0	3.2	2.7	2.6	2.6	2.6	2.6	2.6	2.6
10.4	8.6	3.0	2.9	2.9	2.9	2.9	2.9	2.9
15.8	14.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2
17.0	15.0	3.3	3.3	3.3	3.2	3.2	3.2	3.2
23.0	21.2	3.7	3.6	3.6	3.6	3.6	3.6	3.6
26.6	24.8	3.8	3.8	3.8	3.8	3.8	3.8	3.6
30.2	28.4	4.0	4.0	4.0	4.0	4.0	3.9	3.6
32.0	30.2	4.2	4.1	4.1	4.1	4.1	3.9	3.6
35.6	33.8	4.3	4.3	4.3	4.3	4.2	3.9	3.6
41.0	39.2	4.7	4.7	4.6	4.4	4.2	4.0	3.6
47.0	43.0	4.9	4.9	4.6	4.4	4.2	4.0	3.6
48.2	46.0	5.1	4.9	4.6	4.4	4.2	4.0	3.6
53.6	51.1	5.1	4.9	4.6	4.4	4.2	4.0	3.6
59.0	56.3	5.1	4.9	4.6	4.4	4.2	4.0	3.6

MODEL SELECTION

MODEL SELECTION

TC : Total Capacity kBtu/h.

8-5. SLIM DUCT / SLIM CONCEALED FLOOR TYPE

**HEATING CAPACITY
in kBtu/h**

MODEL : ARUL7TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
5.0	3.2	5.7	5.7	5.7	5.7	5.7	5.7	5.6
10.4	8.6	6.4	6.4	6.3	6.3	6.3	6.3	6.3
15.8	14.0	7.0	7.0	6.9	6.9	6.9	6.9	6.8
17.0	15.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0
23.0	21.2	7.9	7.9	7.8	7.8	7.8	7.7	7.7
26.6	24.8	8.3	8.3	8.2	8.2	8.2	8.2	7.8
30.2	28.4	8.7	8.7	8.6	8.6	8.6	8.5	7.8
32.0	30.2	9.0	8.9	8.8	8.8	8.8	8.5	7.8
35.6	33.8	9.4	9.3	9.3	9.2	9.0	8.5	7.8
41.0	39.2	10.1	10.1	9.9	9.5	9.1	8.6	7.9
47.0	43.0	10.6	10.5	9.9	9.5	9.1	8.6	7.9
48.2	46.0	10.9	10.6	9.9	9.5	9.1	8.6	7.9
53.6	51.1	11.1	10.6	9.9	9.5	9.1	8.6	7.9
59.0	56.3	11.1	10.6	9.9	9.5	9.1	8.6	7.9

MODEL : ARUL9TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6
5.0	3.2	6.6	6.5	6.5	6.5	6.5	6.5	6.5
10.4	8.6	7.3	7.3	7.3	7.3	7.2	7.2	7.2
15.8	14.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8
17.0	15.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0
23.0	21.2	9.0	9.0	9.0	8.9	8.9	8.9	8.8
26.6	24.8	9.5	9.5	9.4	9.4	9.4	9.4	8.9
30.2	28.4	10.0	10.0	9.9	9.9	9.9	9.7	8.9
32.0	30.2	10.3	10.2	10.1	10.1	10.1	9.7	8.9
35.6	33.8	10.8	10.7	10.6	10.6	10.3	9.7	8.9
41.0	39.2	11.6	11.6	11.3	10.9	10.5	9.8	9.0
47.0	43.0	12.1	12.1	11.3	10.9	10.5	9.8	9.0
48.2	46.0	12.6	12.1	11.3	10.9	10.5	9.8	9.0
53.6	51.1	12.8	12.1	11.3	10.9	10.5	9.8	9.0
59.0	56.3	12.8	12.1	11.3	10.9	10.5	9.8	9.0

MODEL : ARUL12TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

MODEL : ARUL14TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

TC : Total Capacity kBtu/h.

MODEL SELECTION

MODEL SELECTION

HEATING CAPACITY in kBtu/h

■ MODEL : ARUL18TLAV

MODEL SELECTION

MODEL SELECTION

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

TC : Total Capacity kBtu/h.

8-6. MEDIUM STATIC PRESSURE DUCT TYPE

**HEATING CAPACITY
in kBtu/h**

MODEL : ARUM24TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

MODEL : ARUM30TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	17.7	17.7	17.7	17.6	17.6	17.6	17.5
5.0	3.2	20.5	20.4	20.4	20.3	20.3	20.3	20.2
10.4	8.6	22.8	22.7	22.6	22.6	22.5	22.5	22.4
15.8	14.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5
17.0	15.0	25.4	25.3	25.2	25.1	25.1	25.0	24.9
23.0	21.2	28.2	28.1	28.0	27.9	27.8	27.7	27.6
26.6	24.8	29.7	29.6	29.4	29.4	29.3	29.2	27.8
30.2	28.4	31.2	31.1	30.9	30.8	30.8	30.4	27.8
32.0	30.2	32.1	31.9	31.6	31.5	31.4	30.4	27.8
35.6	33.8	33.6	33.4	33.1	33.0	32.3	30.4	27.8
41.0	39.2	36.1	36.0	35.3	34.0	32.6	30.7	28.1
47.0	43.0	37.9	37.6	35.3	34.0	32.6	30.7	28.1
48.2	46.0	39.1	37.9	35.3	34.0	32.6	30.7	28.1
53.6	51.1	39.8	37.9	35.3	34.0	32.6	30.7	28.1
59.0	56.3	39.8	37.9	35.3	34.0	32.6	30.7	28.1

MODEL : ARUM36TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	20.8	20.8	20.8	20.7	20.7	20.7	20.6
5.0	3.2	24.1	24.0	24.0	23.8	23.8	23.8	23.7
10.4	8.6	26.9	26.8	26.6	26.6	26.5	26.5	26.4
15.8	14.0	29.4	29.3	29.1	29.1	29.0	28.9	28.8
17.0	15.0	29.9	29.8	29.7	29.5	29.5	29.4	29.3
23.0	21.2	33.2	33.1	32.9	32.8	32.7	32.6	32.4
26.6	24.8	35.0	34.8	34.6	34.6	34.4	34.3	32.7
30.2	28.4	36.7	36.6	36.3	36.2	36.2	35.7	32.7
32.0	30.2	37.7	37.5	37.2	37.1	37.0	35.7	32.7
35.6	33.8	39.5	39.2	39.0	38.9	38.0	35.7	32.7
41.0	39.2	42.5	42.4	41.5	40.0	38.4	36.1	33.1
47.0	43.0	44.5	44.3	41.5	40.0	38.4	36.1	33.1
48.2	46.0	46.1	44.5	41.5	40.0	38.4	36.1	33.1
53.6	51.1	46.8	44.5	41.5	40.0	38.4	36.1	33.1
59.0	56.3	46.8	44.5	41.5	40.0	38.4	36.1	33.1

TC : Total Capacity kBtu/h.

MODEL
SELECTION

MODEL
SELECTION

8-7. HIGH STATIC PRESSURE DUCT TYPE

**HEATING CAPACITY
in kBtu/h**

MODEL : ARUH36TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	20.8	20.8	20.8	20.7	20.7	20.7	20.6
5.0	3.2	24.1	24.0	24.0	23.8	23.8	23.8	23.7
10.4	8.6	26.9	26.8	26.6	26.6	26.5	26.5	26.4
15.8	14.0	29.4	29.3	29.1	29.1	29.0	28.9	28.8
17.0	15.0	29.9	29.8	29.7	29.5	29.5	29.4	29.3
23.0	21.2	33.2	33.1	32.9	32.8	32.7	32.6	32.4
26.6	24.8	35.0	34.8	34.6	34.6	34.4	34.3	32.7
30.2	28.4	36.7	36.6	36.3	36.2	36.2	35.7	32.7
32.0	30.2	37.7	37.5	37.2	37.1	37.0	35.7	32.7
35.6	33.8	39.5	39.2	39.0	38.9	38.0	35.7	32.7
41.0	39.2	42.5	42.4	41.5	40.0	38.4	36.1	33.1
47.0	43.0	44.5	44.3	41.5	40.0	38.4	36.1	33.1
48.2	46.0	46.1	44.5	41.5	40.0	38.4	36.1	33.1
53.6	51.1	46.8	44.5	41.5	40.0	38.4	36.1	33.1
59.0	56.3	46.8	44.5	41.5	40.0	38.4	36.1	33.1

MODEL : ARUH48TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	28.1	28.1	28.1	27.9	27.9	27.9	27.8
5.0	3.2	32.5	32.4	32.4	32.2	32.2	32.2	32.0
10.4	8.6	36.3	36.1	35.9	35.9	35.8	35.8	35.6
15.8	14.0	39.7	39.5	39.4	39.4	39.2	39.0	38.8
17.0	15.0	40.4	40.2	40.0	39.9	39.9	39.7	39.5
23.0	21.2	44.8	44.6	44.5	44.3	44.1	43.9	43.8
26.6	24.8	47.2	47.0	46.7	46.7	46.5	46.3	44.1
30.2	28.4	49.6	49.4	49.1	48.9	48.9	48.2	44.1
32.0	30.2	50.9	50.6	50.3	50.1	49.9	48.2	44.1
35.6	33.8	53.3	53.0	52.6	52.5	51.3	48.2	44.1
41.0	39.2	57.4	57.2	56.0	54.0	51.8	48.7	44.6
47.0	43.0	60.1	59.8	56.0	54.0	51.8	48.7	44.6
48.2	46.0	62.2	60.1	56.0	54.0	51.8	48.7	44.6
53.6	51.1	63.2	60.1	56.0	54.0	51.8	48.7	44.6
59.0	56.3	63.2	60.1	56.0	54.0	51.8	48.7	44.6

MODEL : ARUH60TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	34.9	34.9	34.9	34.7	34.7	34.7	34.5
5.0	3.2	40.4	40.2	40.2	39.9	39.9	39.9	39.7
10.4	8.6	45.0	44.8	44.6	44.6	44.4	44.4	44.2
15.8	14.0	49.2	49.0	48.8	48.8	48.6	48.4	48.2
17.0	15.0	50.1	49.9	49.7	49.5	49.5	49.2	49.0
23.0	21.2	55.6	55.4	55.2	55.0	54.7	54.5	54.3
26.6	24.8	58.5	58.3	57.9	57.9	57.7	57.5	54.7
30.2	28.4	61.5	61.3	60.9	60.7	60.7	59.8	54.7
32.0	30.2	63.2	62.8	62.4	62.1	61.9	59.8	54.7
35.6	33.8	66.2	65.7	65.3	65.1	63.6	59.8	54.7
41.0	39.2	71.2	71.0	69.5	67.0	64.3	60.4	55.4
47.0	43.0	74.6	74.2	69.5	67.0	64.3	60.4	55.4
48.2	46.0	77.1	74.6	69.5	67.0	64.3	60.4	55.4
53.6	51.1	78.4	74.6	69.5	67.0	64.3	60.4	55.4
59.0	56.3	78.4	74.6	69.5	67.0	64.3	60.4	55.4

TC : Total Capacity kBtu/h.

MODEL
SELECTION

MODEL
SELECTION

HEATING CAPACITY in kBtu/h

■ MODEL : ARUH72TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	42.2	42.2	42.2	41.9	41.9	41.9	41.6
5.0	3.2	48.8	48.5	48.5	48.3	48.3	48.3	48.0
10.4	8.6	54.4	54.2	53.9	53.9	53.7	53.7	53.4
15.8	14.0	59.5	59.3	59.0	59.0	58.8	58.5	58.3
17.0	15.0	60.6	60.3	60.0	59.8	59.8	59.5	59.3
23.0	21.2	67.2	66.9	66.7	66.4	66.2	65.9	65.7
26.6	24.8	70.8	70.5	70.0	70.0	69.8	69.5	66.2
30.2	28.4	74.4	74.1	73.6	73.3	73.3	72.3	66.2
32.0	30.2	76.4	75.9	75.4	75.1	74.9	72.3	66.2
35.6	33.8	80.0	79.5	79.0	78.7	76.9	72.3	66.2
41.0	39.2	86.1	85.9	84.1	81.0	77.7	73.1	66.9
47.0	43.0	90.2	89.7	84.1	81.0	77.7	73.1	66.9
48.2	46.0	93.3	90.2	84.1	81.0	77.7	73.1	66.9
53.6	51.1	94.8	90.2	84.1	81.0	77.7	73.1	66.9
59.0	56.3	94.8	90.2	84.1	81.0	77.7	73.1	66.9

■ MODEL : ARUH96TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	56.2	56.2	56.2	55.9	55.9	55.9	55.5
5.0	3.2	65.1	64.7	64.7	64.4	64.4	64.4	64.1
10.4	8.6	72.6	72.2	71.9	71.9	71.5	71.5	71.2
15.8	14.0	79.4	79.0	78.7	78.7	78.4	78.0	77.7
17.0	15.0	80.7	80.4	80.1	79.7	79.7	79.4	79.0
23.0	21.2	89.6	89.3	88.9	88.6	88.2	87.9	87.6
26.6	24.8	94.4	94.0	93.4	93.4	93.0	92.7	88.2
30.2	28.4	99.1	98.8	98.1	97.8	97.8	96.4	88.2
32.0	30.2	101.9	101.2	100.5	100.2	99.8	96.4	88.2
35.6	33.8	106.6	106.0	105.3	104.9	102.5	96.4	88.2
41.0	39.2	114.8	114.5	112.1	108.0	103.6	97.4	89.3
47.0	43.0	120.3	119.6	112.1	108.0	103.6	97.4	89.3
48.2	46.0	124.4	120.3	112.1	108.0	103.6	97.4	89.3
53.6	51.1	126.4	120.3	112.1	108.0	103.6	97.4	89.3
59.0	56.3	126.4	120.3	112.1	108.0	103.6	97.4	89.3

TC : Total Capacity kBtu/h.

8-8. VERTICAL AIR HANDLER TYPE

**HEATING CAPACITY
in kBtu/h**

MODEL
SELECTION

MODEL
SELECTION

MODEL : ARUV12TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

MODEL : ARUV18TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

MODEL : ARUV24TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

MODEL : ARUV30TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	17.7	17.7	17.7	17.6	17.6	17.6	17.5
5.0	3.2	20.5	20.4	20.4	20.3	20.3	20.3	20.2
10.4	8.6	22.8	22.7	22.6	22.6	22.5	22.5	22.4
15.8	14.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5
17.0	15.0	25.4	25.3	25.2	25.1	25.1	25.0	24.9
23.0	21.2	28.2	28.1	28.0	27.9	27.8	27.7	27.6
26.6	24.8	29.7	29.6	29.4	29.4	29.3	29.2	27.8
30.2	28.4	31.2	31.1	30.9	30.8	30.8	30.4	27.8
32.0	30.2	32.1	31.9	31.6	31.5	31.4	30.4	27.8
35.6	33.8	33.6	33.4	33.1	33.0	32.3	30.4	27.8
41.0	39.2	36.1	36.0	35.3	34.0	32.6	30.7	28.1
47.0	43.0	37.9	37.6	35.3	34.0	32.6	30.7	28.1
48.2	46.0	39.1	37.9	35.3	34.0	32.6	30.7	28.1
53.6	51.1	39.8	37.9	35.3	34.0	32.6	30.7	28.1
59.0	56.3	39.8	37.9	35.3	34.0	32.6	30.7	28.1

TC : Total Capacity kBtu/h.

HEATING CAPACITY in kBtu/h

MODEL : ARUV36TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	20.8	20.8	20.8	20.7	20.7	20.7	20.6
5.0	3.2	24.1	24.0	24.0	23.8	23.8	23.8	23.7
10.4	8.6	26.9	26.8	26.6	26.6	26.5	26.5	26.4
15.8	14.0	29.4	29.3	29.1	29.1	29.0	28.9	28.8
17.0	15.0	29.9	29.8	29.7	29.5	29.5	29.4	29.3
23.0	21.2	33.2	33.1	32.9	32.8	32.7	32.6	32.4
26.6	24.8	35.0	34.8	34.6	34.6	34.4	34.3	32.7
30.2	28.4	36.7	36.6	36.3	36.2	36.2	35.7	32.7
32.0	30.2	37.7	37.5	37.2	37.1	37.0	35.7	32.7
35.6	33.8	39.5	39.2	39.0	38.9	38.0	35.7	32.7
41.0	39.2	42.5	42.4	41.5	40.0	38.4	36.1	33.1
47.0	43.0	44.5	44.3	41.5	40.0	38.4	36.1	33.1
48.2	46.0	46.1	44.5	41.5	40.0	38.4	36.1	33.1
53.6	51.1	46.8	44.5	41.5	40.0	38.4	36.1	33.1
59.0	56.3	46.8	44.5	41.5	40.0	38.4	36.1	33.1

MODEL : ARUV48TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	28.1	28.1	28.1	27.9	27.9	27.9	27.8
5.0	3.2	32.5	32.4	32.4	32.2	32.2	32.2	32.0
10.4	8.6	36.3	36.1	35.9	35.9	35.8	35.8	35.6
15.8	14.0	39.7	39.5	39.4	39.4	39.2	39.0	38.8
17.0	15.0	40.4	40.2	40.0	39.9	39.9	39.7	39.5
23.0	21.2	44.8	44.6	44.5	44.3	44.1	43.9	43.8
26.6	24.8	47.2	47.0	46.7	46.7	46.5	46.3	44.1
30.2	28.4	49.6	49.4	49.1	48.9	48.9	48.2	44.1
32.0	30.2	50.9	50.6	50.3	50.1	49.9	48.2	44.1
35.6	33.8	53.3	53.0	52.6	52.5	51.3	48.2	44.1
41.0	39.2	57.4	57.2	56.0	54.0	51.8	48.7	44.6
47.0	43.0	60.1	59.8	56.0	54.0	51.8	48.7	44.6
48.2	46.0	62.2	60.1	56.0	54.0	51.8	48.7	44.6
53.6	51.1	63.2	60.1	56.0	54.0	51.8	48.7	44.6
59.0	56.3	63.2	60.1	56.0	54.0	51.8	48.7	44.6

MODEL : ARUV60TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	34.9	34.9	34.9	34.7	34.7	34.7	34.5
5.0	3.2	40.4	40.2	40.2	39.9	39.9	39.9	39.7
10.4	8.6	45.0	44.8	44.6	44.6	44.4	44.4	44.2
15.8	14.0	49.2	49.0	48.8	48.8	48.6	48.4	48.2
17.0	15.0	50.1	49.9	49.7	49.5	49.5	49.2	49.0
23.0	21.2	55.6	55.4	55.2	55.0	54.7	54.5	54.3
26.6	24.8	58.5	58.3	57.9	57.9	57.7	57.5	54.7
30.2	28.4	61.5	61.3	60.9	60.7	60.7	59.8	54.7
32.0	30.2	63.2	62.8	62.4	62.1	61.9	59.8	54.7
35.6	33.8	66.2	65.7	65.3	65.1	63.6	59.8	54.7
41.0	39.2	71.2	71.0	69.5	67.0	64.3	60.4	55.4
47.0	43.0	74.6	74.2	69.5	67.0	64.3	60.4	55.4
48.2	46.0	77.1	74.6	69.5	67.0	64.3	60.4	55.4
53.6	51.1	78.4	74.6	69.5	67.0	64.3	60.4	55.4
59.0	56.3	78.4	74.6	69.5	67.0	64.3	60.4	55.4

TC : Total Capacity kBtu/h.

8-9. COMPACT FLOOR TYPE

**HEATING CAPACITY
in kBtu/h**

MODEL : AGUA4TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3
5.0	3.2	2.7	2.6	2.6	2.6	2.6	2.6	2.6
10.4	8.6	3.0	2.9	2.9	2.9	2.9	2.9	2.9
15.8	14.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2
17.0	15.0	3.3	3.3	3.3	3.2	3.2	3.2	3.2
23.0	21.2	3.7	3.6	3.6	3.6	3.6	3.6	3.6
26.6	24.8	3.8	3.8	3.8	3.8	3.8	3.8	3.6
30.2	28.4	4.0	4.0	4.0	4.0	4.0	3.9	3.6
32.0	30.2	4.2	4.1	4.1	4.1	4.1	3.9	3.6
35.6	33.8	4.3	4.3	4.3	4.3	4.2	3.9	3.6
41.0	39.2	4.7	4.7	4.6	4.4	4.2	4.0	3.6
47.0	43.0	4.9	4.9	4.6	4.4	4.2	4.0	3.6
48.2	46.0	5.1	4.9	4.6	4.4	4.2	4.0	3.6
53.6	51.1	5.1	4.9	4.6	4.4	4.2	4.0	3.6
59.0	56.3	5.1	4.9	4.6	4.4	4.2	4.0	3.6

MODEL : AGUA7TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
5.0	3.2	5.7	5.7	5.7	5.7	5.7	5.7	5.6
10.4	8.6	6.4	6.4	6.3	6.3	6.3	6.3	6.3
15.8	14.0	7.0	7.0	6.9	6.9	6.9	6.9	6.8
17.0	15.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0
23.0	21.2	7.9	7.9	7.8	7.8	7.8	7.7	7.7
26.6	24.8	8.3	8.3	8.2	8.2	8.2	8.2	7.8
30.2	28.4	8.7	8.7	8.6	8.6	8.6	8.5	7.8
32.0	30.2	9.0	8.9	8.8	8.8	8.8	8.5	7.8
35.6	33.8	9.4	9.3	9.3	9.2	9.0	8.5	7.8
41.0	39.2	10.1	10.1	9.9	9.5	9.1	8.6	7.9
47.0	43.0	10.6	10.5	9.9	9.5	9.1	8.6	7.9
48.2	46.0	10.9	10.6	9.9	9.5	9.1	8.6	7.9
53.6	51.1	11.1	10.6	9.9	9.5	9.1	8.6	7.9
59.0	56.3	11.1	10.6	9.9	9.5	9.1	8.6	7.9

MODEL : AGUA9TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6
5.0	3.2	6.6	6.5	6.5	6.5	6.5	6.5	6.5
10.4	8.6	7.3	7.3	7.3	7.3	7.2	7.2	7.2
15.8	14.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8
17.0	15.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0
23.0	21.2	9.0	9.0	9.0	8.9	8.9	8.9	8.8
26.6	24.8	9.5	9.5	9.4	9.4	9.4	9.4	8.9
30.2	28.4	10.0	10.0	9.9	9.9	9.9	9.7	8.9
32.0	30.2	10.3	10.2	10.1	10.1	10.1	9.7	8.9
35.6	33.8	10.8	10.7	10.6	10.6	10.3	9.7	8.9
41.0	39.2	11.6	11.6	11.3	10.9	10.5	9.8	9.0
47.0	43.0	12.1	12.1	11.3	10.9	10.5	9.8	9.0
48.2	46.0	12.6	12.1	11.3	10.9	10.5	9.8	9.0
53.6	51.1	12.8	12.1	11.3	10.9	10.5	9.8	9.0
59.0	56.3	12.8	12.1	11.3	10.9	10.5	9.8	9.0

TC : Total Capacity kBtu/h.

MODEL
SELECTION

MODEL
SELECTION

HEATING CAPACITY in kBtu/h

■ MODEL : AGUA12TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

■ MODEL : AGUA14TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

TC : Total Capacity kBtu/h.

8-10. FLOOR / CEILING TYPE

**HEATING CAPACITY
in kBtu/h**

MODEL : ABUA12TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

MODEL : ABUA14TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

MODEL : ABUA18TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

MODEL : ABUA24TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

TC : Total Capacity kBtu/h.

MODEL SELECTION

MODEL SELECTION

8-11. CEILING TYPE

**HEATING CAPACITY
in kBtu/h**

■ MODEL : ABUA30TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	17.7	17.7	17.7	17.6	17.6	17.6	17.5
5.0	3.2	20.5	20.4	20.4	20.3	20.3	20.3	20.2
10.4	8.6	22.8	22.7	22.6	22.6	22.5	22.5	22.4
15.8	14.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5
17.0	15.0	25.4	25.3	25.2	25.1	25.1	25.0	24.9
23.0	21.2	28.2	28.1	28.0	27.9	27.8	27.7	27.6
26.6	24.8	29.7	29.6	29.4	29.4	29.3	29.2	27.8
30.2	28.4	31.2	31.1	30.9	30.8	30.8	30.4	27.8
32.0	30.2	32.1	31.9	31.6	31.5	31.4	30.4	27.8
35.6	33.8	33.6	33.4	33.1	33.0	32.3	30.4	27.8
41.0	39.2	36.1	36.0	35.3	34.0	32.6	30.7	28.1
47.0	43.0	37.9	37.6	35.3	34.0	32.6	30.7	28.1
48.2	46.0	39.1	37.9	35.3	34.0	32.6	30.7	28.1
53.6	51.1	39.8	37.9	35.3	34.0	32.6	30.7	28.1
59.0	56.3	39.8	37.9	35.3	34.0	32.6	30.7	28.1

■ MODEL : ABUA36TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	20.8	20.8	20.8	20.7	20.7	20.7	20.6
5.0	3.2	24.1	24.0	24.0	23.8	23.8	23.8	23.7
10.4	8.6	26.9	26.8	26.6	26.6	26.5	26.5	26.4
15.8	14.0	29.4	29.3	29.1	29.1	29.0	28.9	28.8
17.0	15.0	29.9	29.8	29.7	29.5	29.5	29.4	29.3
23.0	21.2	33.2	33.1	32.9	32.8	32.7	32.6	32.4
26.6	24.8	35.0	34.8	34.6	34.6	34.4	34.3	32.7
30.2	28.4	36.7	36.6	36.3	36.2	36.2	35.7	32.7
32.0	30.2	37.7	37.5	37.2	37.1	37.0	35.7	32.7
35.6	33.8	39.5	39.2	39.0	38.9	38.0	35.7	32.7
41.0	39.2	42.5	42.4	41.5	40.0	38.4	36.1	33.1
47.0	43.0	44.5	44.3	41.5	40.0	38.4	36.1	33.1
48.2	46.0	46.1	44.5	41.5	40.0	38.4	36.1	33.1
53.6	51.1	46.8	44.5	41.5	40.0	38.4	36.1	33.1
59.0	56.3	46.8	44.5	41.5	40.0	38.4	36.1	33.1

TC : Total Capacity kBtu/h.

MODEL
SELECTION

MODEL
SELECTION

8-12. WALL MOUNTED TYPE

**HEATING CAPACITY
in kBtu/h**

MODEL : ASUA4TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3
5.0	3.2	2.7	2.6	2.6	2.6	2.6	2.6	2.6
10.4	8.6	3.0	2.9	2.9	2.9	2.9	2.9	2.9
15.8	14.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2
17.0	15.0	3.3	3.3	3.3	3.2	3.2	3.2	3.2
23.0	21.2	3.7	3.6	3.6	3.6	3.6	3.6	3.6
26.6	24.8	3.8	3.8	3.8	3.8	3.8	3.8	3.6
30.2	28.4	4.0	4.0	4.0	4.0	4.0	3.9	3.6
32.0	30.2	4.2	4.1	4.1	4.1	4.1	3.9	3.6
35.6	33.8	4.3	4.3	4.3	4.3	4.2	3.9	3.6
41.0	39.2	4.7	4.7	4.6	4.4	4.2	4.0	3.6
47.0	43.0	4.9	4.9	4.6	4.4	4.2	4.0	3.6
48.2	46.0	5.1	4.9	4.6	4.4	4.2	4.0	3.6
53.6	51.1	5.1	4.9	4.6	4.4	4.2	4.0	3.6
59.0	56.3	5.1	4.9	4.6	4.4	4.2	4.0	3.6

MODEL : ASUA7TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
5.0	3.2	5.7	5.7	5.7	5.7	5.7	5.7	5.6
10.4	8.6	6.4	6.4	6.3	6.3	6.3	6.3	6.3
15.8	14.0	7.0	7.0	6.9	6.9	6.9	6.9	6.8
17.0	15.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0
23.0	21.2	7.9	7.9	7.8	7.8	7.8	7.7	7.7
26.6	24.8	8.3	8.3	8.2	8.2	8.2	8.2	7.8
30.2	28.4	8.7	8.7	8.6	8.6	8.6	8.5	7.8
32.0	30.2	9.0	8.9	8.8	8.8	8.8	8.5	7.8
35.6	33.8	9.4	9.3	9.3	9.2	9.0	8.5	7.8
41.0	39.2	10.1	10.1	9.9	9.5	9.1	8.6	7.9
47.0	43.0	10.6	10.5	9.9	9.5	9.1	8.6	7.9
48.2	46.0	10.9	10.6	9.9	9.5	9.1	8.6	7.9
53.6	51.1	11.1	10.6	9.9	9.5	9.1	8.6	7.9
59.0	56.3	11.1	10.6	9.9	9.5	9.1	8.6	7.9

MODEL : ASUA9TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6
5.0	3.2	6.6	6.5	6.5	6.5	6.5	6.5	6.5
10.4	8.6	7.3	7.3	7.3	7.3	7.2	7.2	7.2
15.8	14.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8
17.0	15.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0
23.0	21.2	9.0	9.0	9.0	8.9	8.9	8.9	8.8
26.6	24.8	9.5	9.5	9.4	9.4	9.4	9.4	8.9
30.2	28.4	10.0	10.0	9.9	9.9	9.9	9.7	8.9
32.0	30.2	10.3	10.2	10.1	10.1	10.1	9.7	8.9
35.6	33.8	10.8	10.7	10.6	10.6	10.3	9.7	8.9
41.0	39.2	11.6	11.6	11.3	10.9	10.5	9.8	9.0
47.0	43.0	12.1	12.1	11.3	10.9	10.5	9.8	9.0
48.2	46.0	12.6	12.1	11.3	10.9	10.5	9.8	9.0
53.6	51.1	12.8	12.1	11.3	10.9	10.5	9.8	9.0
59.0	56.3	12.8	12.1	11.3	10.9	10.5	9.8	9.0

TC : Total Capacity kBtu/h.

MODEL
SELECTION

MODEL
SELECTION

HEATING CAPACITY in kBtu/h

■ MODEL : ASUA12TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

■ MODEL : ASUA14TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

TC : Total Capacity kBtu/h.

HEATING CAPACITY in kBtu/h

MODEL : ASUB18TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

MODEL : ASUB24TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

MODEL : ASUB30TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	17.7	17.7	17.7	17.6	17.6	17.6	17.5
5.0	3.2	20.5	20.4	20.4	20.3	20.3	20.3	20.2
10.4	8.6	22.8	22.7	22.6	22.6	22.5	22.5	22.4
15.8	14.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5
17.0	15.0	25.4	25.3	25.2	25.1	25.1	25.0	24.9
23.0	21.2	28.2	28.1	28.0	27.9	27.8	27.7	27.6
26.6	24.8	29.7	29.6	29.4	29.4	29.3	29.2	27.8
30.2	28.4	31.2	31.1	30.9	30.8	30.8	30.4	27.8
32.0	30.2	32.1	31.9	31.6	31.5	31.4	30.4	27.8
35.6	33.8	33.6	33.4	33.1	33.0	32.3	30.4	27.8
41.0	39.2	36.1	36.0	35.3	34.0	32.6	30.7	28.1
47.0	43.0	37.9	37.6	35.3	34.0	32.6	30.7	28.1
48.2	46.0	39.1	37.9	35.3	34.0	32.6	30.7	28.1
53.6	51.1	39.8	37.9	35.3	34.0	32.6	30.7	28.1
59.0	56.3	39.8	37.9	35.3	34.0	32.6	30.7	28.1

MODEL : ASUB36TLAV1

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	19.8	19.8	19.8	19.7	19.7	19.7	19.5
5.0	3.2	22.9	22.8	22.8	22.7	22.7	22.7	22.5
10.4	8.6	25.5	25.4	25.3	25.3	25.2	25.2	25.1
15.8	14.0	27.9	27.8	27.7	27.7	27.6	27.5	27.3
17.0	15.0	28.4	28.3	28.2	28.1	28.1	27.9	27.8
23.0	21.2	31.5	31.4	31.3	31.2	31.0	30.9	30.8
26.6	24.8	33.2	33.1	32.8	32.8	32.7	32.6	31.0
30.2	28.4	34.9	34.8	34.5	34.4	34.4	33.9	31.0
32.0	30.2	35.8	35.6	35.4	35.2	35.1	33.9	31.0
35.6	33.8	37.5	37.3	37.0	36.9	36.1	33.9	31.0
41.0	39.2	40.4	40.3	39.4	38.0	36.4	34.3	31.4
47.0	43.0	42.3	42.1	39.4	38.0	36.4	34.3	31.4
48.2	46.0	43.8	42.3	39.4	38.0	36.4	34.3	31.4
53.6	51.1	44.5	42.3	39.4	38.0	36.4	34.3	31.4
59.0	56.3	44.5	42.3	39.4	38.0	36.4	34.3	31.4

TC : Total Capacity kBtu/h.

MODEL SELECTION

MODEL SELECTION

HEATING CAPACITY in kBtu/h

MODEL : ASUA7TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
5.0	3.2	5.7	5.7	5.7	5.7	5.7	5.7	5.6
10.4	8.6	6.4	6.4	6.3	6.3	6.3	6.3	6.3
15.8	14.0	7.0	7.0	6.9	6.9	6.9	6.9	6.8
17.0	15.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0
23.0	21.2	7.9	7.9	7.8	7.8	7.8	7.7	7.7
26.6	24.8	8.3	8.3	8.2	8.2	8.2	8.2	7.8
30.2	28.4	8.7	8.7	8.6	8.6	8.6	8.5	7.8
32.0	30.2	9.0	8.9	8.8	8.8	8.8	8.5	7.8
35.6	33.8	9.4	9.3	9.3	9.2	9.0	8.5	7.8
41.0	39.2	10.1	10.1	9.9	9.5	9.1	8.6	7.9
47.0	43.0	10.6	10.5	9.9	9.5	9.1	8.6	7.9
48.2	46.0	10.9	10.6	9.9	9.5	9.1	8.6	7.9
53.6	51.1	11.1	10.6	9.9	9.5	9.1	8.6	7.9
59.0	56.3	11.1	10.6	9.9	9.5	9.1	8.6	7.9

MODEL : ASUA9TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6
5.0	3.2	6.6	6.5	6.5	6.5	6.5	6.5	6.5
10.4	8.6	7.3	7.3	7.3	7.3	7.2	7.2	7.2
15.8	14.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8
17.0	15.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0
23.0	21.2	9.0	9.0	9.0	8.9	8.9	8.9	8.8
26.6	24.8	9.5	9.5	9.4	9.4	9.4	9.4	8.9
30.2	28.4	10.0	10.0	9.9	9.9	9.9	9.7	8.9
32.0	30.2	10.3	10.2	10.1	10.1	10.1	9.7	8.9
35.6	33.8	10.8	10.7	10.6	10.6	10.3	9.7	8.9
41.0	39.2	11.6	11.6	11.3	10.9	10.5	9.8	9.0
47.0	43.0	12.1	12.1	11.3	10.9	10.5	9.8	9.0
48.2	46.0	12.6	12.1	11.3	10.9	10.5	9.8	9.0
53.6	51.1	12.8	12.1	11.3	10.9	10.5	9.8	9.0
59.0	56.3	12.8	12.1	11.3	10.9	10.5	9.8	9.0

MODEL : ASUA12TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

MODEL : ASUA14TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

TC : Total Capacity kBtu/h.

MODEL SELECTION

MODEL SELECTION

HEATING CAPACITY in kBtu/h

■ MODEL : ASUB18TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

■ MODEL : ASUB24TLAV

Outdoor Temperature		Indoor temperature						
(°FDB)	(°FWB)	61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
		TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

TC : Total Capacity kBtu/h.

MODEL SELECTION

MODEL SELECTION



3. OUTDOOR UNITS

CONTENTS

3.OUTDOOR UNITS

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1. SPECIFICATIONS

1-1. OUTDOOR UNITS

Nominal system capacity		Ton	6	8	10	
Model name			AOUA72TLBV	AOUA96TLBV	AOUA120TLBV	
Power source			3Phase ~ 208/230V, 60Hz			
Available voltage range			187 to 253V			
Nominal	Capacity	Cooling	Btu/h	72,000	96,000	120,000
			kW	21.1	28.1	35.2
	Heating	Btu/h	81,000	108,000	135,000	
		kW	23.7	31.7	39.6	
	Input power *1	Cooling	kW	5.31	7.56	9.75
			Heating	5.35	7.82	10.11
Current *2 (Rated)	Cooling	A	14.31	20.12	25.70	
		Heating	14.57	20.79	26.82	
Fan	Type x Quantity		Propeller fan x 1			
	Airflow rate	High	CFM (m ³ / h)	6,533 (11,100)	7,652 (13,000)	
	External static pressure (Max)		in.WG (Pa)	0.32 (80)		
	Motor	Type x Quantity		DC motor x 1		
Output		W	740			
Sound pressure level	Cooling		dB(A)	57	59	61
	Heating		dB(A)	58	59	62
Heat exchanger	Length		in. (mm)	69-5/16 (1,760)		81-1/2 (2,070)
	Fin pitch		FPI (mm)	18 (1.45)		
	Rows x Stages			3 x 60		
	Face area		ft ² . (m ²)	23 (2.2)		28 (2.6)
	Pipe type (Material)			Grooved H-pin (Copper)		
	Fin	Type (Material)		Corrugate (Aluminum)		
Surface treatment		Corrosion resistance (Blue fin)				
Compressor	Type x Quantity		Rotary (inv) x 1			
	Motor output	kW	7.5		11.0	
	Crankcase heater	W	35 x 2			
Refrigerant	Type		R410A			
	Charge	lbs (kg)	26.01 (11.80)			
Refrigerant oil	Type		POE			
Enclosure	Material		Painted galvanized steel			
	Color		Beige (10YR 7.5/1.0NN)			
Dimensions (H x W x D)	Net		in.(mm)	66-9/16 x 36-5/8 x 30-1/8 (1,690 x 930 x 765)		66-9/16 x 48-13/16 x 30-1/8 (1,690 x 1,240 x 765)
	Gross		in.(mm)	71-5/16 x 39-7/16 x 33-3/8 (1,811 x 1,002 x 847)		71-5/16 x 51-5/8 x 33-3/8 (1,811 x 1,312 x 847)
Weight	Net		lbs (kg)	597 (271)		639 (290)
	Gross		lbs (kg)	642 (291)		690 (313)
Connection pipe	Pipe diameter	Liquid	in. (mm)	1/2 (12.70)		
		Discharge gas		5/8 (15.88)	3/4 (19.05)	
		Suction gas		7/8 (22.22)		1-1/8 (28.58)
	Method	Liquid	Brazing			
		Discharge gas	Brazing			
		Suction gas	Brazing			
	Max. length		ft (m)	542 (165)		
Max. height difference		164 / 131 (50 / 40) (Outdoor unit : Upper / Lower)				
Operation temperature range	Cooling		°FDB (°CDB)	14 to 115 (-10 to 46)		
	Heating			-4 to 70 (-20 to 21)		
	Cooling/Heating simultaneous			14 to 70 (-10 to 21)		
Defrost method		Reversed cycle				
Compressor capacity control (Steps / Range)		951 steps / 20 to 115 rps				
Connectable indoor units		Number	14	16	18	

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95°F(35.0°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference between outdoor unit and indoor unit : 0 ft.

*1: Electrical data is only for outdoor unit.

*2: Refer to the section Chapter 6 "4-2 power supply cable wiring" when selecting the circuit breaker.

Nominal system capacity		Ton	12	14	16	18	
Set model name			AOUA144TLBVG	AOUA168TLBVG	AOUA192TLBVG	AOUA216TLBVG	
Model name (combination)			AOUA72TLBV AOUA72TLBV	AOUA96TLBV AOUA72TLBV	AOUA120TLBV AOUA72TLBV	AOUA120TLBV AOUA96TLBV	
Power source			3Phase ~ 208/230V, 60Hz				
Available voltage range			187 to 253V				
Nominal	Capacity	Cooling	Btu/h	144,000	168,000	192,000	216,000
			kW	42.2	49.2	56.2	63.3
	Heating	Btu/h	162,000	188,000	216,000	243,000	
		kW	47.5	55.1	63.3	71.2	
Input power *1	Cooling	Heating	kW	11.69	14.03	15.87	18.25
				12.73	14.57	15.53	18.91
Fan	Type x Quantity		Propeller fan x 2				
	Airflow rate	High	CFM (m ³ / h)	6,533 x 2 (11,100 x 2)		7,652 + 6,533 (13,000 + 11,100)	
	External static pressure (Max)		in.WG (Pa)	0.32 (80)			
	Motor	Type x Quantity		DC motor x 2			
		Output	W	740 x 2			
Sound pressure level	Cooling		dB(A)	60	61	62	63
	Heating			61	62	63	64
Heat exchanger	Length		in. (mm)	69-5/16 x 2 (1,760 x 2)		81-1/2 + 69-5/16 (2,070 + 1,760)	
	Fin pitch		FPI (mm)	18 (1.45)			
	Rows x Stages			(3 x 60) x 2			
	Face area		ft ² (m ²)	23 x 2 (2.2 x 2)		28 + 23 (2.6 + 2.2)	
	Pipe type (Material)			Grooved H-pin (Copper)			
	Fin	Type (Material)		Corrugate (Aluminum)			
Surface treatment		Corrosion resistance (Blue fin)					
Compressor	Type x Quantity		(Rotary (inv) x 1) x 2				
	Motor output		kW	7.5 x 2		11.0 + 7.5	
	Crankcase heater		W	(35 x 2) x 2			
Refrigerant	Type		R410A				
	Charge		lbs (kg)	26.01 x 2 (11.80 x 2)			
Refrigerant oil	Type		POE				
Enclosure	Material		Painted galvanized steel				
	Color		Beige (10YR 7.5/1.0NN)				
Dimensions (H x W x D)	Net		in.(mm)	(66-9/16 x 36-5/8 x 30-1/8) x 2 [(1,690 x 930 x 765) x 2]		66-9/16 x 48-13/16 x 30-1/8 66-9/16 x 36-5/8 x 30-1/8 (1,690 x 1,240 x 765 1,690 x 930 x 765)	
	Gross			(71-5/16 x 39-7/16 x 33-3/8) x 2 [(1,811 x 1,002 x 847) x 2]		71-5/16 x 51-5/8 x 33-3/8 71-5/16 x 39-7/16 x 33-3/8 (1,811 x 1,312 x 847 1,811 x 1,002 x 847)	
Weight	Net		lbs (kg)	597 x 2 (271 x 2)		639 + 597 (290 + 271)	
	Gross			642 x 2 (291 x 2)		690 + 642 (313 + 291)	
Connection pipe	Pipe diameter	Liquid	in. (mm)	1/2 (12.70)	5/8 (15.88)		
		Discharge gas		7/8 (22.22)		1-1/8 (28.58)	
		Suction gas		1-1/8 (28.58)		1-3/8 (34.92)	
	Method	Liquid	Brazing				
		Discharge gas	Brazing				
		Suction gas	Brazing				
	Max. length		ft (m)	542 (165)			
Max. height difference		164 / 131 (50 / 40) (Outdoor unit : Upper / Lower)					
Operation temperature range	Cooling		°FDB (°CDB)	14 to 115 (-10 to 46)			
	Heating			-4 to 70 (-20 to 21)			
	Cooling/Heating simultaneous			14 to 70 (-10 to 21)			
Defrost method		Reversed cycle					
Connectable indoor units		Number	22	26	30	34	

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95°F(35.0°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference between outdoor unit and indoor unit : 0 ft.

*1: Electrical data is only for outdoor unit.

Nominal system capacity		Ton	20	22	24		
Set model name			AOUA240TLBVG	AOUA264TLBVG	AOUA288TLBVG		
Model name (combination)			AOUA120TLBV AOUA120TLBV	AOUA96TLBV AOUA96TLBV AOUA72TLBV	AOUA96TLBV AOUA96TLBV AOUA96TLBV		
Power source			3Phase ~ 208/230V, 60Hz				
Available voltage range			187 to 264V				
Nominal	Capacity	Cooling	Btu/h	240,000	264,000	288,000	
			kW	70.3	77.4	84.4	
		Heating	Btu/h	270,000	297,000	324,000	
			kW	79.1	87.0	95.0	
	Input power *1	Cooling	Heating	kW	20.23	22.35	24.99
21.74					23.25	26.08	
Fan	Type x Quantity		Propeller fan x 2		Propeller fan x 3		
	Airflow rate	High	CFM (m ³ / h)	7,652 x 2 (13,000 x 2)		6,533 x 3 (11,100 x 3)	
	External static pressure (Max)		in.WG (Pa)	0.32 (80)			
	Motor	Type x Quantity		DC motor x 2		DC motor x 3	
		Output		W	740 x 2		740 x 3
Sound pressure level	Cooling		dB(A)	64		64	
	Heating			65		64	
Heat exchanger	Length		in. (mm)	81-1/2 x 2 (2,070 x 2)		69-5/16 x 3 (1,760 x 3)	
	Fin pitch		FPI (mm)	18 (1.45)			
	Rows x Stages			(3 x 60) x 2		(3 x 60) x 3	
	Face area		ft ² (m ²)	28 x 2 (2.6 x 2)		23 x 3 (2.2 x 3)	
	Pipe type (Material)			Grooved H-pin (Copper)			
	Fin	Type (Material)		Corrugate (Aluminum)			
Surface treatment		Corrosion resistance (Blue fin)					
Compressor	Type x Quantity		(Rotary (inv) x 1) x 2		(Rotary (inv) x 1) x 3		
	Motor output	kW	11.0 x 2		7.5 x 3		
	Crankcase heater	W	(35 x 2) x 2		(35 x 2) x 3		
Refrigerant	Type		R410A				
	Charge	lbs (kg)	26.01 x 2 (11.80 x 2)		26.01 x 3 (11.80 x 3)		
Refrigerant oil	Type		POE				
Enclosure	Material		Painted galvanized steel				
	Color		Beige (10YR 7.5/1.0NN)				
Dimensions (H x W x D)	Net		in.(mm)	(66-9/16 x 48-13/16 x 30-1/8) x 2 [(1,690 x 1,240 x 765) x 2]		(66-9/16 x 36-5/8 x 30-1/8) x 3 [(1,690 x 930 x 765) x 3]	
	Gross			(71-5/16 x 51-5/8 x 33-3/8) x 2 [(1,811 x 1,312 x 847) x 2]		(71-5/16 x 39-7/16 x 33-3/8) x 3 [(1,811 x 1,002 x 847) x 3]	
Weight	Net		lbs (kg)	639 x 2 (290 x 2)		597 x 3 (271 x 3)	
	Gross			690 x 2 (313 x 2)		642 x 3 (291 x 3)	
Connection pipe	Pipe diameter	Liquid	in. (mm)	5/8 (15.88)		3/4(19.05)	
		Discharge gas		1-1/8 (28.58)			
		Suction gas		1-3/8 (34.92)			
	Method	Liquid		Brazing			
		Discharge gas		Brazing			
		Suction gas		Brazing			
	Max. length		ft (m)	542 (165)			
Max. height difference		164 / 131 (50 / 40) (Outdoor unit : Upper / Lower)					
Operation temperature range	Cooling		°FDB (°CDB)	14 to 115 (-10 to 46)			
	Heating			-4 to 70 (-20 to 21)			
	Cooling/Heating simultaneous			14 to 70 (-10 to 21)			
Defrost method		Reversed cycle					
Connectable indoor units		Number	37	41	45		

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95°F(35.0°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference between outdoor unit and indoor unit : 0 ft.

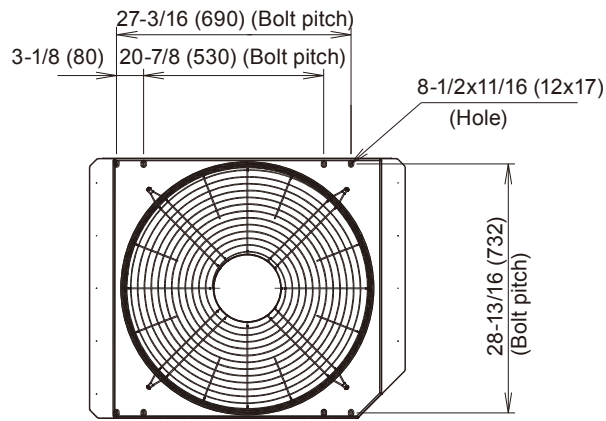
*1: Electrical data is only for outdoor unit.

2. DIMENSIONS

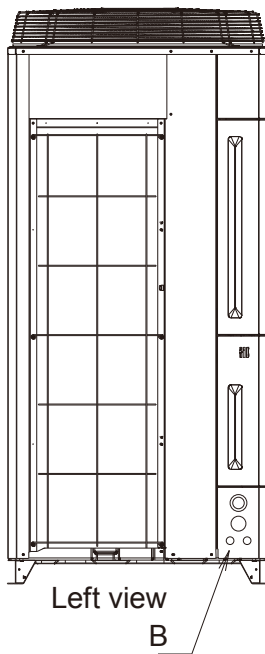
2-1. SINGLE UNIT

■ MODELS : AOUA72TLBV, AOUA96TLBV

(Unit : in. (mm))

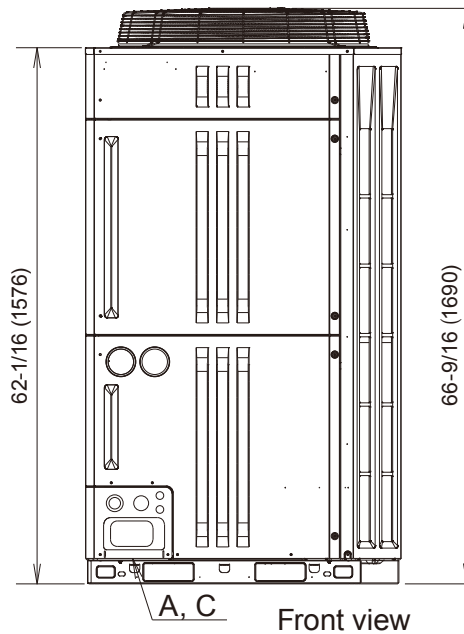


Top view

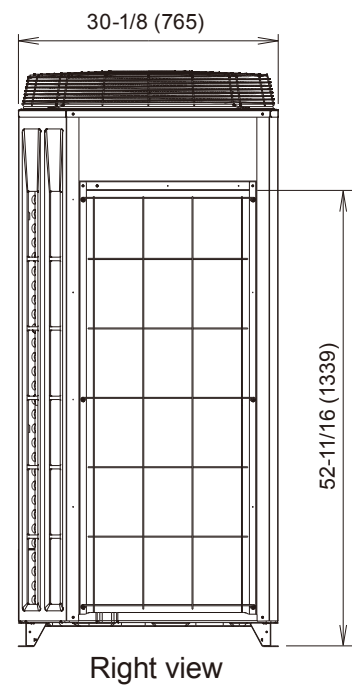


Left view

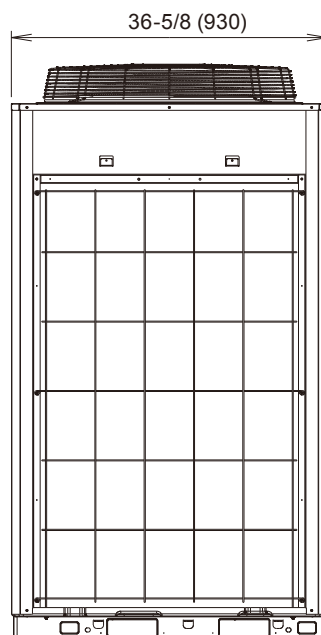
B



Front view



Right view



Rear view

OUTDOOR
UNITS

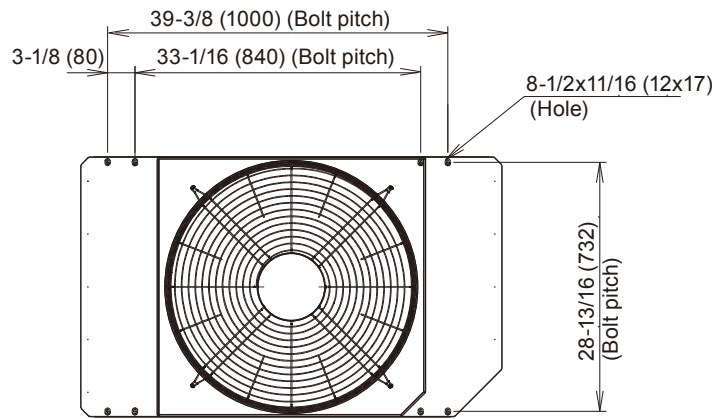
OUTDOOR
UNITS

■ MODELS : AOUA120TLBV

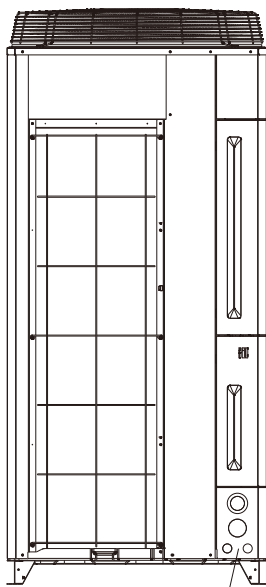
Unit : in. (mm)

OUTDOOR
UNITS

OUTDOOR
UNITS

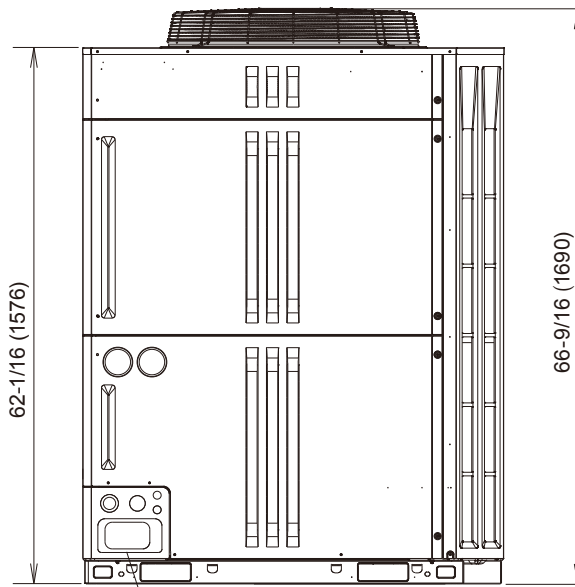


Top view



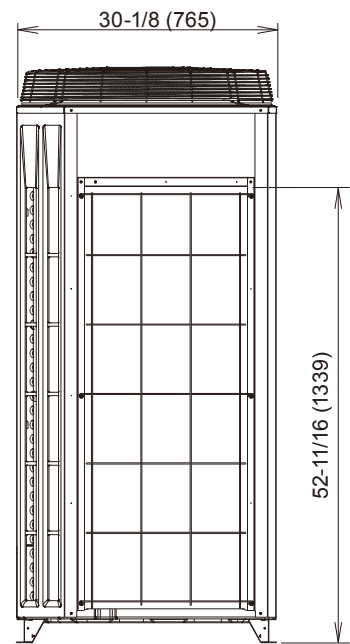
Left view

B

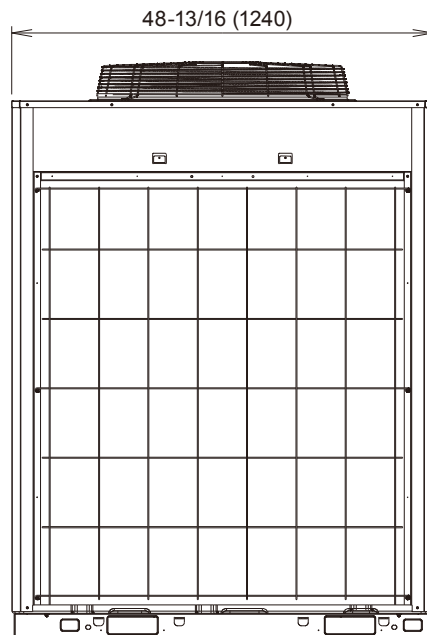


Front view

A, C



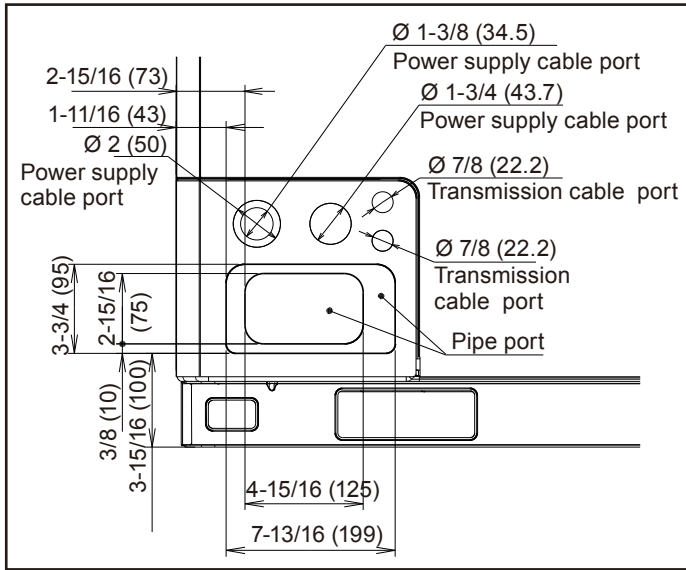
Right view



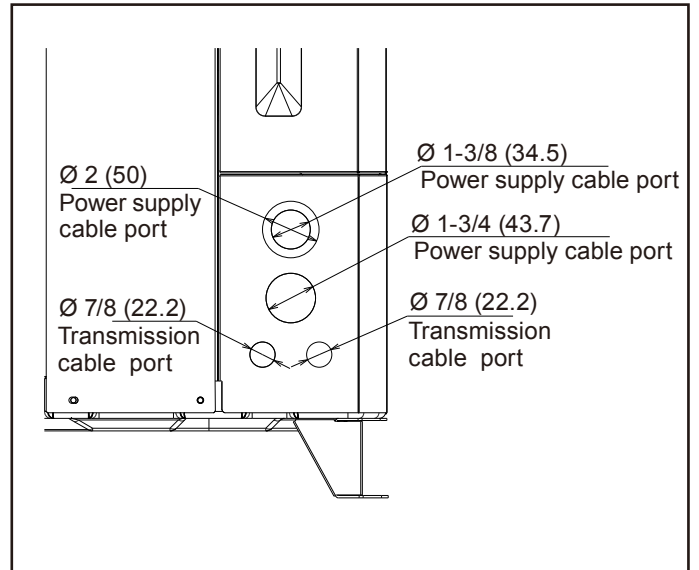
Rear view

■ KNOCKOUT HOLE POSITION

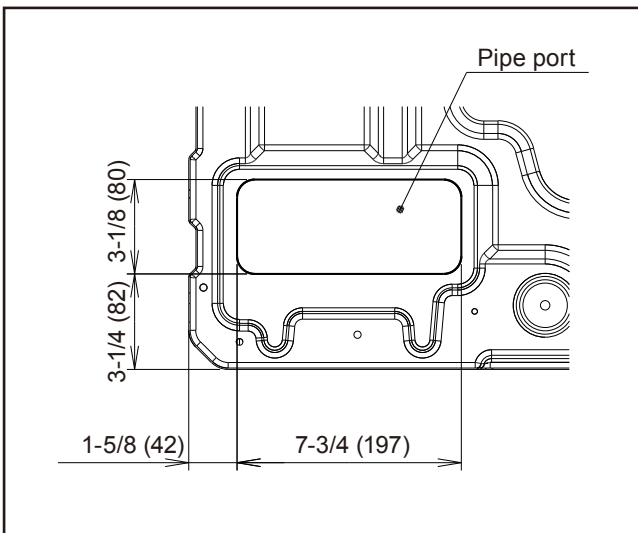
Unit : in. (mm)



Detail A : Front view



Detail B : Left view



Detail C : Top view

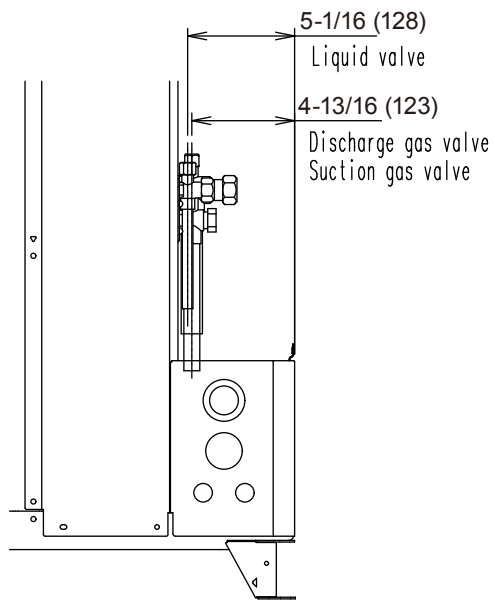
OUTDOOR
UNITS

OUTDOOR
UNITS

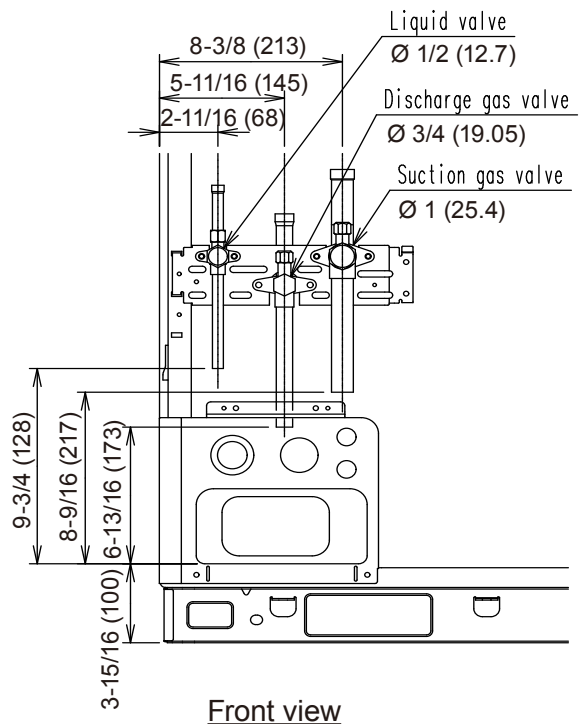
■ VALVE POSITION

Unit : in. (mm)

OUTDOOR
UNITS



Left view



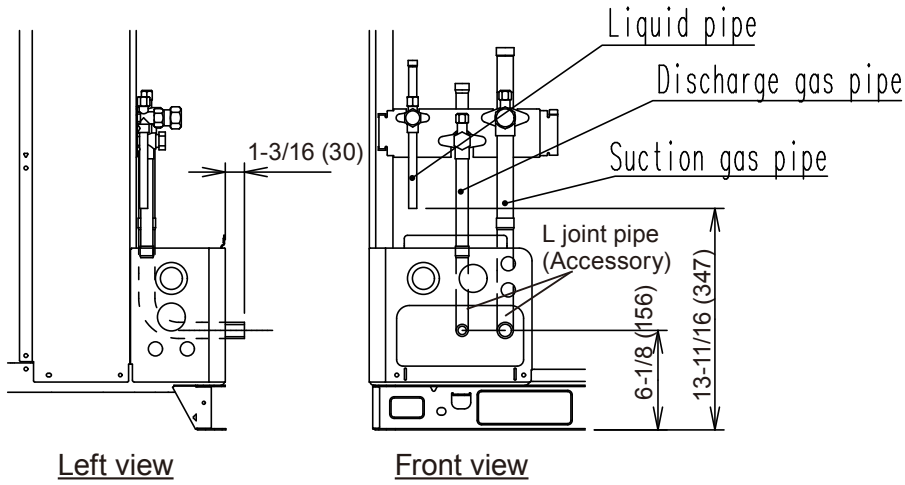
Front view

OUTDOOR
UNITS

■ ACCESSORY PIPE

Unit : in. (mm)

● Front piping

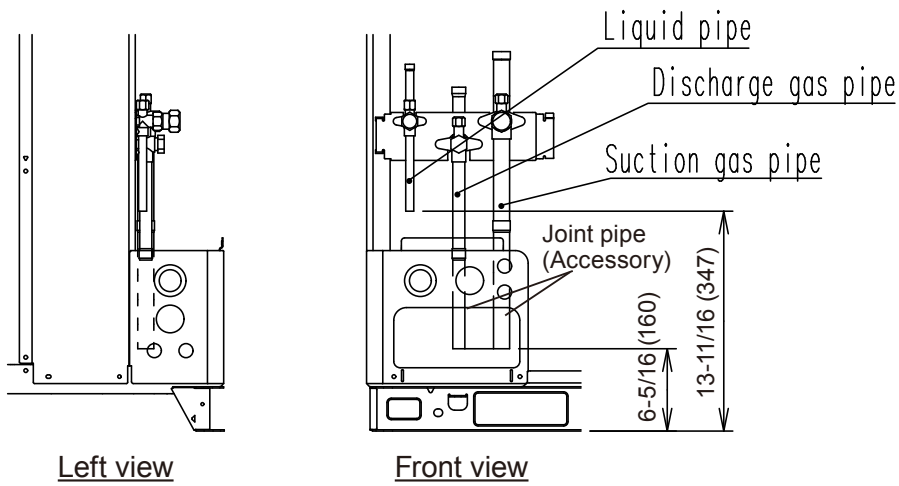


Left view

Front view

● Bottom piping

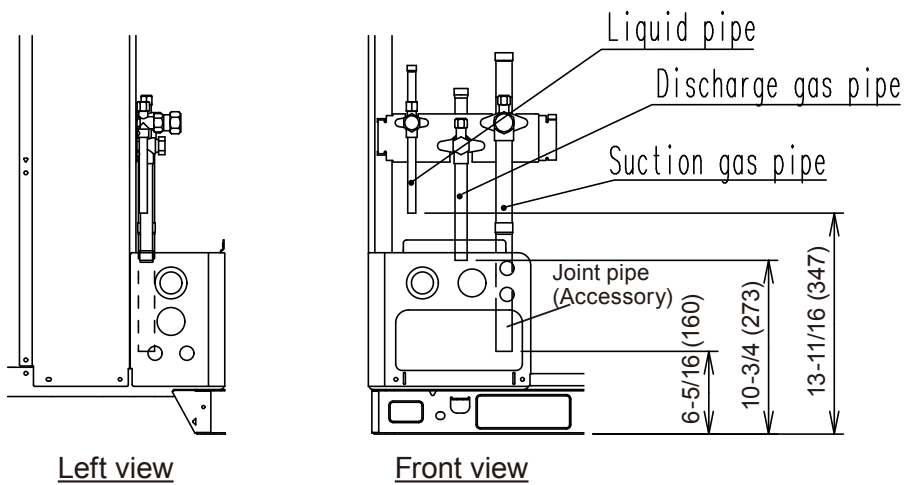
● AOUA96, 120TLBV



Left view

Front view

● AOUA72TLBV

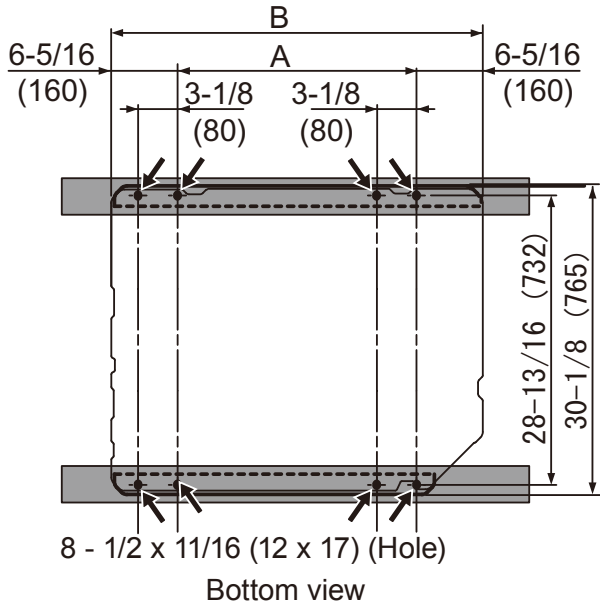


Left view

Front view

■ INSTALLATION (FOUNDATION)

Unit : in. (mm)

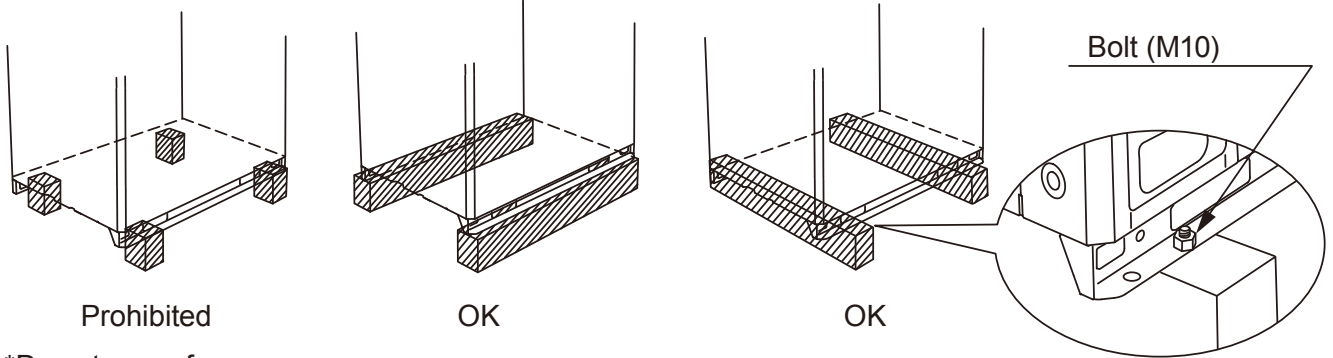


Model	A	B
AOUA72TLBV	24 (610)	36-5/8 (930)
AOUA96TLBV	24 (610)	36-5/8 (930)
AOUA120TLBV	36-1/4 (920)	48-13/16 (1240)

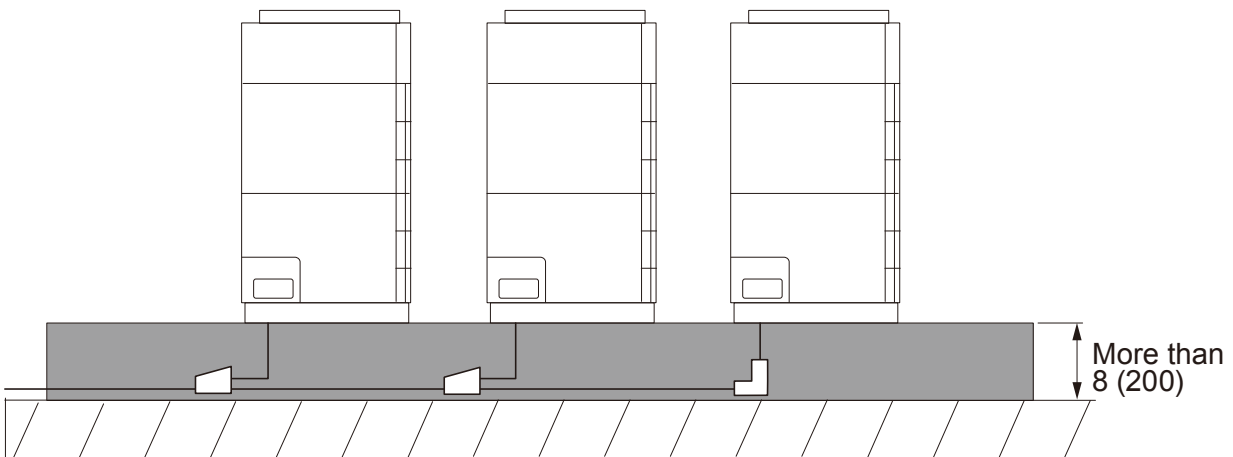
OUTDOOR UNITS

OUTDOOR UNITS

Installation example



*Do not use a four-corner support foundation.

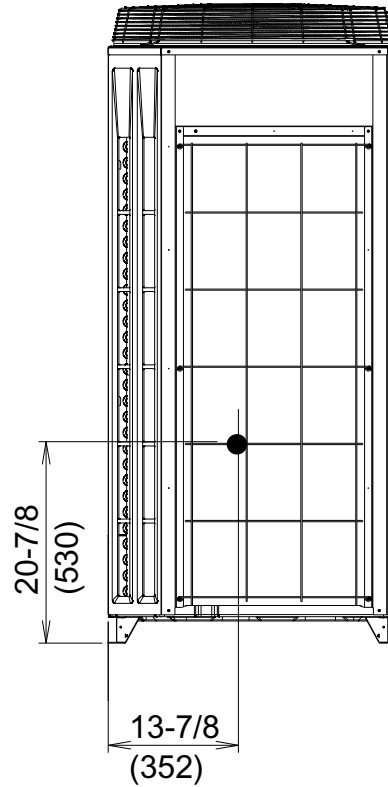
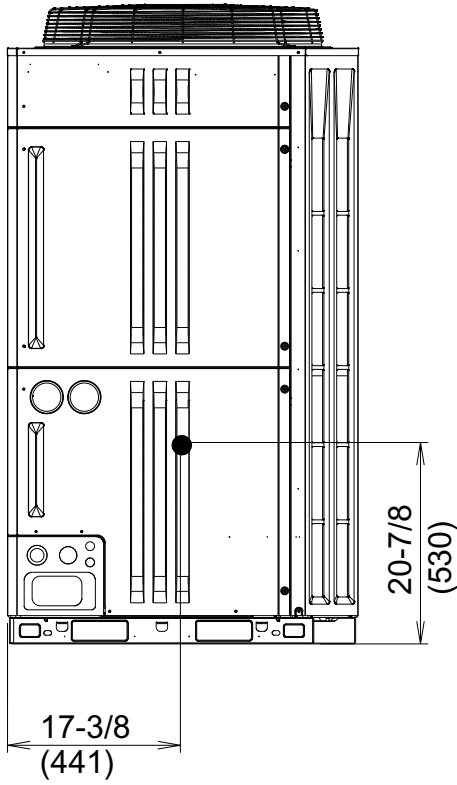


When installing pipe from the bottom of the outdoor units, the required space under the outdoor unit should be ≥ 8 (200).

■ CENTER OF GRAVITY POSITION

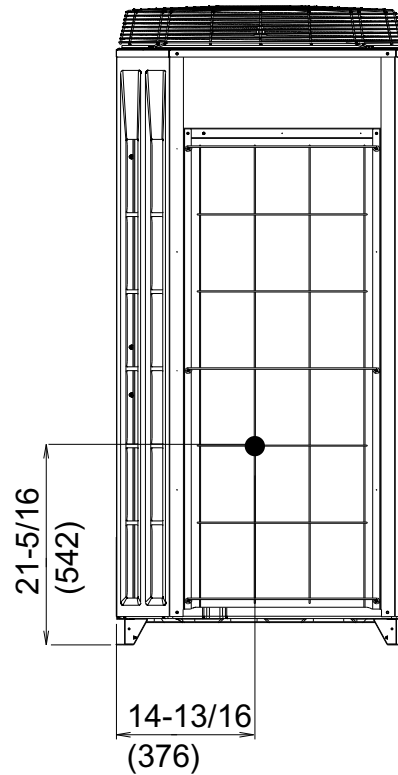
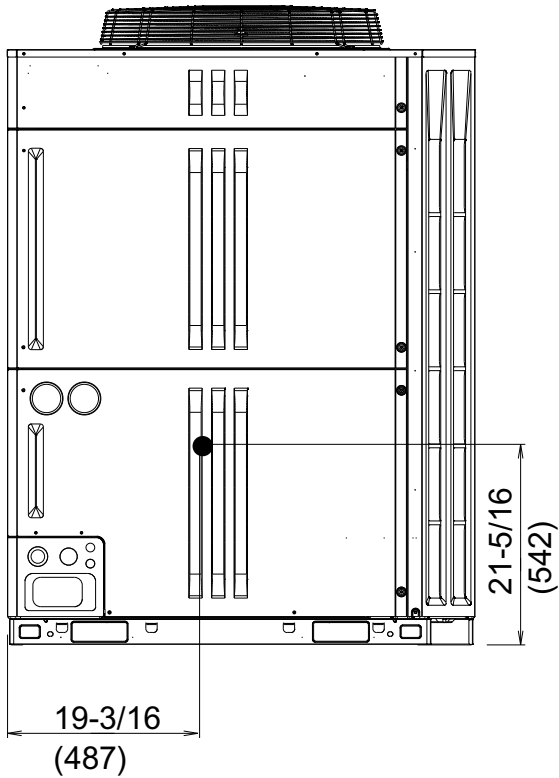
Unit : in. (mm)

● Models : AOUA72TLBV, AOUA96TLBV



● : Center of gravity

● Models : AOUA120TLBV

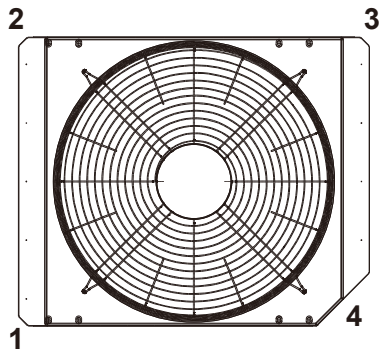


● : Center of gravity

■ CORNER WEIGHTS

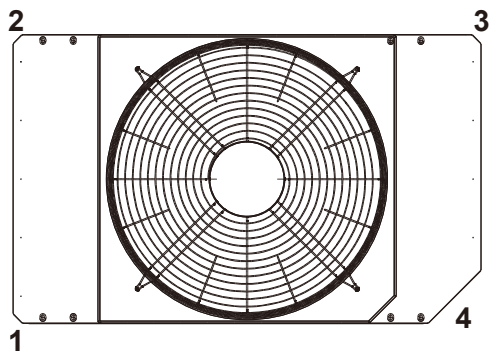
Unit : lbs (kg)

- Models : AOUA72TLBV, AOUA96TLBV



Model	1	2	3	4	Total
AOUA72TLBV	159 (72)	147 (67)	141 (64)	150 (68)	597 (271)
AOUA96TLBV					

- Models : AOUA120TLBV

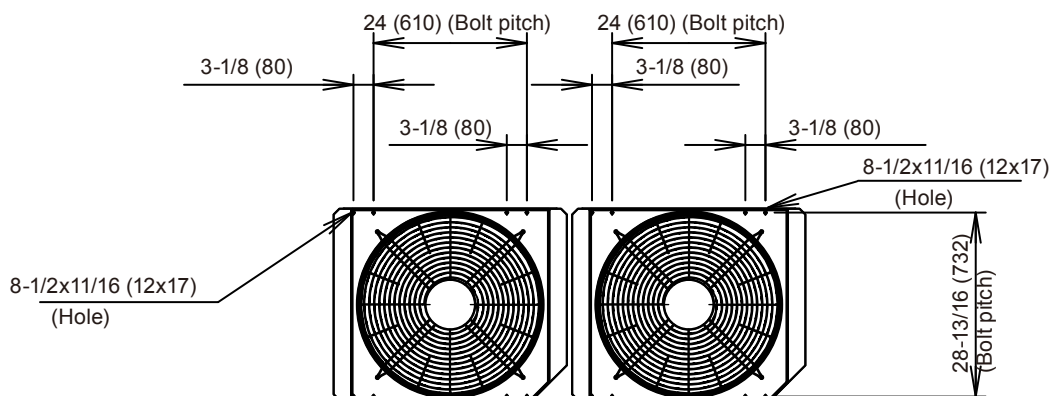


Model	1	2	3	4	Total
AOUA120TLBV	185 (84)	183 (83)	134 (61)	137 (62)	639 (290)

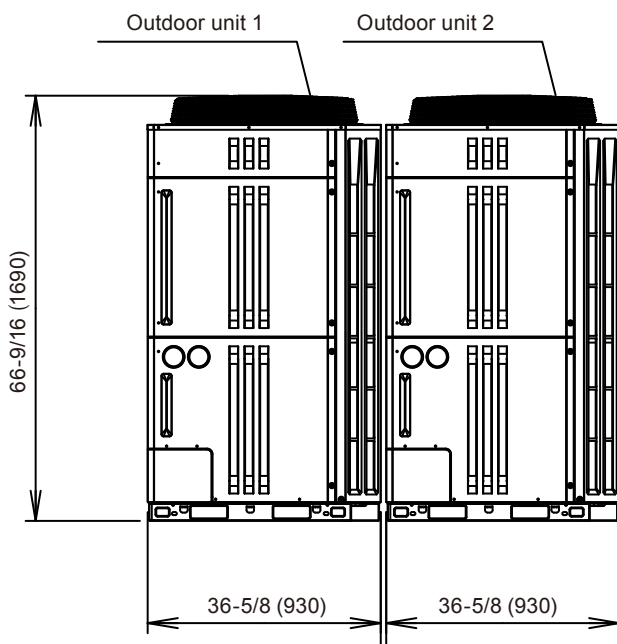
2-2. COMBINATION

Set model name	Outdoor unit1	Outdoor unit2
AOUA144TLBVG (12Ton)	6Ton	6Ton
AOUA168TLBVG (14Ton)	8Ton	6Ton

Unit : in. (mm)



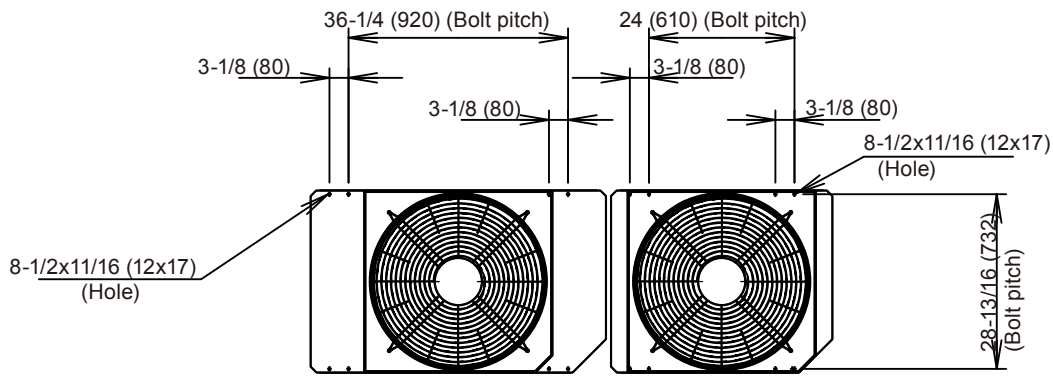
Top view



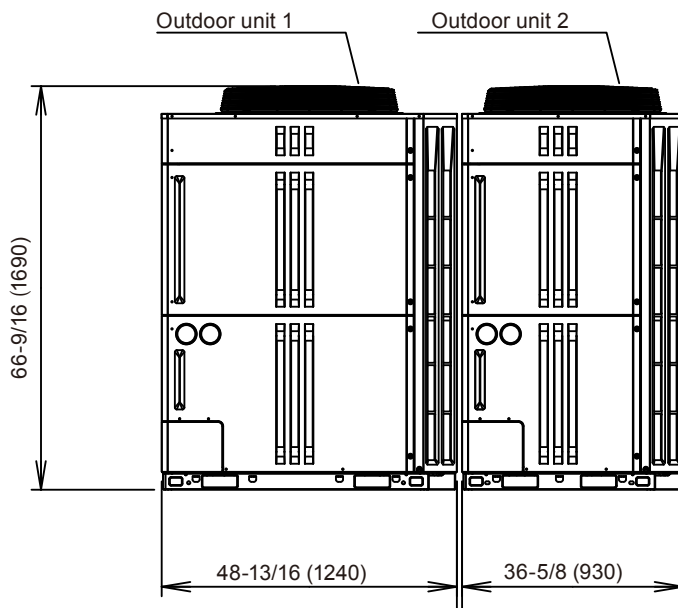
Front view

Set model name	Outdoor unit1	Outdoor unit2
AOUA192TLBVG (16Ton)	10Ton	6Ton
AOUA216TLBVG (18Ton)	10Ton	8Ton

Unit : in. (mm)



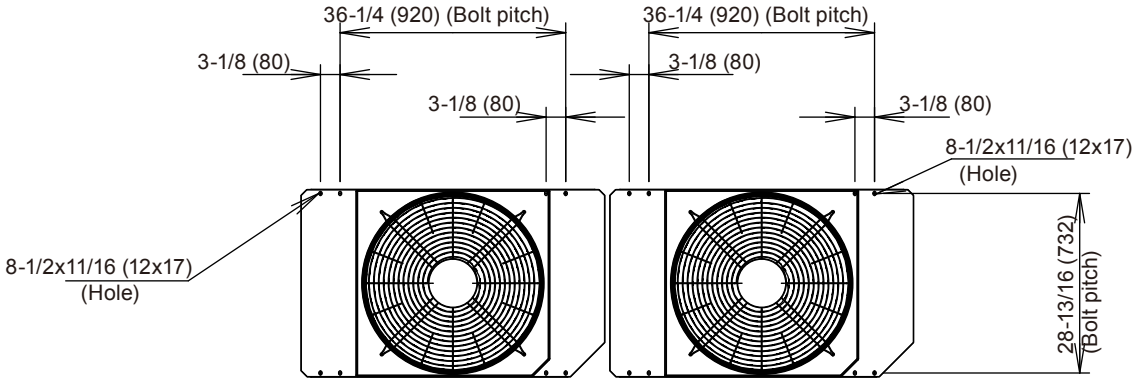
Top view



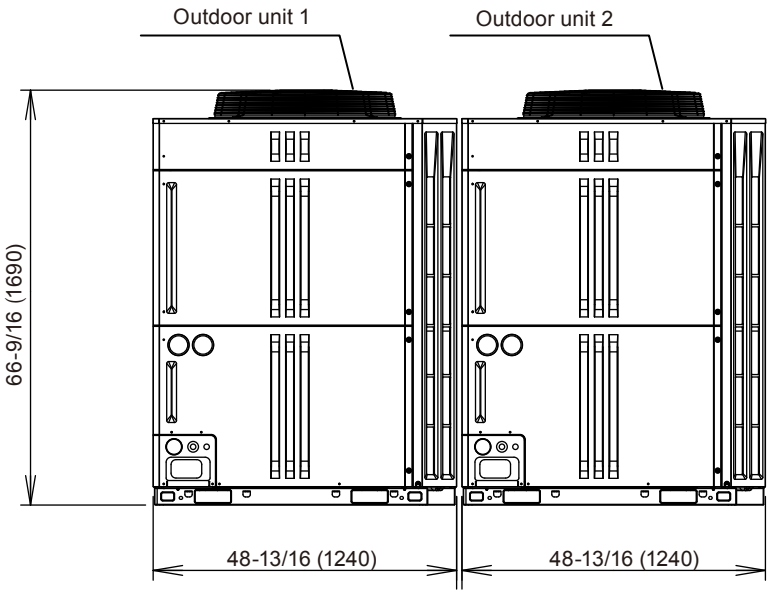
Front view

Set model name	Outdoor unit1	Outdoor unit2
AOUA240TLBVG (20Ton)	10Ton	10Ton

Unit : in. (mm)



Top view



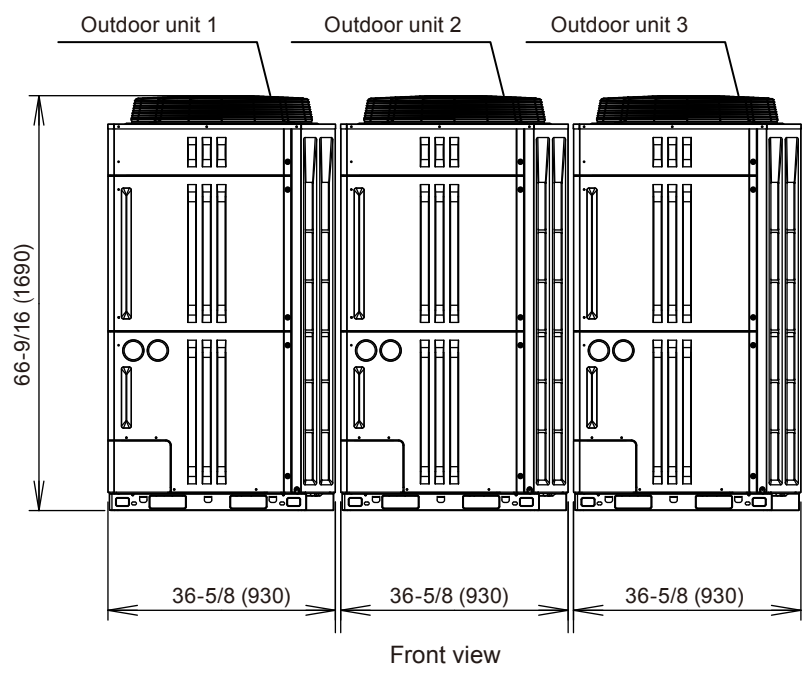
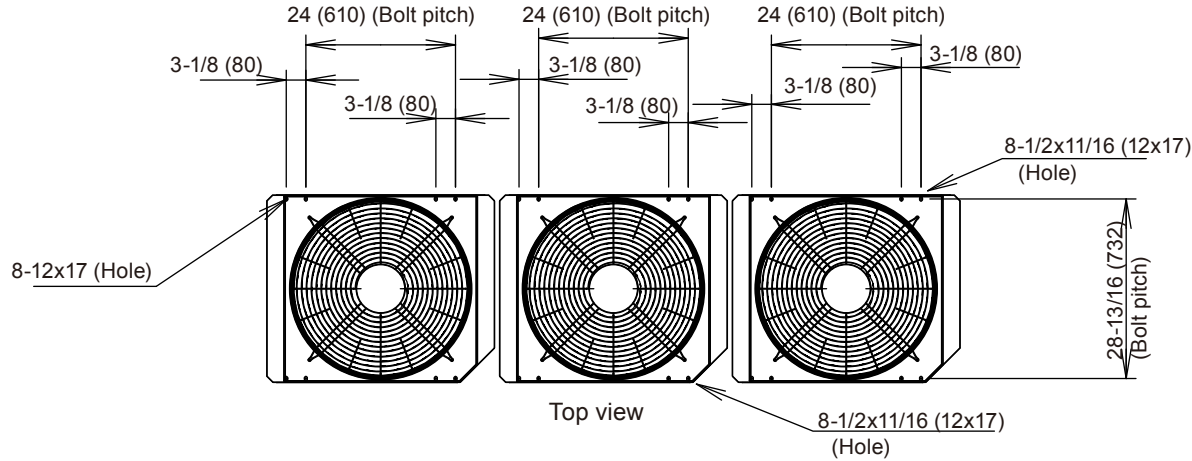
Front view

OUTDOOR UNITS

OUTDOOR UNITS

Set model name	Outdoor unit1	Outdoor unit2	Outdoor unit3
AOUA264TLBVG (22Ton)	8Ton	8Ton	6Ton
AOUA288TLBVG (24Ton)	8Ton	8Ton	8Ton

Unit : in. (mm)



OUTDOOR UNITS

OUTDOOR UNITS

3. INSTALLATION SPACE

⚠ Caution

When installing the outdoor unit, pay attention to the following items.

- To prevent shut down due to discharge air short circuiting, reduction in capacity and high pressure protection, refer to the installation space requirements shown in the following diagrams in order to provide sufficient space.
- Provide sufficient space to allow for rigging and setting of unit, installation, maintenance and access.
- Do not obstruct discharge air flow. Provide discharge duct if required for proper air discharge.
- If there is a wall in front of the unit, provide 20in. (500mm) or more clearance for maintenance.
- If there is a wall on the left side of the unit, provide 2in. (30mm) or more clearance for maintenance.
- When installing units, provide sufficient space for refrigerant piping.
- An outdoor temperature of 95°F (35°C) (DB) in air-conditioned operation is assumed for the installation space in this item. If the outdoor temperature exceeds 95°F (35°C) (DB) and the outdoor unit is operating at a load exceeding its rated ability, provide a larger inlet space.

OUTDOOR UNITS

OUTDOOR UNITS

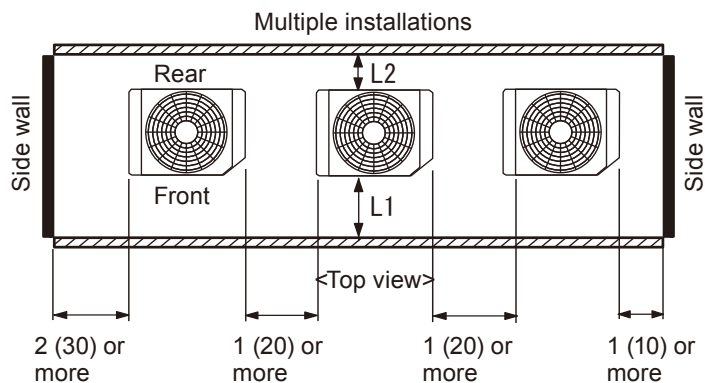
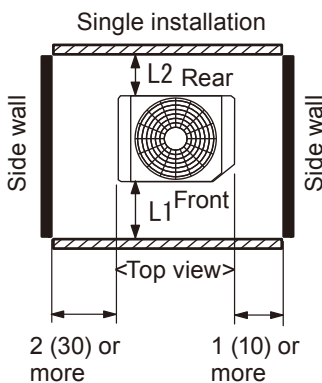
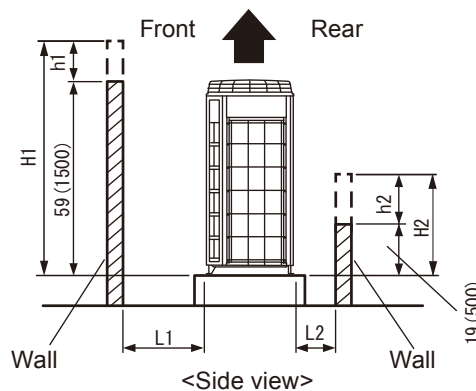
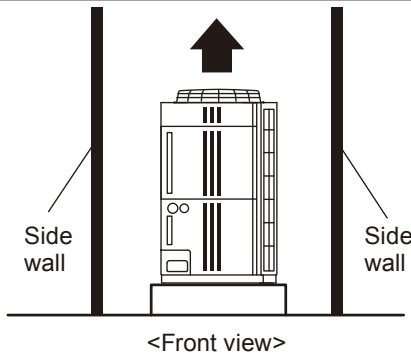
3-1. WHEN INSTALLATION IS NEAR LIMITED HEIGHT WALL

■ SINGLE AND MULTIPLE INSTALLATIONS

- There are no restrictions on the height of the side wall.
- Provide installation spaces L1 and L2 in accordance with the table below according to the wall height (front side, rear side) conditions.
- Provide installation spaces other than L1 and L2 in accordance with the conditions shown in the figure below.
- Air flow resistance can be ignored when the distance from a wall or other equipment is more than 79in. (2m)

Unit : in. (mm)

Wall height condition	Necessary installation space
When H1 is 59 (1500) or less	$L1 \geq 20 (500)$
When H1 is 59 (1500) or more	$L1 \geq 20 (500) + h1 \div 2$
When H2 is 19 (500) or less	$L2 \geq 4 (100)$
When H2 is 19 (500) or more	$L2 \geq 4 (100) + h2 \div 2$

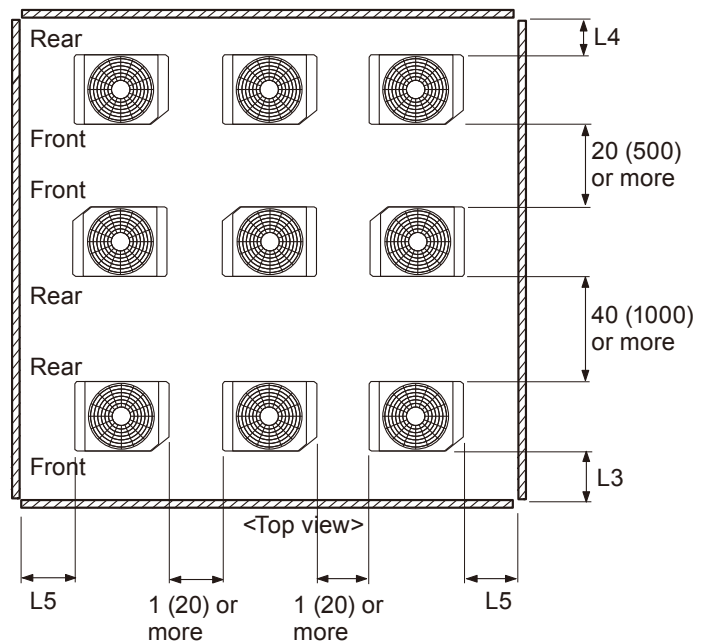
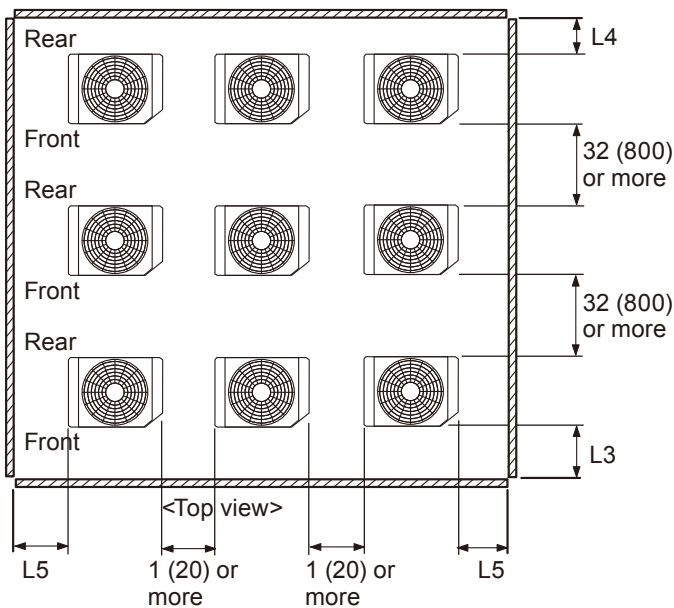
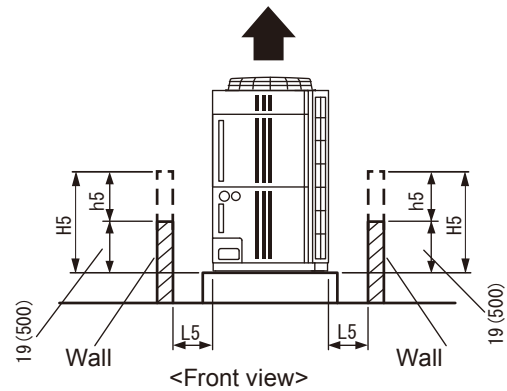
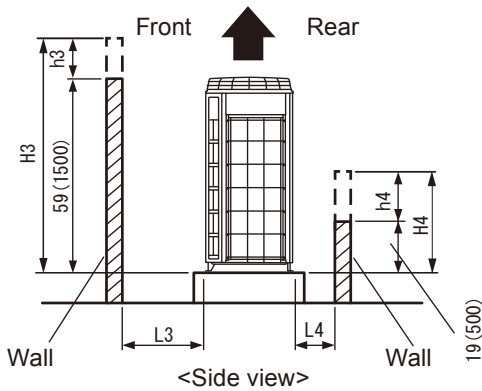


■ CONCENTRATED INSTALLATION

- Provide installation spaces L3, L4, and L5 in accordance with the table below according to the wall height condition (front side, rear side) conditions.
- Provide installation spaces other than L3, L4, and L5 in accordance with the conditions shown in the figure below.
- Air flow resistance can be ignored when the distance from a wall or other equipment is more than 79in. (2m)

Unit : in. (mm)

Wall height condition	Necessary installation space
When H3 is 59 (1500) or less	$L3 \geq 20 (500)$
When H3 is 59 (1500) or more	$L3 \geq 20 (500) + h3 \div 2$
When H4 is 19 (500) or less	$L4 \geq 8 (200)$
When H4 is 19 (500) or more	$L4 \geq 8 (200) + h4 \div 2$
When H5 is 19 (500) or less	$L5 \geq 8 (200)$
When H5 is 19 (500) or more	$L5 \geq 8 (200) + h5 \div 2$



3-2. WHEN INSTALLATION IS NEAR UNLIMITED HEIGHT WALL

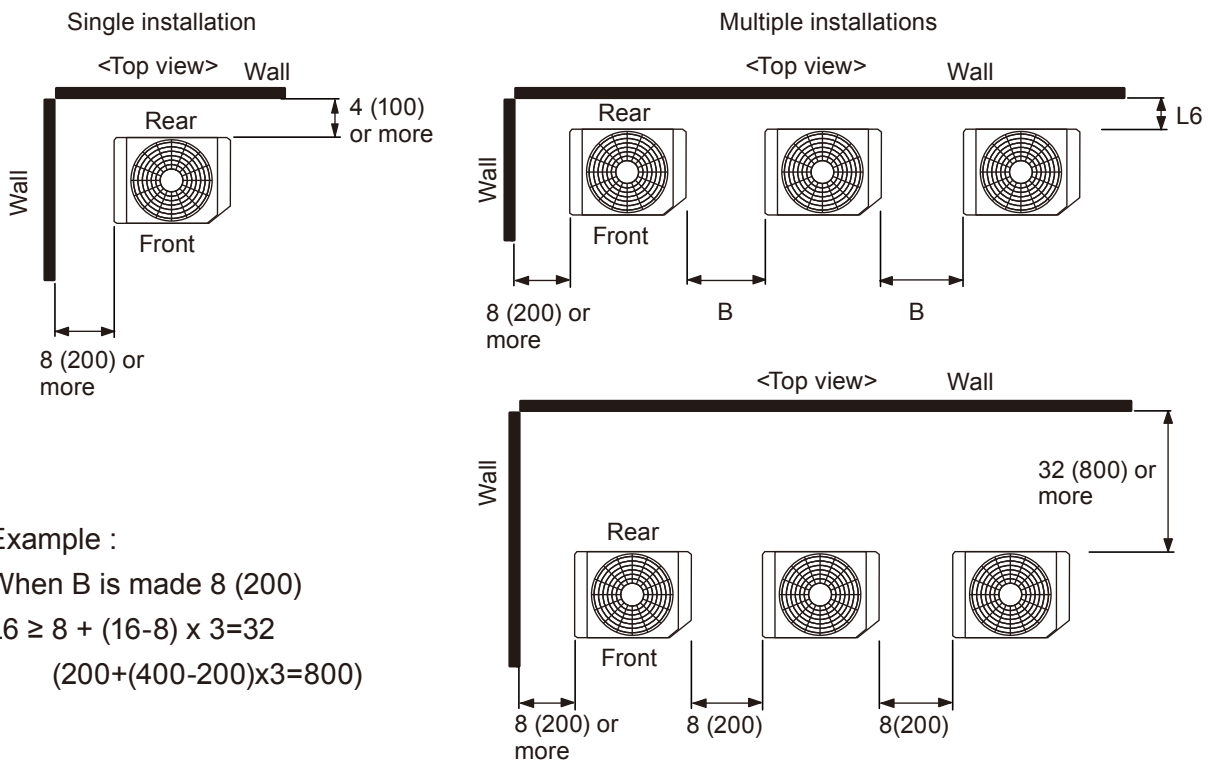
■ SINGLE AND MULTIPLE INSTALLATIONS

- There are no restrictions on the height of the wall.
- The wall (without height restrictions) must not exist on both left and right sides of the outdoor unit.
Also, the wall must not exist on both the front and rear of the outdoor unit.
- Provide installation spaces other than L6 in accordance with the conditions shown in the figure below.
- Air flow resistance can be ignored when the distance from a wall or other equipment is more than 79in. (2m)

● When installing with the REAR of the outdoor unit facing the wall side

Condition	Necessary installation space
When $B \geq 16$ (400)	$L6 \geq 8$ (200)
When 1 (20) $\leq B < 16$ (400)	$L6 \geq 8$ (200) + $(16$ (400) - $B) \times 3$

Unit : in. (mm)



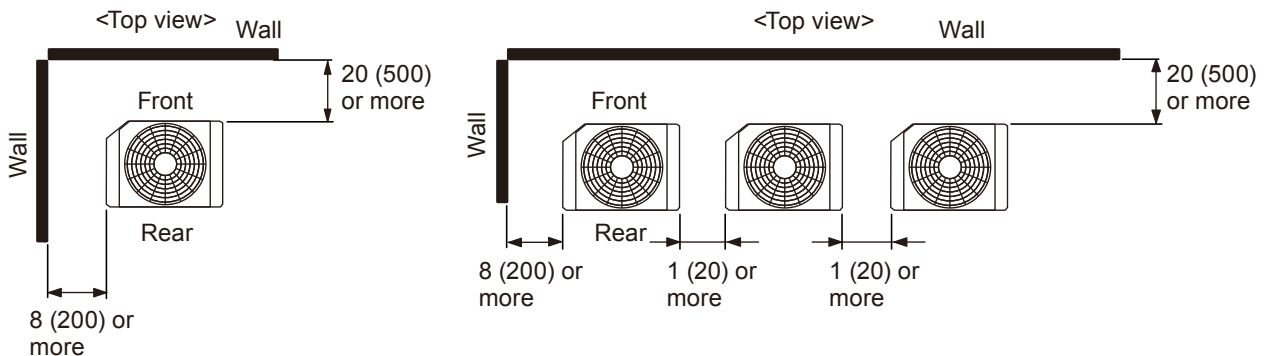
Example :

When B is made 8 (200)

$$L6 \geq 8 + (16-8) \times 3 = 32$$

$$(200 + (400-200) \times 3 = 800)$$

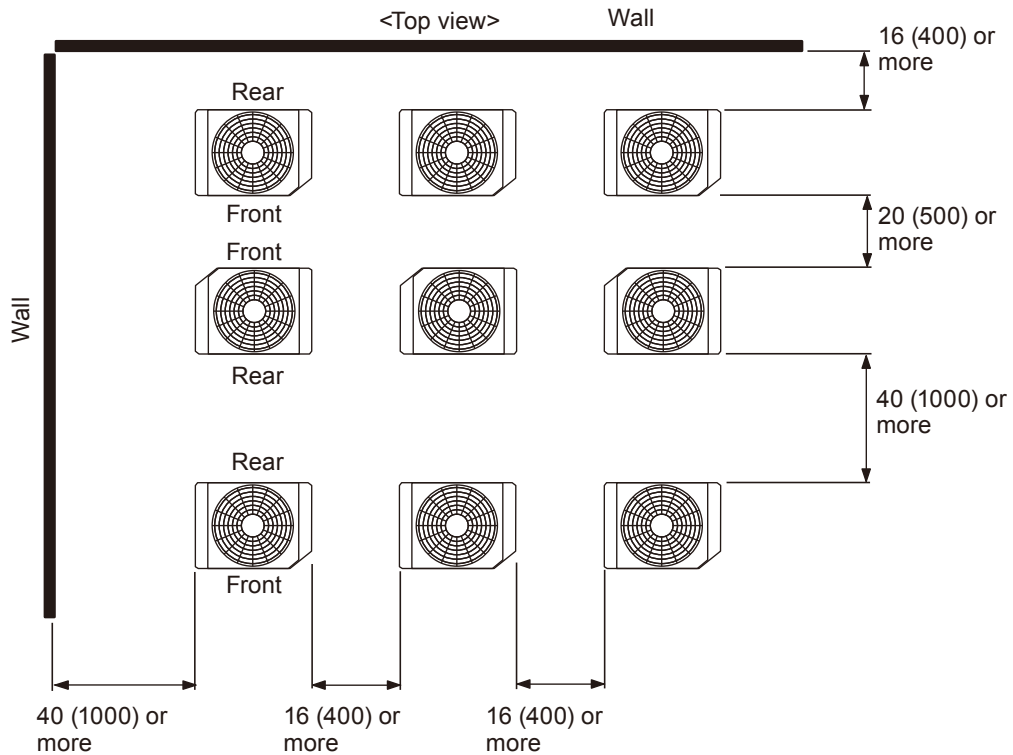
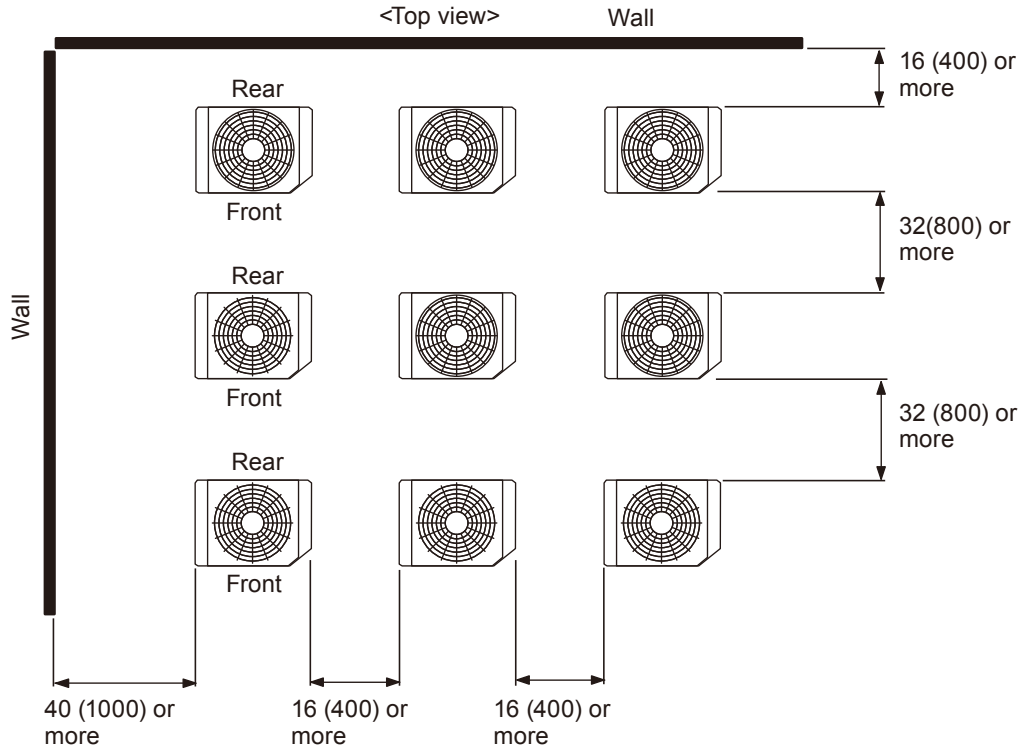
● When installing with the FRONT of the outdoor unit facing the wall side



■ CONCENTRATED INSTALLATION

- The wall (without height restrictions) must not exist on both left and right sides of the outdoor unit. Also, the wall must not exist on both the front and rear of the outdoor unit.
- Air flow resistance can be ignored when the distance from a wall or other equipment is more than 79in. (2m)

Unit : in. (mm)

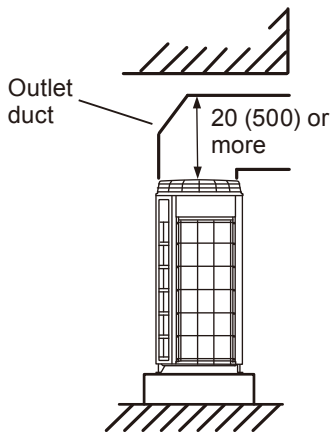


3-3. WHEN THERE IS AN OBSTRUCTION ABOVE THE PRODUCT

● For Side Outlet Installation

- When there is an obstruction above the product, observe the minimum installation height and install an outlet duct as shown in the figure.
- When an outlet duct, etc. is installed; the high static pressure mode must be set by pushbutton switch.
(Also applies when a snow hood is installed)

Unit : in. (mm)



● High static pressure mode setting

Select the high static pressure mode in accordance with the table below.

Unit : in.WG (Pa)

Condition	High static pressure mode setting *2
Static Pressure(SP) *1 : $0 (0) \leq SP \leq 0.12 (30)$	Set to Mode 1
Static Pressure(SP) *1 : $0.12 (30) < SP \leq 0.32 (80)$	Set to Mode 2

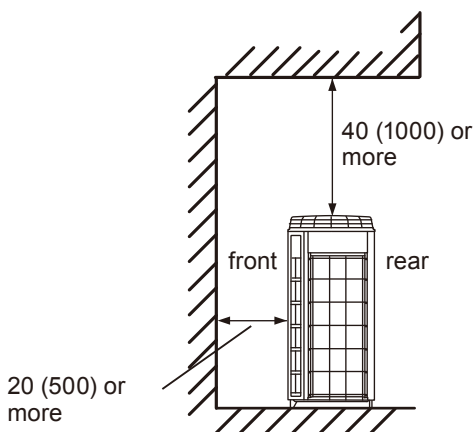
*1 : Static pressure is the air flow resistance that includes the discharge duct resistance & the other additional resistance like discharge grille and so on.

*2 : Refer to the section on Push Switch Setting in "chapter 7. 2.FUNCTION SETTING".

● When an outlet duct is not installed, install the product as shown below.

- 1) Provide 40in. (1m) or greater clearance to ceiling
- 2) Do not locate wall at rear of unit
- 3) Up to three units maximum can be installed in this configuration

Unit : in. (mm)



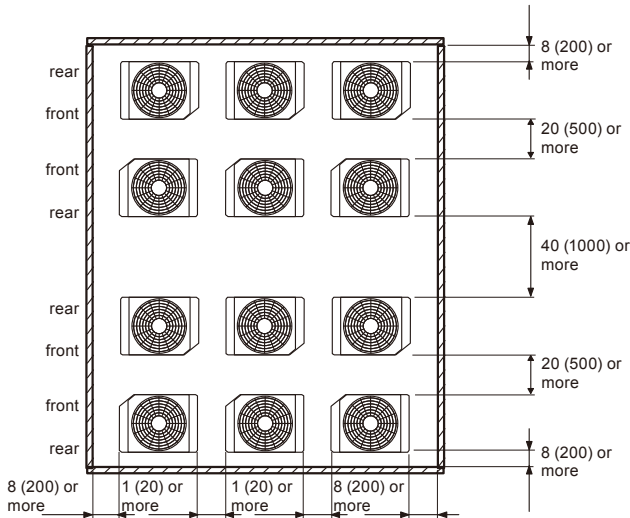
3-4. CONCENTRATED INSTALLATION EXAMPLE

- When installing units in a group, in order to avoid short circuiting that could reduce capacity or cause a shutdown, install units with clearances equal to or greater than shown below.
- To prevent short circuiting, consider elevating the units and provide openings at the bottom of the wall for airflow. When installing more than the number of units shown below, contact your distributor or representative for installation recommendations.

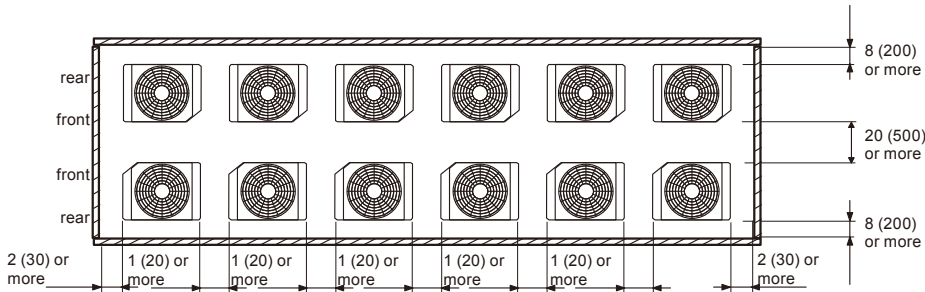
■ CONCENTRATED INSTALLATION EXAMPLE (1)

*Wall height: All 20 (500)

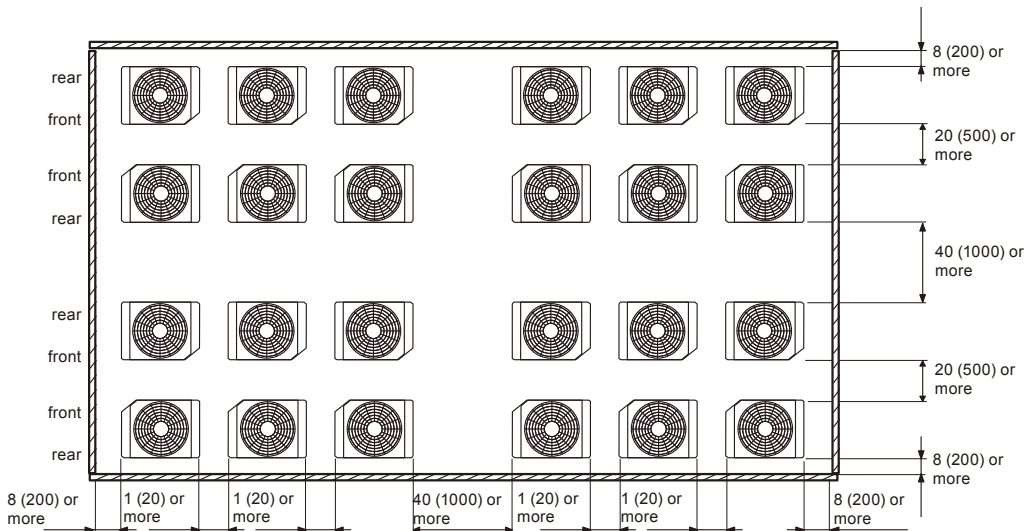
● 12 units installation example



Unit : in. (mm)



● 24 units installation example



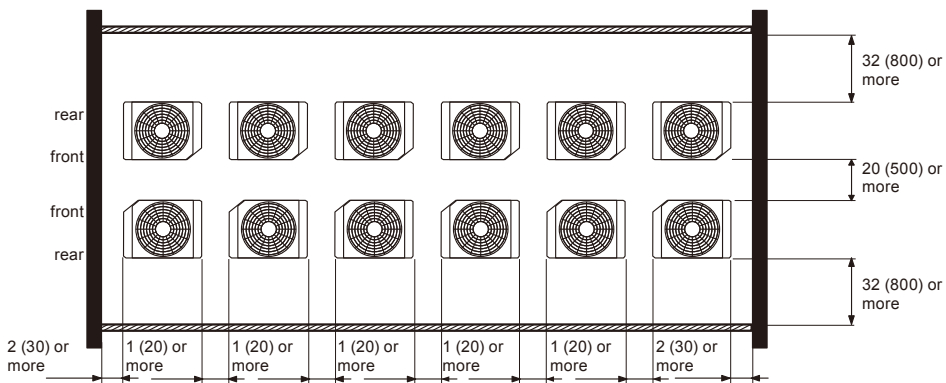
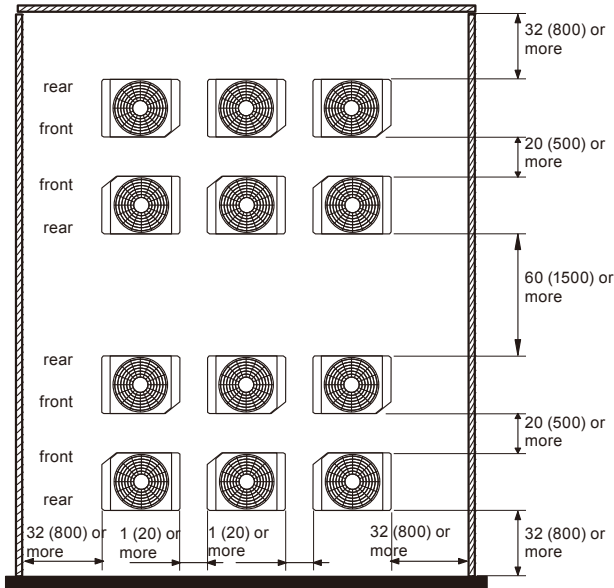
CONCENTRATED INSTALLATION EXAMPLE (2)

*Wall height: All 67in. (1700mm)

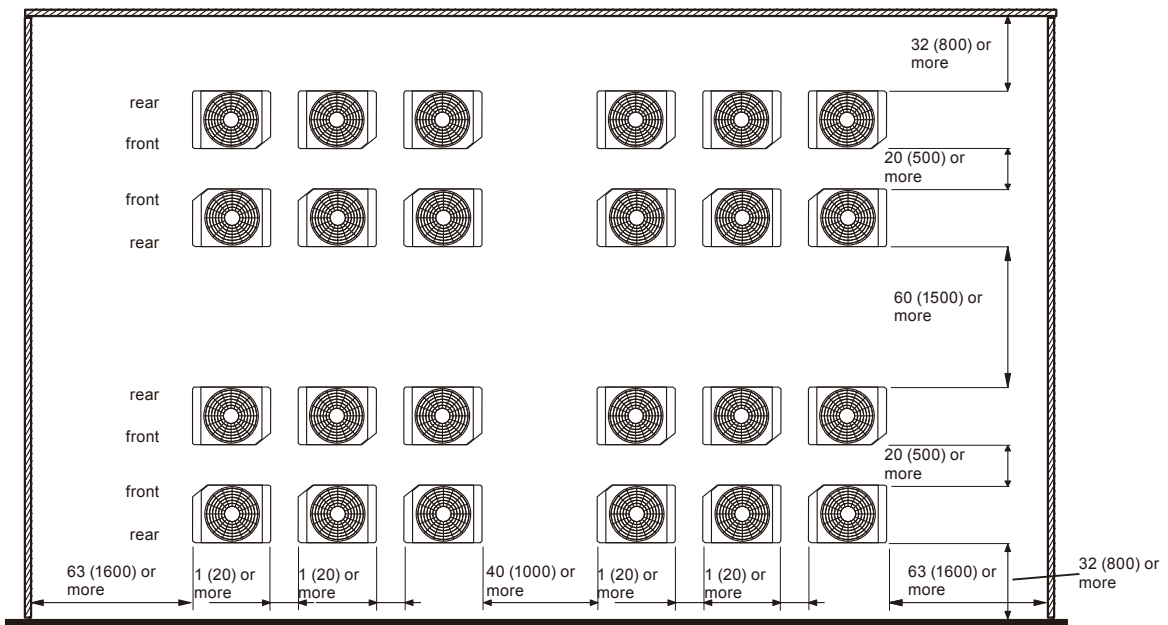
*However, the height of the  wall can be unrestricted.

Unit : in. (mm)

12 units installation example



24 units installation example



■ CONCENTRATED INSTALLATION EXAMPLE (3)

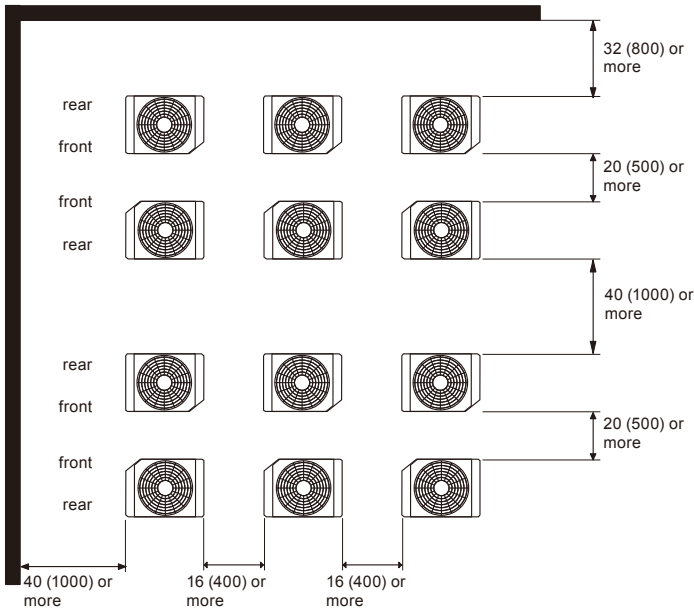
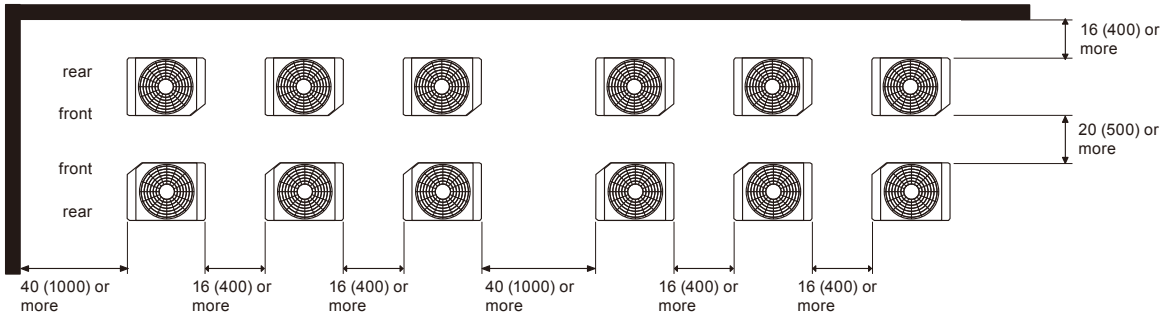
*Wall height is unrestricted.

*Of the 4 directions, leave at least 2 directions open. Leave either the front or back direction open.

● 12 units installation example

Installation of more than the number of units shown below is not recommended because short circuit easily occurs at the corners.

Unit : in. (mm)



3-5. INSTALLATION ON EACH FLOOR

● Precautions when installing on each floor

- When installing the product on each floor, be careful because updraft may cause a short circuit. If a short circuit occurred, the cooling and heating capacity and EER, COP (efficiency) may drop and in the worst case, high pressure protection may cause operation to stop.
- Regarding the installation dimensions, refer to the figure below and provide an ample intake space.
- Provide service space and refrigerant piping and electric wiring space.
- Install an outlet duct at each outdoor unit.

● Installation example when installed on each floor

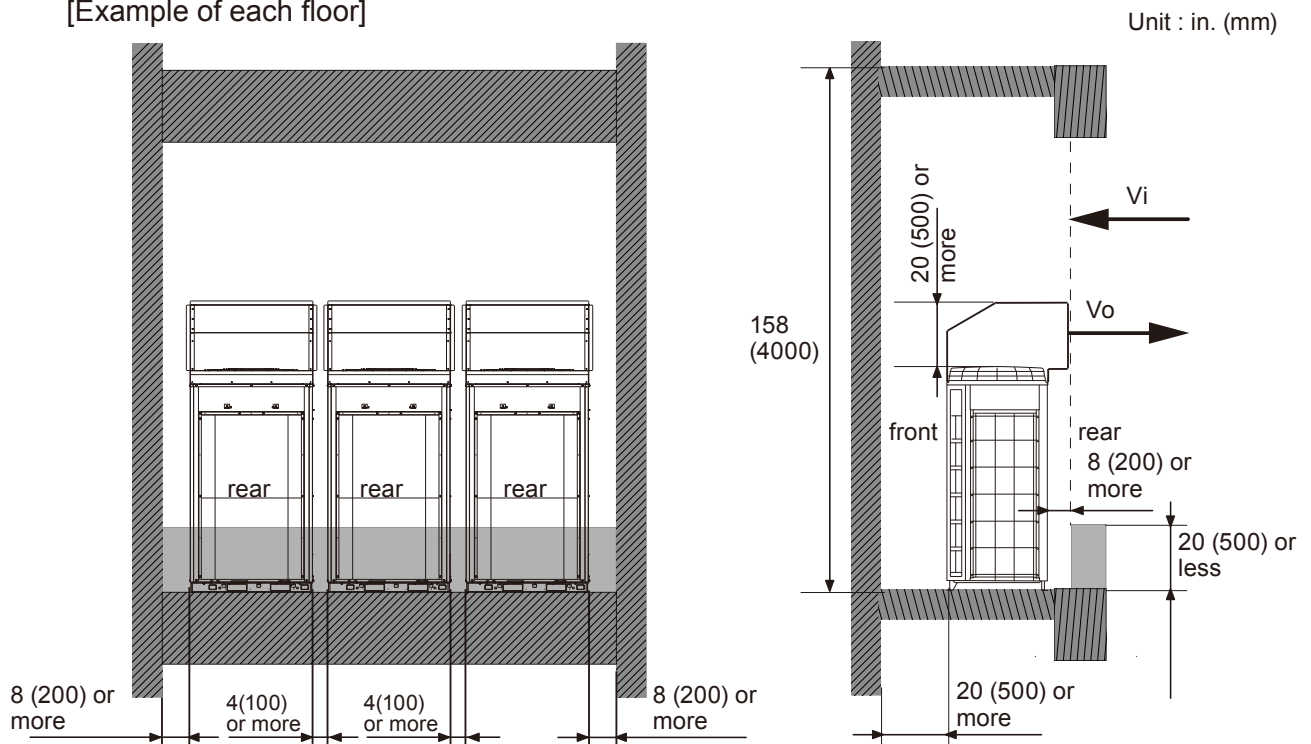
An installation example assuming conditions like those shown in the table below is shown in the figure below

Height / floor	Capacity / floor	Number of installable floors
13ft. (4000mm)	24 Ton	20 floors

If the installation differs from the example, be careful to avoid short circuiting.

- The outlet air velocity $V_o = 18$ to 25 ft./s (5.5 to 7.5 m/s)
- The intake air velocity $V_i = 4$ ft./s (1.2 m/s) or less.

[Example of each floor]



● When installing a louver

When installing a louver, pay attention to the following:

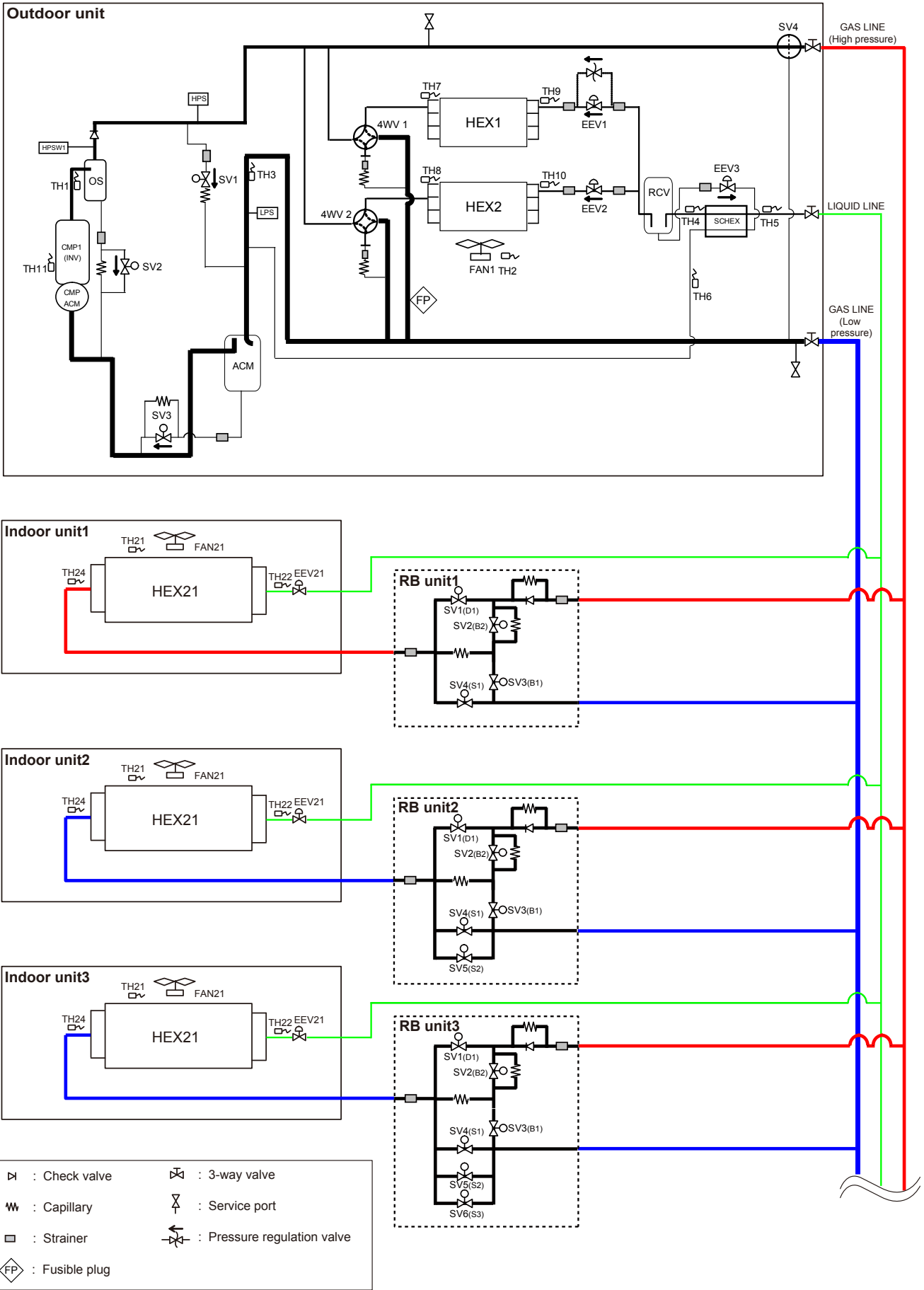
- Fit the outlet duct tightly to the louver so that short circuit will not occur.
- Make the louver angle 0° to 20° down.

If installed facing up, short circuit is easily generated by updraft.

- Make the opening ratio of the outlet louver 75% or greater.

4. REFRIGERANT CIRCUIT

■ MODELS : AOUA72TLBV, AOUA96TLBV, AOUA120TLBV



OUTDOOR UNITS

OUTDOOR UNITS

■ SYMBOL DESCRIPTION

● Outdoor unit

MARK	DESCRIPTION
CMP1	Compressor 1 (Inverter type)
HEX1	Heat exchanger 1
HEX2	Heat exchanger 2
FAN1	Fan 1
ACM	Accumulator
RCV	Receiver tank
OS	Oil separator
SCHEX	Sub-cool heat exchanger
HPS	High pressure sensor
LPS	Low pressure sensor
HPSW1	High pressure sensor switch 1
4WV1	4-way valve 1
4WV2	4-way valve 2
EEV1	Electric expansion valve 1
EEV2	Electric expansion valve 2
EEV3	Electric expansion valve 3
SV1	Solenoid valve 1
SV2	Solenoid valve 2
SV3	Solenoid valve 3
SV4	Solenoid valve 4
TH1	Discharge temperature thermistor 1
TH2	Outdoor temperature thermistor
TH3	Suction temperature thermistor
TH4	Liquid temperature thermistor 1
TH5	Liquid temperature thermistor 2
TH6	Sub-cool heat exchanger (outlet) thermistor
TH7	Heat exchanger 1 gas thermistor
TH8	Heat exchanger 2 gas thermistor
TH9	Heat exchanger 1 liquid thermistor
TH10	Heat exchanger 2 liquid thermistor
TH11	Compressor 1 temperature thermistor 1

Marking color
BLUE
—
RED
WHITE
BROWN
GREEN
BLACK
YELLOW
PINK
GRAY
ORANGE

● Indoor unit

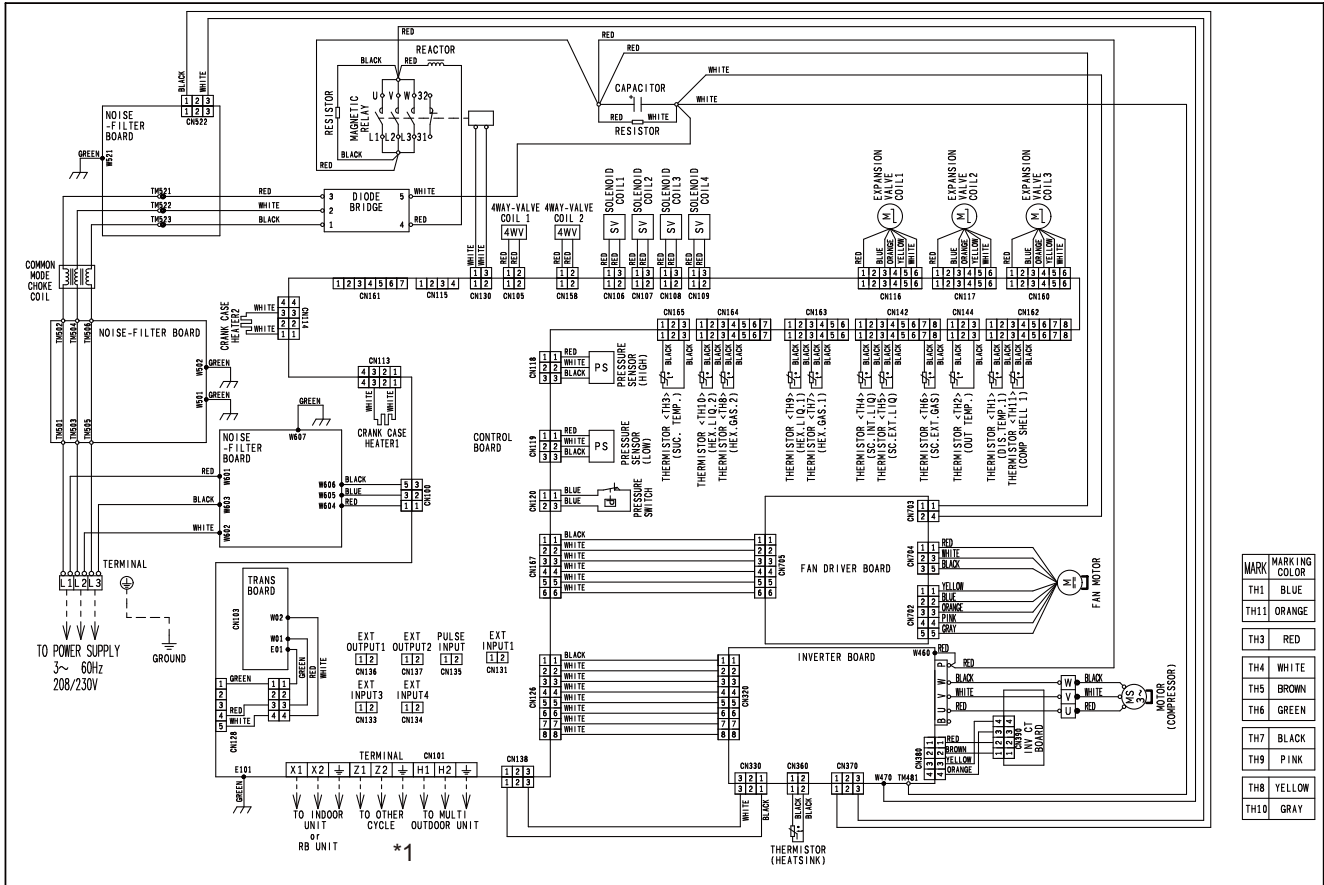
MARK	DESCRIPTION
HEX21	Heat exchanger
FAN21	Fan
EEV21	Electric expansion valve
TH21	Room temperature thermistor
TH22	Heat exchanger (inlet) thermistor
TH24	Heat exchanger (outlet) thermistor

● RB unit

MARK	DESCRIPTION
SV1 _(D1)	Solenoid valve (Discharge 1)
SV2 _(B2)	Solenoid valve (Bypass 2)
SV3 _(B1)	Solenoid valve (Bypass 1)
SV4 _(S1)	Solenoid valve (Suction 1)
SV5 _(S2)	Solenoid valve (Suction 2)
SV6 _(S3)	Solenoid valve (Suction 3)

5. WIRING DIAGRAM

MODELS : AOUA72TLBV, AOUA96TLBV, AOUA120TLBV



Note : *1

X1, X2 : To be connected to indoor unit or RB unit
 Z1, Z2 : To be connected to other master outdoor unit
 H1, H2 : To be connected to outdoor unit within same refrigerant system

6. OPERATION RANGE

■ OUTDOOR UNIT

Operation mode	Operation range
Cooling / Dry	14 to 115°F DB (-10 to 46°C DB)
Heating	-4 to 70°F DB (-20 to 21°C DB)
Cooling/Heating simultaneous	14 to 70°F DB (-10 to 21°C DB)

■ INDOOR UNIT

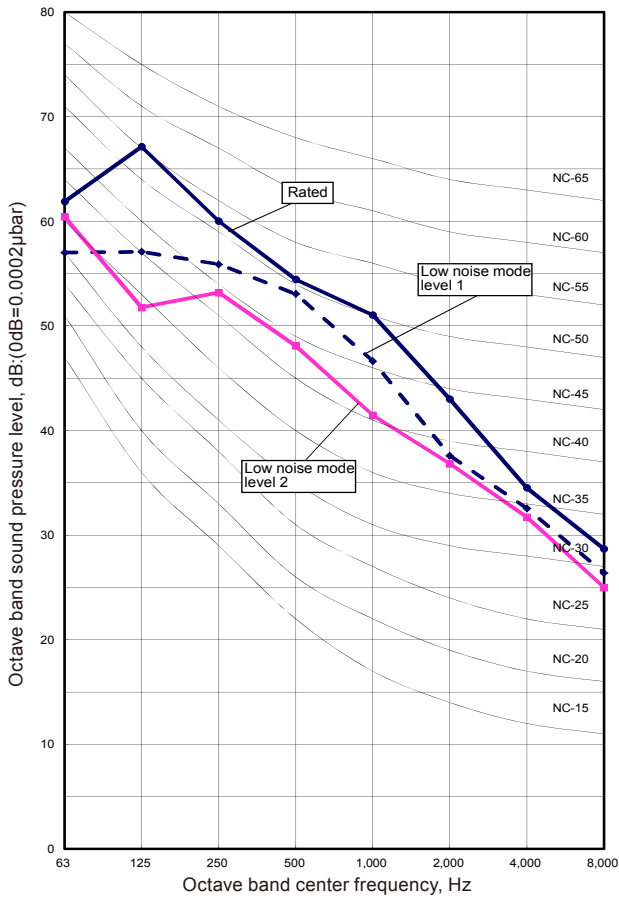
Operation mode	Operation range
Cooling / Dry	64 to 90°F DB (18 to 32°C DB) R.H. 80% or less
Heating	50 to 86°F DB (10 to 30°C DB)

R.H. : Relative Humidity.

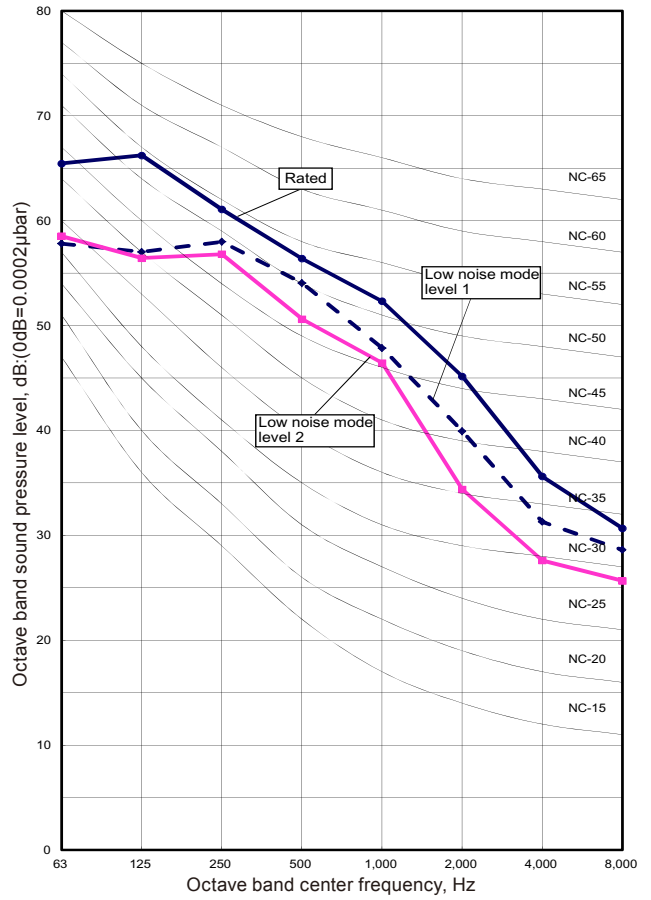
7. NOISE LEVEL CURVE

MODEL : AOUA72TLBV

Cooling

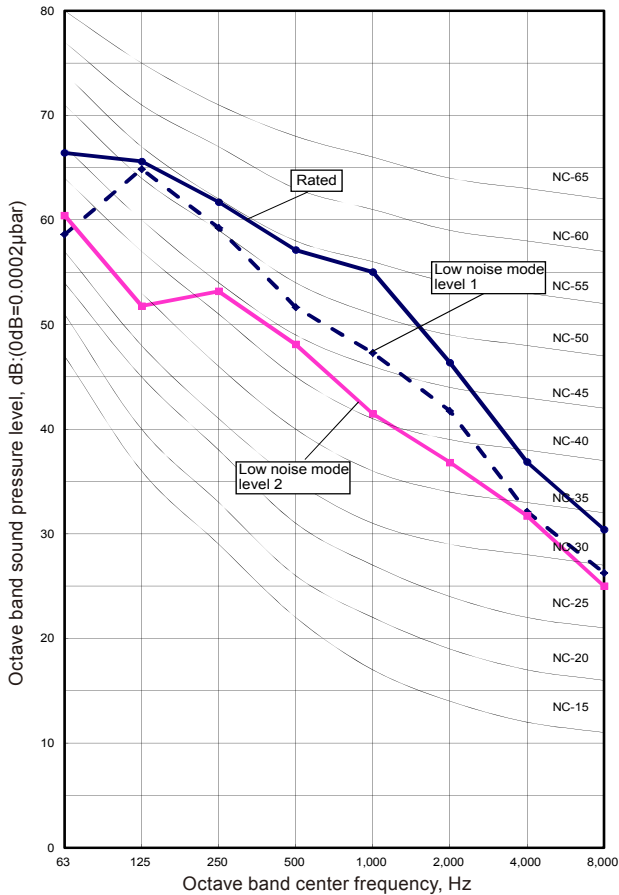


Heating

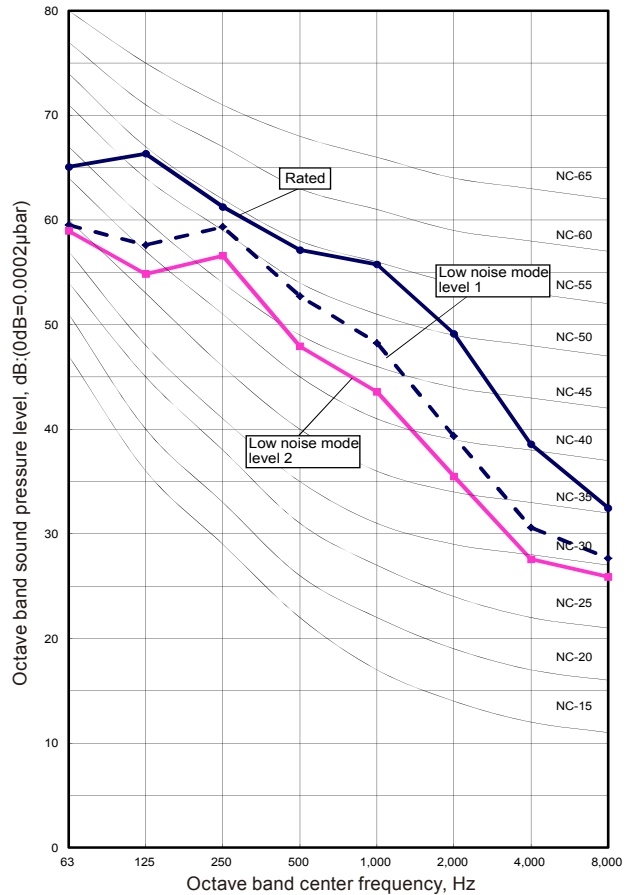


MODEL : AOUA96TLBV

Cooling



Heating

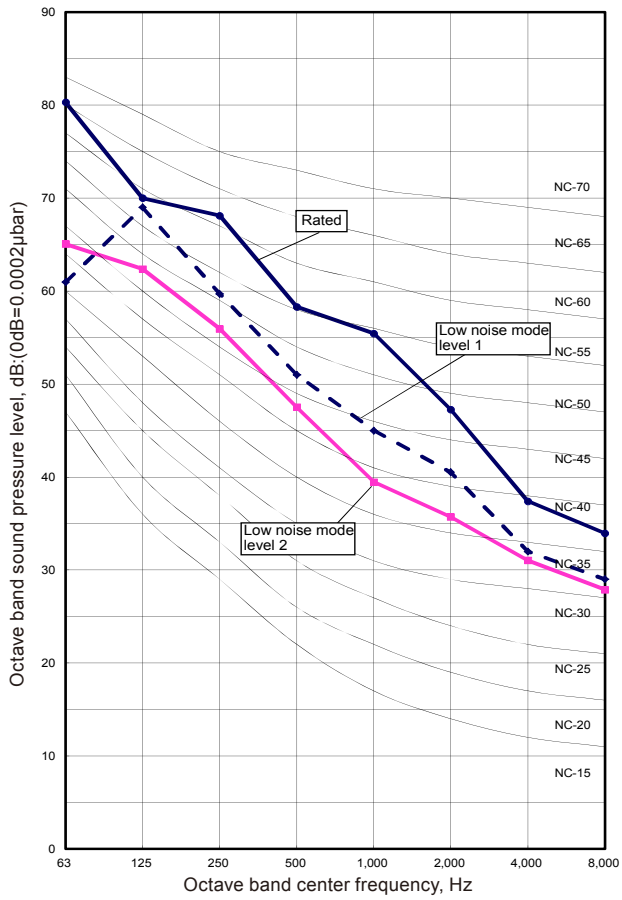


OUTDOOR UNITS

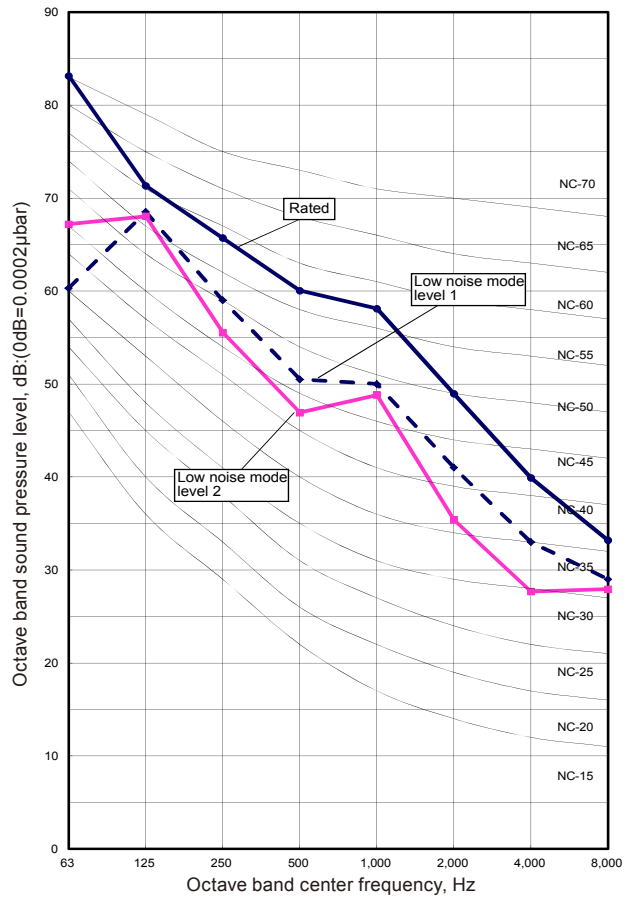
OUTDOOR UNITS

MODEL : AOUA120TLBV

● Cooling



● Heating

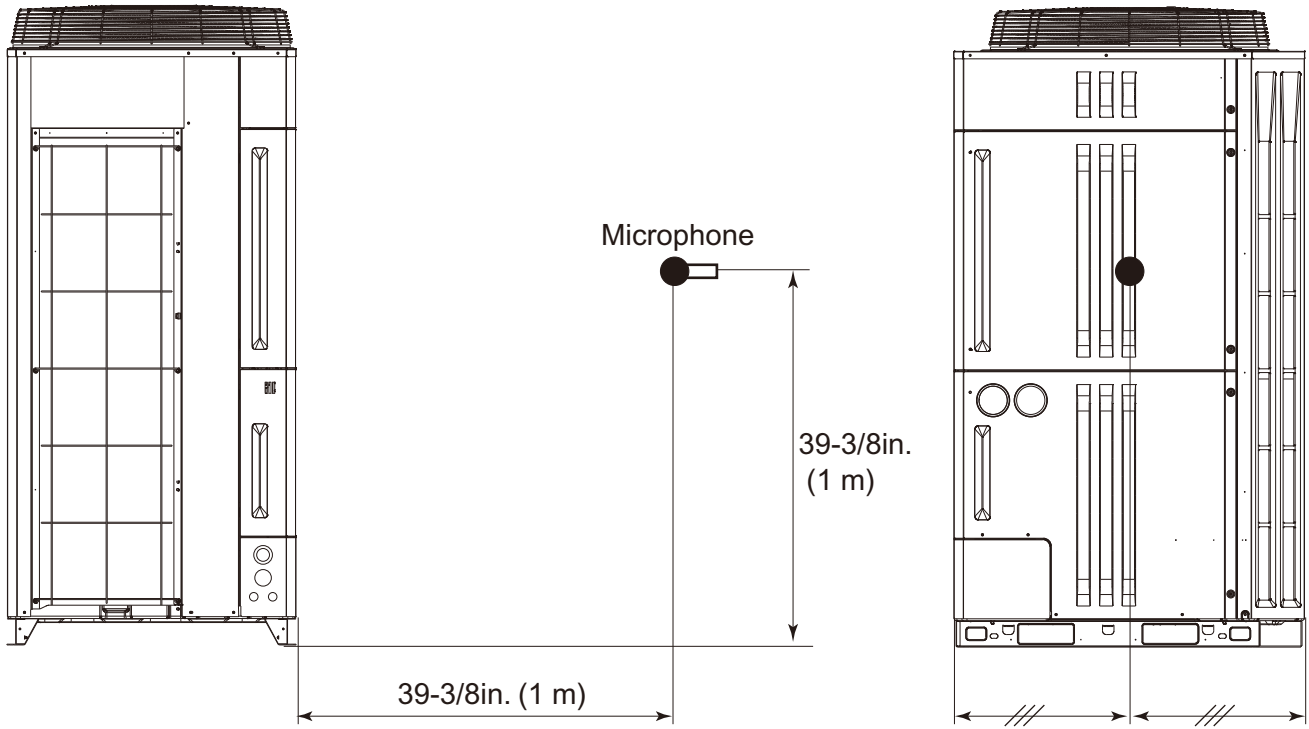


OUTDOOR UNITS

OUTDOOR UNITS

■ SOUND LEVEL CHECK POINT

OUTDOOR
UNITS



OUTDOOR
UNITS

8. ELECTRIC CHARACTERISTICS

		Rated Value		Electric Characteristics						
		Power Supply		Full Load Characteristics			Wiring Specifications	Com- resser	Outdoor Fan Motor	
Ton	Model name	Hz	Voltage (V)	MCA (A)	TOCA (A)	MSC (A)	MAX.CKT.BKR (A)	RLA (A)	Output (kW)	FLA (A)
6	AOUA72TLBV	60	208/230	41	45	33.2	50	17	0.74	3.0
8	AOUA96TLBV	60	208/230	41	45	33.2	50	25	0.74	3.0
10	AOUA120TLBV	60	208/230	50	55	40.0	60	32	0.74	3.4

			Rated Value		Electric Characteristics		
			Power Supply		Full Load Characteristics		
Ton	Set model name	Model name	Hz	Voltage (V)	MCA (A)	TOCA (A)	MSC (A)
12	AOUA144TLBVG	AOUA72TLBV AOUA72TLBV	60	208/230	82	90	66.4
14	AOUA168TLBVG	AOUA96TLBV AOUA72TLBV	60	208/230	82	90	66.4
16	AOUA192TLBVG	AOUA120TLBV AOUA72TLBV	60	208/230	91	100	73.2
18	AOUA216TLBVG	AOUA120TLBV AOUA96TLBV	60	208/230	91	100	73.2
20	AOUA240TLBVG	AOUA120TLBV AOUA120TLBV	60	208/230	100	110	80
22	AOUA264TLBVG	AOUA96TLBV AOUA96TLBV AOUA72TLBV	60	208/230	123	135	99.6
24	AOUA288TLBVG	AOUA96TLBV AOUA96TLBV AOUA96TLBV	60	208/230	123	135	99.6

- Select the circuit breaker based on MCA and MAX.CKT.BKR of the table above.
- Select the wire diameter based on the larger value of MCA or TOCA of the table above and select a wire diameter which withstands the breaker capacity.
- Select the correct cable type and size according to the country or region's regulations.
- Limited Wiring Length is in case voltage drop less than 2%. When wiring length extend longer, select the wiring size of larger diameter.

RLA : Rated Load Amp of compressor under the standard condition.

MCA : Min Circuit Amp = Max Operating Current (Full Load)

MSC : Max Starting Current

TOCA : Total Value of Each Over Current Set

MAX.CKT.BKR : Maximum Circuit Breaker

9. SAFETY DEVICES

Safety device	AOUA72TLBV	AOUA96TLBV	AOUA120TLBV
Fuse (Main)	AC 250V 5A		
Protector (INV)	AC 450V 60A		
Fuse (Varistor)	AC 250V 3.15A		
Fuse (Fan Driver)	DC 500V 10A		
Compressor Protector	Overcurrent protection - Temperature protection Activate at 239°F (115°C): Compressor stop Reset at 176°F (80°C): Compressor restart		
High Pressure Protection	Activate at 580 psi (4.0MPa) Reset at 464 psi (3.2 Mpa)		
Low Pressure Protection	Activate at 7.25 psi (0.05MPa)		

10. LOCALLY PURCHASED PARTS

10-1. AIR DISCHARGE DUCT

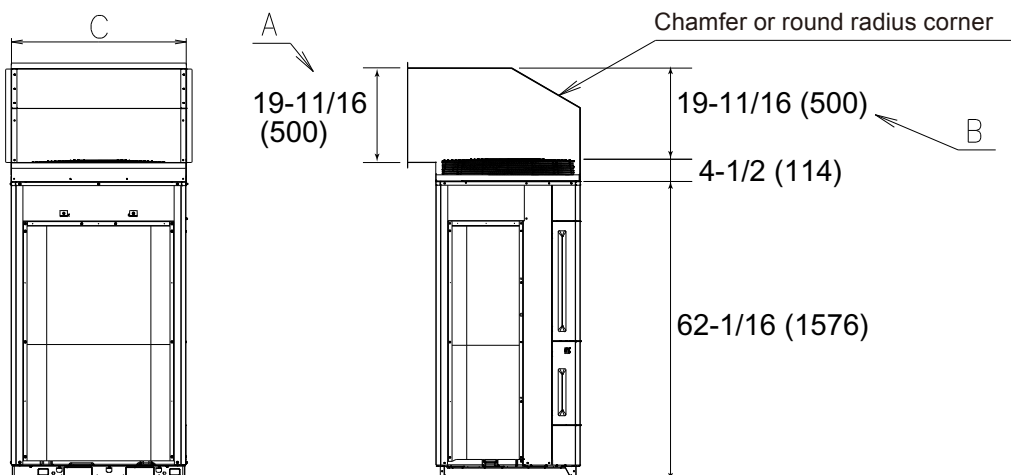
■ PRECAUTION

- All components such as the duct, support framework and misc. screws and hardware to be locally purchased.
- Do not install the duct where prevailing wind will blow directly into it.
- Configure installation so that static pressure loss of duct, louvers etc will not exceed 0.32in. WG (80Pa)
- Allow sufficient space for combined height of duct and unit
- Installation conditions may require that the duct is attached before the unit is installed
- Unit noise levels may increase with duct installed

■ DUCT LAYOUT EXAMPLE

Unit : in. (mm)

Model	Dimension C	
	(Minimum)	(Maximum)
AQUA72TLBV	33-15/16 (862)	36-9/16 (928)
AQUA96TLBV		
AQUA120TLBV	46-1/8 (1172)	48-3/4 (1238)

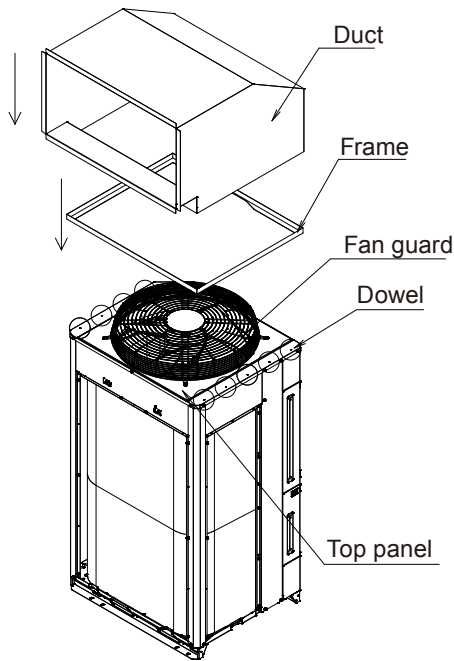


⚠ Caution

- The height A of the duct opening should be 19-11/16in (500mm) or greater
- The height B of the duct opening should be 19-11/16in (500mm) or greater excluding the duct flange
- Provide chamfer or round radius corner
- Duct and components must weigh less than 220lbs (100kg)
- Duct must be designed to allow access to fan motor through top of unit
- Provide adequate support for ductwork.

DUCT INSTALLATION PROCEDURE

Unit : in. (mm)

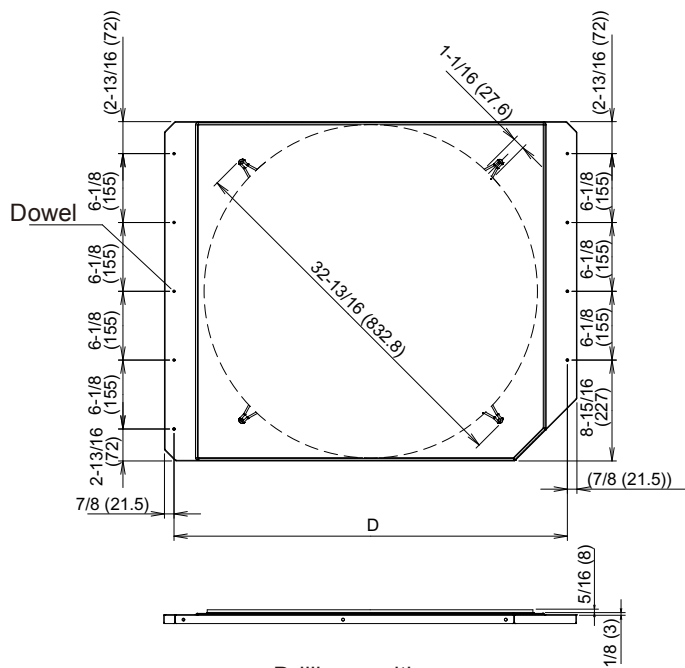


Example of Installation

- Remove the top panel/fan guard assembly from the cabinet.
- Using the 9 dowel markings on the top panel drill 1/4 (6) holes in the top panel/fan guard assembly.
- Reinstall the top panel/fan guard assembly
- Install flange/frame on top of the top panel/fan guard assembly using the predrilled holes and secure with 3/16 (5) screws.
- Install duct onto the flange/frame using 3/16 (5) self tapping screws.

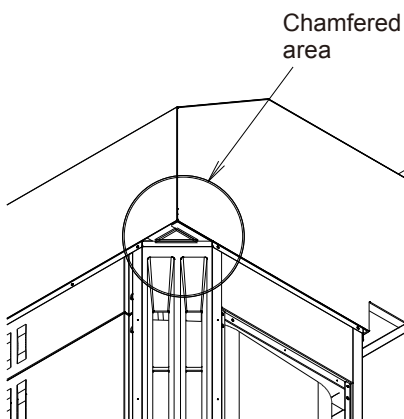
⚠ Caution

- Use 3/16 (5) self tapping screws with a length of 3/8 (10) to 13/16 (20).
- Do not drill in any locations other than the dowels, otherwise damage to the unit could occur and affect unit operation.



Drilling position

Model name	Dimension D
AOUA72TLBV	34-7/8 (886)
AOUA96TLBV	
AOUA120TLBV	47-1/16 (1196)



⚠ Caution

- To prevent air leakage and loss of performance, provide triangular steel cover plate at corner.

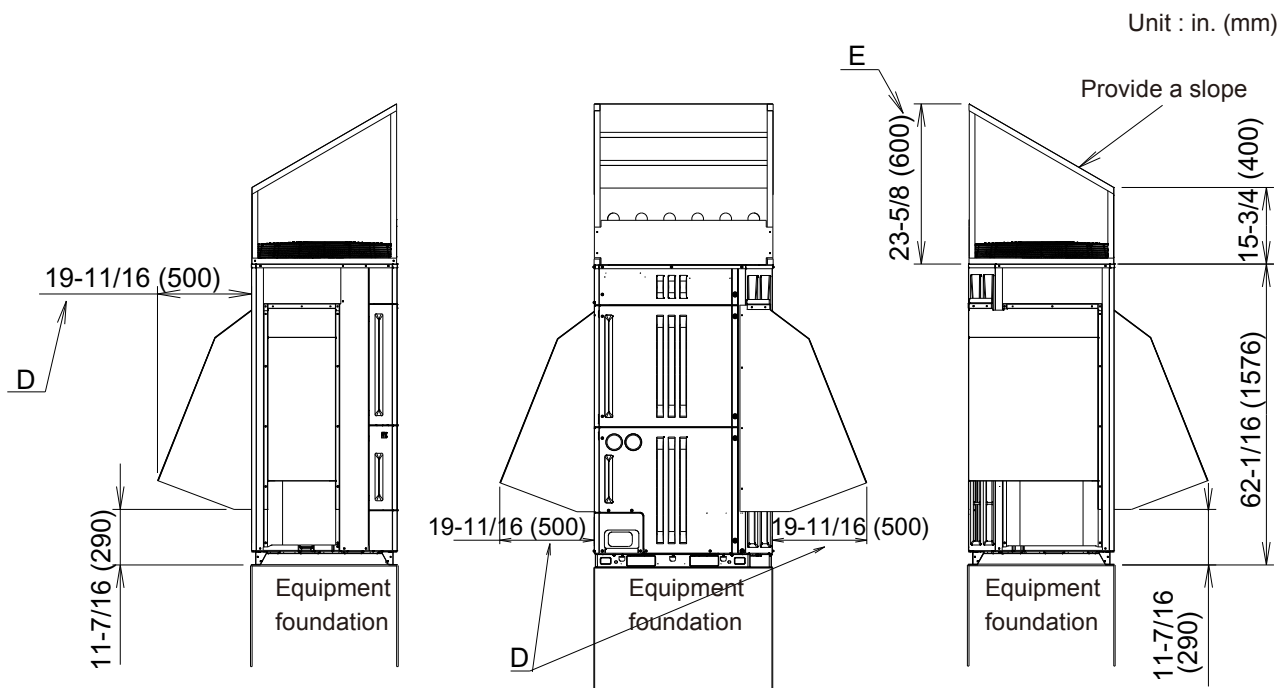
10-2. SNOW HOOD

In cold locations where freezing temperatures and snow may occur, install inlet and outlet hoods to help maintain stable operation and to help avoid snow damage.

■ PRECAUTION

- All components including snow hoods, frame and screws are to be locally purchased.
- Prior to installation of snow hoods, install unit on equipment foundation.
- Provide equipment foundation high enough to keep the unit base above the snow level. Foundation width should not exceed unit width.
- Position snow hood and units in an orientation that limits exposure to prevailing winds.
- In multi unit installations, it may be necessary to install snow hoods before units are set in place.
- Static pressure loss of the air flow path including snow hoods must be .32in. WG (80Pa) or less.
- Unit noise levels may increase with snow hood installed.

■ EXAMPLE OF INSTALLING SNOW HOOD



⚠ Caution

- The depth D of the snow hood should be 19-11/16 (500) or more.
- Provide ample slope so that snow will not accumulate on top of the snow hood. In addition, configure the snow hood so that snow will not fall off and accumulate at the hood inlet.
- Opening height E of the snow hood should be 23-5/8 (600) or more.

■ SNOW HOOD INSTALLATION PROCEDURE

● Installing the upper part of snow hood

- The upper part of the snow hood can be installed in the same manner as the Discharge Duct previously described. See Discharge Duct Installation Procedure.

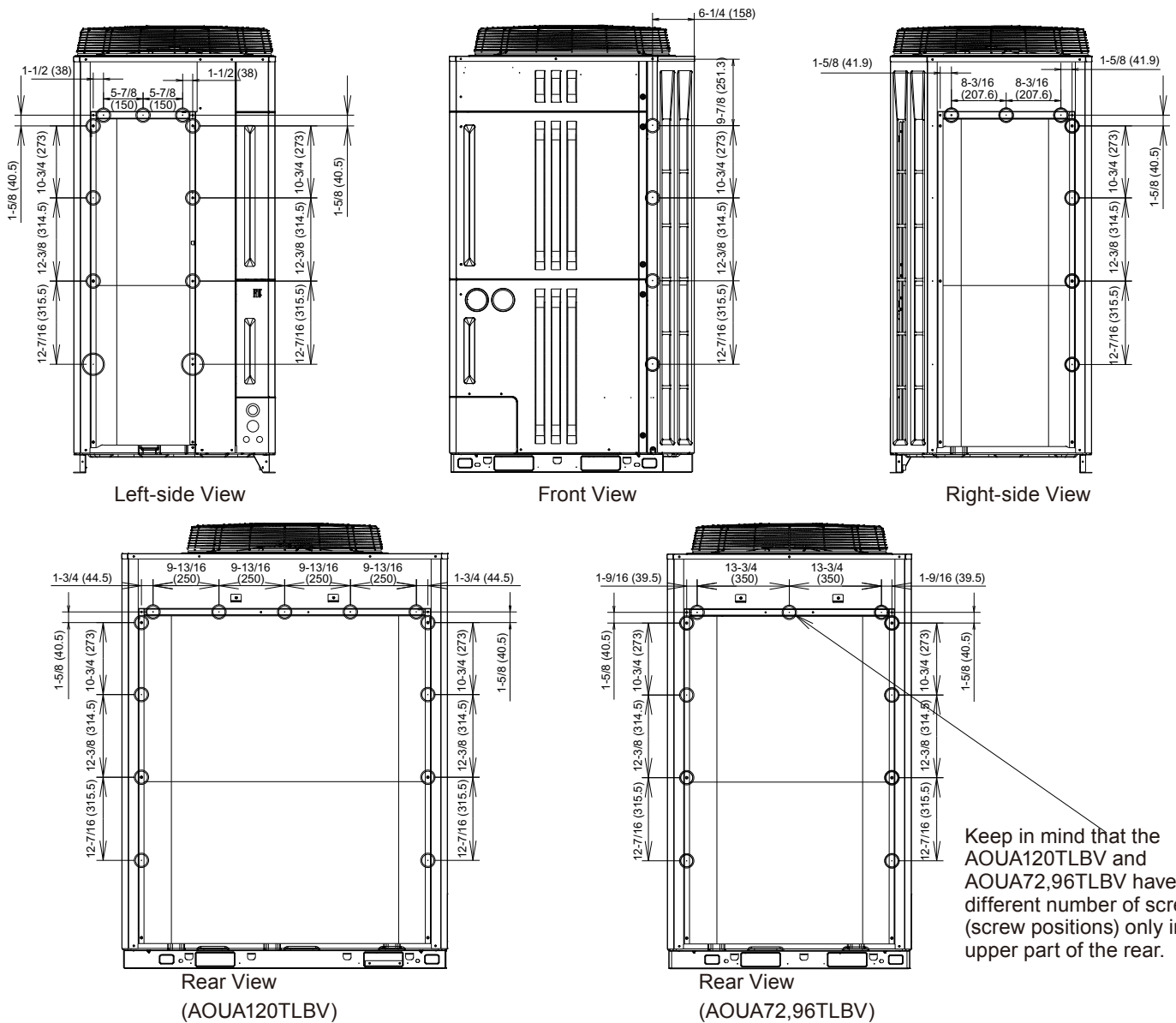
● Installing the sides of snow hood

- Before installing the snow hood, remove the screws that keep the screen in place. Remove screen.
- Install the snow hood using the screws holes shown in the figure on the next page.
- Remove the screws that are highlighted with a circle on the next page and drill a 3/16 (4.6) hole in each dowel.

Caution

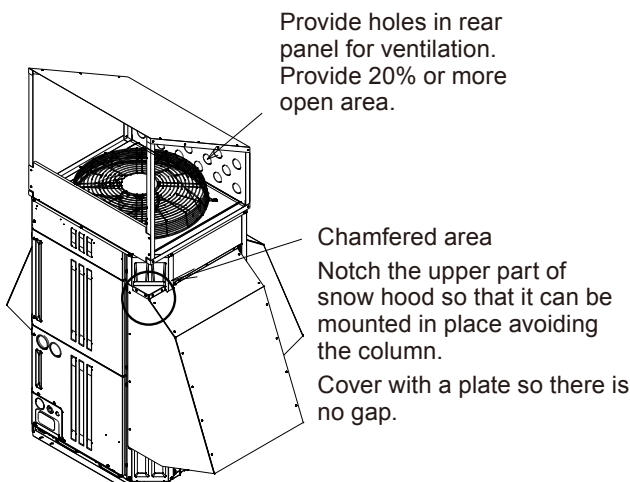
- Use 3/16 (5) self tapping screws having a thread length of 3/8 (10) to 13/16 (20).
- Remove ONLY the screws that are highlighted with a circle on the next page.
- Drill holes in dowels ONLY where highlighted with a circle on the next page, otherwise damage to the unit could occur.

SCREW POSITIONS FOR SNOW HOOD SIDES



Keep in mind that the AOUA120TLBV and AOUA72,96TLBV have a different number of screws (screw positions) only in the upper part of the rear.

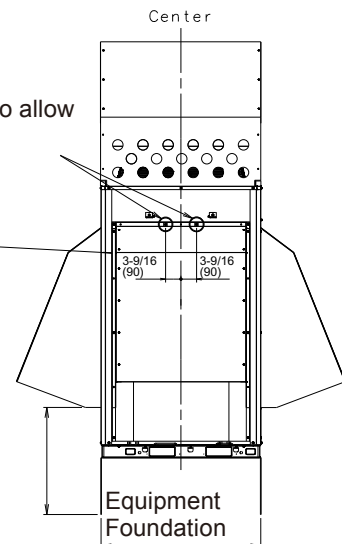
NOTES ON INSTALLING SNOW HOOD



Notch the flange to allow access to screws.

Be sure that Snow Hood flange is sloped to prevent build up of snow.

Equipment foundation to be high enough to prevent inlet of hood from being obstructed by snow.



To avoid accumulation of snow on the equipment foundation, the foundation should only be as wide as the equipment.

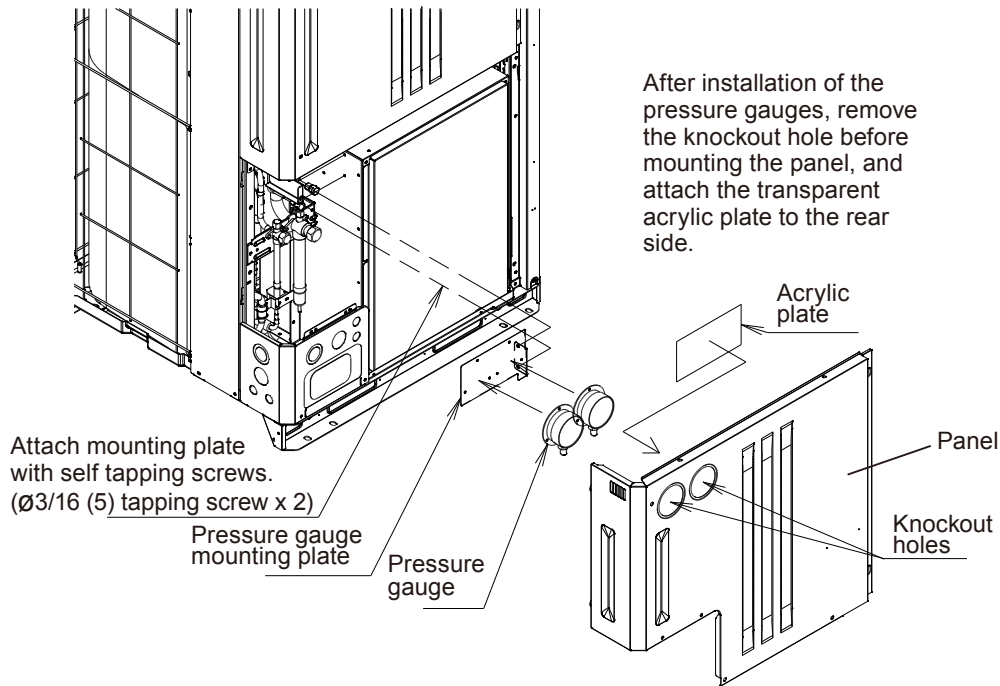
10-3. PRESSURE GAUGE

Unit : in. (mm)

■ HOW TO INSTALL PRESSURE GAUGE

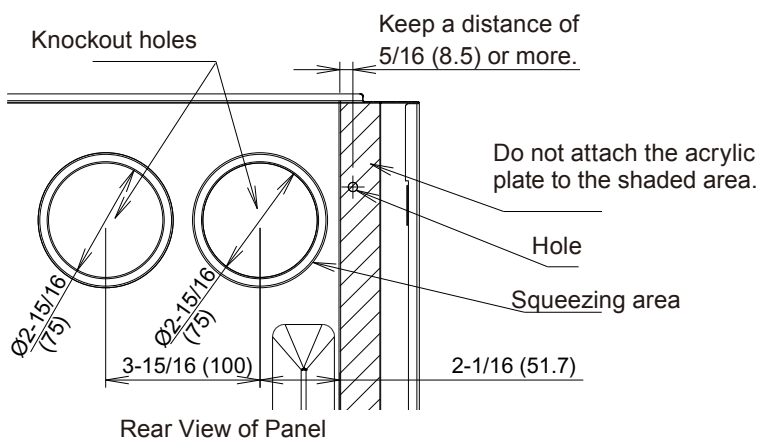
- Note that all the components or parts such as the two pressure gauges, mounting plate, acrylic plate, double-stick tape, and capillary tubes are to be locally purchased.

Remove the panel as shown in the figure below, and install the pressure gauges.



● Attachment of Transparent Acrylic Plate

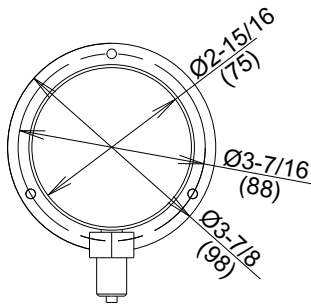
Prepare a transparent acrylic plate, and attach the acrylic plate with thick double-stick tape in order to completely close the knockout holes.



⚠ Caution

- Firmly attach acrylic plate to panel to prevent water from leaking into unit cabinet.
- The acrylic plate must be attached to the left of the shaded area.

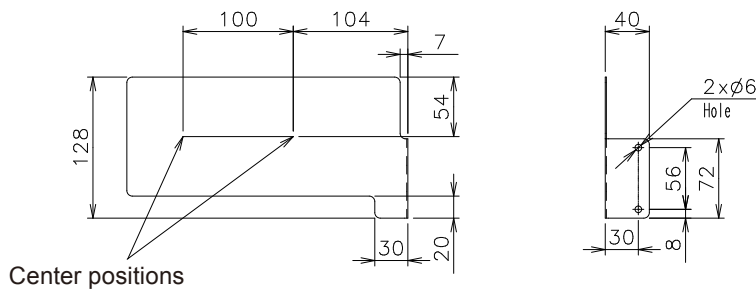
■ PRESSURE GAUGES (RECOMMENDED)



⚠ Caution

- Use a pressure gauge having an outside diameter (including the mounting part) of $\varnothing 3-7/8$ (98) or less and a gauge diameter of $\varnothing 2-15/16$ (75) or less
- Measuring ranges of the pressure gauges:
 High-pressure side: 0 to 725 psi (0 to 5 MPa)
 Low-pressure side: 0 to 507 psi (0 to 3.5 MPa)
 However, it is recommended that both pressure gauges should be designed for a measuring range 0 to 725 psi (0 to 5 MPa).

■ PRESSURE GAUGE MOUNTING PLATE



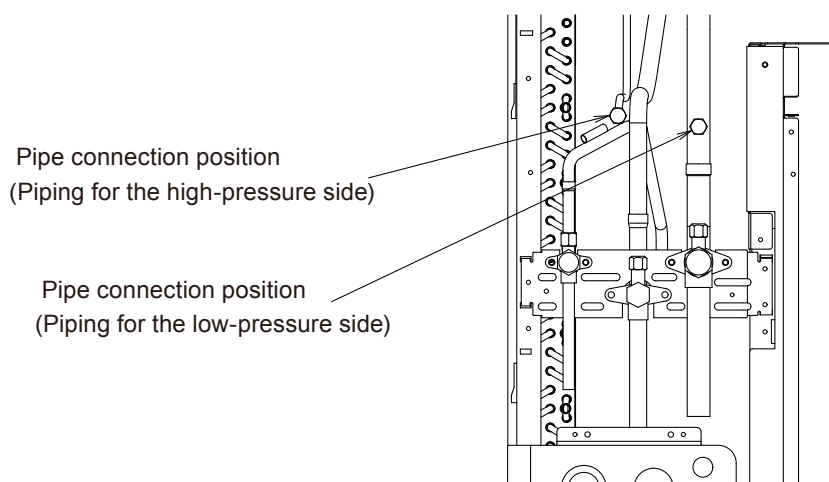
Center positions

⚠ Caution

- Use a pressure gauge mounting plate of the above outside dimensions.
- The mounting plate must be thick enough to endure the weights of the pressure gauges.
- Make mounting screw holes in accordance with each pressure gauge.
- Each pressure gauge must be installed at the center position shown above

■ PRESSURE GAUGE PIPE CONNECTION POSITIONS

Connect each pressure gauge with the pipe at the connection position shown in the figure.



⚠ Caution

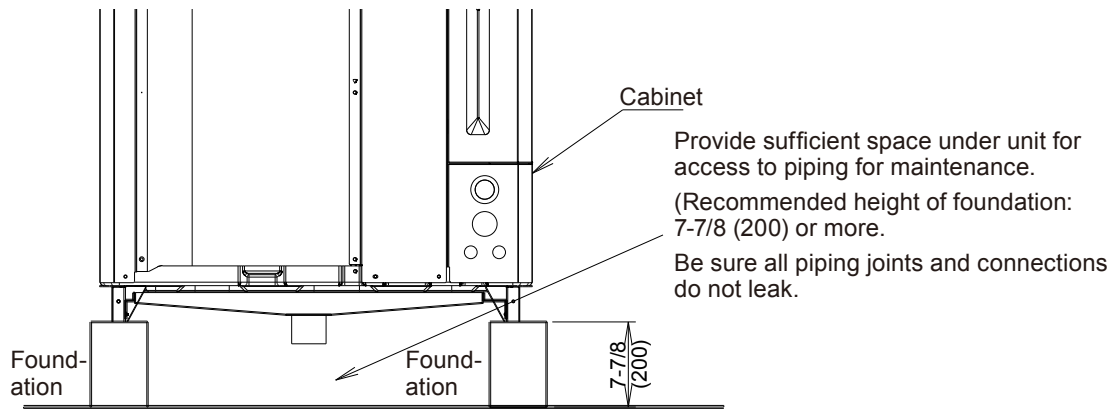
- Gauge connections are $\frac{1}{2}$ -20UNF (5/16") male flare (with valve core).
- Provide R410A hose or refrigerant tubing with $\frac{1}{2}$ -20UNF (5/16") female flare that is rated for and can withstand 725psi(5Mpa). Be sure method of connection and support does not place stress on gauge or location of piping connection.
- Purge air and leak test after installation.

10-4. CENTRAL DRAIN PAN

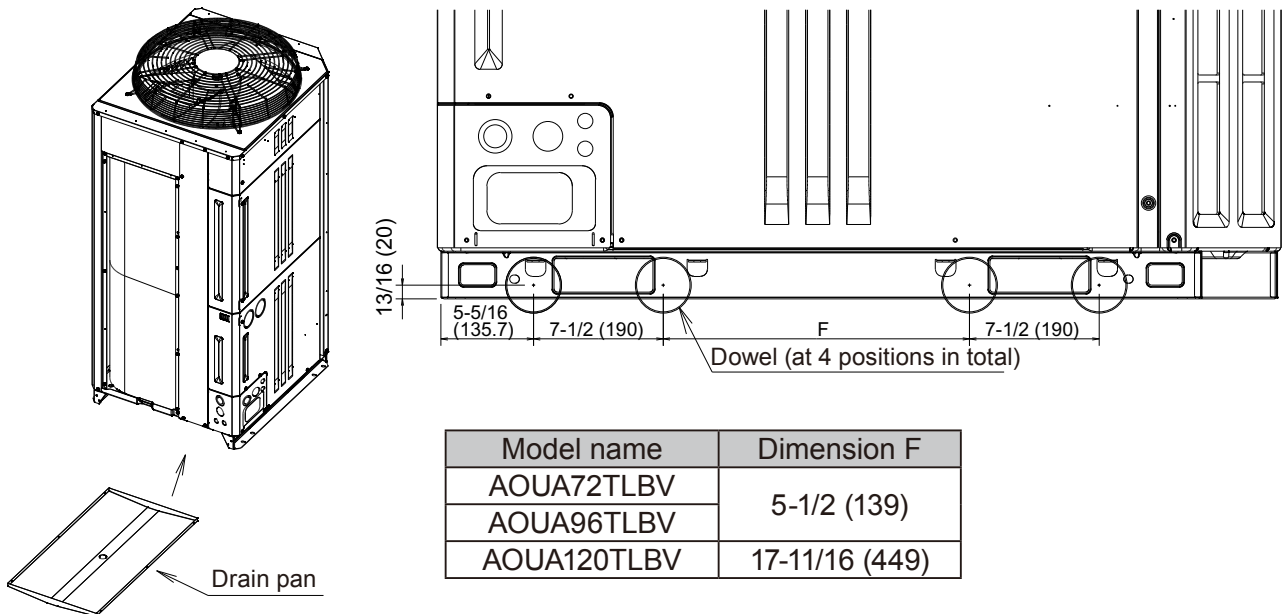
Unit : in. (mm)

■ HOW TO INSTALL CENTRAL DRAIN PAN

- All components and parts including drain pan and piping materials are to be procured locally.
- If a drain pan is installed, refrigerant piping cannot be routed out the bottom.
- Do not locate the unit over an area that cannot get wet.
- It is possible under certain circumstances that some water may not be captured by the drain pan.
- Do not use a drain pan where freezing conditions in the pan or piping may occur.
- If drain pan piping connections are routed out the bottom of the pan, provide a foundation to raise the unit a minimum of 7-7/8 (200).



■ DRAIN PAN INSTALLATION PROCEDURE



Drill holes in dowels located in base feet as shown in the figure above (total 8).

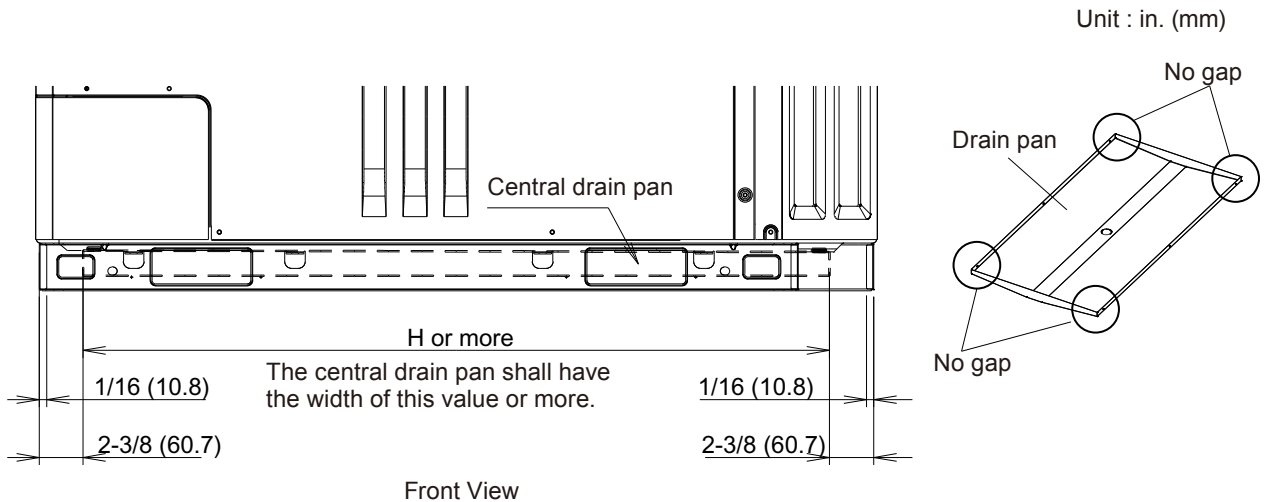
Attach drain pan using self tapping screws at dowel locations.

OUTDOOR
UNITS

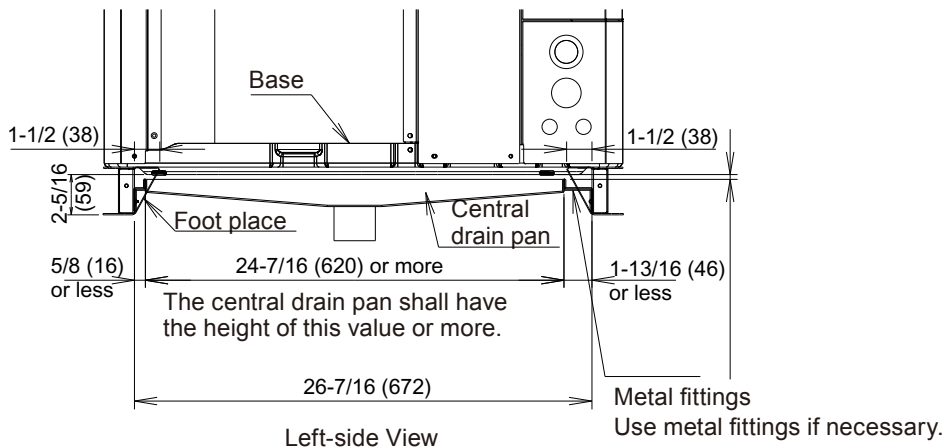
OUTDOOR
UNITS

■ NOTES ON INSTALLING CENTRAL DRAIN PAN

- Make sure to design and install drain pan to cover the all drain hole on base completely.
- The gap between drain pan and base should be less than 1/16in. (2mm).
- Be careful of the foot place during the working or design process.
- If the foundation or foot place makes working difficult, the metal fittings should be used as shown below.
- Keep in mind that a drain pan not having the recommended outside dimensions can cause a water leakage or cannot be installed.
- Gaps other than the drain holes cause a water leakage. Completely close all the gaps in the bottom and sides by welding.



Model name	Dimension H
AOUA72TLBV	31-5/16 (795)
AOUA96TLBV	31-5/16 (795)
AOUA120TLBV	43-1/2 (1105)





4. INDOOR UNITS

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1. SPECIFICATIONS

1-1. COMPACT CASSETTE TYPE

Model name				AUUA4TLAV1	AUUA7TLAV	AUUA9TLAV	AUUA12TLAV	AUUA14TLAV
Power source				1 Phase ~ 208/230V 60Hz				
Available voltage range				187 to 253 V				
Capacity	Cooling	Btu/h	4,000	7,500	9,500	12,000	14,000	
		kW	1.2	2.2	2.8	3.5	4.1	
	Heating	Btu/h	4,400	9,500	10,900	13,500	15,600	
		kW	1.3	2.8	3.2	4.0	4.6	
Input power			W	23	25	25	29	35
Fan	Airflow rate	High	CFM (m ³ / h)	312 (530)	318 (540)	324 (550)	353 (600)	400 (680)
		Med	265/247* ¹ (450/420* ¹)	265 (450)	265 (450)	312 (530)	347 (590)	
		Low	206/177* ¹ (350/300* ¹)	206 (350)	206 (350)	230 (390)	230 (390)	
	Type x Quantity			Turbo x 1				
	Motor output			W	54			
Sound pressure level	High	dB(A)	34	34	35	37	38	
	Med		30/28* ¹	30	30	34	34	
	Low		25/21* ¹	25	25	27	27	
Heat exchanger	Length	in. (mm)	50-3/8 (1,280)					
	Fin pitch	FPI	21					
	Rows x Stages		2 x 10					
	Face Area	ft ² (m ²)	2.9 (0.27)					
	Pipe type (Material)			Grooved H-pin (Copper)				
	Fin	Type (Material)	Slit(Aluminum)					
	Surface treatment	Hydrophilic coating						
Air filter	Type	Anti-mold						
	Net material	PP honeycomb						
Enclosure	Material	Galvanized sheet iron						
	Color	-						
Dimensions (H x W x D)	Net	in. (mm)	9-5/8 x 22-7/16 x 22-7/16 (245 x 570 x 570)					
	Gross		10-7/16 x 28-3/4 x 24-5/8 (265 x 730 x 625)					
Weight	Net	lbs. (kg)	32 (14.5)	33 (15)				
	Gross		40 (18)	42 (19)				
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 1/4 (6.35)					
	Gas (Flare)		ø 3/8 (9.52)	ø 1/2 (12.70)				
	Drain hose		ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]					
Cassette Grille (Grid type)	Model name			UTG-CCGVG				
	Color			WHITE Approximate color of MUNSELL 9PB 9.1/0.2				
	Dimensions (H x W x D)	Net	in. (mm)	1-15/16 x 24-7/16 x 24-7/16 (50 x 620 x 620)				
		Gross		4-3/4 x 30-1/8 x 29-3/4 (120 x 765 x 755)				
	Weight	Net	lbs. (kg)	5 (2.3)				
Gross		10 (4.5)						
Cassette Grille (Standard type)	Model name			UTG-CCGV				
	Color			WHITE Approximate color of MUNSELL N9.25				
	Dimensions (H x W x D)	Net	in. (mm)	1-15/16 x 27-9/16 x 27-9/16 (50 x 700 x 700)				
		Gross		4-3/4 x 30-1/8 x 29-3/4 (120 x 765 x 755)				
	Weight	Net	lbs. (kg)	6 (2.6)				
Gross		10 (4.5)						

*1: This value is "cooling operation / heating operation".

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

Model name				AUUA18TLAV	AUUA24TLAV	
Power source				1 Phase ~ 208/230V 60Hz		
Available voltage range				187 to 253 V		
Capacity	Cooling	Btu/h		18,000	24,000	
		kW		5.3	7.0	
	Heating	Btu/h		20,000	27,000	
		kW		5.9	7.9	
Input power				W	36	84
Fan	Airflow rate	High	CFM (m ³ / h)	418 (710)	606 (1,030)	
		Med		341 (580)	489 (830)	
		Low		235 (400)	265 (450)	
	Type x Quantity			Turbo x 1		
	Motor output			W		54
Sound pressure level	High		dB(A)	41	50	
	Med			35	44	
	Low			27	30	
Heat exchanger	Length		in. (mm)		51-9/16 (1,310)	
	Fin pitch		FPI		19	
	Rows x Stages			3 x 10		
	Face Area		ft ² . (m ²)		3.0 (0.28)	
	Pipe type (Material)			Grooved H-pin (Copper)		
	Fin	Type (Material)		Slit(Aluminum)		
Surface treatment		Hydrophilic coating				
Air filter	Type			Anti-mold		
	Net material			PP honeycomb		
Enclosure	Material			Galvanized sheet iron		
	Color			-		
Dimensions (H x W x D)	Net		in. (mm)	9-5/8 x 22-7/16 x 22-7/16 (245 x 570 x 570)		
	Gross			10-7/16 x 28-3/4 x 24-5/8 (265 x 730 x 625)		
Weight	Net		lbs. (kg)	37 (17)		
	Gross			44 (20)		
Connection pipe diameter	Liquid (Flare)		in. (mm)	ø 3/8 (9.52)		
	Gas (Flare)			ø 5/8 (15.88)		
	Drain hose			ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]		
Cassette Grille (Grid type)	Model name			UTG-CCGVG		
	Color			WHITE Approximate color of MUNSELL 9PB 9.1/0.2		
	Dimensions (H x W x D)	Net	in. (mm)	1-15/16 x 24-7/16 x 24-7/16 (50 x 620 x 620)		
		Gross		4-3/4 x 30-1/8 x 29-3/4 (120 x 765 x 755)		
	Weight	Net	lbs. (kg)	5 (2.3)		
Gross		10 (4.5)				
Cassette Grille (Standard type)	Model name			UTG-CCGV		
	Color			WHITE Approximate color of MUNSELL N9.25		
	Dimensions (H x W x D)	Net	in. (mm)	1-15/16 x 27-9/16 x 27-9/16 (50 x 700 x 700)		
		Gross		4-3/4 x 30-1/8 x 29-3/4 (120 x 765 x 755)		
	Weight	Net	lbs. (kg)	6 (2.6)		
Gross		10 (4.5)				

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

1-2. CIRCULAR FLOW CASSETTE TYPE

Model name				AUUB18TLAV1	AUUB24TLAV1	AUUB30TLAV1	AUUB36TLAV1	AUUB48TLAV1	
Power source				1 Phase ~ 208/230V 60Hz					
Available voltage range				187 to 253 V					
Capacity	Cooling	Btu/h	18,000	24,000	30,000	36,000	48,000		
		kW	5.3	7.0	8.8	10.6	14.1		
	Heating	Btu/h	20,000	27,000	34,000	40,000	54,000		
		kW	5.9	7.9	10.0	11.7	15.8		
Input power			W	20	25	49	61	116	
Fan	Airflow rate	High	CFM (m ³ / h)	618 (1,050)	659 (1,120)	865 (1,470)	954 (1,620)	1,201 (2,040)	
		Me-Hi	547 (930)	618 (1,050)	683 (1,160)	883 (1,500)	1,059 (1,800)		
		Med	530 (900)	547 (930)	630 (1,070)	824 (1,400)	936 (1,590)		
		Lo-Hi	512 (870)	530 (900)	547 (930)	789 (1,340)	848 (1,440)		
		Low	477 (810)	512 (870)	530 (900)	753 (1,280)	765 (1,300)		
		Quiet	459 (780)	459 (780)	459 (780)	677 (1,150)	677 (1,150)		
	Type x Quantity			Turbo × 1					
Motor output			W	81					
Sound pressure level	High		dB(A)	33	35	40	41	47	
	Me-Hi			32	33	36	40	45	
	Med			31	32	34	38	42	
	Lo-Hi			30	31	32	37	39	
	Low			29	30	31	35	36	
	Quiet			28	28	28	33	33	
Heat exchanger	Length		in. (mm)	82-7/16 (2,094)			81-1/4 (2,064)		
	Fin pitch		FPI	21					
	Rows x Stages			2 × 10			3 × 12		
	Face Area		ft ² . (m ²)	4.7 (0.44)			5.6 (0.52)		
	Pipe type (Material)			Grooved H-pin (Copper)					
	Fin	Type (Material)		Slit (Aluminum)					
		Surface treatment		Hydrophilic coating					
Air filter	Type			Anti-mold					
	Net material			PP honeycomb					
Enclosure	Material			Galvanized sheet iron					
	Color			-					
Dimensions (H x W x D)	Net		in. (mm)	9-11/16 × 33-1/16 × 33-1/16 (246 × 840 × 840)			11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840)		
	Gross			11-3/4 × 37-13/16 × 37-3/8 (298 × 960 × 950)			13-3/8 × 37-13/16 × 37-3/8 (340 × 960 × 950)		
Weight	Net		lbs. (kg)	53 (24)	54 (24.5)	65 (29.5)			
	Gross			64 (29)	65 (29.5)	75 (34)			
Connection pipe diameter	Liquid (Flare)		in. (mm)	ø 1/4 (6.35)	ø 3/8 (9.52)				
	Gas (Flare)			ø 1/2 (12.70)	ø 5/8 (15.88)				
	Drain hose			ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]					
Cassette Grille	Model name			UTG-LCGVCW					
	Color			WHITE					
	Approximate color of MUNSELL N9.25/								
	Dimensions (H x W x D)	Net		in. (mm)	2-1/16 × 37-3/8 × 37-3/8 (53 × 950 × 950)				
		Gross			4-5/16 × 39-3/8 × 39-3/4 (110 × 1,000 × 1,010)				
Weight	Net		lbs. (kg)	13 (6.0)					
	Gross			22 (10)					

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB, and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB, and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

1-3. CASSETTE TYPE

Model name				AUUB18TLAV	AUUB24TLAV	
Power source				1 Phase ~ 208/230V 60Hz		
Available voltage range				187 to 253 V		
Capacity	Cooling	Btu/h		18,000	24,000	
		kW		5.3	7.0	
	Heating	Btu/h		20,000	27,000	
		kW		5.9	7.9	
Input power				W		
Fan	Airflow rate	High	CFM (m ³ / h)	677 (1,150)	753 (1,280)	
		Med		553 (940)	612 (1,040)	
		Low		512 (870)	512 (870)	
	Type x Quantity			Turbo × 1		
	Motor output			W		
				80		
Sound pressure level	High		dB(A)	36	38	
	Med			30	33	
	Low			29	29	
Heat exchanger	Length		in. (mm)	81-15/16 (2,082)		
	Fin pitch		FPI	21		
	Rows x Stages			2 × 10		
	Face Area		ft ² . (m ²)	4.5 (0.42)		
	Pipe type (Material)			Grooved H-pin (Copper)		
	Fin	Type (Material)		Slit(Aluminum)		
		Surface treatment		Hydrophilic coating		
Air filter	Type			Anti-mold		
	Net material			PP honeycomb		
Enclosure	Material			Galvanized sheet iron		
	Color			-		
Dimensions (H x W x D)	Net		in. (mm)	9-11/16 × 33-1/16 × 33-1/16 (246 × 840 × 840)		
	Gross			12-1/2 × 37-13/16 × 38-9/16 (318 × 960 × 980)		
Weight	Net		lbs. (kg)	49 (22)		
	Gross			60 (27)		
Connection pipe diameter	Liquid (Flare)		in. (mm)	ø 3/8 (9.52)		
	Gas (Flare)			ø 5/8 (15.88)		
	Drain hose			ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]		
Cassette Grille	Model name			UTG-LCGV		
	Color			WHITE Approximate color of MUNSSELL N9.25		
	Dimensions (H x W x D)	Net		in. (mm)	1-15/16 × 37-3/8 × 37-3/8 (50 × 950 × 950)	
		Gross			4-1/2 × 40-3/16 × 39-3/8 (115 × 1,020 × 1,000)	
	Weight	Net		lbs. (kg)	13 (5.5)	
		Gross			19 (8.5)	

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

Model name				AUUB30TLAV		AUUB36TLAV	
Power source				1 Phase ~ 208/230V 60Hz			
Available voltage range				187 to 253 V			
Capacity	Cooling	Btu/h		30,000	36,000		
		kW		8.8	10.6		
	Heating	Btu/h		34,000	40,000		
		kW		10.0	11.7		
Input power			W	59	80		
Fan	Airflow rate	High	CFM (m ³ / h)	942 (1,600)	1,059 (1,800)		
		Med		765 (1,300)	765 (1,300)		
		Low		647 (1,100)	647 (1,100)		
	Type x Quantity			Turbo × 1			
	Motor output			W	80		
Sound pressure level	High		dB(A)	40	44		
	Med			38	38		
	Low			33	33		
Heat exchanger	Length		in. (mm)	81-15/16 (2,082)			
	Fin pitch		FPI	19			
	Rows x Stages			3 × 12			
	Face Area		ft ² . (m ²)	5.6 (0.52)			
	Pipe type (Material)			Grooved H-pin (Copper)			
	Fin	Type (Material)		Slit(Aluminum)			
Surface treatment		Hydrophilic coating					
Air filter	Type			Anti-mold			
	Net material			PP honeycomb			
Enclosure	Material			Galvanized sheet iron			
	Color			-			
Dimensions (H x W x D)	Net		in. (mm)	11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840)			
	Gross			14-3/16 × 37-13/16 × 38-9/16 (360 × 960 × 980)			
Weight	Net		lbs. (kg)	60 (27)			
	Gross			73 (33)			
Connection pipe diameter	Liquid (Flare)		in. (mm)	ø 3/8 (9.52)			
	Gas (Flare)			ø 5/8 (15.88)	ø 3/4 (19.05)		
	Drain hose			ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]			
Cassette Grille	Model name			UTG-LCGV			
	Color			WHITE			
	Approximate color of MUNSELL N9.25						
	Dimensions (H x W x D)	Net	in. (mm)	1-15/16 × 37-3/8 × 37-3/8 (50 × 950 × 950)			
		Gross		4-1/2 × 40-3/16 × 39-3/8 (115 × 1,020 × 1,000)			
Weight	Net		lbs. (kg)	13 (5.5)			
	Gross			19 (8.5)			

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

1-4. MINI DUCT TYPE

Model name			ARUL4TLAV1	
Power source			1 Phase ~ 208/230V 60Hz	
Available voltage range			187 to 253 V	
Capacity	Cooling	Btu/h	4,000	
		kW	1.2	
	Heating	Btu/h	4,400	
		kW	1.3	
Input power		W	26	
Static pressure range		in.WG(Pa)	0 to 0.12 (0 to 30)	
Standard static pressure		in.WG(Pa)	0.04 (10)	
Fan	Airflow rate	High	CFM (m ³ / h)	271 (460)
		Med-Hi		259 (440)
		Med		247 (420)
		Lo-Hi		235 (400)
		Low		218 (370)
		Quiet		200 (340)
	Type x Quantity		Sirocco x 2	
Motor output		W	80	
Sound pressure level	High	dB(A)	25	
	Med-Hi		24	
	Med		23	
	Low-Hi		22	
	Low		21	
	Quiet		20	
Heat exchanger	Length	in. (mm)	19-5/16 (490)	
	Fin pitch	FPI	19	
	Rows x Stages		1 x 16	
	Face Area	ft ² . (m ²)	1.7 (0.16)	
	Pipe type (Material)		Grooved H-pin (Copper)	
	Fin	Type (Material)	Slit (Aluminum)	
		Surface treatment	Hydrophilic coating	
Air filter	Type	Fungicide type		
	Net material	PP honeycomb		
Enclosure	Material	Galvanized sheet iron		
	Color	-		
Dimensions (H x W x D)	Net	in. (mm)	7-13/16 x 27-9/16 x 17-11/16 (198 x 700 x 450)	
	Gross		9-13/16 x 36-5/8 x 22-13/16 (250 x 930 x 580)	
Weight	Net	lbs. (kg)	32 (14.5)	
	Gross		40 (18)	
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 1/4 (6.35)	
	Gas (Flare)		ø 3/8 (9.52)	
	Drain hose		ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]	

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

1-5. SLIM DUCT / SLIM CONCEALED FLOOR TYPE

Model name			ARUL7TLAV	ARUL9TLAV	ARUL12TLAV	ARUL14TLAV	
Power source			1 Phase ~ 208/230V 60Hz				
Available voltage range			187 to 253 V				
Capacity	Cooling	Btu/h	7,500	9,500	12,000	14,000	
		kW	2.2	2.8	3.5	4.1	
	Heating	Btu/h	9,500	10,900	13,500	15,600	
		kW	2.8	3.2	4.0	4.6	
Input power		W	44	50	54	92	
Static pressure range		in.WG(Pa)	0 to 0.36 (0 to 90)				
Standard static pressure		in.WG(Pa)	0.10 (25)				
Fan	Airflow rate	High	324 (550)	353 (600)	353 (600)	471 (800)	
		Med	288 (490)	324 (550)	300 (510)	418 (710)	
		Low	258 (440)	283 (480)	265 (450)	359 (610)	
	Type x Quantity		Sirocco x 2				
	Motor output		W		80	81	
	Sound pressure level	High	dB(A)	28	29	30	34
Med		25		26	27	32	
Low		22		24	24	28	
Heat exchanger	Length		in. (mm)				
	Fin pitch		FPI				
	Rows x Stages		2 x 14		3 x 14		
	Face Area		ft ² . (m ²)				
	Pipe type (Material)		Grooved H-pin (Copper)				
	Fin	Type (Material)		Slit(Aluminum)			
		Surface treatment		Hydrophilic coating			
Air filter	Type		Fungicide type				
	Net material		PP honeycomb				
Enclosure	Material		Galvanized sheet iron				
	Color		-				
Dimensions (H x W x D)	Net	in. (mm)	7-13/16 x 27-9/16 x 24-7/16 (198 x 700 x 620)				
	Gross		10-7/8 x 38-1/8 x 30-3/8 (276 x 968 x 772)				
Weight	Net	lbs. (kg)	37 (17)		40 (18)		
	Gross		46 (21)		51 (23)		
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 1/4 (6.35)				
	Gas (Flare)		ø 1/2 (12.70)				
	Drain hose		ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]				

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

INDOOR UNITS

INDOOR UNITS

Model name			ARUL18TLAV	
Power source			1 Phase ~ 208/230V 60Hz	
Available voltage range			187 to 253 V	
Capacity	Cooling	Btu/h	18,000	
		kW	5.3	
	Heating	Btu/h	20,000	
		kW	5.9	
Input power		W	83	
Static pressure range		in.WG(Pa)	0 to 0.36 (0 to 90)	
Standard static pressure		in.WG(Pa)	0.10 (25)	
Fan	Airflow rate	High	553 (940)	
		Med	494 (840)	
		Low	441 (750)	
	Type x Quantity			Sirocco × 3
	Motor output		W	81
	Sound pressure level	High	dB(A)	34
Med		32		
Low		28		
Heat exchanger	Length		in. (mm)	27-9/16 (700)
	Fin pitch		FPI	19
	Rows x Stages			3 × 14
	Face Area		ft ² . (m ²)	2.3 (0.21)
	Pipe type (Material)			Grooved H-pin (Copper)
	Fin	Type (Material)		Slit(Aluminum)
		Surface treatment		Hydrophilic coating
Air filter	Type		Fungicide type	
	Net material		PP honeycomb	
Enclosure	Material		Galvanized sheet iron	
	Color		-	
Dimensions (H x W x D)	Net	in. (mm)	7-13/16 × 35-7/16 × 24-7/16 (198 × 900 × 620)	
	Gross		10-7/8 × 46 × 30-3/8 (276 × 1,168 × 772)	
Weight	Net	lbs. (kg)	49 (22)	
	Gross		60 (27)	
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 3/8 (9.52)	
	Gas (Flare)		ø 5/8 (15.88)	
	Drain hose		ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]	

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

1-6. MEDIUM STATIC PRESSURE DUCT TYPE

Model name			ARUM24TLAV	ARUM30TLAV	ARUM36TLAV
Power source			1 Phase ~ 208/230V 60Hz		
Available voltage range			187 to 253 V		
Capacity	Cooling	Btu/h	24,000	30,000	36,000
		kW	7.0	8.8	10.6
	Heating	Btu/h	27,000	34,000	40,000
		kW	7.9	10.0	11.7
Input power		W	125	190	222
Static pressure range		in.WG(Pa)	0 to 0.60 (0 to 150)		
Standard static pressure		in.WG(Pa)	0.16 (40)		
Fan	Airflow rate	High	859 (1,460)	1,042 (1,770)	1,112 (1,890)
		Med	724 (1,230)	812 (1,380)	895 (1,520)
		Low	589 (1,000)	589 (1,000)	677 (1,150)
	Type x Quantity		Sirocco x 2		
	Motor output		W	197	
Sound pressure level	High	dB(A)	36	40	41
	Med		31	33	35
	Low		28	28	29
Heat exchanger	Length		in. (mm)		
	Fin pitch		FPI		
	Rows x Stages		4 x 14		
	Face Area		ft ² . (m ²)		
	Pipe type (Material)		Grooved H-pin (Copper)		
	Fin	Type (Material)	Slit(Aluminum)		
Surface treatment		Hydrophilic coating			
Air filter (Option)	Model name		UTD-LF25NA		
	Type		Fungicide type		
	Net material		PP honeycomb		
Enclosure	Material		Galvanized sheet iron		
	Color		-		
Dimensions (H x W x D)	Net	in. (mm)	10-5/16 x 44-11/16 x 27-9/16 (270 x 1,135 x 700)		
	Gross		11-13/16 x 51-15/16 x 31-1/8 (300 x 1,320 x 790)		
Weight	Net	lbs. (kg)	86 (39)		
	Gross		104 (47)		
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 3/8 (9.52)		
	Gas (Flare)		ø 5/8 (15.88)	ø 3/4 (19.05)	
	Drain hose		ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]		

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

1-7. HIGH STATIC PRESSURE DUCT TYPE

Model name			ARUH36TLAV	ARUH48TLAV	ARUH60TLAV
Power source			1 Phase ~ 208/230V 60Hz		
Available voltage range			187 to 253 V		
Capacity	Cooling	Btu/h	36,000	48,000	60,000
		kW	10.6	14.1	17.6
	Heating	Btu/h	40,000	54,000	67,000
		kW	11.7	15.8	19.6
Input power		W	496	752	806
Static pressure range		in.WG(Pa)	0.40 to 0.80 (100 to 200)	0.40 to 1.00 (100 to 250)	
Standard static pressure		in.WG(Pa)	0.40 (100)		
Fan	Airflow rate	High	1,324 (2,250)	1,766 (3,000)	1,972 (3,350)
		Med	1,030 (1,750)	1,589 (2,700)	1,678 (2,850)
		Low	824 (1,400)	1,354 (2,300)	1,501 (2,550)
	Type x Quantity		Sirocco x 2		
	Motor output		W	247	424
Sound pressure level	High	dB(A)	43	47	48
	Med		37	43	44
	Low		32	40	41
Heat exchanger	Length	in. (mm)	35-1/16 (890)		
	Fin pitch	FPI	19	17	
	Rows x Stages		4 x 16		
	Face Area	ft ² . (m ²)	3.2 (0.30)		
	Pipe type (Material)		Grooved H-pin (Copper)		
	Fin	Type (Material)	Slit(Aluminum)		
		Surface treatment	Hydrophilic coating		
Air filter (Option)	Model name		UTD-LF60KA		
	Type		Fungicide type		
	Net material		PP honeycomb		
Enclosure	Material		Galvanized sheet iron		
	Color		-		
Dimensions (H x W x D)	Net	in. (mm)	15-3/4 x 41-5/16 x 19-11/16 (400 x 1,050 x 500)		
	Gross		18-1/8 x 48-7/16 x 25-3/16 (460 x 1,230 x 640)		
Weight	Net	lbs. (kg)	97 (44)	101 (46)	
	Gross		108 (49)	112 (51)	
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 3/8 (9.52)		
	Gas (Flare)		ø 3/4 (19.05)		
	Drain hose		ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]		

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

Model name			ARUH72TLAV1	ARUH96TLAV
Power source			1 Phase ~ 208/230V 60Hz	
Available voltage range			187 to 253 V	
Capacity	Cooling	Btu/h	72,000	96,000
		kW	21.1	28.1
	Heating	Btu/h	81,000	108,000
		kW	23.7	31.7
Input power		W	618	838
Static pressure range		in.WG(Pa)	0 to 1.2 (0 to 300)	
Standard static pressure		in.WG(Pa)	0.60(150)	
Fan	Airflow rate	High	2,296 (3,900)	2,855 (4,850)
		Med	1,942 (3,300)	2,502 (4,250)
		Low	1,766 (3,000)	2,119 (3,600)
	Type x Quantity		Sirocco x 2	
	Motor output		W	
		700 x 2		
Sound pressure level	High	dB(A)	47	48
	Med		43	45
	Low		40	42
Heat exchanger	Length	in. (mm)	49-3/16(1,250)	
	Fin pitch	FPI	17	16
	Rows x Stages		4 x 18	4 x 20
	Face Area	ft ² . (m ²)	5.0 (0.47)	6.9 (0.64)
	Pipe type (Material)		Grooved H-pin (Copper)	
	Fin	Type (Material)	Slit (Aluminum)	Louver (Aluminum)
Surface treatment		Hydrophilic coating		
Air filter (Option)	Model name			
	Type		-	
	Net material			
Enclosure	Material		Galvanized sheet iron	
	Color		-	
Dimensions (H x W x D)	Net	in. (mm)	17-11/16 x 62-1/2 x 27-9/16 (450 x 1,587 x 700)	21-5/8 x 62-1/2 x 27-9/16 (550 x 1,587 x 700)
	Gross		20-1/2 x 68-7/8 x 32-1/2 (520 x 1,750 x 825)	24-7/16 x 68-7/8 x 32-1/2 (620 x 1,750 x 825)
Weight	Net	lbs. (kg)	203 (92)	231 (105)
	Gross		238 (108)	276 (125)
Connection pipe diameter	Liquid (Brazing)	in. (mm)	ø1/2 (12.70)	
	Gas (Brazing)		ø7/8 (22.22)	
	Drain hose		ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]	

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

1-8. VERTICAL AIR HANDLER TYPE

Model name			ARUV12TLAV	ARUV18TLAV	ARUV24TLAV	
Power source			1 Phase ~ 208/230V 60Hz			
Available voltage range			187 to 253 V			
Capacity	Cooling	Btu/h	12,000	18,000	24,000	
		kW	3.5	5.3	7.0	
	Heating	Btu/h	13,500	20,000	27,000	
		kW	4.0	5.9	7.9	
Input power		W	87	142	233	
Static pressure range		in.WG(Pa)	0.10 to 0.70 (25 to 175)	0.10 to 0.80 (25 to 200)		
Standard static pressure		in.WG(Pa)	0.50 (125)			
Fan	Airflow rate	High	394 (670)	630 (1,071)	862 (1,464)	
		Med	347 (590)	547 (930)	800 (1,360)	
		Low	306 (520)	506 (860)	689 (1,170)	
	Type x Quantity		Sirocco x 1			
Motor output		W	249	249	249	
Sound pressure level	High	dB(A)	41	43	45	
	Med		39	40	43	
	Low		37	39	39	
Heat exchanger	Length		in. (mm)			
	Fin pitch		FPI			
	Rows x Stages		(3 x 6) x 2	(2 x 12) x 2	(3 x 12) x 2	
	Face Area		ft ² . (m ²)	1.5 (0.14)	3.0 (0.28)	3.0 (0.28)
	Pipe type (Material)		Grooved H-pin (Copper)			
	Fin	Type (Material)	Slit (Aluminum)			
Air filter (Locally purchased)	Type		MERV3			
	Size		16 x 22-1/4 x 1 (407 x 565 x 25.4)			
Enclosure	Material		painted galvanized steel			
	Color		Gray			
Dimensions (H x W x D)	Net	in. (mm)	51 x 17-11/16 x 23-13/16 (1,295 x 450 x 605)			
	Gross		58-1/2 x 24 x 30 (1,486 x 610 x 762)			
Weight	Net	lbs. (kg)	139 (63)	148 (67)	151 (69)	
	Gross		168 (77)	177 (81)	180 (82)	
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 1/4 (6.35)	ø 3/8 (9.52)	ø 3/8 (9.52)	
	Gas (Flare)		ø 1/2 (12.70)	ø 5/8 (15.88)	ø 5/8 (15.88)	
	Drain hose		ø 3/4 (19.05) [I.D.]			

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

Model name			ARUV30TLAV	ARUV36TLAV	ARUV48TLAV	ARUV60TLAV	
Power source			1 Phase ~ 208/230V 60Hz				
Available voltage range			187 to 253 V				
Capacity	Cooling	Btu/h	30,000	36,000	48,000	60,000	
		kW	8.8	10.6	14.1	17.6	
	Heating	Btu/h	34,000	40,000	54,000	67,000	
		kW	10.0	11.7	15.8	19.6	
Input power		W	253	427	479	785	
Static pressure range		in.WG(Pa)	0.10 to 0.80 (25 to 200)				
Standard static pressure		in.WG(Pa)	0.50 (125)				
Fan	Airflow rate	High	CFM (m ³ / h)	1,092 (1,855)	1,372 (2,331)	1,531 (2,602)	2,013 (3,420)
		Med		942 (1,600)	1,271 (2,160)	1,407 (2,390)	1,883 (3,200)
		Low		818 (1,390)	954 (1,620)	1,130 (1,920)	1,542 (2,620)
	Type x Quantity			Sirocco × 1			
Motor output		W	373	373	560	746	
Sound pressure level	High	dB(A)	45	48	48	53	
	Med		43	46	46	50	
	Low		40	40	41	45	
Heat exchanger	Length	in. (mm)	18 (457)				
	Fin pitch	FPI	10				
	Rows x Stages		(3 × 12) × 2	(4 × 12) × 2	(3 × 20) × 2	(4 × 20) × 2	
	Face Area	ft ² . (m ²)	3.0 (0.28)	3.0 (0.28)	5.0 (0.46)	5.0 (0.46)	
	Pipe type (Material)			Grooved H-pin (Copper)			
Air filter (Locally purchased)	Type		MERV3				
	Size	in. (mm)	20 × 22-1/4 × 1 (508 × 565 × 25.4)		22 × 22 × 1 (559 × 559 × 25.4)		
Enclosure	Material		Painted galvanized steel				
	Color		Gray				
Dimensions (H x W x D)	Net	in. (mm)	51 × 22-3/16 × 23-13/16 (1,295 × 564 × 605)		57-1/2 × 25-1/8 × 23-13/16 (1,461 × 638 × 605)		
	Gross		58-1/2 × 28 × 33 (1,486 × 711 × 838)		65 × 28 × 33 (1,651 × 711 × 838)		
Weight	Net	lbs. (kg)	174 (79)	179 (81)	212 (96)	223 (101)	
	Gross		208 (95)	213 (97)	247 (113)	258 (118)	
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 3/8 (9.52)				
	Gas (Flare)		ø 5/8 (15.88)	ø 3/4 (19.05)			
	Drain hose		ø 3/4 (19.05) [I.D.]				

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

1-9. COMPACT FLOOR TYPE

Model name			AGUA4TLAV1	AGUA7TLAV1	AGUA9TLAV1	AGUA12TLAV1	AGUA14TLAV1
Power source			1 Phase ~ 208/230V 60Hz				
Available voltage range			187 to 253 V				
Capacity	Cooling	Btu/h	4,000	7,500	9,500	12,000	14,000
		kW	1.2	2.2	2.8	3.5	4.1
	Heating	Btu/h	4,400	9,500	10,900	13,500	15,600
		kW	1.3	2.8	3.2	4.0	4.6
Input power		W	12/14	16	17	22	29
Fan	Airflow rate	High	224/253 (380/430)	277 (470)	294 (500)	347 (590)	394 (670)
		Med-Hi	206 (350)	247 (420)	265 (450)	306 (520)	347 (590)
		Med	188 (320)	230 (390)	235 (400)	277 (470)	306 (520)
		Low-Hi	182 (310)	212 (360)	212 (360)	247 (420)	265 (450)
		Low	165 (280)	194 (330)	194 (330)	230 (390)	230 (390)
		Quiet	124 (210)	159 (270)	159 (270)	200 (340)	200 (340)
	Type x Quantity	Cross flow x 2					
Motor output		W	16 x 2				
Sound pressure level	High	dB(A)	35/36	37	38	42	46
	Med-Hi		33	35	36	39	42
	Med		31	33	34	37	39
	Low-Hi		30	31	31	35	36
	Low		28	29	29	33	33
	Quiet		22	22	22	30	30
Heat exchanger	Length		in. (mm)				
	Fin pitch		FPI				
	Rows x Stages		2 x 18				
	Face Area		ft ² . (m ²)				
	Pipe type (Material)		Grooved H-pin (Copper)				
	Fin	Type (Material)		Slit (Aluminum)			
Surface treatment		Hydrophilic coating					
Air filter	Type		Anti mold				
	Net material		PP plain weave				
Enclosure	Material		Plastic				
	Color		White Approximate color of MUNSELL 5Y 9/0.5NN				
Dimensions (H x W x D)	Net	in. (mm)	23-5/8 x 29-1/8 x 7-7/8 (600 x 740 x 200)				
	Gross		27-9/16 x 32-5/16 x 12-3/16 (700 x 820 x 310)				
Weight	Net	lbs. (kg)	33 (15)				
	Gross		41 (18.5)	42 (19)			
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 1/4 (6.35)				
	Gas (Flare)		ø 3/8 (9.52)		ø 1/2 (12.70)		
	Drain hose		ø9/16 (13.8) [I.D.]; ø5/8 (15.8) to 11/16 (16.7) [O.D.]				

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

1-10. FLOOR / CEILING TYPE

Model name			ABUA12TLAV	ABUA14TLAV	ABUA18TLAV	ABUA24TLAV
Power source			1 Phase ~ 208/230V 60Hz			
Available voltage range			187 to 253 V			
Capacity	Cooling	Btu/h	12,000	14,000	18,000	24,000
		kW	3.5	4.1	5.3	7.0
	Heating	Btu/h	13,500	15,600	20,000	27,000
		kW	4.0	4.6	5.9	7.9
Input power		W	30	42	74	99
Fan	Airflow rate	High	388 (660)	459 (780)	589 (1,000)	589 (1,000)
		Med	336 (570)	377 (640)	424 (720)	483 (820)
		Low	288 (490)	324 (550)	341 (580)	400 (680)
	Type x Quantity		Sirocco x 2			
	Motor output		W	80		
Sound pressure level	High		36	40	46	47
	Med		32	36	39	42
	Low		28	34	35	37
Heat exchanger	Length		in. (mm) 31-1/2 (800)			
	Fin pitch		FPI 21		19	
	Rows x Stages		2 x 12		3 x 12 4 x 12	
	Face Area		ft ² . (m ²) 2.3 (0.20)			
	Pipe type (Material)		Grooved H-pin (Copper)			
	Fin	Type (Material)		Slit(Aluminum)		
Surface treatment		Hydrophilic coating				
Air filter	Type		Anti-mold			
	Net material		PP monofilament net			
Enclosure	Material		Plastic			
	Color		WHITE Approximate color of MUNSELL N9.25			
Dimensions (H x W x D)	Net		in. (mm) 7-13/16 x 39 x 25-13/16 (199 x 990 x 655)			
	Gross		12-5/8 x 45-1/4 x 31-1/8 (320 x 1,150 x 790)			
Weight	Net		55 (25)	57 (26)	60 (27)	
	Gross		77 (35)	79 (36)	84 (38)	
Connection pipe diameter	Liquid (Flare)		ø 1/4 (6.35)		ø 3/8 (9.52)	
	Gas (Flare)		ø 1/2 (12.70)		ø 5/8 (15.88)	
	Drain hose		ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]			

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

INDOOR UNITS

INDOOR UNITS

1-11. CEILING TYPE

Model name			ABUA30TLAV	ABUA36TLAV	
Power source			1 Phase ~ 208/230V 60Hz		
Available voltage range			187 to 253 V		
Capacity	Cooling	Btu/h	30,000	36,000	
		kW	8.8	10.6	
	Heating	Btu/h	34,000	40,000	
		kW	10.0	11.7	
Input power		W	66	85	
Fan	Airflow rate	High	959 (1,630)	995 (1,690)	
		Med	806 (1,370)	824 (1,400)	
		Low	671 (1,140)	689 (1,170)	
	Type x Quantity		Sirocco × 4		
	Motor output		W	106	
Sound pressure level	High		42	45	
	Med		38	38	
	Low		33	34	
Heat exchanger	Length		in. (mm) 53-1/8 (1,350)		
	Fin pitch		FPI 16		
	Rows x Stages		3 × 12	3 × 12 1 × 8	
	Face Area		ft ² . (m ²) 3.7 (0.34)		
	Pipe type (Material)		Grooved H-pin (Copper)		
	Fin	Type (Material)		Slit(Aluminum)	
		Surface treatment		Hydrophilic coating	
Air filter	Type		Anti-mold		
	Net material		PP monofilament net		
Enclosure	Material		Plastic		
	Color		WHITE Approximate color of MUNSSELL N9.25		
Dimensions (H x W x D)	Net	in. (mm)	9-7/16 × 65-3/8 × 27 -9/16 (240 × 1,660 × 700)		
	Gross		12-1/2 × 70-7/8 × 31-1/8 (318 × 1,800 × 790)		
Weight	Net	lbs. (kg)	101 (46)	106 (48)	
	Gross		130 (59)	134 (61)	
Connection pipe diameter	Liquid (Flare)		ø 3/8 (9.52)		
	Gas (Flare)	in. (mm)	ø 5/8 (15.88)	ø 3/4 (19.05)	
	Drain hose		ø3/4 (19.05) [I.D.]; ø1-1/16 (26.6) [O.D.]		

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

1-12. WALL MOUNTED TYPE

Model name			ASUA4TLAV1	ASUA7TLAV1	ASUA9TLAV1	ASUA12TLAV1	ASUA14TLAV1	
Power source			1 Phase ~ 208/230V 60Hz					
Available voltage range			187 to 253 V					
Capacity	Cooling	Btu/h	4,000	7,500	9,500	12,000	14,000	
		kW	1.2	2.2	2.8	3.5	4.2	
	Heating	Btu/h	4,400	9,500	10,900	13,500	15,600	
		kW	1.3	2.8	3.2	4.0	4.6	
Input power		W	13	19	34	25	36	
Fan	Airflow rate	High	253 (430)	324 (550)	424 (720)	406 (690)	471 (800)	
		Med-Hi	247 (420)	271 (460)	336 (570)	359 (610)	436 (740)	
		Med	230 (390)	247 (420)	294 (500)	330 (560)	400 (680)	
		Low-Hi	224 (380)	230 (390)	241 (410)	312 (530)	359 (610)	
		Low	212 (360)	212 (360)	212 (360)	277 (470)	324 (550)	
		Quiet	194 (330)	194 (330)	194 (330)	194 (330)	194 (330)	
	Type x Quantity		Cross flow × 1					
	Motor output		W 30					
	Sound pressure level	High	dB(A)	31	35	43	40	44
		Med-Hi		30	32	38	37	42
Med		28		30	34	35	40	
Low-Hi		26		27	29	33	37	
Low		24		24	24	30	34	
Quiet		22		22	22	24	24	
Heat exchanger	Length	in. (mm)	24-13/16 (630)			Main: 24-13/16 (630) Sub: 24-13/16 (630)		
	Fin pitch	FPI	23			Main: 23 Sub: 18		
	Rows x Stages		2 × 16			Main: 2 × 20 Sub: 1 × 4		
	Face Area	ft ² . (m ²)	2.3 (0.21)			2.2 (0.20)		
	Pipe type (Material)		Groove H-pin (Copper)					
	Fin	Type (Material)	Slit (Aluminum)					
Surface treatment		Hydrophilic coating						
Air filter	Type	Anti mold						
	Net material	PP honeycomb						
Enclosure	Material	Plastic						
	Color	White Approximate color of MUNSELL N 9.25/						
Dimensions (H x W x D)	Net	in. (mm)	10-5/16 × 32-5/16 × 8-1/8 (262 × 820 × 206)			10-9/16 × 33-1/16 × 8 (268 × 840 × 203)		
	Gross		10-3/8 × 34-1/4 × 12-15/16 (263 × 870 × 328)			10-5/8 × 34-13/16 × 13-1/4 (270 × 884 × 336)		
Weight	Net	lbs. (kg)	17 (7.5)			20 (9)		
	Gross		22 (10)			24 (11)		
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 1/4 (6.35)					
	Gas (Flare)		ø 3/8 (9.52)		ø 1/2 (12.70)			
	Drain hose		ø9/16 (13.8) [I.D.]; ø5/8 (15.8) to 11/16 (16.7) [O.D.]					

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

Model name			ASUB18TLAV1	ASUB24TLAV1
Power source			1 Phase ~ 208/230V 60Hz	
Available voltage range			187 to 253 V	
Capacity	Cooling	Btu/h	18,000	24,000
		kW	5.3	7.0
	Heating	Btu/h	20,000	27,000
		kW	5.9	7.9
Input power		W	32	60
Fan	Airflow rate	High	494 (840)	647 (1,100)
		Med	453 (770)	536 (910)
		Low	406 (690)	430 (730)
	Type x Quantity		Cross flow × 1	
	Motor output		W	42
Sound pressure level	High	dB(A)	41	48
	Med		39	43
	Low		35	35
Heat exchanger	Length	in. (mm)	Main: 32-3/16 (817) Sub: 32-3/16 (817)	
	Fin pitch	FPI	Main: 21 Sub: 18	
	Rows x Stages		2 × 16 1 × 4 (2 pieces)	
	Face Area	ft ² . (m ²)	3.3 (0.31)	
	Pipe type (Material)		Grooved H-pin (Copper)	
	Fin	Type (Material)	Slit (Aluminum)	
Surface treatment		Hydrophilic coating		
Air filter	Type	Deodorization / Anti-mold		
	Net material	PP monofilament net		
Enclosure	Material	Plastic		
	Color	White Approximate color of MUNSELL N 9.25/		
Dimensions (H x W x D)	Net	in. (mm)	12-5/8 × 39-5/16 × 9-3/8 (320 × 998 × 238)	
	Gross		12-15/16 × 42-15/16 × 16-7/8 (329 × 1,090 × 429)	
Weight	Net	lbs. (kg)	33 (15)	
	Gross		42 (19)	
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 1/4 (6.35)	ø 3/8 (9.52)
	Gas (Flare)		ø 1/2 (12.70)	ø 5/8 (15.88)
	Drain hose		ø9/16 (13.8) [I.D.]; ø5/8 (15.8) to 11/16 (16.7) [O.D.]	

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

Model name			ASUB30TLAV1	ASUB36TLAV1	
Power source			1 Phase ~ 208/230V 60Hz		
Available voltage range			187 to 253 V		
Capacity	Cooling	Btu/h	30,000	34,000	
		kW	8.8	10.0	
	Heating	Btu/h	34,000	38,000	
		kW	10.0	11.2	
Input power		W	74	103	
Fan	Airflow rate	High	848 (1,440)	954/895 (1,620/1,520)	
		Med-Hi	706 (1,200)	765 (1,300)	
		Med	618 (1,050)	659 (1,120)	
		Low-Hi	553 (940)	577 (980)	
		Low	524 (890)	524 (890)	
		Quiet	412 (700)	412 (700)	
	Type x Quantity		Cross flow x 1		
Motor output		W	61		
Sound pressure level		dB(A)	High	53	55/54
			Med-Hi	49	51
			Med	45	47
			Low-Hi	42	43
			Low	39	39
			Quiet	33	33
Heat exchanger	Length		in. (mm)	Main : 35-7/16 (900) Sub1 : 35-7/16 (900) Sub2 : 35-7/16 (900)	
	Fin pitch		FPI	Main: 21, Sub1: 18, Sub2: 18	
	Rows x Stages			Main: 2 x 22 Sub1: 1 x 6 Sub2: 1 x 4	
	Face Area		ft ² . (m ²)	4.5 (0.42)	
	Pipe type (Material)			Grooved H-pin (Copper)	
	Fin	Type (Material)		Slit (Aluminum)	
		Surface treatment		Hydrophilic coating	
Air filter	Type			Anti mold	
	Net material			PP plain weave	
Enclosure	Material			Plastic	
	Color			White Approximate color of MUNSSELL N 9.25/	
Dimensions (H x W x D)	Net		in. (mm)	13-3/8 x 45-1/4 x 11 (340 x 1,150 x 280)	
	Gross			15-15/16 x 50 x 17-11/16 (405 x 1,270 x 450)	
Weight	Net		lbs. (kg)	40 (18)	
	Gross			53 (24)	
Connection pipe diameter	Liquid (Flare)		in. (mm)	ø 3/8 (9.52)	
	Gas (Flare)			ø 5/8 (15.88)	
	Drain hose			ø9/16 (13.8) [I.D.]; ø5/8 (15.8) to 11/16 (16.7) [O.D.]	

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB, and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB, and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

Model name			ASUA7TLAV	ASUA9TLAV	ASUA12TLAV	ASUA14TLAV
Power source			1 Phase ~ 208/230V 60Hz			
Available voltage range			187 to 253 V			
Capacity	Cooling	Btu/h	7,500	9,500	12,000	14,000
		kW	2.2	2.8	3.5	4.1
	Heating	Btu/h	9,500	10,900	13,500	15,600
		kW	2.8	3.2	4.0	4.6
Input power		W	17	18	22	34
Fan	Airflow rate	High	288 (490)	294 (500)	330 (560)	394 (670)
		Med	265 (450)	265 (450)	283 (480)	288 (490)
		Low	247/218 * ¹ (420/370 * ¹)	247/218 * ¹ (420/370 * ¹)	247 (420)	247 (420)
	Type x Quantity		Cross flow × 1			
	Motor output		W	42		
Sound pressure level	High	dB(A)	35	36	39	44
	Med		33	33	35	37
	Low		31 /27 * ¹	31 /27 * ¹	31	32
Heat exchanger	Length		in. (mm) 23-5/8 (600)			
	Fin pitch		FPI 21			
	Rows x Stages		2×16			
	Face Area		ft ² . (m ²) 2.3 (0.20)			
	Pipe type (Material)		Grooved H-pin (Copper)			
	Fin	Type (Material)	Slit(Aluminum)			
Surface treatment		Hydrophilic coating				
Air filter	Type		Antibacterial and Mold proofing, Ion deodorization			
	Net material		PP honeycomb			
Enclosure	Material		Plastic			
	Color		WHITE Approximate color of MUNSELL N9.25			
Dimensions (H x W x D)	Net	in. (mm)	10-13/16 × 31-1/8 × 8-7/16 (275 × 790 × 215)			
	Gross		11-7/16 × 32-7/8 × 13-9/16 (290 × 835 × 345)			
Weight	Net	lbs. (kg)	20 (9)			
	Gross		26 (12)			
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 1/4 (6.35)			
	Gas (Flare)		ø 1/2 (12.70)			
	Drain hose		ø 9/16 (13.8) [I.D.] ; ø 5/8 (15.8) - ø 11/16 (16.7) [O.D.]			

*1: This value is "cooling operation / heating operation".

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

Model name			ASUB18TLAV	ASUB24TLAV
Power source			1 Phase ~ 208/230V 60Hz	
Available voltage range			187 to 253 V	
Capacity	Cooling	Btu/h	18,000	24,000
		kW	5.3	7.0
	Heating	Btu/h	20,000	27,000
		kW	5.9	7.9
Input power		W	32	60
Fan	Airflow rate	High	494 (840)	647 (1,100)
		Med	453 (770)	536 (910)
		Low	406 (690)	430 (730)
	Type x Quantity		Cross flow x 1	
Motor output		W	42	
Sound pressure level	High	dB(A)	41	48
	Med		39	43
	Low		35	35
Heat exchanger	Length	in. (mm)	32-3/16 (817)	
	Fin pitch	FPI	21	18
	Rows x Stages		2 x 18 1x4(2 pieces)	
	Face Area	ft ² . (m ²)	3.3 (0.31)	
	Pipe type (Material)		Grooved H-pin (Copper)	
	Fin	Type (Material)	Slit (Aluminum)	
		Surface treatment	Hydrophilic coating	
Air filter	Type	Deodorization / Anti-mold		
	Net material	PP monofilament net		
Enclosure	Material	Plastic		
	Color	WHITE Approximate color of MUNSELL N9.25		
Dimensions (H x W x D)	Net	in. (mm)	12-5/8 x 39-5/16 x 9 (320 x 998 x 228)	
	Gross		12-9/16 x 42-15/16 x 16-7/8 (319 x 1,090 x 429)	
Weight	Net	lbs. (kg)	33 (15)	
	Gross		42 (19)	
Connection pipe diameter	Liquid (Flare)	in. (mm)	ø 3/8 (9.52)	
	Gas (Flare)		ø 5/8 (15.88)	
	Drain hose		ø 1/2 (12) [I.D.] ; ø 5/8 (16) [O.D.]	

Note : Specifications are based on the following conditions.

Cooling : Indoor temperature of 80°F(26.7°C)DB/67°F(19.4°C)WB,and outdoor temperature of 95.0°F(35°C)DB/75°F(23.9°C)WB.

Heating : Indoor temperature of 70°F(21.1°C)DB/60°F(15.6°C)WB,and outdoor temperature of 47°F(8.3°C)DB/43°F(6.1°C)WB.

Pipe length : 25ft.(7.5 m), Height difference : 0ft.(0 m) (Outdoor unit - Indoor unit).

The protective function might work when using it outside the operation range.

2. ELECTRIC CHARACTERISTICS

Indoor Unit		Power Supply				Indoor Rated		
Type	Model	Voltage (V)	Frequency (Hz)	MCA (A)	MAX.CKT. BKR (A)	Input Power (kW)	Current (A)	FLA (A)
Compact cassette	AUUA4TLAV1	230	60	0.29	15	0.023	0.17	0.23
	AUUA7TLAV			0.51		0.025	0.17	0.41
	AUUA9TLAV			0.51		0.025	0.17	0.41
	AUUA12TLAV			0.51		0.029	0.20	0.41
	AUUA14TLAV			0.51		0.035	0.24	0.41
	AUUA18TLAV			0.51		0.036	0.25	0.41
	AUUA24TLAV			0.78		0.084	0.62	0.62
Circular flow cassette	AUUB18TLAV1	230	60	0.33	15	0.020	0.20	0.26
	AUUB24TLAV1			0.40		0.025	0.24	0.32
	AUUB30TLAV1			0.68		0.049	0.41	0.54
	AUUB36TLAV1			0.78		0.061	0.47	0.62
	AUUB48TLAV1			1.40		0.116	0.86	1.12
Cassette (slim type)	AUUB18TLAV	230	60	0.43	15	0.039	0.27	0.34
	AUUB24TLAV			0.43		0.046	0.32	0.34
Cassette	AUUB30TLAV	230	60	0.68	15	0.059	0.42	0.54
	AUUB36TLAV			0.68		0.080	0.53	0.54
Mini duct	ARUL4TLAV1	230	60	0.35	15	0.026	0.21	0.28
Slim duct / Slim concealed floor	ARUL7TLAV	230	60	0.71	15	0.044	0.31	0.57
	ARUL9TLAV			0.71		0.050	0.35	0.57
	ARUL12TLAV			0.71		0.054	0.38	0.57
	ARUL14TLAV			0.76		0.092	0.61	0.61
	ARUL18TLAV			0.76		0.083	0.55	0.61
Medium static Pressure duct	ARUM24TLAV	230	60	1.10	15	0.125	0.75	0.88
	ARUM30TLAV			1.40		0.190	1.12	1.12
	ARUM36TLAV			1.74		0.222	1.29	1.39
High static Pressure duct	ARUH36TLAV	230	60	2.70	15	0.496	2.16	2.16
	ARUH48TLAV			4.83		0.752	3.27	3.86
	ARUH60TLAV			4.83		0.806	3.57	3.86
	ARUH72TLAV1			8.13		0.62	3.61	6.50
	ARUH96TLAV			9.40		0.84	4.89	7.52
Vertical air handler	ARUV12TLAV	230	60	1.75	15	0.087	0.79	1.40
	ARUV18TLAV			2.14		0.142	1.22	1.71
	ARUV24TLAV			2.81		0.233	1.77	2.25
	ARUV30TLAV			3.38		0.253	1.85	2.70
	ARUV36TLAV			4.45		0.427	3.05	3.56
	ARUV48TLAV			5.24		0.479	3.28	4.19
	ARUV60TLAV			6.98		0.785	5.34	5.58

MCA : Min Circuit Amps = Max Operating Current (Full Load).

MAX.CKT.BKR : Maximum Circuit Breaker.

FLA : Full Load Amps.

Indoor Unit		Power Supply				Indoor Rated		
Type	Model	Voltage (V)	Frequency (Hz)	MCA (A)	MAX.CKT. BKR (A)	Input Power (kW)	Current (A)	FLA (A)
Compact floor	AGUA4TLAV1	230	60	0.22	15	0.014	0.13	0.17
	AGUA7TLAV1			0.24		0.016	0.14	0.19
	AGUA9TLAV1			0.25		0.017	0.15	0.20
	AGUA12TLAV1			0.30		0.022	0.18	0.24
	AGUA14TLAV1			0.38		0.029	0.23	0.30
Floor / ceiling	ABUA12TLAV	230	60	0.40	15	0.030	0.25	0.32
	ABUA14TLAV			0.43		0.042	0.34	0.34
	ABUA18TLAV			0.71		0.074	0.57	0.57
	ABUA24TLAV			0.93		0.099	0.70	0.74
Ceiling	ABUA30TLAV	230	60	0.61	15	0.066	0.43	0.49
	ABUA36TLAV			0.69		0.085	0.55	0.55
Wall mounted	ASUA4TLAV1	230	60	0.22	15	0.013	0.13	0.17
	ASUA7TLAV1			0.32		0.019	0.19	0.25
	ASUA9TLAV1			0.52		0.034	0.31	0.41
	ASUA12TLAV1			0.42		0.025	0.25	0.33
	ASUA14TLAV1			0.49		0.036	0.30	0.39
	ASUB18TLAV1			0.53		0.032	0.33	0.42
	ASUB24TLAV1			0.65		0.060	0.52	0.52
	ASUB30TLAV1			0.90		0.074	0.55	0.72
	ASUB36TLAV1			1.18		0.103	0.72	0.94
	ASUA7TLAV			0.51		0.017	0.17	0.41
	ASUA9TLAV			0.51		0.018	0.18	0.41
	ASUA12TLAV			0.51		0.022	0.20	0.41
	ASUA14TLAV			0.51		0.034	0.30	0.41
	ASUB18TLAV			0.53		0.032	0.33	0.42
	ASUB24TLAV			0.65		0.060	0.52	0.52

MCA : Min Circuit Amps = Max Operating Current (Full Load).

MAX.CKT.BKR : Maximum Circuit Breaker.

FLA : Full Load Amps.

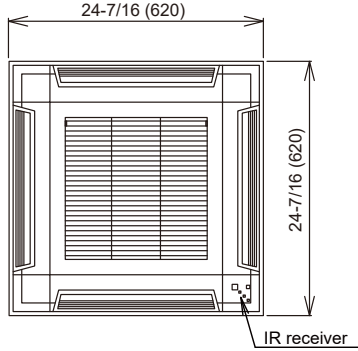
3. DIMENSIONS

3-1. COMPACT CASSETTE TYPE

■ MODELS : AUUA4TLAV1, AUUA7TLAV, AUUA9TLAV, AUUA12TLAV, AUUA14TLAV, AUUA18TLAV, AUUA24TLAV

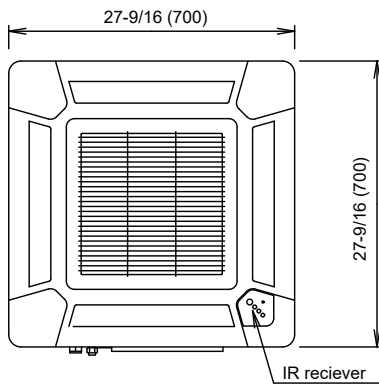
Unit : in. (mm)

Grid type grille

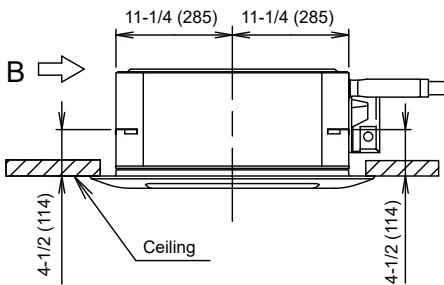
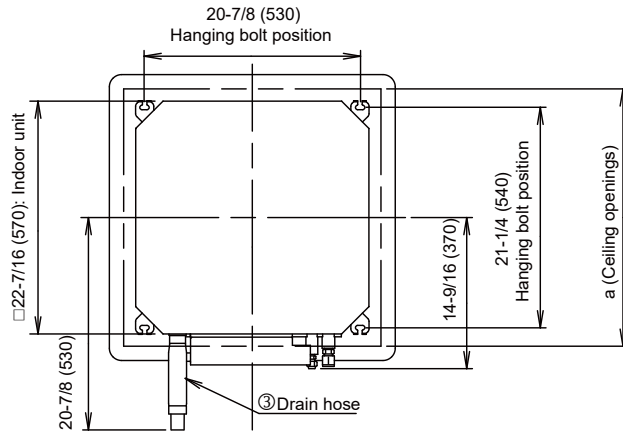


		Cassette grille	
		Standard type	Grid type
a		22-13/16 to 26 (580 to 660)	22-13/16 to 24 (580 to 610)

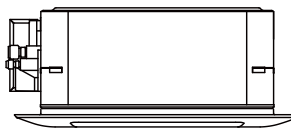
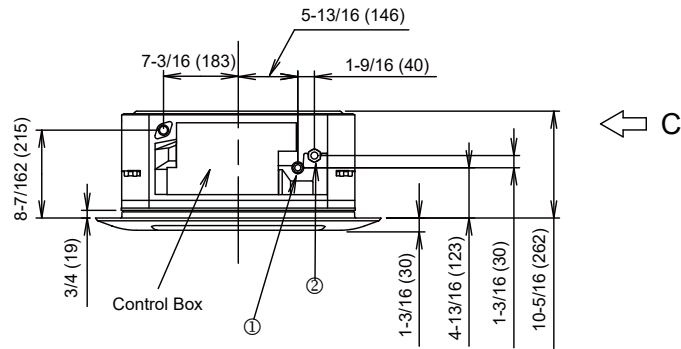
Standard type grille



View A



View B

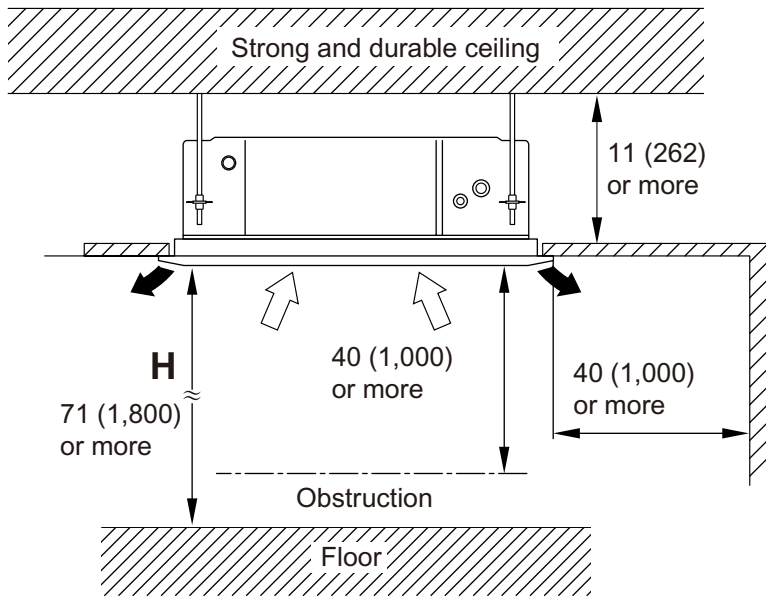


View C

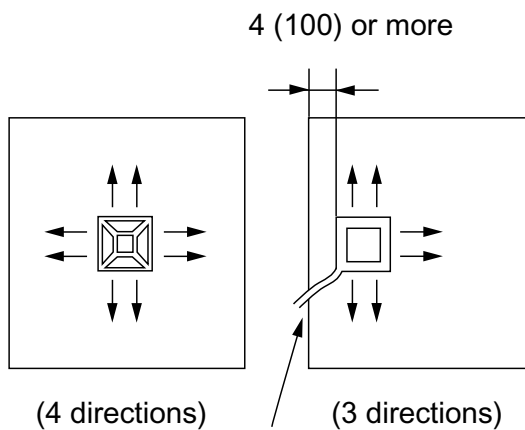
		AUUA4, AUUA7, AUUA9, AUUA12, AUUA14		AUUA18, AUUA24	
①	Refrigerant pipe flare connection	Liquid	ø 1/4 (6.35)	ø 3/8 (9.52)	
②		Gas	ø 1/2 (12.70)	ø 5/8 (15.88)	
③	Drain hose		ø 3/4 (I.D.), ø 1-1/16 (O.D.)		

■ INSTALLATION LOCATION

Unit : in. (mm)



	H (The maximum height from floor to ceiling)					
Model name	AUUA7	AUUA9	AUUA12	AUUA14	AUUA18	AUUA24
Standard mode	106 (2,700)	106 (2,700)	106 (2,700)	106 (2,700)	106 (2,700)	106 (2,700)
High Ceiling mode	-	-	118 (3,000)	118 (3,000)	118 (3,000)	118 (3,000)

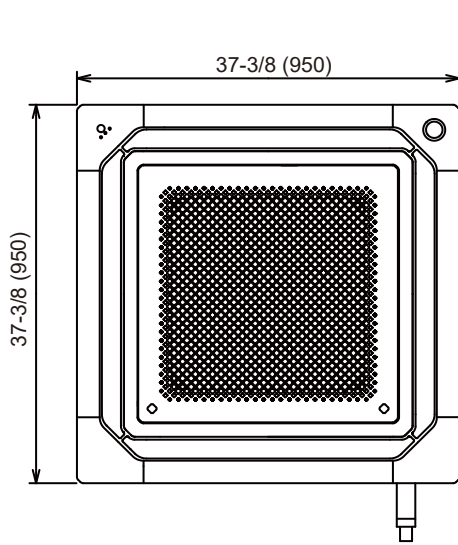


NOTE: Use the “Insulation kit for high humidity” (option), when the condition under the roof is over 80% in humidity and over 30°C in temperature. Otherwise, there is a risk of condensation on the ceiling.

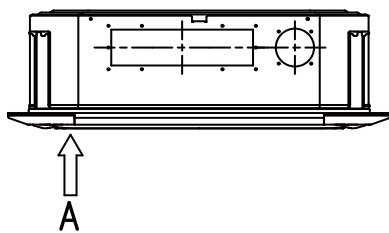
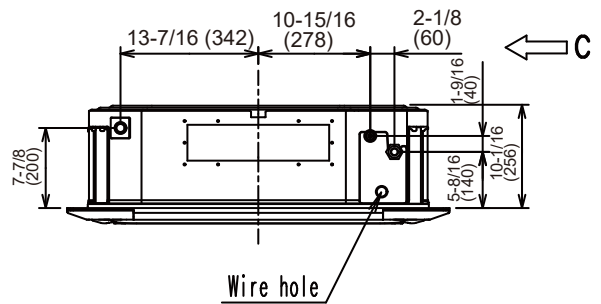
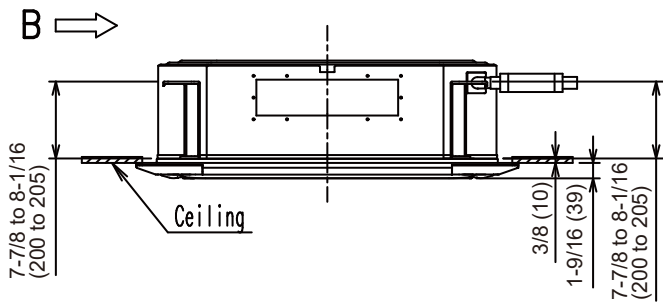
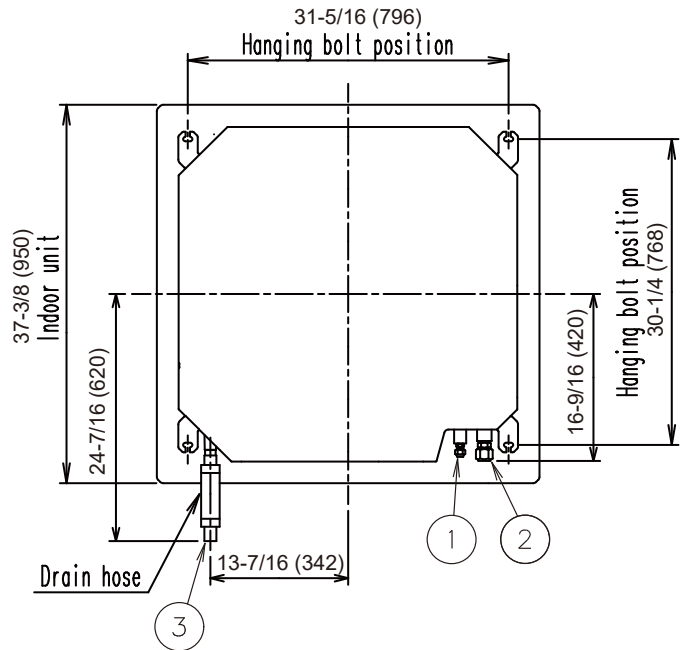
3-2. CIRCULAR FLOW CASSETTE TYPE

■ MODELS: AUUB18TLAV1, AUUB24TLAV1, AUUB30TLAV1

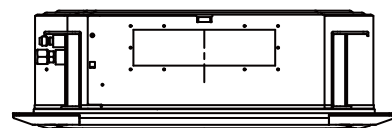
Unit : in. (mm)



VIEW A



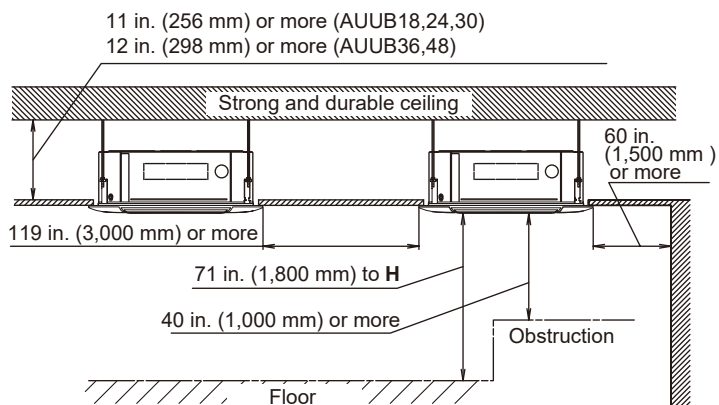
VIEW B



VIEW C

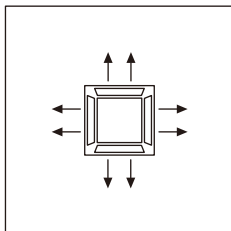
		AUUB18	AUUB24, AUUB30
①	Refrigerant pipe flare connection	Liquid	ø 1/4 (6.35)
②		Gas	ø 1/2 (12.70)
③	Drain hose	ø 3/4 (I.D.), ø 1-1/16 (O.D.)	

■ INSTALLATION PLACE

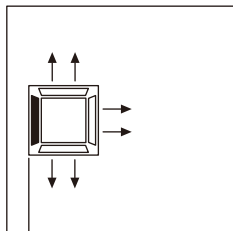


	H (The maximum height from floor to ceiling) in. (mm)
Model name	AUUB18/24/30
Standard mode	118 (3,000)
High Ceiling mode	138 (3,500)

4 direction



3 direction



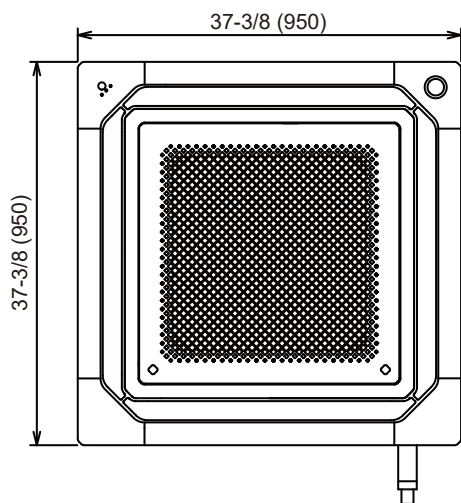
4 in. (100 mm) or more *1

*1: Ensure sufficient service access during installation.

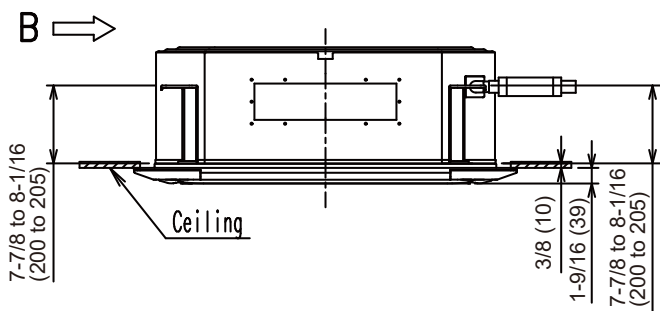
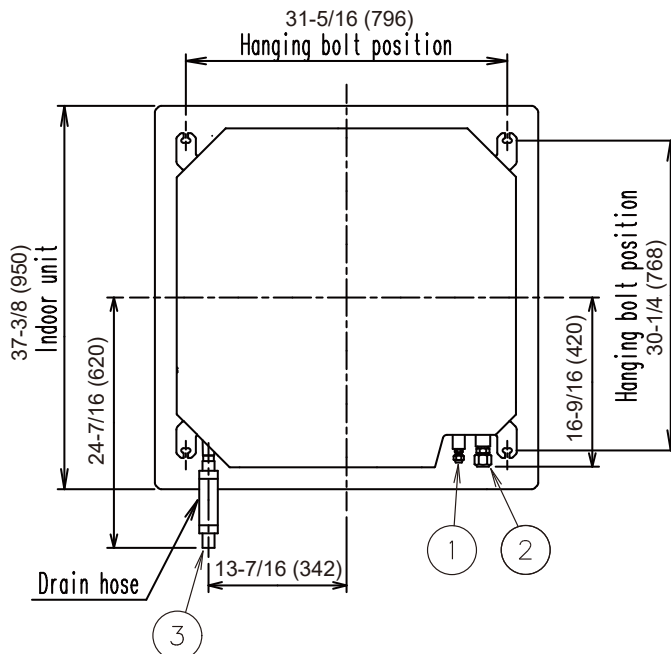
NOTE: Use the “Insulation kit for high humidity” (option), when the condition under the roof is over 80% in humidity and over 30°C in temperature. Otherwise, there is a risk of condensation on the ceiling.

MODELS: AUUB36TLAV1, AUUB48TLAV1

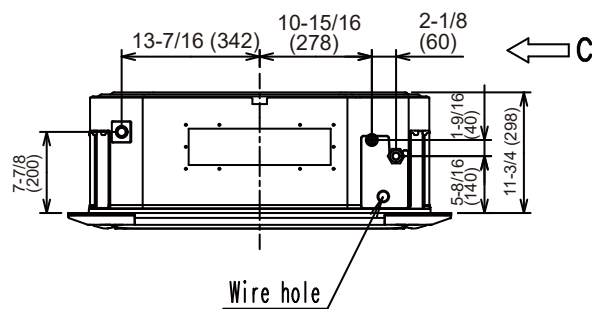
Unit : in. (mm)



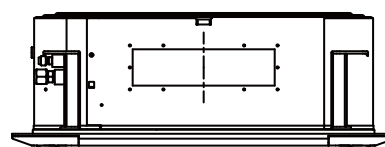
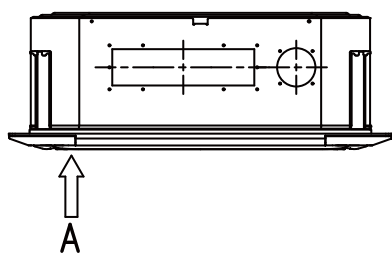
VIEW A



VIEW B

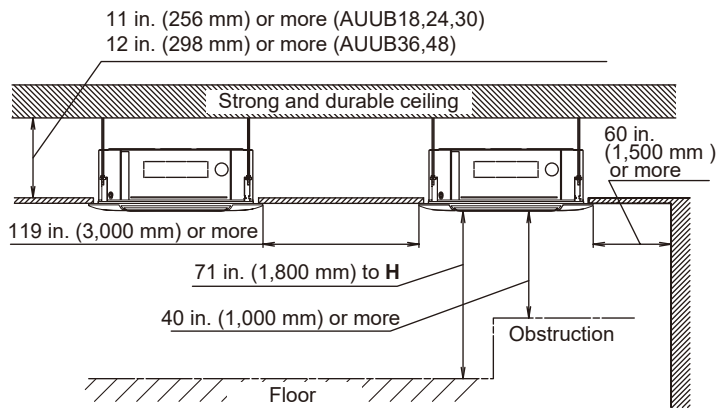


VIEW C



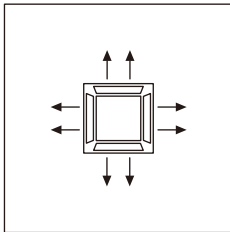
			AUUB36, AUUB48
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 5/8 (15.88)
③	Drain hose		ø 3/4 (I.D.), ø 1-1/16 (O.D.)

■ INSTALLATION PLACE

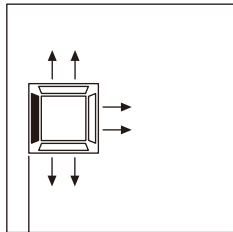


	H (The maximum height from floor to ceiling) in. (mm)
Model name	AUUB36/48
Standard mode	126 (3,200)
High Ceiling mode	166 (4,200)

4 direction



3 direction



4 in. (100 mm) or more *1

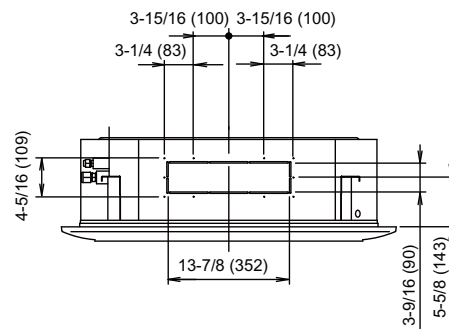
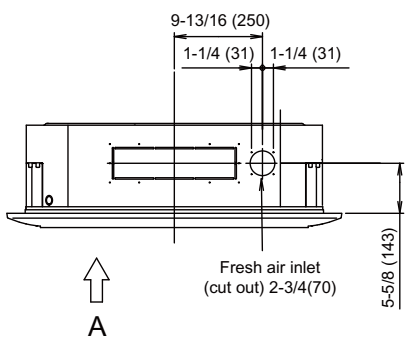
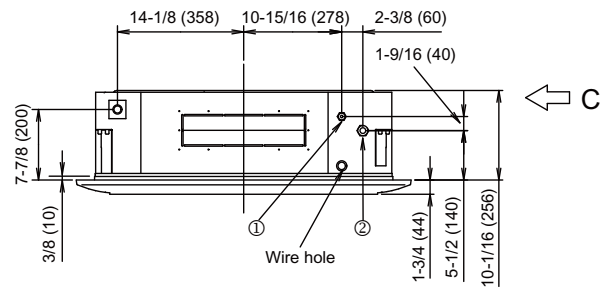
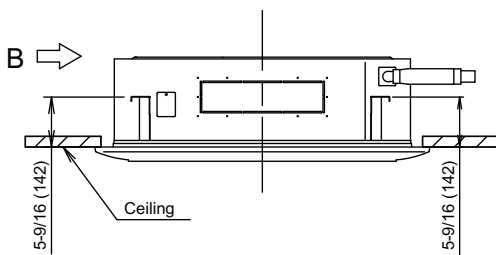
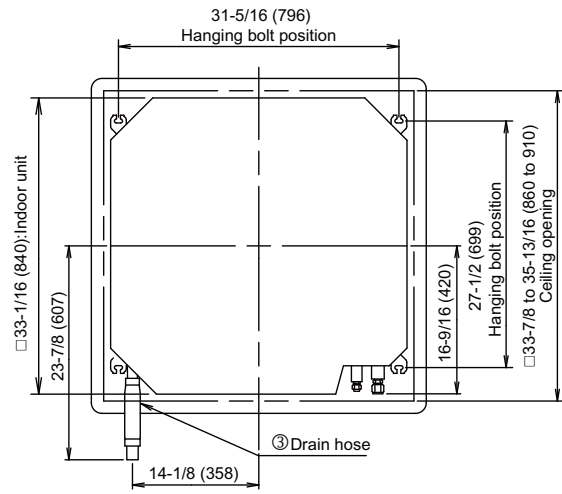
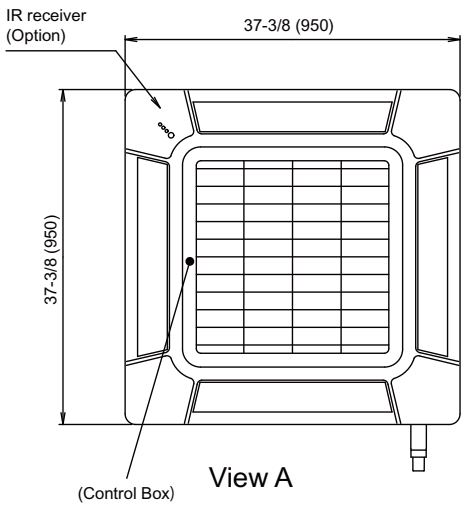
*1: Ensure sufficient service access during installation.

NOTE: Use the “Insulation kit for high humidity” (option), when the condition under the roof is over 80% in humidity and over 30°C in temperature. Otherwise, there is a risk of condensation on the ceiling.

3-3. CASSETTE TYPE

MODELS : AUUB18TLAV, AUUB24TLAV

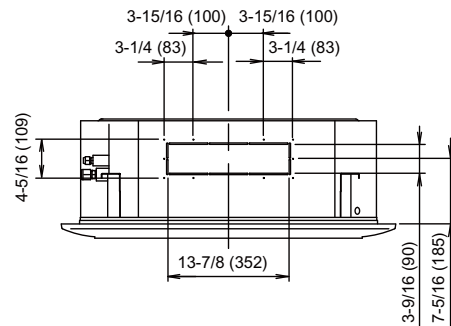
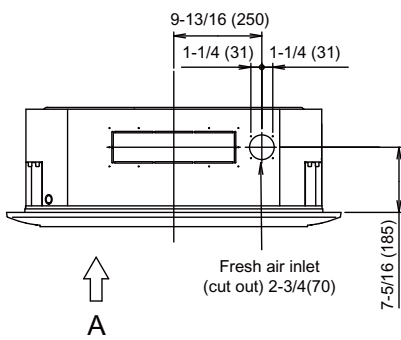
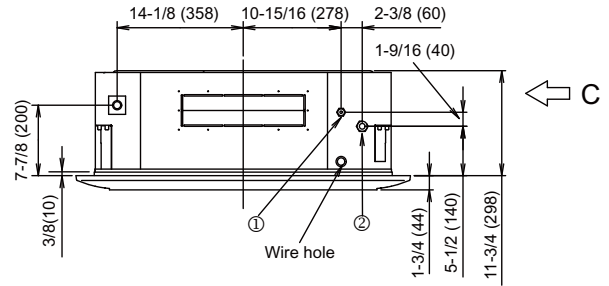
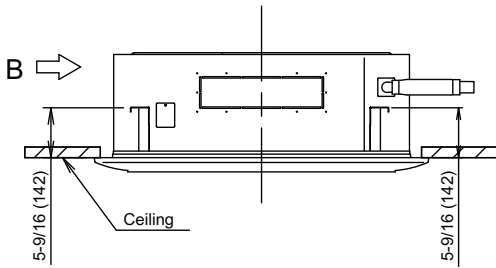
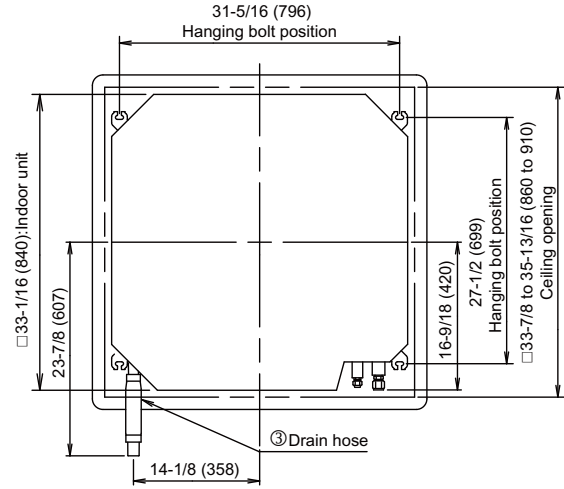
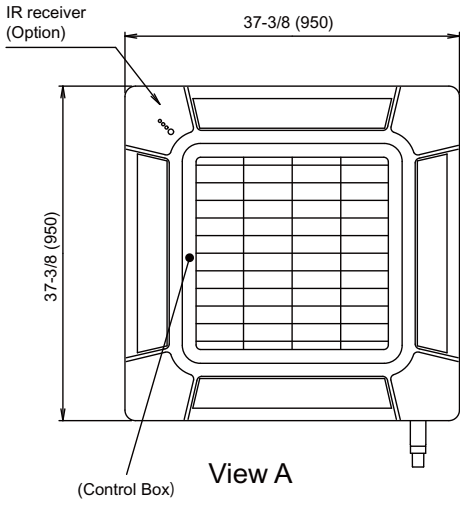
Unit : in. (mm)



			AUUB18, AUUB24
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 5/8 (15.88)
③	Drain hose		ø 3/4 (I.D.), ø 1-1/16 (O.D.)

MODELS : AUUB30TLAV, AUUB36TLAV

Unit : in. (mm)

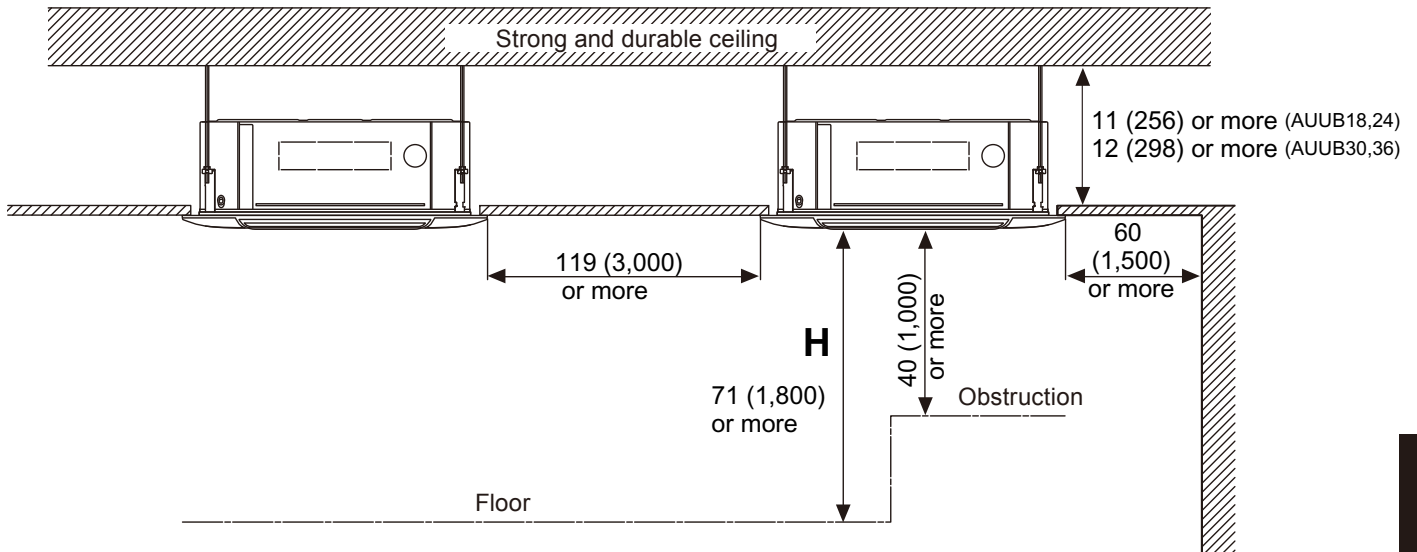


		AUUB30	AUUB36
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 5/8 (15.88) ø 3/4 (19.05)
③	Drain hose	ø 3/4 (I.D.), ø 1-1/16 (O.D.)	

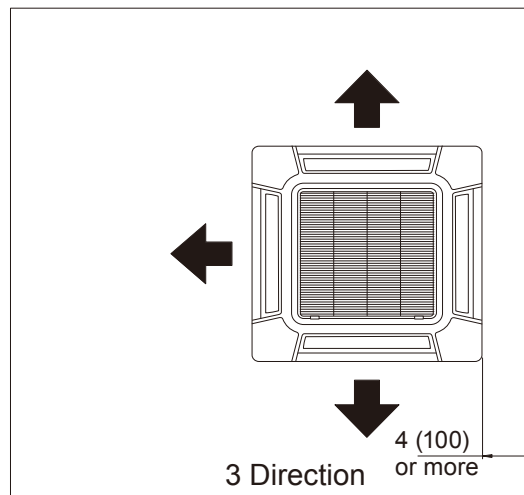
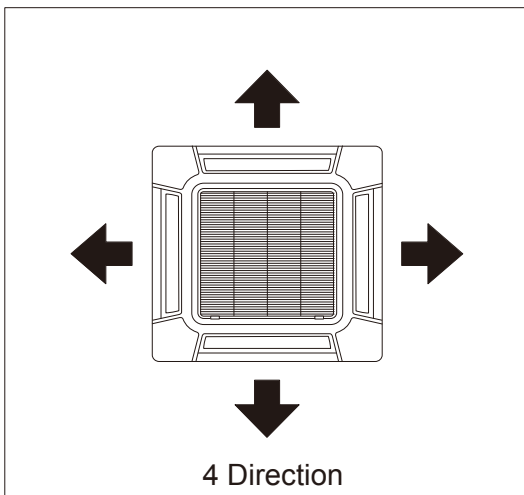
INDOOR UNITS

INDOOR UNITS

■ INSTALLATION LOCATION



	H (The maximum height from floor to ceiling)			
Model name	AUUB18	AUUB24	AUUB30	AUUB36
Standard mode	118 (3,000)	118 (3,000)	125 (3,200)	125 (3,200)
High Ceiling mode	137 (3,500)	137 (3,500)	141 (3,600)	165 (4,200)

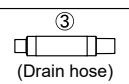
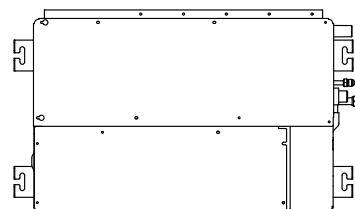
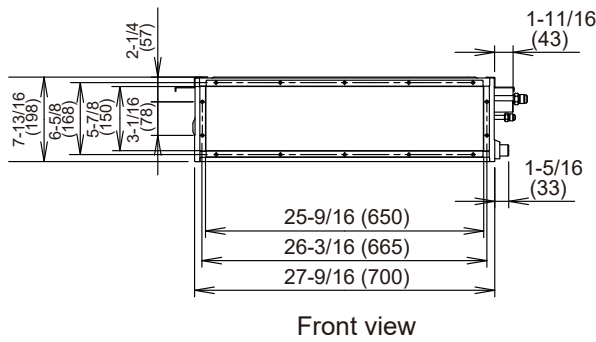
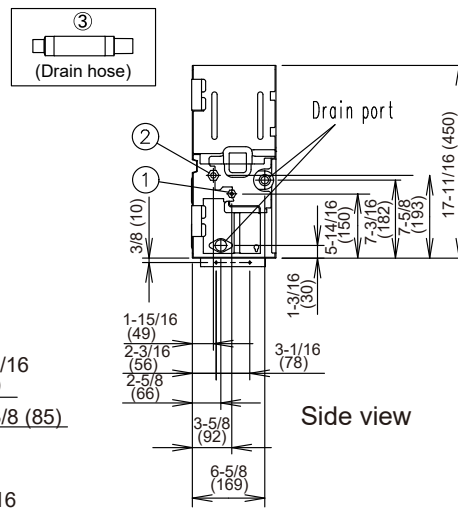
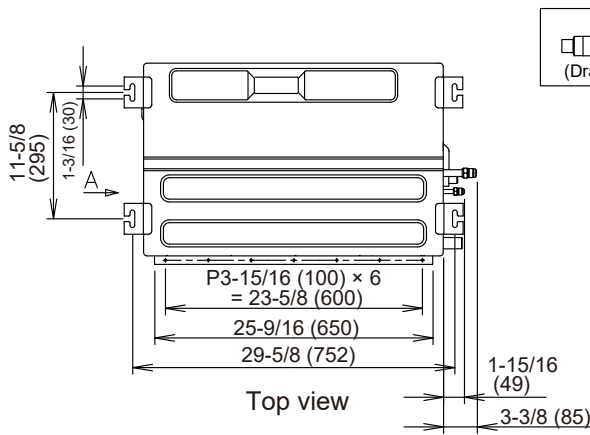
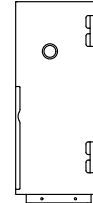
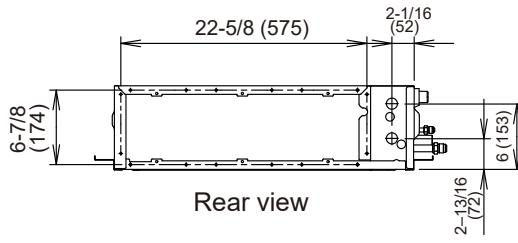


NOTE: Use the "Insulation kit for high humidity" (option), when the condition under the roof is over 80% in humidity and over 30°C in temperature. Otherwise, there is a risk of condensation on the ceiling.

3-4. MINI DUCT TYPE

■ MODEL: ARUL4TLAV1

Unit : in. (mm)

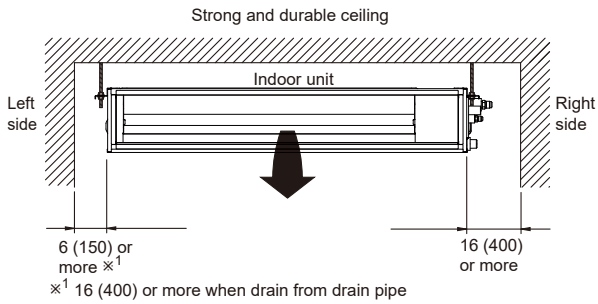


INDOOR UNITS

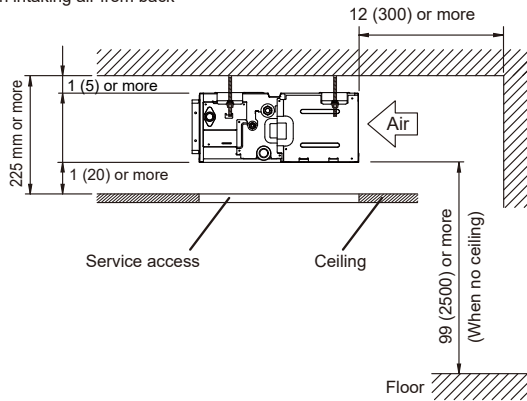
INDOOR UNITS

			ARUL4
①	Refrigerant pipe flare connection	Liquid	ø 1/4 (6.35)
②		Gas	ø 3/8 (9.52)
③	Drain hose connection	Drain hose	ø 3/4 (I.D.), ø 1-1/16 (O.D.)

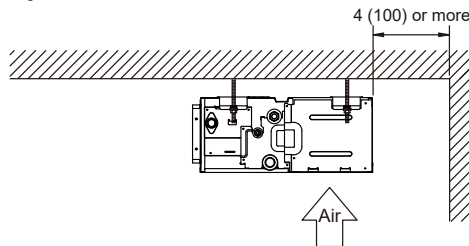
■ INSTALLATION PLACE



- When intaking air from back

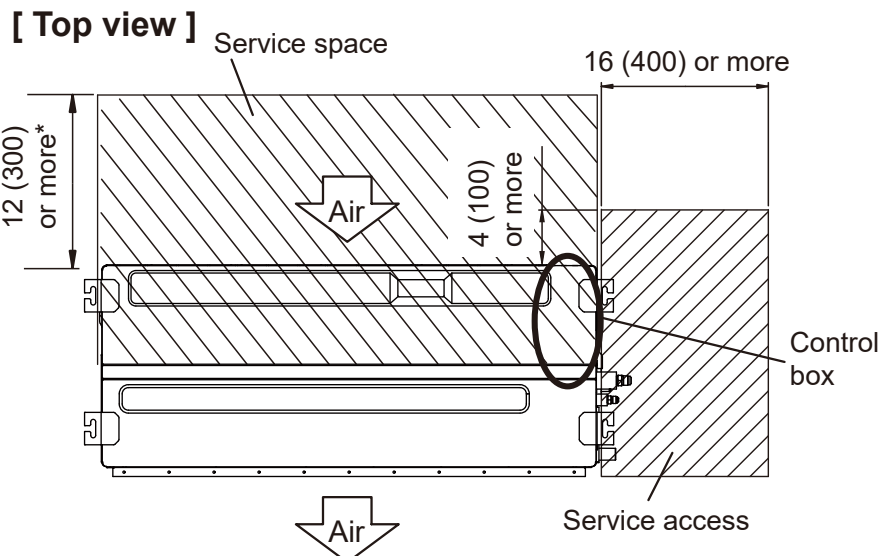


- When intaking air from bottom



■ MAINTENANCE SPACE

Provide a service access for inspection purposes as shown below. Do not place any wiring or illumination in the service space, as they will impede service.

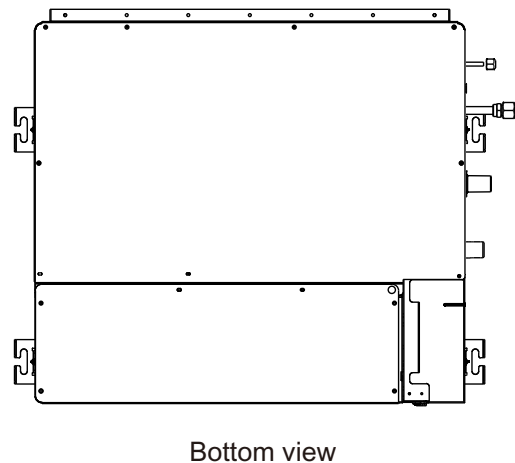
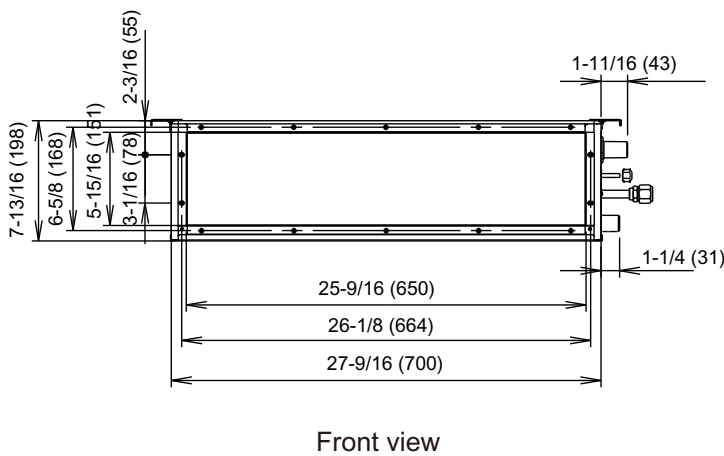
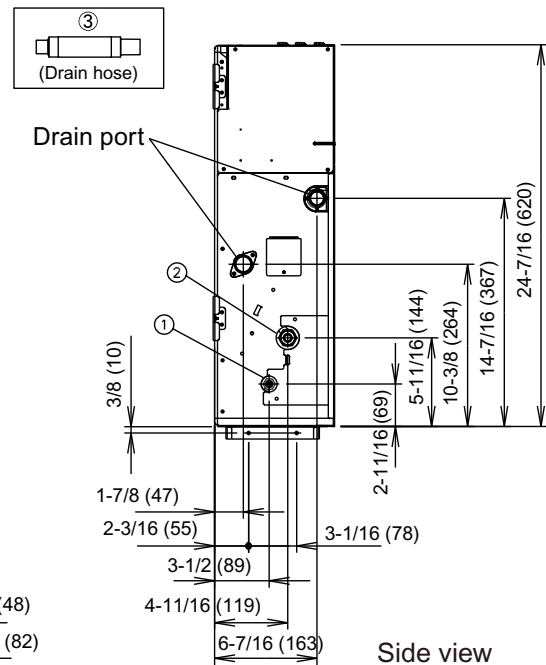
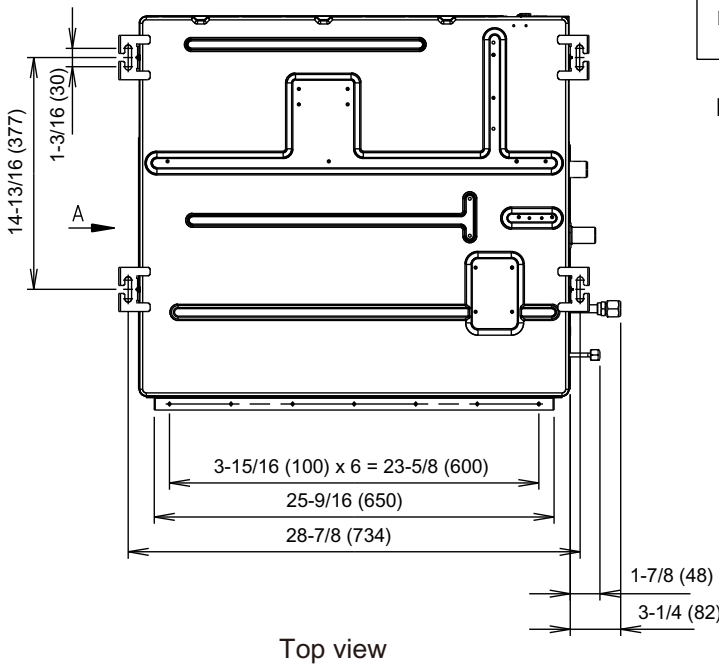
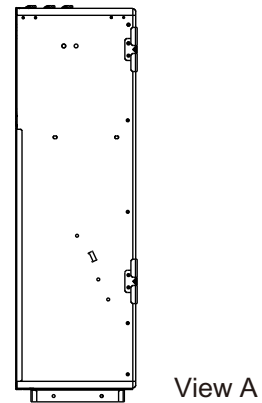
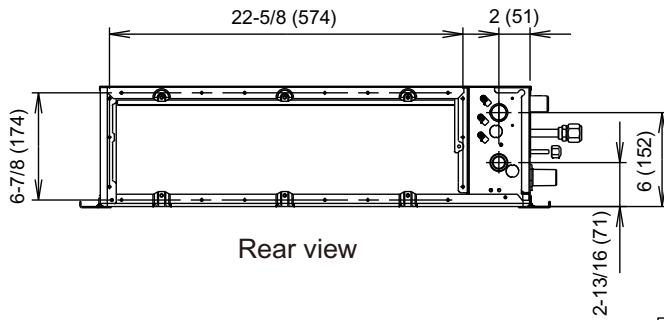


*: Above 4 (100) when intaking air from bottom

3-5. SLIM DUCT / SLIM CONCEALED FLOOR TYPE

■ MODELS : ARUL7TLAV, ARUL9TLAV, ARUL12TLAV, ARUL14TLAV

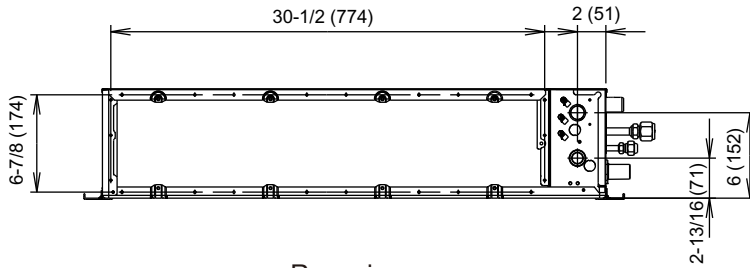
Unit : in. (mm)



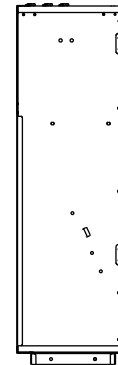
			ARUL7, ARUL9, ARUL12, ARUL14
①	Refrigerant pipe flare connection	Liquid	ø 1/4 (6.35)
②		Gas	ø 1/2 (12.70)
③	Drain hose	-	ø 3/4 (I.D.), ø 1-1/16 (O.D.)

MODEL : ARUL18TLAV

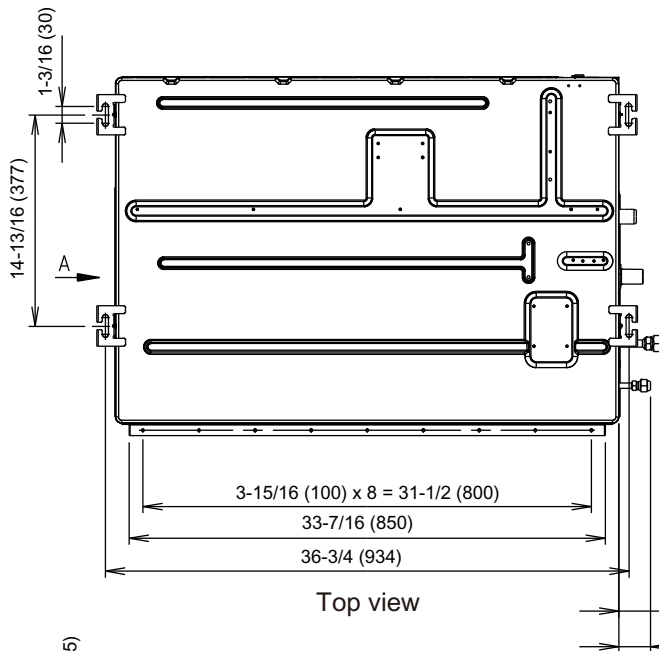
Unit : in. (mm)



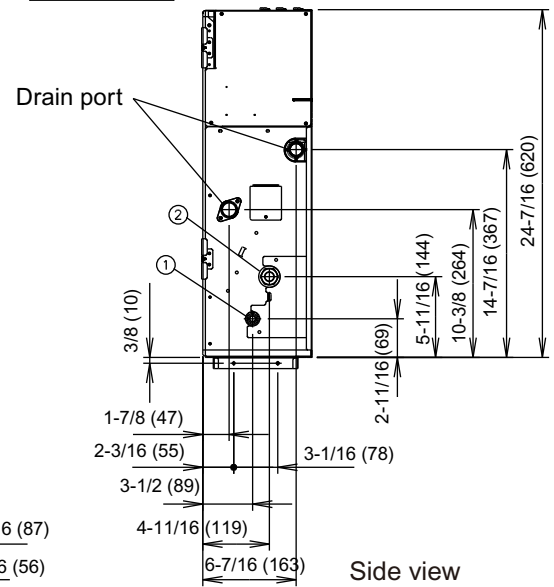
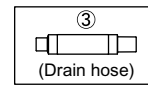
Rear view



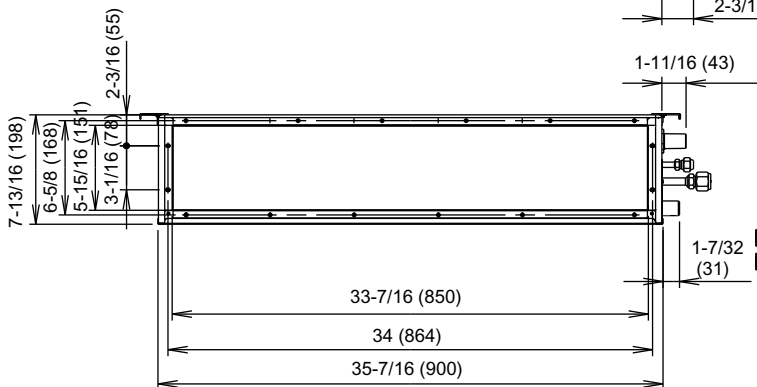
View A



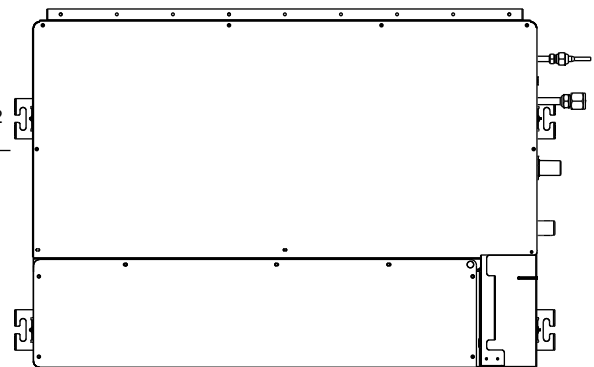
Top view



Side view



Front view



Bottom view

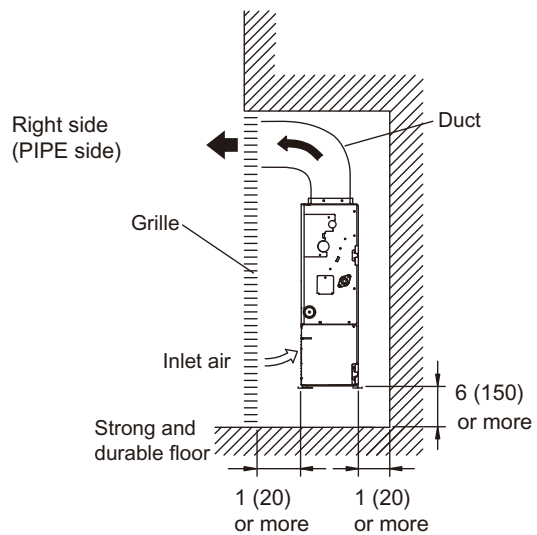
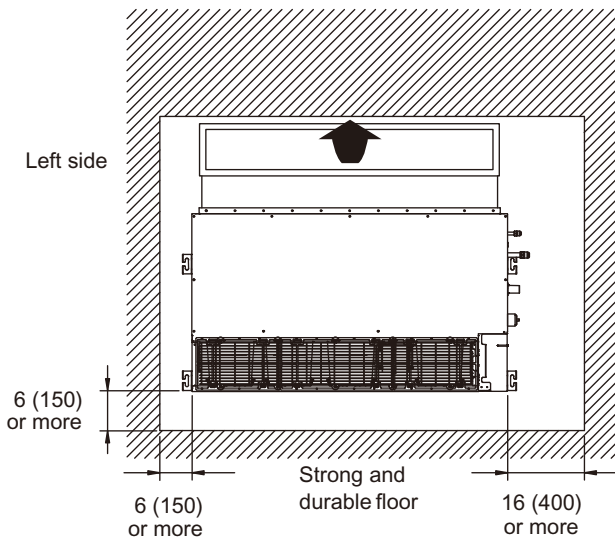
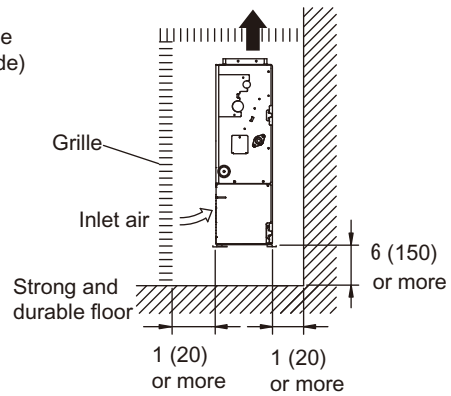
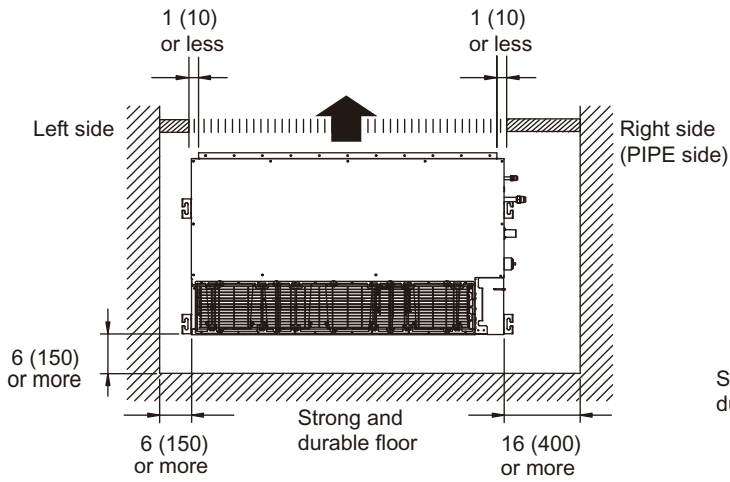
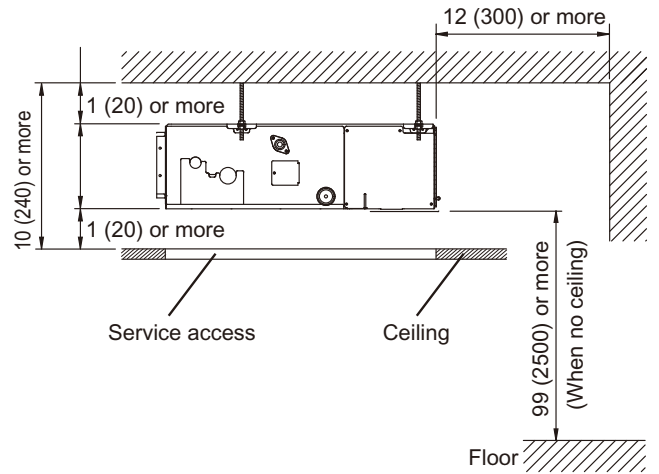
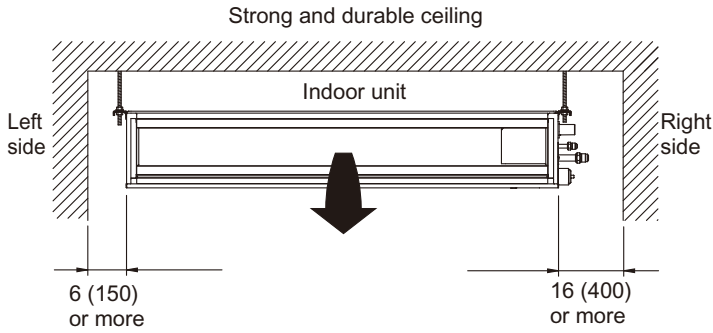
			ARUL18
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 5/8 (15.88)
③	Drain hose	-	ø 3/4 (I.D.), ø 1-1/16 (O.D.)

INDOOR UNITS

INDOOR UNITS

■ INSTALLATION LOCATION

Unit : in. (mm)



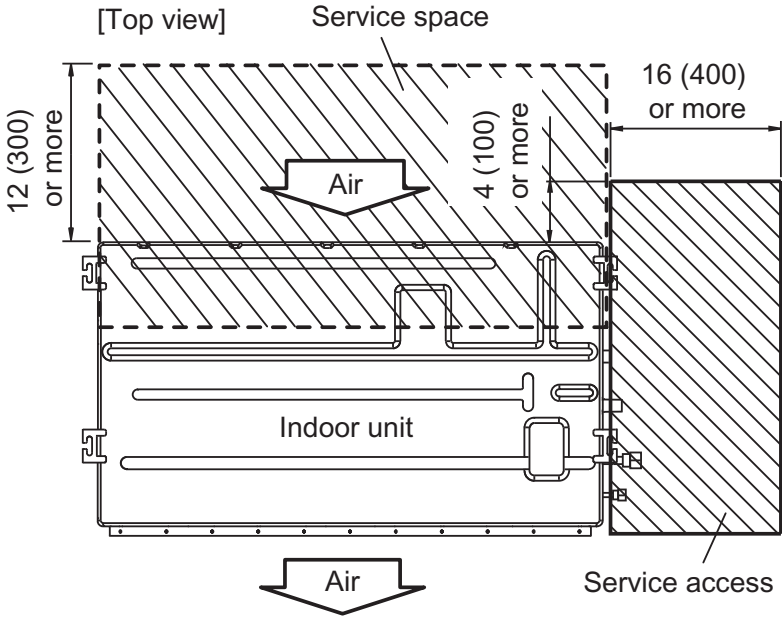
INDOOR UNITS

INDOOR UNITS

MAINTENANCE SPACE

Unit : in. (mm)

Provide a service access for inspection purposes as shown below.
Do not place any wiring or illumination in the service space, as they will impede service



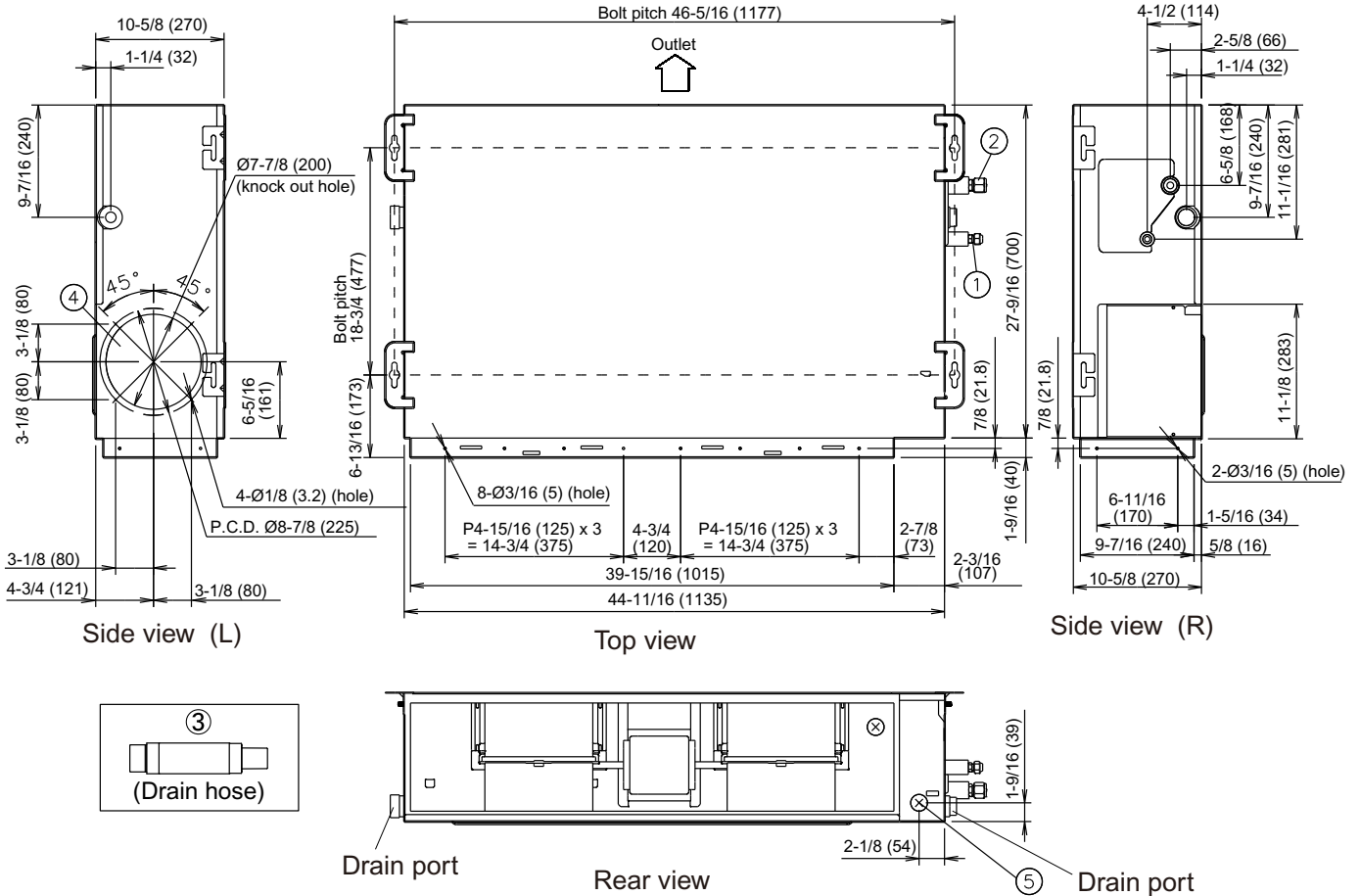
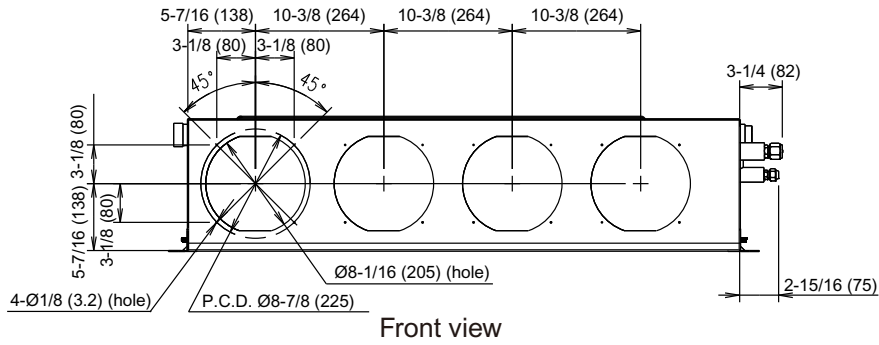
INDOOR
UNITS

INDOOR
UNITS

3-6. MEDIUM STATIC PRESSURE DUCT TYPE

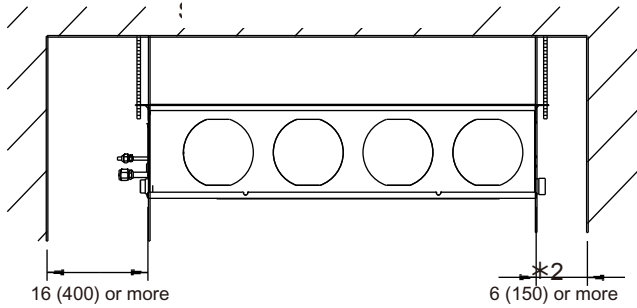
MODELS : ARUM24TLAV, ARUM30TLAV, ARUM36TLAV

Unit : in. (mm)



			ARUM24, ARUM30	ARUM36
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)	ø 3/8 (9.52)
②		Gas	ø 5/8 (15.88)	ø 3/4 (19.05)
③	Drain hose	-	ø 3/4 (I.D.), ø 1-1/16 (O.D.)	
④	Knock out hole (fresh air)	-	7-7/8 (200)	
⑤	Hole for power cable	-	7/8 (23)	

■ INSTALLATION LOCATION *1

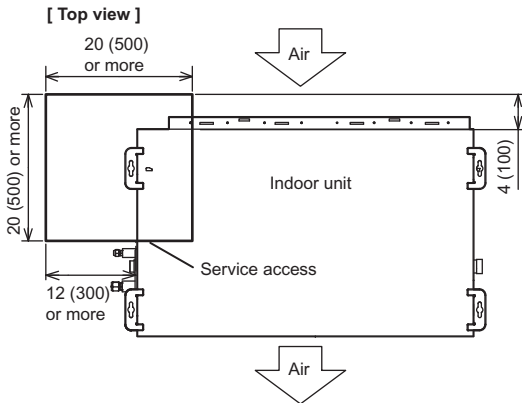


*1 When drain pump is used, leave the space required for service and maintenance (Refer to chapter 10. 9-1. DRAIN PUMP UNIT)

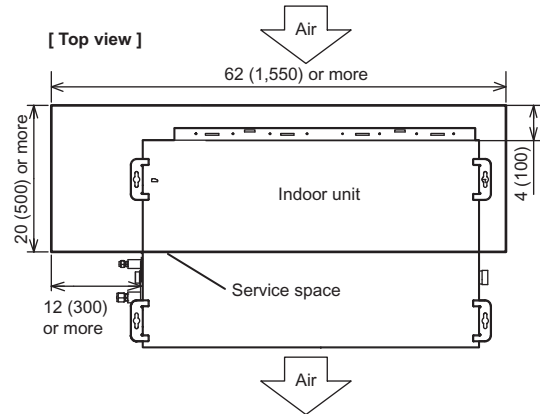
*2 When drain hose is connected, the required dimension is 16 (400) or more.

■ MAINTENANCE SPACE

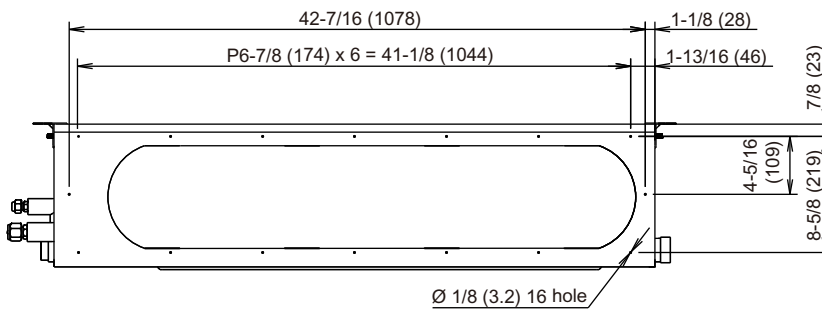
It shall be possible to install and remove the control box.



It shall be possible to install and remove the control box, fan units and filter.



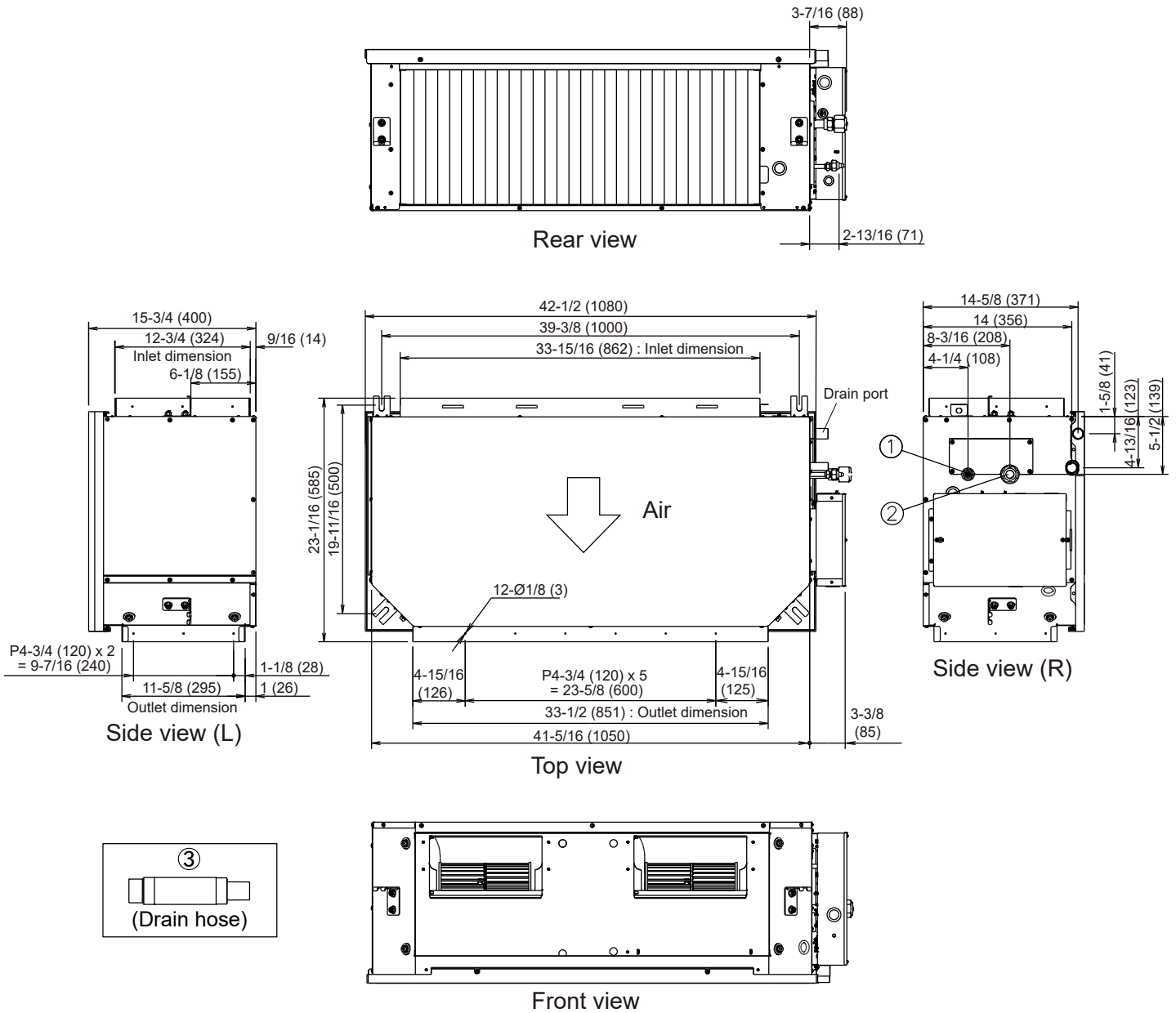
■ WHEN USING A SQUARE DUCT



3-7. HIGH STATIC PRESSURE DUCT TYPE

MODELS : ARUH36TLAV, ARUH48TLAV, ARUH60TLAV

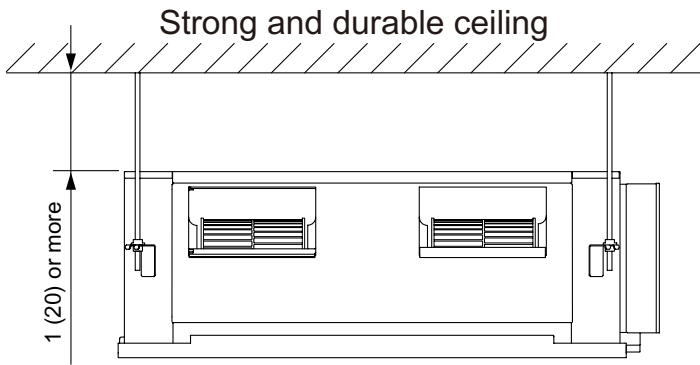
Unit : in. (mm)



			ARUH36, ARUH48, ARUH60
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 3/4 (19.05)
③	Drain hose	-	ø 3/4 (I.D.), ø 1-1/16 (O.D.)

■ INSTALLATION LOCATION

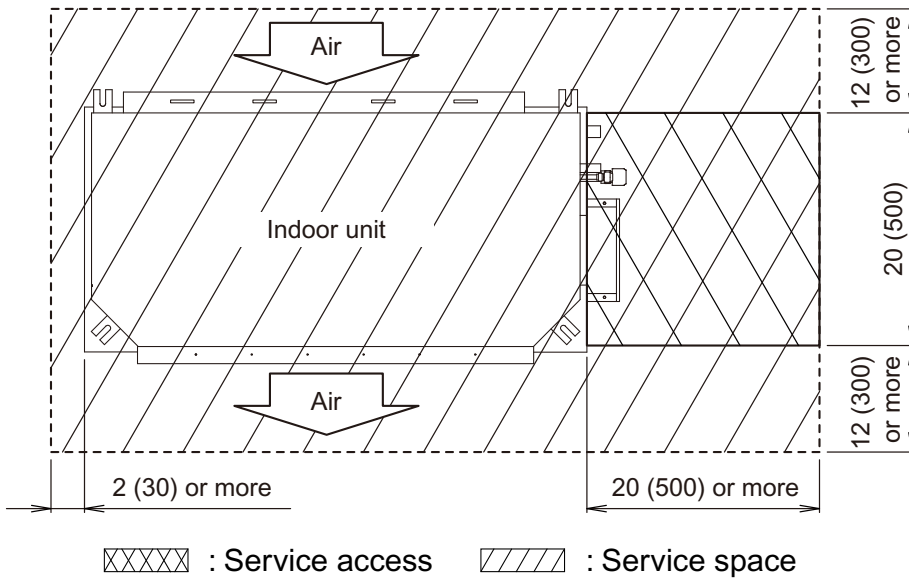
Unit : in. (mm)



■ MAINTENANCE SPACE

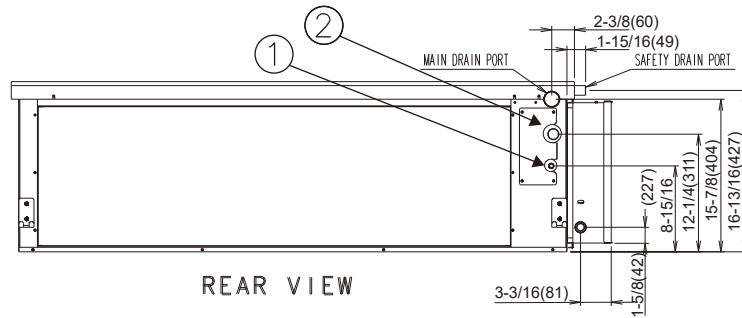
Provide a service access for inspection purposes as shown below.
Do not place any wiring or illumination in the service space, as they will impede service.

[Top view]

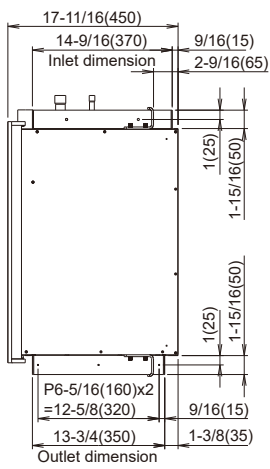


MODEL : ARUH72TLAV1

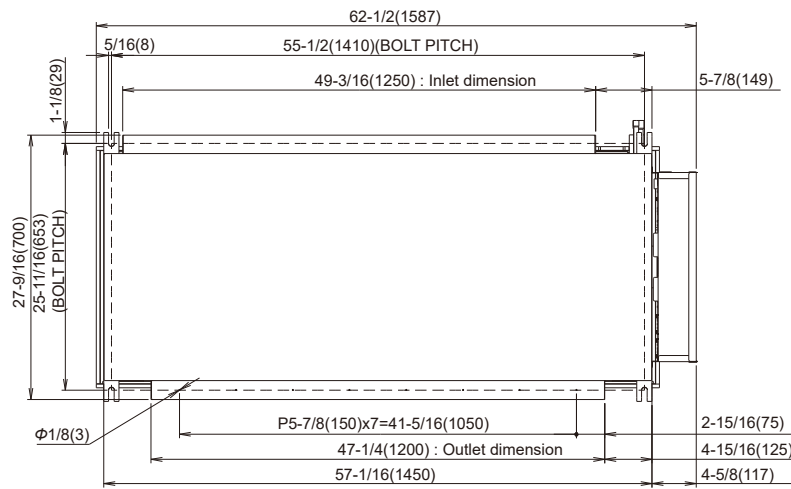
Unit : in. (mm)



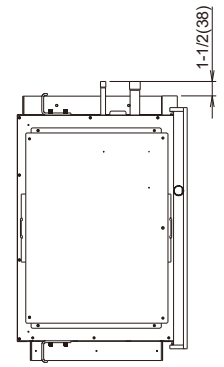
REAR VIEW



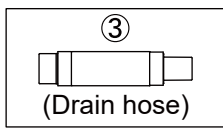
SIDE VIEW (L)



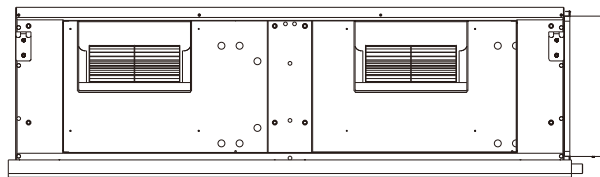
AIR FLOW
TOP VIEW



SIDE VIEW (R)



(Drain hose)

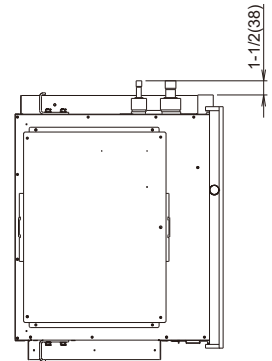
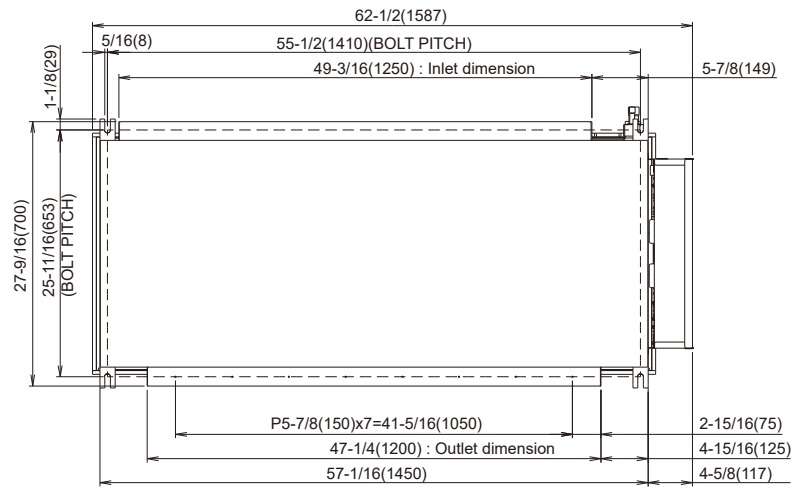
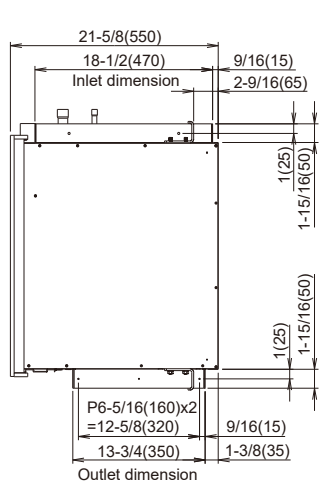
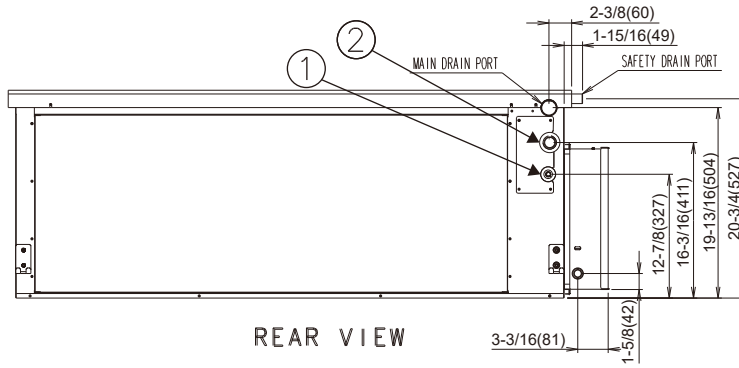


FRONT VIEW

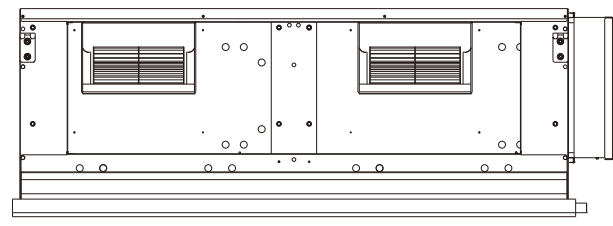
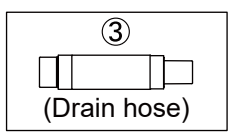
①	Refrigerant pipe brazing	Liquid	ø 1/2 (12.70)
②	connection	Gas	ø 7/8 (22.22)
③	Drain hose	-	ø 3/4 (I.D.), ø 1-1/16 (O.D.)

MODEL : ARUH96TLAV

Unit : in. (mm)



AIR FLOW
TOP VIEW

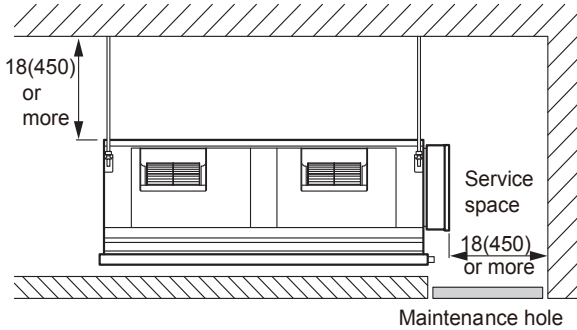


①	Refrigerant pipe brazing	Liquid	ø 1/2 (12.70)
②	Refrigerant pipe connection	Gas	ø 7/8 (22.22)
③	Drain hose	-	ø 3/4 (I.D.), ø 1-1/16 (O.D.)

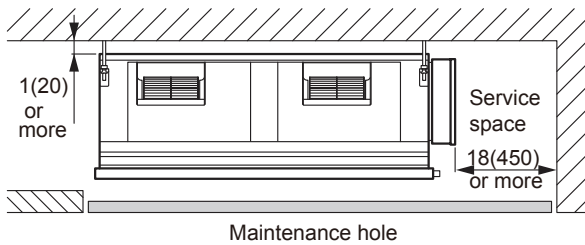
■ INSTALLATION LOCATION

Unit : in. (mm)

(a) When service access will be carried out above the indoor unit a recommended installation space of 18in.(450mm) is required.



(b) Installation by which service is carried out from the bottom of the unit

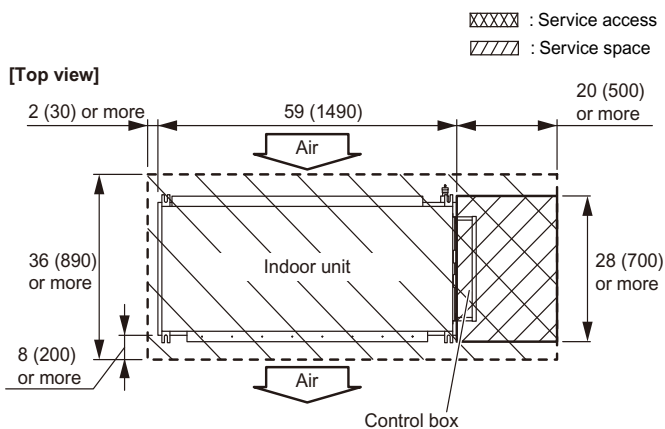


■ MAINTENANCE SPACE

Unit : in. (mm)

Provide a maintenance space for inspection purposes as show below.

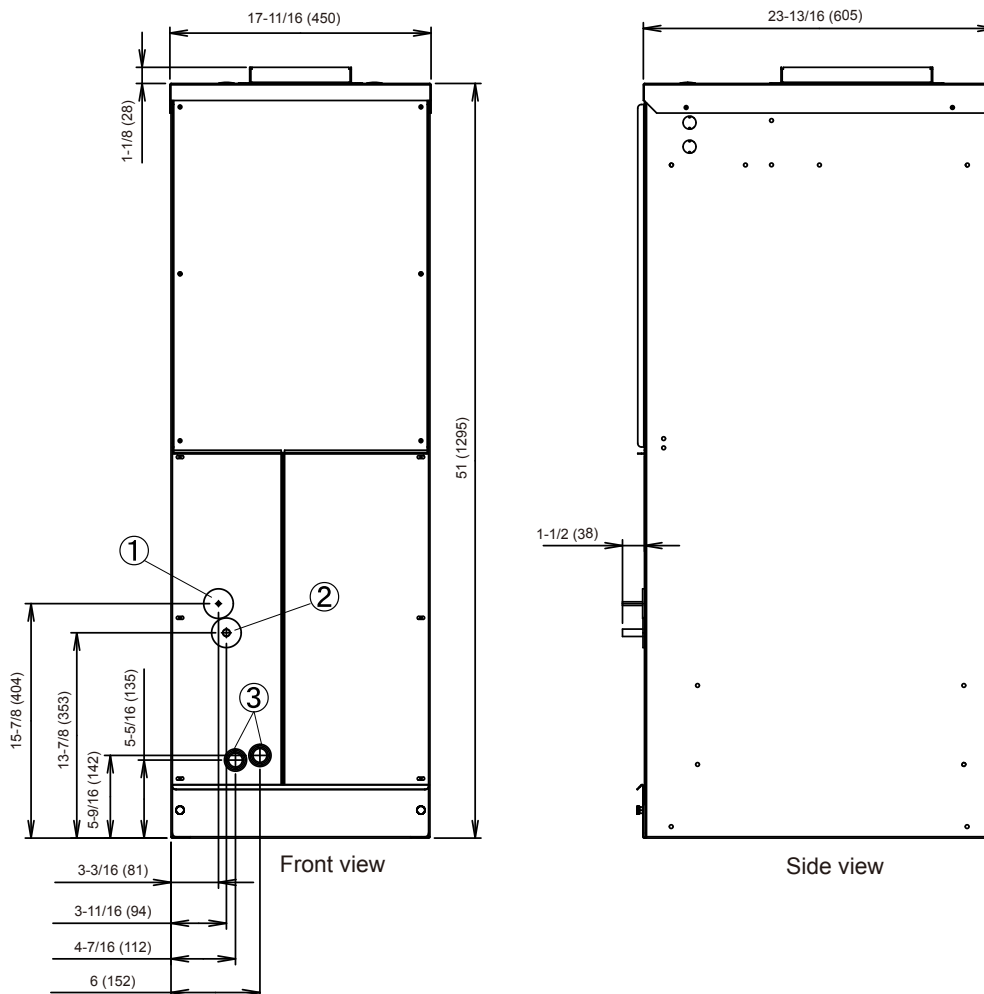
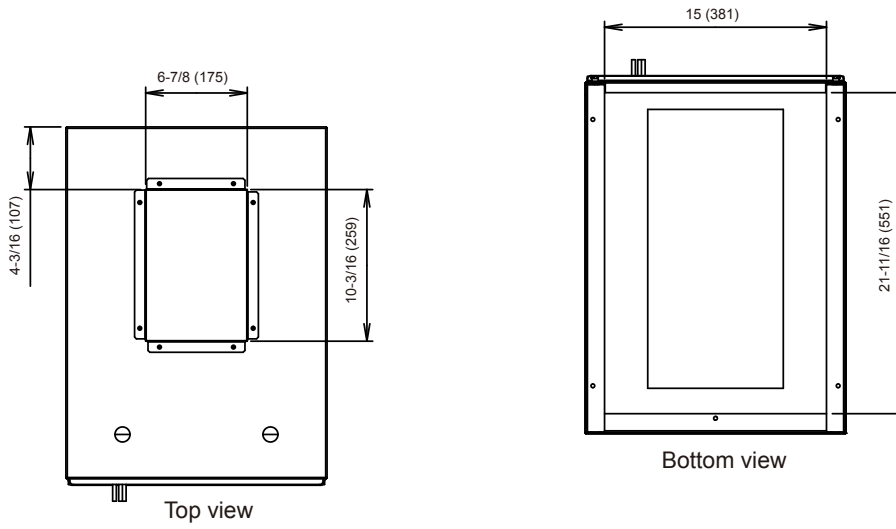
Do not place any wiring or illumination in the service space, as they will impede service.



3-8. VERTICAL AIR HANDLER TYPE

■ MODEL: ARUV12TLAV

Unit : in. (mm)



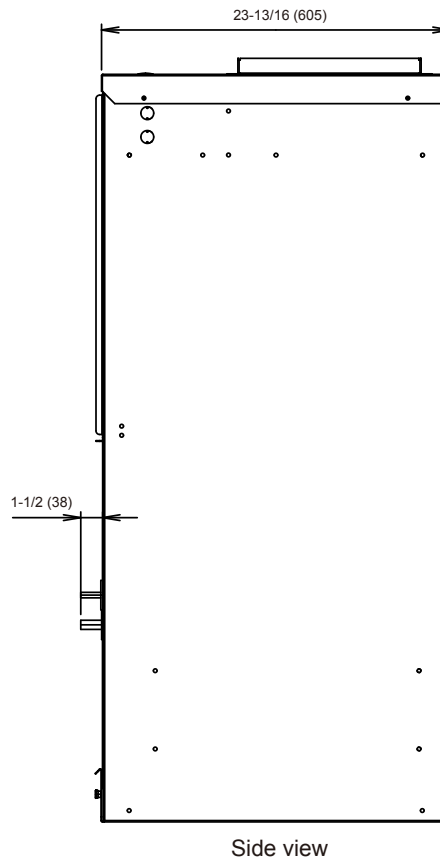
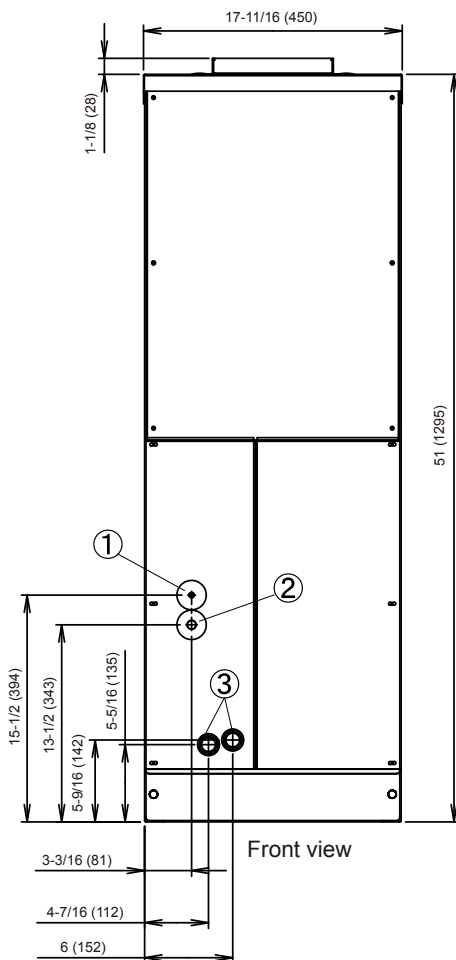
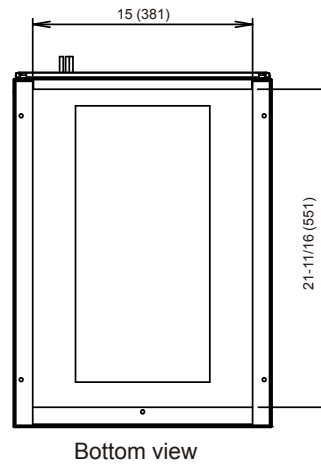
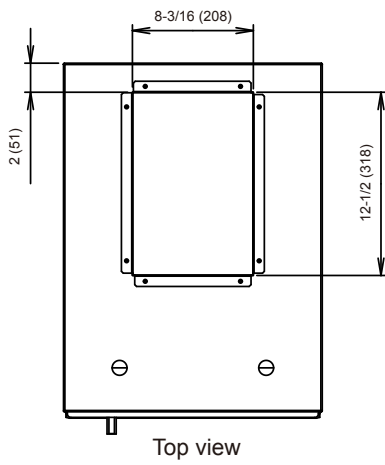
			ARUV12
①	Refrigerant pipe flare connection	Liquid	ø 1/4 (6.35)
②		Gas	ø 1/2 (12.70)
③	Drain port	-	ø 3/4 (I.D.)

INDOOR UNITS

INDOOR UNITS

MODELS: ARUV18TLAV, ARUV24TLAV

Unit : in. (mm)



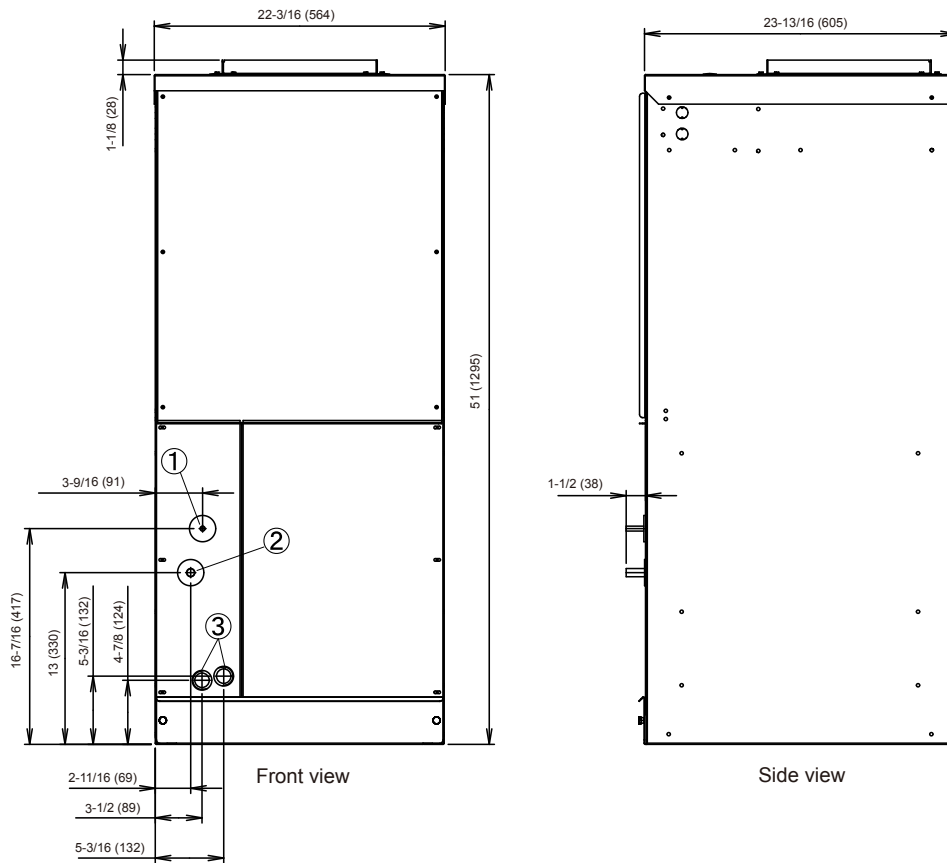
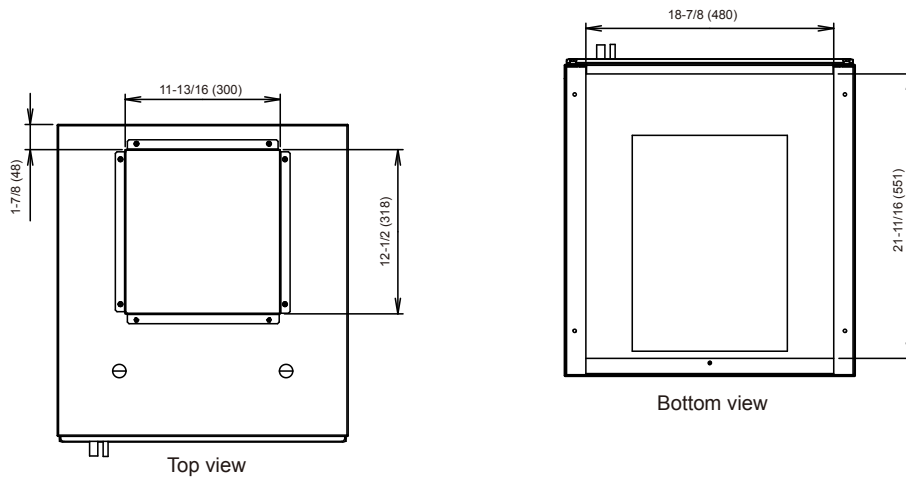
INDOOR
UNITS

INDOOR
UNITS

			ARUV18, ARUV24
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 5/8 (15.88)
③	Drain port	-	ø 3/4 (I.D.)

MODEL: ARUV30TLAV

Unit : in. (mm)



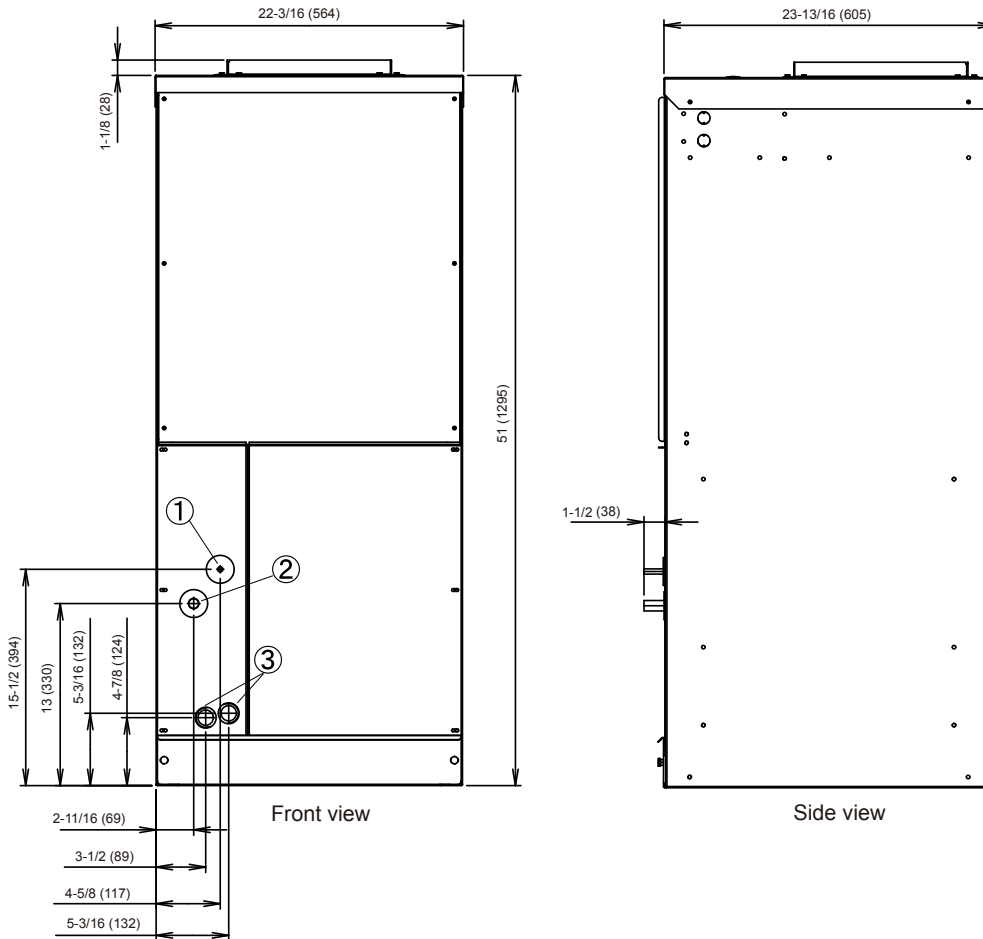
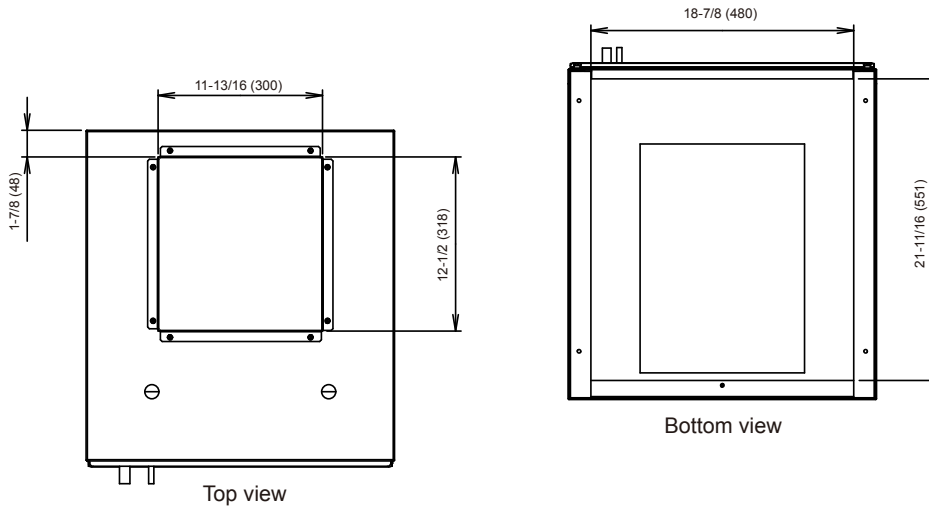
INDOOR
UNITS

INDOOR
UNITS

			ARUV30
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 5/8 (15.88)
③	Drain port	-	ø 3/4 (I.D.)

MODEL: ARUV36TLAV

Unit : in. (mm)



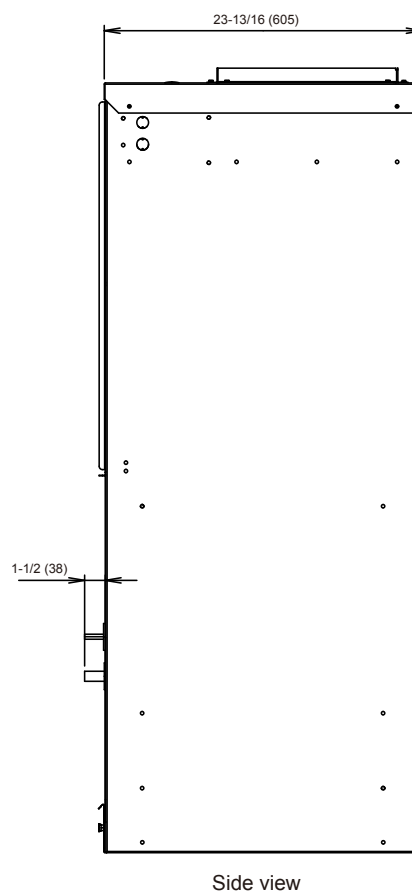
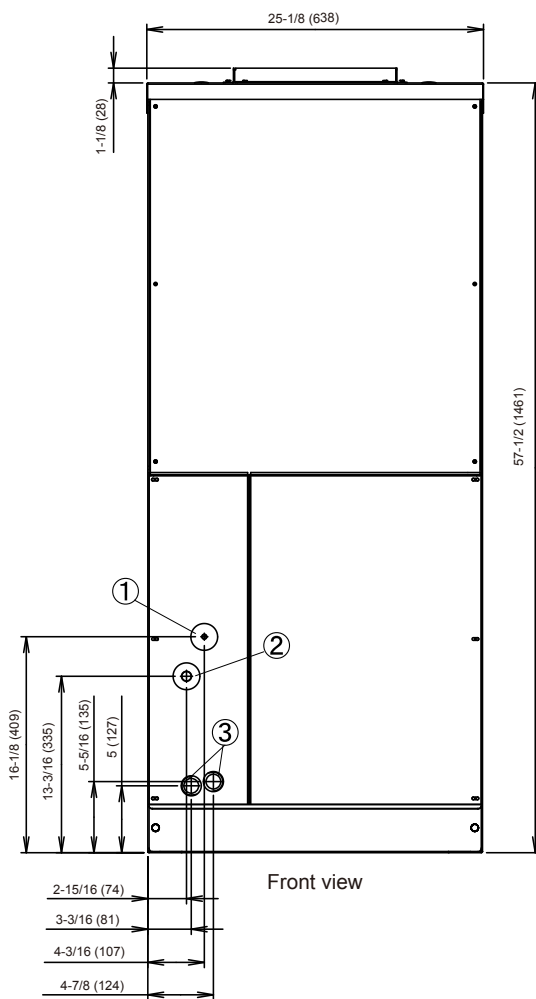
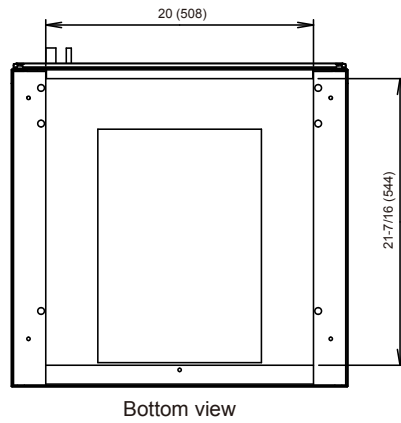
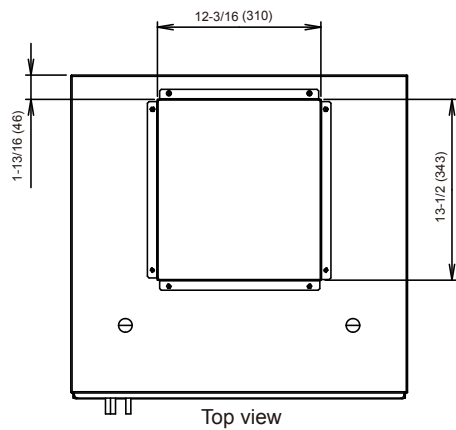
			ARUV36
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 3/4 (19.05)
③	Drain port	-	ø 3/4 (I.D.)

INDOOR
UNITS

INDOOR
UNITS

MODELS: ARUV48TLAV, ARUV60TLAV

Unit : in. (mm)



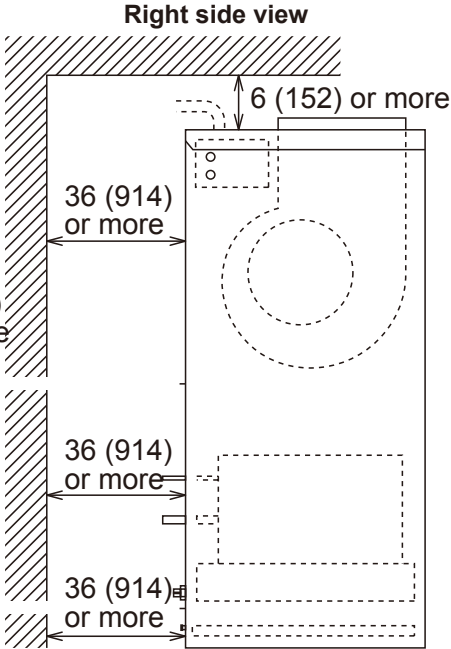
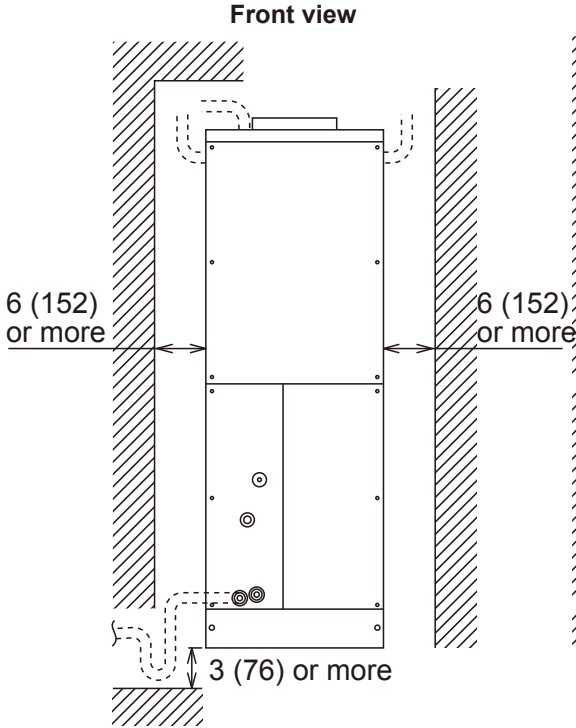
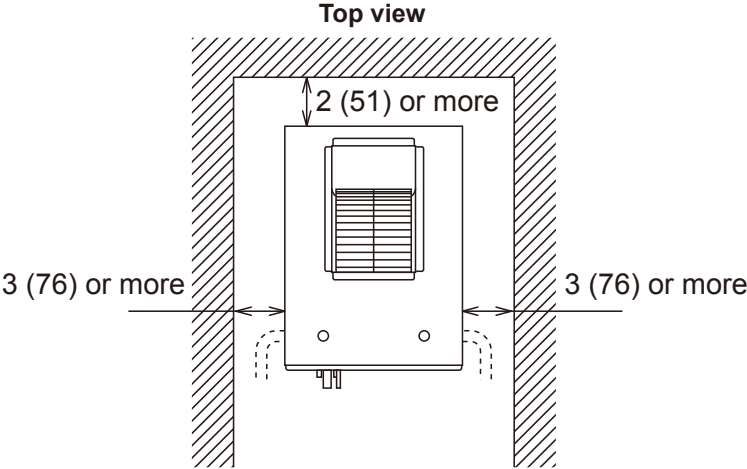
INDOOR
UNITS

INDOOR
UNITS

			ARUV48, ARUV60
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 3/4 (19.05)
③	Drain port	-	ø 3/4 (I.D.)

■ INSTALLATION LOCATION

Unit : in. (mm)



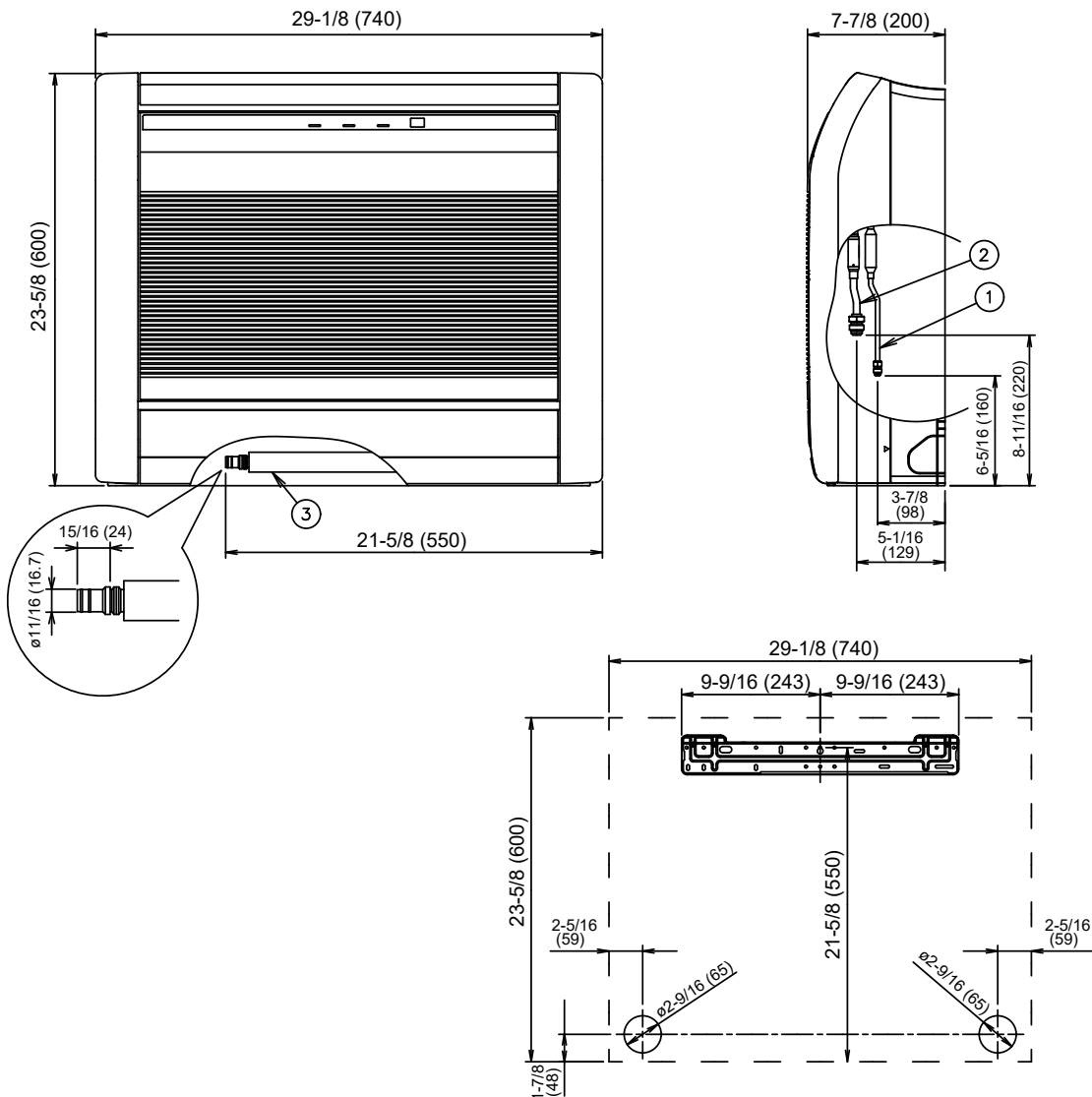
INDOOR
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3-9. COMPACT FLOOR TYPE

■ MODELS: AGUA4TLAV1, AGUA7TLAV1, AGUA9TLAV1, AGUA12TLAV1, AGUA14TLAV1

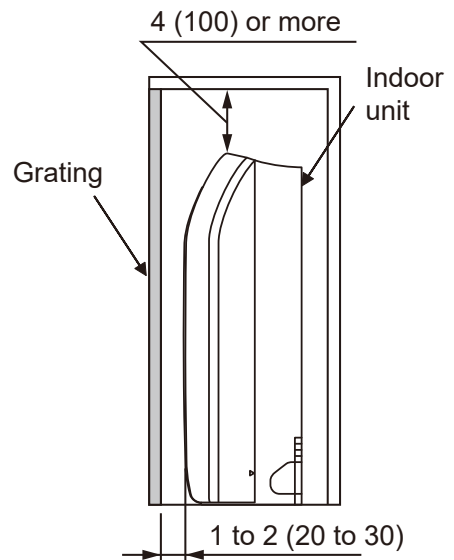
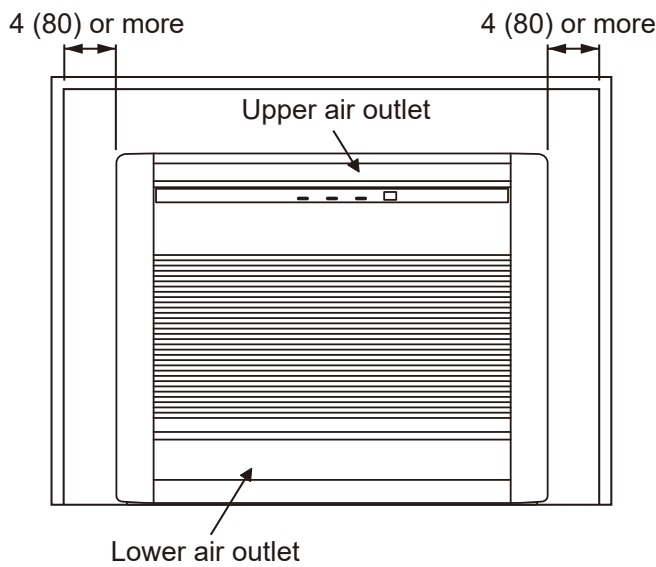
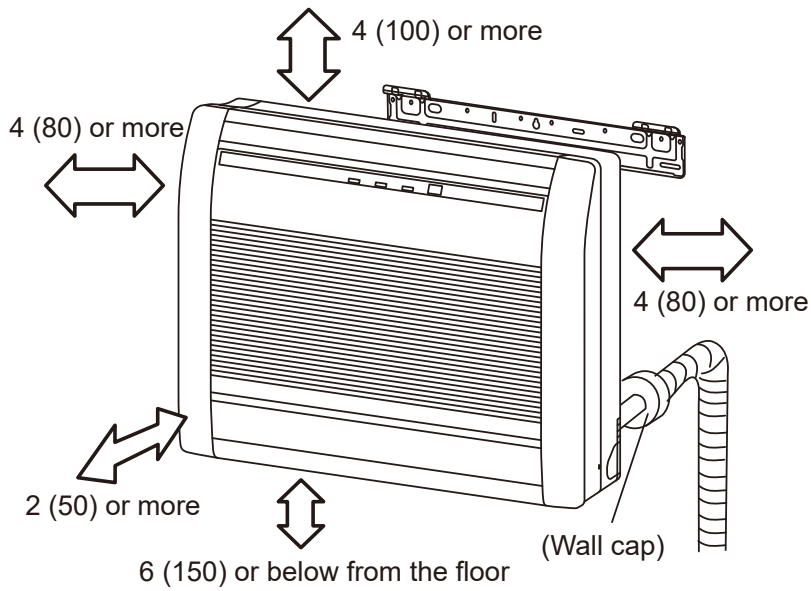
Unit : in. (mm)



			AGUA4, AGUA7, AGUA9	AGUA12, AGUA14
①	Refrigerant pipe flare connection	Liquid	ø 1/4 (6.35)	ø 1/4 (6.35)
②		Gas	ø 3/8 (9.52)	ø 1/2 (12.7)
③	Drain hose		I.D. 9/16 (13.8) , O.D. 5/8 (15.8) to 11/16 (16.7) Drain hose : L=23-5/8 (600)	

■ INSTALLATION PLACE

Unit : in. (mm)



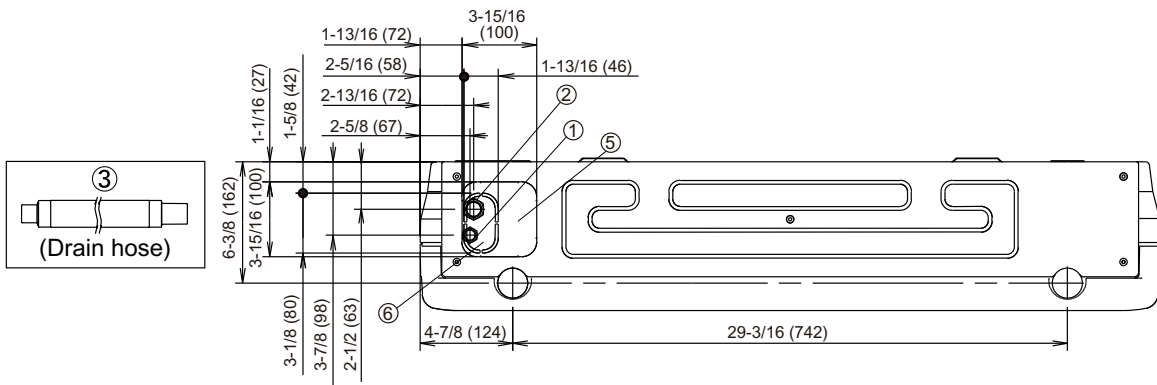
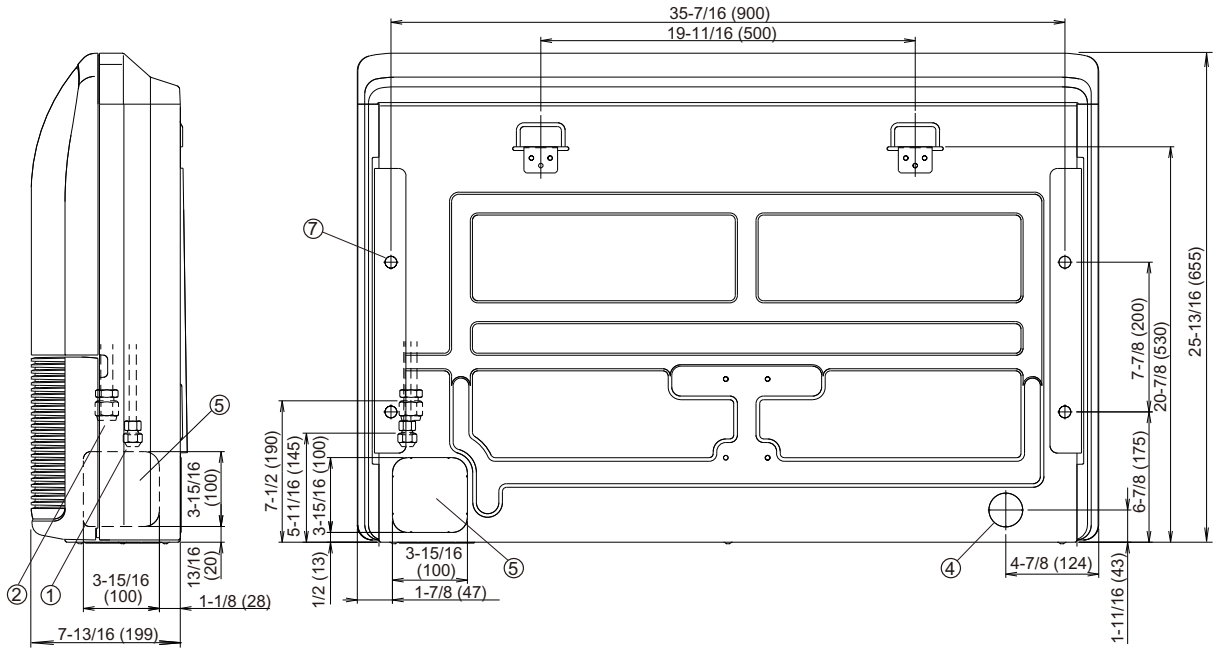
INDOOR
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UNITS

3-10. FLOOR / CEILING TYPE

■ MODELS : ABUA12TLAV, ABUA14TLAV, ABUA18TLAV, ABUA24TLAV

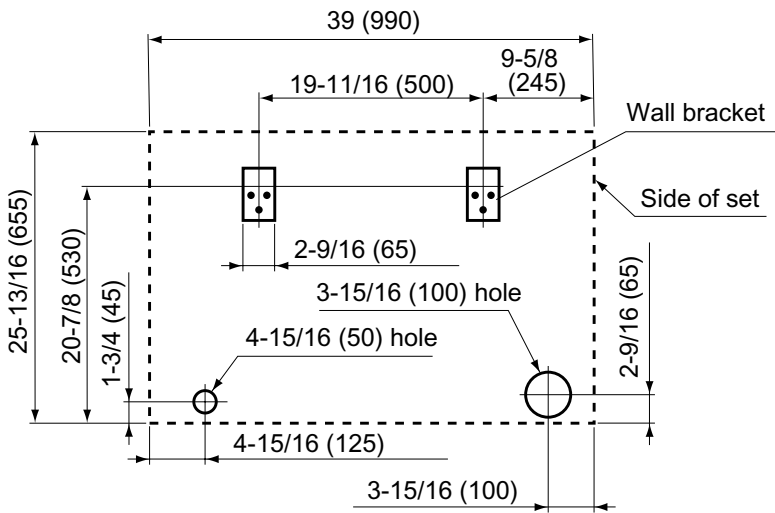
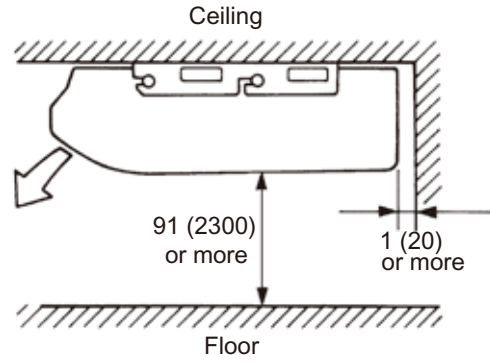
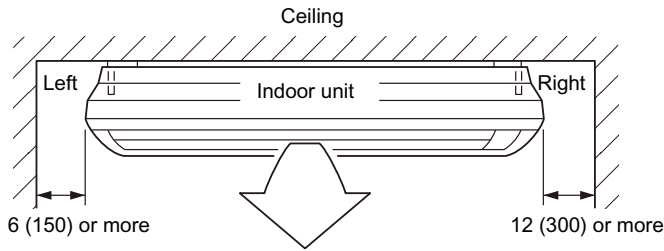
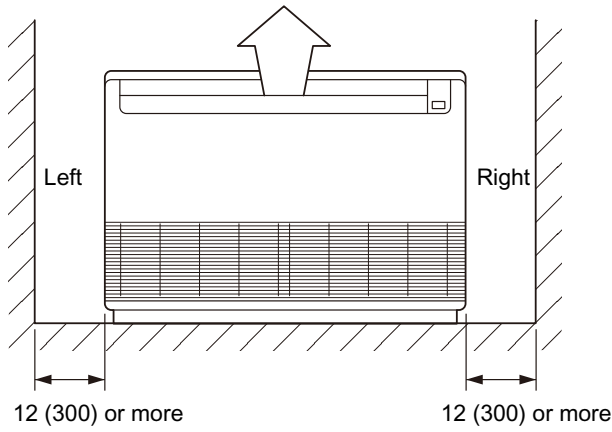
Unit : in. (mm)



			ABUA12, ABUA14	ABUA18, ABUA24
①	Refrigerant pipe flare connection	Liquid	ø 1/4 (6.35)	ø 3/8 (9.52)
②		Gas	ø 1/2 (12.70)	ø 5/8 (15.88)
③	Drain hose	-	ø 3/4 (I.D.), ø 1-1/16 (O.D.)	
④	Knock out hole	Drain outlet	ø 1-3/4 (45)	
⑤⑥		-	-	
⑦	Hole for lifting bolt	-	Use M10 screw bolt	

■ INSTALLATION LOCATION

Unit : in. (mm)



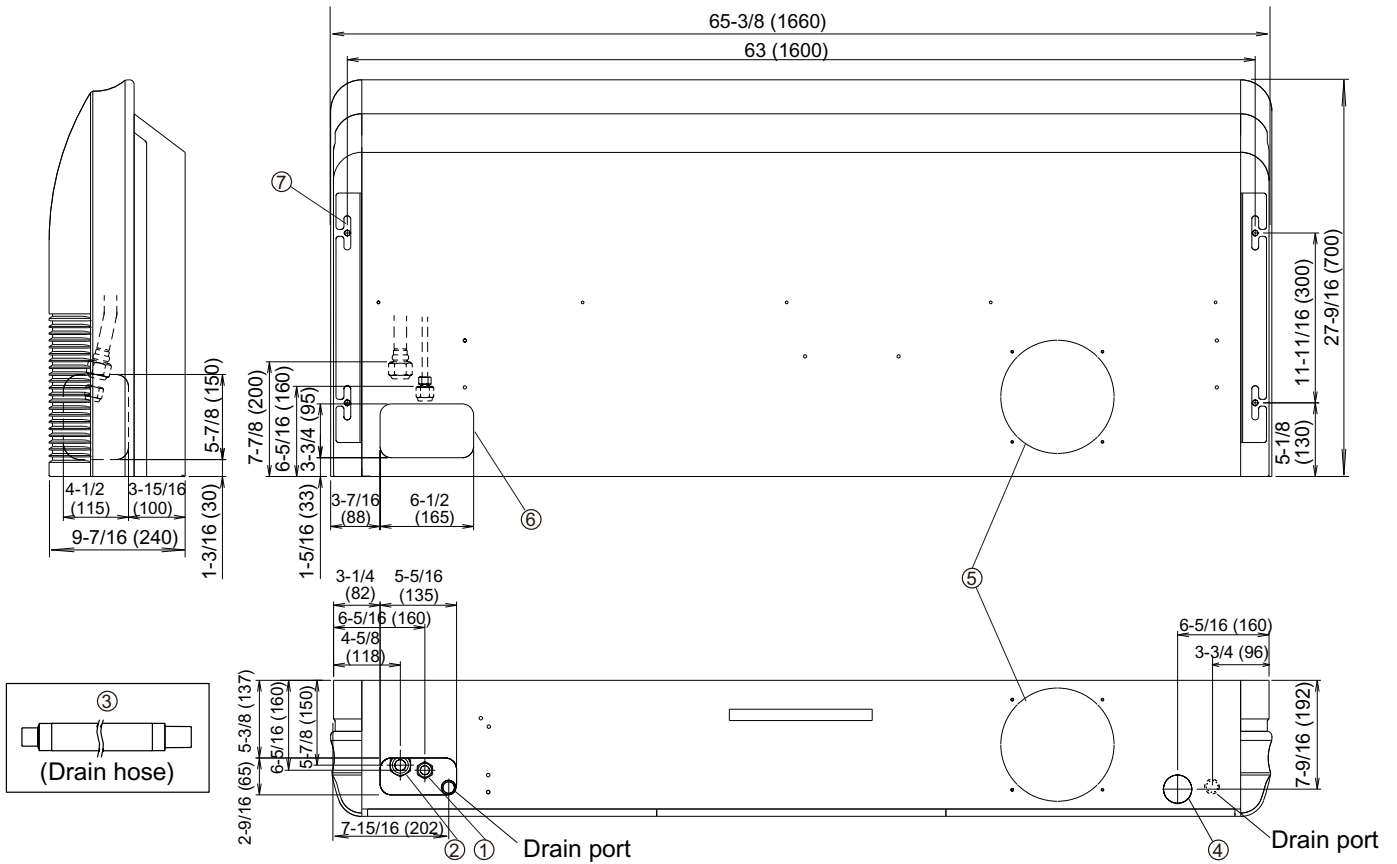
INDOOR UNITS

INDOOR UNITS

3-11. CEILING TYPE

■ MODELS : ABUA30TLAV, ABUA36TLAV

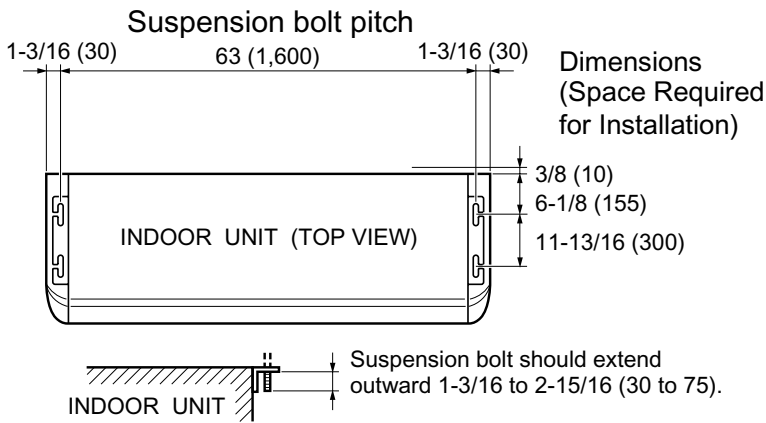
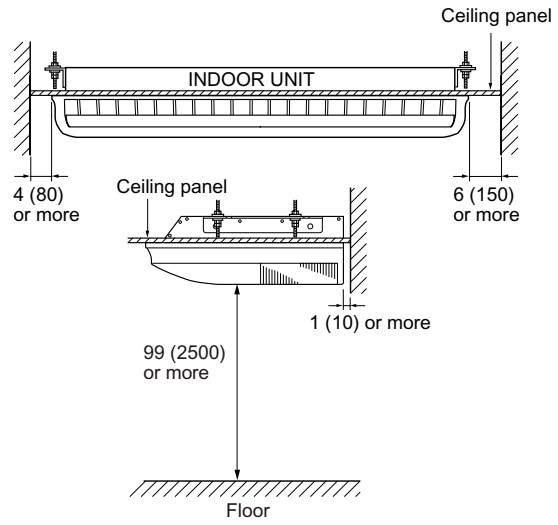
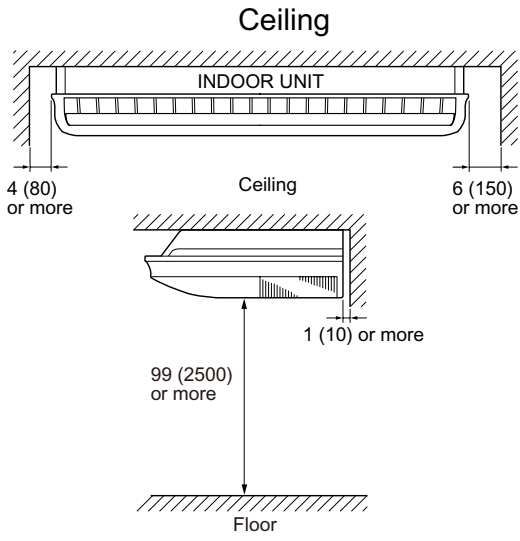
Unit : in. (mm)



		ABUA30	ABUA36
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 5/8 (15.88) ø 3/4 (19.05)
③	Drain hose	ø 3/4 (I.D.), ø 1-1/16 (O.D.)	
④	Knock out hole	Drain outlet	ø 1-15/16 (50)
⑤		Fresh air	ø 7-7/8 (200)
⑥	Refrigerant pipe	-	
⑦	Hole for lifting bolt	Use M10 screw bolt	

■ INSTALLATION LOCATION

Unit : in. (mm)



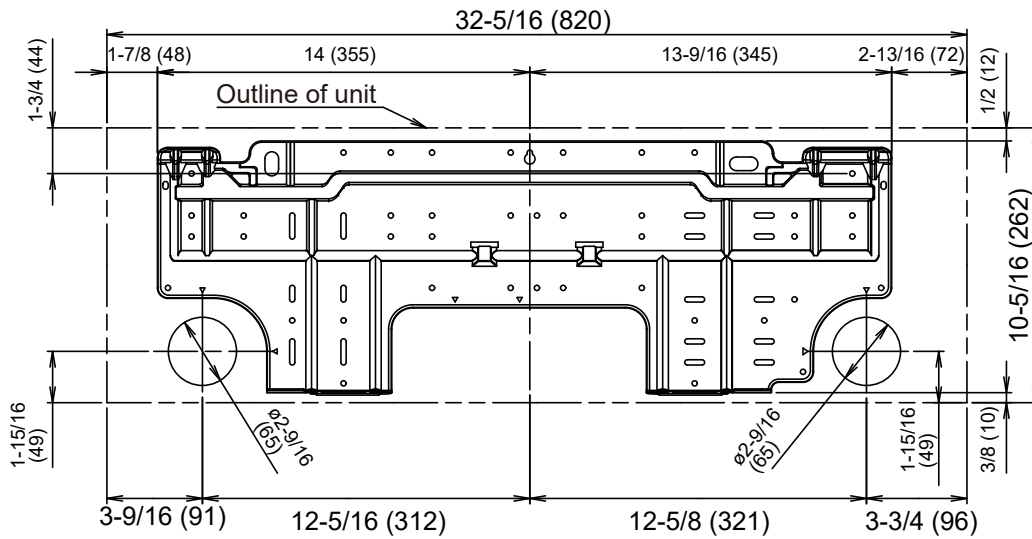
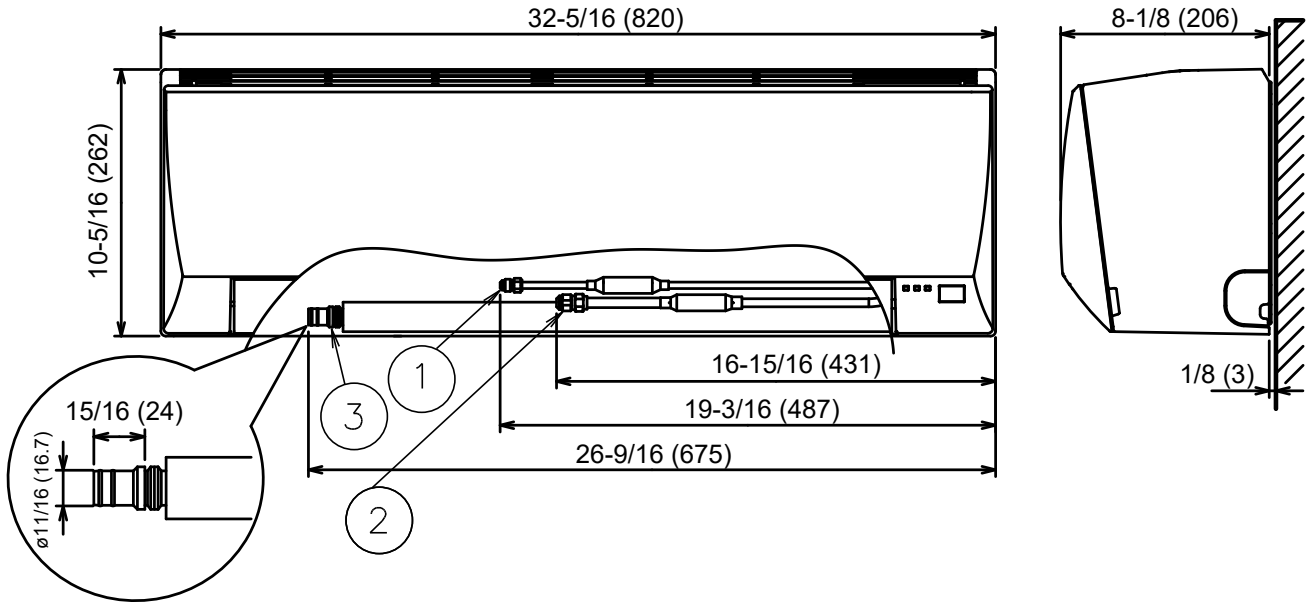
INDOOR UNITS

INDOOR UNITS

3-12. WALL MOUNTED TYPE

■ MODELS: ASUA4TLAV1, ASUA7TLAV1, ASUA9TLAV1

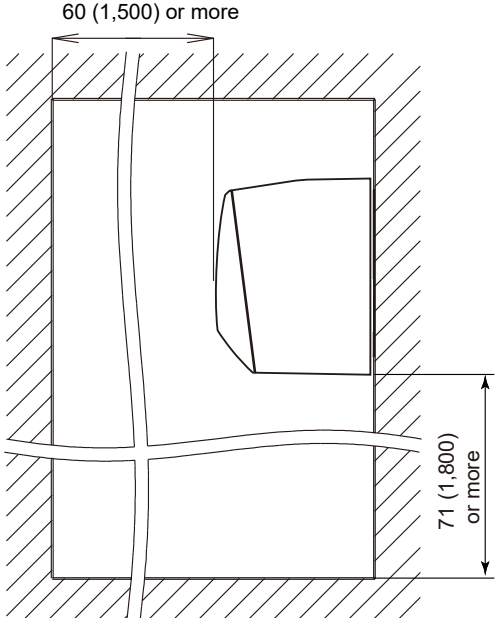
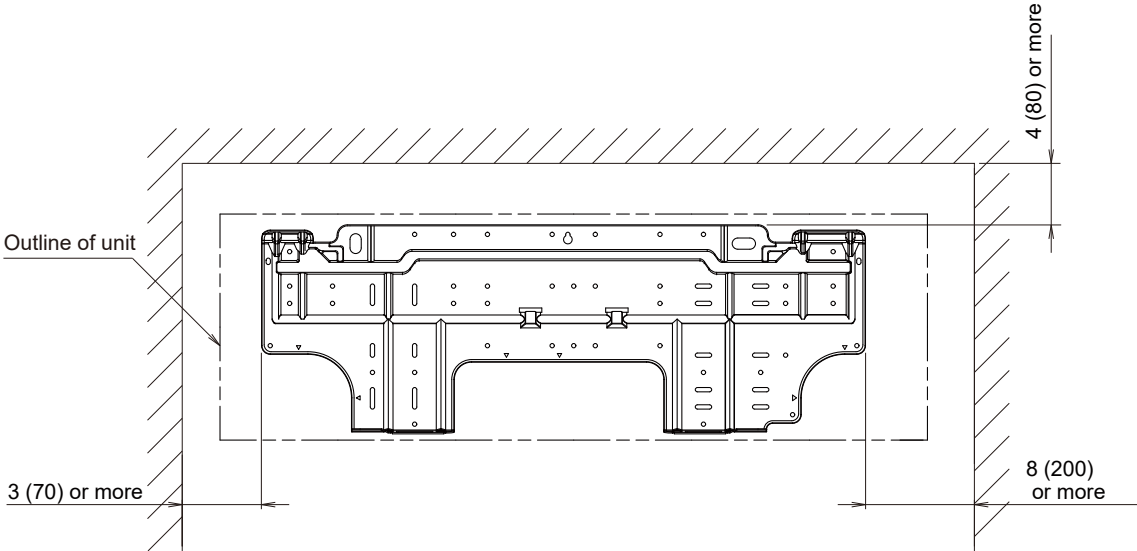
Unit : in. (mm)



			ASUA4, ASUA7, ASUA9
①	Refrigerant pipe flare connection	Liquid	ø 1/4 (6.35)
②		Gas	ø 3/8 (9.52)
③	Drain hose		I.D. 9/16 (13.8) , O.D. 5/8 to 11/16 (15.8 to 16.7) Drain hose : L=23-5/8 (600)

■ INSTALLATION PLACE

Unit : in. (mm)

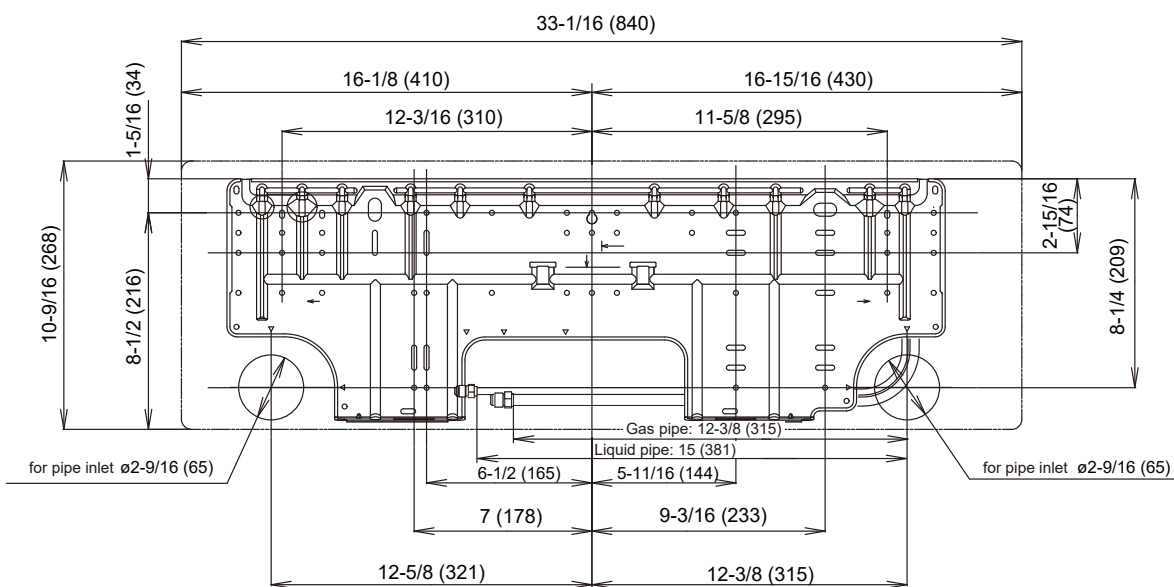
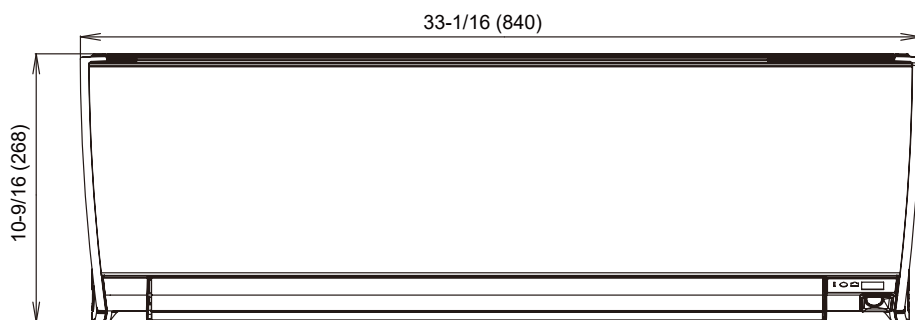


INDOOR
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MODELS: ASUA12TLAV1, ASUA14TLAV1

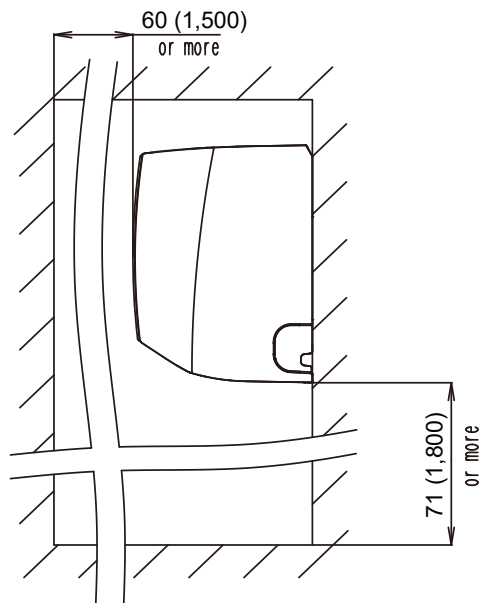
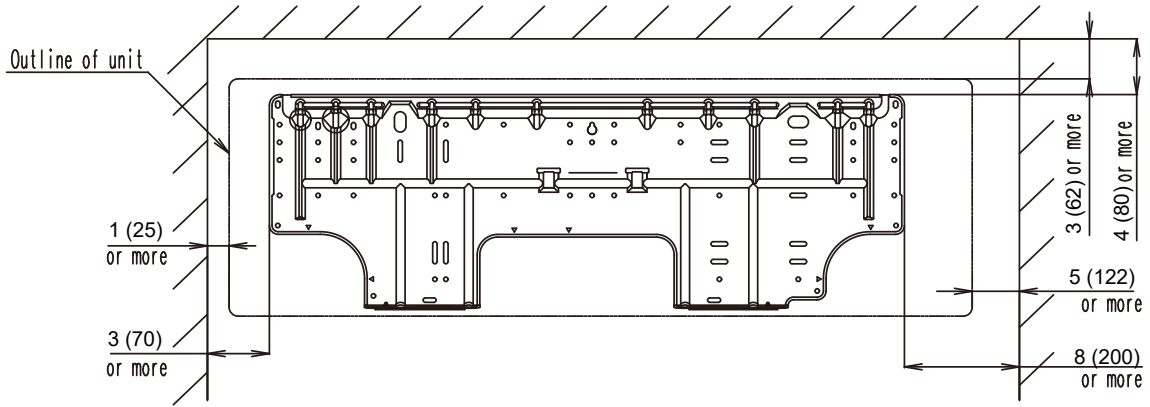
Unit : in. (mm)



			ASUA12, ASUA14
①	Refrigerant pipe flare connection	Liquid	ø 1/4 (6.35)
②		Gas	ø 1/2 (12.70)
③	Drain hose		I.D. 9/16 (13.8) , O.D. 5/8 to 11/16 (15.8 to 16.7) Drain hose : L=23-5/8 (600)

■ INSTALLATION PLACE

Unit : in. (mm)

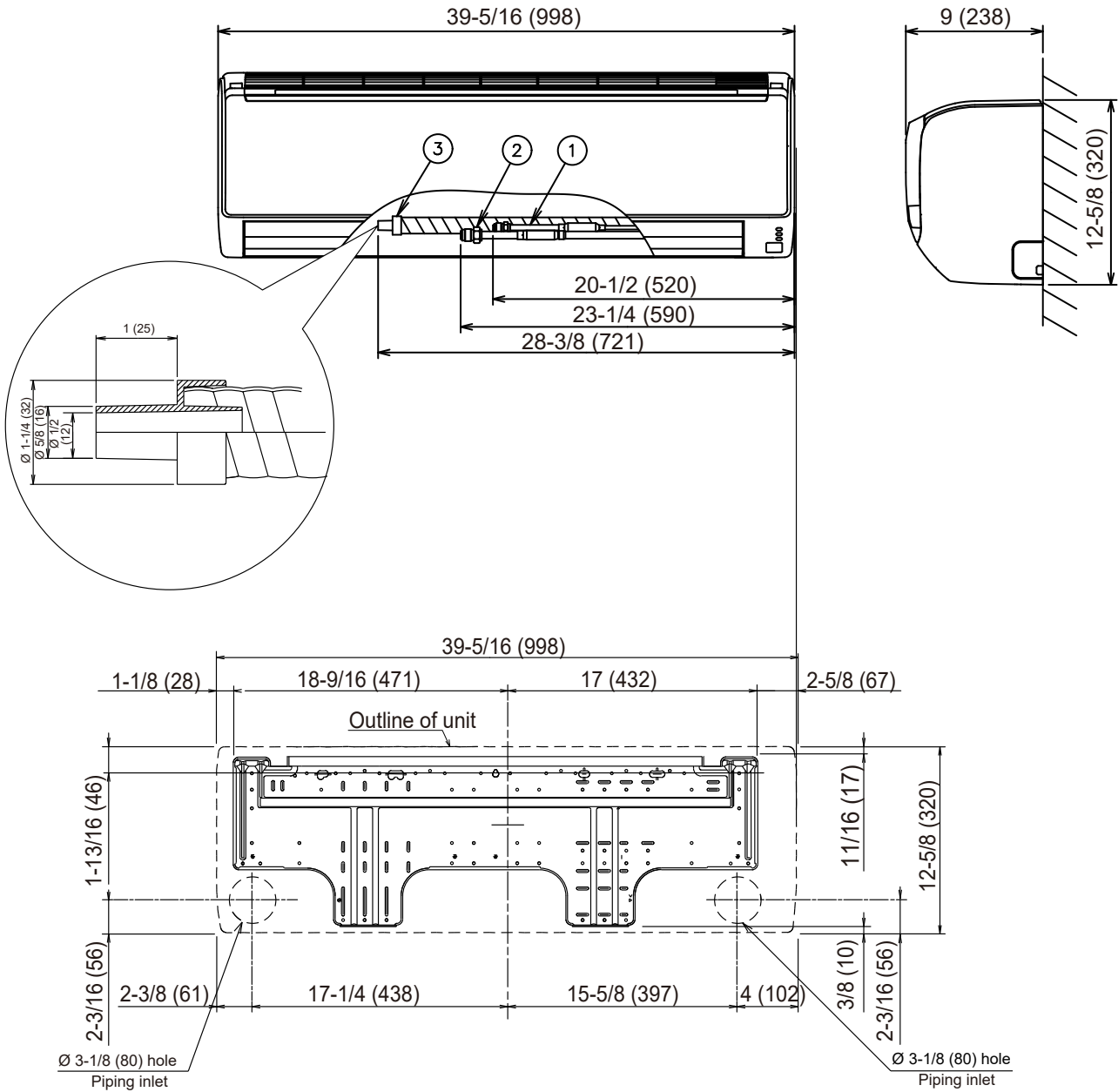


INDOOR
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INDOOR
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MODELS: ASUB18TLAV1, ASUB24TLAV1

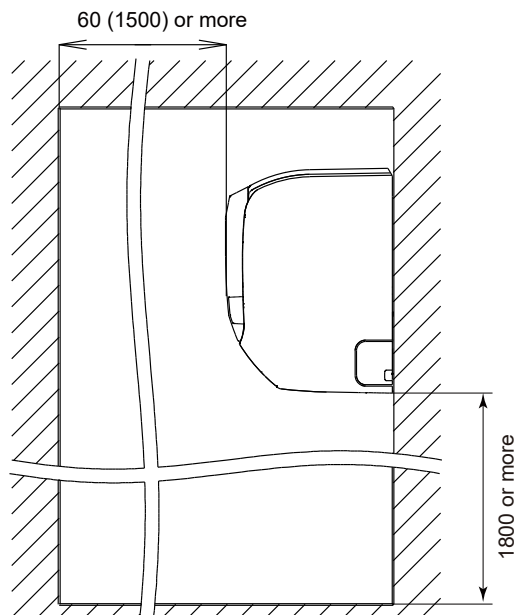
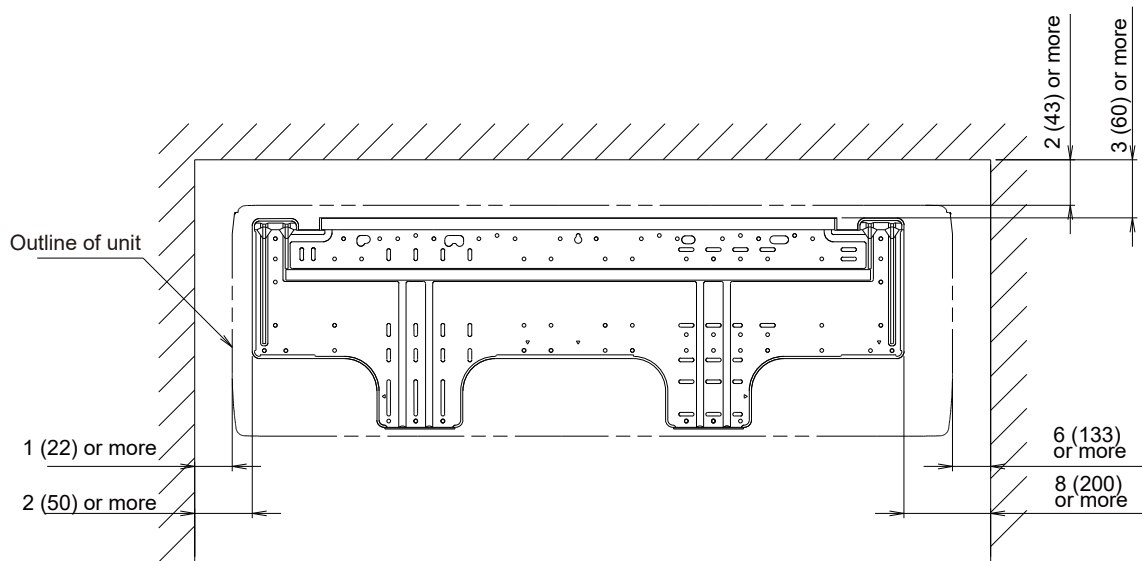
Unit : in. (mm)



		ASUB18	ASUB24
①	Refrigerant pipe flare connection	Liquid	$\varnothing 1/4$ (6.35)
②		Gas	$\varnothing 1/2$ (12.70)
③	Drain hose	I.D. 1/2 (12) , O.D. 5/8 (16) Drain hose : L=26-3/8 (670)	

■ INSTALLATION PLACE

Unit : in. (mm)

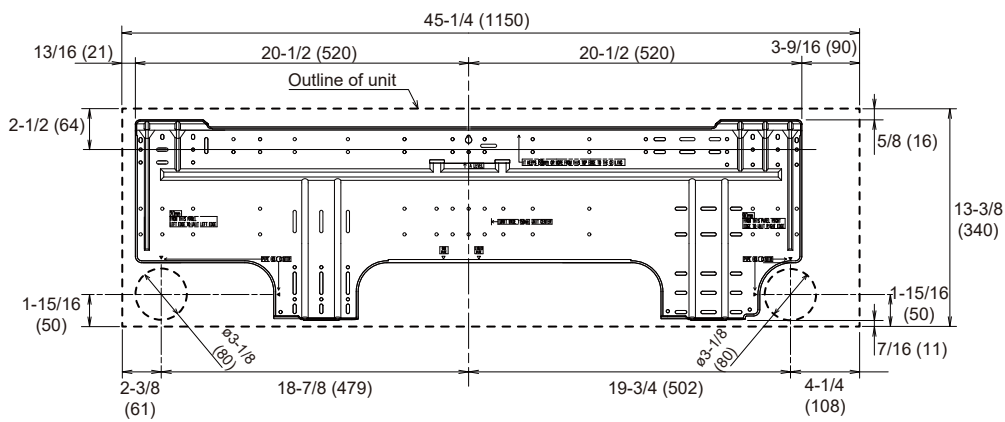
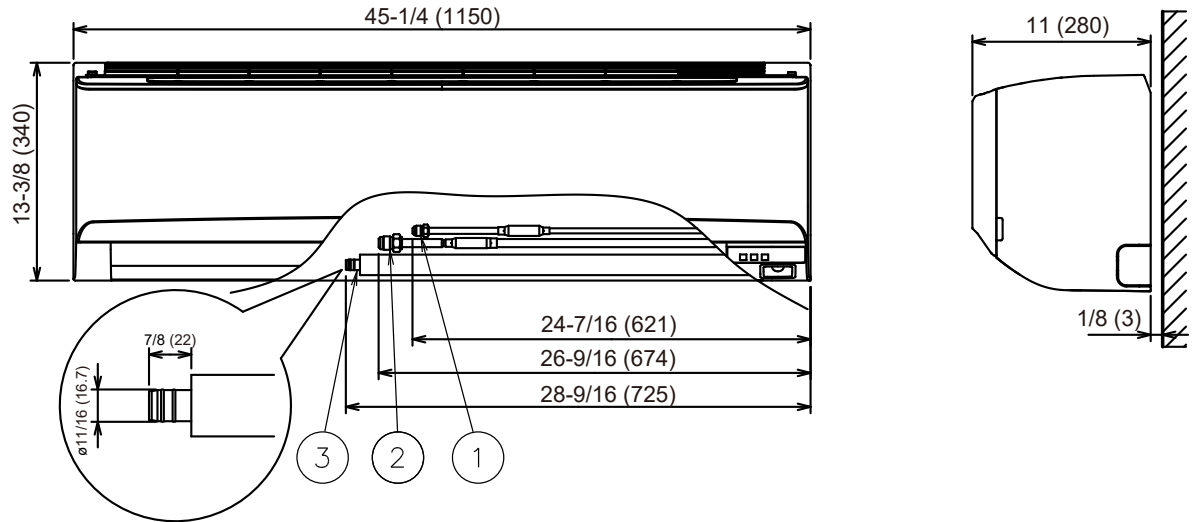


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MODELS: ASUB30TLAV1, ASUB36TLAV1

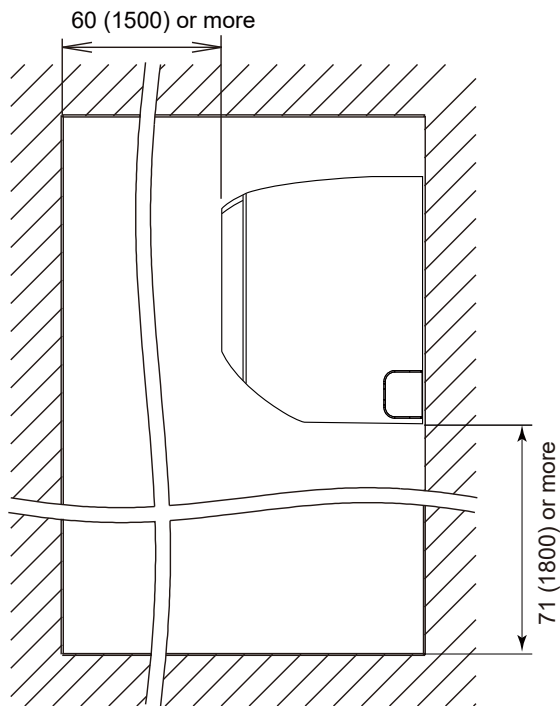
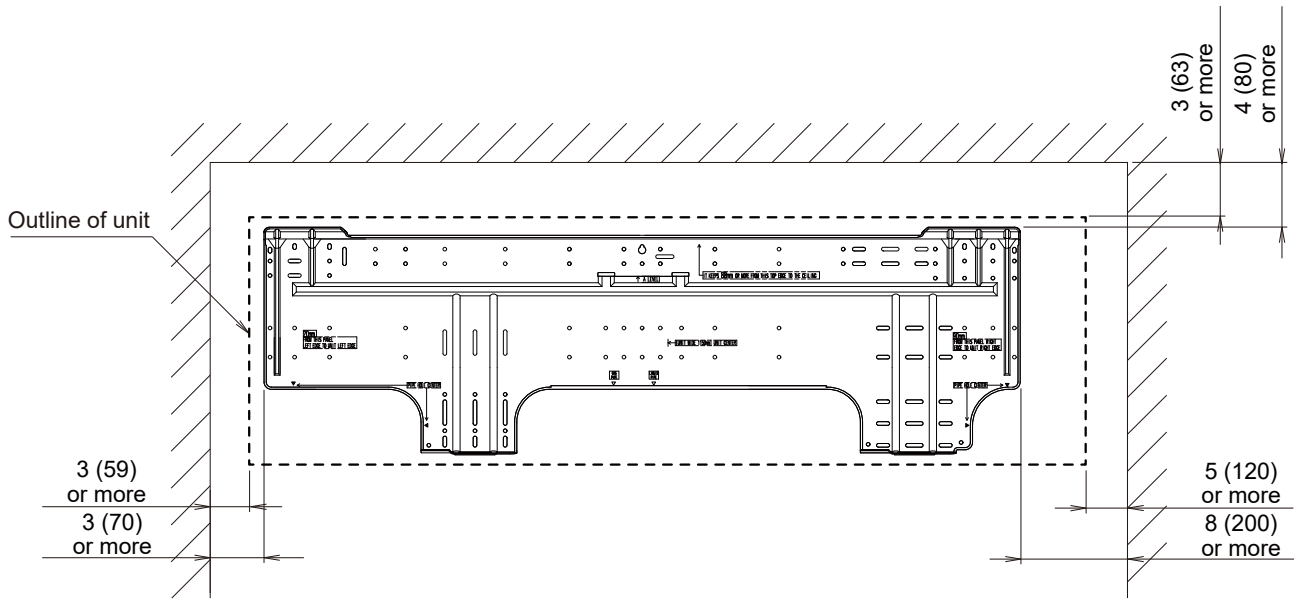
Unit : in. (mm)



			ASUB30, ASUB36
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 5/8 (15.88)
③	Drain hose		I.D. 9/16 (13.8) , O.D. 5/8 to 11/16 (15.8 to 16.7) Drain hose : L=23-5/8 (600)

■ INSTALLATION PLACE

Unit : in. (mm)

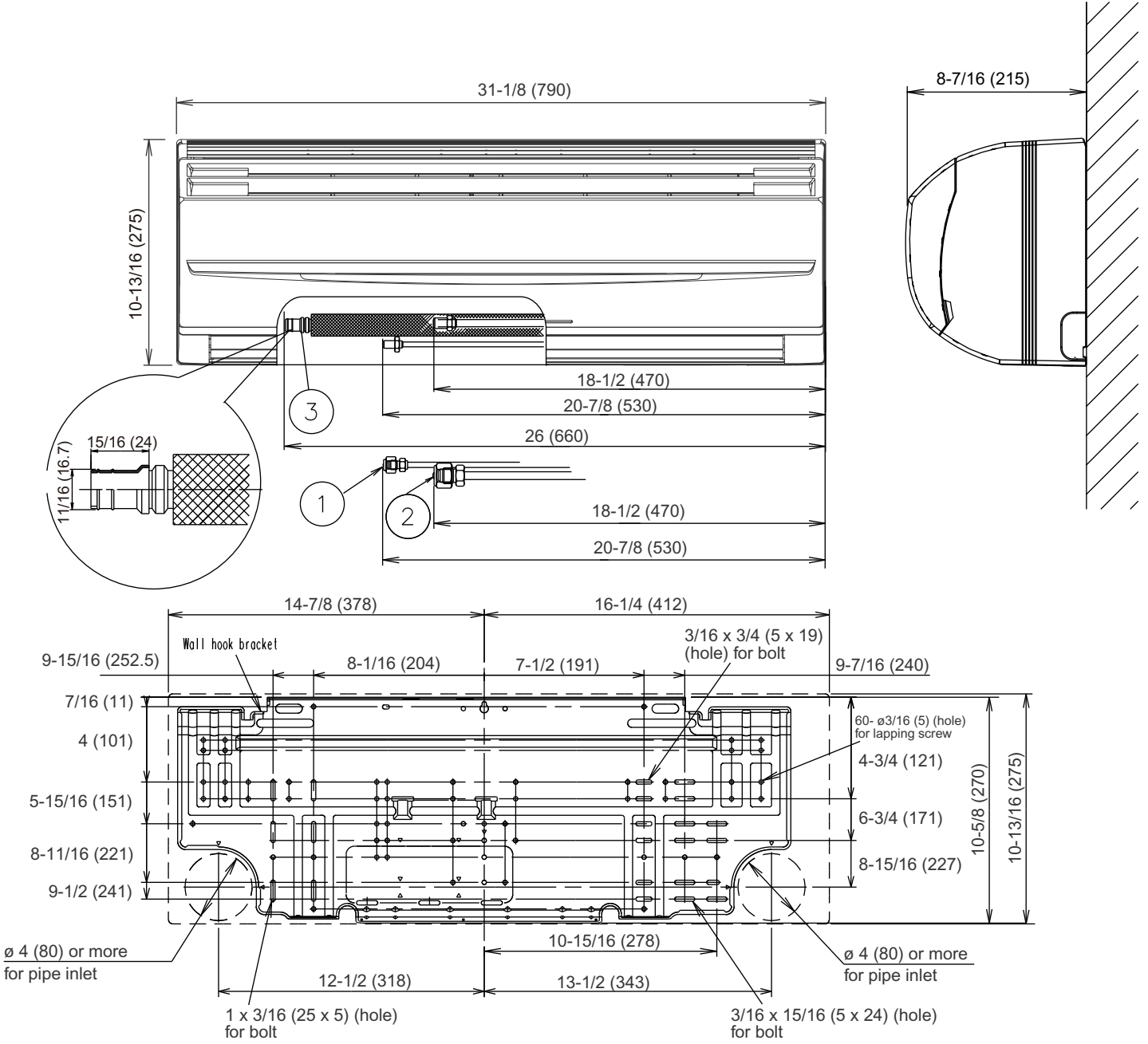


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MODELS : ASUA7TLAV, ASUA9TLAV, ASUA12TLAV, ASUA14TLAV

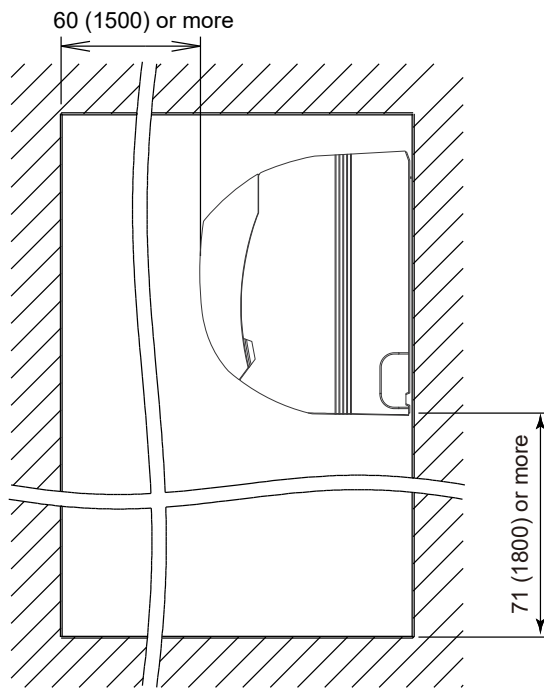
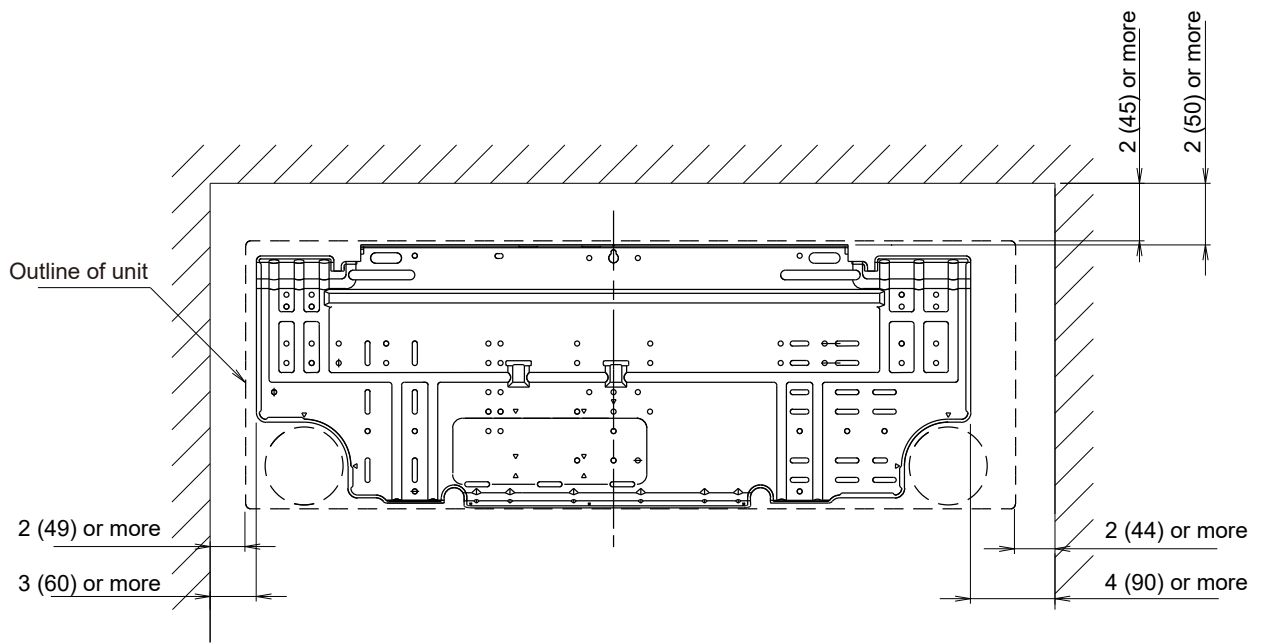
Unit : in. (mm)



			ASUA7, ASUA9, ASUA12, ASUA14
①	Refrigerant pipe flare connection	Liquid	ø 1/4 (6.35)
②		Gas	ø 1/2 (12.70)
③	Drain hose	-	ø 9/16 (I.D.), ø 5/8 to 11/16 (O.D.) [ø 13.8 (I.D.), ø 15.8 to 16.7 (O.D.)] Total length : 23-5/8 (600)

■ INSTALLATION LOCATION

Unit : in. (mm)

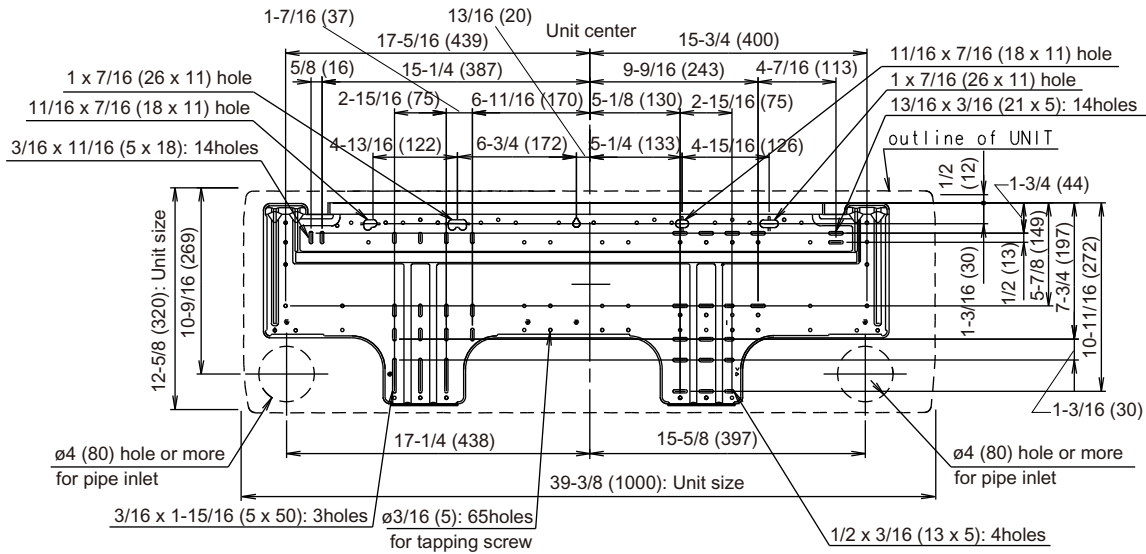
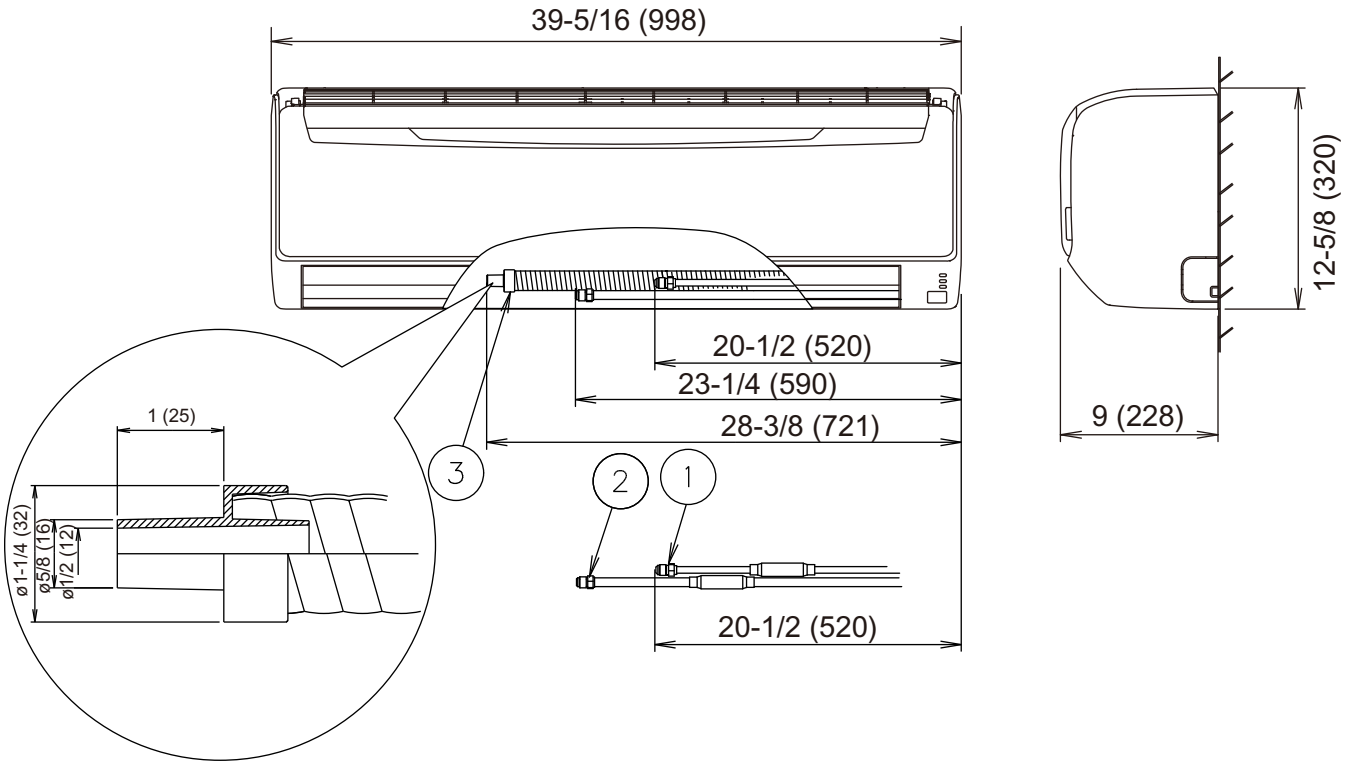


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MODELS : ASUB18TLAV, ASUB24TLAV

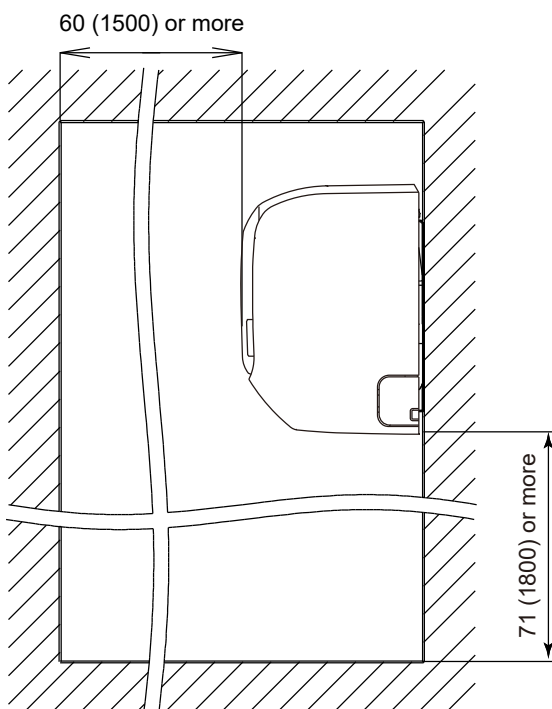
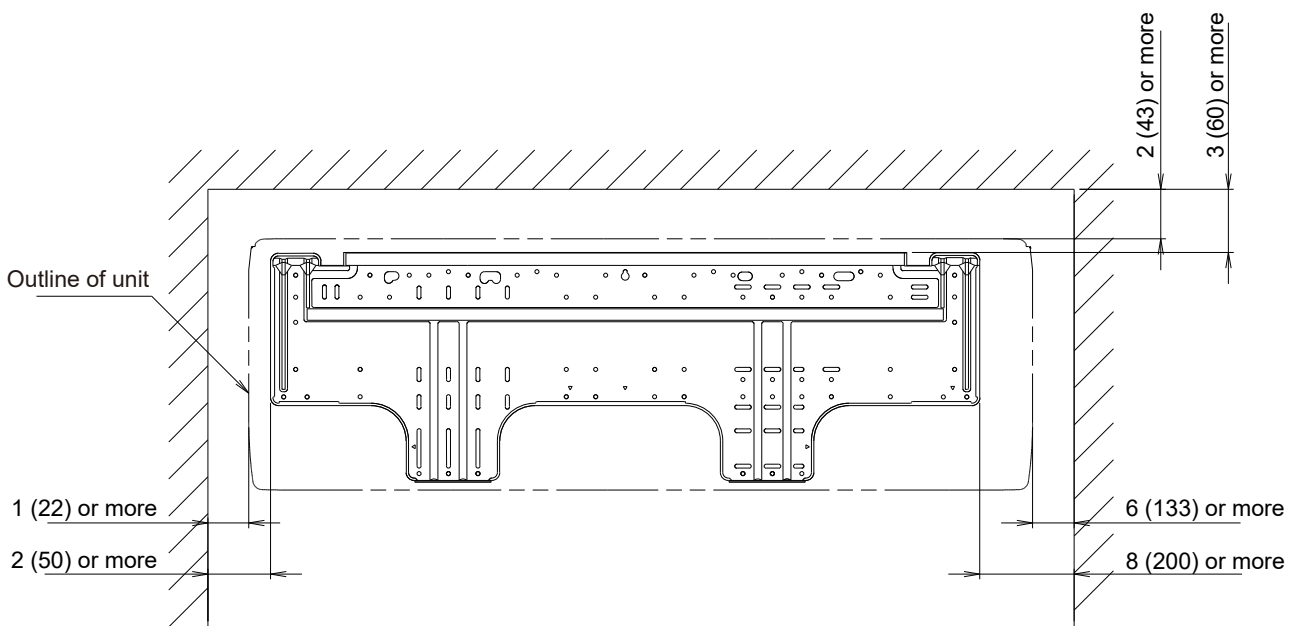
Unit : in. (mm)



ASUB18, ASUB24			
①	Refrigerant pipe flare connection	Liquid	ø 3/8 (9.52)
②		Gas	ø 5/8 (15.88)
③	Drain hose	-	ø 1/2 (I.D.) , ø 5/8 (O.D.) [ø 12 (I.D.) , ø 16 (O.D.)] Total length : 26-3/8 (670)

■ INSTALLATION PLACE

Unit : in. (mm)



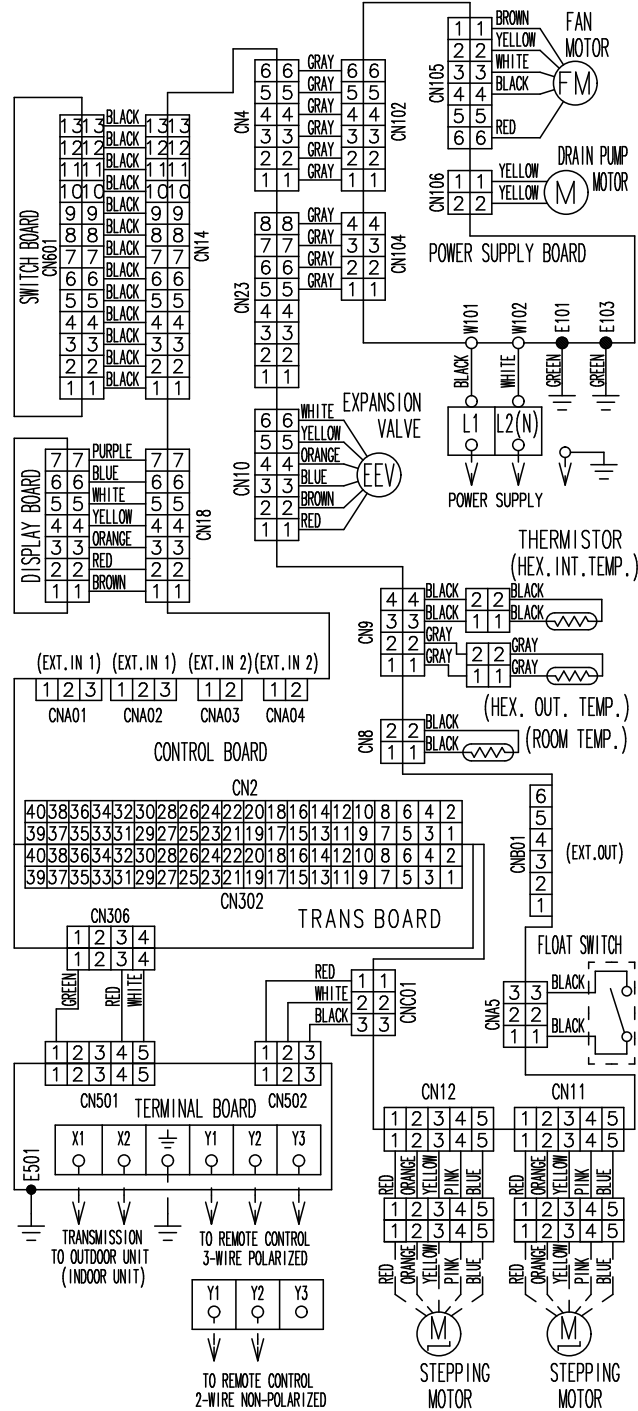
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4. WIRING DIAGRAMS

4-1. COMPACT CASSETTE TYPE

■ MODEL : AUUA4TLAV1



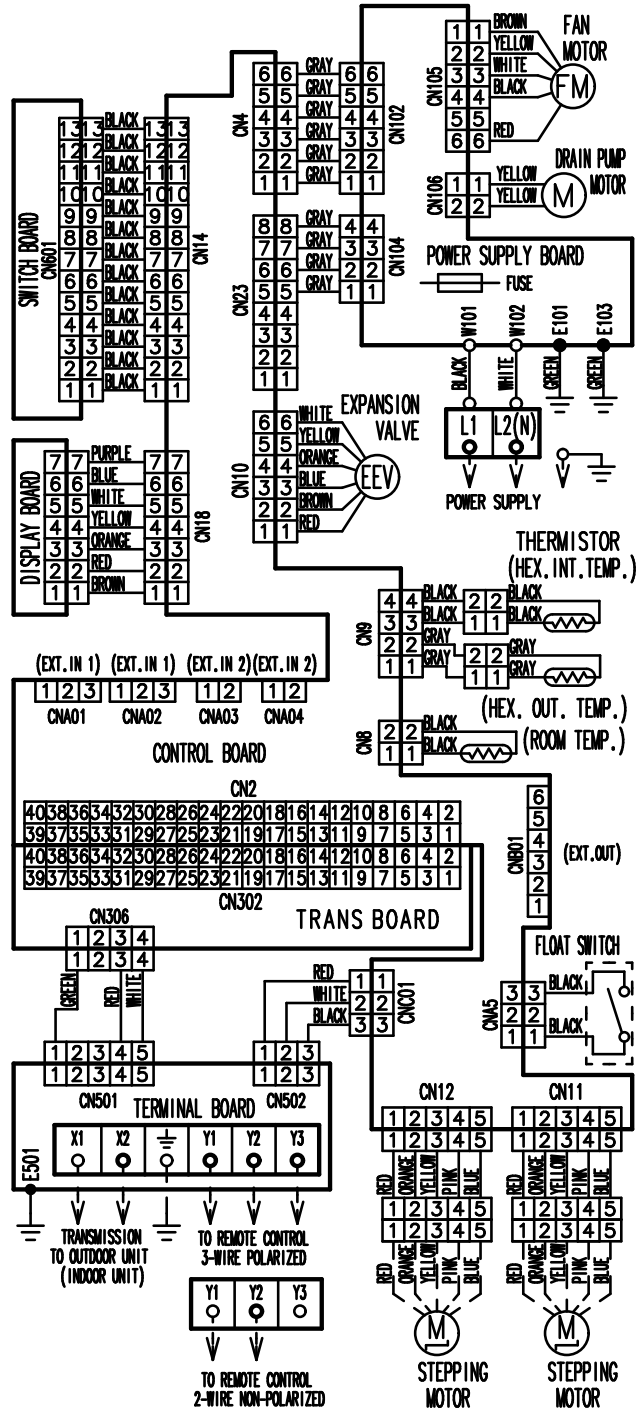
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■ MODELS : AUUA7TLAV, AUUA9TLAV, AUUA12TLAV, AUUA14TLAV, AUUA18TLAV, AUUA24TLAV

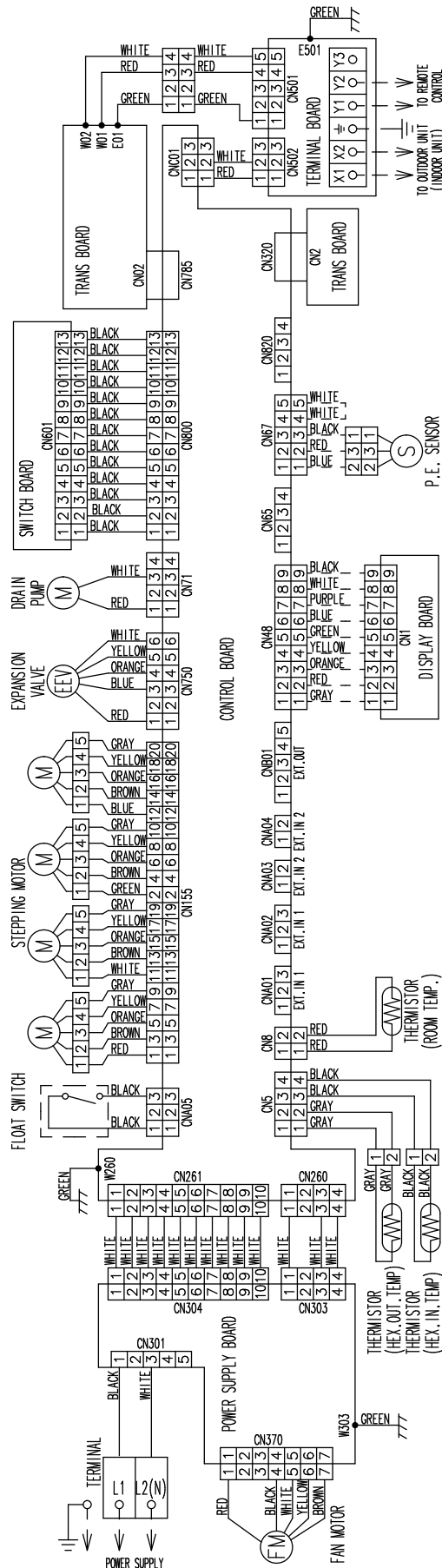
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4-2. CIRCULAR FLOW CASSETTE TYPE

■ MODELS : AUUB18TLAV1, AUUB24TLAV1, AUUB30TLAV1, AUUB36TLAV1, AUUB48TLAV1

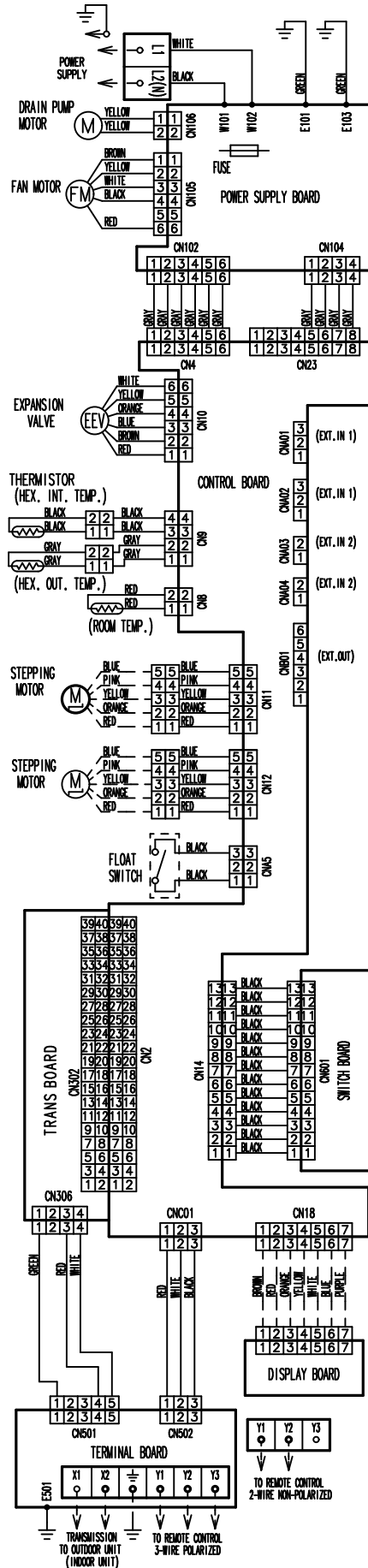


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4-3. CASSETTE TYPE

■ MODELS : AUUB18TLAV, AUUB24TLAV, AUUB30TLAV, AUUB36TLAV

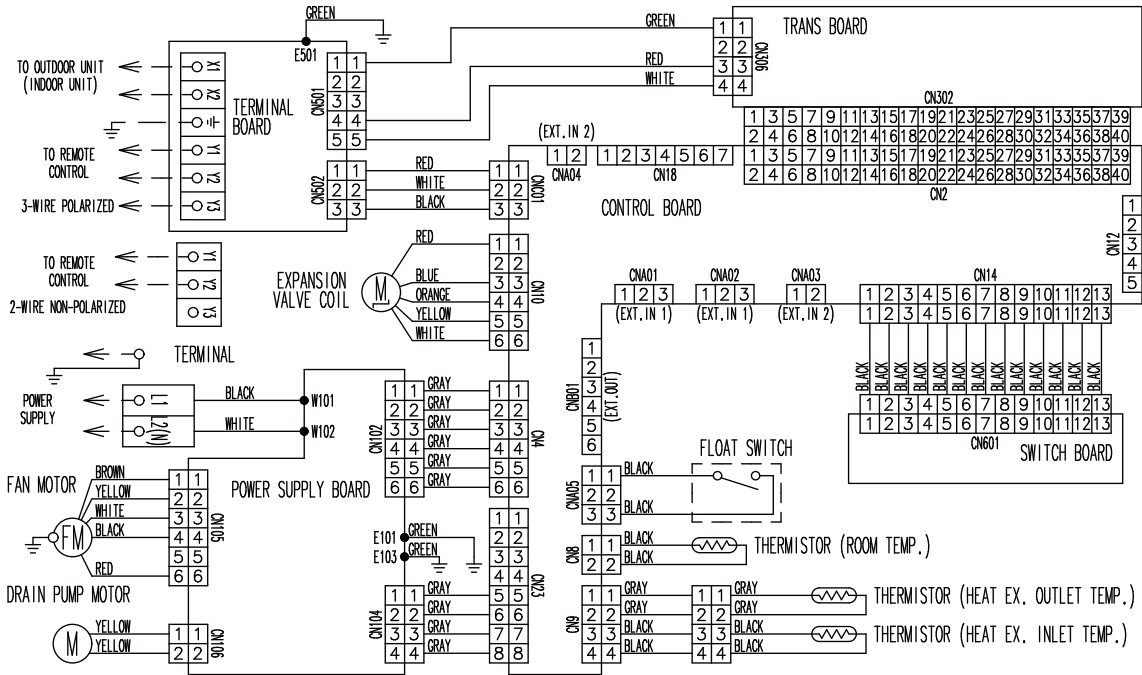


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4-4. MINI DUCT TYPE

MODEL: ARUL4TLAV1

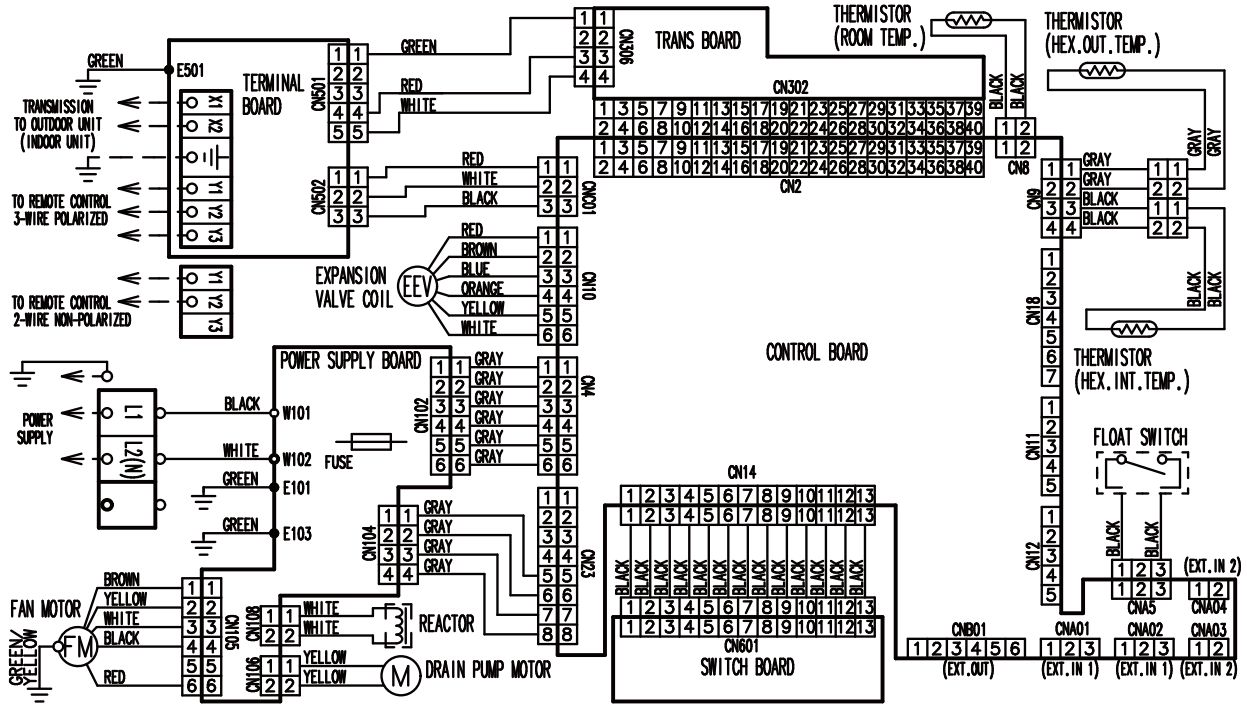


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4-5. SLIM DUCT / SLIM CONCEALED FLOOR TYPE

■ MODELS : ARUL7TLAV, ARUL9TLAV, ARUL12TLAV, ARUL14TLAV, ARUL18TLAV

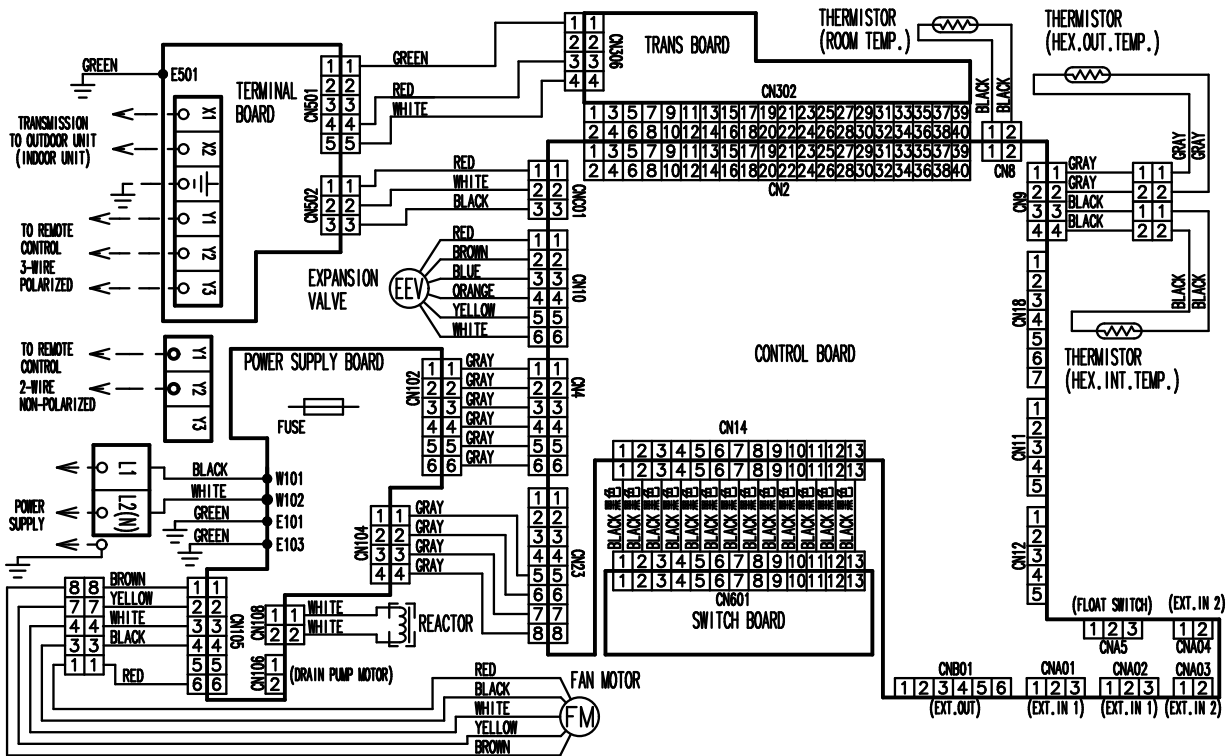


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4-6. MEDIUM STATIC PRESSURE DUCT TYPE

■ MODELS : ARUM24TLAV, ARUM30TLAV, ARUM36TLAV



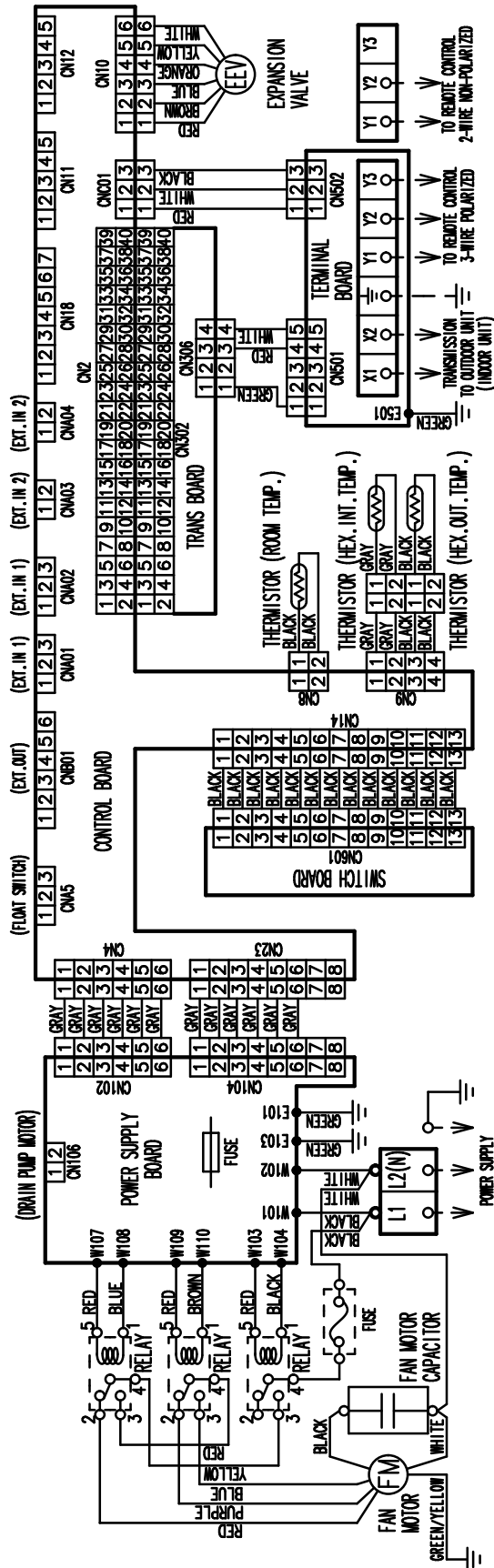
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4-7. HIGH STATIC PRESSURE DUCT TYPE

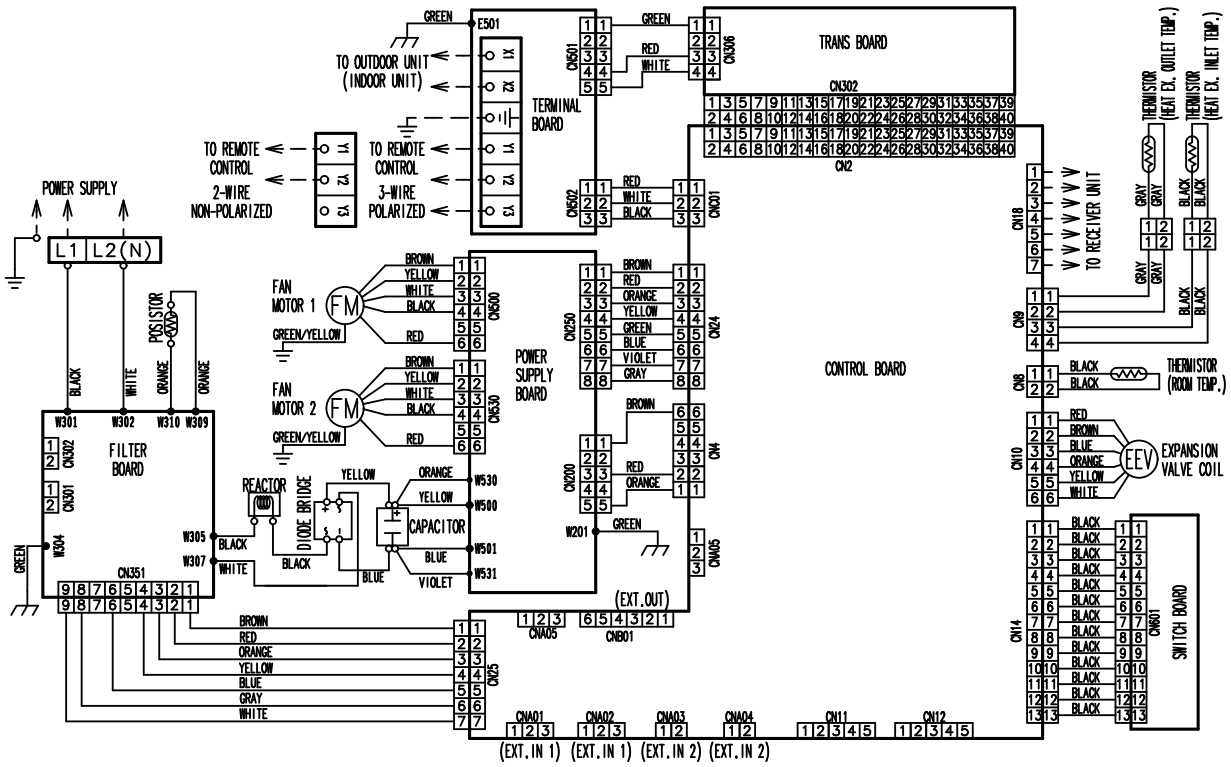
■ MODELS : ARUH36TLAV, ARUH48TLAV, ARUH60TLAV

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MODELS : ARUH72TLAV1, ARUH96TLAV

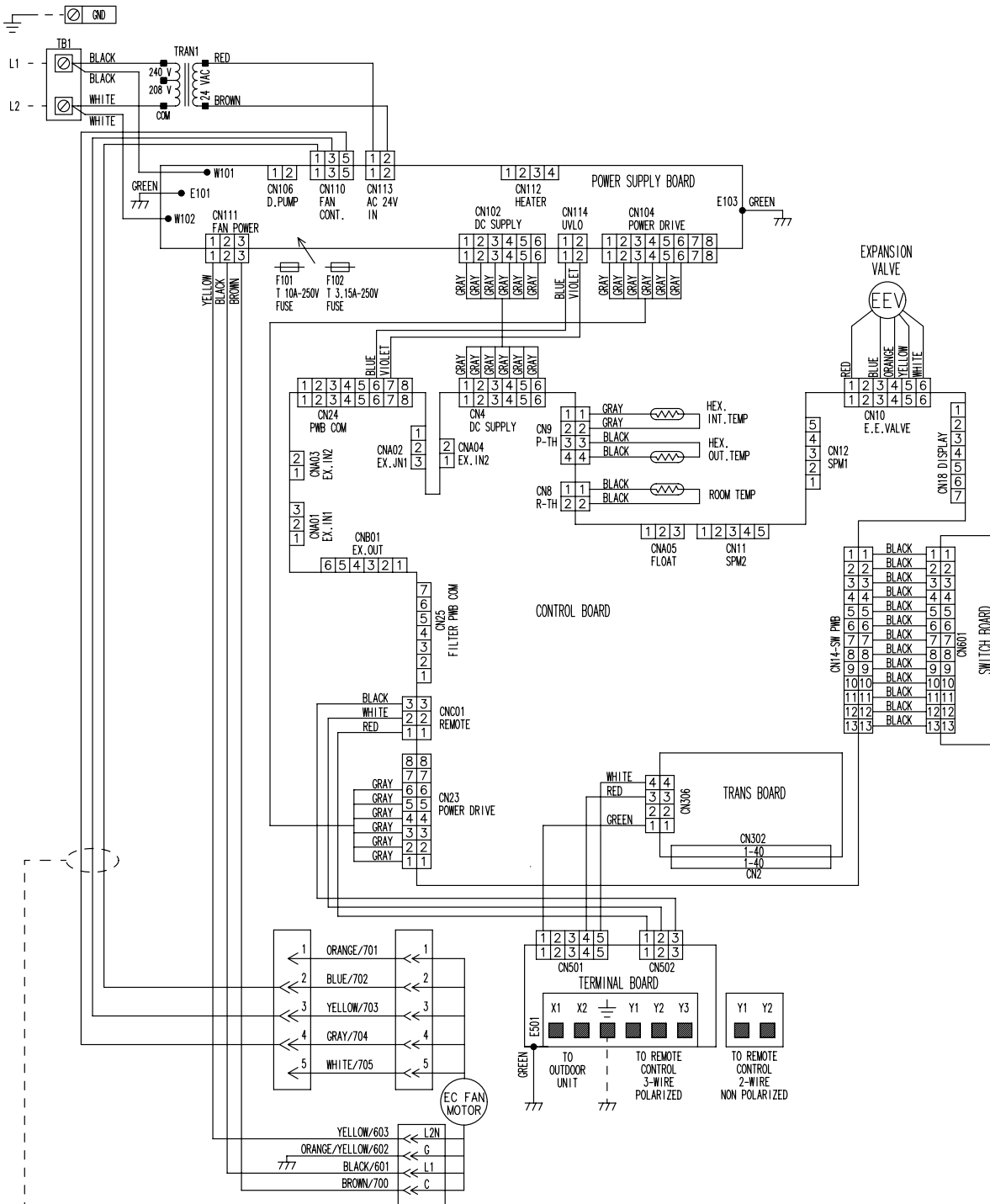


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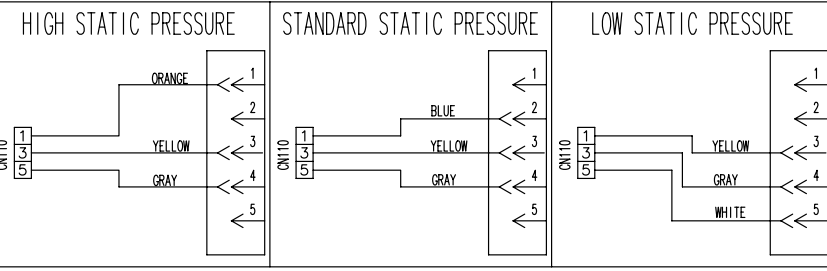
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4-8. VERTICAL AIR HANDLER TYPE

■ MODELS: ARUV12TLAV, ARUV18TLAV, ARUV24TLAV, ARUV30TLAV, ARUV36TLAV, ARUV48TLAV, ARUV60TLAV



FIELD TO SELECT MOTOR HARNESS TO MATCH MOTOR OUTPUT TO SYSTEM STATIC PRESSURE. STANDARD STATIC PRESSURE HARNESS IS FACTORY INSTALLED.

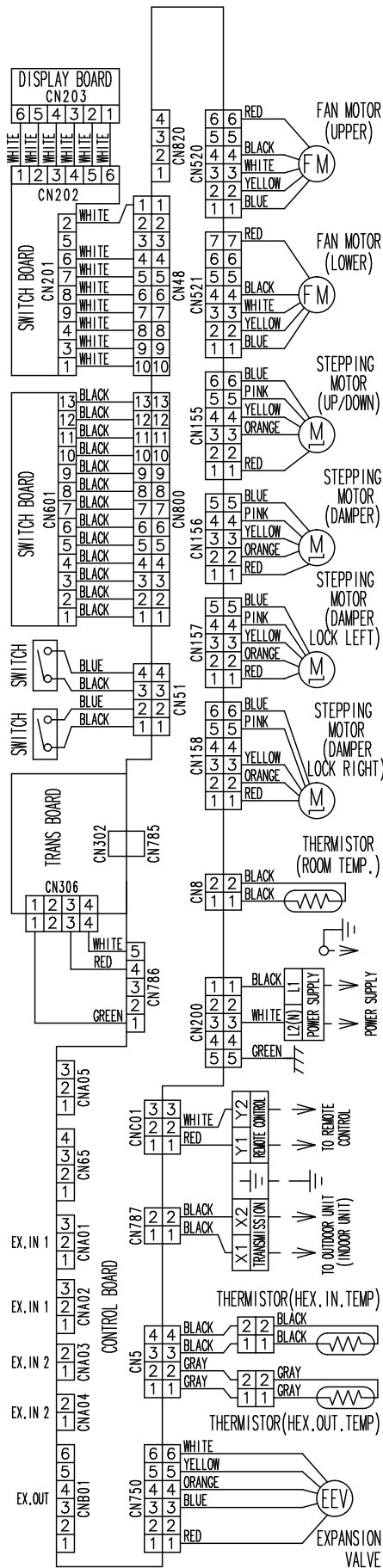


4-9. COMPACT FLOOR TYPE

MODELS: AGUA4TLAV1, AGUA7TLAV1, AGUA9TLAV1, AGUA12TLAV1, AGUA14TLAV1

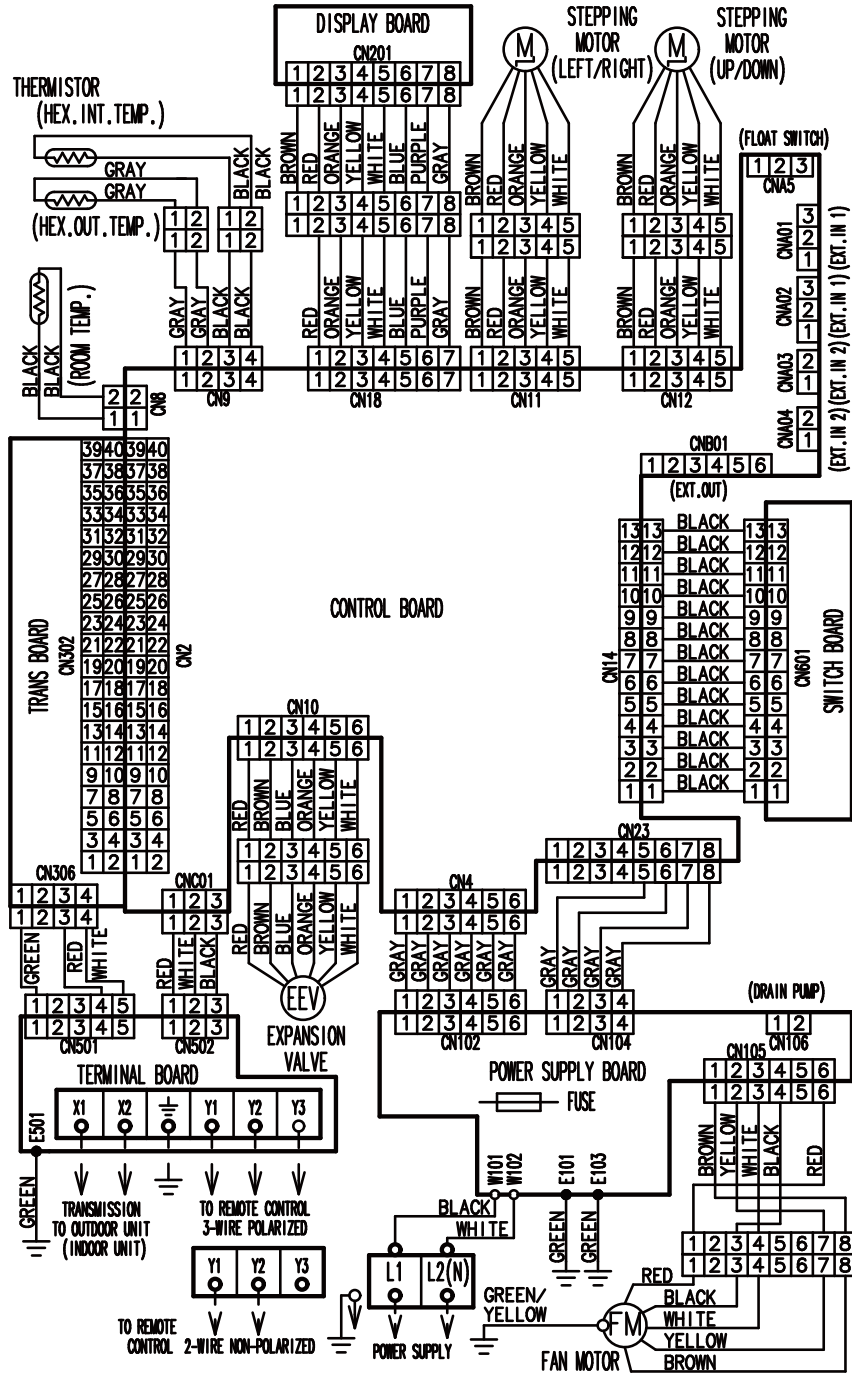
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4-10. FLOOR / CEILING TYPE

■ MODELS : ABUA12TLAV, ABUA14TLAV, ABUA18TLAV, ABUA24TLAV

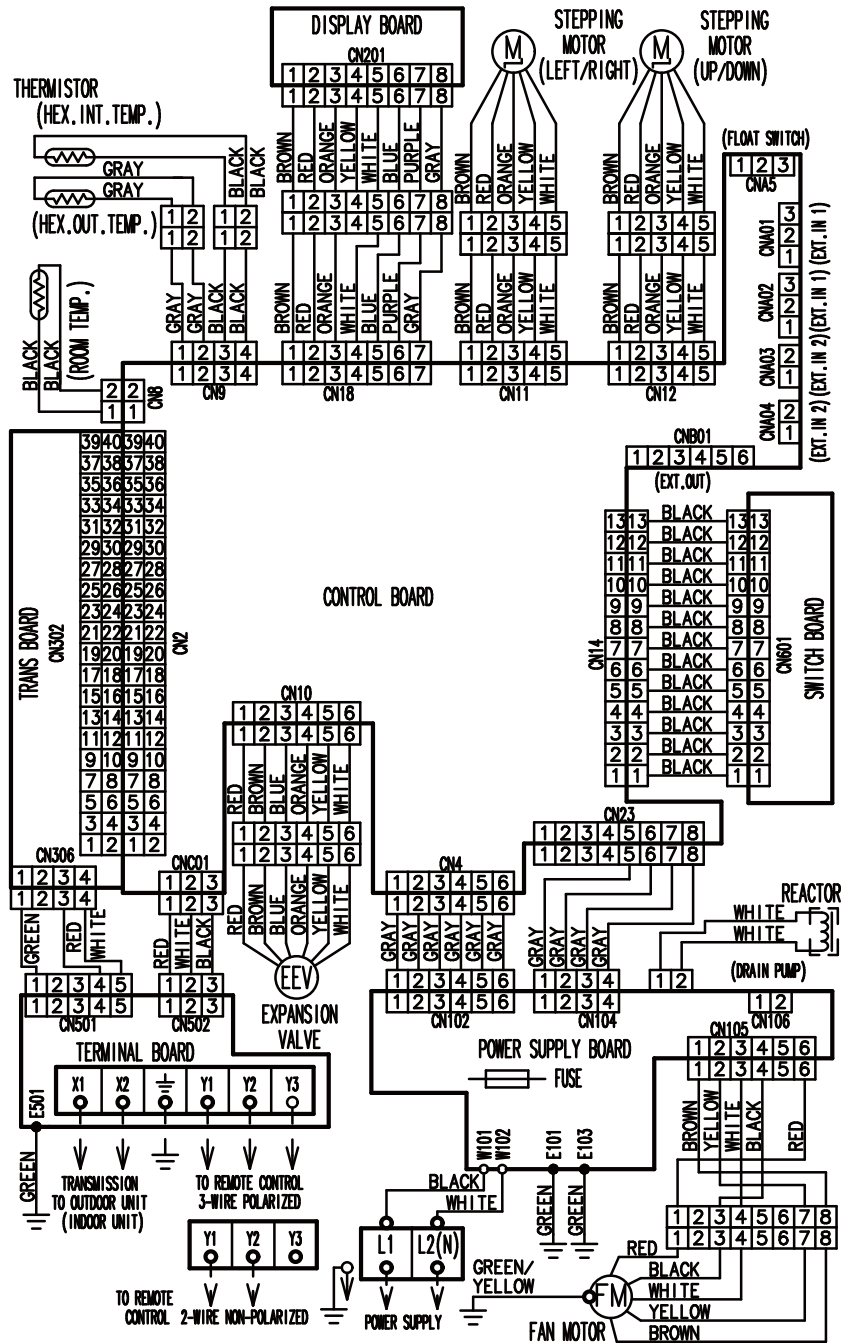


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4-11. CEILING TYPE

MODELS : ABUA30TLAV, ABUA36TLAV



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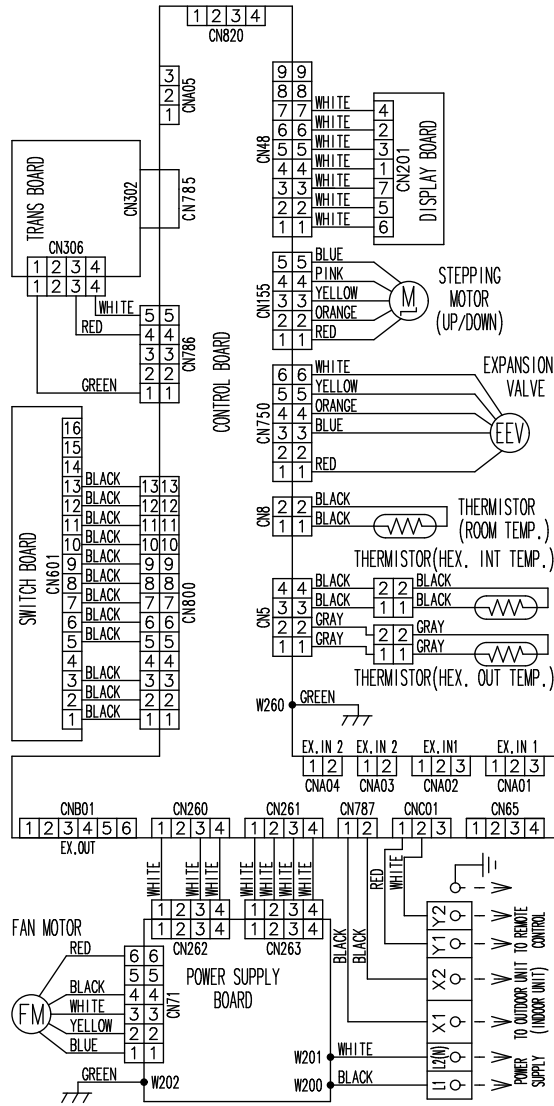
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4-12. WALL MOUNTED TYPE

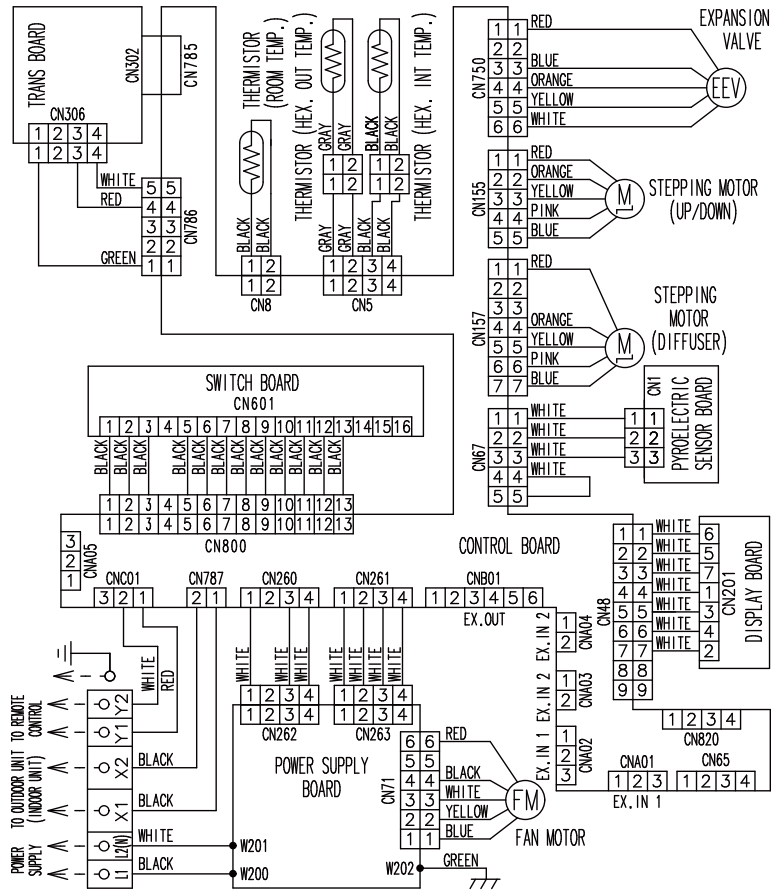
MODELS: ASUA4TLAV1, ASUA7TLAV1, ASUA9TLAV1

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MODELS: ASUA12TLAV1, ASUA14TLAV1



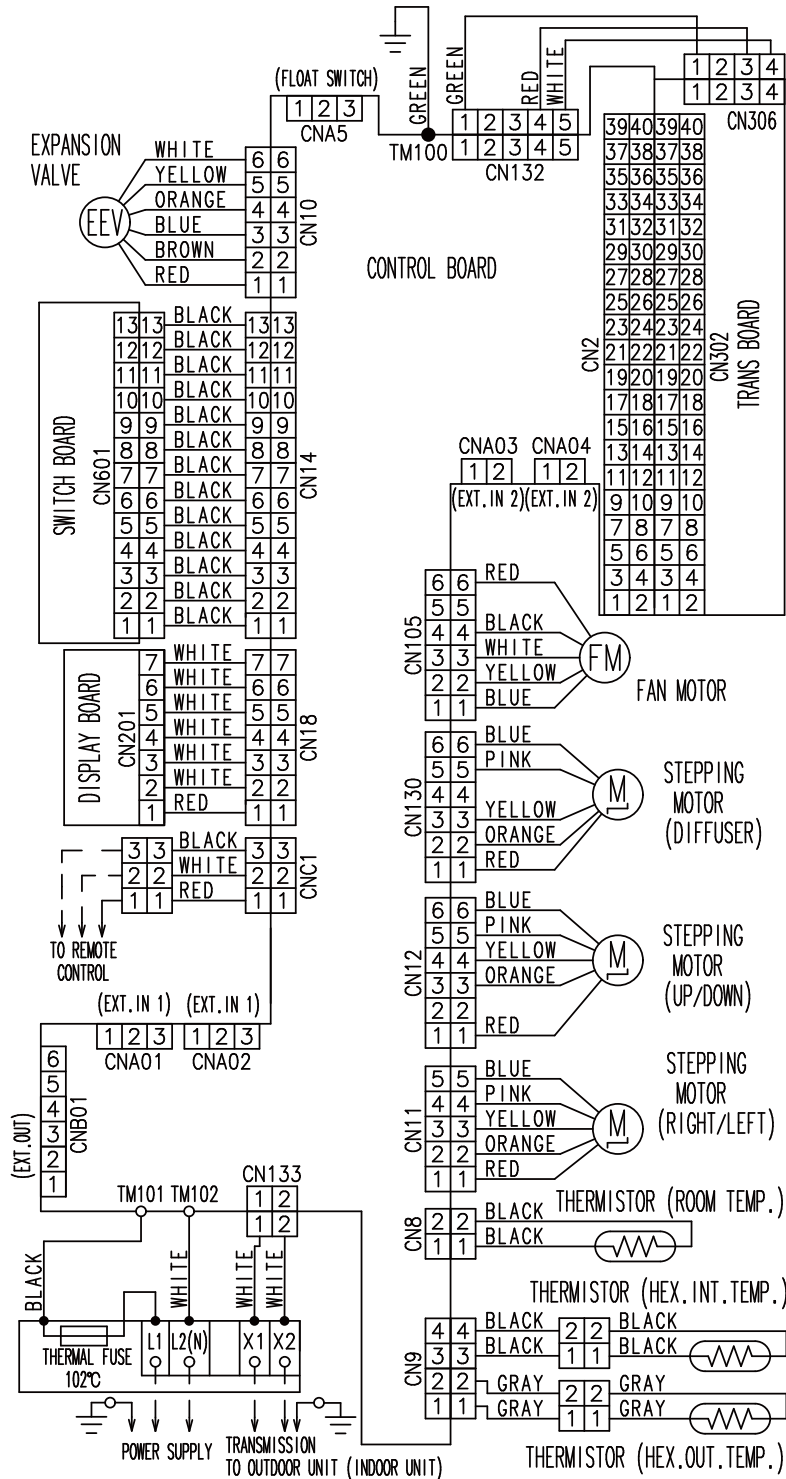
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MODELS: ASUB18TLAV1, ASUB24TLAV1

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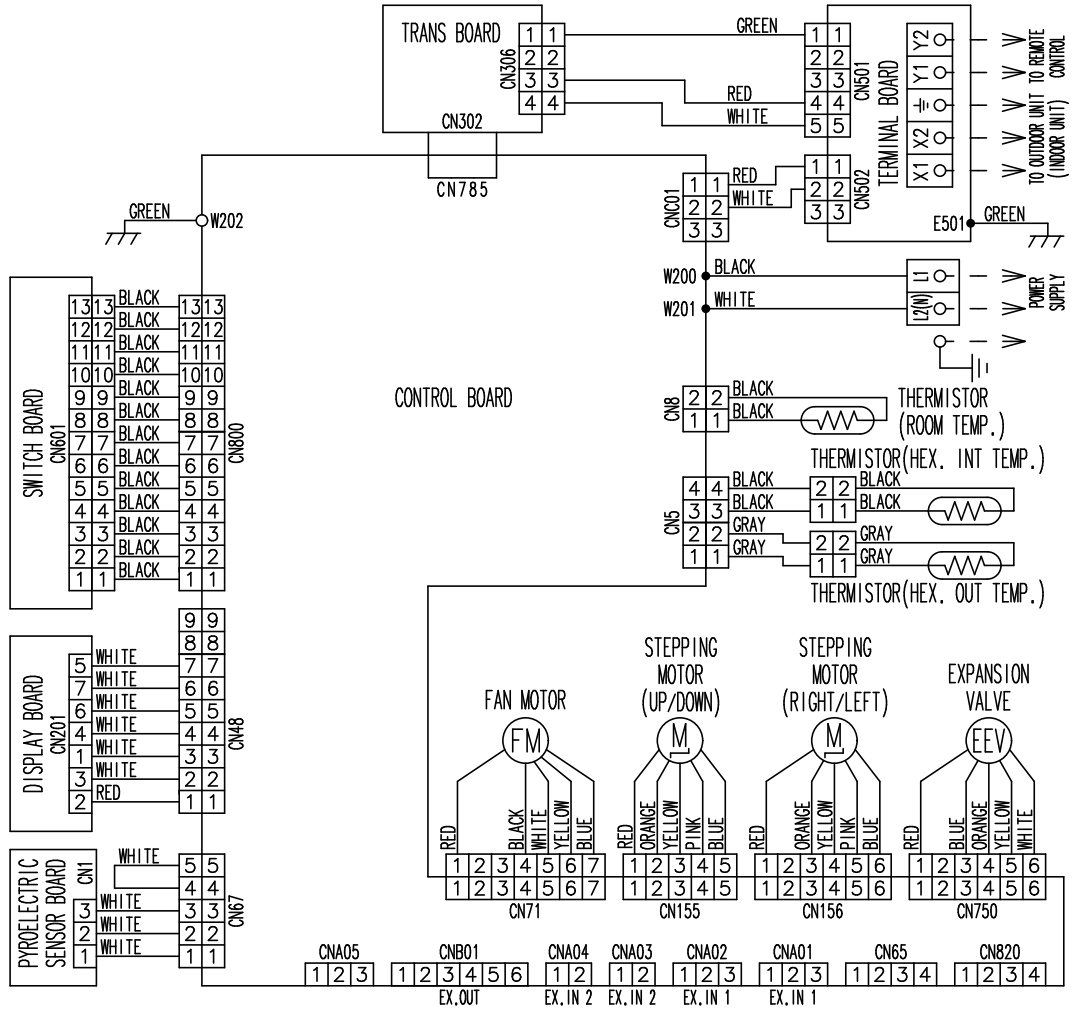
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MODELS: ASUB30TLAV1, ASUB36TLAV1

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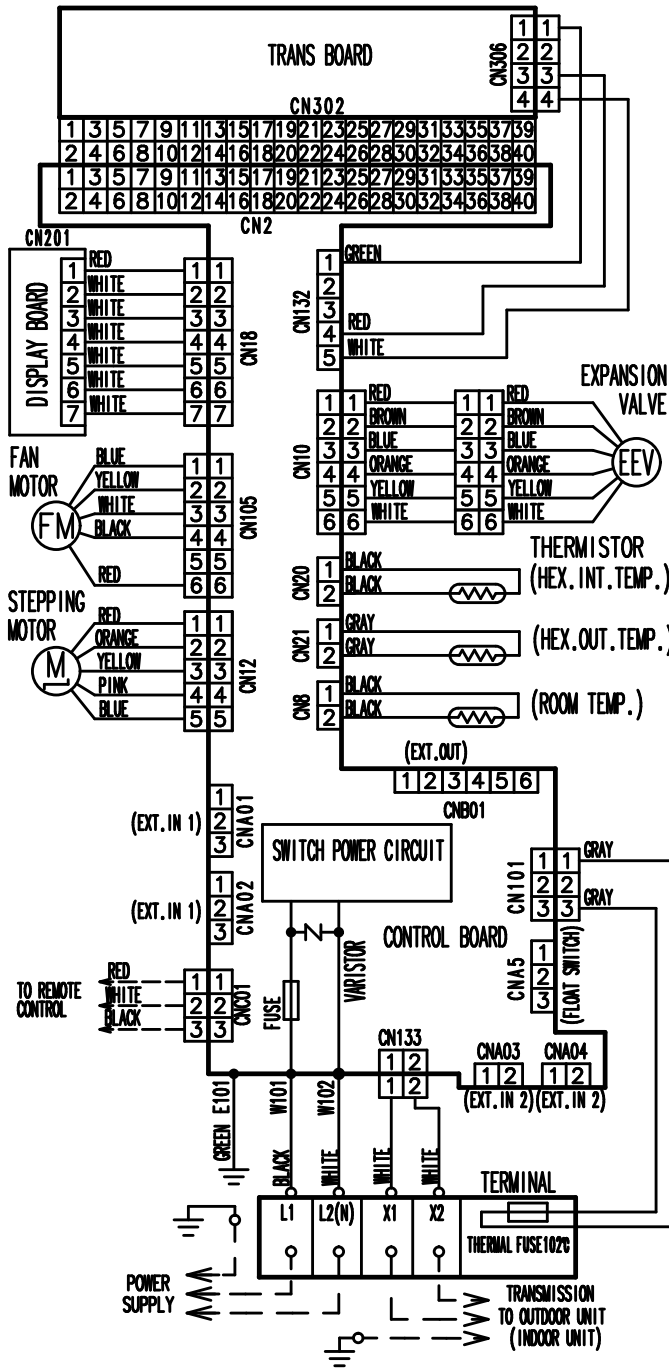
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■ MODELS : ASUA7TLAV, ASUA9TLAV, ASUA12TLAV, ASUA14TLAV

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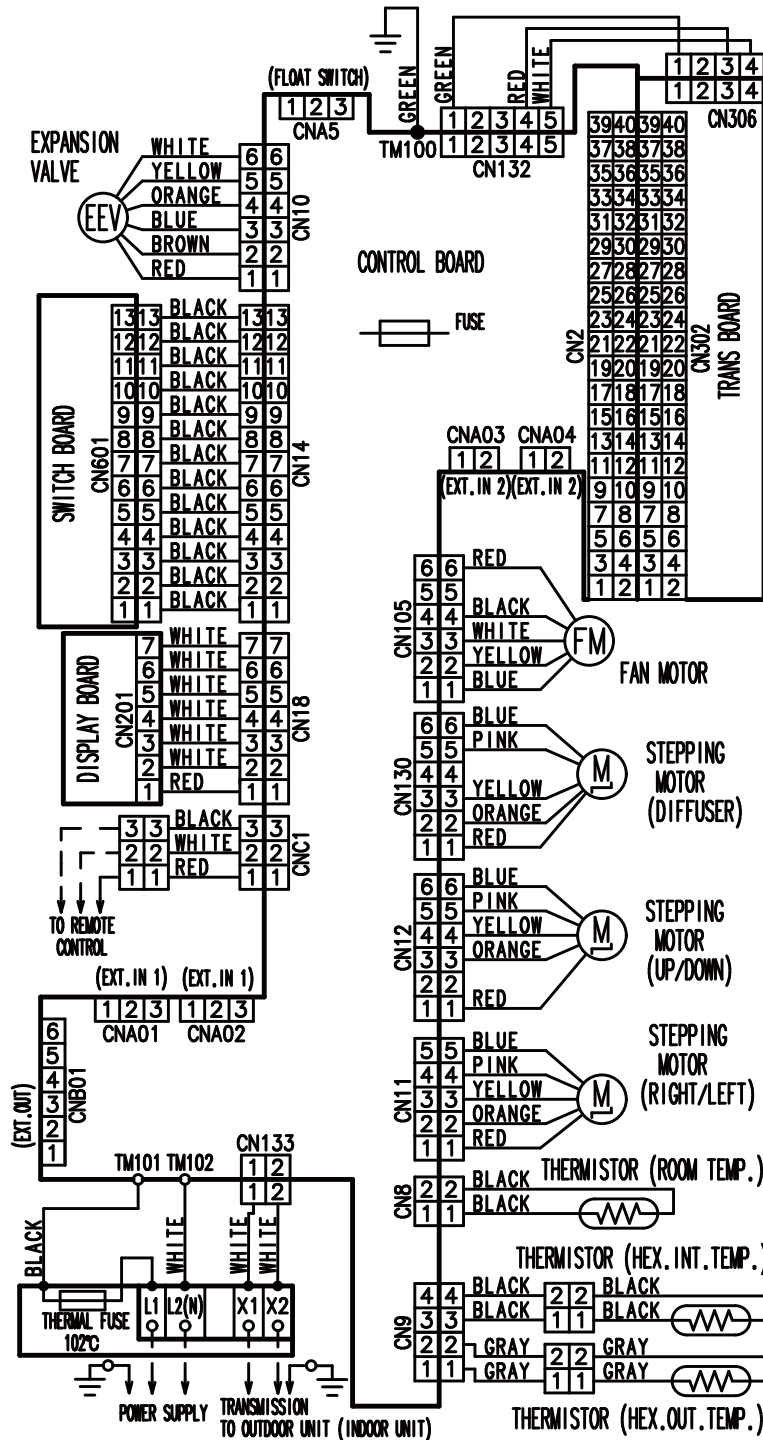
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MODELS : ASUB18TLAV, ASUB24TLAV

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5. AIR VELOCITY AND TEMPERATURE DISTRIBUTIONS

5-1. COMPACT CASSETTE TYPE

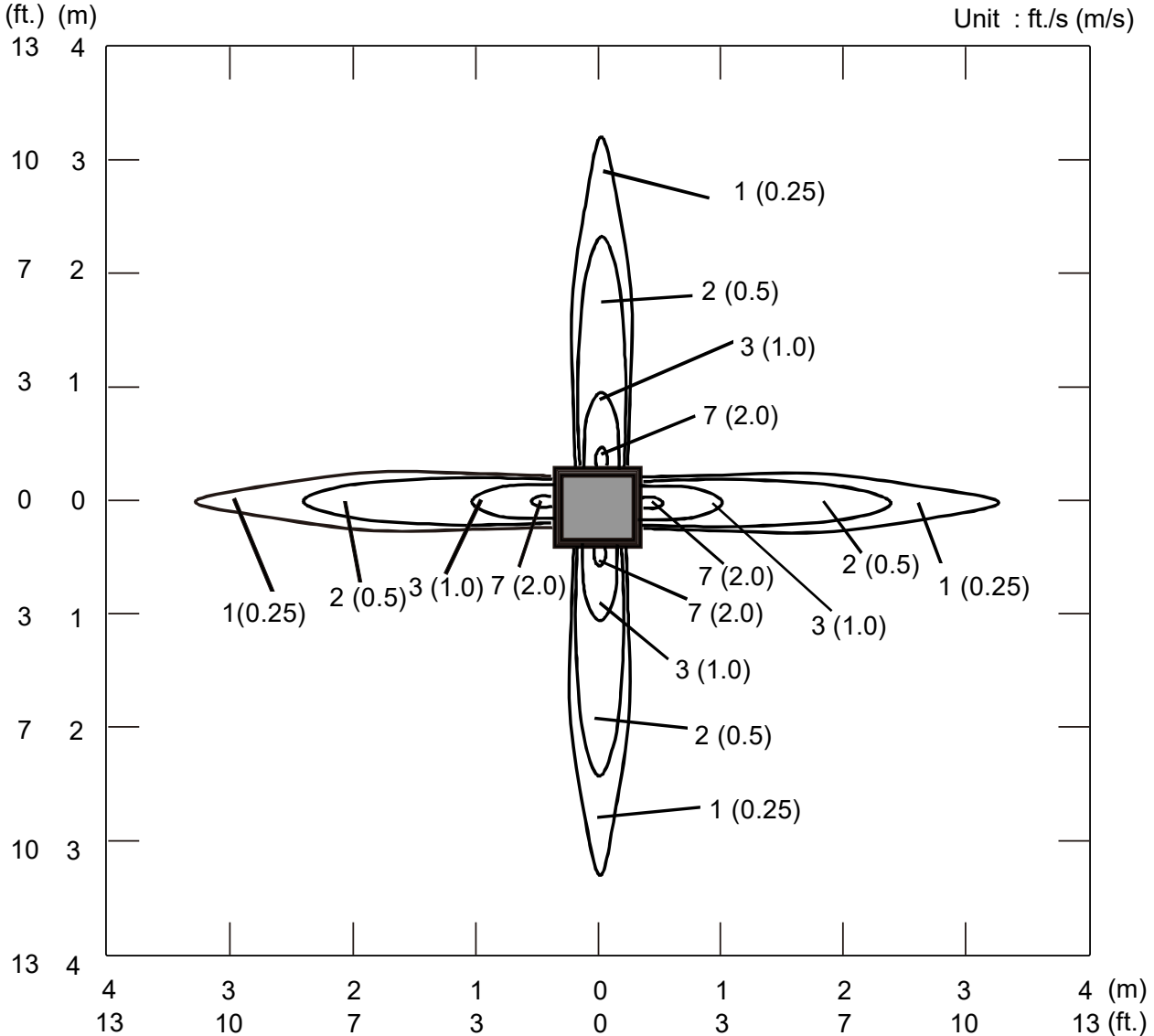
■ **MODEL: AUUA4TLAV1**

● **Air velocity distribution**

Conditions	
Fan speed	: High
Operation mode	: Fan
Voltage	: 230V

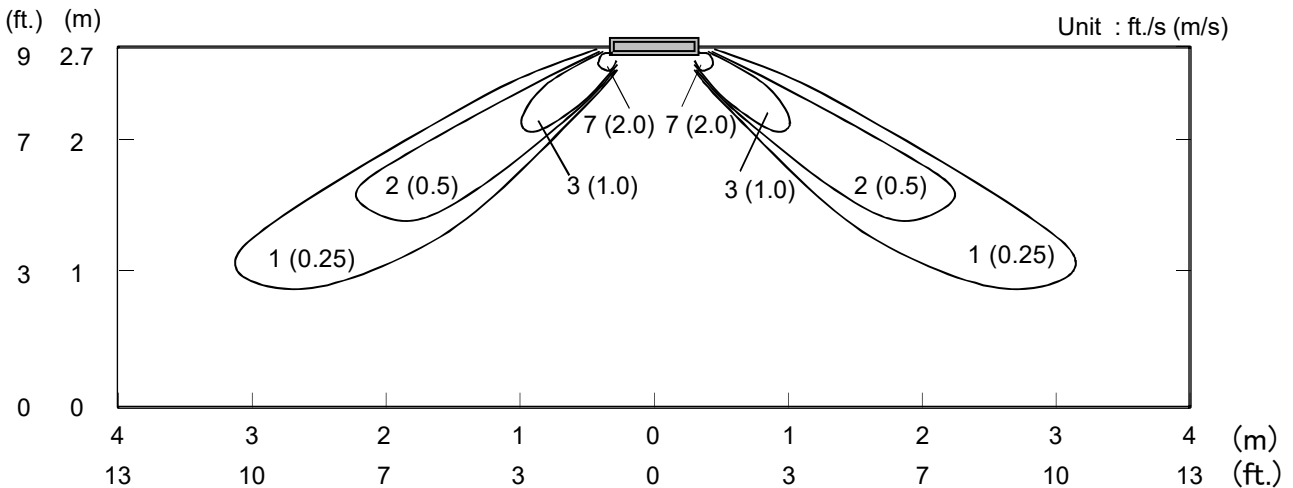
Top view

Vertical airflow direction louver : Up



Side view

Vertical airflow direction louver : Up

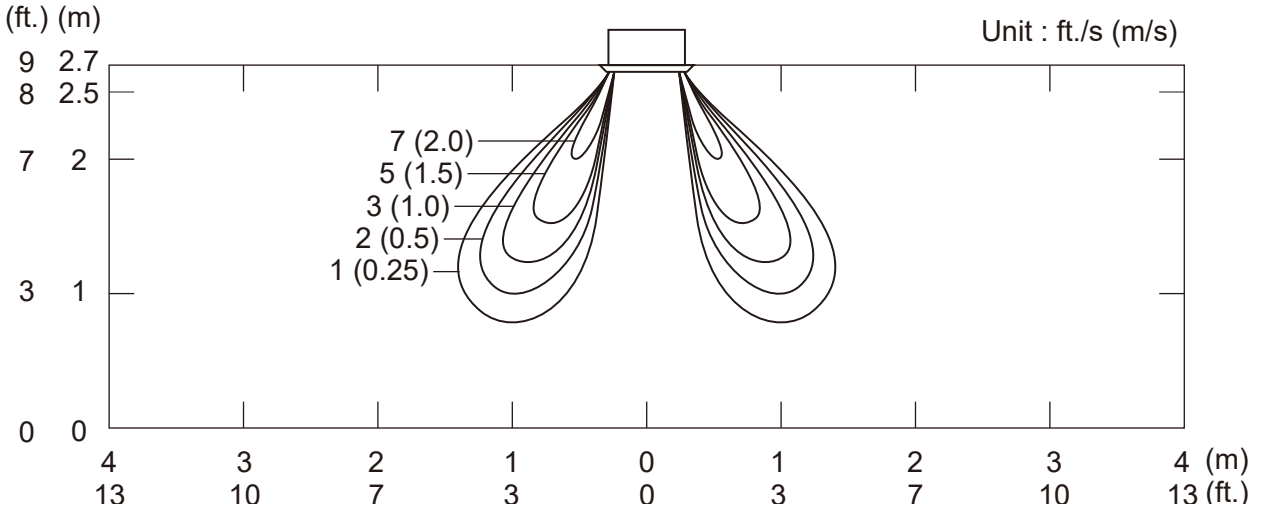


Conditions	
Fan speed	: High
Operation mode	: Heat
Voltage	: 230V
Reference Data	

● Air velocity distribution

Side view

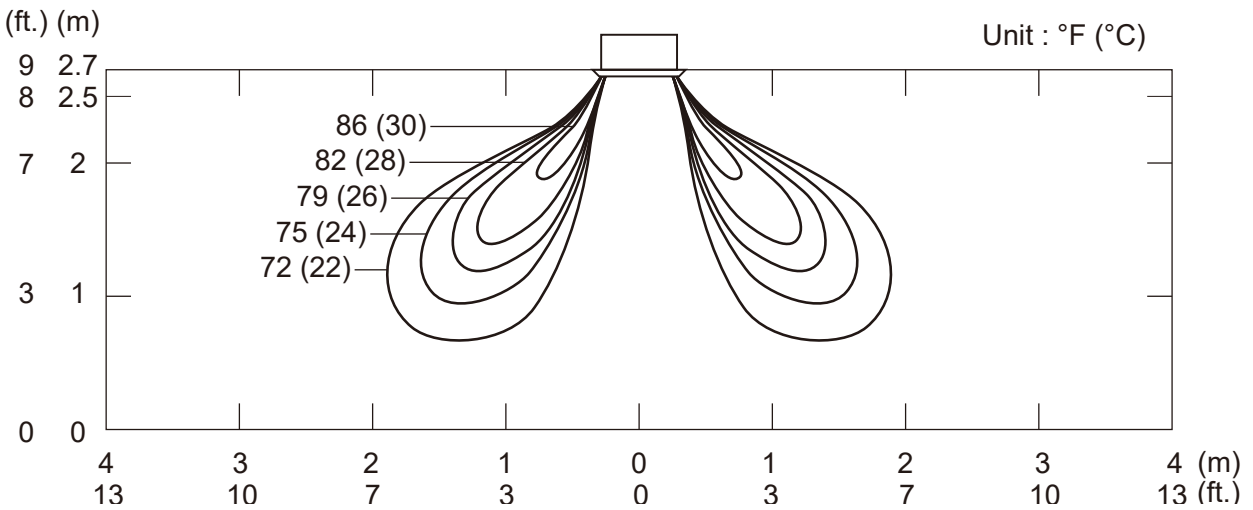
Vertical airflow direction louver : Down



● Air temperature distribution

Side view

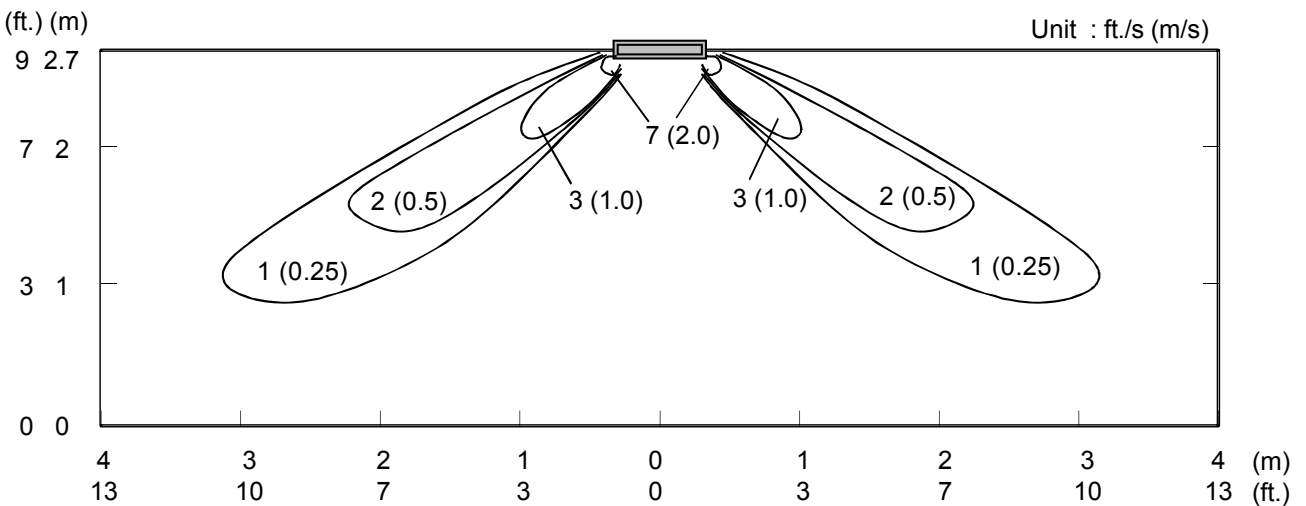
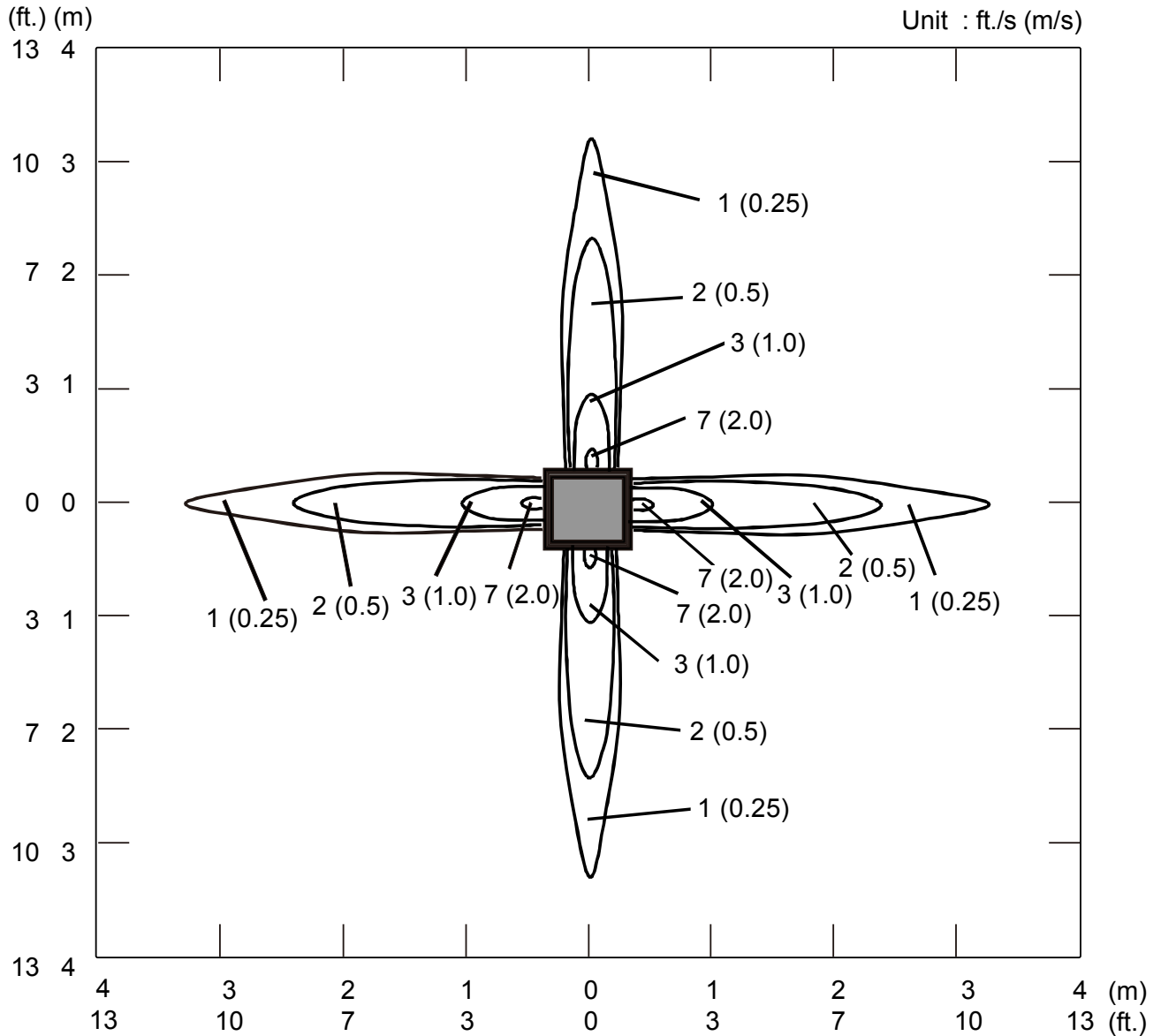
Vertical airflow direction louver : Down



MODEL : AUUA7TLAV

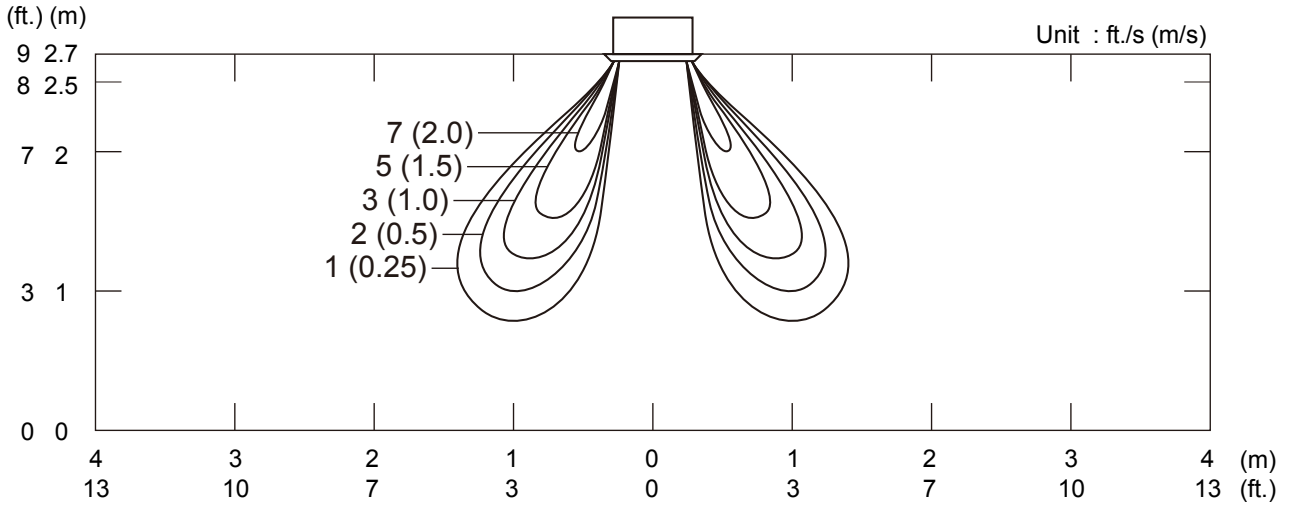
Air velocity distribution

Conditions	
Fan speed	: High
Operation mode	: Fan

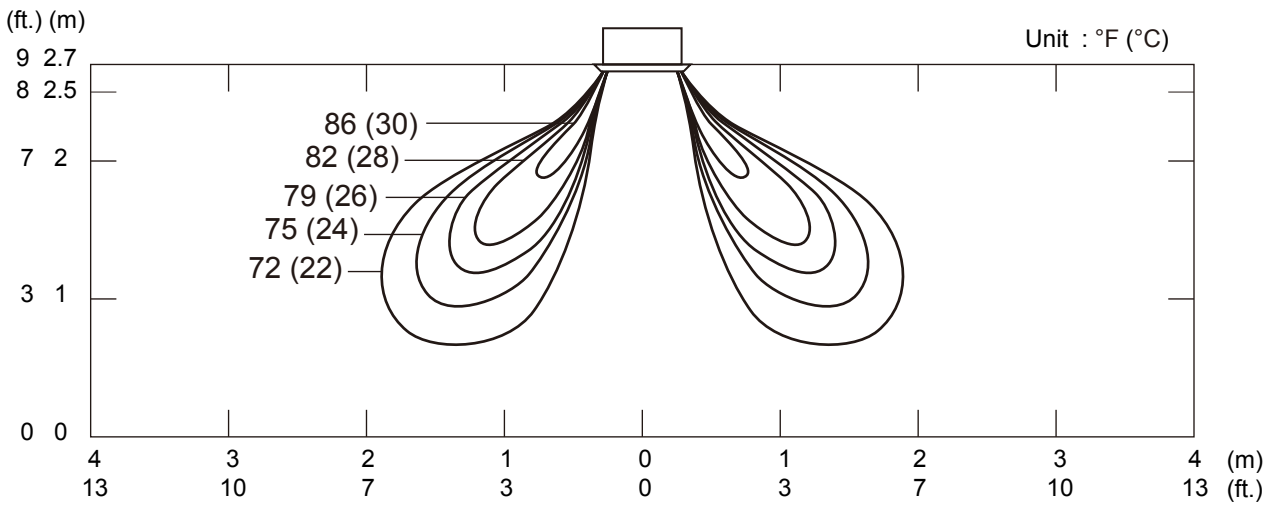


Conditions
 Fan speed : High
 Operation mode : Heat
 Reference Data

● Air velocity distribution



● Air temperature distribution



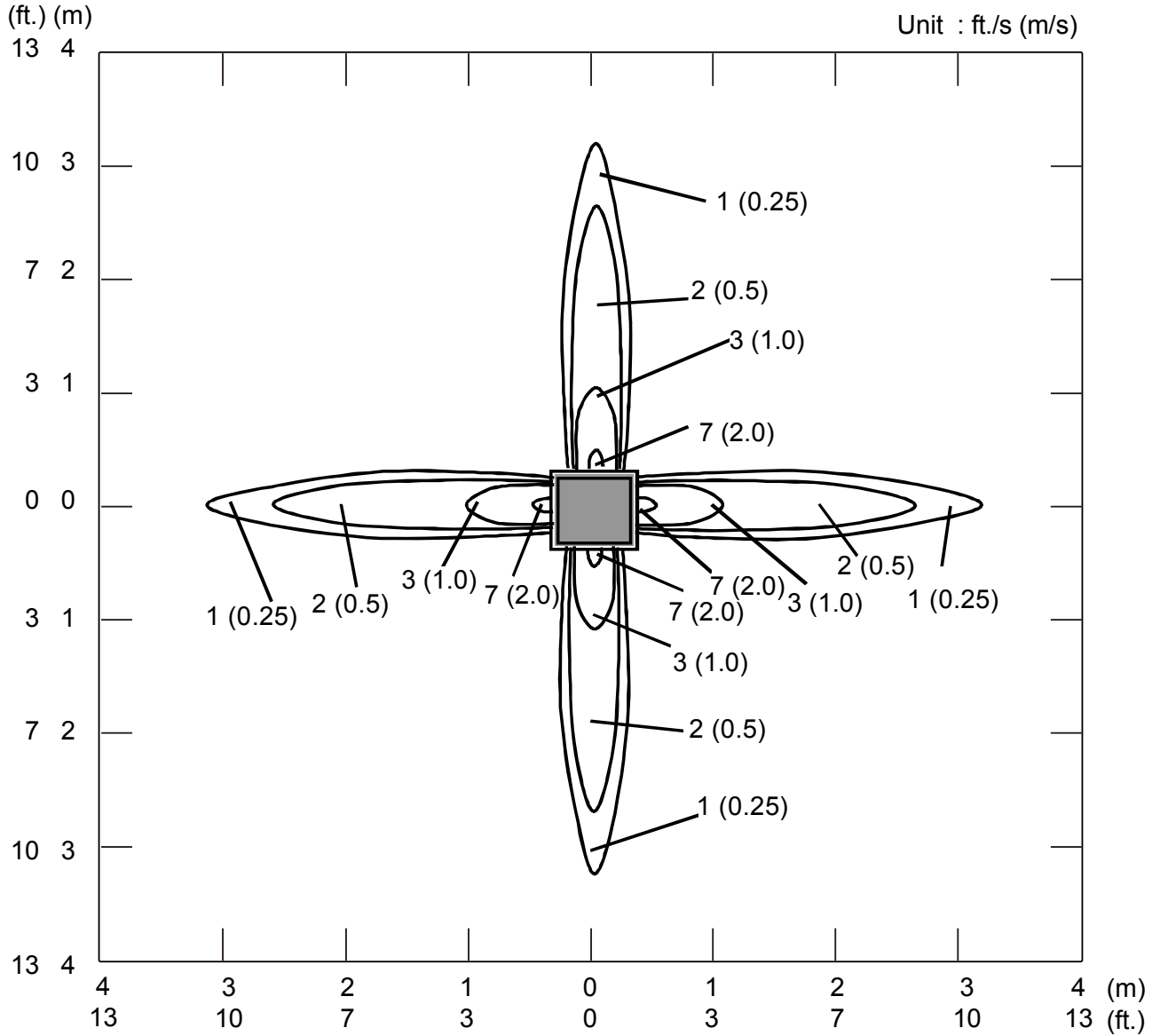
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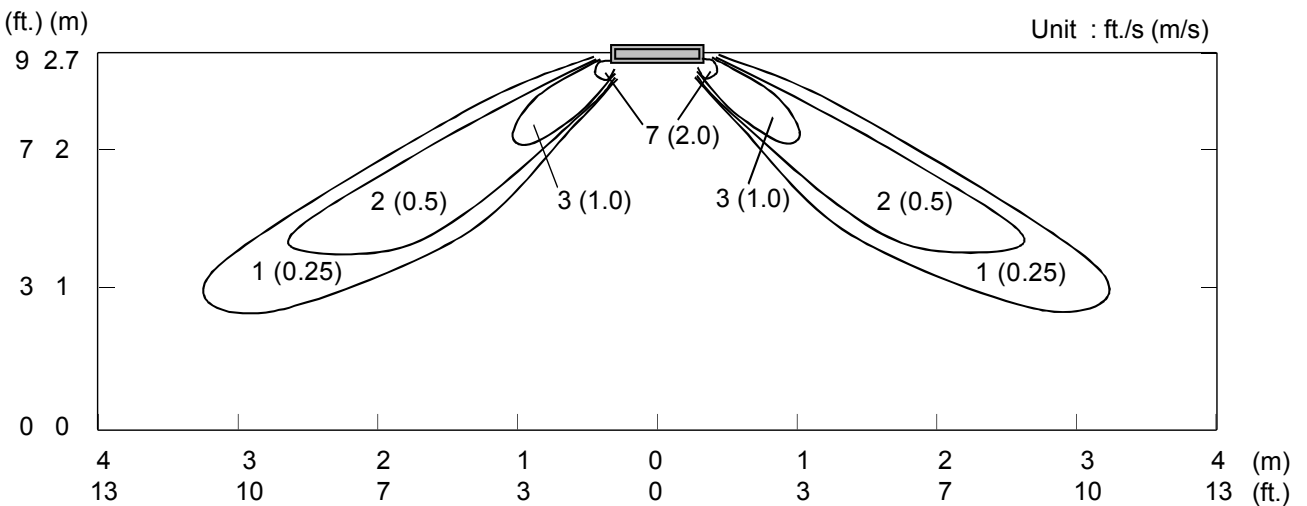
MODEL : AUUA9TLAV

● Air velocity distribution

Conditions	
Fan speed	: High
Operation mode	: Fan

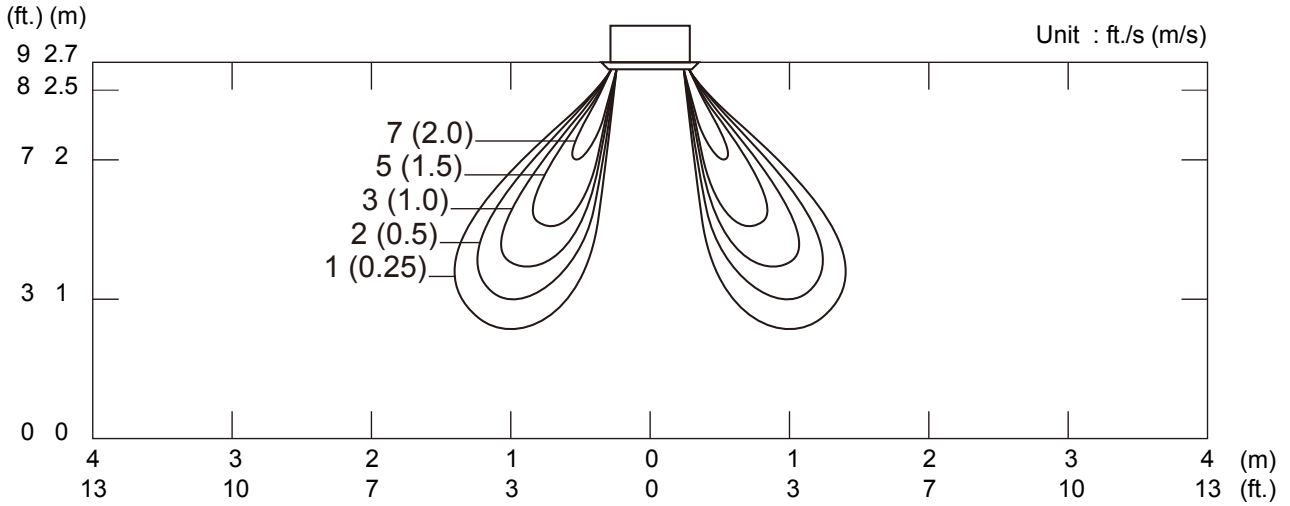


Side view
Vertical airflow direction louver : Upward

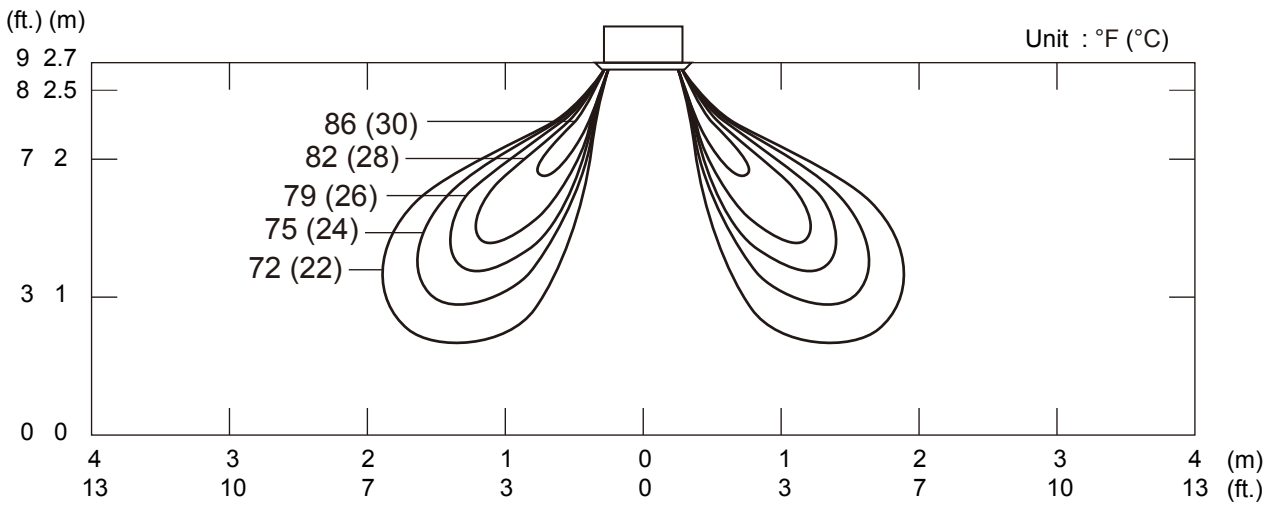


Conditions
 Fan speed : High
 Operation mode : Heat
 Reference Data

● Air velocity distribution



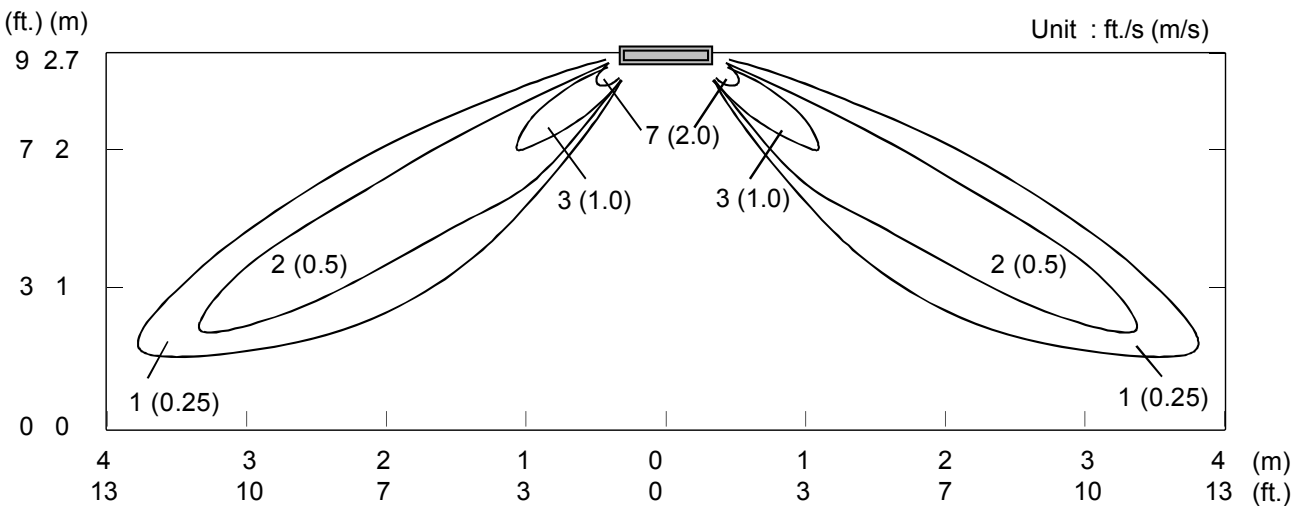
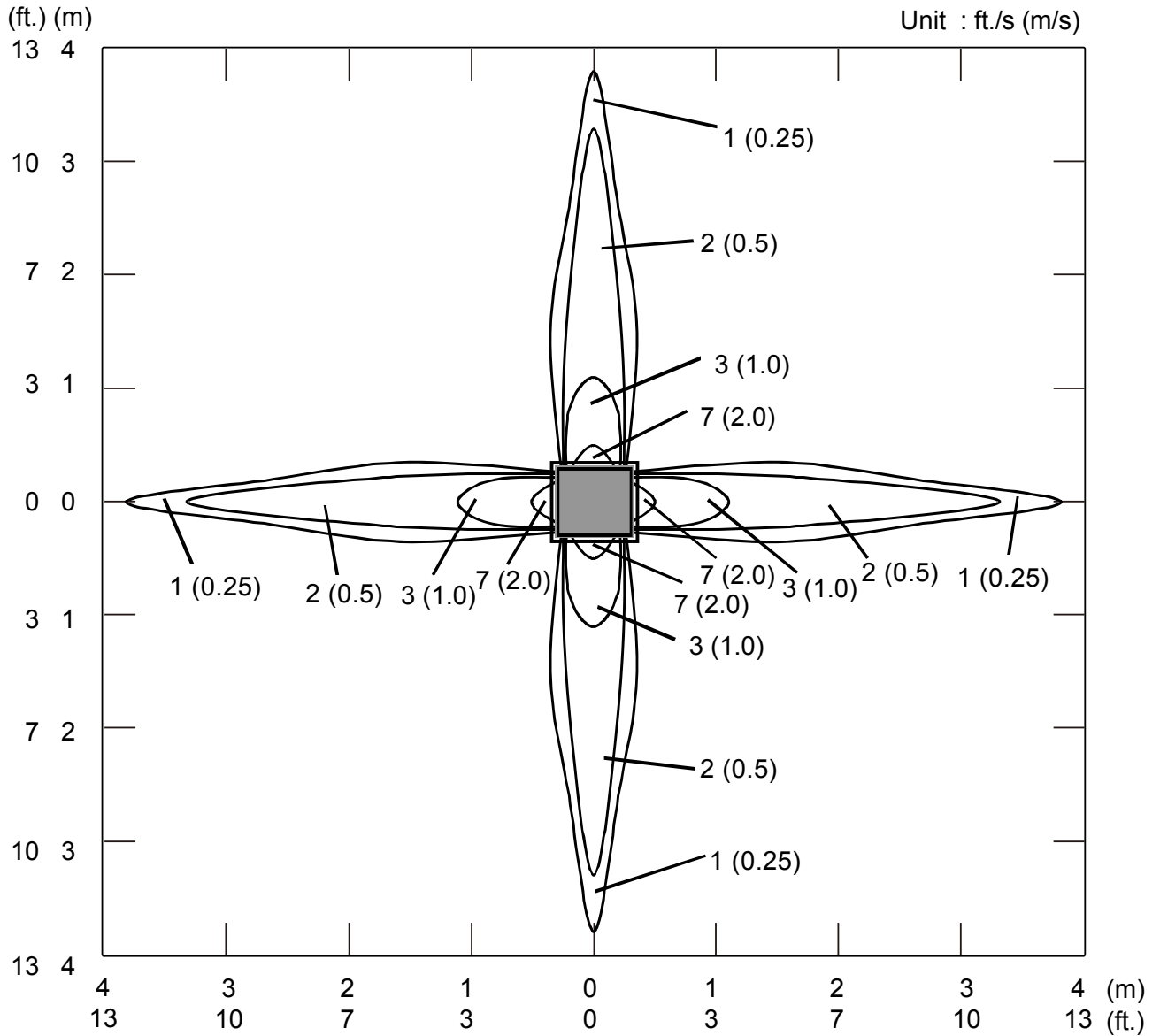
● Air temperature distribution



■ **MODEL : AUUA12TLAV**

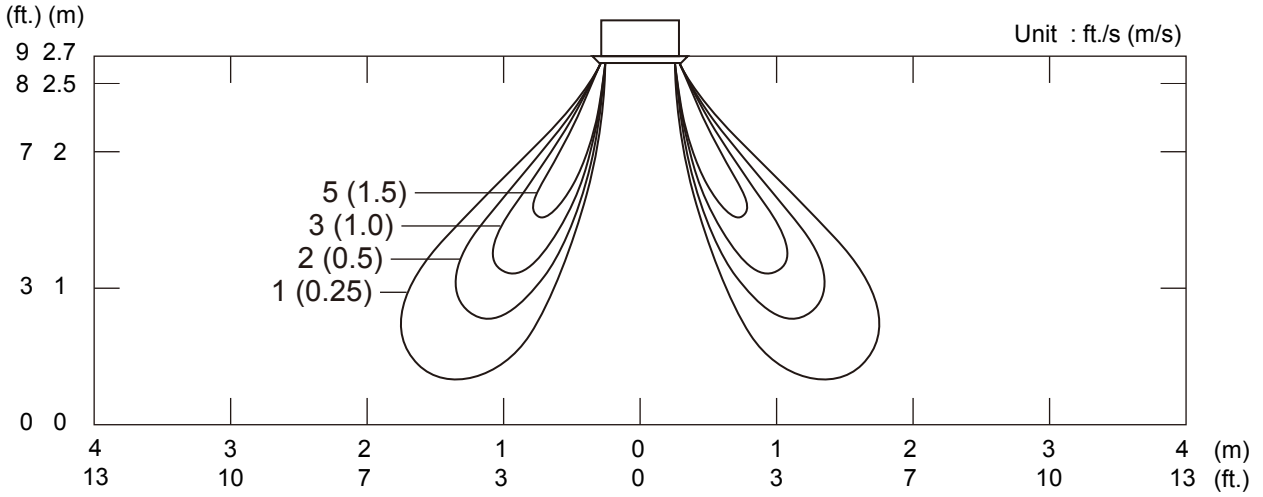
● **Air velocity distribution**

Conditions	
Fan speed	: High
Operation mode	: Fan

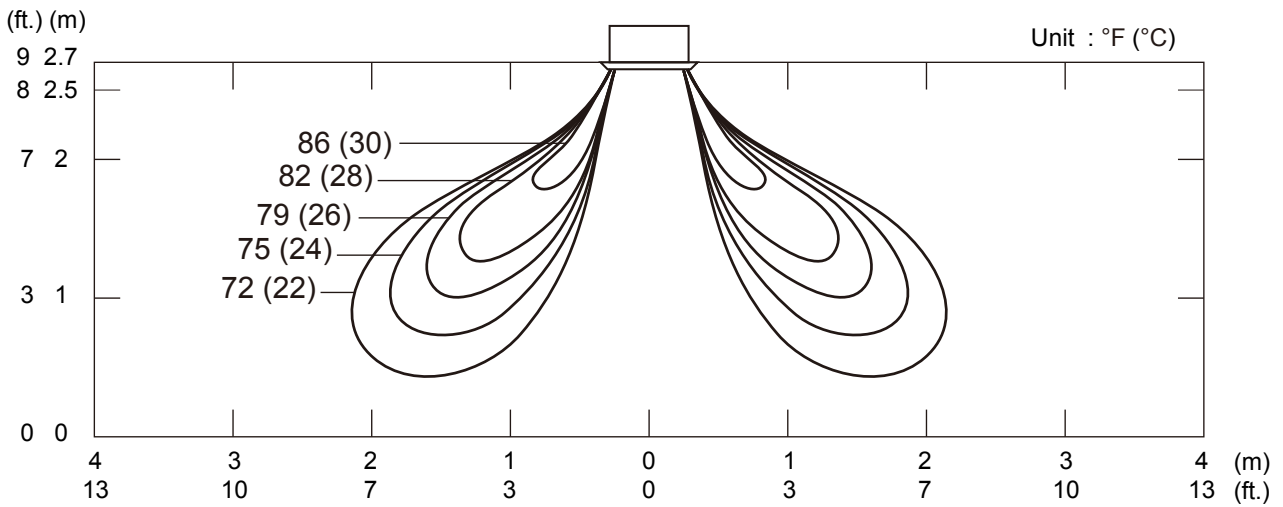


Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

● Air velocity distribution



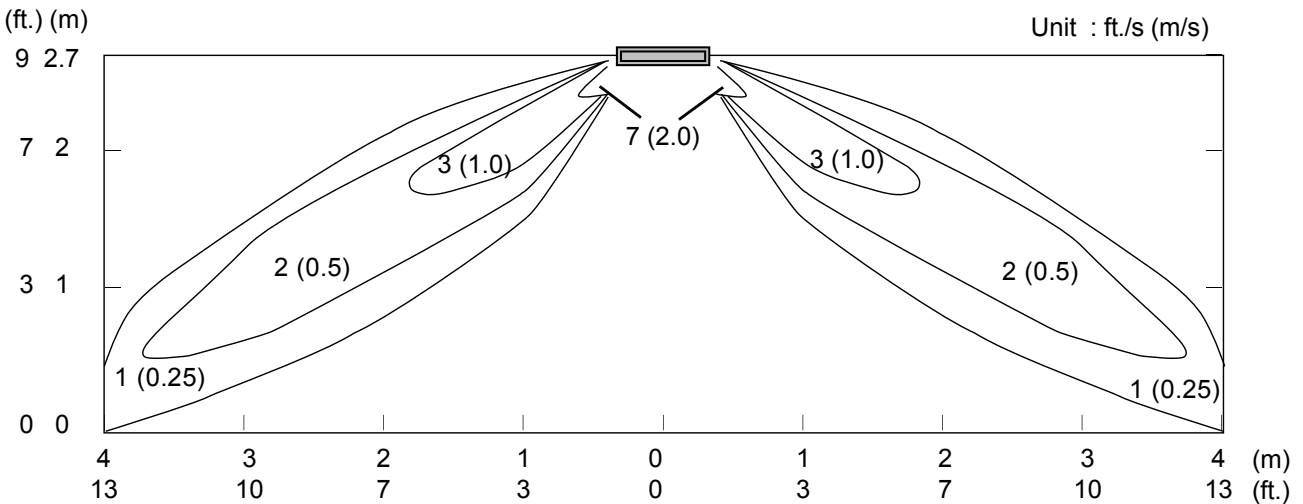
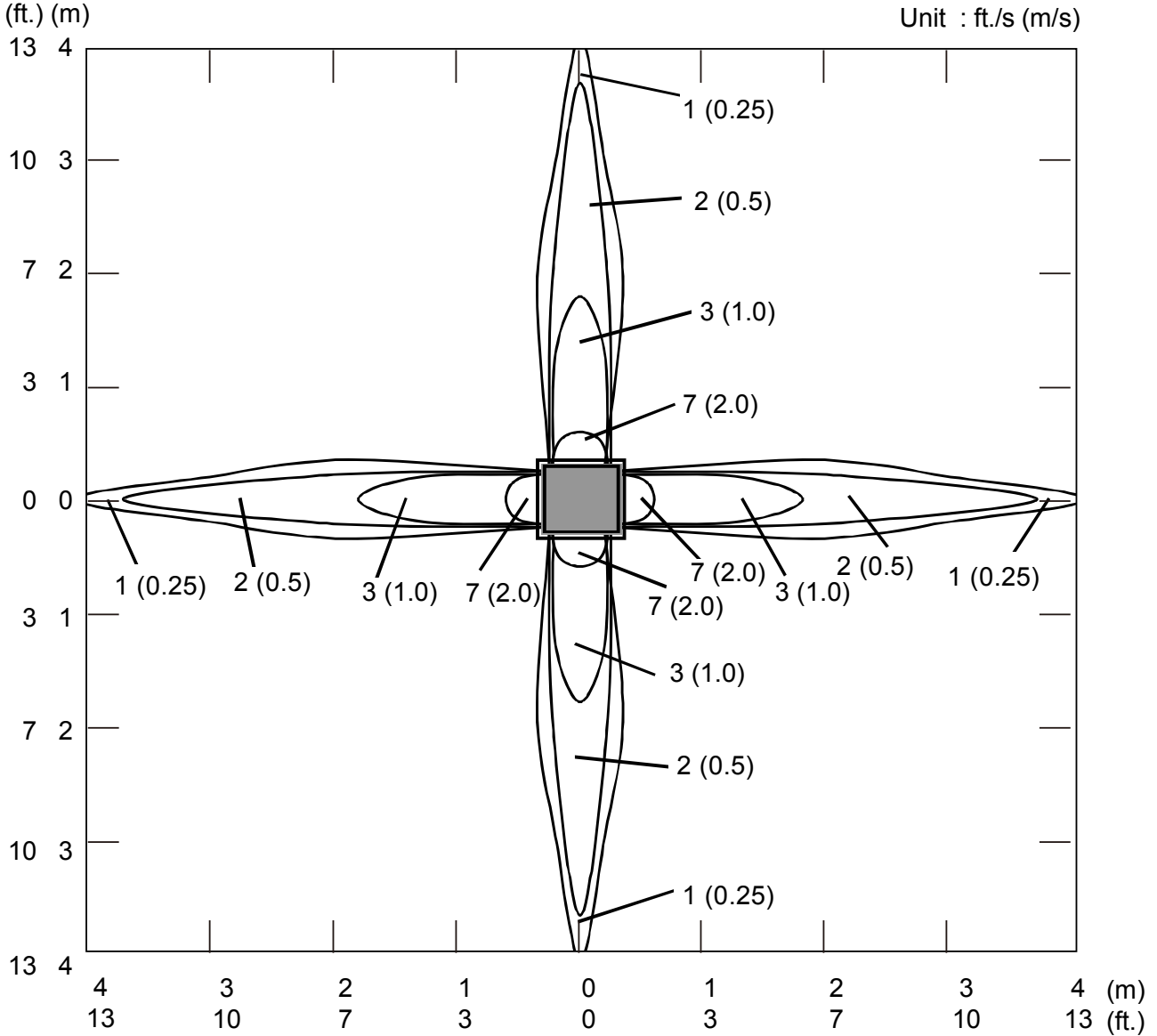
● Air temperature distribution



■ **MODEL : AUUA14TLAV**

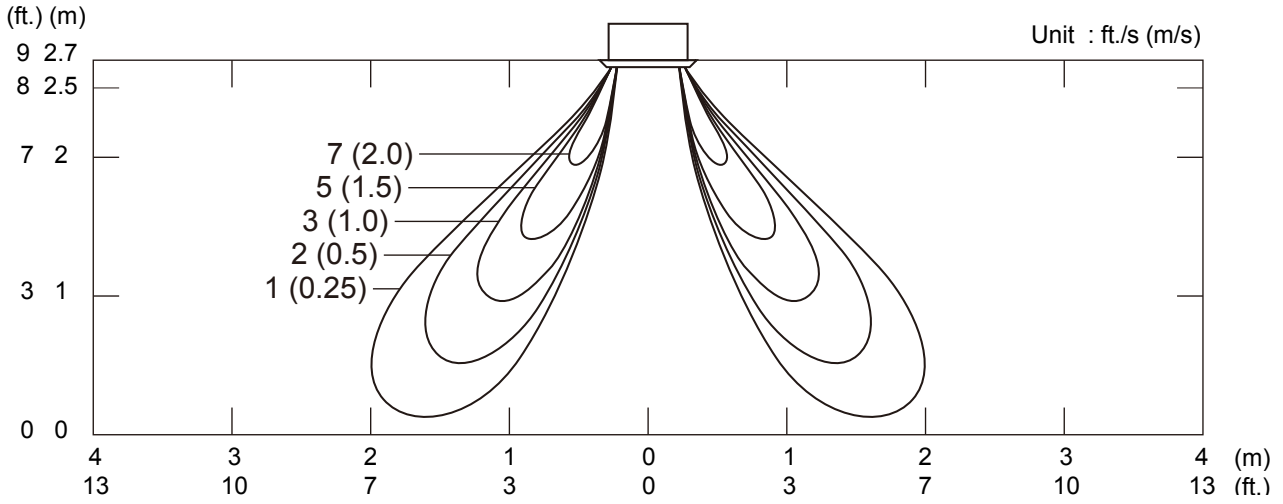
● **Air velocity distribution**

Conditions	
Fan speed	: High
Operation mode	: Fan

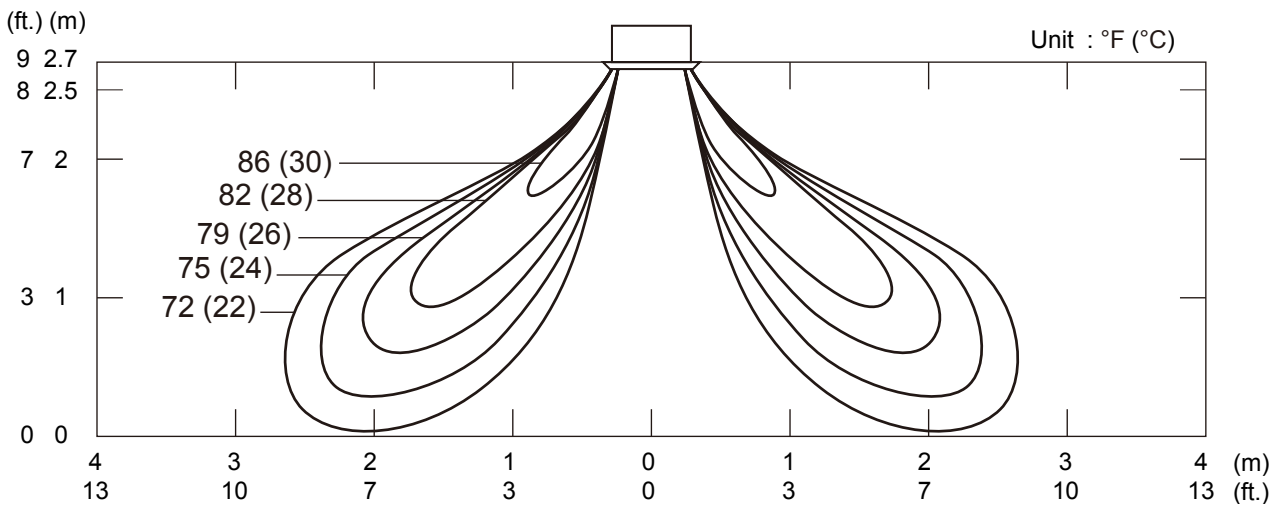


Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

● Air velocity distribution



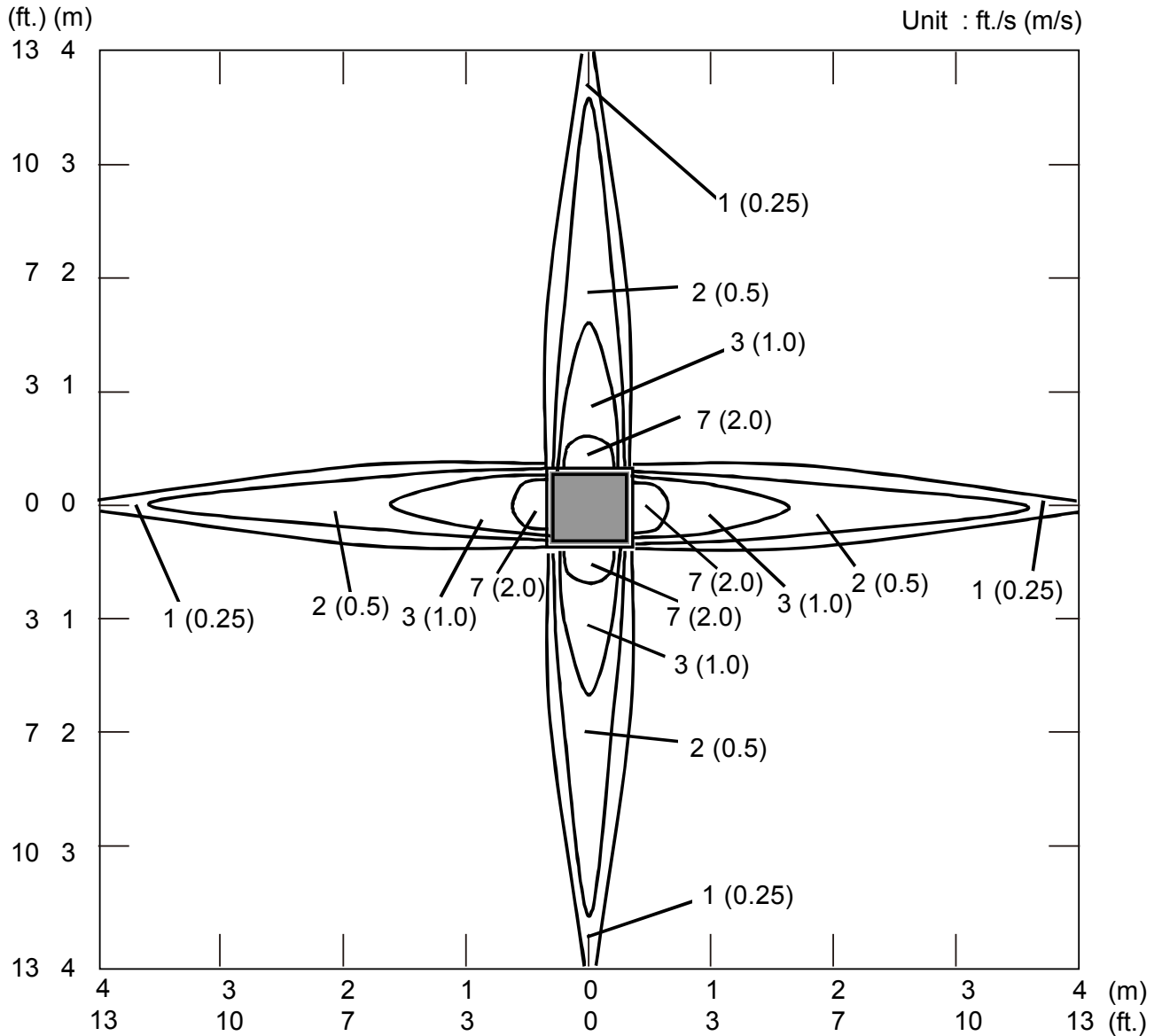
● Air temperature distribution



MODEL : AUUA18TLAV

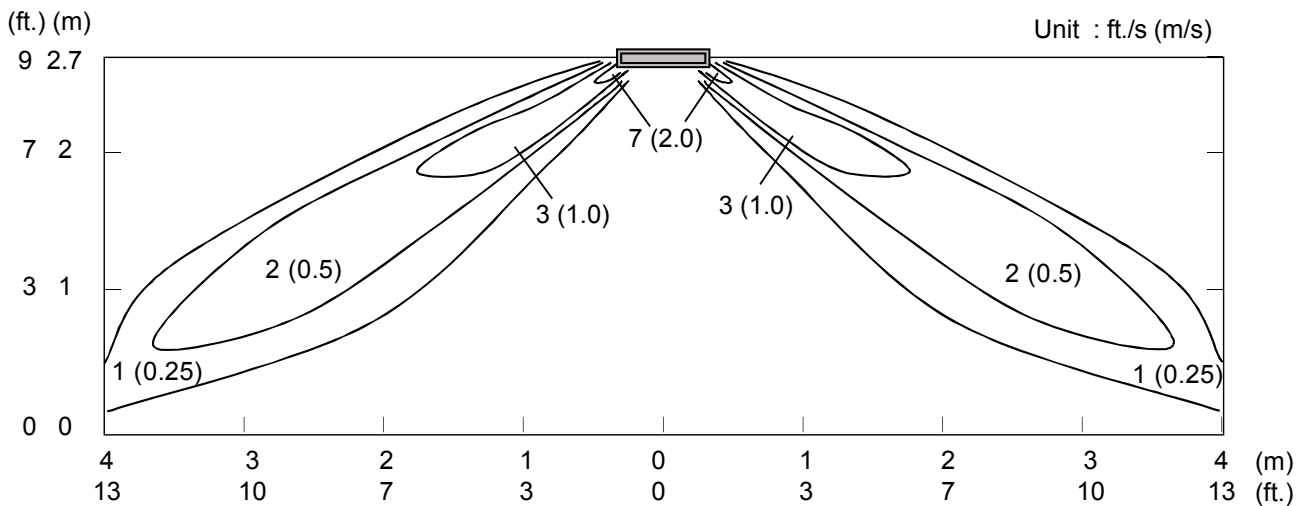
● Air velocity distribution

Conditions	
Fan speed	: High
Operation mode	: Fan



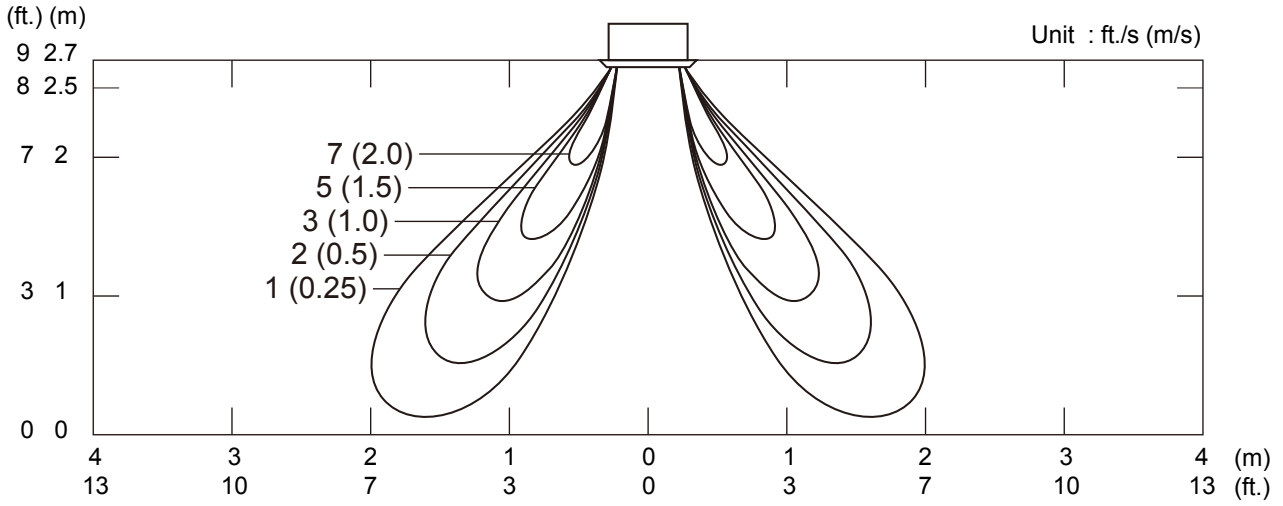
Side view

Vertical airflow direction louver : Upward

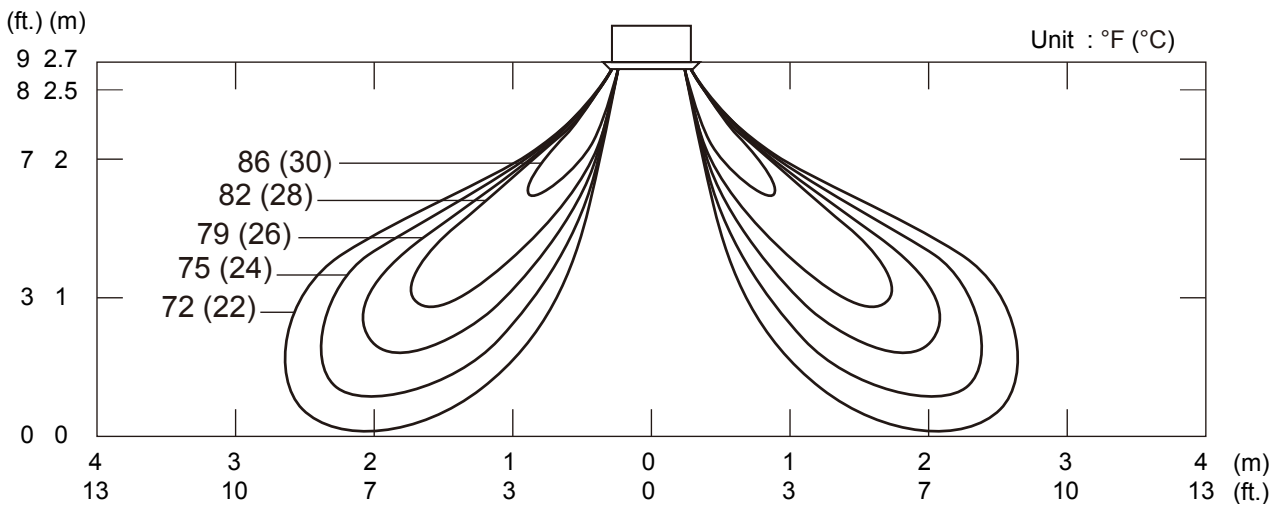


Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

● Air velocity distribution



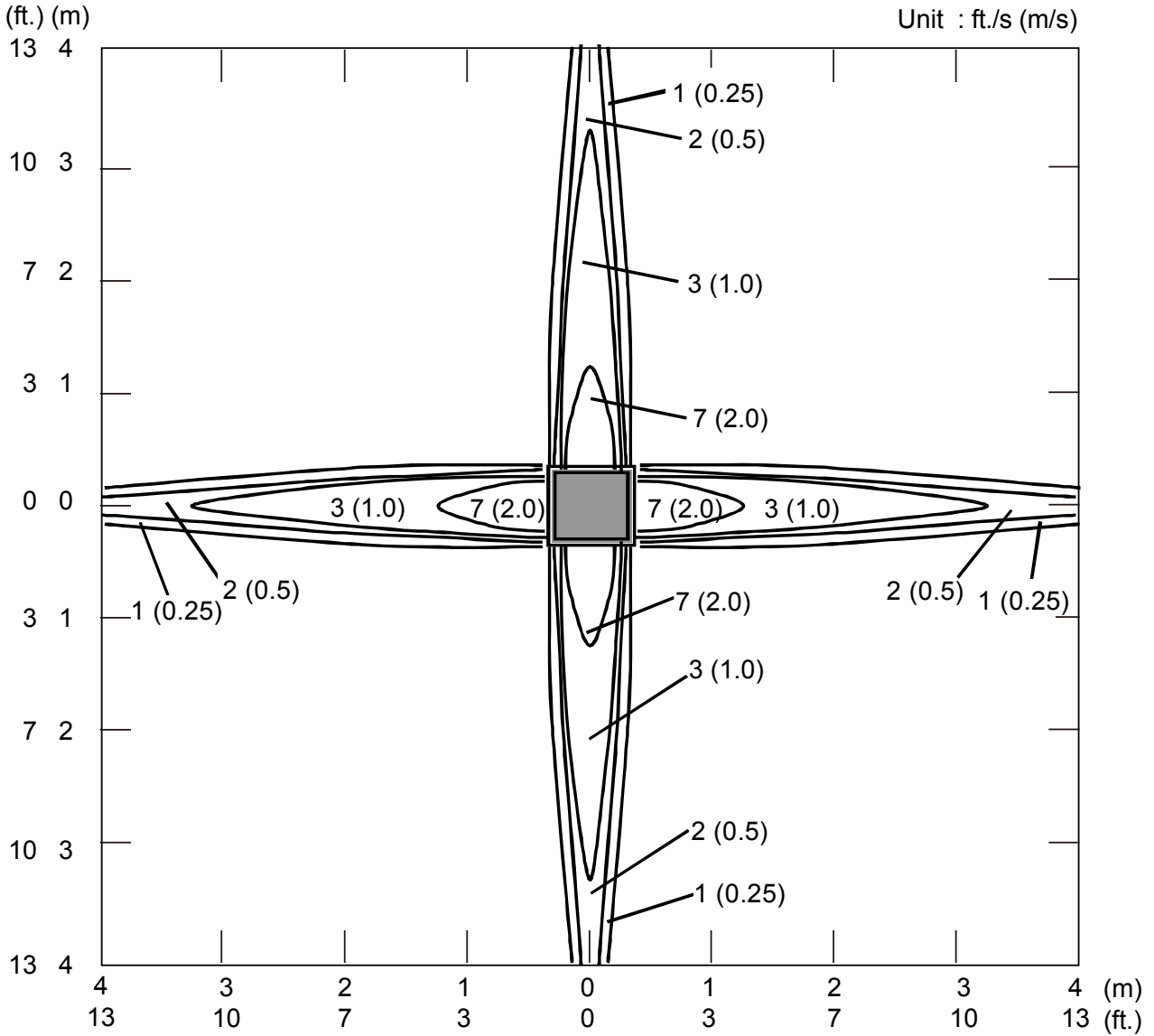
● Air temperature distribution



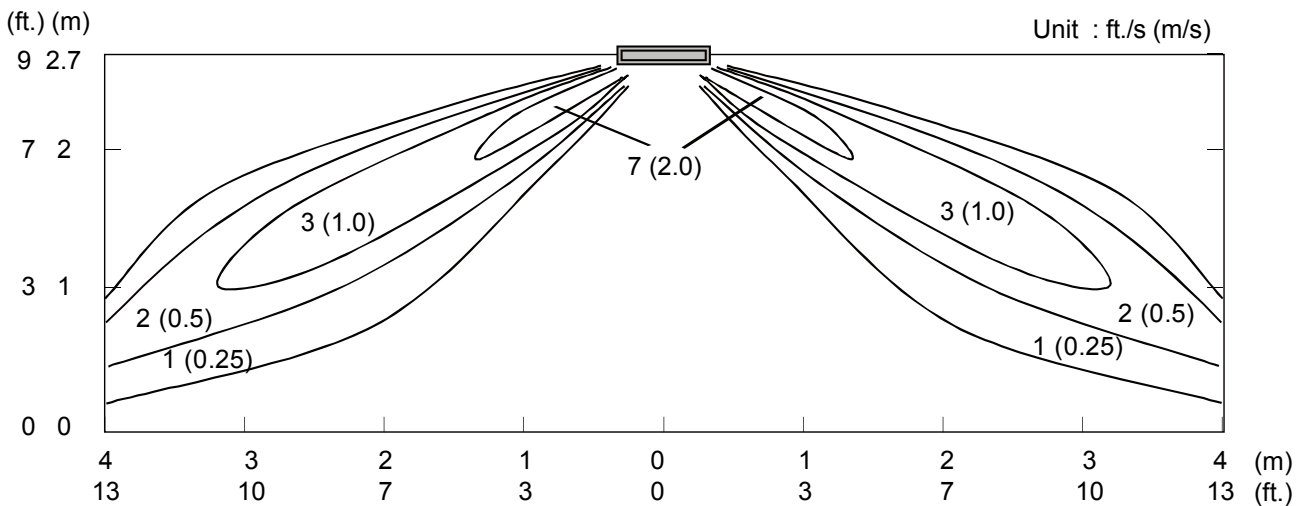
■ **MODEL : AUUA24TLAV**

● **Air velocity distribution**

Conditions	
Fan speed	: High
Operation mode	: Fan

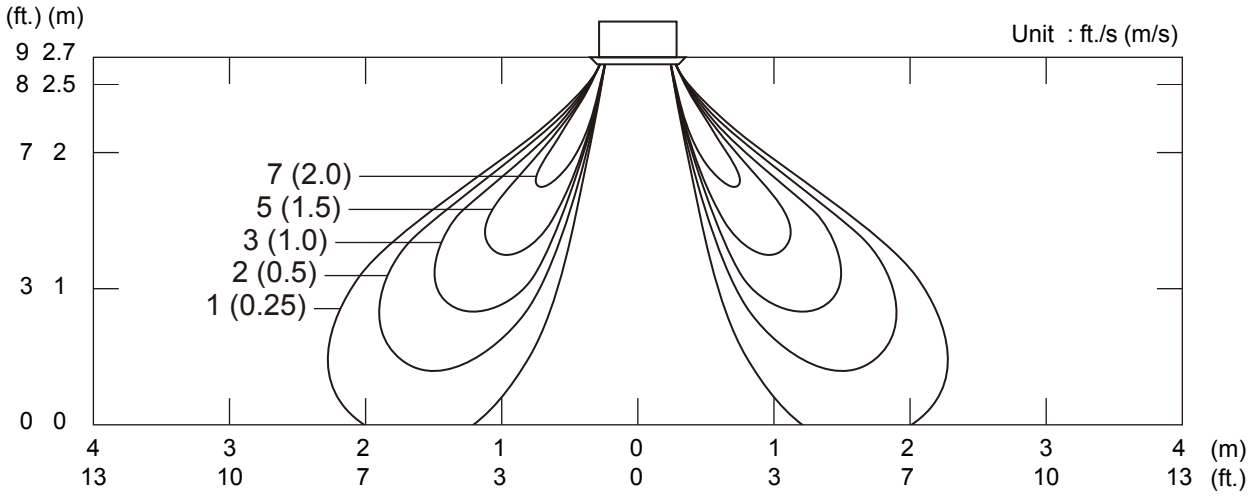


Side view
Vertical airflow direction louver : Upward

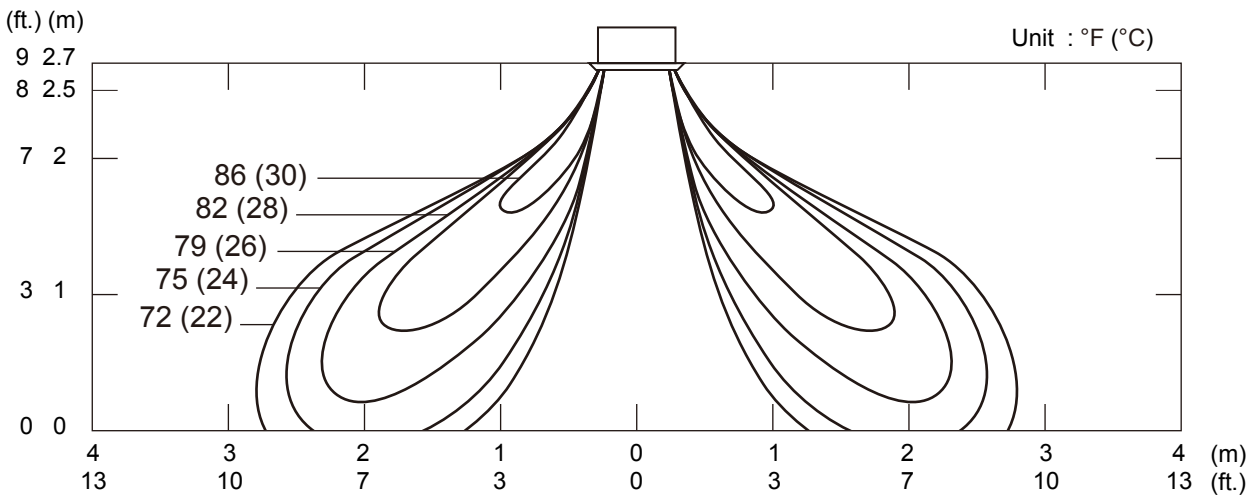


Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

● Air velocity distribution



● Air temperature distribution



5-2. CIRCULAR FLOW CASSETTE TYPE

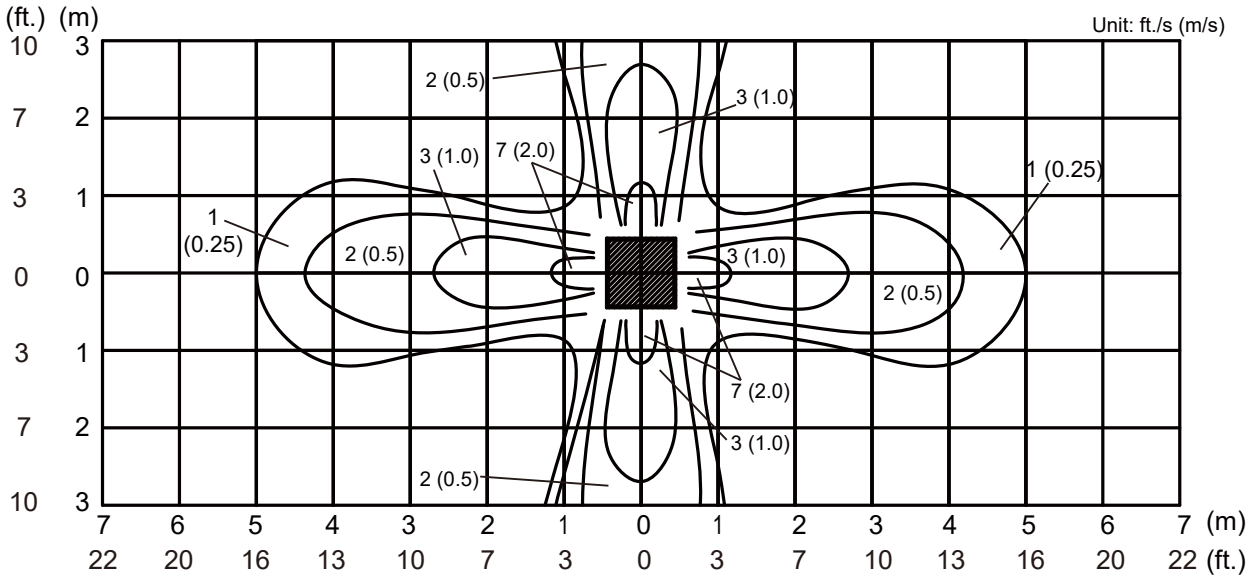
Conditions	
Fan speed	: High
Operation mode	: Fan

■ MODEL: AUUB018TLAV1

● Air velocity distribution

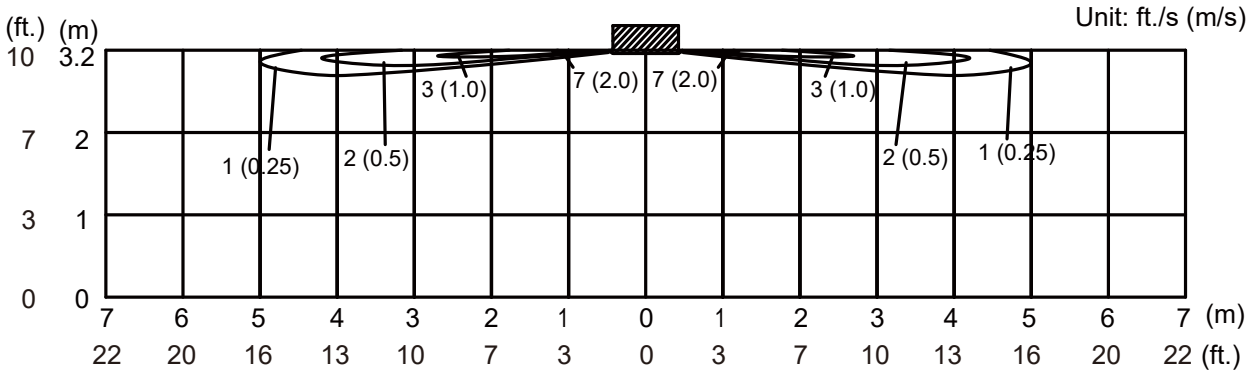
Top view

Vertical airflow direction louver : Up



Side view

Vertical airflow direction louver : Up

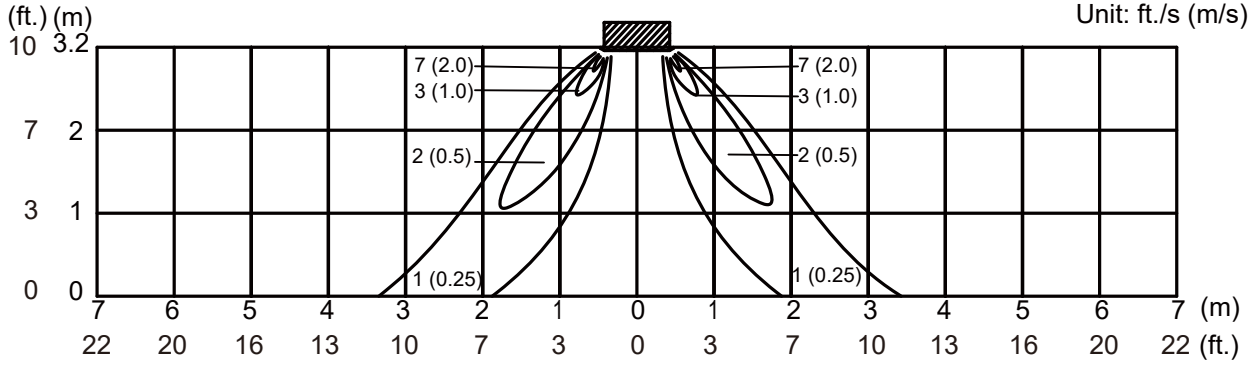


Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

● Air velocity distribution

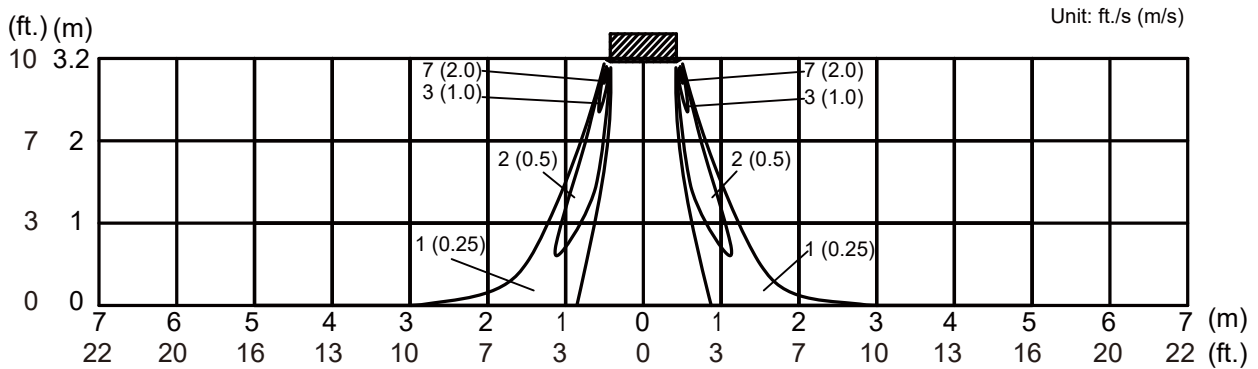
Side view

Vertical airflow direction louver : Down



Side view

Vertical airflow direction louver : Down



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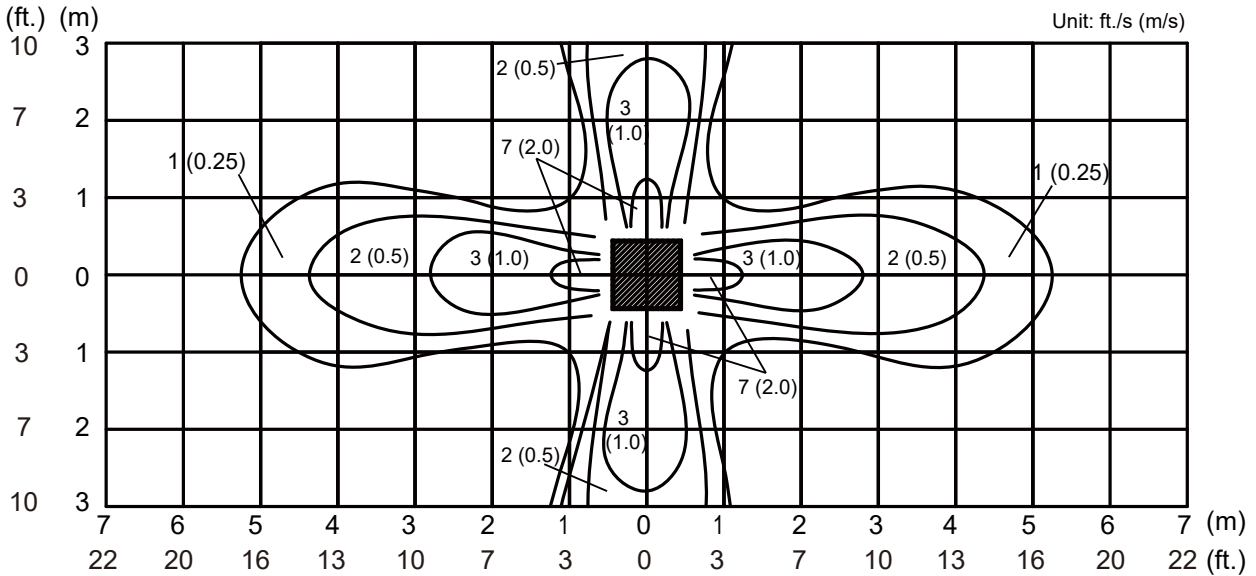
MODEL: AUUB24TLAV1

Air velocity distribution

Conditions
 Fan speed : High
 Operation mode : Fan

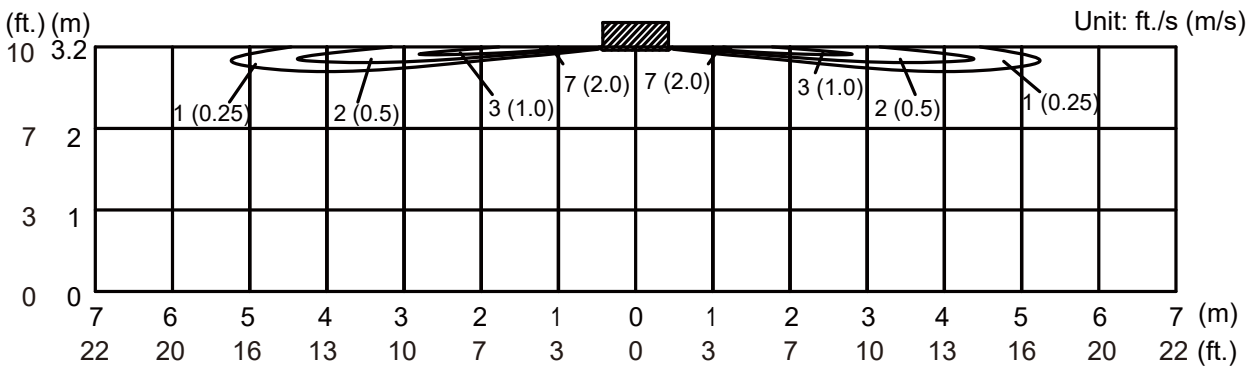
Top view

Vertical airflow direction louver : Up



Side view

Vertical airflow direction louver : Up

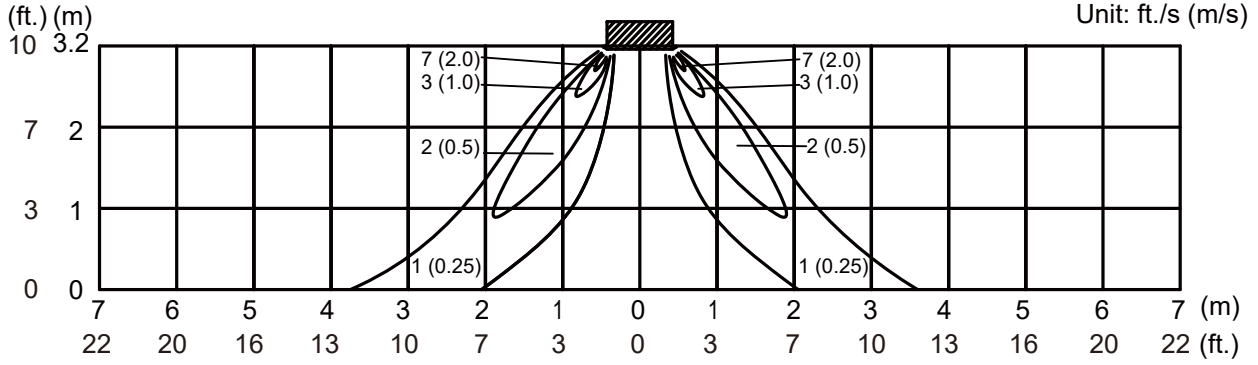


Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

● Air velocity distribution

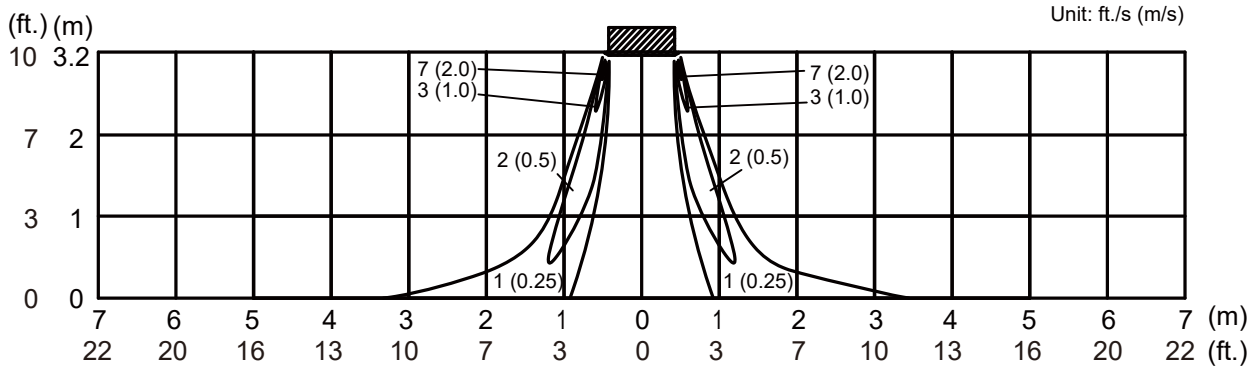
Side view

Vertical airflow direction louver : Down



Side view

Vertical airflow direction louver : Down



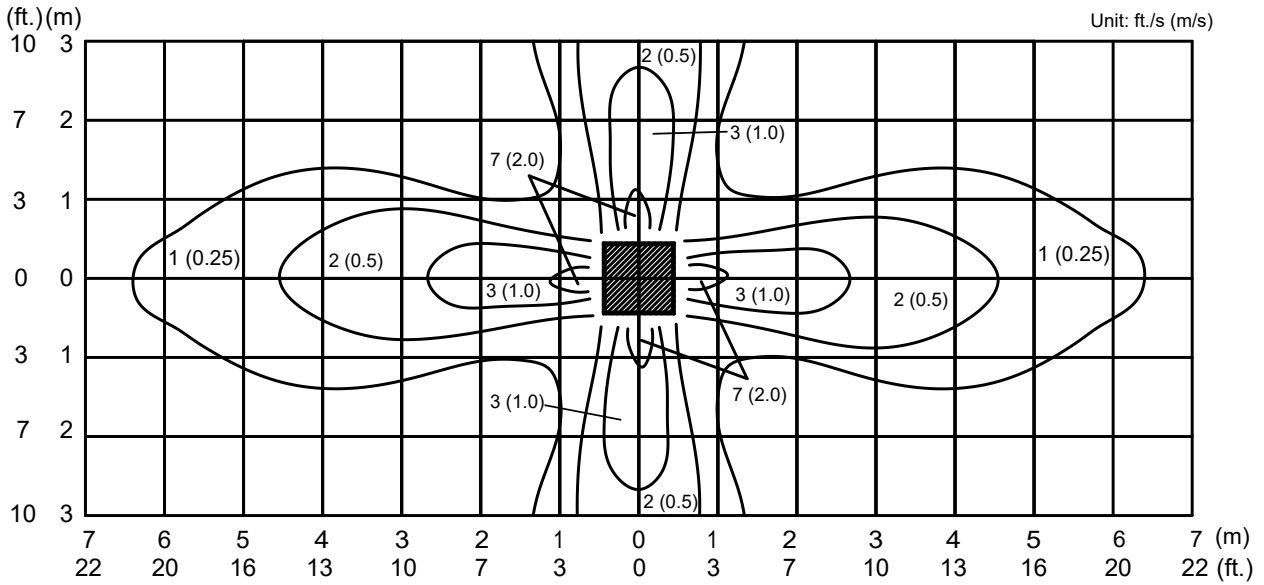
MODEL: AUUB30TLAV1

Air velocity distribution

Conditions	
Fan speed	: High
Operation mode	: Fan

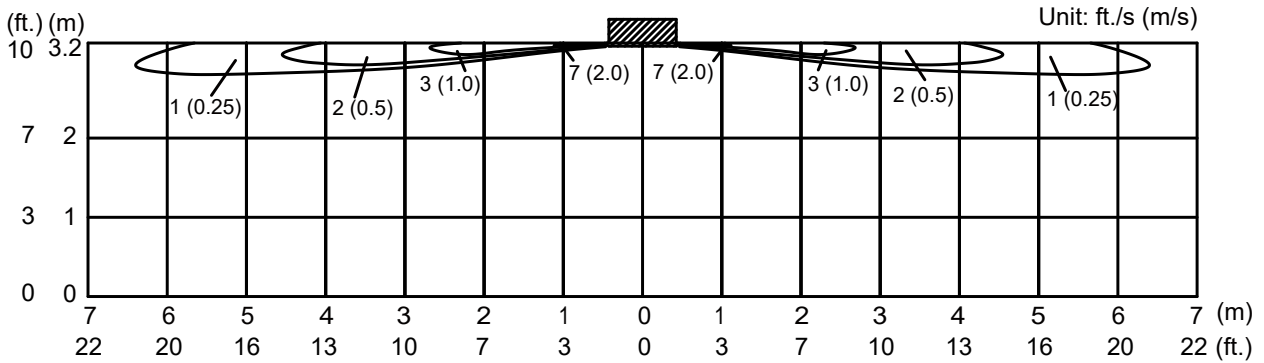
Top view

Vertical airflow direction louver : Up



Side view

Vertical airflow direction louver : Up

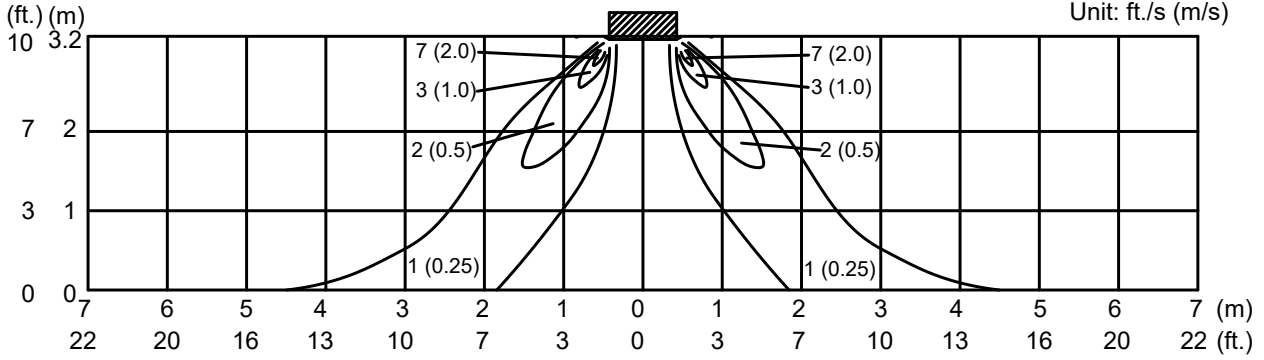


Conditions
 Fan speed : High
 Operation mode : Heat
 Reference Data

● Air velocity distribution

Side view

Vertical airflow direction louver : Down

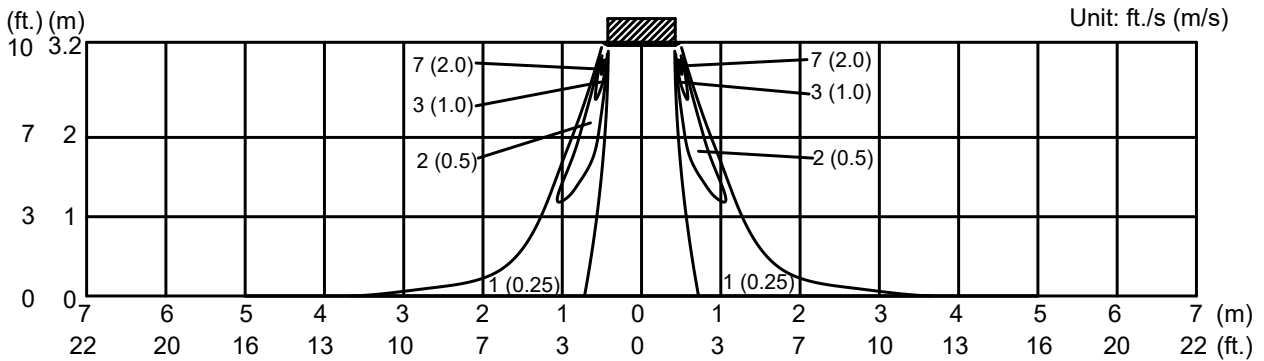


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Side view

Vertical airflow direction louver : Down



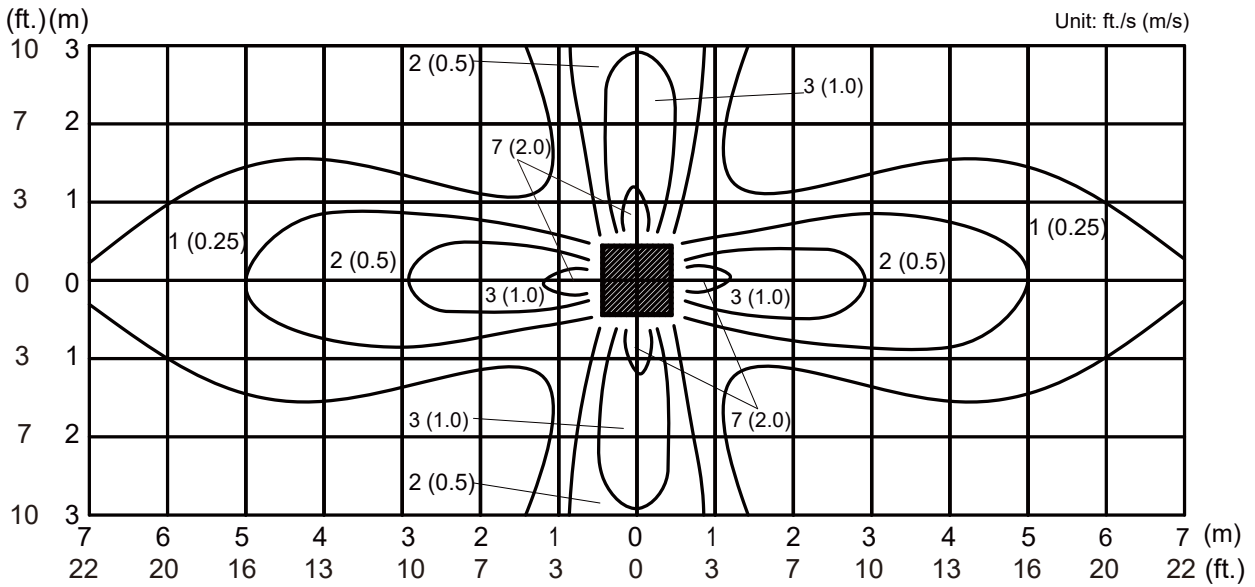
MODEL: AUUB36TLAV1

Air velocity distribution

Conditions	
Fan speed	: High
Operation mode	: Fan

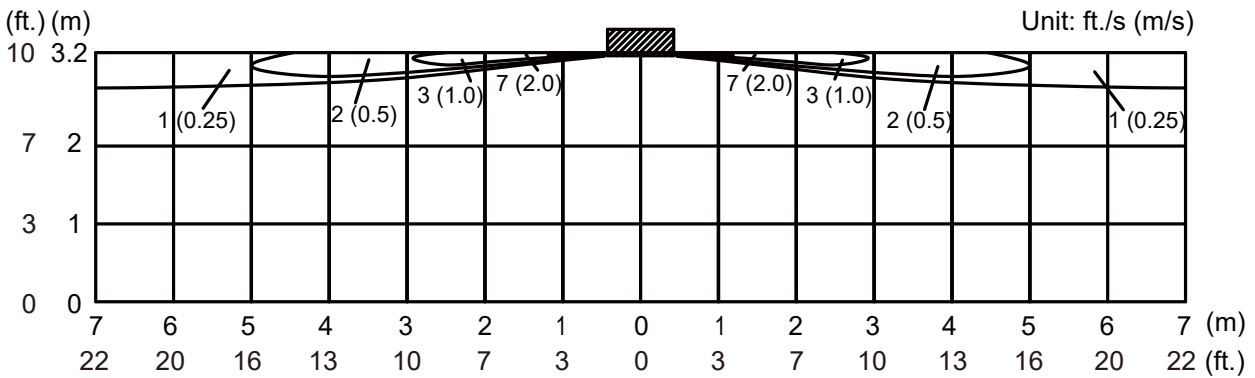
Top view

Vertical airflow direction louver : Up



Side view

Vertical airflow direction louver : Up

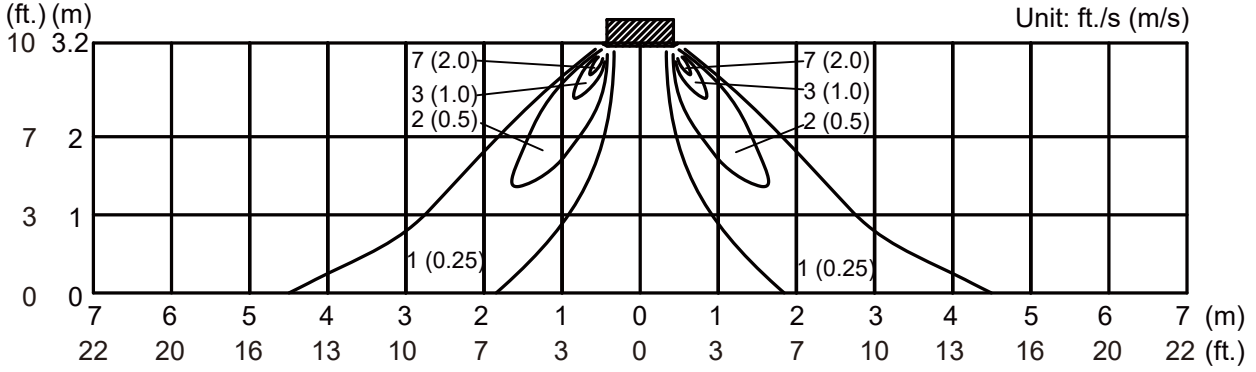


Conditions
 Fan speed : High
 Operation mode : Heat
 Reference Data

● Air velocity distribution

Side view

Vertical airflow direction louver : Down

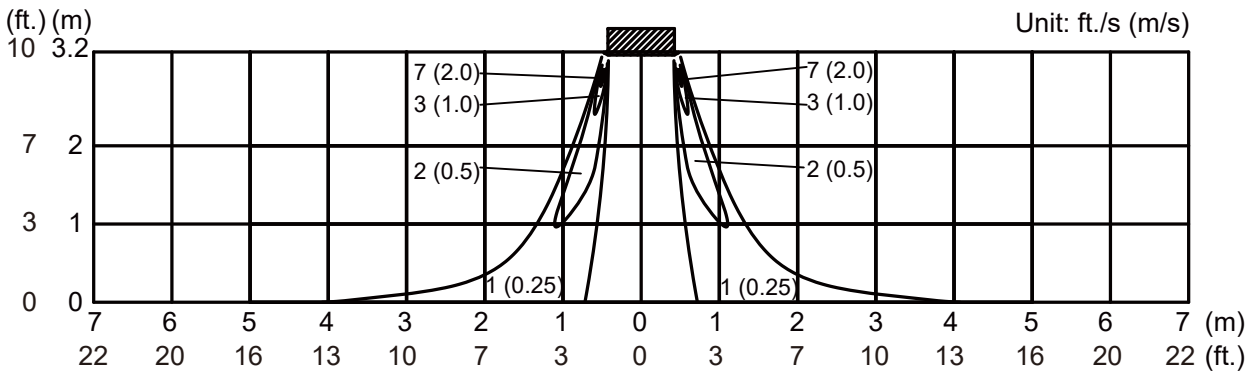


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Side view

Vertical airflow direction louver : Down



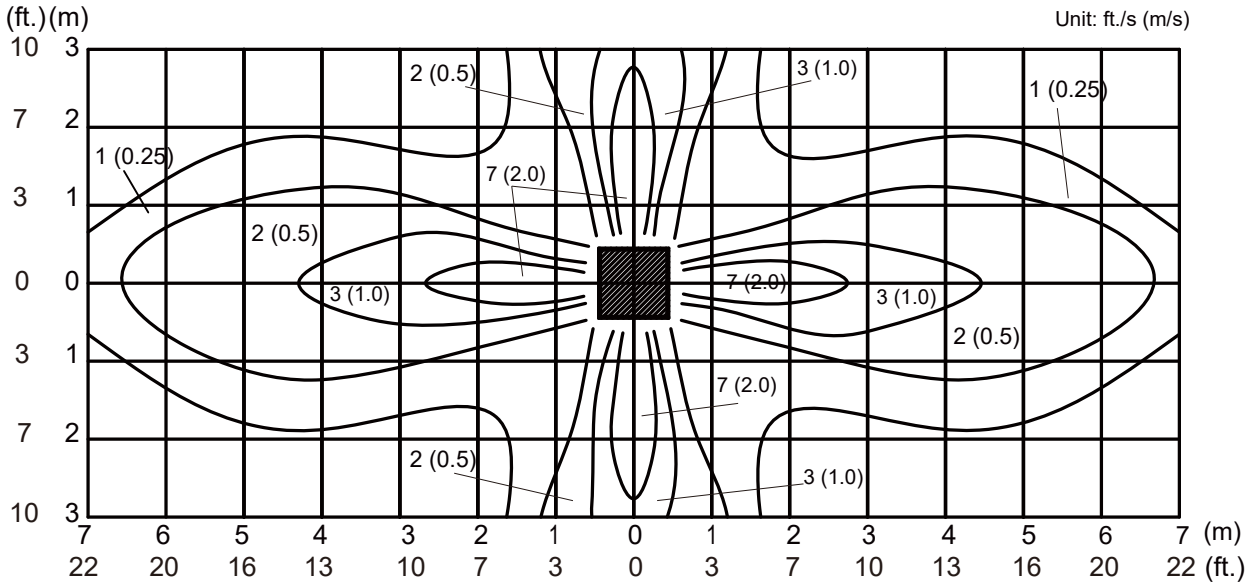
MODEL: AUUB48TLAV1

Air velocity distribution

Conditions
 Fan speed : High
 Operation mode : Fan

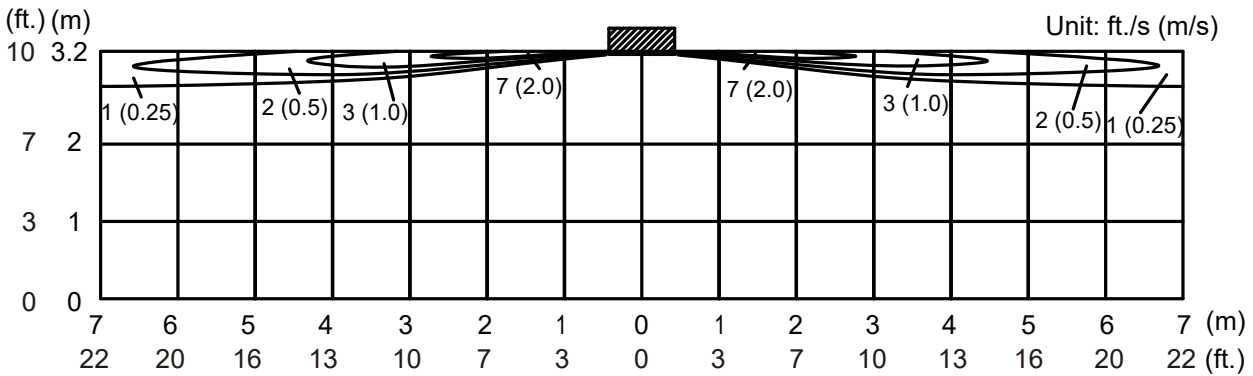
Top view

Vertical airflow direction louver : Up



Side view

Vertical airflow direction louver : Up

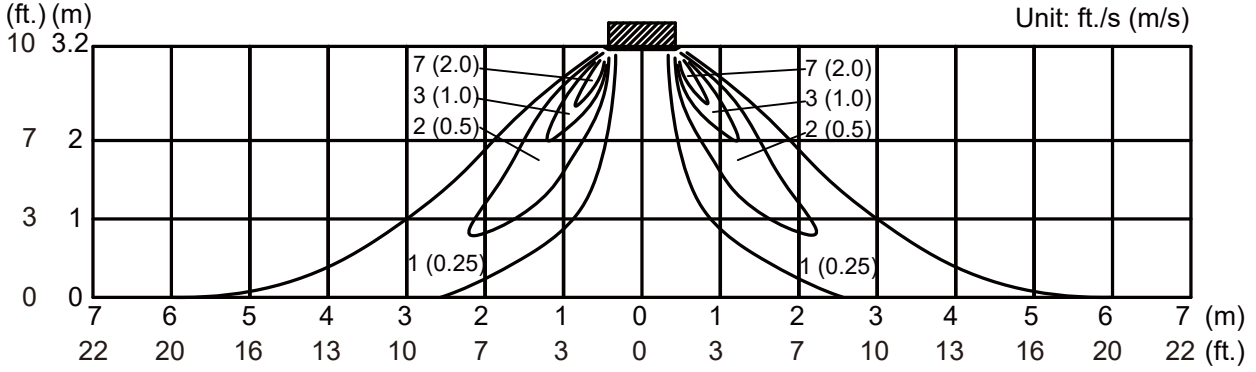


Conditions
 Fan speed : High
 Operation mode : Heat
 Reference Data

● Air velocity distribution

Side view

Vertical airflow direction louver : Down

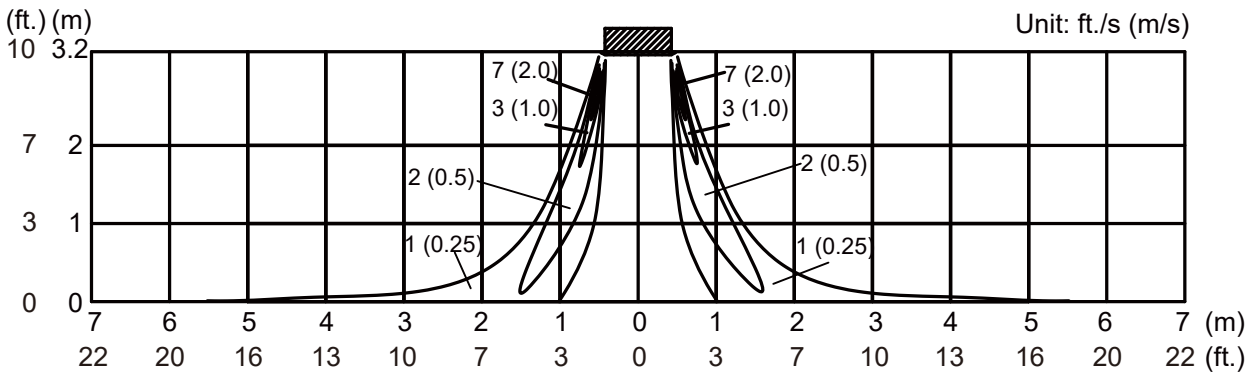


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Side view

Vertical airflow direction louver : Down



5-3. CASSETTE TYPE

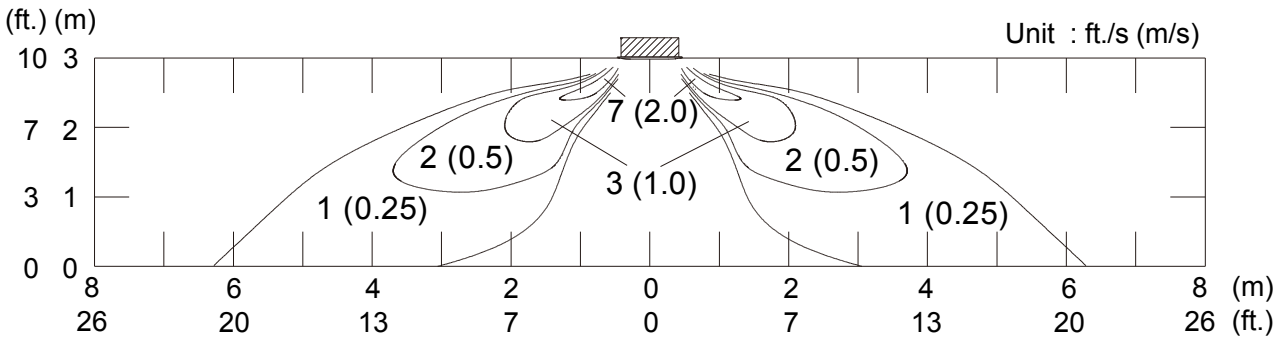
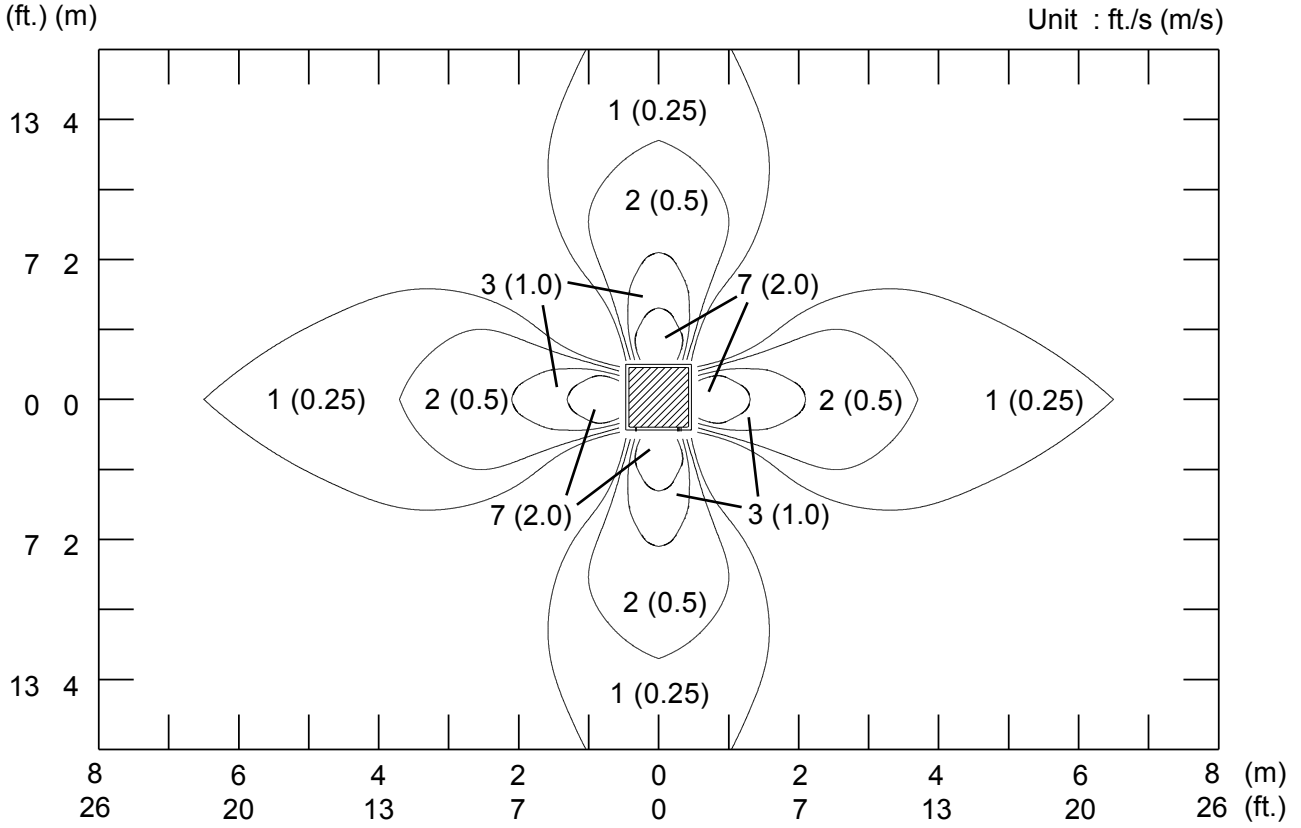
■ MODEL : AUUB18TLAV

● Air velocity distribution

Conditions	
Fan speed	: High
Operation mode	: Fan

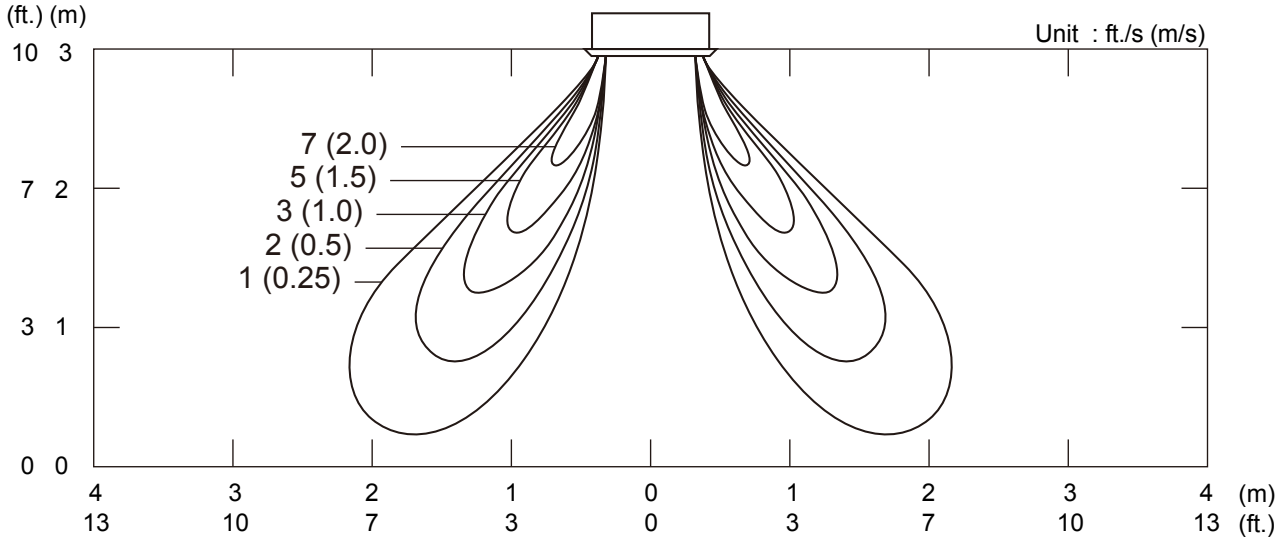
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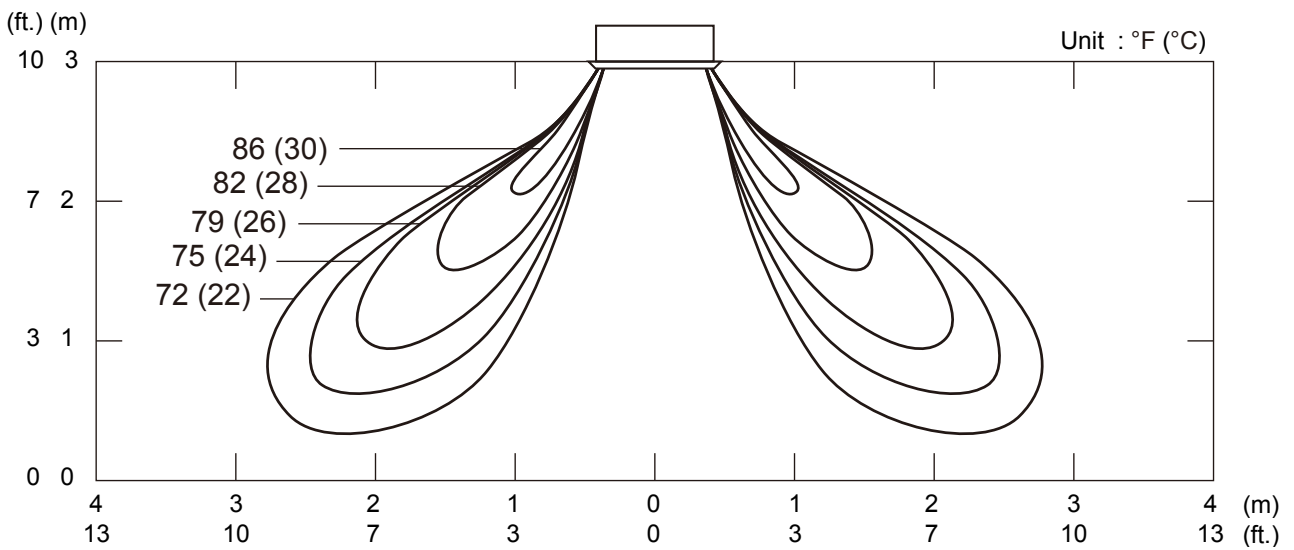


Conditions
 Fan speed : High
 Operation mode : Heat
 Reference Data

● Air velocity distribution



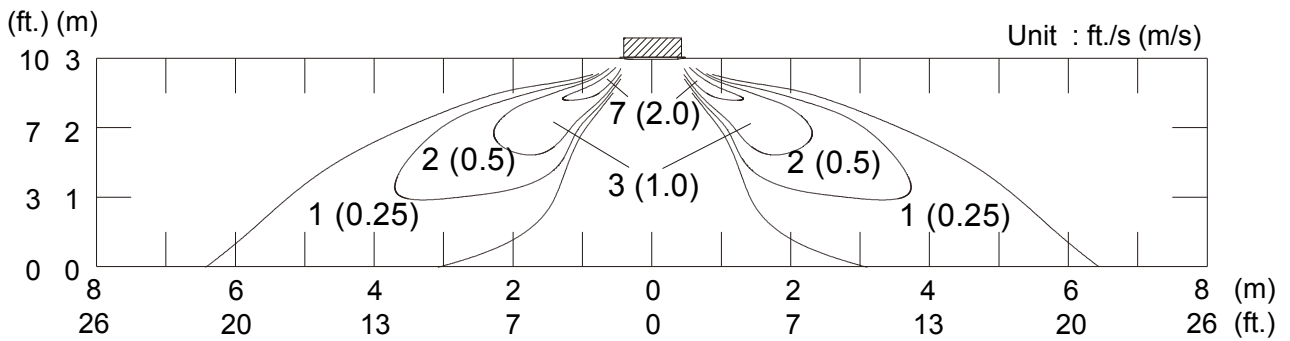
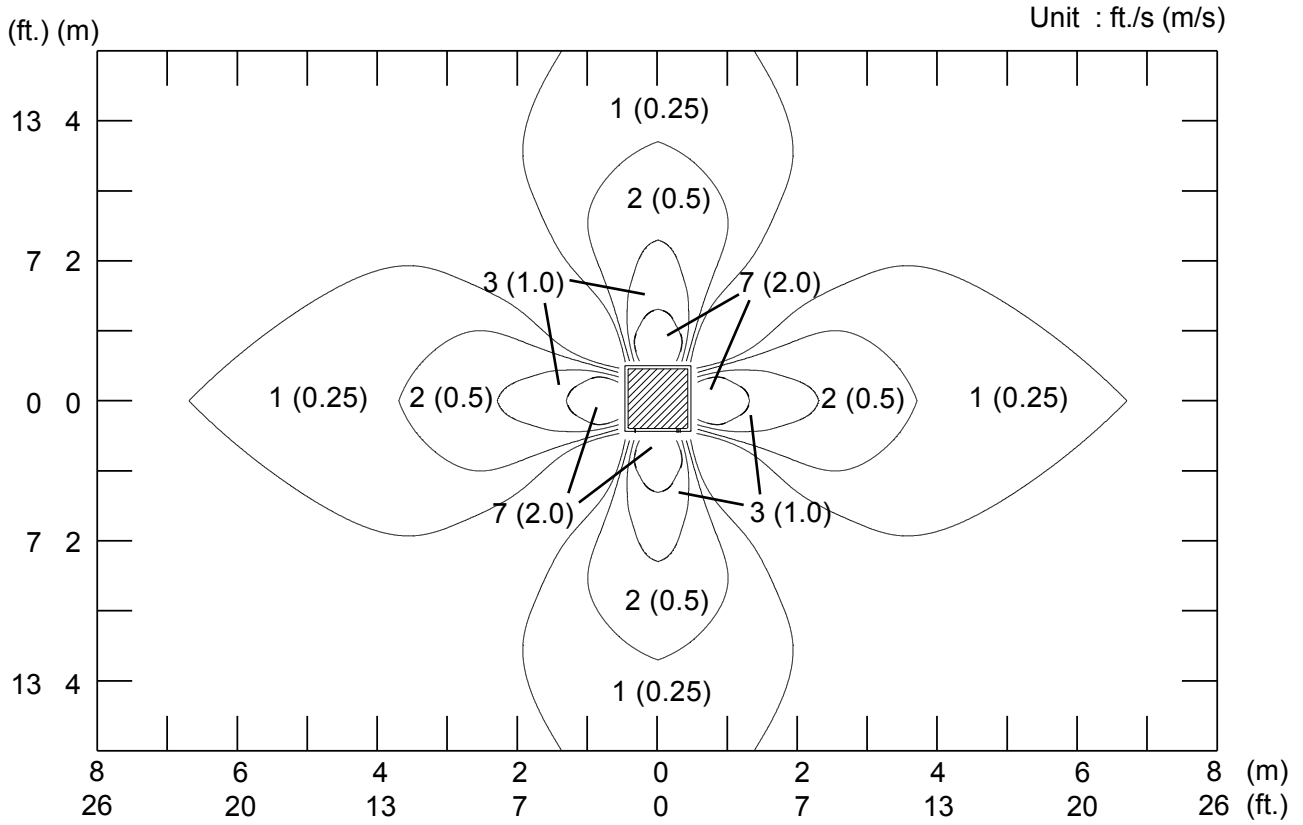
● Air temperature distribution



■ **MODEL : AUUB24TLAV**

● **Air velocity distribution**

Conditions	
Fan speed	: High
Operation mode	: Fan

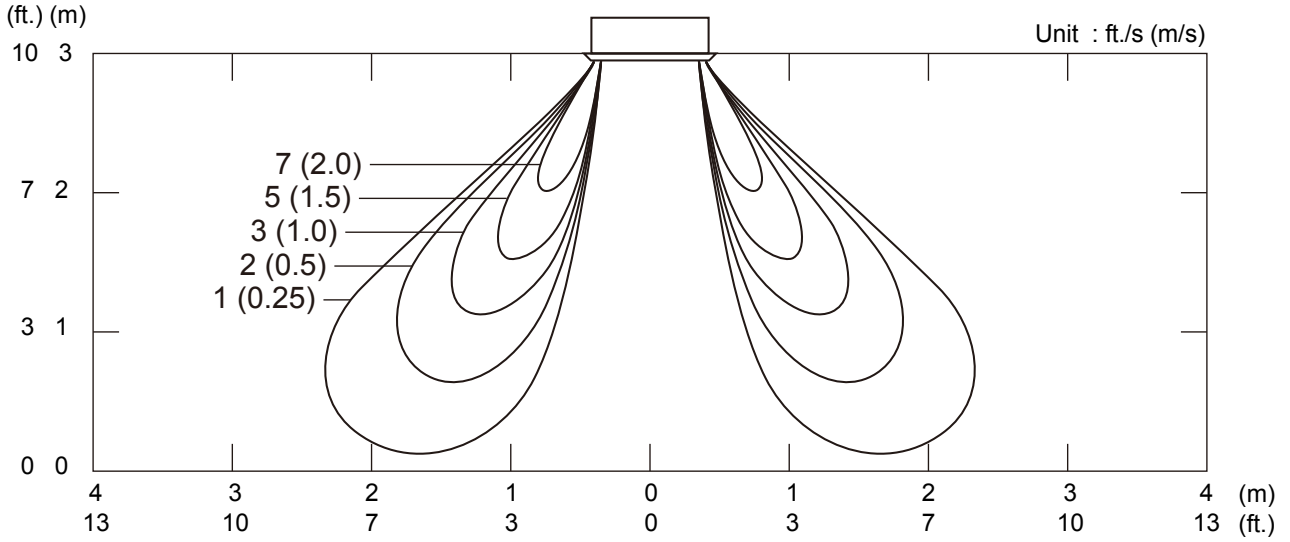


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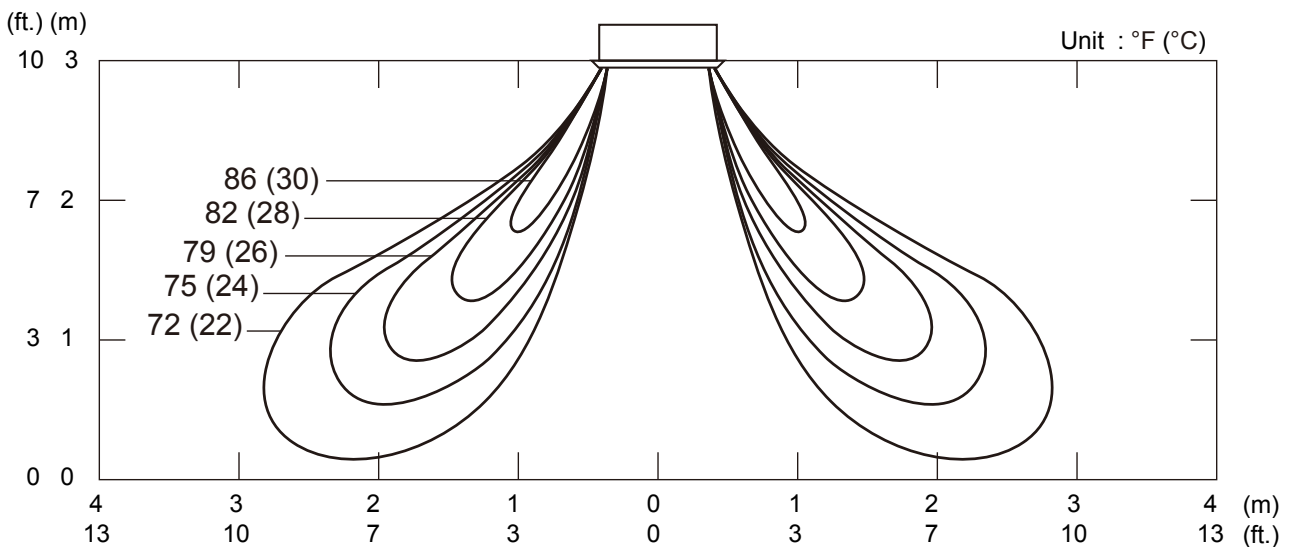
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Conditions
 Fan speed : High
 Operation mode : Heat
 Reference Data

● Air velocity distribution



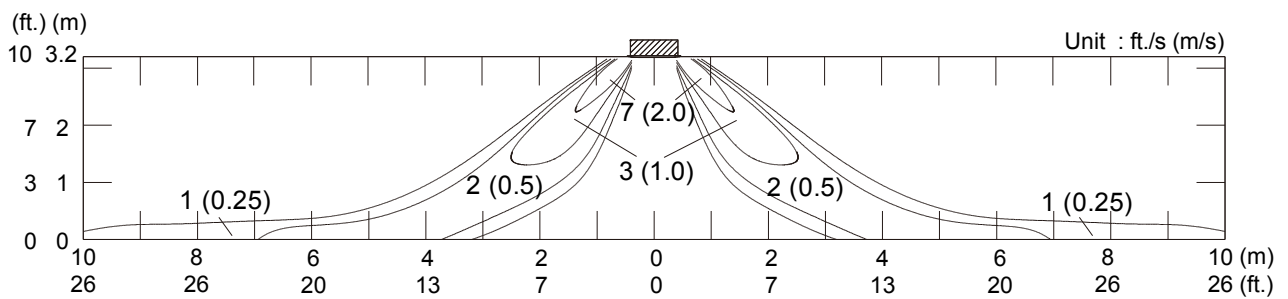
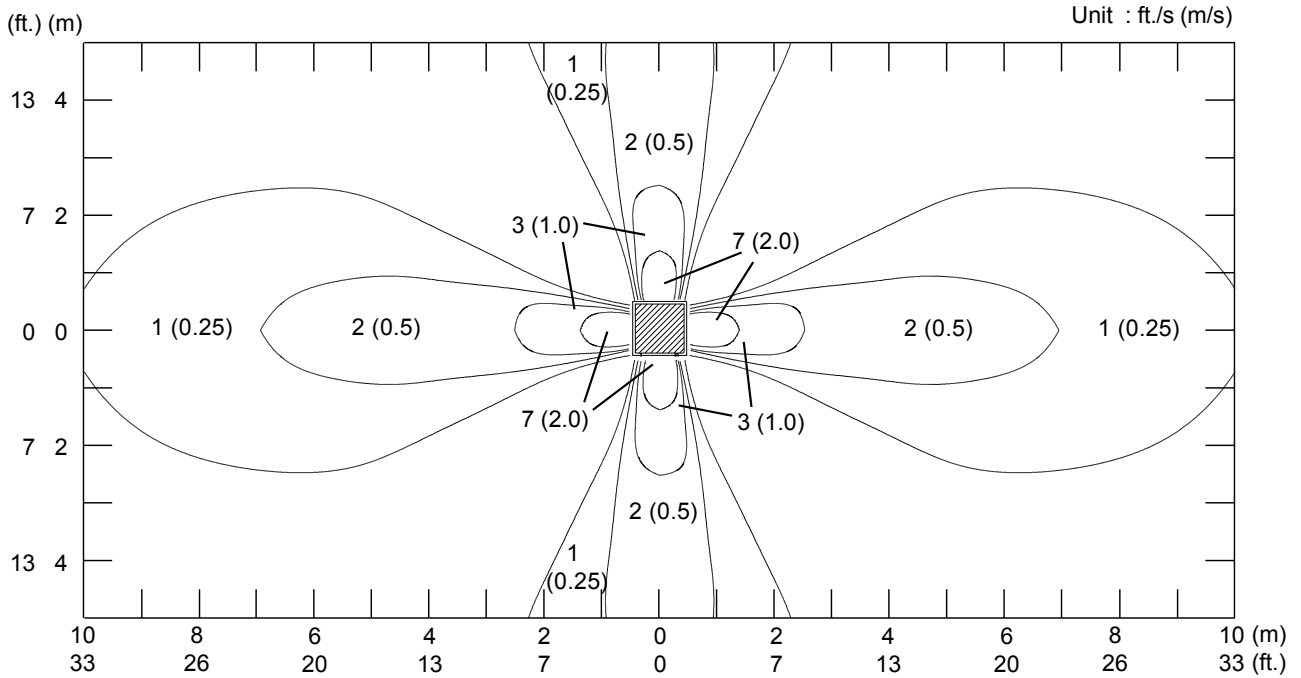
● Air temperature distribution



MODEL : AUUB30TLAV

Air velocity distribution

Conditions	
Fan speed	: High
Operation mode	: Fan

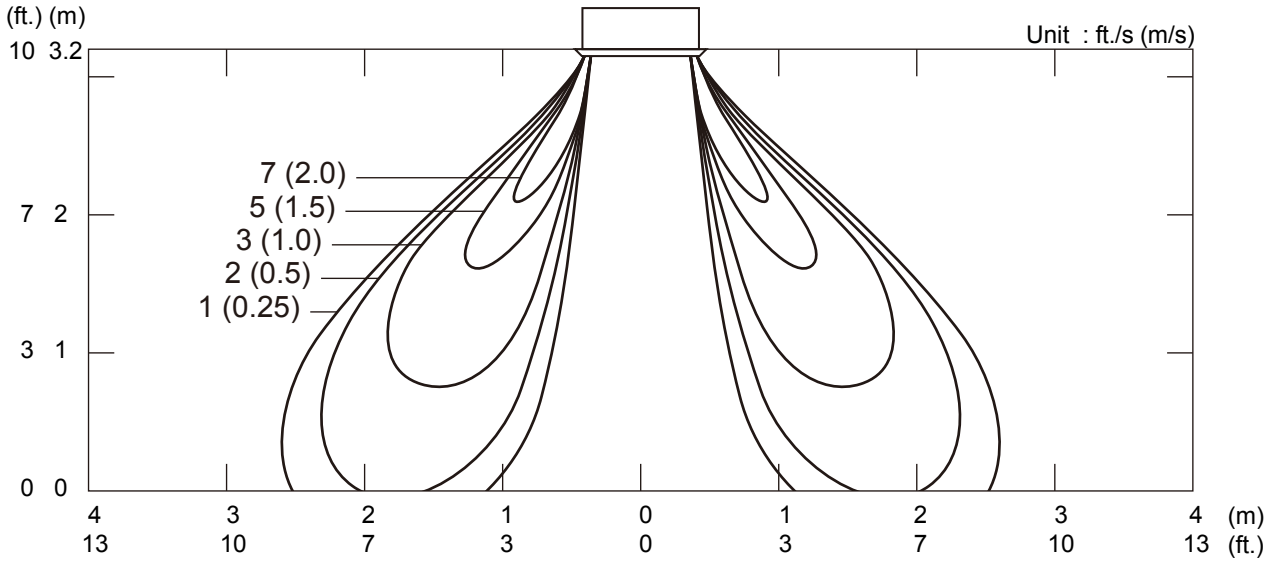


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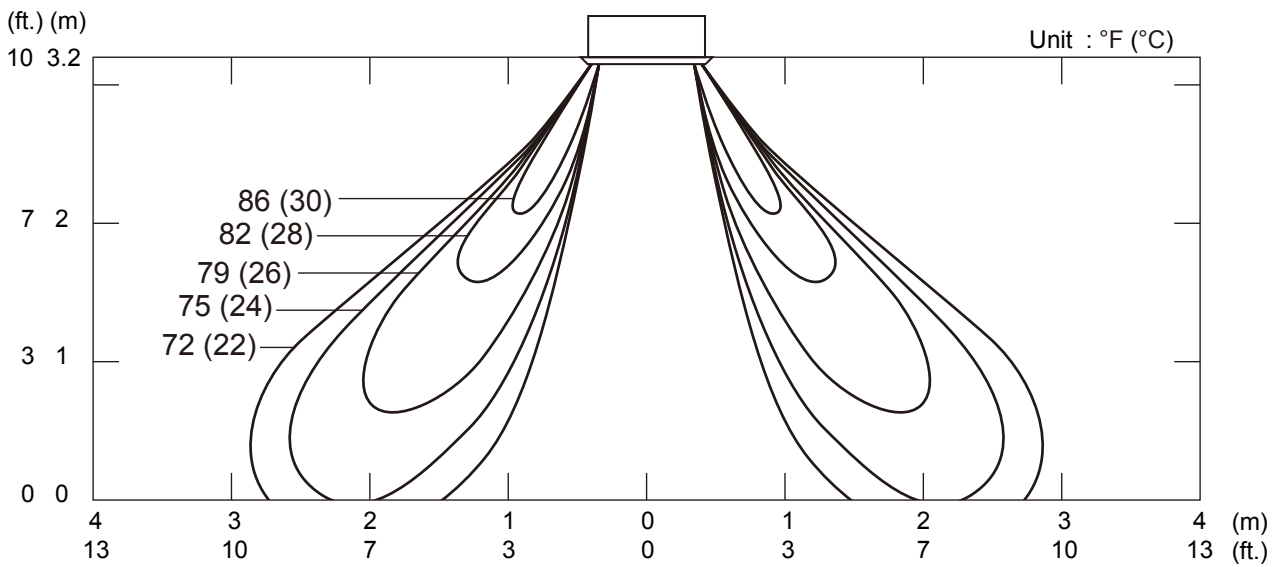
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Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

● Air velocity distribution



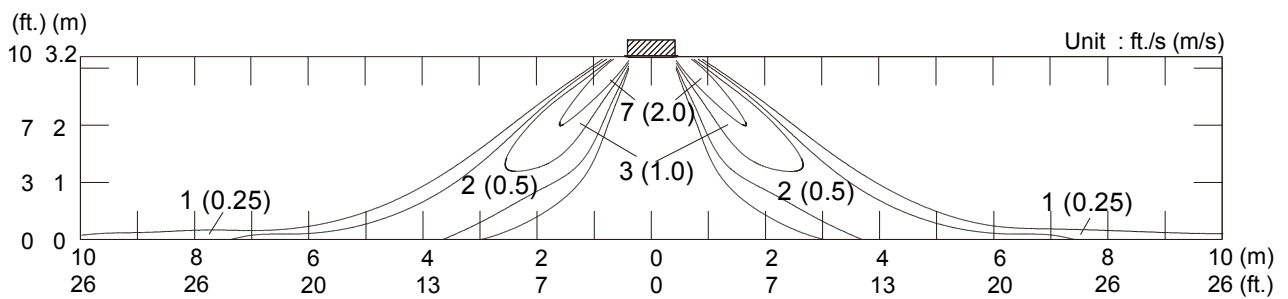
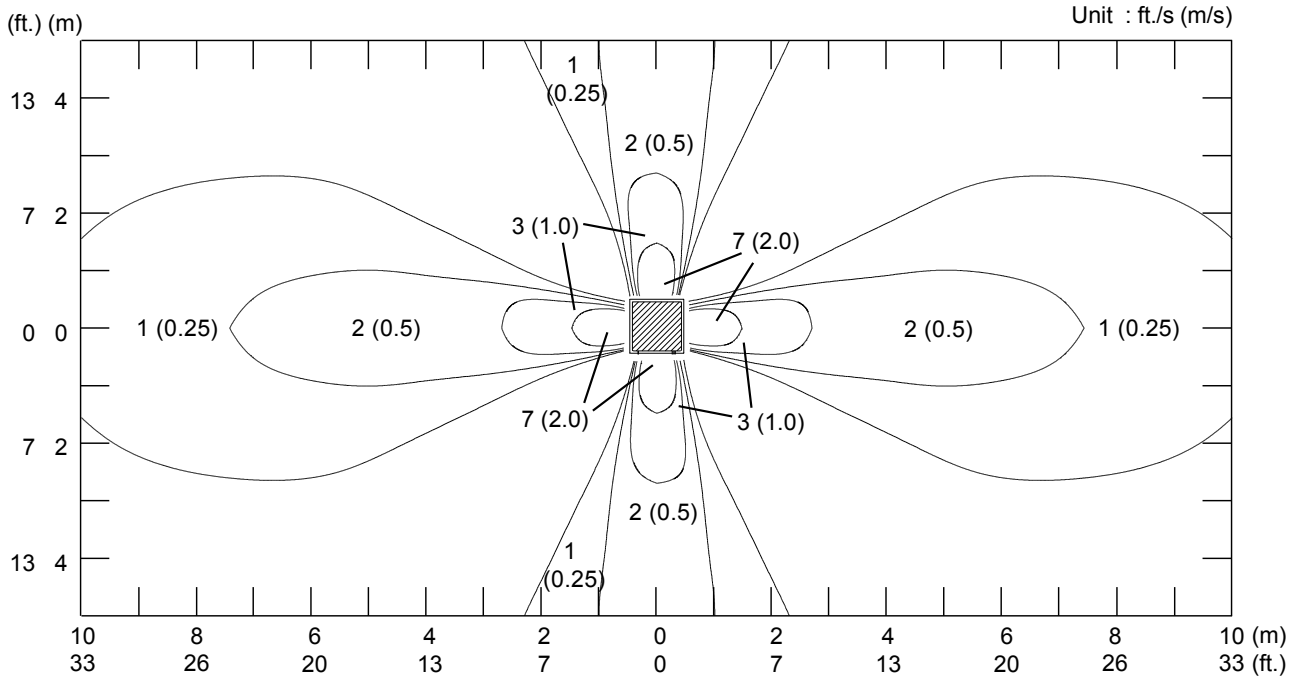
● Air temperature distribution



MODEL : AUUB36TLAV

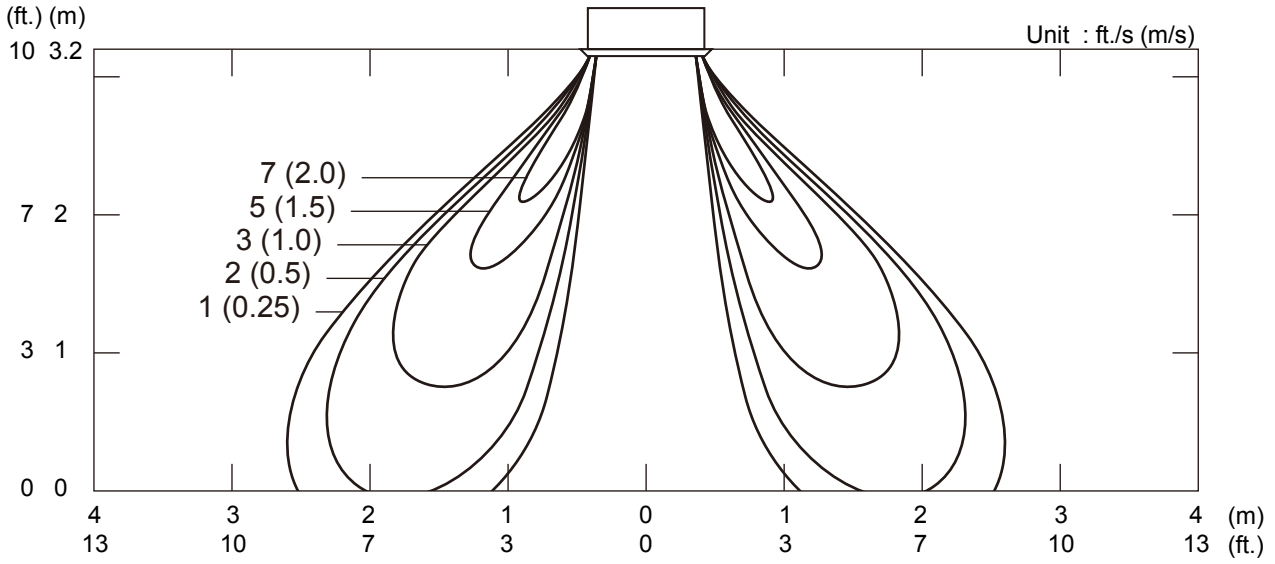
● Air velocity distribution

Conditions	
Fan speed	: High
Operation mode	: Fan

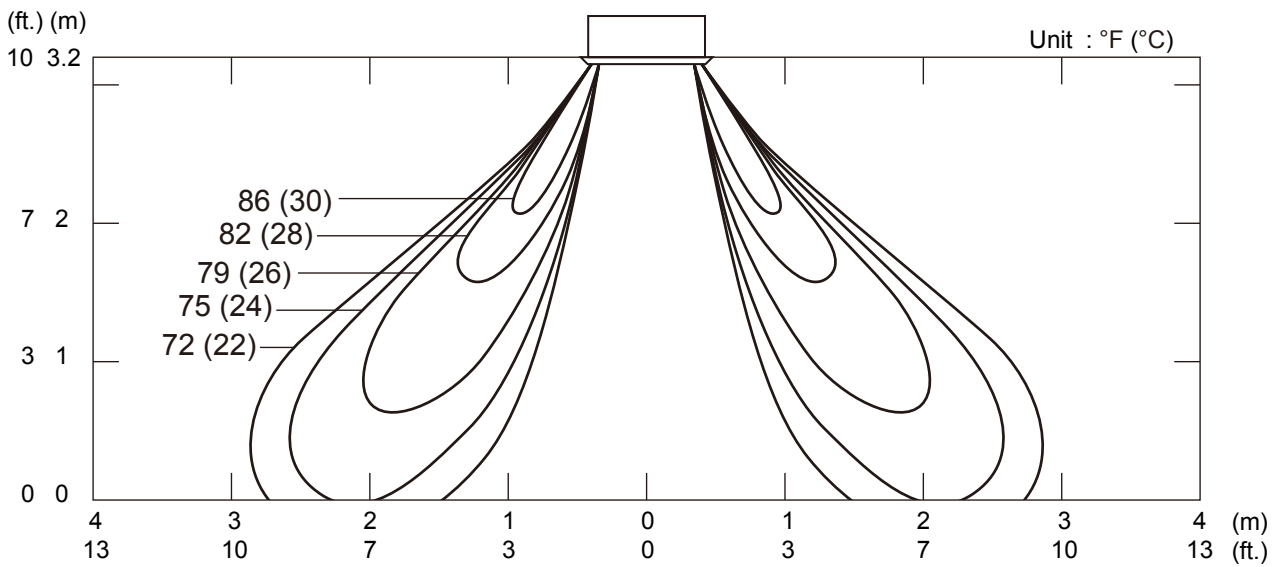


Conditions
 Fan speed : High
 Operation mode : Heat
 Reference Data

● Air velocity distribution



● Air temperature distribution



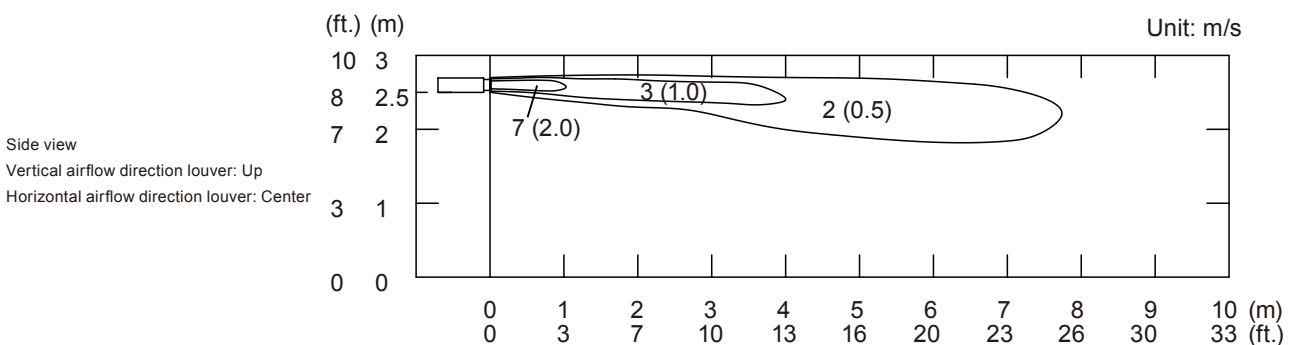
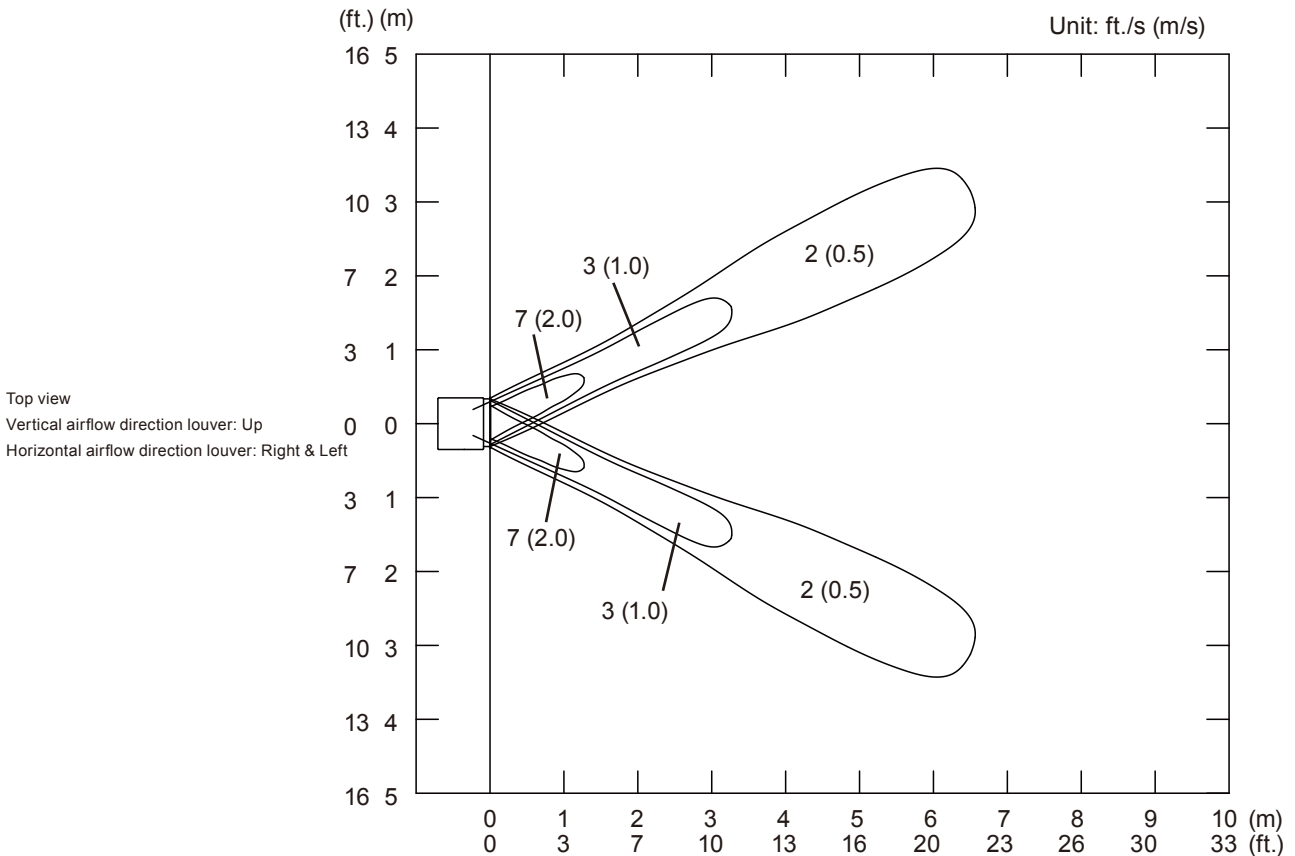
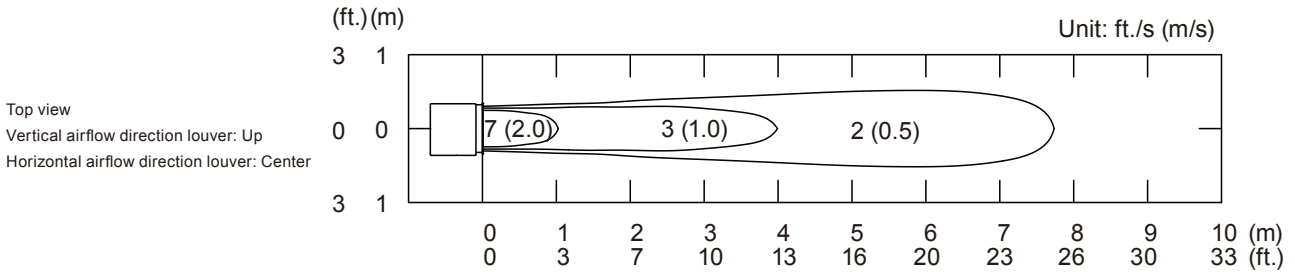
5-4. MINI DUCT TYPE with Auto louver grille kit

MODEL: ARUL4TLAV1 (UTD-GXTA-W)

Note: This data is measured with the Auto louver grille kit(option) installed.

Air velocity distribution

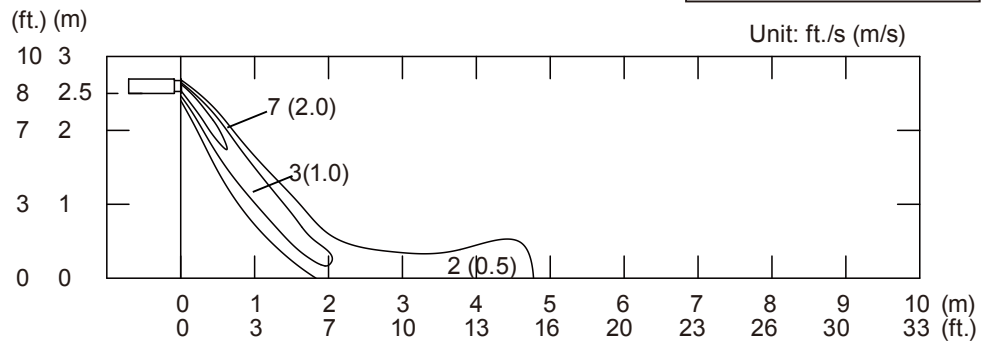
Conditions
 Fan speed : High
 Operation mode : Fan



● Air velocity distribution

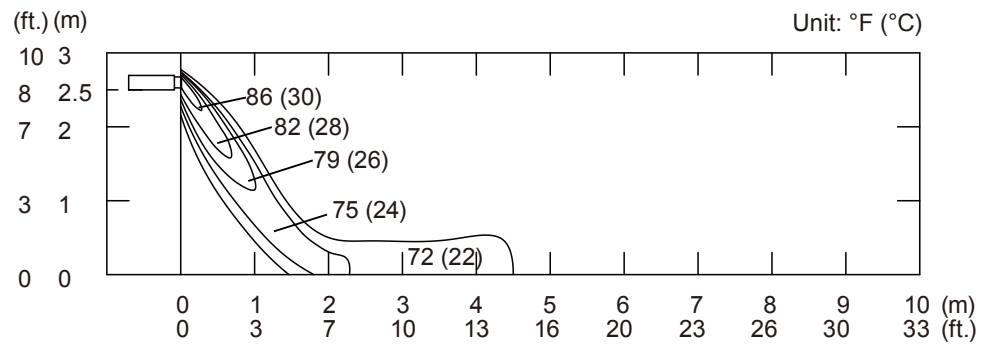
Conditions
 Fan speed : High
 Operation mode : Heat
 Reference Data

Side view
 Vertical airflow direction louver: Down
 Horizontal airflow direction louver: Center



● Air temperature distribution

Side view
 Vertical airflow direction louver: Down
 Horizontal airflow direction louver: Center



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5-5. SLIM DUCT TYPE with Auto louver grille kit

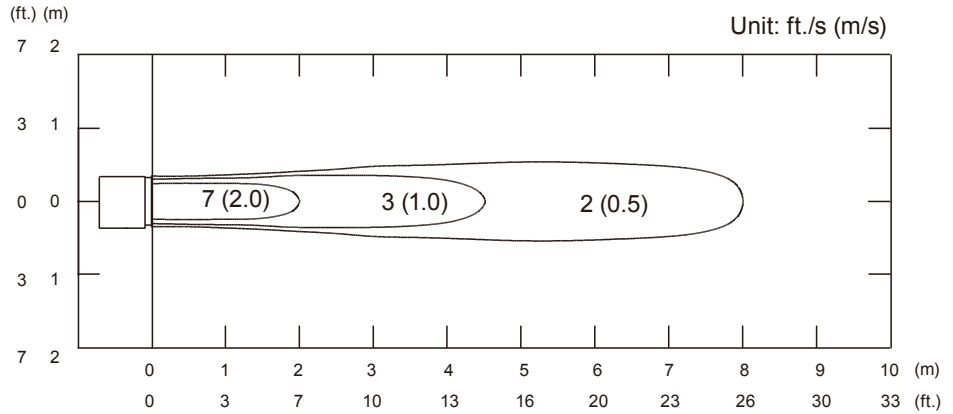
MODEL : ARUL7TLAV (UTD-GXSA-W)

Conditions	
Fan speed	: High
Operation mode	: Fan

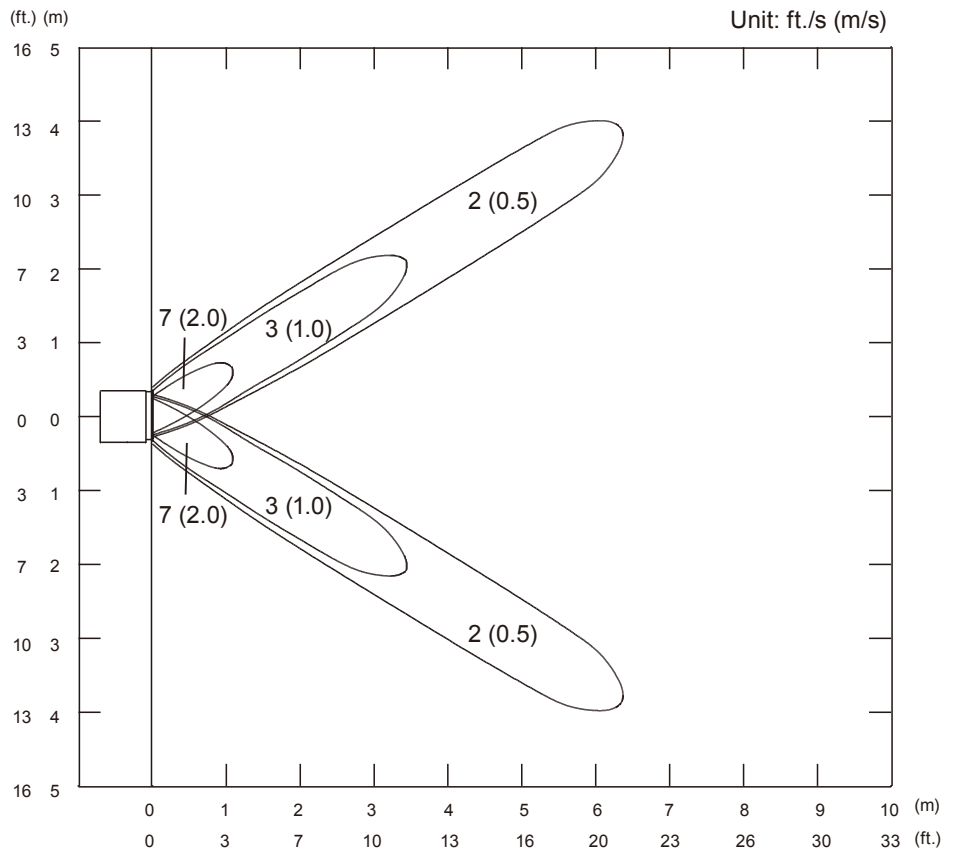
Note: Velocity distribution data based on measurements with Auto louver grille kit installed.

● Air velocity distribution

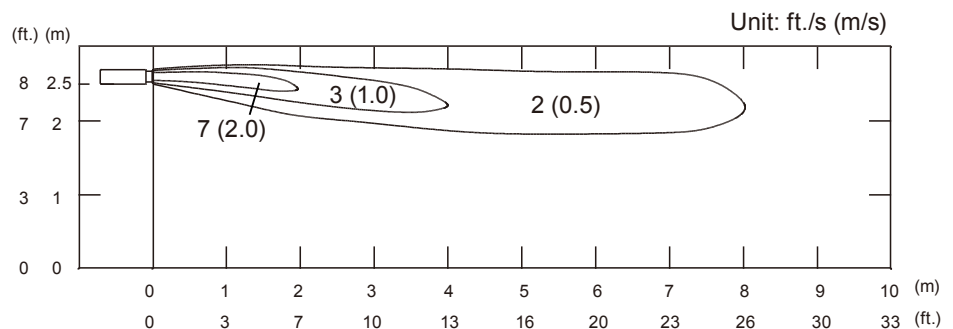
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



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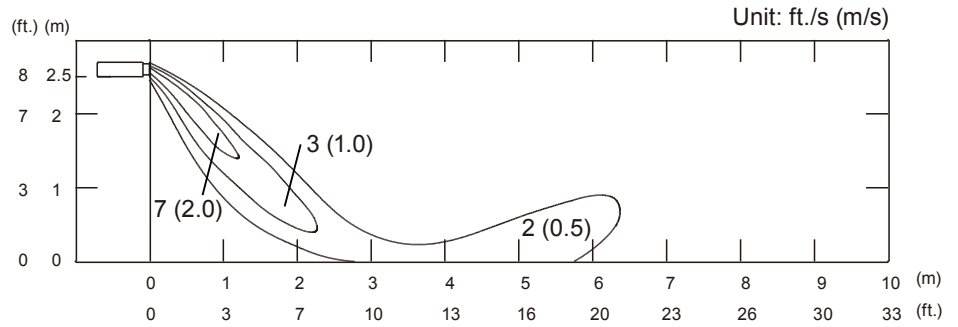
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Note: Velocity distribution data based on measurements with Auto louver grille kit installed.

Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

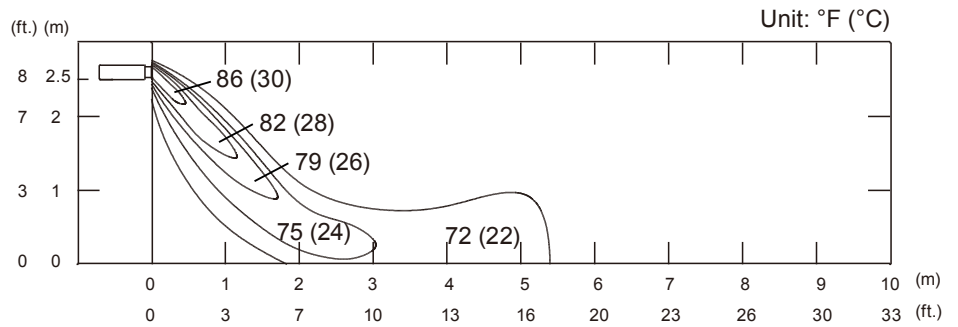
● Air velocity distribution

Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



● Air temperature distribution

Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



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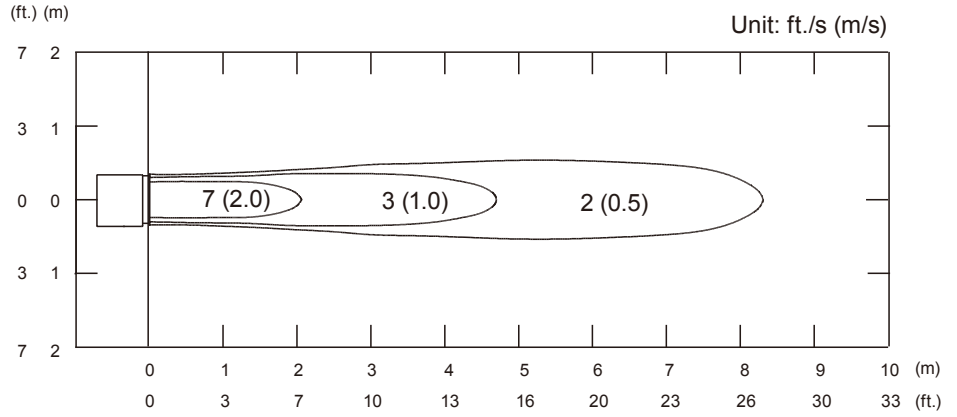
Conditions	
Fan speed	: High
Operation mode	: Fan

MODEL : ARUL9TLAV (UTD-GXSA-W)

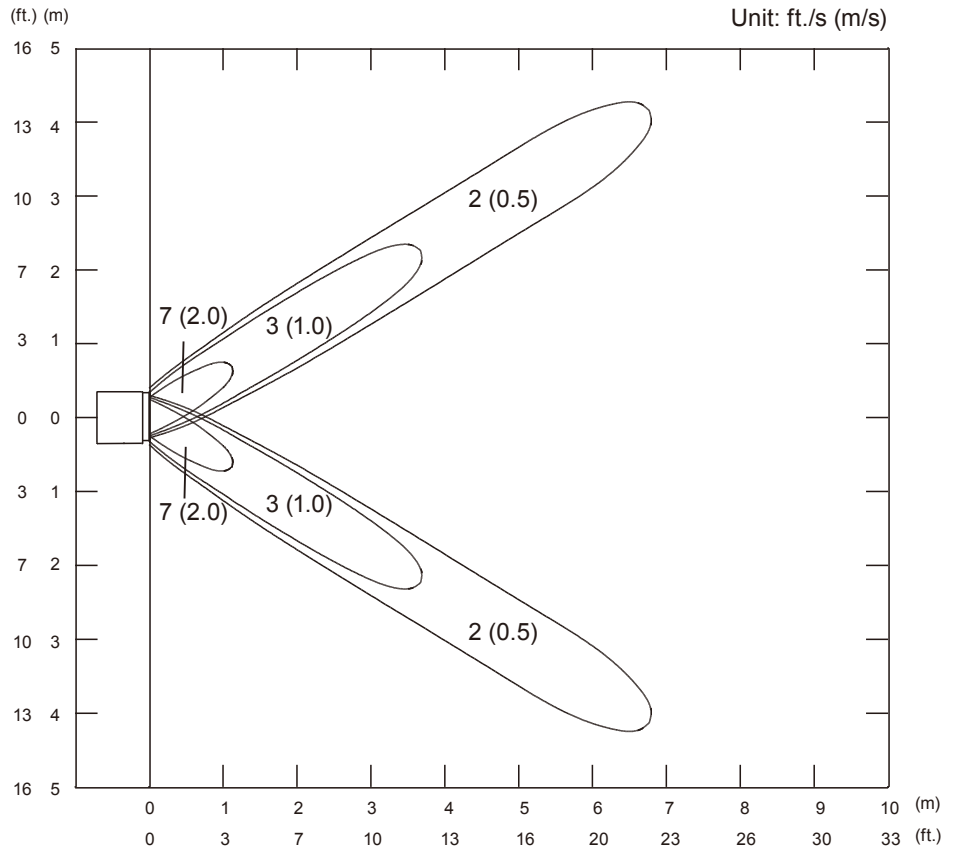
Note: Velocity distribution data based on measurements with Auto louver grille kit installed.

Air velocity distribution

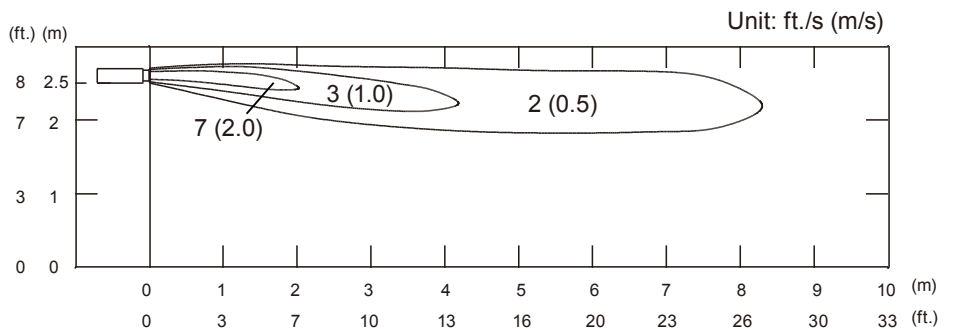
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



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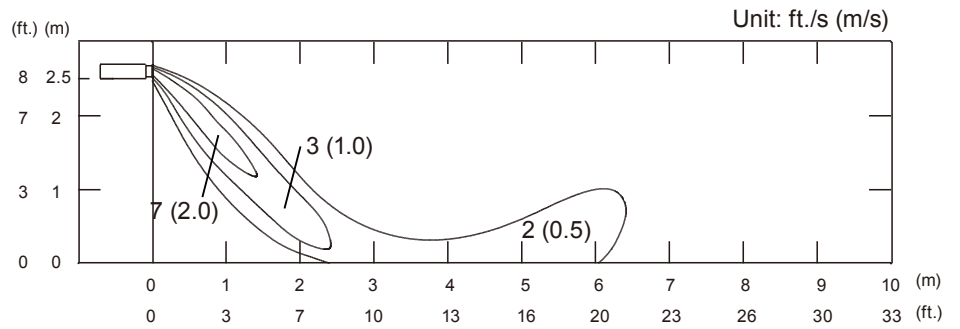
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Note: Velocity distribution data based on measurements with Auto louver grille kit installed.

Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

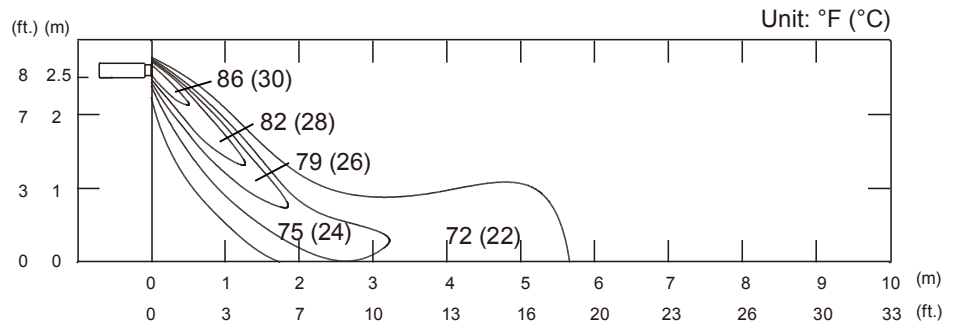
● Air velocity distribution

Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



● Air temperature distribution

Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



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INDOOR UNITS

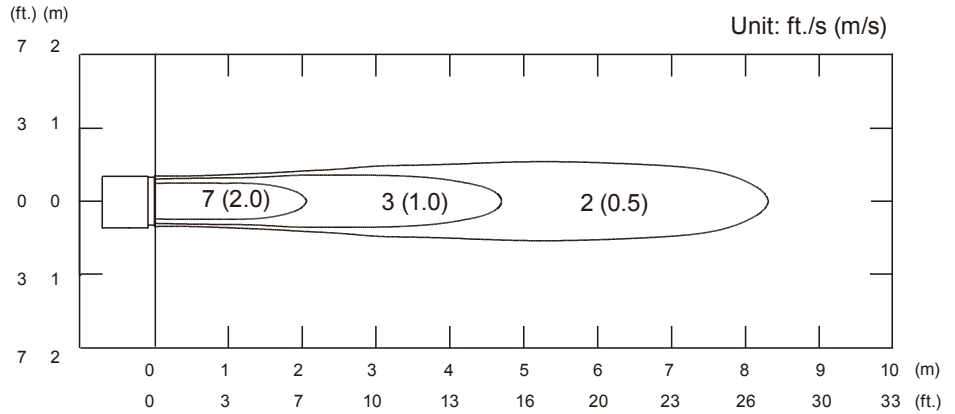
Conditions	
Fan speed	: High
Operation mode	: Fan

MODEL : ARUL12TLAV (UTD-GXSA-W)

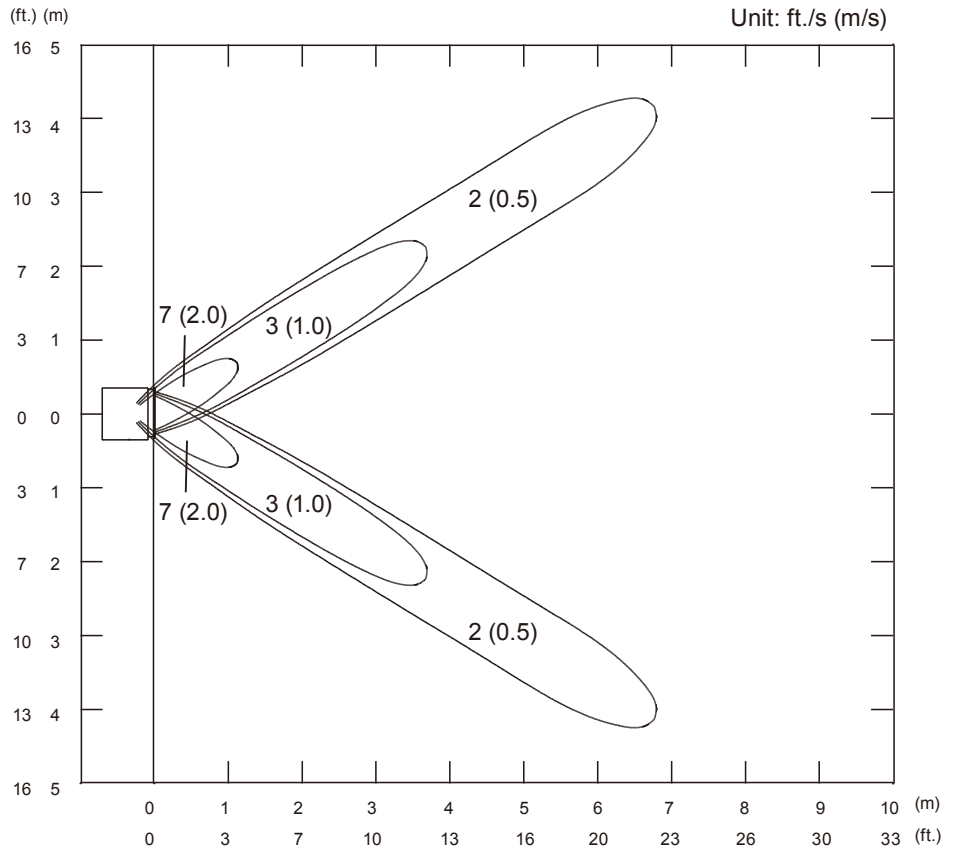
Note: Velocity distribution data based on measurements with Auto louver grille kit installed.

● Air velocity distribution

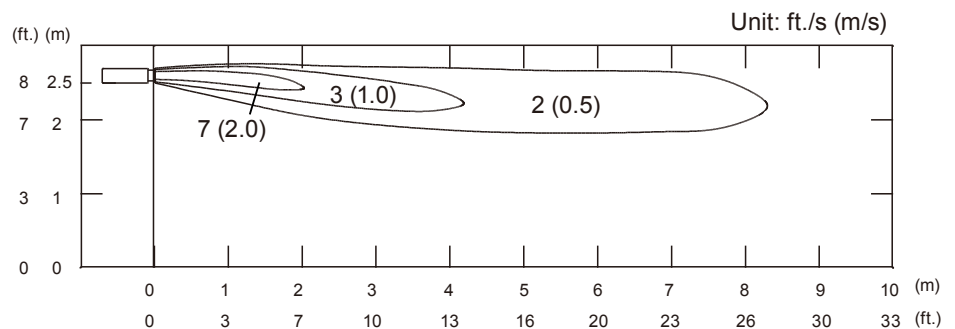
Top view
Vertical airflow direction
louver : Up
Horizontal airflow direction
louver : Center



Top view
Vertical airflow direction
louver : Up
Horizontal airflow direction
louver : Right & Left



Side view
Vertical airflow direction
louver : Up
Horizontal airflow direction
louver : Center

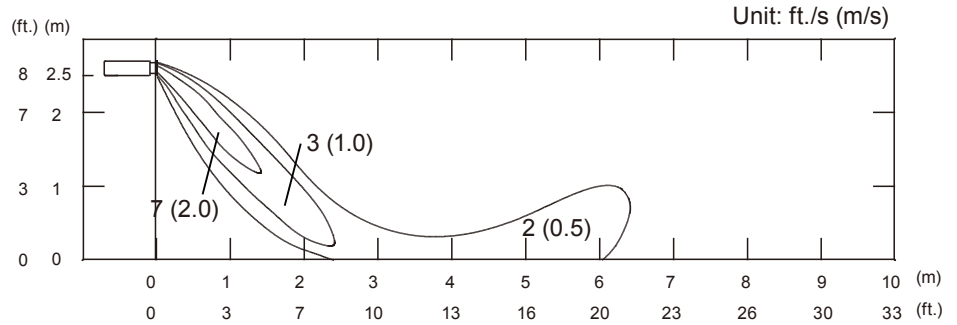


Note: Velocity distribution data based on measurements with Auto louver grille kit installed.

Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

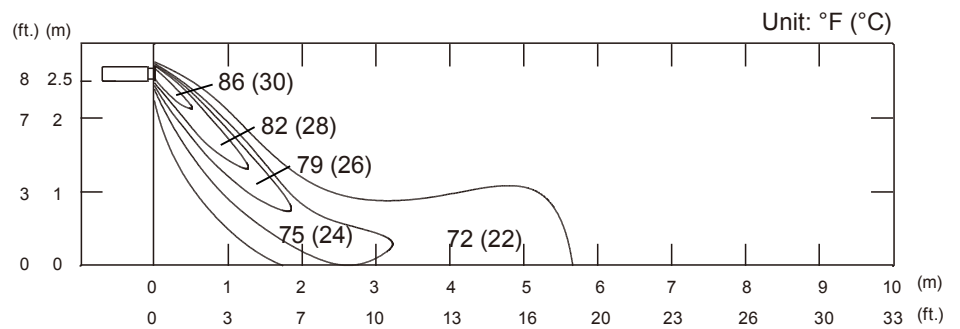
● Air velocity distribution

Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



● Air temperature distribution

Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



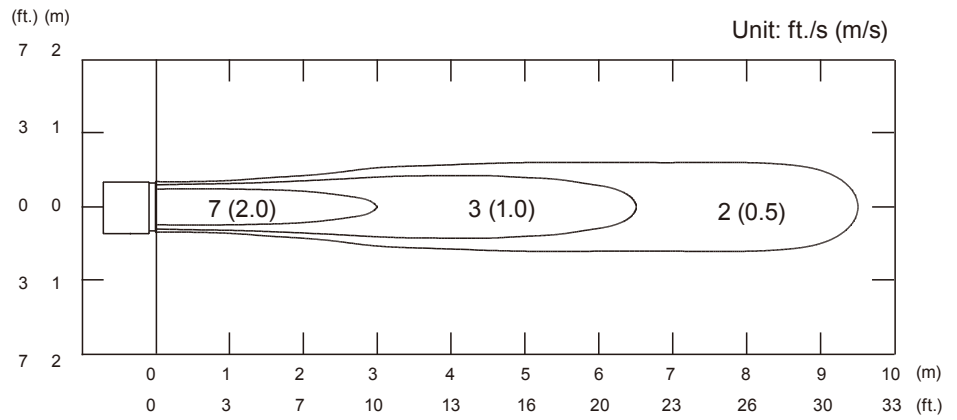
Conditions	
Fan speed	: High
Operation mode	: Fan

MODEL : ARUL14TLAV (UTD-GXSA-W)

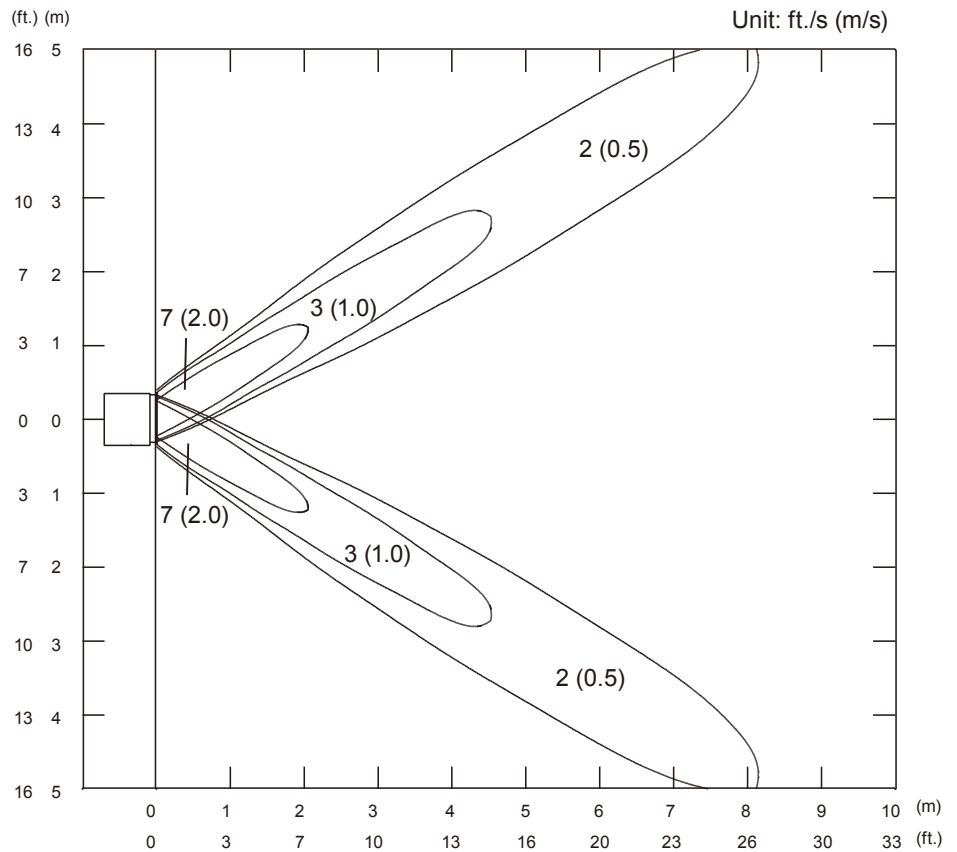
Note: Velocity distribution data based on measurements with Auto louver grille kit installed.

Air velocity distribution

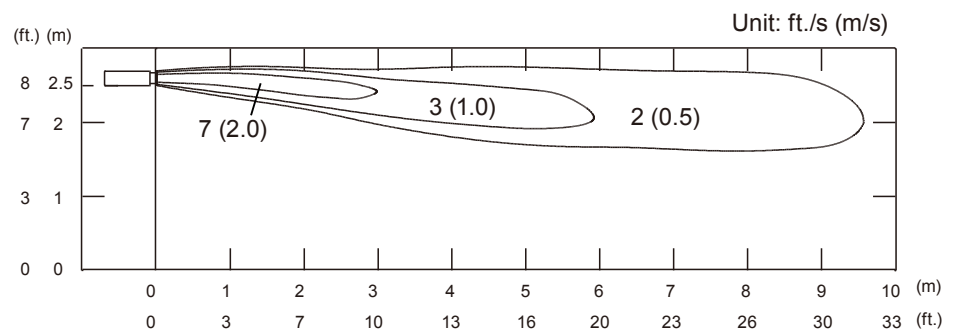
Top view
Vertical airflow direction
louver : Up
Horizontal airflow direction
louver : Center



Top view
Vertical airflow direction
louver : Up
Horizontal airflow direction
louver : Right & Left



Side view
Vertical airflow direction
louver : Up
Horizontal airflow direction
louver : Center

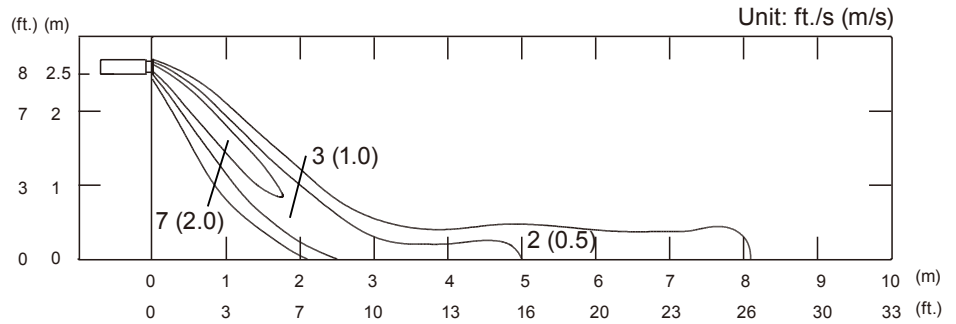


Note: Velocity distribution data based on measurements with Auto louver grille kit installed.

Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

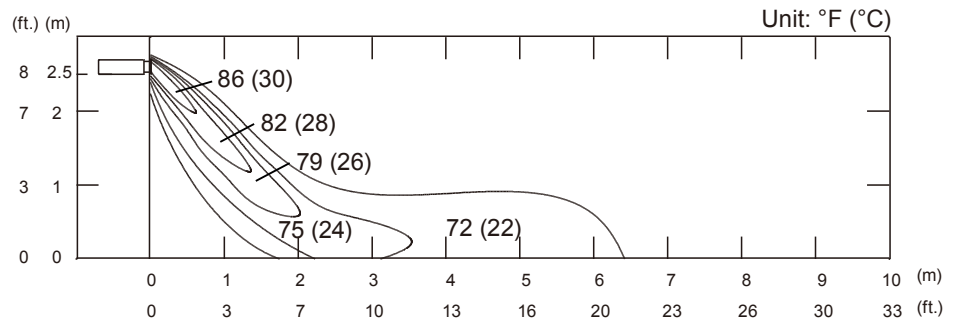
● Air velocity distribution

Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



● Air temperature distribution

Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center

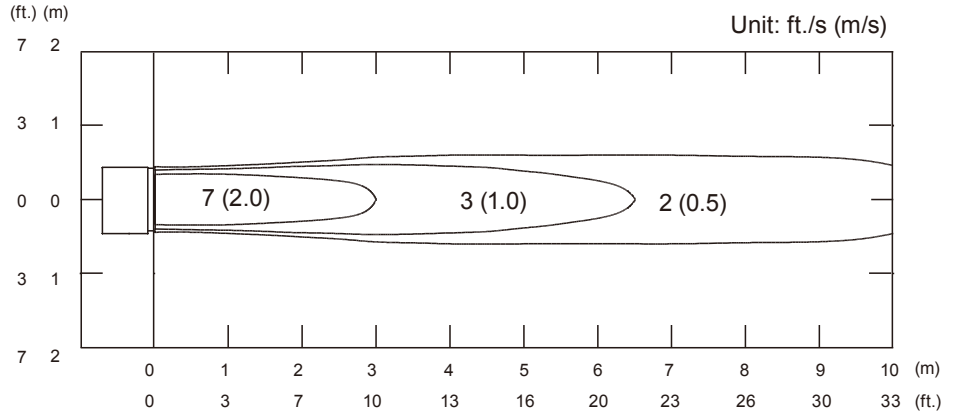


Conditions
 Fan speed : High
 Operation mode : Fan

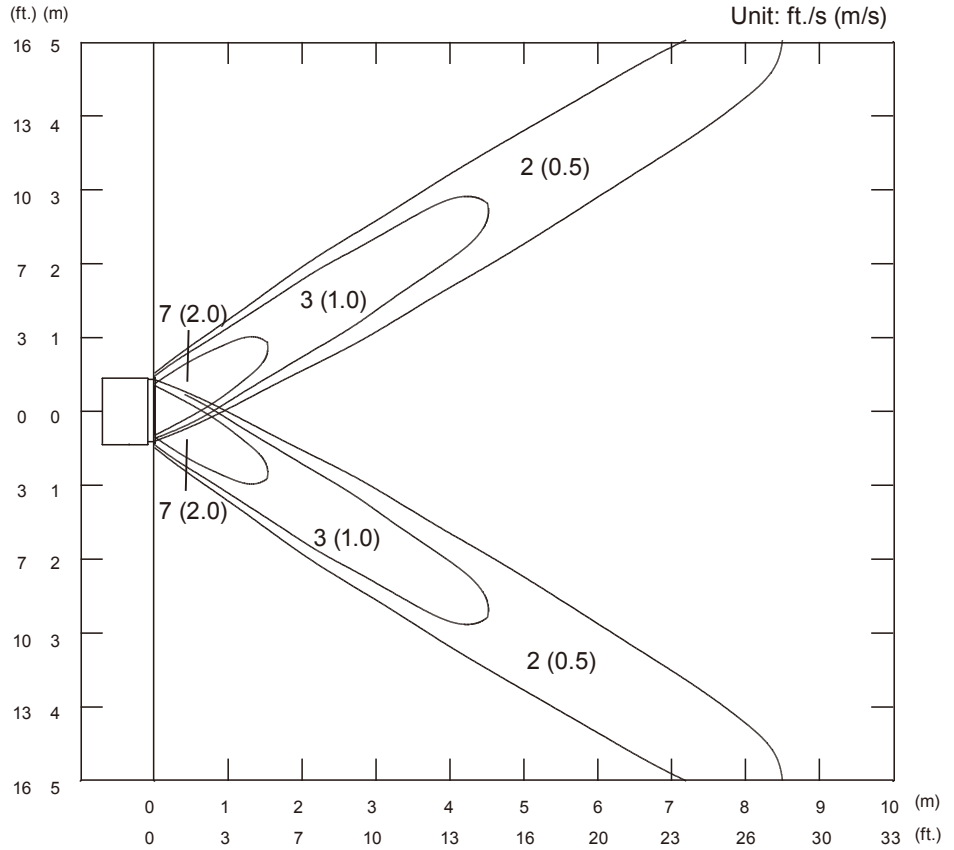
MODEL : ARUL18TLAV (UTD-GXSB-W)

Note: Velocity distribution data based on measurements with Auto louver grille kit installed.

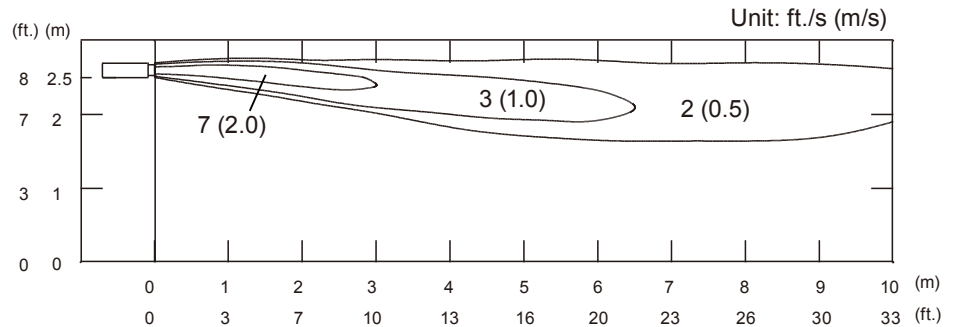
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



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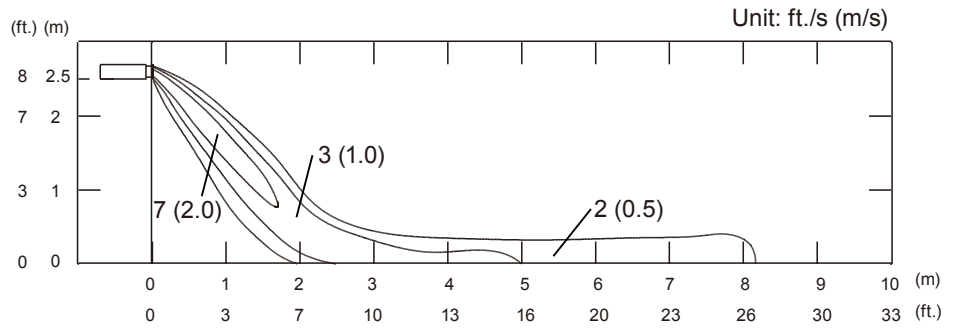
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Note: Velocity distribution data based on measurements with Auto louver grille kit installed.

Conditions	
Fan speed	: High
Operation mode	: Heat
Reference Data	

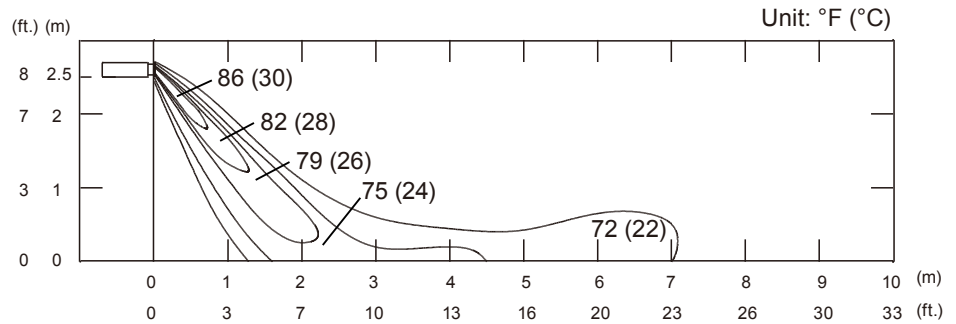
Air velocity distribution

Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



● Air temperature distribution

Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center

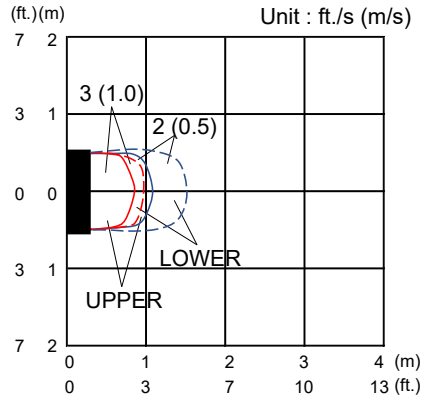


5-6. COMPACT FLOOR TYPE

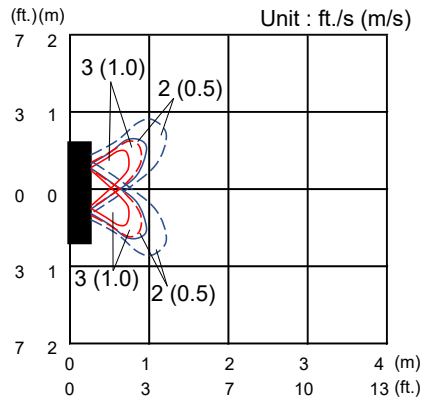
■ MODEL: AGUA4TLAV1

Conditions:
 Fan speed : HI
 Operation mode : FAN
 Fan select : UPPER&LOWER
 ——— : UPPER FAN
 - - - - : LOWER FAN

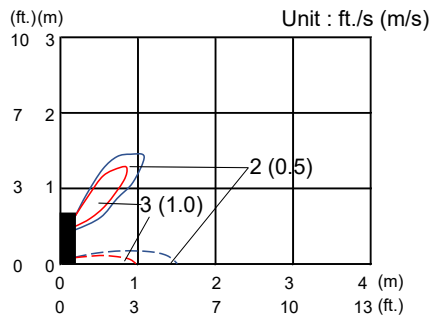
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



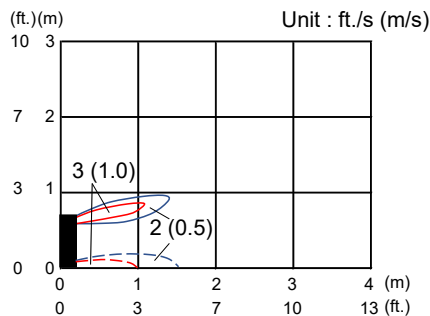
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



Side view
 Vertical airflow direction louver: Center
 Horizontal airflow direction louver: Center



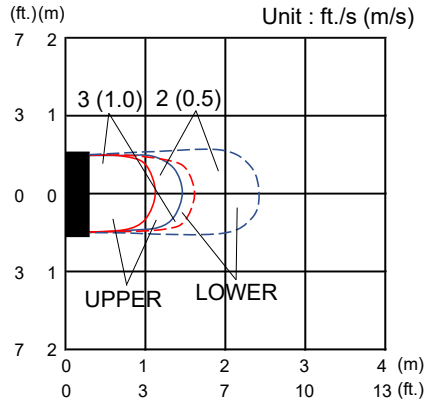
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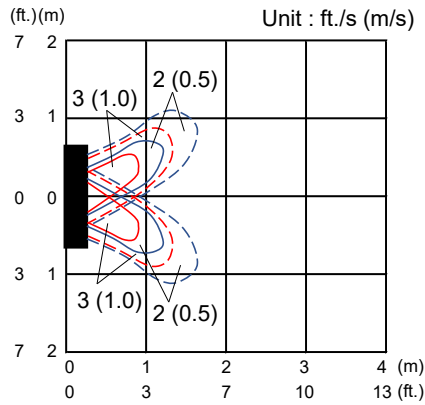
MODELS: AGUA7TLAV1 and AGUA9TLAV1

Conditions:
 Fan speed : HI
 Operation mode : FAN
 Fan select : UPPER&LOWER
 ——— : UPPER FAN
 - - - - : LOWER FAN

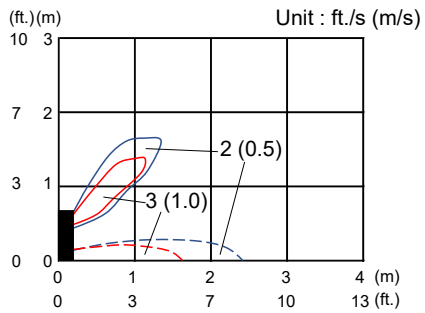
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



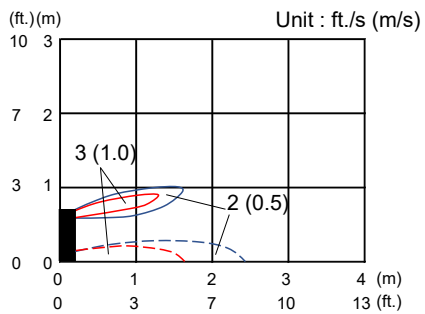
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



Side view
 Vertical airflow direction louver: Center
 Horizontal airflow direction louver: Center



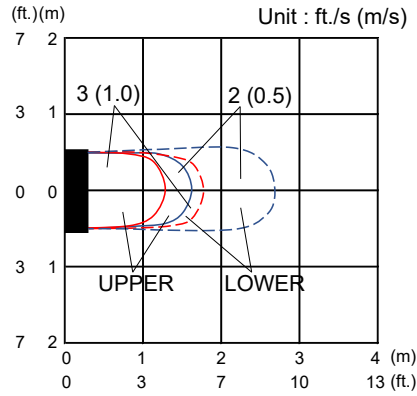
INDOOR UNITS

INDOOR UNITS

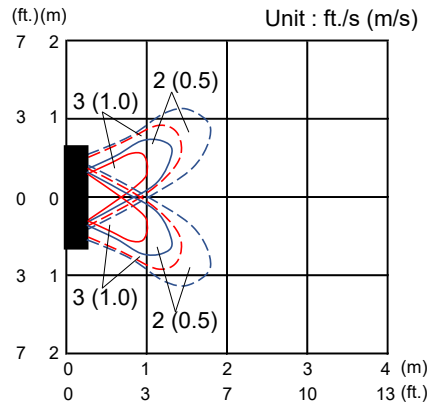
MODEL: AGUA12TLAV1

Conditions:
 Fan speed : HI
 Operation mode : FAN
 Fan select : UPPER&LOWER
 ——— : UPPER FAN
 - - - - : LOWER FAN

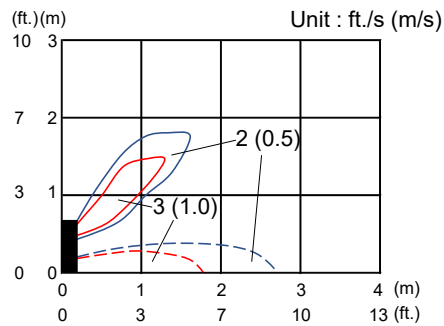
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



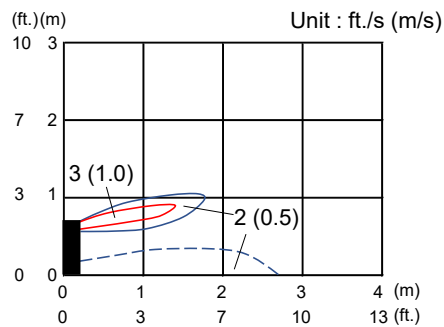
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



Side view
 Vertical airflow direction louver: Center
 Horizontal airflow direction louver: Center

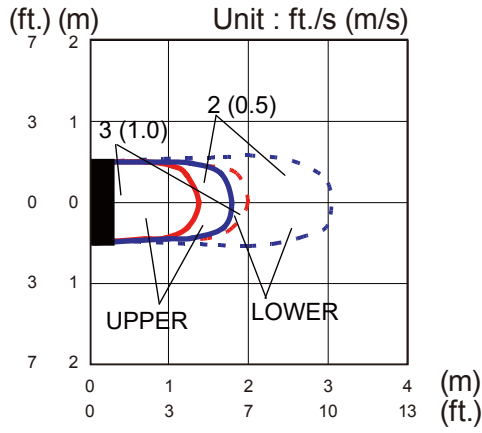


INDOOR UNITS

INDOOR UNITS

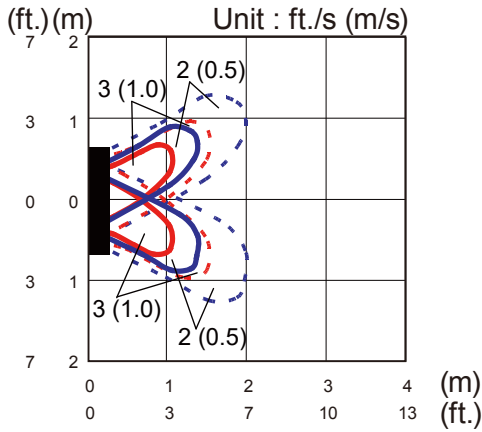
MODEL: AGUA14TLAV1

Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center

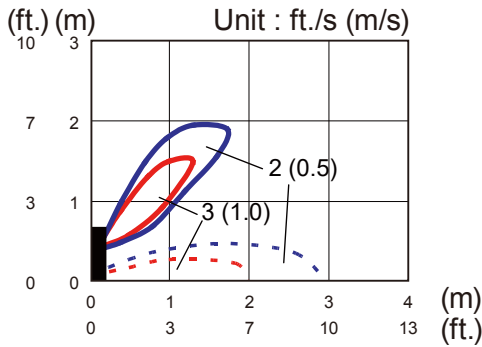


Conditions:
 Fan speed : HI
 Operation mode : FAN
 Fan select : UPPER&LOWER
 ——— : UPPER FAN
 - - - - : LOWER FAN

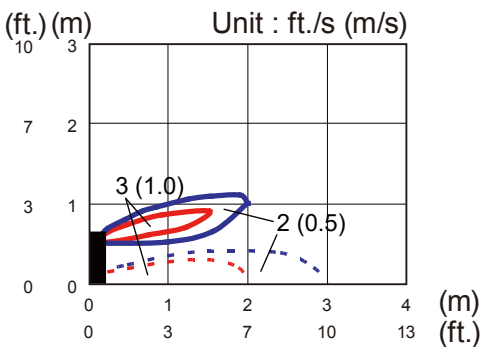
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



Side view
 Vertical airflow direction louver: Center
 Horizontal airflow direction louver: Center

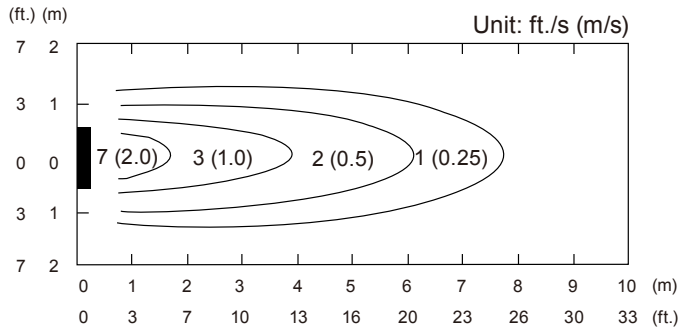


5-7. FLOOR / CEILING TYPE

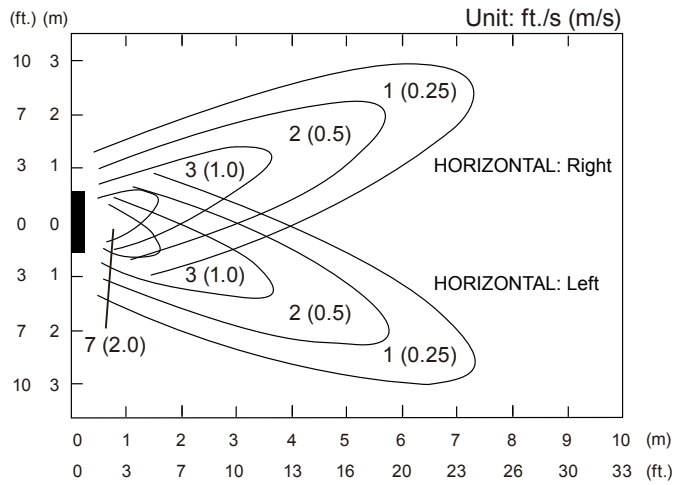
MODELS : ABUA12TLAV, ABUA14TLAV (FLOOR CONSOLE)

Conditions
 Fan speed : High
 Operation mode : Fan

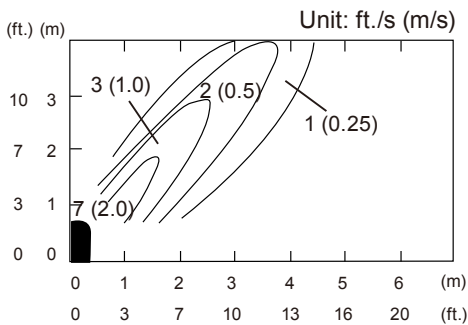
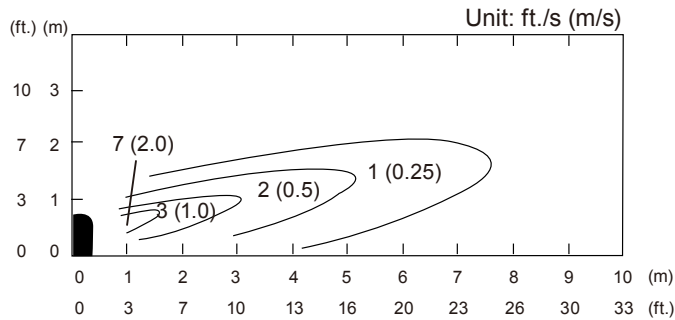
Top view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



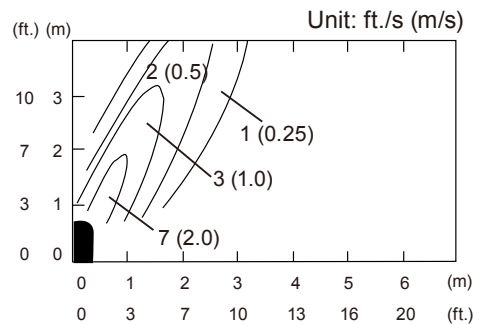
Top view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction louver : Center
 Horizontal airflow direction louver : Center

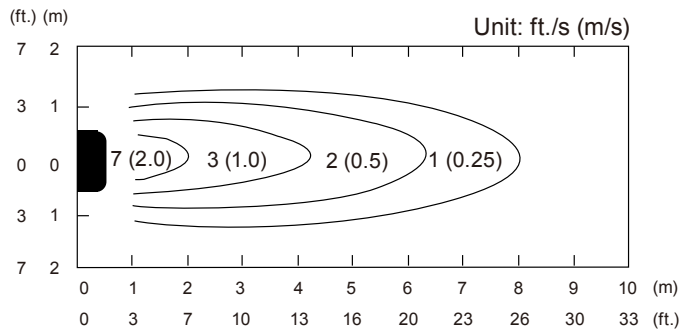


Side view
 Vertical airflow direction louver : Up
 Horizontal airflow direction louver : Center

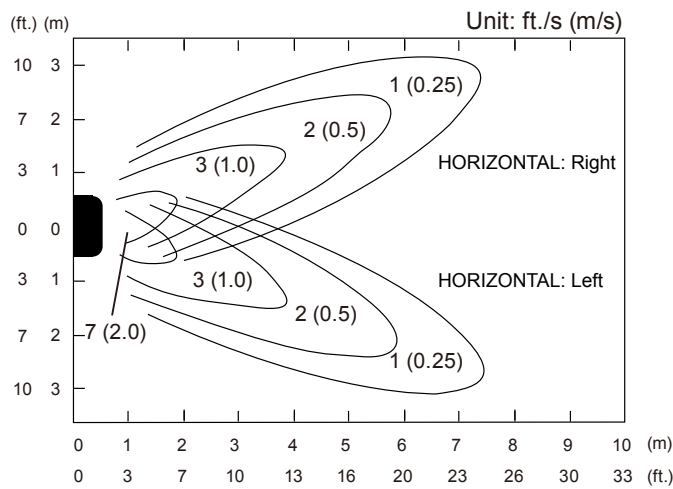
MODELS : ABUA12TLAV, ABUA14TLAV (UNDER CEILING)

Conditions
 Fan speed : High
 Operation mode : Fan

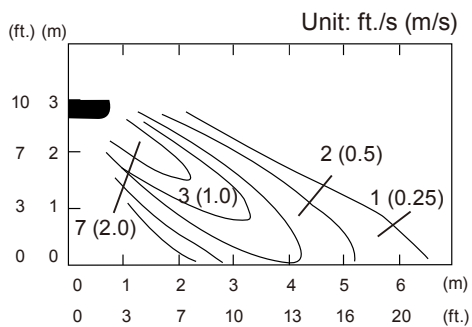
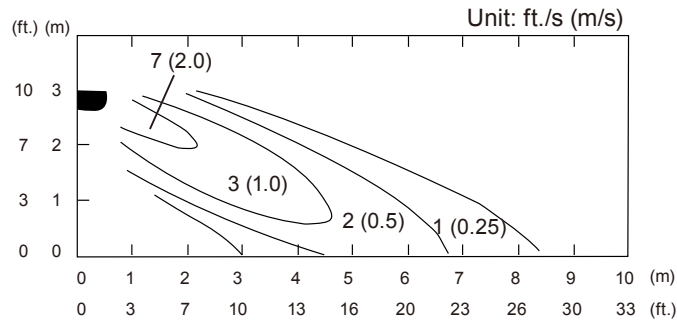
Top view
 Vertical airflow direction
 louver : UP
 Horizontal airflow direction
 louver : Center



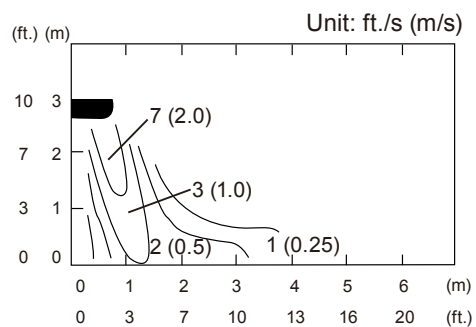
Top view
 Vertical airflow direction
 louver : UP
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : UP
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction louver : Center
 Horizontal airflow direction louver : Center

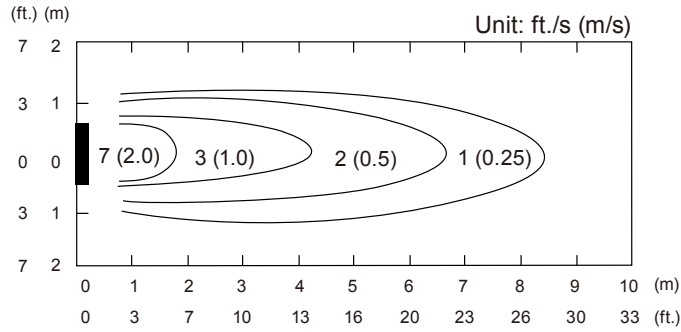


Side view
 Vertical airflow direction louver : Down
 Horizontal airflow direction louver : Center

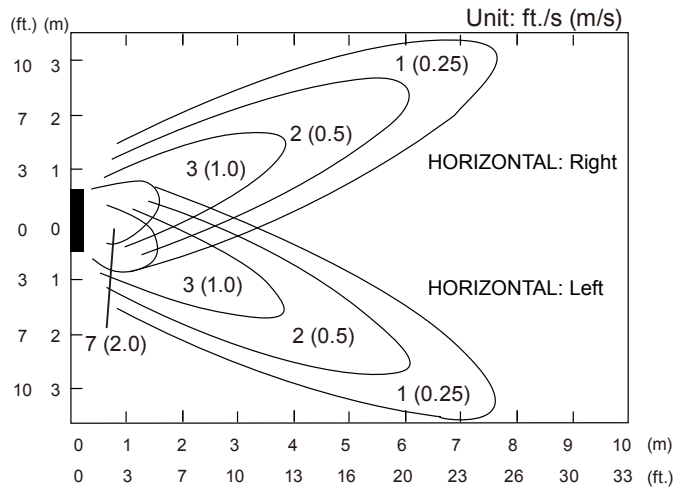
MODEL : ABUA18TLAV (FLOOR CONSOLE)

Conditions
 Fan speed : High
 Operation mode : Fan

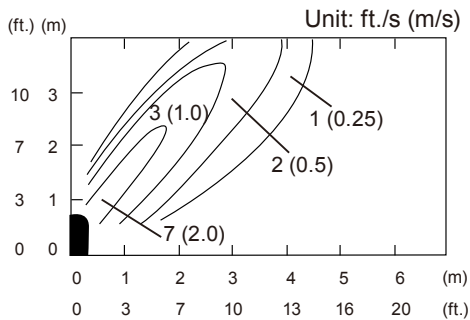
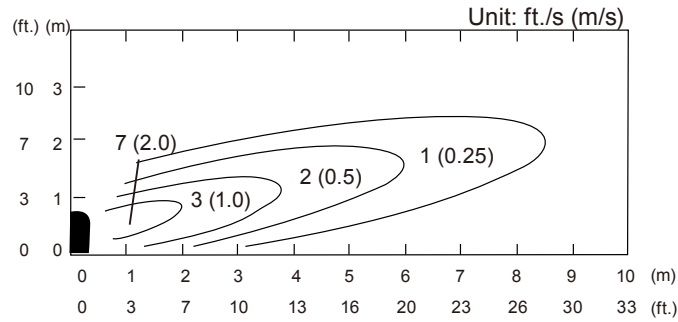
Top view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



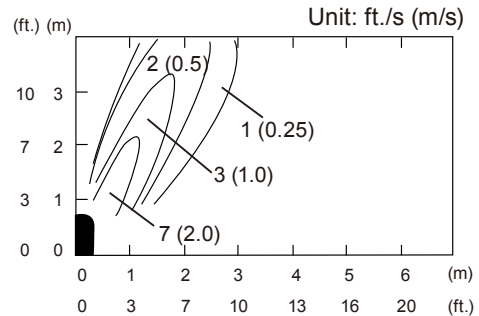
Top view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction louver : Center
 Horizontal airflow direction louver : Center

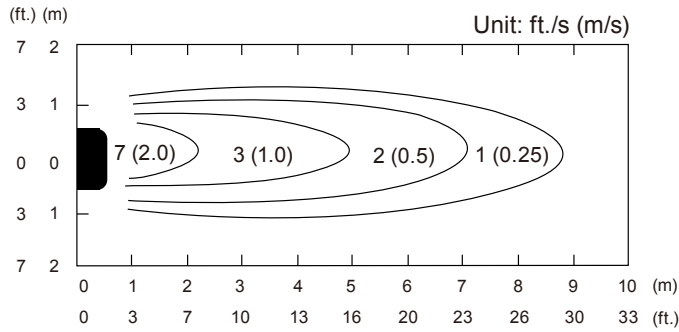


Side view
 Vertical airflow direction louver : Up
 Horizontal airflow direction louver : Center

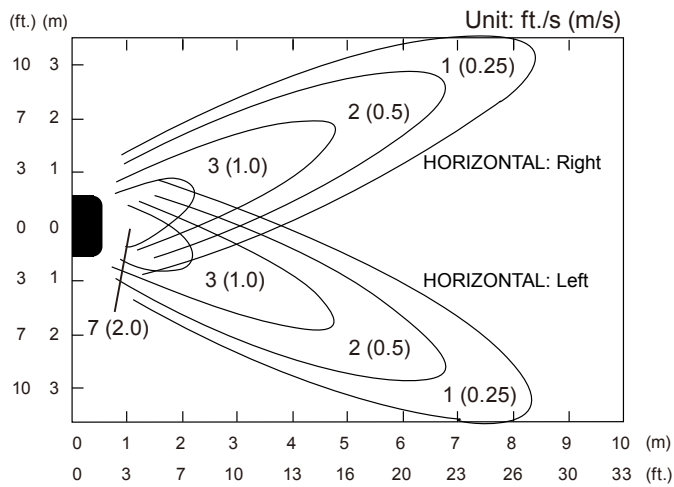
MODEL : ABUA18TLAV (UNDER CEILING)

Conditions
 Fan speed : High
 Operation mode : Fan

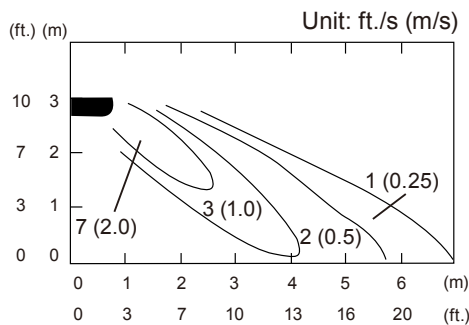
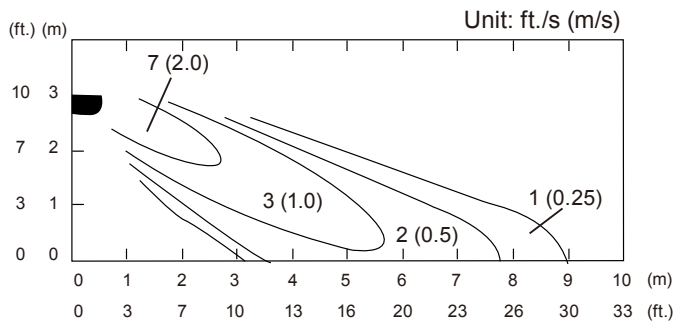
Top view
 Vertical airflow direction
 louver : UP
 Horizontal airflow direction
 louver : Center



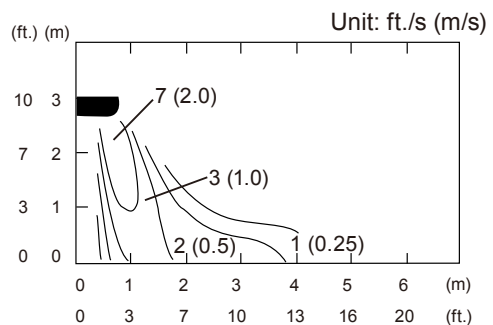
Top view
 Vertical airflow direction
 louver : UP
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : UP
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction louver : Center
 Horizontal airflow direction louver : Center

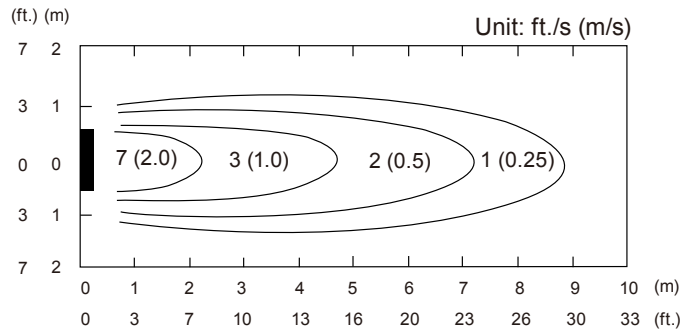


Side view
 Vertical airflow direction louver : Down
 Horizontal airflow direction louver : Center

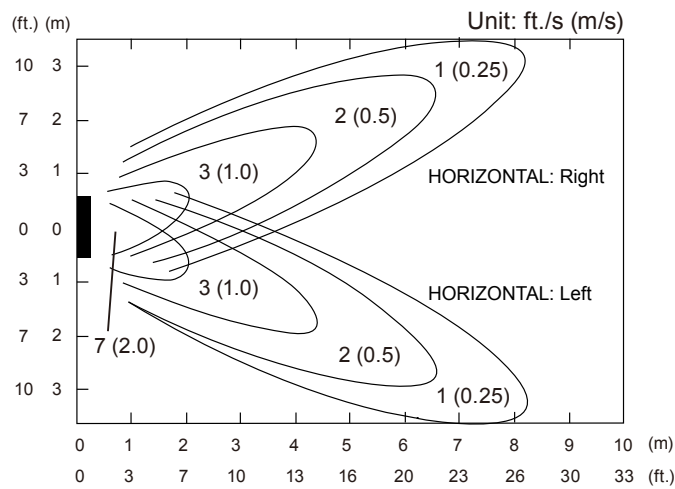
MODEL : ABUA24TLAV (FLOOR CONSOLE)

Conditions
 Fan speed : High
 Operation mode : Fan

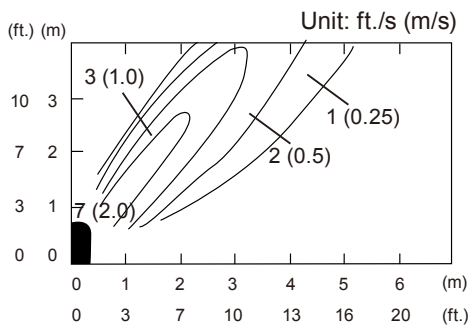
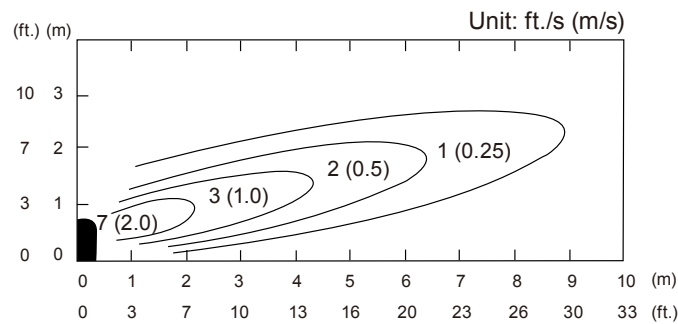
Top view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



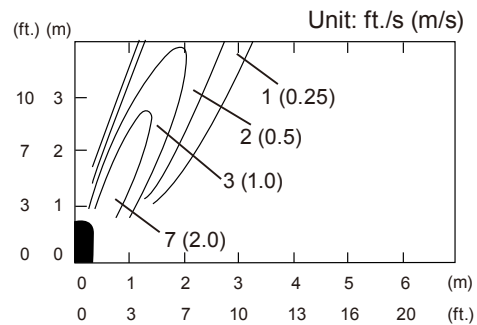
Top view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction louver : Center
 Horizontal airflow direction louver : Center

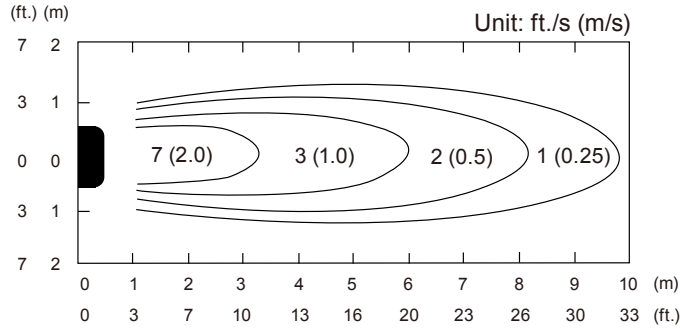


Side view
 Vertical airflow direction louver : Up
 Horizontal airflow direction louver : Center

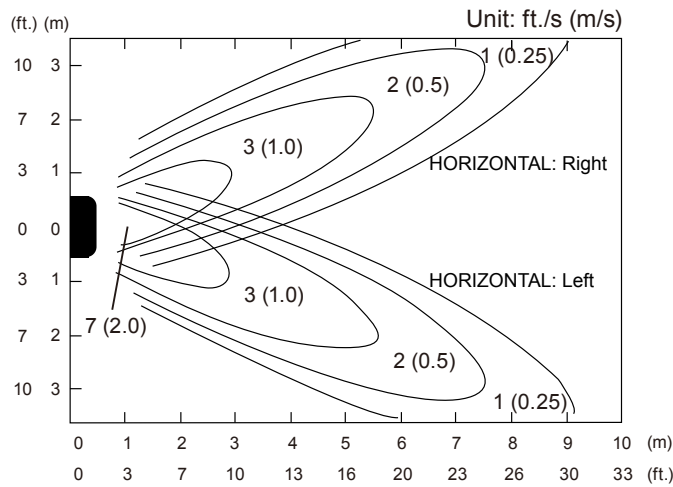
MODEL : ABUA24TLAV (UNDER CEILING)

Conditions
 Fan speed : High
 Operation mode : Fan

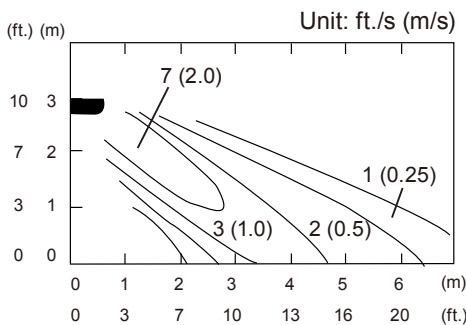
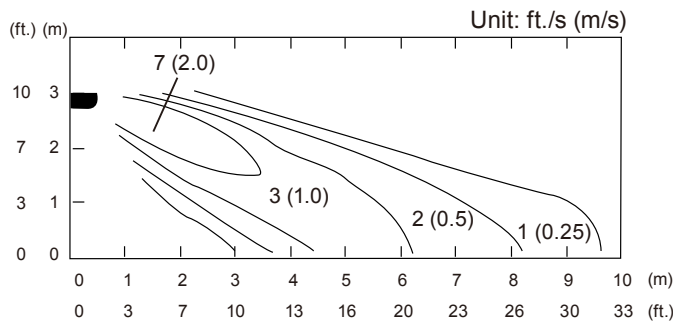
Top view
 Vertical airflow direction
 louver : UP
 Horizontal airflow direction
 louver : Center



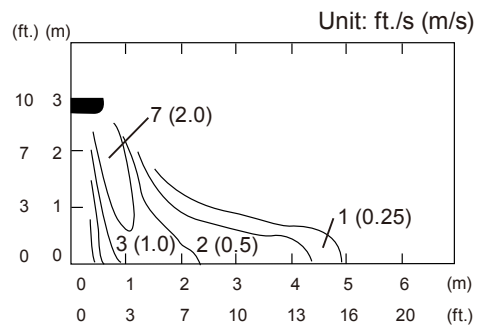
Top view
 Vertical airflow direction
 louver : UP
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : UP
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction louver : Center
 Horizontal airflow direction louver : Center



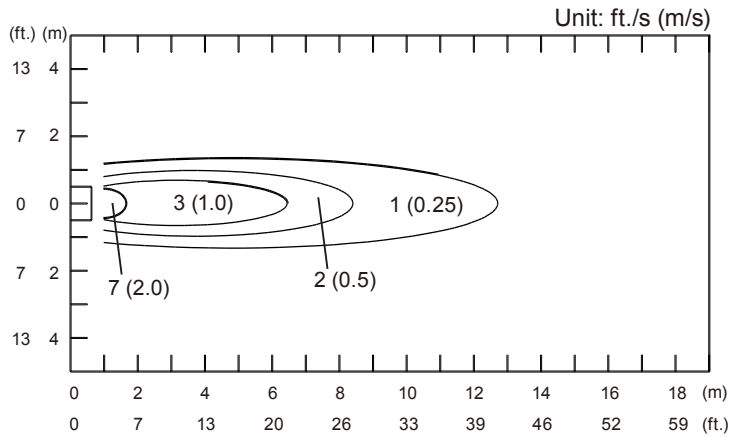
Side view
 Vertical airflow direction louver : Down
 Horizontal airflow direction louver : Center

5-8. CEILING TYPE

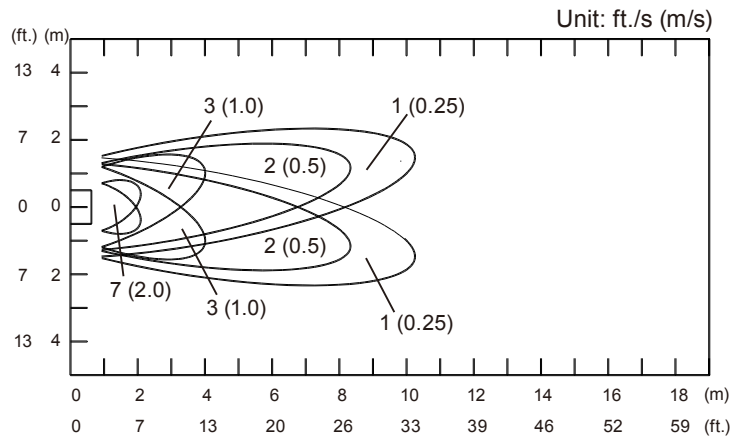
■ MODEL : ABUA30TLAV

Conditions
 Fan speed : High
 Operation mode : Fan

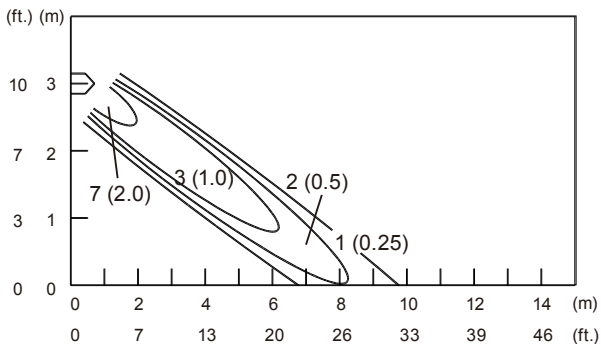
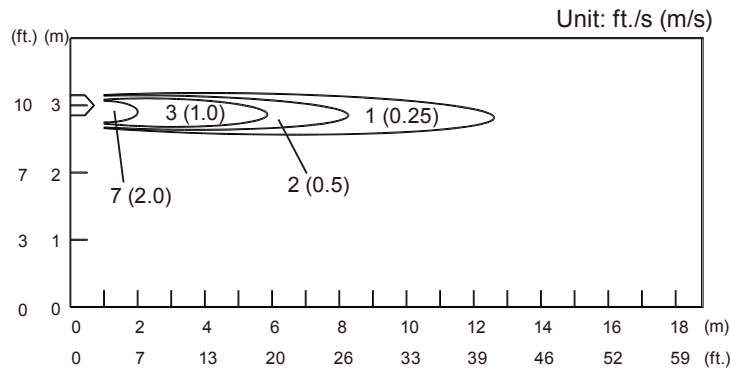
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



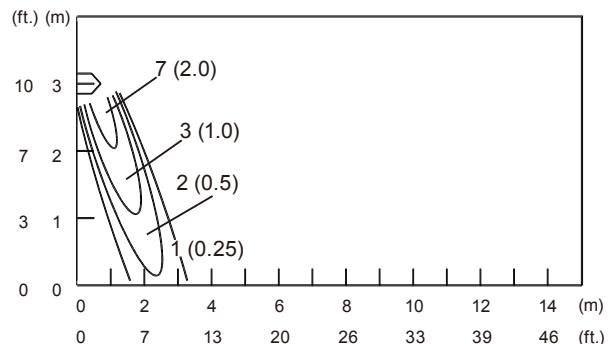
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction louver : Center
 Horizontal airflow direction louver : Center

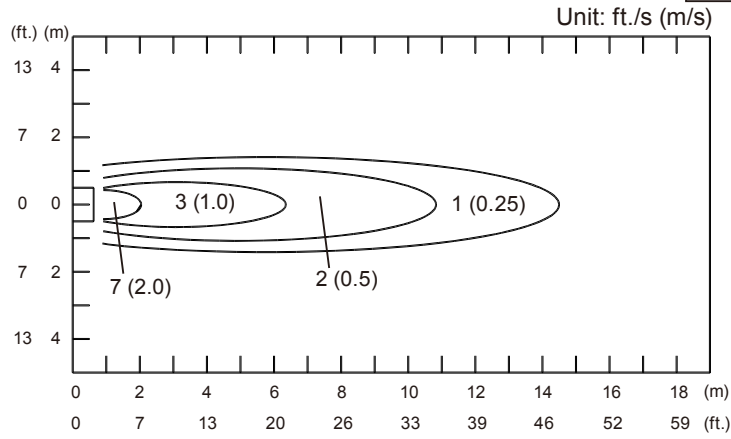


Side view
 Vertical airflow direction louver : Down
 Horizontal airflow direction louver : Center

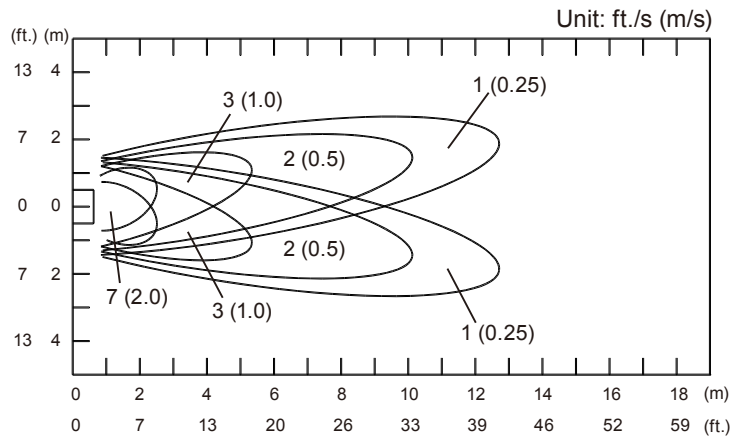
MODEL : ABUA36TLAV

Conditions
 Fan speed : High
 Operation mode : Fan

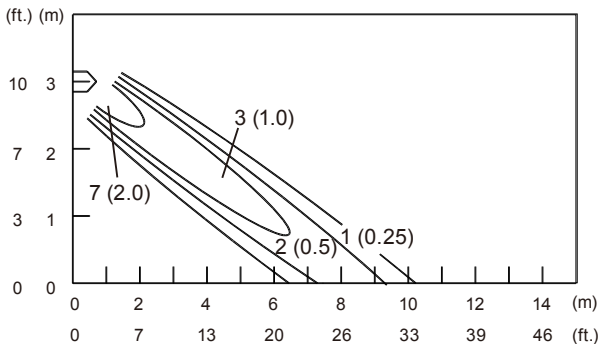
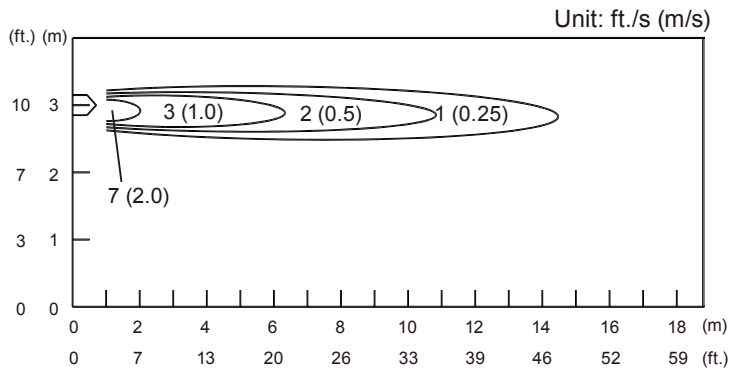
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



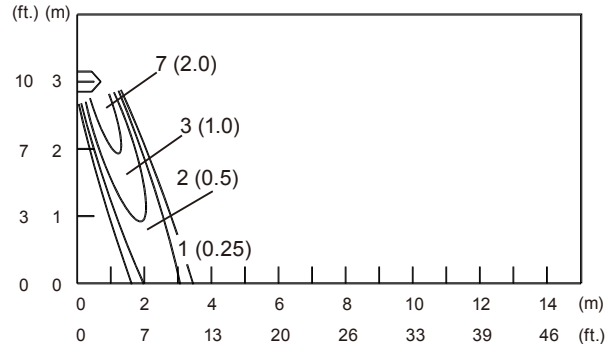
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction louver : Center
 Horizontal airflow direction louver : Center



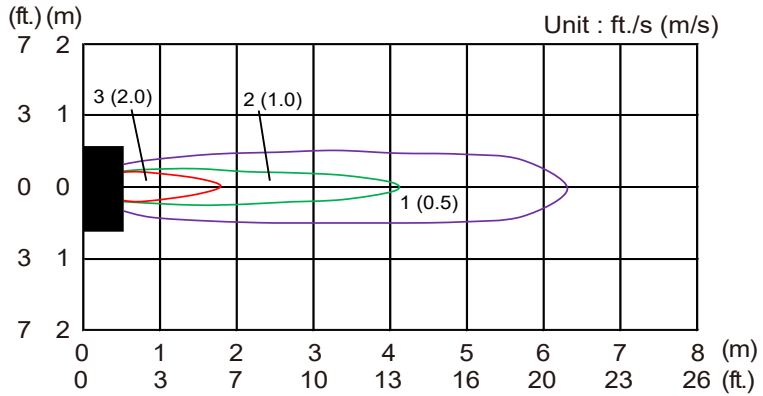
Side view
 Vertical airflow direction louver : Down
 Horizontal airflow direction louver : Center

5-9. WALL MOUNTED TYPE

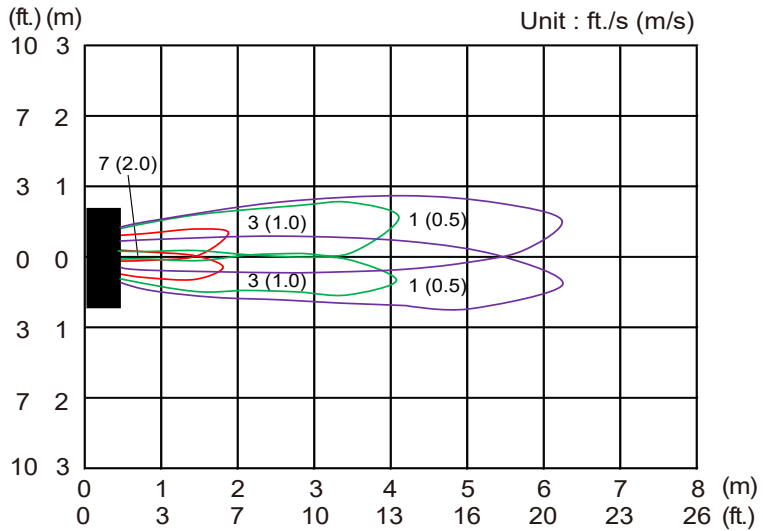
■ MODEL: ASUA4TLAV1

Conditions	
Fan speed	: High
Operation mode	: Fan
Voltage	: 230V

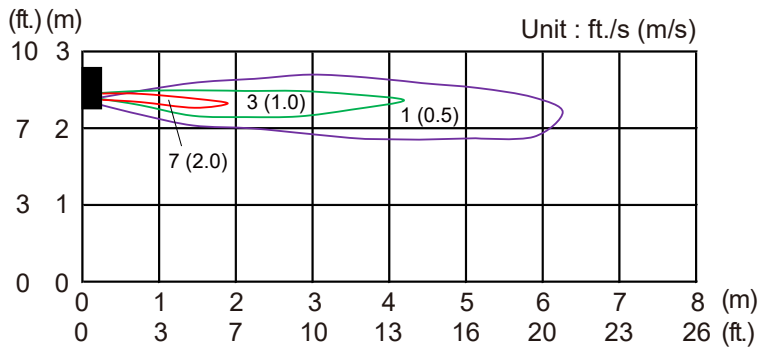
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



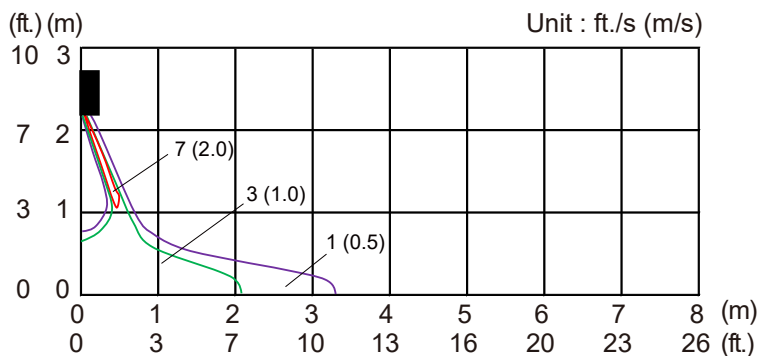
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



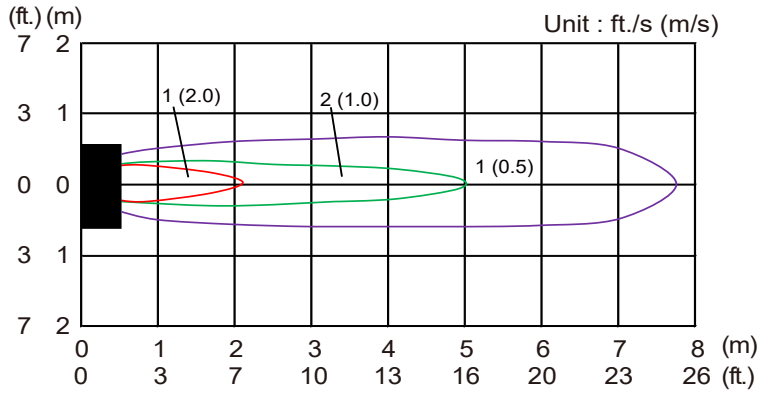
Side view
 Vertical airflow direction louver: Down
 Horizontal airflow direction louver: Center



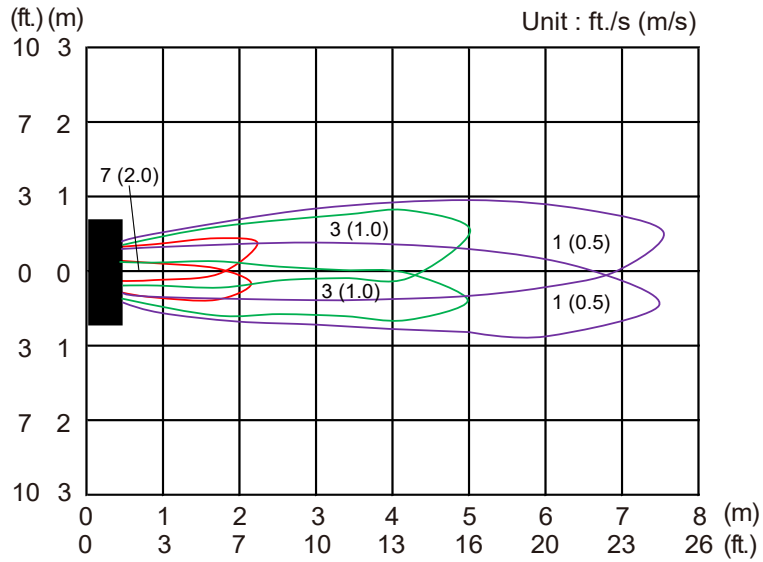
MODEL: ASUA7TLAV1

Conditions	
Fan speed	: High
Operation mode	: Fan
Voltage	: 230V

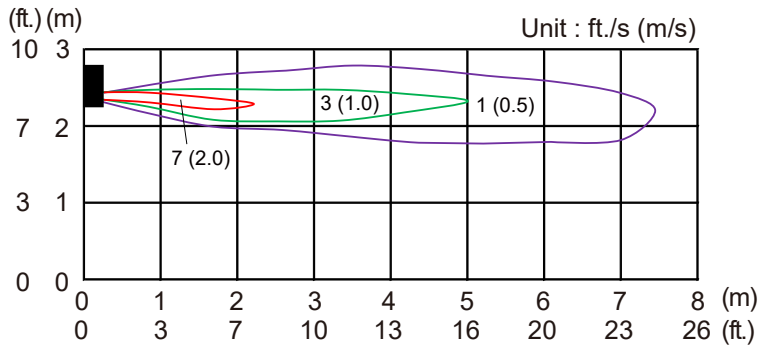
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



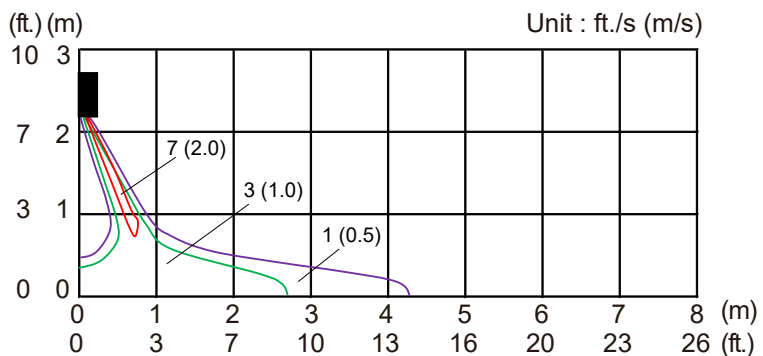
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



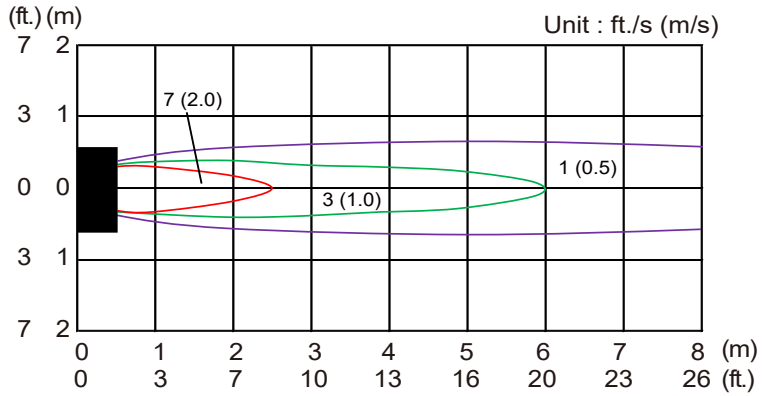
Side view
 Vertical airflow direction louver: Down
 Horizontal airflow direction louver: Center



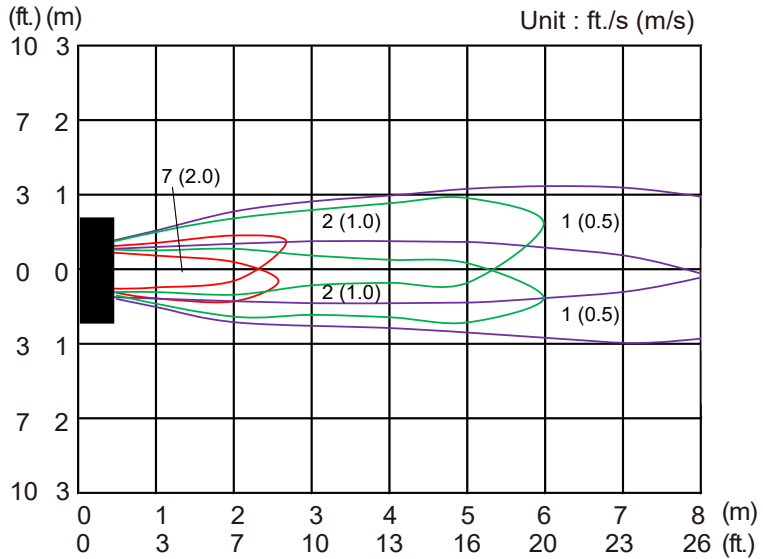
MODEL: ASUA9TLAV1

Conditions	
Fan speed	: High
Operation mode	: Fan
Voltage	: 230V

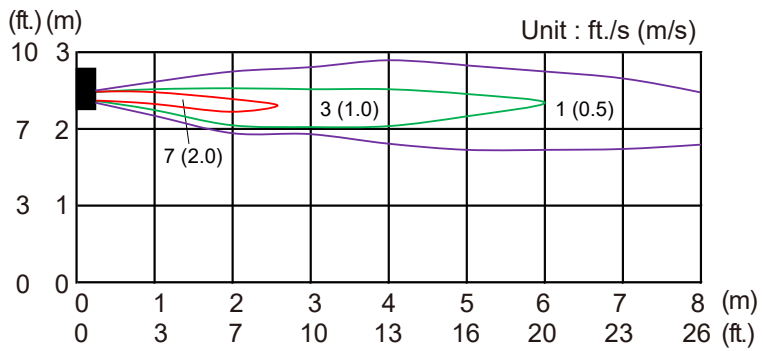
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



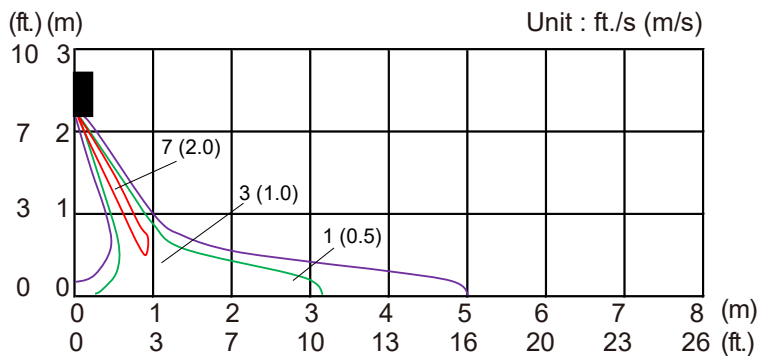
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



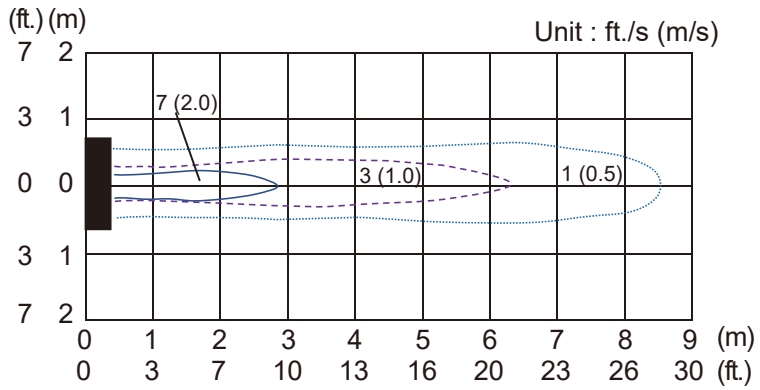
Side view
 Vertical airflow direction louver: Down
 Horizontal airflow direction louver: Center



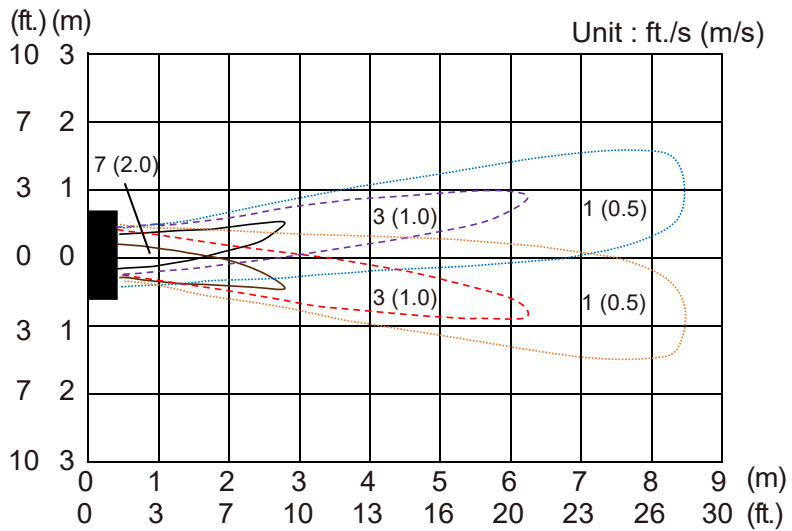
MODEL: ASUA12TLAV1

Conditions	
Fan speed	: High
Operation mode	: Fan
Voltage	: 230V

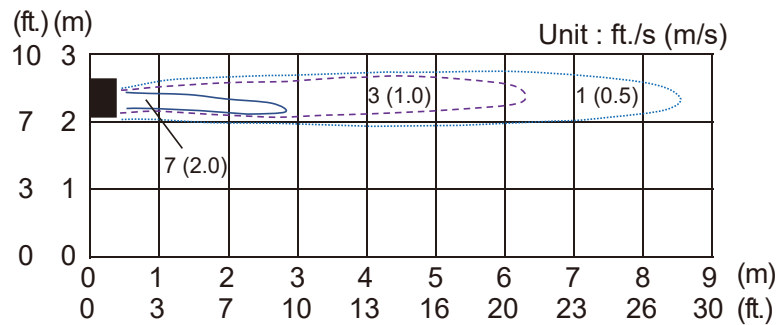
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



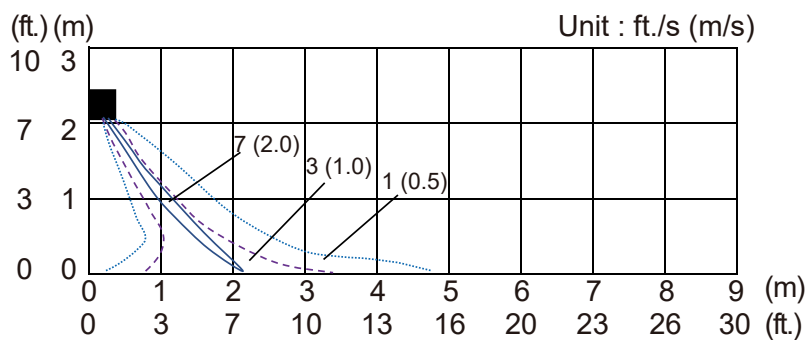
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



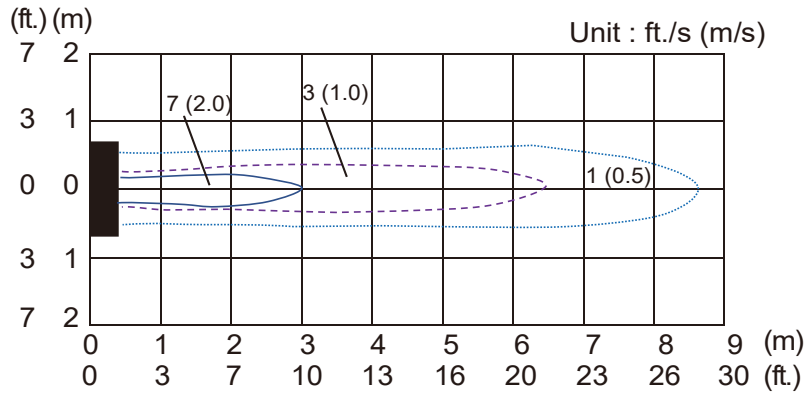
Side view
 Vertical airflow direction louver: Down
 Horizontal airflow direction louver: Center



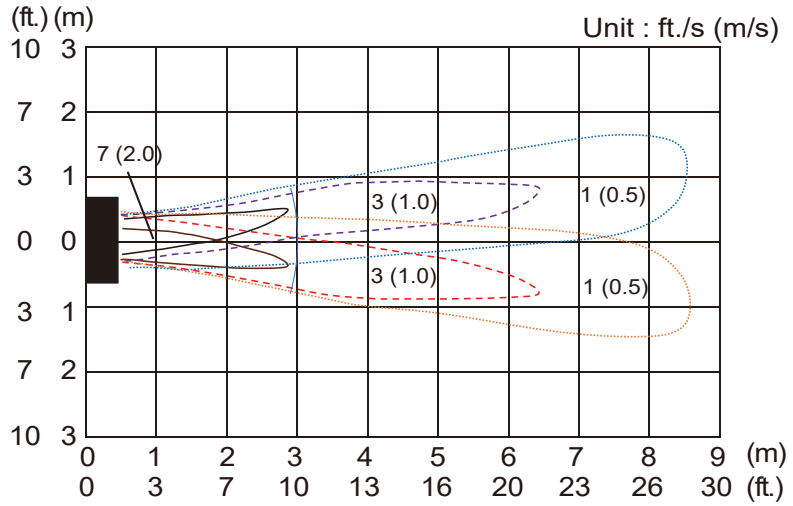
MODEL: ASUA14TLAV1

Conditions	
Fan speed	: High
Operation mode	: Fan
Voltage	: 230V

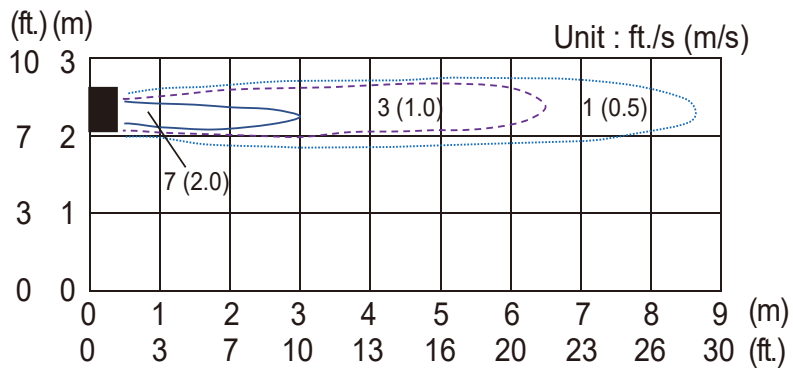
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



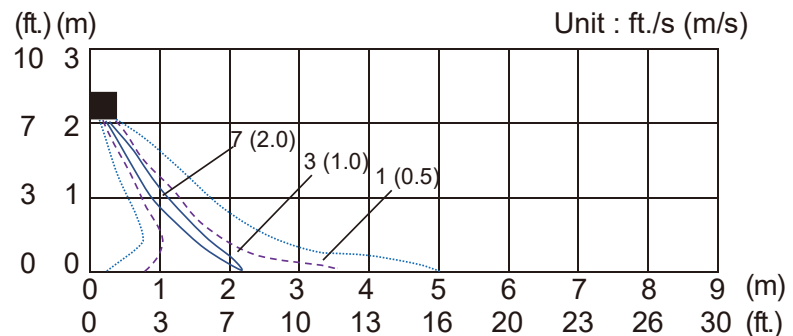
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center

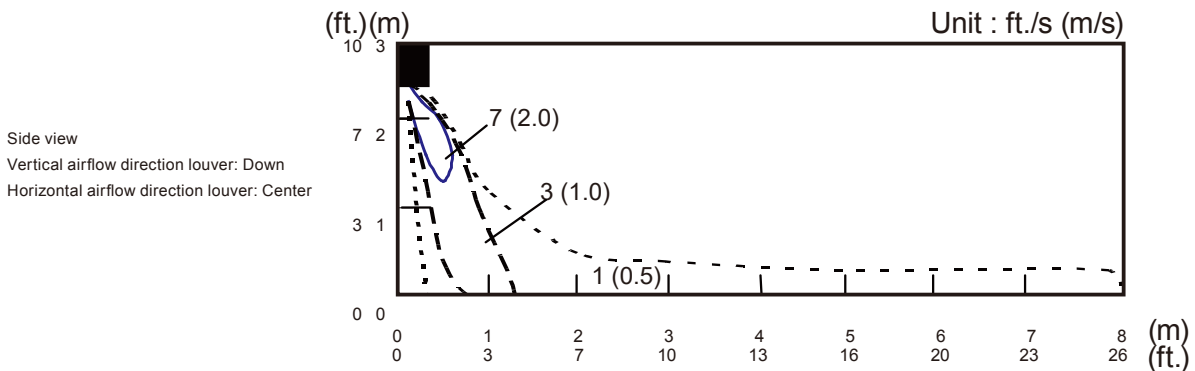
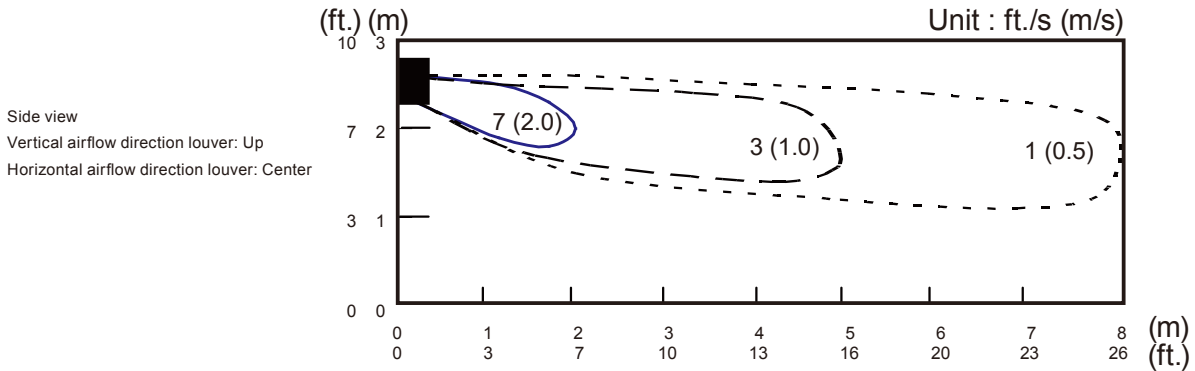
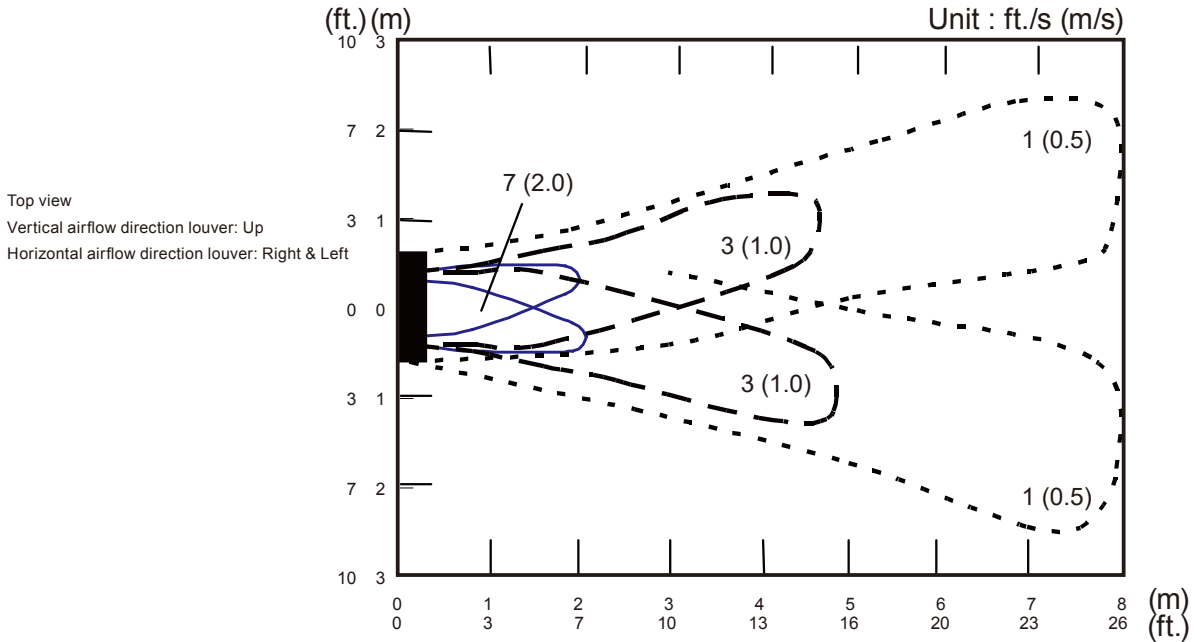
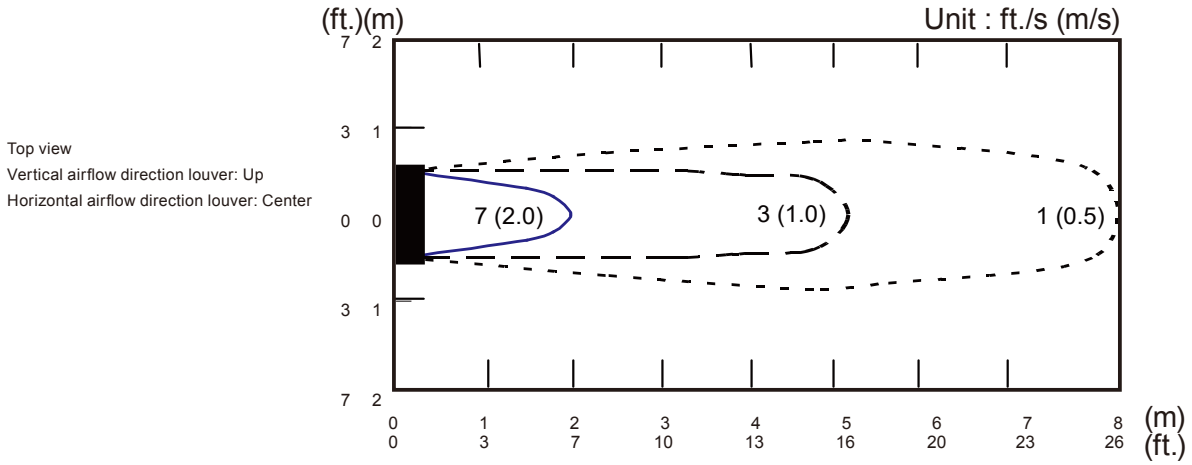


Side view
 Vertical airflow direction louver: Down
 Horizontal airflow direction louver: Center



MODEL: ASUB18TLAV1

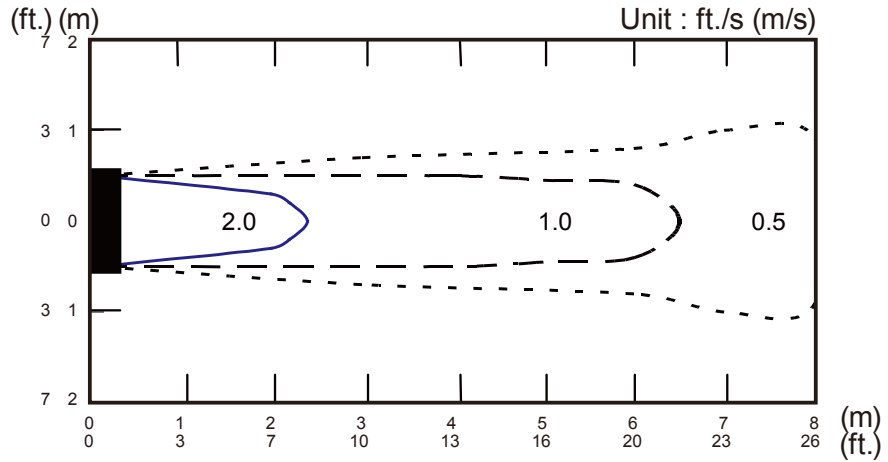
Conditions	
Fan speed	: High
Operation mode	: Fan
Voltage	: 230V



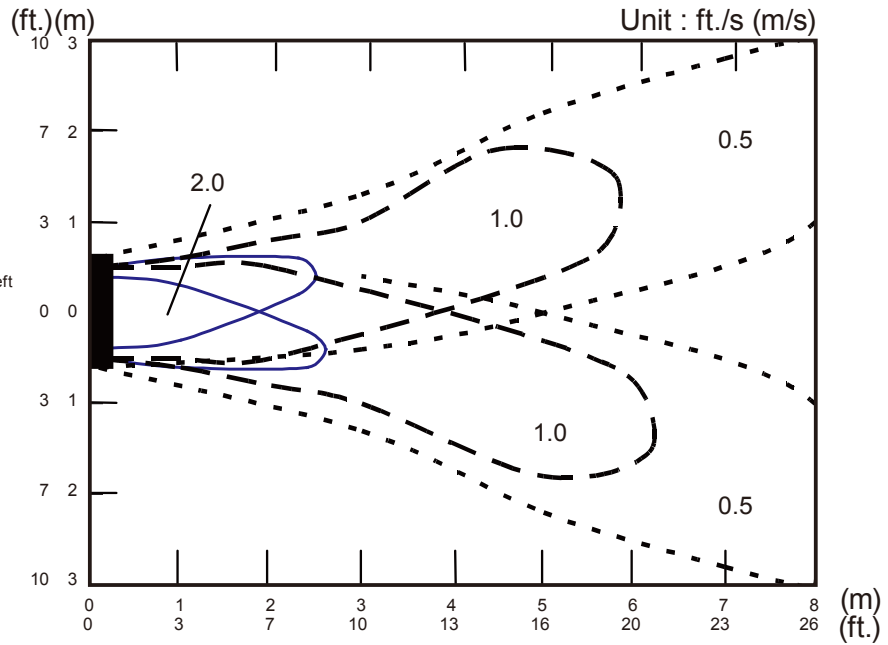
MODEL: ASUB24TLAV1

Conditions	
Fan speed	: High
Operation mode	: Fan
Voltage	: 230V

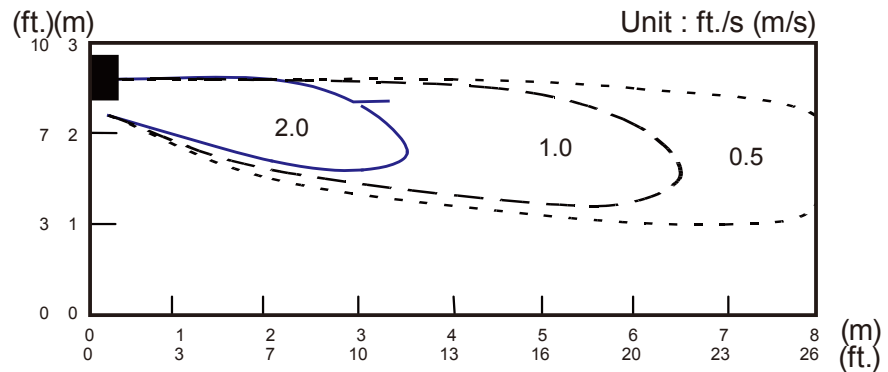
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



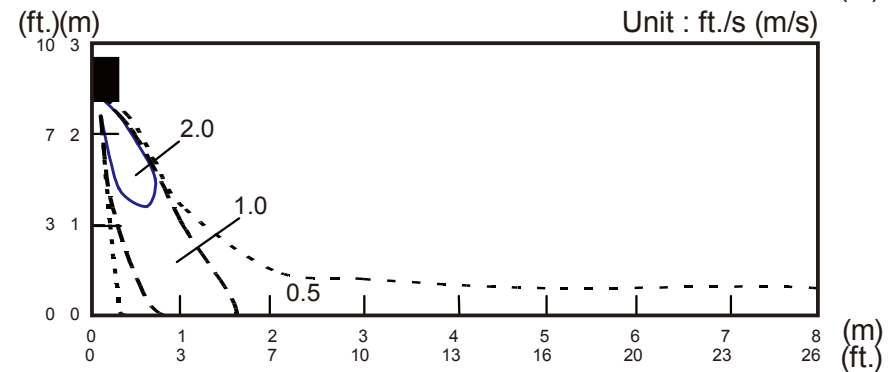
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



Side view
 Vertical airflow direction louver: Down
 Horizontal airflow direction louver: Center



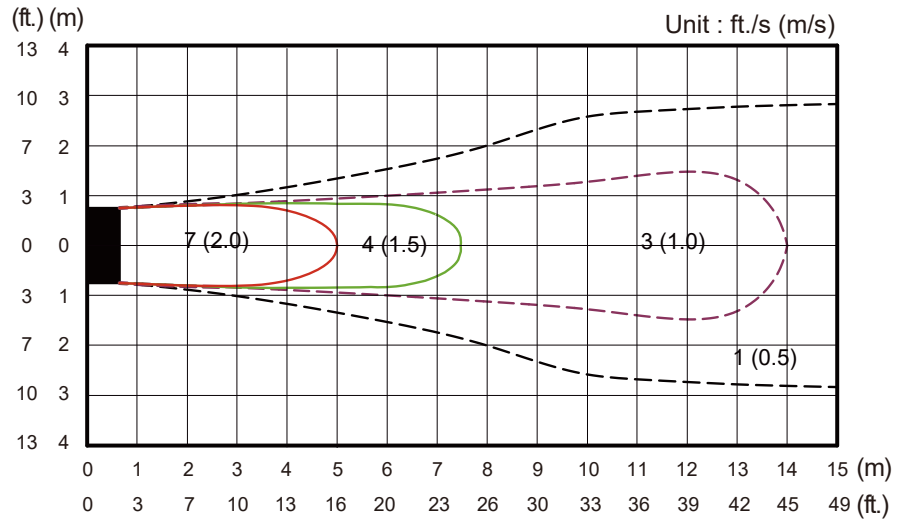
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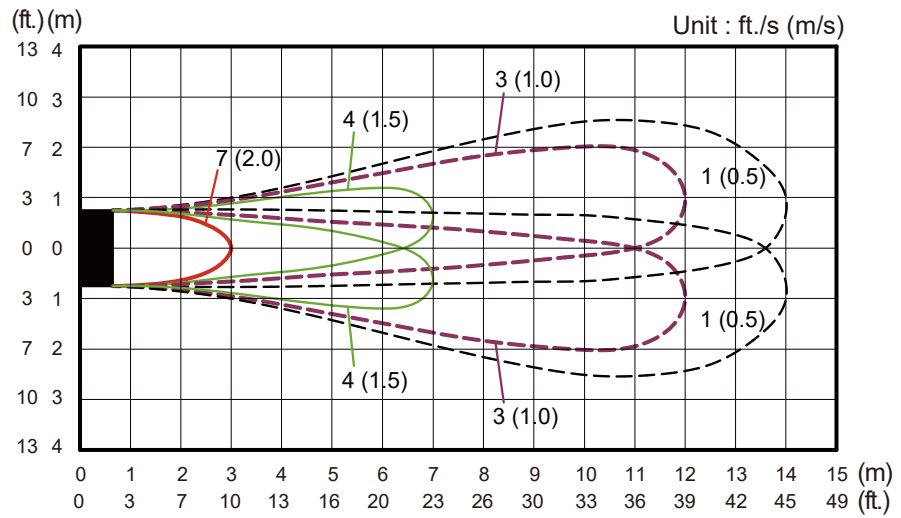
MODEL: ASUB30TLAV1

Conditions	
Fan speed	: High
Operation mode	: Fan
Voltage	: 230V

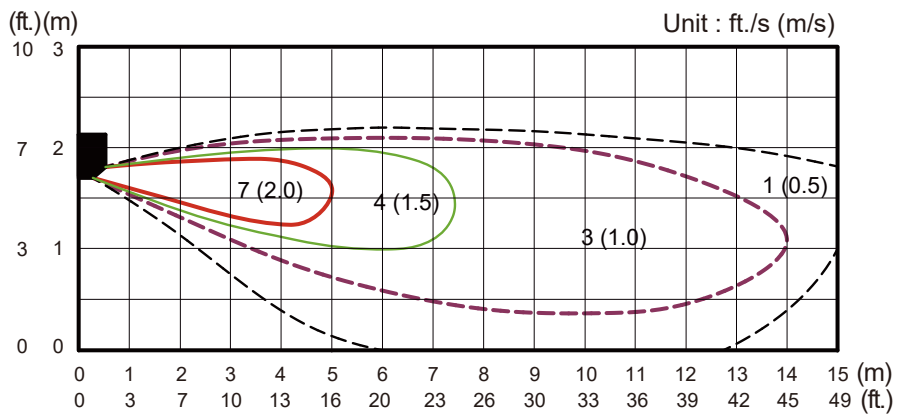
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



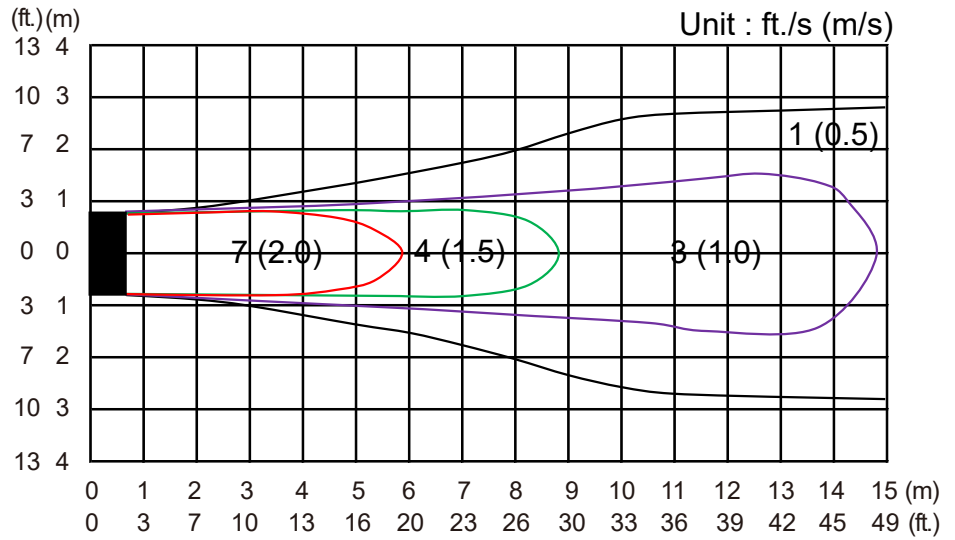
Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



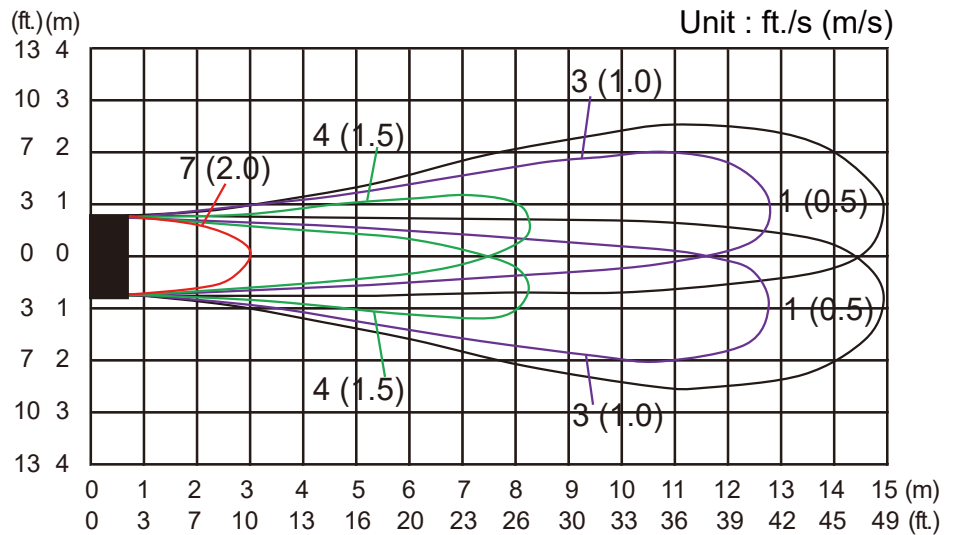
MODEL: ASUB36TLAV1

Conditions	
Fan speed	: High
Operation mode	: Fan
Voltage	: 230V

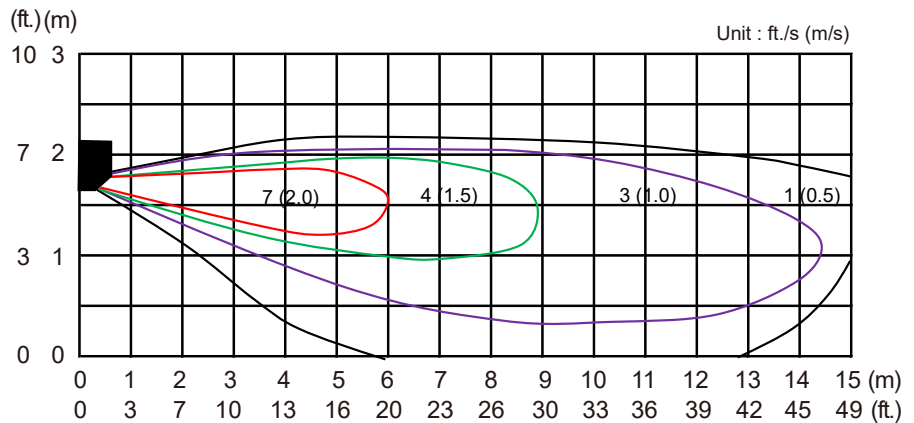
Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



Top view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Right & Left



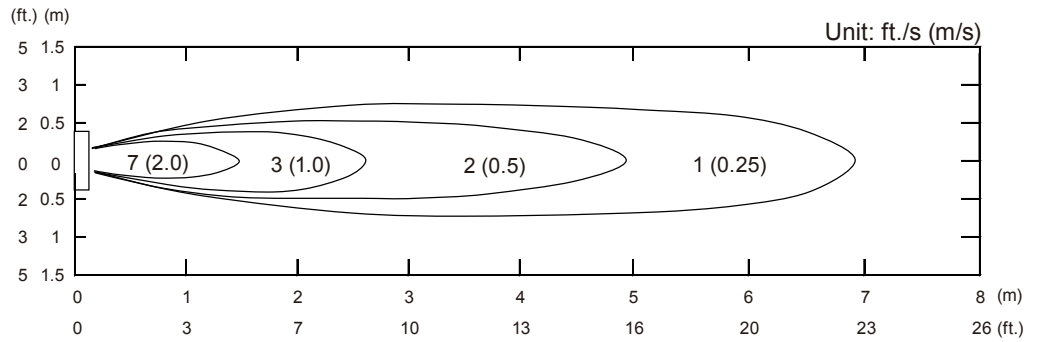
Side view
 Vertical airflow direction louver: Up
 Horizontal airflow direction louver: Center



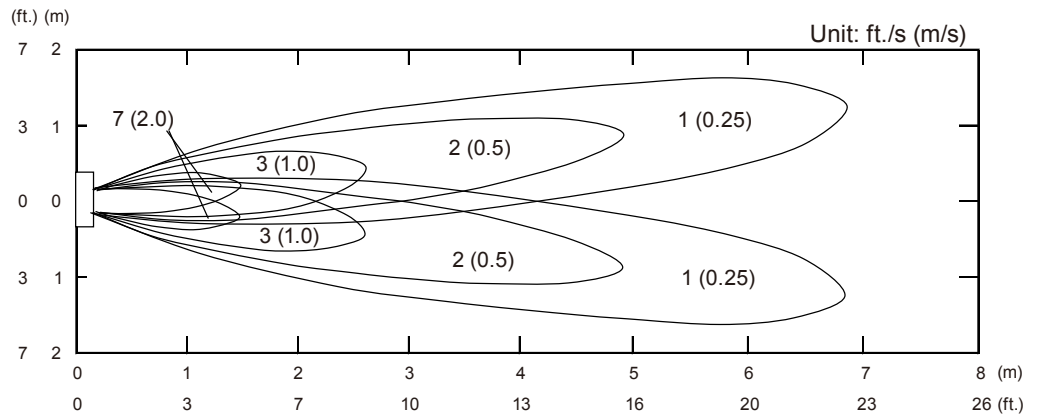
MODELS : ASUA7TLAV, ASUA9TLAV

Conditions
 Fan speed : High
 Operation mode : Fan

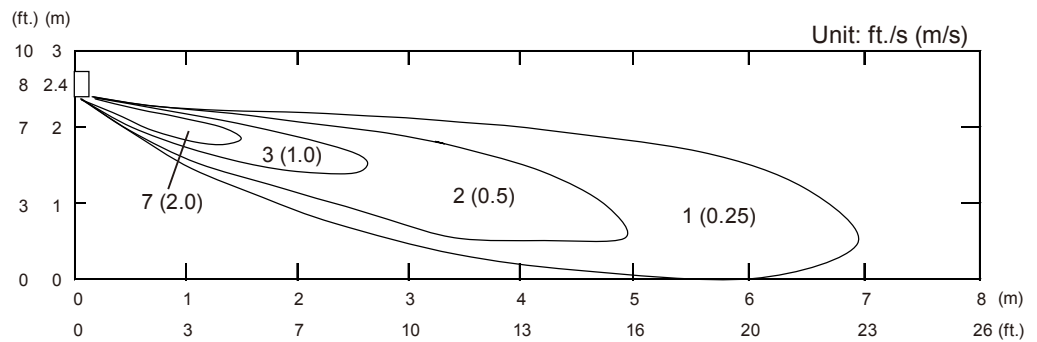
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



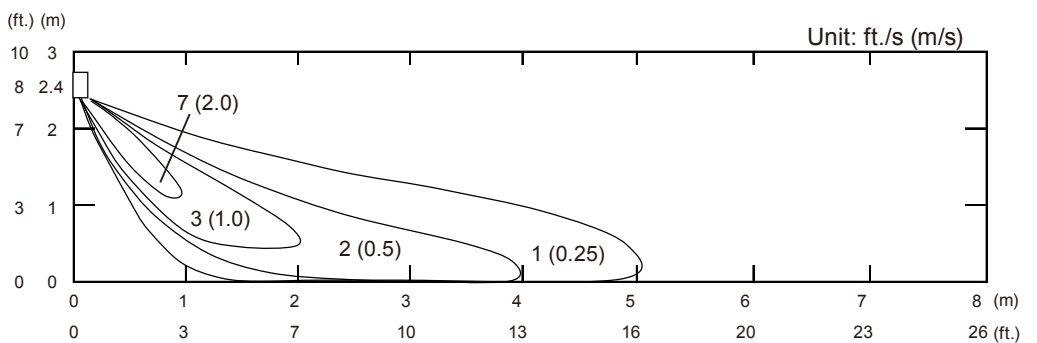
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



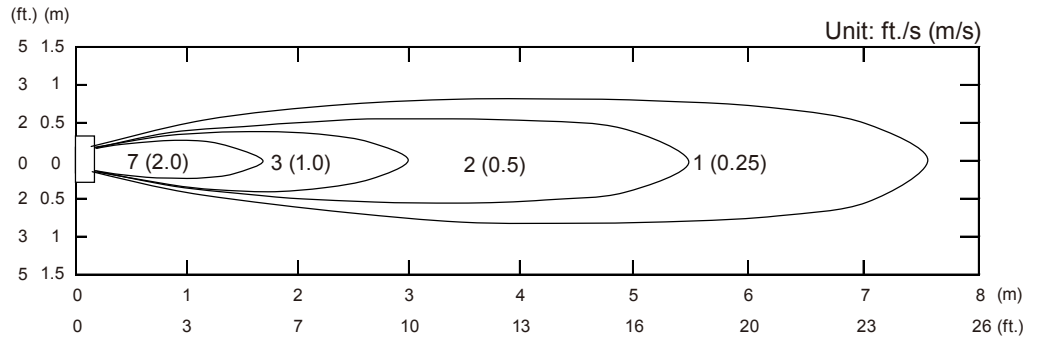
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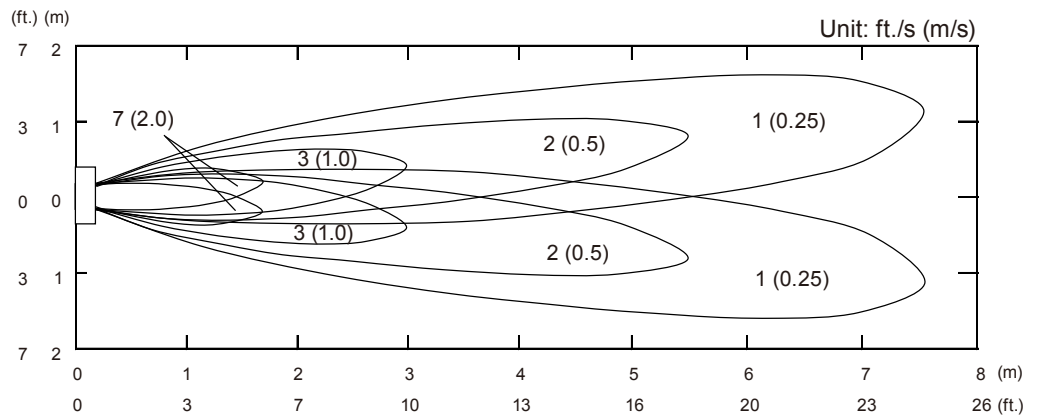
MODEL : ASUA12TLAV

Conditions
 Fan speed : High
 Operation mode : Fan

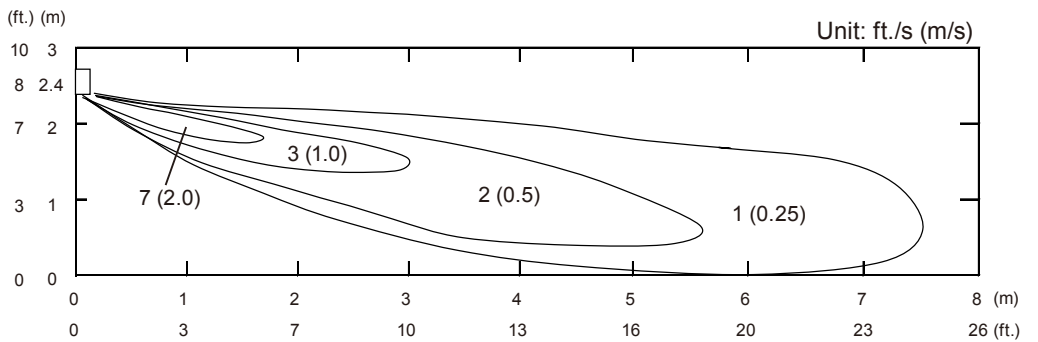
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



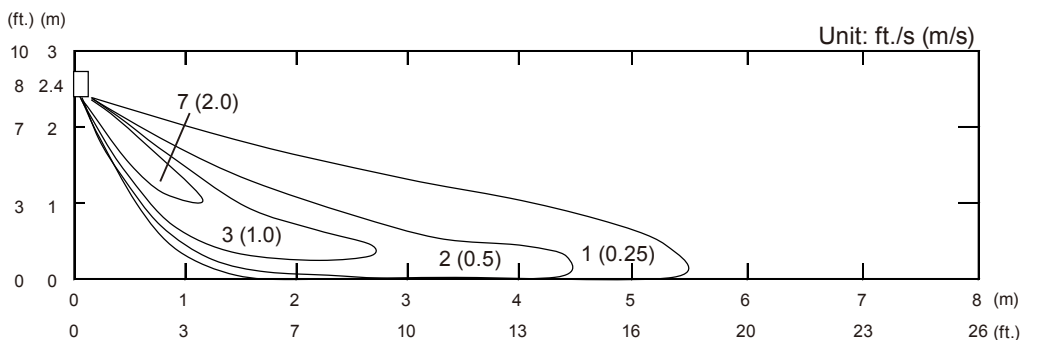
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



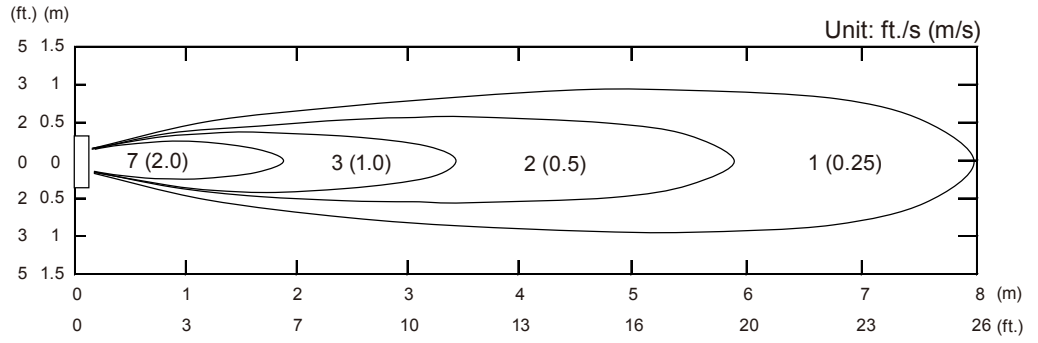
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INDOOR UNITS

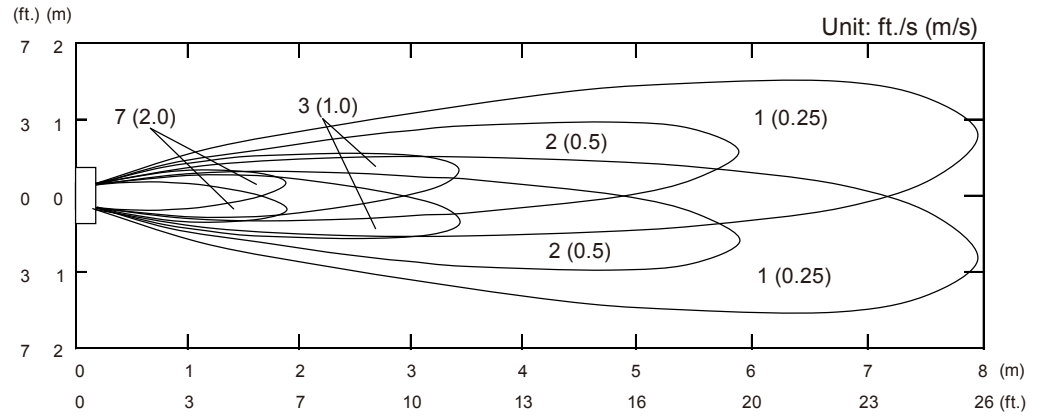
MODEL : ASUA14TLAV

Conditions
 Fan speed : High
 Operation mode : Fan

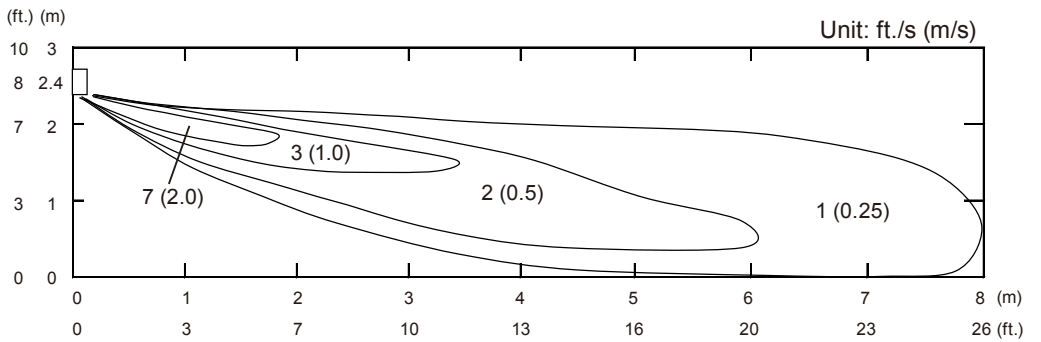
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



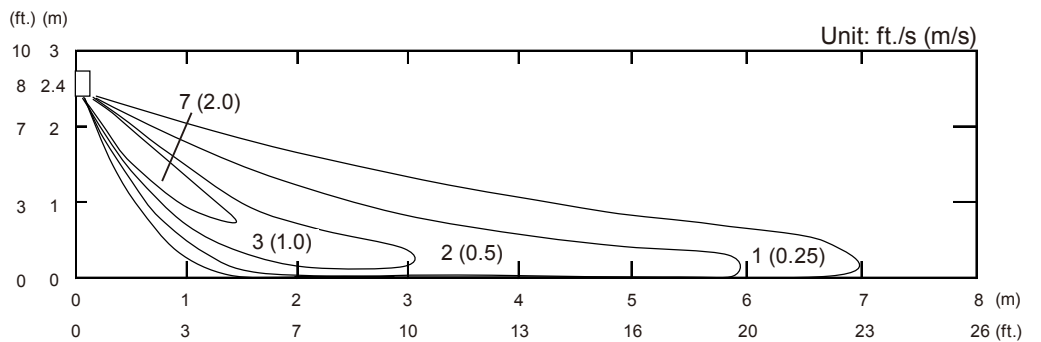
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



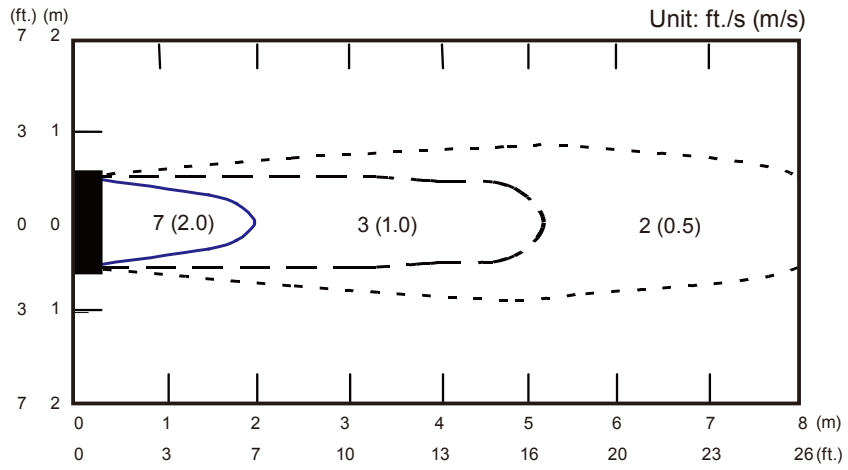
INDOOR UNITS

INDOOR UNITS

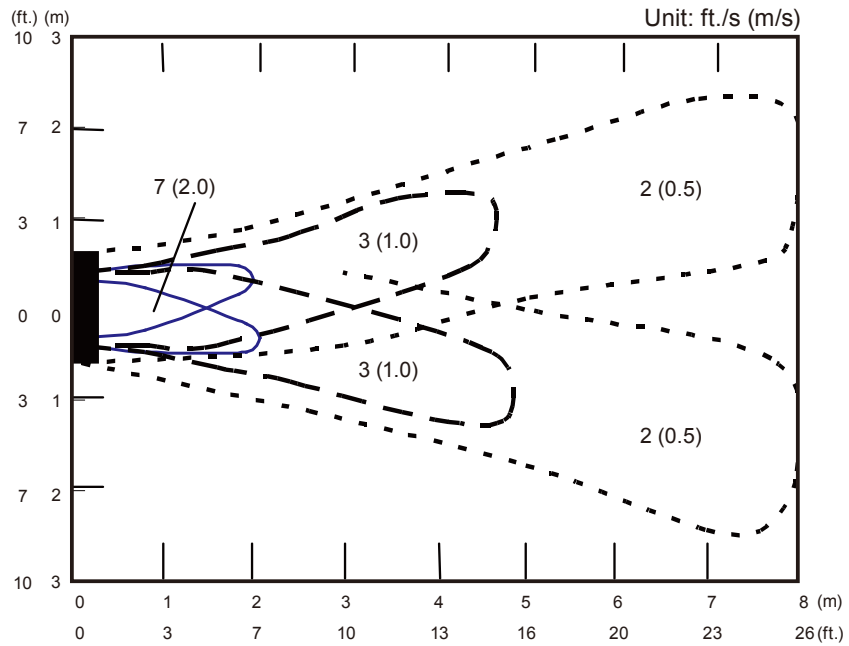
MODEL : ASUB18TLAV

Conditions
 Fan speed : High
 Operation mode : Fan

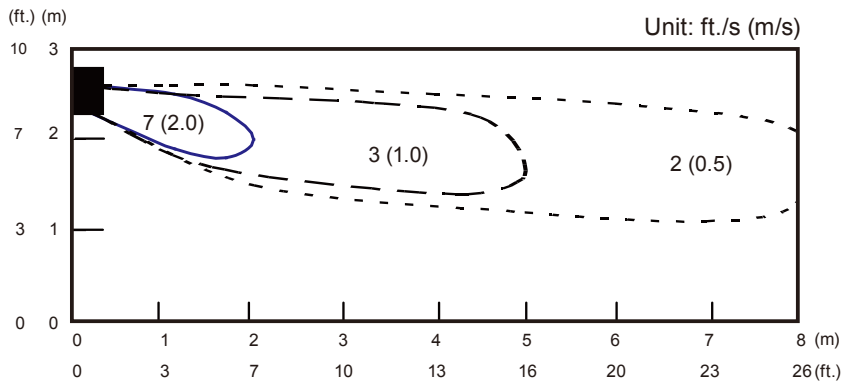
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



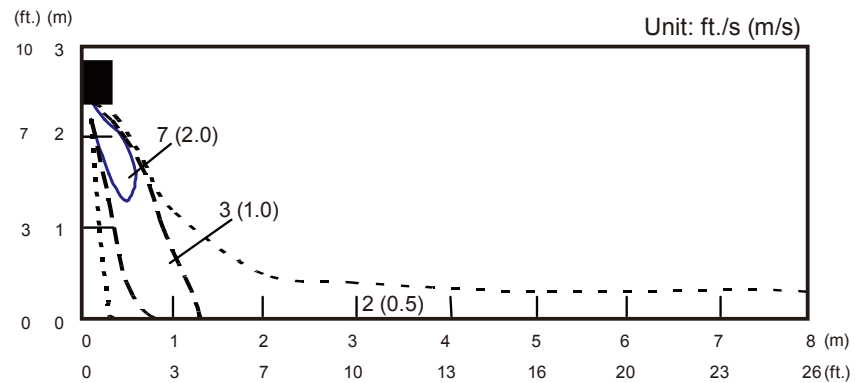
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



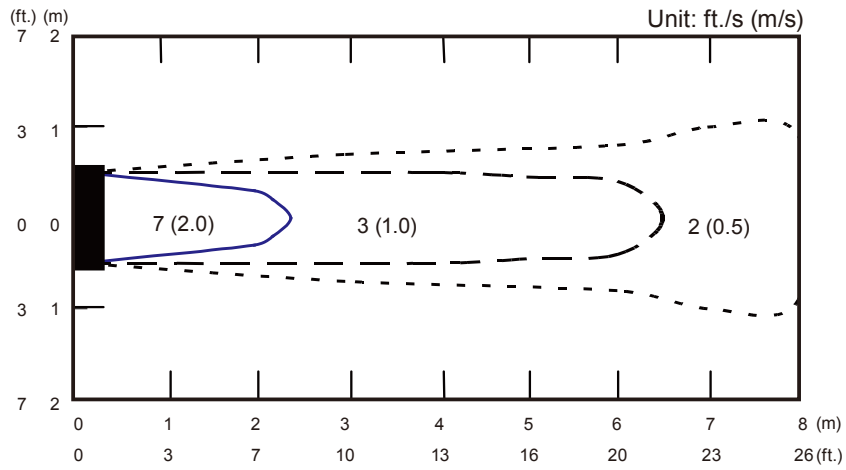
Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



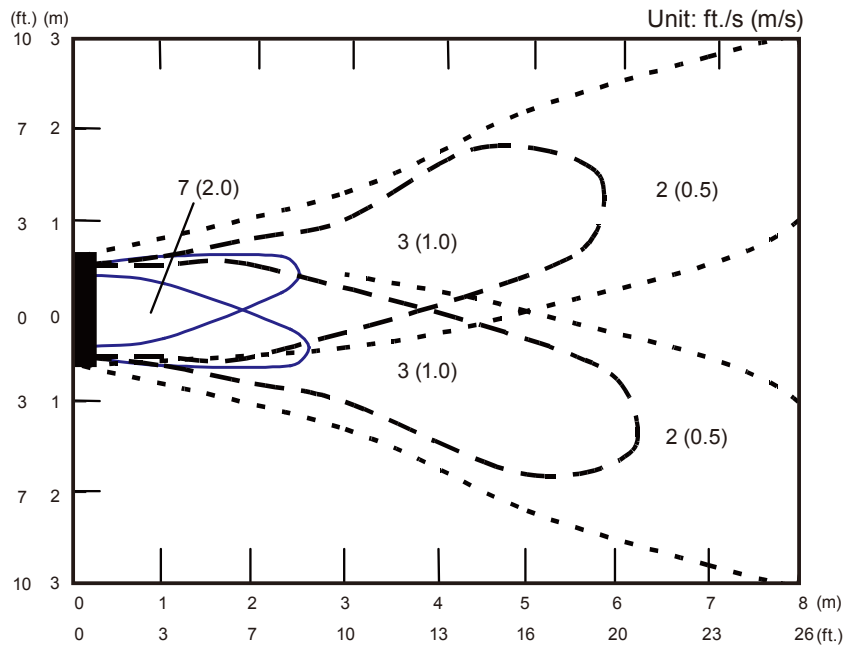
MODEL : ASUB24TLAV

Conditions
 Fan speed : High
 Operation mode : Fan

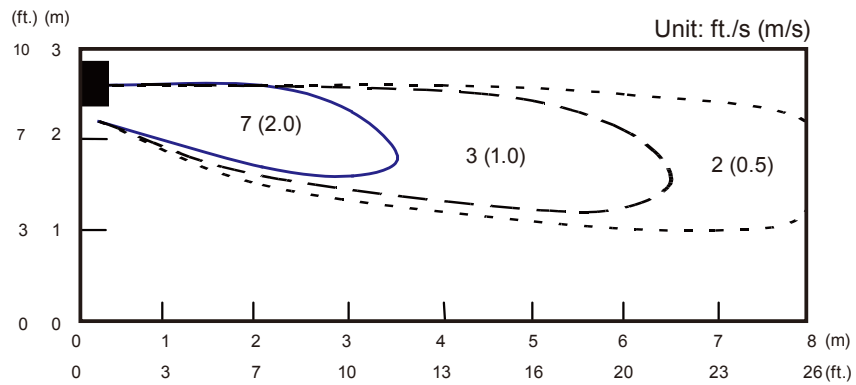
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



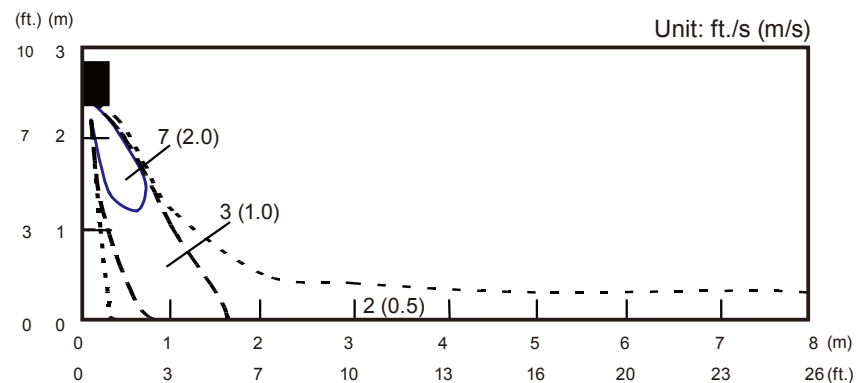
Top view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Right & Left



Side view
 Vertical airflow direction
 louver : Up
 Horizontal airflow direction
 louver : Center



Side view
 Vertical airflow direction
 louver : Down
 Horizontal airflow direction
 louver : Center



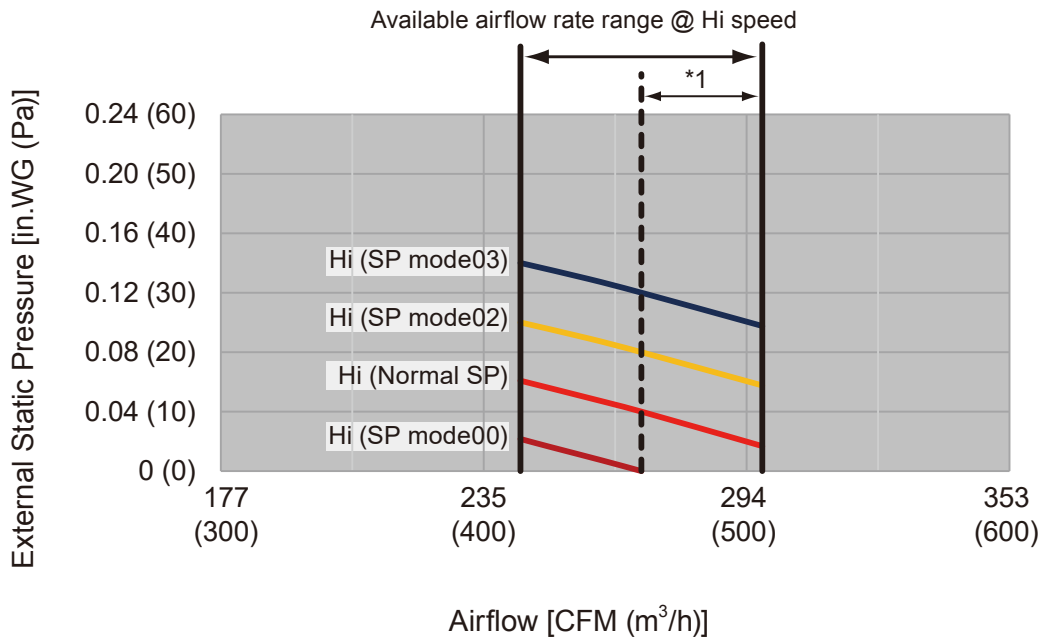
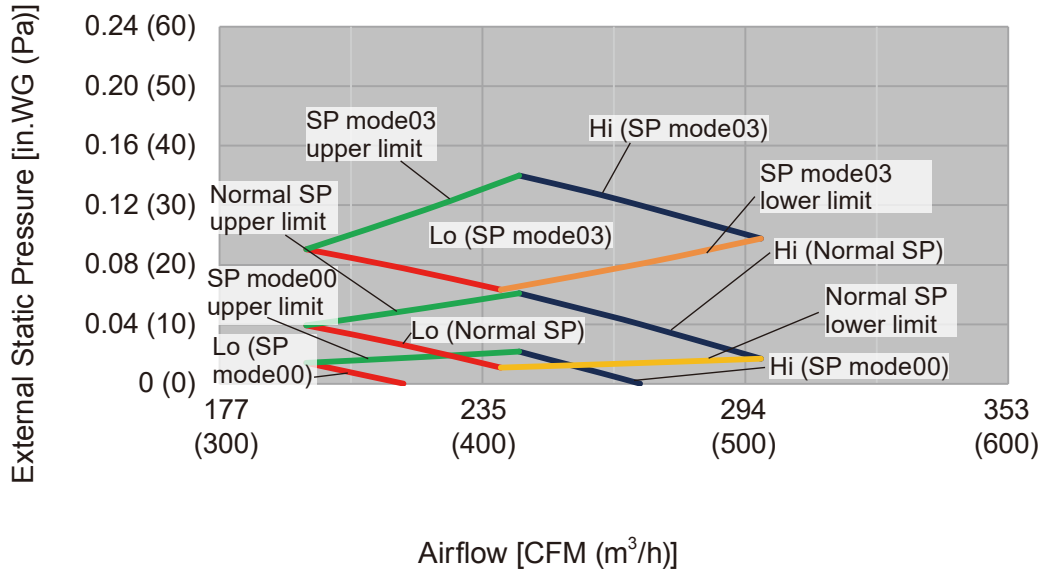
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6. FAN PERFORMANCE CURVE

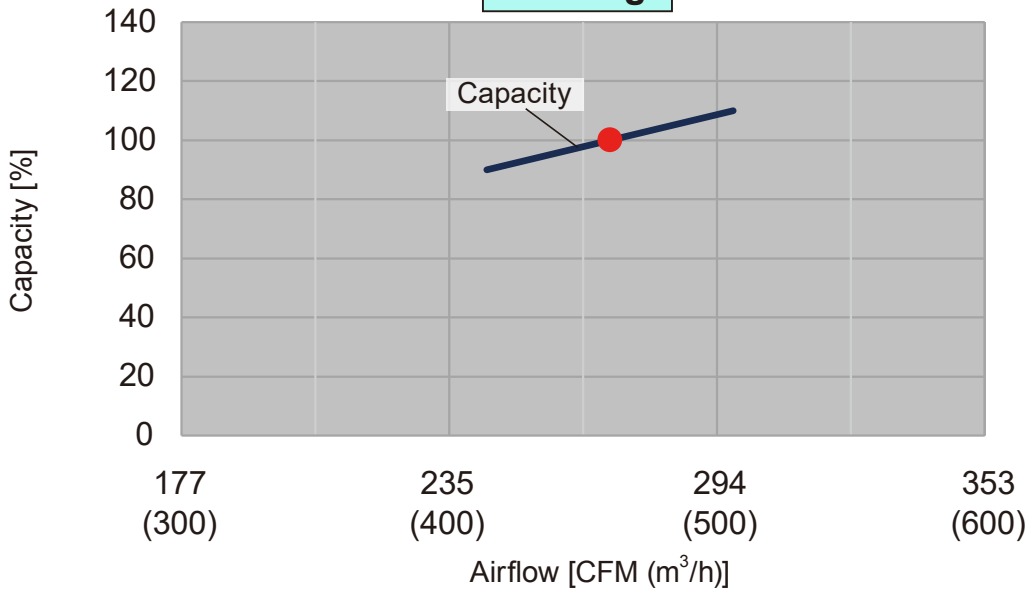
6-1. MINI DUCT TYPE

■ MODEL: ARUL4TLAV1

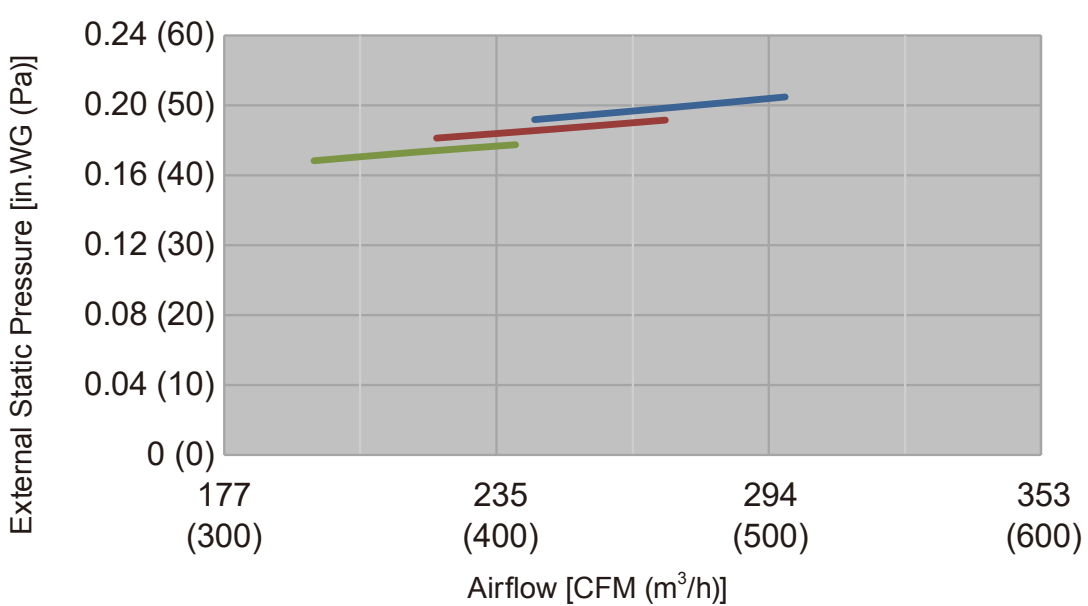
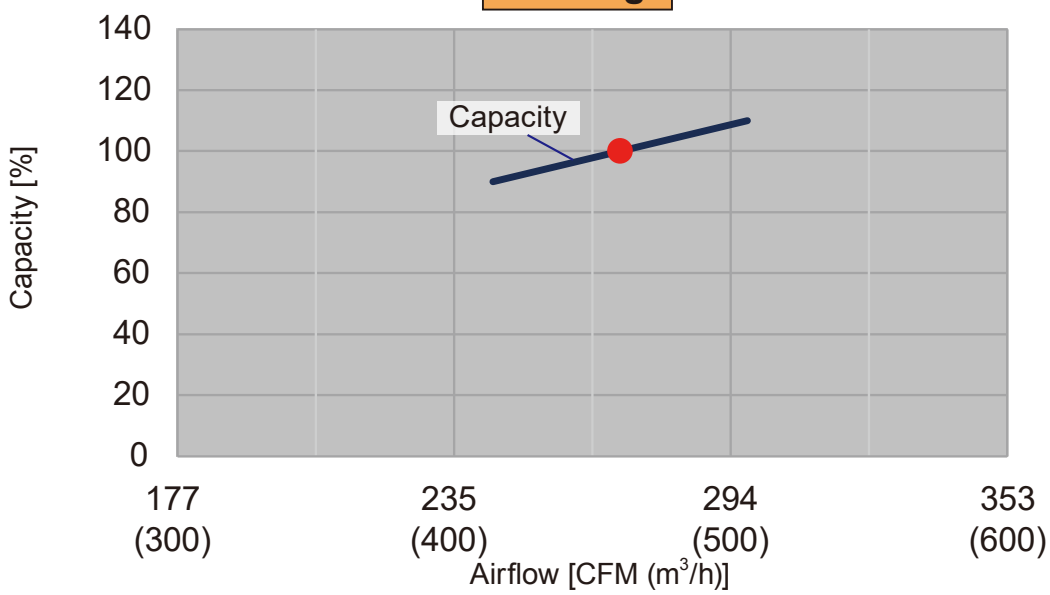


*1: Available airflow rate range when Auto louver grille (option) is installed.
 Fan speed : High
 Vertical flap : Up

Cooling

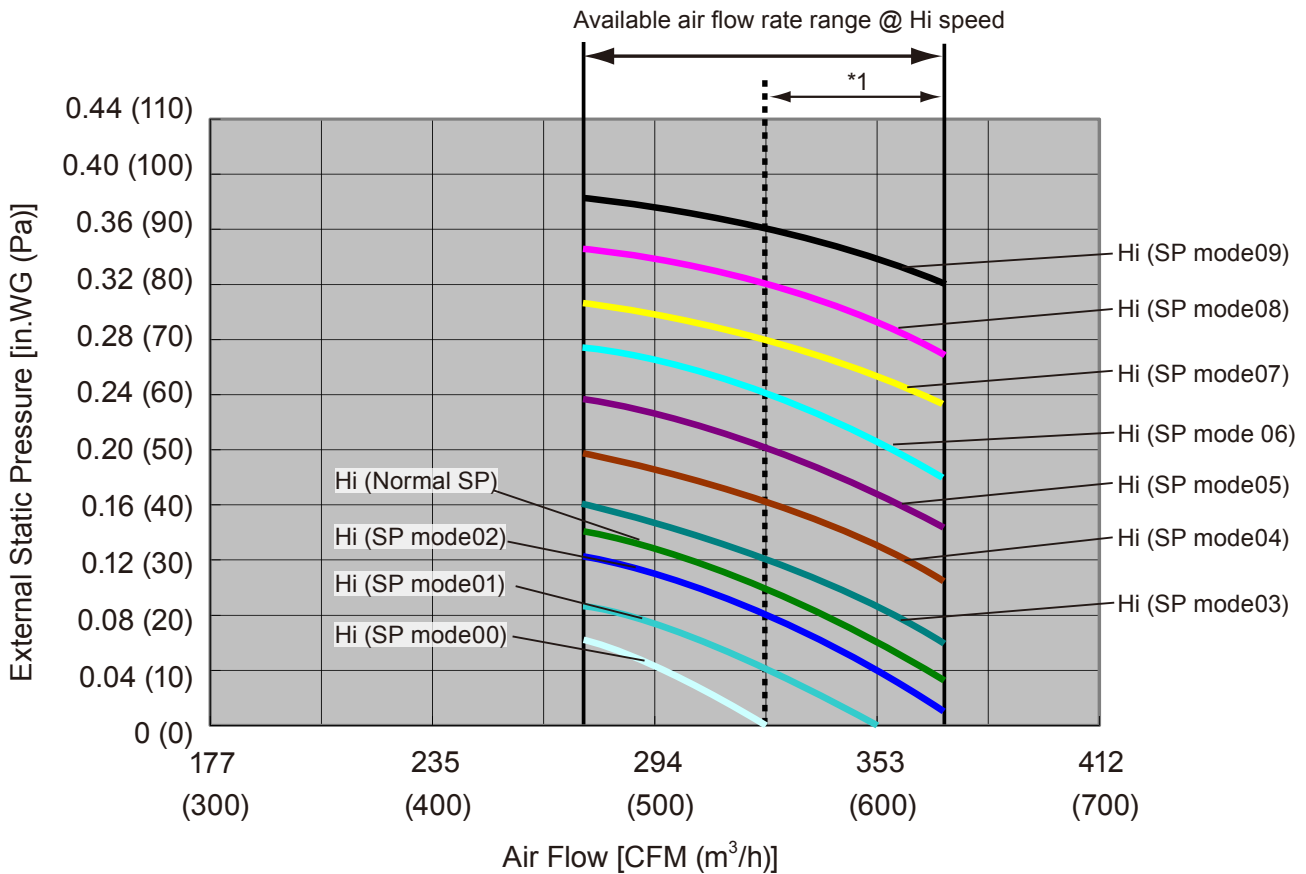
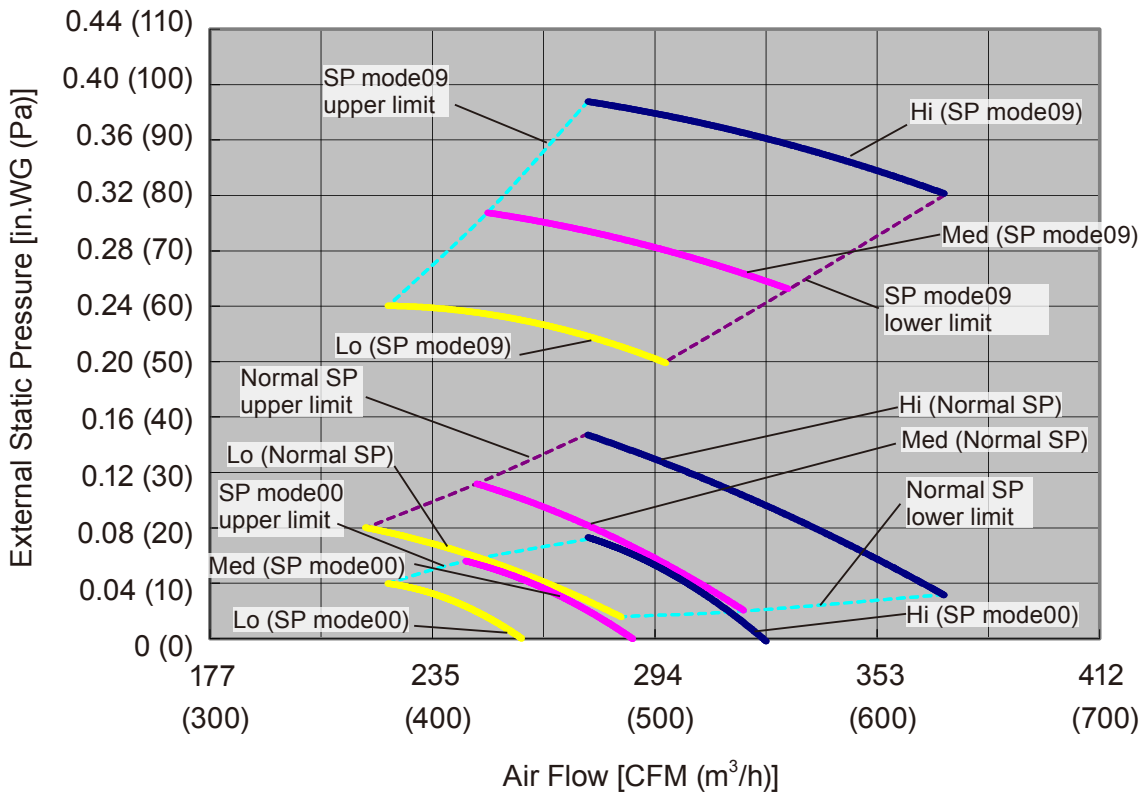


Heating



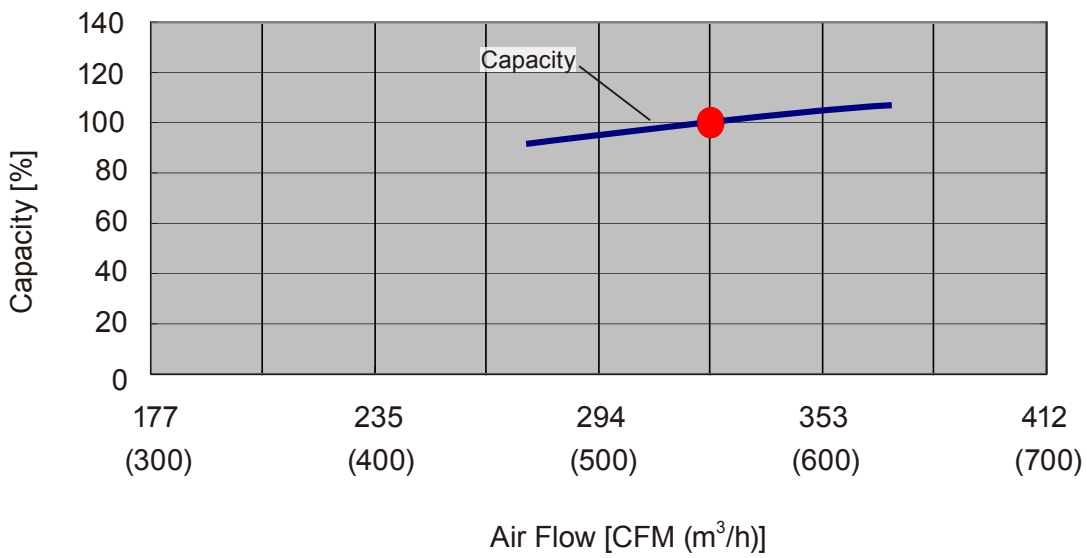
6-2. SLIM DUCT / SLIM CONCEALED FLOOR TYPE

MODEL : ARUL7TLAV

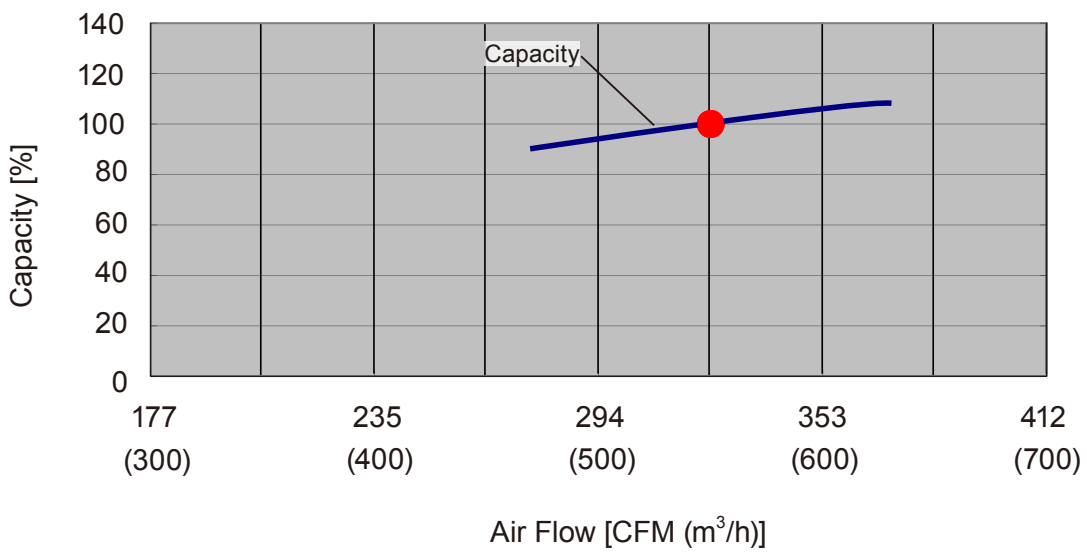


*1: Available air flow rate range when Auto louver grille (option) is installed.
 Fan speed : High
 Vertical airflow direction louver : Up

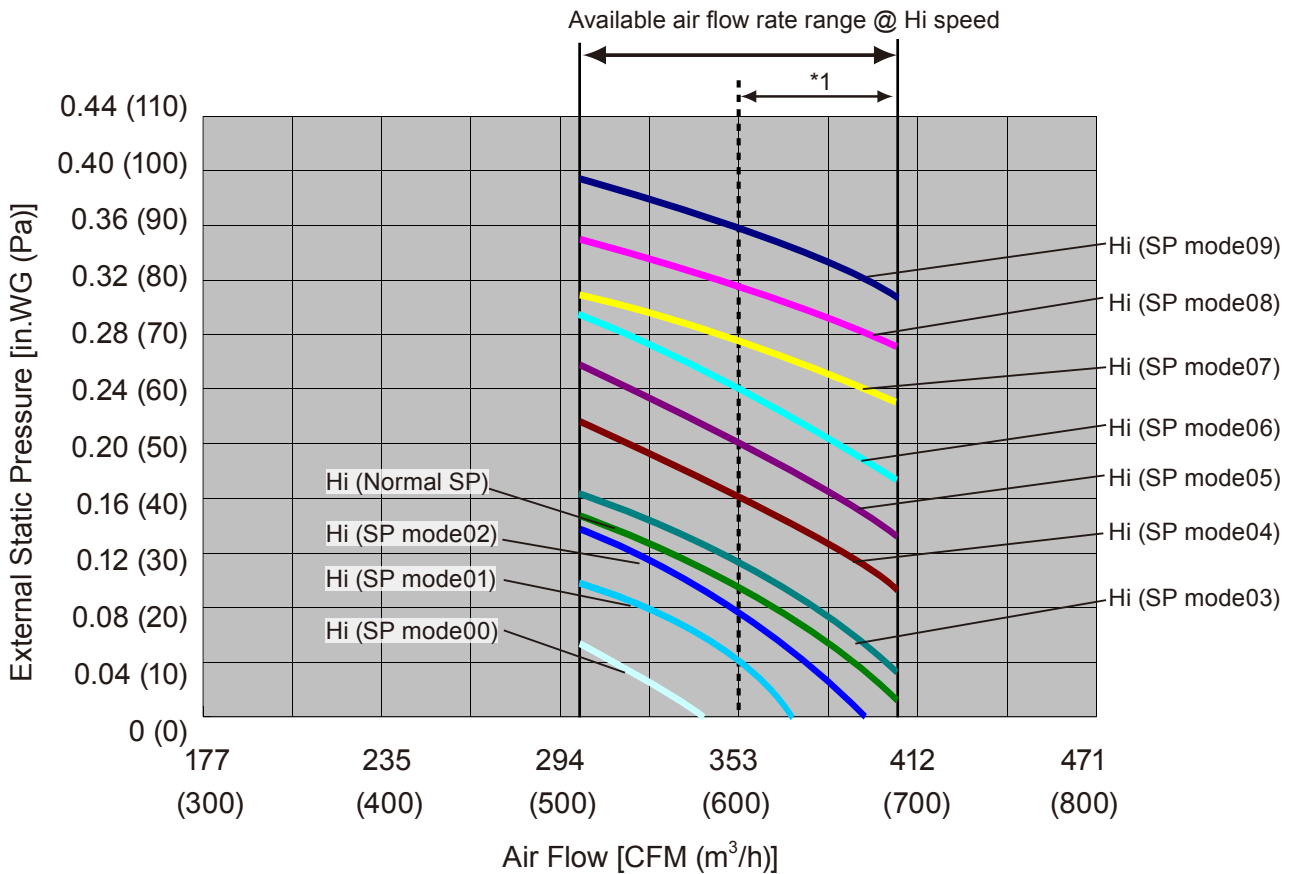
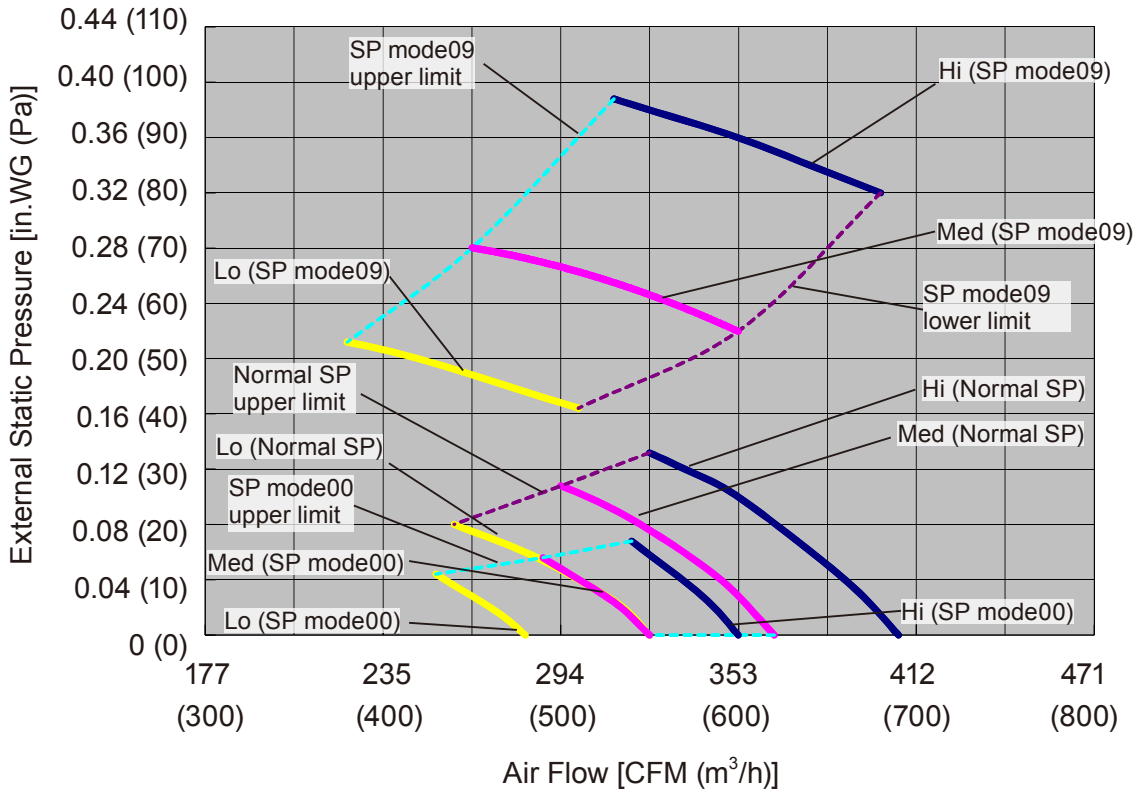
Cooling



Heating

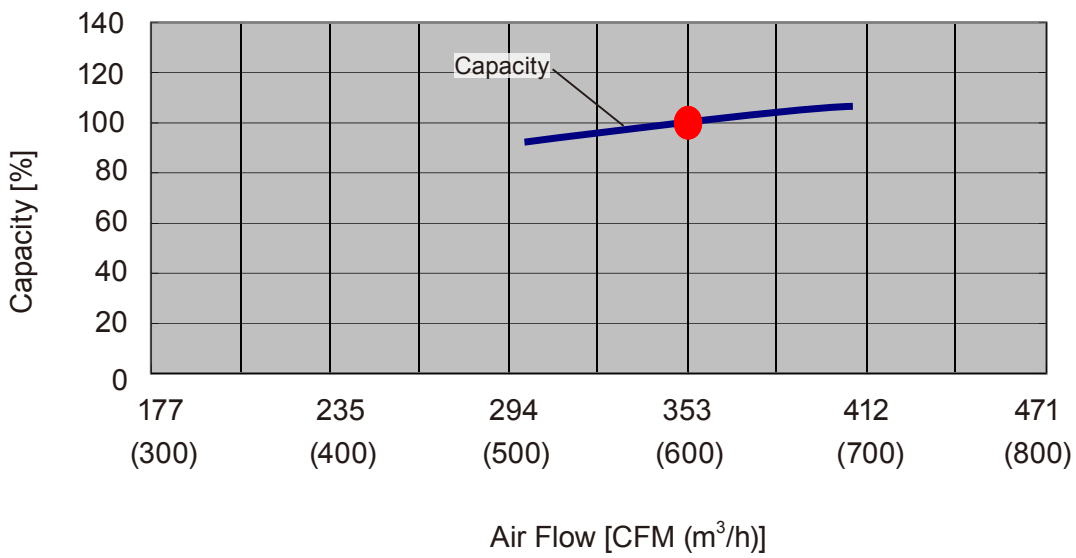


MODEL : ARUL9TLAV

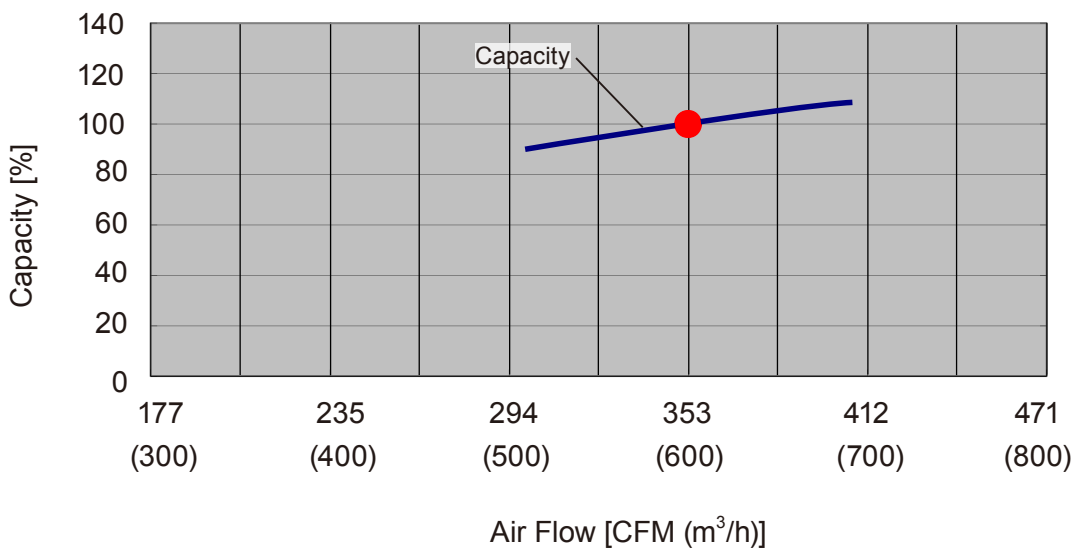


*1: Available air flow rate range when Auto louver grille (option) is installed.
 Fan speed : High
 Vertical airflow direction louver : Up

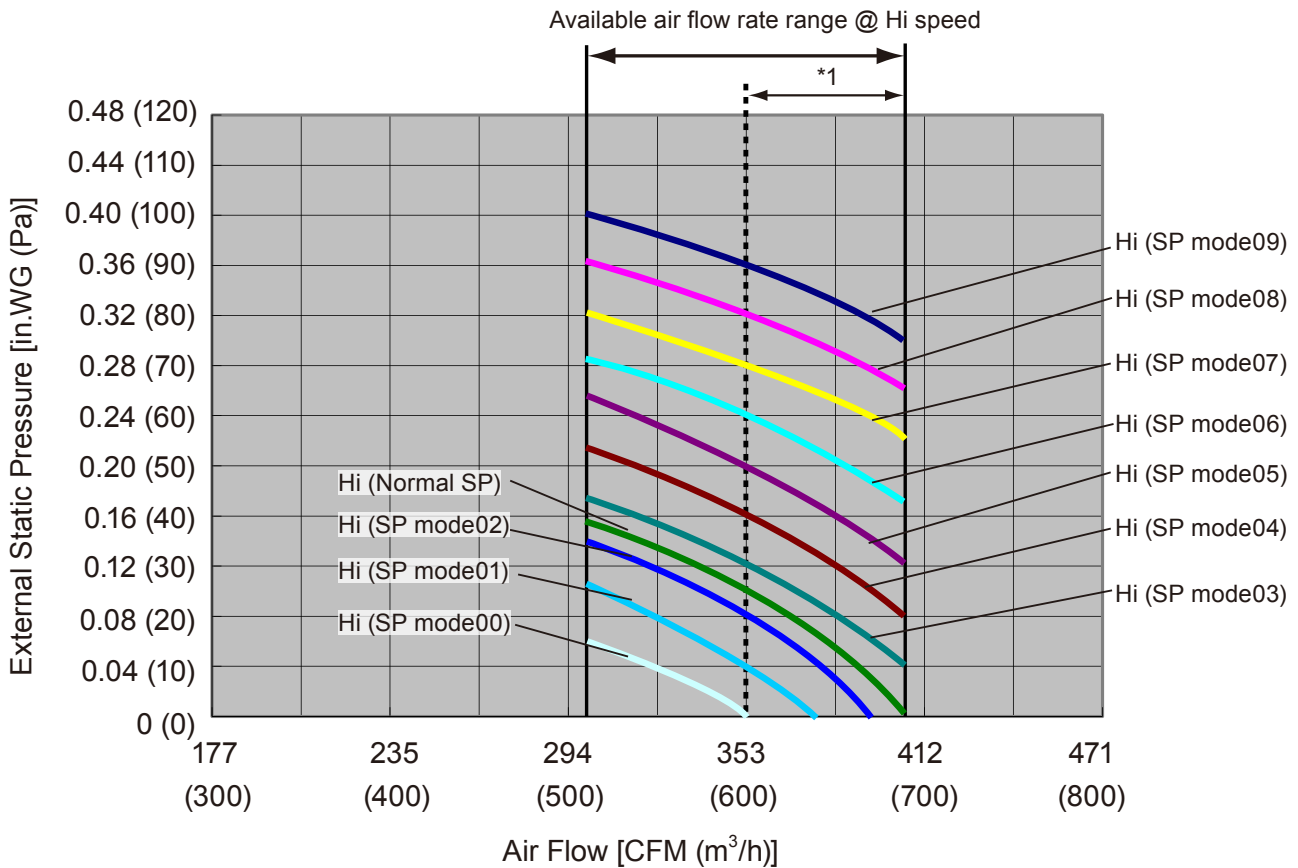
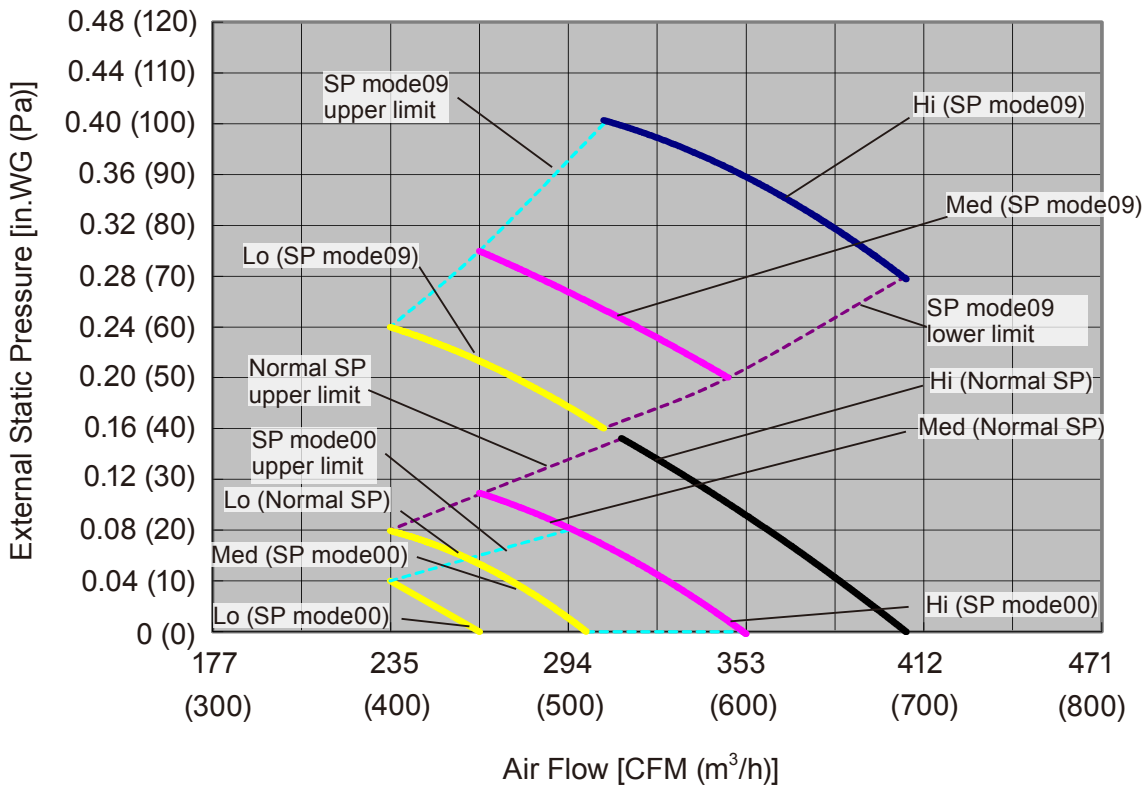
Cooling



Heating

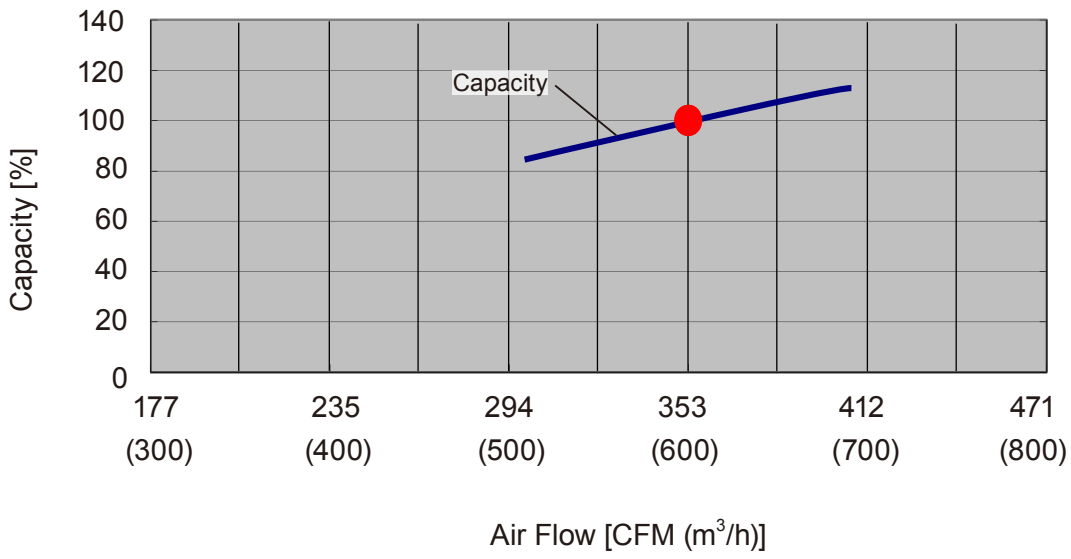


MODEL : ARUL12TLAV

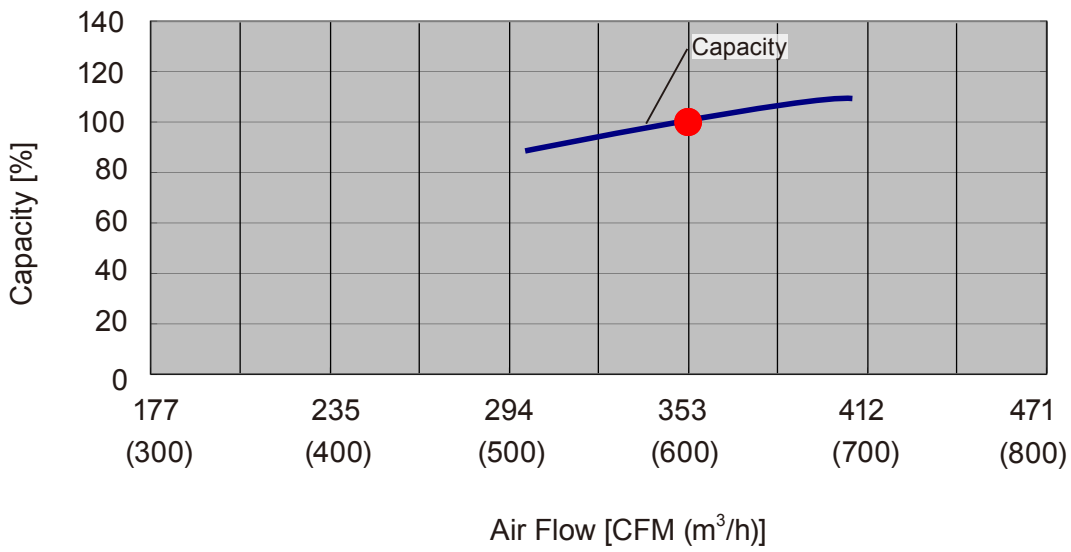


*1: Available air flow rate range when Auto louver grille (option) is installed.
 Fan speed : High
 Vertical airflow direction louver : Up

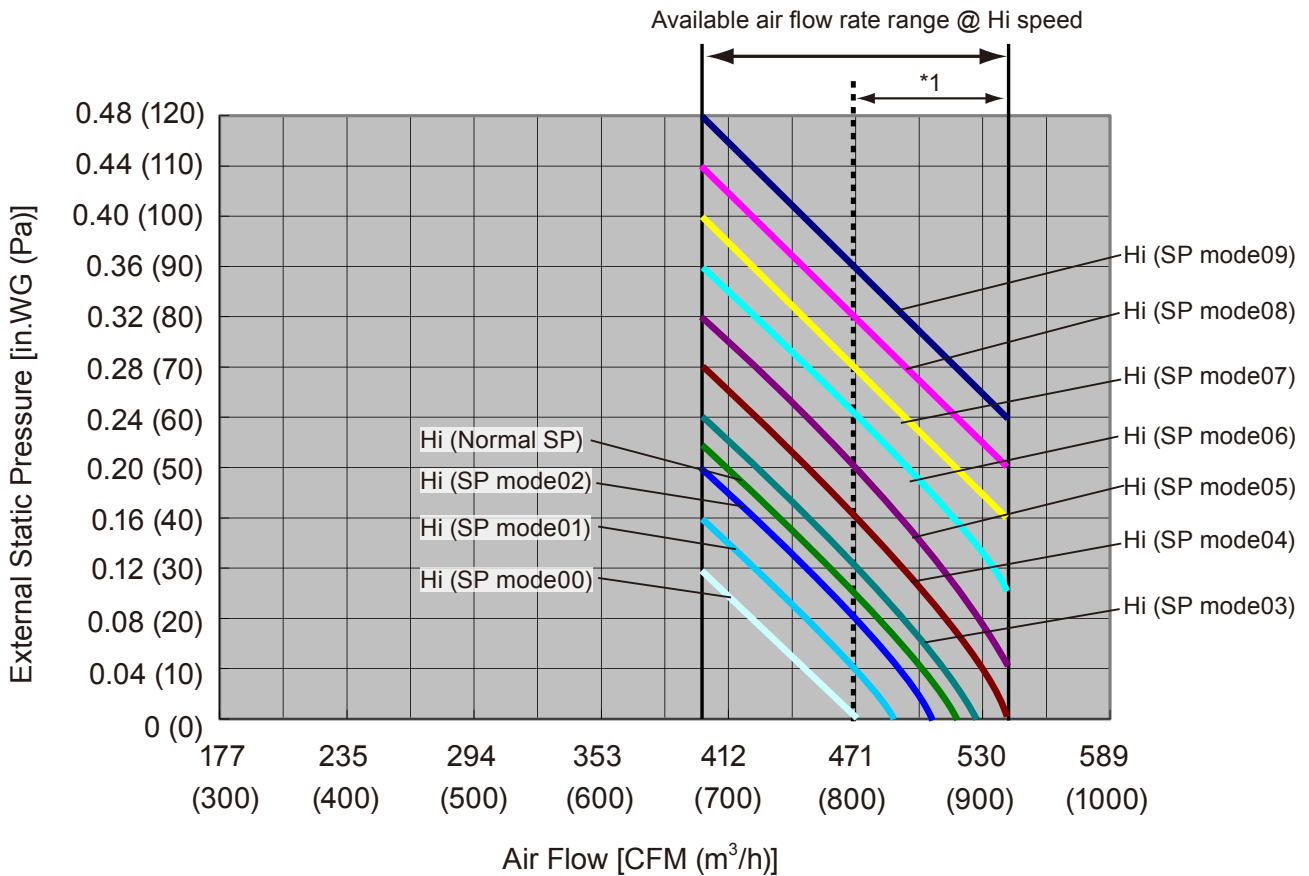
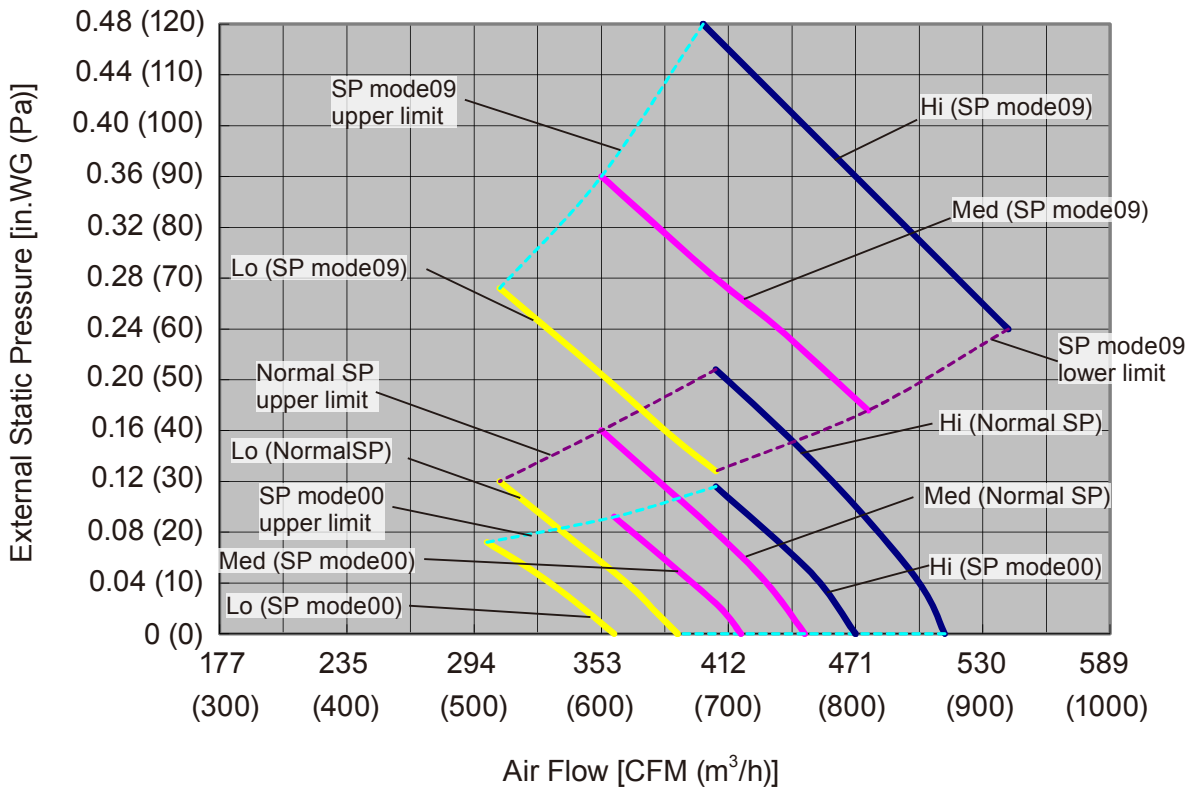
Cooling



Heating

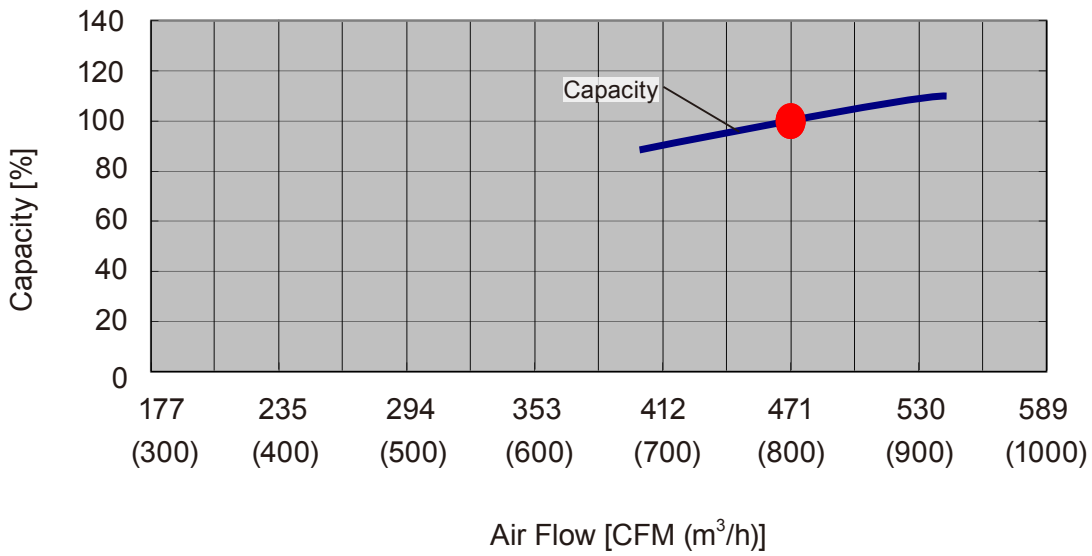


MODEL : ARUL14TLAV

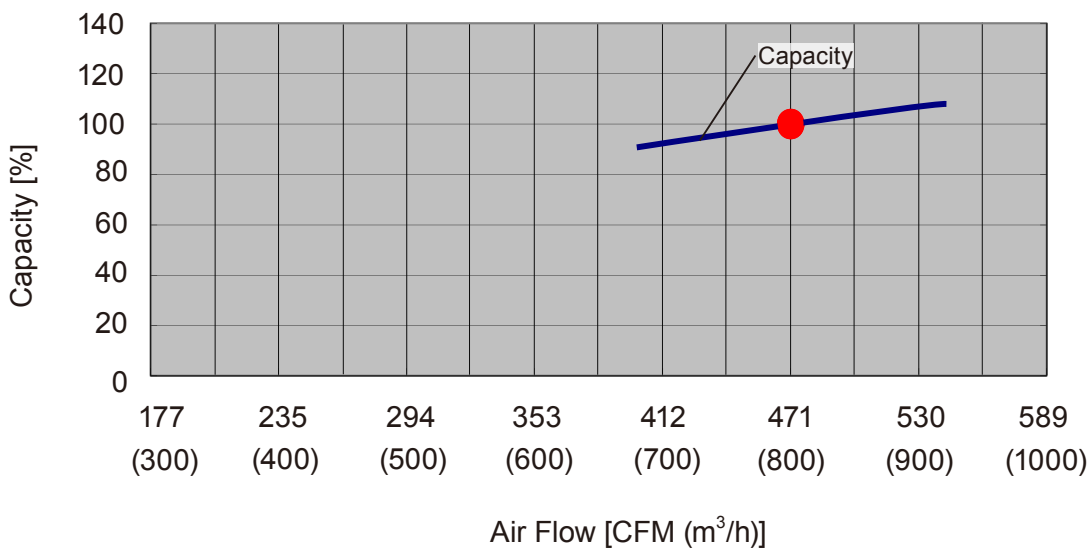


*1: Available air flow rate range when Auto louver grille (option) is installed.
 Fan speed : High
 Vertical airflow direction louver : Up

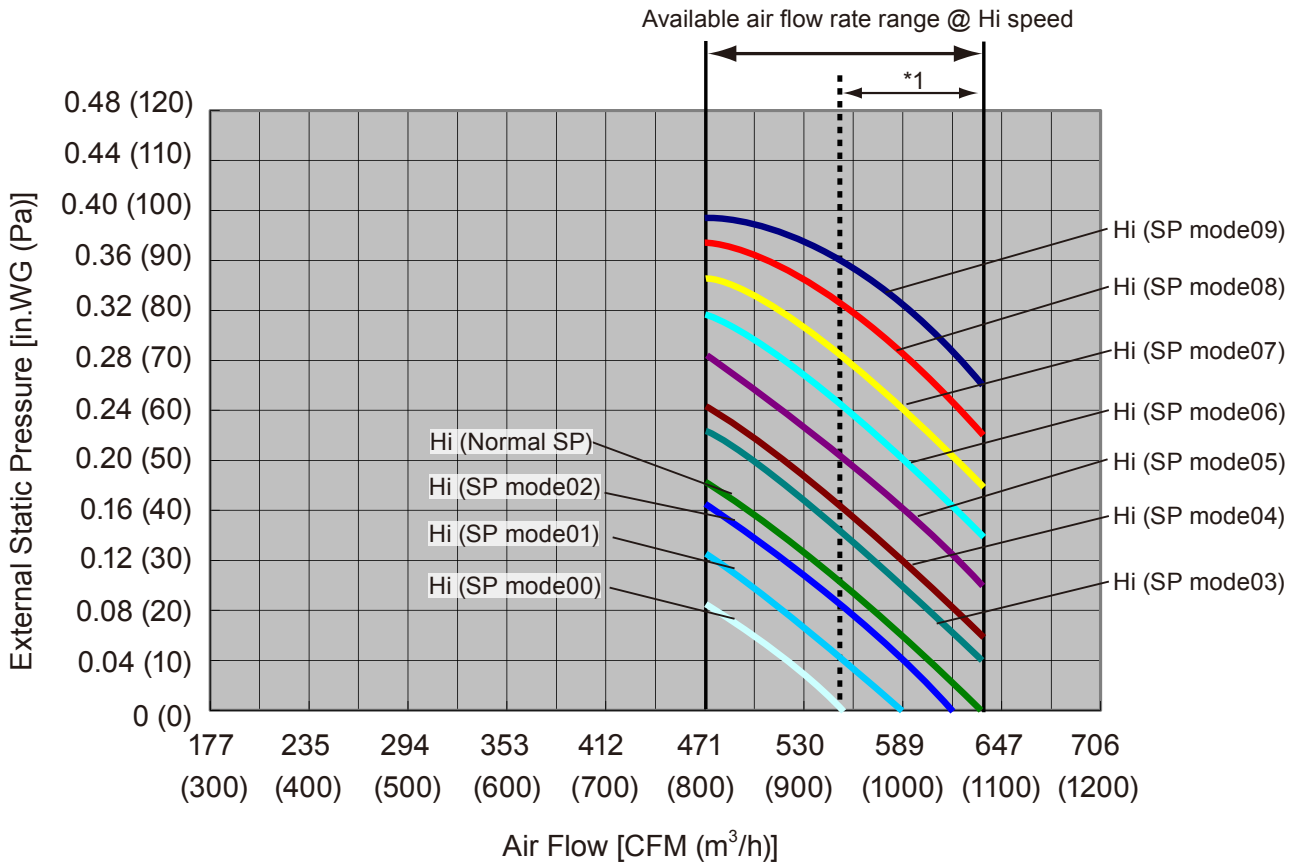
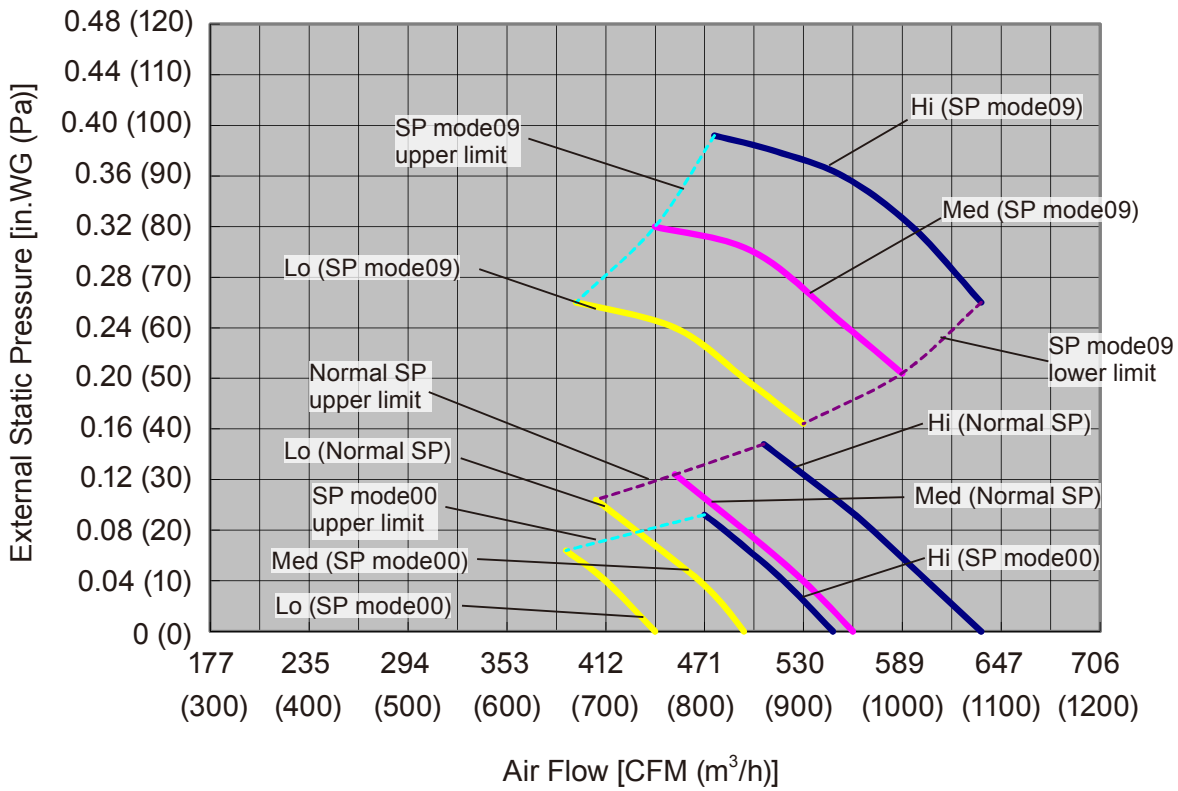
Cooling



Heating

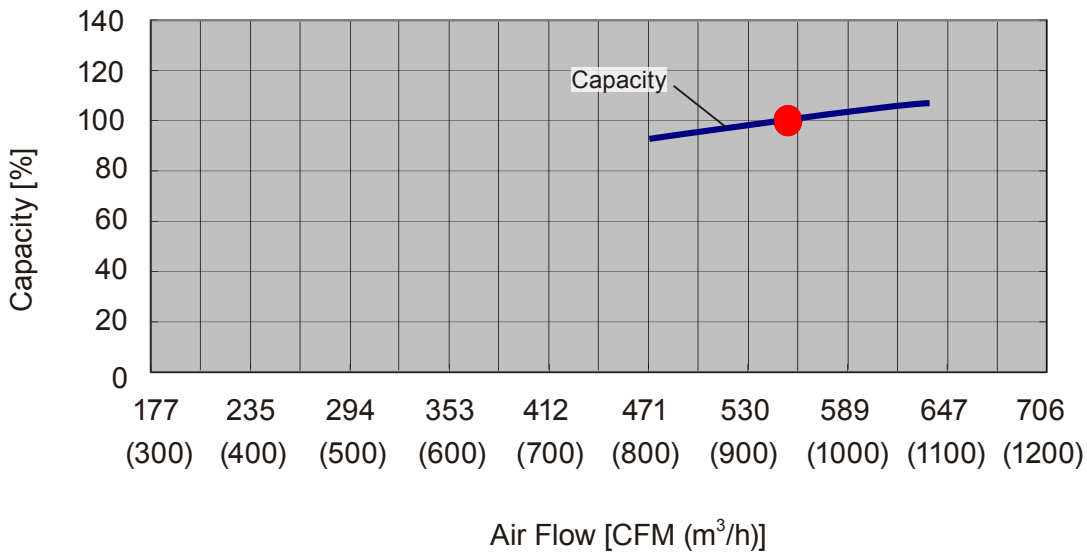


MODEL : ARUL18TLAV

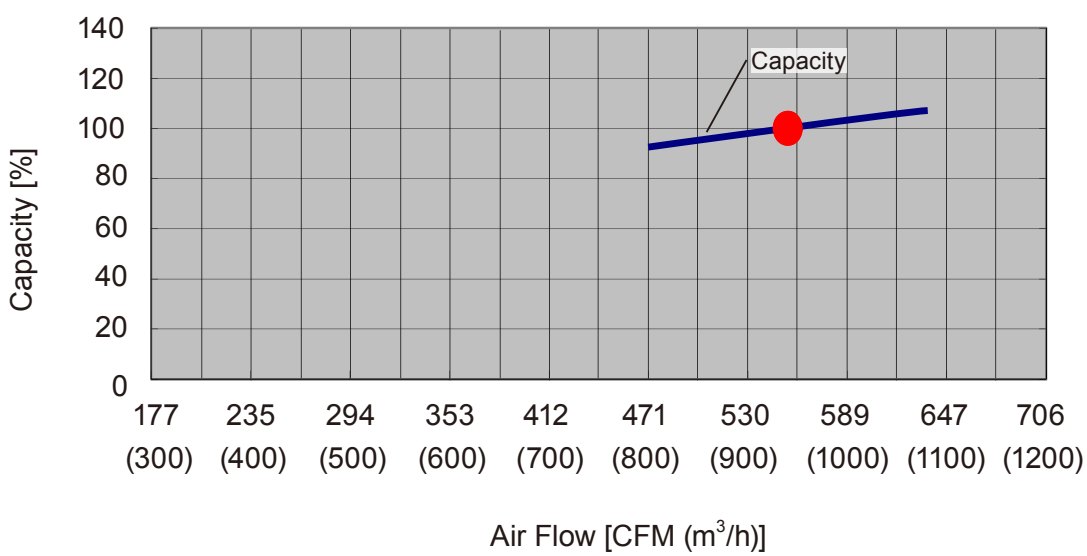


*1: Available air flow rate range when Auto louver grille (option) is installed.
 Fan speed : High
 Vertical airflow direction louver : Up

Cooling

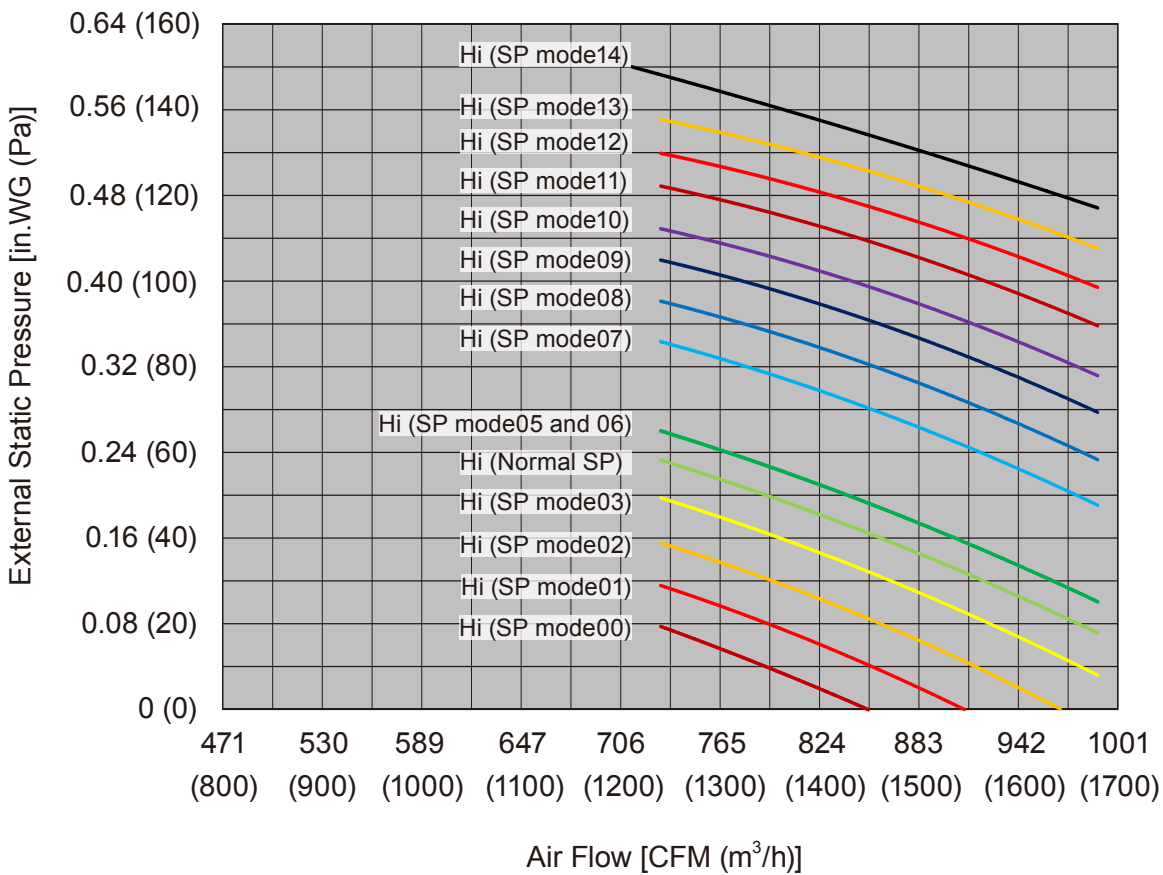
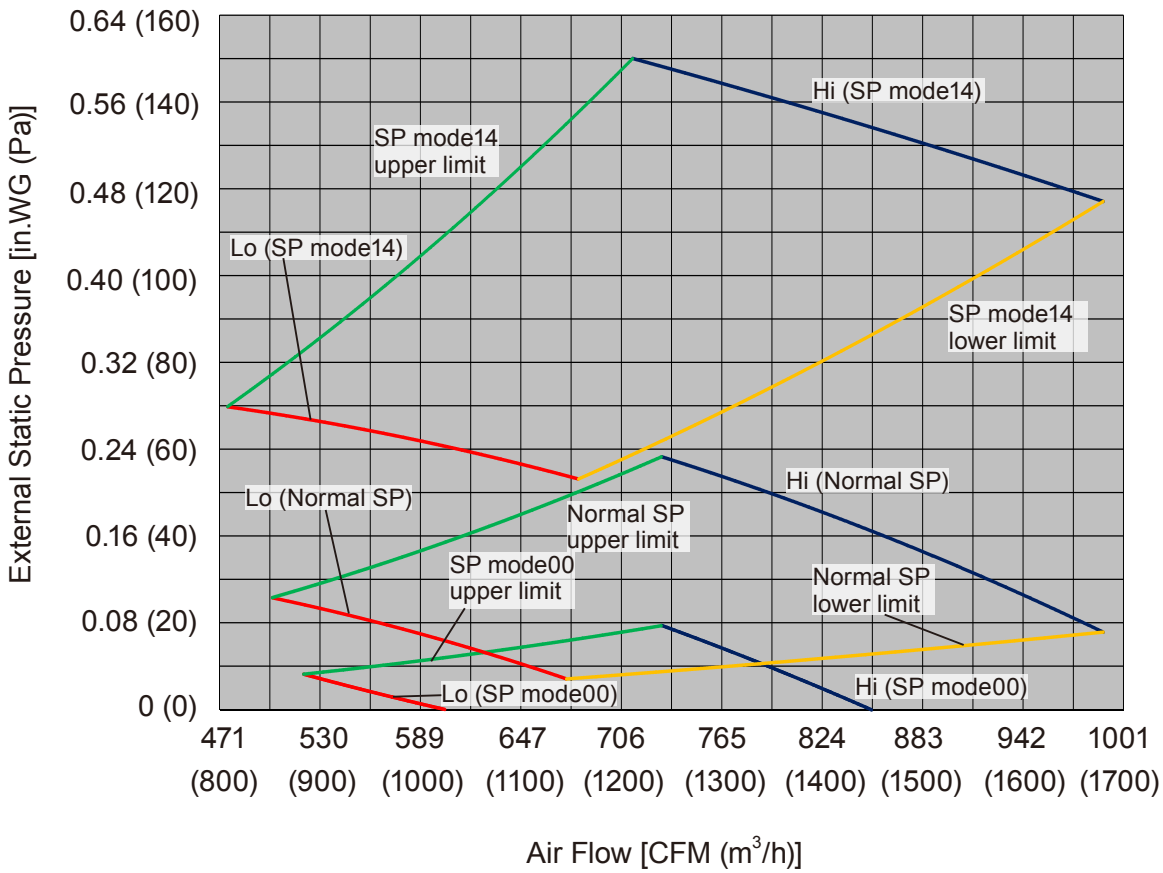


Heating

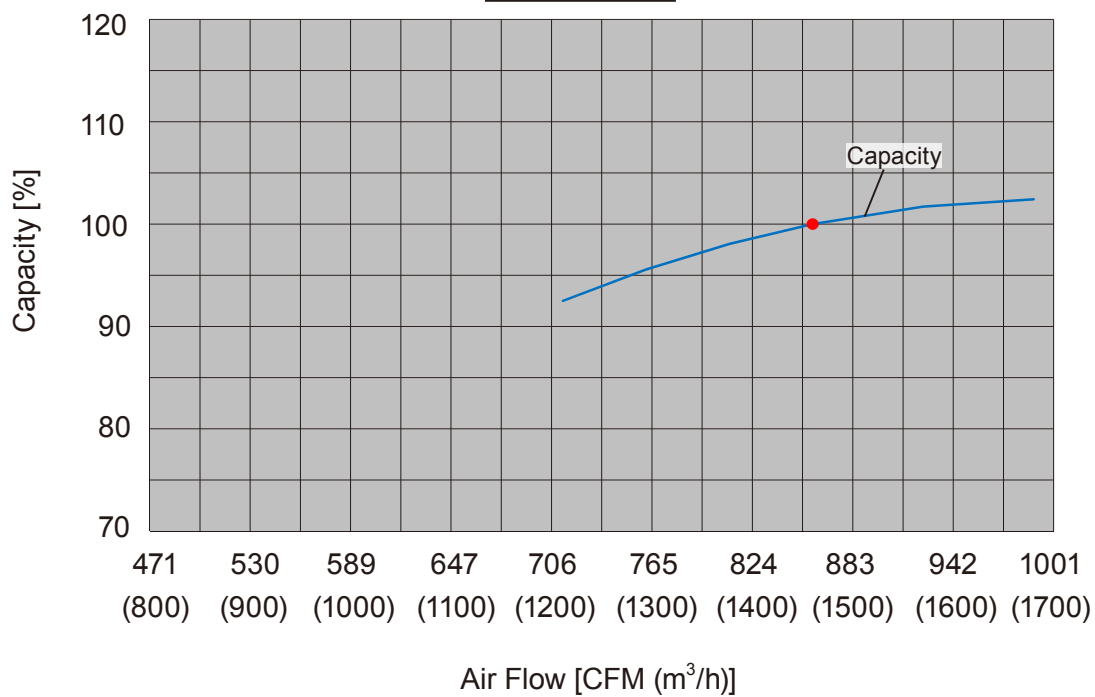


6-3. MEDIUM STATIC PRESSURE DUCT TYPE

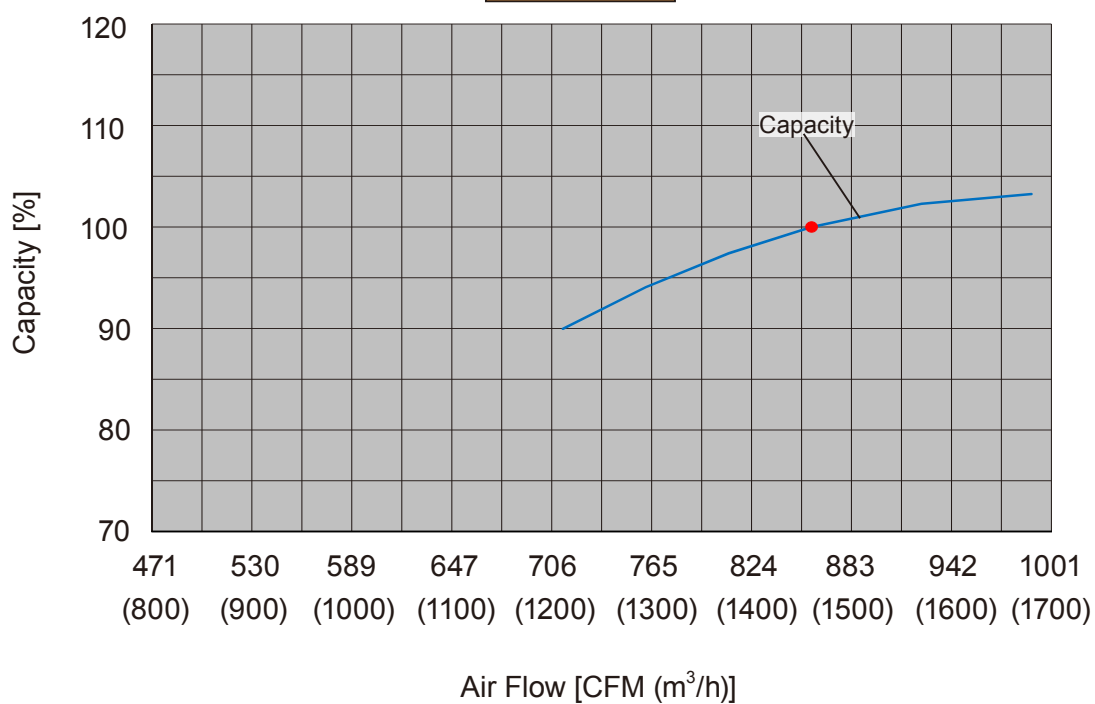
MODEL : ARUM24TLAV



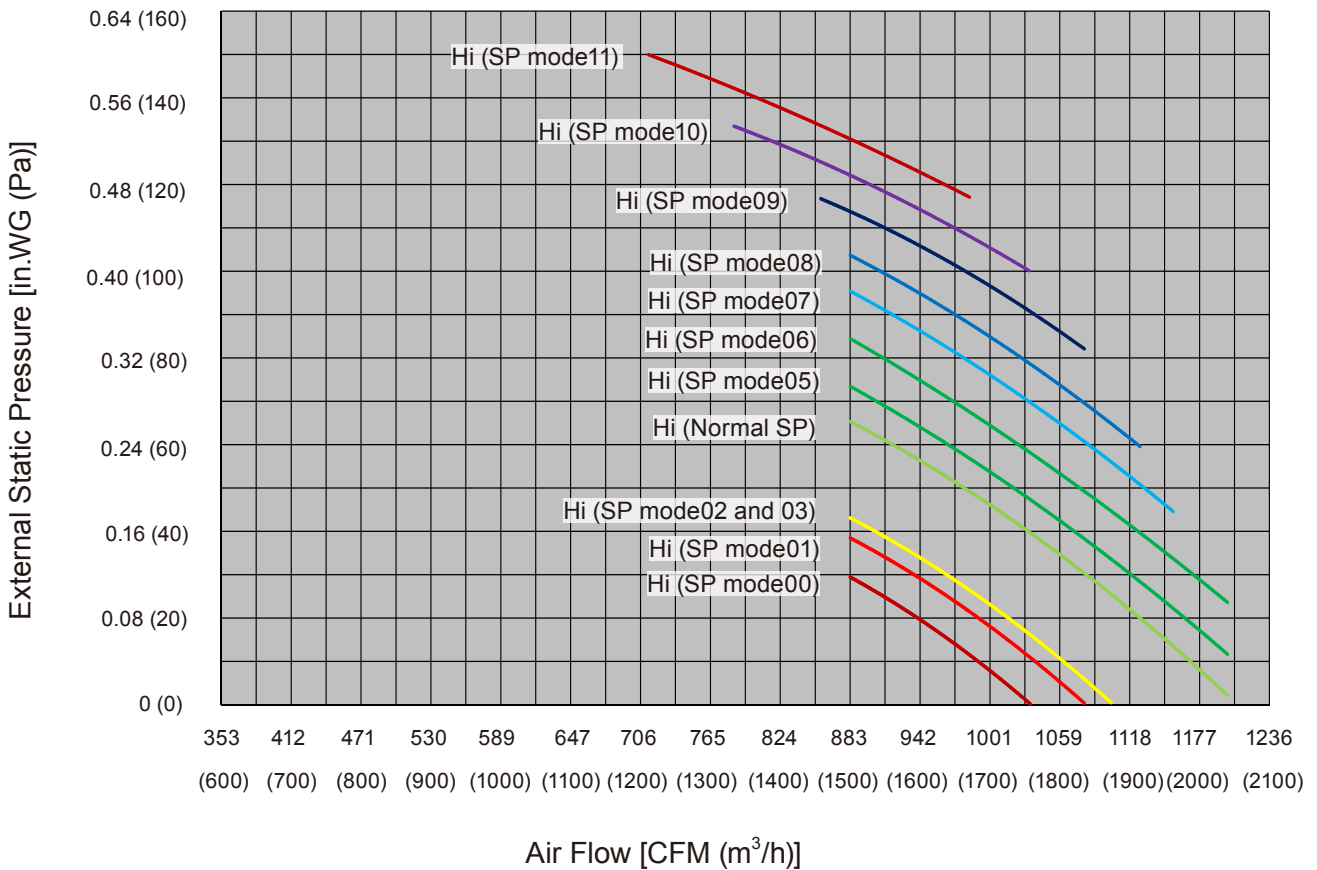
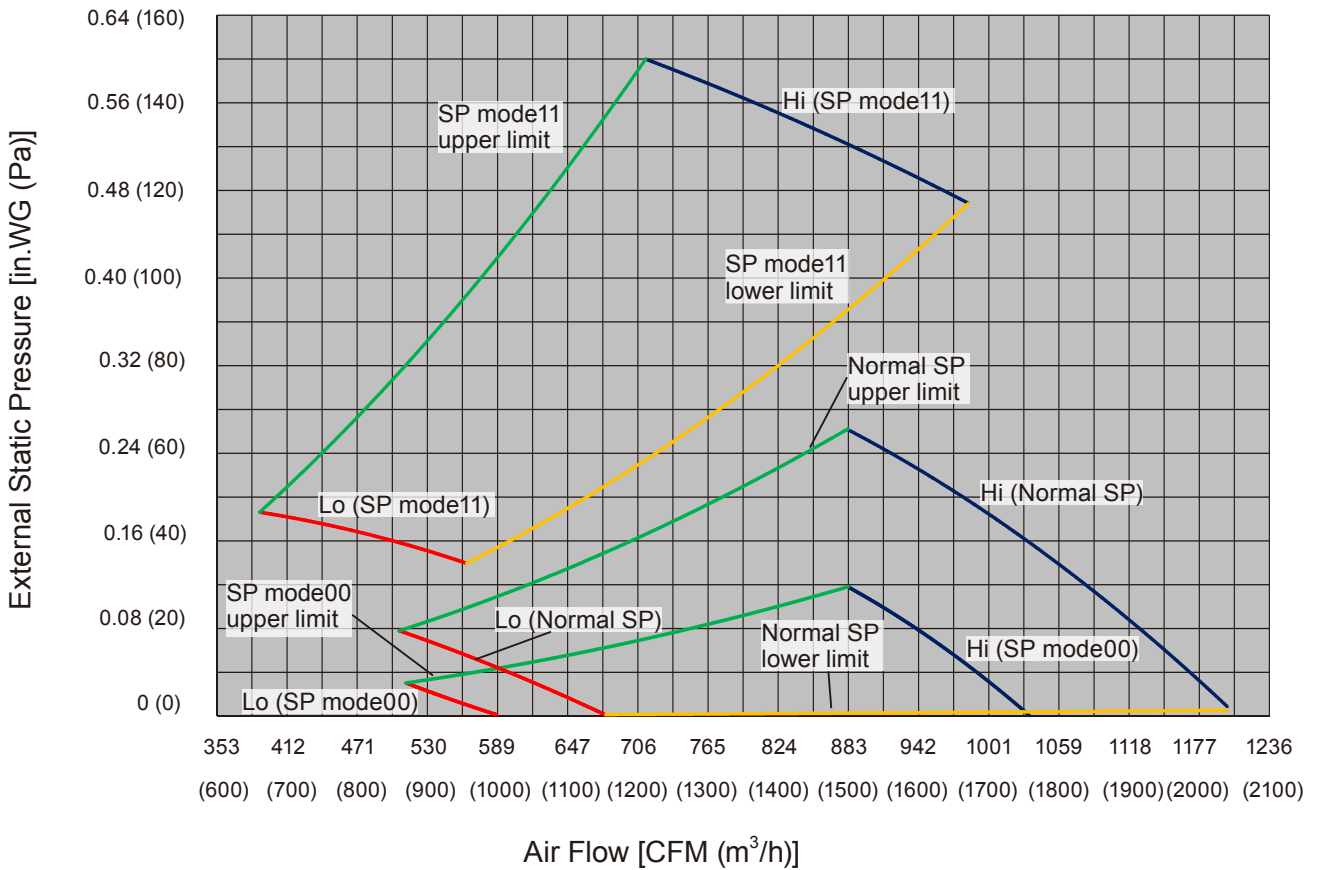
Cooling



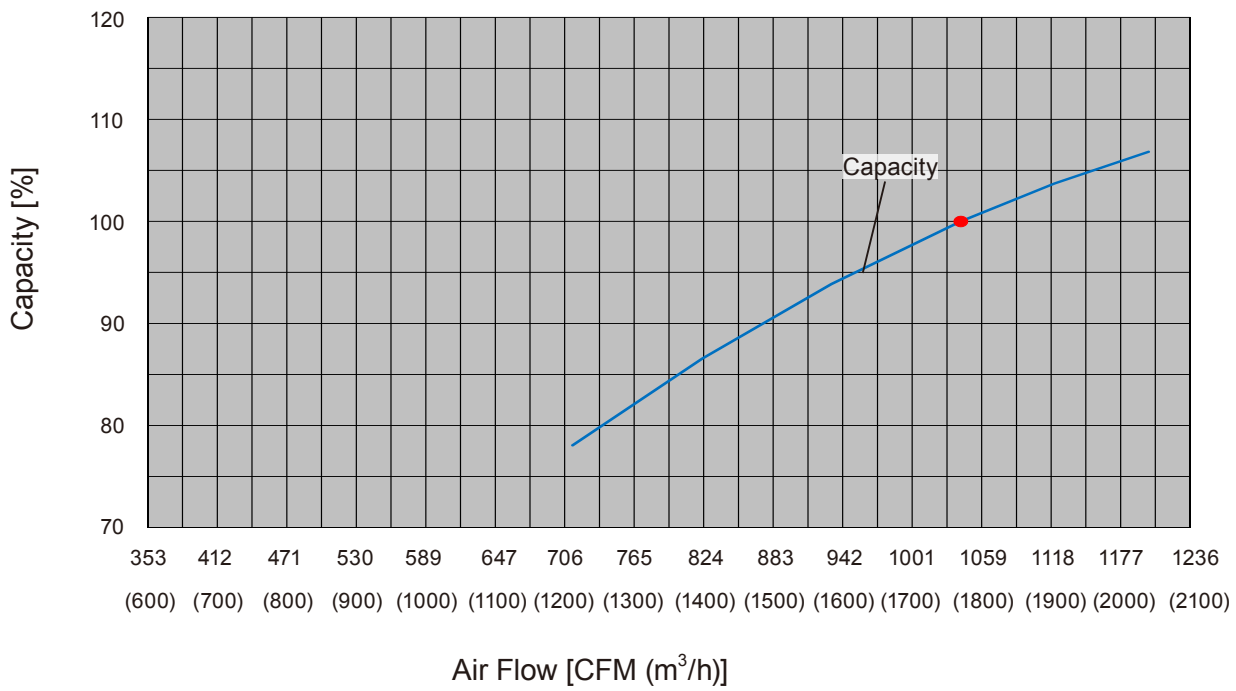
Heating



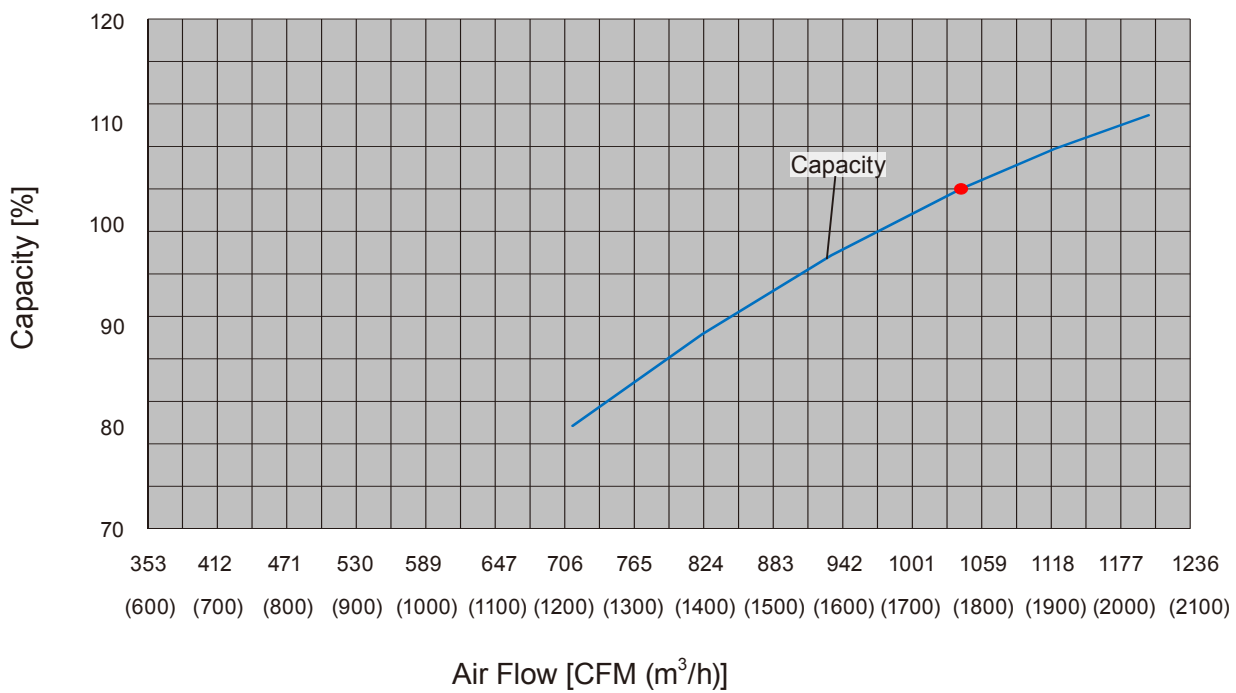
MODEL : ARUM30TLAV



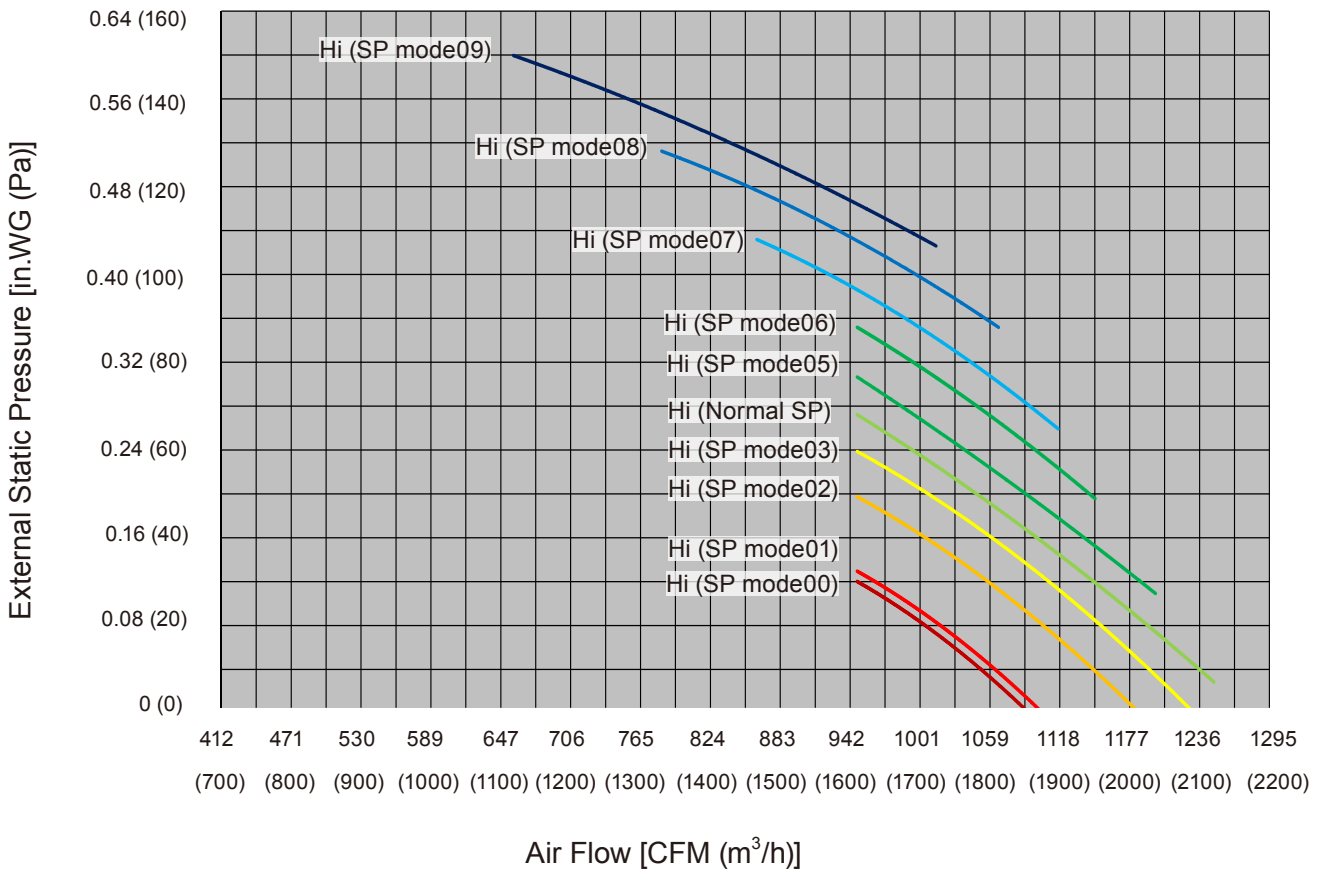
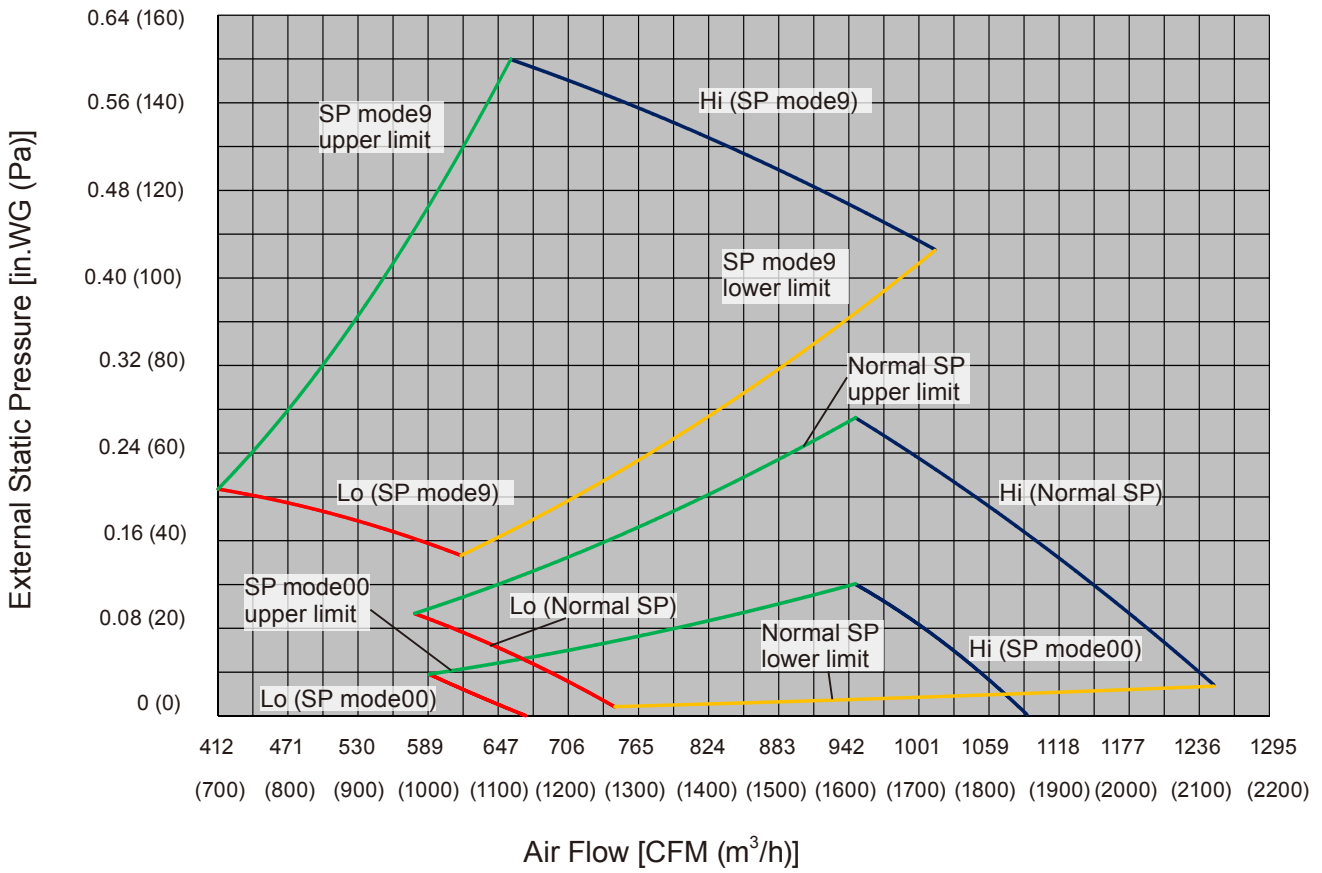
Cooling



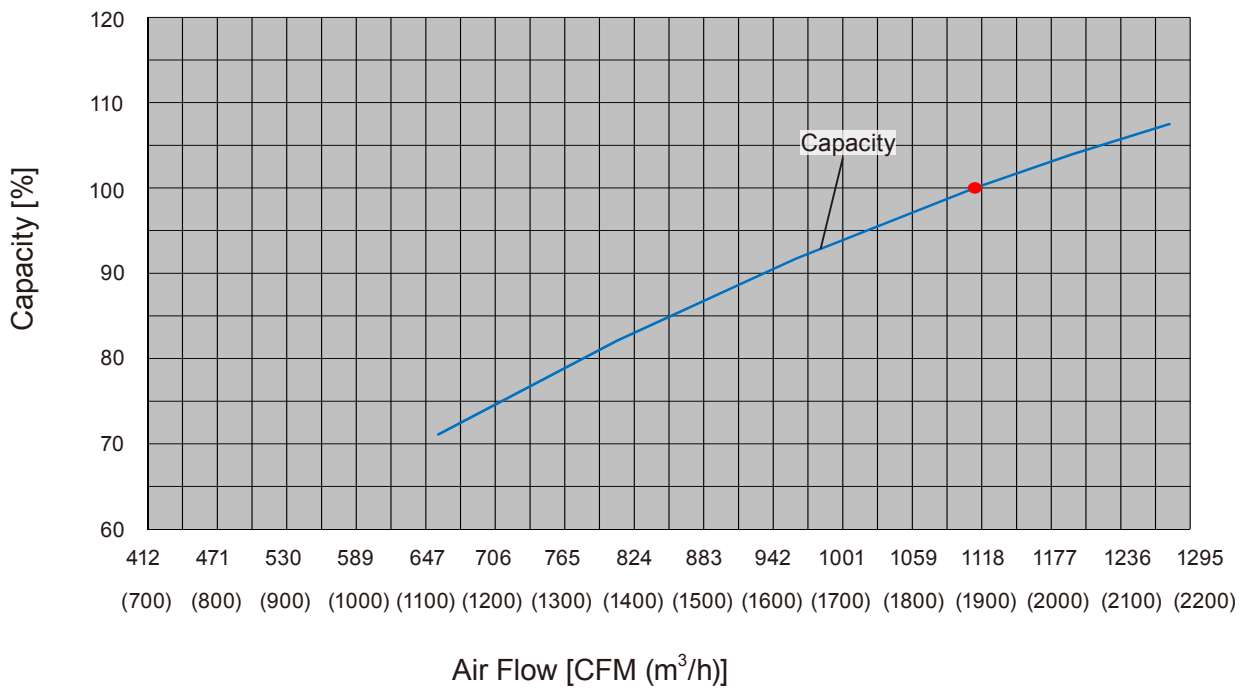
Heating



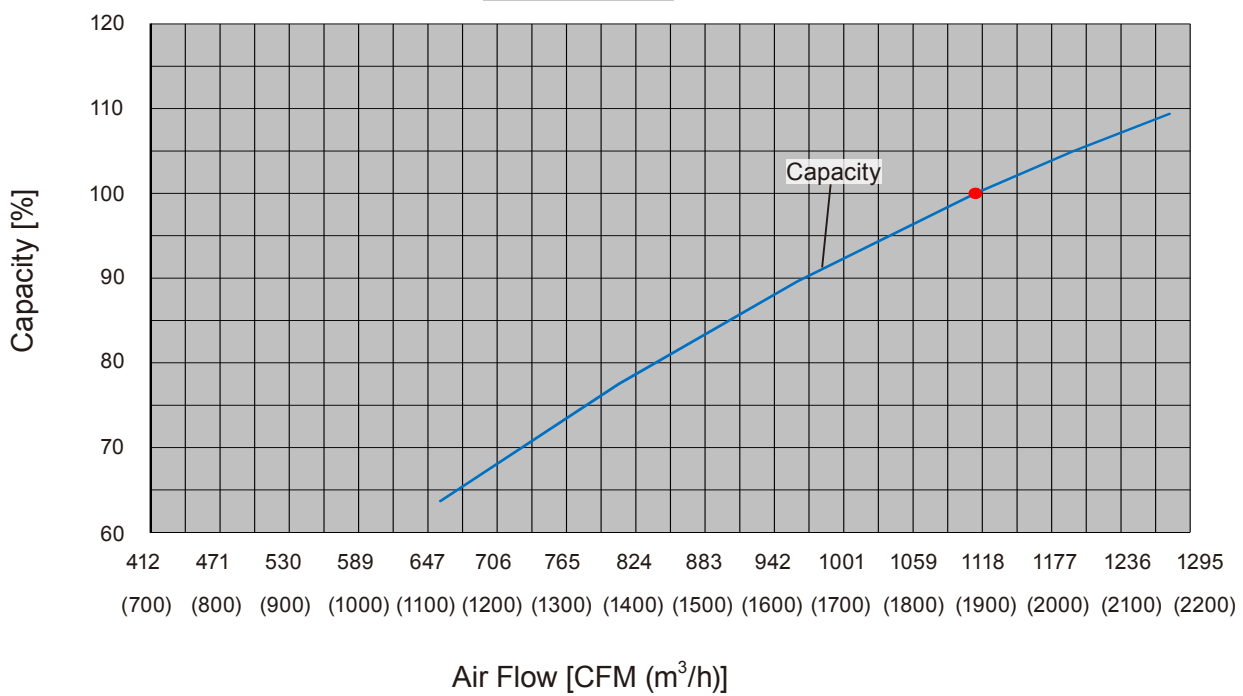
MODEL : ARUM36TLAV



Cooling

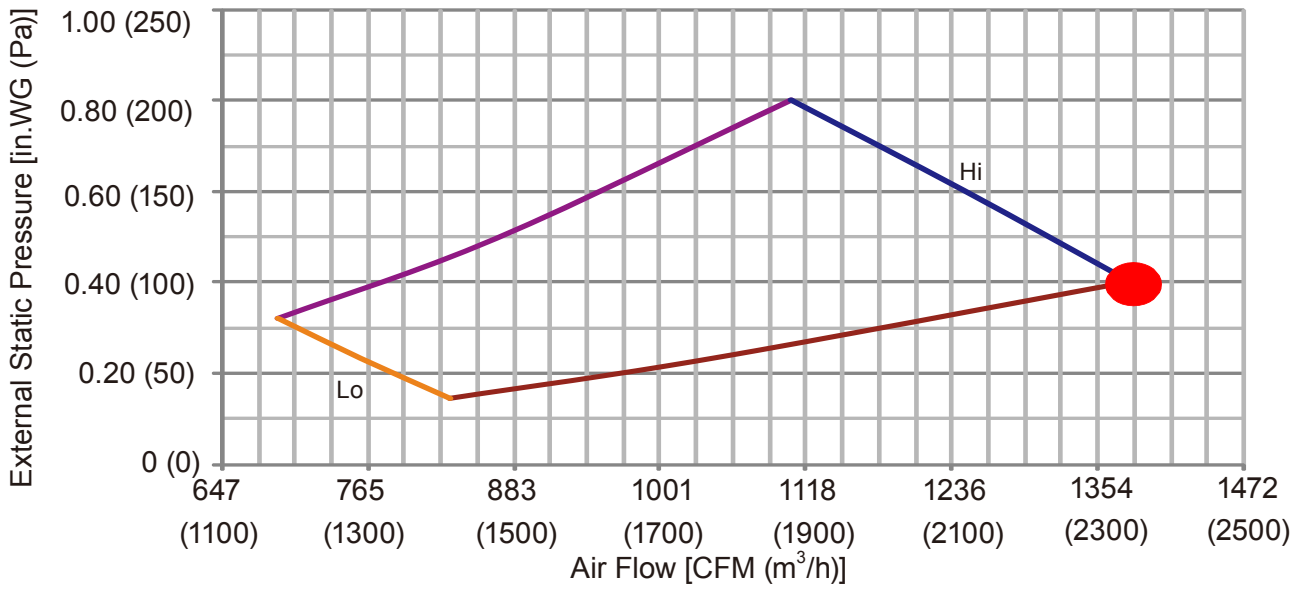


Heating

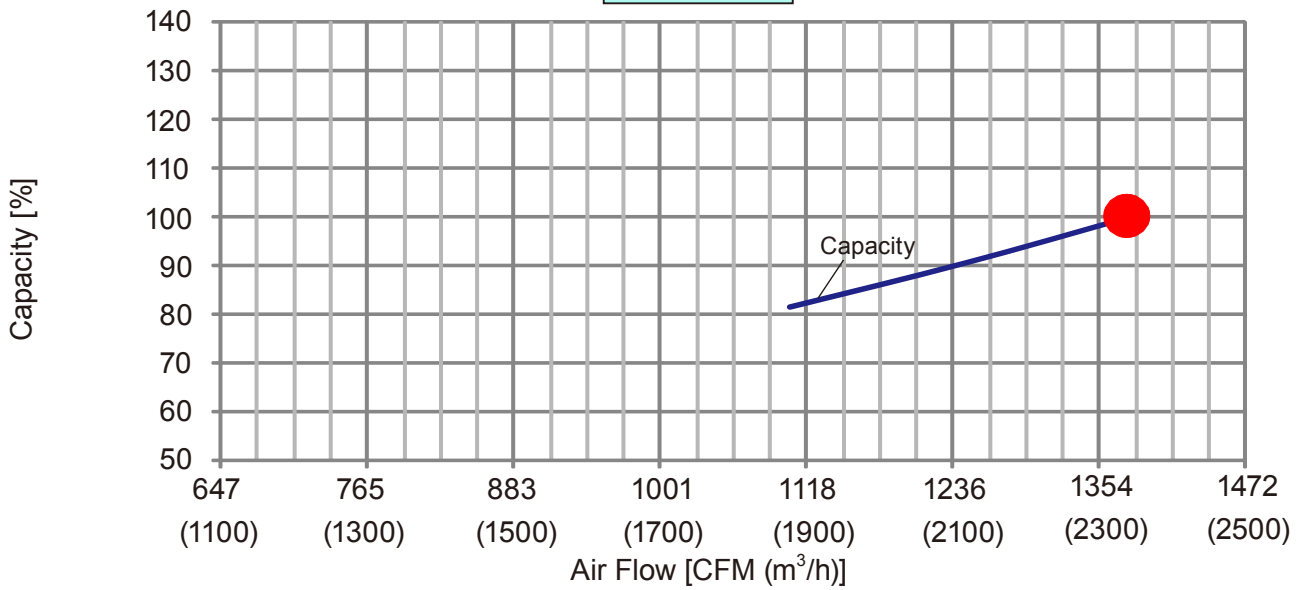


6-4. HIGH STATIC PRESSURE DUCT TYPE

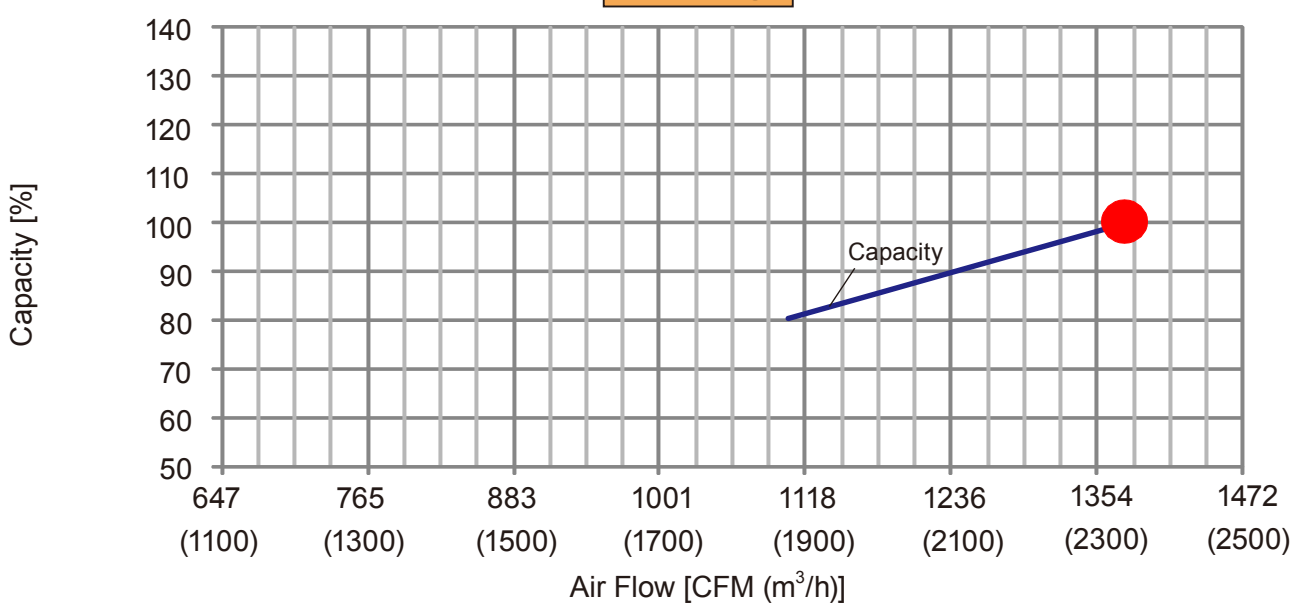
MODEL : ARUH36TLAV



Cooling



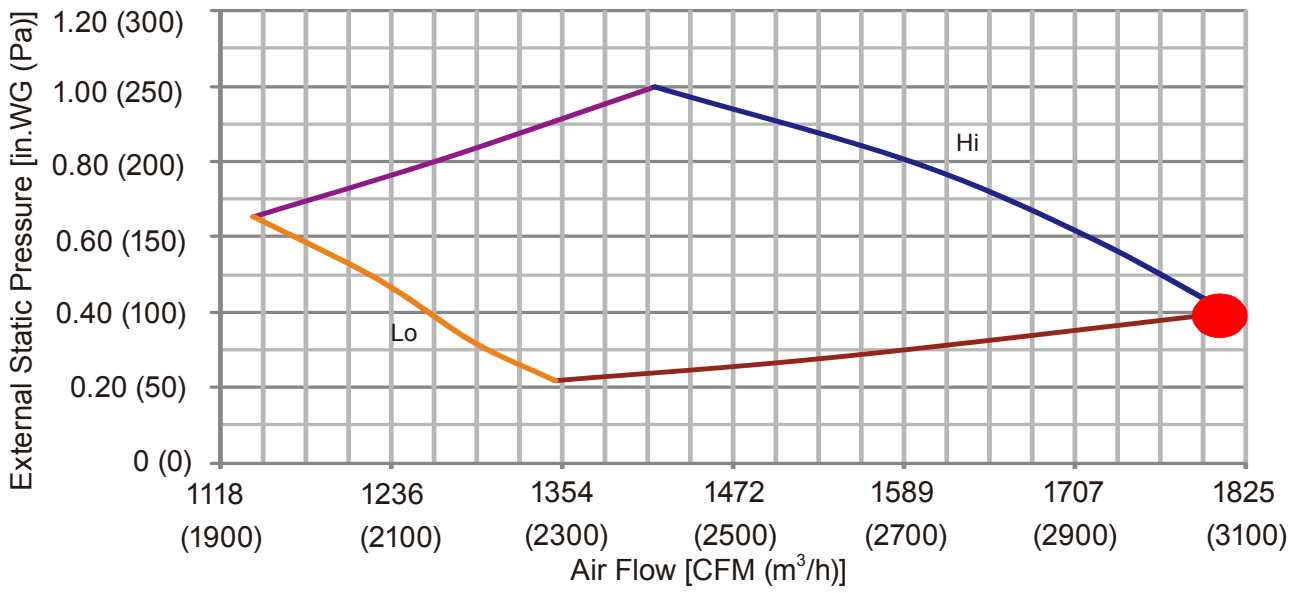
Heating



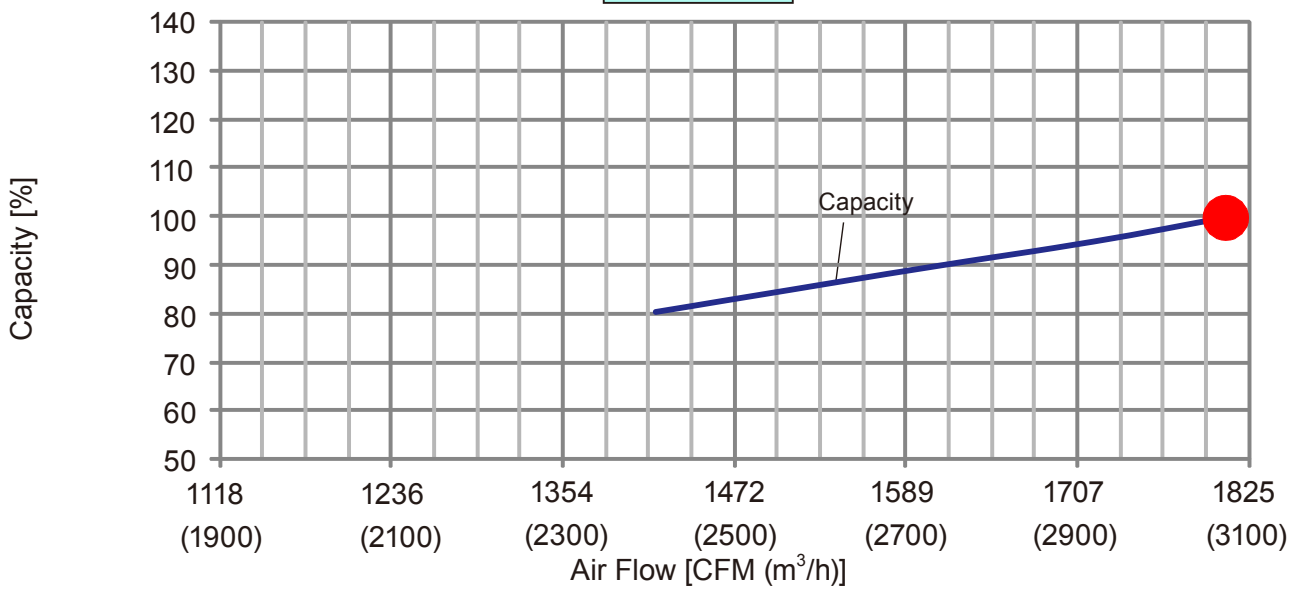
INDOOR UNITS

INDOOR UNITS

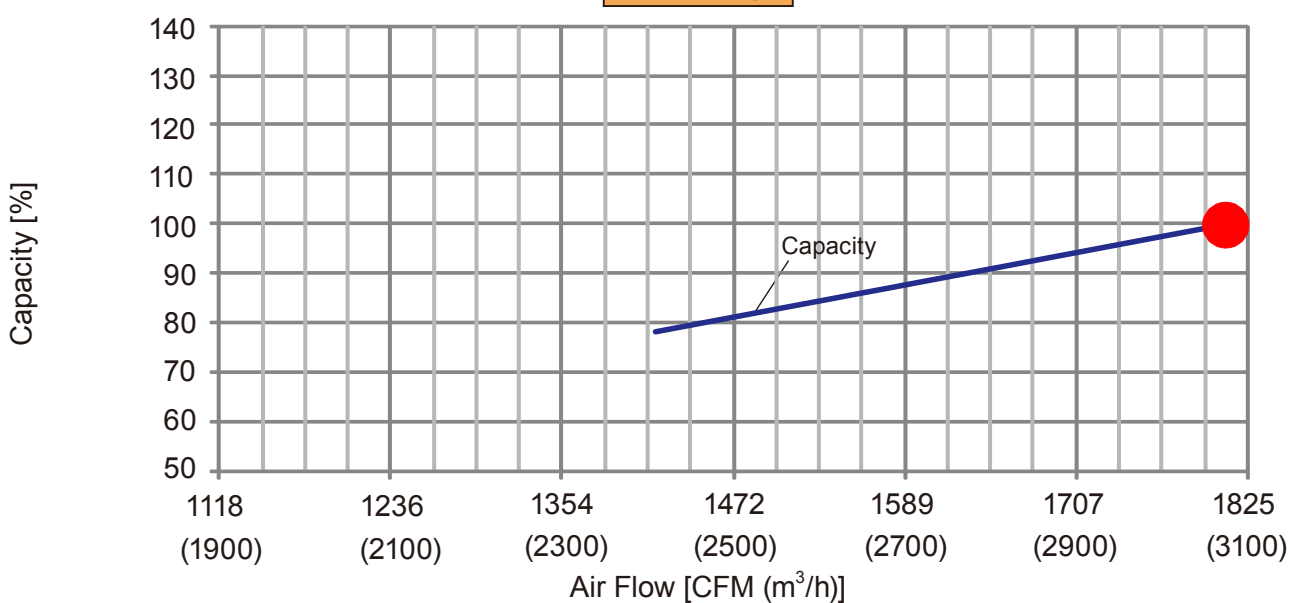
■ MODEL : ARUH48TLAV



Cooling



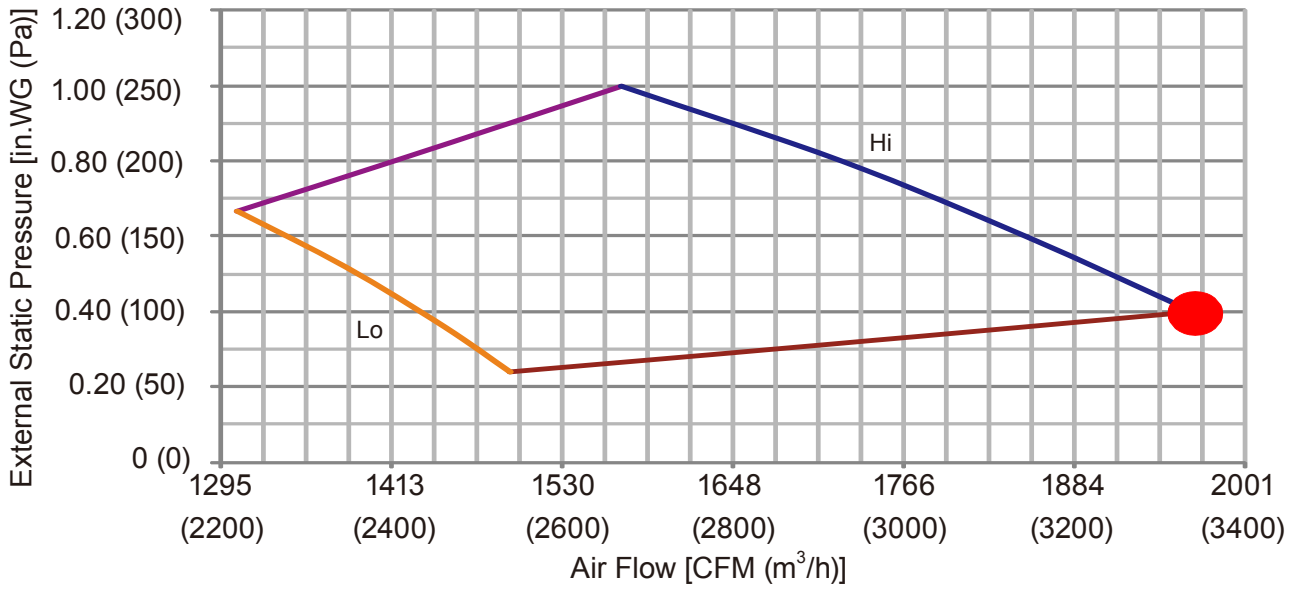
Heating



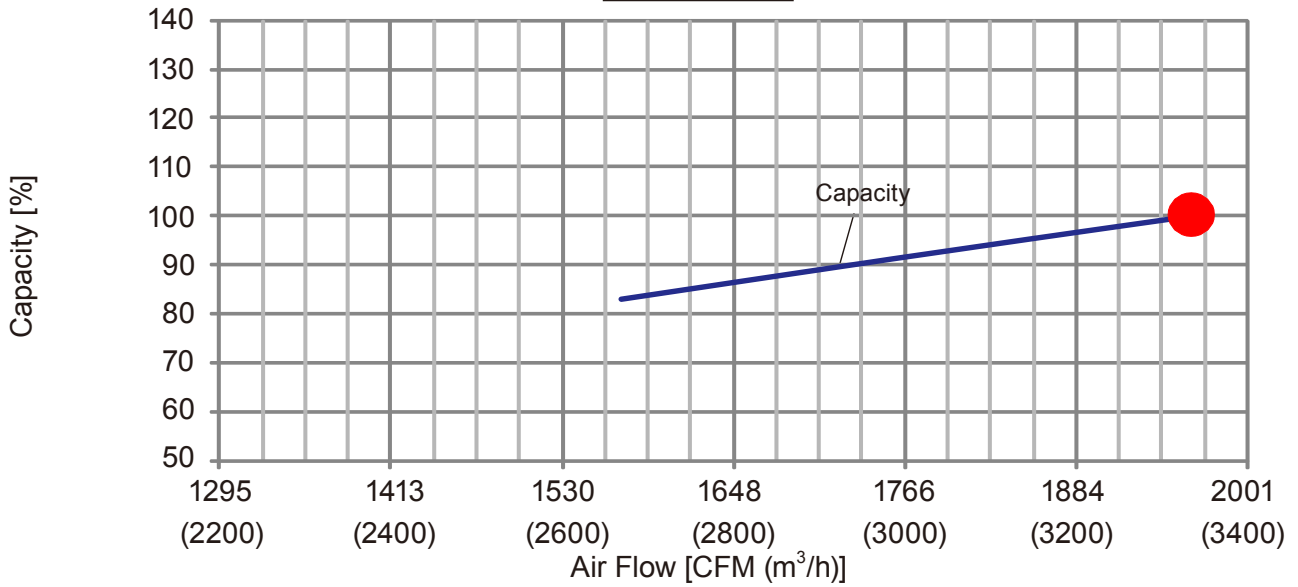
INDOOR
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INDOOR
UNITS

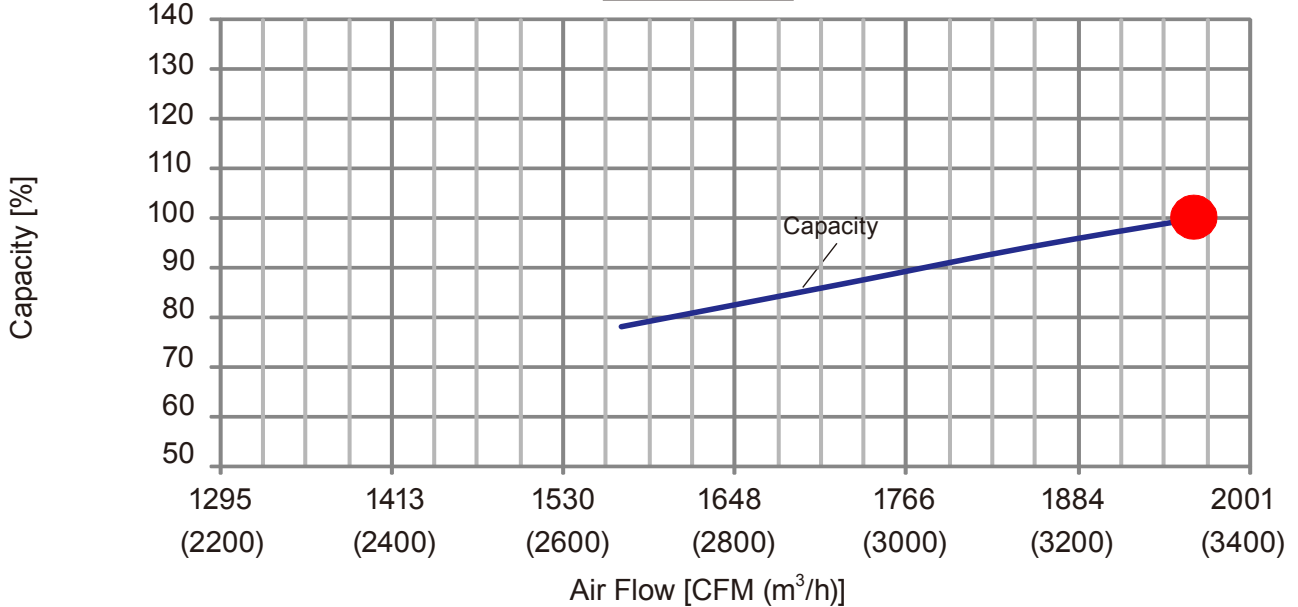
MODEL : ARUH60TLAV



Cooling



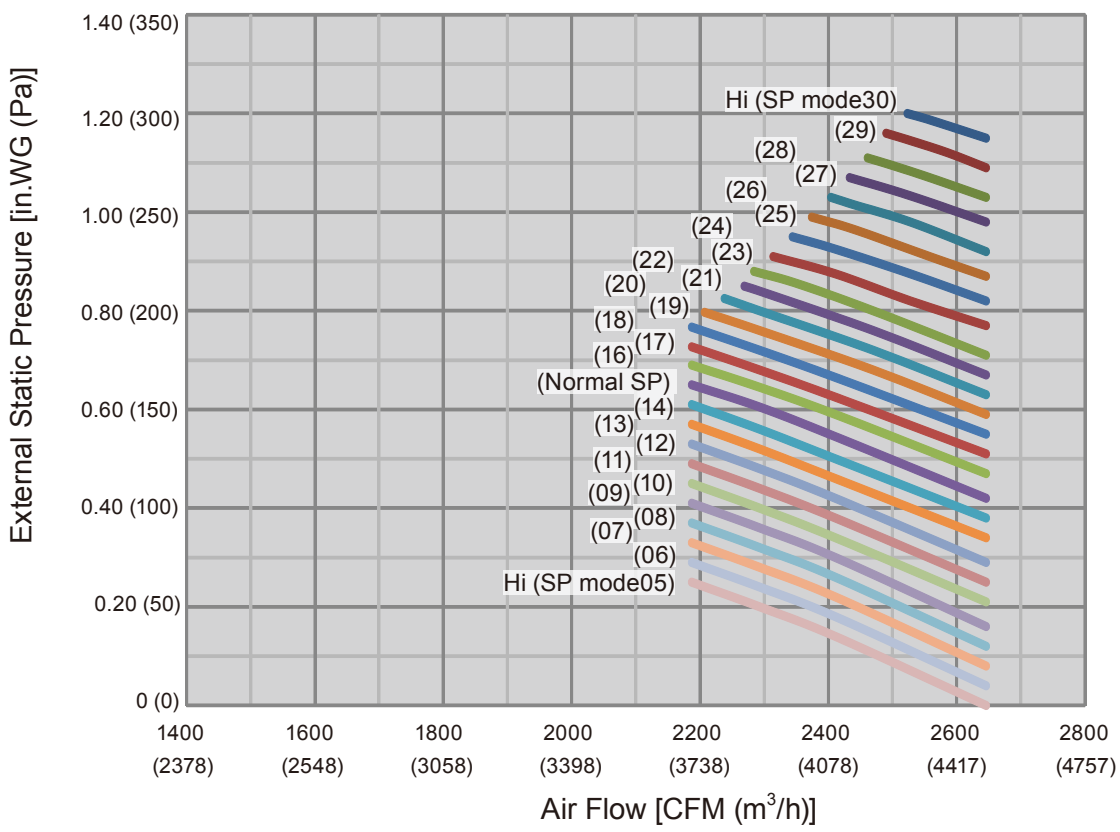
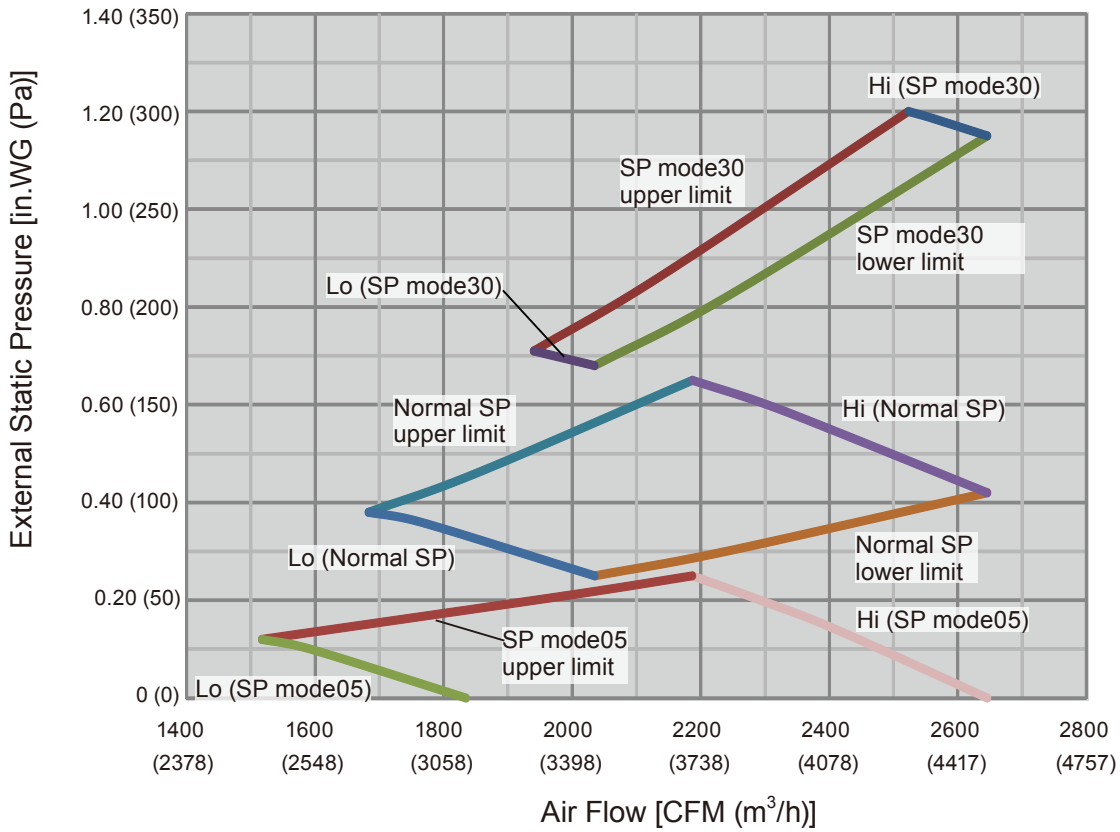
Heating



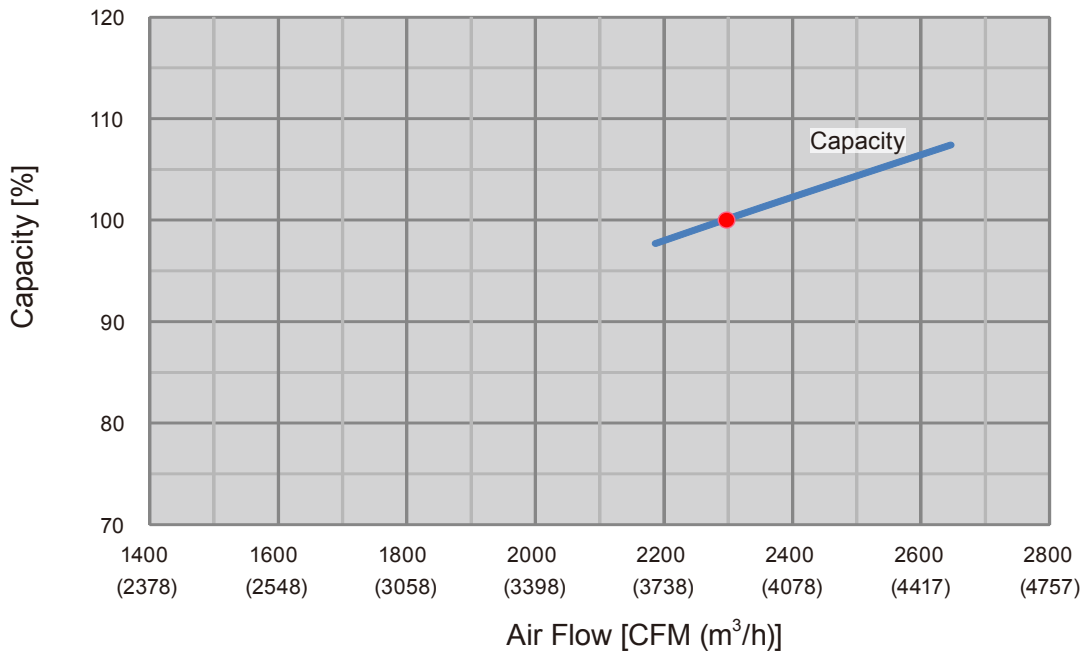
INDOOR
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INDOOR
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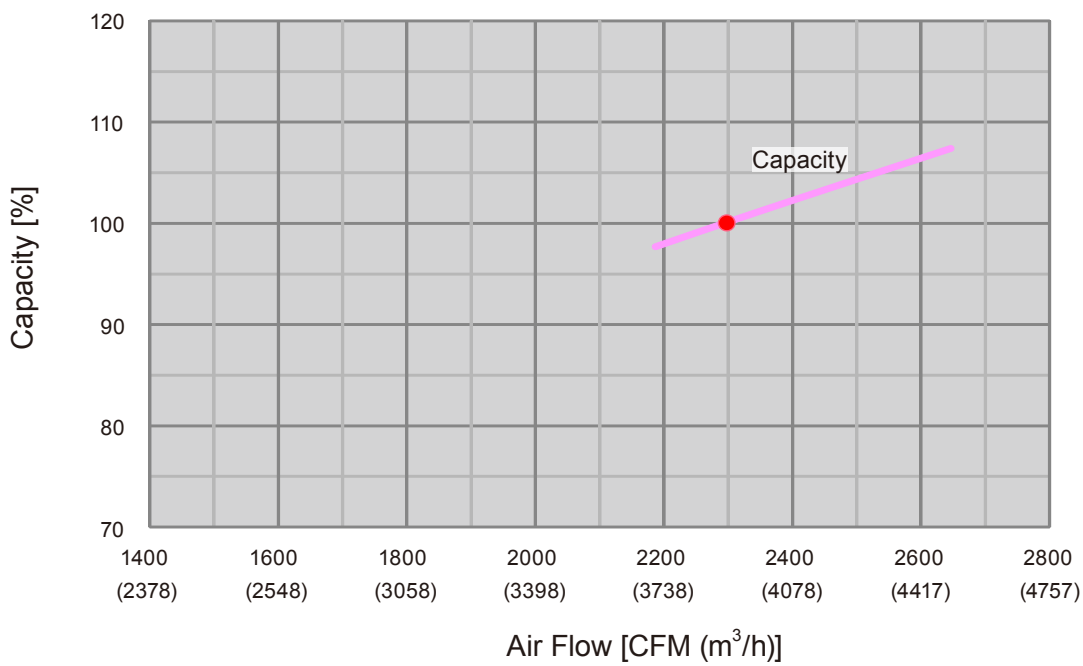
MODEL : ARUH72TLAV1



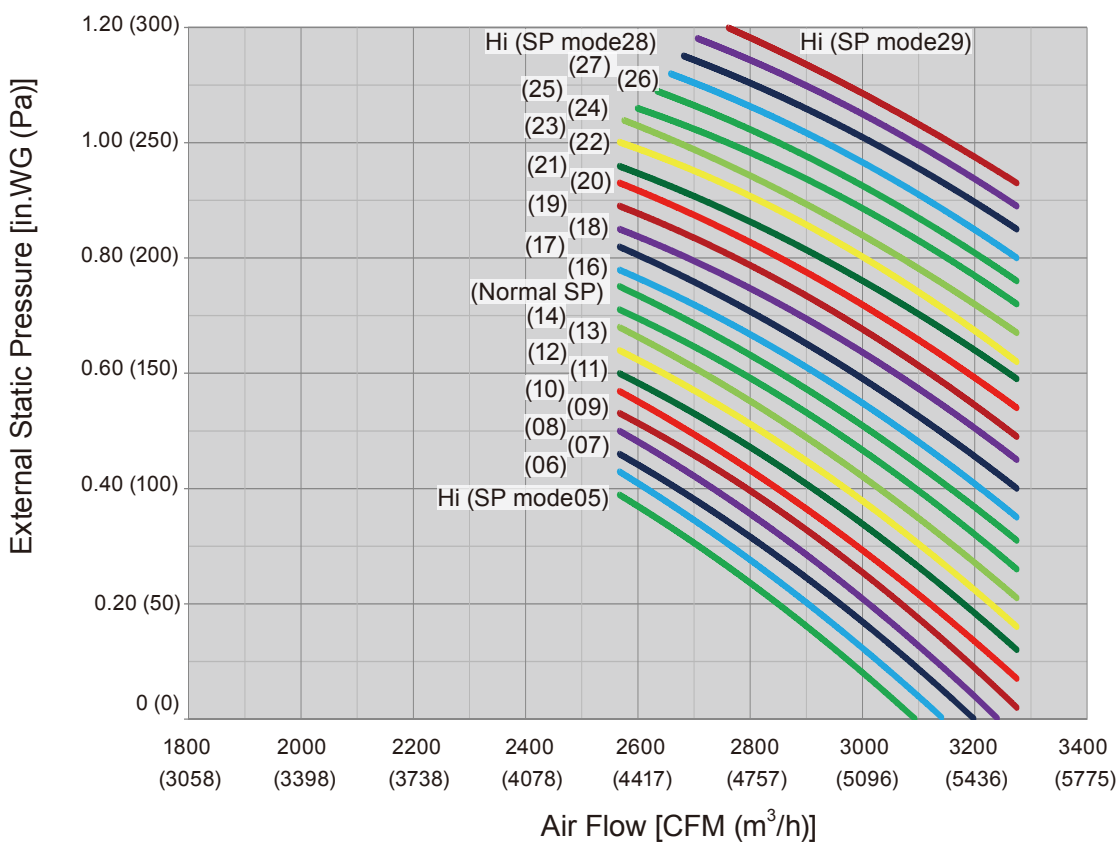
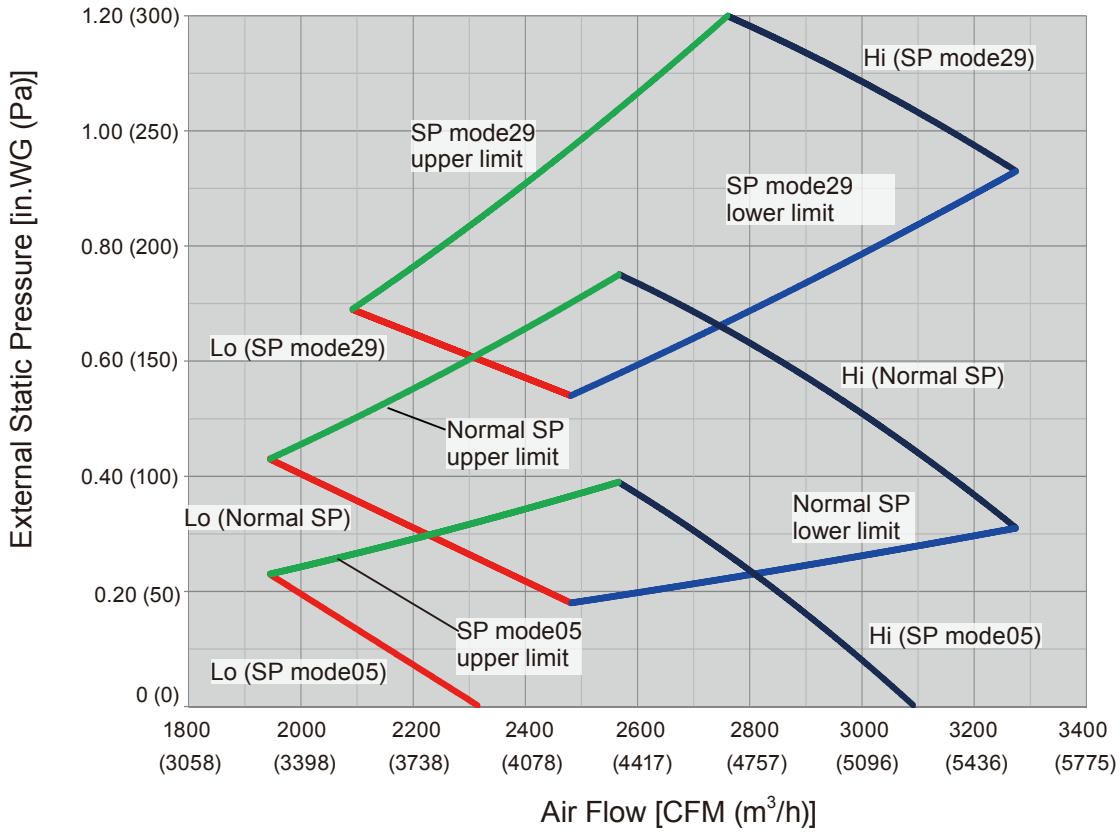
Cooling



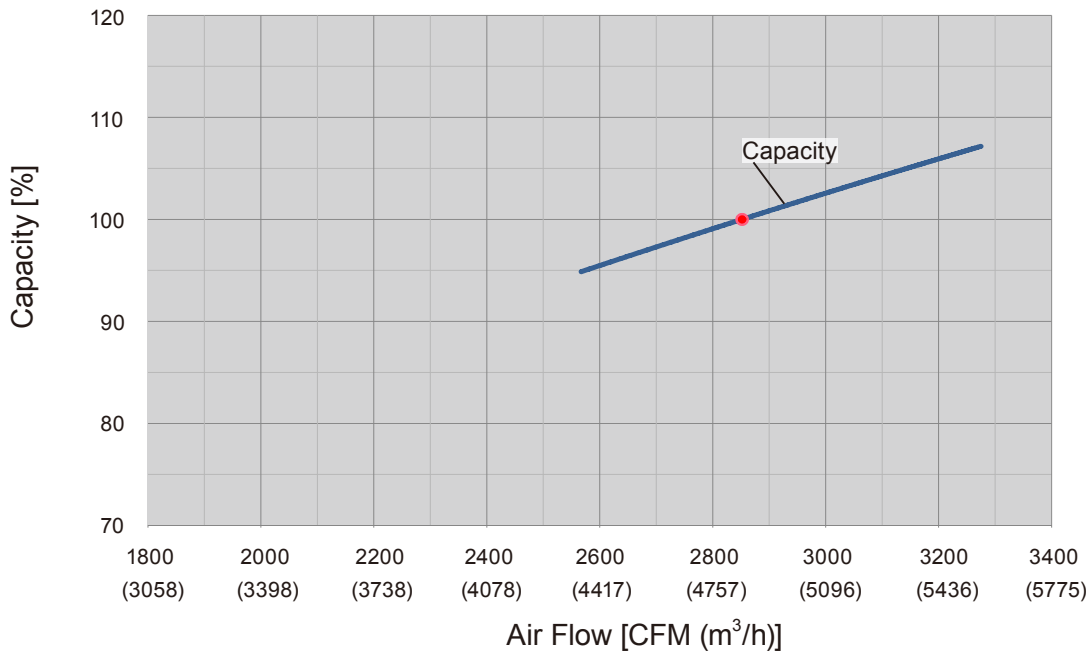
Heating



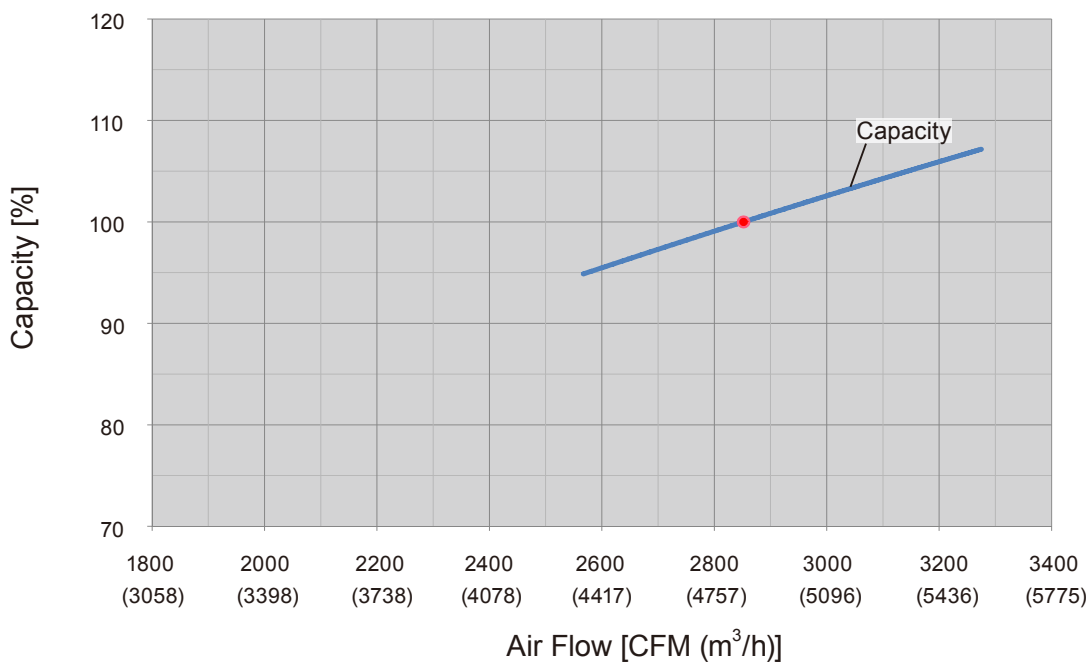
MODEL : ARUH96TLAV



Cooling

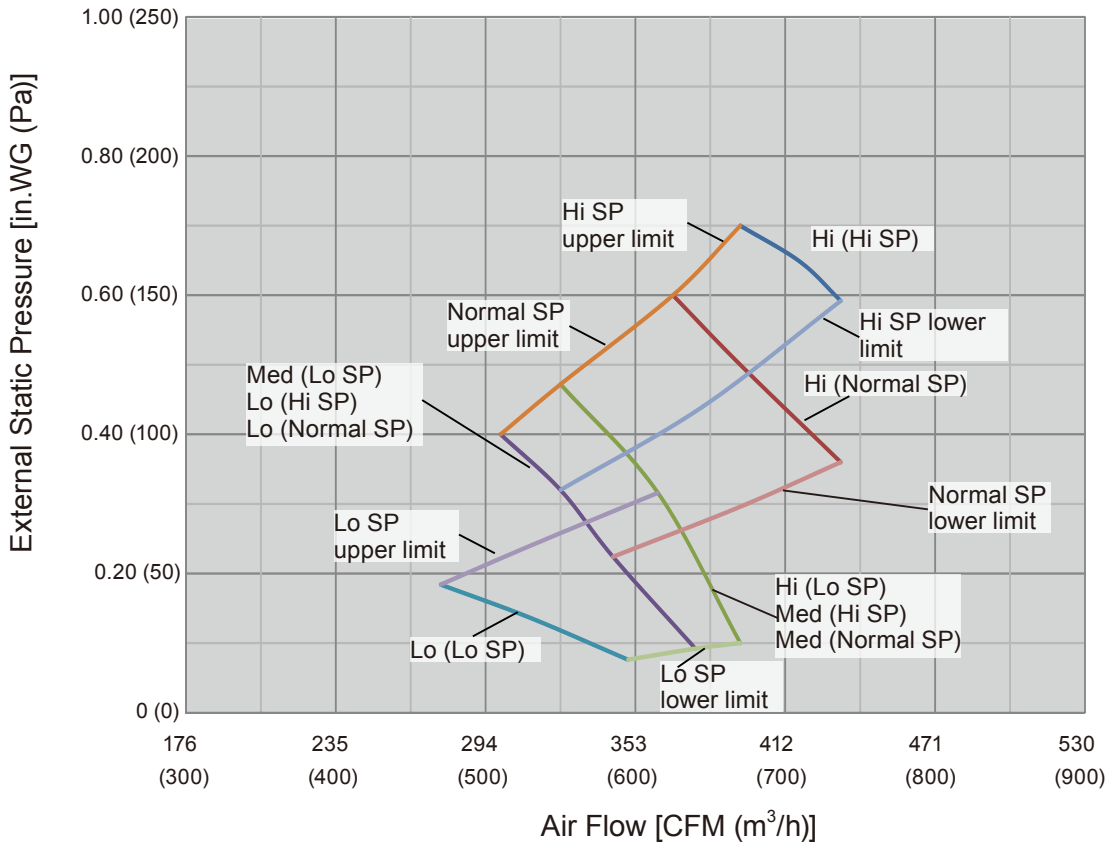


Heating



6-5. VERTICAL AIR HANDLER TYPE

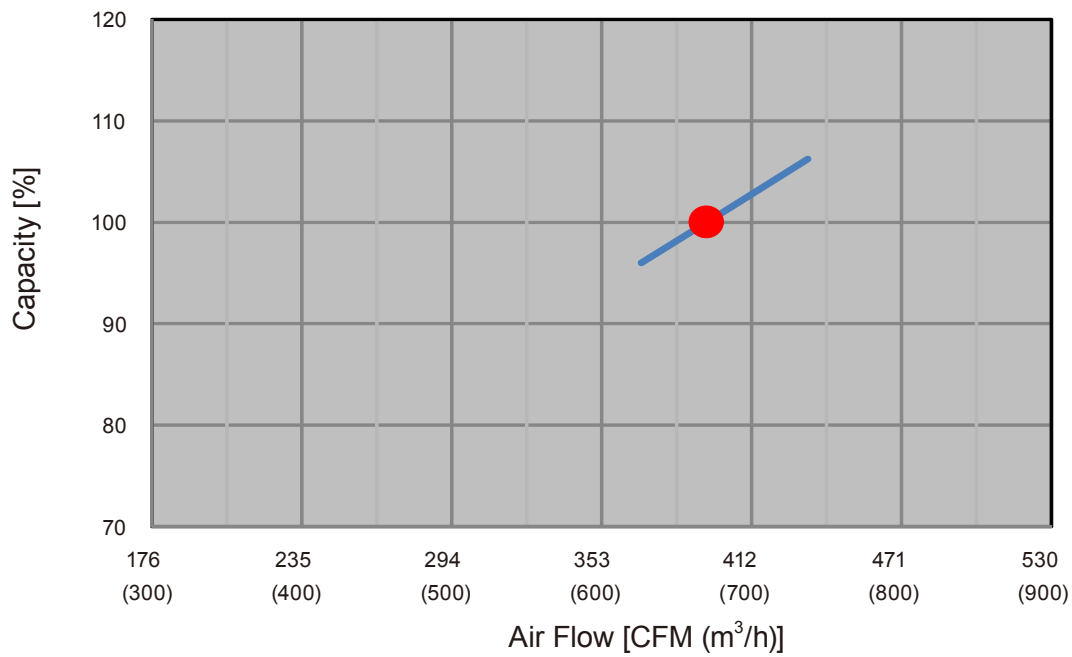
■ MODEL : ARUV12TLAV



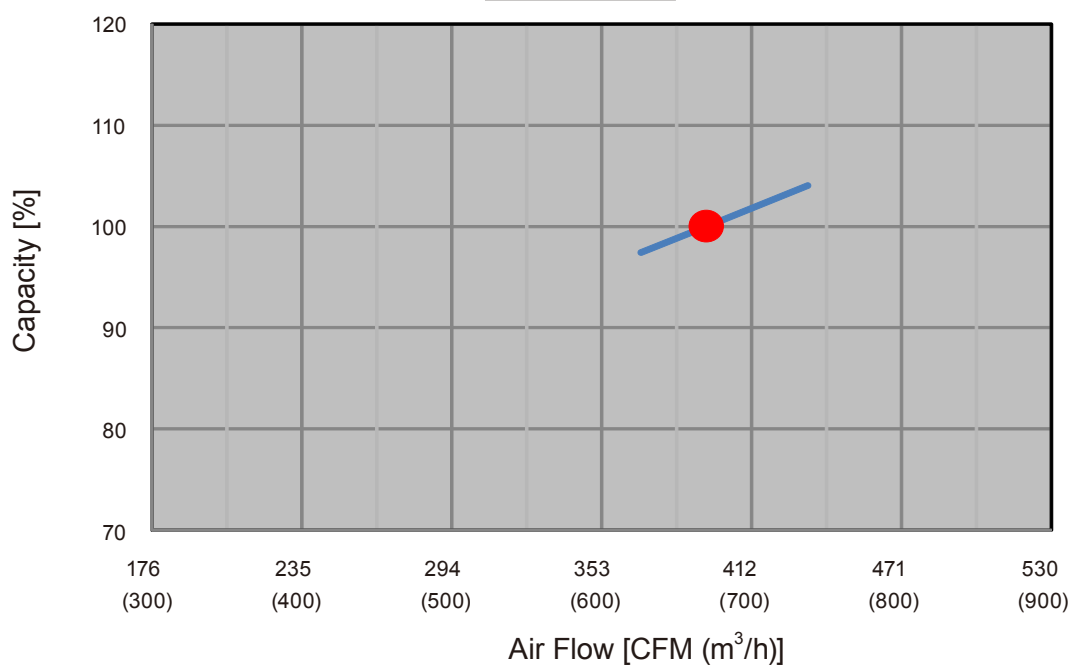
INDOOR UNITS

INDOOR UNITS

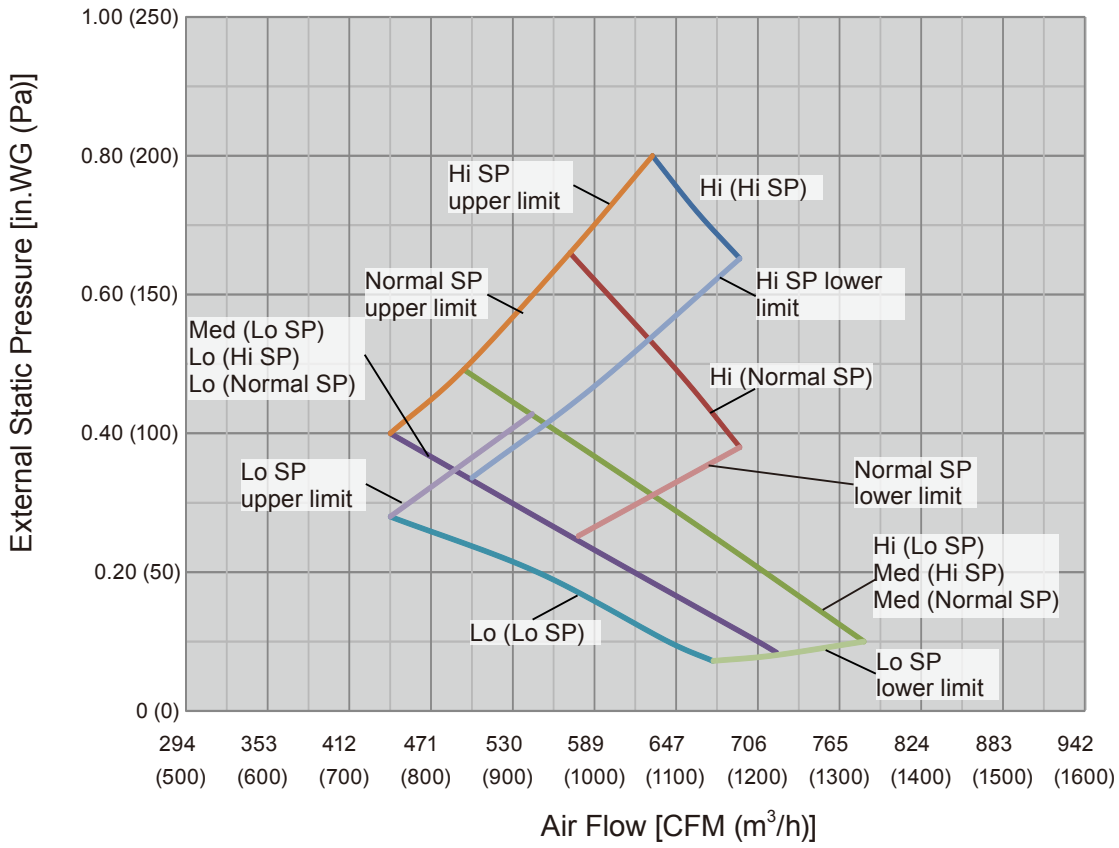
Cooling



Heating



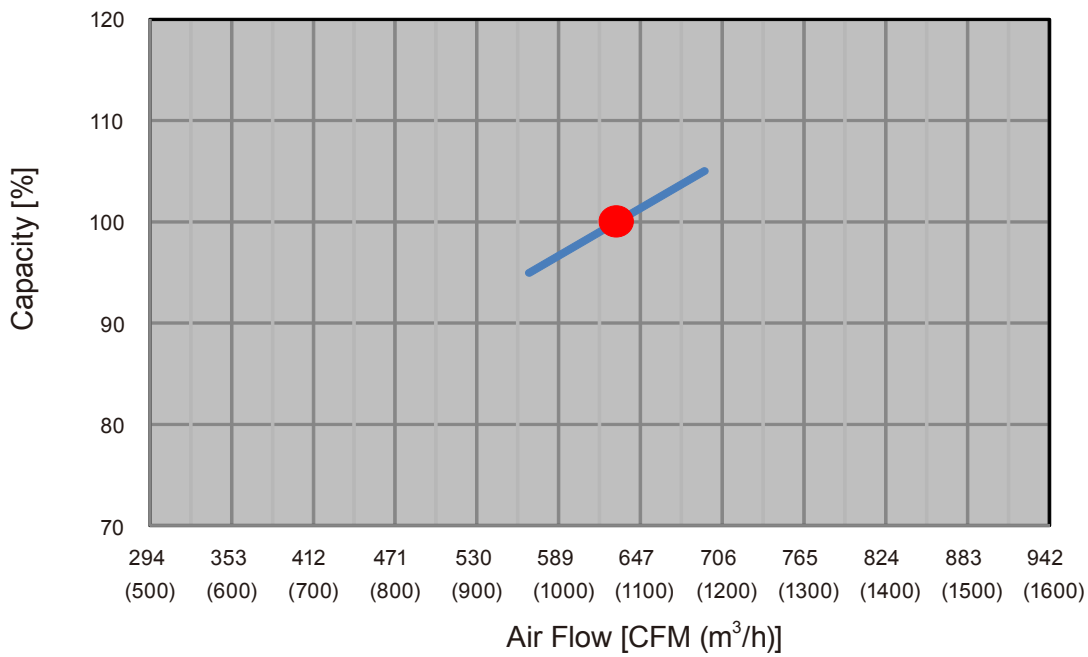
MODEL : ARUV18TLAV



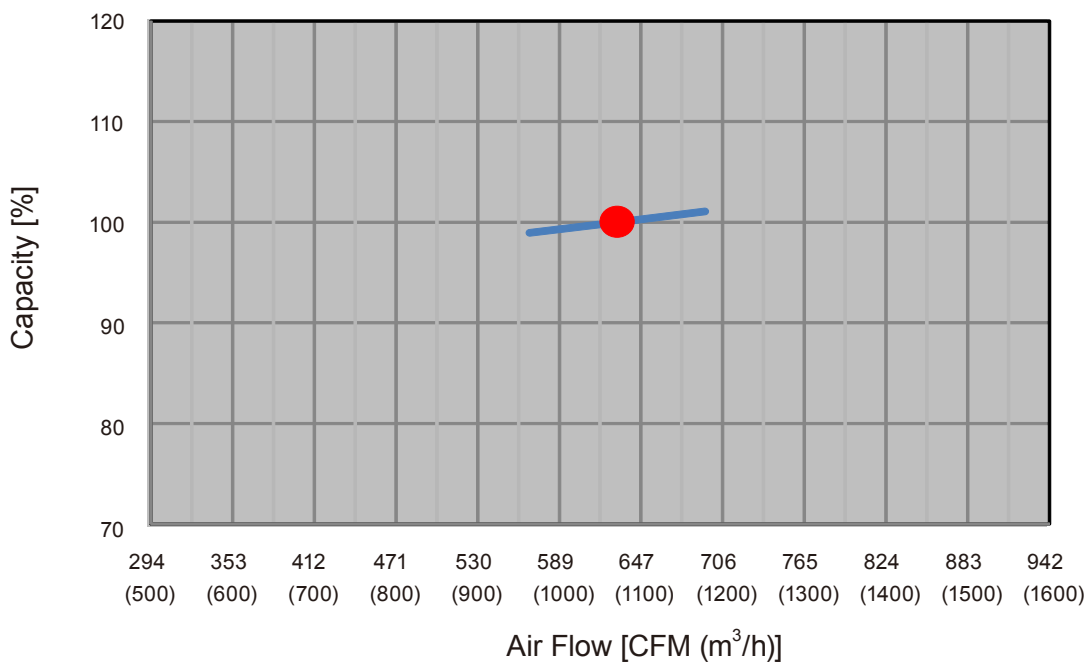
INDOOR UNITS

INDOOR UNITS

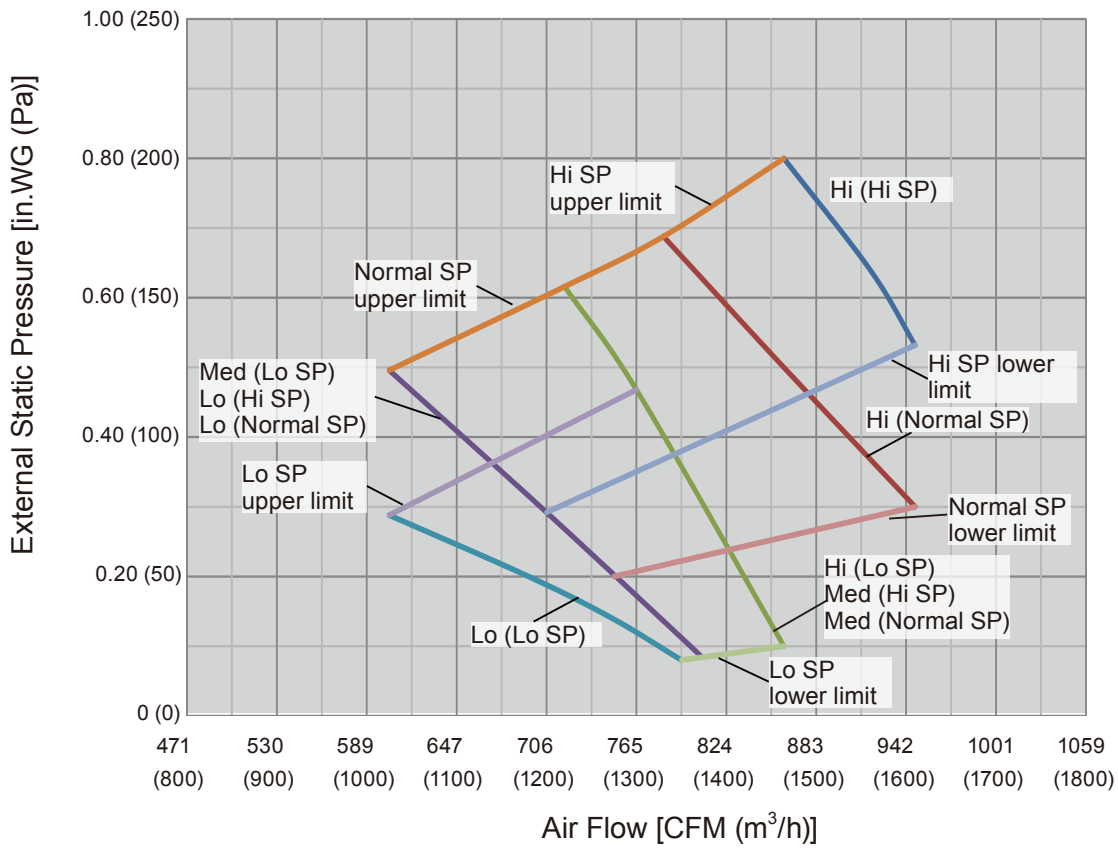
Cooling



Heating



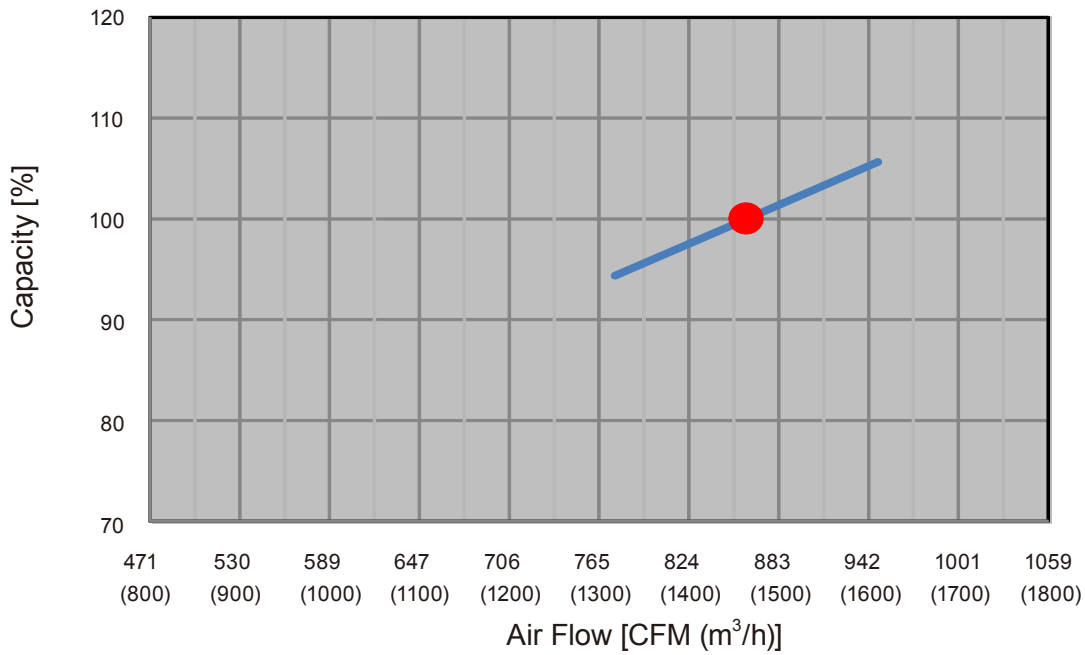
MODEL : ARUV24TLAV



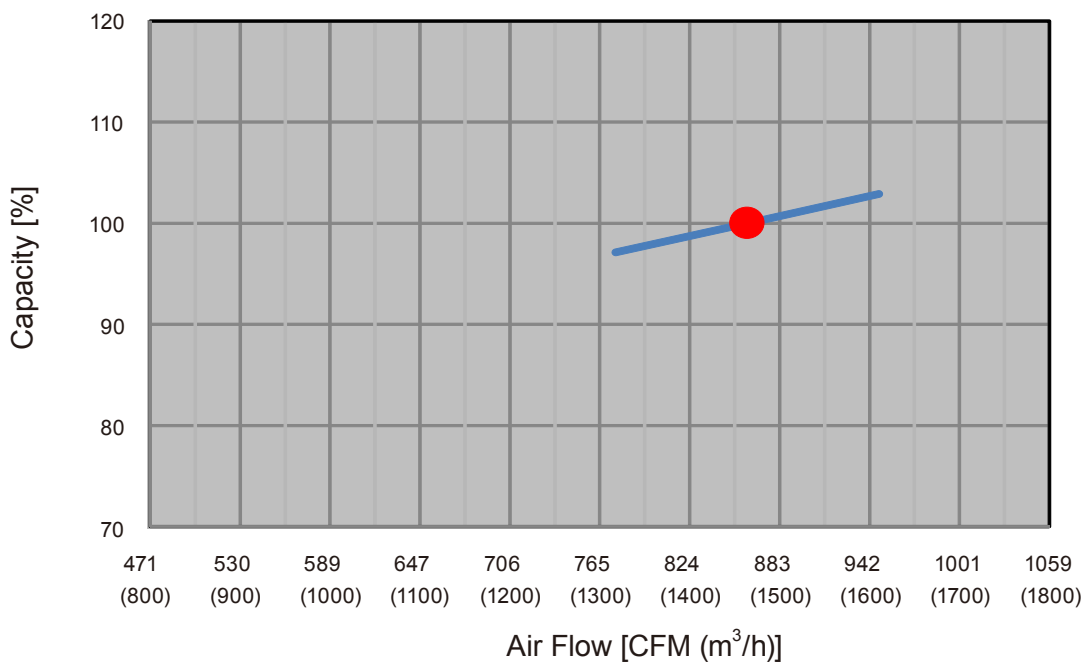
INDOOR UNITS

INDOOR UNITS

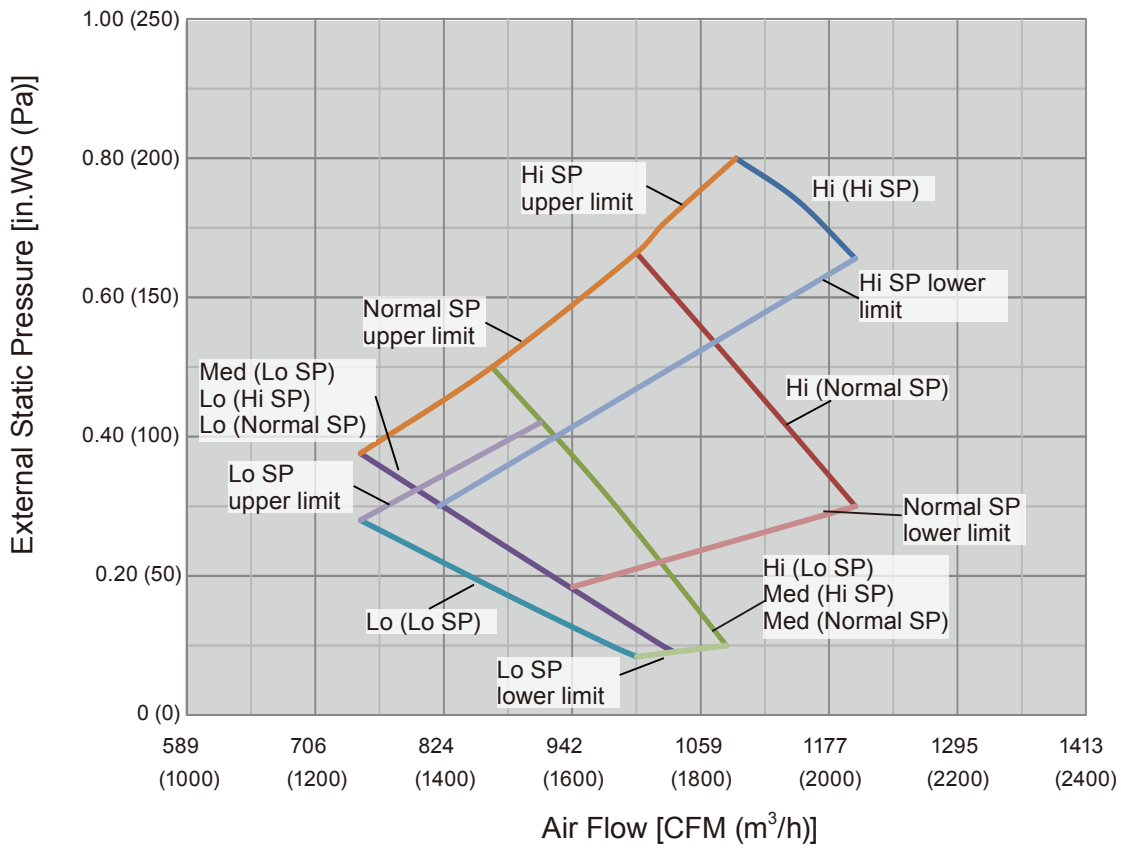
Cooling



Heating



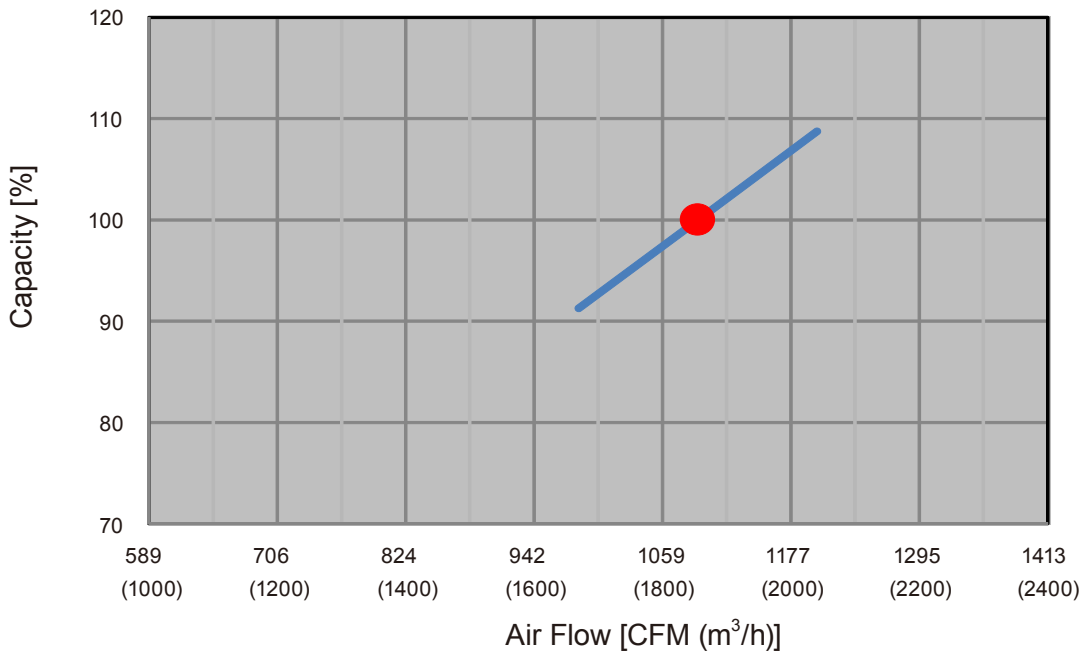
MODEL : ARUV30TLAV



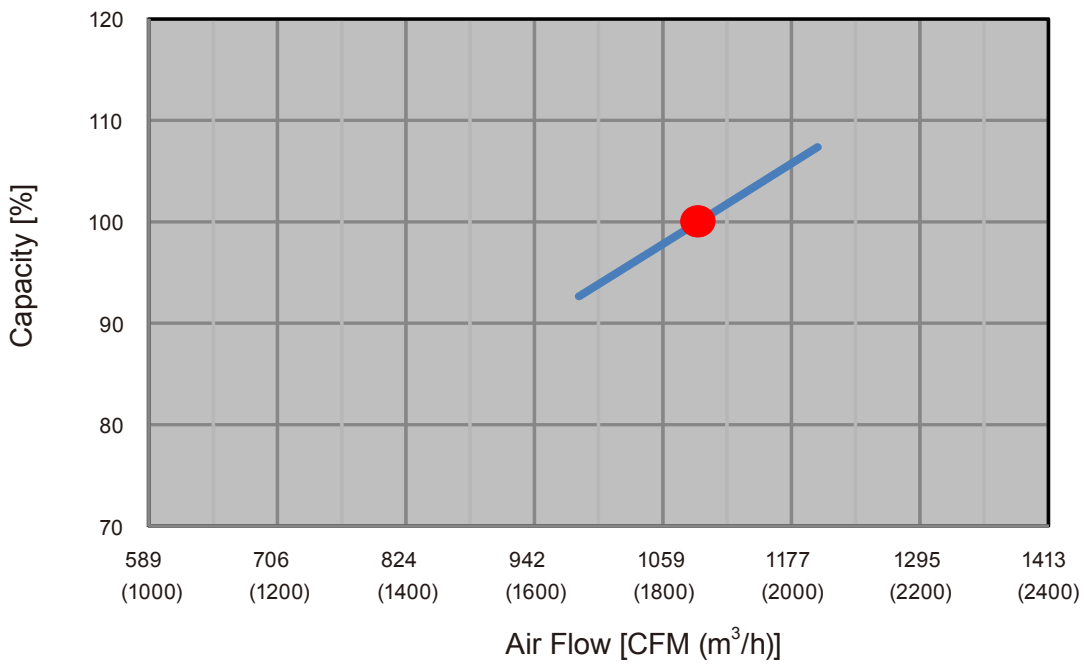
INDOOR UNITS

INDOOR UNITS

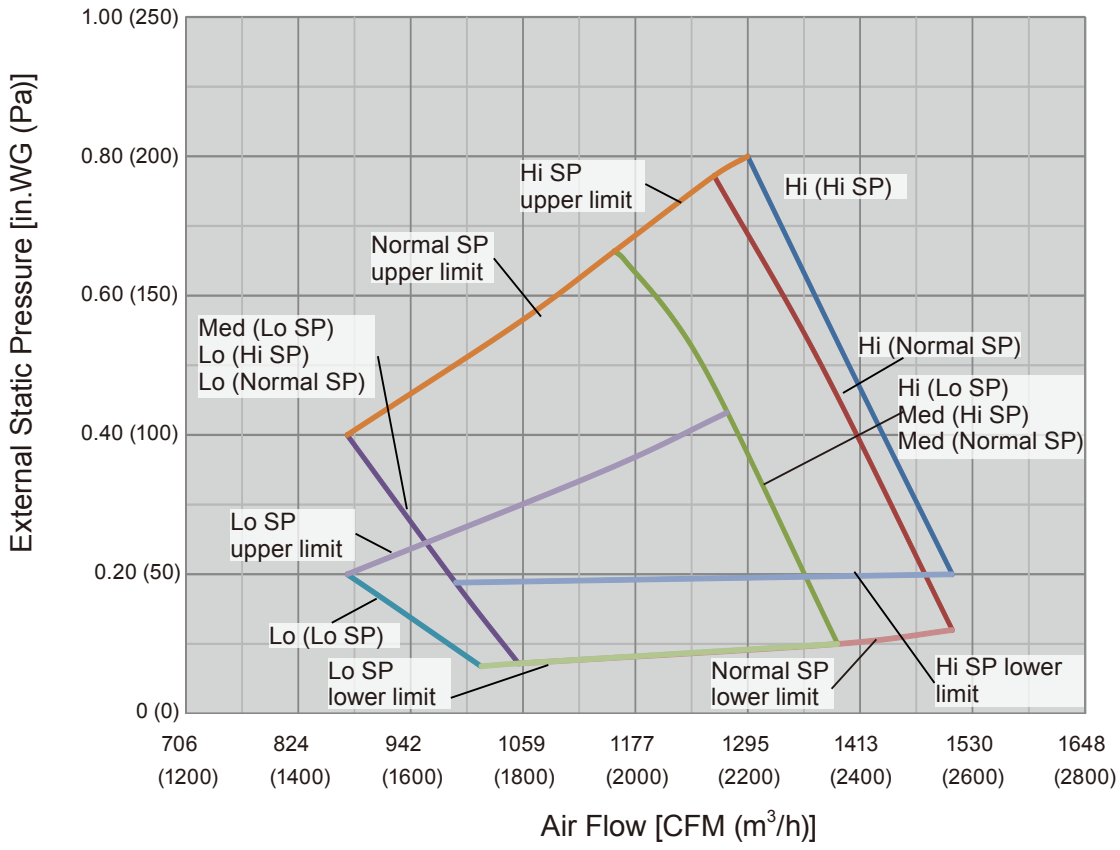
Cooling



Heating



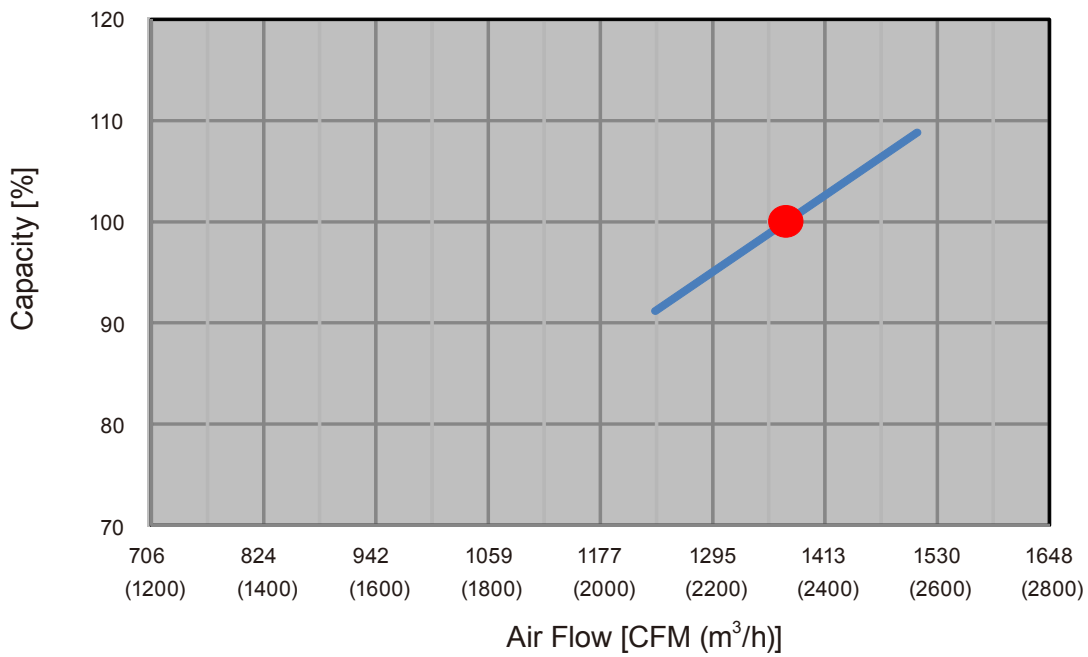
MODEL : ARUV36TLAV



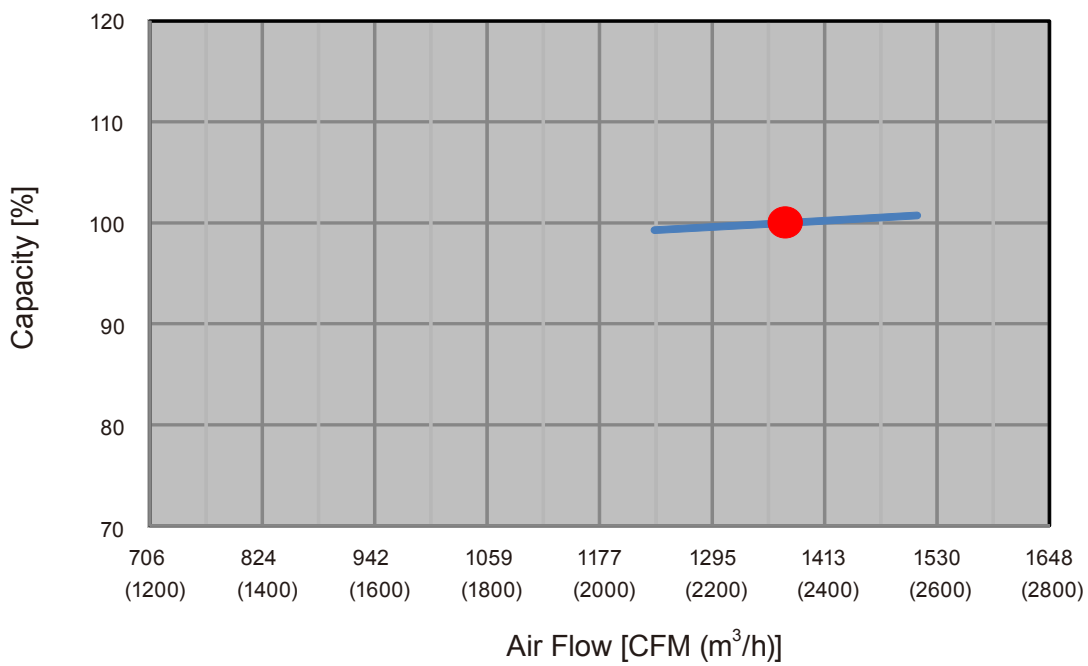
INDOOR UNITS

INDOOR UNITS

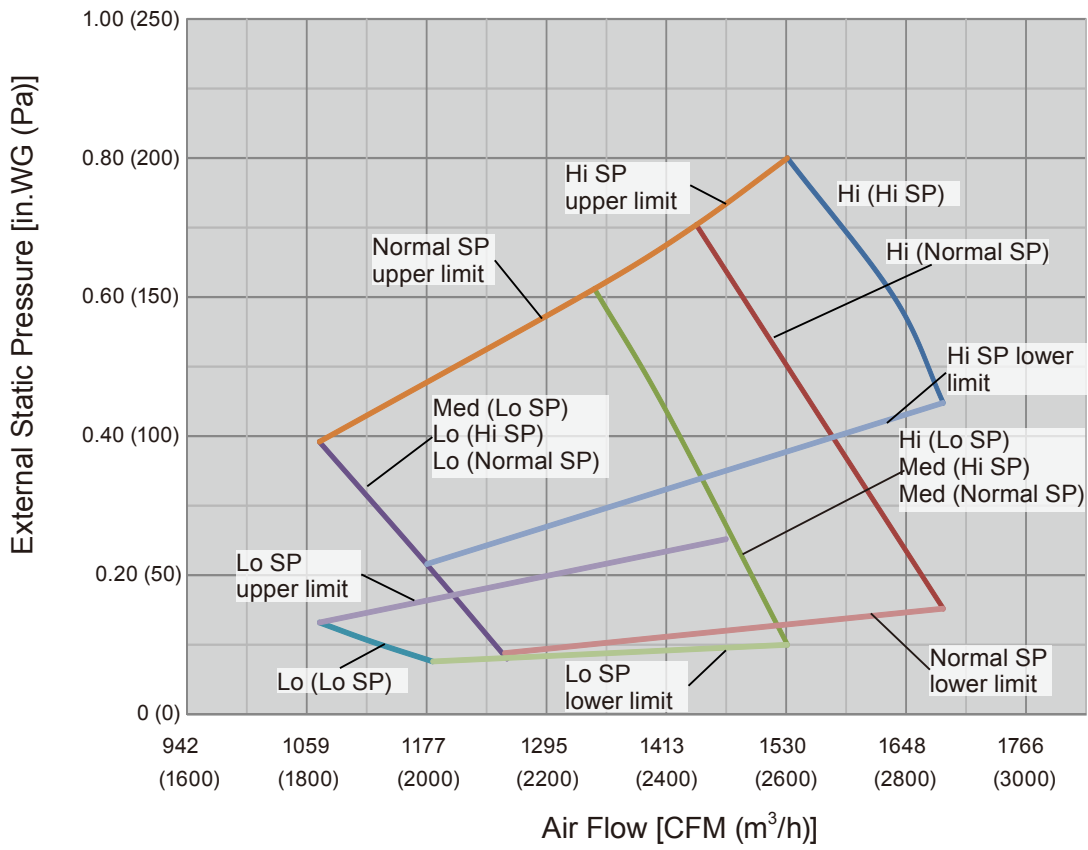
Cooling



Heating



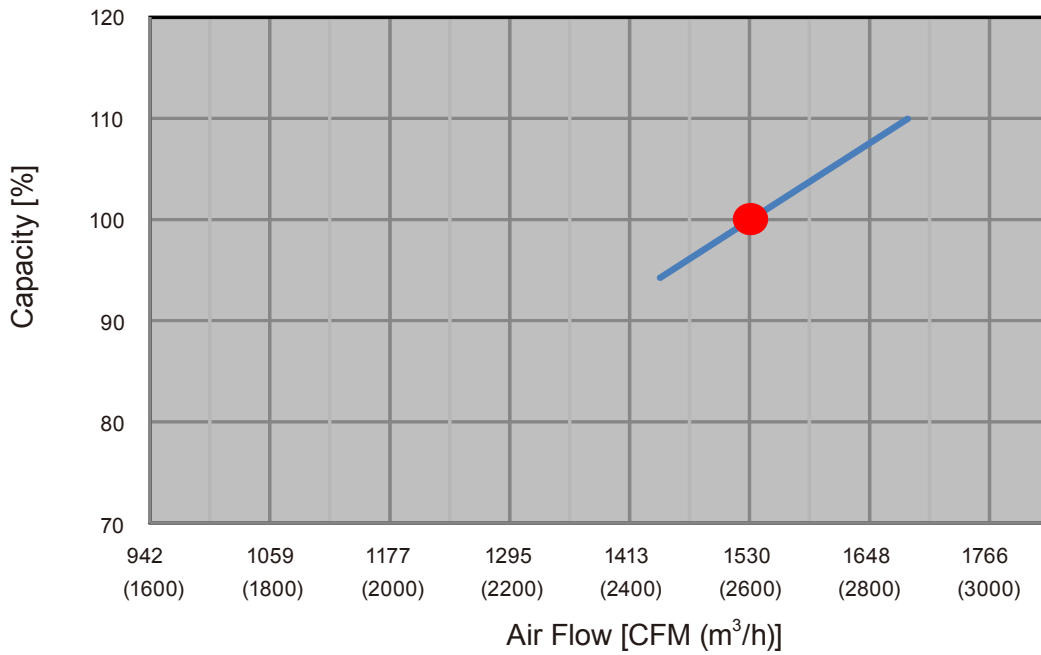
MODEL : ARUV48TLAV



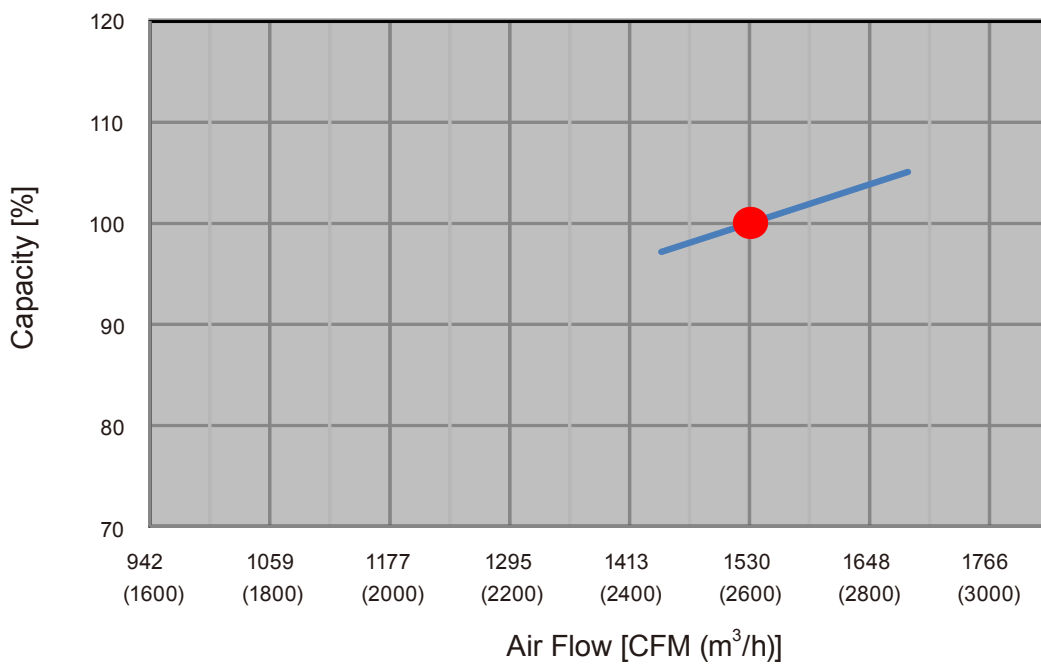
INDOOR
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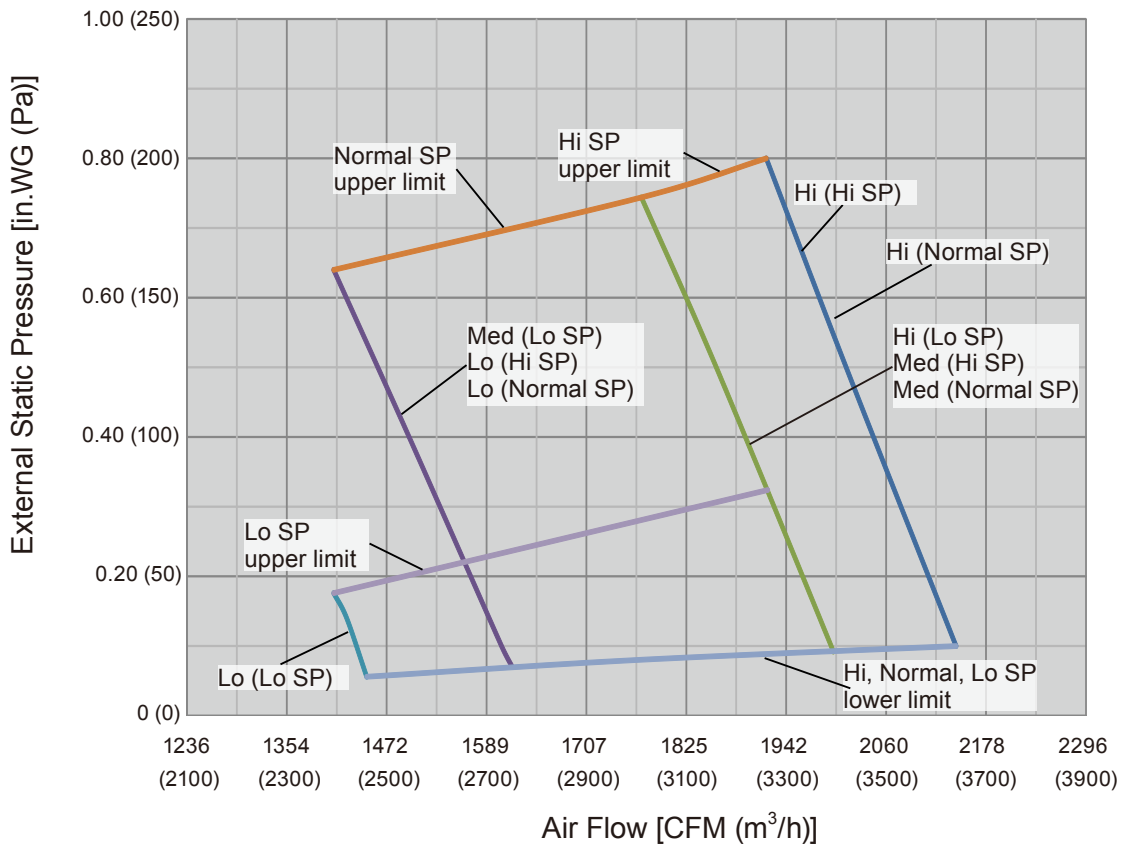
Cooling



Heating



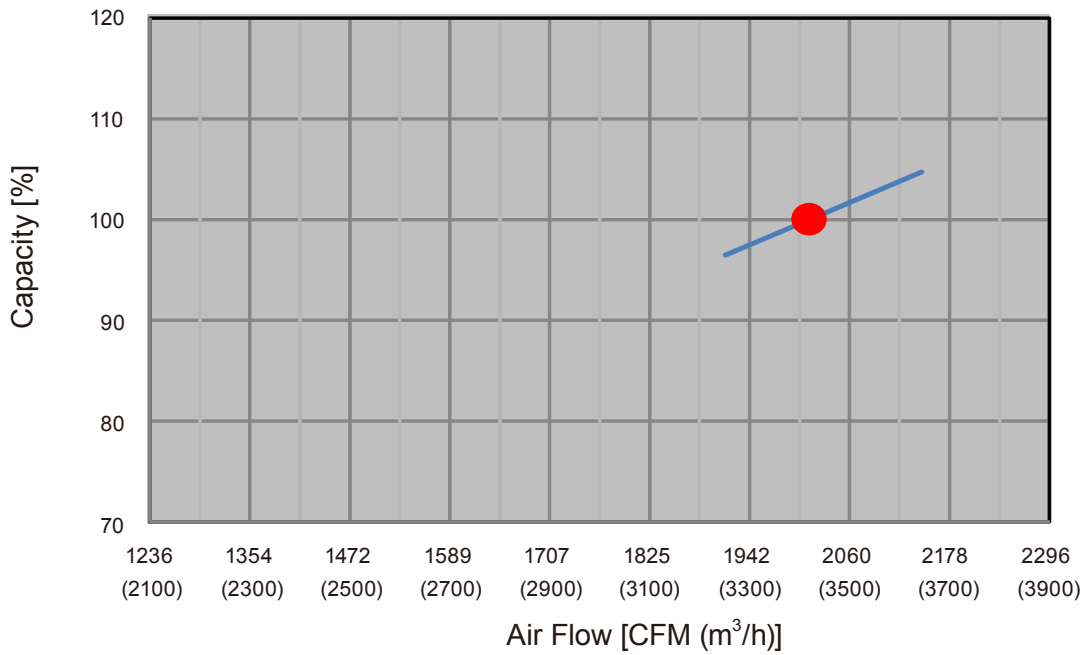
MODEL : ARUV60TLAV



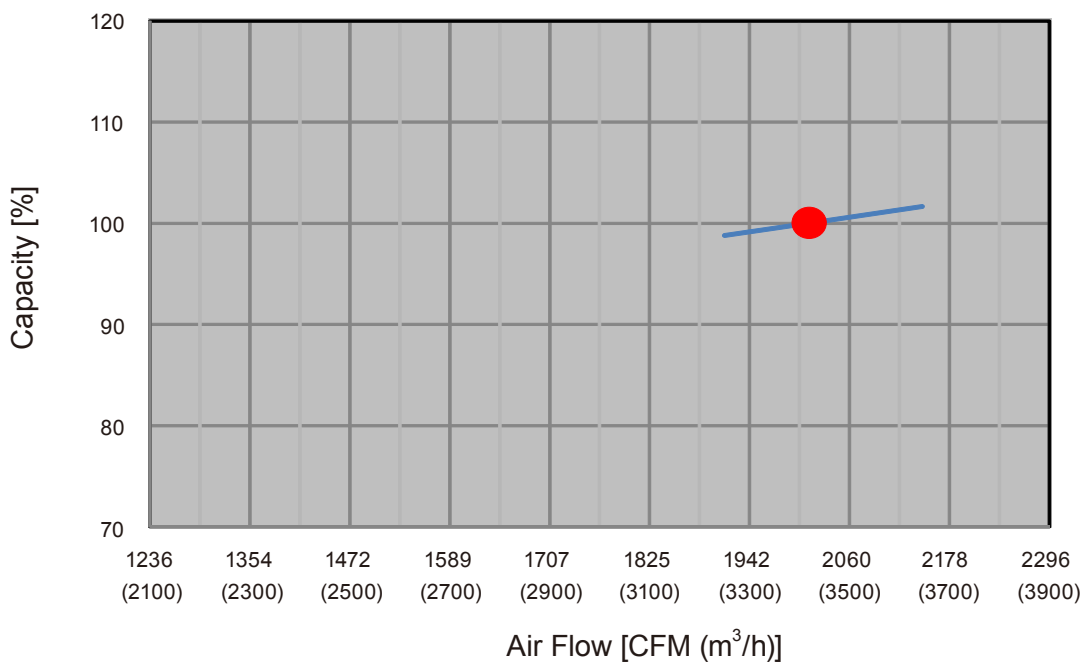
INDOOR UNITS

INDOOR UNITS

Cooling



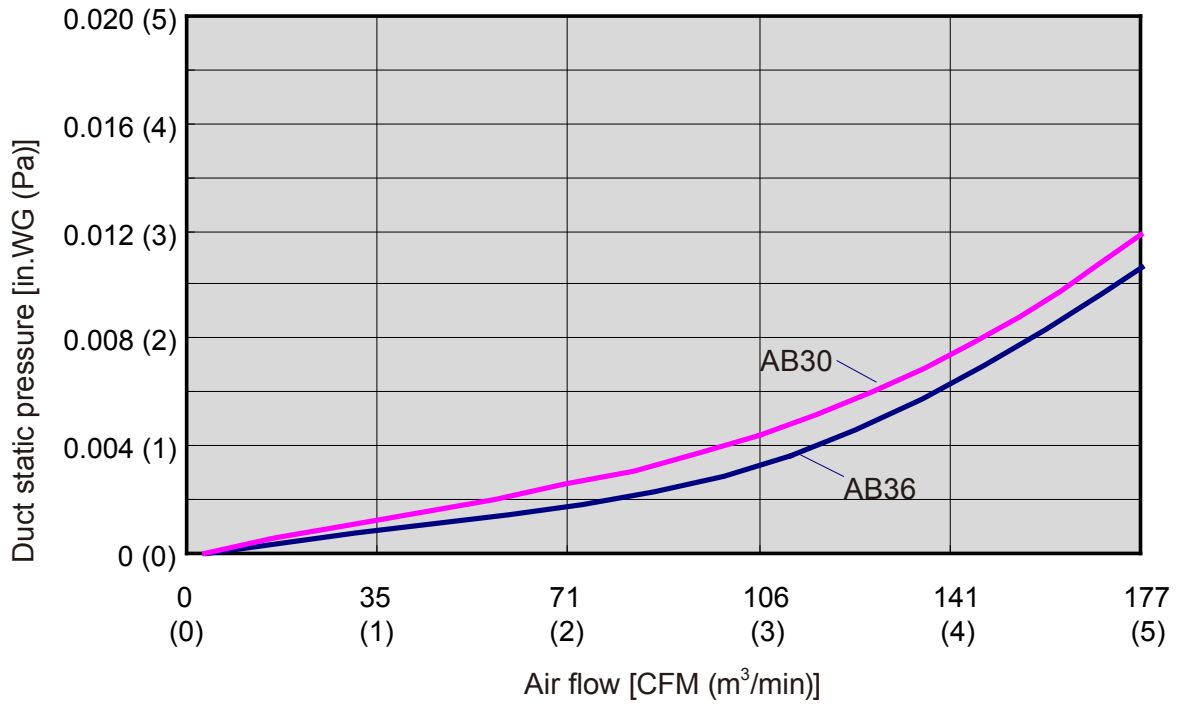
Heating



6-6. CEILING TYPE (FRESH AIR)

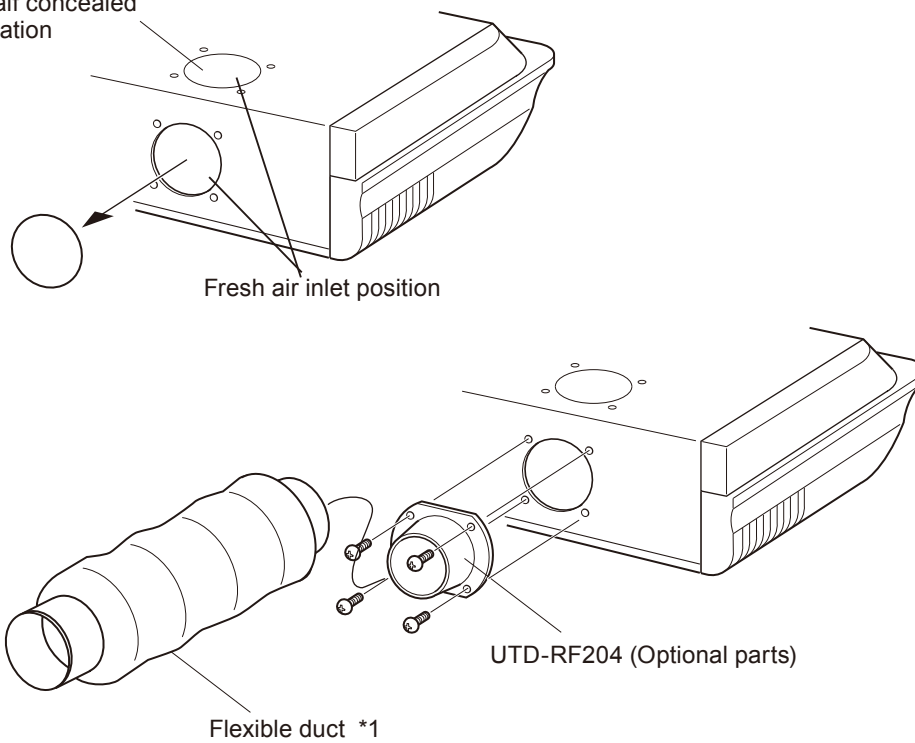
■ MODELS : ABUA30TLAV, ABUA36TLAV

● Air flow volume - Static pressure of Fresh air intake characteristic



● Installation

For half concealed installation

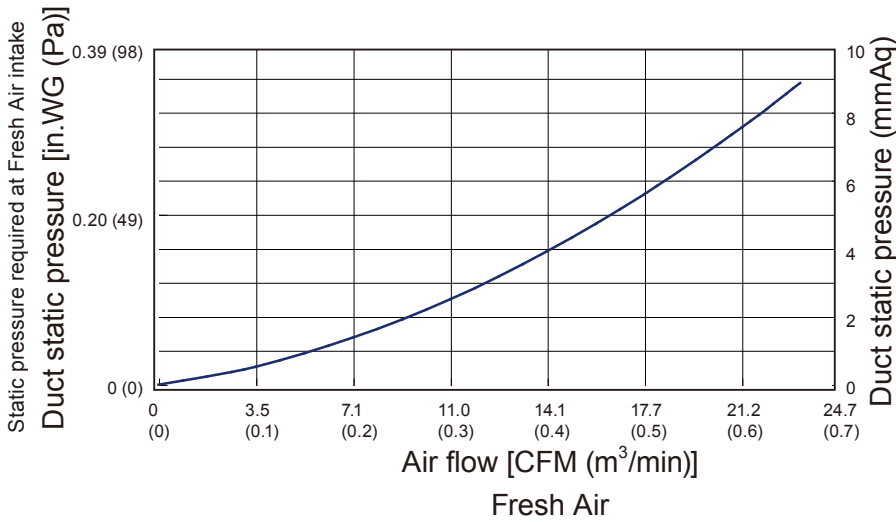


*1 : Locally purchased parts

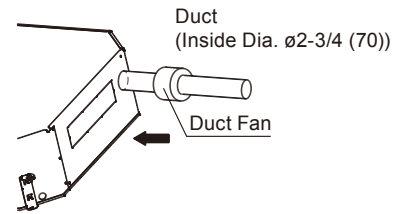
6-7. CASSETTE TYPE (FRESH AIR)

MODELS : AUUB18TLAV, AUUB24TLAV, AUUB30TLAV, AUUB36TLAV

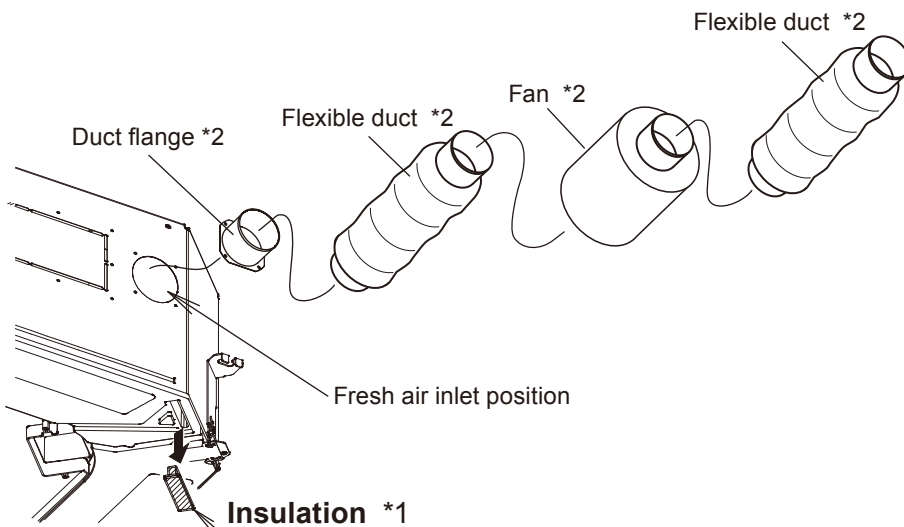
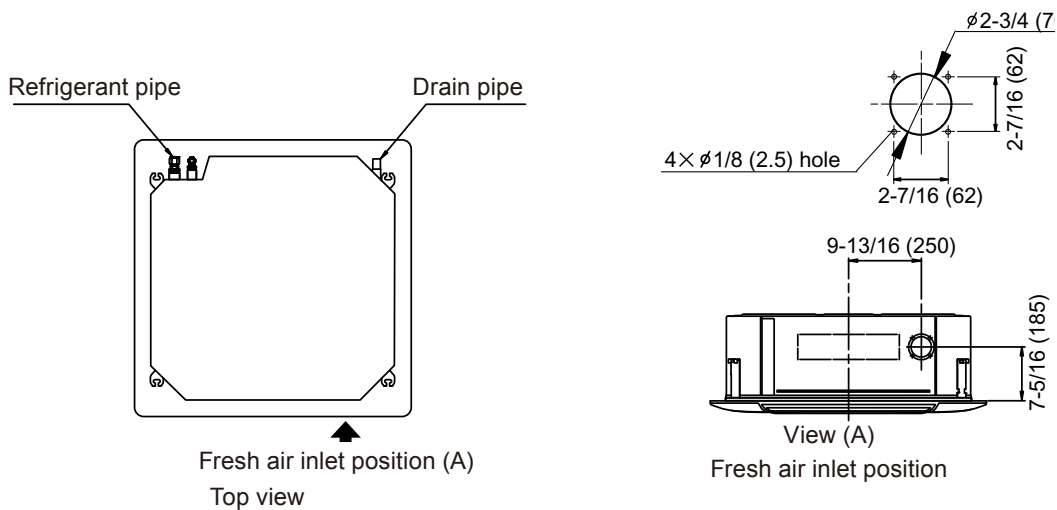
Fresh Air volume & Static Pressure required at Fresh Air intake.



Unit : in. (mm)



Installation



*1 : If Fresh Air intake is used, remove insulation.

*2 : Locally purchased parts

INDOOR UNITS

INDOOR UNITS

7. AIR FLOW

Type	Model	Airflow			Type	Model	Airflow					
			m ³ /h	l/s			CFM		m ³ /h	l/s	CFM	
Compact Cassette	AUUA4	High	530	147	312	Mini duct	ARUL4	High	460	128	271	
		Med	450/420	125/117	265/247			Me-Hi	440	122	259	
		Low	350/300	97/83	206/177			Med	420	117	247	
	AUUA7	High	540	150	318			Lo-Hi	400	111	235	
		Med	450	125	265			Low	370	103	218	
		Low	350	97	206			Qu	340	94	200	
	AUUA9	High	550	153	324	Slim Duct / Slim Concealed Floor	ARUL7	High	550	153	324	
		Med	450	125	265			Med	490	136	288	
	AUUA12	Low	350	97	206			ARUL9	High	600	167	353
		High	600	167	353	Med	550		153	324		
		Med	530	147	312	Low	480		133	283		
	AUUA14	Low	390	108	230	ARUL12	High	600	167	353		
		High	680	189	400		Med	510	142	300		
		Med	590	164	347		Low	450	125	265		
	AUUA18	Low	390	108	230	ARUL14	High	800	222	471		
		High	710	197	418		Med	710	197	418		
Med		580	161	341	Low		610	169	359			
AUUA24	Low	400	111	235	ARUL18	High	940	261	553			
	High	1030	286	606		Med	840	233	494			
	Med	830	231	489		Low	750	208	441			
Circular flow cassette	AUUB18	Low	450	125	265	Mediun Static Pressure Duct	ARUM24	High	1460	406	859	
		High	1050	292	618			Med	1230	342	724	
		Me-Hi	930	258	547			Low	1000	278	589	
		Med	900	250	530			ARUM30	High	1770	492	1042
		Lo-Hi	870	242	512				Med	1380	383	812
		Low	810	225	477				Low	1000	278	589
	AUUB24	Qu	780	217	459	ARUM36	High	1890	525	1112		
		High	1120	311	659		Med	1520	422	895		
		Me-Hi	1050	292	618		Low	1150	319	677		
		Med	930	258	547	High Static Pressure Duct	ARUH36	High	2250	625	1324	
		Lo-Hi	900	250	530			Med	1750	486	1030	
	Low	870	242	512	Low			1400	389	824		
	AUUB30	Qu	780	217	459		ARUH48	High	3000	833	1766	
		High	1470	408	865			Med	2700	750	1589	
		Me-Hi	1160	322	683	Low		2300	639	1354		
		AUUB36	Med	1070	297	630	ARUH60	High	3350	931	1972	
Lo-Hi			930	258	547	Med		2850	792	1678		
Low	900		250	530	Low	2550		708	1501			
AUUB48	Qu		780	217	459	ARUH72	High	3,900	1083	2296		
	High		1620	450	954		Med	3,300	917	1942		
	Me-Hi	1500	417	883	Low		3,000	833	1766			
	AUUB18	Med	1400	389	824	ARUH96	High	4,850	1347	2855		
		Lo-Hi	1340	372	789		Med	4,250	1181	2502		
Low		1280	356	753	Low		3,600	1000	2119			
AUUB24		Qu	1150	319	677	ARUV12	High	670	186	394		
		High	2040	567	1201		Med	590	164	347		
	Me-Hi	1800	500	1059	Low		520	144	306			
	AUUB36	Med	1590	442	936	ARUV18	High	1071	298	630		
		Lo-Hi	1440	400	848		Med	930	258	547		
Low		1300	361	765	Low		860	239	506			
Cassette		Qu	1150	319	677	ARUV24	High	1464	407	862		
		High	1150	319	677		Med	1360	378	800		
	Me-Hi	940	261	553	Low		1170	325	689			
	AUUB48	Low	870	242	512	ARUV30	High	1855	515	1092		
		High	1280	356	753		Med	1600	444	942		
Med		1040	289	612	Low		1390	386	818			
AUUB18	Low	870	242	512	ARUV36	High	2331	648	1372			
	High	1600	444	942		Med	2160	600	1271			
	Med	1300	361	765		Low	1620	450	954			
AUUB24	Low	1100	306	647	ARUV48	High	2602	723	1531			
	High	1800	500	1059		Med	2390	664	1407			
	Med	1300	361	765		Low	1920	533	1130			
AUUB30	Low	1100	306	647	ARUV60	High	3420	950	2013			
	High	1800	500	1059		Med	3200	889	1883			
	Med	1300	361	765		Low	2620	728	1542			

Conversion Factor
 1 m³/h = 0.2778 l/s = 0.5886 CFM
 3.6 m³/h = 1 l/s
 1.699 m³/h = 1 CFM

Type	Model	Airflow			
			m ³ /h	l/s	CFM
Compact floor	AGUA4	High	380/430	106/119	224/253
		Me-Hi	350	97	206
		Med	320	89	188
		Lo-Hi	310	86	182
		Low	280	78	165
		Qu	210	58	124
	AGUA7	High	470	131	277
		Me-Hi	420	117	247
		Med	390	108	230
		Lo-Hi	360	100	212
		Low	330	92	194
		Qu	270	75	159
	AGUA9	High	500	139	294
		Me-Hi	450	125	265
		Med	400	111	235
		Lo-Hi	360	100	212
		Low	330	92	194
		Qu	270	75	159
	AGUA12	High	590	164	347
		Me-Hi	520	144	306
		Med	470	131	277
		Lo-Hi	420	117	247
		Low	390	108	230
		Qu	340	94	200
AGUA14	High	670	186	394	
	Me-Hi	590	164	347	
	Med	520	144	306	
	Lo-Hi	450	125	265	
	Low	390	108	230	
	Qu	340	94	200	
Floor/ Ceiling	ABUA12	High	660	183	389
		Med	570	158	336
		Low	490	136	289
	ABUA14	High	780	216	459
		Med	640	177	377
		Low	550	152	324
	ABUA18	High	1000	277	589
		Med	720	199	424
		Low	580	161	342
	ABUA24	High	1000	277	589
		Med	820	227	483
		Low	680	188	401
Ceiling	ABUA30	High	1630	453	959
		Med	1370	379	807
		Low	1140	316	671
	ABUA36	High	1690	469	995
		Med	1400	389	824
		Low	1170	325	689

Type	Model	Airflow			
			m ³ /h	l/s	CFM
Wall Mounted	ASUA4 TLAV1	High	430	119	253
		Me-Hi	420	117	247
		Med	390	108	230
		Lo-Hi	380	106	224
		Low	360	100	212
		Qu	330	92	194
	ASUA7 TLAV1	High	550	153	324
		Me-Hi	460	128	271
		Med	420	117	247
		Lo-Hi	390	108	230
		Low	360	100	212
		Qu	330	92	194
	ASUA9 TLAV1	High	720	200	424
		Me-Hi	570	158	336
		Med	500	139	294
		Lo-Hi	410	114	241
		Low	360	100	212
		Qu	330	92	194
	ASUA12 TLAV1	High	690	191	406
		Me-Hi	610	169	359
		Med	560	156	330
		Lo-Hi	530	147	312
		Low	470	131	277
		Qu	330	92	194
	ASUA14 TLAV1	High	800	222	471
		Me-Hi	740	206	436
		Med	680	188	401
		Lo-Hi	610	169	359
		Low	550	153	324
		Qu	330	92	194
	ASUA18 TLAV1	High	840	233	495
		Med	770	214	454
		Low	690	192	406
	ASUA24 TLAV1	High	1100	306	648
		Med	910	253	536
		Low	730	203	430
	ASUA30 TLAV1	High	1440	400	848
		Me-Hi	1200	333	706
		Med	1050	292	618
		Lo-Hi	940	261	553
		Low	890	247	524
		Qu	700	194	412
	ASUA36 TLAV1	High	1620/1520	450/422	954/895
		Me-Hi	1300	361	765
		Med	1120	311	659
		Lo-Hi	980	272	577
		Low	890	247	524
		Qu	700	194	412
ASUA7 TLAV	High	490	136	288	
	Med	450	125	265	
	Low *1	420/370	117/103	247/218	
ASUA9 TLAV	High	500	139	294	
	Med	450	125	265	
	Low *1	420/370	117/103	247/218	
ASUA12 TLAV	High	560	156	330	
	Med	480	133	283	
	Low	420	117	247	
ASUA14 TLAV	High	670	186	394	
	Med	490	136	288	
	Low	420	117	247	
ASUB18 TLAV	High	840	233	495	
	Med	770	213	454	
	Low	690	191	406	
ASUB24 TLAV	High	1100	305	648	
	Med	910	252	536	
	Low	730	202	430	

*1: This value is "cooling operation / heating operation".

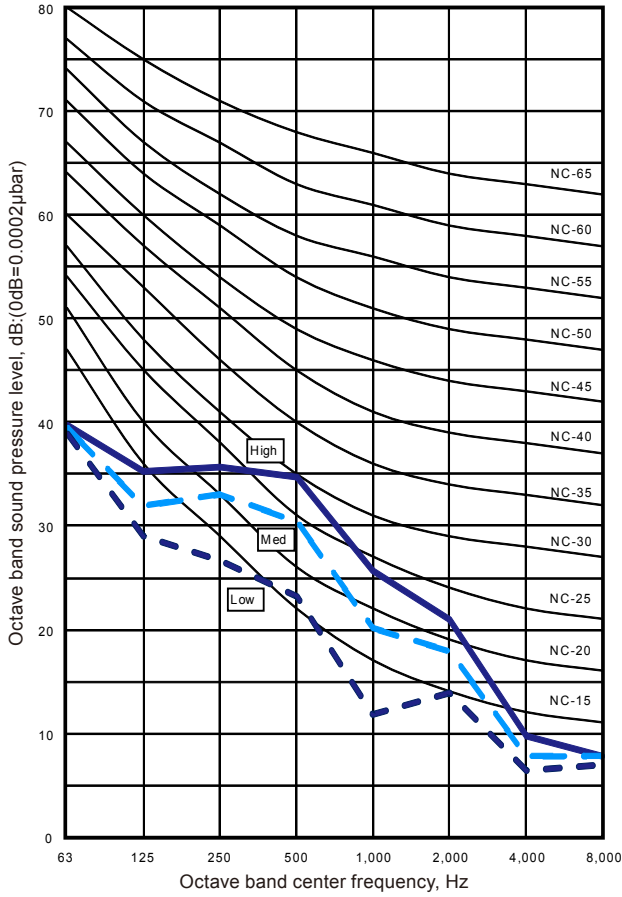
Conversion Factor
 1 m³/h = 0.2778 l/s = 0.5886 CFM
 3.6 m³/h = 1 l/s
 1.699 m³/h = 1 CFM

8. NOISE LEVEL CURVE

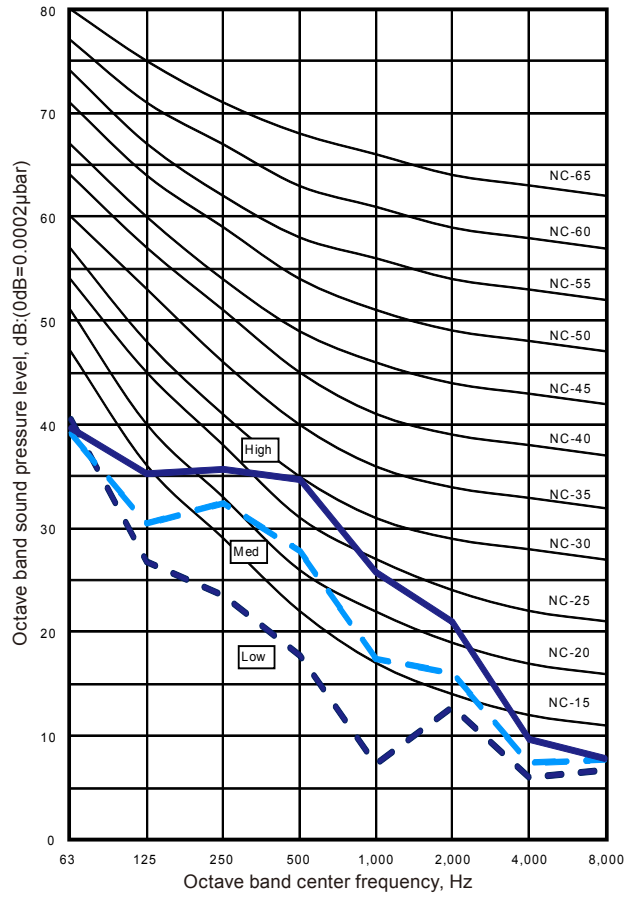
8-1. COMPACT CASSETTE TYPE

■ MODEL : AUUA4TLAV1

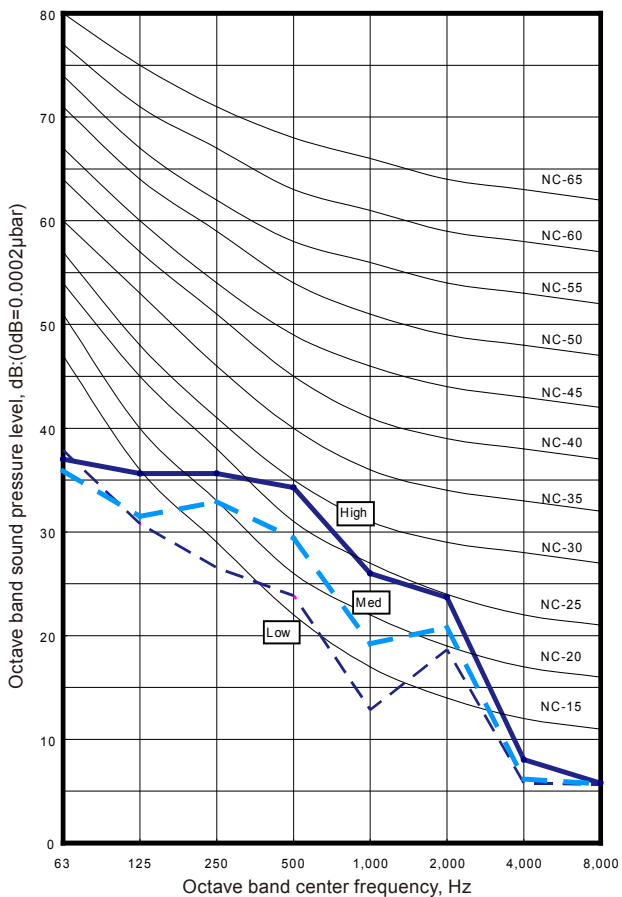
● COOLING



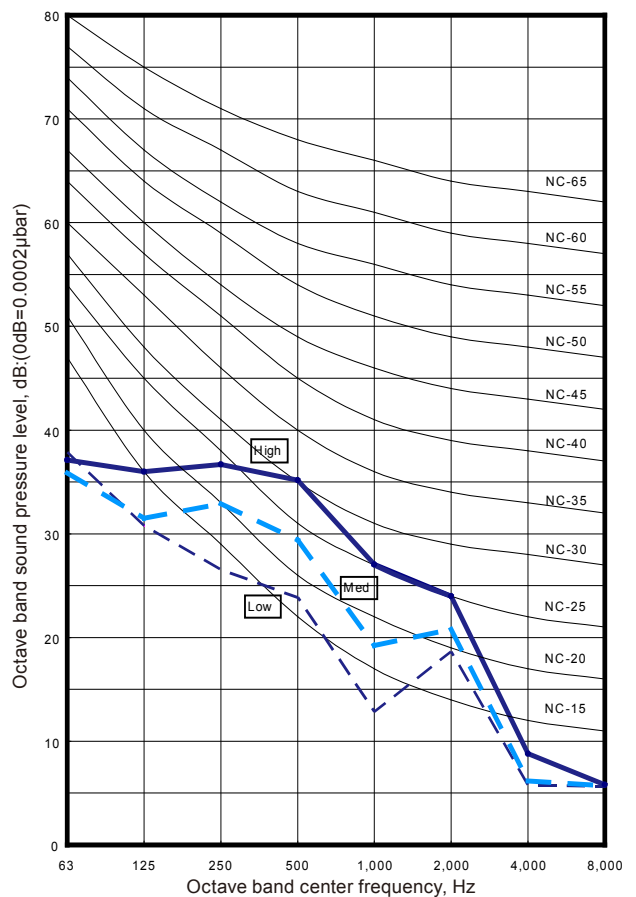
● HEATING



■ MODEL : AUUA7TLAV



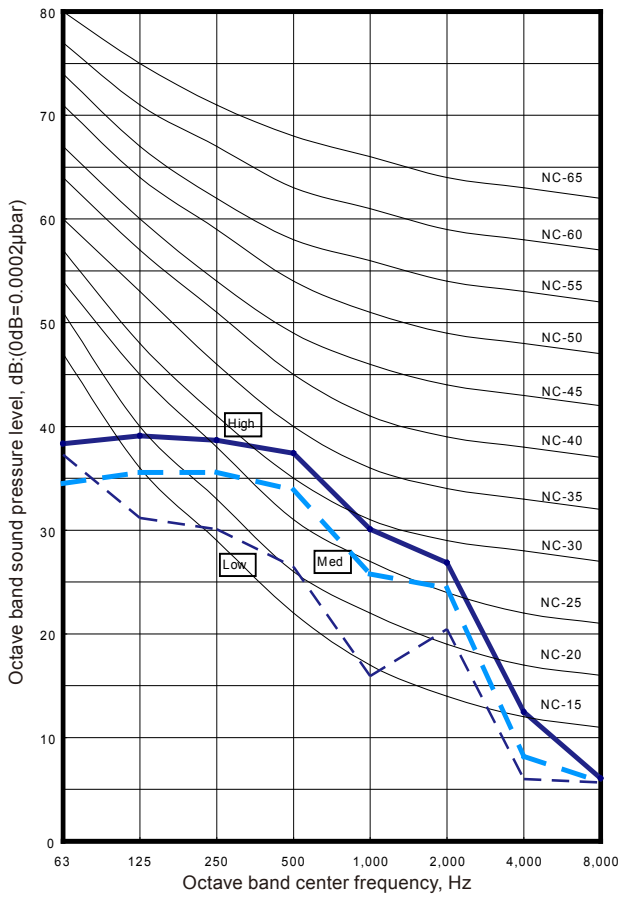
■ MODEL : AUUA9TLAV



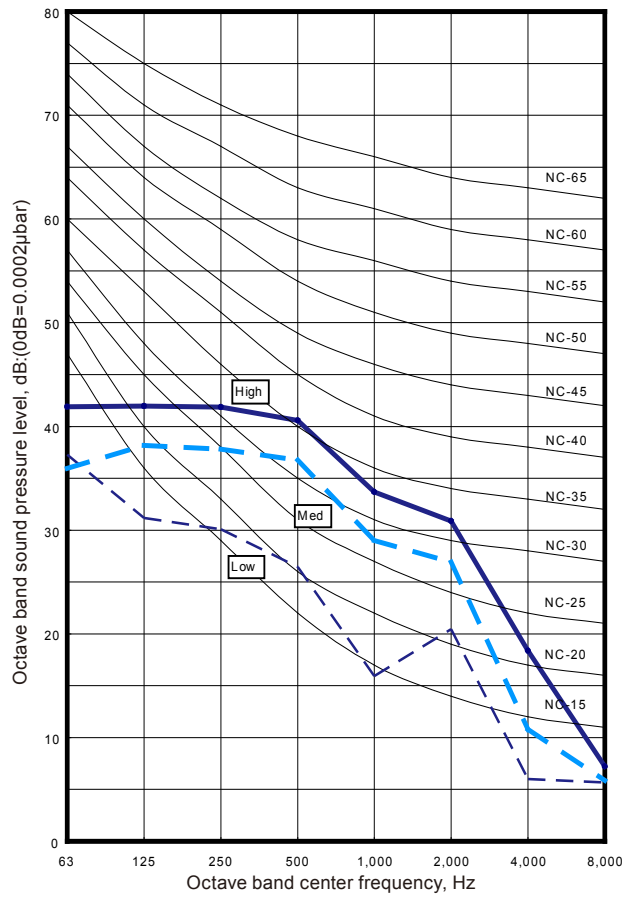
INDOOR UNITS

INDOOR UNITS

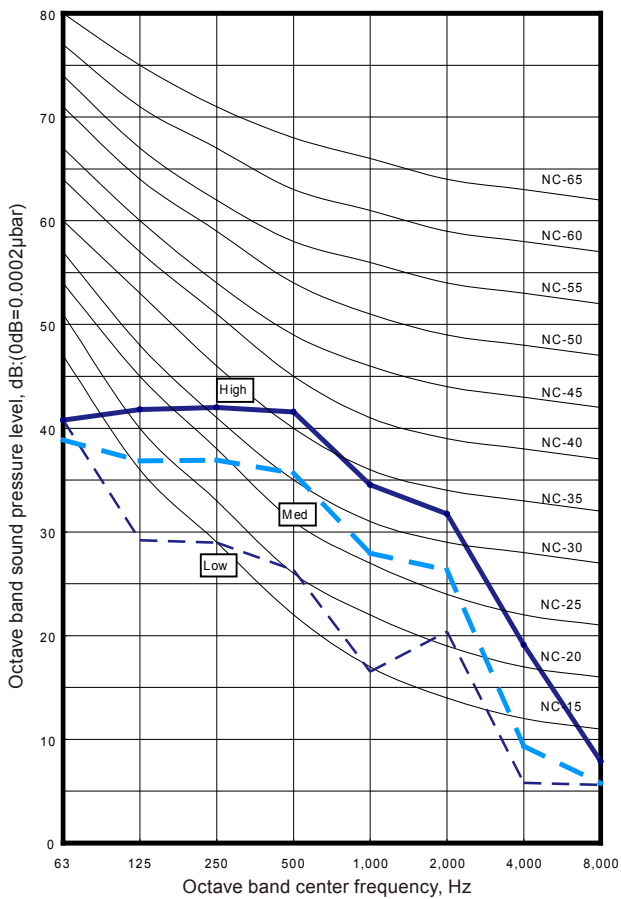
MODEL : AUUA12TLAV



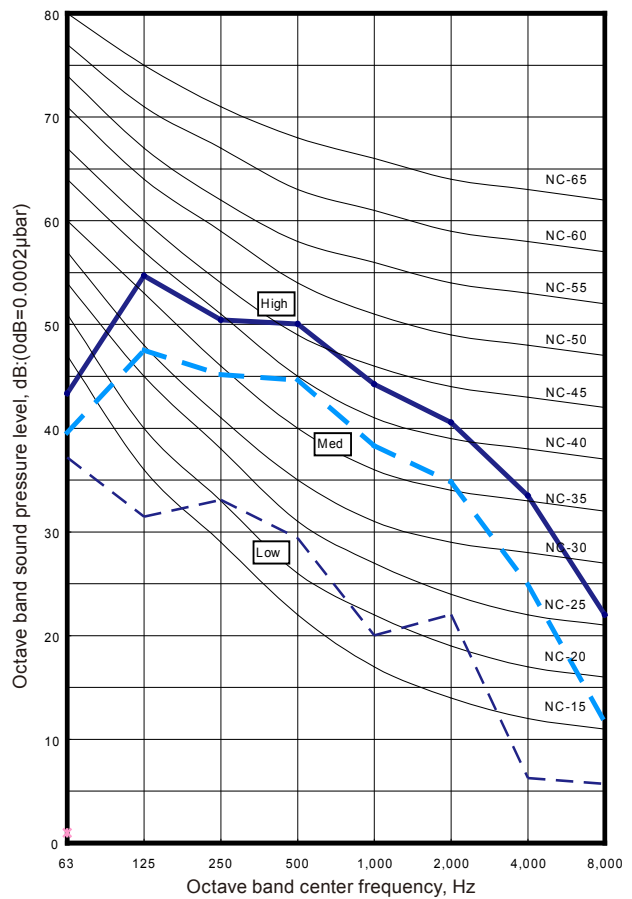
MODEL : AUUA14TLAV



MODEL : AUUA18TLAV

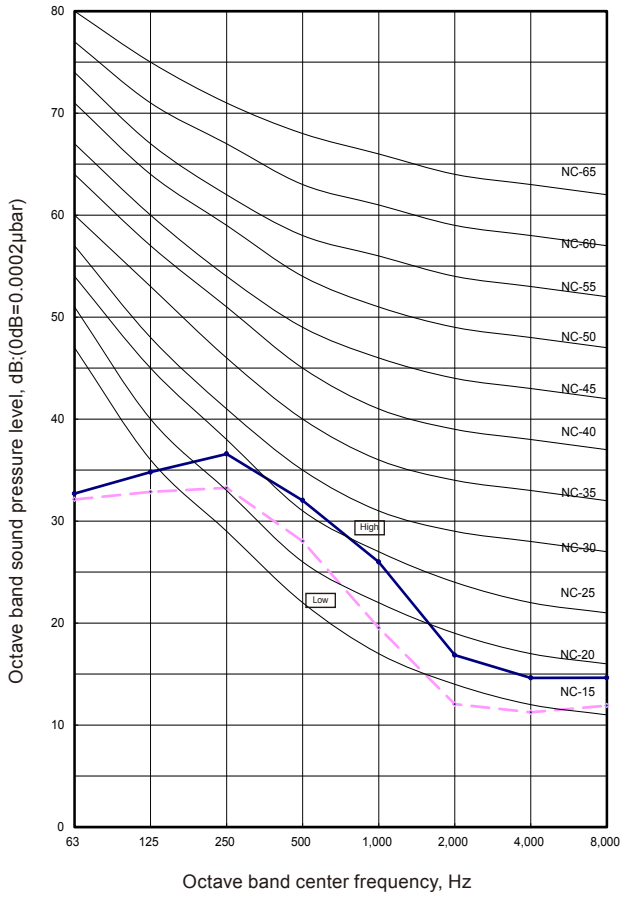


MODEL : AUUA24TLAV

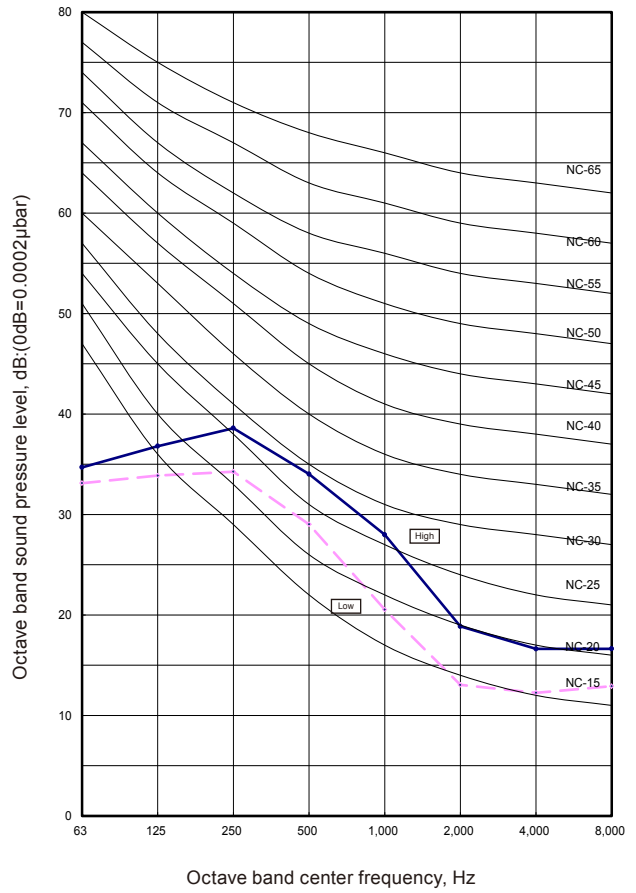


8-2. CIRCULAR FLOW CASSETTE TYPE

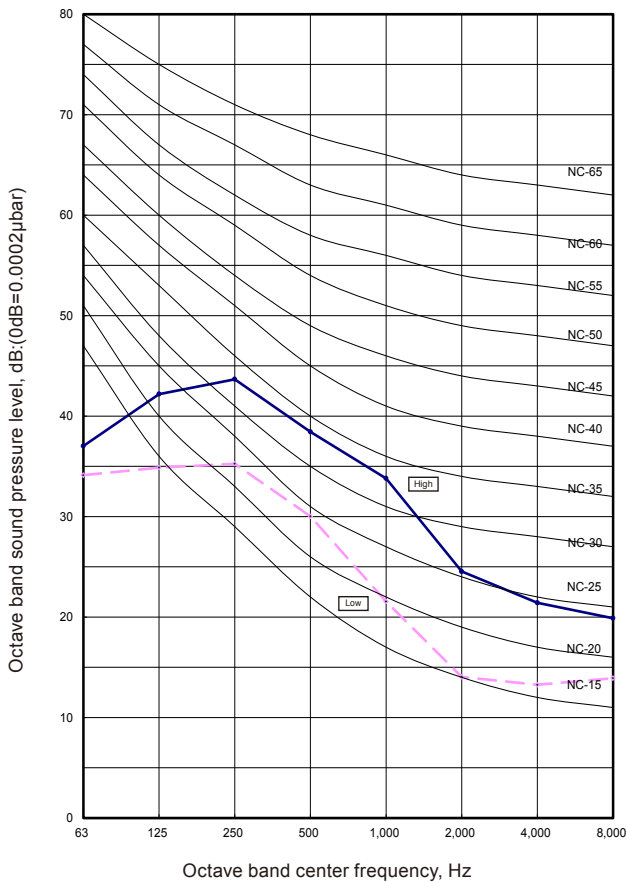
MODEL: AUUB18TLAV1



MODEL: AUUB24TLAV1



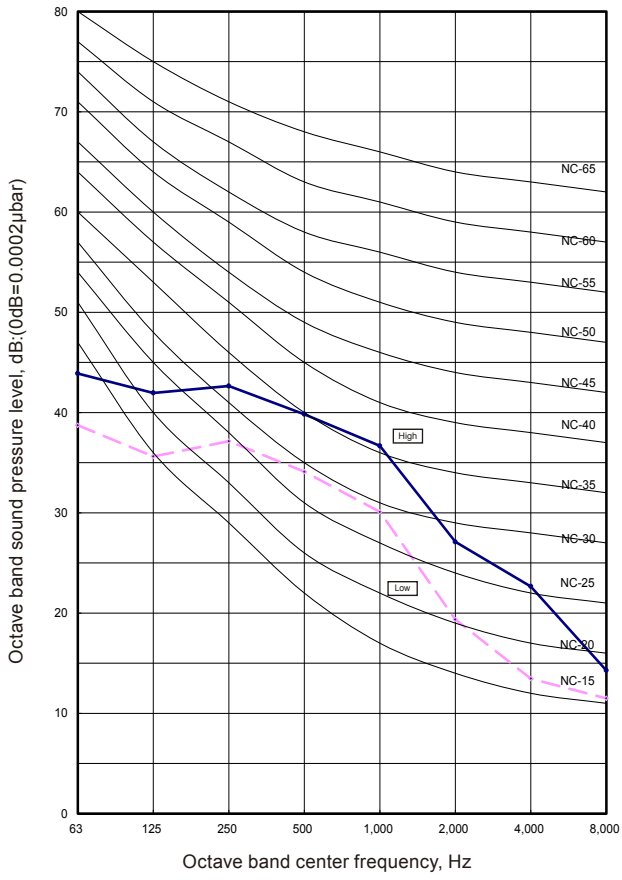
MODEL: AUUB30TLAV1



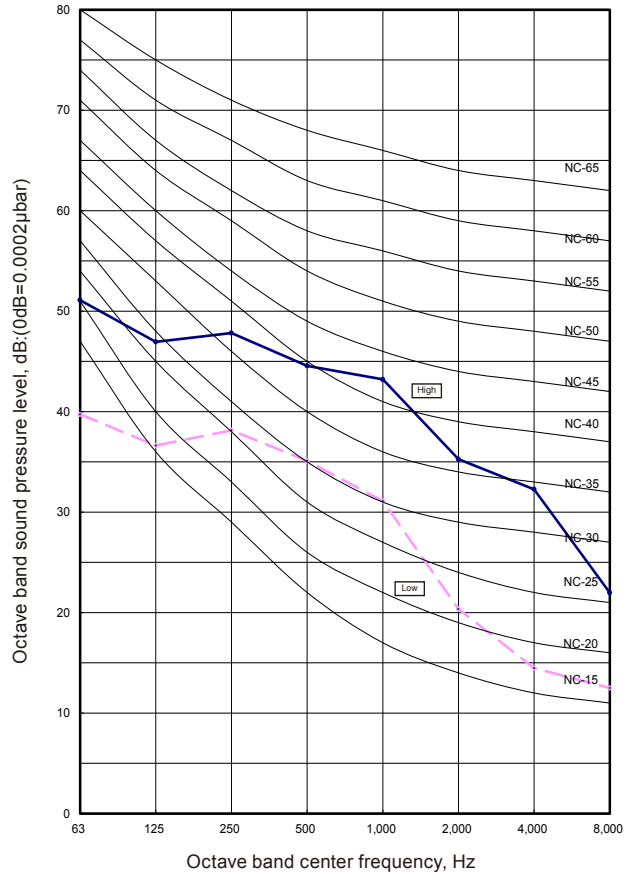
INDOOR
UNITS

INDOOR
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MODEL: AUUB36TLAV1



MODEL: AUUB48TLAV1

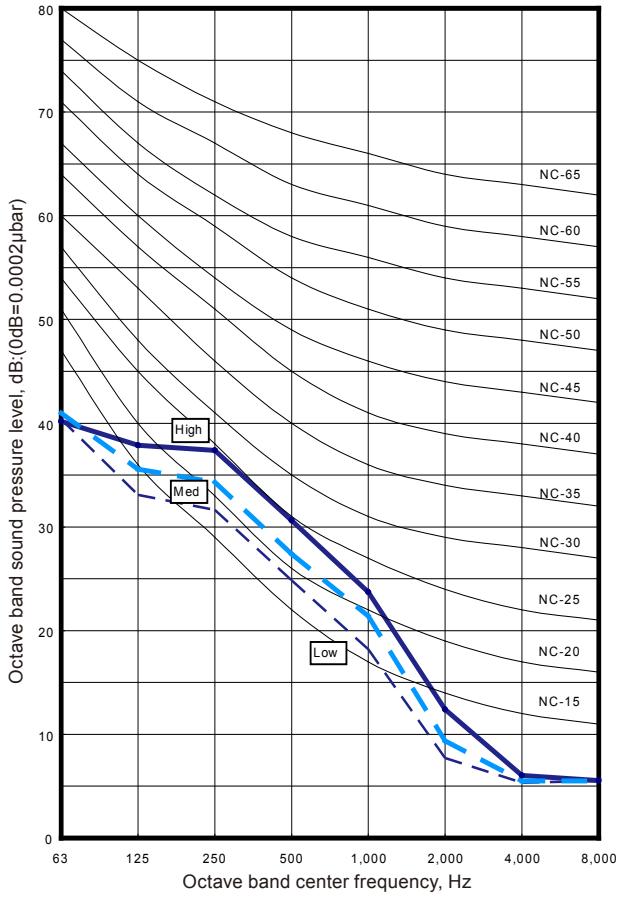


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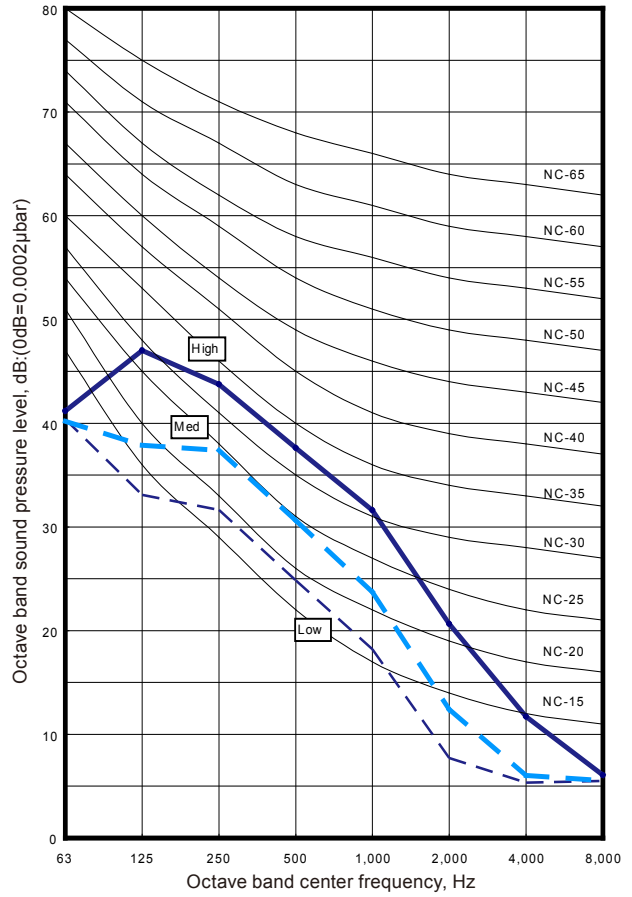
INDOOR
UNITS

8-3. CASSETTE TYPE

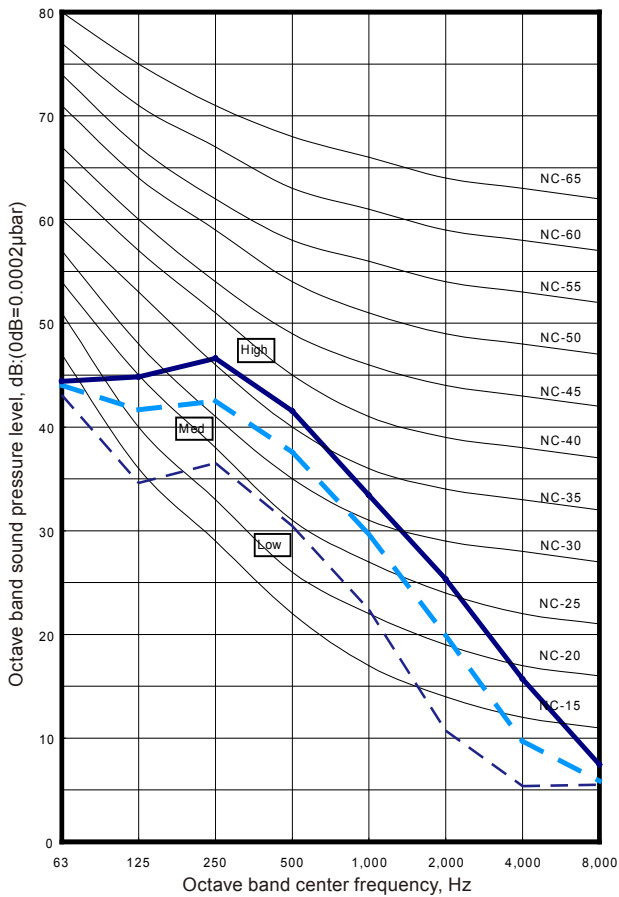
■ MODEL : AUUB18TLAV



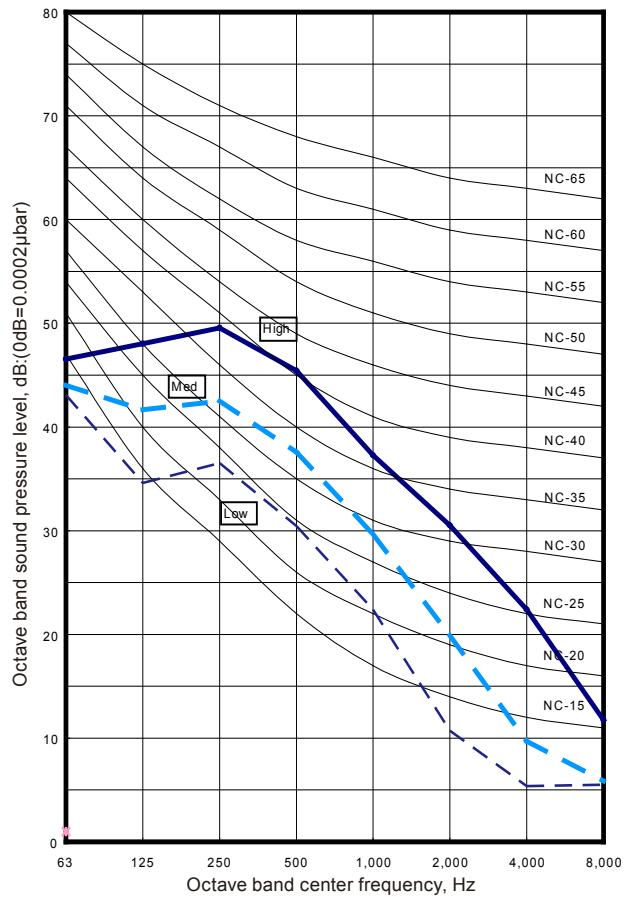
■ MODEL : AUUB24TLAV



■ MODEL : AUUB30TLAV



■ MODEL : AUUB36TLAV

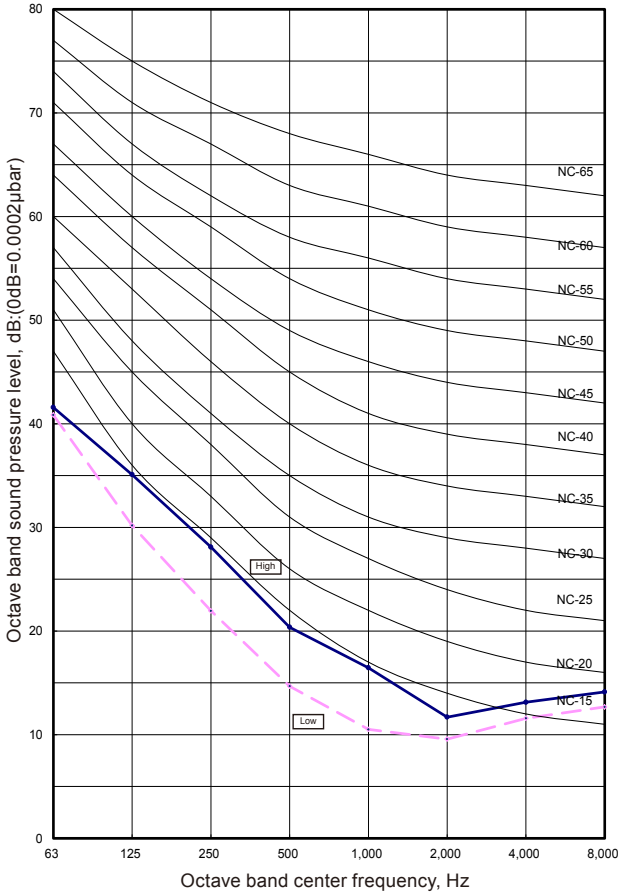


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8-4. MINI DUCT TYPE

■ MODEL: ARUL4TLAV1

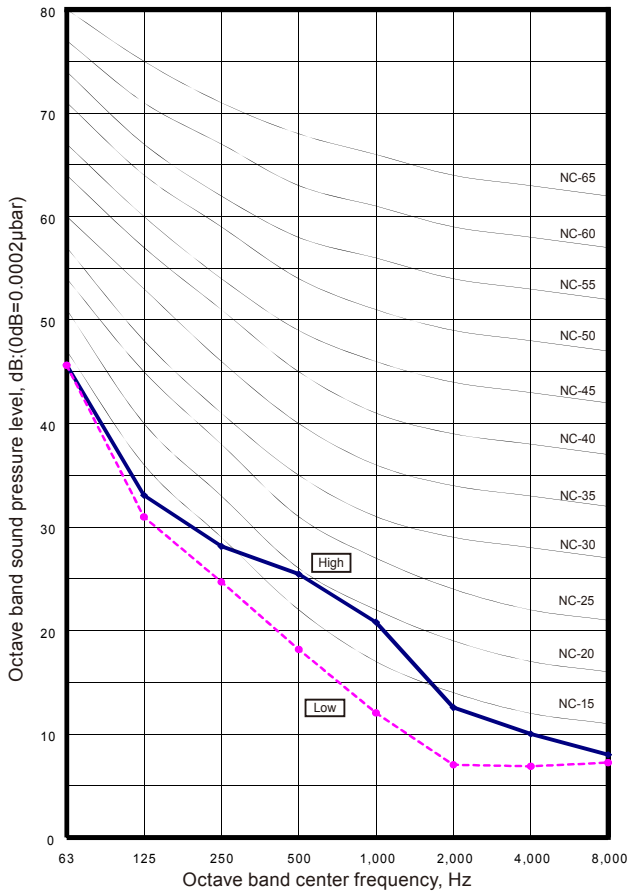


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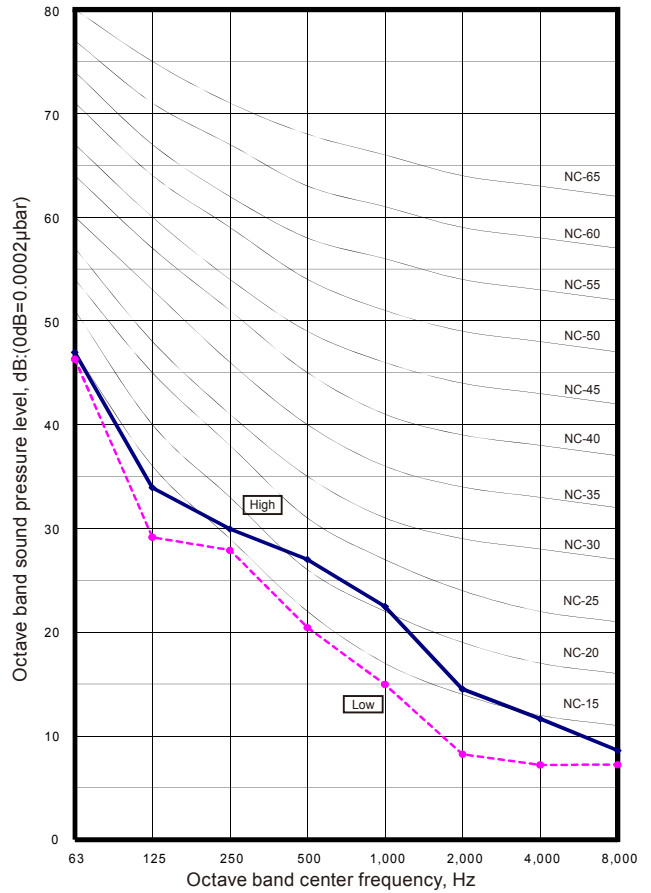
INDOOR
UNITS

8-5. SLIM DUCT / SLIM CONCEALED FLOOR TYPE

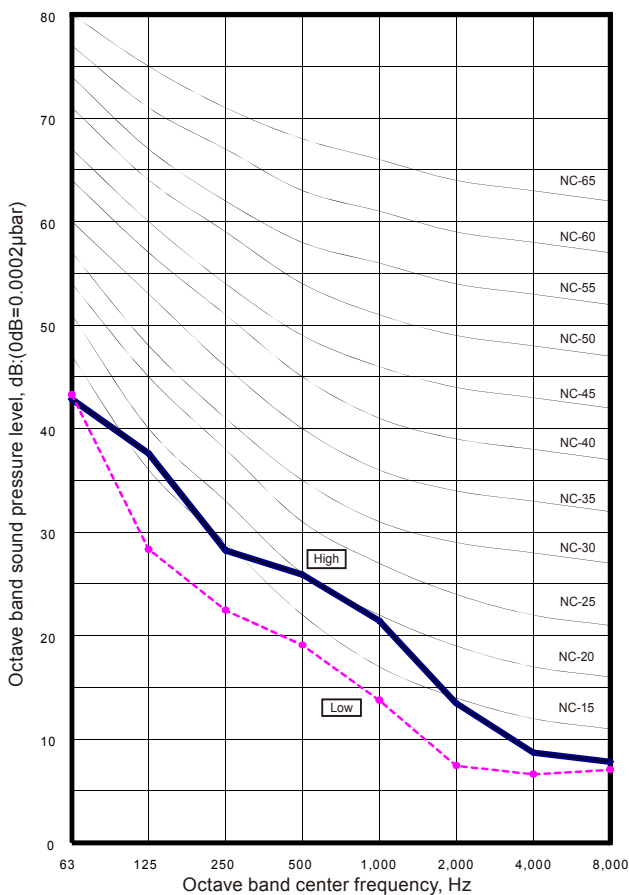
■ MODEL : ARUL7TLAV



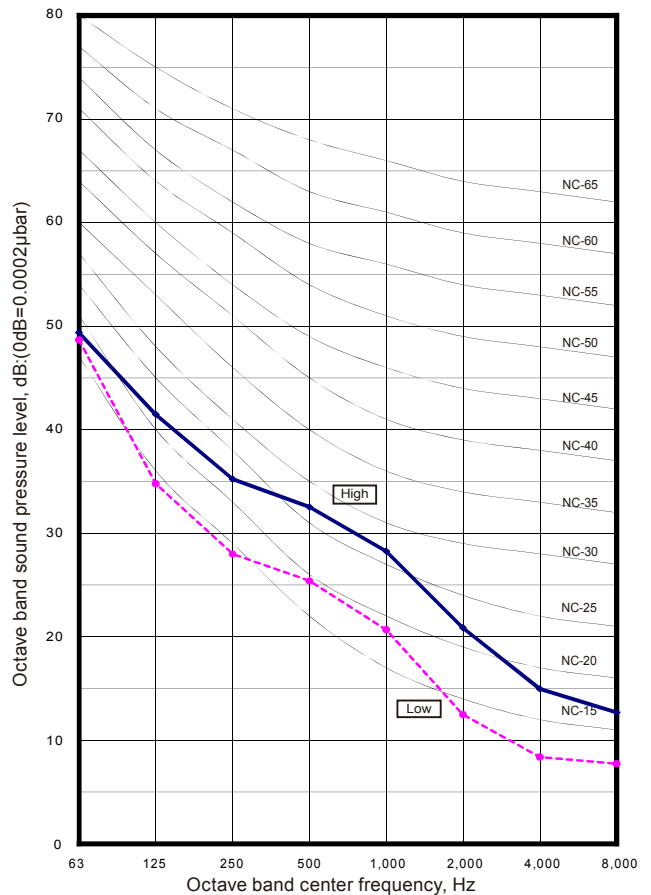
■ MODEL : ARUL9TLAV



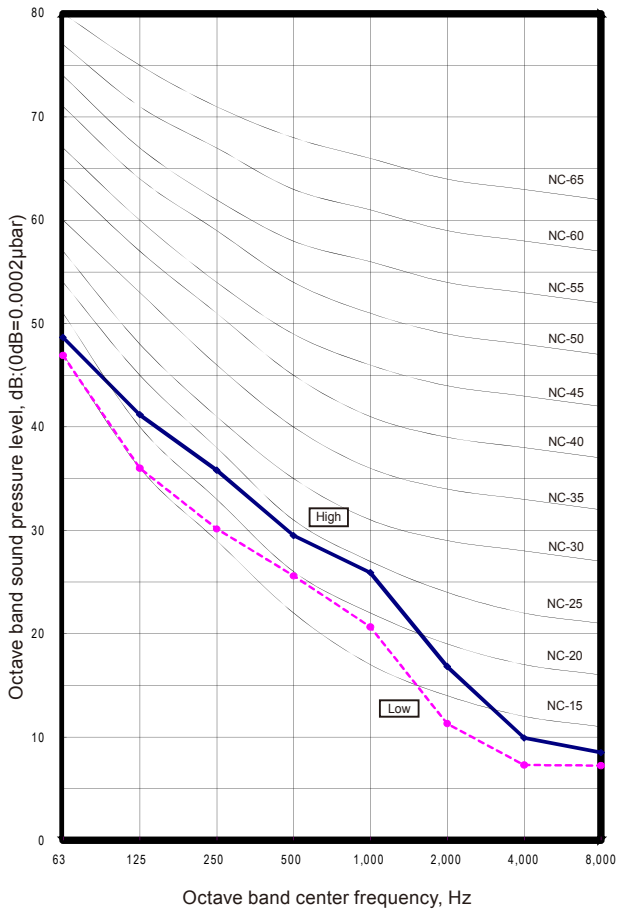
■ MODEL : ARUL12TLAV



■ MODEL : ARUL14TLAV



MODEL : ARUL18TLAV

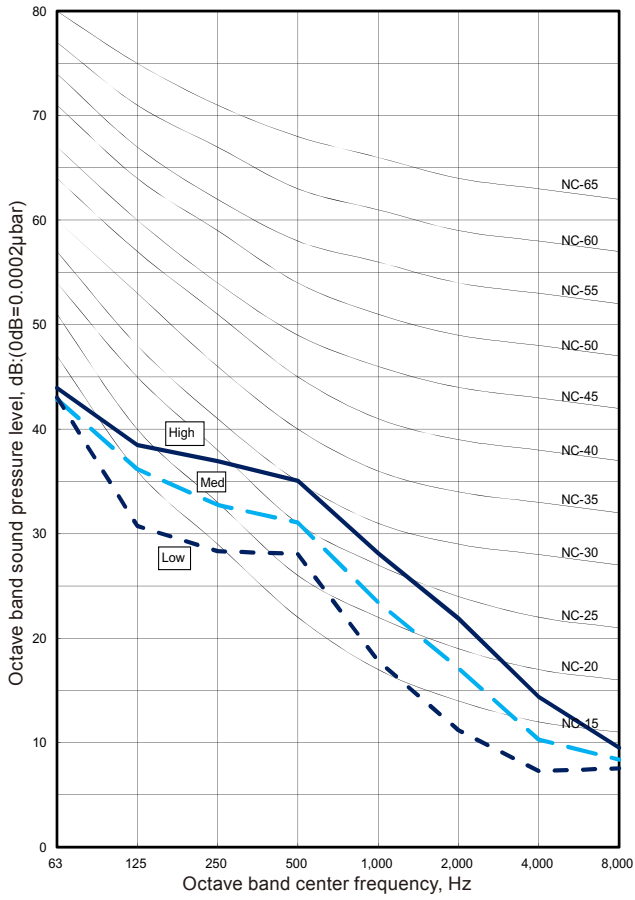


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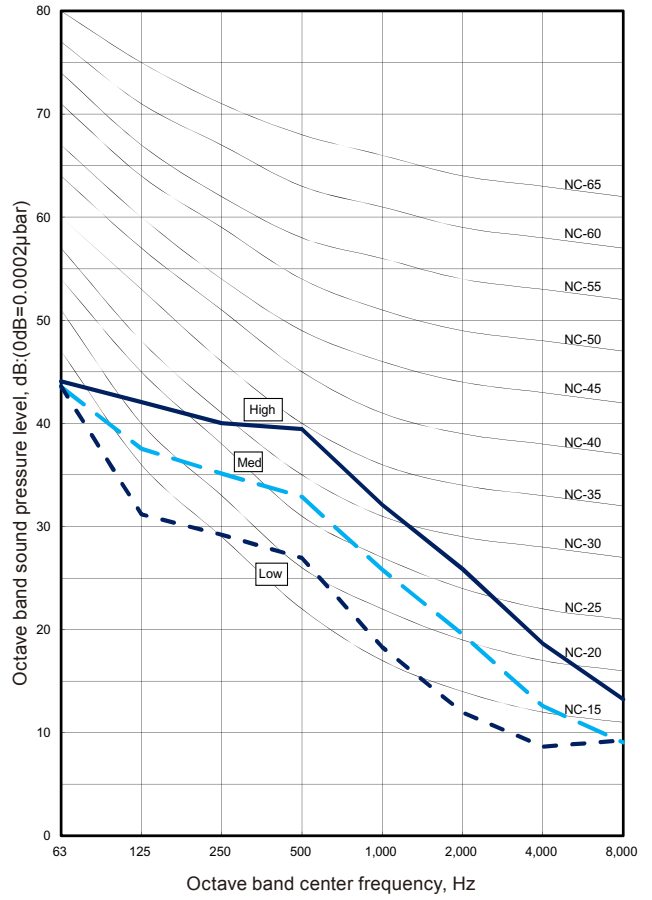
INDOOR
UNITS

8-6. MEDIUM STATIC PRESSURE DUCT TYPE

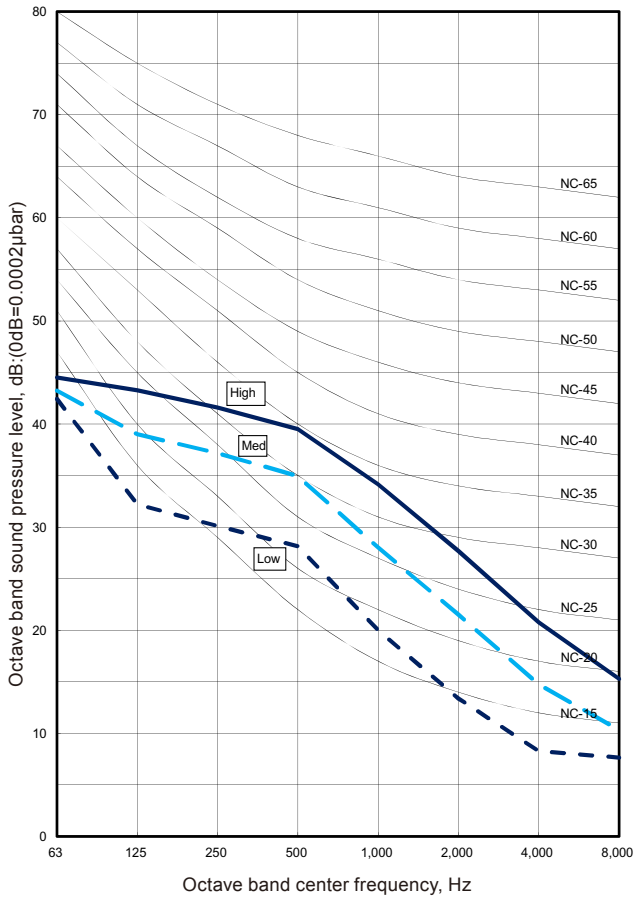
■ MODEL : ARUM24TLAV



■ MODEL : ARUM30TLAV



■ MODEL : ARUM36TLAV

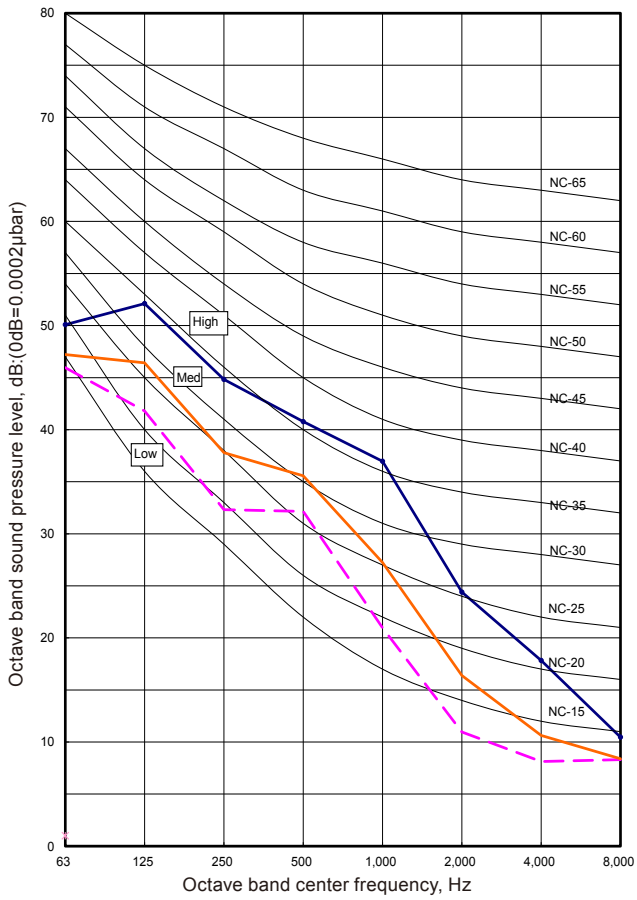


INDOOR UNITS

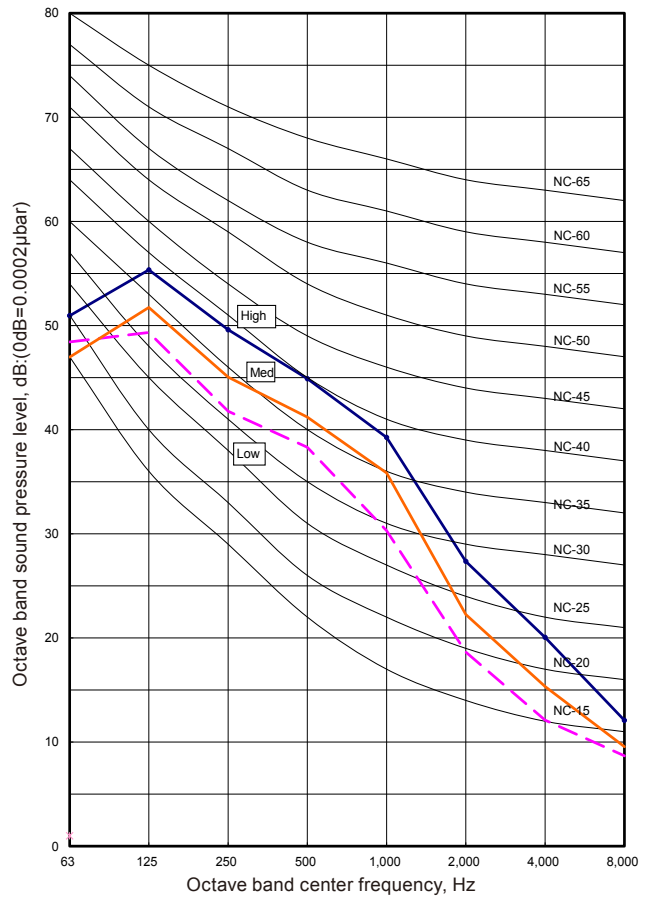
INDOOR UNITS

8-7. HIGH STATIC PRESSURE DUCT TYPE

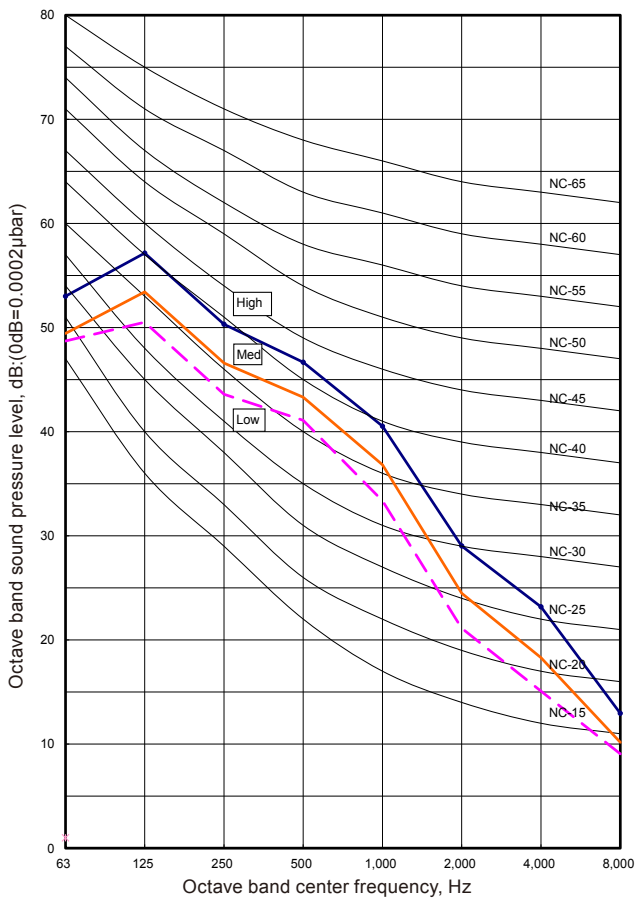
MODEL : ARUH36TLAV



MODEL : ARUH48TLAV



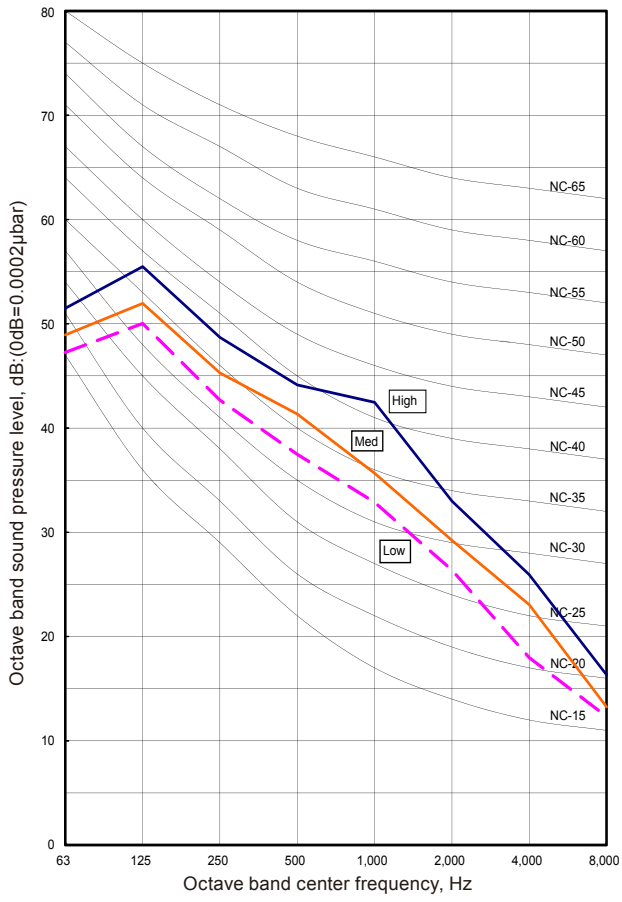
MODEL : ARUH60TLAV



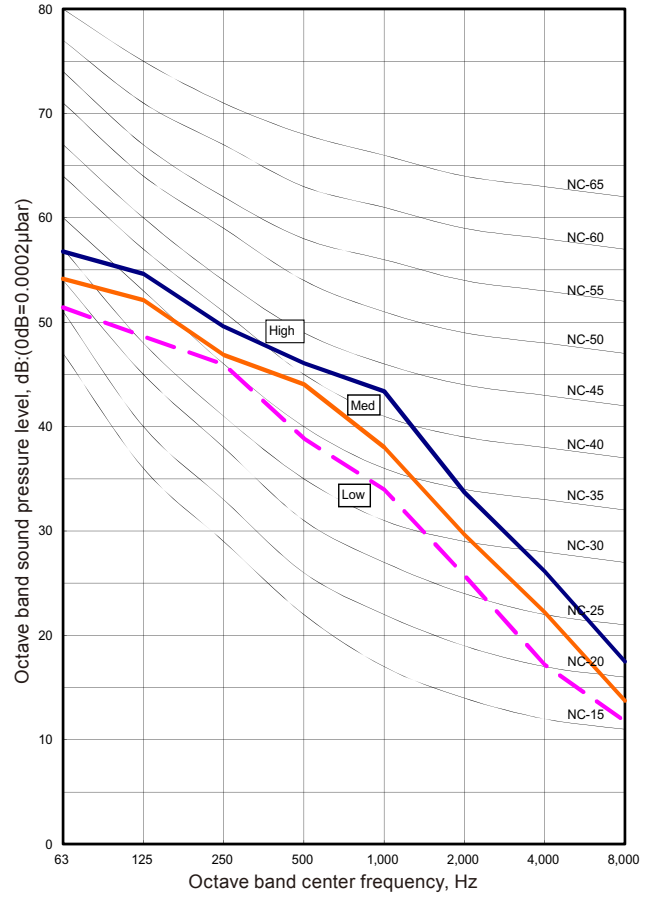
INDOOR UNITS

INDOOR UNITS

■ MODEL : ARUH72TLAV1



■ MODEL : ARUH96TLAV

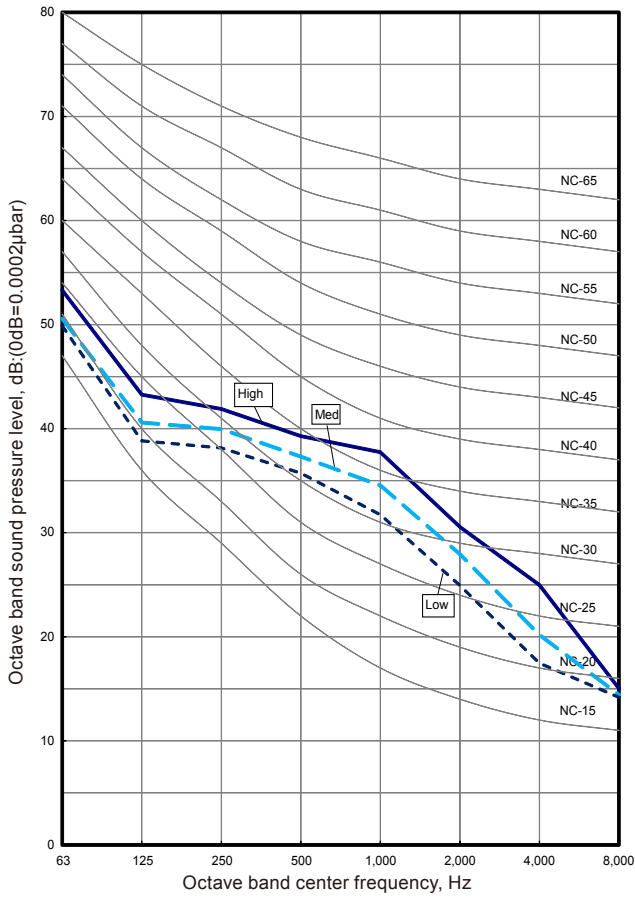


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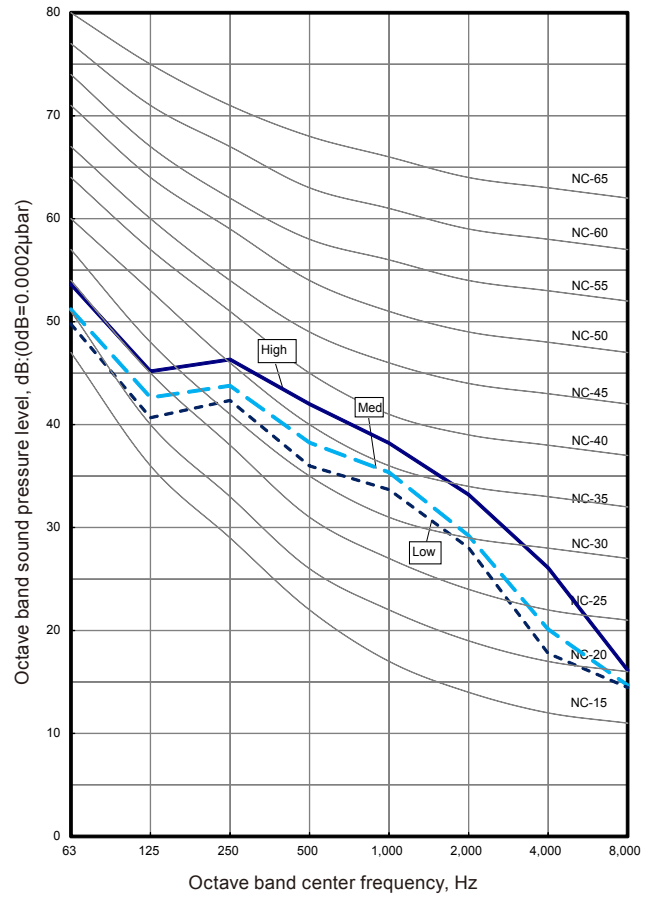
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8-8. VERTICAL AIR HANDLER TYPE

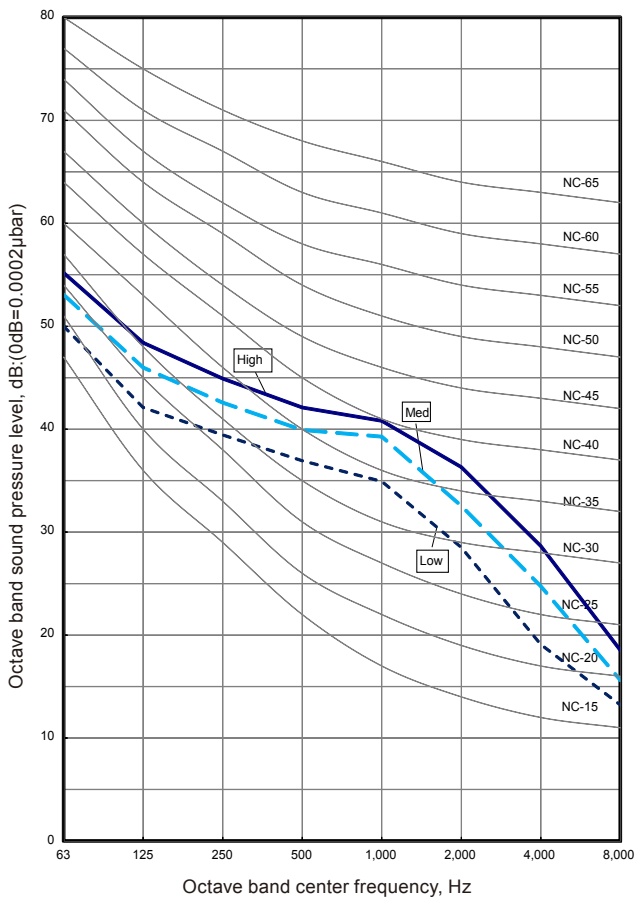
MODEL : ARUV12TLAV



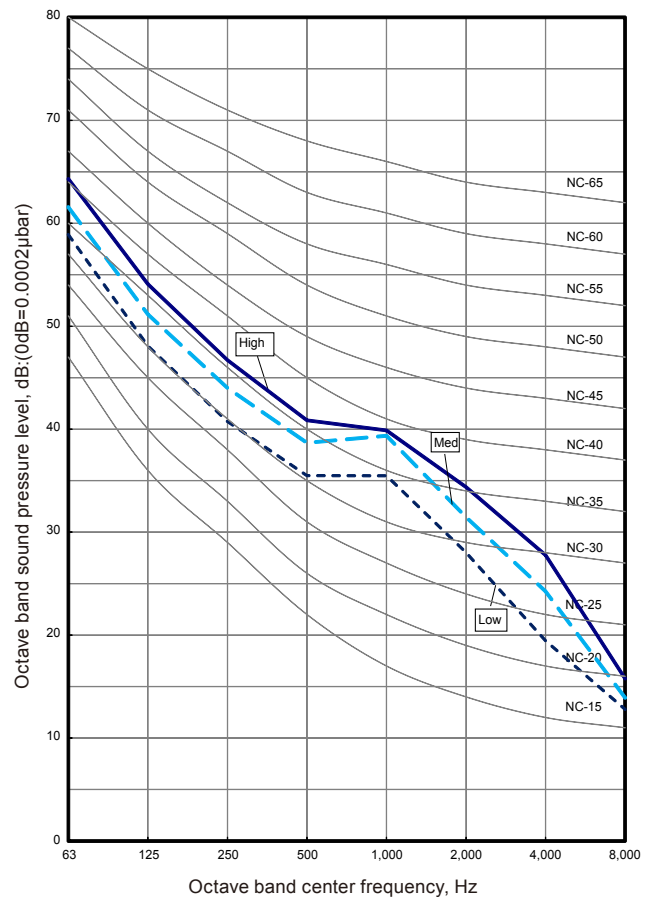
MODEL : ARUV18TLAV



MODEL : ARUV24TLAV



MODEL : ARUV30TLAV

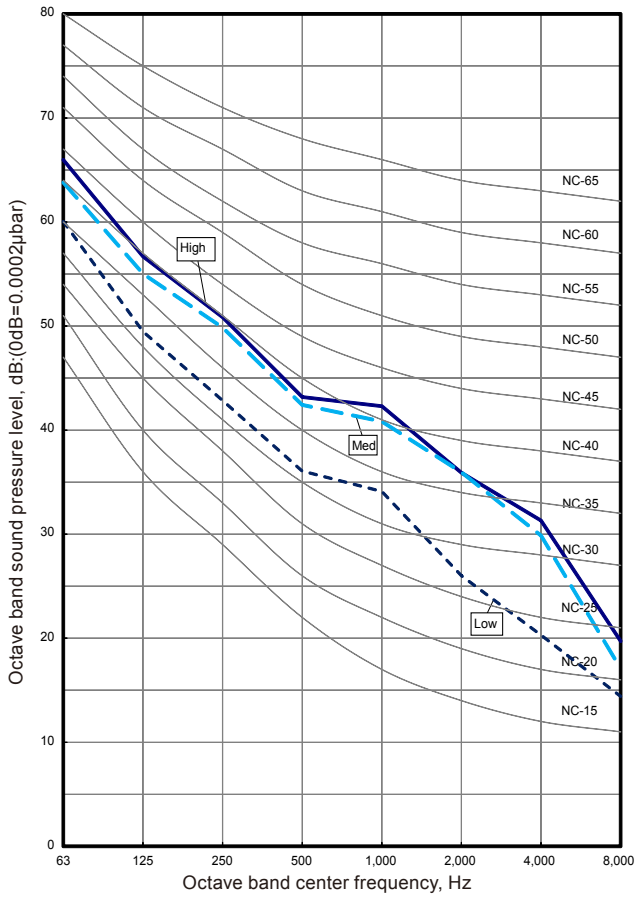


INDOOR UNITS

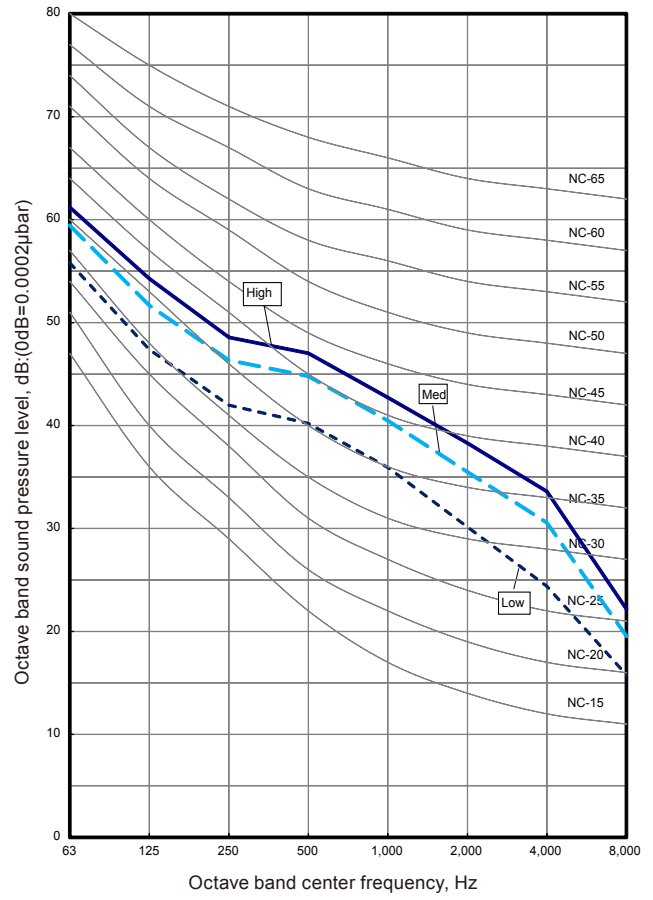
INDOOR UNITS

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MODEL : ARUV36TLAV

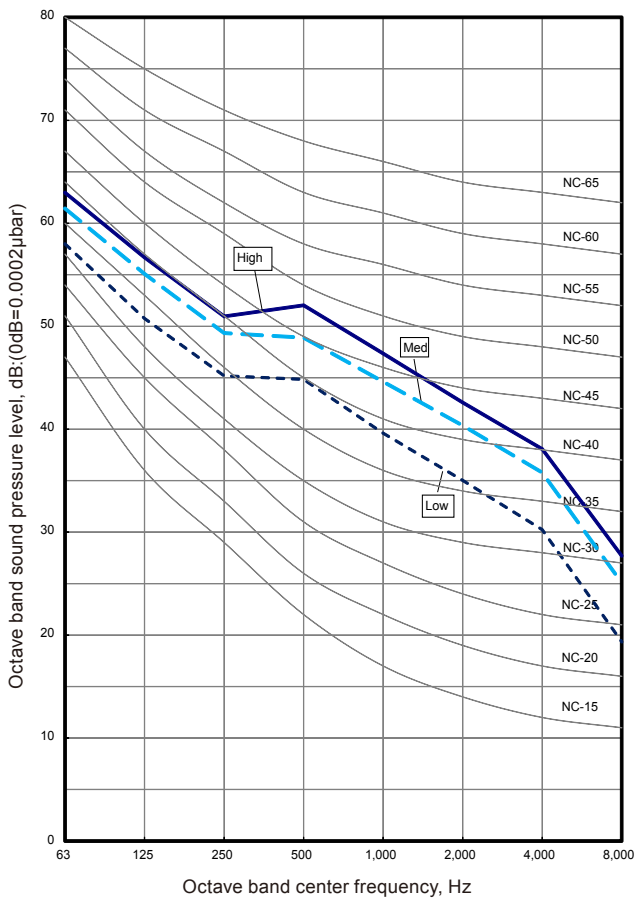


MODEL : ARUV48TLAV



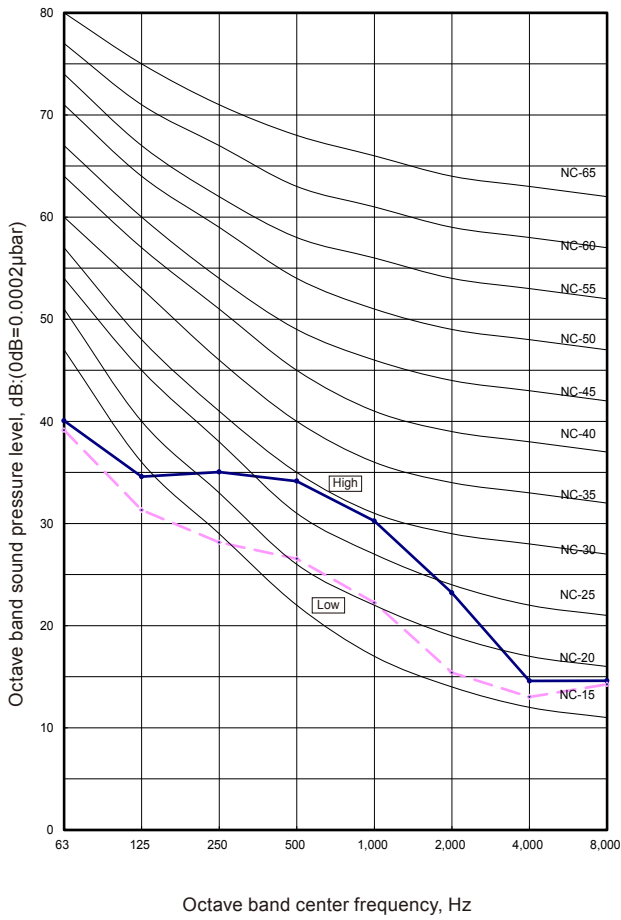
INDOOR
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MODEL : ARUV60TLAV

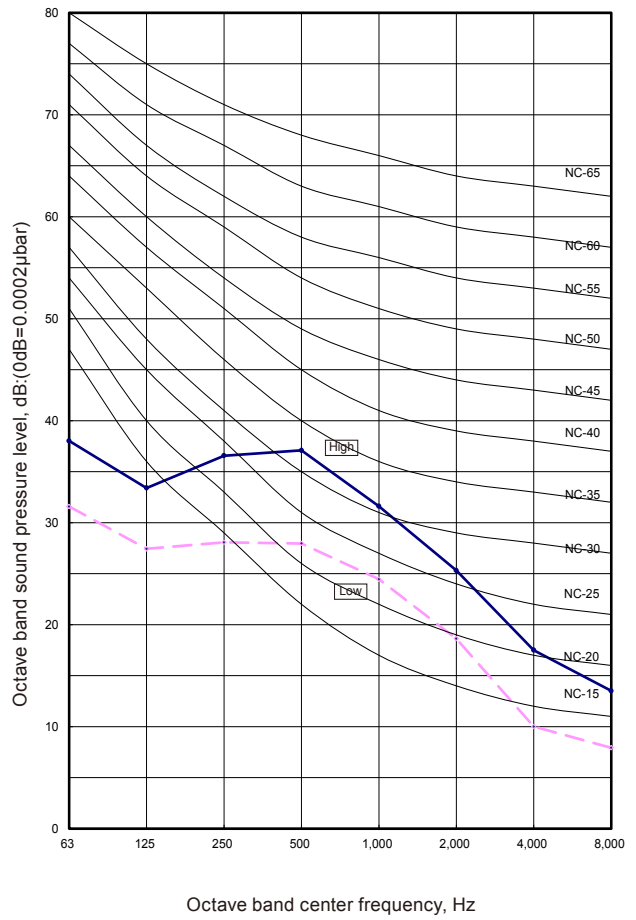


8-9. COMPACT FLOOR TYPE

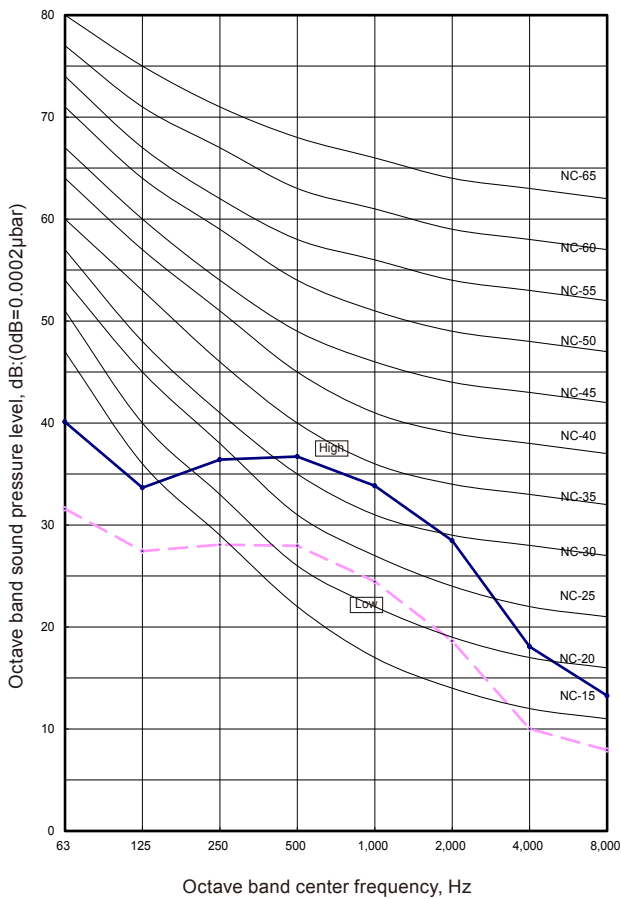
MODEL: AGUA4TLAV1



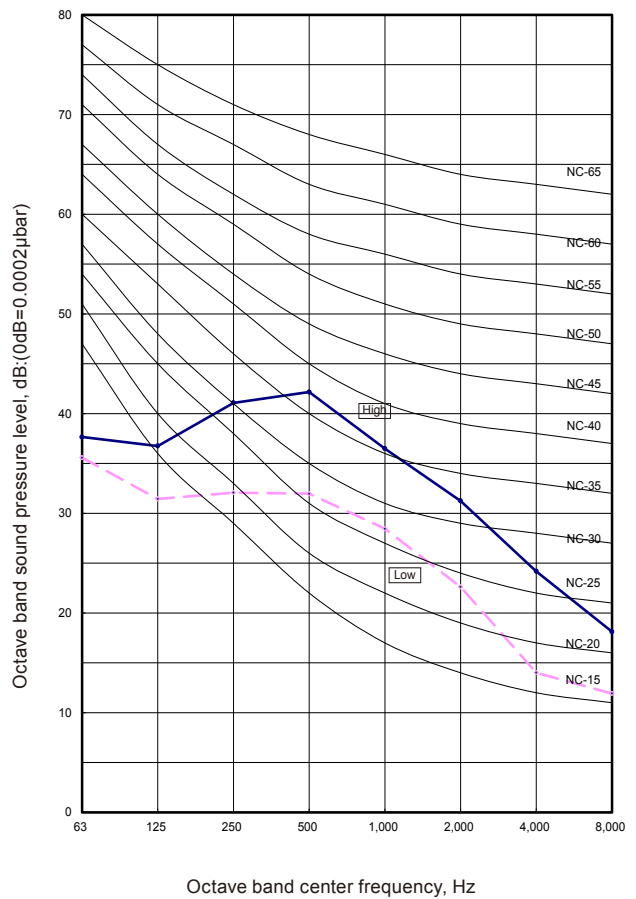
MODEL: AGUA7TLAV1



MODEL: AGUA9TLAV1



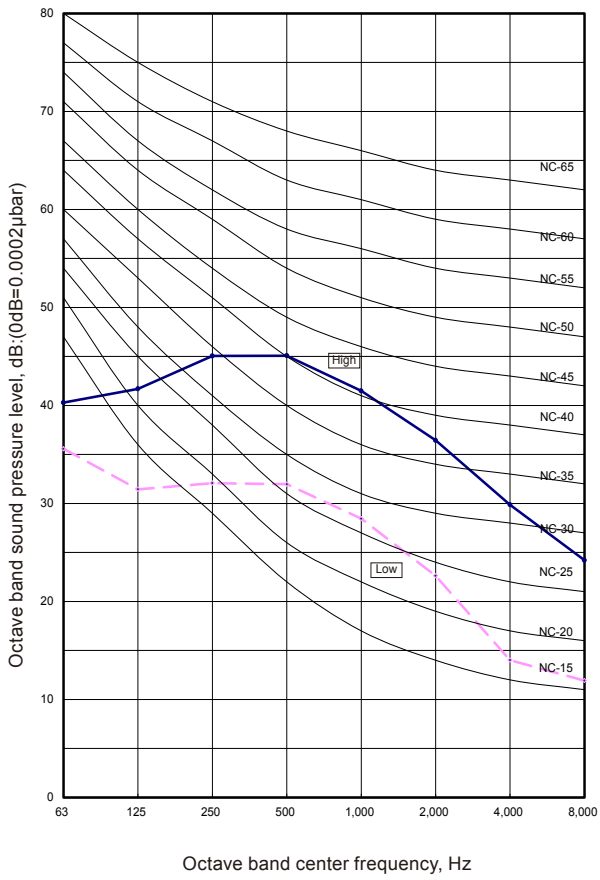
MODEL: AGUA12TLAV1



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MODEL: AGUA14TLAV1

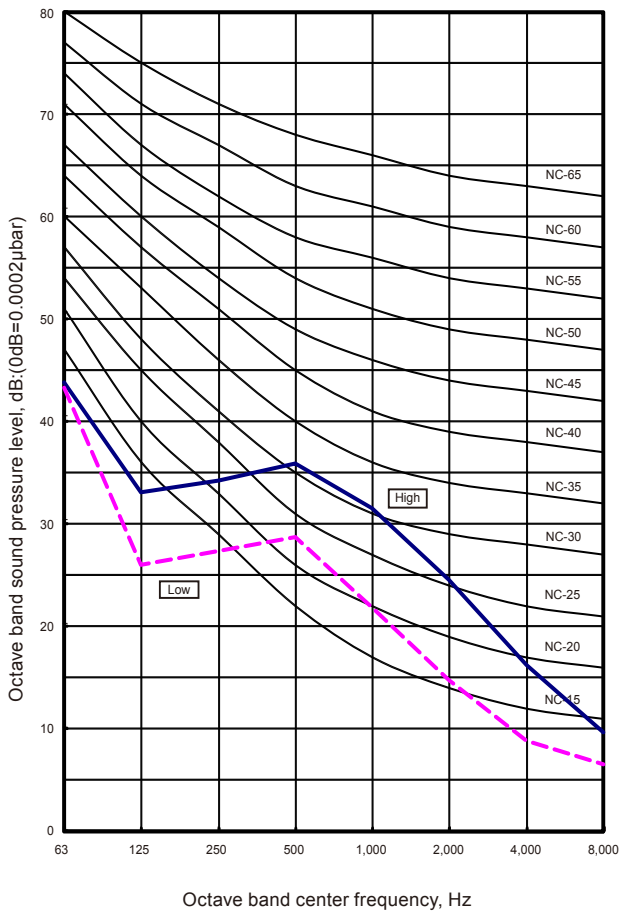


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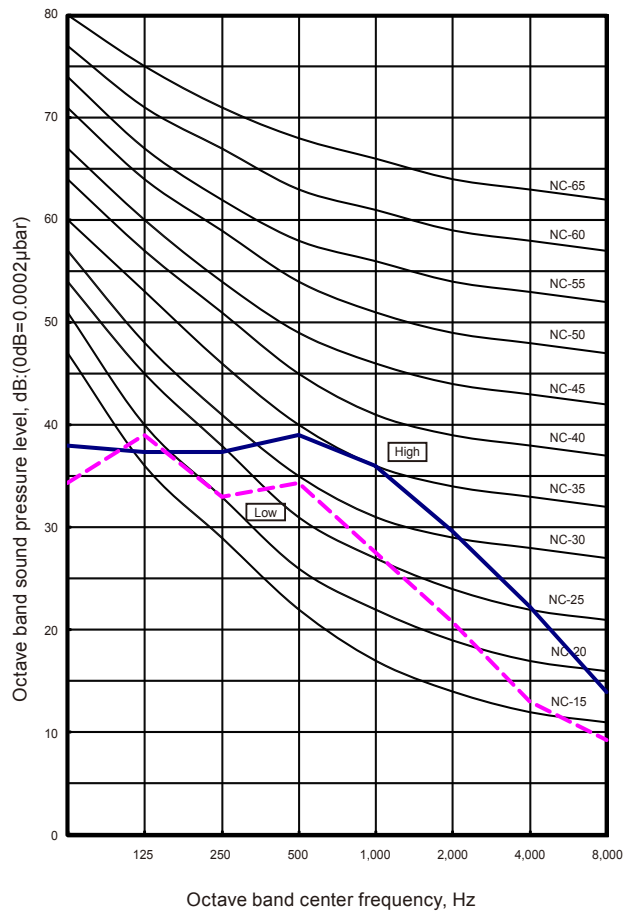
INDOOR UNITS

8-10. FLOOR / CEILING TYPE

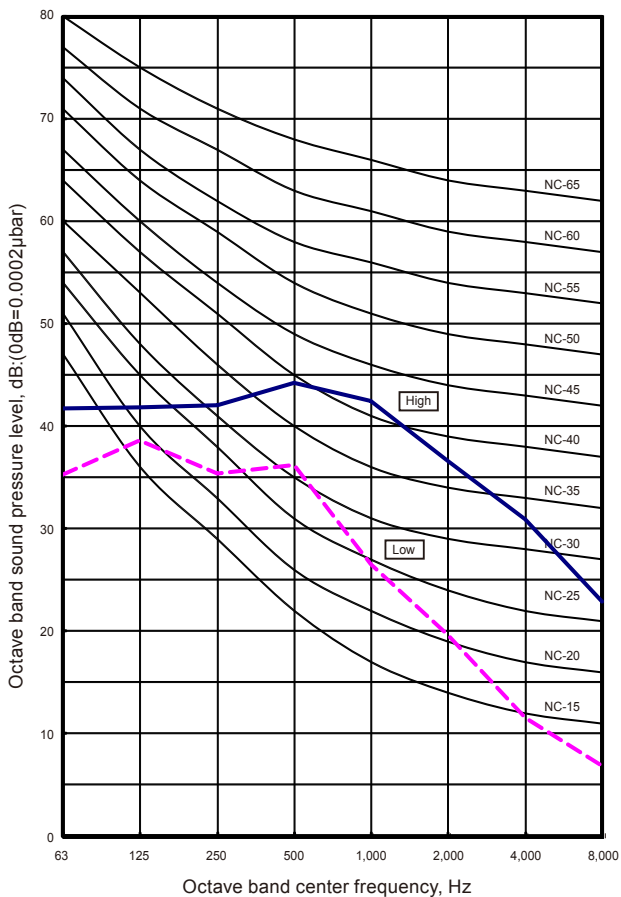
MODEL : ABUA12TLAV



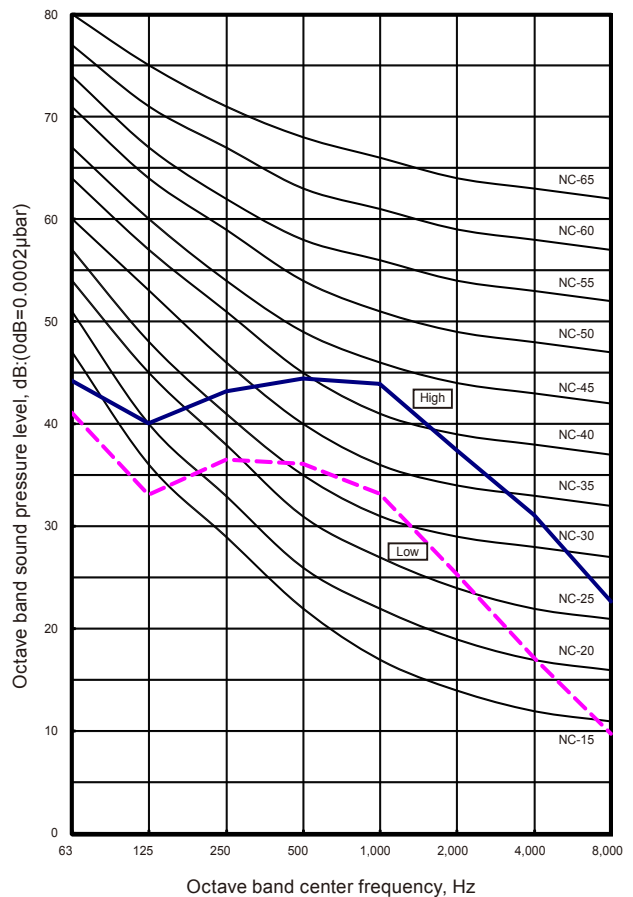
MODEL : ABUA14TLAV



MODEL : ABUA18TLAV



MODEL : ABUA24TLAV

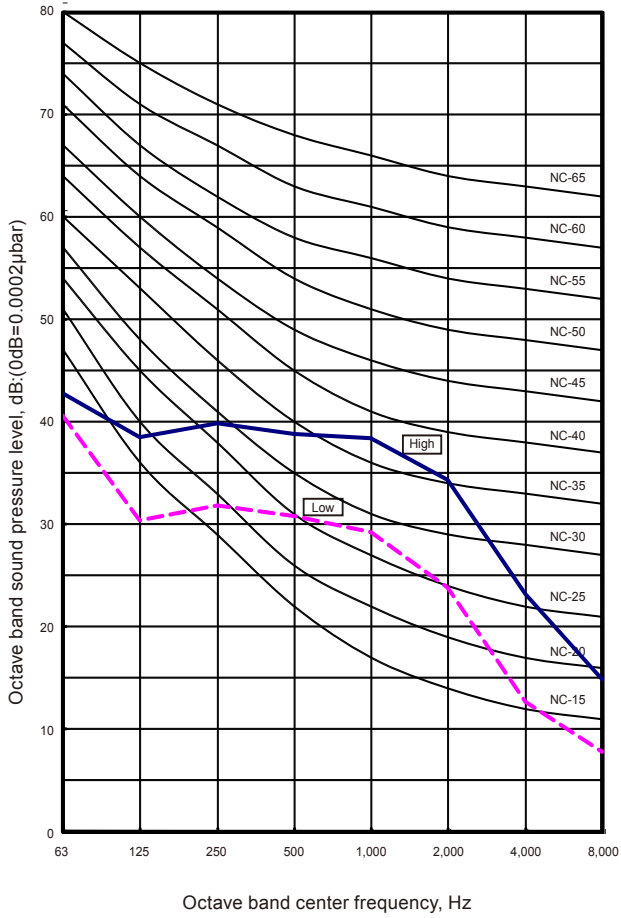


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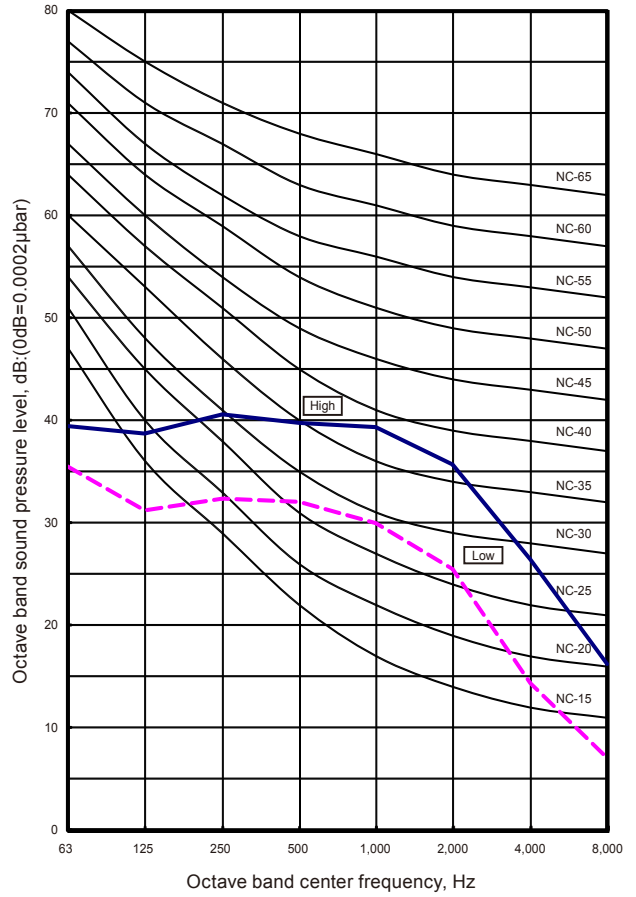
INDOOR
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8-11. CEILING TYPE

■ MODEL : ABUA30TLAV



■ MODEL : ABUA36TLAV

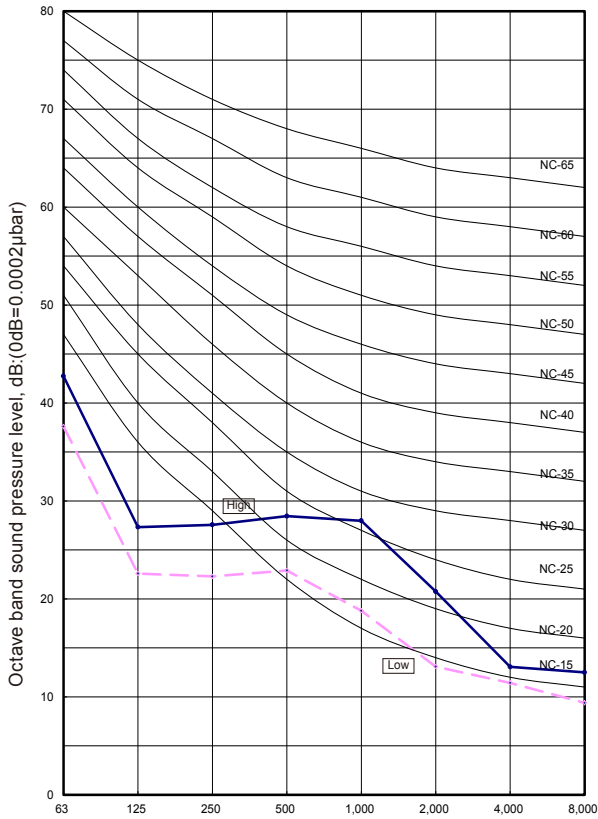


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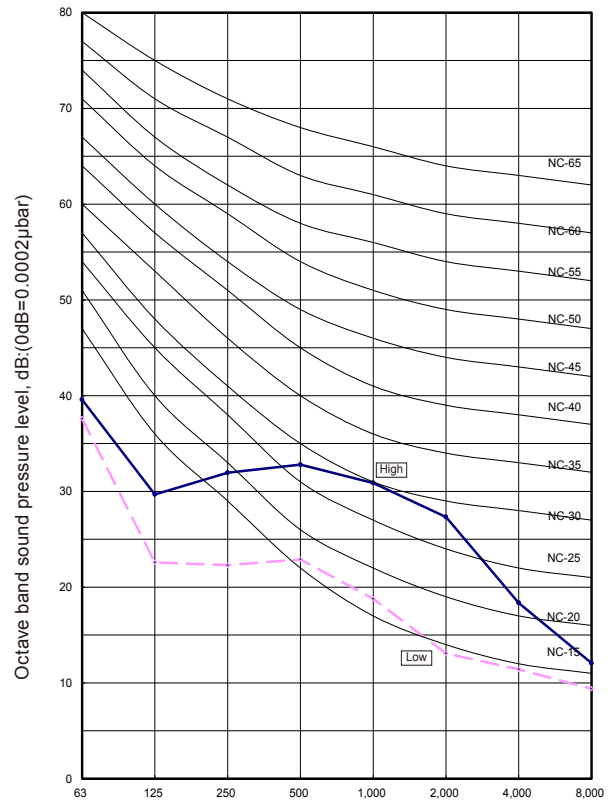
8-12. WALL MOUNTED TYPE

MODEL: ASUA4TLAV1



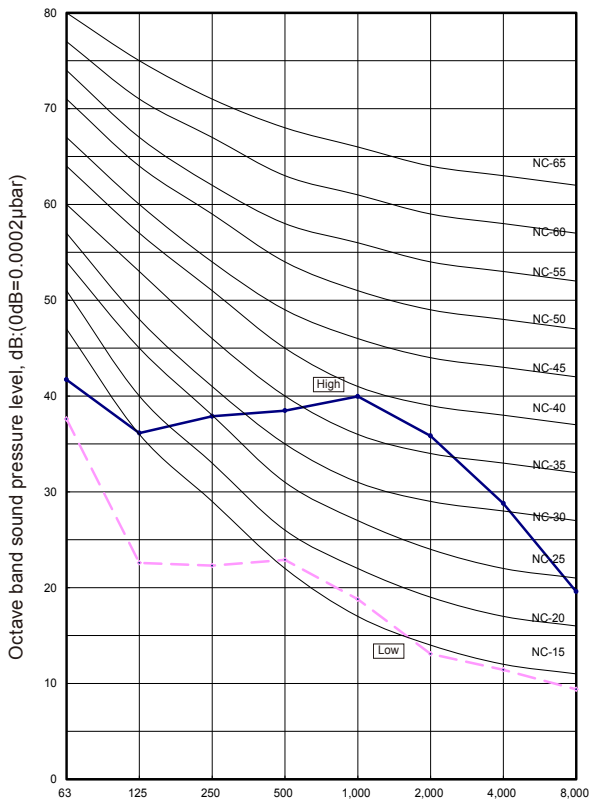
Octave band center frequency, Hz

MODEL: ASUA7TLAV1



Octave band center frequency, Hz

MODEL: ASUA9TLAV1

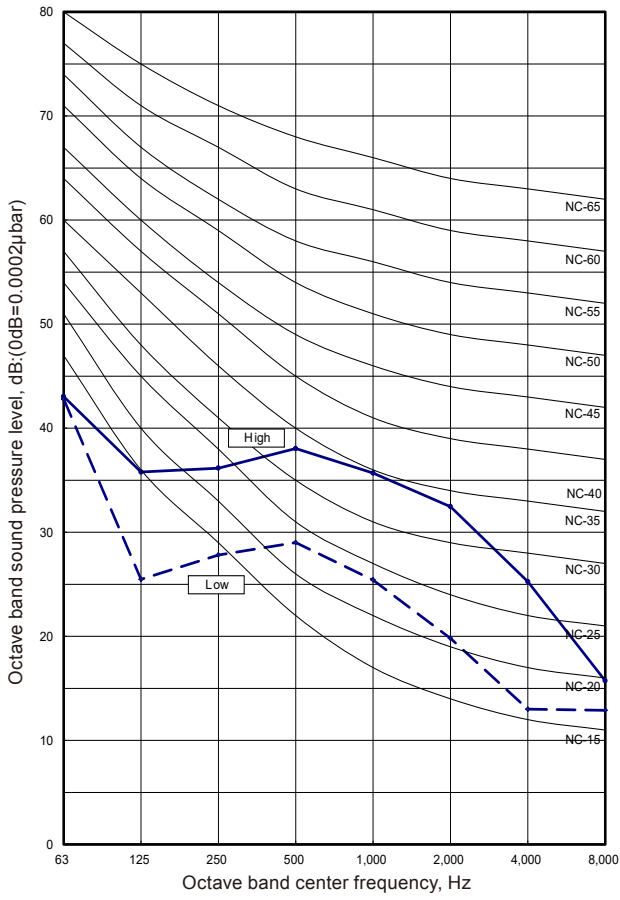


Octave band center frequency, Hz

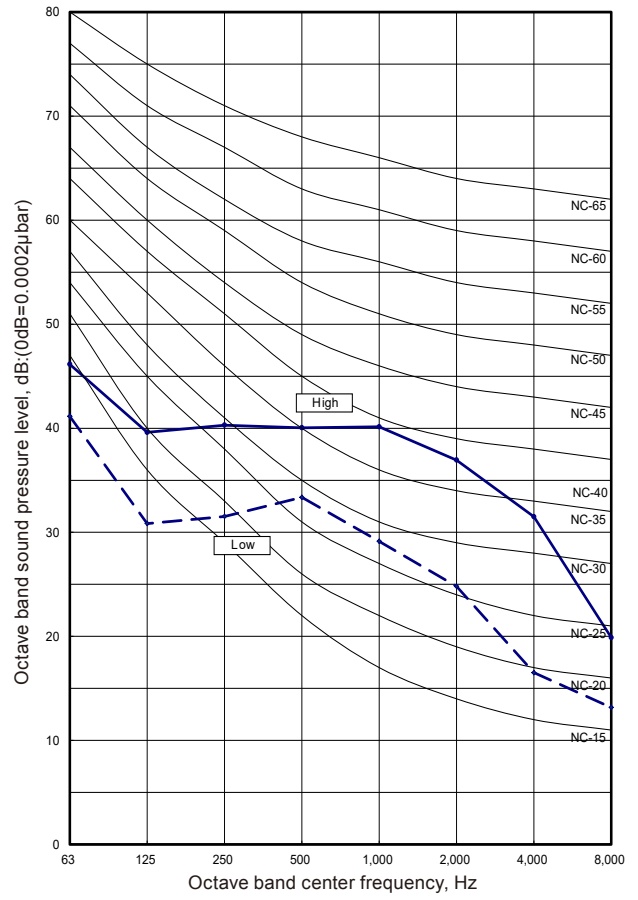
INDOOR UNITS

INDOOR UNITS

■ MODEL: ASUA12TLAV1



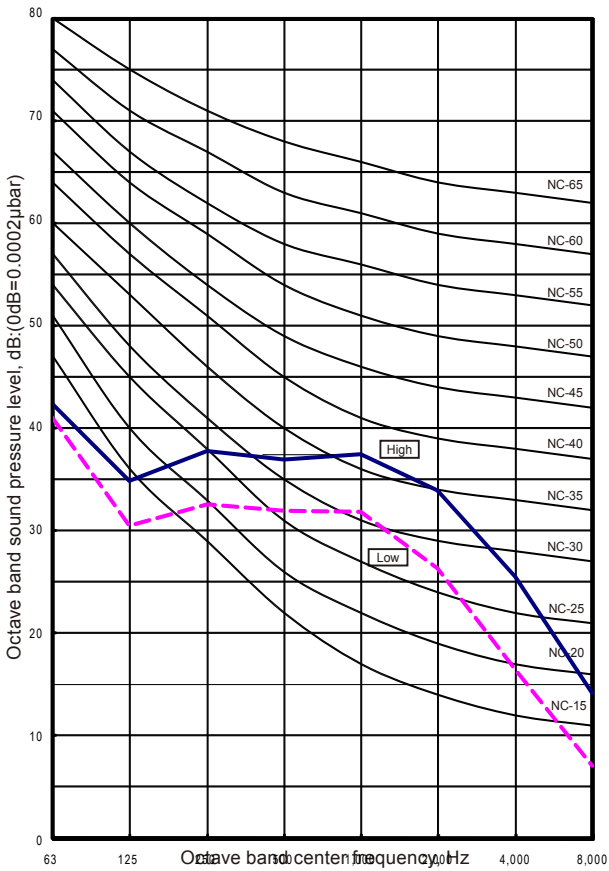
■ MODEL: ASUA14TLAV1



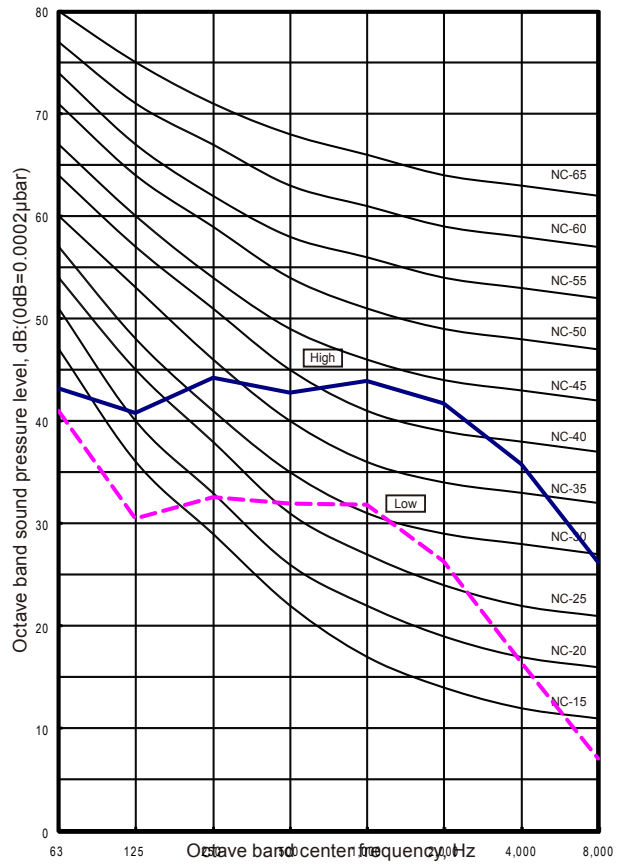
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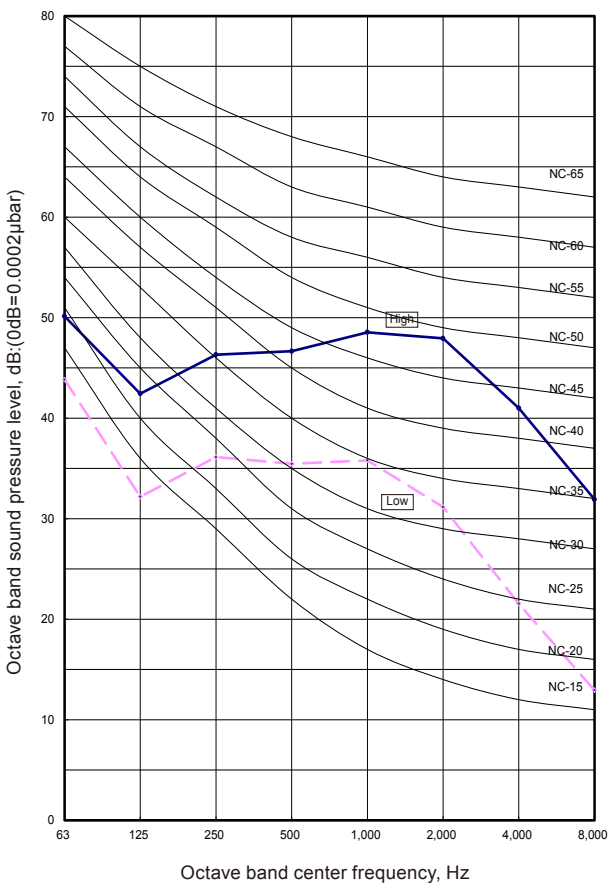
MODEL: ASUB18TLAV1



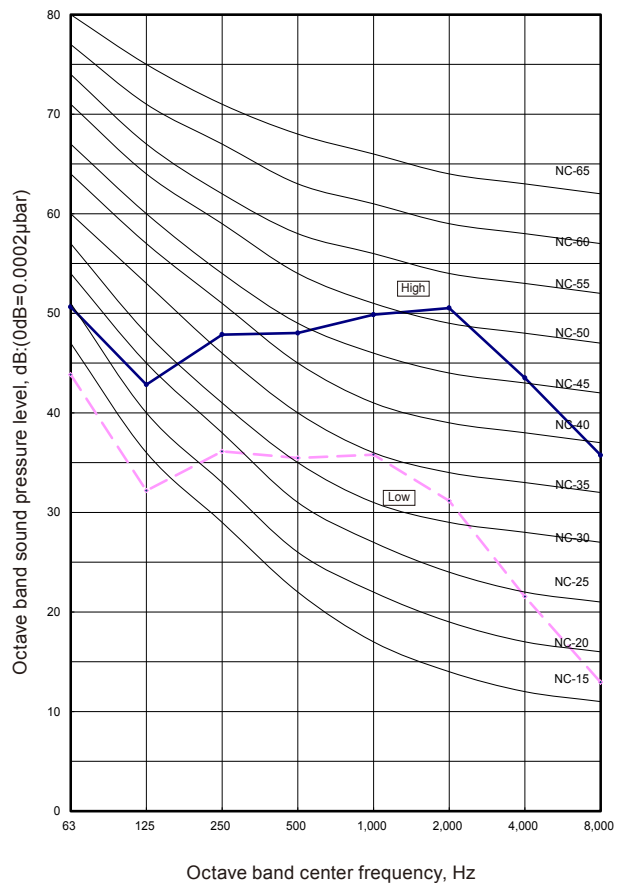
MODEL: ASUB24TLAV1



MODEL: ASUB30TLAV1

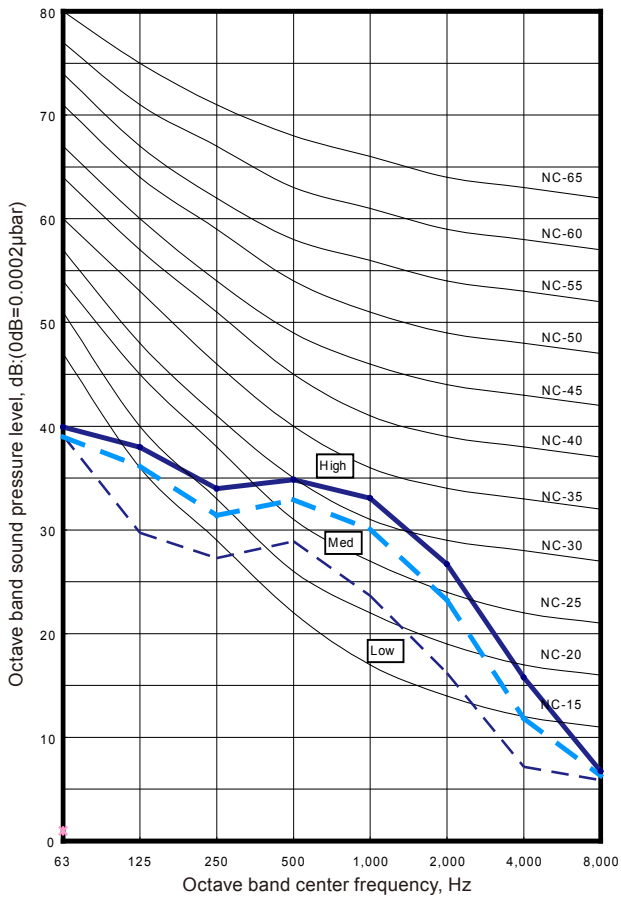


MODEL: ASUB36TLAV1

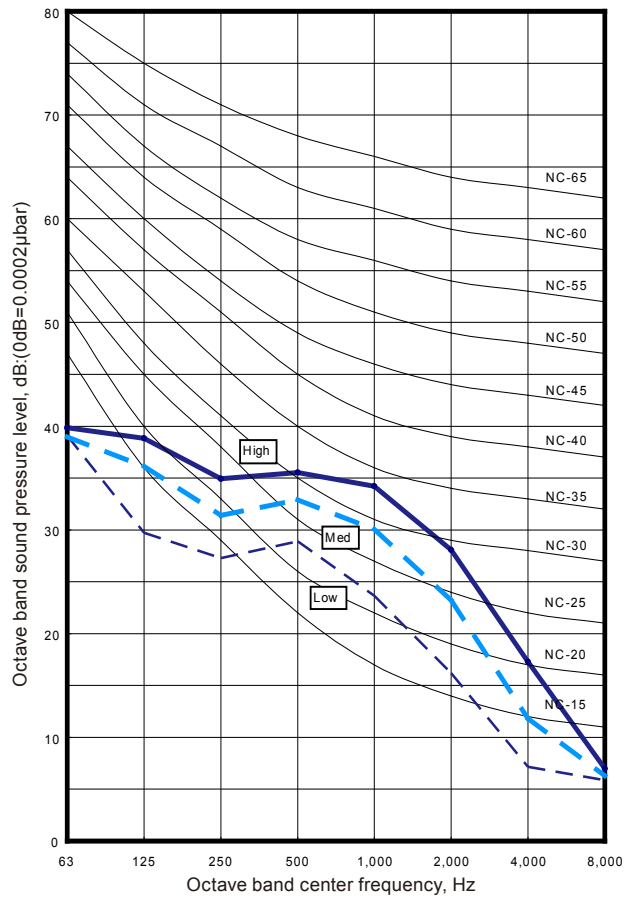


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MODEL : ASUA7TLAV

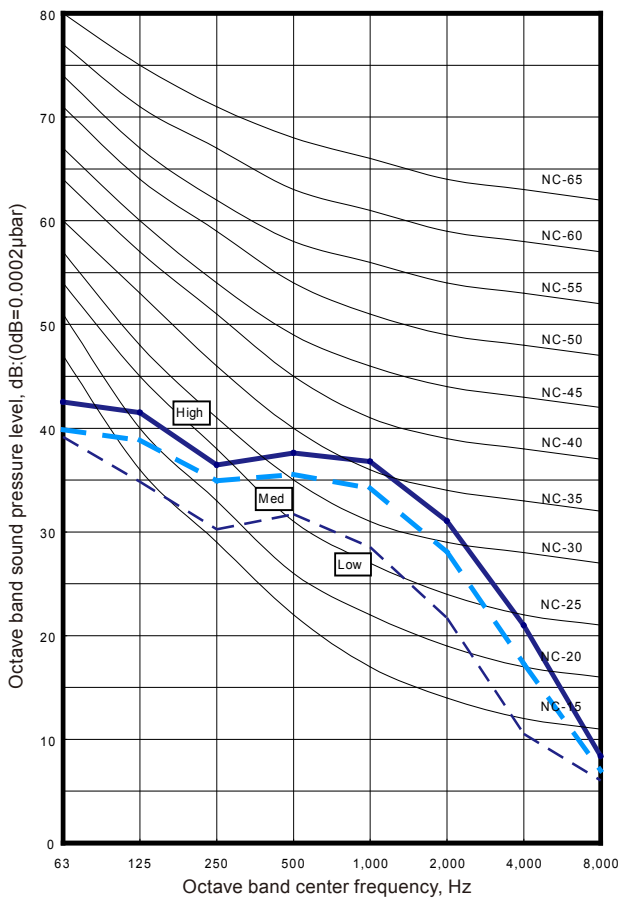


MODEL : ASUA9TLAV

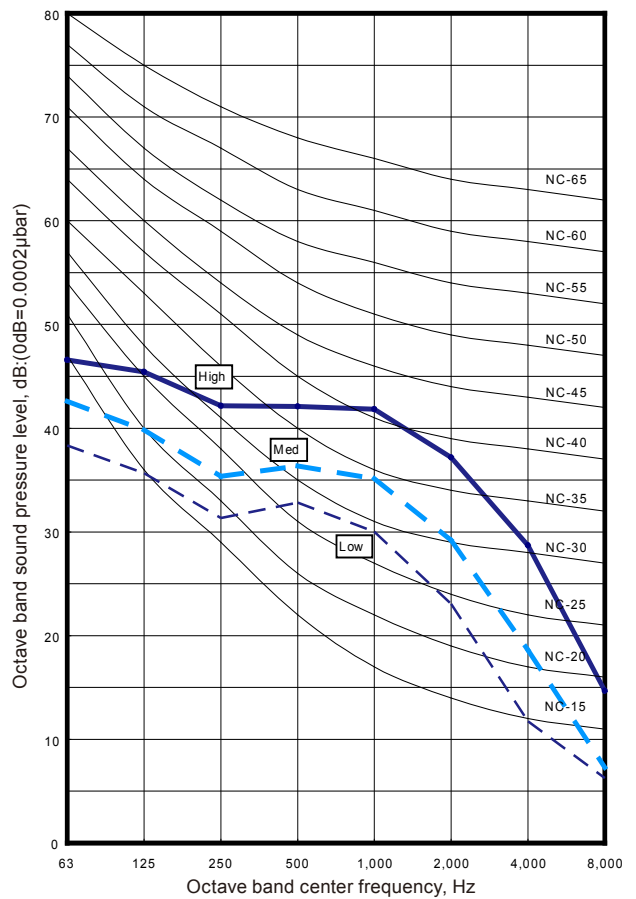


INDOOR
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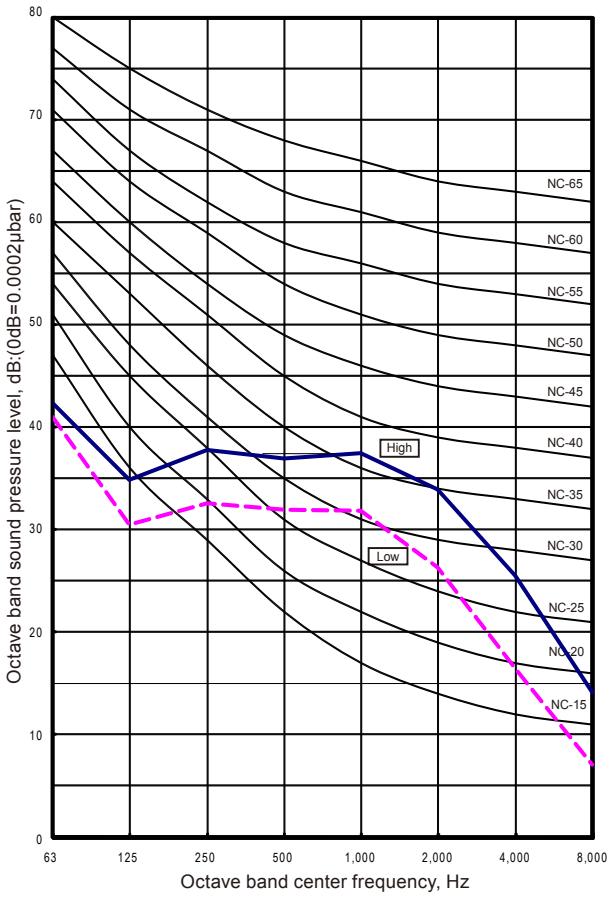
MODEL : ASUA12TLAV



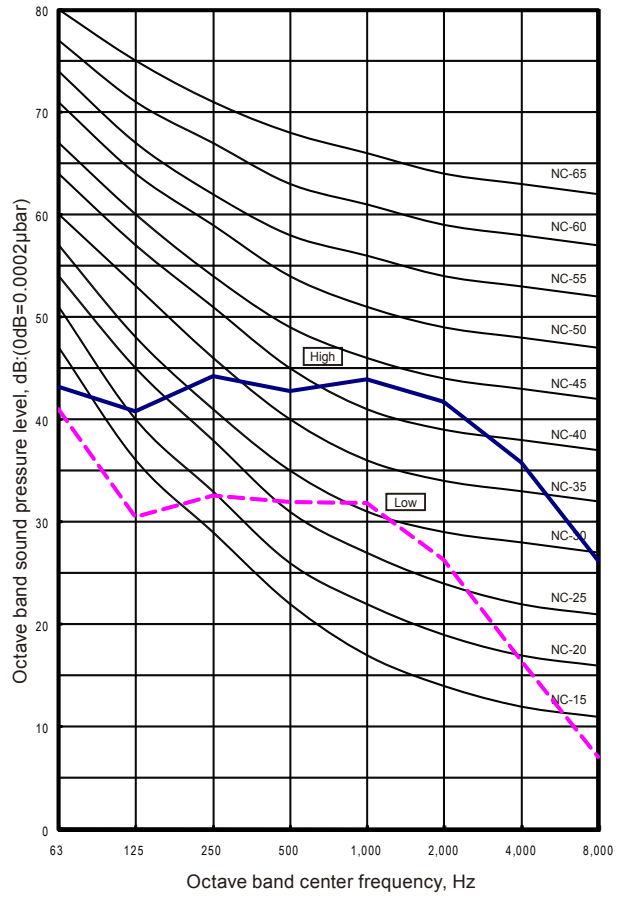
MODEL : ASUA14TLAV



■ MODEL : ASUB18TLAV



■ MODEL : ASUB24TLAV

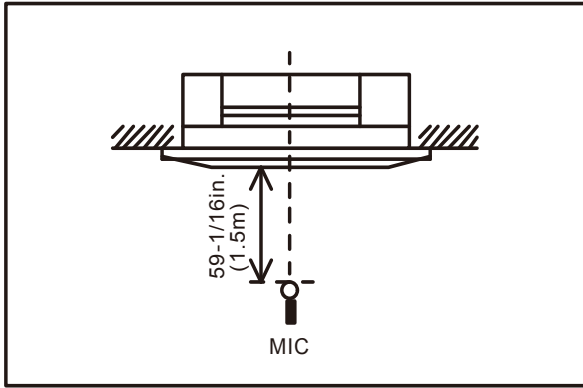


INDOOR
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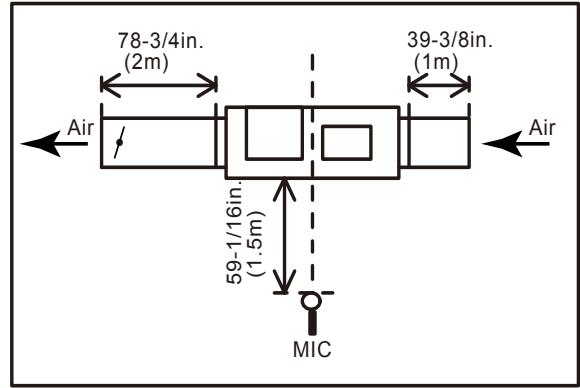
INDOOR
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■ SOUND LEVEL CHECK POINT

● All cassette type

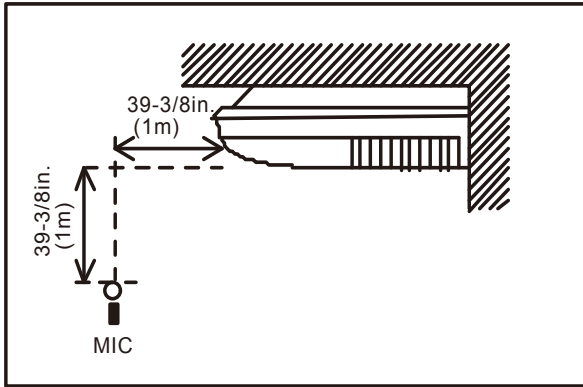


● All duct type

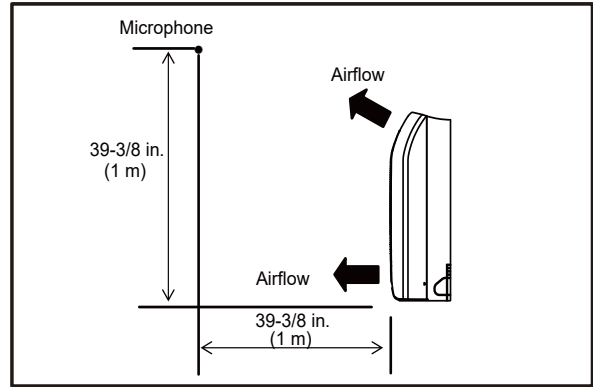


● Floor / Ceiling type

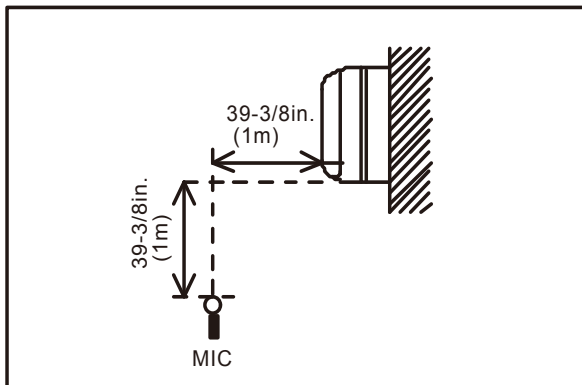
● Ceiling type



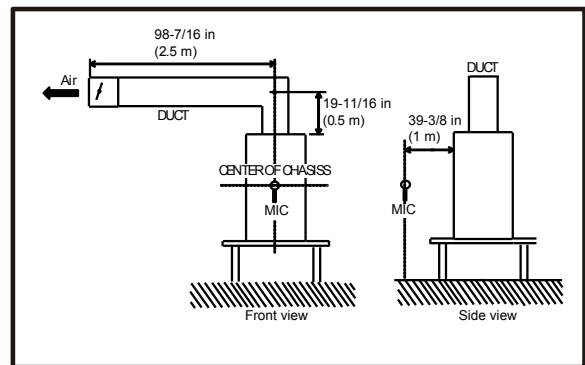
● Compact floor type



● Wall mounted type



● Vertical air handler type



9. SAFETY DEVICES

Model and type		Fuse	Fan motor thermal protector	Terminal thermal fuse	Float switch
Compact cassette	AUUA4TLAV1	250V 3.15A	Activate at 280.4±27°F (138±15°C): Fan motor stop Reset at 221±36°F (105±20°C): Fan motor restart	—	○
	AUUA7TLAV				
	AUUA9TLAV				
	AUUA12TLAV				
	AUUA14TLAV				
	AUUA18TLAV				
	AUUA24TLAV				
Circular flow cassette	AUUB18TLAV1	250V 3.15A	Activate at 257±18°F (125±10°C): Fan motor stop Reset at 248±18°F (120±10°C) Fan motor restart	—	○
	AUUB24TLAV1				
	AUUB30TLAV1				
	AUUB36TLAV1				
	AUUB48TLAV1				
Cassette (Slim type)	AUUB18TLAV	250V 3.15A	Activate at 230 ⁺²⁷ ₋₁₈ °F (110 ⁺¹⁵ ₋₁₀ °C): Fan motor stop Reset at 221 ⁺²⁷ ₋₁₈ °F (105 ⁺¹⁵ ₋₁₀ °C): Fan motor restart	—	○
	AUUB24TLAV				
Cassette	AUUB30TLAV				
	AUUB36TLAV				
Mini duct	ARUL4TLAV1	250V 3.15A	Activate at 275±27°F (135±15°C): Fan motor stop Reset at 239±27°F (115±15°C): Fan motor restart	—	○
Slim duct / slim concealed floor	ARUL7TLAV	250V 5A	Activate at 275±27°F (135±15°C): Fan motor stop Reset at 239±27°F (115±15°C): Fan motor restart	—	○
	ARUL9TLAV				
	ARUL12TLAV				
	ARUL14TLAV				
	ARUL18TLAV				
Medium static pressure duct	ARUM24TLAV	250V 5A	Activate at 275±27°F (135±15°C): Fan motor stop Reset at 239±27°F (115±15°C) Fan motor restart	—	△*2
	ARUM30TLAV		Activate at 239±27°F (115±15°C): Fan motor stop Reset at 158°F or less (70°C or less): Fan motor restart		
	ARUM36TLAV				

*1: Fuse for fan motor.

*2: Including in the Drain Pump Unit (Optional parts)

Model and type		Fuse	Fan motor thermal protector	Terminal thermal fuse	Float switch
High static pressure duct	ARUH36TLAV	250V 3.15A 250V 10A *1	Activate at 293 ± 9°F (145 ± 5°C): Fan motor stop	—	—
	ARUH48TLAV				
	ARUH60TLAV				
	ARUH72TLAV1	250V 3.15A 250V 20A *1	Activate at 212 ⁺²⁷ ₋₁₈ °F (100 ⁺¹⁵ ₋₁₀ °C): Fan motor stop	—	—
	ARUH96TLAV				
Vertical air handler	ARUV12TLAV	250V 3.15A 250V 10A *1	—	—	—
	ARUV18TLAV				
	ARUV24TLAV				
	ARUV30TLAV				
	ARUV36TLAV				
	ARUV48TLAV				
	ARUV60TLAV				
Compact floor	AGUA4TLAV1	250V 3.15A	Activate at 302±27°F (150±15°C): Fan motor stop	—	○
	AGUA7TLAV1				
	AGUA9TLAV1				
	AGUA12TLAV1				
	AGUA14TLAV1				
Floor / ceiling	ABUA12TLAV	250V 3.15A	Activate at 275±27°F (135±15°C): Fan motor stop	—	—
	ABUA14TLAV				
	ABUA18TLAV				
	ABUA24TLAV				
Ceiling	ABUA30TLAV	250V 5A	Activate at 275±27°F (135±15°C): Fan motor stop	—	△ *2
	ABUA36TLAV				

*1: Fuse for fan motor.

*2: Including in the Drain Pump Unit (Optional parts)

Model and type		Fuse	Fan motor thermal protector	Terminal thermal fuse	Float switch
Wall mounted	ASUA4TLAV1	250V 3.15A	Activate at 221±18°F (105±10°C): Fan motor stop Reset at 194±18°F (90±10°C): Fan motor restart	—	—
	ASUA7TLAV1				
	ASUA9TLAV1				
	ASUA12TLAV1				
	ASUA14TLAV1				
	ASUB18TLAV1	250V 3.15A	Activate at 302±27°F (150±15°C): Fan motor stop Reset at 248±27°F (120±15°C): Fan motor restart	Activate at 215.6°F (102°C)	—
	ASUB24TLAV1				
	ASUB30TLAV1				
	ASUB36TLAV1	250V 3.15A	Activate at 212±27°F (100±15°C): Fan motor stop Reset at 185±18°F (85±10°C): Fan motor restart	Activate at 215.6°F (102°C)	—
	ASUA7TLAV				
	ASUA9TLAV				
	ASUA12TLAV				
	ASUA14TLAV	250V 3.15A	Activate at 302±27°F (150±15°C): Fan motor stop Reset at 248±27°F (120±15°C): Fan motor restart	Activate at 215.6°F (102°C)	—
	ASUB18TLAV				
ASUB24TLAV					



5. CONTROL SYSTEM

CONTENTS

5. CONTROL SYSTEM

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1. CONTROL SYSTEM

1-1. LINE UP OF CONTROLLERS

■ FEATURES OF CONTROL SYSTEM

Reduced Installation Time

Simplified wiring, using a standard 22ga LON communication cable, reduces installation cost.

Expandable System Configuration

Various controls combinations meet most applications and allow for future expansion.

Easy Operation

Advanced control functions can be set using easy-to-use menu-driven setting operations.

Flexible System Configuration

Up to 400 indoor units can be connected to a single system. System can adapt to both large and small applications.

***Flexible Control System
to Meet a Variety of Needs.***



Air Conditioning Central Control

System Controller, System Controller Lite, Touch Panel Controller and Central Remote Controller specially designed for centralized control.



System Controller

UTY-APGXZ1, UTY-APGX

High performance and optimum control system for all building applications

A high degree of building air conditioning management is possible including electricity charge apportionment and numerous data management functions as well as standard equipment monitoring and control.



System Controller Lite

UTY-ALGXZ1, UTY-ALGX

Optimum control system for small or medium building applications.

System Controller Lite has the subset functions of System Controller. Some functions such as electricity charge apportionment, remote monitoring, and energy saving can be supported by additional options in order to meet your demands.



Touch Panel Controller

UTY-DTGYZ1, UTY-DTGY

Functionality in a compact housing with built-in schedule timer

Allows operation and monitoring to be achieved from the central control room, at each floor, by each tenant, or in the plant room.



Central Remote Controller

UTY-DCGY

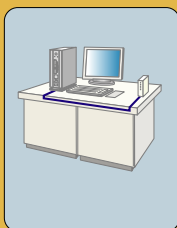
Central control of small- and medium-sized buildings and tenants.

The operation status of all connected indoor units can be viewed at a glance on a large LCD monitor to simplify individual control to batched control.

Web Monitoring Tool

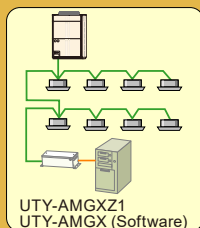
Trouble-shooting is performed by monitoring each air conditioning unit remotely during periodical system checks.

Remote side



System Status & Error Information

VRF network system side



Error notification can be automatically transmitted to several locations using the internet*.

Requires either a dedicated internet connection* or public telephone line.

*Fixed global IP address is required.

Air Conditioning Individual Control

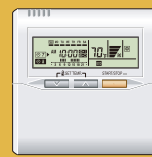
A range of Remote Controllers suitable for a wide range of individual control situations, using various built-in timers

Wired Remote Controller (Touch panel)



UTY-RNRUZ*, UTY-RNRU

Wired remote controller with the largest LCD touch panel in the industry



Wired Remote Controller

UTY-RNKU

The room temperature can be controlled by detecting the temperature accurately with the built-in thermo sensor.



Simple Remote Controller (With Operation mode)

UTY-RSRY, UTY-RSKU

Compact remote controller concentrates on the basic functions such as Start/Stop, Fan Control, Temperature Setting and Operation mode.



Simple Remote Controller (Without Operation mode)

UTY-RHRY, UTY-RHKU

Compact remote controller concentrates on the basic functions such as Start/Stop, Fan Control and Temperature Setting.



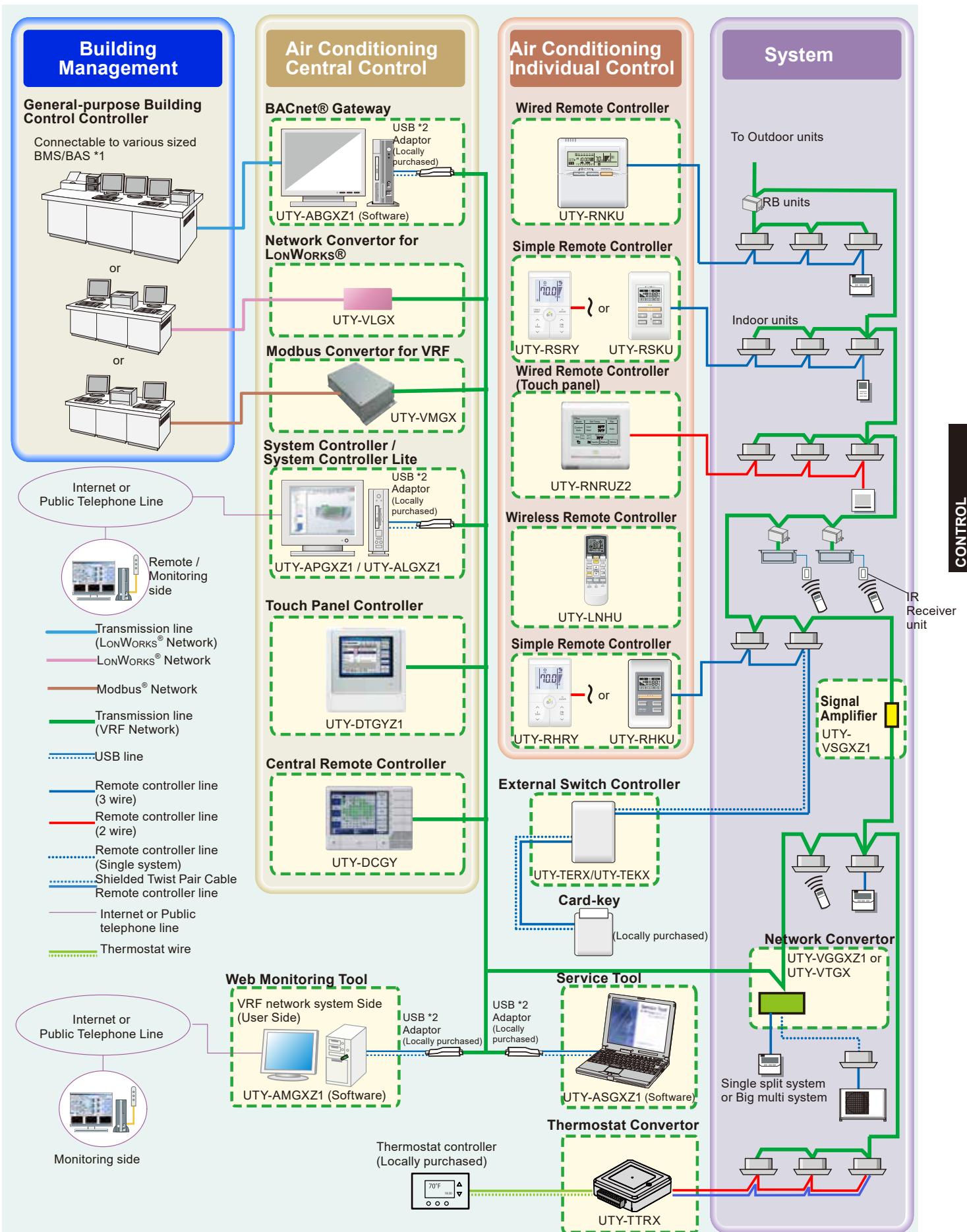
Wireless Remote Controller

UTY-LNHU

Simple and sophisticated operation with a choice of 4 daily timers

1-2. CONTROL SYSTEM DESIGN

■ ADVANCED INTEGRATED CONTROL SYSTEM



*1: BMS/BAS : Building Management System / Building Automation System.

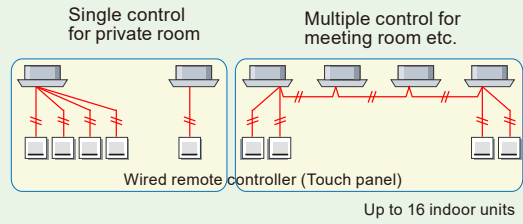
*2: U10 USB Network Interface - TP/FT-10 (Echelon® Corporation)

1-3. SYSTEM CONFIGURATION EXAMPLES

■ INDIVIDUAL CONTROL

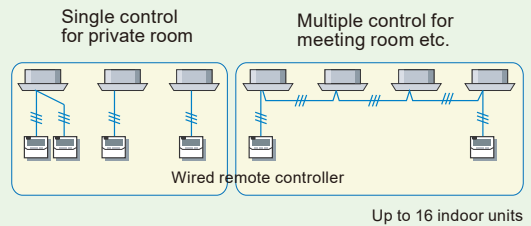
Wired Remote Controller (Touch panel)

- Up to 16 indoor units can be controlled with one wired remote controller.
- Wired (Touch panel) and wireless remote controllers can be used jointly.
- Four remote controllers can be connected with single indoor unit.



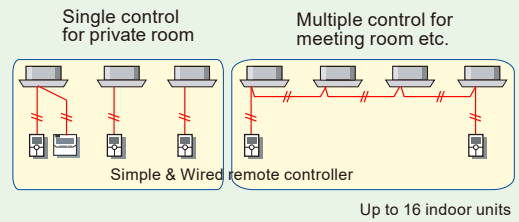
Wired Remote Controller

- Up to 16 indoor units can be controlled with one wired remote controller.
- Wired, simple, and wireless remote controllers can be used jointly.
- Two remote controllers can be connected with single indoor unit.



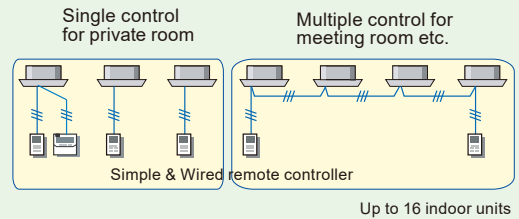
Simple Remote Controller (2-wire)

- Up to 16 indoor units can be controlled with one simple remote controller.
- Enables easy control of basic functions by the hotel or office guest.
- Wired, simple, and wireless remote controllers can be used jointly.
- 4 remote controllers can be connected with single indoor unit.



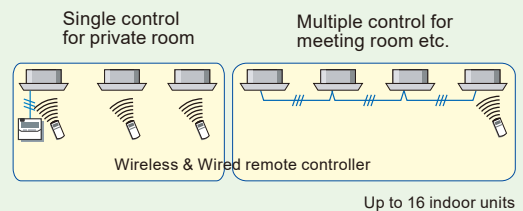
Simple Remote Controller

- Up to 16 indoor units can be controlled with one simple remote controller.
- Enables easy control of basic functions by the hotel or office guest.
- Wired, simple, and wireless remote controllers can be used jointly.
- Two remote controllers can be connected with single indoor unit.



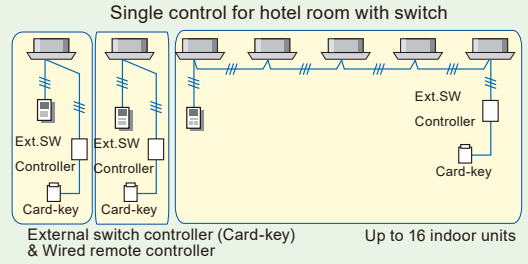
Wireless Remote Controller

- Up to 16 indoor units can be controlled with one wireless remote controller.
- Wired, simple, and wireless remote controllers can be used jointly.



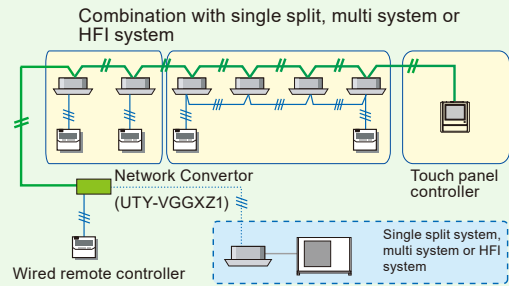
External Switch Controller

- Up to 16 indoor units can be controlled with one external switch controller.
- In combination with a locally purchased card-key switch or other sensor, External switch controller allows control of basic functions by the hotel or office guest.



Single Split, Multi System or HFI System Connectivity

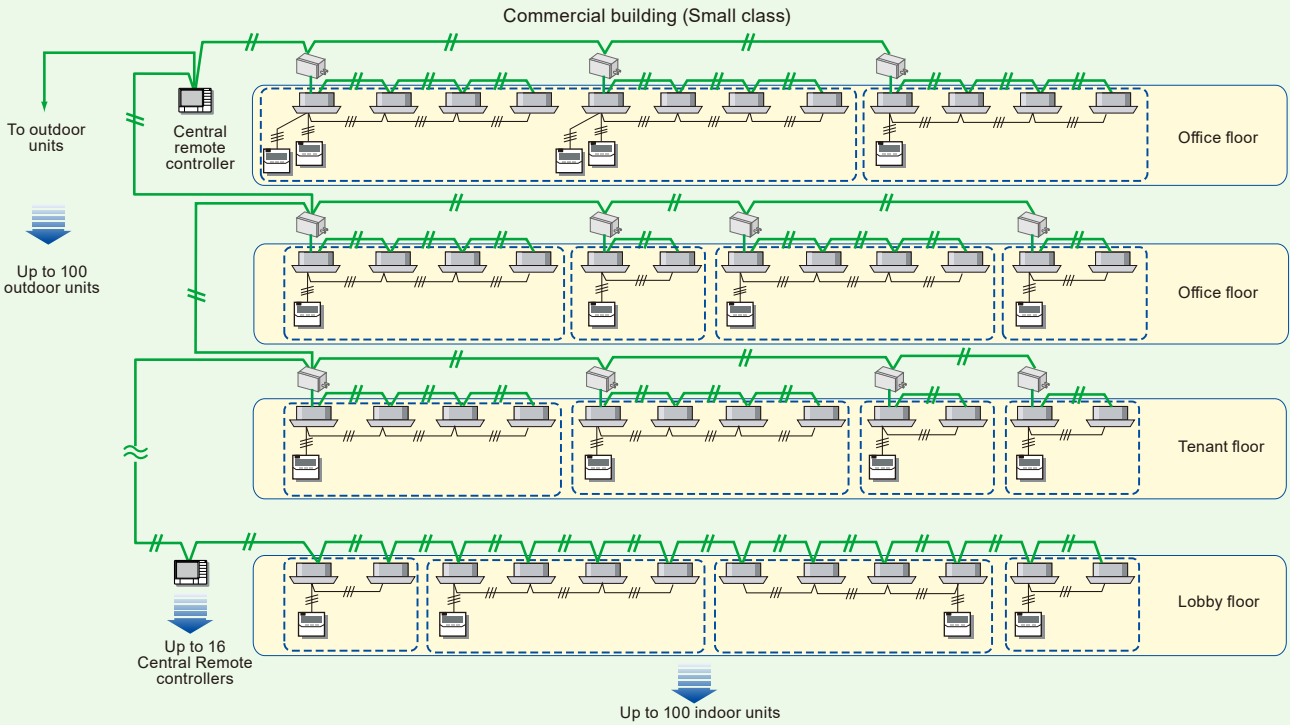
- Single split system, multi system or HFI system can be connected to the VRF network system and can be controlled from Touch panel controller or System controller.



■ CENTRAL CONTROL

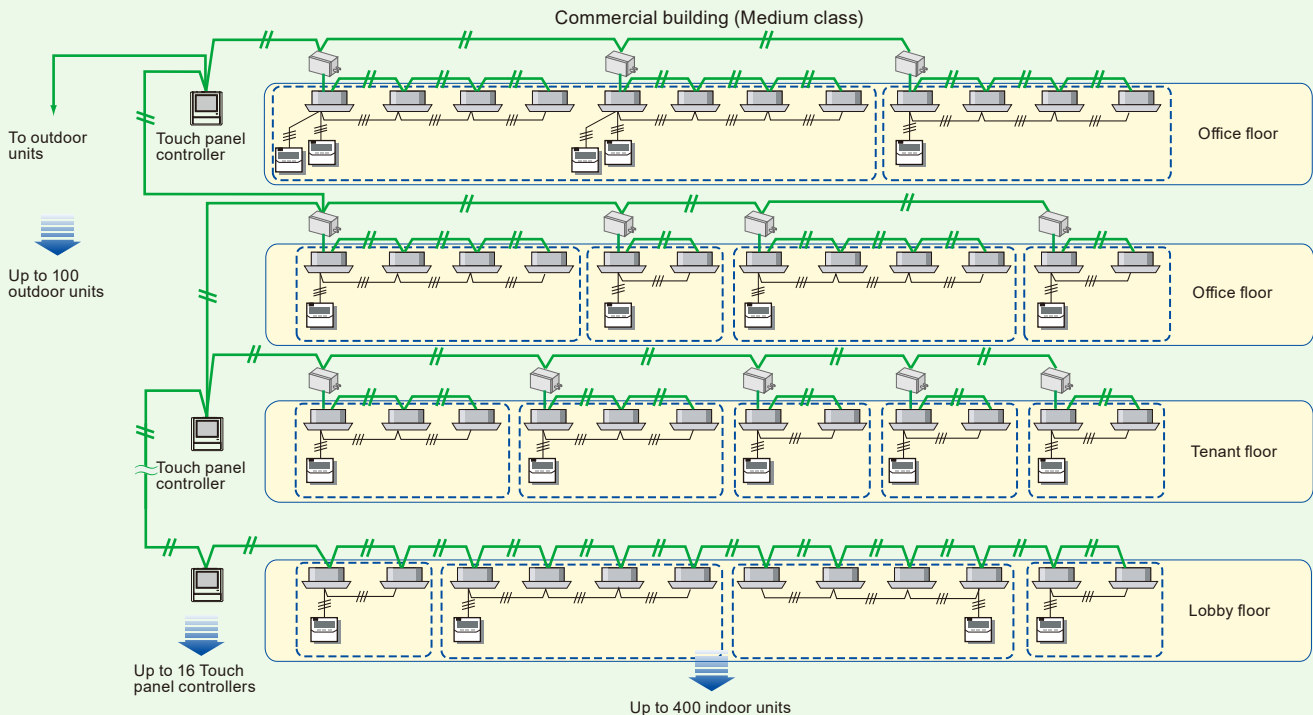
Central Remote Controller

- Up to 100 indoor units / 16 groups can be controlled with one central remote controller.
- The sum total of the Touch panel controller, Central remote controller, Modbus® convertor, and Network convertor for LONWORKS® is a maximum of 16.



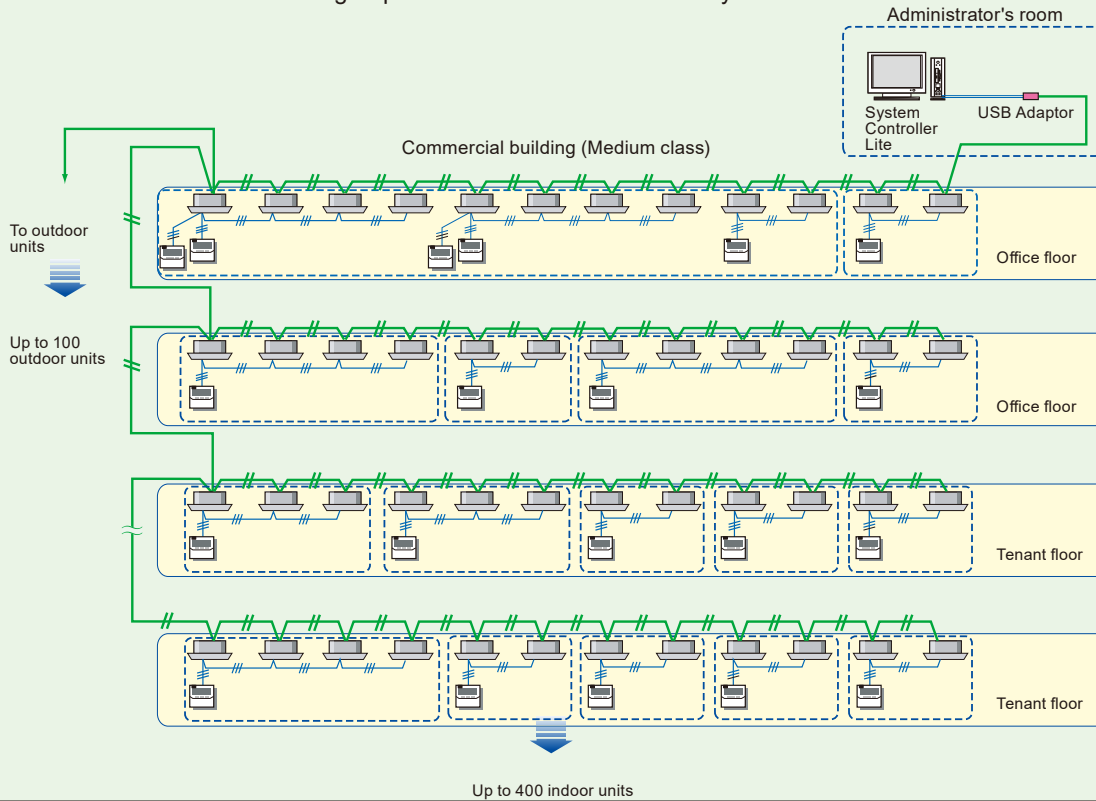
Touch Panel Controller

- Up to 400 indoor units / 400 groups can be controlled with one touch panel controller.
- The sum total of the Touch panel controller, Central remote controller, and Network convertor for LONWORKS® is a maximum of 16.



System Controller Lite

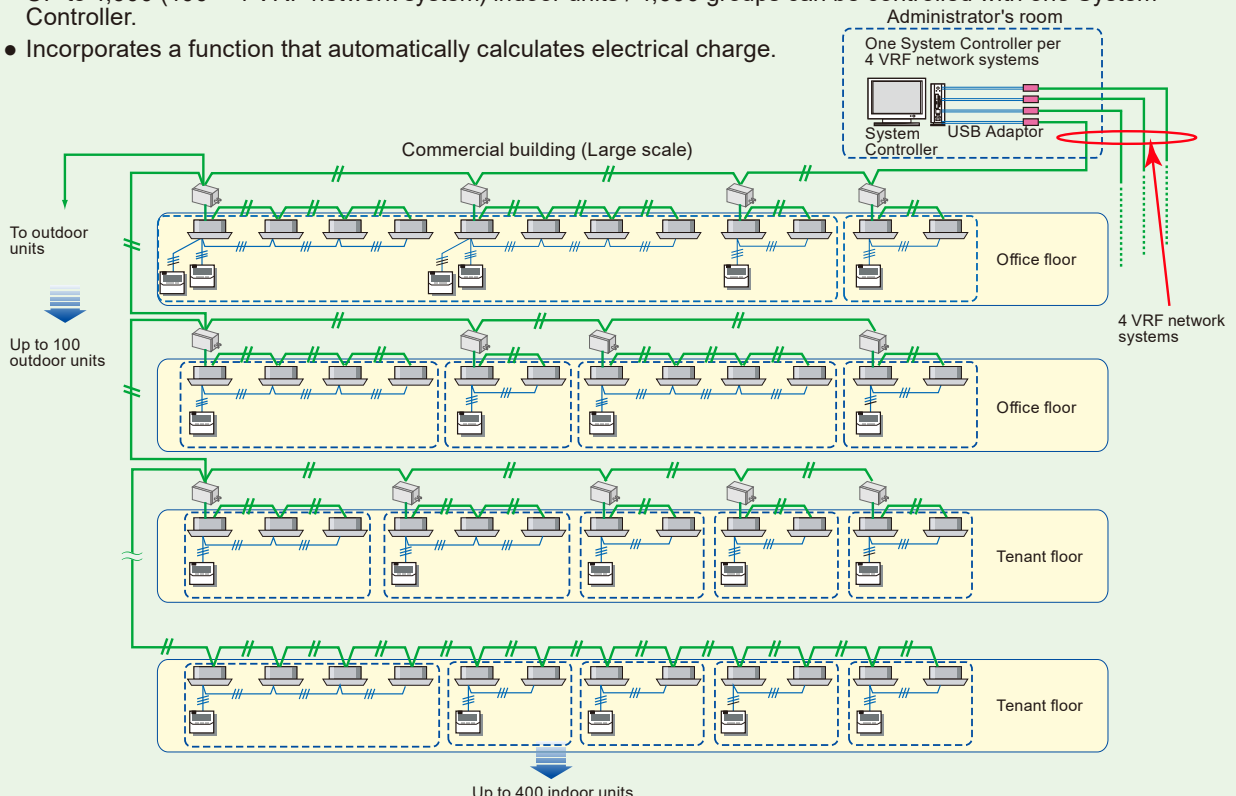
- UP to 400 indoor units / 400 groups can be controlled with one System Controller Lite.



Up to 400 indoor units

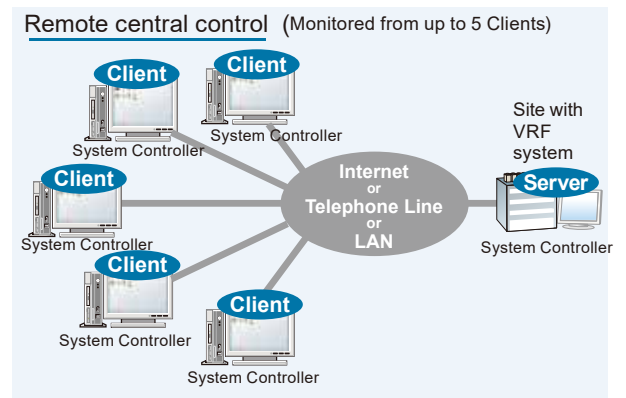
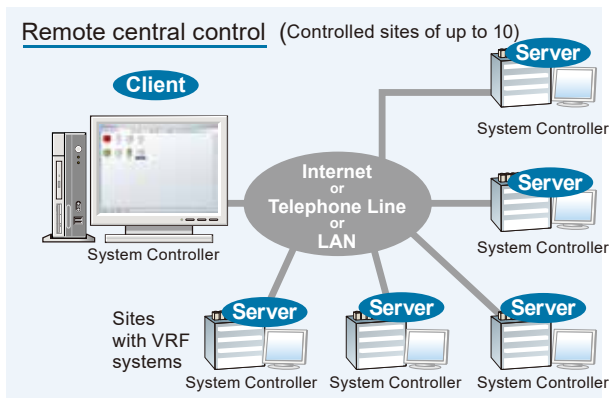
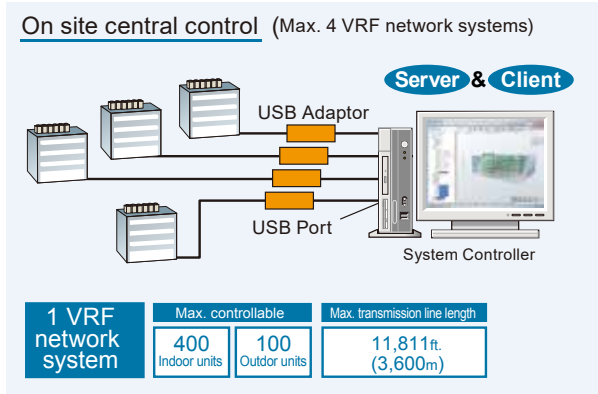
System Controller

- UP to 1,600 (400 × 4 VRF network system) indoor units / 1,600 groups can be controlled with one System Controller.
- Incorporates a function that automatically calculates electrical charge.

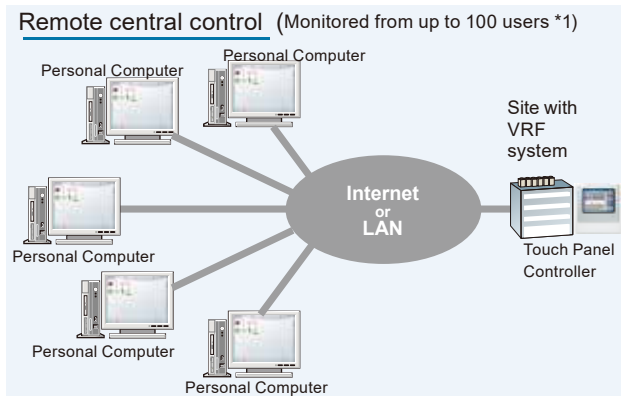


Up to 400 indoor units

System Controller can perform as an on-site central control or as a remote central control.



Touch Panel Controller can perform as a remote central control.



*1: Up to 4 administrators and 10 general users can log in simultaneously.

CONTROL SYSTEM

CONTROL SYSTEM

INDOOR UNITS AND COMPATIBLE CONTROLLERS

	Wired Remote Controller (Touch panel)	Wired Remote Controller	Simple Remote Controller	Wireless Remote Controller	External Switch Controller
	UTY-RNRUZ2 UTY-RNRUZ1 UTY-RNRU	UTY-RNKU	UTY-RSRY UTY-RHRY UTY-RSKU UTY-RHKU	UTY-LNHU	UTY-TERX UTY-TEKX
Compact Cassette	○	○	○	○	○
Cassette	○	○	○	△ *1	○
Circular Flow Cassette	○	—	○ *4	○ *5	○ *4
Mini Duct	○	○	○	△ *2	○
Slim Duct / Slim Concealed Floor	○	○	○	△ *2	○
Medium Static Pressure Duct	○	○	○	△ *2	○
High Static Pressure Duct	○	○	○	△ *2	○
Compact Floor	○	—	○ *4	○	○ *4
Vertical Air Handler	○	○	○	△ *2	○
Floor / Ceiling	○	○	○	○	○
Ceiling	○	○	○	○	○
Wall Mounted	○	○ *3	○ *4	○	○ *4

*1: IR Receiver Unit (Optional part: UTY-LRHYB1) is necessary.

*2: IR Receiver Unit (Optional part: UTB-YWC) is necessary.

*3: It is not connectable with ASUA4/7/9/12/14TLAV1 and ASUB30/36TLAV1 in Wall Mounted type.

*4: Polar 3-wire type controller cannot be connected to following indoor units:

- Circular Flow Cassette type
- ASUA4/7/9/12/14TLAV1 and ASUB30/36TLAV1 in Wall Mounted type
- Compact Floor type

*5: IR Receiver Unit (Optional part: UTY-LBHDX) is necessary.

CONVERTORS AND RELATED EQUIPMENT

		Within VRF network system							VRF network system ↔ Other System	Single Split system ↔ Other System	
		System Controller	System Controller Lite	Touch Panel Controller	Central Remote Controller	Web Monitoring Tool	Service Tool	BACnet® Gateway	Single Split System / Multi System / HFI System	BMS/BAS	
		UTY-APGXZ1 UTY-APGX	UTY-ALGXZ1 UTY-ALGX	UTY-DTGYZ1 UTY-DTGY	UTY-DCGY	UTY-AMGXZ1 UTY-AMGX	UTY-ASGXZ1 UTY-ASGX	UTY-ABGXZ1 UTY-ABGX			
Network Converter	UTY-VTGX	—	—	—	—	—	—	—	○	—	—
	UTY-VGGXZ1	—	—	—	—	—	—	—	○	—	—
USB adaptor *6	Locally purchased	○	○	—	—	○	○	○	—	—	—
Network Converter for LonWorks®	UTY-VLGX	—	—	—	—	—	—	—	—	○	—
BACnet® Gateway	UTY-ABGXZ1 UTY-ABGX UTY-VBGX	—	—	—	—	—	—	—	—	○	—
Modbus® Converter	UTY-VMGX	—	—	—	—	—	—	—	—	○	—
Thermostat Converter	UTY-TTRX	—	—	—	—	—	—	—	○	○	○

*6: Echelon® U10 USB Network Interface — TP/FT-10 Channel (Model number: 75010R)

U10 USB Network Interface TP/FT-10 is a product of Echelon® Corporation.

1-4. CONTROL SYSTEM FEATURES

■ SIMPLE WIRING SYSTEM

- A single transmission line can connect equipment across multiple refrigerant circuits.
- Non polar 2-conductor transmission cable.
- Central control equipment can be connected anywhere on the transmission line, it is not necessary to connect the indoor units to each outdoor unit.
 - Simplifies network installation and start-up
 - Reduces the total wiring required
 - Helps prevent improper wiring
 - Reduces total installation time

■ LARGE BUILDING APPLICATIONS

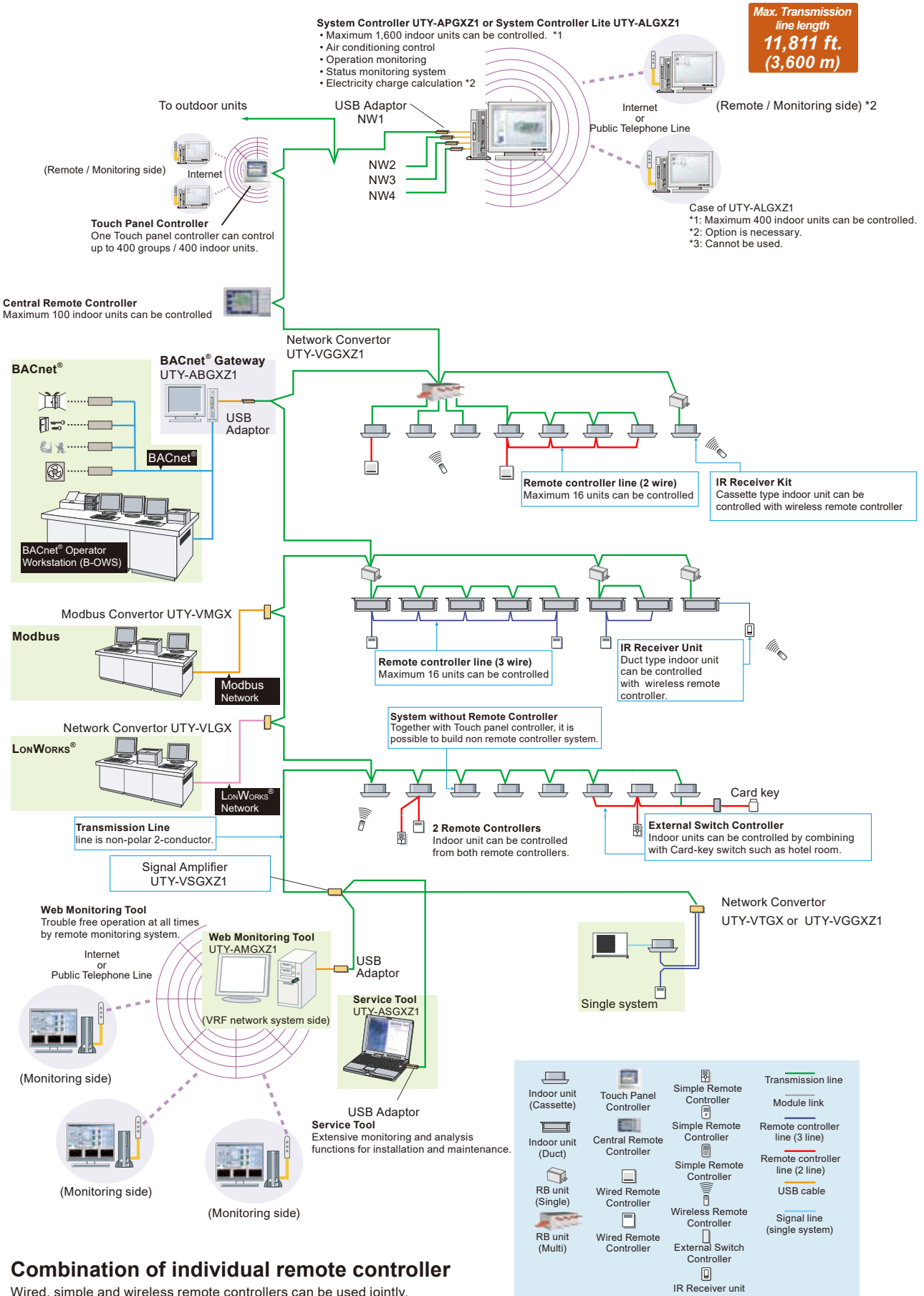
- A single VRF network can control an entire building using:
 - Total transmission wiring length can be extended up to 11,811 ft. (3,600 m). (with signal amplifier unit.)
 - Up to 400 indoor units per group
 - Up to 100 outdoor units per group
 - Touch Panel Controller can be used for primary central control.
 - Multiple Touch Panel Controllers may be used to provide convenient control for multiple convertor (Refer to 3-1.)
 - Can control Fujitsu mini-split and HFI models using a Network Convertor (Refer to 3-1.)
- System Controller allows to control up to 4 VRF network systems (Max.1,600 indoor units), suitable for huge scale application.

■ RELIABILITY AND EASE OF MAINTENANCE

- Stand-alone transmission NETWORK allows for each unit to operate separately; therefore, an error at one unit does not effect the performance of the remaining units.
- When a failure occurs, the error code is displayed on the individual controller and central controller. (except Wireless Remote Controller)
- Error history is stored in each individual controller and in the central controller (except wireless controller).
- System Controller and Web Monitoring Tool allow to monitor operation status in real time via INTERNET, allowing for a quick evaluation of VRF systems.
- Service tool can connect anywhere on the transmission line, allowing building owner to quickly evaluate the performance of the VRF system.

1-5. WIRING SYSTEM

- Wiring configuration of the control system is made of power source wiring, transmission wiring and remote controller wiring.
- Total wiring length (total length of transmission line) can be extended up to 11,811 ft. (3,600 m) (by using signal amplifiers).



Combination of individual remote controller

Wired, simple and wireless remote controllers can be used jointly.

1-6. CONTROL EQUIPMENT DESIGN LIMITATION

			Model	Necessary equipment	Connectable number per system	Manageable indoor unit number	Connectable outdoor unit number
Controller	Central Controller	System Controller	UTY-APGXZ1 UTY-APGX	USB Adaptor	1 / system	1,600 (4 VRF Networks)	400 (4 VRF Networks)
		System Controller Lite	UTY-ALGXZ1 UTY-ALGX	USB Adaptor	1 / system	400 (1 VRF Network)	100 (1 VRF Network)
		Touch Panel Controller	UTY-DTGYZ1 UTY-DTGY	—	16 / system	400	100
		Central Remote Controller	UTY-DCGY	—		100	
Adaptor / Convertor	Network Convertor	UTY-VTGX UTY-VGGXZ1	—	100 / system *1	—	—	
	Network Convertor for LONWORKS® *3	UTY-VLGX	—	1 / system	128 *2	100	
	BACnet® Gateway	UTY-ABGXZ1 UTY-ABGX	USB Adaptor	1 / system	1,600 (4 VRF Network)	400 (4 VRF Network)	
		UTY-VBGX	—	4 / system	128 *2	100	
	Modbus® Convertor	UTY-VMGX	—	9 / system	128 *2	100	
	Thermostat Convertor	UTY-TTRX	—	—	16 *4	—	
	Signal Amplifier	UTY-VSGX	—	8 / system	—	—	
Service and Maintenance	Service Tool	UTY-ASGXZ1 UTY-ASGX	USB Adaptor	1 / system	400	100	
	Web Monitoring Tool	UTY-AMGXZ1 UTY-AMGX	USB Adaptor		1,600 (4 VRF Network)	400 (4 VRF Network)	

*1: Maximum 100 Refrigerant system.

*2: Maximum connectable indoor unit number per one Network Convertor.

(Check the System Diagram (Item:3-2) for proper configuration)

*3: A maximum of 4 Network Convertors for LONWORKS® can be connected to 1 BMS.

*4: Maximum connectable indoor unit number per one remote controller group.

			Model	The number that can be connected
Controller	Individual Controller	Wireless Remote Controller	UTY-LNHU	4 / Remote control group
		Wired Remote Controller (Touch panel)	UTY-RNRUZ2 UTY-RNRUZ1 UTY-RNRU	
		Simple Remote Controller (with operation mode)	UTY-RSRY	
		Simple Remote Controller (without operation mode)	UTY-RHRY	
		Wired Remote Controller	UTY-RNKU	2 / Remote control group
		Simple Remote Controller (with operation mode)	UTY-RSKU	
		Simple Remote Controller (without operation mode)	UTY-RHKU	
Adaptor / Convertor	External Switch Controller	UTY-TERX UTY-TEKX	1 / Indoor unit	
	IR Receiver unit			

2. CONTROL UNITS

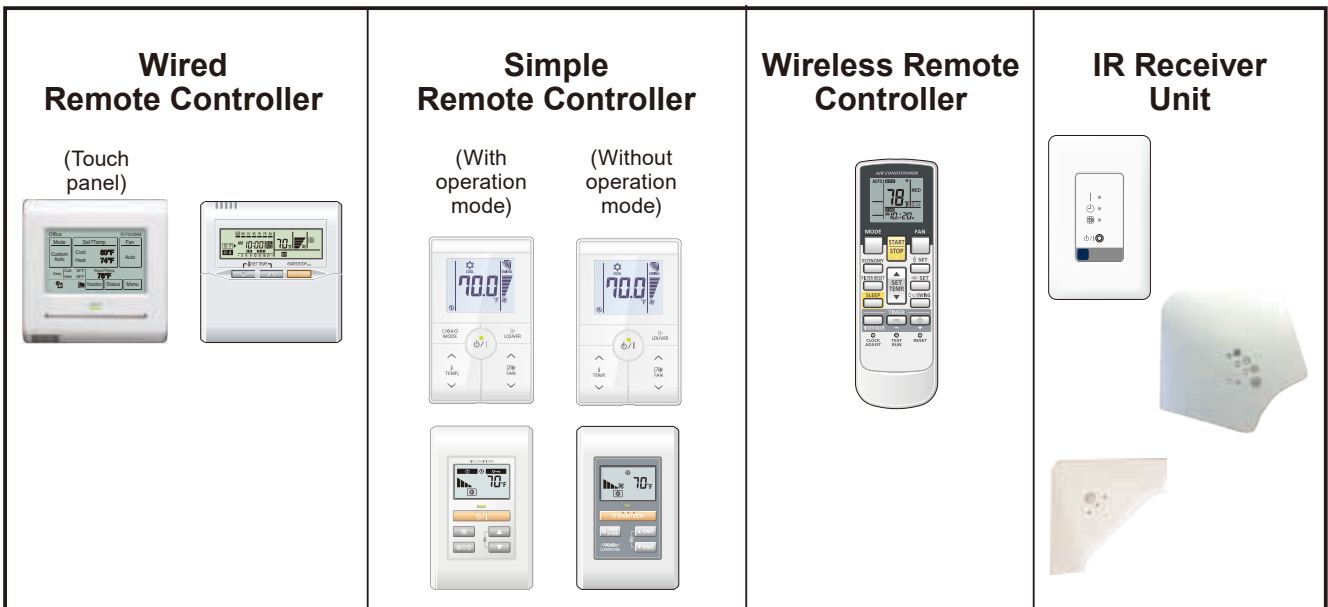
The following types of controllers are available with the FUJITSU GENERAL LIMITED VRF System :

- **System Controller**
- **System Controller Lite**
- **Touch Panel Controller**
- **Central Remote Controller**
- **Wired Remote Controller**
- **Simple Remote Controller**
(With operation mode)
(Without operation mode)
- **Wireless Remote Controller**
- **IR Receiver Unit**

Central Control



Individual Control



2-1. SYSTEM CONTROLLER

2-1-1. MODEL: UTY-APGXZ1 (Option: UTY-PEGXZ1, UTY-PPGXP2)



This system realizes the advanced general monitoring & control of VRF system from small scale buildings to large scale buildings.

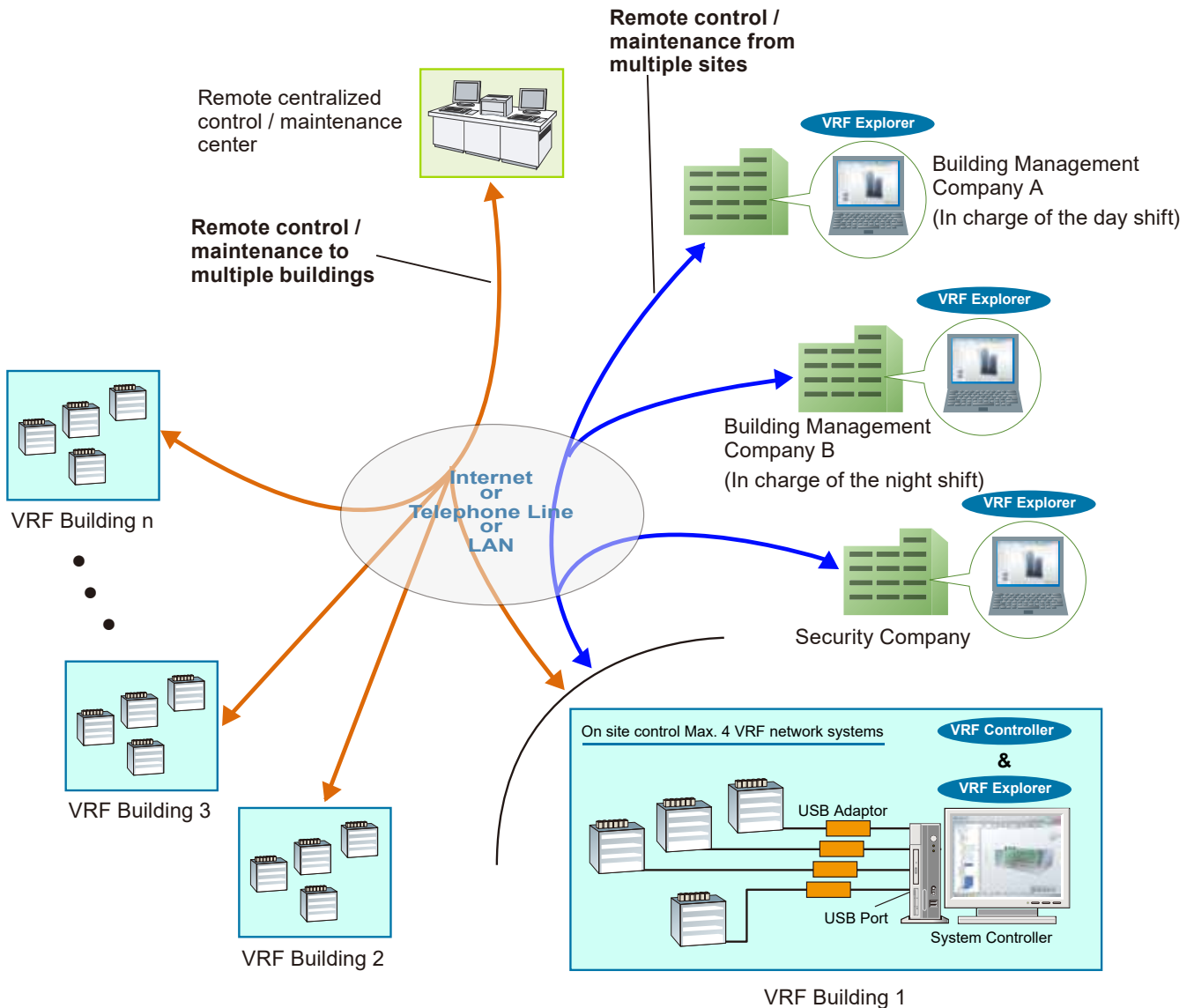
- Maximum of 4 network systems, 1600 indoor units can be controlled.
- In addition to air conditioning precision control function, central remote control, electricity charge calculation, schedule management, and energy saving functions are strengthened and building manager and owner needs are met.
- Corresponds to 7 different languages. (English, Chinese, French, German, Spanish, Russian, and Polish)
- Connection between VRF network system to personal computer is possible via small U10 USB interface. However, both U10 USB interface and personal computer are locally purchased items.
- Extended feature* supported by use of options.

*: Electricity charge apportionment using electricity meter, energy saving control (without V and S Series)


NOTE: Different VRF series may be connected for each of the 4 VRF networks supported by the System Controller, but different series may not coexist within the same network.

SYSTEM DIAGRAM

- System controller may be used on site or remotely over various networks for remote central control.
- System controller consists of VRF Controller software and VRF Explorer software, both software are working together.
- VRF Controller software runs in the background and communicate with VRF System.
- VRF Explorer software provides user interface and communicate with the VRF Controller.
- VRF Controller and VRF Explorer software may run in a single PC or in different PCs separated by network.
- VRF Explorer software does not require WibuKey (Software protection key).



PACKING LIST

Name and shape	Quantity	Application
WHITE-USB-KEY (software protection key with software) 	1	Software protection key to be connected to an USB port on the PC that the System Controller is installed. System Controller runs only on a PC with this WHITE-USB-KEY. However, this WibuKey is not required for remote VRF Explorer software.

■ SOFTWARE CONFIGURATION



Any number can be installed in remote site personal computers

System Controller UTY-APGXZ1 can be installed in the local site PCs (VRF Controller) connected to the VRF network system, and multiple remote site PCs (VRF Explorer) can be connected to VRF Controller via Internet or LAN. Just this single product creates the control, management, and monitoring environment for the customer's properties including remote operation.

*The WHITE-USB-KEY is not required for PCs on the remote site side. Some functions, such as equipment registration, and input/output, are invalid on the remote site side.

■ OTHER REQUIRED DEVICES (Locally purchased)

- Personal computer that satisfies the following system requirements
- Echelon® U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF Network.)

■ PERSONAL COMPUTER SYSTEM REQUIREMENTS

Operating system	<ul style="list-style-type: none"> • Microsoft® Windows® 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft® Windows® 7 Professional (32-bit or 64-bit) SP1 • Microsoft® Windows® 8.1 (32-bit or 64-bit) • Microsoft® Windows® 8.1 Pro (32-bit or 64-bit) • Microsoft® Windows® 10 Home (32-bit or 64-bit) • Microsoft® Windows® 10 Pro (32-bit or 64-bit) [Supported languages] English, Chinese, French, German, Russian, Spanish, and Polish
CPU	Intel® Core™ i3 2 GHz or higher
Memory	<ul style="list-style-type: none"> • 2 GB or more (for Windows® 7 [32-bit]) • 4 GB or more (for Windows® 7 [64-bit], Windows® 8.1, and Windows® 10)
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	<ul style="list-style-type: none"> • Ethernet port (for getting access to the Internet using LAN) or Modem (for getting access to the Internet using Public Telephone Line) • USB ports (Maximum of 5 ports) (Required only for the Server PC that works as VRF Controller) <ul style="list-style-type: none"> - Maximum of 1 USB ports are required for White USB Key connection - Maximum of 4 USB ports are required for Echelon® U10 USB Network Interface * Maximum number of required USB port depends on the applicable system configuration.
Graphic accelerator	Microsoft® DirectX® 9.0c compatible
Software	Adobe® Reader® 9.0 or later

■ AVAILABLE OPTION

Energy Manager	UTY-PEGXZ1	Additional support for energy saving function and electricity charge apportionment using electricity meter.
Prepaid air conditioning	UTY-PPGXP2	The prepaid management of VRF air conditioner is performed and the collection of charge for air conditioning is supported for building administrator.

■ SPECIFICATION SUMMARY

Type	Function	UTY-APGXZ1	UTY-PEGXZ1 Option	UTY-PPGXP2 Option	Remark
System specification	Max. System Controller per VRF Network	1	—	—	
	Max. VRF networks supported	4	—	—	Site with up to 4 VRF networks may be administered with 1 System Controller
	Max. indoor units / remote controller groups per VRF network	400	—	—	
	Max. indoor units / remote controller groups per System Controller	1,600	—	—	4 VRF networks
Site supervision	Multiple sites display	10	—	—	
	2D/3D graphical layout view	●	—	—	2D: Site, floor, 3D: Building Quick control from display available.
	List display	●	—	—	Quick control from display available.
	Tree display	●	—	—	Quick control from display available.
Operation control	Start/Stop, Operation mode, Room temperature	●	—	—	
	Fan speed, Airflow direction	●	—	—	
	Economy mode	●	—	—	
	Antifreeze	●	—	—	
	Remote control prohibition setting	●	—	—	
	Temperature upper and lower limit setting	●	—	—	
	Filter sign reset	●	—	—	
	Human sensing	●	—	—	
	Annual schedule	●	—	—	Week of year, day of month, day of week setting. Holiday special day settings.
	Low noise mode weekly schedule	●	—	—	Outdoor unit control only.
	Number of groups	1,600	—	—	
	Group in group	3 Levels	—	—	Lv.1 – 2 – 3.
	Max. overlap definitions	1,600	—	—	1 unit may belong to up to 1,600 groups.
	Auto generation	●	—	—	By site, building and floor.
Memory operation	●	—	—	Operation pattern memorized and reused.	
Pattern operation	●	—	—	Reuse operation pattern once used.	
Operation status monitoring	Controlled status	●	—	—	See items controlled by operation.
	Special operation	●	—	—	Defrost, Oil Recovery.
Room Temp.	Room temperature	●	—	—	*1
Error management	Error notification	●	—	—	
	Audible alarm	●	—	—	
	Error e-mail notification	●	—	—	
History management	Error history	1 year	—	—	
	Operation control & status history	1 year	—	—	
Energy saving management	Indoor unit rotation	—	●	—	
	Outdoor unit capacity save	—	●	—	
	Peak cut control	—	1 month	—	
	Power consumption monitor	—	●	—	
	Electricity meters supported	—	200	—	Outdoor unit required per connection
	Power consumption information	—	3 years	—	
Electricity charge apportionment	Apportionment charge calculation	●	—	—	
	Apportionment charge bill creation	●	—	—	
	Tenant (block) setting	1600	—	—	
	Common facilities apportionment setting	●	—	—	
	Rated power consumption allotment setting	●	—	—	
	Electricity meters supported	—	200	—	Same meters used for energy saving.
	Electricity charge apportionment period	2 years	—	—	
	Prepaid air conditioning	—	—	●	
Remote control	Cooling and Heating information	●	—	—	
	Internet, telephone line support	●	—	—	
	Max. client connection per server	5	—	—	
	Max. host connection from client	10	—	—	
	Data encryption	●	—	—	SSL used.

Type	Function	UTY-APGXZ1	UTY-PEGXZ1 Option	UTY-PPGXP2 Option	Remark
Others	External device control function	●	—	—	
	WEB Operation	●	—	—	
	User control	●	—	—	Authorization level setting.
	Database import / export (manual)	●	—	—	
	Periodical backup	●	—	—	
	The refrigerant systems of non-operation status function	●	—	—	
	Auto Start Setting	●	—	—	
	Multiple language display	●	●	—	English, Chinese, French, German, Spanish, Russian, Polish.
	Floor layout editor	●	—	—	
	Floor layout import/export	●	—	—	

NOTE: In S and V series, there are some functions that cannot be used, such as energy saving function and electricity meter use.

- The electricity charge apportionment function of VRF system can only be performed from one equipment simultaneously.

*1: To display the room temperature on the monitor, connect the wired remote controller to the indoor unit, and perform the function setting for detecting the temperature using the mounted sensor.

2-1-2. MODEL: UTY-APGX (Option: UTY-PEGX)

This advanced system has the capability for monitoring and control of small and large buildings.

- Up to a maximum of 4 network systems, 1,600 indoor units can be controlled.
- Provides energy saving functions along with precision temperature control, central remote control, electricity charge calculation and schedule management.
- Programmable in 7 different languages: English, Chinese, French, German, Spanish, Russian, and Polish.
- Connection between VRF network system and personal computer is possible using the U10 USB interface. Personal computer is locally purchased.
- Extended feature* supported by use of options.

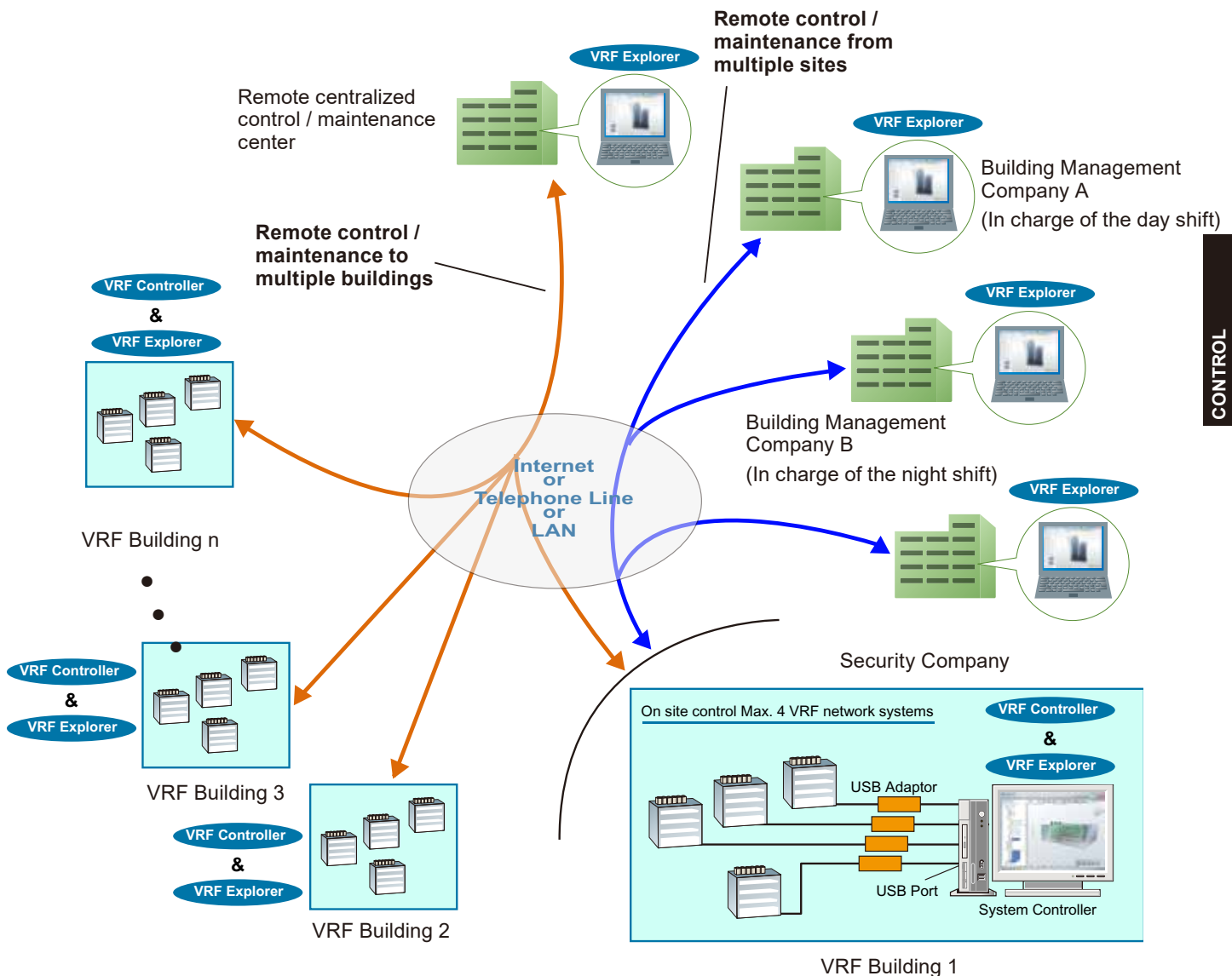


*: Electricity charge apportionment using electricity meter, energy saving control (without V and S Series)



NOTE: Different VRF series may be connected for each of the 4 VRF networks supported by the System Controller, but different series may not coexist within the same network.

SYSTEM DIAGRAM

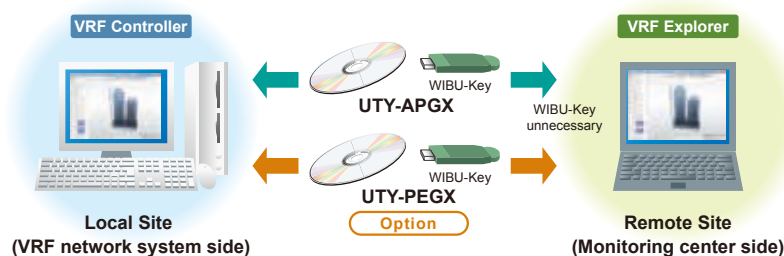
- System controller may be used on site or remotely over various networks for remote central control.
- System controller consists of VRF Controller software and VRF Explorer software running simultaneously.
- VRF Controller software runs in the background and communicate with VRF System.
- VRF Explorer software provides user interface and communicate with the VRF Controller.
- VRF Controller and VRF Explorer software may run in a single PC or in different PCs separated by network.
- VRF Explorer software does not require Wibu key.



PACKING LIST

Name and shape	Quantity	Application
DVD-ROM 	1	Includes the software and manuals for System Controller. Both VRF Controller and VRF Explorer software are included.
Wibu Key (Software protection key) 	1	Software protection key to be inserted in a USB slot running System Controller. System Controller may only run on a PC with Wibu Key. However, Wibu key is not required for remote VRF Explorer software.

SOFTWARE CONFIGURATION



Any number can be installed in remote site personal computers.

System Controller UTY-APGX can be installed in the local site PCs (VRF Controller) connected to the VRF network system and the multiple remote site PCs (VRF Explorer) connected to those computers via the Internet or LAN. Just this single product creates the control, management, and monitoring environment for the customer's properties including remote operation.

*The WIBU-Key is not required for PCs on the remote site side. Some functions, such as equipment registration, and input/output, are not possible on the remote site side.

Optional software to strengthen the energy saving function

Installing the optional UTY-PEGX will strengthen the energy saving management function.

OTHER REQUIRED DEVICES (LOCALLY PURCHASED)

- Personal computer that satisfies the following system requirements
- Echelon® U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF Network.)

PERSONAL COMPUTER SYSTEM REQUIREMENTS

Operating system	<ul style="list-style-type: none"> • Microsoft® Windows® 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft® Windows® 7 Professional (32-bit or 64-bit) SP1 • Microsoft® Windows® 8.1 (32-bit or 64-bit) • Microsoft® Windows® 8.1 Pro (32-bit or 64-bit) • Microsoft® Windows® 10 Home (32-bit or 64-bit) • Microsoft® Windows® 10 Pro (32-bit or 64-bit) [Supported languages] English, Chinese, French, German, Russian, Spanish, and Polish
CPU	Intel® Core™ i3 2GHz or higher
Memory	<ul style="list-style-type: none"> • 2 GB or more (for Windows Vista® and Windows® 7 [32-bit]) • 4 GB or more (for Windows® 7 [64-bit], Windows® 8.1, and Windows® 10)
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	<ul style="list-style-type: none"> • Ethernet port (for getting access to the Internet using LAN) or Modem (for getting access to the Internet using Public Telephone Line) • USB ports (Maximum of 6 ports) (Required only for the Server PC that works as VRF Controller) <ul style="list-style-type: none"> - Maximum of 2 USB ports are required for WibuKey connection - Maximum of 4 USB ports are required for Echelon® U10 USB Network Interface * Maximum number of required USB port depends on the applicable system configuration.
Graphic accelerator	Requires the internal graphics accelerator be compatible with Microsoft® DirectX® 9.0
Software	Adobe® Reader® 9.0 or later
Optical drive	DVD-ROM Drive

AVAILABLE OPTION

Energy Manager	UTY-PEGX *1	Additional support for energy saving function and Electricity Charge Apportionment using electricity meter.
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■ SPECIFICATION SUMMARY

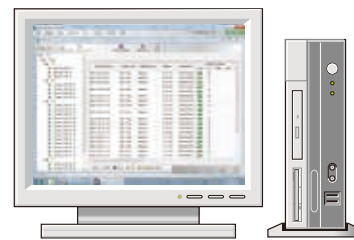
Type		Function	UTY-APGX	UTY-PEGX *1 Option	Remark
System specification		Max. System Controller per VRF Network	1	—	
		Max. VRF networks supported	4	—	Site with up to 4 VRF networks may be administered with 1 System Controller
		Max. indoor units / remote controller groups per VRF network	400	—	
		Max. indoor units / remote controller groups per System Controller	1,600	—	4 VRF networks
Site supervision		Multiple sites display	10	—	
		2D/3D graphical layout view	●	—	2D: Site, floor, 3D: Building Quick control from display available.
		List display	●	—	Quick control from display available.
		Tree display	●	—	Quick control from display available.
Operation control	Individual	Start/Stop, Operation mode, Room temperature	●	—	
		Fan speed, Airflow direction	●	—	
		Economy mode	●	—	
		Antifreeze	●	—	
		Remote control prohibition setting	●	—	
		Temperature upper and lower limit setting	●	—	
		Filter sign reset	●	—	
	Schedule	Annual schedule	●	—	Week of year, day of month, day of week setting. Holiday special day settings.
		Low noise mode weekly schedule	●	—	Outdoor unit control only.
	Group management	Number of groups	1,600	—	
Group in group		3 Levels	—	Lv.1 – 2 – 3.	
Max. overlap definitions		1,600	—	1 unit may belong to up to 1,600 groups.	
Others	Auto generation	●	—	By site, building and floor.	
	Memory operation	●	—	Operation pattern memorized and reused.	
Operation status monitoring	Pattern operation	●	—	Reuse operation pattern once used.	
	Controlled status	●	—	See items controlled by operation.	
Error management	Special operation	●	—	Defrost, Oil Recovery.	
	Error notification	●	—		
	Audible alarm	●	—		
History management	Error e-mail notification	●	—		
	Error history	1 year	—		
Energy saving management	Operation control & status history	1 year	—		
	Indoor unit rotation	—	●		
	Outdoor unit capacity save	—	●		
	Peak cut control	—	1 month		
	Input power monitor	—	●		
	Electricity meters supported	—	200	Outdoor unit required per connection	
Electricity charge apportionment	Input power information	—	3 years		
	Apportionment charge calculation	●	—		
	Apportionment charge bill creation	●	—		
	Tenant (block) setting	1,600	—		
	Common facilities apportionment setting	●	—		
	Rated input power allotment setting	●	—		
	Electricity meters supported	—	200	Same meters used for energy saving.	
Remote control	Electricity charge apportionment period	2 years	—		
	Internet, telephone line support	●	—		
	Max. client connection per server	5	—		
	Max. host connection from client	10	—		
Others	Data encryption	●	—	SSL used.	
	User control	●	—	Authorization level setting.	
	Database import / export	●	—		
	Multiple language display	●	●	English, Chinese, French, German, Spanish, Russian, Polish.	
	Floor layout editor	●	—		
	Floor layout import/export	●	—		

*The electricity charge apportionment function of VRF system can only be performed from one equipment simultaneously.

2-2. SYSTEM CONTROLLER LITE

2-2-1. MODEL: UTY-ALGXZ1

(Option: UTY-PLGXA2, UTY-PLGXR2, UTY-PLGXE2,
UTY-PLGXP2, UTY-PLGXX2)



System Controller Lite is advanced software of central controller for small and medium buildings. It can be supported by additional options, electricity charge apportionment, remote monitoring, and energy saving in order to meet your demands.

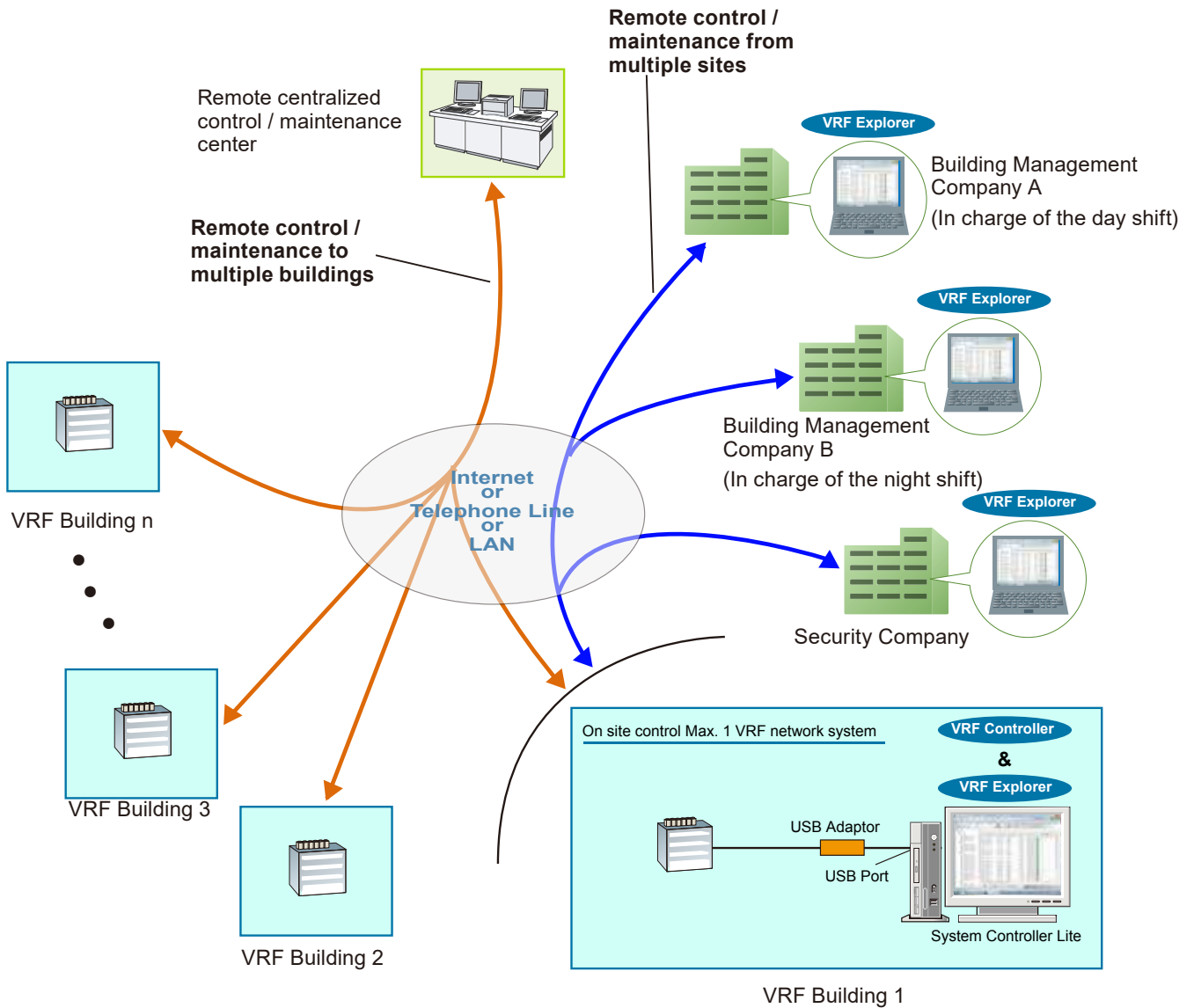
- Supports up to 1 VRF network system and Max. controllable 400 indoor units.
- Various high level functions from individual control to yearly schedule management, operation history and error history management.
- Corresponds to 7 different languages. (English, Chinese, French, German, Spanish, Russian, and Polish)
- Connection between VRF network system to personal computer is possible via small U10 USB interface. However, both U10 USB interface and personal computer are locally purchased items.
- The status of units can be monitored and operated for each site, group, or unit. *

*: 2D floor layout / 3D building display are not available. Use System Controller (UTY-APGXZ1), if you want to use these functions.


SYSTEM DIAGRAM

- System controller may be used on site or remotely over various networks for remote central control. *1
- System controller consists of VRF Controller software and VRF Explorer software, both software are working together.
- VRF Controller software runs in the background and communicate with VRF System.
- VRF Explorer software provides user interface and communicate with the VRF Controller.
- VRF Controller and VRF Explorer software may run in a single PC or in different PCs separated by network. *1
- VRF Explorer software does not require WibuKey (software protection key).

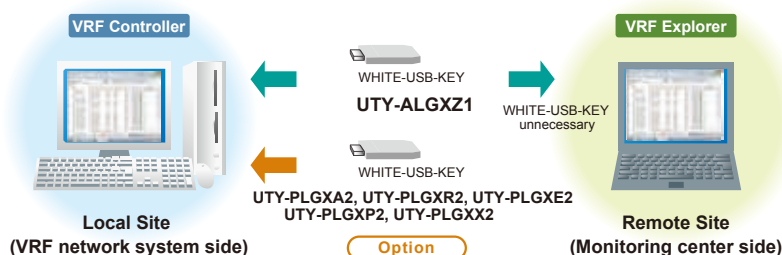
*1: UTY-PLGXR2 option is necessary.



■ PACKING LIST

Name and shape	Quantity	Application
WHITE-USB-KEY (software protection key with software) 	1	Software protection key to be connected to a USB port on the PC that the System Controller is installed. System Controller runs only on a PC with this WHITE-USB-KEY. However, this WibuKey is not required for remote VRF Explorer software.

■ SOFTWARE CONFIGURATION



Any number can be installed in remote site personal computers

System Controller Lite UTY-ALGXZ1 can be installed in the local site PCs (VRF Controller) connected to the VRF network system, and multiple remote site PCs (VRF Explorer) can be connected to VRF Controller via Internet or LAN. Just this single product creates the control, management, and monitoring environment for the customer's properties including remote operation.

*The WHITE-USB-KEY is not required for PCs on the remote site side. Some functions, such as equipment registration, and input/output, are invalid on the remote site side.

■ OTHER REQUIRED DEVICES (Locally purchased)

- Personal computer that satisfies the following system requirements
- Echelon® U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF Network.)

■ PERSONAL COMPUTER SYSTEM REQUIREMENTS

Operating system	<ul style="list-style-type: none"> • Microsoft® Windows® 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft® Windows® 7 Professional (32-bit or 64-bit) SP1 • Microsoft® Windows® 8.1 (32-bit or 64-bit) • Microsoft® Windows® 8.1 Pro (32-bit or 64-bit) • Microsoft® Windows® 10 Home (32-bit or 64-bit) • Microsoft® Windows® 10 Pro (32-bit or 64-bit) <p>[Supported languages] English, Chinese, French, German, Russian, Spanish, and Polish</p>
CPU	Intel® Core™ i3 2 GHz or higher
Memory	<ul style="list-style-type: none"> • 2 GB or more (for Windows® 7 [32-bit]) • 4 GB or more (for Windows® 7 [64-bit], Windows® 8.1, and Windows® 10)
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	<ul style="list-style-type: none"> • Ethernet port (for getting access to the Internet using LAN) or Modem (for getting access to the Internet using Public Telephone Line) • USB ports (Maximum of 2 ports) (Required only for the Server PC that works as VRF Controller) <ul style="list-style-type: none"> - Maximum of 1 USB ports are required for White USB Key connection - 1 USB port is required for Echelon® U10 USB Network Interface <p>* The maximum number of required USB port depends on the applicable system configuration.</p>
Graphic accelerator	Microsoft® DirectX® 9.0c compatible
Software	Adobe® Reader® 9.0 or later

■ AVAILABLE OPTION

Electricity charge apportionment option	UTY-PLGXA2	Apportions the power used by indoor and outdoor units, and automatically calculates the electricity charge such as for hotels or multi-tenant buildings. Computation linked with an electric meter is also possible.
Remote access option	UTY-PLGXR2	VRF system can be monitored remotely from multiple PCs. Multiple VRF systems can be controlled or monitored from 1 PC.
Energy saving option	UTY-PLGXE2	A variety of energy saving operations can be set and managed depending on the season, weather, and time period.
Prepaid air conditioning	UTY-PLGXP2	The prepaid management of VRF air conditioner is performed and the collection of charge for air conditioning is supported for building administrator.
External device control	UTY-PLGXX2	By enabling central control of third-party external devices, burden on maintenance and administration of the devices by the building administrator is reduced.

■ SPECIFICATION SUMMARY

Type	Function	UTY-ALGXZ1	UTY-PLGXA2 Option	UTY-PLGXR2 Option	UTY-PLGXE2 Option	UTY-PLGXP2 Option	UTY-PLGXX2 Option	Remark	
System specification	Max. System Controller Lite per VRF Network	1	—	—	—	—	—		
	Max. VRF networks supported	1	—	—	—	—	—		
	Max. indoor units / remote controller groups per VRF network	400	—	—	—	—	—		
	Max. indoor units / remote controller groups per System Controller Lite	400	—	—	—	—	—		
Site supervision	Multiple sites display	10	—	—	—	—	—		
	2D/3D graphical layout view	—	—	—	—	—	—		
	List display	●	—	—	—	—	—	Quick control from display available.	
	Tree display	●	—	—	—	—	—	Quick control from display available.	
Operation control	Individual	Start/Stop, Operation mode, Room temperature	●	—	—	—	—		
		Fan speed, Airflow direction	●	—	—	—	—		
		Economy mode	●	—	—	—	—		
		Antifreeze	●	—	—	—	—		
		Remote control prohibition setting	●	—	—	—	—		
		Temperature upper and lower limit setting	●	—	—	—	—		
		Filter sign reset	●	—	—	—	—		
	Human sensing	●	—	—	—	—			
	Schedule	Annual schedule	●	—	—	—	—	—	Week of year, day of month, day of week setting. Holiday special day settings.
		Low noise mode weekly schedule	●	—	—	—	—	—	Outdoor unit control only.
	Group management	Number of groups	400	—	—	—	—	—	
		Group in group	3 Levels	—	—	—	—	—	Lv.1 – 2 – 3.
		Max. overlap definitions	400	—	—	—	—	—	1 unit may belong to up to 400 groups.
	Others	Auto generation	●	—	—	—	—	—	By site, building and floor.
Memory operation		●	—	—	—	—	—	Operation pattern memorized and reused.	
Operation status monitoring	Pattern operation	●	—	—	—	—	—	Reuse operation pattern once used.	
	Controlled status	●	—	—	—	—	—	See items controlled by operation.	
Special operation	Special operation	●	—	—	—	—	—	Defrost, Oil Recovery.	
	Room Temp.	Room temperature	●	—	—	—	—	*1	
Error management	Error notification	●	—	—	—	—	—		
	Audible alarm	●	—	—	—	—	—		
	Error e-mail notification	●	—	—	—	—	—		
History management	Error history	1 year	—	—	—	—	—		
	Operation control & status history	1 year	—	—	—	—	—		
Energy saving management	Indoor unit rotation	—	—	—	●	—	—		
	Outdoor unit capacity save	—	—	—	●	—	—		
	Peak cut control	—	—	—	1 month	—	—		
	Power consumption monitor	—	—	—	●	—	—		
	Electricity meters supported	—	—	—	200	—	—	Outdoor unit required per connection	
	Power consumption information	—	—	—	3 years	—	—		
Electricity charge apportionment	Apportionment charge calculation	—	●	—	—	—	—		
	Apportionment charge bill creation	—	●	—	—	—	—		
	Tenant (block) setting	—	1600	—	—	—	—		
	Common facilities apportionment setting	—	●	—	—	—	—		
	Rated power consumption allotment setting	—	●	—	—	—	—		
	Electricity meters supported	—	200	—	—	—	—	Same meters used for energy saving.	
	Electricity charge apportionment period	—	2 years	—	—	—	—		
	Prepaid air conditioning	—	—	—	—	●	—		
	Cooling and Heating information	—	●	—	—	—	—		
Remote control	Internet, telephone line support	—	—	●	—	—	—		
	Max. client connection per server	—	—	5	—	—	—		
	Max. host connection from client	—	—	10	—	—	—		
	Data encryption	—	—	●	—	—	—	SSL used.	

Type	Function	UTY-ALGXZ1	UTY-PLGXA2 Option	UTY-PLGXR2 Option	UTY-PLGXE2 Option	UTY-PLGXP2 Option	UTY-PLGXX2 Option	Remark
Others	External device control function	—	—	—	—	—	●	
	WEB Operation	●	—	—	—	—	—	
	User control	●	—	—	—	—	—	Authorization level setting.
	Database import / export	●	—	—	—	—	—	
	Periodical backup	●	—	—	—	—	—	
	The refrigerant systems of non-operation status function	●	—	—	—	—	—	
	Auto Start Setting	●	—	—	—	—	—	
	Multiple language display	●	●	●	●	—	—	English, Simplified Chinese, French, German, Spanish, Russian, Polish.
	Floor layout editor	●	—	—	—	—	—	
	Floor layout import/export	●	—	—	—	—	—	

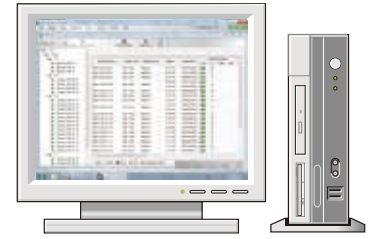
NOTE: In S and V series, there are some functions that cannot be used, such as energy saving function and electricity meter use.

- The electricity charge apportionment function of VRF system can only be performed from one equipment simultaneously.

*1: To display the room temperature on the monitor, connect the wired remote controller to the indoor unit, and perform the function setting for detecting the temperature using the mounted sensor.

2-2-2. MODEL: UTY-ALGX

(Option: UTY-PLGXA1, UTY-PLGXR1, UTY-PLGXE1)



System Controller Lite is advanced software of central controller for small and medium buildings. It can be supported by additional options, electricity charge apportionment, remote monitoring, and energy saving in order to meet your demands.

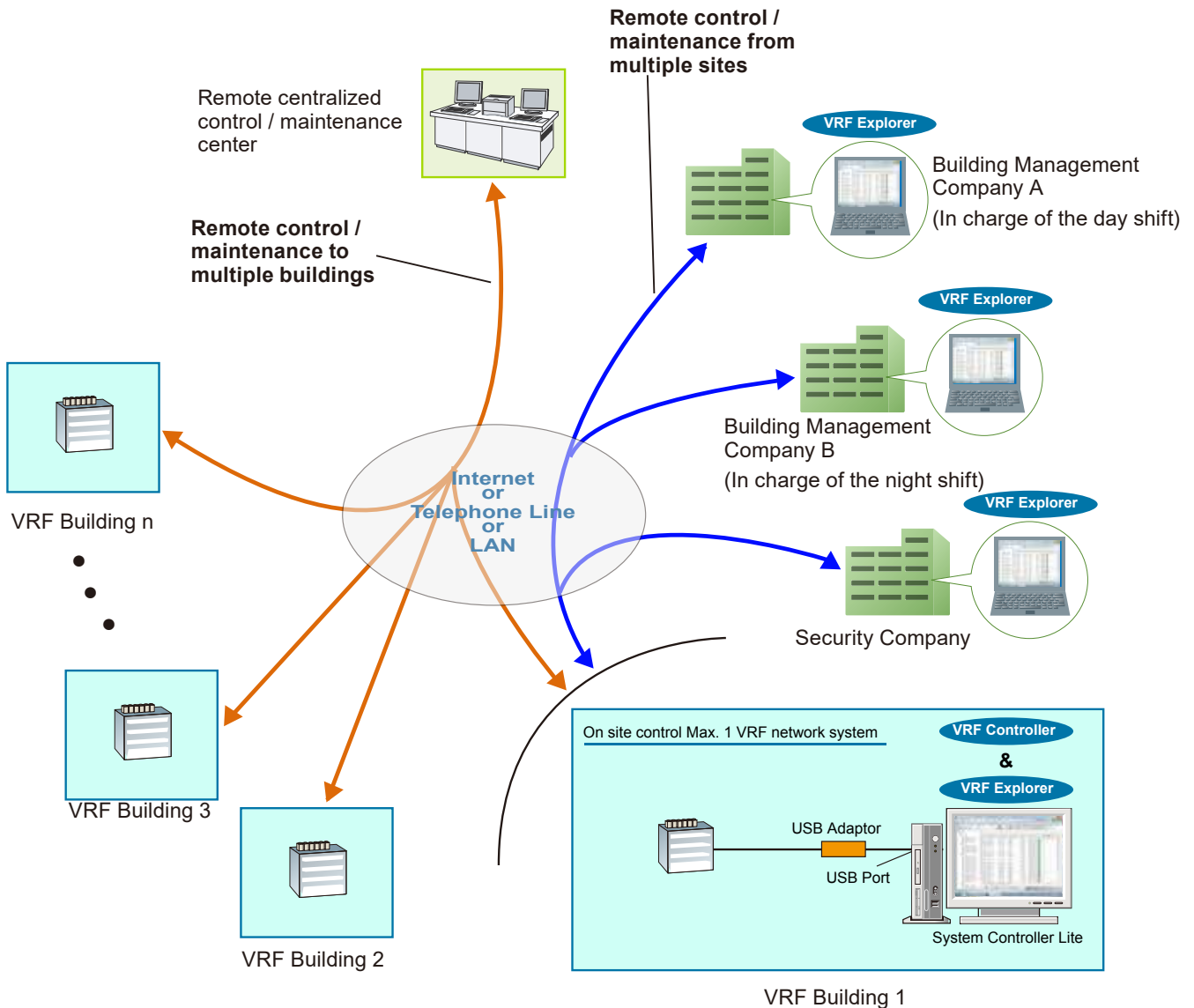
- Supports up to 1 VRF network system and Max. controllable 400 indoor units.
- Various high level functions from individual control to yearly schedule management, operation history and error history management.
- Corresponds to 7 different language namely, English, Chinese, French, German, Spanish, Russian, and Polish.
- Connection between VRF network system to personal computer is possible via small U10 USB interface. However, both U10 USB interface & personal computer are locally purchased items.
- The status of units can be monitored and operated for each site, group, or unit. *

*: 2D floor layout / 3D building display are not available. Use System Controller (UTY-APGX), If you want to use these function.



SYSTEM DIAGRAM

- System controller may be used on site or remotely over various networks for remote central control. *1
- System controller consists of VRF Controller software and VRF Explorer software, both software are working together.
- VRF Controller software runs in the background and communicate with VRF System.
- VRF Explorer software provides user interface and communicate with the VRF Controller.
- VRF Controller and VRF Explorer software may run in a single PC or in different PCs separated by network. *1
- VRF Explorer software does not require Wibu key.

*1: UTY-PLGXR1 option is necessary.



■ PACKING LIST

Name and shape	Quantity	Application
DVD-ROM *1 	1	Includes the software and manuals for System Controller Lite. Both VRF Controller and VRF Explorer software are included.
Wibu Key (Software protection key) 	1	Software protection key to be inserted in a USB slot running System Controller. System Controller may only run on a PC with Wibu Key. However, Wibu key is not required for remote VRF Explorer software.

*1: DVD-ROM is not attached to OPTION (UTY-PLGXA1, UTY-PLGXR1, UTY-PLGXE1).

■ SOFTWARE CONFIGURATION



Any number can be installed in remote site personal computers.

System Controller Lite UTY-ALGX can be installed in the local site PCs (VRF Controller) connected to the VRF network system and the multiple remote site PCs (VRF Explorer) connected to those computers via the Internet or LAN. Just this single product creates the control, management, and monitoring environment for the customer's properties including remote operation.

*The WIBU-Key is not required for PCs on the remote site side. Some functions, such as equipment registration, and input/output, are not possible on the remote site side.

Optional software to strengthen the various function

- Electricity charge apportionment function can be added by installing optional UTY-PLGXA1.
- Remote centralized control function can be added by installing optional UTY-PLGXR1.
- Energy saving management function can be added by installing optional UTY-PLGXE1.

■ OTHER REQUIRED DEVICES (LOCALLY PURCHASED)

- Personal computer that satisfies the following system requirements
- Echelon® U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R)
(Required for each VRF Network.)

■ PERSONAL COMPUTER SYSTEM REQUIREMENTS

Operating system	<ul style="list-style-type: none"> • Microsoft® Windows® 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft® Windows® 7 Professional (32-bit or 64-bit) SP1 • Microsoft® Windows® 8.1 (32-bit or 64-bit) • Microsoft® Windows® 8.1 Pro (32-bit or 64-bit) • Microsoft® Windows® 10 Home (32-bit or 64-bit) • Microsoft® Windows® 10 Pro (32-bit or 64-bit) <p>[Supported languages] English, Chinese, French, German, Russian, Spanish, and Polish</p>
CPU	Intel® Core™ i3 2-GHz or higher
Memory	<ul style="list-style-type: none"> • 2 GB or more (for Windows Vista® and Windows® 7 [32-bit]) • 4 GB or more (for Windows® 7 [64-bit], Windows® 8.1, and Windows® 10)
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	<ul style="list-style-type: none"> • Ethernet port (for getting access to the Internet using LAN) or Modem (for getting access to the Internet using Public Telephone Line) • USB ports (Maximum of 5 ports) (Required only for the Server PC that works as VRF Controller) <ul style="list-style-type: none"> - Maximum of 4 USB ports are required for WibuKey connection - 1 USB port is required for Echelon® U10 USB Network Interface <p>* The maximum number of required USB port depends on the applicable system configuration</p>
Graphic accelerator	Microsoft® DirectX® 9.0c compatible
Software	Adobe® Reader® 9.0 or later
Optical drive	DVD-ROM drive

■ AVAILABLE OPTION

Electricity Charge Apportionment option	UTY-PLGXA1	Apportions the power used by indoor and outdoor units and automatically calculates the electricity charge such as for hotels, tenant buildings, etc., computation linked with an electric meter is also possible.
Remote Access option	UTY-PLGXR1	VRF system can be monitored remotely from multiple PCs. Multiple VRF systems can be controlled or monitored from 1 PC.
Energy Saving option	UTY-PLGXE1	A variety of energy saving operations can be set and managed depending on the season, weather, and time period.

■ SPECIFICATION SUMMARY

Type	Function	UTY-ALGX	UTY-PLGXA1 Option	UTY-PLGXR1 Option	UTY-PLGXE1 Option	Remark	
System specification	Max. System Controller Lite per VRF Network	1	—	—	—		
	Max. VRF networks supported	1	—	—	—		
	Max. indoor units / remote controller groups per VRF network	400	—	—	—		
	Max. indoor units / remote controller groups per System Controller Lite	400	—	—	—		
Site supervision	Multiple sites display	10	—	—	—		
	2D/3D graphical layout view	—	—	—	—		
	List display	●	—	—	—	Quick control from display available.	
	Tree display	●	—	—	—	Quick control from display available.	
Operation control	Individual	Start/Stop, Operation mode, Room temperature	●	—	—	—	
		Fan speed, Airflow direction	●	—	—	—	
		Economy mode	●	—	—	—	
		Antifreeze	●	—	—	—	
		Remote control prohibition setting	●	—	—	—	
		Temperature upper and lower limit setting	●	—	—	—	
		Filter sign reset	●	—	—	—	
	Schedule	Annual schedule	●	—	—	—	Week of year, day of month, day of week setting. Holiday special day settings.
		Low noise mode weekly schedule	●	—	—	—	Outdoor unit control only.
	Group management	Number of groups	400	—	—	—	
		Group in group	3 Levels	—	—	—	Lv.1 – 2 – 3.
		Max. overlap definitions	400	—	—	—	1 unit may belong to up to 400 groups.
	Others	Auto generation	●	—	—	—	By site, building and floor.
		Memory operation	●	—	—	—	Operation pattern memorized and reused.
Pattern operation		●	—	—	—	Reuse operation pattern once used.	
Operation status monitoring	Controlled status	●	—	—	—	See items controlled by operation.	
	Special operation	●	—	—	—	Defrost, Oil Recovery.	
Error management	Error notification	●	—	—	—		
	Audible alarm	●	—	—	—		
	Error e-mail notification	●	—	—	—		
History management	Error history	1 year	—	—	—		
	Operation control & status history	1 year	—	—	—		
Energy saving management	Indoor unit rotation	—	—	—	●		
	Outdoor unit capacity save	—	—	—	●		
	Peak cut control	—	—	—	1 month		
	Input power monitor	—	—	—	●		
	Electricity meters supported	—	—	—	200	Outdoor unit required per connection	
	Input power information	—	—	—	3 years		
Electricity charge apportionment	Apportionment charge calculation	—	●	—	—		
	Apportionment charge bill creation	—	●	—	—		
	Tenant (block) setting	—	1,600	—	—		
	Common facilities apportionment setting	—	●	—	—		
	Rated Input power allotment setting	—	●	—	—		
	Electricity meters supported	—	200	—	—	Same meters used for energy saving.	
Remote control	Electricity charge apportionment period	—	2 years	—	—		
	Internet, telephone line support	—	—	●	—		
	Max. client connection per server	—	—	5	—		
	Max. host connection from client	—	—	10	—		
Others	Data encryption	—	—	●	—	SSL used.	
	User control	●	—	—	—	Authorization level setting.	
	Database import / export	●	—	—	—		
	Multiple language display	●	●	●	●	English, Chinese, French, German, Spanish, Russian, Polish.	
	Floor layout editor	●	—	—	—		
	Floor layout import/export	●	—	—	—		

*The electricity charge apportionment function of VRF system can only be performed from one equipment simultaneously.

2-3. TOUCH PANEL CONTROLLER

■ **MODEL: UTY-DTGYZ1** (Option: UTY-PTGXA)

■ **MODEL: UTY-DTGY**



- Large 7.5-inch TFT color display
- LCD touch panel operation
- Stylish shape and design to suit all application
- No additional component is required for installation
- Up to 400 indoor units can be controlled
- Selectable 2 display types (Icon / List) in monitoring mode
- Programmable in 7 different languages: English, Chinese, French, German, Spanish, Russian, and Polish

FUNCTIONS

MODEL: UTY-DTGYZ1

Item		Main unit	PC / Tablet	Description
Installation	Indoor unit registration	●	—	Indoor unit registration. Max. 400 units. (Set data can be written to and read from USB flash drive)
	Functions setting	●	—	Temperature set point limitation, external input, central operation on/off setting.
Monitor	Display switching	●	●	Icon display, list display
	Display units	●	●	ALL, group, individual (remote control group)
	Monitor contents (icon display)	●	●	Group name, operation, operation mode, set temperature, time, errors, timer setting, filter sign, room temp., human sensor, set temp. range
	Monitor contents (list display)	●	●	Group name, operation, operation mode, set temperature, airflow, air direction, special operation, anti-freeze, time, errors, timer setting, filter sign
	Error list	●	●	Group name, remote control group name, address, error code
	Special state	●	●	Display during special operation
Control	Control units	●	●	ALL, group, individual (remote control group)
	Control contents	●	●	Operation, operation mode, set temperature, airflow, RC Prohibition, filter sign reset
	Detailed control contents	●	●	Air direction, energy saving, anti-freeze, test run
	Individual setting reset of airflow direction	—	●	Sets the position of indoor unit's airflow direction louver individually.
	Human sensor	—	●	Sets the human sensor on the indoor unit.
	Setting temperature limitation of room	●	●	Adjusts the upper and lower limits of temperature for the indoor unit.
Setting	Language setting	●	●	Design considering multi-language correspondence. *1
	Date and time	●	●	Time display switching, year/month/day display switching, system clock setting, summer time, internet time adjustment setting
	Time zone	●	●	Set the time zone of the area where this unit is used
	Panel cleaning and correction	●	—	Select display area for panel cleaning. User can select black screen on display.
	Group	●	●	Stages: Max. 3 stages Settable up to 400 groups. (Set data can be written to and read from USB flash drive)
	Background light and beep sound	●	—	Backlighting off time and brightness setting, BEEP sound operation setting
	Password	●	—	Management level: 3 kinds
	Schedule timer	●	●	Max. 30 items settable
	Temperature range	●	—	Celsius/Fahrenheit switching, cooling, heating, and AUTO each settable.
	Network	●	●	function of Email notification for malfunction, or electricity charge apportionment option is used via LAN
	Low noise operation	●	●	"Low noise operation" is set to all the outdoor units registered by this controller.
	Electricity charge apportionment *2	●	●	Start/stop of ECA, importing/exporting of ECA setting, and exporting ECA data.
	Remote language additional registration	—	●	Additional language can be integrated on remote device by creating language database. Additional language is displayed on only the remote device and touch panel controller cannot be added other language.
	Auto OFF timer	—	●	Function to stop the operation automatically when a preset time lapses after turning on the operation.
	Set temperature auto return	—	●	Function to restore the temperature to the original set temperature when a preset time lapses after changing the set temperature.
	Display item setting	—	●	Sets the items to be displayed on the monitor.
	Failure notification Email	—	●	Failure notification Email: Sends a notification Email to the preset Email address in the event of failure.
	Remote connection setting	—	●	Create users: Max. 15 users, type, permissions, unit setting, automatic logout time
Maintenance	Error history	●	●	Recording of Max. 10 errors each for touch panel controller and each unit (indoor unit, outdoor unit)
	Status history	●	●	Recording of Max. 100 operations each for each indoor unit. Writable to USB flash drive.
	Operation history	●	●	Recording of Max. 10000 operations. Writable to USB flash drive.
	Version display	●	●	Version display, TPC MAC address, software version, writing the TPC information

Item		Main unit	PC / Tablet	Description
Others	External input/output	●	—	Input: Batch operation/stop, emergency stop, electricity meter Output: Operation monitoring, error

- When Start/Stop, operation mode setting, room temp. setting, fan speed setting, airflow direction setting, swing setting, economy mode, and anti freeze setting are changed frequently by using the central controller like System Controller, Touch Panel Controller, etc. or from Building Management System (BMS) via BACnet® Gateway or via Network Converter, the number of operations for each indoor unit must not exceed 7,500 times/year.

If the number of setting change exceeds the above specified number, the rewriting count limit of the non-volatile memory (memory built into the air conditioner and used for recording settings) will be exceeded, and may cause breakdown.

*1 : Product specifications are subject to change without notice.

*2 : Option

● MODEL: UTY-DTGY

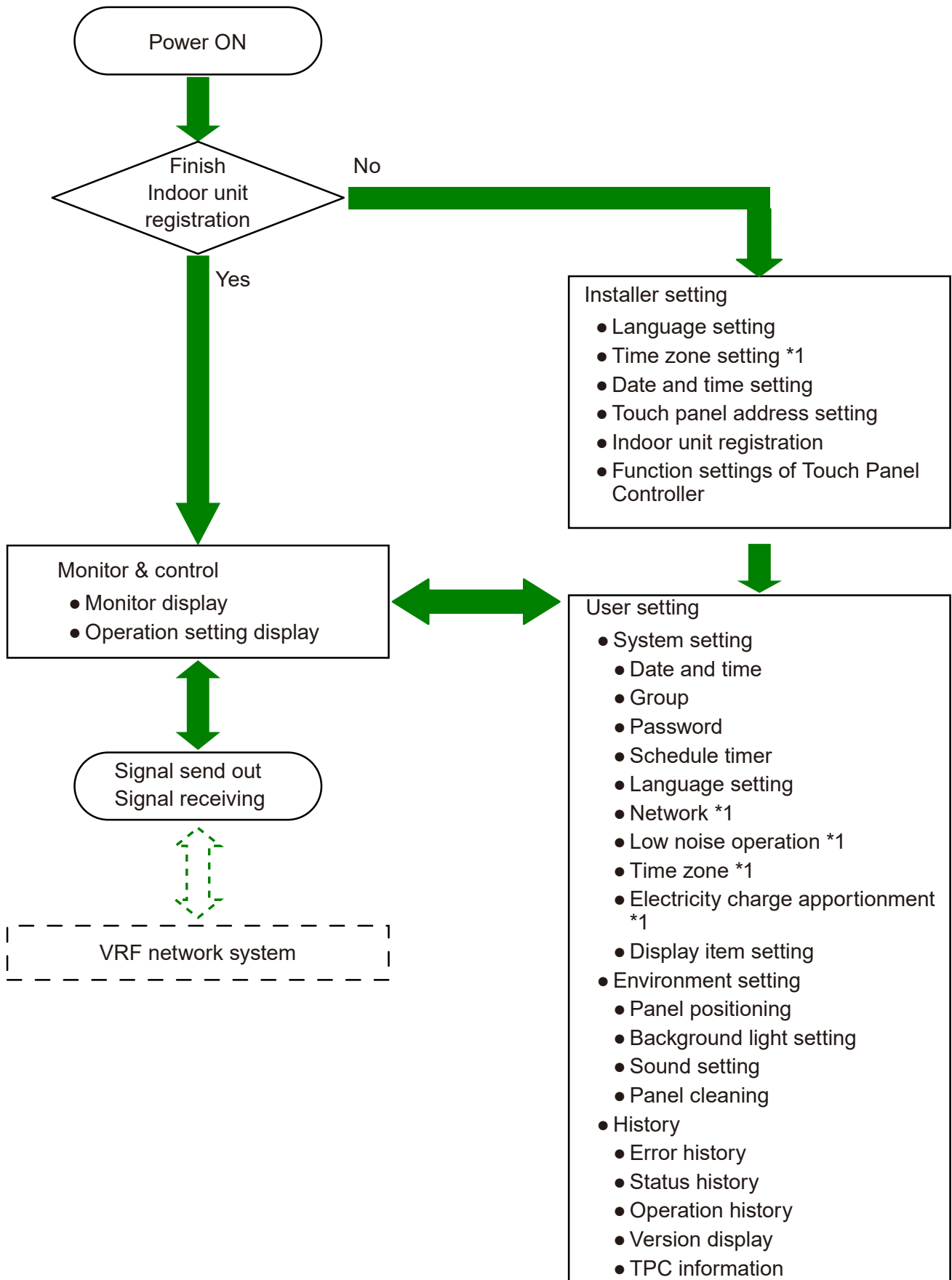
No.	Item		Description
1	Installation	Language setting	Design considering multi-language correspondence. *1
		Indoor unit registration	Indoor unit registration. Max. 400 units. (Set data can be written to and read from USB flash drive)
		Functions setting	Temperature set point limitation, external input, central operation on/off setting.
2	Monitor	Display switching	Icon display, list display
		Display units	ALL, group, individual (remote control group)
		Monitor contents (icon display)	Group name, operation, operation mode, set temperature, time, errors, timer setting, filter sign
		Monitor contents (list display)	Group name, operation, operation mode, set temperature, airflow, air direction, special operation, anti-freeze, time, errors, timer setting, filter sign
		Error list	Group name, remote control group name, address, error code
		Special state	Display during special operation
3	Control	Control units	ALL, group, individual (remote control group)
		Control contents	Operation, operation mode, set temperature, airflow, RC Prohibition, filter sign reset
		Detailed control contents	Air direction, energy saving, anti-freeze, test run
4	Setting	Date and time	Time display switching, year/month/day display switching, system clock setting, summer time
		Panel cleaning and correction	Select display area for panel cleaning. User can select black screen on display.
		Group	Stages: Max. 3 stages Settable up to 400 groups. (Set data can be written to and read from USB flash drive)
		Background light and beep sound	Backlighting off time and brightness setting, BEEP sound operation setting
		Password	Management level: 3 kinds
		Schedule timer	Max. 30 items settable
		Temperature range	Celsius/Fahrenheit switching, cooling, heating, and AUTO each settable.
		Network	function of Email notification for malfunction, or electricity charge apportionment option is used via LAN
		Low noise operation	"Low noise operation" is set to all the outdoor units registered by this controller.
		Time zone	Set the time zone of the area where this unit is used
5	Remote connection	User setting (Admin:5, User:100)	Register the user or administrator who is permitted to use remote connection operation.
		Automatic logout	Can be set Automatic logout.
		Permission	Can be select the functions.
		Unit setting	Can be select the units.
		Mail setting	When an error is generated at the touch panel controller or a registered outdoor unit or indoor unit, an Email can be sent to a pre-registered address.
6	Maintenance	Error history	Recording of Max. 10 errors each for touch panel controller and each unit (indoor unit, outdoor unit)
		Status history	Recording of Max. 100 operations each for each indoor unit. Writable to USB flash drive.
		Operation history	Recording of Max. 100 operations. Writable to USB flash drive.
		TPC information	Version display, TPC MAC Address, Software version, Writing the TPC information
7	Others	External input/output	Input: Batch operation/stop, emergency stop, electricity meter Output: Operation monitoring, error

- When Start/Stop, operation mode setting, room temp. setting, fan speed setting, airflow direction setting, swing setting, economy mode, and anti freeze setting are changed frequently by using the central controller like System Controller, Touch Panel Controller, etc. or from Building Management System (BMS) via BACnet® Gateway or via Network Converter, the number of operations for each indoor unit must not exceed 7,500 times/year.

If the number of setting change exceeds the above specified number, the rewriting count limit of the non-volatile memory (memory built into the air conditioner and used for recording settings) will be exceeded, and may cause breakdown.

*1 : Product specifications are subject to change without notice.

STATE TRANSITION DIAGRAM



*1: Only for UTY-DTGYZ1

■ MAIN FUNCTIONS AND SCREEN EXAMPLES

● Monitor display example

An easy-to-use display mode can be selected.
Easy-to-understand GUI of adopted icon.

Icon display



List display example



● Operation setting example

Large button is designed for easy to access.

Operation setting display

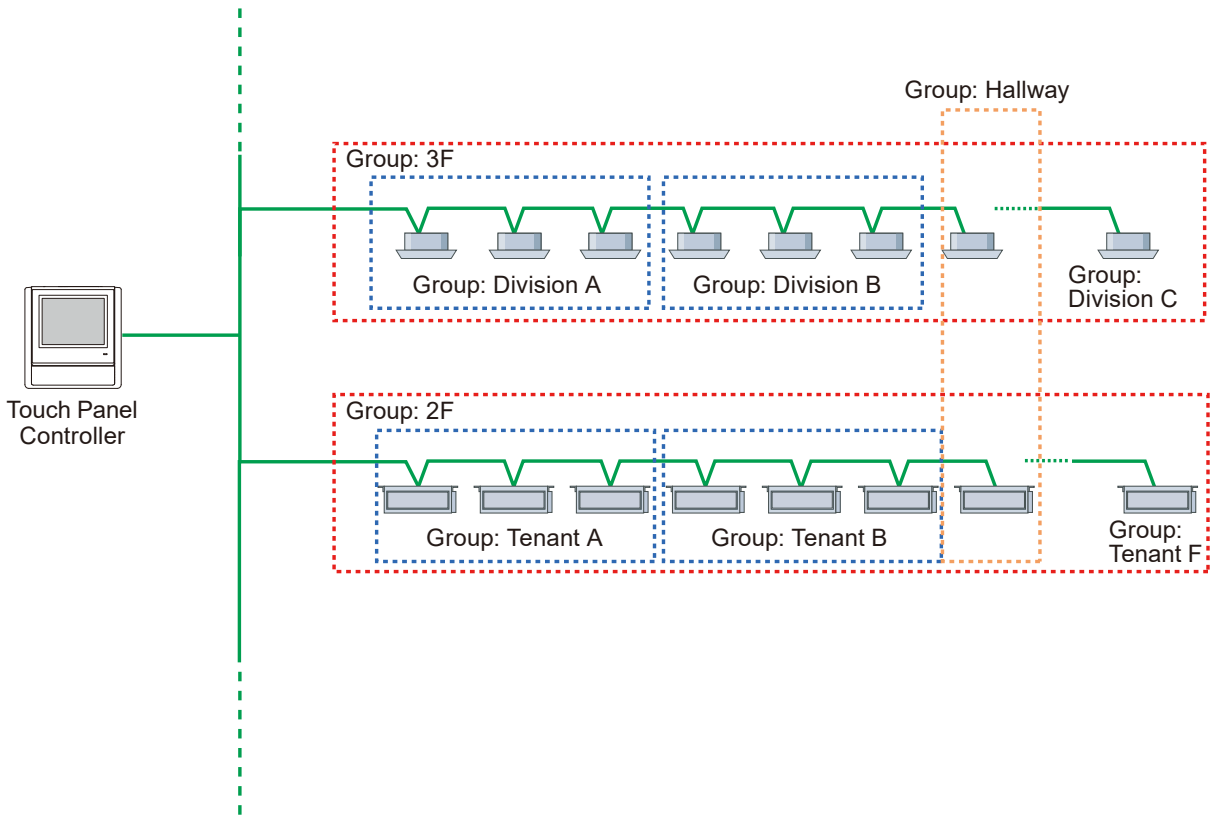


Optional setting display

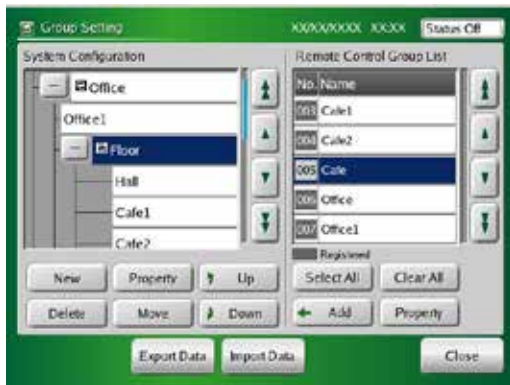


● Group setting

Groups can be arbitrarily set in easy to manage units as shown in the figure. Control and monitoring are performed in these group units.



Group setting screen



● **System schedule timer**

Annual schedule can be set of a maximum 30 items.

Schedule setting screen



● **History recording and display**

Error, status and operation histories can be recorded. Each recording can be also written to USB memory.

- Error history: Max. 10 items each recorded for touch panel controller and each unit (indoor unit, outdoor unit)
- Status history: Max. 100 operations each recorded for indoor unit of each room
- Operation history: Operation of max. 100 operations recorded

Optional history screen



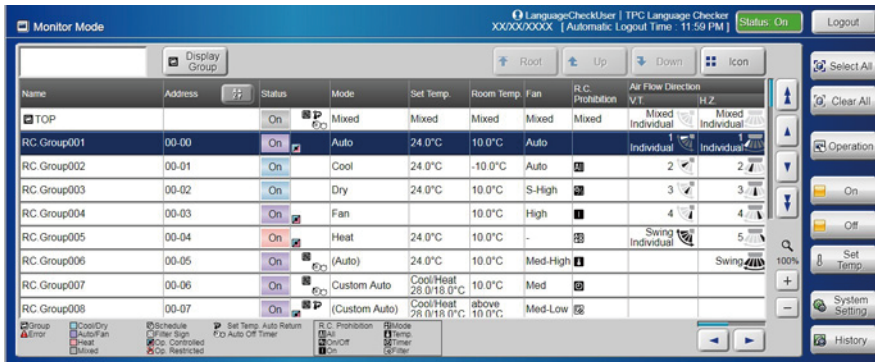
SCREEN EXAMPLES (For Remote monitoring)

● Main screens of Monitor Mode example

Icon display

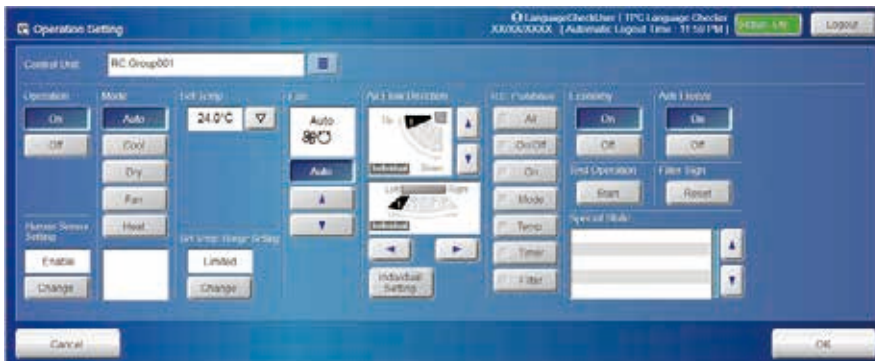


List display



● Main screens of Control example

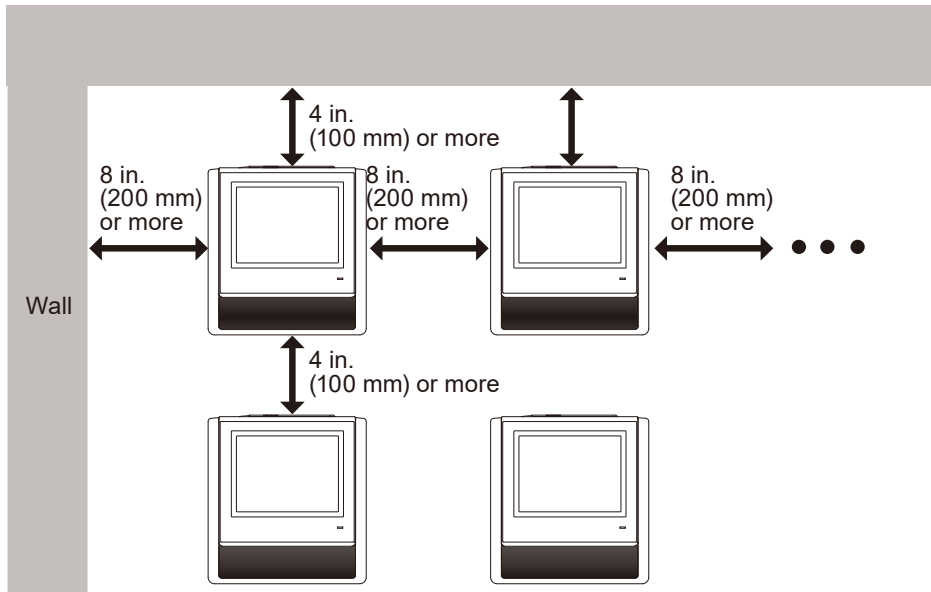
Operation setting display



■ INSTALLATION

● Installation space

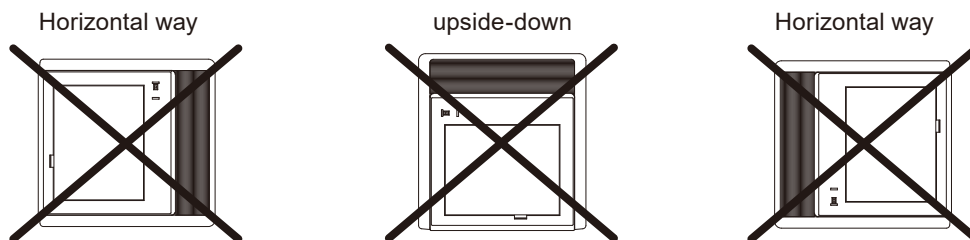
When installing multiple Touch Panel Controllers, the following clearances must be maintained.



NOTE: The switchbox that Touch Panel Controller is to be mounted to should be installed horizontally in advance.

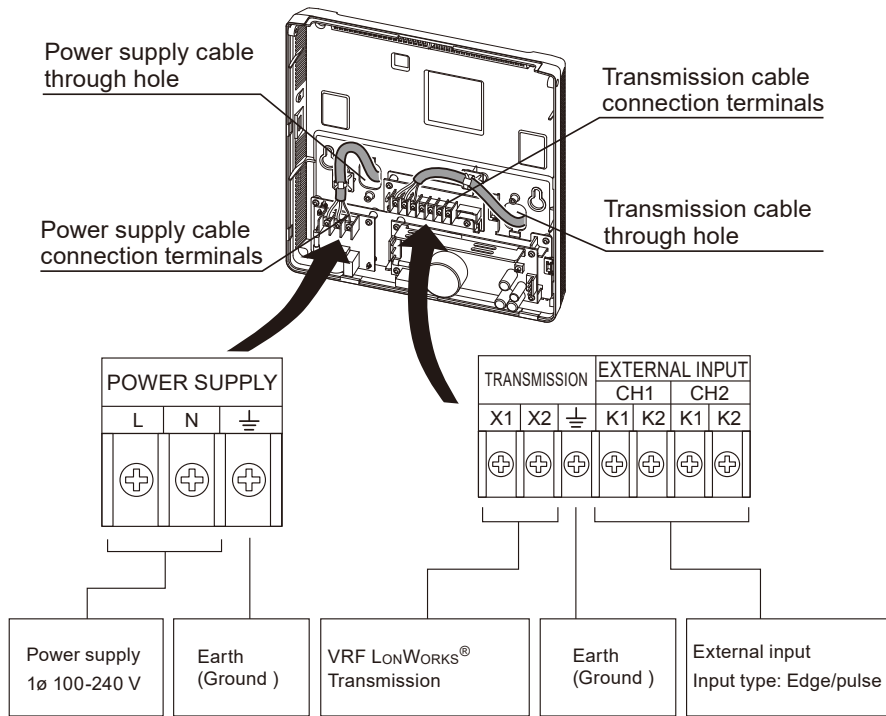
● Caution

Follow installation way is prohibited.



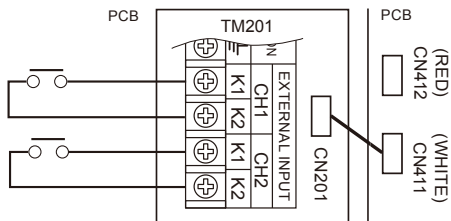
● Terminal names

Names of connection terminals inside rear cover.

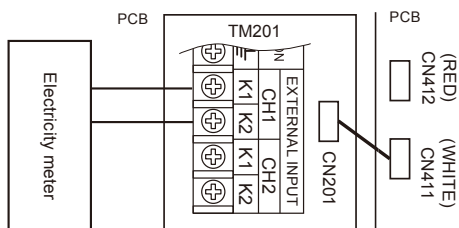


● External input terminals

Case 1: Batch start / stop and Emergency stop commands.

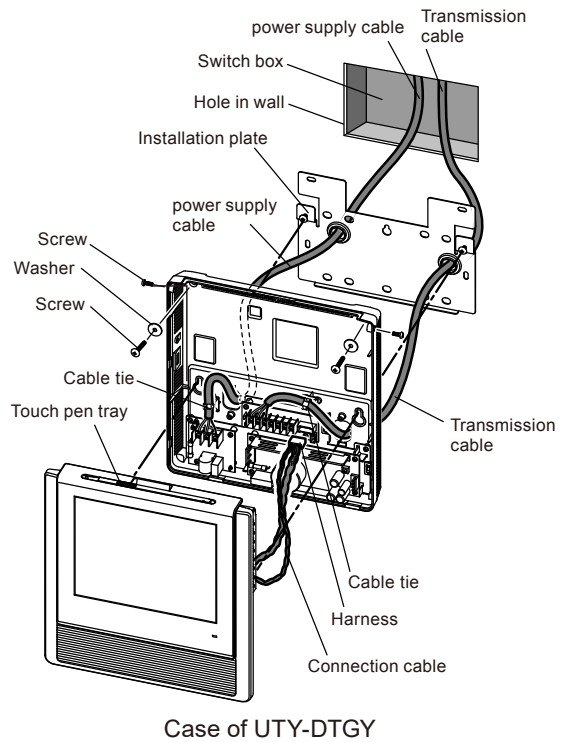
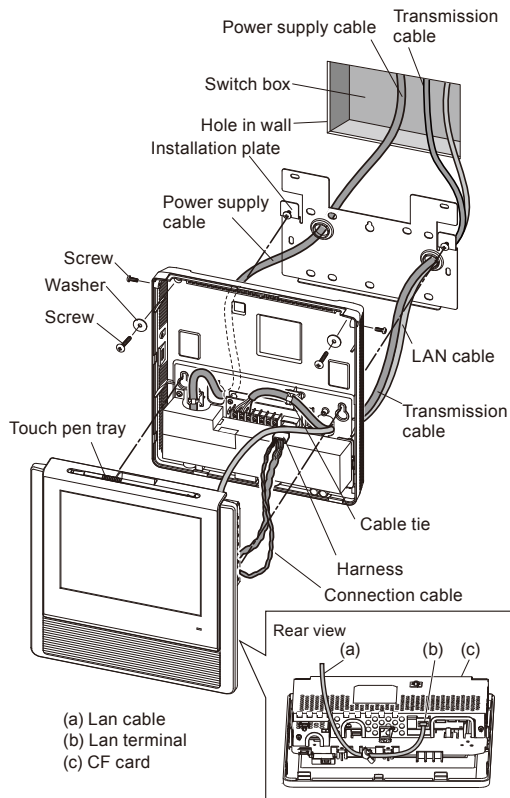


Case 2: The electricity meter is connected. (Only for UTY-DTGYZ1)



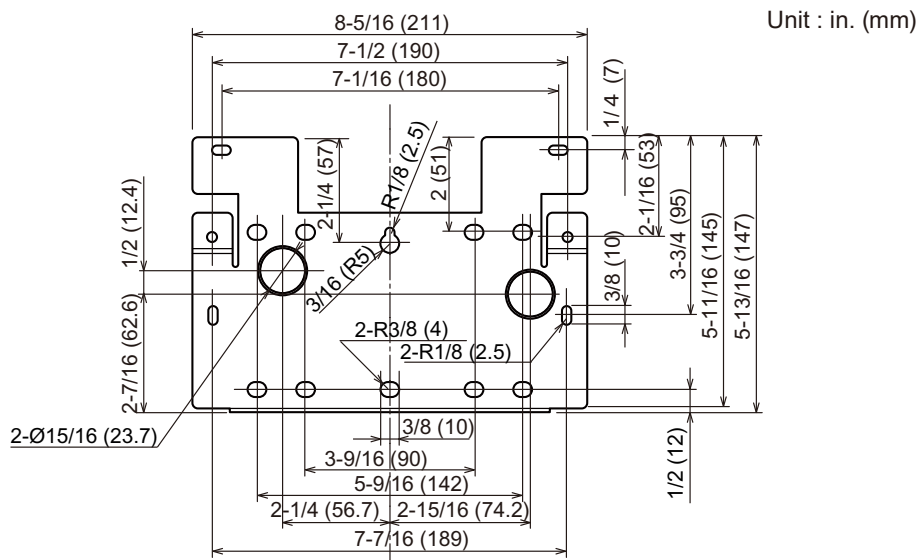
● Installation method

Refer to an installation manual for the details.



CAUTION: In advance install a switchbox to the wall where the touch panel controller is to be installed.

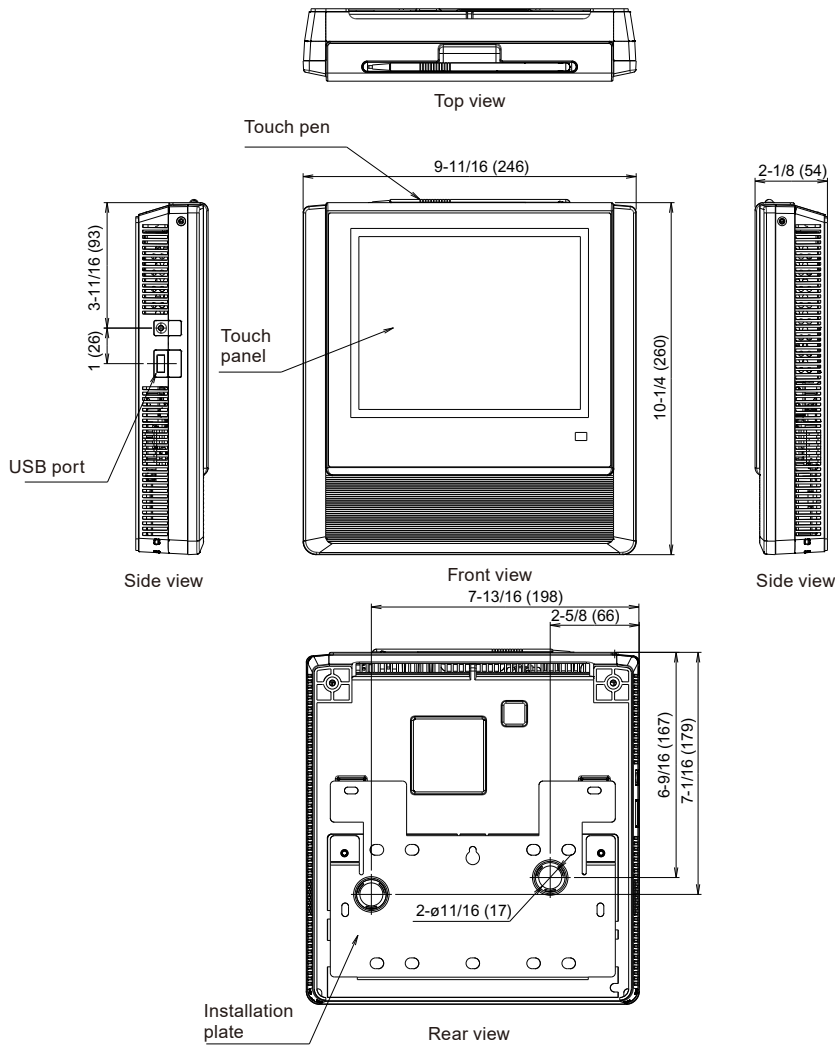
● The diagram of the mounting plate screw hole positions



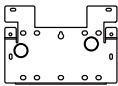







CAUTION: Refer to the mounting screw hole positions of the switchbox that is to be installed in advance and check the compatibility.

■ DIMENSIONS

Unit : in.(mm)



■ PACKING LIST

Name and shape	Quantity	Application
Installation plate 	1	For Touch Panel Controller installation (It is attached to the back of the Touch Panel Controller)
Screw 	8	Screw for Touch Panel Controller installation (M4 × 20 mm)
Washer 	8	Washer for Touch Panel Controller installation
Touch pen 	1	Pen for Touch Panel Controller operation
Cable Tie 	4	Prevents dropping off of the cable
CD-R 	1	Include the operating manual and file making sheet of this controller
Installation manual 	1	
Operation manual 	1	

■ WIRING SPECIFICATIONS

Use	Size		Wire type	Remarks
Power supply cable	Maximum	16 AWG (1.25 mm ²)	245 IEC 57 or equivalent	1 ø AC100 - 240 V 50/60 Hz, 2 Wire + ground (Always ground the unit)
	Minimum	20 AWG (0.5 mm ²)		
Transmission cable	22AWG (0.33 mm ²)		LEVEL4 (NEMA) non-polar 2 core, twisted pair solid core Shielded	LONWORKS® compatible cable
External input / output cable	22AWG (0.33 mm ²)		Polar 2core, Twisted pair	Use cable in accordance with local rules for cable.
Fuse capacity	5 A			

■ SPECIFICATIONS

Power source voltage (V)	1 ø AC 100 - 240
Power source frequency (Hz)	50 / 60
Input Power (W)	22
Display	7.5-inch TFT color LCD display (640 × 480 pixels), with Touch panel
LED indicator	Power LED (Green)
External interface	USB 2.0
	Transmission line
	Ethernet port *1 (Ethernet port is required for remote connection using internet.)
	EXT IN: (Either emergency stop or batch operation/stop, Electricity meter *1) (Either Dry contact or Apply voltage can be selected)
	EXT OUT: (Operation state, error state)
	Reset SW
Usage temperature range: °F (°C)	32 to 104 (0 to 40)
Usage humidity range (%)	0 to 85 (no condensation)
Storage temperature range: °F (°C)	-4 to 158 (-20 to 70)
Storage humidity range (%)	0 to 85 (no condensation)
Dimensions [H × W × D]: in. (mm)	10-1/4 × 9-11/16 × 2-1/8 (260 × 246 × 54)
Weight: lbs. (g)	5 (2,150)

*1: Only for UTY-DTGYZ1

■ PERSONAL COMPUTER SYSTEM REQUIREMENTS

When using for touch panel controller, the following personal computer system requirement is necessary.

CPU	2 GHz or higher
Memory	2 GB or more
HDD	10 GB or more of free space
Display	1,366 × 768 or higher resolution
Interface	<ul style="list-style-type: none"> • USB port • Ethernet port (Ethernet port is required for remote connection using internet.)
Software	<ul style="list-style-type: none"> • Microsoft® Office® Excel® (2007, 2010, 2013, 2016) • Microsoft® Excel® (2007, 2010, 2013) • Adobe® Reader® 10.0 or later • Internet Explorer 11

■ AVAILABLE OPTION

Electricity Charge Apportionment option	UTY-PTGXA	Apportions the power used by indoor and outdoor units, and automatically calculates the electricity charge such as for hotels or multi-tenant buildings. Computation linked with an electric meter is also possible.
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● Specifications

Number of sites	Max. 20
Number of contracts	Max. 400 (per site)
Number of blocks	Max. 1,600 (per site)
Data storage period	Max. 2 years

● Personal computer system requirements

(ELECTRICITY CHRGRE APPORTIONMENT TOOL)

Operating system	<ul style="list-style-type: none"> • Microsoft® Windows® 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft® Windows® 7 Professional (32-bit or 64-bit) SP1 • Microsoft® Windows® 8 (32-bit or 64-bit) • Microsoft® Windows® 8 Pro (32-bit or 64-bit) • Microsoft® Windows® 8.1 (32-bit or 64-bit) • Microsoft® Windows® 8.1 Pro (32-bit or 64-bit) • Microsoft® Windows® 10 Home (32-bit or 64-bit) • Microsoft® Windows® 10 Pro (32-bit or 64-bit) <p>[Supported languages] English, Chinese, French, German, Russian, Spanish, and Polish</p>
CPU	Intel® Core™ i3 2 GHz or higher
Memory	<ul style="list-style-type: none"> • 2 GB or more (for Windows® 7 [32-bit]) • 4 GB or more (for Windows® 7 [64-bit], Windows® 8, Windows® 8.1 and Windows® 10)
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	<ul style="list-style-type: none"> • USB port • Ethernet Port (to communicate with TPC via LAN)
Software	Adobe® Reader® 9.0 or later

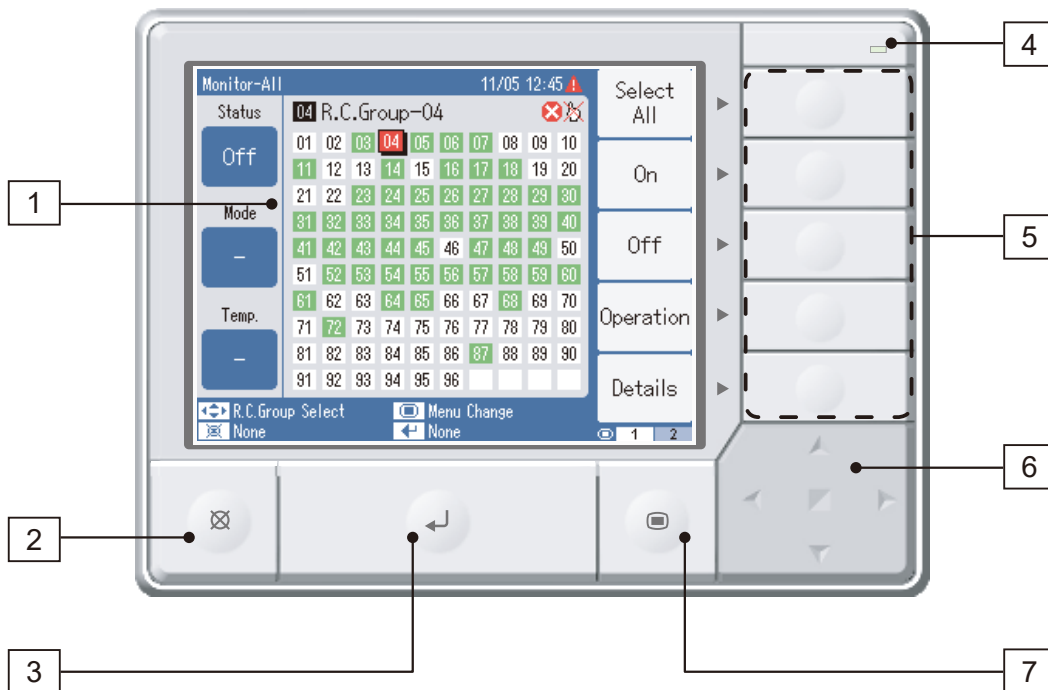
2-4. CENTRAL REMOTE CONTROLLER

■ MODEL: UTY-DCGY



- Individual control and monitor of 100 indoor units.
- 5 inch TFT color screen.
- User friendly view and easy operation.
- External input / output contact.
- Detachable power supply unit.
- Programmable in 7 different languages (English, Chinese, French, German, Spanish, Russian, and Polish)

■ FUNCTIONS

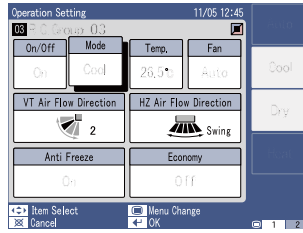


- | | |
|--|--|
| <p>1 LCD display</p> <p>2 [CANCEL] button</p> <p>3 [OK] button</p> | <p>4 LED lamp</p> <p>5 Function buttons</p> <p>6 [Arrow] button</p> <p>7 [MENU] button</p> |
|--|--|

MAIN FUNCTIONS AND SCREEN EXAMPLES

● Individual control

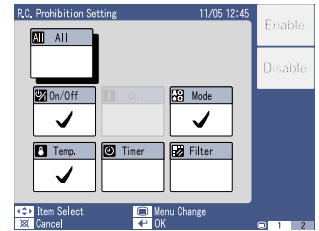
(On / Off, Mode, Set Temp, Fan Speed, Airflow Direction, Anti Freeze, Economy)



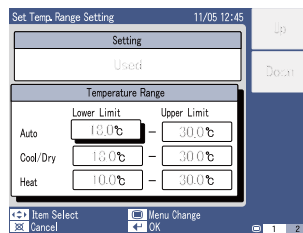
● Remote controller prohibition

(All, On / Off, Mode, Temp, Timer, Filter):

R.C prohibition setting prohibits individual remote control operation from this controller



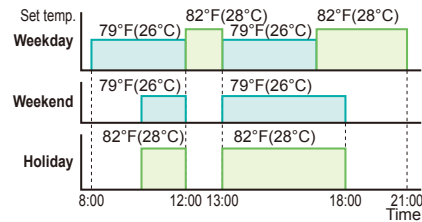
● Room temperature set point upper and lower limitation



● Weekly timer

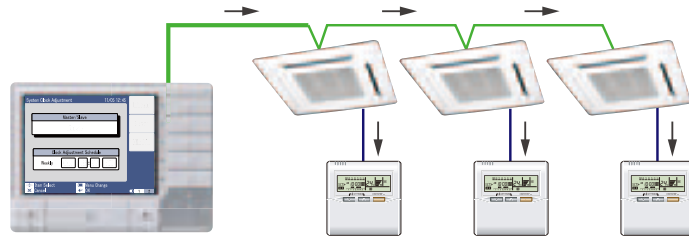
Weekly timer can be set for custom combinations.

Schedule Name	Unit	Timer	On/Off	Remarks
Schedule-01	✓	✓	On	Day Off
Schedule-02	✓	✓	Off	
Schedule-03	✓		Off	
Schedule-04			Off	
Schedule-05			Off	
Schedule-06			Off	
Schedule-07			Off	



● Automatic clock adjustment

The time setting can be adjusted for all indoor units in one batch function.



● Error history

- Last 200 errors are stored in memory.
- Error history can be analyzed to determine proper maintenance schedule.

No.	Date Time	Name	Address	Error Code
001	2009/09/01 13:05	R/C Group-01	01-00-00	14
002	2009/09/01 13:05	R/C Group-01	01-00-00	14
003	2009/09/01 13:05	R/C Group-01	01-00-00	14
004	2009/09/01 13:05	R/C Group-01	01-00-00	14

● Main screen display auto switching

Main screen adjusts based on the number of connected indoor units to best display the system status.

	1	2	3	4	5
Number of connected indoor units	1 to 9 units	10 to 20 units	21 to 40 units	41 to 80 units	81 to 100 units
Display pattern	9 units display	20 units display	40 units display	80 units display	100 units display

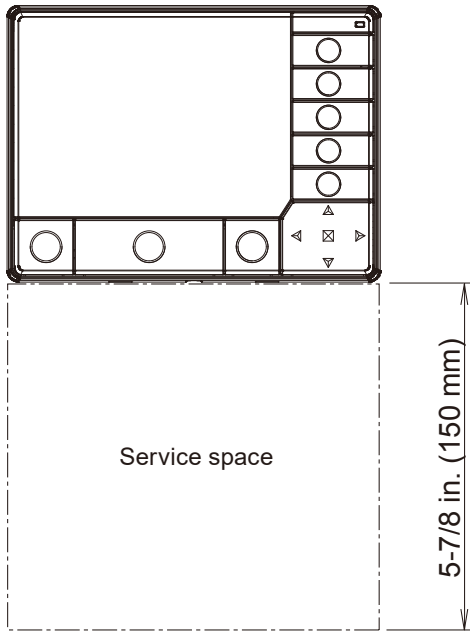
● 9 / 20 units display pattern

● 40 / 80 / 100 units display pattern

■ INSTALLATION

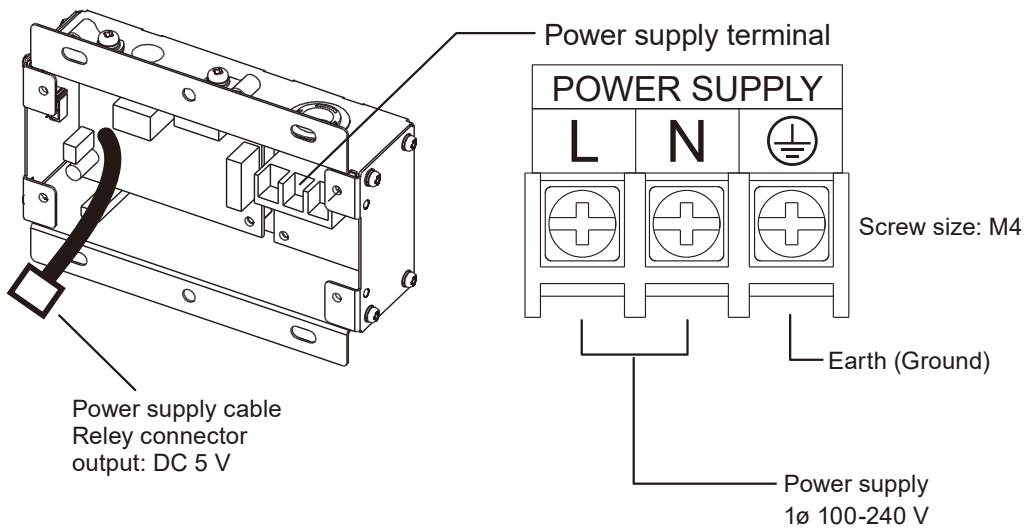
● Installation space

When installing controller, provide a service space as shown.

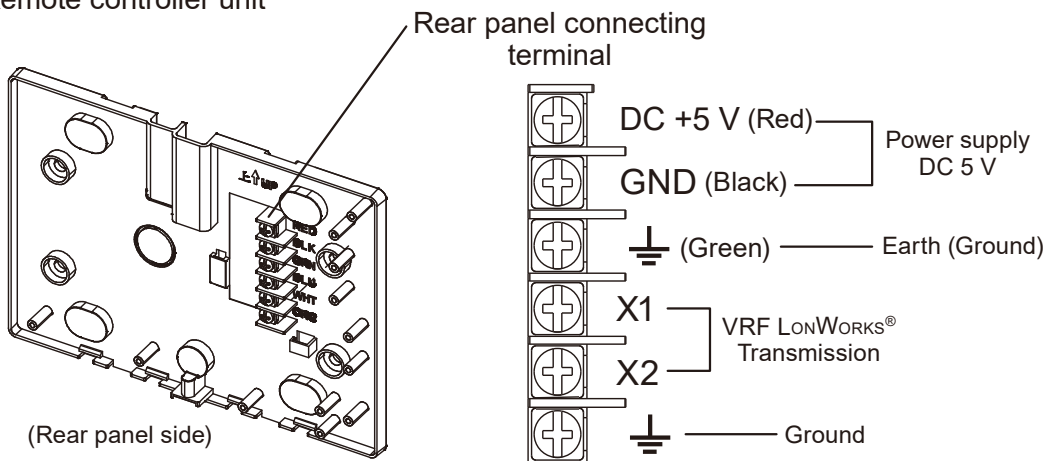


● Terminal names

- Power supply unit



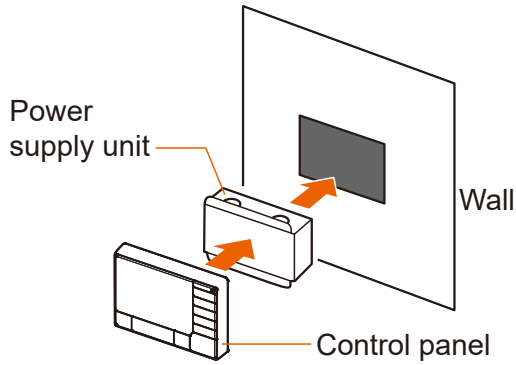
- Remote controller unit



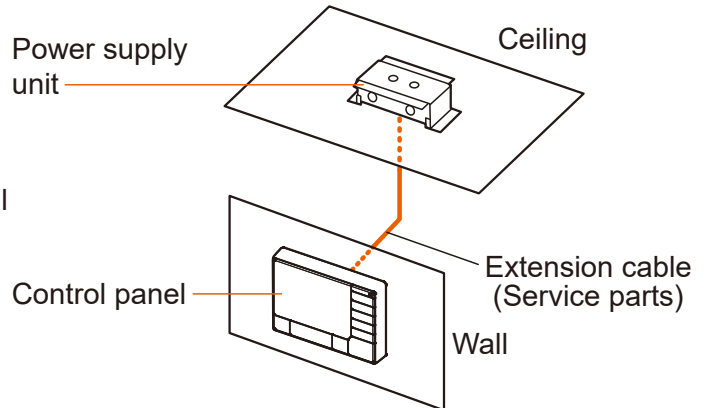
Screw size: M2.6

● Installation method

Setting pattern 1: Integrated type

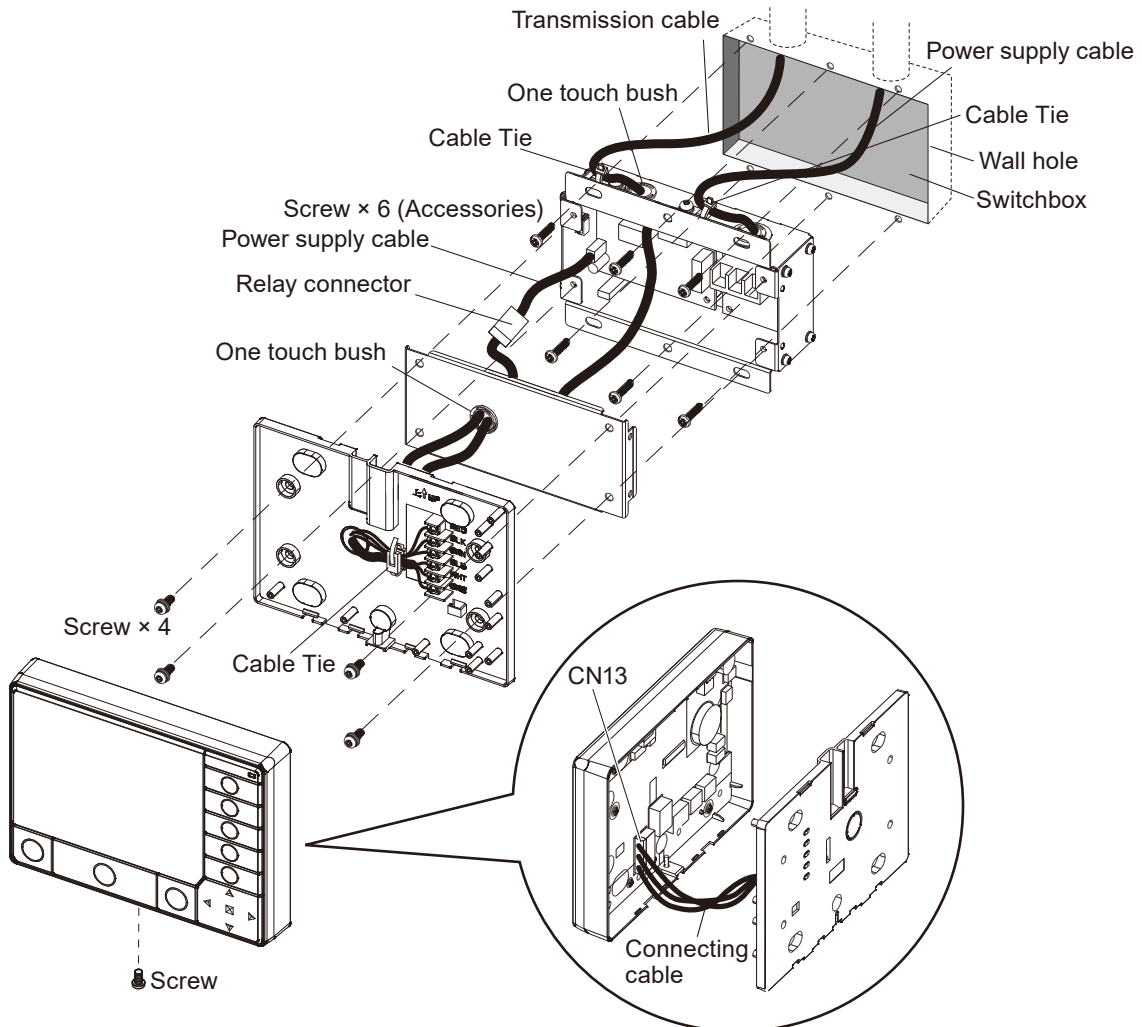


Setting pattern 2: Separate type

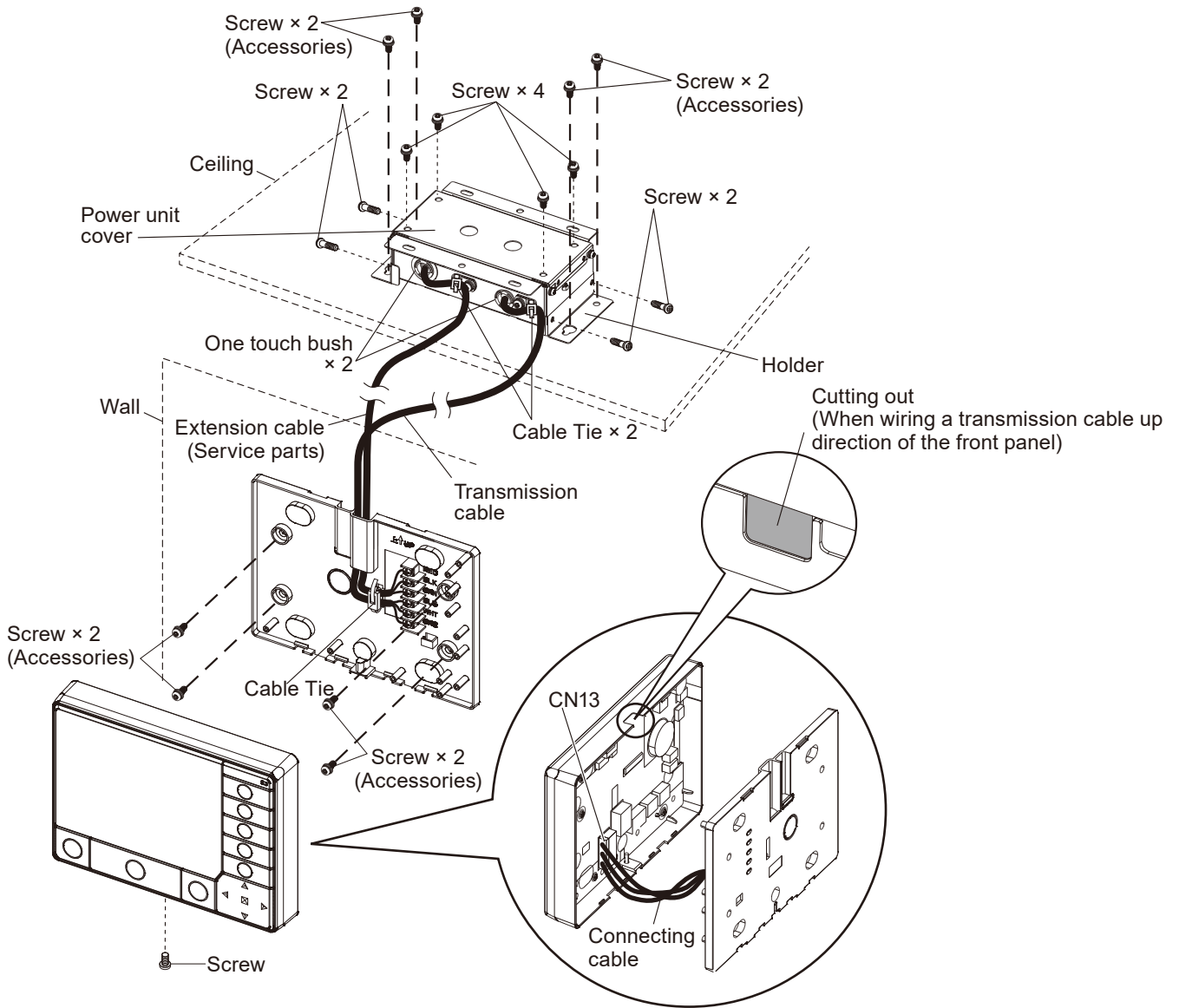


● Integrated type

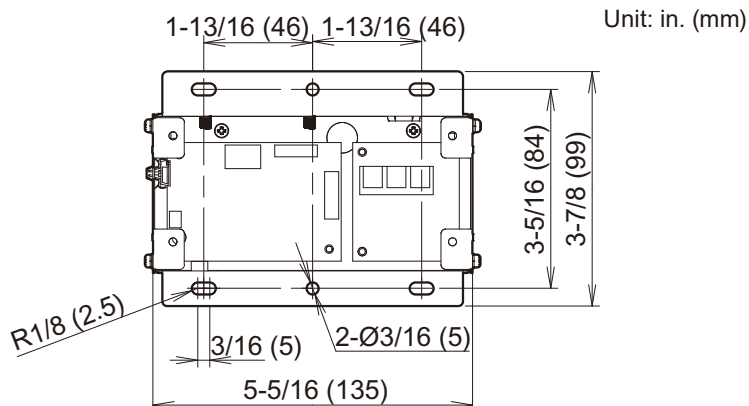
Refer to an installation manual for the details.



● **Separate type**



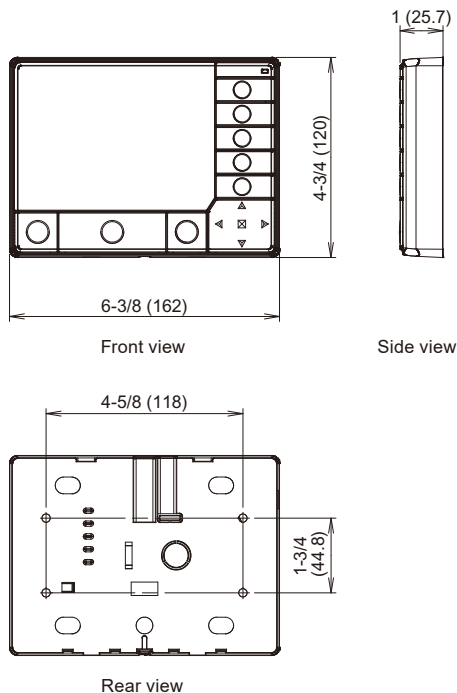
● **The diagram of the mounting plate screw hole positions**



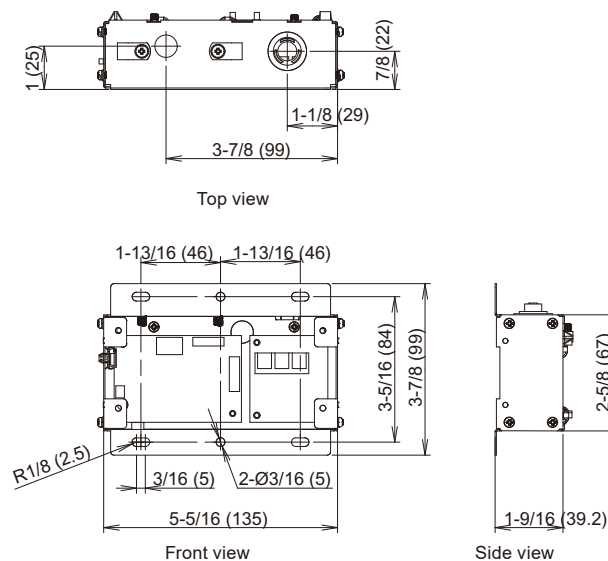
■ DIMENSIONS

Unit : in. (mm)


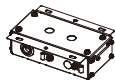
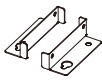




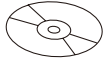


● Control unit



● Power supply unit



■ PACKING LIST

Name and shape	Quantity	Application
Controller unit 	1	
Power supply unit 	1	
Holder 	1 (Set)	For power supply unit installation (Used for separate type)
One-touch bush 	2	For protection of power supply unit cable
Screw 	8	Screw for Central Remote Controller installation (M4 × 20 mm)
Connecting cable 	1	For power supply unit connection
Cable Tie 	4	Prevents dropping off of the cable
CD-R 	1	Include the operating manual for Central remote controller
Installation manual 	1	
Operation manual 	1	Instruction book for operation

■ WIRING SPECIFICATIONS

Use	Size		Wire type	Remarks
Power supply cable	Maximum	16 AWG (1.25 mm ²)	245 IEC 57 or equivalent	1 ø AC100 - 240 V 50/60 Hz, 2 Wire + ground (Always ground the unit)
	Minimum	20 AWG (0.5 mm ²)		
Transmission cable	22AWG (0.33 mm ²)		LEVEL4 (NEMA) non-polar 2 core, twisted pair solid core Shielded	LONWORKS® compatible cable
External input / output cable	22AWG (0.33 mm ²)		Polar 2core, Twisted pair	Use cable in accordance with local rules for cable.
Fuse capacity	5 A			

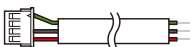
■ SPECIFICATIONS

Model name	UTY-DCGY	
Power source voltage (V)	1 ø AC 100 - 240	
Power source frequency (Hz)	50 / 60	
Input Power (W)	3	
Display	5.0-inch TFT color LCD display (QVGA)	
External interface	Transmission line	
	EXT IN: (Either emergency stop or batch operation / stop) (Either Dry contact or Apply voltage can be selected)	
	EXT OUT: (Operation state, error state)	
Usage temperature range: °F (°C)	32 to 104 (0 to 40)	
Usage humidity range (%)	0 to 85 (no condensation)	
Storage temperature range: °F (°C)	-4 to 158 (-20 to 70)	
Storage humidity range (%)	0 to 85 (no condensation)	
Dimensions [H × W × D]: in. (mm)	Control unit	4-3/4 × 6-3/8 × 1 (120 × 162 × 25.7)
	Power supply unit	3-7/8 × 5-5/16 × 1-9/16 (99 × 135 × 39.2)
Weight: oz. (g)	Control unit	11 (308)
	Power supply unit	13 (355)

■ OPTIONAL SERVICE PARTS

Use the parts number shown below to order the cable from your sales representative.

Use the shielded type connection cable in accordance with the standard of the country.

Name and shape	Type	Parts No.
Extension cable (16ft. (5m)) 	Shielded	9708798011

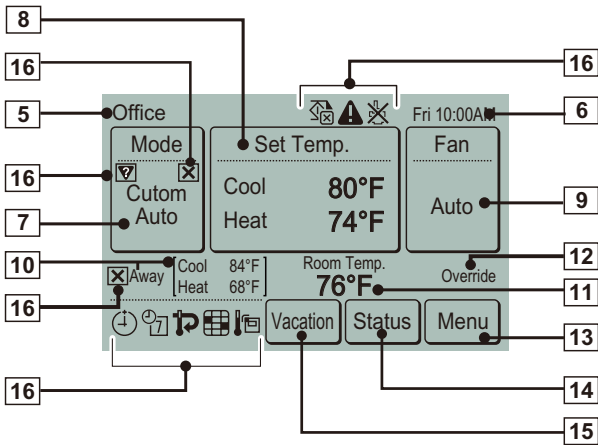
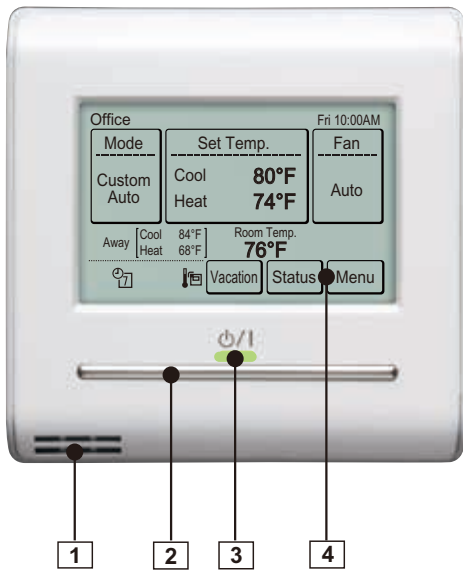
2-5. WIRED REMOTE CONTROLLER (Touch panel)

■ MODEL: UTY-RNRUZ*, UTY-RNRU



- Easy finger touch operation with LCD panel
- Built-in weekly/Daily timer(ON/OFF,Temp.,Mode)
- Backlight enables easy operation in a darkened room
- Room temperature display
- Control up to 16 indoor units
- Corresponds to 12 different languages (English, Chinese, French, German, Spanish, Russian, Polish, Italian, Portuguese, Greek, Turkish, and Dutch)

FUNCTIONS

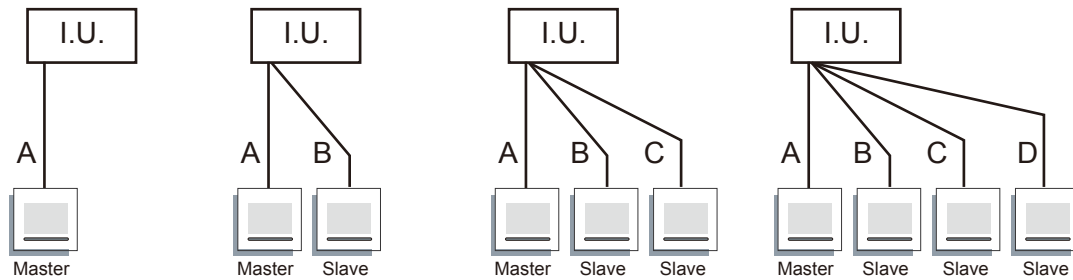


- 1 Room temperature sensor (inside)
- 2 On/Off button:
It is possible to operate only while displaying the Monitor Mode screen.
- 3 LED lamp (Operation indicator)
- 4 Touch panel display
- 5 R.C. group name:
Name of the remote controller group to which this unit is connected.
- 6 Clock
- 7 Mode:
When this is touched, the display switches to the "Mode" screen.
- 8 Set temp.:
When this is touched, the display switches to the temperature setting screen.
- 9 Fan:
When this is touched, the display switches the fan speed setting screen.
- 10 Away:
When "Away" is enabled, the start temperature of "Away" operation is displayed when unoccupied. When "Away" is operating, "Away Operation" is displayed.
- 11 Room Temp.:
This unit ambient temperature sensed by this unit is displayed.
- 12 Override:
Displayed while the following functions are operating:
 - Auto Off Timer
 - Set Temp. Auto Return
- 13 Menu:
When this is touched, the display switches to the "Menu" screen.
- 14 Status:
When this is touched, the display switches to the "Status" screen.
- 15 Vacation:
When this is touched, the schedule is disabled and the indoor unit remains unoccupied.
- 16 Status icons:
 - It is maintenance stop.
 - The error occurred.
 - Operation from this unit is prohibited by the Central Controller.
 - Mode mismatch. The mode which cannot operate simultaneously is selected.
 - "Custom Auto Mode" or "Away" is disabled.
 - The Auto Off Timer is set.
 - The weekly timer is set.
 - The set temperature automatic return setting is set.
 - It shows that it is time to clean the filter.
 - The temperature sensor of this unit is used.

■ SYSTEM DIAGRAM

● Multiple remote control

Up to 4 remote controllers can be used to operate the indoor units.



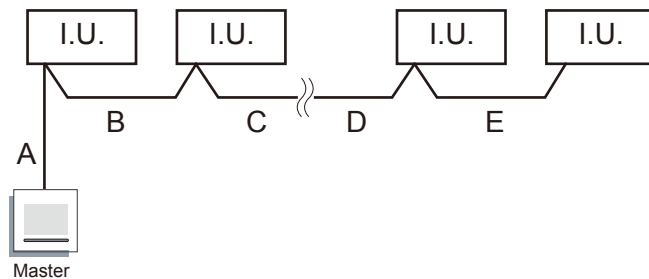
A, B, C, D : Remote controller cable. (Refer to Chapter6. 4-4 for detail specifications)

$A \leq 1,640$ ft. (500 m), $A+B \leq 1,640$ ft. (500 m), $A+B+C \leq 1,640$ ft. (500 m), $A+B+C+D \leq 1,640$ ft. (500 m).

NOTE: Multiple installation method described above is prohibited to combine with UTY-RNKU (3 Wired type) or UTY-RSKU (3 Wired type) or UTY-RHKU (3 Wired type) and UTY-RNRUZ1 (2 Wired Type)

● Group control

With a single remote controller, up to 16 units can be simultaneously operated.

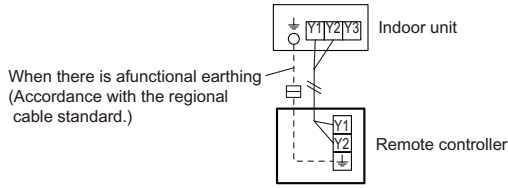


A, B, C, D, E : Remote controller cable. (Refer to Chapter6. 4-4 for detail specifications)

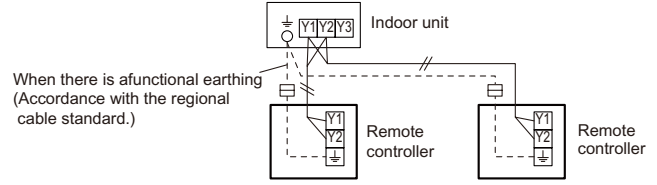
$A+B+C+D+E \leq 1,640$ ft. (500 m).

■ ELECTRICAL WIRING

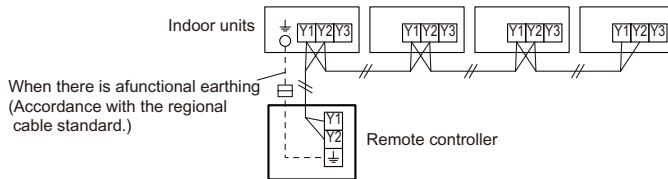
● Single control



● Multiple remote control



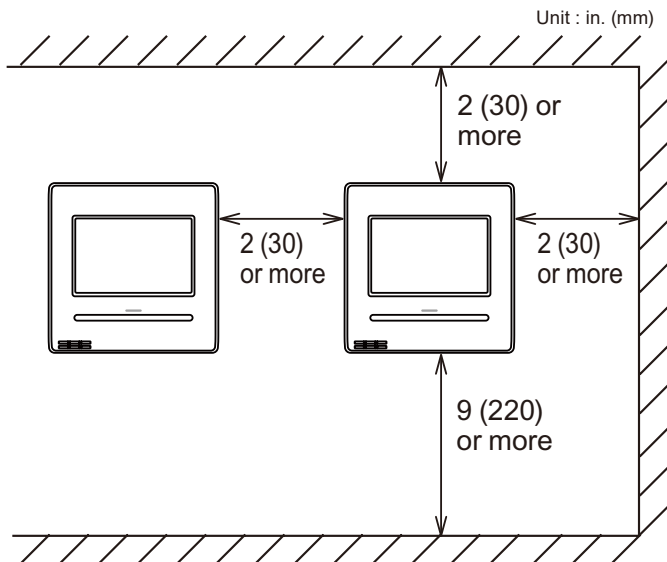
● Group control



■ INSTALLATION

● Installation space

- This product cannot be installed in wall.
- Recommendation installation height of the remote controller is 55 in. (1.4 m) (from the floor surface to the bottom of the remote controller).
- Even when you install a remote controller to one of a switch box and the surface of a wall, secure the space shown in following figure. If spaces run short, it will become difficult to remove a remote controller.



*Secure enough space where a flat-blade screwdriver to take off a case can be inserted.

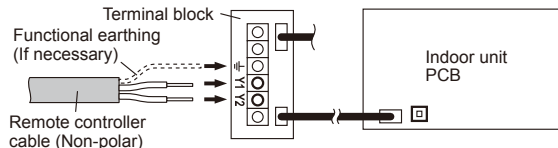
● Connection Pattern

NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit types	Connection Pattern
All Cassette type	Pattern A
All Duct type	
All Ceiling type	
Wall Mounted type	Pattern B

● Pattern A

Connect the end of remote controller cable directly to the exclusive terminal block.

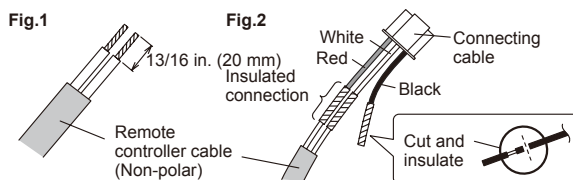


* Layout of terminal block and PCB is varies, depending on the type of indoor unit.

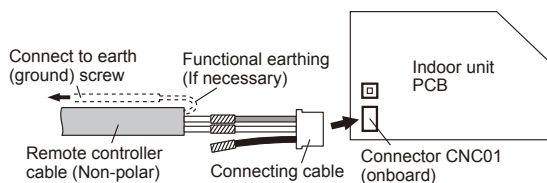
NOTE: Operation may fail if it is connected to the outdoor unit or the terminal block for power supply.

● Pattern B

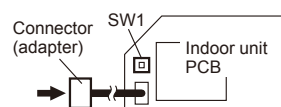
1) Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown in Fig. 1. Connect the remote controller cable and connecting cable as shown in Fig. 2. Be sure to insulate the connection between the cables.



2) Connect the remote controller cable to the connecting cable, and insert it to the connector.

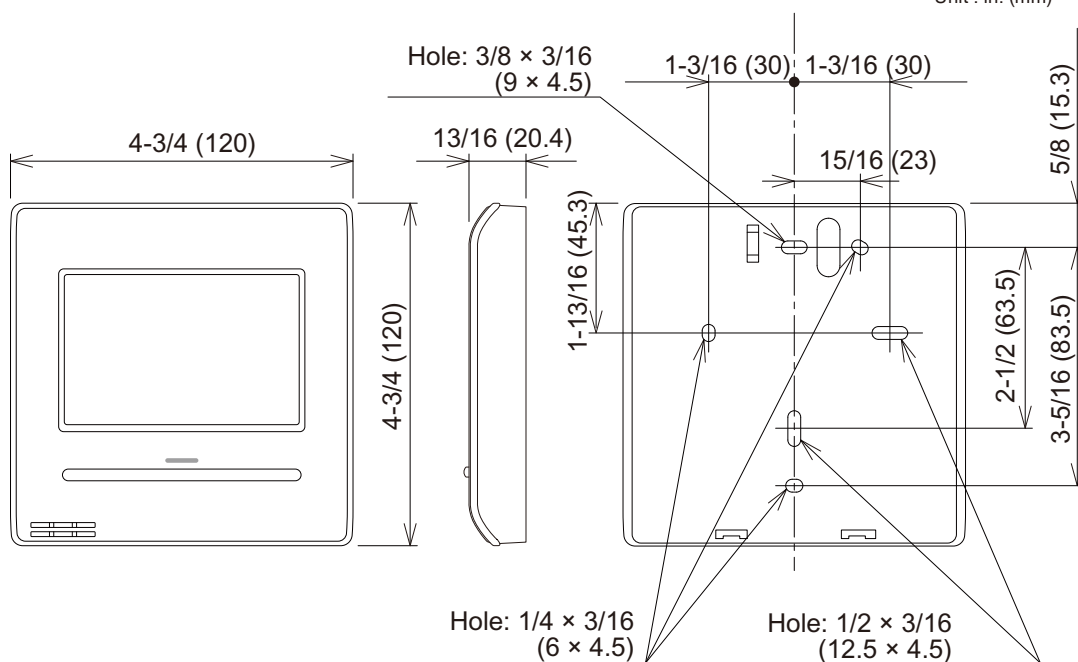


* Layout of Connector and PCB varies, depending on the type of indoor unit.

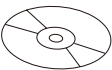






■ DIMENSIONS

Unit : in. (mm)



■ PACKING LIST

Name and shape	Quantity	Application
CD-ROM 	1	
Screw (M4 x 16 mm) 	2	For installing the remote controller
Cable tie 	1	For remote controller and remote controller cable binding
Installation manual 	1	
Operating manual 	1	

■ WIRING SPECIFICATIONS

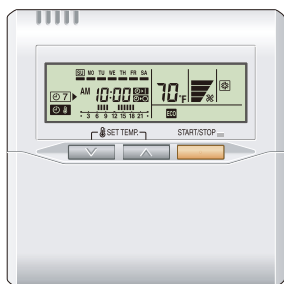
Use	Cable size	Wire type	Model name	Remarks
Remote controller cable	22AWG to 16AWG (0.33 to 1.25 mm ²)	Non polar 2 core	UTY-RNRYZ*	Use sheathed twisted pair cable
	18AWG	Thermostat cable 2 core	UTY-RNRU	Use sheathed non twisted pair cable

■ SPECIFICATIONS

Model name	UTY-RNRYZ*, UTY-RNRU
Input voltage (V)	DC 12
Input power (W)	Max. 0.3
Display	3.8 inch FSTN LCD (255 × 160 dots) with Touch panel
Usage temperature range: °F (°C)	32 to 104 (0 to 40)
Usage humidity range (%)	20 to 90 (no condensation)
Storage temperature range: °F (°C)	14 to 140 (-10 to 60)
Storage humidity range (%)	20 to 90 (no condensation)
Dimensions [H × W × D]: in. (mm)	4-3/4 × 4-3/4 × 11/16 (120 × 120 × 20.4)
Weight: oz. (g)	8 (220)

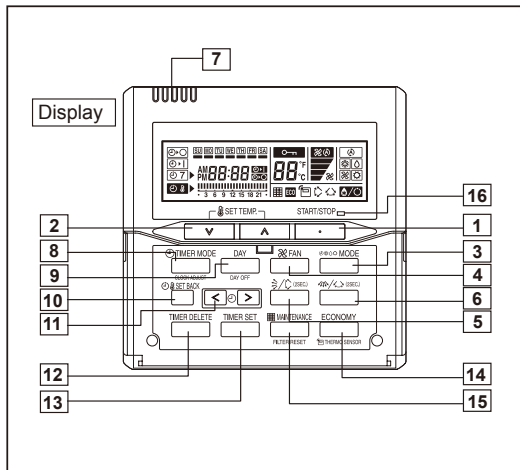
2-6. WIRED REMOTE CONTROLLER

■ MODEL: UTY-RNKU

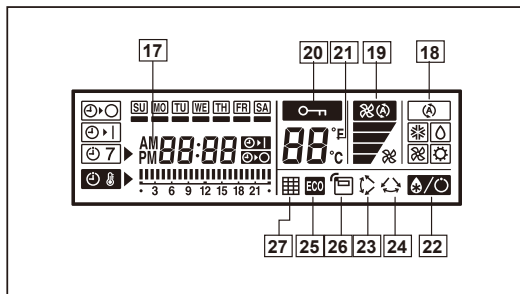


- Various timer setup options (ON / OFF / WEEKLY) are possible.
- Weekly timer as standard function. (Start / Stop function twice per day for a week)
- When setting up a timer, start/stop and a temperature setup can be changed.
- When a failure occurs, the error code is displayed.
- Error history. (Last 16 error codes can be accessed.)
- Up to 16 indoor units can be simultaneously controlled.
- Room temperature can be accurately controlled using the built-in thermo sensor.

FUNCTIONS



Display panel



- 1 START/STOP button
Pressed to start and stop operation.
- 2 Set Temperature button
Selects the setting temperature.
- 3 Operation mode button *2
Selects the operating mode (AUTO (A)*1, COOL (C), DRY (D), FAN (F)*3, HEAT (H)*4).
- 4 Fan control button
Selects the fan speed (AUTO (A), LOW (L), MED (M), HIGH (H)).
- 5 Vertical airflow direction and swing button
Press for two seconds to change the swing mode
- 6 Horizontal airflow direction and swing button
Press for two seconds to change the swing mode.
- 7 Built-in thermo sensor
Detect room temperature.
- 8 Timer mode (CLOCK ADJUST) button
Selects the timer mode (OFF TIMER, ON TIMER, WEEKLY TIMER)
Set the current time.
- 9 Day (DAY OFF) button
Temporarily cancels of one day timer.
- 10 Set back button
Pressed select the set back timer.
- 11 Set time button
Pressed to select the set back timer.
- 12 Timer delete button
The schedule of a weekly timer is deleted.
- 13 Timer set button
Sets the date, hour, minute and on-off time.
- 14 Economy button / Thermo sensor button
- 15 Maintenance button / Filter reset button
- 16 Operation lamp
Lights during operation and when the timer is on.
- 17 Timer and clock display
- 18 Operation mode display
- 19 Fan speed display
- 20 Operation lock display
- 21 Temperature display
Displayed temperature is set temperature.
- 22 Defrost display
Indicates during the oil recovery and defrosting operation.
- 23 Vertical swing display
- 24 Horizontal swing display
- 25 Economy display
- 26 Thermo sensor display
- 27 Filter display

*1 : "AUTO(A)" is not available for a heat pump model unless it is set up administrative indoor unit.

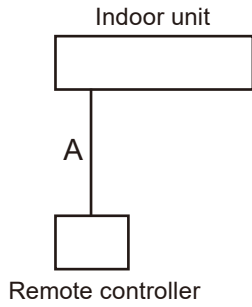
*2 : Indoor unit can be set to administrative indoor unit by pressing "MODE" button for five seconds or more. (Refer to chapter 6. 6-14.)

*3 : "FAN(F)" is not available for a heat pump model.

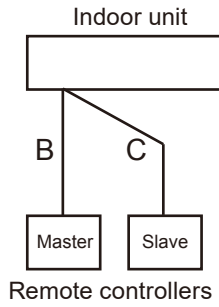
*4 : "HEAT(H)" is not available for a cooling only model.

SYSTEM DIAGRAM

1 remote controller



2 remote controllers



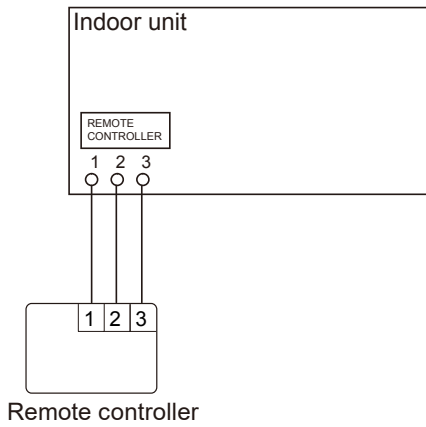
A, B, C : Remote controller cable.

Refer to chapter 6. 4-4 for detail specifications.

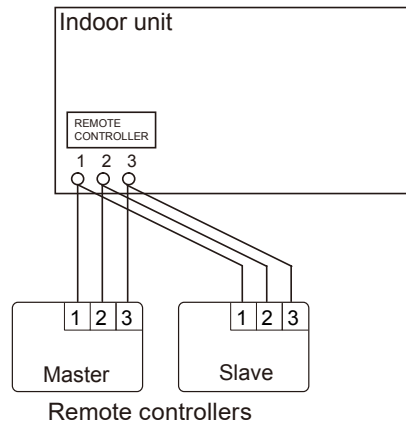
A ≤ 1,640 ft. (500 m) ; B+C ≤ 1,640 ft. (500 m)

ELECTRICAL WIRING

1 remote controller



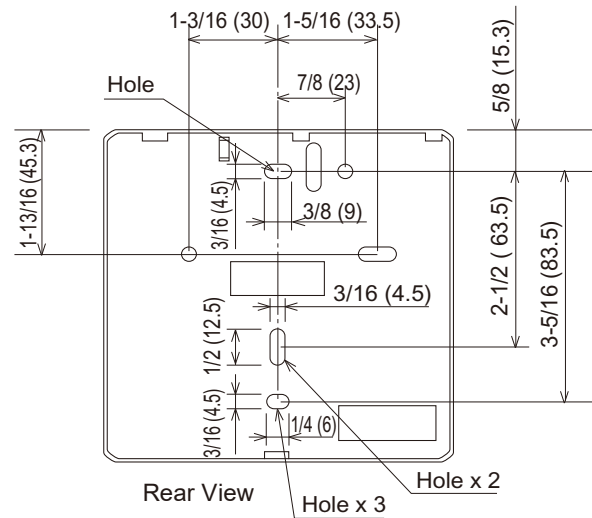
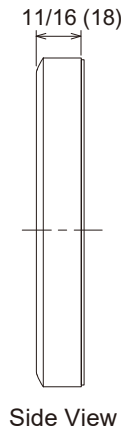
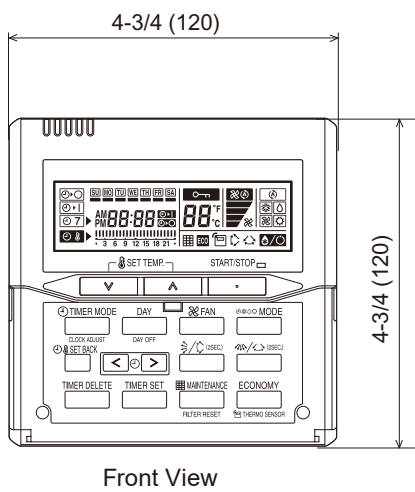
2 remote controllers



1 (RED) : 12 V
2 (WHITE) : Signal
3 (BLACK) : COM

DIMENSIONS

Unit : in. (mm)



■ INSTALLATION

● Connection Pattern

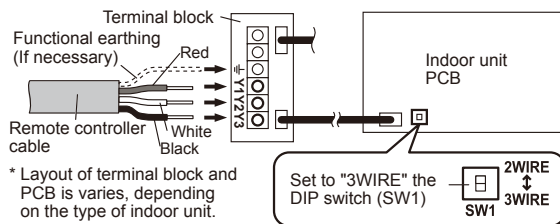
NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit types	Connection Pattern
All Cassette type	Pattern A
All Duct type	
All Ceiling type	
Wall Mounted type	Pattern B

● Pattern A

Connect the end of remote controller cable directly to the exclusive terminal block.

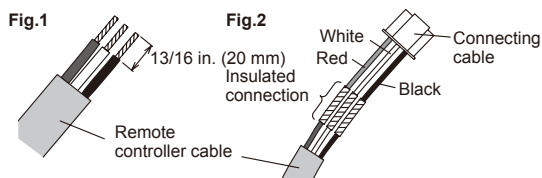
Set the DIP switch (SW1) to "3WIRE" on the PCB of the indoor unit.



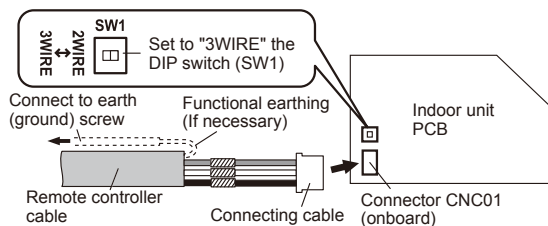
NOTE: The equipment may fail if it is connected to the outdoor unit or the power supply terminal block.

● Pattern B

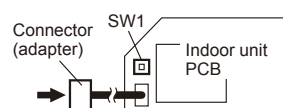
- 1) Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown in Fig. 1. Connect the remote controller cable and connecting cable as shown in Fig. 2. Be sure to insulate the connection between the cables.




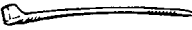


- 2) Connect the remote controller cable to the connecting cable, and insert it to the connector.
Set the DIP switch (SW1) to "3WIRE" on the PCB of the indoor unit.



* Layout of Connector and PCB varies, depending on the type of indoor unit



■ PACKING LIST

Name and shape	Quantity	Application
Screw (M4 × 16 mm) 	2	For installing the remote controller
Cable Tie 	1	For securing controller cable
Installation manual 	1	
Operating manual 	1	

■ WIRING SPECIFICATIONS

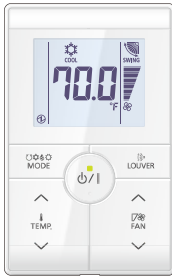
Use	Cable size	Wire type	Remarks
Remote controller cable	22AWG (0.33 mm ²)	Polar 3 core	Use sheathed PVC cable.

■ SPECIFICATIONS

Model name	UTY - RNK*
Dimensions [H × W × D]: in. (mm)	4-3/4 × 4-3/4 × 11/16 (120 × 120 × 18)
Weight: oz. (g)	6 (160)

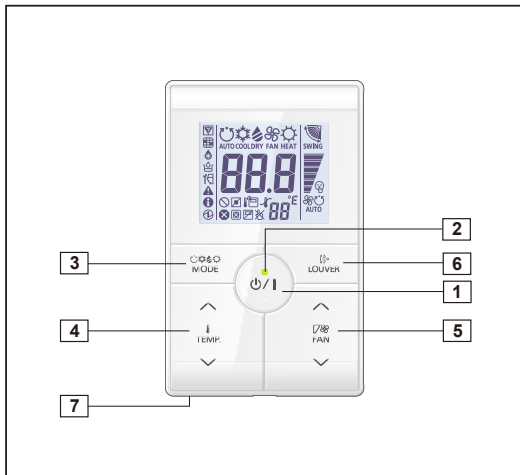
2-7. SIMPLE REMOTE CONTROLLER (With Operation mode)

2-7-1. MODEL: UTY-RSRY

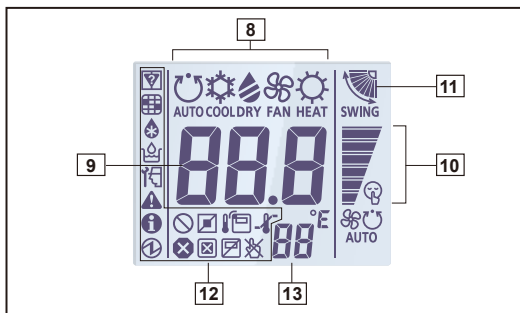



























- Easy operation.
- Stylish design
- Large LCD screen & simple operation buttons
- Built-in background light function.
- Easy installation with a slim shape with no bulge in the back.
- Up to 16 indoor units can be simultaneously controlled.
- Can be installed onto SW-BOX. (applies to European and other country's standard)


FUNCTIONS



Display panel



- 1 START/STOP button
Pressed to start and stop operation.
- 2 LED lamp
Lights during operation.
- 3 Operation mode button
Selects the operating mode
- 4 Set temperature button
Selects the setting temperature.(18-30°C[COOL], 10-30°C[HEAT])
- 5 Fan control button
Selects the fan speed
- 6 Louver button
Set the airflow direction.
- 7 Room temperature sensor(inside)
- 8 Operating mode indicator (AUTO  *1, COOL  , DRY  , FAN  *2, HEAT  *3).
- 9 Set temperature
Indicates Indoor unit address. *4
- 10 Fan speed indicator (AUTO  , HIGH  , MED  , LOW  , QUIET ).
- 11 Airflow direction indicator
- 12 Status icons
 -  Mode mismatch
 -  Filter sign *5
 -  Defrost operation
 -  Oil recovery operation
 -  Under maintenance
 -  Error
 -  Special state
 -  Conducting electricity
 -  Emergency stop
 -  Operation controlled
 -  Forced stop
 -  Remote controller sensor is enabled *5
 -  Central controlled
 -  Setting temperature range is enabled
 -  Operation prohibited
- 13 Indicates the remote controller address. *4

*1 : "AUTO  " is not available for a heat pump model unless it is set up as an administrative indoor unit.

*2 : "FAN  " is not available for a heat pump model.

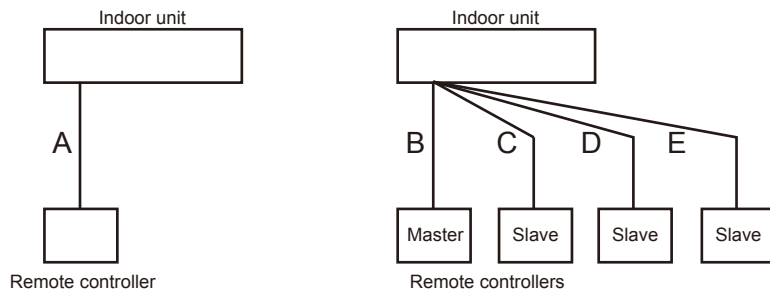
*3 : "HEAT  " is not available for a cooling only model.

*4 : During address display mode.

*5 : For single split system, to use this function, set the Function setting of the indoor unit accordingly.

SYSTEM DIAGRAM

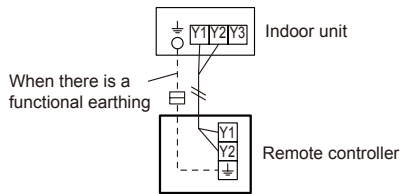
- 1 remote controller
- 4 remote controllers



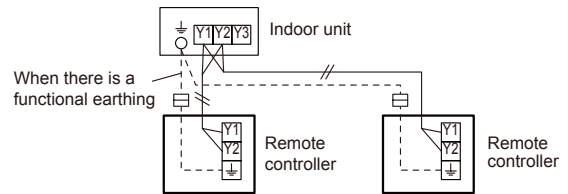
A , B , C , D , E : Remote controller cable.
 Refer to 6-4-4 for detail specifications.
 $A \leq 500 \text{ m}$; $B+C+D+E \leq 500 \text{ m}$

ELECTRICAL WIRING

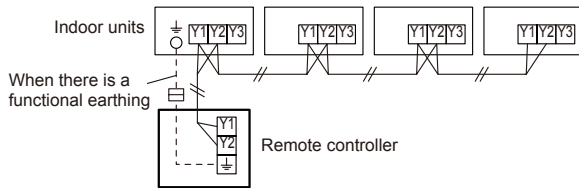
- Single control



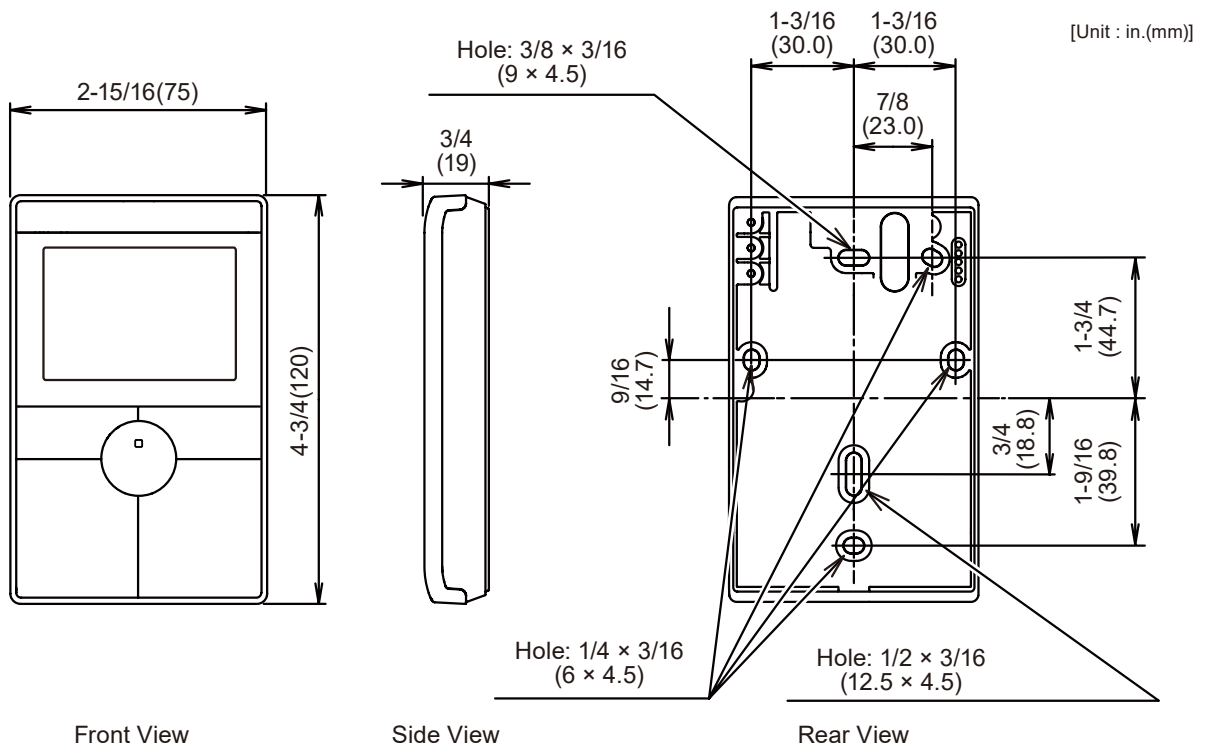
- Multiple remote control



- Group control



DIMENSIONS



■ INSTALLATION

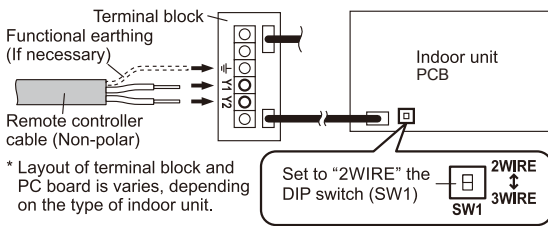
● Connection Pattern

NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit types	Connection Pattern
All Cassette type	Pattern A
All Duct type	
All Ceiling type	
All Compact Floor type	
Wall Mounted type	Pattern B

● Pattern A

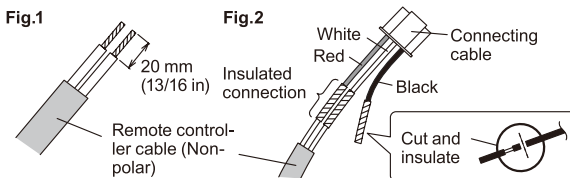
Connect the end of remote controller cable directly to the exclusive terminal block. Set to "2WIRE" the DIP switch (SW1) on the PC board (printed circuit board) of the indoor unit.



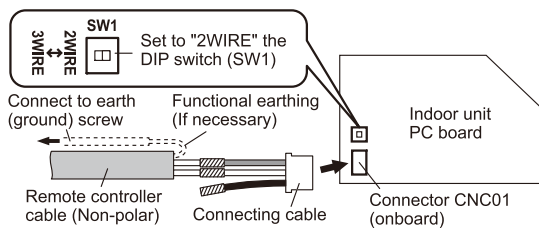
NOTE: The equipment may fail if it is connected to the outdoor unit or the power supply terminal block.

● Pattern B

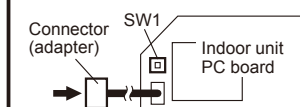
1) Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown in Fig. 1. Connect the remote controller cable and connecting cable as shown in Fig. 2. Be sure to insulate the connection between the cables.






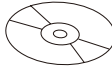


2) Insert connecting cable to the connector. Set to "2WIRE" the DIP switch (SW1) on the PC board of the indoor unit.



* Layout of Connector and PC board varies, depending on the type of indoor unit



■ PACKING LIST

Name and shape	Quantity	Application
Wired remote controller 	1	
Installation manual 	1	
Operating manual 	1	
CD-ROM 	1	
Screw (M4 × 16 mm) 	2	For installing the remote controller
Cable tie 	1	For binding remote controller and remote controller cable

■ WIRING SPECIFICATIONS

Cable type	Size	Remarks
Sheathed cable	22 to 16 AWG (0.33 to 1.25 mm ²)	Non polar 2 core, Twisted pair
Shielded cable*		

* Use shielded cable in accordance with local rules for remote controller cable.

■ SPECIFICATIONS

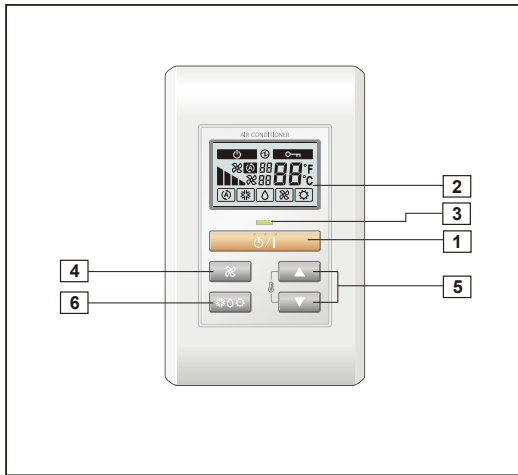
Model name	UTY - RSRU
Dimensions [H × W × D]: in. (mm)	4-3/4 × 2-15/16 × 3/4 (120 × 75 × 19)
Weight: oz. (g)	4 (120)

2-7-2. MODEL: UTY-RSKU

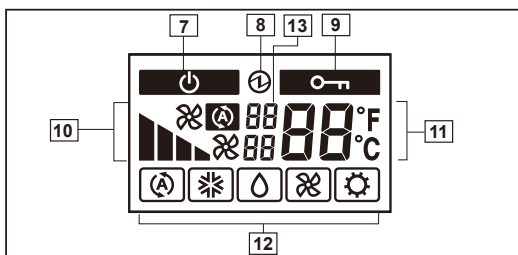


- Easy operation.
- Built-in background light function.
- Easy installation with a slim shape with no bulge in the back.
- Error history. (Last 16 error codes can be accessed.)
- Up to 16 indoor units can be simultaneously controlled.
- Can be installed onto SW-BOX. (applies to European and other country's standard)

FUNCTIONS



Display panel



- 1 START/STOP button
Pressed to start and stop operation.
- 2 Display with backlight
Lights during operation.
- 3 Operation lamp
Lights during operation.
- 4 Fan control button
Selects the fan speed
- 5 Set temperature button
Selects the setting temperature.
- 6 Operation mode button
Selects the operating mode
- 7 Standby display
Indicates during the oil recovery and defrosting operation.
- 8 Power source display
Indicates the main power ON.
- 9 Central control display
Indicates when function is locked from Touch Panel Controller or System Controller.
- 10 Fan speed display (AUTO).
- 11 Set temperature
Indicates Error history number. *4
Indicates Indoor unit address. *5
- 12 Operating mode display (AUTO *1, COOL , DRY ,
FAN *2, HEAT *3).
- 13 (Upper) Indicates the error code *4 *6 / the refrigerant system address. *5
(Lower) Indicates the remote controller address. *4 *5 *6

*1 : "AUTO " is not available for a heat pump model unless it is set up master indoor unit.

*2 : "FAN " is not available for a heat pump model

*3 : "HEAT " is not available for a cooling only model

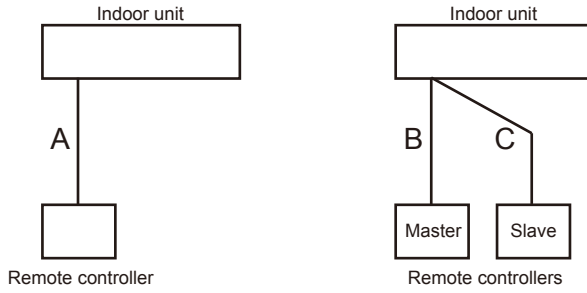
*4 : during Error code history display mode.

*5 : during address display mode.

*6 : during self Diagnosis mode.

SYSTEM DIAGRAM

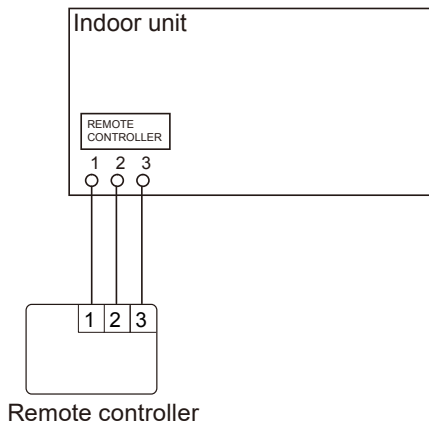
- 1 remote controller
- 2 remote controllers



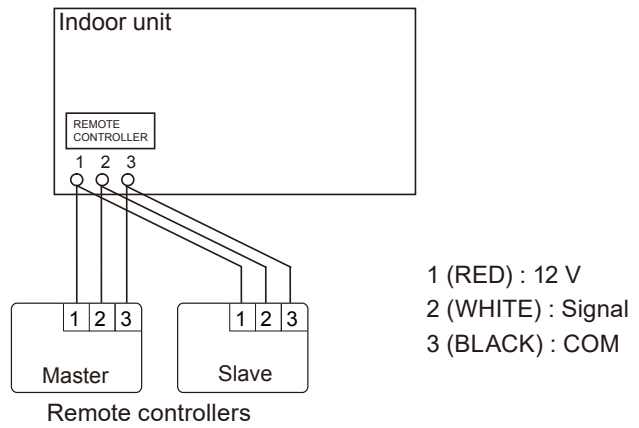
A, B, C : Remote controller cable.
 Refer to chapter 6. 4-4 for detail specifications.
 $A \leq 1,640 \text{ ft. (500 m)}$; $B+C \leq 1,640 \text{ ft. (500 m)}$

ELECTRICAL WIRING

- 1 remote controller

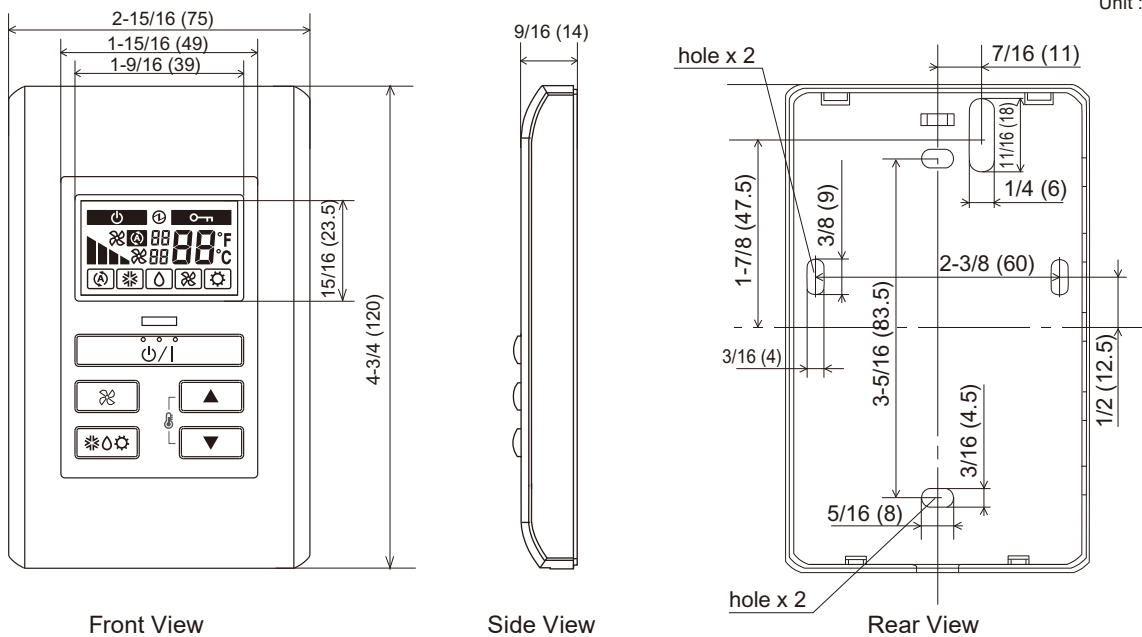


- 2 remote controllers



1 (RED) : 12 V
 2 (WHITE) : Signal
 3 (BLACK) : COM

DIMENSIONS



■ INSTALLATION

● Connection Pattern

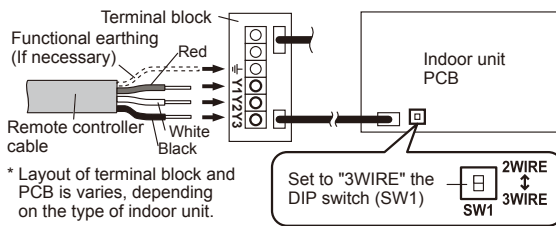
NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit types	Connection Pattern
All Cassette type	Pattern A
All Duct type	
All Ceiling type	
Wall Mounted type	Pattern B

● Pattern A

Connect the end of remote controller cable directly to the exclusive terminal block.

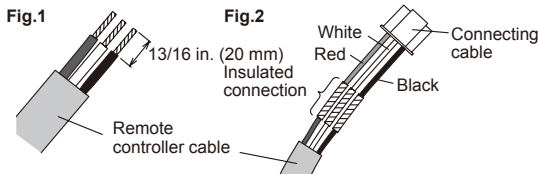
Set the DIP switch (SW1) to "3WIRE" on the PCB of the indoor unit.



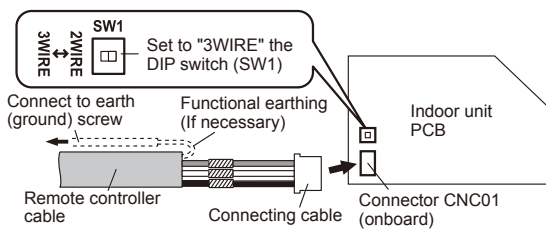
NOTE: The equipment may fail if it is connected to the outdoor unit or the power supply terminal block.

● Pattern B

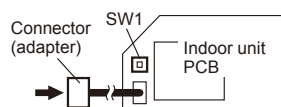
- 1) Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown in Fig. 1. Connect the remote controller cable and connecting cable as shown in Fig. 2. Be sure to insulate the connection between the cables.





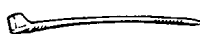


- 2) Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to "3WIRE" on the PCB of the indoor unit.



* Layout of Connector and PCB varies, depending on the type of indoor unit



■ PACKING LIST

Name and shape	Quantity	Application
Remote controller cable [33 ft. (10 m)] 	1	For connecting the remote controller
Screw (M4 × 16 mm) 	2	For installing the remote controller
Cable Tie 	1	For securing controller cable
Installation manual 	1	
Operating manual 	1	

■ WIRING SPECIFICATIONS

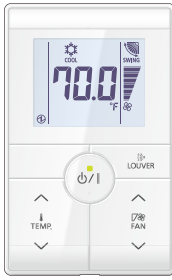
Use	Size	Wire type	Remarks
Remote controller cable	22AWG (0.33 mm ²)	Polar 3 core	Use sheathed PVC cable.

■ SPECIFICATIONS

Model name	UTY - RSK*
Dimensions [H × W × D]: in. (mm)	4-3/4 × 2-15/16 × 9/16 (120 × 75 × 14)
Weight: oz. (g)	3 (90)

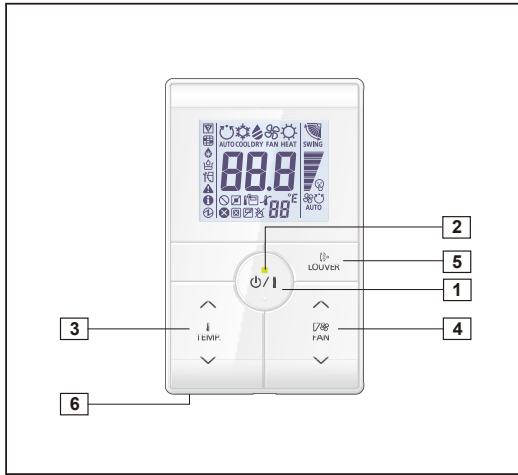
2-8. SIMPLE REMOTE CONTROLLER (Without Operation mode)

2-8-1. MODEL: UTY-RHRY

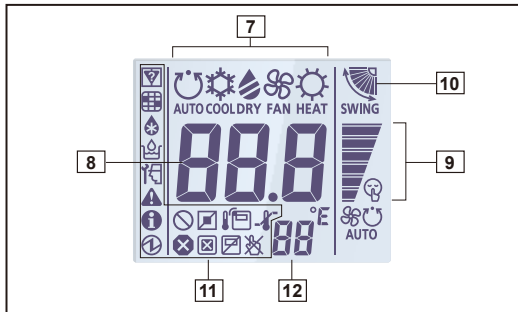


- Easy operation.
- Stylish design
- Large LCD screen & simple operation buttons
- Built-in background light function.
- Easy installation with a slim shape with no bulge in the back.
- Up to 16 indoor units can be simultaneously controlled.
- Can be installed onto SW-BOX. (applies to European and other country's standard)

FUNCTIONS



Display panel



- 1 START/STOP button
Pressed to start and stop operation.
- 2 LED lamp
Lights during operation.
- 3 Set temperature button
Selects the setting temperature.(18-30°C[COOL], 10-30°C[HEAT])
- 4 Fan control button
Selects the fan speed
- 5 Louver button
Set the airflow direction.
- 6 Room temperature sensor(inside)
- 7 Operating mode indicator (AUTO *1, COOL , DRY , FAN *2, HEAT *3).
- 8 Set temperature
Indicates Indoor unit address. *4
- 9 Fan speed indicator
- 10 Airflow direction indicator (AUTO , HIGH , MED , LOW , QUIET).
- 11 Status icons
 - Mode mismatch
 - Filter sign *5
 - Defrost operation
 - Oil recovery operation
 - Under maintenance
 - Error
 - Special state
 - Conducting electricity
 - Emergency stop
 - Operation controlled
 - Forced stop
 - Remote controller sensor is enabled *5
 - Central controlled
 - Setting temperature range is enabled
 - Operation prohibited
- 12 Indicates the remote controller address. *4

*1 : "AUTO " is not available for a heat pump model unless it is set up as an administrative indoor unit.

*2 : "FAN " is not available for a heat pump model.

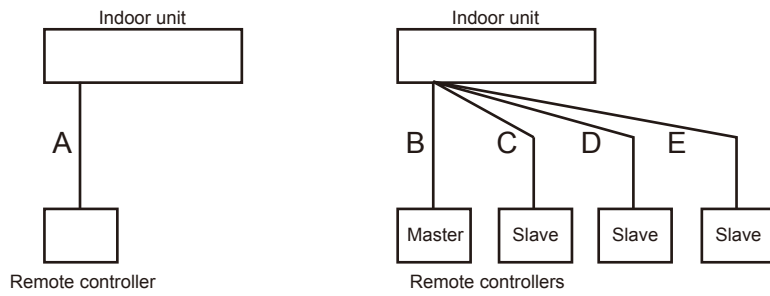
*3 : "HEAT " is not available for a cooling only model.

*4 : During address display mode.

*5 : For single split system, to use this function, set the Function setting of the indoor unit accordingly.

SYSTEM DIAGRAM

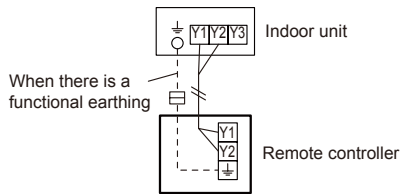
- 1 remote controller
- 4 remote controllers



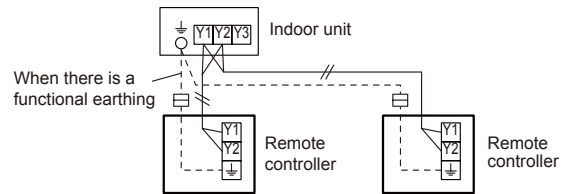
A , B , C , D , E : Remote controller cable.
 Refer to 6-4-4 for detail specifications.
 $A \leq 500 \text{ m}$; $B+C+D+E \leq 500 \text{ m}$

ELECTRICAL WIRING

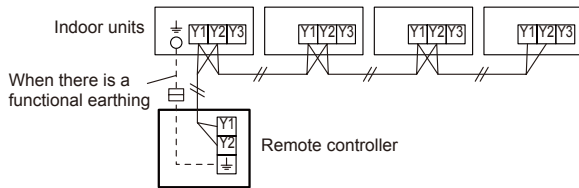
- Single control



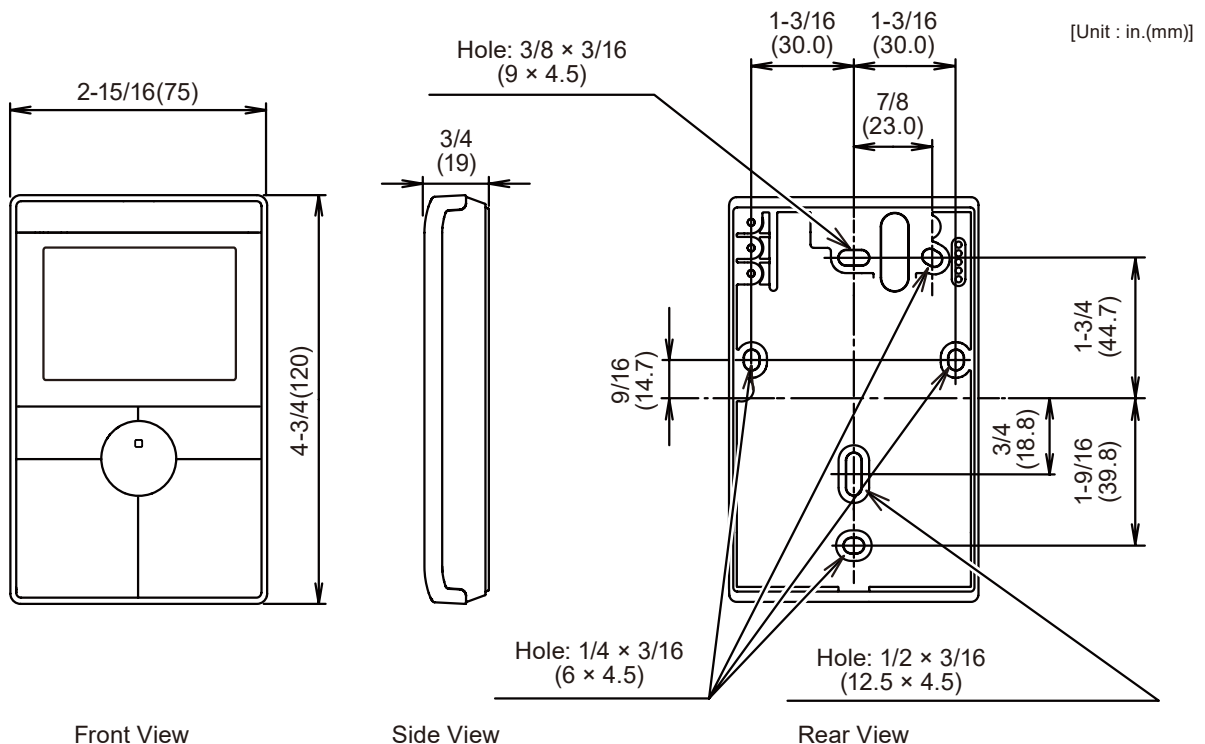
- Multiple remote control



- Group control



DIMENSIONS



■ INSTALLATION

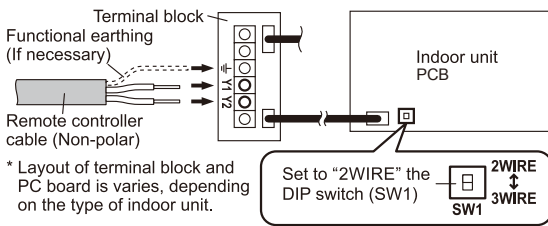
● Connection Pattern

NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit types	Connection Pattern
All Cassette type	Pattern A
All Duct type	
All Ceiling type	
All Compact Floor type	
Wall Mounted type	Pattern B

● Pattern A

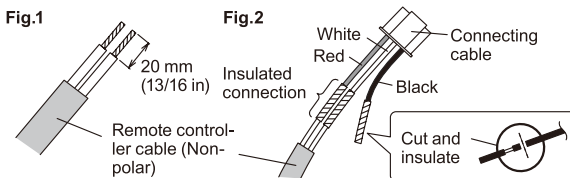
Connect the end of remote controller cable directly to the exclusive terminal block. Set to "2WIRE" the DIP switch (SW1) on the PC board (printed circuit board) of the indoor unit.



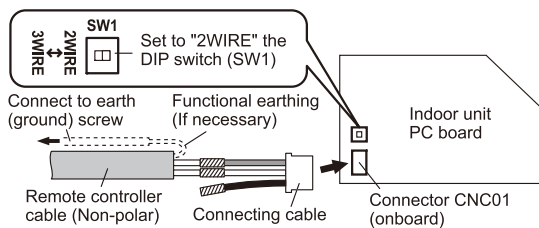
NOTE: The equipment may fail if it is connected to the outdoor unit or the power supply terminal block.

● Pattern B

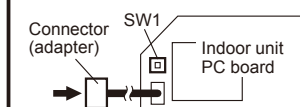
1) Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown in Fig. 1. Connect the remote controller cable and connecting cable as shown in Fig. 2. Be sure to insulate the connection between the cables.






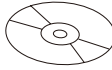


2) Insert connecting cable to the connector. Set to "2WIRE" the DIP switch (SW1) on the PC board of the indoor unit.



* Layout of Connector and PC board varies, depending on the type of indoor unit



■ PACKING LIST

Name and shape	Quantity	Application
Wired remote controller 	1	
Installation manual 	1	
Operating manual 	1	
CD-ROM 	1	
Screw (M4 × 16 mm) 	2	For installing the remote controller
Cable tie 	1	For binding remote controller and remote controller cable

■ WIRING SPECIFICATIONS

Cable type	Size	Remarks
Sheathed cable	22 to 16 AWG (0.33 to 1.25 mm ²)	Non polar 2 core, Twisted pair
Shielded cable*		

* Use shielded cable in accordance with local rules for remote controller cable.

■ SPECIFICATIONS

Model name	UTY-RHRU
Dimensions [H × W × D]: in. (mm)	4-3/4 × 2-15/16 × 3/4 (120 × 75 × 19)
Weight: oz. (g)	4 (120)

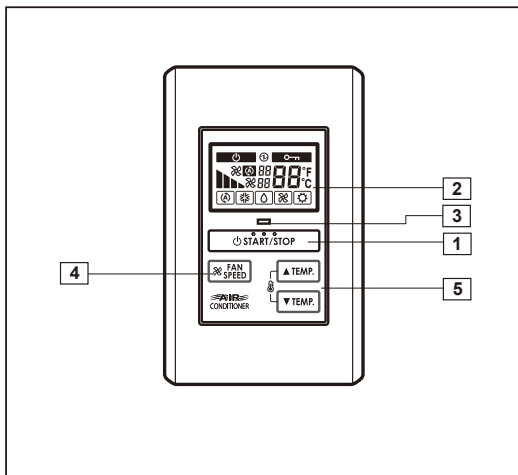
2-8-2.MODEL: UTY-RHKU

This controller cannot select mode. An additional controller is required for the user to select heating or cooling mode.

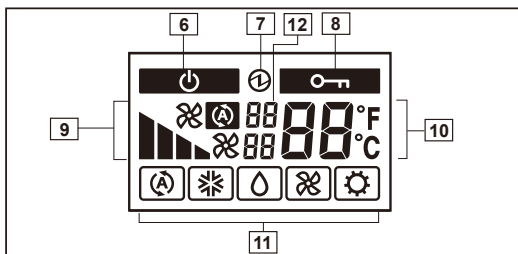


- Easy operation.
- Built-in Background Light function.
- Easy installation with a slim shape with no bulge in the back.
- Error history. (Last 16 error codes can be accessed.)
- Up to 16 indoor units can be simultaneously controlled.
- Can be installed onto SW-BOX. (applies to European and other country's standard)
- Concentrates on the basic operations such as Start/Stop, Fan Control, and Temperature Setting.

FUNCTIONS



Display panel



- 1 START/STOP button
Pressed to start and stop operation.
- 2 Display with backlight
Lights during operation.
- 3 Operation lamp
Lights during operation.
- 4 Fan control button
Selects the fan speed
- 5 Set temperature button
Selects the setting temperature.
- 6 Standby display
Indicates during the oil recovery and defrosting operation.
- 7 Power source display
Indicates the main power ON.
- 8 Central control display
Indicates when function is locked from Display with backlight Touch Panel Controller or System Controller.
- 9 Fan speed display (AUTO , HIGH , MED , LOW .
- 10 Set temperature
Indicates Error history number. *1
Indicates Indoor unit address. *2
- 11 Operating mode display (AUTO *1, COOL , DRY , FAN *2, HEAT *3).
- 12 (Upper) Indicates the error code *1, *3 / the refrigerant system address. *2
(Lower) Indicates the remote controller address. *1, *2, *3

*1 : "AUTO()" is not available for a heat pump model unless it is set up master indoor unit.

*2 : "FAN" is not available for a heat pump model

*3 : "HEAT" is not available for a cooling only model

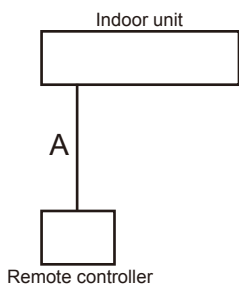
*4 : during Error code history display mode.

*5 : during address display mode.

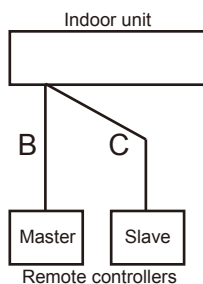
*6 : during self Diagnosis mode.

SYSTEM DIAGRAM

1 remote controllers



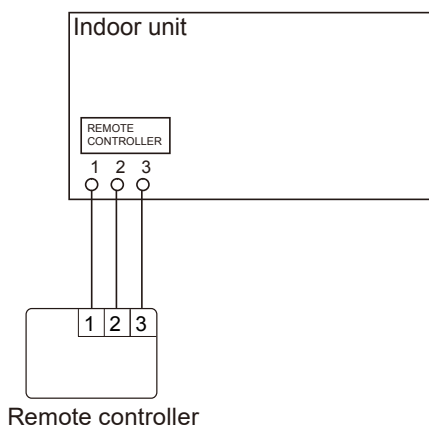
2 remote controllers



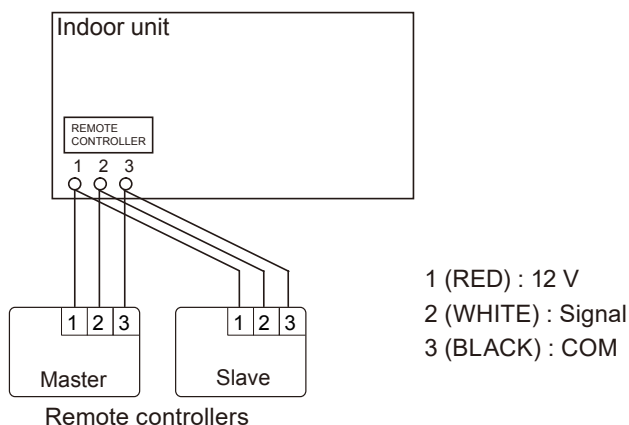
A, B, C : Remote controller cable.
 Refer to chapter 6. 4-4 for detail specifications.
 $A \leq 1,640 \text{ ft. (500 m)}$; $B+C \leq 1,640 \text{ ft. (500 m)}$

ELECTRICAL WIRING

1 remote controller

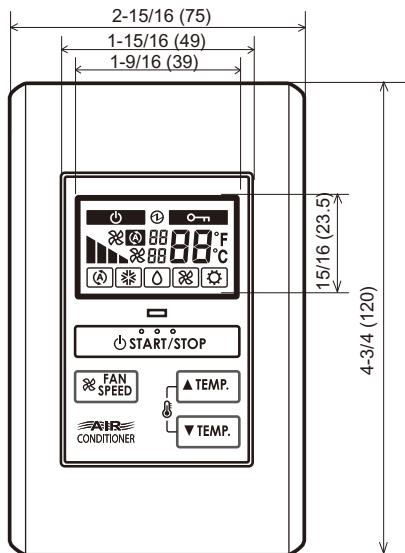


2 remote controllers

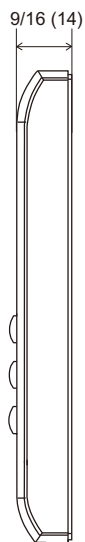


DIMENSIONS

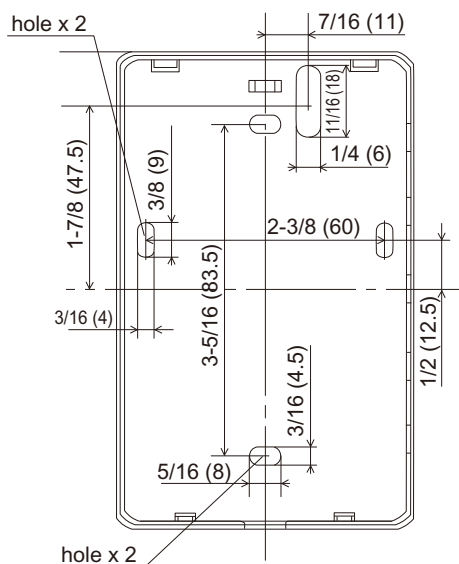
Unit : in. (mm)



Front View



Side View



Rear View

■ INSTALLATION

● Connection Pattern

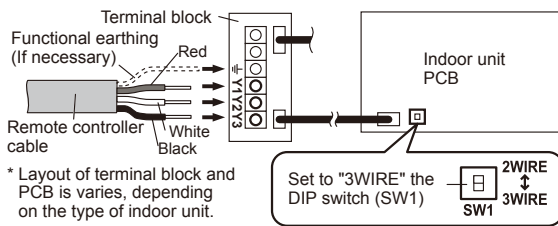
NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit types	Connection Pattern
All Cassette type	Pattern A
All Duct type	
All Ceiling type	
Wall Mounted type	Pattern B

● Pattern A

Connect the end of remote controller cable directly to the exclusive terminal block.

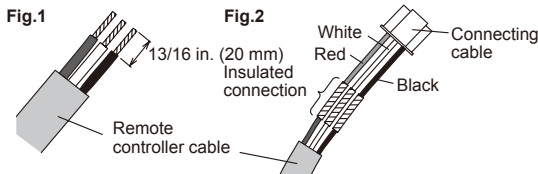
Set the DIP switch (SW1) to "3WIRE" on the PCB of the indoor unit.



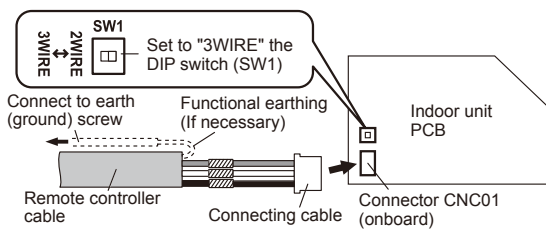
NOTE: The equipment may fail if it is connected to the outdoor unit or the power supply terminal block.

● Pattern B

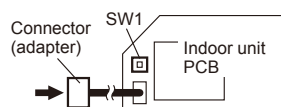
- 1) Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown in Fig. 1. Connect the remote controller cable and connecting cable as shown in Fig. 2. Be sure to insulate the connection between the cables.



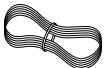

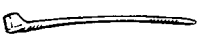


- 2) Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to "3WIRE" on the PCB of the indoor unit.



* Layout of Connector and PCB varies, depending on the type of indoor unit



■ PACKING LIST

Name and shape	Quantity	Application
Remote controller cable [33 ft. (10 m)] 	1	For connecting the remote controller
Screw (M4 × 16 mm) 	2	For installing the remote controller
Cable Tie 	1	For securing controller cable
Installation manual 	1	
Operating manual 	1	

■ WIRING SPECIFICATIONS

Use	Size	Wire type	Remarks
Remote controller cable	22AWG (0.33 mm ²)	Polar 3 core	Use sheathed PVC cable.

■ SPECIFICATIONS

Model name	UTY - RHK*
Dimensions [H × W × D]: in. (mm)	4-3/4 × 2-15/16 × 9/16 (120 × 75 × 14)
Weight: oz. (g)	3 (90)

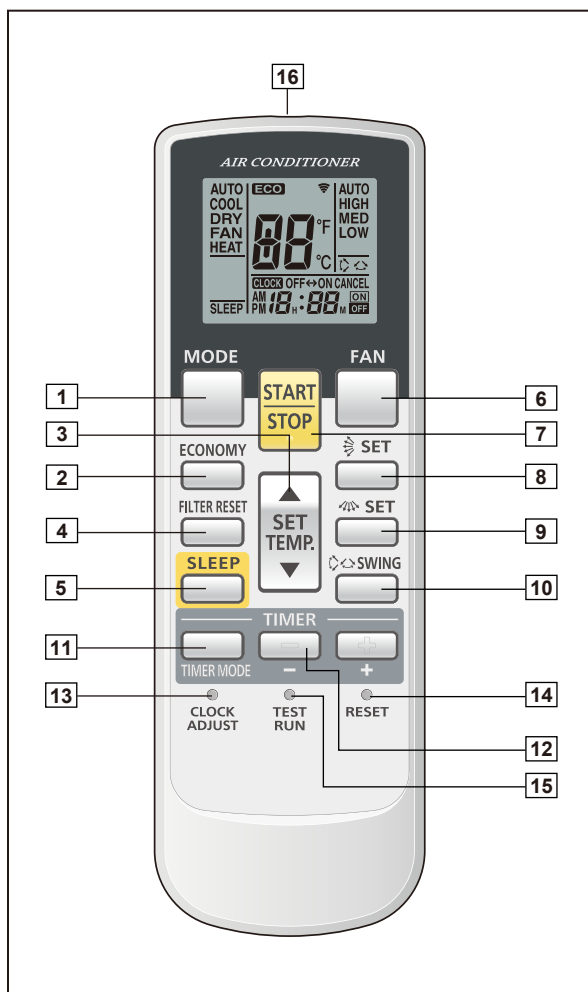
2-9. WIRELESS REMOTE CONTROLLER

■ MODEL: UTY-LNHU



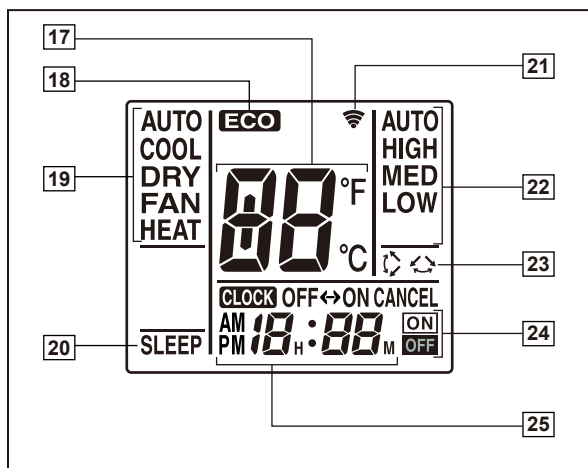
- Four kinds of timer setup (ON / OFF / PROGRAM / SLEEP) are possible.
- Up to 16 indoor units connected within the remote controller group can be simultaneously controlled.
- Can be used jointly with wired remote controllers .
- Easy to change custom code (4 patterns).

FUNCTIONS



- 1 OPERATION MODE button
Selects the operating mode (AUTO, COOL, DRY, FAN, HEAT). /Start / end R.C. custom code change. (Max 4 types)
- 2 Economy button
- 3 Set temp. button (▲ / ▼)
Set remote controller custom code buttons
Sets the indoor temp./ Sets R.C. custom code.
- 4 Filter reset button
- 5 Sleep button
Pressed to select sleep timer.
- 6 Fan button
Selects the fan speed (AUTO, HIGH, MED, LOW).
- 7 START/STOP button
Pressed to start and stop operation.
- 8 Set button (Vertical airflow)
Airflow direction vertical set button.
- 9 Set button (Horizontal airflow)
Airflow direction horizontal set button.
- 10 Swing button
Airflow direction swing button.
- 11 Timer mode button
Pressed to select the timer mode. (OFF TIMER, ON TIMER, PROGRAM TIMER, TIMER RESET)
- 12 Timer set (+ / -) button
Sets the current time and on-off time.
- 13 Clock adjust button
Sets the current time.
- 14 Reset button
Used when replacing batteries.
- 15 Test run button
Used when testing the air conditioner after installation.

Display panel



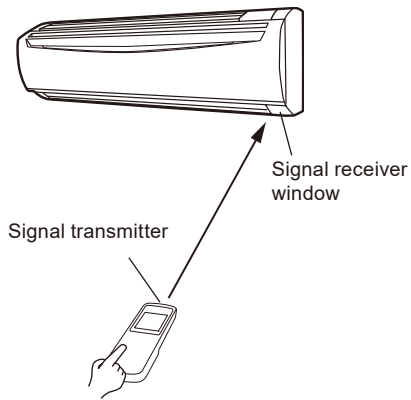
- 16 Signal transmitter
- 17 Temperature set display
- 18 Economy display
- 19 Operating mode display
- 20 Sleep display
- 21 Transmit indicator
- 22 Fan speed display
- 23 Swing display
- 24 Timer mode display
- 25 Clock display

*1 : "AUTO" is not available for a heat pump model unless it is set up master indoor unit.

*2 : "FAN" is not available for a heat pump model

*3 : "HEAT" is not available for a cooling only model

SYSTEM DIAGRAM

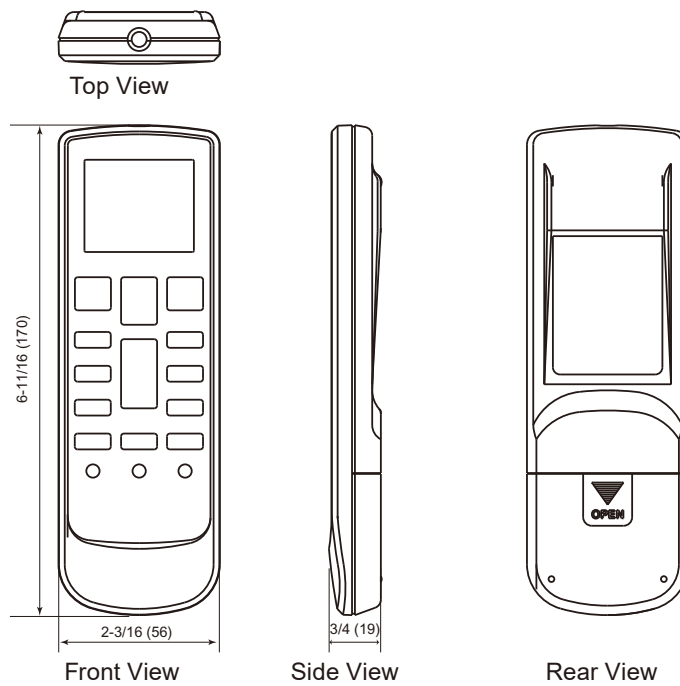


- Control signal might not be recognized in following cases:
 - A curtain or a wall, etc. exists between transmitter and receiver.
 - There is an instant-start type (inverter type, etc.) fluorescent lamp in the room.
- Air conditioner might not work correctly when strong light hits the signal receiver window. Shut off the direct sunlight and also make illuminator far away from the receiver window.

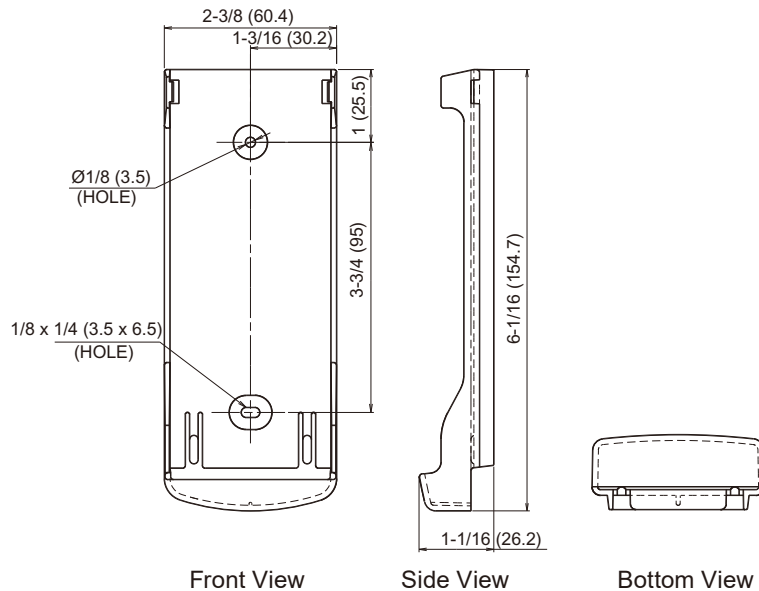
DIMENSIONS

Controller




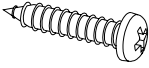

Unit : in. (mm)



Holder



■ PACKING LIST

Name and shape	Quantity	Application
Installation manual 	1	
Operating manual 	1	
Remote controller holder 	1	Use as remote controller holder
Screw (M3 × 12 mm) 	2	For remote controller holder installation
Battery [1.5V (R03 / AAA)] 	2	For remote controller

■ SPECIFICATIONS

Model name	UTY - LNH*
Dimensions [H × W × D]: in. (mm)	6-11/16 × 2-3/16 × 3/4 (120 × 75 × 14)
Weight (w/o batteries): oz. (g)	3 (85)

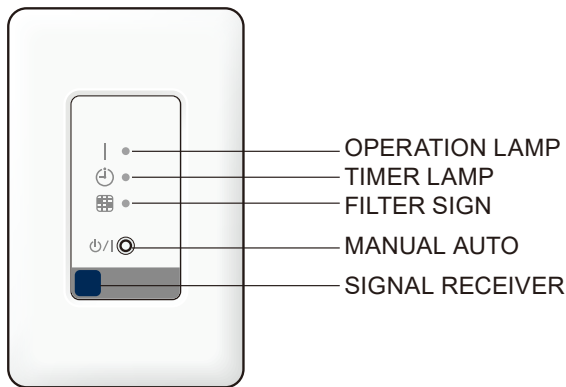
2-10. IR RECEIVER UNIT (for ALL DUCT TYPE)

■ MODEL: UTB-YWC

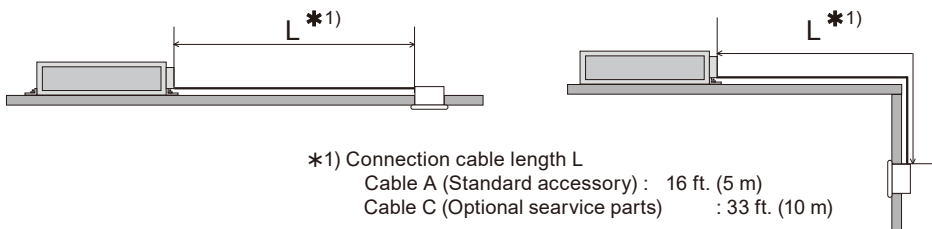


Duct type indoor unit can be controlled with wireless remote controller if the IR receiver unit is used.

■ FUNCTIONS

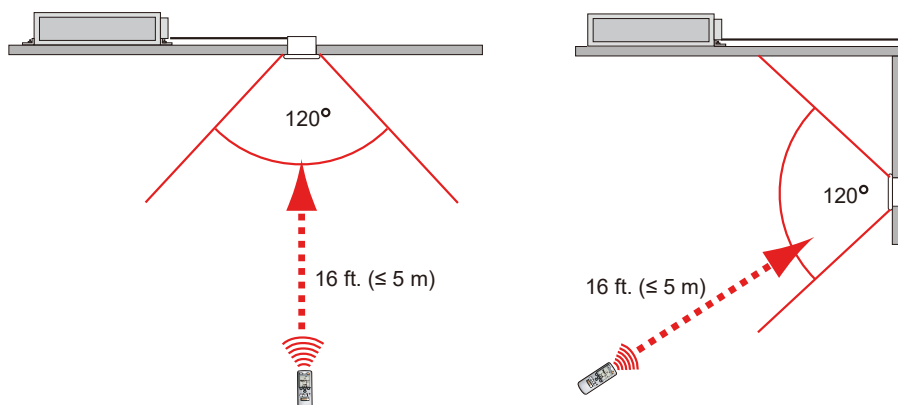


■ SYSTEM DIAGRAM

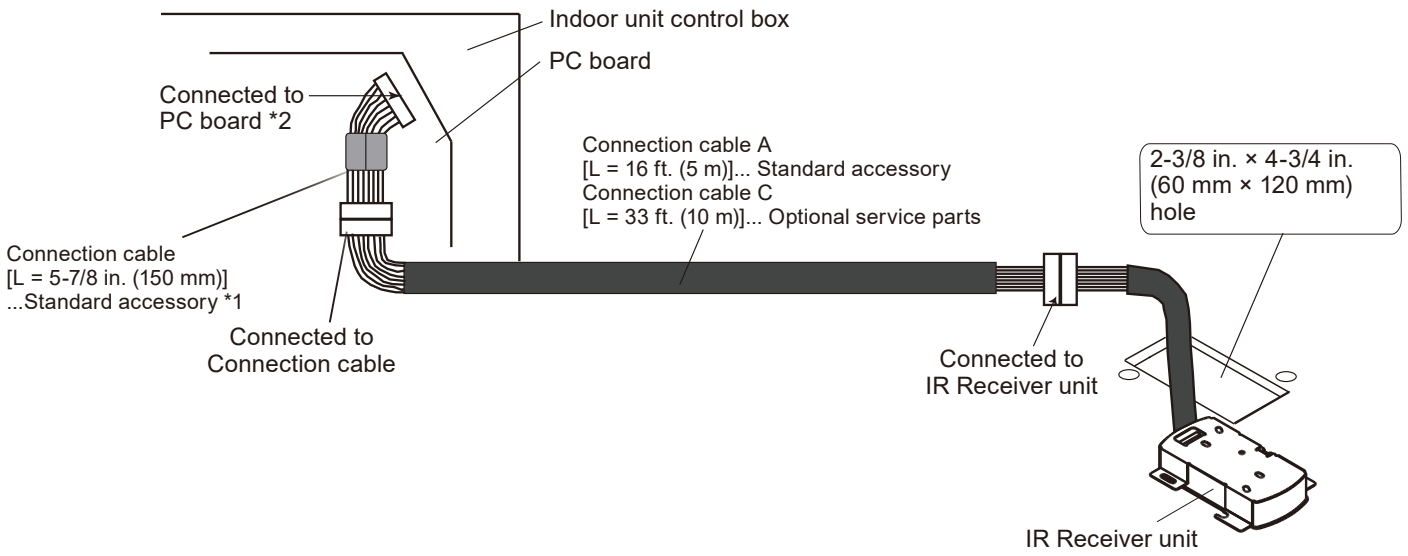


● ATTACHMENT RANGE

● SIGNAL ANGLE

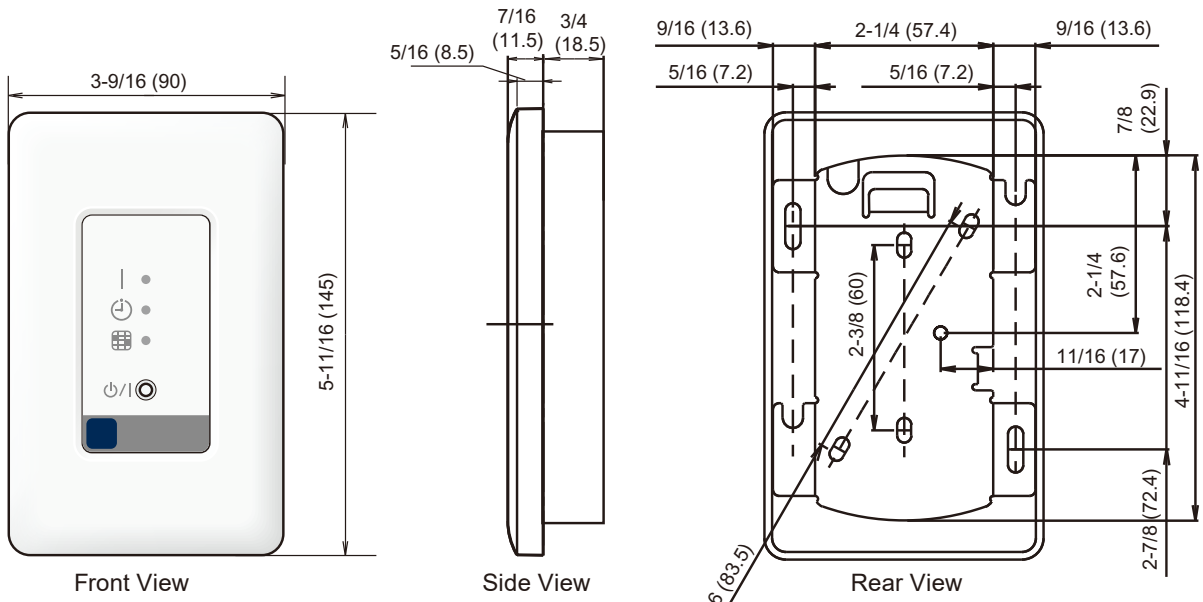


ELECTRICAL WIRING



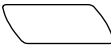
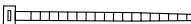
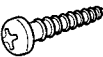
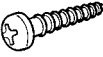
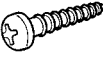
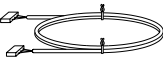



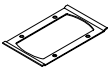


*1 Connection cable	Connection cable D
*2 Connected to PC board	CN18

DIMENSIONS



■ PACKING LIST

Name and shape	Quantity	Application
Installation manual 	1	
Cover 	1	For receiver unit
Insulation 	1	For receiver unit
Cable Tie 	Small:1 Medium:1	For receiver unit
Screw (M4 × 20 mm) 	2	For installing receiver unit to wall, etc.
Screw (M4 × 12 mm) 	1	For attaching the hook metal to the holder cover
Screw (M4 × 10 mm) 	2	For attaching the hook metal to the indoor unit
Connection cable A (16 ft. [5 m]) 	1	For connecting PCB of indoor unit to receiver unit
Connection cable B (5-7/8 in. [0.15 m]) 	1	For Compact Duct, Low Static Pressure Duct, Duct, and High Static Pressure Duct type
Connection cable D (5-7/8 in. [0.15 m]) 	1	For Slim Duct type
Hook metal 	1	For installing receiver unit to indoor unit
Bracket (cover) 	1	For receiver unit

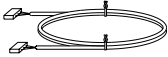
■ SPECIFICATIONS

Model name	UTB - YWC
Dimensions [H × W × D]: in. (mm)	5-11/16 × 3-9/16 × 1-3/16 (145 × 90 × 30)
Weight: oz. (g)	5 (150)

■ OPTIONAL SERVICE PARTS

Use the parts number shown below to order the cable from your sales representative.

Select shielded type connection cable in accordance with regional cable standard.

Name and shape	Type	Parts No.
Connection cable C (33 ft. [10 m]) 	Non-shielded	9378143012
	Shielded	9378143036

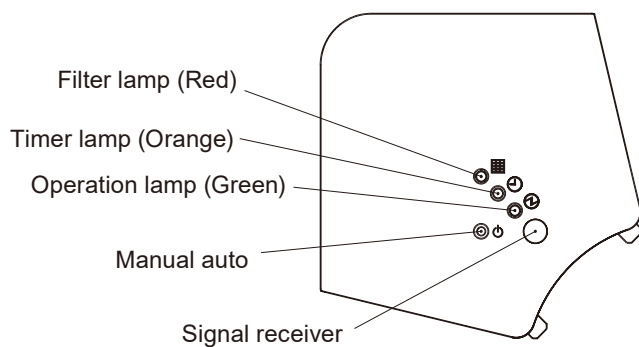
2-11. IR RECEIVER UNIT (for CASSETTE TYPE)

■ MODEL: UTY-LRHYP1

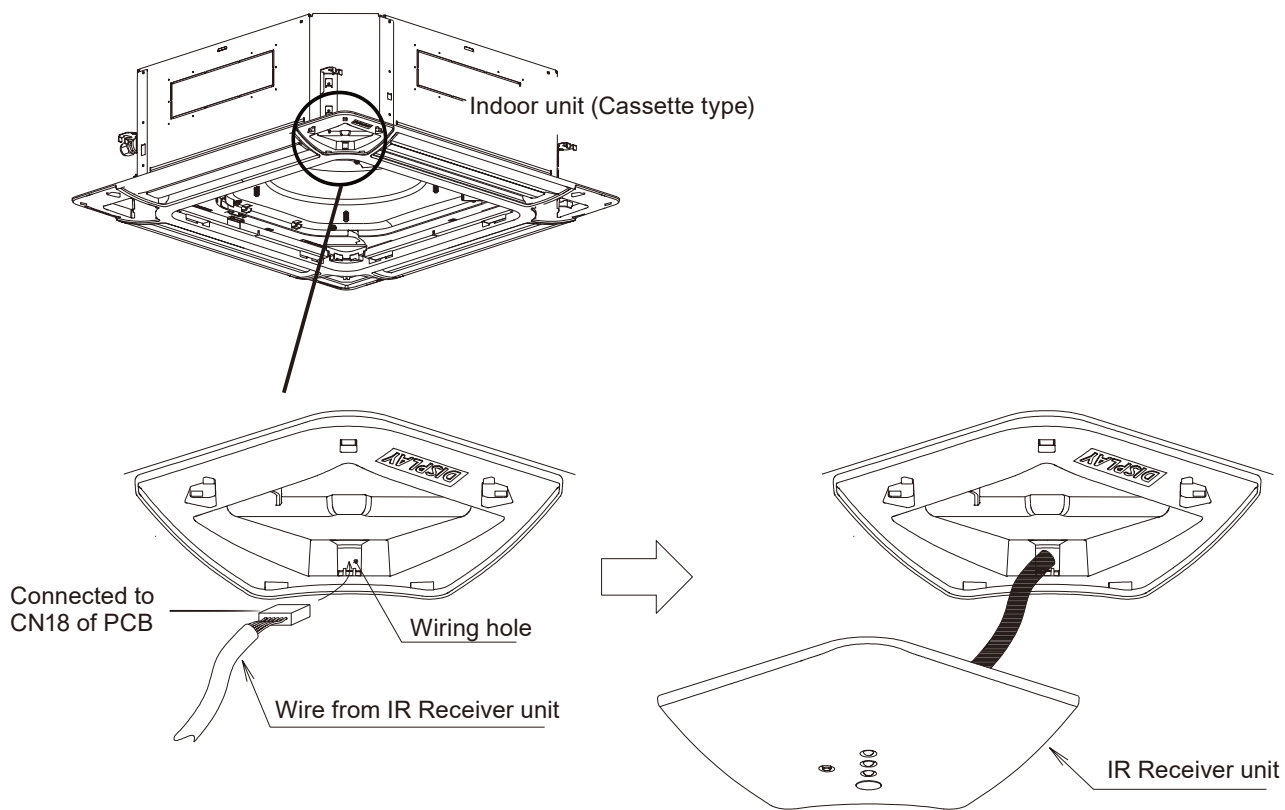


Cassette type indoor unit can be controlled with wireless remote controller if the IR receiver unit is used.

■ FUNCTIONS

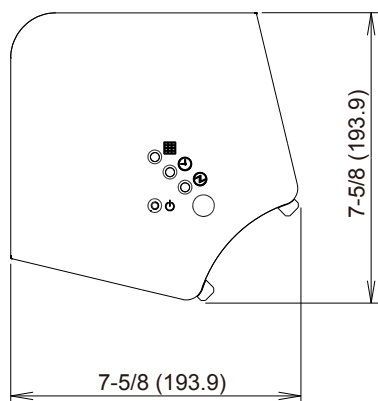


■ ELECTRICAL WIRING

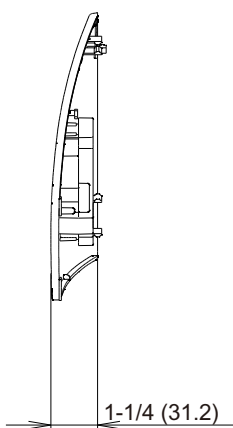


■ DIMENSIONS

Unit : in. (mm)





Front View



Side View

■ PACKING LIST

Name and shape	Quantity	Application
Installation manual 	1	
Strap 	1	Prevent receiver kit from falling down

■ SPECIFICATIONS

Model name	UTY-LRHYB1
Dimensions [H × W × D]: in. (mm)	7-5/8 × 7-5/8 × 1-1/4 (193.9 × 193.9 × 31.2)
Weight: oz. (g)	5 (140)

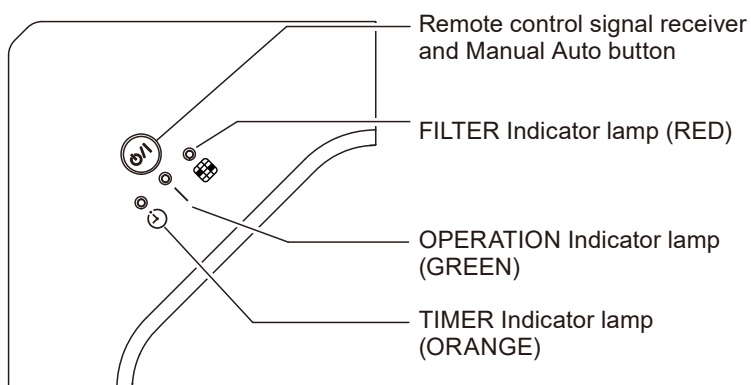
2-12. IR RECEIVER UNIT (for CIRCULAR FLOW CASSETTE TYPE)

■ MODELS: UTY-LBHXD

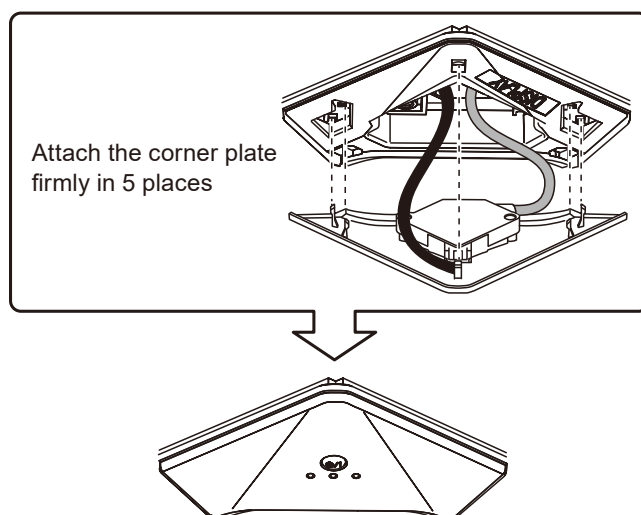
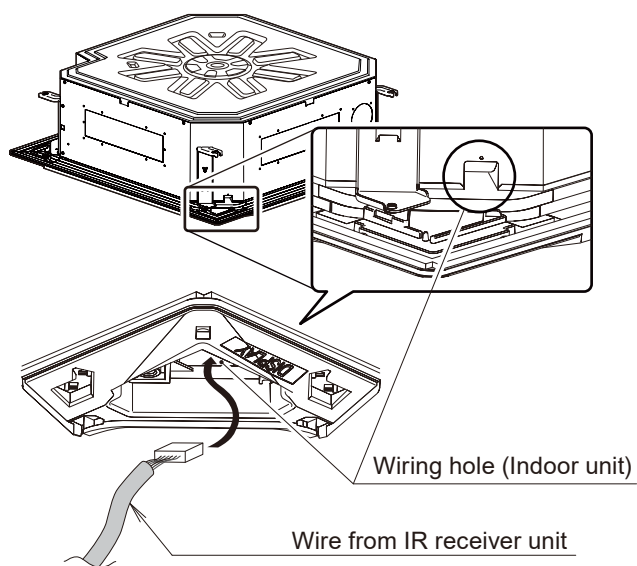


Cassette type indoor unit can be controlled with wireless remote controller if the IR receiver unit is used.

■ FUNCTIONS

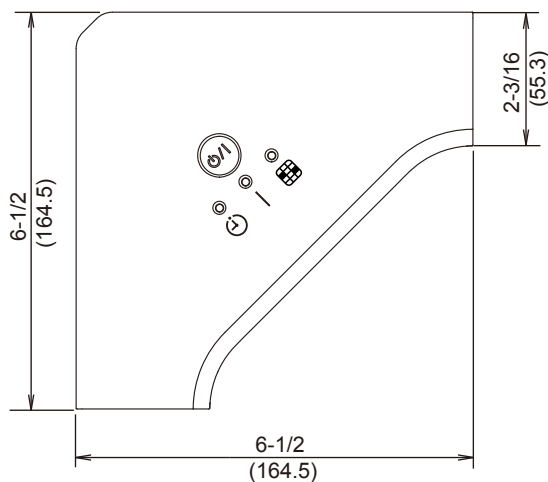


■ ELECTRICAL WIRING

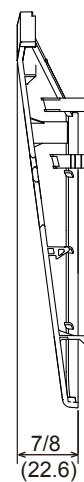


■ DIMENSIONS

Unit: in. (mm)

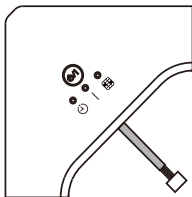




Front View



Side View

■ PACKING LIST

Name and shape	Quantity	Application
IR receiver unit 	1	For receiving the signal from the remote control unit
Strap 	1	Prevent IR receiver unit from falling down
Cable tie 	2	For electrical wiring

■ SPECIFICATIONS

Model name	UTY - LBHXD
Dimensions [H × W × D]: in. (mm)	6-1/2 × 6-1/2 × 7/8 (164.5 × 164.5 × 22.6)
Weight: oz. (g)	4 (110)

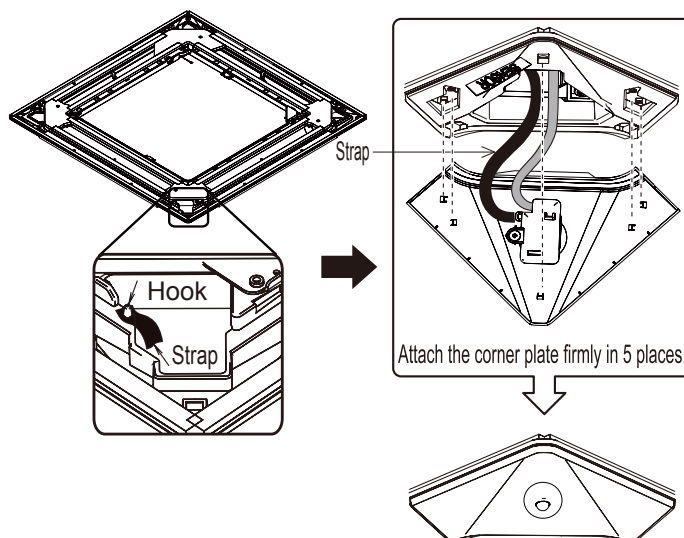
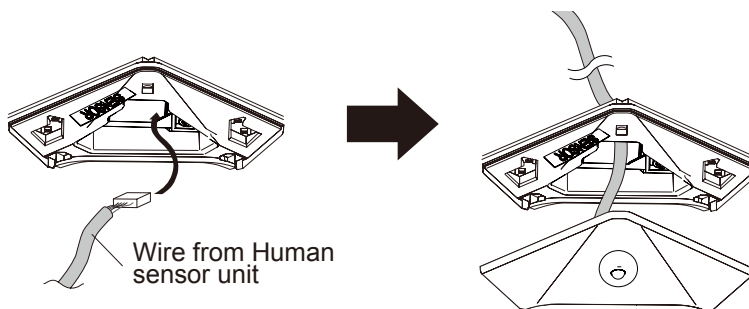
2-13. HUMAN SENSOR KIT (for CIRCULAR FLOW CASSETTE TYPE)

■ MODEL: UTY-SHZXC



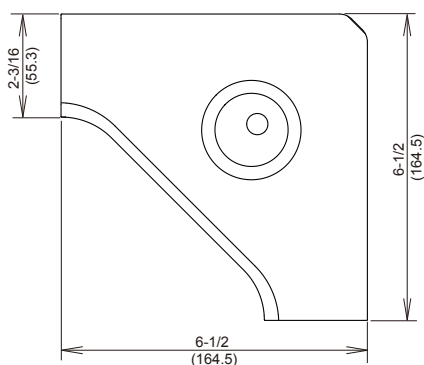
Motion sensor save operation catches the movements of people for wide area and operation stop is also judged automatically.

■ ELECTRICAL WIRING

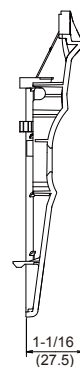


■ DIMENSIONS

Unit: in. (mm)

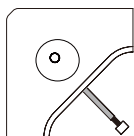

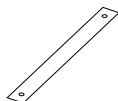



Front View



Side View

■ PACKING LIST

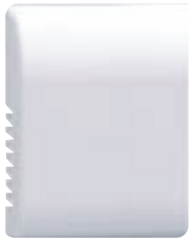
Name and shape	Quantity	Application
Human sensor unit 	1	For detection of movement
Cable tie 	3	For binding wires
Strap 	1	To prevent Human sensor unit from falling
Insulation 	3	To fasten the Human sensor wire

■ SPECIFICATIONS

Model name	UTY-SHZXC
Dimensions [H × W × D]: in. (mm)	6-1/2 × 6-1/2 × 1-1/16 (164.5 × 164.5 × 27.5)
Weight: oz. (g)	4 (110)

2-14. REMOTE SENSOR UNIT

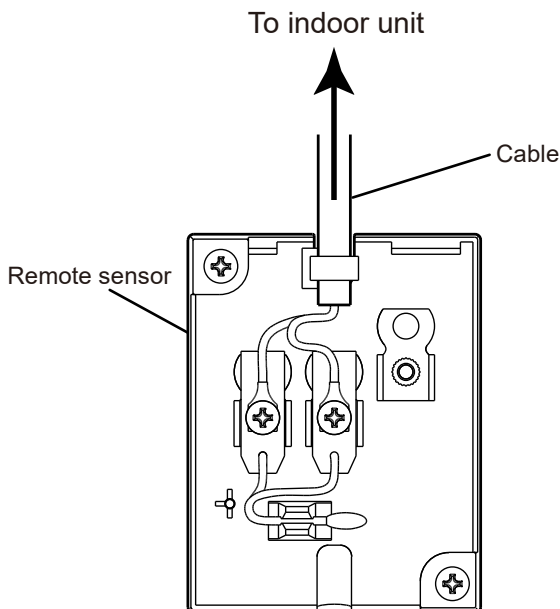
■ MODEL: UTD-XSZX



The remote sensor unit allows for flexible temperature sensing for optimum temperature control.

■ ELECTRICAL WIRING

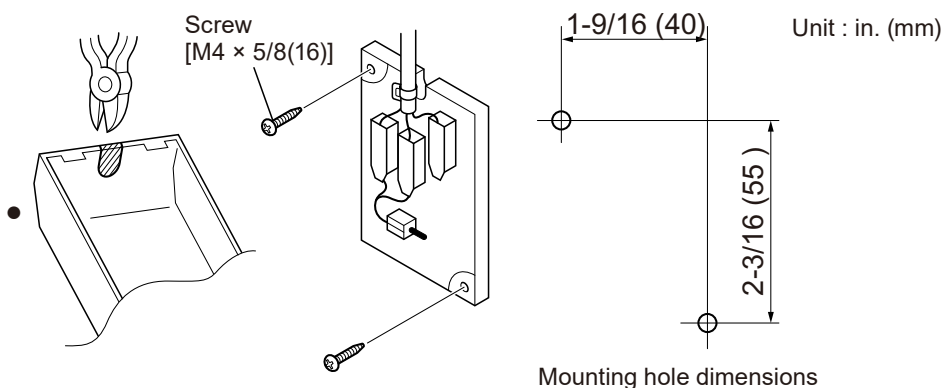
- Remove the screws from the remote sensor, and remove the cover.
- Connect the cable to the remote sensor as shown below.
- Ensure that the wires do not contact each other.



■ INSTALLATION

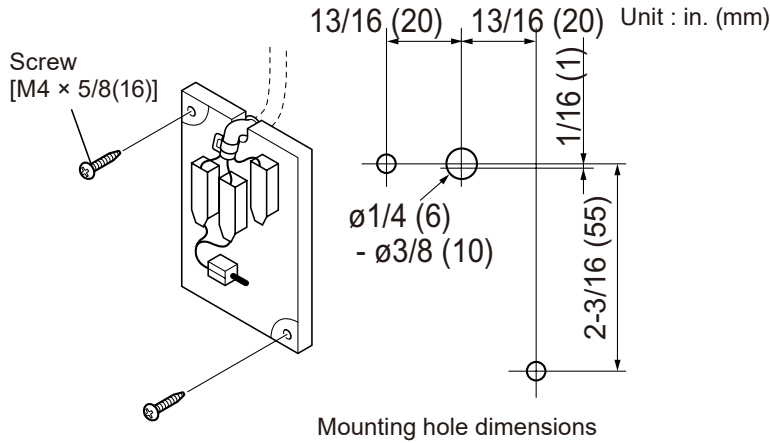
● When the cable is attached to the wall

- Remove the material covering the wiring penetration (thin material) in the cover of the sensor unit with a pair of cutters. The cable passes through this hole.
- Now the remote sensor on the wall using the screws.



● When the cable is buried in the wall

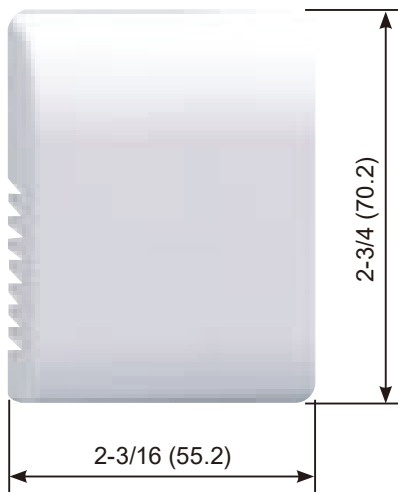
- Remove the material (thinner than the surrounding material) in the wiring hole in the remote sensor using a pair of cutters.
- Drill a hole in the wall for the cable.
- Seal the area around the cable penetration with putty.




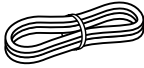
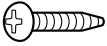


Finish

- Fit the cover on the remote sensor and screw it in place.

■ DIMENSIONS



■ PACKING LIST

Name and shape	Quantity	Application
Installation manual 	1	
Cable [33 ft. (10 m)] 	1	
Screw (M4 × 16 mm) 	2	
Screw (M4 × 10 mm) 	2	
Cord clamp 	1	

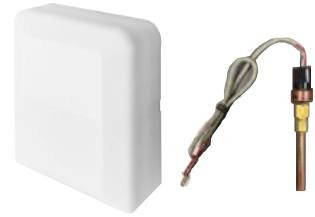
■ SPECIFICATIONS

Model name	UTY-XSZX
Dimensions [H × W × D]: in. (mm)	2-3/4 × 2-3/16 × 11/16 (70.2 × 55.2 × 18)

2-15. PRESSURE SENSOR KIT

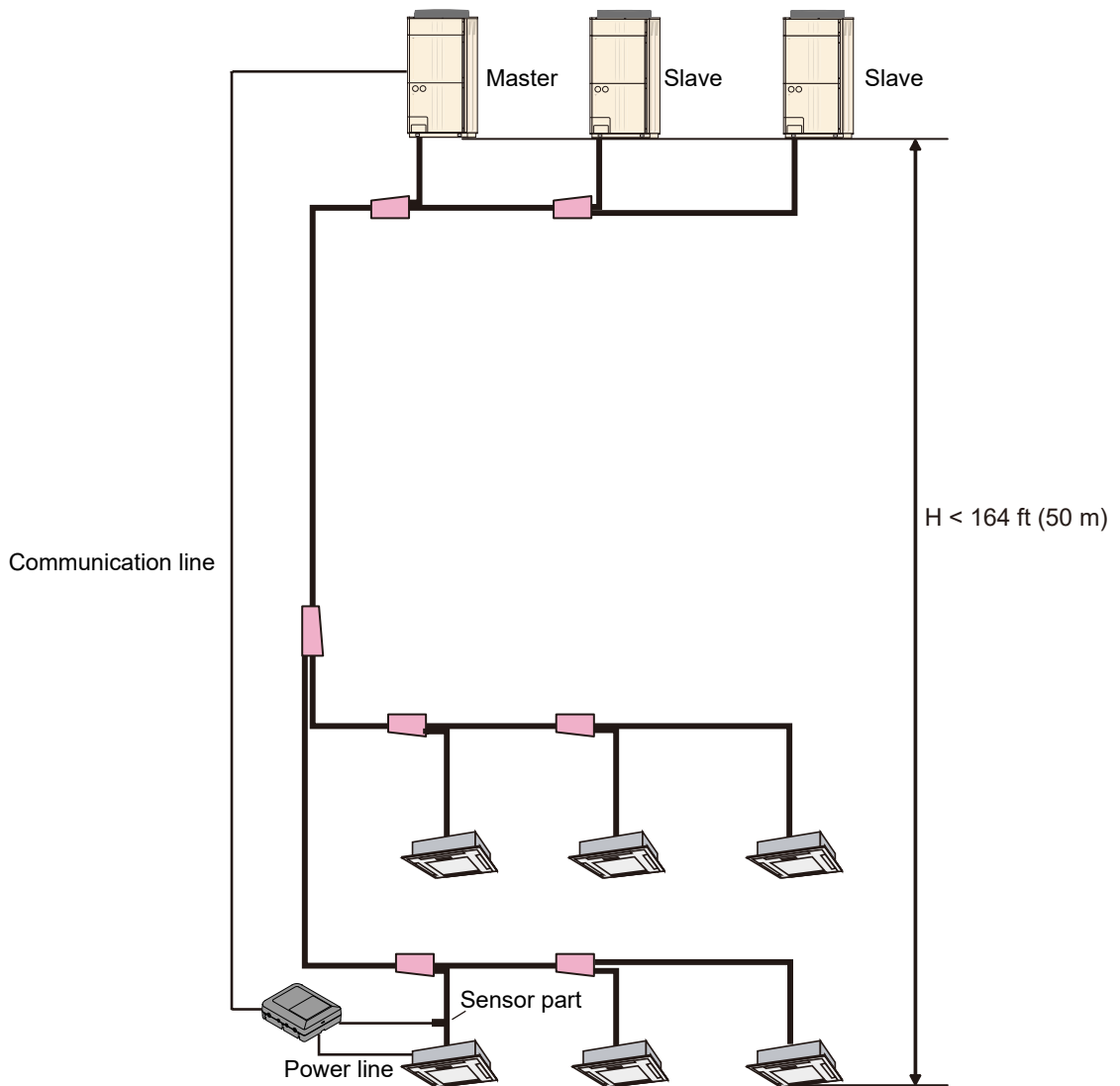
■ MODEL: UTY-SPWX

- Only for V-II series system
- It is used when the outdoor unit is installed higher than the indoor unit and the height difference exceeds 164ft (50m).
- Attach the sensor part to the liquid pipe near the indoor unit.
- The communication line between the control unit and the outdoor unit is connected to the master outdoor unit (the maximum length is 250 m).



■ SYSTEM DIAGRAM

- Proper system diagram



■ SPECIFICATIONS

● Control unit

Power supply (V)		DC 12
Current (A)		0.10
Power consumption (W)		1.2
Temperature [°F (°C)]	Operating	32 to 114 (0–46)
	Packaged	14 to 140 (-10–60)
Humidity (%)	Packaged	0–95 (RH) No condensation
Dimensions [H × W × D] [in (mm)]		1-11/16 × 4-5/8 × 5-1/2 (43 × 117 × 140)
Weight [g (oz)]		7 (200)
Network	The electrical characteristics	RS485
	Maximum cable length (m)	250

● Refrigerant pressure sensor

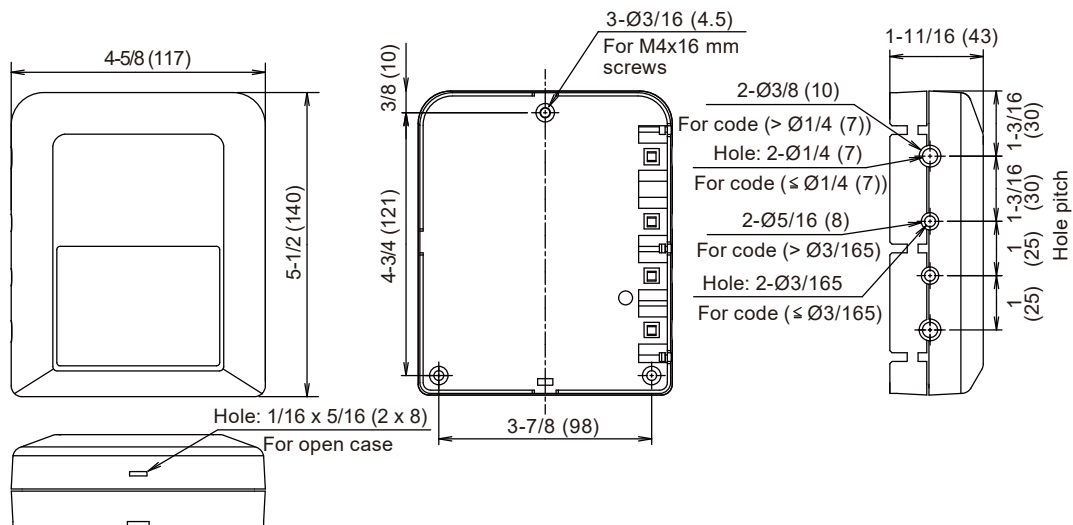
Power supply (V)		DC 5 ± 0.25
Current (mA)		10 or less
Pressure range (MPa)		0 to 5.0
Output voltage (V)		DC 0.5 to 4.5
Accuracy (%FS) at 1013hPa, at 5V Include thermal error		± 2.0 at -4 to 176 (-20 to 80°C)
Temperature [°F (°C)]	Ambient	-22 to 176 (-30–80)
	Fluid	-40 to 248 (-40–120)
Airtight pressure (MPa)		5.5
Test pressure (MPa)		7.5
Burst pressure (MPa)		25 or more

● Joint pipe






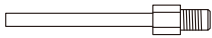
Applicable refrigerant	R410A
Airtight proof (MPa) The leakage rate shall be less than 1×10^{-5} mmHg/s.	Add mixgass (N ₂ +R410A) pressure to 4.15
Airtight pressure (MPa)	4.15
Proof pressure (MPa)	6.23
Burst pressure (MPa)	12.6
Dimensions of pipe [L × D] [in (mm)]	2-12/16 × 1/4 (70 × Φ6.35)

■ DIMENSIONS

Unit: in (mm)



■ PACKING LIST

Name and shape	Quantity	Application
Installation manual 	1	
Cable tie 	4	For fixing the cables inside the control unit.
Screw 	3	For mounting the control unit.
Connector 	1	For connecting the cable and attaching the board connector.
Refrigerant pressure sensor 	1	For refrigerant pressure measurement. The cable length is 5ft (1.6m).
Joint pipe 	1	For attaching the refrigerant pressure sensor to the refrigerant pipe.

■ WIRING SPECIFICATIONS

Use	Size	Cable type	Remarks
Power cable (using remote control cable)	16 to 22 AWG (0.33 to 1.25 mm ²)	Non-polar 2 core, twisted pair sheathed PVC cable *	Maximum cable length: 32ft (10m)
Transmission cable	22 AWG (0.33 mm ²)	22AWG LEVEL 4 (NEMA) non-polar 2core, twisted pair solid core diameter 0.65mm	LONWORKS® compatible cable

* : Use shielded cable in accordance with local rules for remote controller cable.

NOTE: Select a flexible cable that can be bound using cable ties from over the cable sheath inside this product.

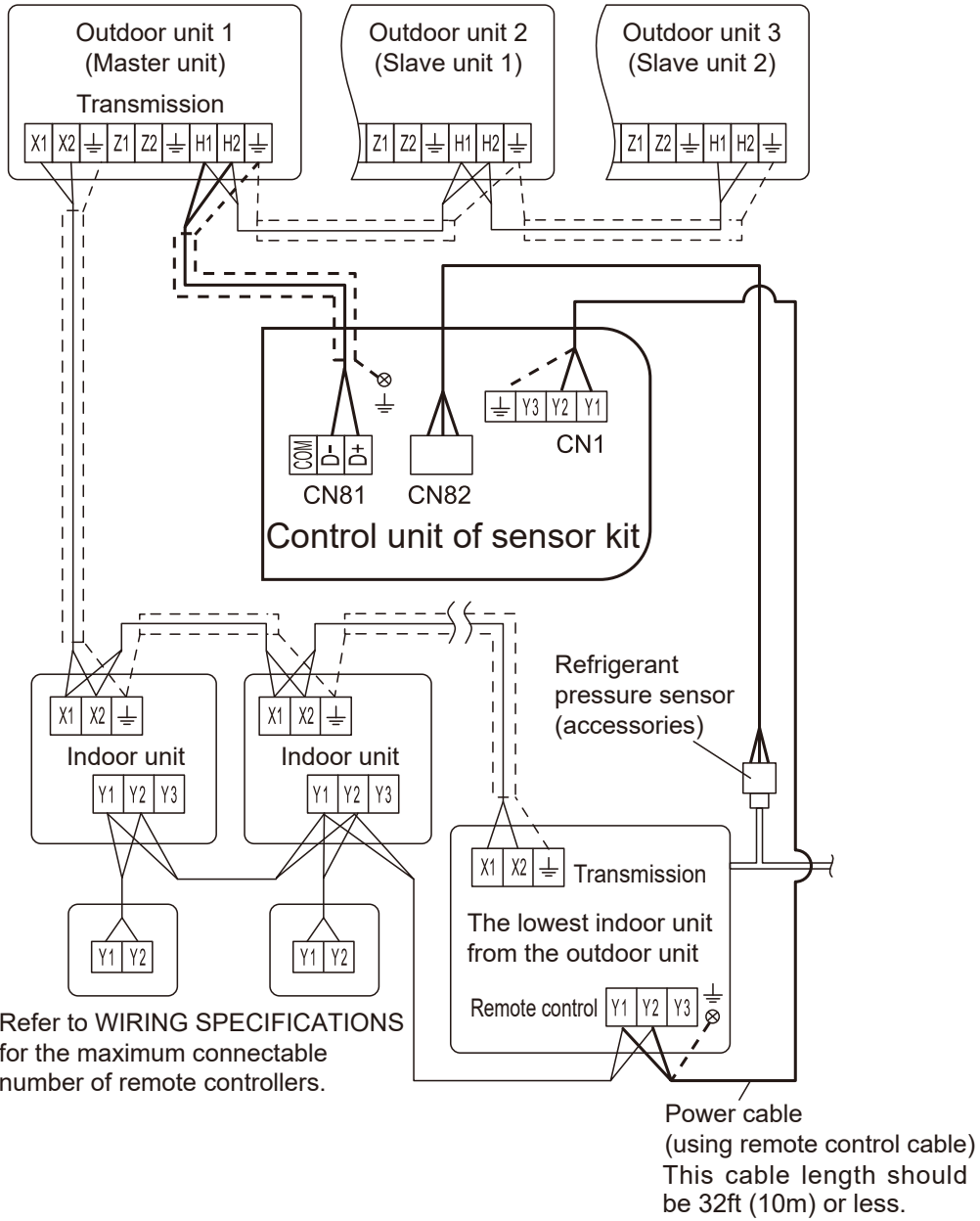
- Maximum connectable number of remote controllers by cable size and length:

Cable size		Maximum connectable number of remote controllers		
AWG	mm ²	L* ≤ 100 m	100 m < L* ≤ 250 m	250 m < L* ≤ 500 m
16	1.25	2	2	2
18	0.75 (1.25 > S* ≥ 0.75)	2	2	Prohibited
20	0.5 (0.75 > S* ≥ 0.5)	2		
22	0.3 (0.5 > S* ≥ 0.3)	2		

NOTE: Cable size and length conditions within the remote controller group this product is connected:
Size and length of the cable connected to this product should be included.

WIRING DIAGRAM

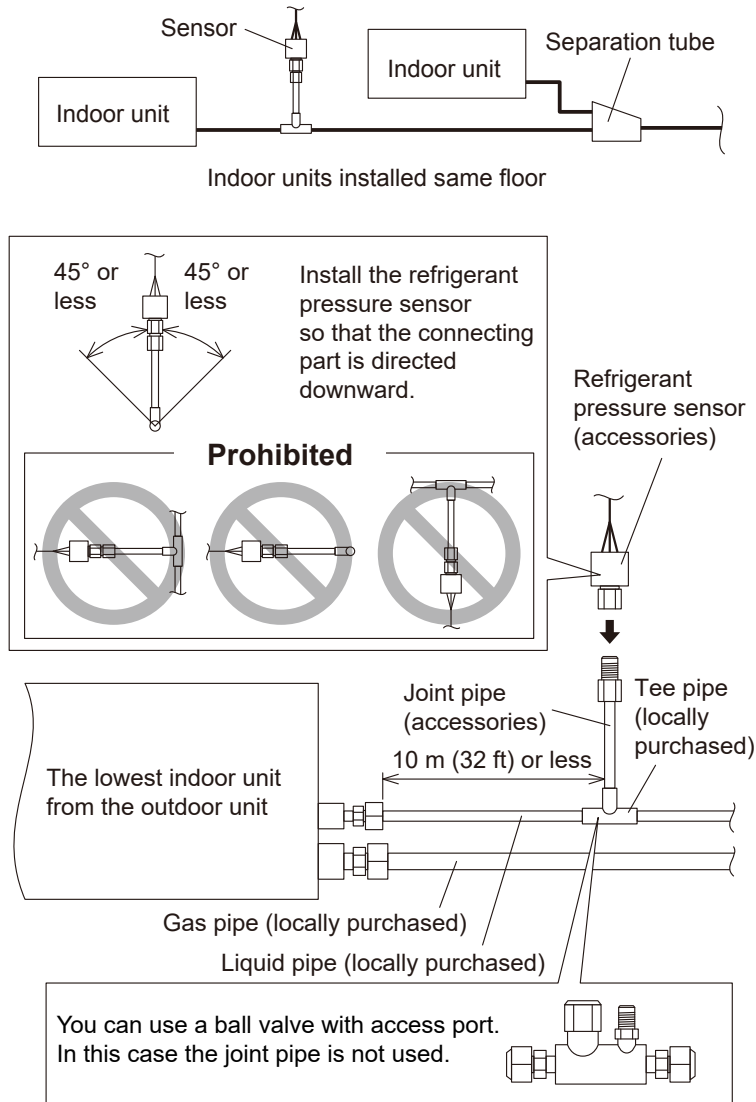
Only one pressure sensor kit is installed in each refrigerant system.



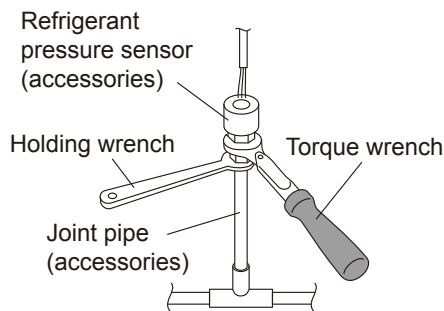
■ INSTALLING THE SENSOR

● Installing the refrigerant pressure sensor

Installing the sensor between the indoor unit and the separation tube (or outdoor unit).

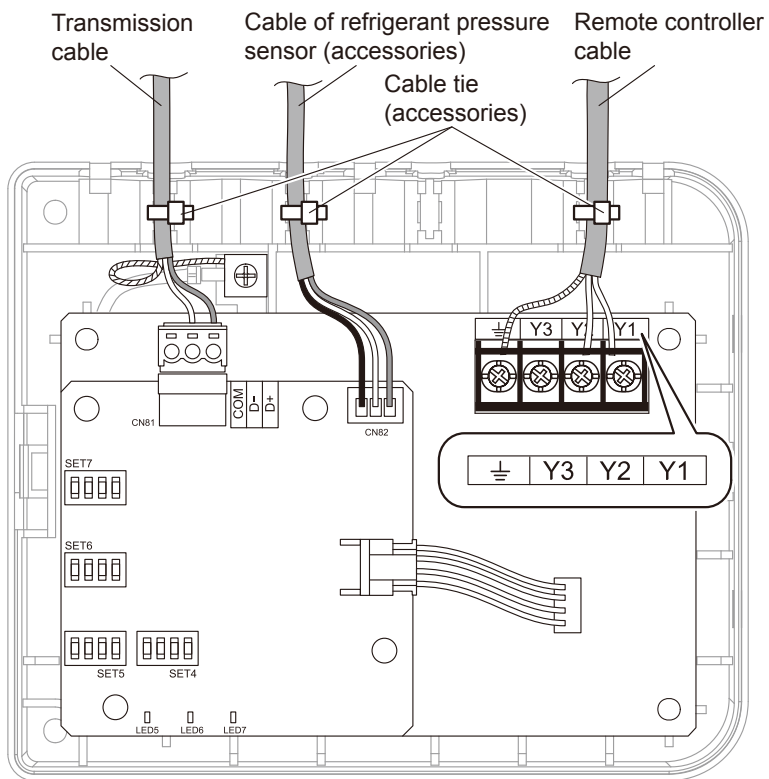


Tighten the refrigerant pressure sensor with a torque wrench and a holding wrench.

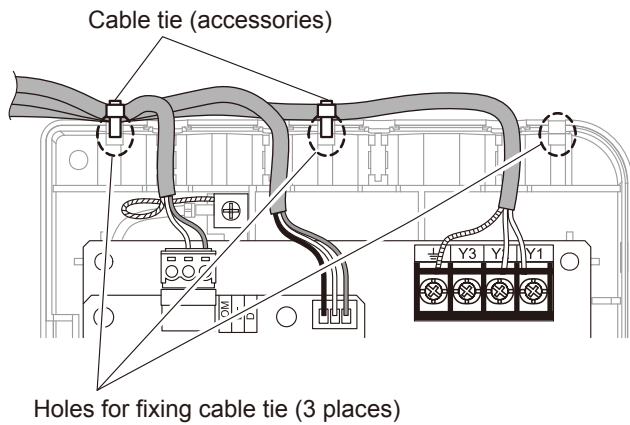


Tightening torque
11 ±1.1 lbf·ft
(15 ±1.5 N·m)

■ INSTALLING THE CONTROLLER UNIT



Fix the cable with cable tie using 3 fixing holes.
 Fix the connection cable even outside this product as necessary.



■ INSTALLATION

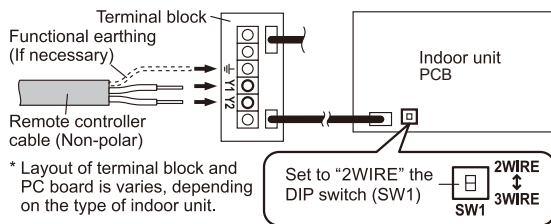
● Connection Pattern

NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit types	Connection Pattern
All Cassette type	Pattern A
All Duct type	
All Ceiling type	
All Compact Floor type	
Compact Floor type	
Wall Mounted type	Pattern B

● Pattern A

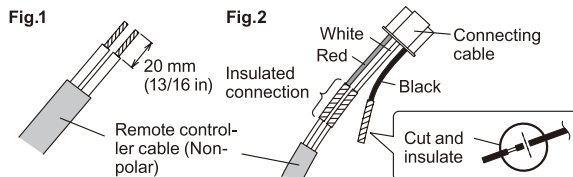
Connect the end of remote controller cable directly to the exclusive terminal block. Set to "2WIRE" the DIP switch (SW1) on the PCB of the indoor unit.



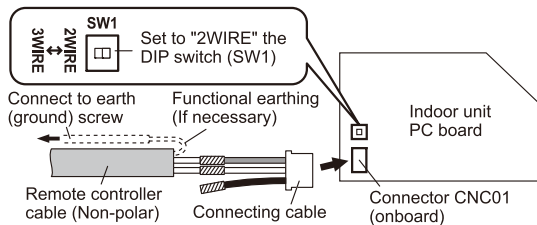
NOTE: The equipment may fail if it is connected to the outdoor unit or the power supply terminal block.

● Pattern B

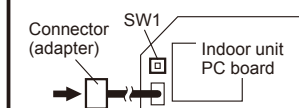
1) Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown in Fig. 1. Connect the remote controller cable and connecting cable as shown in Fig. 2. Be sure to insulate the connection between the cables.



2) Insert connecting cable to the connector. Set to "2WIRE" the DIP switch (SW1) on the PC board of the indoor unit.



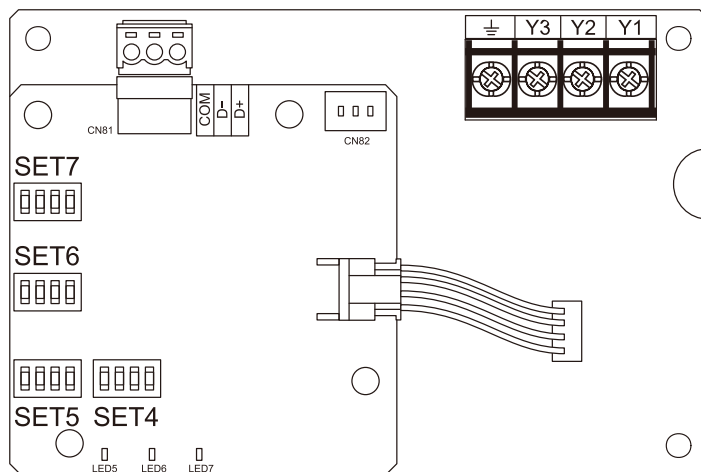
* Layout of Connector and PCB varies, depending on the type of indoor unit



■ DIP SWITCH SETTING

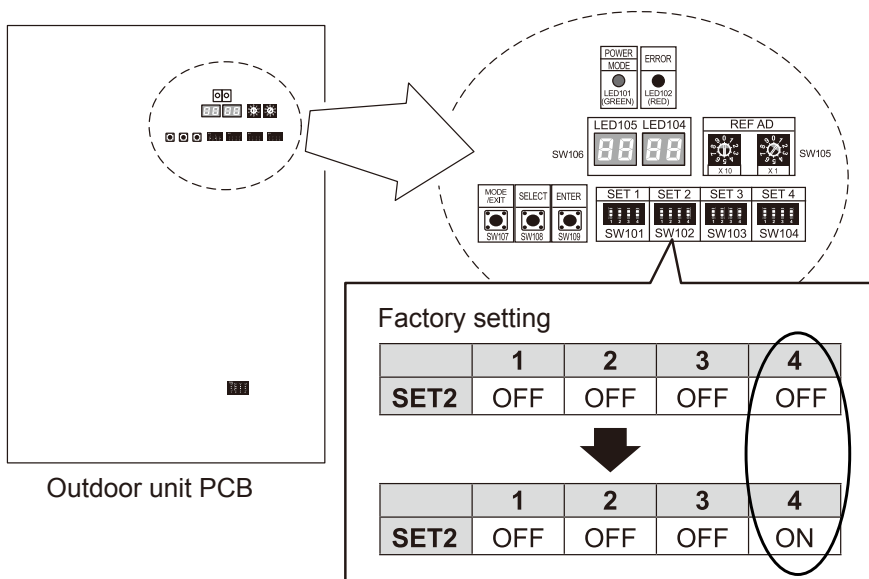
● Controller unit

Setting of DIP switch is unnecessary.



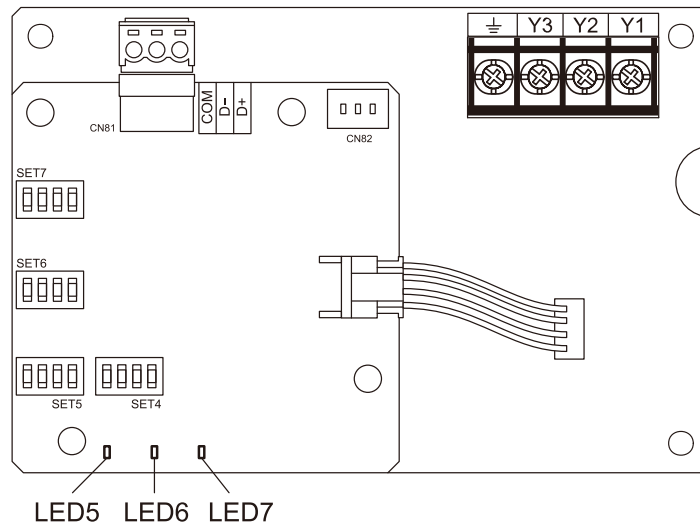
● Outdoor unit (Master unit only)

Change setting the DIP switch of the outdoor unit as shown below.



■ LED DISPLAY

● Positions



● Normal code

Flashng On	Flashng Off	Off	During initialization sequence
		Off	Normally operating

● Error code

● (1)	● (3)	○	Communication error between outdoor units
● (8)	● (6)	○	Outdoor unit pressure sensor error

● : 0.5s ON / 0.5s OFF

○ : 0.1s ON / 0.1s OFF

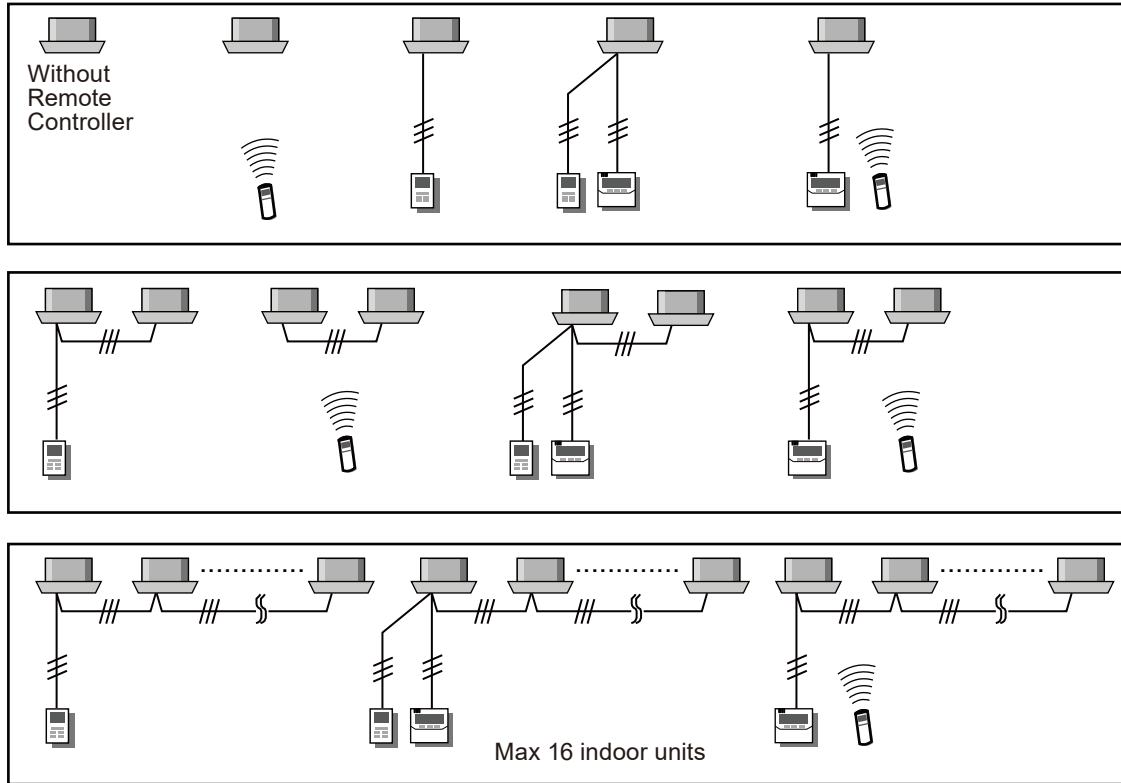
(N) : Number of flashing [Flashing N times (or once) per cycle]

2-16. GROUP CONTROL METHOD

■ REMOTE CONTROLLER GROUP

Wired, Simple and Wireless Remote Controllers can be used simultaneously in the following combinations.

Example of combination for "Remote controller group"



Connectable indoor unit : 1-16

Connectable remote controller : 0 - 2

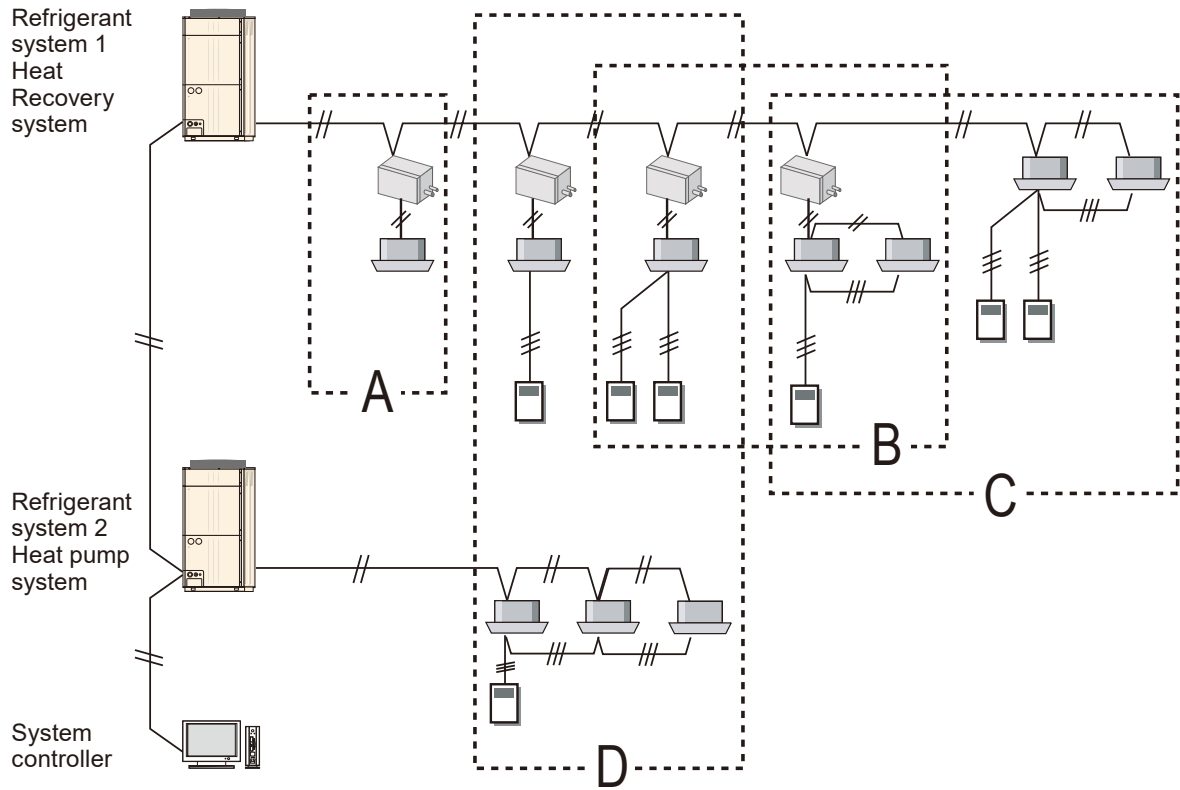
● Notes

1. Indoor units in same remote controller group will be same operation.
2. "Remote controller group" spanning the refrigerant system is not allowed.
3. When using 2 remote controller.
 - Last command is priority. (operation mode might be fixed by system operation.)
 - Timer setting function become disable from slave remote controller or Wireless Remote Controller.

GROUP

This function is used when operating a multiple number of remote controller group at a time from the System Controller or Touch Panel Controller or Central Remote Controller.

Example



Group A: "Group" is possible with only one indoor unit

Group B: "Group" is possible with spanning the RB groups.

Group C: "Group" is possible with spanning the RB group and indoor unit of cooling only type.

Group D: "Group" is possible with spanning the refrigerant systems.

- The contents of a setting may not be reflected by operational status. (B, C, D group)

2-17. COMPARISON TABLE OF CONTROLLERS

■ LIST OF CONTROLLER FUNCTION

Item	System Controller	System Controller Lite	Touch Panel Controller	Central Remote Controller	Wired Remote Controller (Touch panel)	Wired Remote Controller	Simple Remote Controller	Simple *1 Remote Controller	Wireless Remote Controller	
Model	UTY-APGXZ1 UTY-APGX	UTY-ALGXZ1 UTY-ALGX	UTY-DTGYZ1 UTY-DTGY	UTY-DCGY	UTY-RNRUZ* UTY-RNRU	UTY-RNKU	UTY-RSRY (UTY-RSKU)	UTY-RHRY (UTY-RHKU)	UTY-LNHU	
Max. controllable remote controller groups	1,600	400	400	100	1	1	1	1	1	
Max. controllable indoor units	1,600	400	400	100	16	16	16	16	16	
Max. controllable groups	1,600	400	400	16	—	—	—	—	—	
Air conditioning control function	On / Off	●	●	●	●*2	●	●	●	●	
	Operation mode setting	●	●	●	●	●	●	—	●	
	Fan speed setting	●	●	●	●	●	●	●	●	
	Room temp. setting	●	●	●	●	●	●	●	●	
	Room temp. set point limitation	●	●	●	●	—	● (-)	● (-)	—	
	Test operation	—	—	●	●	●	●	● (-)	●	
	Up / down air direction flap setting	●	●	●	●	●	● (-)	● (-)	●	
	Right / left air direction flap setting	●	●	●	●	●	—	—	●	
	Group setting	●	●	●	●	—	—	—	—	
	RC prohibition	●	●	●	●	—	—	—	—	
	Anti freeze setting	●	●	●	●	●	—	—	—	
	Away	—	—	—	—	●	—	—	—	
	Economy mode setting	●	●	●	●	●	●	—	—	●
	Display	Failure	●	●	●	●	●	●	●	—
Defrosting		●	●	●	●	●	●	●	—	
Current time		●	●	●	●	●	●	—	●	
Day of week		●	●	●	—	●	●	—	—	
R.C. prohibition		●	●	●	●	●	●	●	—	
Cooling / heating priority		●	●	●	●	●	●	●	—	
Address display		●	●	●	●	●	●	●	—	
Room temp		—	—	—	—	●	—	● (-)	● (-)	
Multi language		●	●	●	●	●	—	—	—	
Summer time		●	●	●	●	●	—	—	—	
Name registration		●	●	●	●	●	—	—	—	
Backlight	—	—	●	●	●	—	●	●		

*1: "Operation mode" setting is not available for this model.

*2: On/off setting of the economizer can be performed simultaneously.

●: Supported, ○: Supported soon, —: Not supported yet

Item		System Controller	System Controller Lite	Touch Panel Controller	Central Remote Controller	Wired Remote Controller (Touch panel)	Wired Remote Controller	Simple Remote Controller	Simple ^{*1} Remote Controller	Wireless Remote Controller	
Model		UTY-APGXZ1 UTY-APGX	UTY-ALGXZ1 UTY-ALGX	UTY-DTGYZ1 UTY-DTGY	UTY-DCGY	UTY-RNRUZ* UTY-RNRU	UTY-RNKU	UTY-RSRY (UTY-RSKU)	UTY-RHRY (UTY-RHKU)	UTY-LNHU	
Timer	Schedule timer	Period	Year	Year	Year	Week	Week	Week	—	—	—
		On/Off, Temp, mode, times per day	144	144	20	20	8	4	—	—	—
	On / Off timer		—	—	—	—	●	●	—	—	●
	Sleep timer		—	—	—	—	—	—	—	—	●
	Program timer		—	—	—	—	—	—	—	—	●
	Auto off timer		—	—	—	—	●	—	—	—	—
	Day off		●	●	●	●	●	●	—	—	—
Min. unit of timer setting (Minutes)		10	10	10	10	10 - 30	30	—	—	5	
Control	Status monitoring system		●	●	●	●	—	—	—	—	—
	Electricity charge calculation		●	●	—	—	—	—	—	—	—
	Error history		●	●	●	●	●	●	—	—	—
	Emergency stop		—	—	●*3	●*3	—	—	—	—	—
	Control via internet		●	●	—	—	—	—	—	—	—
	E-mail notification for malfunction		●	●	—	—	—	—	—	—	—
	Key lock		● Password setting	● Password setting	● Password setting	● Password setting	● Child lock	—	—	—	—

*1: "Operation mode" setting is not available for this model.

*3: This function is available only through external input control.

●: Supported, ○: Supported soon, —: Not supported yet

3. ADAPTOR / CONVERTOR UNITS

The following types of convertors and adaptors are available.

- **Network Converter (UTY-VTGX)**
For connecting single split type system.
- **Network Converter (UTY-VGGXZ1)**
For connecting single split type system.
(A change of DIP switch setting is necessary)
- **Modbus® Converter for VRF (UTY-VMGX)**
For connection between VRF network system and a Modbus® open network.
- **Network Converter for LONWORKS® (UTY-VLGX)**
For connection between VRF network system and a LONWORKS® open network for management of small to medium-sized BMS.
- **Thermostat Converter (UTY-TTRX)**
For control Fujitsu General products using a third-party thermostat controller.
- **BACnet® Gateway (UTY-VBGX : Hardware)**
For connection between VRF network system to the BMS system using BACnet® protocol.
- **BACnet® Gateway (UTY-ABGXZ1, UTY-ABGX : Software)**
The central control of maximum 1,600 indoor units can be realized by connecting the VRF network system to the BACnet®, a global standard for open networks.
- **Signal Amplifier (UTY-VSGXZ1)**
When the total length of transmission line exceeds 1640ft. (500m) or the number of units exceeds 64, Signal amplifier will be necessary.
- **External Switch Controller (UTY-TERX, UTY-TEKX)**
Air conditioner switching can be controlled by connecting other sensor switches.

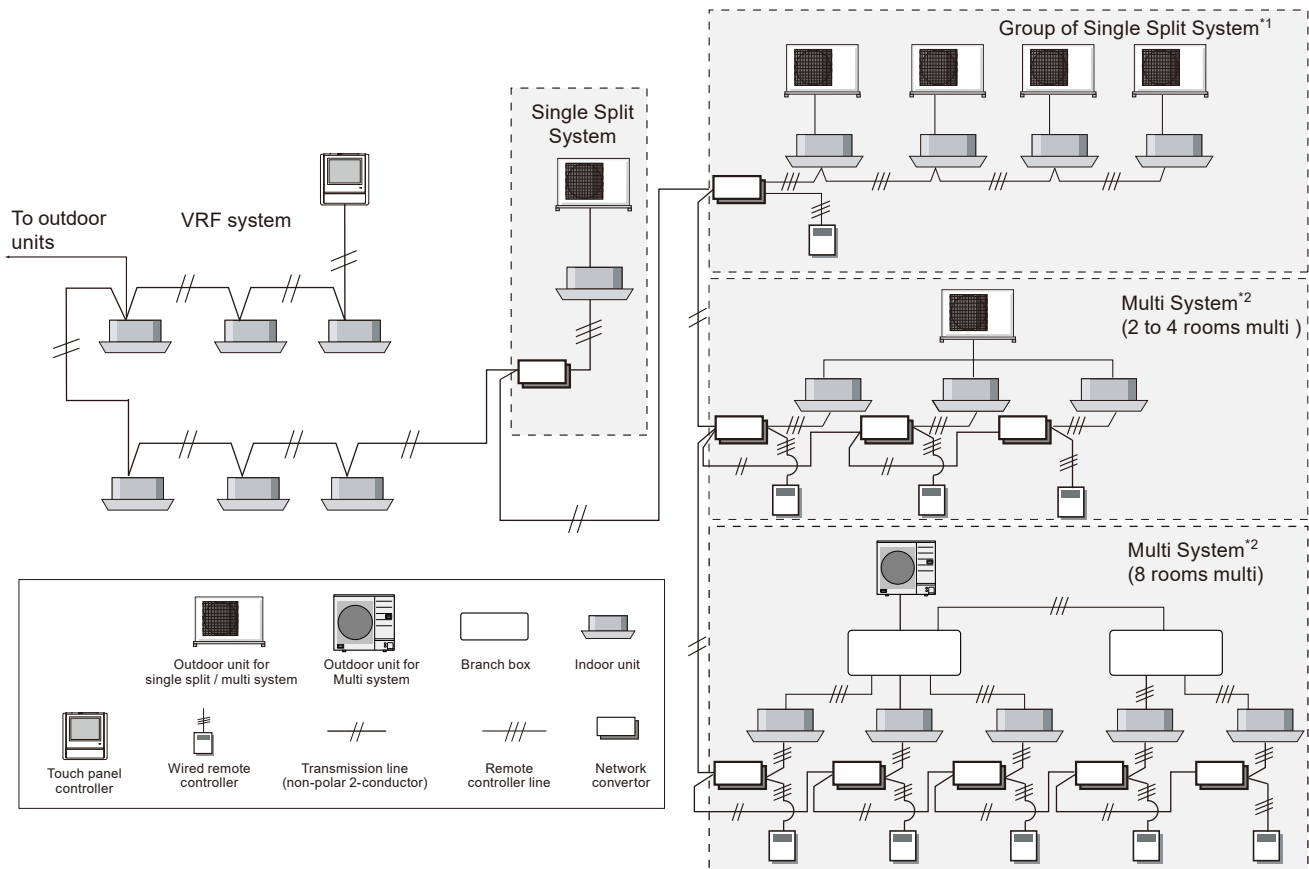
3-1. NETWORK CONVERTOR

■ MODEL: UTY-VTGX



- With this network convertor, single split type and multi system air conditioners can be controlled by Central remote controller, Touch panel controller, System controller in VRF network system or by wired remote controller that is connected to the Network convertor.
- Start/Stop, operation mode, temperature setting, fan speed, etc. can be done with these controllers.
- One Network convertor can be connected and controlled up to 16 indoor units.
- 1 wired remote controller is possible for one network convertor by UTY-VTGX.
- Up to 100 network convertors can be connected in one VRF network system. (One Network convertor is regarded as one refrigerant system. The total refrigerant systems in one VRF network system must be within 100.)

■ SYSTEM DIAGRAM



*1 : All indoor units connected to a network convertor are operating under same status.

*2 : Network convertor is necessary for each indoor unit to control indoor unit individually.

■ APPLICABLE MODELS

● Connectable remote controllers

3 types of wired remote controller shown in the table below can be connected to this unit.

The indoor unit that can be connected is the indoor unit that can connect to following remote controller.

Model name	RC number	Type
UTY-RNRU	AR-WEA** AR-WEB** AR-WEC**	Non-polar 2 wire
UTY-RNNUM / UTY-RNNYM	AR-WAE**	Polar 3 wire
UTB-YUD	AR-6TC**	

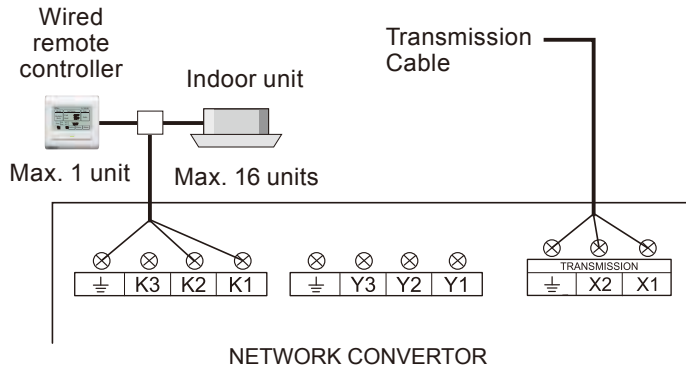
(* arbitrary character)

■ FUNCTIONS

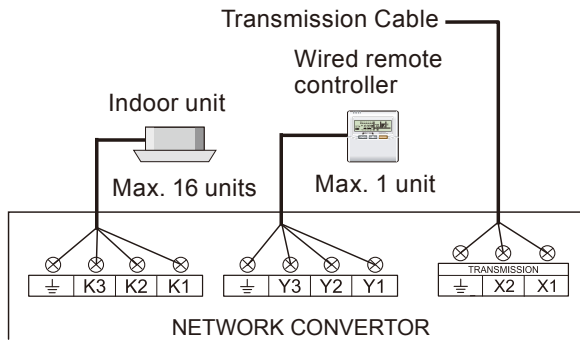
Operation	Non-polar 2 wire	Polar 3 wire
Operation of louver from VRF	○	×
Operation of louver from wired remote controller	○	○
Restriction of wireless remote controller from central	○	×
Restriction of wired remote controller from central	○	○
Antifreeze	×	×
Setting high and low temperature limit	○	×
Indoor unit rotation	×	×
Turning off indoor unit external thermostat	×	×
Outdoor unit forced stop	×	×
Outdoor unit capacity save	×	×
Outdoor unit low noise	×	×
Electricity distribution	×	×
Display model name	×	×
System time	○	×
Remote setting	×	×
Local setting by the wired remote controller	○	×

■ ELECTRICAL WIRING

● For non-polar 2 wire



● For polar 3 wire

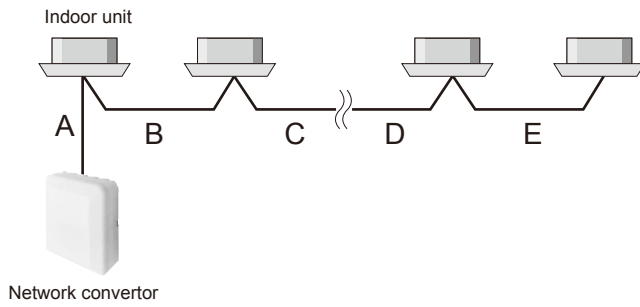


NOTES:

- Do not bind the power cable and remote controller cable to avoid an erroneous operation.
- Use shield cable for transmission cable in accordance with the regional cable standard.
- Use sheathed PVC cable or shielded cable for remote controller cable in accordance with the regional cable standard.
- Use ground wire to ground the network convertor.

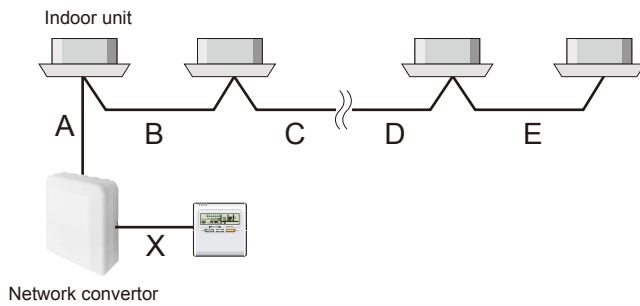
■ LIMITED WIRING LENGTH

● For non-polar 2 wire



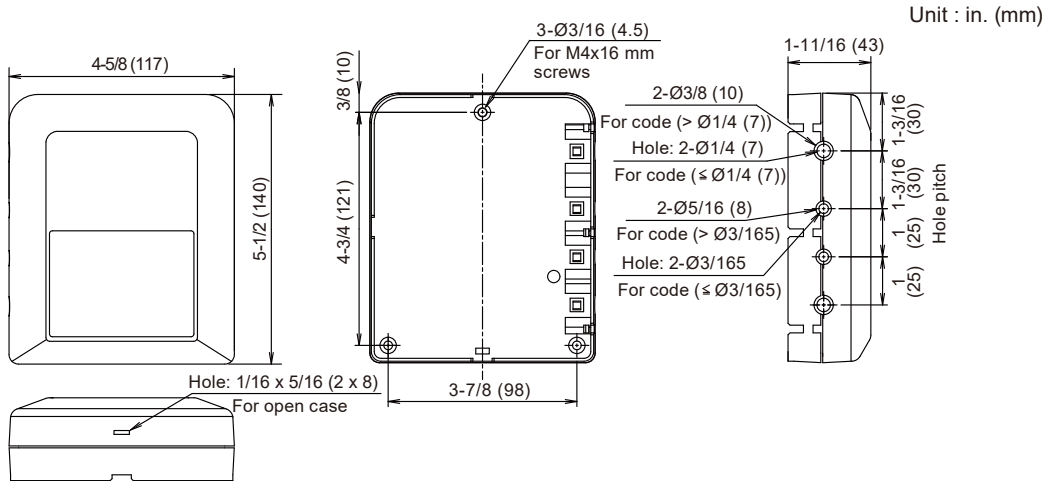
A, B, C, D, E : Remote controller cable. (Refer to Chapter6. 4-4 for detail specifications.)
 $A \leq 6 \text{ ft. (2 m)}$ and $A+B+C+D+E \leq 1,640 \text{ ft. (500 m)}$.

● For polar 3 wire






A, B, C, D, E, X : Remote controller cable. (Refer to Chapter6. 4-4 for detail specifications.)
 $A \leq 6 \text{ ft. (2 m)}$, $A+B+C+D+E \leq 328 \text{ ft. (100 m)}$ and $X \leq 328 \text{ ft. (100 m)}$.

DIMENSIONS



PACKING LIST

The following installation parts are supplied. Use them as required.

Name and shape	Quantity	Application
Installation manual 	1	
Cable tie 	4	For mounting the remote controller cable and transmission cable.
Screw (M4 × 16 mm) 	3	For mounting the network convertor.

WIRING SPECIFICATIONS

Use	Size	Wire type	Remarks
Transmission cable	22AWG (0.33 mm ²)	LEVEL4 (NEMA) non-polar 2 core, twisted pair solid core Shielded	LONWORKS® compatible cable
Remote controller cable (2-wire type)	22 to 16AWG (0.33 to 1.25 mm ²)	Non-polar 2core	Use sheathed PVC cable or shielded cable in accordance with the regional cable standard.
Remote controller cable (3-wire type)	22AWG (0.33 mm ²)	Polar 3 core	

SPECIFICATIONS

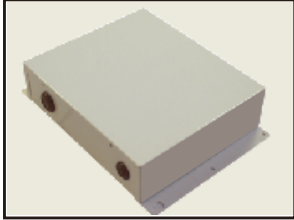
Input Power (W)		2
Temperature: °F(°C)	Operating	32 to 114.8 (0 to 46)
	Packaged	14 to 140 (-10 to 60)
Humidity (%)	Packaged	0 to 95 (RH) ; No condensation
Dimensions [H × W × D]: in. (mm)		5-1/2 × 4-5/8 × 1-11/16 (140 × 117 × 43)
Weight: oz. (g)		9 (250)

3-2. NETWORK CONVERTOR

■ MODEL: UTY-VGGXZ1

For connecting single split type system

[A change of DIP switch setting is necessary]

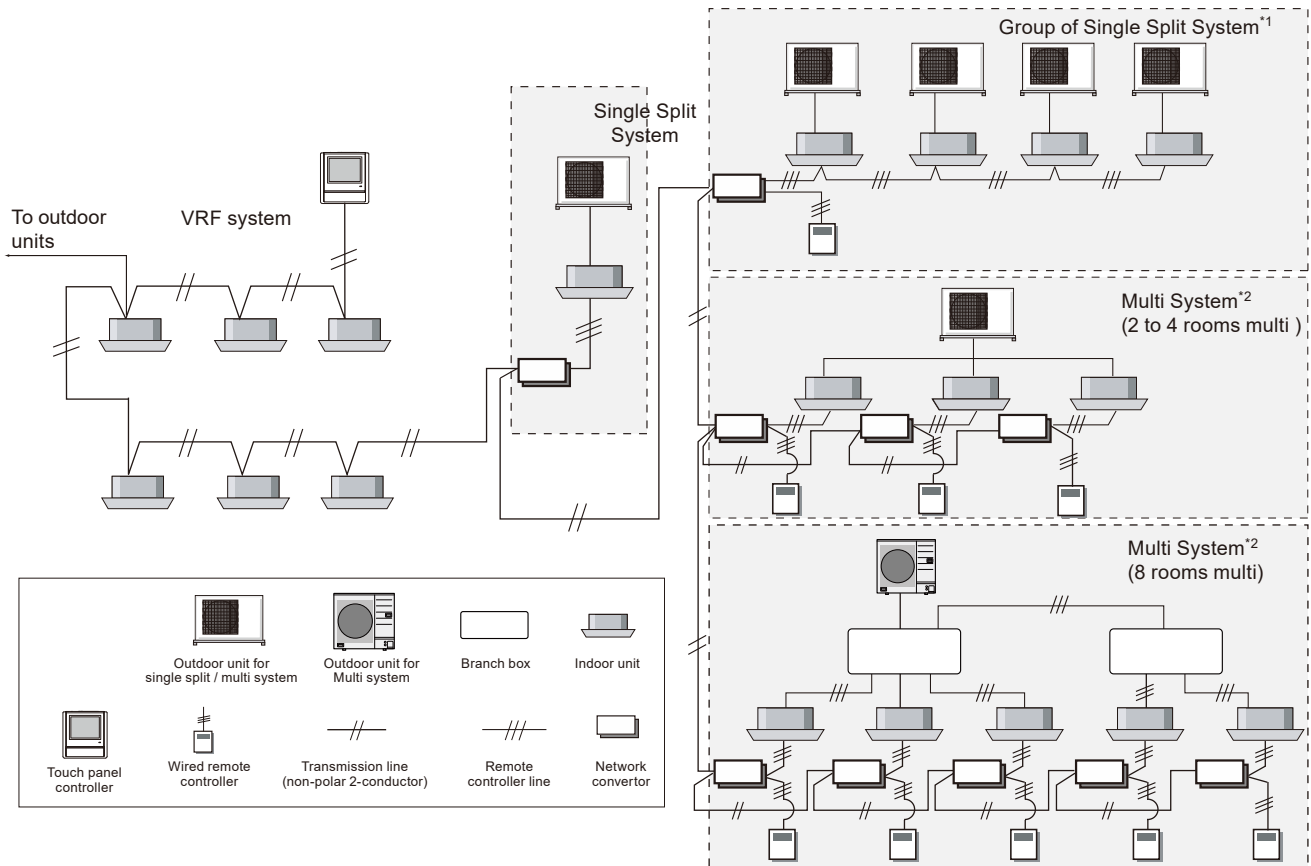


- With this network converter, single split type, multi system and HFI system air conditioners can be controlled by Touch panel controller, System controller in VRF network system or by wired remote controller that is connected to the Network converter.
- Start/Stop, operation mode, temperature setting, fan speed, etc. can be done with these controllers.
- One Network converter can be connected and controlled up to 16 indoor units.
- 2 wired remote controllers are possible for one network converter.
- Up to 100 network converters can be connected in one VRF network system. (One Network converter is regarded as one refrigerant system. The total refrigerant systems in one VRF network system must be within 100.)

■ FUNCTIONS

- Start/Stop
- Temperature control
- Operation mode
- Timer setting
- Fan control
- Central control (Lock the remote controller functions)

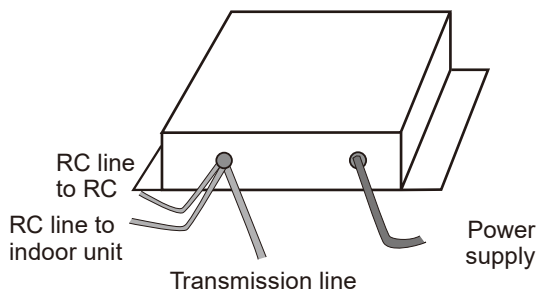
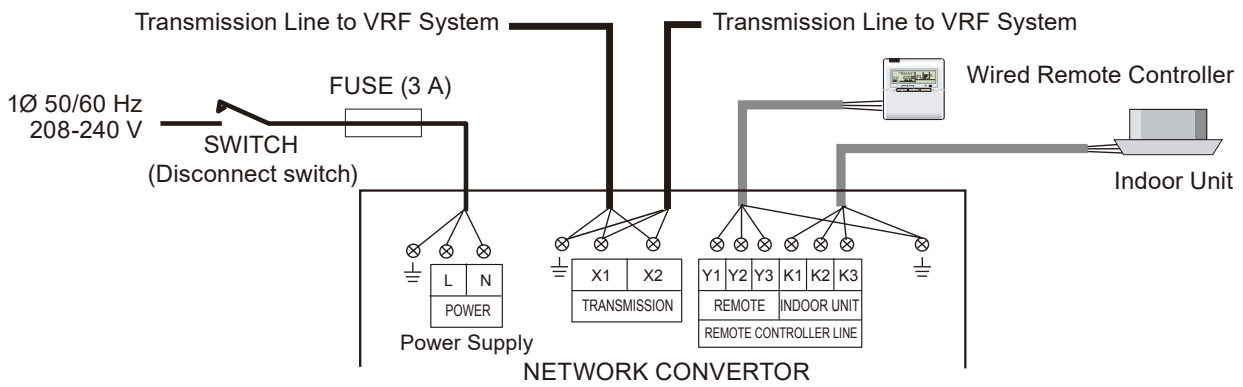
■ SYSTEM DIAGRAM



*1 : All indoor units connected to a network converter are operating under same status.

*2 : Network converter is necessary for each indoor unit to control indoor unit individually.

■ ELECTRICAL WIRING



NOTES:

- Do not tie the power cable with the controller cable; this will cause communication failure.
- Use shield cable for transmission line and remote controller line. The shield metal should be grounded.
- Use ground wire to ground the network convertor.

■ APPLICABLE MODELS

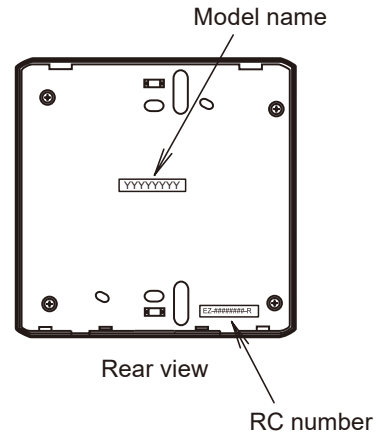
Single Split type		○
	Wired Remote Controller model	○
	Wireless Remote Controller model	×

● Connectable remote controllers

3 types of wired remote controller shown in the table below can be connected to this unit.

Model name	RC number
UTB-UUB / UTB-YUB * ¹	AR-3TA**
UTY-RNBYU / UTB-YUD * ¹	AR-6TC**
UTY-RNNUM / UTY-RNNYM * ¹	AR-WAE**

(* arbitrary character)



● Connectable indoor units

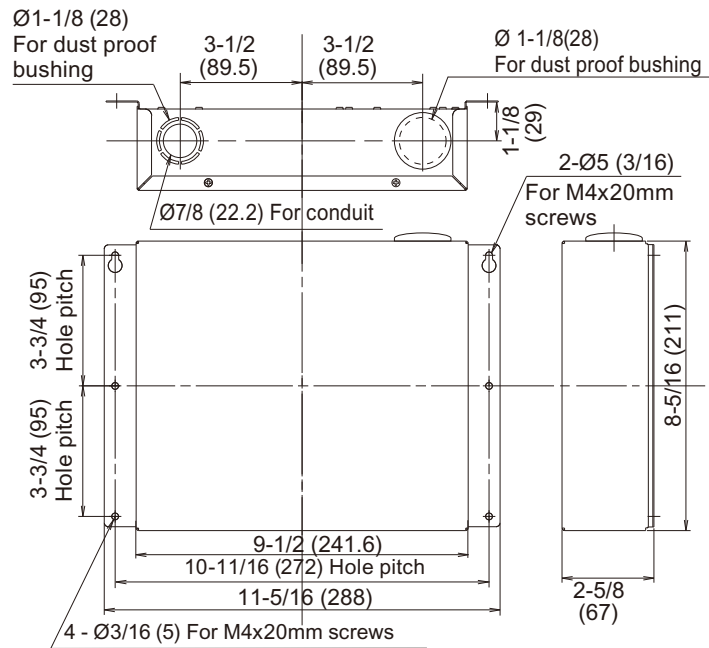
Indoor units that accept following wired remote controllers (accessories or optional parts) are connectable with this unit.

RC number
AR-3TA**, AR-6TC**, AR-WAE**

EZ-099DHSE-R, EZ-000DHSE-R, EZ-0001HSE-R, EZ-000GHSE-R, EZ-00004HSE-R, EZ-00005HSE-R, EZ-0015HSE-R, EZ-0019HSE-R, EZ-099DHSEFR, EZ-0001HSEFR, EZ-000DHSEFR, EZ-000GHSEFR, EZ-0015HSEFR EZ-0994HSE-R, EZ-000EHSE-R, EZ-0994HSEFR EZ-099CWSE-R, EZ-000AWSE-R, EZ-0001WSE-R, EZ-000FWSE-R, EZ-0012WSE-R, EZ-099CWSEFR, EZ-0001WSEFR, EZ-000AWSEFR EZ-09906WSE-R, EZ-000BWSE-R, EZ-09906WSEFR

EZ type remote controllers cannot control indoor units via this unit. When you want to operate indoor units directly by remote controller, the optional remote controller (*1) must be purchased.





■ DIMENSIONS



Unit : in. (mm)

■ PACKING LIST

The following installation parts are supplied. Use them as required.

Name and shape	Quantity	Application
Installation manual 	1	
Cable Tie 	4	For securing controller cable.
Screw (M4 × 20 mm) 	4	For mounting the network convertor.
Dust proof brushing 	1	For connecting the power supply cable. (Except in U.S.A. and Canada)

■ WIRING SPECIFICATIONS

Use	Size	Wire type	Remarks
Power supply cable	Maximum 16 AWG (1.25 mm ²)	60245 IEC 57 or equivalent	1 ø AC 208 - 240 V 50/60Hz, 2 Wire + ground (Always ground the unit)
	Minimum 20 AWG (0.5 mm ²)		
Transmission cable	22AWG (0.33 mm ²)	LEVEL4 (NEMA) non-polar 2 core, twisted pair solid core Shielded	LONWORKS® compatible cable
Remote controller cable	22AWG (0.33 mm ²)	Polar 3 core	Use sheathed PVC cable or shielded cable in accordance with the regional cable standard.
External input / output cable	0.33 mm ² (22AWG)	Polar 2core, Twisted pair	Use shielded cable in accordance with the regional cable standard.
Fuse capacity	3 A		

■ SPECIFICATIONS

Power supply	1ø AC 208 - 240 V 50/60 Hz
Input Power (W)	6.5
Temperature: °F (°C)	Operating 32 to 114.8 (0 to 46)
	Packaged 14 to 140 (-10 to 60)
Humidity (%)	Packaged 0 to 95 (RH) ; No condensation
Dimensions [H × W × D]: in. (mm)	2-5/8 × 11-5/16 × 8-5/16 (67 × 288 × 211)
Weight: lbs. oz. (g)	3 lbs. (1,500)

3-3. MODBUS® CONVERTOR FOR VRF

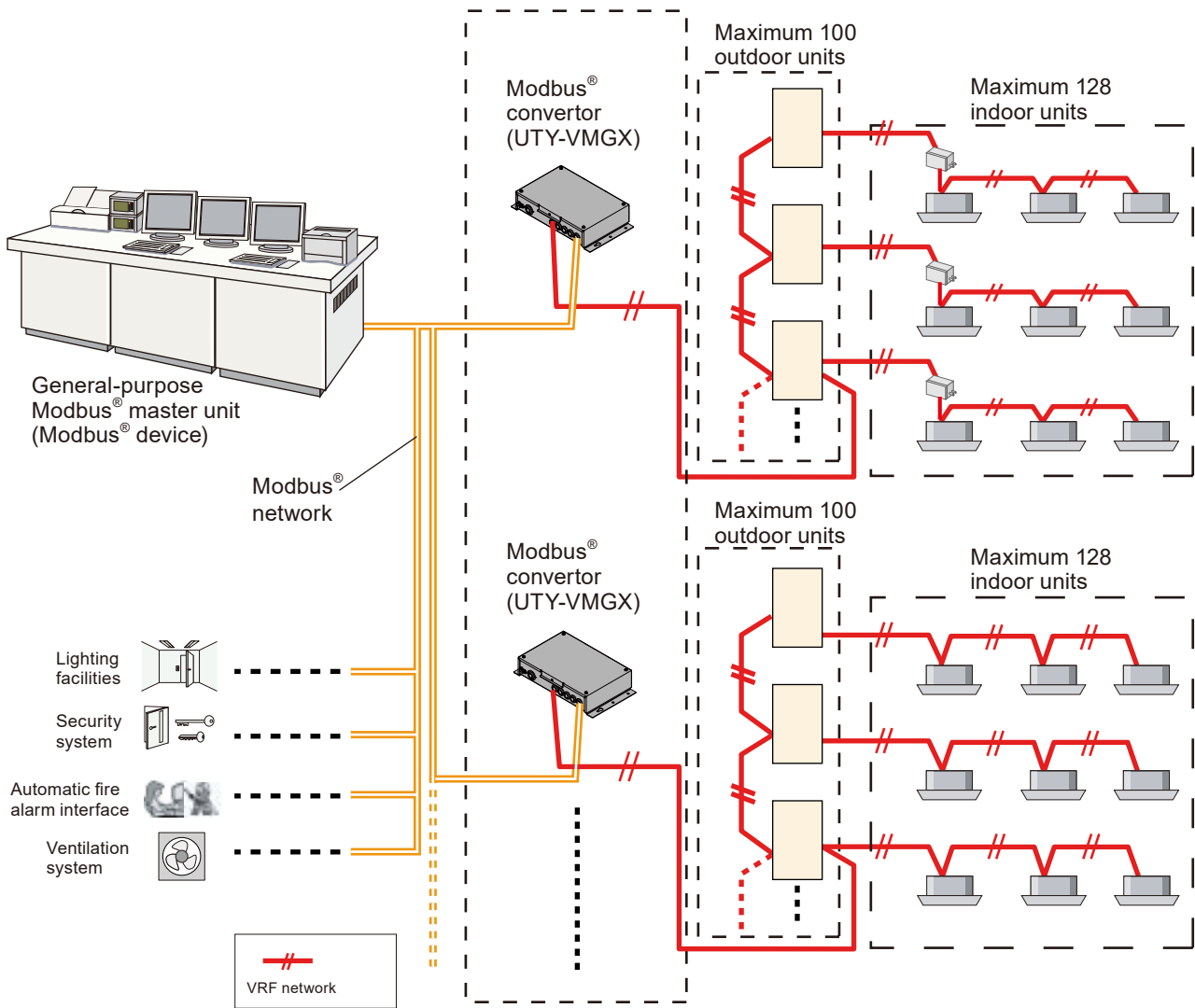
■ MODEL: UTY-VMGX



- The convertor for connecting VRF network system to the BMS system built by Modbus® open network, for manage small to medium sized BMS and VRF network system.

■ SYSTEM DIAGRAM

● Proper system diagram



● Connected unit

Maximum controllable indoor unit number per 1 Modbus® Convertor		128
Maximum controllable outdoor unit number per 1 Modbus® Convertor		100
Maximum connectable Modbus® Convertor number per 1 VRF network system		9
Maximum number of connected Modbus® Convertor units to one Modbus® master unit	Without repeater	31
	With repeater	247

■ FUNCTIONS

● Indoor unit control

- Individual control

Commands from Modbus® Network are sent to the respective indoor units. (Modbus® Network → respective indoor units of VRF Network)

- Batch control

Commands from Modbus® Network are sent to all indoor units connected to VRF Network. (Modbus® Network → All indoor units of VRF Network)

● Indoor unit status monitoring

Indoor unit status is communicated to the Modbus® Network in the form of LON® Network variables. (Modbus® Network ← All indoor units of VRF Network)

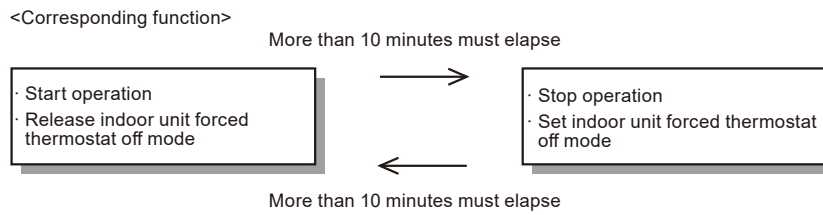
■ CONTROL AND MONITORING ITEMS

NOTE: For detailed information, check the Interface Specification.

Item	Function	Description
Indoor Unit Control (Individual / Batch)	ON/OFF Command	Start / Stop operation
	Operation Mode Setting	Cooling / Heating / Auto / Fan / Dry
	Temperature Setting	Set room temperature
	Airflow Mode Setting	Set airflow
	Set Point Temperature Limit Setting	Set room temperature lower limit & room temperature upper limit
	Thermostat Off setting	Thermostat off (Only one controller in VRF Network System can do this)
	Centrally Control (Filter Reset)	Prohibition of filter sign reset of remote controller
	Centrally Control (All Mode)	Prohibition of all mode of remote controller
	Centrally Control (Timer Mode)	Prohibition of timer mode of remote controller
	Centrally Control (Set Temperature Mode)	Prohibition of set temperature mode of remote controller
	Centrally Control (ON/OFF Mode)	Prohibition of ON/OFF mode of remote controller
	Centrally Control (ON Mode)	Prohibition of ON mode of remote controller
Centrally Control (Operation Mode)	Prohibition of operation mode of remote controller	
Indoor Unit Control (Individual)	Filter Sign Reset	Set filter sign reset command
	Antifreeze Setting	Set antifreeze command
	Energy Save Mode Setting	Set energy save command
	Vertical/Horizontal Airflow Direction Louver Setting	Set Vertical/Horizontal airflow direction louver
Indoor Unit Control (Batch)	Time Setting	Set time setting command (The controllers those are connected in VRF Network System are an object)
	Emergency STOP Setting	Set Emergency STOP command
Outdoor Unit Control (Individual)	Outdoor Unit Low Noise	Outdoor unit low noise level setting
	Outdoor Unit Capacity Save	Outdoor unit capacity save setting
Indoor Unit Monitoring (Individual)	ON/OFF Status	ON / OFF status
	Operation Mode Setting Status	Heating / Cooling / Auto / Fan / Dry mode status
	Temperature Setting Status	Room set temperature status
	Airflow Mode Setting Status	Airflow mode status
	Set Point Temperature Limit Status	Room set temperature limit status
	Thermostat Off Setting Status	Thermostat off set value status
	Centrally Control (Filter Reset) Status	Remote controller filter reset prohibition status
	Centrally Control (All Mode) Status	Remote controller all mode prohibition status
	Centrally Control (Timer Mode) Status	Remote controller timer mode prohibition status
	Centrally Control (Set Temperature) Status	Remote controller set temp. prohibition status
	Centrally Control (ON/OFF) Status	Remote controller ON / OFF prohibition status
	Centrally Control (ON) Status	Remote controller ON prohibition status
	Centrally Control (Operation) Status	Remote controller operation prohibition status
	Antifreeze Setting Status	Antifreeze set status
	Energy Save Mode Setting Status	Energy save mode set status
	Filter Sign Reset Status	Filter sign reset status
	Room Temperature Status	Room temperature status
	Error Code Status	Error Code status can be monitored
	Vertical/Horizontal Airflow Direction Louver Status	Vertical/Horizontal Airflow Direction Louver Status
Indoor Unit Status	Defrost / oil recovery / pumpdown can be monitored	

Item	Function	Description
Indoor Unit Monitoring (Batch)	Maintenance Mode Status	Maintenance status
	Emergency STOP Setting Status	Emergency STOP setting status
	ON / OFF Status	The indoor unit which is now operating can be monitored in all indoor units
	Error Status	The indoor unit which is now error can be monitored in all indoor units
Outdoor Unit Monitoring (Individual)	Outdoor Unit Low Noise	Outdoor unit low noise level can be monitored
	Outdoor Unit Capacity Save	Outdoor unit capacity save can be monitored
Convertor Unit Monitoring (Individual)	Error Code Status	Error code status
	Modbus [®] Communication Setting Information	Baud rate / slave address can be monitored
	Model Name	Convertor model name can be confirmed
	Software Version	Convertor software version can be confirmed

- * To protect the compressor of the outdoor unit, carefully read and understand the following cautions that may affect the operation of the compressor before executing the setting.
- When performing periodical settings like schedule settings for the following functions, perform the setting to all the indoor units in the same refrigerant system simultaneously, conforming to the timing restriction described below.



- * Forced thermostat OFF instruction
 - Only one equipment can send these instructions for each refrigerant system.
 - When these instructions are sent by multiple equipment, the system may not respond as instructed or may malfunction.


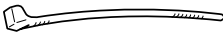




■ SPECIFICATIONS

Power supply	1ø AC 208-240 V 50/60 Hz	
Input Power (W)	2.0	
Temperature: °F (°C)	Operating	32 to 114.8 (0 to 46)
	Packaged	14 to 140 (-10 to 60)
Humidity (%)	Packaged	0 to 95 (RH) ;
		No condensation
Dimensions [H × W × D]: in. (mm)	2-1/8 × 10-1/4 × 5-7/8 (54 × 260 × 150)	
Weight: lbs. (g)	2 (1,100)	

● Transmission specifications

Transfer mode	RTU mode
Communication method	Half-duplex operation, Master/slave method
Communication speed	9,600bps / 19,200bps
Synchronous system	Asynchronous communication method
Data bit	8 bit
Parity	even/odd/none
Stop bit	2 bit (no parity) / 1 bit
Network	3 wire RS485
Maximum cable length	3,280 ft. (1,000 m)

■ PACKING LIST

Name and shape	Quantity	Application
Installation manual 	1	Use during installation.
Cable tie 	7	For mounting the power supply cable and transmission cable.
Screw (M4 × 16 mm) 	4	For mounting the network convertor.
DVD 	1	For initial setting.
Modbus [®] connector 	1	For connecting the cable and attaching the board connector.
USB cable 	1	For initial setting tool.

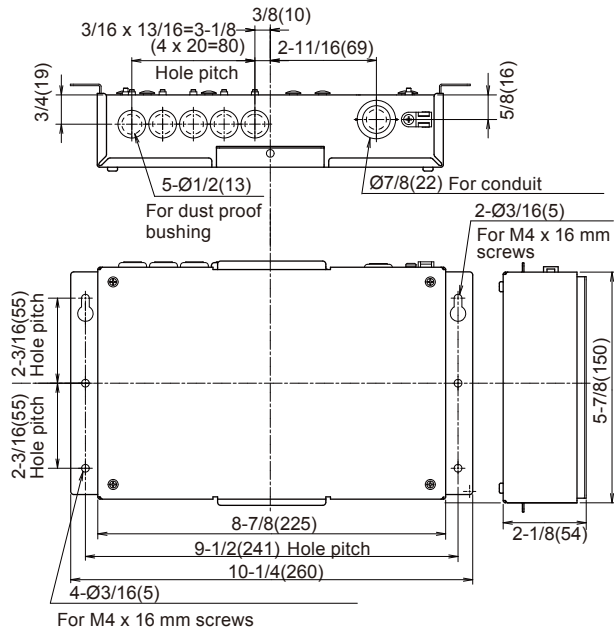
■ PERSONAL COMPUTER SYSTEM REQUIREMENTS

To install Tool for Convertor (UTY-VMGX), applicable PC needs to satisfy the following system requirements.

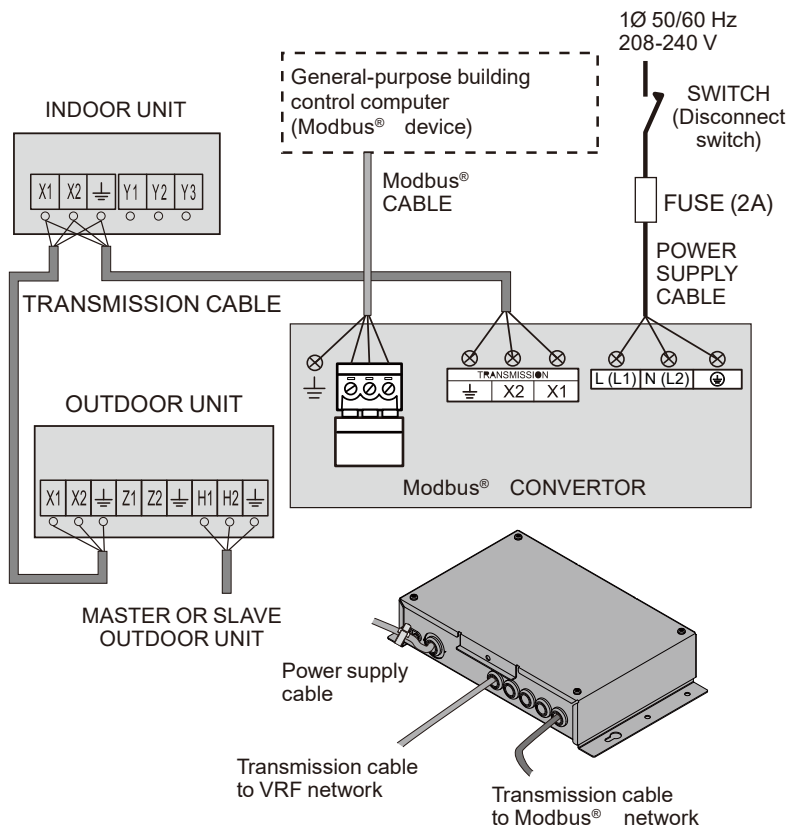
Operating System	<ul style="list-style-type: none"> • Microsoft[®] Windows[®] 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft[®] Windows[®] 7 Professional (32-bit or 64-bit) SP1 • Microsoft[®] Windows[®] 8 (32-bit or 64-bit) • Microsoft[®] Windows[®] 8.1 (32-bit or 64-bit) • Microsoft[®] Windows[®] 10 Home (32-bit or 64-bit) • Microsoft[®] Windows[®] 10 Pro (32-bit or 64-bit) [Supported languages] English, Chinese, French, German, Russian, Spanish, and Polish
Memory	1 GB or more
Display	1,366 × 768 dots or higher resolution
Interface	USB port (×1)
Software	Adobe [®] Reader 11.0 or later
Optical drive	DVD drive

■ DIMENSIONS

Unit : in.(mm)



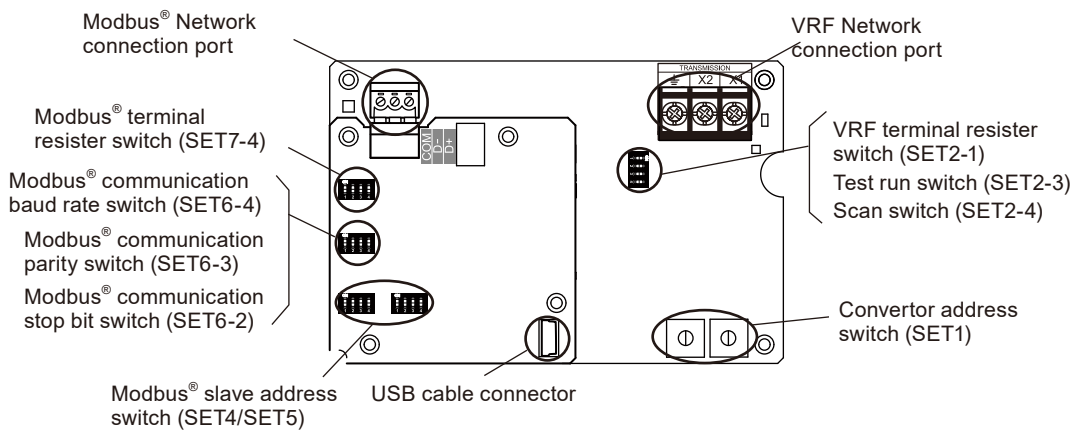
■ ELECTRICAL WIRING



■ WIRING SPECIFICATIONS

Use	Size		Wire type	Remarks
Power supply cable	Maximum	16AWG (1.25 mm ²)	60245 IEC 57 or equivalent	1 ∅ AC208-240 V 50/60 Hz, 2-Wire + ground (Always ground the unit)
	Minimum	20AWG (0.5 mm ²)		
Transmission cable	22AWG (0.33 mm ²)		LEVEL4 (NEMA) non-polar 2 core, twisted pair solid core Shielded	LONWORKS [®] compatible cable
Modbus [®] cable	Maximum	16AWG (1.25 mm ²)	AWG16-26	
	Minimum	26AWG (0.128 mm ²)	3Wire+ Sheathed PVC cable	
Fuse capacity	2 A			

■ PCB FOR MODBUS[®] CONVERTOR (UTY-VMGX)



■ PROCEDURE IN BRIEF REGISTER DATA TO MODBUS® CONVERTOR FOR VRF (UTY-VMGX)

Address initial settings are 3 methods as follows.

(1) Default addresses of indoor unit and outdoor unit are used. (Initial setting is not necessary)

Default address value ([RefNo.—NodeNo.]

Indoor unit: [00—00] [00—01] ... [00—63]
 [01—00] [01—01] ... [01—63]

Outdoor unit: [00—00] [00—01] ... [00—03]
 [01—00] [01—01] ... [01—03]

(2) Scan

Scan procedure is as follows.

STEP 1: Turn on the switch of scan setting.

STEP 2: “Scan display” by LED (address is registering inside the convertor.)

STEP 3: “Number of connected indoor unit display” by LED (Scan is complete)

STEP 4: Turn off the switch of scan setting

STEP 5: “Address update display” by LED

STEP 6: Turn on the main power again.

STEP 7: “Address rewriting display” by LED (Addresses are synchronized among boards)

* When scan error is generated, performing the scan again is necessary.

(3) Setting from PC

NOTE: For detailed information, check the Application Manual which is included inside packaged DVD.

STEP 1: Install Tool for Convertor (software) for UTY-VMGX in PC.

Tool for Convertor is the accessory item of UTY-VMGX.

STEP 2 Connect the PC and Modbus® convertor for VRF (UTY-VMGX) .

Connection will be done by the connector cable provided as an accessory item of UTY-VMGX.

STEP 3: Set Modbus® Convertor (UTY-VMGX) to USB Mode.

STEP 4: Initial setting of Indoor Unit & Outdoor Unit Addresses by using the Tool for Convertor.

STEP 5: Register the initial setting data to UTY-VMGX. Click ‘Register’ dialog.

In this stage, Modbus® Convertor (UTY-VMGX) is ready for binding and commissioning.

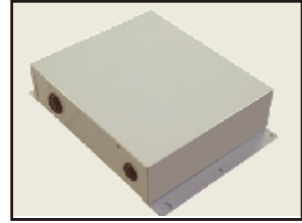
Important: Modbus® Convertor will not operate if,

- VRF network system address (Outdoor and Indoor units address) allocation information are not registered to Modbus® Convertor.

3-4. NETWORK CONVERTOR FOR LONWORKS®

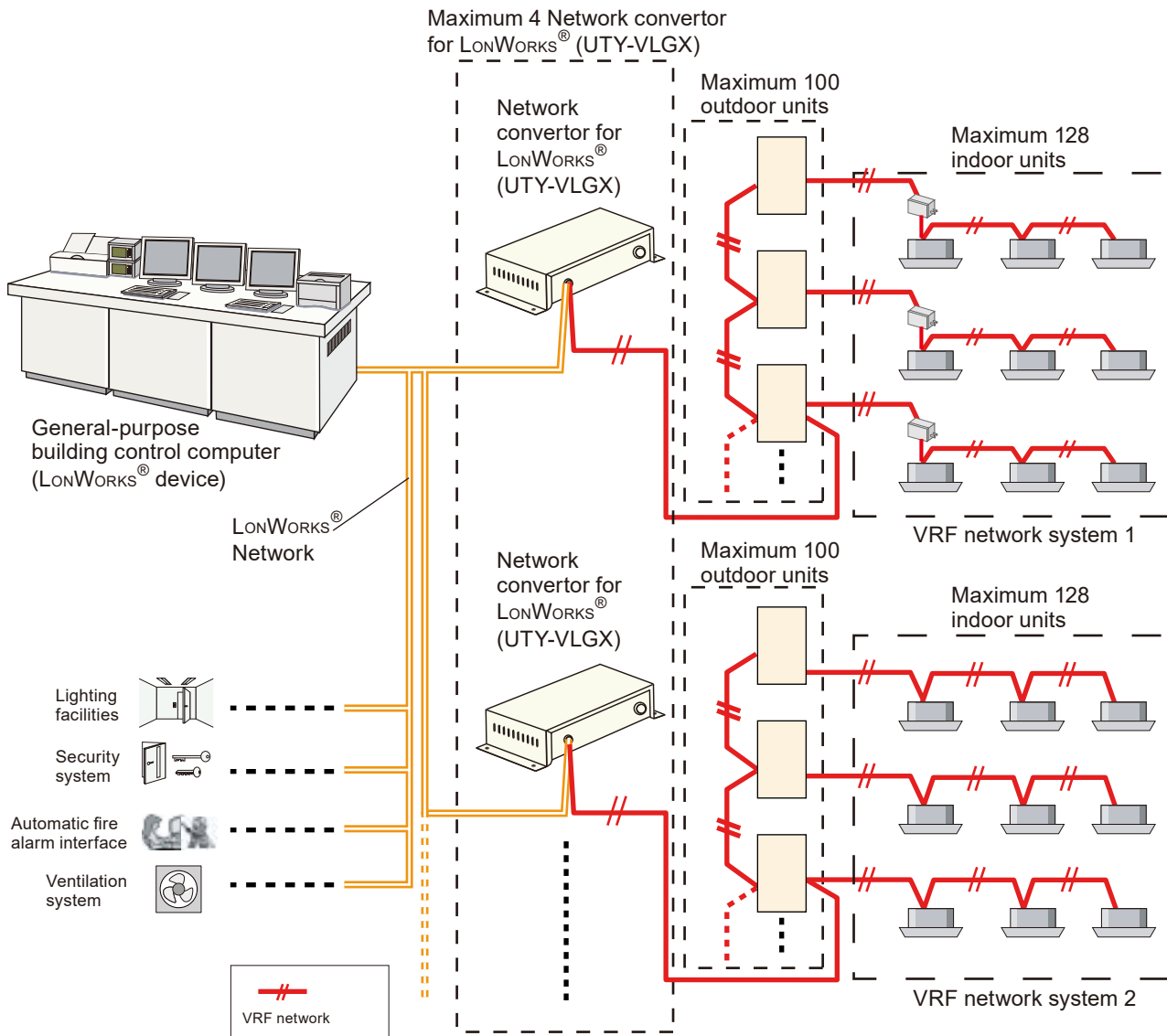
■ MODEL: UTY-VLGX

- The converter for connecting VRF network system to the BMS system built by LONWORKS® open network, for manage small to medium sized BMS and VRF network system.
- A maximum of 128 indoor units can be connected to one Network Converter for LONWORKS®.
- VRF system can be centrally controlled or monitored from BMS via UTY-VLGX.
- A maximum of 4 Network Converter for LONWORKS® can be connected to one BMS.



■ SYSTEM DIAGRAM

● Proper system diagram

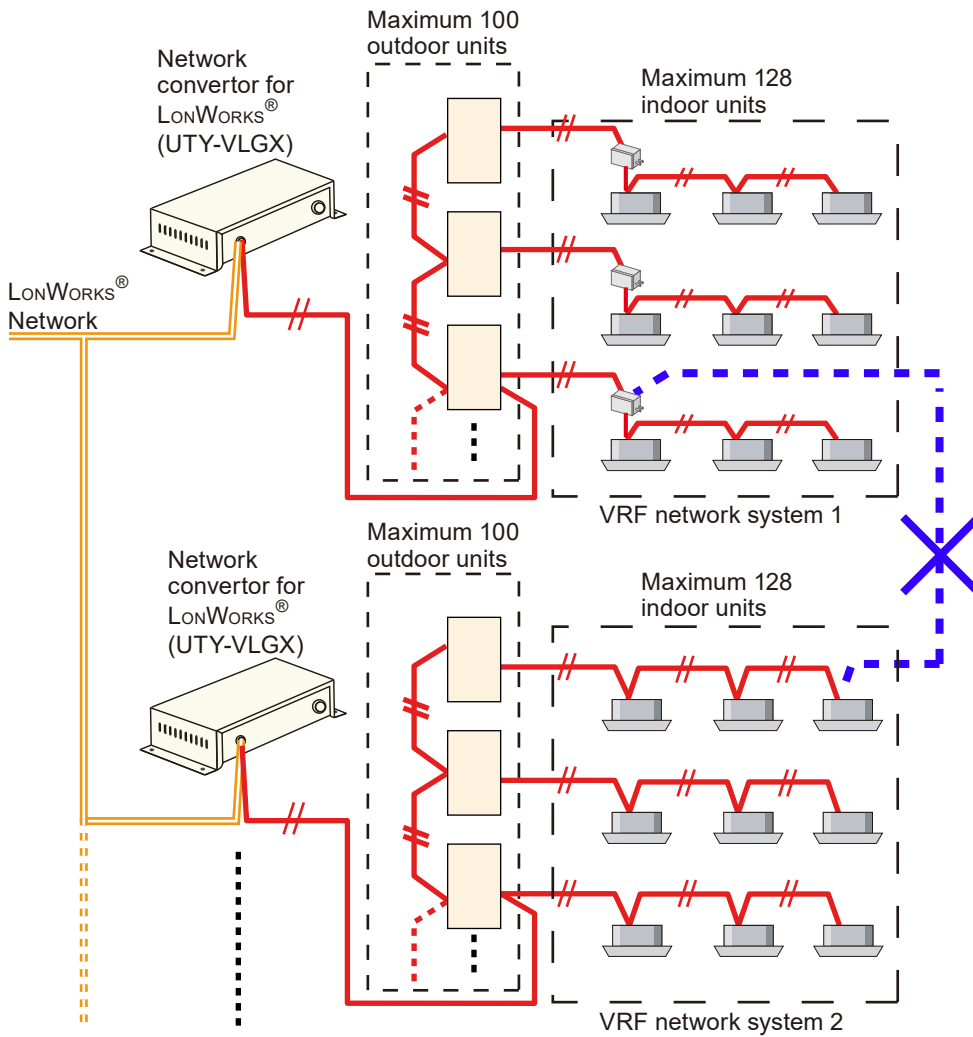


CONTROL SYSTEM

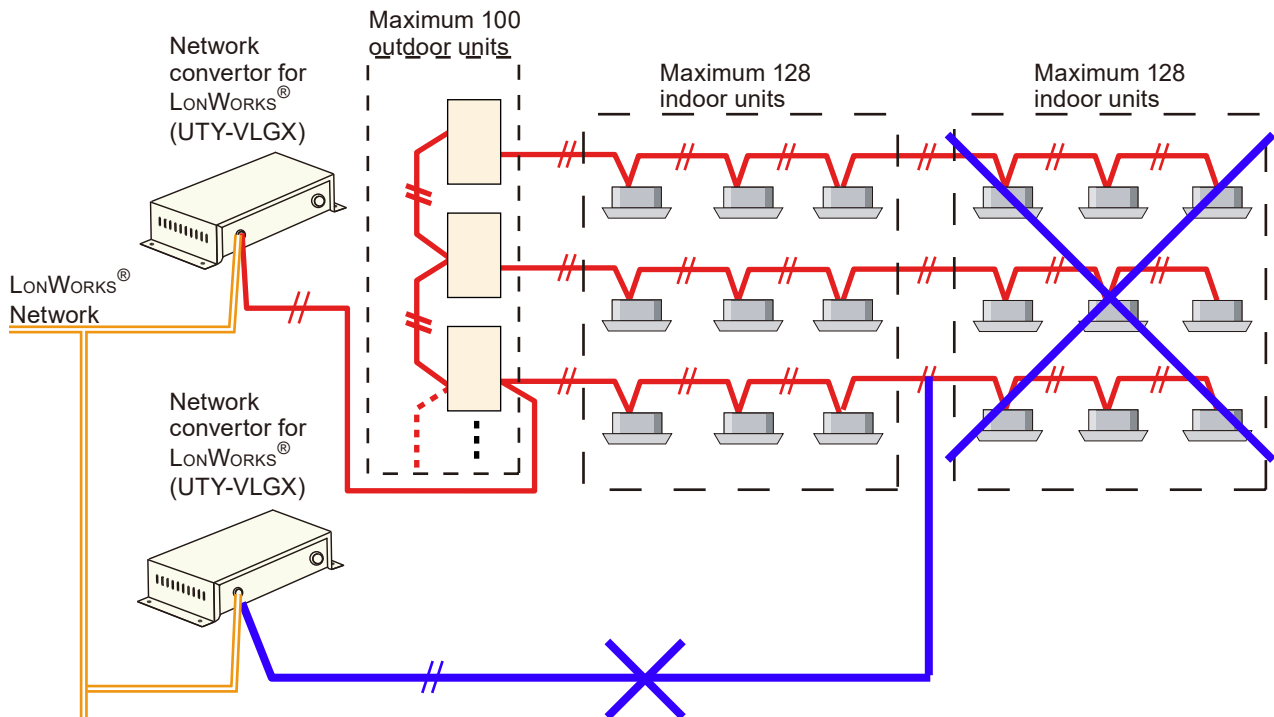
CONTROL SYSTEM

● Improper system diagram

● Example 1 (Prohibited)



● Example 2 (Prohibited)



■ FUNCTIONS

● Indoor unit control

- Individual control

Commands from LONWORKS® Network are sent to the respective indoor units. (LONWORKS® Network → respective indoor units of VRF Network)

- Batch control

Commands from LONWORKS® Network are sent to all indoor units connected to VRF Network. (LONWORKS® Network → All indoor units of VRF Network)

● Indoor unit status monitoring

Indoor unit status is communicated to the LONWORKS® Network in the form of LON® Network variables. (LONWORKS® Network ← All indoor units of VRF Network)

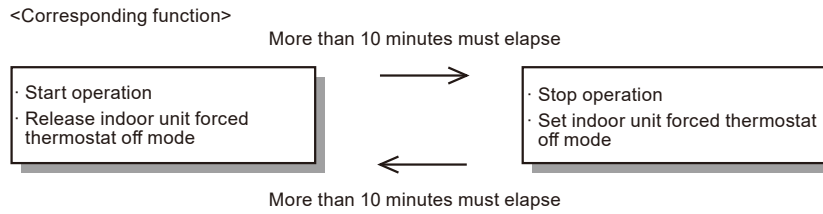
■ CONTROL AND MONITORING ITEMS

NOTE: For detail information, check the Interface Specification.

Item	Function	Description
Indoor Unit Control (Individual / Batch)	ON/OFF Command	Start / Stop operation
	Operation Mode Setting	Cooling / Heating / Auto / Fan / Dry
	Temperature Setting	Set room temperature
	Airflow Mode Setting	Set airflow
	Set Point Temperature Limit Setting	Set room temperature lower limit (for cooling mode) & room temperature upper limit (for heating mode)
	Thermostat Off setting	Thermostat off (Only one controller in VRF Network System can do this)
	Centrally Control (Filter Reset)	Prohibition of filter sign reset of remote controller
	Centrally Control (All Mode)	Prohibition of all mode of remote controller
	Centrally Control (Timer Mode)	Prohibition of timer mode of remote controller
	Centrally Control (Set Temperature Mode)	Prohibition of set temperature mode of remote controller
	Centrally Control (ON/OFF Mode)	Prohibition of ON/OFF mode of remote controller
	Centrally Control (ON Mode)	Prohibition of ON mode of remote controller
Indoor Unit Control (Individual)	Filter Sign Reset	Set filter sign reset command
	Antifreeze Setting	Set antifreeze command
	Energy Save Mode Setting	Set energy save command
Indoor Unit Control (Batch)	Emergency STOP Setting	Set Emergency STOP command
	Time Setting	Set time setting command (The controllers those are connected in VRF Network System are an object)
Indoor Unit Monitoring (Individual)	ON/OFF Status	ON / OFF status
	Operation Mode Setting Status	Heating / Cooling / Auto / Fan / Dry mode status
	Temperature Setting Status	Room set temperature status
	Airflow Mode Setting Status	Airflow mode status
	Set Point Temperature Limit Status	Room set temperature limit status
	Thermostat Off Setting Status	Thermostat off set value status
	Centrally Control (Filter Reset) Status	Remote controller filter reset prohibition status
	Centrally Control (All Mode) Status	Remote controller all mode prohibition status
	Centrally Control (Timer Mode) Status	Remote controller timer mode prohibition status
	Centrally Control (Set Temperature) Status	Remote controller set temp. prohibition status
	Centrally Control (ON/OFF) Status	Remote controller ON / OFF prohibition status
	Centrally Control (ON) Status	Remote controller ON prohibition status
	Centrally Control (Operation) Status	Remote controller operation prohibition status
	Antifreeze Setting Status	Antifreeze set status
	Energy Save Mode Setting Status	Energy save mode set status
	Filter Sign Reset Status	Filter sign reset status
	Room Temperature Status	Room temperature status
	Error Code Status	Only one Error Code status can be monitored
Operation Mode restriction Status	Restriction item (*1) can be monitored	
Indoor Unit Monitoring (Batch)	Maintenance Mode Status	Maintenance status
	Emergency STOP Setting Status	Emergency STOP setting status
Outdoor Unit Monitoring (Individual)	Error Code Status	Error code status
Convertor Unit Monitoring (Individual)	Error Code Status	Error code status

*1: All operation setting, Timer setting, Room temperature setting, Operation mode setting, ON/OFF operation, Filter reset operation, On operation setting.

- * To protect the compressor of the outdoor unit, the following precautions must be followed prior to setting the system. · When making changes to system settings, such as the schedule, it is necessary to change the settings of all indoor units on the same refrigerant circuit at the same time.



- * Forced thermostat OFF instruction
 - Only one BMS adapter can send this instruction to the refrigerant circuit. If this instruction is sent by more than one BMS adapter, the system will malfunction.

■ SPECIFICATIONS


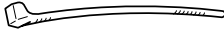




● Environmental specifications

Power supply	1ø AC 208 - 240 V 50/60 Hz	
Input Power (W)	4.5	
Temperature: °F (°C)	Operating	32 to 114.8 (0 to 46)
	Packaged	14 to 140 (-10 to 60)
Humidity (%)	Packaged	0 to 95 (RH) ; No condensation
Dimensions [H × W × D]: in. (mm)	2-5/8 × 11-5/16 × 8-5/16 (67 × 288 × 211)	
Weight: lbs. oz. (g)	3 lbs. (1,500)	

● Transmission specifications

LONWORKS® network	
Transmission speed	78 kbps
Transceiver	FT-X1 (Echelon® Corporation)
Transmission way form	Free topology
Cable	Twisted pair cable (shield)
	22AWG Equivalent
Network connector	One terminal
Terminal resistor	None attachment (It attaches at the terminal of a network)

■ PACKING LIST

Name and shape	Quantity	Application
Installation manual 	1	Use during installation.
Cable Tie 	3	For securing controller cable.
Screw (M4 × 20 mm) 	4	For mounting the network convertor.
CD-ROM 	1	Includes the software and manuals of Tool for network convertor.
Connector cable 	1	For initial setting.
Dust proof bushing 	1	For connecting the power supply cable. (Except in U.S.A. and Canada)

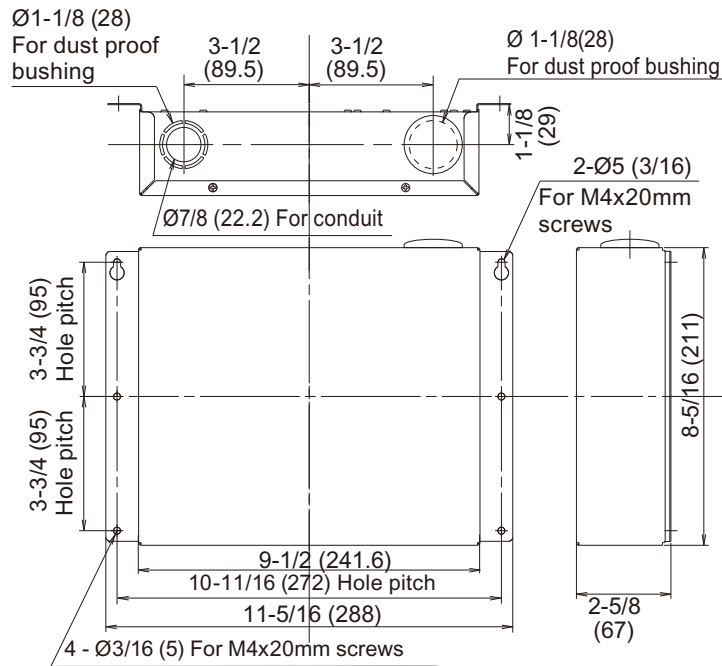
■ PERSONAL COMPUTER SYSTEM REQUIREMENTS

To install Tool for Network Convertor (UTY-VLGX), applicable PC needs to satisfy the following system requirements.

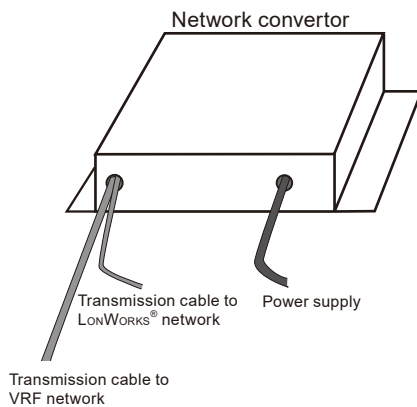
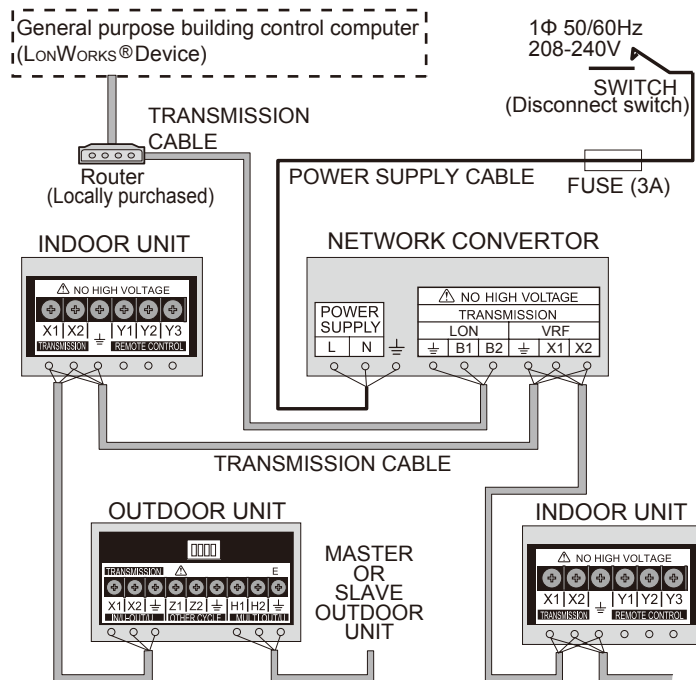
Operating System	<ul style="list-style-type: none">• Microsoft® Windows® 7 Professional (32-bit)• Microsoft® Windows® 8.1 Pro (32-bit)• Microsoft® Windows® 10 Home (32-bit or 64-bit)• Microsoft® Windows® 10 Pro (32-bit or 64-bit) [Supported languages] English and Chinese
Memory	1 GB or more
Display	1,024 × 768 or higher resolution, 16-bit or higher color
Interface	RS232C serial port × 1 *Use "COM1" port
Software	Adobe® Reader 9.0 or later
Optical drive	CD-ROM driver

DIMENSIONS

Unit : in. (mm)



ELECTRICAL WIRING



NOTES:

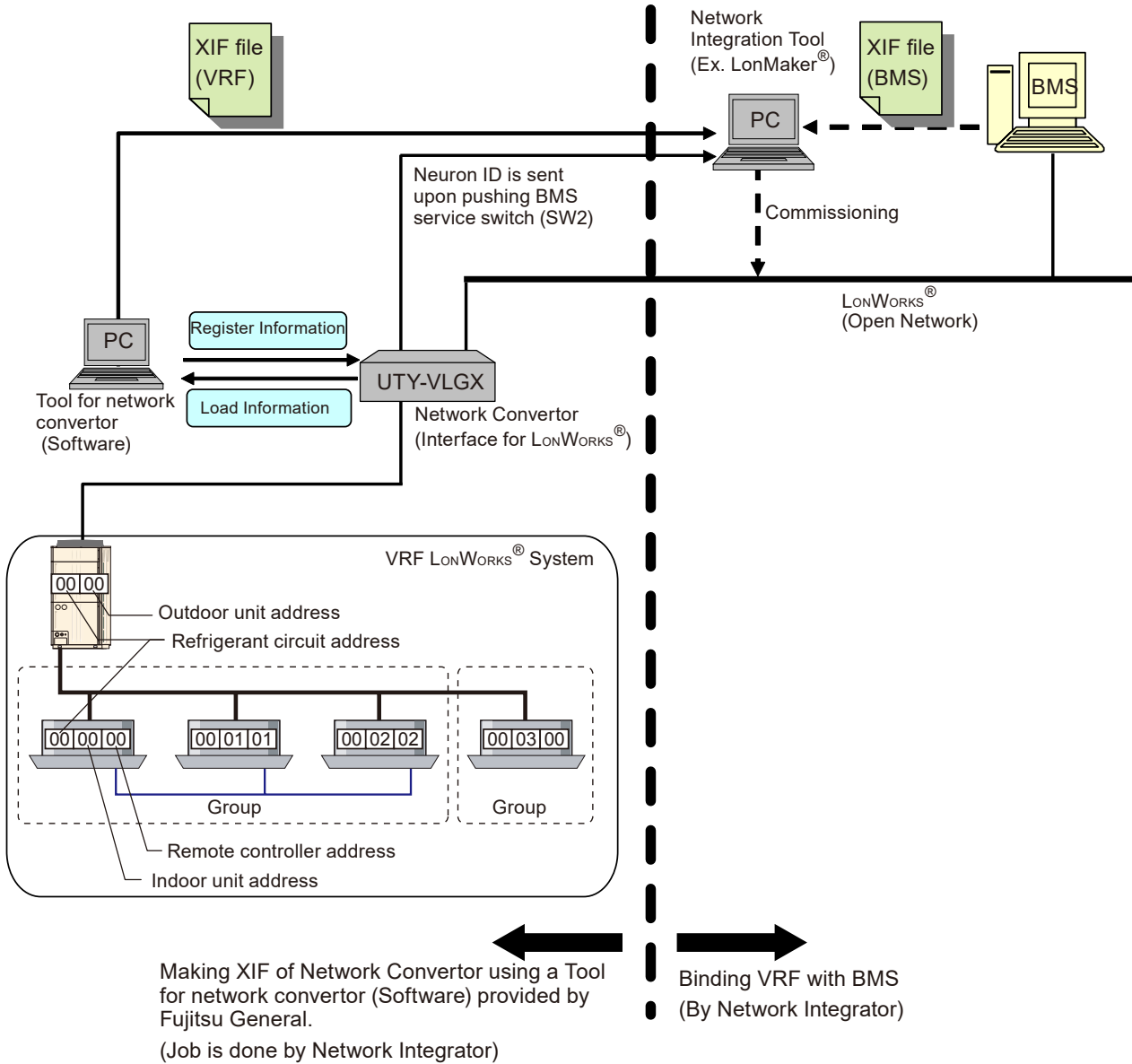
- Do not run power cable and transmission cable together, electrical interference will cause communication errors.
- Use shield cable for transmission cable. The shield metal should be grounded.
- Do not forget to ground the Network Converter.

■ WIRING SPECIFICATIONS

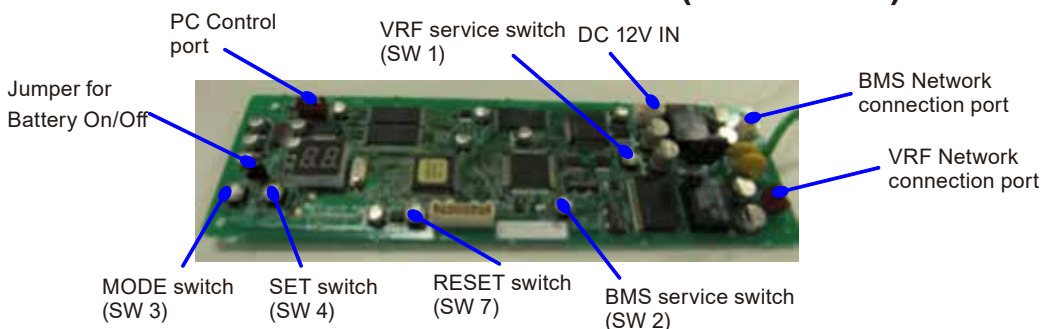
Use	Size		Wire type	Remarks
Power supply cable	Maximum	16 AWG (1.25 mm ²)	60245 IEC 57 or equivalent	1 ø AC 208 - 240 V 50/60 Hz, 2 Wire + ground (Always ground the unit)
	Minimum	20 AWG (0.5 mm ²)		
Transmission cable	22AWG (0.33 mm ²)		LEVEL4 (NEMA) non-polar 2 core, twisted pair solid core Shielded	LONWORKS [®] compatible cable
Fuse capacity	3 A			

*Always ground the unit

■ TOTAL SYSTEM CONFIGURATION LAYOUT



■ PCB FOR NETWORK CONVERTOR (UTY-VLGX)



■ SIMPLE PROCEDURE FOR CREATING XIF AND REGISTER DATA FOR NETWORK CONVERTOR (UTY-VLGX)

NOTE: For detail information, check the Application Manual which is included inside packaged CD-ROM.

The following is the on-line procedure. It is also possible to create XIF & Register Data off-line.

STEP 1: Connect the PC and Network Convertor (UTY-VLGX) .

Connection will be done by the connector cable provided as an accessory item of UTY-VLGX.

STEP 2: Install Tool for Network Convertor (software) for UTY-VLGX in PC.

Tool for Network Convertor is the accessory item of UTY-VLGX.

STEP 3: Set Network Convertor (UTY-VLGX) to Installation Mode.

STEP 4: Setting ID number of UTY-VLGX on PC screen of Tool for Network Convertor.

(ID number is required to identify UTY-VLGX from BMS. A maximum of four Network Convertors can be connected to one BMS, and ID number allocation is like 00, 01, and so on.)

STEP 5: Initial setting of Indoor Unit & Outdoor Unit Addresses by using the Tool for Network Convertor.

STEP 6: Register the initial setting data to UTY-VLGX. Click 'Register' dialog.

STEP 7: Set Configuration Properties.

To set the communication properties of UTY-VLGX, select the following communication properties and types; otherwise, the default values will be used.

Select Communication items

-Event Driven communication or Cyclic communication.

(Default: Cyclic 3minutes)

-Communication Interval Time during turning ON all together.

(Default: 3 minutes)

● Select Communication type (to communicate data with BMS)

-Communicate only when changing network variable or communicate all network variable. (Default: Only when changing network variable)

-Communicate only when changing room temperature value.

(Default: Room temperature changed value 1.8°F (1°C))

STEP 8: Register the Configuration Properties data to UTY-VLGX. Click 'Register' dialog.

STEP 9: Making / Modifying XIF, and transfer XIF data by USB memory or floppy disk for binding.

STEP 10: Reset Network Convertor (UTY-VLGX) to press 'Reset SW7'.

STEP 11: Turn OFF the power. After that, remove the connection of PC & Network Convertor (UTY-VLGX) respectively.

In this stage, Network Convertor (UTY-VLGX) is ready for binding & commissioning.

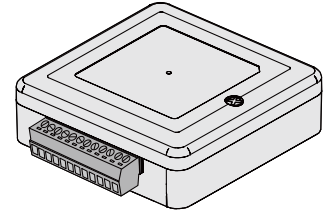
Important: Network Converter will not operate if,

- VRF network system address (Outdoor & Indoor units address) allocation information are not registered to Network Converter.
- XIF data information and VRF network system address allocation information must not be same.
- Binding & Commissioning is not executed. (During binding, read out the Network Converter Neuron ID by pushing BMS service switch (SW 2) on the main PCB of Network Converter)
- If the ID number registered to the Network Converter is not same as the ID number which is included in the XIF of Network Converter.

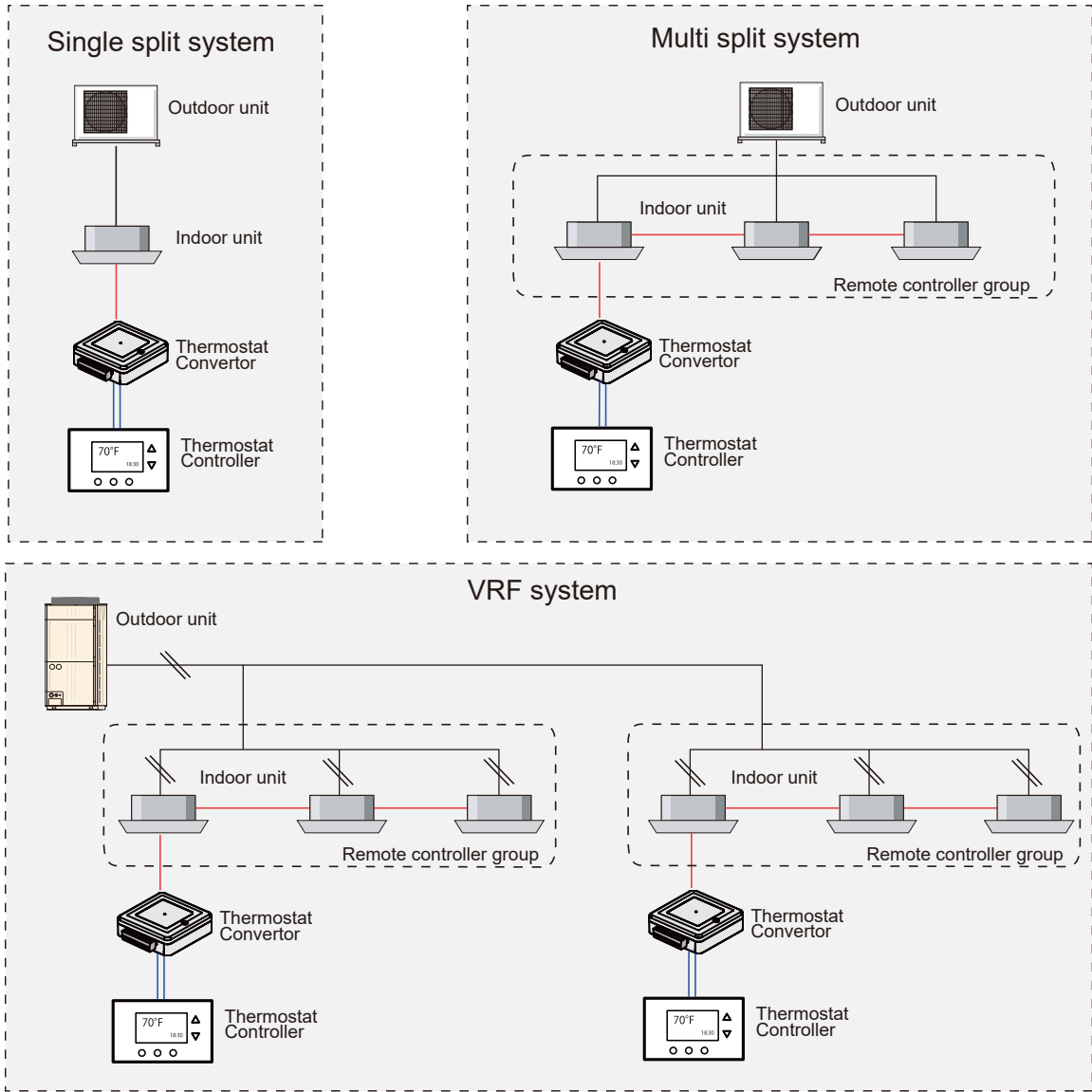
3-5. THERMOSTAT CONVERTOR

MODEL: UTY-TTRX

- Thermostat convertor can control Fujitsu General products using a third-party thermostat controller.
- Up to 16 indoor units can be connected with one thermostat convertor.



SYSTEM DIAGRAM



Serial communication
 Remote control line
 Thermostat wire
 VRF network (LonWorks)

CONTROL SYSTEM

CONTROL SYSTEM

■ FUNCTIONS

Function		Remarks
Air conditioning control function	Operation mode setting	Cooling, Heating, Fan
	Fan speed setting	High, Med, Low, Auto
	Temperature setting	Stage 1 (Cooling), Stage 1 (Heating) Stage 2 (Cooling), Stage 2 (Heating)
Maintenance function	Indoor unit error monitoring	Communication error detection Control target error indication
	Convertor error monitoring	
Others	Two-stage cooling and heating thermostat operation	
	Delay off	

■ LIMITATIONS

● Automatic prohibition of remote controller operation

Thermostat operates the indoor units according to the setting temperature by built-in temperature sensor. Since setting temperature of the remote controller may be different from the setting temperature of the thermostat, remote controller operation prohibition is automatically enabled.

● Air direction adjustment by thermostat

● No fan mode available in heat pump system.

Do not connect between fan signal terminals (G, G1, G2, or G3) on the convertor and the thermostat by using wire.

● Error code will be displayed on the built-in LED display.

For indoor units without error code indicator, confirm the LED display inside the thermostat convertor.

For details of indoor unit error, refer to ERROR STATUS OUTPUT in Chapter 8. EXTERNAL INPUT AND OUTPUT.

● For following items, use remote controllers.

- Filter sign cancellation
- Indoor unit function settings
- Test run

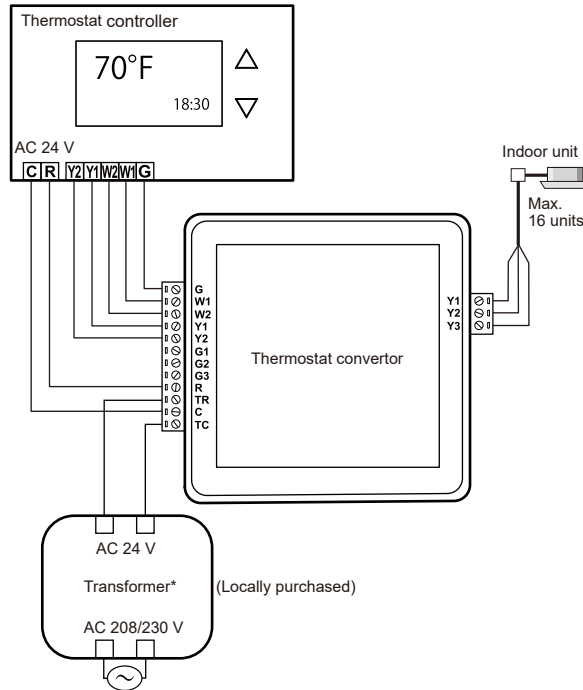
After all settings are completed, disconnect the remote controller, and connect the thermostat convertor.

■ ELECTRICAL WIRING

Connection method differs by the type of thermostat controller.

● Two-stage Cooling and Heating

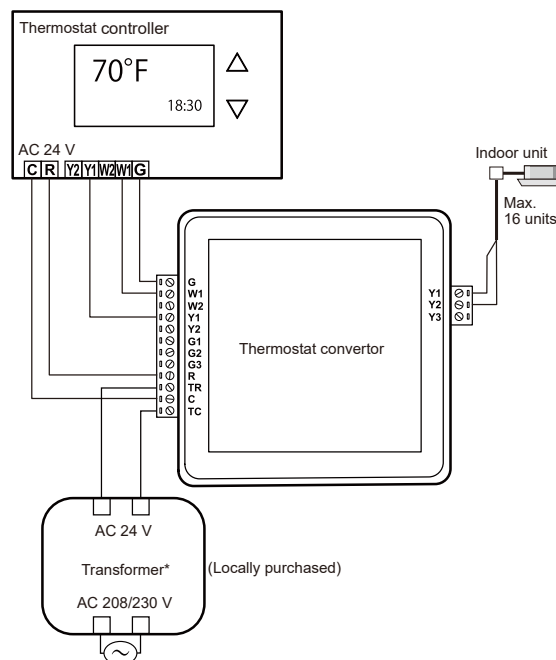
Example: Remote controller for 3-wire type



* Install the transformer, as necessary, per building code and manufacturer's installation instructions. Maximum Power: 5.0 VA

● Single-stage Cooling and Heating

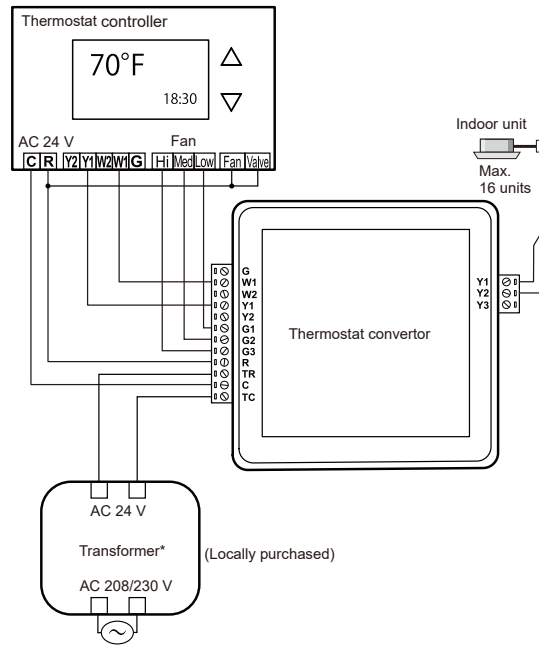
Example: Remote controller for 2-wire type



* Install the transformer, as necessary, per building code and manufacturer's installation instructions. Maximum Power: 5.0 VA

● Single-stage Cooling and Heating with Dedicated Fan speed Relays

Example: Remote controller for 2-wire type



*Install the transformer, as necessary, per building code and manufacturer's installation instructions. Maximum Power: 5.0 VA

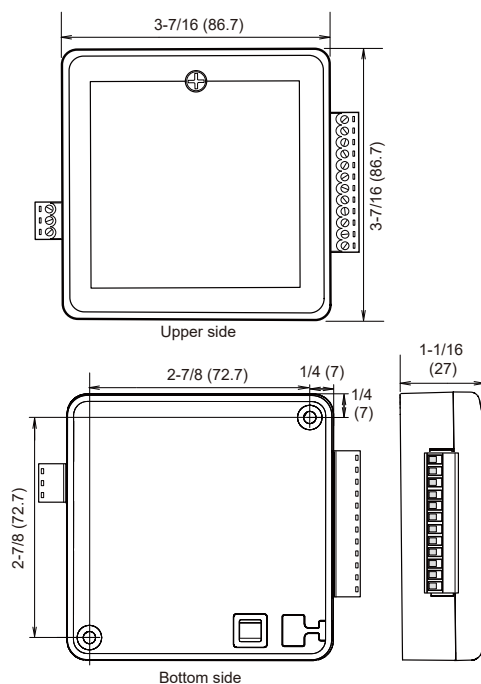
Terminal name	Application
TC	Common (In) from transformer
C	Common to the thermostat controller
TR	Power supply from transformer
R	Power supply to thermostat controller
G3	Airflow High
G2	Airflow Medium
G1	Airflow Low
Y2	Cooling stage 2
Y1	Cooling stage 1
W2	Heating stage 2
W1	Heating stage 1
G	Fan

NOTES:

- For remote controller cable, 2-wire type and 3-wire type are available depending on the device to be connected.
- All wiring shown should be performed with 18 AWG thermostat wire.
- Terminals to thermostat controller on Thermostat converter support AC 20 to 30 V.
- HIGH/MEDIUM/LOW fan signals are optional, and may not be available on all thermostat controllers.
- Signals for stage 2 are optional. W2 and Y2 terminals may not be used in single-stage thermostats. To use the stage 2 signals, turn on the DIP switch SET3-1 on each converter.
- Up to 16 indoor units be controlled with a single thermostat controller. Multiple indoor units connected to one thermostat converter are operable by the same operating setting.
- Two or more types of VRF system, single model, or multi systems cannot be mixed together.

■ DIMENSIONS

Unit : in (mm)



■ SPECIFICATIONS



Max. connectable indoor unit number		16
Input Power (W)		0.6
Temperature: °F (°C)	Operating	32 to 114 (0 to 46)
	Packaged	14 to 140 (-10 to 60)
Humidity (%)	Packaged	0 to 95 (RH); No condensation
Dimensions [H × W × D]: in. (mm)		1-1/16 × 3-7/16 × 3-7/16 (27 × 86.7 × 86.7)
Weight: lbs. oz. (g)		4 (100)

■ WIRING SPECIFICATIONS

Use	Size	Cable type	Remarks
Remote controller cable (2-wire type)	16 to 22 AWG (0.33 to 1.25 mm ²)	Sheathed PVC cable*	Non-polar 2 core, twisted pair Maximum cable length: 1640 ft (500 m)
Remote controller cable (3-wire type)	22 AWG (0.33 mm ²)	Sheathed PVC cable*	Polar 3 core Maximum cable length: 82 ft (25 m)
Thermostat wires	18 AWG (0.82 mm ²)	Sheathed PVC cable*	Maximum cable length: 164 ft (50 m)

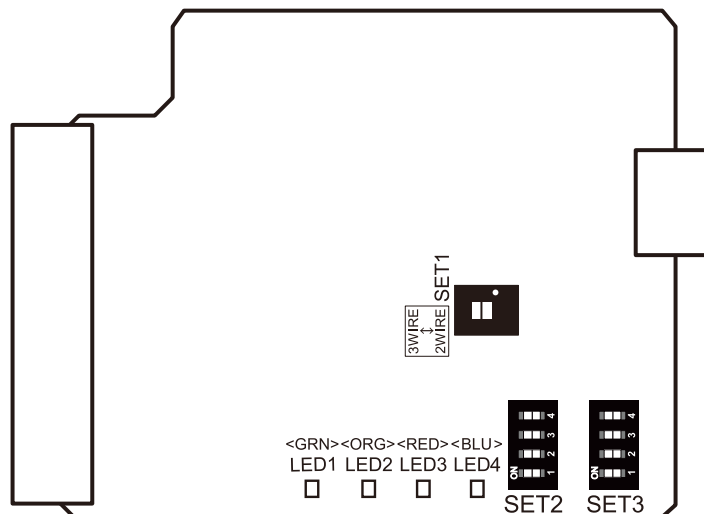
*: Use shielded cable in accordance with local rules for remote controller cable.

■ PACKING LIST

Name and shape	Quantity	Application
Installation manual 	1	Use during installation.
Screw (M4 × 16 mm) 	2	For mounting the thermostat convertor

■ LED DISPLAY

● Positions



● Normal code

LED1 (Green)	LED2 (Orange)	LED3 (Red)	LED4 (Blue)	Contents
●	●	OFF	OFF	During initialization sequence
ON	OFF	OFF	OFF	Normally operating

● : 1 s ON / 1 s OFF

● Error code

LED1 (Green)	LED2 (Orange)	LED3 (Red)	LED4 (Blue)	Contents
● (N)	● (N)	○	OFF	Thermostat convertor error
● (N)	● (N)	○	ON	Indoor unit error

● : 0.5 s ON / 0.5 s OFF

○ : 0.1 s ON / 0.1 s OFF

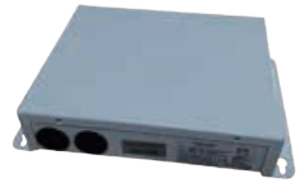
(N) : Number of flashing

For flashing number of each error code and the details, refer to ERROR CODES in the installation manuals of indoor units.

3-6. BACnet® GATEWAY (HARDWARE)

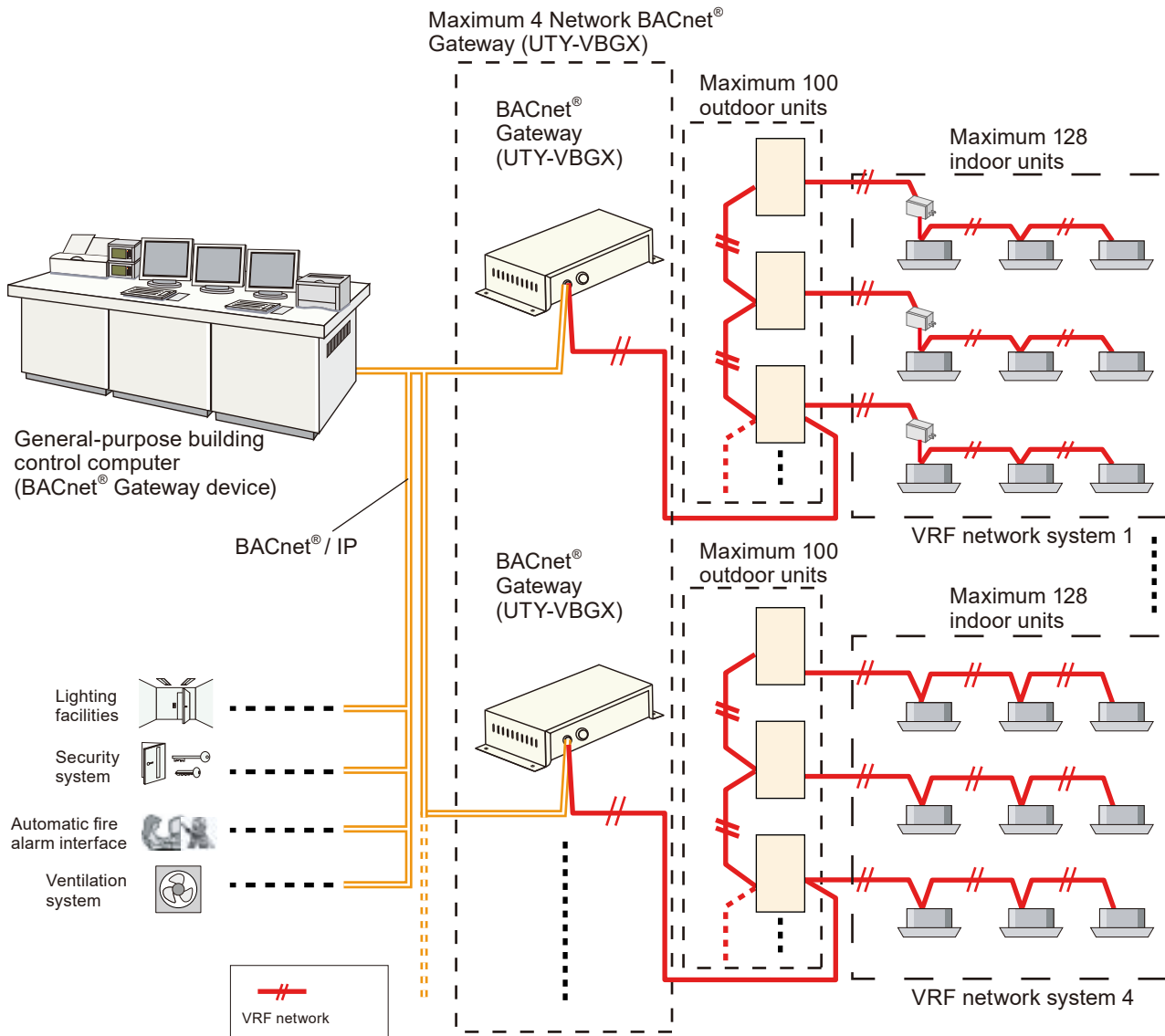
MODEL: UTY-VBGX

- The convertor for connecting VRF network system to the BMS system using BACnet® protocol.
- Maximum of 128 indoor units can be connected to one BACnet® Gateway.
- VRF system can be centrally controlled or monitored from BMS via UTY-VBGX.
- Maximum of 4 BACnet® Gateway can be connected to one BMS.



SYSTEM DIAGRAM

System diagram



NOTE : UTY-VBGX and UTY-ABGX(Z1) can't co-exist within a VRF system.

■ FUNCTIONS

● Indoor unit control

- Individual control

Commands from BACnet® Network are sent to the respective indoor units. (BACnet® Network → respective indoor units of VRF Network)

- Batch control

Commands from BACnet® Network are sent to all indoor units connected to VRF Network. (BACnet® Network → All indoor units of VRF Network)

● Indoor unit status monitoring

Indoor unit status is communicated to the BACnet® Network in the form of BACnet® objects. (BACnet® Network ← All indoor units of VRF Network)

■ CONTROL AND MONITORING ITEMS WITH OBJECT TYPES

NOTE: For detailed information, check the Instruction Manual.

Function Name	Category			Bacnet Object Type ¹	Remark
	Target	Monitor	Control		
Operation Setting	Bat	-	o	BO	
Operation Mode	Bat	-	o	MO	
Temperature Setting	Bat	-	o	AO	
Fan Speed	Bat	-	o	MO	
R/C Prohibition	Bat	-	o	MO	
Gateway	GW	o	-	D	No monitor/control difference
Representative Error	GW	o	-	BI	Gateway, Lon communication
Error Code	GW	o	-	MI	Gateway, Lon communication. Error Codes to signal gateway status will be agreed with FGL during development.
Energy Saving Status / Setting	GW	o	o	BI / BO	
Existence Check	In	o	-	BI	
Temperature Status / Setting	In	o	o	AI / AO	
Operation Status / Setting	In	o	o	BI / BO	
Operation Mode Status / Setting	In	o	o	MI / MO	
Fan Speed Status / Setting	In	o	o	MI / MO	
Suction/Room Temperature	In	o	-	AI	
Representative Error	In	o	-	BI	
Error Code	In	o	-	MI	
Temperature H/L Limit Status / Setting	In	o	o	AI / AO	H/L limit per 3 operation Mode: HEAT, COOL-DRY and AUTO
Temperature Limit Validity Status / Setting	In	o	o	BI / BO	
Filter Sign Status / Reset	In	o	o	BI / BO	Only reset for control
Forced Thermo Off Status / Setting	In	o	o	BI / BO	
Emergency Stop	In	o	-	BI	
R/C Prohibition Status / Setting	In	o	o	MI / MO	
Vertical Fan Status / Setting	In	o	o	MI / MO	
Horizontal Fan Status / Setting	In	o	o	MI / MO	
Outdoor Unit Save Status / Setting	Out	o	o	MI / MO	
Low Noise Operation Status / Setting	Out	o	o	MI / MO	Monitor not supported by all
Representative Error	Out	o	-	BI	
Error Code	Out	o	-	MI	
Forced Off Status / Setting	Out	o	o	BI / BO	

*: Bacnet Object Type

BI: OBJECT_BINARY_INPUT

BO: OBJECT_BINARY_OUTPUT

MI: OBJECT_MULTISTATE_INPUT

MO: OBJECT_MULTISTATE_OUTPUT

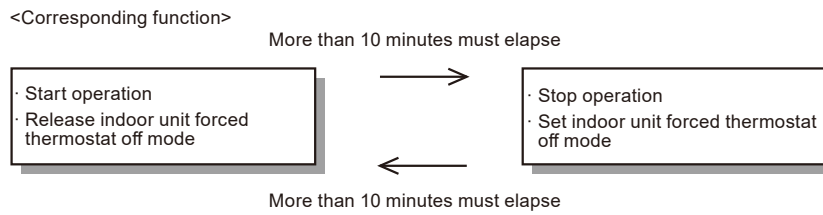
AI: OBJECT_ANALOG_INPUT

AO: OBJECT_ANALOG_OUTPUT

D: OBJECT_DEVICE

Notification object shall be required to support intrinsic reporting.

- * To protect the compressor of the outdoor unit, carefully read and understand the following cautions that may affect the operation of the compressor before executing the setting.
- When performing periodical settings like schedule settings for the following functions, perform the setting to all the indoor units in the same refrigerant system simultaneously, conforming to the timing restriction described below.



- * Forced thermostat OFF instruction
 - Only one equipment can send these instructions for each refrigerant system.
 - When these instructions are sent by multiple equipment, the system may not respond as instructed or may malfunction.

■ SPECIFICATIONS

Power supply	1ø AC 208-240 V 50/60 Hz
Input Power (W)	4.6
Dimensions [H × W × D]: in. (mm)	2-3/8 × 10-5/8 × 6-15/16 (60 × 270 × 176)
Weight: lb. (g)	3 (1,200)


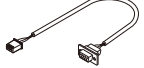

● Recommended operating environment

Temperature: °F (°C)	Operating	32 to 114.8 (0 to 46)
	Packaged	14 to 140 (-10 to 60)
Humidity (%)	Packaged	0 to 95 (RH) ; No condensation

● Transmission specifications

BACnet® / IP (ASHRAE 135 Annex J)	
Transmission speed	10 / 100 Mbps
Cable	Ethernet category 5 or higher STP 22AWG equivalent
Network connector	RJ45

■ PACKING LIST

Name and shape	Quantity	Application
USB memory 	1	Includes the software and manuals of Tool for BACnet® Gateway.
Connector cable 	1	For initial setting.
Dust proof bushing 	2	For connecting the power supply cable.

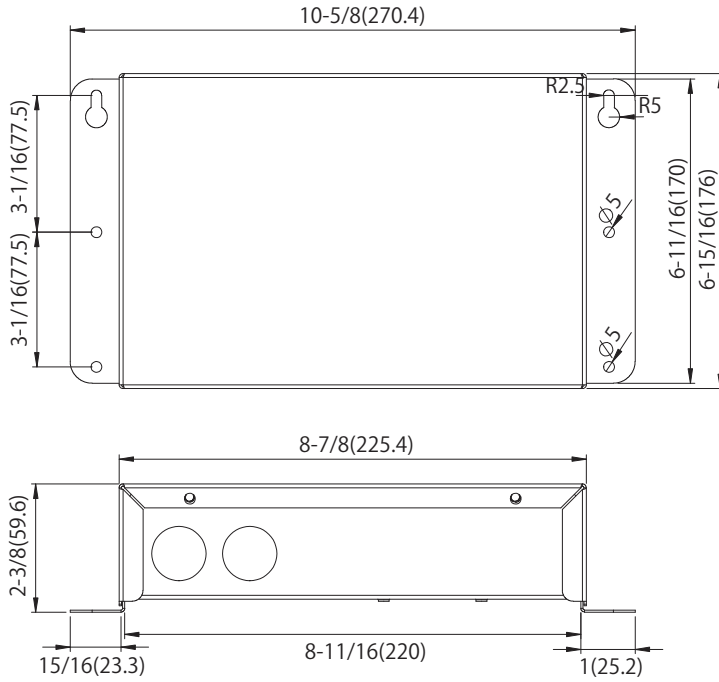
■ PERSONAL COMPUTER SYSTEM REQUIREMENTS

To install Tool for BACnet® Gateway, applicable PC needs to satisfy the following system requirements.

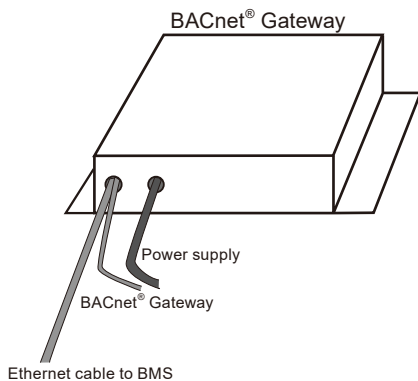
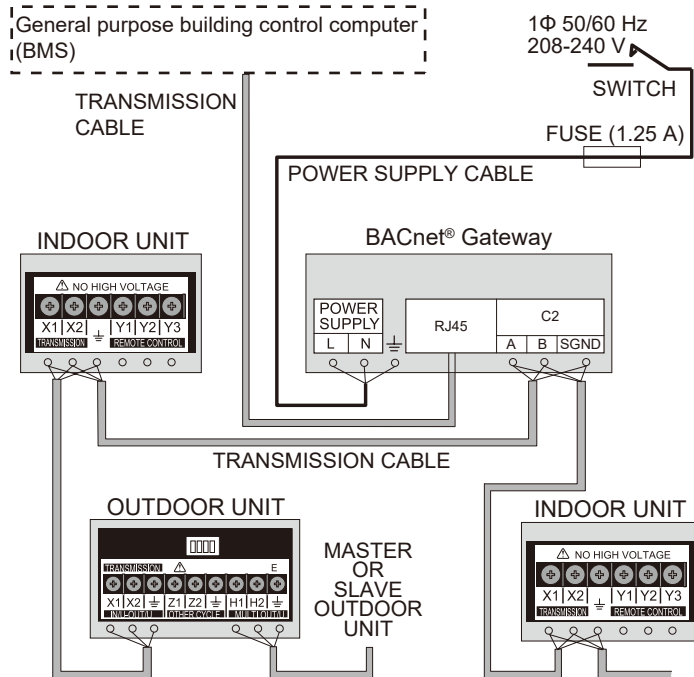
Operating System	<ul style="list-style-type: none"> • Microsoft® Windows® 7 Professional (32-bit) • Microsoft® Windows® 8.1 (32-bit) • Microsoft® Windows® 10 Home (32-bit or 64-bit) • Microsoft® Windows® 10 Pro (32-bit or 64-bit)
Memory	1 GB or more
Display	1,024 × 768 or higher resolution, 16-bit or higher color
Interface	USB port × 1
Software	Adobe® Reader 9.0 or later

DIMENSIONS

Unit : in.(mm)



ELECTRICAL WIRING



NOTES:

- Do not bind the power cable and transmission cable to avoid an erroneous operation.
- Use shield cable for transmission cable. The shield metal should be grounded.
- Do not forget to ground the BACnet[®] Gateway.

■ WIRING SPECIFICATIONS

Use	Size		Wire type	Remarks
Power supply cable	Maximum	16 AWG (1.25 mm ²)	60245 IEC 57 or equivalent	1 ø AC208-240 V 50/60 Hz, 2-Wire + ground (Always ground the unit)
	Minimum	20 AWG (0.5 mm ²)		
Transmission cable	Ethernet category 5 or higher STP LAN cable with RJ45			Straight cable
Fuse capacity	1.25 A			

*Always ground the unit

■ CONFIGURATION PROCEDURES

The following procedures presume that all VRF indoor/outdoor units are commissioned and operational, and that BACnet[®] network toward the BMS workstation is operational.

1. Power device

The first step to perform is to power up the device. To do so, a power supply working with any of the voltage range allowed is needed. Once connected the LED_PWR will turn on.

2. Connect to BACnet[®] interface

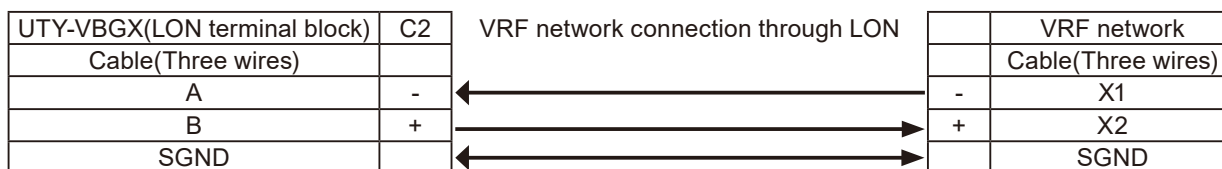
Connect the communication cable coming from the network hub or switch to the Ethernet port (Figure above) of the gateway. The cable to be used is a straight Ethernet STP CAT5 or higher cable.

In case there is no response from the BACnet[®] devices to the frames sent by gateway, check that they are operational and reachable from the network connection used by the gateway. Check the gateway Ethernet interface sending Pings to its IP address using a PC connected to the same Ethernet IP network. If the problem persists communicating through the LAN of the building, contact the network administrator.

The BACnet Gateway for VRF System comes with DHCP functionality enabled by default.

3. Connect to VRF network

Use the LON connector in the left bottom corner of the gateway in order to connect the VRF network to the UTY-VBGX.



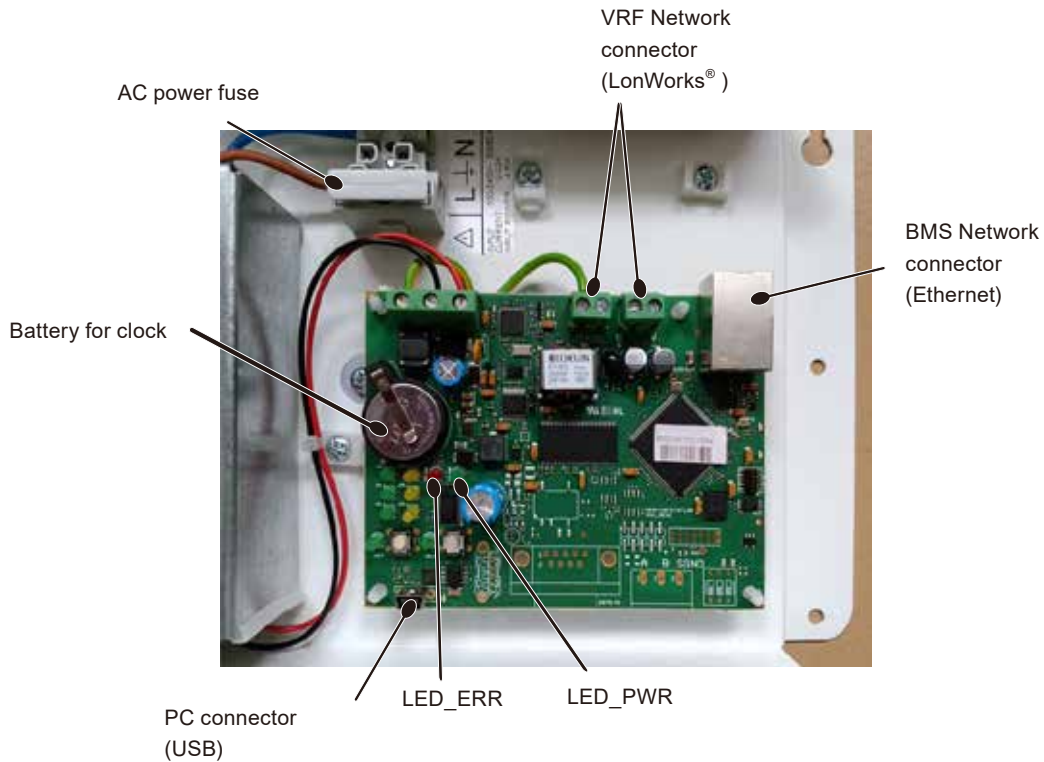
4. Connect to PC (Configuration tool)

This action allows the user to have access to configuration and monitoring of the device. Two methods to connect to the PC can be used:

- USB cable: To connect the device to the PC the USB cable supplied should be plugged to the USB Console port. This method is recommended.
- Ethernet: Using the ETH port of the gateway.
- Install the configuration tool to the PC before connecting to the Gateway.

5. Execute the Configuration Tool from the PC and perform necessary settings. For detail, refer to the Instruction Manual,
6. Perform scan from the Configuration Tool, and check that all VRF indoor/outdoor units are detected and available.
7. Remove the USB cable from the Gateway, and close the case.
At this point, BACnet[®] Gateway should be accessible from the BMS workstation.
Integration of BACnet[®] system is ready to be performed.

■ SWITCH AND CONNECTOR ETC. LOCATION ON PCB



NOTE: Ensure proper space for all connectors when mounted.

CAUTION: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

IMPORTANT: Tight the Power Supply and the LON cables to one of the 4 cable tie holes fixed to the casing with the plastic ties inside the BACnet® Gateway for VRF System. Do not use 2 holes to tie one cable.

Power Supply

Connect mains to the power supply connector as:

- 1.- Brown: Line (L)
- 2.- Yellow: Earth / Ground (E)
- 3.- Blue: Neutral (N)

Ethernet / BACnet IP (UDP) / Console (UDP & TCP)

Connect the cable coming from the IP network to the connector ETH of the gateway. Use an Ethernet CAT5 or higher cable.

VRF Network

Connect the LON bus to connectors A (-), B (+) and (SGND) of gateway's PCB. Respect the polarity.

Console Port

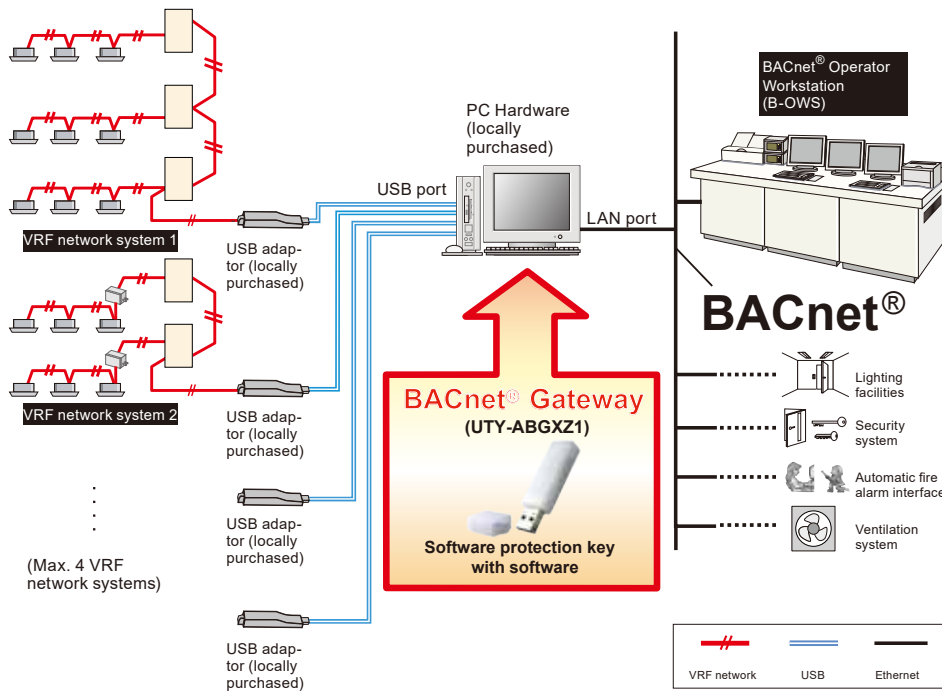
Connect a mini-type B USB cable from your computer to the gateway to allow communication between the Configuration Software and the gateway. Ethernet connection is also allowed for configuration.

3-7. BACnet® GATEWAY (SOFTWARE)

3-7-1. MODEL: UTY-ABGXZ1

- It is possible to connect medium to large sized BMS to VRF network system via BACnet®, a global standard for open networks.
- A maximum of 1600 indoor units with 4 VRF network systems (a maximum of 400 indoor units & 100 outdoor units for one network system) can be connected to one BACnet® Gateway.
- It is possible to control or monitor VRF network system from BMS via BACnet® Gateway.
- Compatible with BACnet® (ANSI / ASHRAE-135-2012) application specific controller (B-ASC).
- Compatible with BACnet®/IP over Ethernet.
- Scheduling function, alarm & event functions, electricity charge apportionment function as well as energy saving function are provided in BACnet® Gateway.
- Connection between VRF network system to personal computer is possible via small U10 USB interface. However, both U10 USB interface & personal computer are locally purchased items.

■ SYSTEM DIAGRAM



■ FUNCTIONS

● Indoor unit control (Output Object)

Commands from BMS are sent to the respective indoor units via BACnet® Gateway. (BMS → BACnet® Gateway → respective indoor units of VRF Network system)

● Indoor unit status monitoring (Input Object)

Indoor unit status is communicated to the BMS via BACnet® Gateway. (BMS ← BACnet® Gateway ← respective indoor units of VRF Network system)

● Outdoor unit control (Output Object)

Commands from BMS are sent to the respective outdoor units via BACnet® Gateway. (BMS → BACnet® Gateway → respective outdoor units of VRF Network system)

● Outdoor unit status monitoring (Input Object)

Outdoor unit status is communicated to the BMS via BACnet® Gateway. (BMS ← BACnet® Gateway ← respective outdoor units of VRF Network system)

■ BACnet® OBJECT LIST

● Type : Indoor

Object name	Code (I)	Function	Unit						
			Inactive	Active					
			Text-1	Text-2	Text-3	Text-4	Text-5	Text-6	Text-7
AI	10	Set temp. status	Degree						
	11	Space temp.	Degree						
	12	Auto temp. (Low limit status)	Degree						
	13	Auto temp. (High limit status)	Degree						
	14	Cool/Dry temp. (Low limit status)	Degree						
	15	Cool/Dry temp. (High limit status)	Degree						
	16	Heat temp. (Low limit status)	Degree						
	17	Heat temp. (High limit status)	Degree						
AO	10	Temp. setting	Degree						
	11	Auto temp. (Low limit setting)	Degree						
	12	Auto temp. (High limit setting)	Degree						
	13	Cool/Dry temp. (Low limit setting)	Degree						
	14	Cool/Dry temp. (High limit setting)	Degree						
	15	Heat temp. (Low limit setting)	Degree						
	16	Heat temp. (High limit setting)	Degree						
AV	10	ECA *1 operation data							
BI	10	Operation status	OFF	ON					
	14	Filter sign status	Unsigned	Signed					
	15	Indoor unit error status	Normal	Fault					
	16	Antifreeze operation status	Reset	Set					
	17	SAVE operation status	Normal	SAVE					
	18	Forced thermostat off status	Reset	Set					
	19	Emergency stop status	Normal	Stop					
	20	Mode mismatch status	Normal	Mismatch					
	21	Protect antifreeze status	Reset	Set					
	22	Temp. limit valid status	Invalid	Valid					
BO	10	Operation setting	OFF	ON					
	14	Filter sign resetting	Reset	Not reset					
	15	Antifreeze operation setting	Reset	Set					
	16	SAVE operation setting	Reset	Set					
	17	Forced thermostat OFF setting	Reset	Set					
	18	Emergency stop setting	Reset	Set					
	19	Temp. limit valid setting	Invalid	Valid					
MI	10	Operation mode status	Cool	Heat	Fan	Dry	Auto		
	11	Fan speed status	Low	High	Med	Auto	Quiet	Med-Low	Med-High
	12	Indoor unit error code	Refer to FGL original error code						
	13	R.C. prohibition status	Refer to R.C. prohibition setting chart						
	14	Vertical airflow direction status	1	2	3	4	Swing		
	15	Horizontal airflow direction status	1	2	3	4	5	Swing	
	16	Special driving status	Normal	Defrost	Oil Recovery				
	17	Managed mode	None	Master	Slave	External			
MO	10	Operation mode setting	Cool	Heat	Fan	Dry	Auto		
	11	Fan speed setting	Low	High	Med	Auto	Quiet	Med-Low	Med-High
	12	R.C. prohibition setting	Refer to R.C. prohibition setting chart						
	13	Vertical airflow direction setting	1	2	3	4	Swing		
	14	Horizontal airflow direction setting	1	2	3	4	5	Swing	
TL	10	ECA *1 operation data log							

*1) ECA: Electricity Charge Apportionment.

● Type : Outdoor

Object name	Code (II)	Function	Unit							
			Inactive	Active						
			Text-1	Text-2	Text-3	Text-4	Text-5	Text-6	Text-7	Text-8
BI	30	Outdoor unit error status	Normal	Fault						
	31	Forced OFF status	Reset	Set						
BO	30	Forced OFF setting	Reset	Set						
MI	30	Outdoor unit priority operation status *1	Cool	Heat	Neutral	None				
	31	Outdoor unit error code	Refer to FGL original error code							
	32	Capacity Save Status	Not Set	100%	90%	80%	70%	60%	50%	40%
	33	Outdoor low noise operation setting *2								
MO	30	Outdoor low noise operation setting *3	Stop	Level-1 Quiet	Level-1 Ability	Level-2 Quiet	Level-2 Ability	Level-3 Quiet	Level-3 Ability	
	32	Capacity Save Setting	Not Set	100%	90%	80%	70%	60%	50%	40%

*1) Priority operation status is for Heat Pump type VRF
In other types of systems, this status is not necessary.

*2) Refer to the "Outdoor unit low noise operation value table" for the texts used with the "Outdoor low noise operation status"

*3) Outdoor unit firmware may need to be updated for this function to work.
Contact your local sales company for detail.

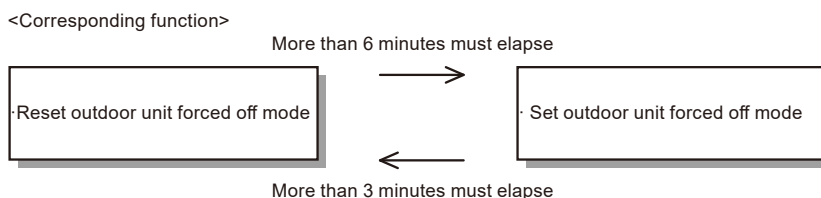
● Type : Gateway

Object name	Code (II)	Function	Unit							
			Inactive	Active						
			Text-1	Text-2	Text-3	Text-4	Text-5	Text-6		
Device	-	Device information								
BI	00	LON® Network Adaptor error status	Normal	Abnormal						
	01	Gateway error status	Normal	Abnormal						
	02	ES Status	Not Used	Energy Saving						
BO	02	ES Setting	Not Used	Energy Saving						
MI	00	LON® Network Adaptor unit error code	Refer to FGL original error code							
	01	Gateway error code	Refer to FGL original error code							
	02	ECA *1 status	Invalid	Invalid (Stop)	Include Indoor Unit Only	Exclude Indoor And RB Unit	Include Indoor And RB Unit	Include RB Unit Only		
MO	01	ECA *1 setting	Stop	Include Indoor Unit Only	Exclude Indoor And RB Unit	Include Indoor And RB Unit	Include RB Unit Only			
Notification	00-99	Notification class								
CAL	00	Calendar "Holiday-1"								
	01	Calendar "Holiday-2"								
	02-31	Calendar "Special day-1" - "Special day-30"								
Schedule	00-99	Schedule timer								

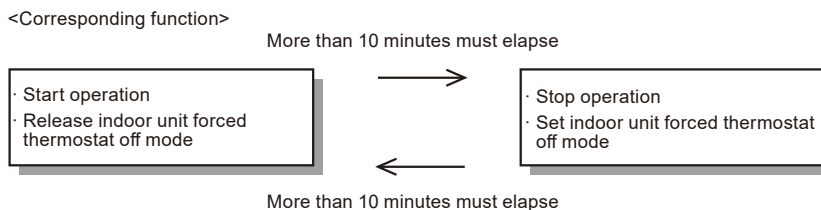
*1) ECA: Electricity Charge Apportionment.

* To protect the compressor of the outdoor unit, carefully read and understand the following cautions that may affect the operation of the compressor before executing the setting.

- When regularly making the following settings to the same outdoor unit by using schedule function etc., leave the following interval.




- When performing periodical settings like schedule settings for the following functions, perform the setting to all the indoor units in the same refrigerant system simultaneously, conforming to the timing restriction described below.



- * Forced thermostat OFF instruction, outdoor unit forced off instruction and capacity save setting.
 - Only one equipment can send these instructions for each refrigerant system.
 - When these instructions are sent by multiple equipment (eg. from System Controller & BACnet® Gateway at the same time), the system may not respond as instructed or may malfunction.
- * The electricity charge apportionment function of VRF system can only be performed from one equipment simultaneously. Therefore, ECA setting, required to be set before performing electricity charge apportionment, can only be sent from one equipment simultaneously.
- * The energy saving function of VRF system can only be performed from one equipment simultaneously. Therefore, ES setting, required to be set before performing energy saving, can only be sent from one equipment simultaneously.

■ PACKING LIST

Name and shape	Quantity	Application
WHITE-USB-KEY (software protection key with software) 	1	Includes the software and manuals for Web Monitoring Tool. Additionally, it works as the software protection key. Software protection key to be connected to an USB port on the PC that the Web Monitoring Tool is installed. Web Monitoring Tool runs only on a PC with this WHITE-USB-KEY.

■ OTHER REQUIRED DEVICES (Locally purchased)

- Personal computer that satisfies the following system requirements
- Echelon® U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF Network.)

■ PERSONAL COMPUTER SYSTEM REQUIREMENTS

Operating system	<ul style="list-style-type: none"> • Microsoft® Windows® 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft® Windows® 7 Professional (32-bit or 64-bit) SP1 • Microsoft® Windows® 8.1 (32-bit or 64-bit) • Microsoft® Windows® 8.1 Pro (32-bit or 64-bit) • Microsoft® Windows® 10 Home (32-bit or 64-bit) • Microsoft® Windows® 10 Pro (32-bit or 64-bit) [Supported languages] English, Chinese, French, German, Russian, Spanish, and Polish
CPU	Intel® Core™ i3 2 GHz or higher
Memory	<ul style="list-style-type: none"> • 2 GB or more (for Windows® 7 [32-bit]) • 4 GB or more (for Windows® 7 [64-bit], Windows® 8.1, and Windows® 10)
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	<ul style="list-style-type: none"> • Ethernet port (for getting access to the Internet using LAN) • USB ports (Maximum of 5 ports) <ul style="list-style-type: none"> - 1 USB port is required for WHITE USB-Key connection - Maximum of 4 USB ports are required for Echelon® U10 USB Network Interface * Maximum number of required USB ports depends on the applicable system configurations.
Software	Adobe® Reader® 9.0 or later

■ INSTALLATION PROCEDURE

Before installation, connect between the VRF Network System and the USB Adaptor.

Brief installation steps are as follows:

(For detail, check the Instruction Manual.)

Step1: Install an appropriate driver for the USB Adaptor to the PC.

*In this step, do not connect the USB Adaptor to the PC.

Step2: Install the BACnet[®] Gateway (Application Software) to the PC.

Step3: Restart the PC.

Step4: After restarting the PC, make sure that the USB Adaptor, WHITE-USB-KEY, and Ethernet cable for the BACnet[®] Gateway are connected to the PC.

Step5: Start the application.

Step6: Configure necessary settings for startup operation as follows:

1. Perform all necessary initial settings such as IP address, etc. Then, click the OK button.

Adaptor Setting window appears automatically.

2. Select the connected adaptor, and click OK button. Then, Unit Registration window appears and starts scanning all connected units automatically.

3. After finishing the scanning, click OK button.

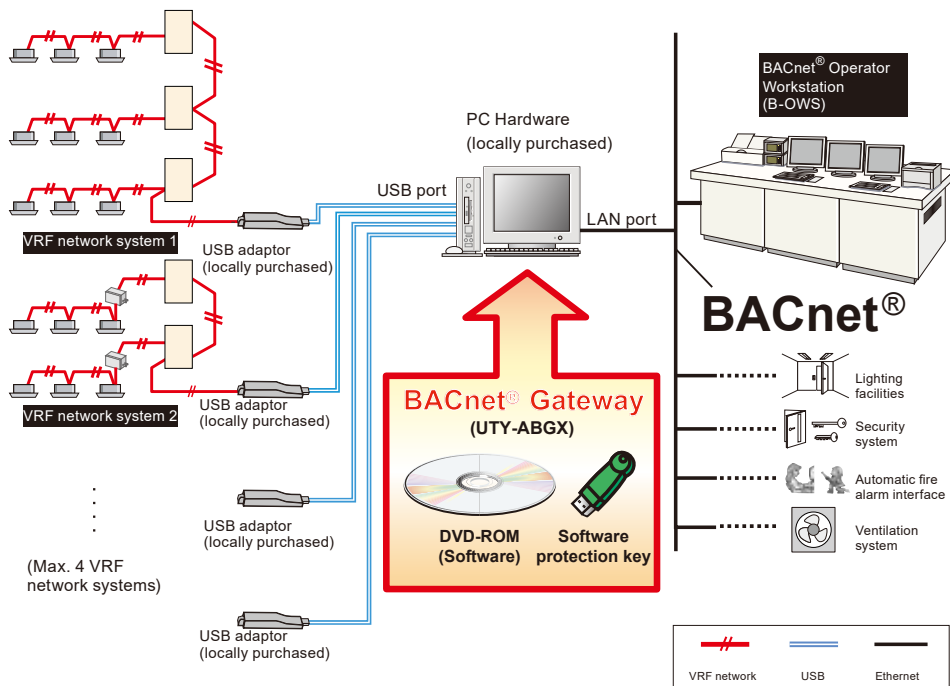
Gateway execution window appears on the display when the startup operation is completed.

Step7: Arrange the information between BMS and BACnet[®] Gateway using the Read Property Service, etc.

3-7-2. MODEL: UTY-ABGX

- It is possible to connect medium to large sized BMS to VRF network system via BACnet[®], a global standard for open networks.
- A maximum of 1,600 indoor units with 4 VRF network systems (a maximum of 400 indoor units & 100 outdoor units for one network system) can be connected to one BACnet[®] Gateway.
- It is possible to control or monitor VRF network system from BMS via BACnet[®] Gateway.
- Compatible with BACnet[®] (ANSI / ASHRAE-135-2004) application specific controller (B-ASC).
- Compatible with BACnet[®]/IP over Ethernet.
- Scheduling function, alarm & event functions, electricity charge apportionment function as well as energy saving function are provided in BACnet[®] Gateway.
- Connection between VRF network system to personal computer is possible via small U10 USB interface. However, both U10 USB interface & personal computer are locally purchased items.

SYSTEM DIAGRAM



FUNCTIONS

● Indoor unit control (Output Object)

Commands from BMS are sent to the respective indoor units via BACnet[®] Gateway. (BMS → BACnet[®] Gateway → respective indoor units of VRF Network system)

● Indoor unit status monitoring (Input Object)

Indoor unit status is communicated to the BMS via BACnet[®] Gateway. (BMS ← BACnet[®] Gateway ← respective indoor units of VRF Network system)

● Outdoor unit control (Output Object)

Commands from BMS are sent to the respective outdoor units via BACnet[®] Gateway. (BMS → BACnet[®] Gateway → respective outdoor units of VRF Network system)

● Outdoor unit status monitoring (Input Object)

Outdoor unit status is communicated to the BMS via BACnet[®] Gateway. (BMS ← BACnet[®] Gateway ← respective outdoor units of VRF Network system)

■ BACnet® OBJECT LIST

● Type : Indoor

Object name	Code (II)	Function	Unit					
			Inactive	Active				
			Text-1	Text-2	Text-3	Text-4	Text-5	Text-6
AI	10	Set temp. status	°F					
	11	Space temp.	°F					
	12	Auto temp. (Low limit status)	°F					
	13	Auto temp. (High limit status)	°F					
	14	Cool/Dry temp. (Low limit status)	°F					
	15	Cool/Dry temp. (High limit status)	°F					
	16	Heat temp. (Low limit status)	°F					
	17	Heat temp. (High limit status)	°F					
AO	10	Temp. setting	°F					
	11	Auto temp. (Low limit setting)	°F					
	12	Auto temp. (High limit setting s)	°F					
	13	Cool/Dry temp. (Low limit setting)	°F					
	14	Cool/Dry temp. (High limit setting)	°F					
	15	Heat temp. (Low limit setting)	°F					
	16	Heat temp. (High limit setting)	°F					
AV	10	ECA *1 operation data						
BI	10	Operation status	OFF	ON				
	14	Filter sign status	Unsigned	Signed				
	15	Indoor unit error status	Normal	Fault				
	16	Antifreeze operation status	Reset	Set				
	17	SAVE operation status	Normal	SAVE				
	18	Forced thermostat off status	Reset	Set				
	19	Emergency stop status	Normal	Stop				
	20	Mode mismatch status	Normal	Mismatch				
	21	Protect antifreeze status	Reset	Set				
	22	Temp. limit enable status	Disable	Enable				
BO	10	Operation setting	OFF	ON				
	14	Filter sign resetting	Reset	Not reset				
	15	Antifreeze operation setting	Reset	Set				
	16	SAVE operation setting	Reset	Set				
	17	Forced thermostat OFF setting	Reset	Set				
	18	Emergency stop setting	Reset	Set				
	19	Temp. limit enable setting	Disable	Enable				
MI	10	Operation mode status	Cool	Heat	Fan	Dry	Auto	
	11	Fan speed status	Low	High	Med	Auto		
	12	Indoor unit error code	Refer to FGL original error code					
	13	R.C. prohibition status	Refer to R.C. prohibition setting chart					
	14	Vertical airflow direction status	1	2	3	4	Swing	
	15	Horizontal airflow direction status	1	2	3	4	5	Swing
	16	Special driving status	Normal	Defrost	Oil Recovery			
	17	Managed mode	None	Master	Slave	Outer		
MO	10	Operation mode setting	Cool	Heat	Fan	Dry	Auto	
	11	Fan speed setting	Low	High	Med	Auto		
	12	R.C. prohibition setting	Refer to R.C. prohibition setting chart					
	13	Vertical airflow direction setting	1	2	3	4	Swing	
	14	Horizontal airflow direction setting	1	2	3	4	5	Swing
TL	10	ECA *1 operation data log						

*1) ECA: Electricity Charge Apportionment

● Type : Outdoor

Object name	Code (II)	Function	Unit							
			Inactive	Active						
			Text-1	Text-2	Text-3	Text-4	Text-5	Text-6	Text-7	Text-8
BI	30	Outdoor unit error status	Normal	Fault						
	31	Forced OFF status	Reset	Set						
BO	30	Forced OFF setting	Reset	Set						
MI	30	Outdoor unit priority operation status *1	Cool	Heat	Neutral	None				
	31	Outdoor unit error code	Refer to FGL original error code							
	32	Capacity Save Status	Not Set	100%	90%	80%	70%	60%	50%	40%
	33	Outdoor low noise operation status *2								
MO	30	Outdoor low noise operation setting*3	Stop	Level-1 Quiet	Level-1 Ability	Level-2 Quiet	Level-2 Ability			
	32	Capacity Save Setting	Not Set	100%	90%	80%	70%	60%	50%	40%

*1) Priority operation status is for Heat Pump type VRF

In other types of systems, this status is not necessary.

*2) Refer to the "Outdoor unit low noise operation value table" for the texts used with the "Outdoor low noise operation status"

*3) Outdoor unit firmware may need to be updated for this function to work.
Contact your local sales company for detail.

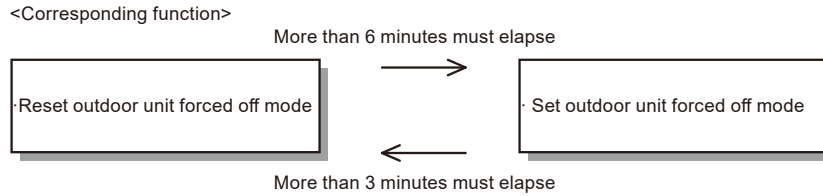
● Type : Gateway

Object name	Code (II)	Function	Unit							
			Inactive	Active						
			Text-1	Text-2	Text-3	Text-4	Text-5	Text-6		
Device	-	Device information								
BI	00	LON Network Adaptor error status	Normal	Abnormal						
	01	Gateway error status	Normal	Abnormal						
	02	ES Status	Not Used	Energy Saving						
BO	02	ES Setting	Not Used	Energy Saving						
MI	00	LON Network Adaptor unit error code	Refer to FGL original error code							
	01	Gateway error code	Refer to FGL original error code							
	02	ECA *4 status	Disable	Disable (Stop)	Include Indoor Unit Only	Exclude Indoor And RB Unit	Include Indoor And RB Unit	Include RB Unit Only		
MO	01	ECA *4 setting	Stop	Include Indoor Unit Only	Exclude Indoor And RB Unit	Include Indoor And RB Unit	Include RB Unit Only			
Notification	00-99	Notification class								
CAL	00	Calendar "Holiday-1"								
	01	Calendar "Holiday-2"								
	02-31	Calendar "Special day-1" - "Special day-30"								
Schedule	00-99	Schedule timer								

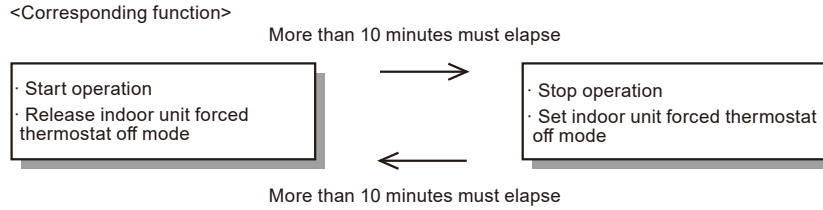
*4) ECA: Electricity Charge Apportionment

* To protect the compressor of the outdoor unit, carefully read and understand the following cautions that may affect the operation of the compressor before executing the setting.

- When regularly making the following settings to the same outdoor unit by using schedule function etc., leave the following interval.





- When performing periodical settings like schedule settings for the following functions, perform the setting to all the indoor units in the same refrigerant system simultaneously, conforming to the timing restriction described below.



- * Forced thermostat OFF instruction, outdoor unit forced off instruction and capacity save setting.
 - Only one equipment can send these instructions for each refrigerant system.
 - When these instructions are sent by multiple equipment (eg. from System Controller & BACnet Gateway at the same time), the system may not respond as instructed or may malfunction.
- * The electricity charge apportionment function of VRF system can only be performed from one equipment simultaneously. Therefore, ECA setting, required to be set before performing electricity charge apportionment, can only be sent from one equipment simultaneously.
- * The energy saving function of VRF system can only be performed from one equipment simultaneously. Therefore, ES setting, required to be set before performing energy saving, can only be sent from one equipment simultaneously.

■ PACKING LIST

Name and shape	Quantity	Application
DVD-ROM 	1	Includes the software and manuals for BACnet® Gateway.
Wibu key  (Software protection key)	1	Software protection key to be inserted in a USB slot running BACnet® Gateway. BACnet® Gateway may only run on a PC with Wibu Key.

■ OTHER REQUIRED DEVICES (LOCALLY PURCHASED)

- Personal computer that satisfies the following system requirements
- Echelon® U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF Network.)

■ PERSONAL COMPUTER SYSTEM REQUIREMENTS

Operating system	<ul style="list-style-type: none"> • Microsoft® Windows® 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft® Windows® 7 Professional (32-bit or 64-bit) SP1 • Microsoft® Windows® 8.1 (32-bit or 64-bit) • Microsoft® Windows® 8.1 Pro (32-bit or 64-bit) • Microsoft® Windows® 10 Home (32-bit or 64-bit) • Microsoft® Windows® 10 Pro (32-bit or 64-bit) [Supported languages] English, Chinese, French, German, Russian, Spanish, and Polish
CPU	Intel® Core™ i3 2-GHz or higher
Memory	<ul style="list-style-type: none"> • 2 GB or more (for Windows Vista® and Windows® 7 [32-bit]) • 4 GB or more (for Windows® 7 [64-bit], Windows® 8.1, and Windows® 10)
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	<ul style="list-style-type: none"> • Ethernet port (for getting access to the Internet using LAN) • USB ports (Maximum of 5 ports) <ul style="list-style-type: none"> - 1 USB port is required for WibuKey connection - Maximum of 4 USB ports are required for Echelon® U10 USB Network Interface * Maximum number of required USB ports depends on the applicable system configurations
Software	Adobe® Reader® 9.0 or later
Optical drive	DVD-ROM Drive

■ INSTALLATION PROCEDURE

Before beginning installation, connect to the VRF Network System using the USB adapter.

Installation steps in brief are as follows:

(For detail, check the Installation Manual and the Operation Manual)

Step1: Install the driver for USB Adaptor to PC

*in this stage, do not connect the USB Adaptor to PC

Step2: Install the BACnet® Gateway (Application Software) to PC

Step3: Restart PC.

Step4: After PC restart, make sure that the USB Adaptor, WIBU-KEY and Ethernet cable for the BACnet® Gateway are connected to PC

Step5: Startup the application.

Step6: Input all necessary initial setting items like, IP Address, and others. After that, click the OK button. USB Adaptor setting screen pops up automatically, select the connected adaptor and click OK button. After that, unit register screen appears automatically, scanning all connected units and click OK button. Complete the startup operation if Gateway execution screen appears on PC screen.

Step7: Arrange the information between BMS and BACnet® Gateway using the Read Property Service and so on.

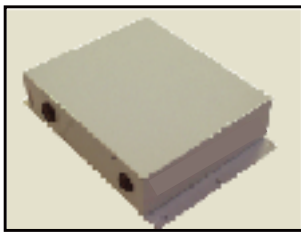
3-8. SIGNAL AMPLIFIER

■ MODEL: UTY-VSGXZ1

If the total length of transmission line exceeds 1,640ft. (500m), or the number of units exceeds 64 units, A signal amplifier will be required.

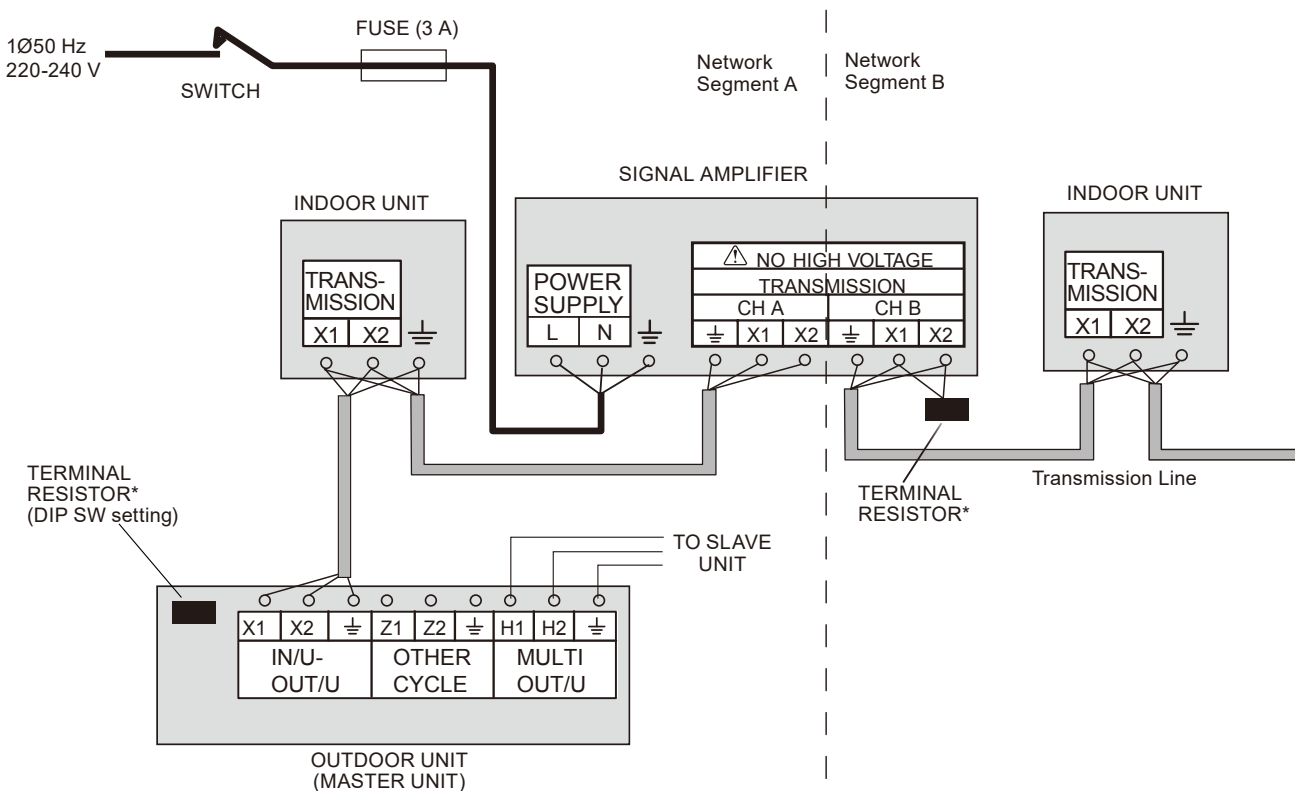
- Transmission line length can be extended up to 11,811 ft. (3,600m) with multiple signal amplifier.
- Up to 8 Signal Amplifier(Filter mode is OFF) can be installed in 1 VRF network system.
- Up to 32 Signal Amplifier(Filter mode is ON) can be installed in 1 VRF network system.
- When indoor unit is installed 321 or more, install one Signal amplifier (Filter mode is ON) for every 64 units. (However, only when VR-II Series is installed.)

To prevent the drop of signal level by taking distance of length or quantity of unit in VRF network with installing signal amplifier, signal level can be recovered.

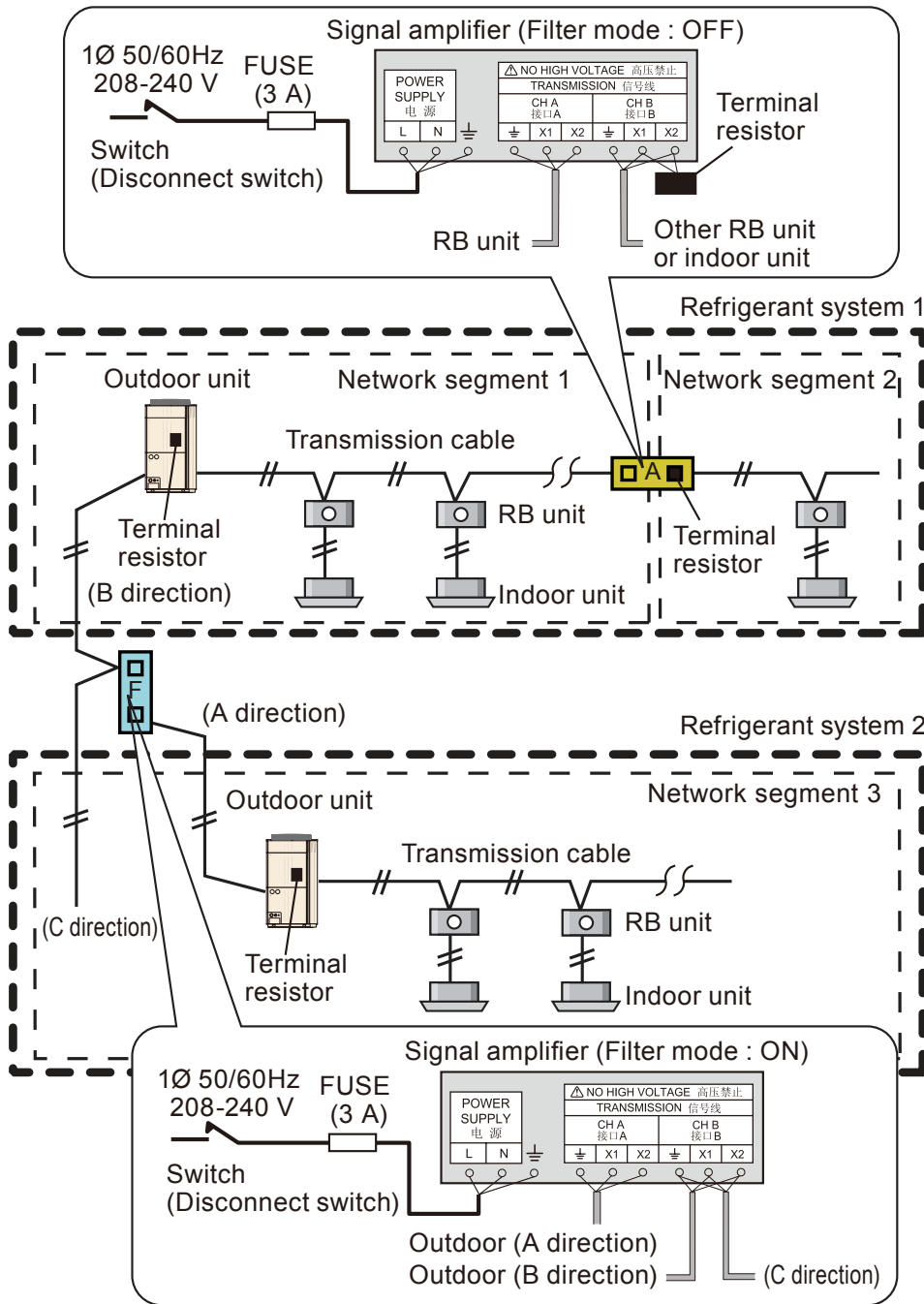


■ ELECTRICAL WIRING

- Except in the case of V and S Series (Indoor unit is installed 320 units or less)



● Case of VR-II (321 or more indoor units are installed)

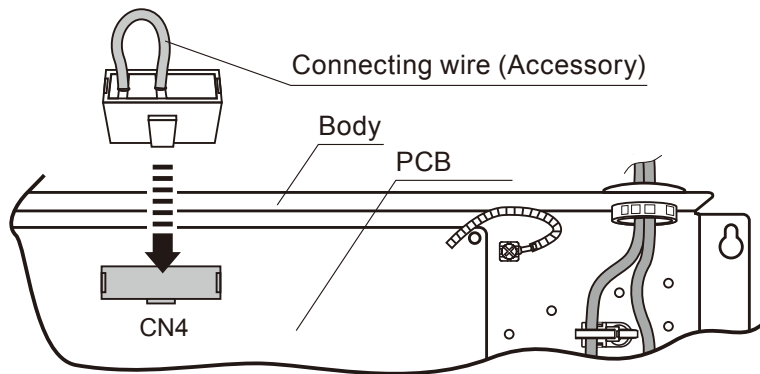


* Make sure to install 1 piece of terminal resistor to each network segment. Terminal resistor is provided for each outdoor unit, but confirm that there is only one terminal resistor in the same network segment.

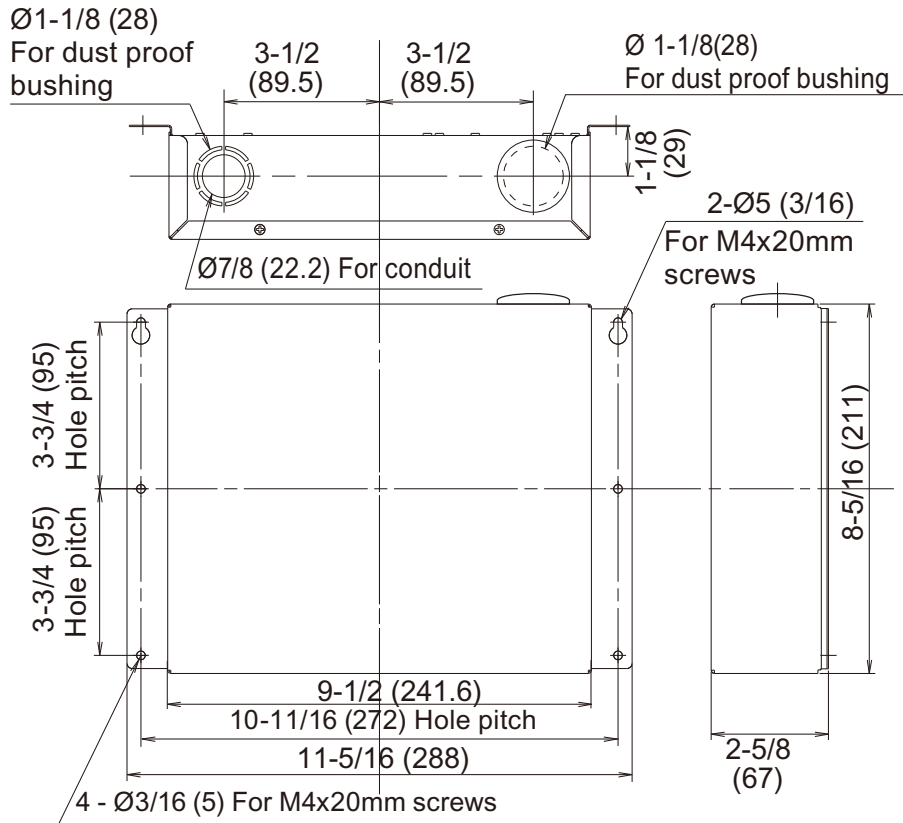
● Filter mode setting

Set the Filter mode to suppress an increase of the amount of communication information in the VR-II system.

- Filter mode is turned on by inserting the accessory connecting wire at the CN4 connector on the PCB.
- When the Filter mode setting is changed, turn the power off once. Otherwise, the setting will not be recognized.









■ DIMENSIONS



■ PACKING LIST

The following installation parts are supplied. Use them as required.

Name and shape	Quantity	Application
Installation manual 	1	
Cable Tie 	4	For securing controller cable.
Screw (M4 × 20 mm) 	4	For mounting the signal amplifier.
Terminal resistor 	1	
Dust proof bushing 	1	For connecting the power supply cable. (Except in U.S.A. and Canada)
Connecting wire 	1	For setting the filter mode

■ WIRING SPECIFICATIONS

Use	Size	Wire type	Remarks
Power supply cable	Maximum 16 AWG (1.25 mm ²)	60245 IEC 57 or equivalent	1 ∅ AC 208 - 240 V 50/60 Hz, 2 Wire + ground (Always ground the unit)
	Minimum 20 AWG (0.5 mm ²)		
Transmission cable	22AWG (0.33 mm ²)	LEVEL4 (NEMA) non-polar 2 core, twisted pair solid core Shielded	LONWORKS [®] compatible cable
Fuse capacity	3 A		

■ SPECIFICATIONS

● Main specification

Power supply	1∅ AC 208 - 240 V 50/60 Hz
Input Power (W)	4.5
Temperature: °F (°C)	Operating 32 to 114.8 (0 to 46)
	Packaged 14 to 140 (-10 to 60)
Humidity (%)	Packaged 0 to 95 (RH) ; No condensation
Dimensions [H × W × D]: in. (mm)	2-5/8 × 11-5/16 × 8-5/16 (67 × 288 × 211)
Weight: lbs. oz. (g)	3 lbs. (1,500)

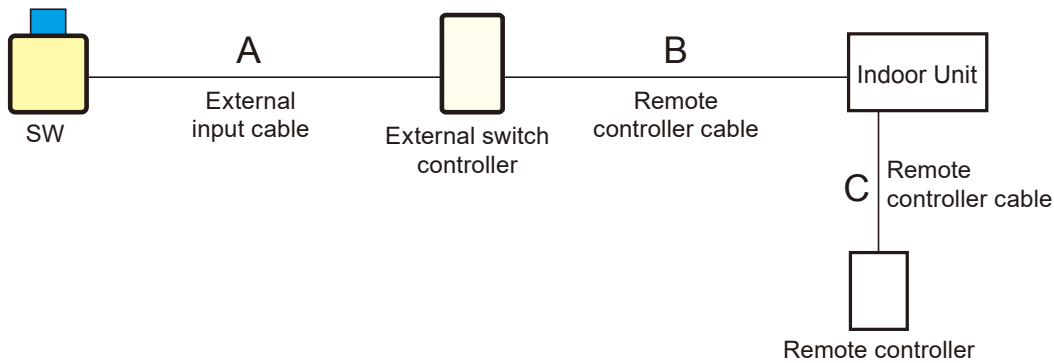
3-9. EXTERNAL SWITCH CONTROLLER

3-9-1. MODEL: UTY-TERX



- Switching of air conditioner settings can be performed using an external switch controller and a third-party device.
- ON/OFF, Temperature, Fan Speed, Operating and Remote controller prohibition Mode can be switched using external devices, such as a room card-key.
- Card-key or other sensor switches are available as a locally purchased parts.

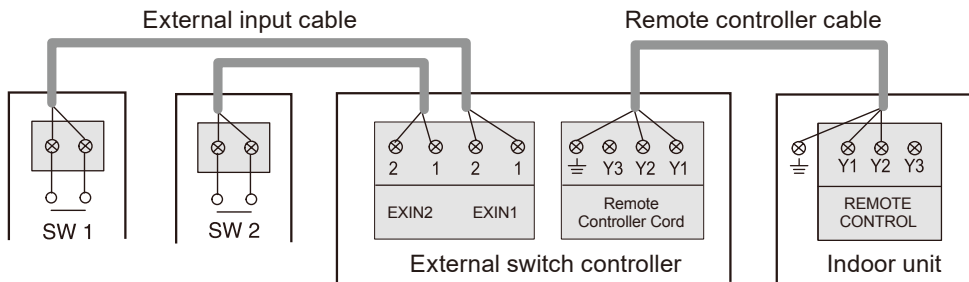
SYSTEM DIAGRAM



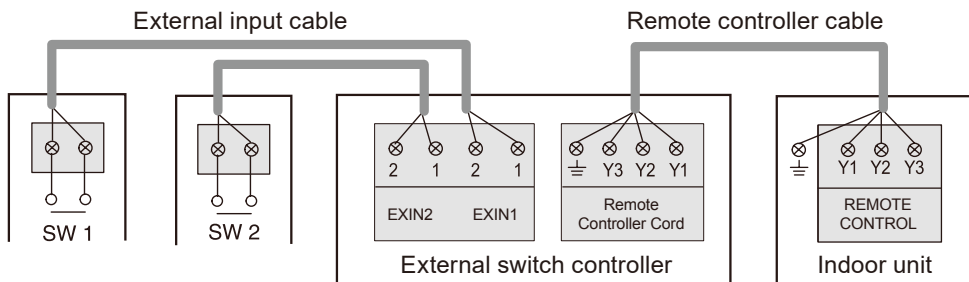
Use	A	B	B + C
2-wire type	164 ft. (50 m) or less	-	1,640 ft. (500 m) or less
3-wire type	164 ft. (50 m) or less	82 ft. (25 m) or less	1,640 ft. (500 m) or less

ELECTRICAL WIRING

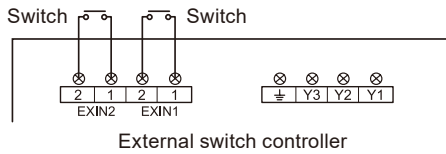
For non-polar 2 wire



For polar 3 wire



Connection to external contacts



Select low current use contacts (usable at DC 5 V, 2 mA or less).

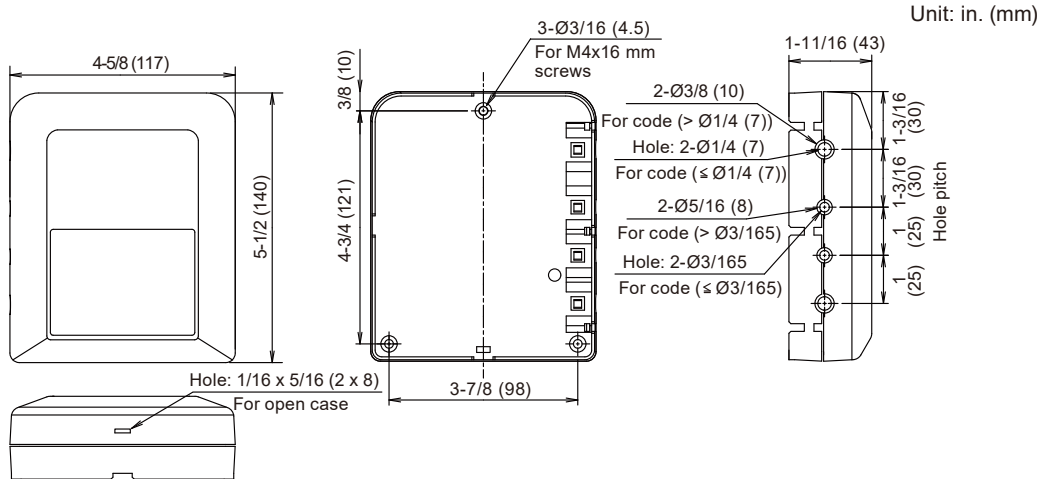
Short circuit detection resistance (R ON): $\leq 500 \text{ } (\Omega)$.

Open circuit detection resistance (R OFF): $\geq 100 \text{ } (k\Omega)$.

A twister pair cable 16 to 22AWG (0.33 to 1.25 mm²) should be use.

Maximum length of cable is 164 ft. (50 m).

DIMENSIONS

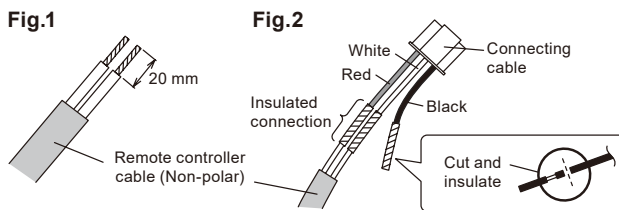


INSTALLATION

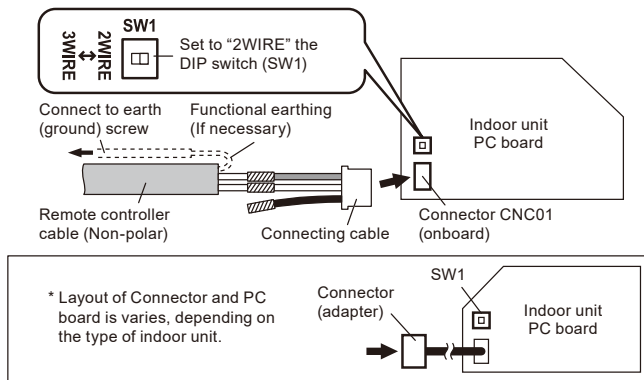
● (1) When connecting to the connector

Case 1: For non-polar 2 wire

Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown in Fig. 1. Connect the remote controller cable and connecting cable as shown in Fig. 2. Be sure to insulate the connection between the cables.



Connect the remote controller cable to the connecting cable, and insert it to the connector. Set to "2WIRE" the DIP switch (SW1) on the PC board of the indoor unit.



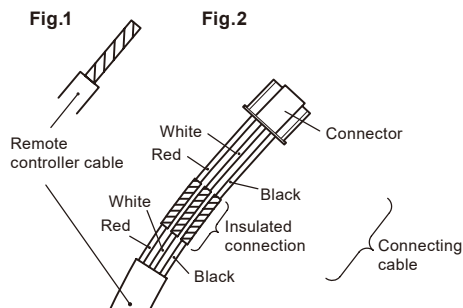
Case 2: For polar 3 wire

Modify the cable as per below methods.

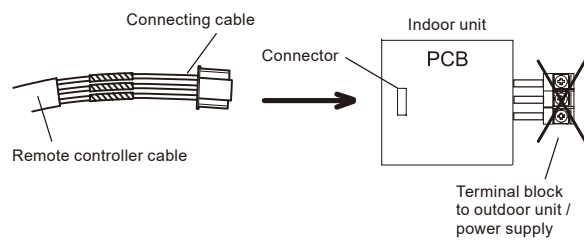
Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown in Fig. 1.

Connect the remote controller cable and connecting cable as shown in Fig. 2.

Be sure to insulate the connection between the cables.



Connect the remote controller cable to the connecting cable, and insert it to the connector.



When the board has the 2WIRE/3WIRE DIP switch on it, set it to 3WIRE.

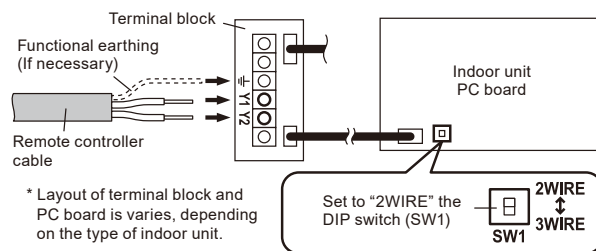
For how to set, see "Case 1: For non-polar 2 wire".

● (2) When connecting to the exclusive terminal block




Connect the end of remote controller cable directly to the exclusive terminal block.

If there is the 2WIRE/3WIRE switch on the PC board of the indoor unit, set it to match the connection method of the connected remote controller cable.

Example) Connection of non-polar 2 wire



■ PACKING LIST

Name and shape	Quantity	Application
Installation manual 	1	
Screw (M4 × 16 mm) 	3	For installing the external switch controller
Cable Tie 	4	For securing controller cable.

■ WIRING SPECIFICATIONS

Use	Size	Cable type	Remarks
Remote controller cable (2-wire type)	16 to 22AWG (0.33 to 1.25 mm ²)	Sheathed PVC cable*	Non-polar 2 core, twisted pair (Maximum cable length: 1,640 ft. [500 m])
Remote controller cable (3-wire type)	22AWG (0.33 mm ²)	Sheathed PVC cable*	Polar 3core, twisted pair (Maximum cable length: 82 ft. [25 m])
External input cable	16 to 22AWG (0.33 to 1.25 mm ²)	Sheathed PVC cable*	2 core, twisted pair (Maximum cable length: 164 ft. [50 m])

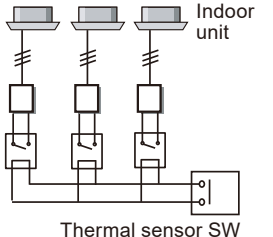
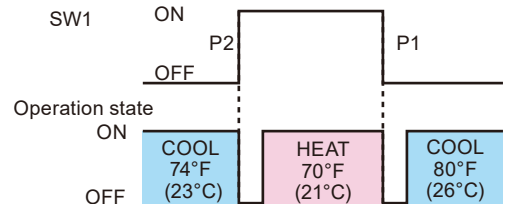
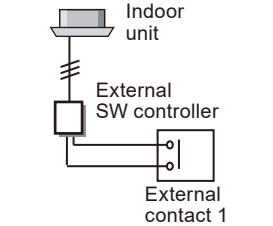
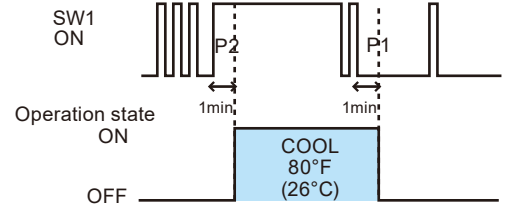
*: Use shielded cable in accordance with local rules for remote controller cable.

■ SPECIFICATIONS

Power consumption (W)		0.6
Temperature: °F (°C)	Operating	32 to 114.8 (0 to 46)
	Packaged	14 to 140 (-10 to 60)
Humidity (%)	Packaged	0–95 (RH); No condensation
Dimensions [H × W × D]: in. (mm)		1-11/16 × 4-5/8 × 5-1/2 (43 × 117 × 140)
Weight: oz. (g)		9 (250)

EXAMPLE

Application	Setting	Wiring	Operation example
When controlling the individual operation states with two external contact	MODE0 P1: Arbitrary operation state Contact OFF→ON P2: Arbitrary operation state Contact OFF→ON Others setting are arbitrary.		<p>P1 : ON, COOL, 80°F (26°C) P2 : OFF</p>
When controlling operation by ON or OFF of an external contact switch	MODE1 P1 : Arbitrary operation state P2 : Arbitrary operation state Others setting are arbitrary.		<p>P1 : OFF P2 : ON, COOL, 80°F (26°C)</p>
	MODE1 P1 : Arbitrary operation state P2 : Arbitrary operation state Others setting are arbitrary.		<p>P1 : ON (COOL, 80°F (26°C) P2 (88°F (30°C) HEAT, 68°F (20°C) 60°F (16°C)</p>
	MODE1 P1 : Arbitrary operation state P2 : OFF TIMER (1, 3, 6, 12, 24hr) Others setting are arbitrary.		<p>P1 : ON, HEAT, 68°F (20°C) P2 : 60°F (16°C)</p>
When operating in the state set when an external contact switch was set to ON and returning to the original operation state when the switch was set to OFF	MODE1 or 0 P1 : SETBACK P2 : Arbitrary operation state Others setting are arbitrary.		<p>MODE1, P1 : SETBACK P2 : ON, COOL, 80°F (26°C)</p>
When operated in the state when an external contact switch was set to OFF and returned to original operation state when the switch was set to ON	MODE1 or 0 P1 : Arbitrary operation state P2 : SETBACK Others setting are arbitrary.		<p>MODE1, P1 : ON, COOL, 80°F (26°C) P2 : When SETBACK</p>

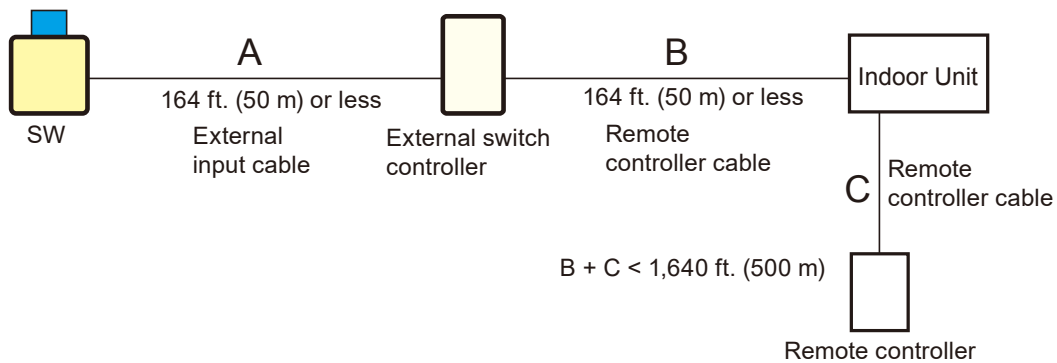
Application	Setting	Wiring	Operation example
<p>When a temperature sensor switch is connected and cooling and heating switching is performed.</p>	<p>MODE1 OFF output: Enabled P1 : ON, COOL or HEAT P2 : ON, COOL or HEAT Operation conditions: Unit operating only</p> <p>Others setting are arbitrary.</p>	 <p>Thermal sensor SW</p> <p>An external switch controller is connected to all the indoor units of the same refrigerant system and cooling and heating are switched by one temperature sensor.</p>	<p>P1 : ON, COOL, 80°F (26°C) P2 : ON, HEAT, 70°F (21°C)</p> 
<p>When preventing chattering noise within 1 minute of the external contact switch.</p>	<p>MODE1 Delay-time setting: Delay P1 : Arbitrary operation state P2 : Arbitrary operation state</p> <p>Others setting are arbitrary.</p>	 <p>Indoor unit</p> <p>External SW controller</p> <p>External contact 1</p>	<p>P1 : OFF P2 : ON, COOL, 80°F (26°C)</p> 

3-9-2.MODEL: UTY-TEKX

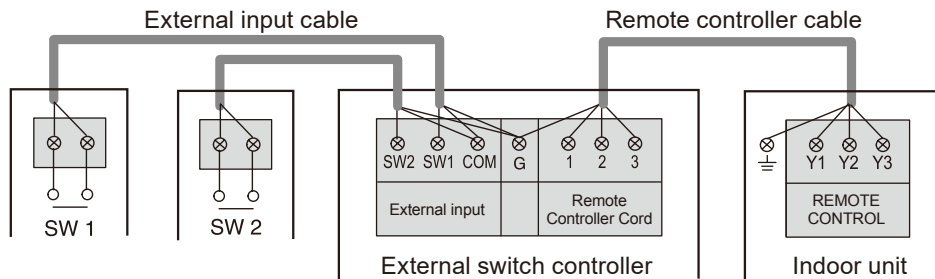


- Switching of air conditioner settings can be performed using an external switch controller and a third-party device.
- ON/OFF, Temperature, Fan Speed and Operating Mode can be switched using external devices, such as a room card-key.
- Card-key or other sensor switches are available as a locally purchased parts.

■ SYSTEM DIAGRAM

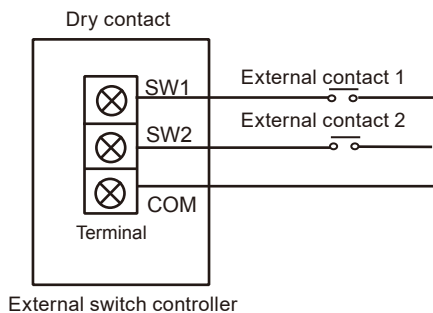


■ ELECTRICAL WIRING



*Connect SW2 only when it is used.

Connection to external contacts



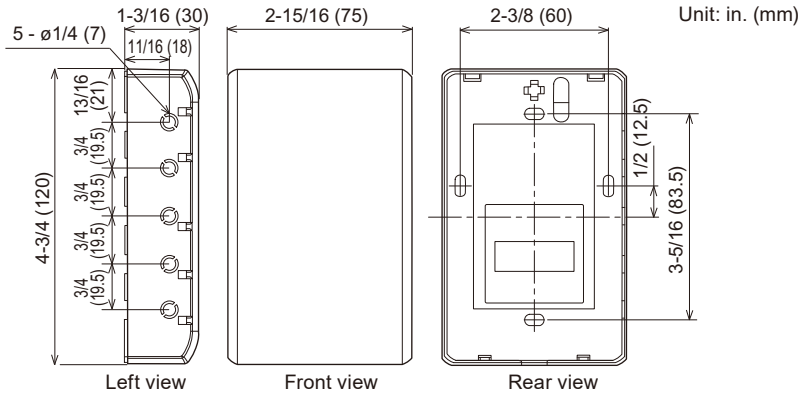
Open circuit voltage : $12\text{ (V)} \pm 2\text{ (V)}$.

Short circuit current : $\leq 2\text{ (mA)}$.

Short circuit detection resistance (R_{ON}) : $\leq 1\text{ (kilo-ohm)}$.

Open circuit detection resistance (R_{OFF}) : $\geq 50\text{ (kilo-ohm)}$.

DIMENSIONS



INSTALLATION

● Connection Pattern

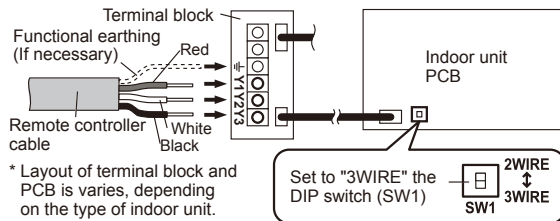
NOTE: Connection pattern is different for different indoor unit types.

Indoor unit types	Connection Pattern
All Cassette type	Pattern A
All Duct type	
All Ceiling type	
Wall Mounted type	Pattern B

● Pattern A

Connect the end of remote controller cable directly to the exclusive terminal block.

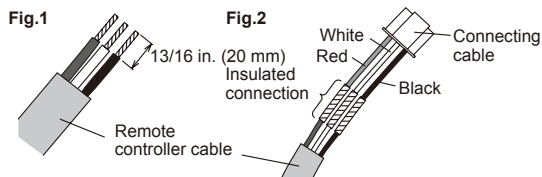
Set the DIP switch (SW1) to "3WIRE" on the PCB of the indoor unit.



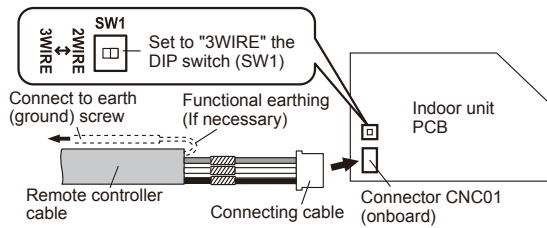
NOTE: The equipment may fail if it is connected to the outdoor unit or the power supply terminal block.

● Pattern B

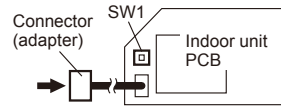
1) Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown in Fig. 1. Connect the remote controller cable and connecting cable as shown in Fig. 2. Be sure to insulate the connection between the cables.






- 2) Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to "3WIRE" on the PCB of the indoor unit.



* Layout of Connector and PCB varies, depending on the type of indoor unit



■ PACKING LIST

Name and shape	Quantity	Application
Installation manual 	1	
Screw (M4 × 16 mm) 	2	For installing the external switch controller
Cable Tie 	5	For securing controller cable.

■ WIRING SPECIFICATIONS

Use	Size	Wire type	Remarks
Remote controller cable	22AWG (0.33 mm ²)	Polar 3core	Use sheathed PVC cable or shielded cable in accordance with the regional cable standard.
External input / output cable	22AWG (0.33 mm ²)	Polar 2core, Twisted pair	Use shielded cable in accordance with the regional cable standard.

■ SPECIFICATIONS

Power supply	DC 12 V
Dimensions [H × W × D]: in. (mm)	4-3/4 × 2-15/16 × 1-3/16 (120 × 75 × 30)
Weight: lbs. oz. (g)	4 oz. (100)

EXAMPLE

Application	Setting	Wiring	Operation example
When controlling the individual operation states with two external contact	MODE0 P1: Arbitrary operation state Contact OFF→ON P2: Arbitrary operation state Contact OFF→ON Others setting are arbitrary.		<p>P1 : ON, COOL, 80°F (26°C) P2 : OFF</p>
When controlling operation by ON or OFF of an external contact switch	MODE1 P1 : Arbitrary operation state P2 : Arbitrary operation state Others setting are arbitrary.		<p>P1 : OFF P2 : ON, COOL, 80°F (26°C)</p>
When operating in the state set when an external contact switch was set to ON and returning to the original operation state when the switch was set to OFF	MODE1 or 0 P1 : SETBACK P2 : Arbitrary operation state Others setting are arbitrary.		<p>MODE1, P1 : SETBACK P2 : ON, COOL, 80°F (26°C)</p>
When operated in the state when an external contact switch was set to OFF and returned to original operation state	MODE1 or 0 P1 : Arbitrary operation state P2 : SETBACK Others setting are arbitrary.		<p>MODE1, P1 : ON, COOL, 80°F (26°C) P2 : When SETBACK</p>
When a temperature sensor switch is connected and cooling and heating switching is performed.	MODE2 P1 : ON, COOL or HEAT P2 : ON, COOL or HEAT Operation conditions: Unit operating only Others setting are arbitrary.	<p>An external switch controller is connected to all the indoor units of the same refrigerant system and cooling and heating are switched by one temperature sensor.</p>	<p>P1 : ON, COOL, 80°F (26°C) P2 : ON, HEAT, 70°F (21°C)</p>
When preventing chattering noise within 1 minute of the external contact switch.	MODE1 Delay-time setting: Delay P1 : Arbitrary operation state P2 : Arbitrary operation state Others setting are arbitrary.		<p>P1 : OFF P2 : ON, COOL, 80°F (26°C)</p>

4. SERVICE & WEB MONITORING TOOL

4-1. SERVICE TOOL

4-1-1. MODEL: UTY - ASGXZ1

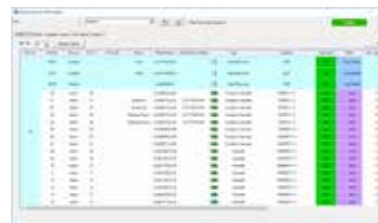
Extensive monitoring and analysis functions for installation and maintenance.

Operation status and error history can be grasped promptly and adequately.

■ FUNCTIONS

1) System List

Displays the overall operation status of all or specified units in the system in a list form.



2) Equipment Detail (Diagram)

Displays the detail information for sensor values, electrical components etc. for the specified units in schematic. The information here can be used along with the detailed information in status list form, to check the operation status of units and make detail analysis on the cause, in case an error occurs.



3) Equipment Detail (Status List)

Displays the detail information for sensor values, electrical components etc. of units in a specified refrigerant system in list form. The information here can be used along with the detailed information in diagram form, to check the operation status of units and make detail analysis on the cause, in case an error occurs.



4) Equipment Detail (Check List)

Judges whether the sensor values of outdoor unit and indoor units are appropriate, and displays the result.

By saving the result as a CSV file, it can be outputted with a report format.



5) Operation History

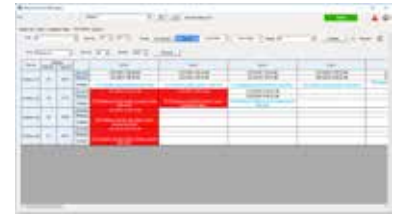
The indoor units or outdoor unit operation history can be recorded.

The displayed operation history can be printed out and saved to a CSV file.



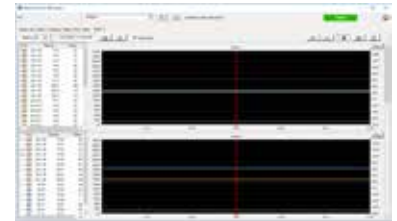
6) Error History

Displays the error information for each unit. The error information can sequentially be displayed up to 50 items as they occur starting with the latest error.



7) Graph

Displays the sensor values of outdoor unit and indoor units in more detail and more easier to see. Sensor information that the user want to check can be selected freely, and the combined information can be displayed. Up to 6-graph screens can be displayed simultaneously.



8) Data Backup

Operation and error history data can be downloaded. Only the required data may be downloaded specifying the refrigerant system, unit and time range.



9) Operation Setting

Changeable the operation status of the indoor unit individually or by group.



10) Network Topology Analyzer

A list of units connected to the VRF system network is displayed in network segments in tree form.

11) Remote Setting

Function (Field) Setting for indoor unit is realized remotely.

12) System Time Setting

An arbitrary time is set for all the remote controllers within the system.

13) Central Control Forced Release

The operation setting restriction function of the indoor units set from the controller can be forcibly released. (remote controller inhibit, temperature upper/lower limit setting)

14) Model Name Writer

An arbitrary model name can be written to the target unit.

15) Error Memory Reader

When an error occurs at an outdoor unit, the operation data records before the error are acquired over a network and saved to a CSV file.

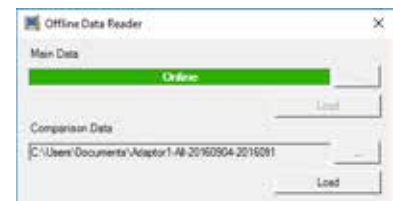
NOTE: To perform "Error Memory Reading", Service Tool and the corresponding outdoor unit must be connected directly with each other. Refer to the Operation Manual of the Service Tool for detail.

16) Time Guard Information

Reference data for judging the maintenance period of indoor and outdoor units (compressor, FAN, etc. integrated time) is output to a CSV file.

17) Offline Data Reader

Displays and compares the current data and the backup data saved in the past on dual screen.



18) Version

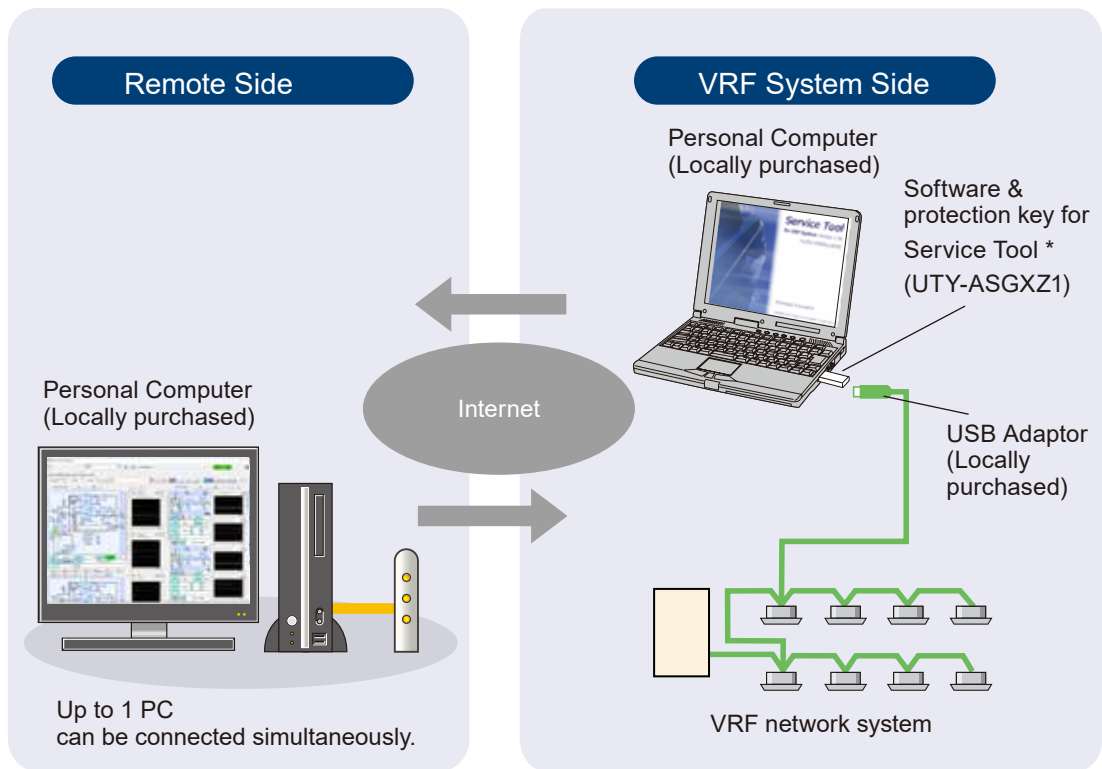
Confirm the current version of the software, and if it is not the latest, it can be updated to the latest version.



19) Remote Operation


Through the Internet, Service Tool in the PC on VRF system side can be operable in real-time from remote side PC. Chat-enabled, and the acquired data by the Service Tool can be downloaded by remote side PC.

SYSTEM DIAGRAM



*WibuKey of UTY-ASGX can be used.

PACKING LIST

Name and shape	Quantity	Application
WHITE-USB-KEY (software protection key with software) 	1	Includes the software and manuals for Service Tool. Additionally, it works as the software protection key. Software protection key to be connected to an USB port on the PC that the Service Tool is installed. Service Tool runs only on a PC with this WHITE-USB-KEY.

OTHER REQUIRED DEVICES (Locally purchased)

- Personal computer that satisfies the following system requirements
- Echelon® U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF Network.)

■ SYSTEM REQUIREMENTS

● For VRF System Side PC

Operating system	<ul style="list-style-type: none">•Microsoft® Windows® 7 Professional (32/64-bit) SP1•Microsoft® Windows® 8.1 Pro (32-bit or 64-bit)•Microsoft® Windows® 10 Pro (32-bit or 64-bit)
CPU	1 GHz or higher
Memory	<ul style="list-style-type: none">• 1 GB or more (Windows® 7, 8.1, 10 [32-bit])• 2 GB or more (Windows® 7, 8.1, 10 [64-bit])
HDD	40 GB or more of free space
Display	1,366 × 768 or higher resolution
Interface	2 USB ports <ul style="list-style-type: none">- 1 USB port is required for software protection key connection- 1 USB port is required for Echelon® U10 USB Network Interface
Software	Adobe® Reader® 9.0 or later
Internet transmission rate (in remote access)	Internet environment capable for communication speed of 3 Mbps or more (for uploading) all the time (including when accessing to overseas website)

● For Remote Side PC

Web browser	Internet Explorer®11.0 or Microsoft Edge
Display	1,366 × 768 or higher resolution (Set the resolution before use so that the resolution of Remote Side PC monitor screen is higher than that of VRF System Side PC.)
Internet transmission rate(in remote access)	Internet environment capable for communication speed of 4 Mbps or more (for downloading) all the time (including when accessing to overseas website)

4-1-2. MODEL: UTY - ASGX

Provides extensive monitoring and analysis functions to ensure the proper installation and maintenance of VRF systems. All performance data can be saved for further review and troubleshooting. Files can be shared for further evaluation.

■ FUNCTIONS

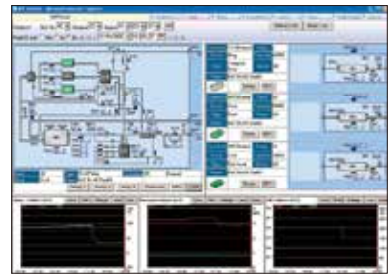
1) System List

Displays the overall operation status of all or specified units in the system in a list form.



2) Equipment Detail (Diagram)

Displays the detail information for sensor values, electrical components etc. for the specified units in schematic. The information here can be used along with the detail information in list form, to check the operation status of units and make detail analysis on the cause, in case an error occurs.



3) Equipment Detail (List)

Displays the detail information for sensor values, electrical components etc. of units in a specified refrigerant system in list form. The information here can be used along with the detail information in diagram form, to check the operation status of units and make detail analysis on the cause, in case an error occurs.



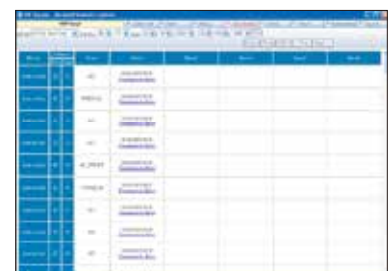
4) Operation History

The indoor unit and outdoor unit operation history can be displayed and saved as a CSV file.



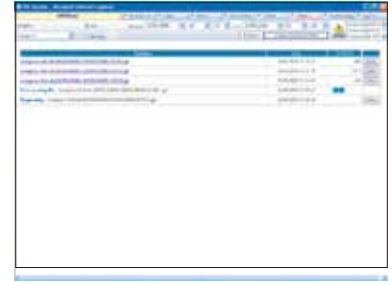
5) Error History

Displays the error information for each unit. The error information is retained and displays up to 50 of the most recent error messages.



6) Remote File Download

Operation and error history can be saved. Output can be customized such that only the information that is required is downloaded.



7) Commissioning Tool

Operational data from the test run can be exported in CSV file format.

8) Network Topology Analyzer *

A list of units connected to the VRF system network is displayed in network segments in tree form.



9) Remote Setting

Function setting for the indoor units can be set remotely



10) System Time Setting

The time setting for all of the controllers on the VRF system can be set or changed simultaneously from a central location.

11) Central Release

The operation restriction settings (temperature upper/lower limit, mode limit, etc.) can be forcibly released*.

* Limits are deleted from controller and will need to be reprogrammed, if desired.

12) Model Name Writer

A Fujitsu model number can be assigned to each target unit.

13) Error Memory Reader

When an error occurs at an outdoor unit, the system retains operation data for the 5 minutes preceding the error. This data can be accessed over the communication network and saved as a CSV file.

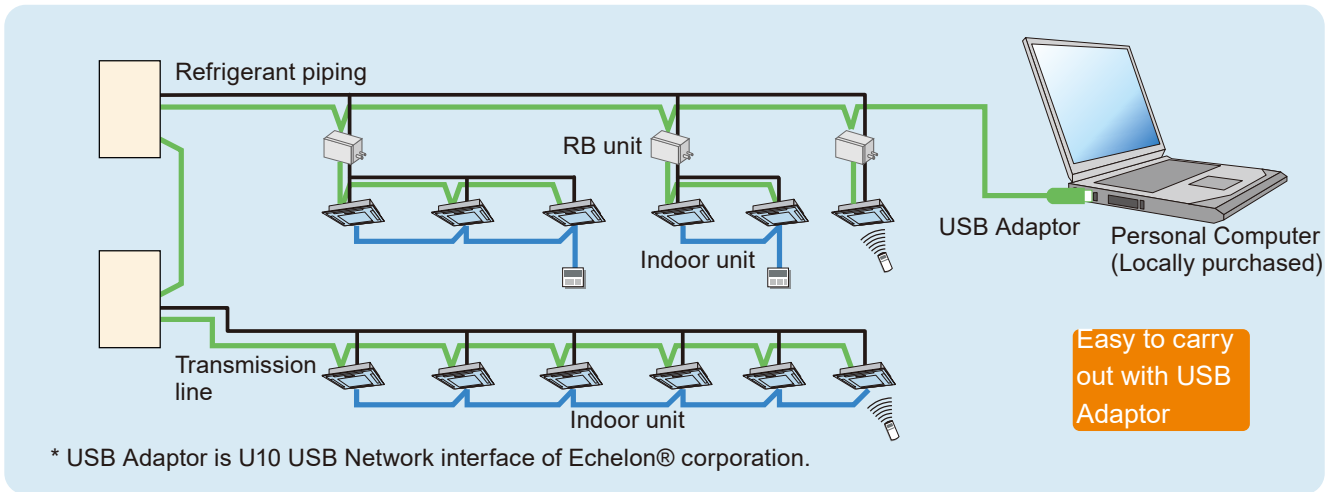
NOTE: To perform "Error Memory Reading", Service Tool and the corresponding outdoor unit must be connected directly with each other. Refer to the Operation Manual of the Service Tool for detail.

14) Time Guard Information *



Reference data for determining the maintenance schedule for indoor and outdoor units (operation time for compressor, fan, etc.) can be output into a CSV file.

*: Supported by Ver. 1.1 or later

SYSTEM DIAGRAM



PACKING LIST

Name and shape	Quantity	Application
DVD-ROM 	1	Includes the software and manuals for Service Tool.
Wibu key (Software protection key) 	1	Software protection key to be inserted in a USB slot running Service Tool. Service Tool may only run on a PC with Wibu Key.

■ OTHER REQUIRED DEVICES (LOCALLY PURCHASED)

- Personal computer that satisfies the following system requirements
- Echelon® U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF Network.)

■ PERSONAL COMPUTER SYSTEM REQUIREMENTS

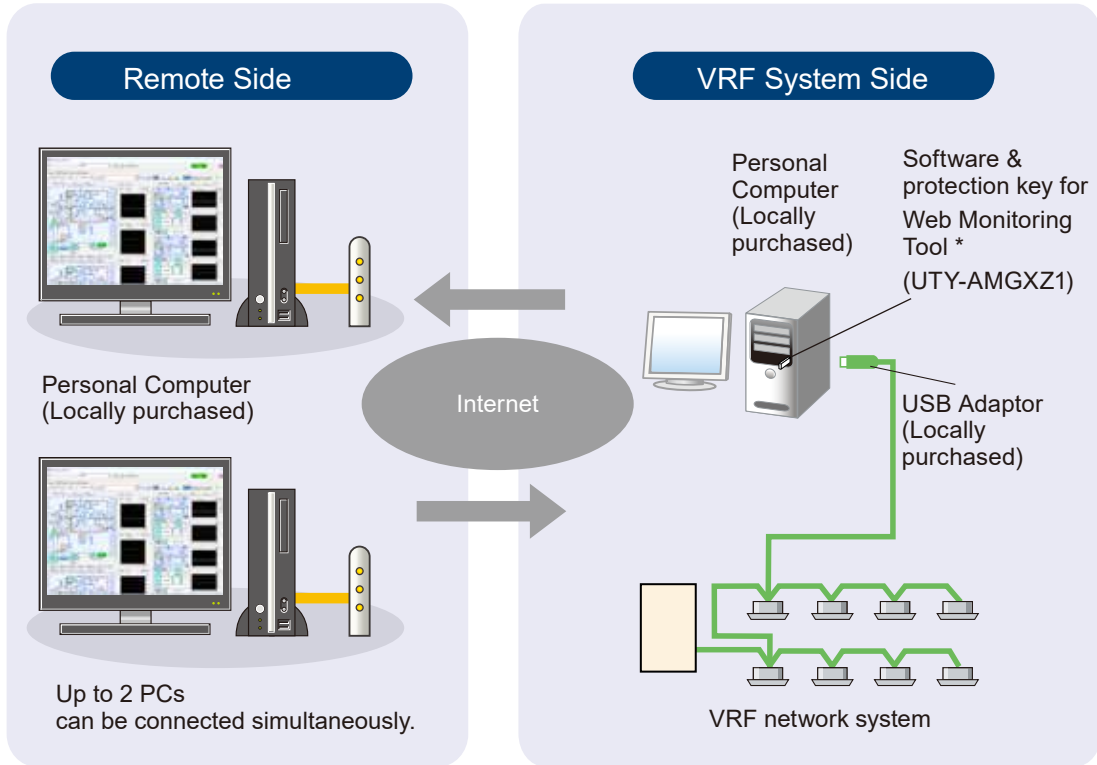
Operating system	<ul style="list-style-type: none">• Microsoft® Windows® 7 Professional (32-bit or 64-bit) SP1• Microsoft® Windows® 8.1 Pro (32-bit or 64-bit)• Microsoft® Windows® 10 Pro (32-bit or 64-bit)
CPU	1GHz or higher
Memory	<ul style="list-style-type: none">• 1 GB or more (for Windows Vista®, Windows® 7 [32-bit], Windows® 8.1 [32-bit] and Windows® 10 [32-bit])• 2 GB or more (for Windows® 7 [64-bit], Windows® 8.1 [64-bit] and Windows® 10 [64-bit])
HDD	10 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	2 USB ports - 1 USB port is required for WibuKey connection - 1 USB port is required for Echelon® U10 USB Network Interface
Software	<ul style="list-style-type: none">• Internet Explorer® 8.0, 9.0, 10.0 or 11.0• Adobe® Reader® 9.0 or later
Optical drive	DVD-ROM Drive

4-2. WEB MONITORING TOOL

4-2-1. MODEL: UTY-AMGXZ1

■ SYSTEM DIAGRAM

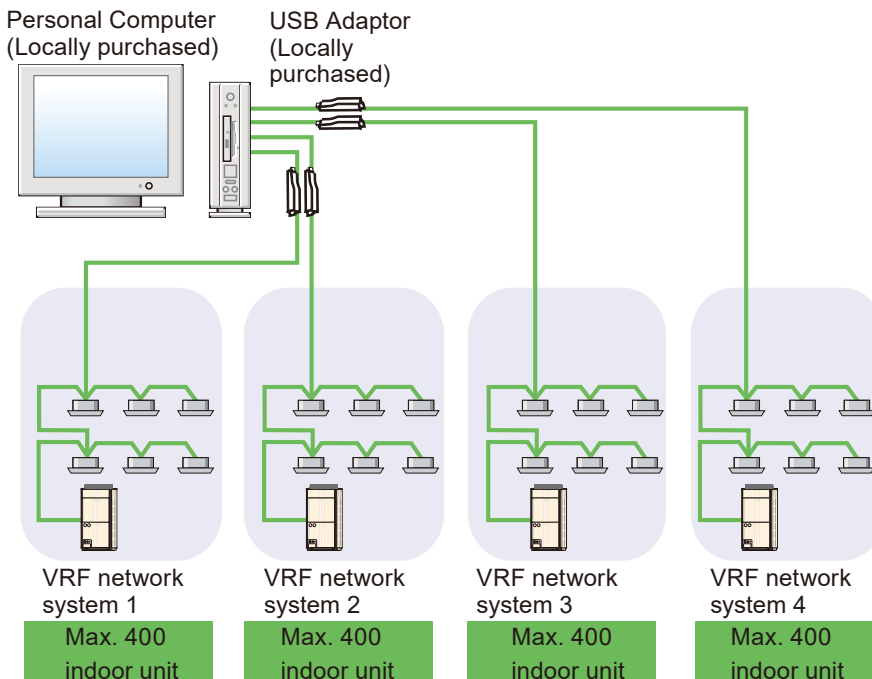
● System components




*WibuKey of UTY-AMGX can be used.

● Support 4 VRF network system

PC USB adaptors (Max. 4 adaptors per PC) permit control and monitoring of up to 1,600 units. Suitable for large-scale buildings or hotels



■ PACKING LIST

Name and shape	Quantity	Application
WHITE-USB-KEY  (software protection key with software)	1	Includes the software and manuals for Web Monitoring Tool. Additionally, it works as the software protection key. Software protection key to be connected to an USB port on the PC that the Web Monitoring Tool is installed. Web Monitoring Tool runs only on a PC with this WHITE-USB-KEY.

■ OTHER REQUIRED DEVICES (Locally purchased)

- Personal computer that satisfies the following system requirements
- Echelon® U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF Network.)

■ SYSTEM REQUIREMENTS

● For VRF System Side PC

Operating system	<ul style="list-style-type: none"> •Microsoft® Windows® 7 Professional (32-bit or 64-bit) SP1 •Microsoft® Windows® 8.1 (32-bit or 64-bit) Pro •Microsoft® Windows® 10 (32-bit or 64-bit) Pro
CPU	1 GHz or higher
Memory	<ul style="list-style-type: none"> • 1 GB or more (Windows® 7, 8.1, 10 [32-bit]) • 2 GB or more (Windows® 7, 8.1, 10 [64-bit])
HDD	40 GB or more of free space
Display	1,366 × 768 or higher resolution
Interface	USB port (for U10 USB Network Interface Max.4, software protection key) Either of the following interface is required for remote connection: <ul style="list-style-type: none"> • Internet using LAN: Ethernet port is required
Software	Adobe® Reader® 9.0 or later
Internet transmission rate (in remote access)	Internet environment capable for communication speed of 3 Mbps or more (for uploading) all the time (including when accessing to overseas website)

● For Remote Side PC

Web browser	Internet Explorer®11.0 or Microsoft Edge
Display	1,366 × 768 or higher resolution (Set the resolution before use so that the resolution of Remote Side PC monitor screen is higher than that of VRF System Side PC.)
Internet transmission rate(in remote access)	Internet environment capable for communication speed of 4 Mbps or more (for downloading) all the time (including when accessing to overseas website)

■ COMPARISON TABLE

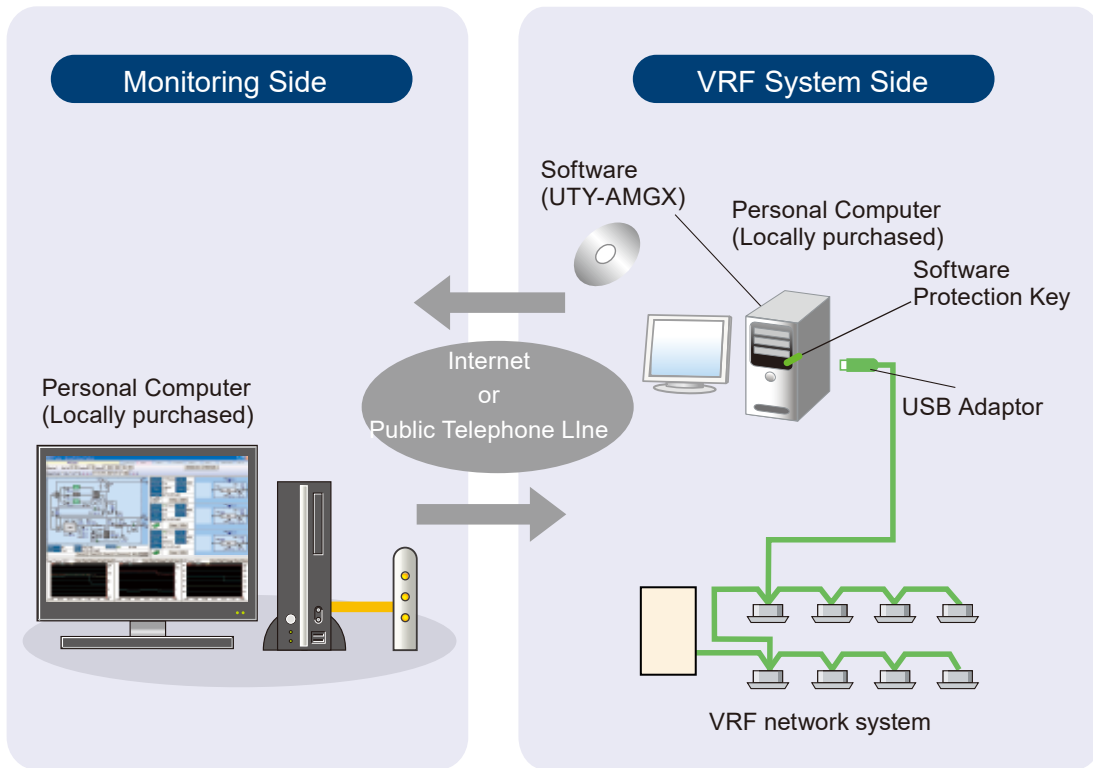
No.	Item	Service Tool UTY-ASGXZ1		Web Monitoring Tool UTY-AMGXZ1	
		VRF system Side	Remote Side	VRF system Side	Remote Side
1	System List	●	●	●	●
2	Equipment Detail (Diagram)	●	●	●	●
3	Equipment Detail (Status List)	●	●	●	●
4	Equipment Detail (Check List)	●	●	●	●
5	Operation History	●	●	●	●
6	Error History	●	●	●	●
7	Graph	●	●	●	●
8	Data Backup	●	●	●	●
9	Operation Setting	●	●	●	●
10	E-mail automatic transmission of system malfunction	—	—	●*1	—
11	Network Topology Analyzer	●	●	●	●
12	Remote Setting	●	●	●	●
13	System Time Setting	●	●	●	●
14	Central Control Forced Release	●	●	●	●
15	Model Name Writer	●	●	—	—
16	Error Memory Reader	●	●	—	—
17	Time Guard Information	●	●	●	●
18	Offline Data Reader	●	●	—	—
19	Version	●	●	●	●
20	Software Update	●	—	●	—

*1: Available only during connection to the Internet.

4-2-2. MODEL: UTY-AMGX

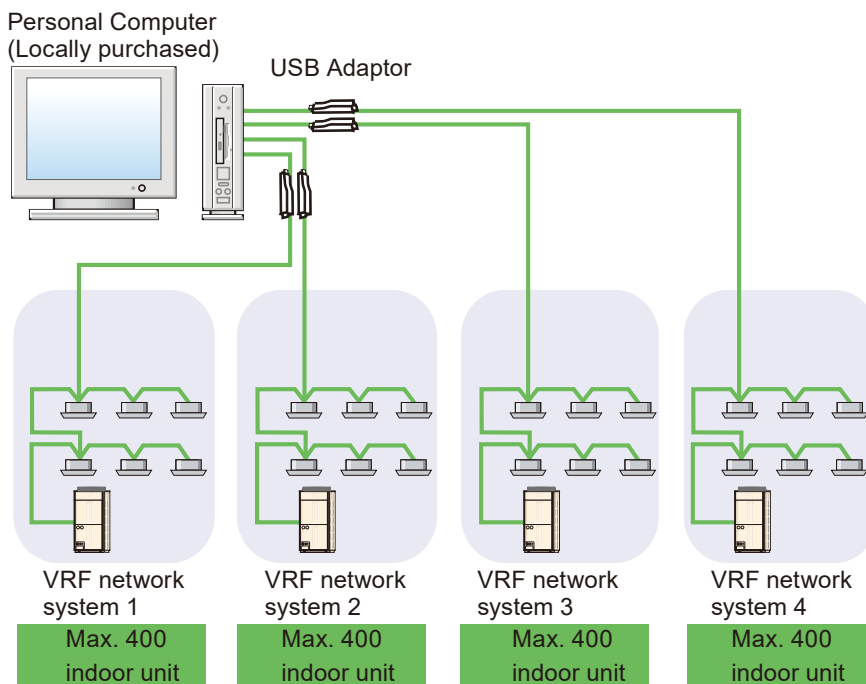
■ SYSTEM DIAGRAM

● System components





● Support 4 VRF network system

PC USB adaptor (max. 4 adaptors per PC) permit control and monitoring of up to 1,600 units. Suitable for large-scale buildings or hotels



■ PACKING LIST

Name and shape	Quantity	Application
DVD-ROM 	1	Includes the software and manuals for Web Monitoring Tool.
Wibu key (Software protection key) 	1	Software protection key to be inserted in a USB slot running Web Monitoring Tool. Web Monitoring Tool may only run on a PC with Wibu Key.

■ OTHER REQUIRED DEVICES (LOCALLY PURCHASED)

- Personal computer that satisfies the following system requirements
- Echelon® U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF Network.)

■ PERSONAL COMPUTER SYSTEM REQUIREMENTS

Operating system	<ul style="list-style-type: none"> • Microsoft® Windows® 7 Professional (32-bit or 64-bit) SP1 • Microsoft® Windows® 8.1 Pro (32-bit or 64-bit) • Microsoft® Windows® 10 Pro (32-bit or 64-bit)
CPU	1GHz or higher
Memory	<ul style="list-style-type: none"> • 1 GB or more (for Windows Vista®, Windows® 7 [32-bit], Windows® 8.1 [32-bit] and Windows® 10 [32-bit]) • 2 GB or more (for Windows® 7 [64-bit], Windows® 8.1 [64-bit] and Windows® 10 [64-bit])
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	<ul style="list-style-type: none"> • Ethernet port (for getting access to the Internet using LAN) or Modem (for getting access to the Internet using Public Telephone Line) • USB ports (Maximum of 5 ports) <ul style="list-style-type: none"> - 1 USB port is required for WibuKey connection - Maximum of 4 USB ports are required for Echelon® U10 USB Network Interface * Maximum number of required USB ports depends on the applicable system configurations.
Software	<ul style="list-style-type: none"> • Internet Explorer® 8.0, 9.0, 10.0 or 11.0 • Adobe® Reader® 9.0 or late
Optical drive	DVD-ROM Drive

■ COMPARISON TABLE

No.	Item	Service Tool UTY-ASGX	Web Monitoring Tool UTY-AMGX	
			VRF network system Side	Monitoring Side
1	Interchangeability of equipment	●	●	●
2	Indication of equipment list	●	●	●
3	Operation control	●	●	—
4	Indication of refrigerant circuit diagram	●	●	●
5	Commissioning tool	●	●	—
6	Monitoring of equipment information	●	●	●
7	Monitoring of operating condition	●	●	●
8	Monitoring of sensor data	●	●	●
9	Storage and CSV output of operating history (sensor data)	●	●	●
10	Indication of trend graph	●	●	●
11	Printing of trend graph	●	●	●
12	Monitoring and screen display of abnormalities	●	●	●
13	E-mail automatic transmission of abnormalities	—	●*1	—
14	Setting for user level	—	●	—
15	Network Topology Analyzer *	●	●	—
16	Remote Setting *	●	●	—
17	System Time Setting *	●	●	—
18	Central Release *	●	●	—
19	Model Name Writer *	●	—	—
20	Error Memory Reader *	●	—	—
21	Time Guard Information *	●	●	●

*: Supported by Ver. 1.1 or later

*1: Available only during connection to the Internet.



6. SYSTEM DESIGN

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6. SYSTEM DESIGN

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1. SYSTEM DESIGN

1-1. REFRIGERANT SYSTEM

■ CONNECTABLE UNIT WITHIN 1 REFRIGERANT SYSTEM

Unit	Quantity	Remarks
Outdoor unit	1 to Max. 3 units	Combination : See table 1
Indoor unit	2 to Max. 45 units	
RB unit	2 to Max. 45 units *1	

*1: Multi type of RB unit is counted as a part for four per set.

● Table (combination)

Ton	Nominal cooling capacity (Btu/h)	Outdoor unit quantity	Maximum connectable indoor unit	Connectable capacity range
6	72,000	1	14	50% to 150%
8	96,000	1	16	
10	120,000	1	18	
12	144,000	2	22	
14	168,000	2	26	
16	192,000	2	30	
18	216,000	2	34	
20	240,000	2	37	
22	264,000	3	41	
24	288,000	3	45	

● Caution

- When all indoor units are operating at maximum capacity, individual indoor unit operate at a slightly lower capacity. (When connecting more than 100%)
- Based on the capacity table in chapter 2, select the optimum combination of outdoor units.
- Do not exceed both of "connectable capacity range" and "maximum connectable indoor unit", otherwise it may hinder the return of oil to the compressor and cause a compressor breakdown.
- Minimum number of connectable indoors units is two.
- Install sum total capacity of indoor unit for cooling only to 50% or less of the all indoor unit capacity.

■ CONNECTABLE UNIT WITHIN 1 RB UNIT

RB unit		Maximum number of connectable indoor units per branch	Connectable cooling capacity range of indoor unit
Single type	UTP-RU01AH	3	27,000 Btu/h or less
	UTP-RU01BH	8	60,000 Btu/h or less
	UTP-RU01CH	8	96,000 Btu/h or less
Multi type	UTP-RU04BH	8	60,000 Btu/h or less (for 1 branch)
			191,000 Btu/h or less (Sum total of 4 branches)

● Caution (Multi type)

- When there is a branch which is not used, install less than 1 branch per one set of Multi type, and less than 2 branches per 1 refrigerant system.
However, be sure to connect indoor unit about the furthest branch from outdoor unit side.
- Only "Multi type RB unit" is connectable with the side opposite to piping connected the outdoor unit side and maximum connectable number is "two".
- In case of two RB units connected in series (total 8-branches), maximum capacity of connectable indoor units is up to 191,000 Btu/h.

■ OUTDOOR UNIT COMBINATION

- Combinations other than the followings are prohibited.

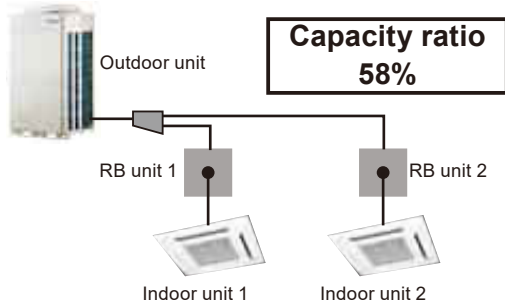
Ton	Nominal coling capacity (Btu/h)	Set model name	Combination *1		
			Outdoor unit 1 (Master)	Outdoor unit 2 (Slave 1)	Outdoor unit 3 (Slave 2)
6	72,000	AOUA72TLBV	AOUA72TLBV	-	-
8	96,000	AOUA96TLBV	AOUA96TLBV	-	-
10	120,000	AOUA120TLBV	AOUA120TLBV	-	-
12	144,000	AOUA144TLBVG	AOUA72TLBV	AOUA72TLBV	-
14	168,000	AOUA168TLBVG	AOUA96TLBV	AOUA72TLBV	-
16	192,000	AOUA192TLBVG	AOUA120TLBV	AOUA72TLBV	-
18	216,000	AOUA216TLBVG	AOUA120TLBV	AOUA96TLBV	-
20	240,000	AOUA240TLBVG	AOUA120TLBV	AOUA120TLBV	-
22	264,000	AOUA264TLBVG	AOUA96TLBV	AOUA96TLBV	AOUA72TLBV
24	288,000	AOUA288TLBVG	AOUA96TLBV	AOUA96TLBV	AOUA96TLBV

*1: Selecting outdoor unit capacity in order of
 Outdoor unit 1 ≥ Outdoor unit 2 ≥ Outdoor unit 3
 (Master) (Slave 1) (Slave 2)

1-1-1. EXAMPLE OF REFRIGERANT SYSTEM

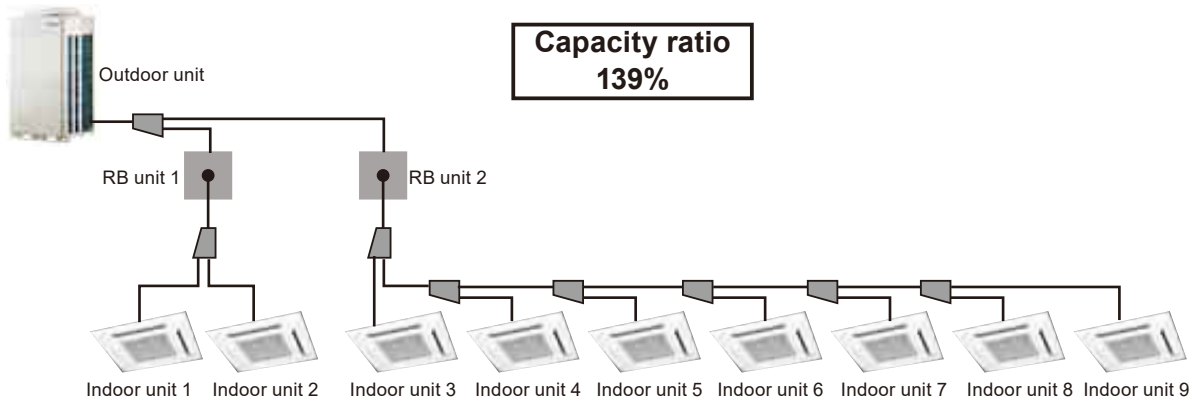
■ RB UNIT (SINGLE TYPE)

● Example 1 (OK)



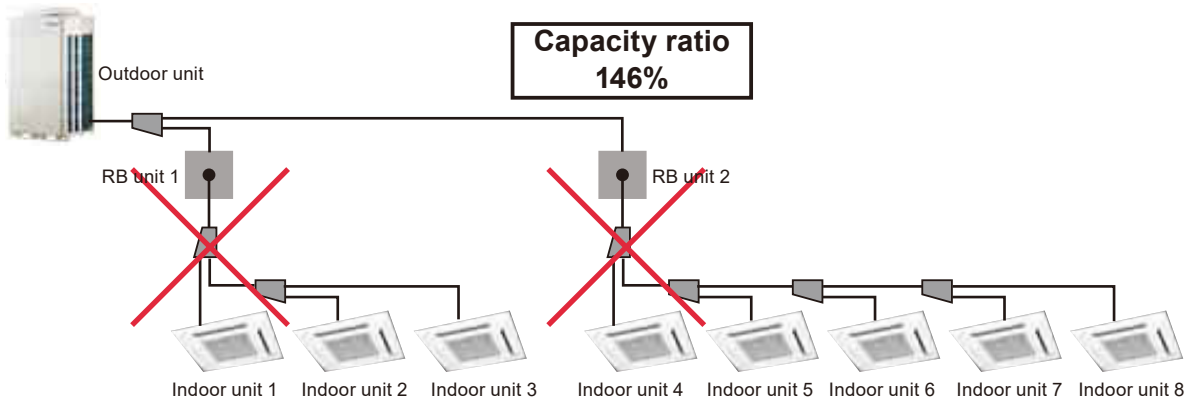
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AOUA72T	72000	72000	② 50% 36000	③ 150% 108000	② ≤ ① ≤ ③ 36000 < 42000 < 108000 → OK
Indoor unit 1	AUUA24	24000	①			
Indoor unit 2	AUUA18	18000	42000			
RB unit 1	RU01AH	-	① 24000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 24000 < 27000 → OK
RB unit 2	RU01AH	-	① 18000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 18000 < 27000 → OK

● Example 2 (OK)



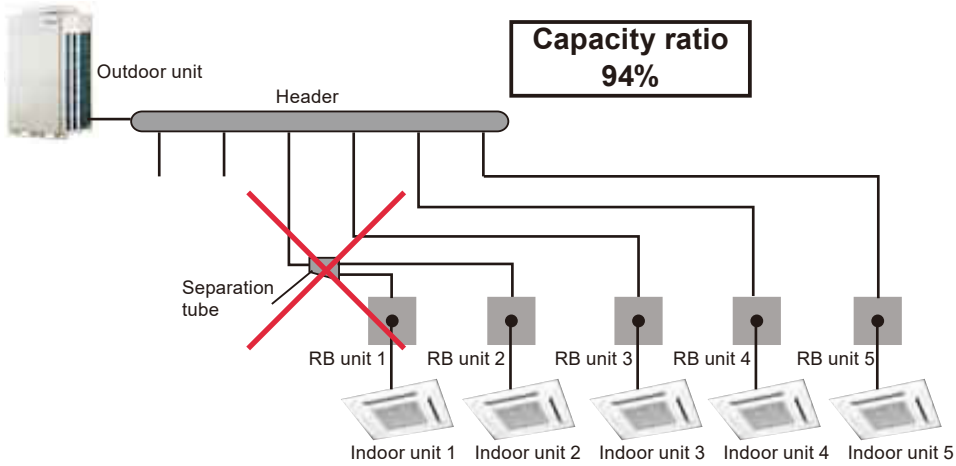
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AOUA72T	72000	72000	② 50% 36000	③ 150% 108000	② ≤ ① ≤ ③ 11.2 < 31.1 < 33.6 → OK
Indoor unit 1	AUUA7	7500	① 100500			
Indoor unit 2	AUUA9	9000				
Indoor unit 3	AUUA12	12000				
Indoor unit 4	AUUA12	12000				
Indoor unit 5	AUUA12	12000				
Indoor unit 6	AUUA12	12000				
Indoor unit 7	AUUA12	12000				
Indoor unit 8	AUUA12	12000				
Indoor unit 9	AUUA12	12000				
RB unit 1	RU01AH	-	① 16500	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 16500 < 27000 → OK
RB unit 2	RU01CH	-	① 84000	② 7500	③ 96000	② ≤ ① ≤ ③ 7500 < 84000 < 96000 → OK

● Example 3 (Prohibited)



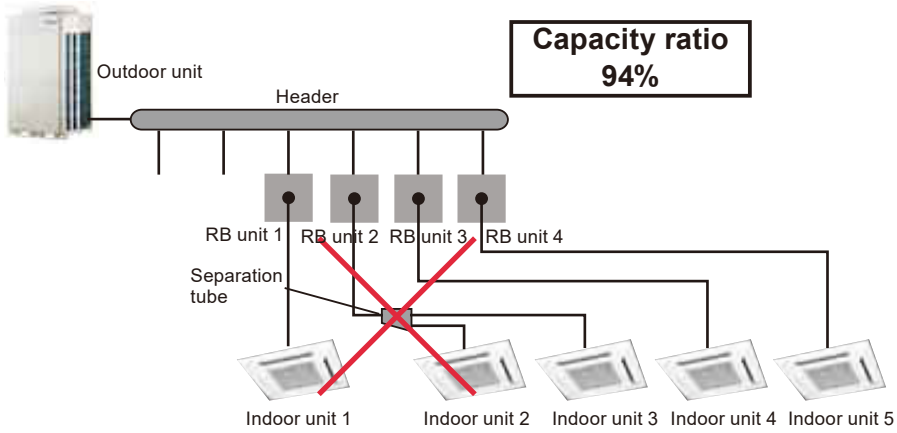
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AOUA96T	96000	96000			
Indoor unit 1	AUUA12	12000	① 140000	② 50% 48000	③ 150% 144000	② ≤ ① ≤ ③ 48000 < 140000 < 144000 → OK
Indoor unit 2	AUUA12	12000				
Indoor unit 3	AUUA14	14000				
Indoor unit 4	AUUA18	18000				
Indoor unit 5	AUUA18	18000				
Indoor unit 6	AUUA18	18000				
Indoor unit 7	AUUA18	24000				
Indoor unit 8	AUUA24	24000				
RB unit 1	RU01AH	-	① 38000	② 7500	③ 27000	③ < ① 27000 < 38000 → Prohibited
RB unit 2	RU01CH	-	① 102000	② 7500	③ 96000	③ < ① 96000 < 102000 → Prohibited

● Example 4 (Prohibited)



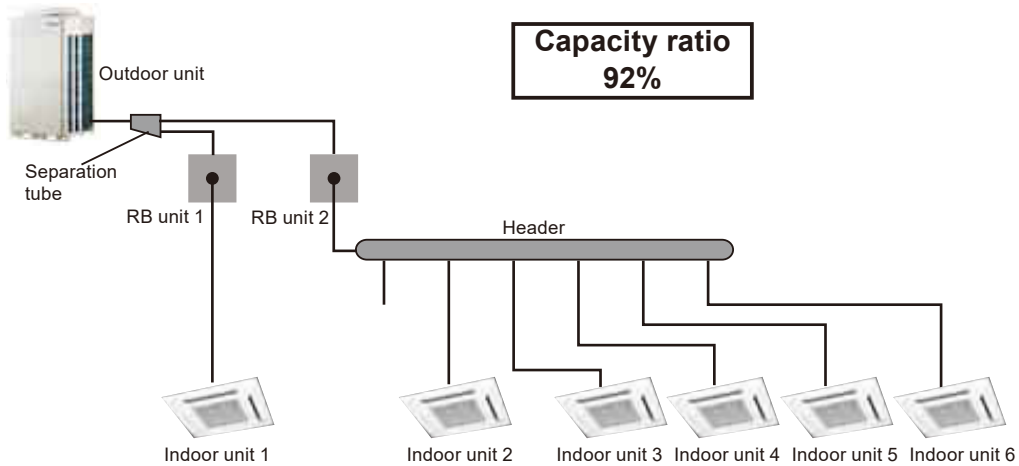
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA96T	96000	96000			
Indoor unit 1	AUUA18	18000	① 90000	② 50% 48000	③ 150% 144000	② ≤ ① ≤ ③ 48000 < 90000 < 144000 → OK
Indoor unit 2	AUUA18	18000				
Indoor unit 3	AUUA18	18000				
Indoor unit 4	AUUA18	18000				
Indoor unit 5	AUUA18	18000				
RB unit 1	RU01AH	-	① 18000	② 7500	③ 27000	Prohibited Because separation tube is installed in the down stream of header.
RB unit 2	RU01AH	-	① 18000	② 7500	③ 27000	
RB unit 3	RU01AH	-	① 18000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 18000 < 27000 → OK
RB unit 4	RU01AH	-	① 18000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 18000 < 27000 → OK
RB unit 5	RU01AH	-	① 18000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 18000 < 27000 → OK

● Example 5 (Prohibited)



	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA96T	96000	96000			
Indoor unit 1	AJUA18	18000	① 90000	② 50% 48000	③ 150% 144000	② ≤ ① ≤ ③ 48000 < 90000 < 144000 → OK
Indoor unit 2	AJUA18	18000				
Indoor unit 3	AJUA18	18000				
Indoor unit 4	AJUA18	18000				
Indoor unit 5	AJUA18	18000				
RB unit 1	RU01AH	-	① 18000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 18000 < 27000 → OK
RB unit 2	RU01BH	-	① 36000	② 7500	③ 60000	Prohibited Because separation tube is installed in the down stream of header.
RB unit 3	RU01AH	-	① 18000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 18000 < 27000 → OK
RB unit 4	RU01AH	-	① 18000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 18000 < 27000 → OK

● Example 6 (OK)

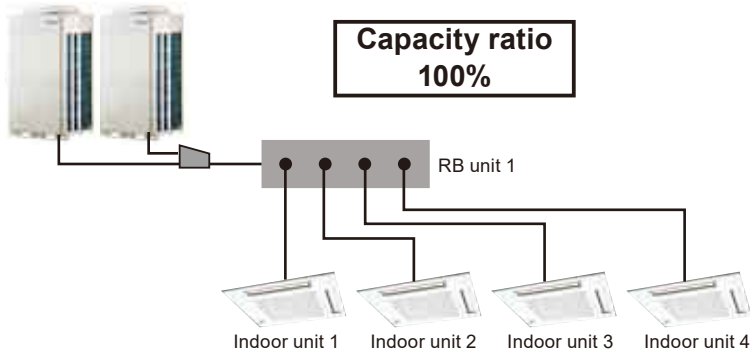


	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA96T	96000	96000	② 50% 48000	③ 150% 144000	② ≤ ① ≤ ③ 48000 < 88000 < 144000 → OK
Indoor unit 1	AUUA18	18000	① 88000			
Indoor unit 2	AUUA14	14000				
Indoor unit 3	AUUA14	14000				
Indoor unit 4	AUUA14	14000				
Indoor unit 5	AUUA14	14000				
Indoor unit 6	AUUA14	14000				
RB unit 1	RU01AH	-	① 18000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 18000 < 27000 → OK
RB unit 2	RU01CH	-	① 70000	② 7500	③ 96000	② ≤ ① ≤ ③ 7500 < 70000 < 96000 → OK

RB UNIT (MULTI TYPE)

● Example 7 (OK)

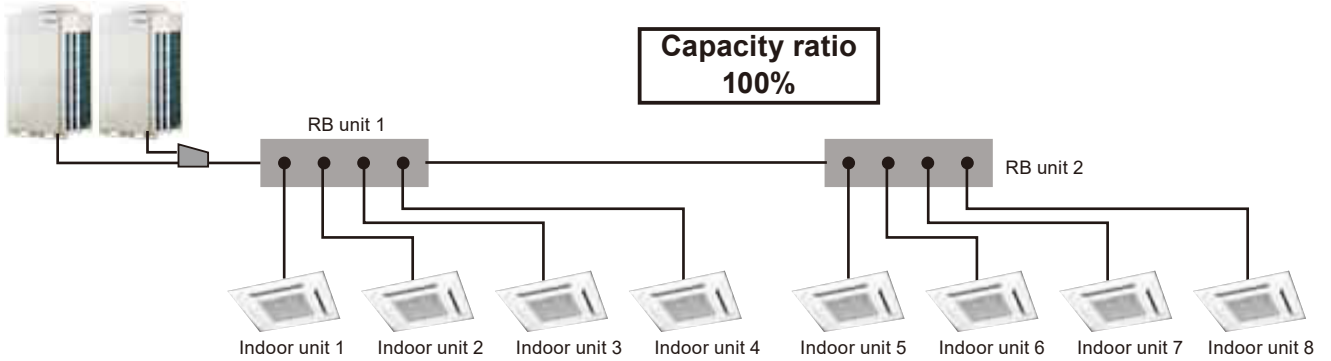
Outdoor unit 2 Outdoor unit 1



	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit 1	AQUA72T	72000	144000	② 50% 72000	③ 150% 216000	② ≤ ① ≤ ③ 72000 < 144000 < 216000 → OK
Outdoor unit 2	AQUA72T	72000				
Indoor unit 1	AUUB36	36000	① 144000	② 22500	③ 191000	
Indoor unit 2	AUUB36	36000				
Indoor unit 3	AUUB36	36000				
Indoor unit 4	AUUB36	36000				
RB unit 1	RU04BH	-	① 144000	② 22500	③ 191000	② ≤ ① ≤ ③ 22500 < 144000 < 191000 → OK
			① 36000	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 < 36000 < 60000 → OK
			① 36000	② 7500	③ 60000	
			① 36000	② 7500	③ 60000	
① 36000	② 7500	③ 60000				

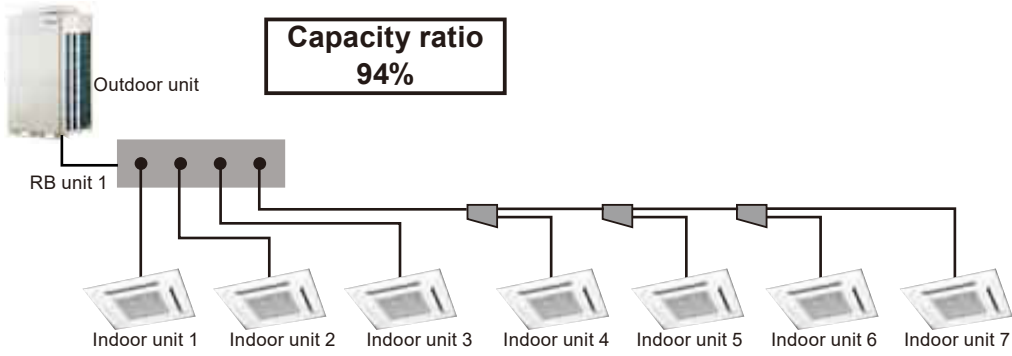
● Example 8 (OK)

Outdoor unit 2 Outdoor unit 1



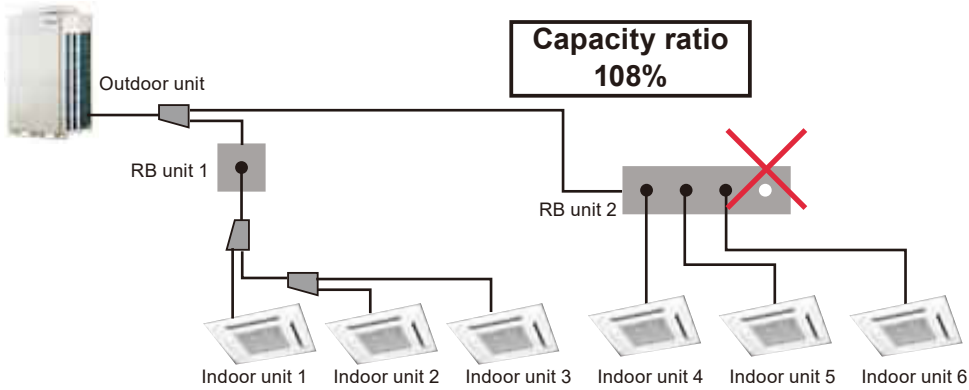
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit 1	AOUA72T	72000	144000	② 50% 72000	③ 150% 216000	② ≤ ① ≤ ③ 72000 < 144000 < 216000
Outdoor unit 2	AOUA72T	72000				
Indoor unit 1	AUUA18	18000				
Indoor unit 2	AUUA18	18000				
Indoor unit 3	AUUA18	18000				
Indoor unit 4	AUUA18	18000				
Indoor unit 5	AUUA18	18000				
Indoor unit 6	AUUA18	18000				
Indoor unit 7	AUUA18	18000				
Indoor unit 8	AUUA18	18000				
RB unit 1	RU04BH	-	① 144000	② 45000	③ 191000	② ≤ ① ≤ ③ 45000 < 144000 < 191000 → OK
			① 18000	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 < 18000 < 60000 → OK
			① 18000	② 7500	③ 60000	
			① 18000	② 7500	③ 60000	
RB unit 2	RU04BH	-	① 18000	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 < 18000 < 60000 → OK
			① 18000	② 7500	③ 60000	
			① 18000	② 7500	③ 60000	
			① 18000	② 7500	③ 60000	

● Example 9 (OK)



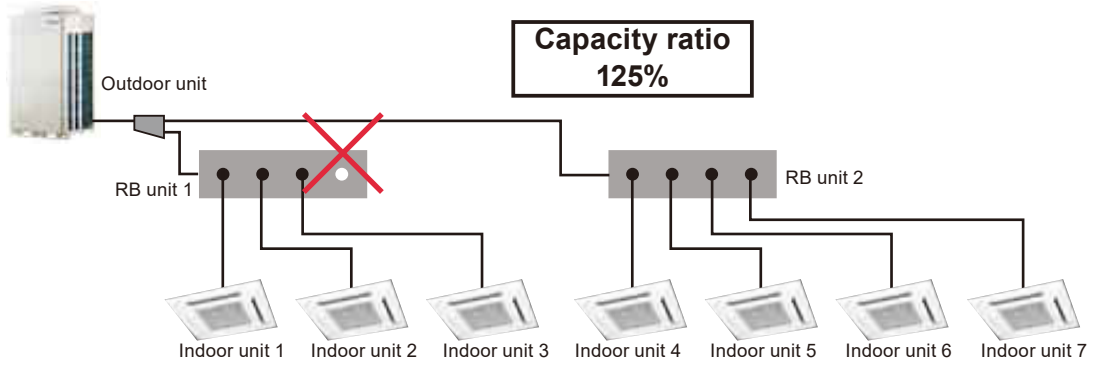
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AOUA96T	96000	96000			
Indoor unit 1	AUUA14	14000	① 90000	② 50% 48000	③ 150% 144000	② ≤ ① ≤ ③ 48000 < 90000 < 144000 → OK
Indoor unit 2	AUUA14	14000				
Indoor unit 3	AUUA14	14000				
Indoor unit 4	AUUA12	12000				
Indoor unit 5	AUUA12	12000				
Indoor unit 6	AUUA12	12000				
Indoor unit 7	AUUA12	12000				
RB unit 1	RU04BH	-	① 90000	② 22500	③ 191000	② ≤ ① ≤ ③ 22500 < 90000 < 191000 → OK
			① 14000	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 < 14000 < 60000 → OK
			① 14000	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 < 14000 < 60000 → OK
			① 14000	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 < 14000 < 60000 → OK

● Example 10 (Prohibited)



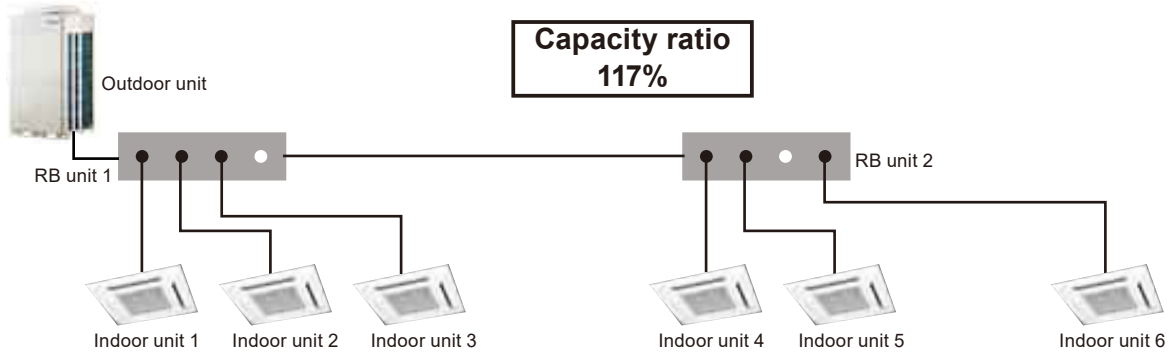
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000			$② \leq ① \leq ③$ $36000 < 78000 < 108000 \rightarrow \text{OK}$
Indoor unit 1	AUUA12	12000	① 78000	② 50% 36000	③ 150% 108000	
Indoor unit 2	AUUA12	12000				
Indoor unit 3	AUUA12	12000				
Indoor unit 4	AUUA14	14000				
Indoor unit 5	AUUA14	14000				
Indoor unit 6	AUUA14	14000				
RB unit 1	RU01BH	-	① 36000	② 7500	③ 60000	$② \leq ① \leq ③$ $7500 < 36000 < 60000 \rightarrow \text{OK}$
RB unit 2	RU04BH	-	① 42000	② 22500	③ 191000	Prohibited Because indoor unit is not connected to the furthest branch from outdoor unit side.
			① 14000	② 7500	③ 60000	
			① 14000	② 7500	③ 60000	

● Example 11 (Prohibited)



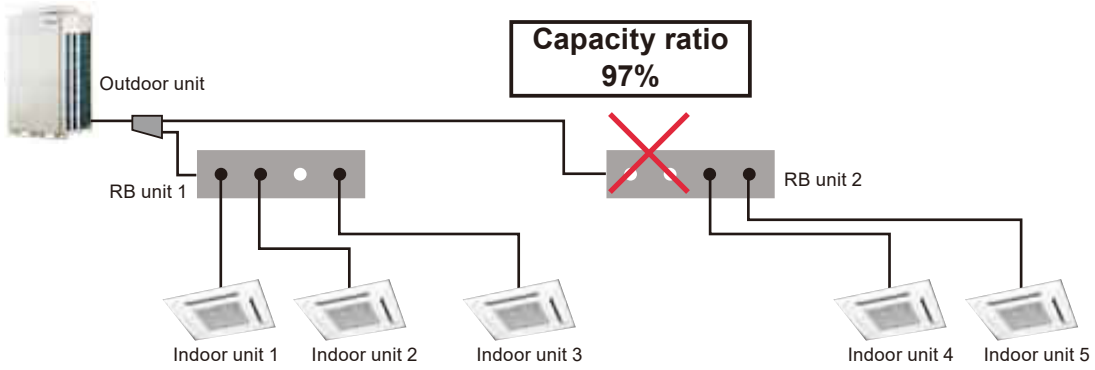
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000			
Indoor unit 1	AUUA14	14000	① 90000	② 50% 36000	③ 150% 108000	② ≤ ① ≤ ③ 36000 < 90000 < 108000 → OK
Indoor unit 2	AUUA14	14000				
Indoor unit 3	AUUA14	14000				
Indoor unit 4	AUUA12	12000				
Indoor unit 5	AUUA12	12000				
Indoor unit 6	AUUA12	12000				
Indoor unit 7	AUUA12	12000				
RB unit 1	RU04BH	-	① 42000	② 22500	③ 191000	Prohibited Because indoor unit is not connected to the furthest branch from outdoor unit side.
			① 14000	② 7500	③ 60000	
			① 14000	② 7500	③ 60000	
RB unit 2	RU04BH	-	① 48000	② 22500	③ 191000	② ≤ ① ≤ ③ 22500 < 48000 < 191000 → OK
			① 12000	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 < 12000 < 60000 → OK
			① 12000	② 7500	③ 60000	
			① 12000	② 7500	③ 60000	
			① 12000	② 7500	③ 60000	

● Example 12 (OK)



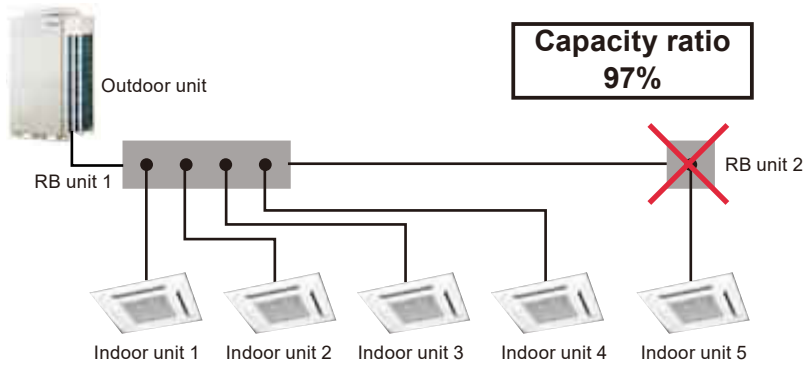
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AOUA72T	72000	72000			
Indoor unit 1	AUUA14	14000	① 84000	② 50% 36000	③ 150% 108000	② ≤ ① ≤ ③ 36000 < 84000 < 108000 → OK
Indoor unit 2	AUUA14	14000				
Indoor unit 3	AUUA14	14000				
Indoor unit 4	AUUA14	14000				
Indoor unit 5	AUUA14	14000				
Indoor unit 6	AUUA14	14000				
RB unit 1	RU04BH	-	① 84000	② 22500	③ 191000	② ≤ ① ≤ ③ 22500 < 84000 < 191000 → OK
			① 14000	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 < 14000 < 60000 → OK
			① 14000	② 7500	③ 60000	
RB unit 2	RU04BH	-	① 14000	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 < 14000 < 60000 → OK
			① 14000	② 7500	③ 60000	
			① 14000	② 7500	③ 60000	

● Example 13 (Prohibited)



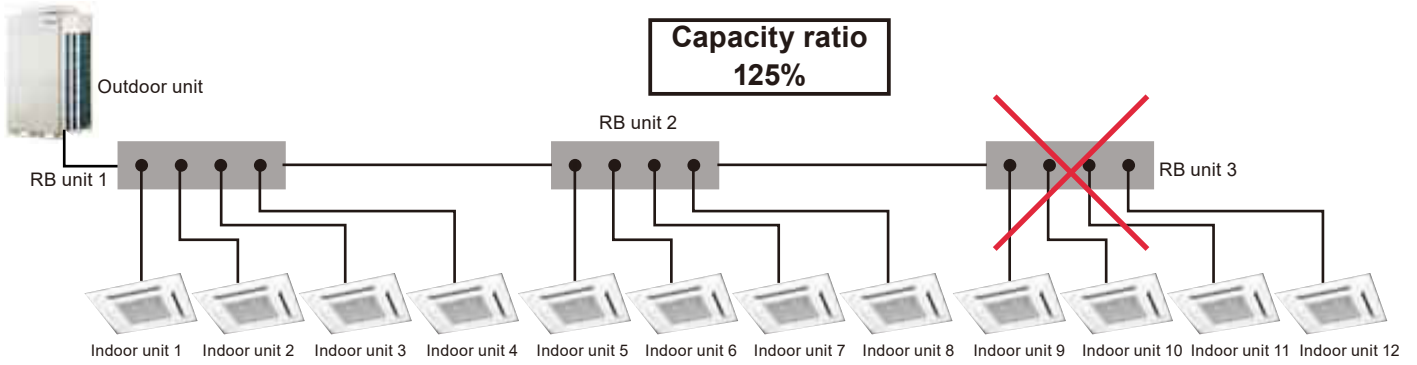
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AOUA72T	72000	72000			
Indoor unit 1	AUUA14	14000	① 70000	② 50% 36000	③ 150% 108000	② ≤ ① ≤ ③ 36000 < 70000 < 108000 → OK
Indoor unit 2	AUUA14	14000				
Indoor unit 3	AUUA14	14000				
Indoor unit 4	AUUA14	14000				
Indoor unit 5	AUUA14	14000				
RB unit 1	RU04BH	-	① 42000	② 22500	③ 191000	② ≤ ① ≤ ③ 22500 < 42000 < 191000 → OK
			① 14000	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 < 14000 < 60000 → OK
			① 14000	② 7500	③ 60000	
RB unit 2	RU04BH	-	① 28000	② 22500	③ 191000	Prohibited Because 2 or more branches are not used.
			① 14000	② 7500	③ 60000	
			① 14000	② 7500	③ 60000	

● Example 14 (Prohibited)



	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000			
Indoor unit 1	AUUA14	14000	① 70000	② 50% 36000	③ 150% 108000	② ≤ ① ≤ ③ 36000 < 70000 < 108000 → OK
Indoor unit 2	AUUA14	14000				
Indoor unit 3	AUUA14	14000				
Indoor unit 4	AUUA14	14000				
Indoor unit 5	AUUA14	14000				
RB unit 1	RU04BH	-	① 56000	② 22500	③ 191000	② ≤ ① ≤ ③ 22500 < 56000 < 191000 → OK
			① 14000	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 < 14000 < 60000 → OK
			① 14000	② 7500	③ 60000	
			① 14000	② 7500	③ 60000	
RB unit 2	RU01AH	-	① 14000	② 7500	③ 27000	Prohibited Single type cannot be connected in series of Multi type.

● Example 15 (Prohibited)

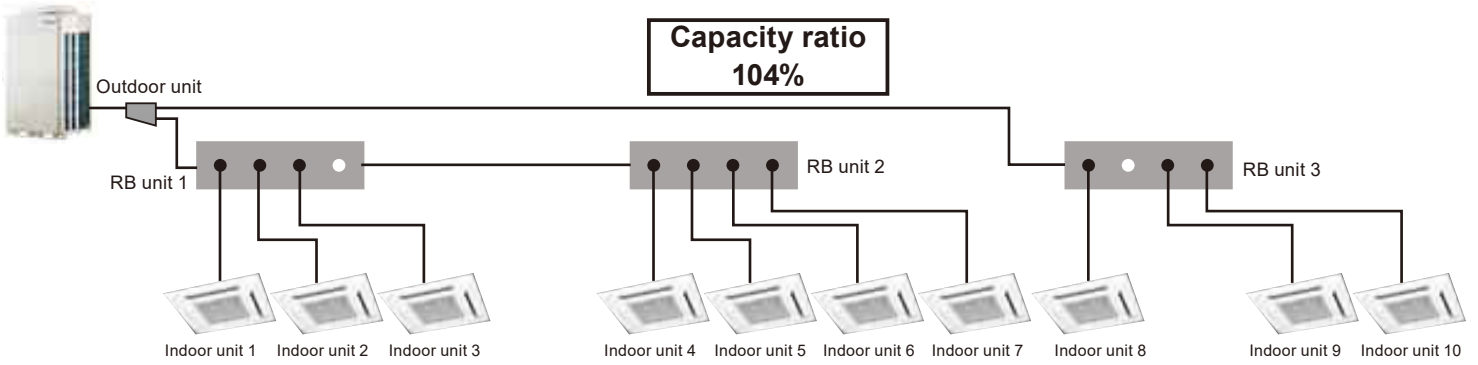


	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AOUA72T	72000	72000			
Indoor unit 1	AUUA7	7500	① 90000	② 50% 36000	③ 150% 108000	② ≤ ① ≤ ③ 36000 < 90000 < 108000 → OK
Indoor unit 2	AUUA7	7500				
Indoor unit 3	AUUA7	7500				
Indoor unit 4	AUUA7	7500				
Indoor unit 5	AUUA7	7500				
Indoor unit 6	AUUA7	7500				
Indoor unit 7	AUUA7	7500				
Indoor unit 8	AUUA7	7500				
Indoor unit 9	AUUA7	7500				
Indoor unit 10	AUUA7	7500				
Indoor unit 11	AUUA7	7500				
Indoor unit 12	AUUA7	7500				
RB unit 1	RU04BH	-	① 90000	② 45000	③ 191000	② ≤ ① ≤ ③ 45000 < 90000 < 191000 → OK
			① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
RB unit 2	RU04BH	-	① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
RB unit 3	RU04BH	-	① 7500	② 7500	③ 60000	Prohibited Because 3 or more of Multi type cannot be connected in series.
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	

SYSTEM DESIGN

SYSTEM DESIGN

● Example 16 (OK)

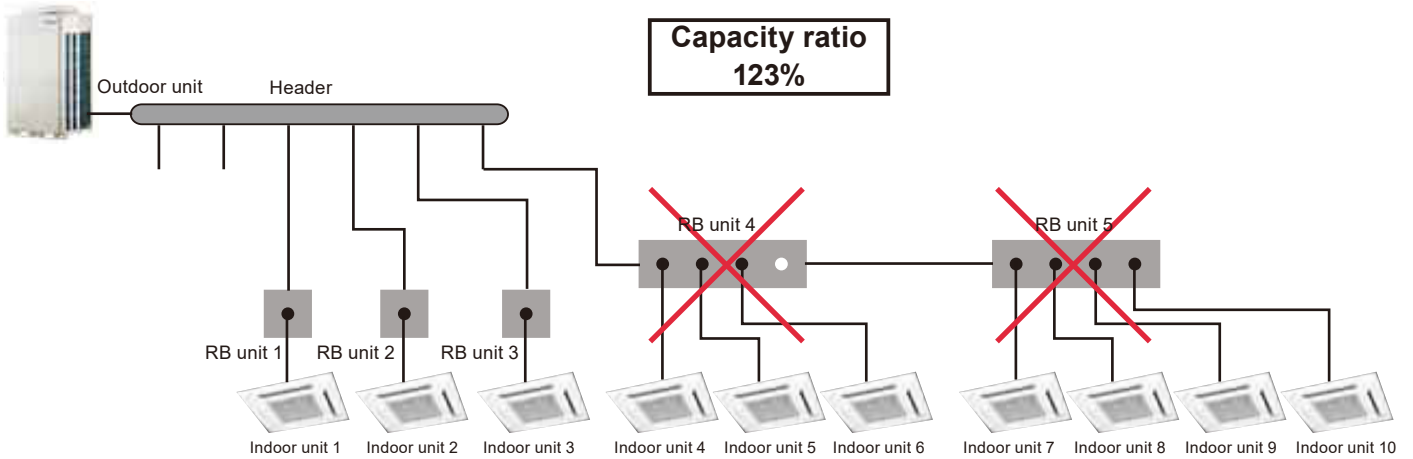


	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000			
Indoor unit 1	AUUA7	7500	① 75000	② 50% 36000	③ 150% 108000	② ≤ ① ≤ ③ 36000 < 75000 < 108000 → OK
Indoor unit 2	AUUA7	7500				
Indoor unit 3	AUUA7	7500				
Indoor unit 4	AUUA7	7500				
Indoor unit 5	AUUA7	7500				
Indoor unit 6	AUUA7	7500				
Indoor unit 7	AUUA7	7500				
Indoor unit 8	AUUA7	7500				
Indoor unit 9	AUUA7	7500				
Indoor unit 10	AUUA7	7500				
RB unit 1	RU04BH	-	① 52500	② 45000	③ 191000	② ≤ ① ≤ ③ 45000 < 52500 < 191000 → OK
			① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK
			① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK
			① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK
RB unit 2	RU04BH	-	① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK
			① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK
			① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK
			① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK
RB unit 3	RU04BH	-	① 22500	② 22500	③ 191000	② ≤ ① ≤ ③ 22500 ≤ 22500 < 191000 → OK
			① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK
			① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK
			① 7500	② 7500	③ 60000	② ≤ ① ≤ ③ 7500 ≤ 7500 < 60000 → OK

SYSTEM DESIGN

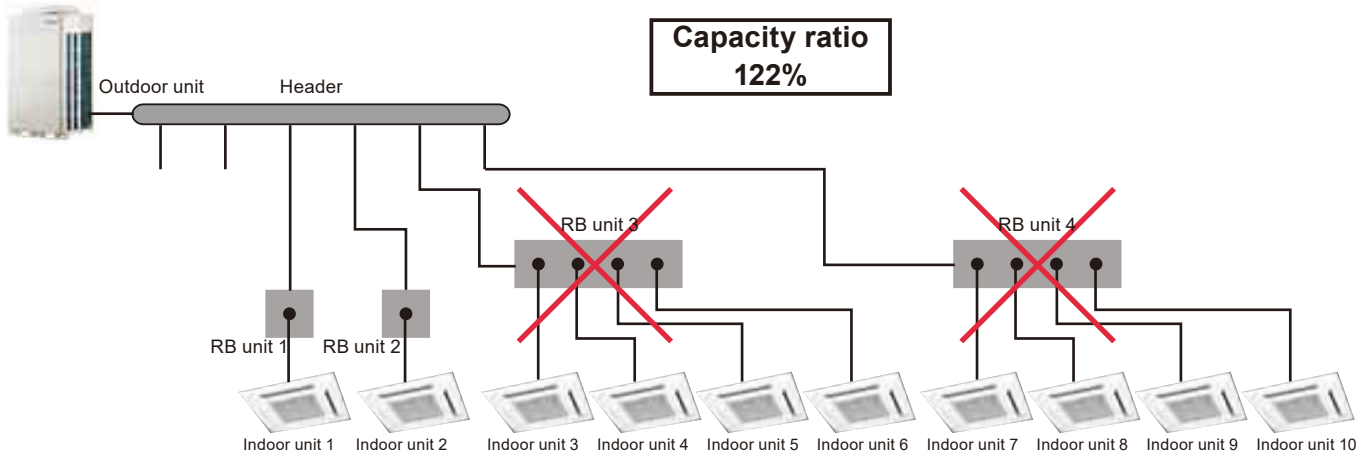
SYSTEM DESIGN

● Example 17 (Prohibited)



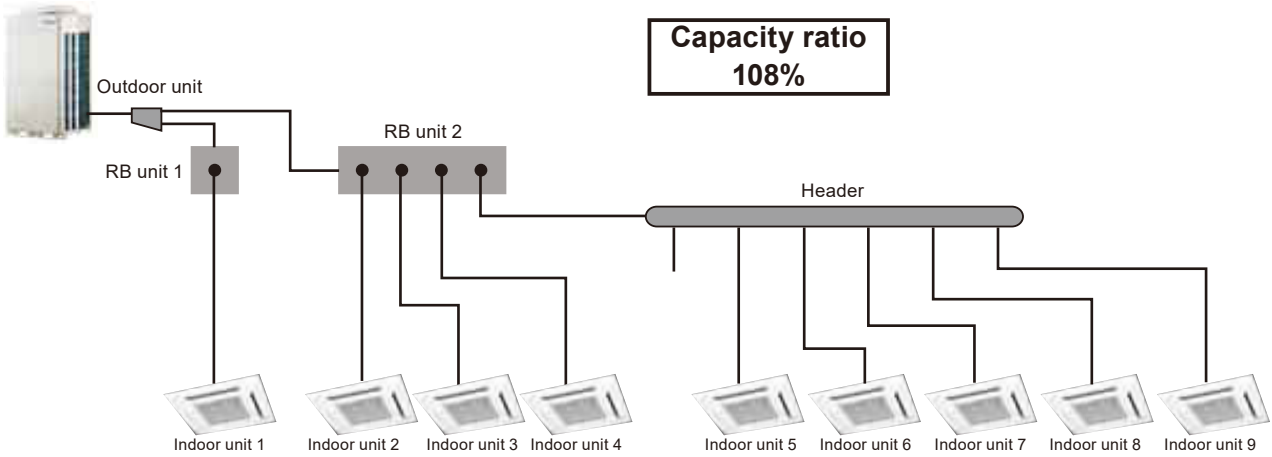
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000			
Indoor unit 1	AUUA12	12000	① 88500	② 50% 36000	③ 150% 108000	② ≤ ① ≤ ③ 36000 < 88500 < 108000 → OK
Indoor unit 2	AUUA12	12000				
Indoor unit 3	AUUA12	12000				
Indoor unit 4	AUUA7	7500				
Indoor unit 5	AUUA7	7500				
Indoor unit 6	AUUA7	7500				
Indoor unit 7	AUUA7	7500				
Indoor unit 8	AUUA7	7500				
Indoor unit 9	AUUA7	7500				
Indoor unit 10	AUUA7	7500				
RB unit 1	RU01AH	-	① 12000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 12000 < 27000 → OK
RB unit 2	RU01AH	-	① 12000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 12000 < 27000 → OK
RB unit 3	RU01AH	-	① 12000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 12000 < 27000 → OK
RB unit 4	RU04BH	-	① 52500	② 45000	③ 191000	Prohibited Because multi type of RB unit is installed in the down stream of header.
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
RB unit 5	RU04BH	-	① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	

● Example 18 (Prohibited)



	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000			
Indoor unit 1	AUUA14	14000	① 88000	② 50% 36000	③ 150% 108000	② ≤ ① ≤ ③ 36000 < 88000 < 108000 → OK
Indoor unit 2	AUUA14	14000				
Indoor unit 3	AUUA7	7500				
Indoor unit 4	AUUA7	7500				
Indoor unit 5	AUUA7	7500				
Indoor unit 6	AUUA7	7500				
Indoor unit 7	AUUA7	7500				
Indoor unit 8	AUUA7	7500				
Indoor unit 9	AUUA7	7500				
Indoor unit 10	AUUA7	7500				
RB unit 1	RU01AH	-	① 14000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 14000 < 27000 → OK
RB unit 2	RU01AH	-	① 14000	② 7500	③ 27000	② ≤ ① ≤ ③ 7500 < 14000 < 27000 → OK
RB unit 3	RU04BH	-	① 30000	② 22500	③ 191000	Prohibited Because multi type of RB unit is installed in the down stream of header.
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
RB unit 4	RU04BH	-	① 30000	② 22500	③ 191000	Prohibited Because multi type of RB unit is installed in the down stream of header.
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	

● Example 19 (OK)



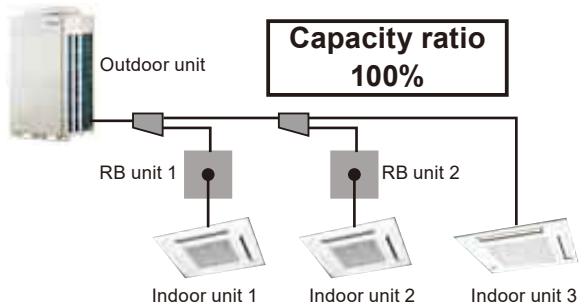
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000			$② \leq ① \leq ③$ $36000 < 78000 < 108000 \rightarrow \text{OK}$
Indoor unit 1	AUUA18	18000	① 78000	② 50% 36000	③ 150% 108000	
Indoor unit 2	AUUA7	7500				
Indoor unit 3	AUUA7	7500				
Indoor unit 4	AUUA7	7500				
Indoor unit 5	AUUA7	7500				
Indoor unit 6	AUUA7	7500				
Indoor unit 7	AUUA7	7500				
Indoor unit 8	AUUA7	7500				
Indoor unit 9	AUUA7	7500				
RB unit 1	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ $7500 < 18000 < 27000 \rightarrow \text{OK}$
RB unit 2	RU04BH	-	① 60000	② 22500	③ 191000	$② \leq ① \leq ③$ $22500 \leq 60000 < 191000 \rightarrow \text{OK}$
			① 7500	② 7500	③ 60000	$② \leq ① \leq ③$ $7500 \leq 7500 < 60000 \rightarrow \text{OK}$
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	
			① 7500	② 7500	③ 60000	

SYSTEM DESIGN

SYSTEM DESIGN

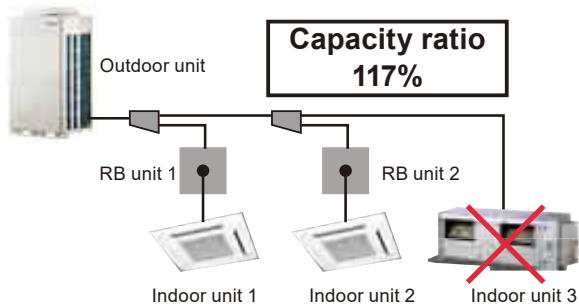
■ COOLING ONLY TYPE IS MIXED

● Example 20 (OK)



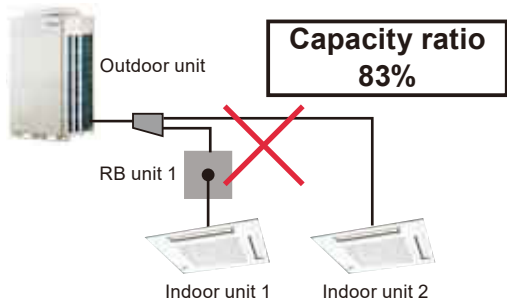
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000			$② \leq ① \leq ③$
Indoor unit 1	AJUA18	18000	① 72000	② 50% 36000	③ 150% 108000	36000 < 72000 < 108000 → OK Capacity ratio of Cooling only type is 36000/72000=50% ≤ 50% → OK
Indoor unit 2	AJUA18	18000				
Indoor unit 3	AJUB36	36000				
RB unit 1	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ 7500 < 18000 < 27000 → OK
RB unit 2	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ 7500 < 18000 < 27000 → OK

● Example 21 (Prohibited)



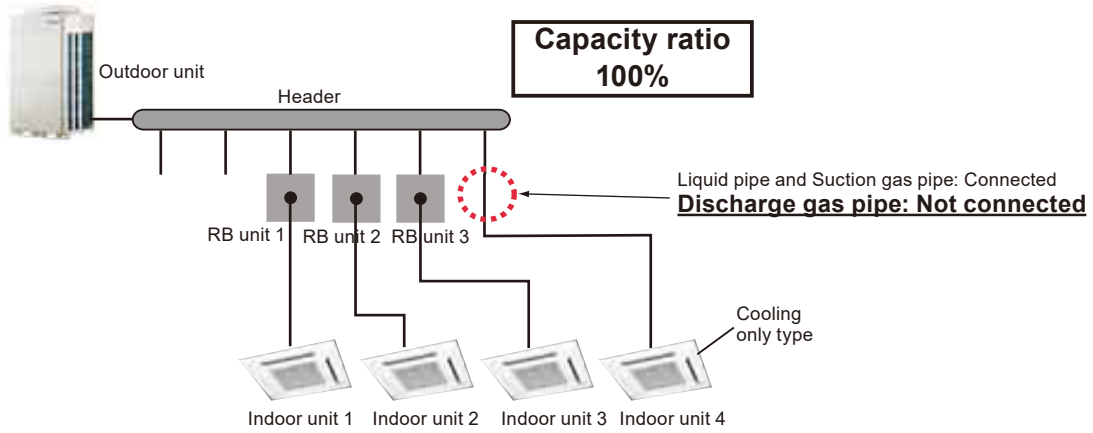
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000			$② \leq ① \leq ③$
Indoor unit 1	AJUA18	18000	① 84000	② 50% 36000	③ 150% 108000	36000 < 84000 < 108000 → OK Capacity ratio of Cooling only type is 48000/84000=57% > 50% → Prohibited
Indoor unit 2	AJUA18	18000				
Indoor unit 3	ARUH48	48000				
RB unit 1	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ 7500 < 18000 < 27000 → OK
RB unit 2	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ 7500 < 18000 < 27000 → OK

● Example 22 (Prohibited)



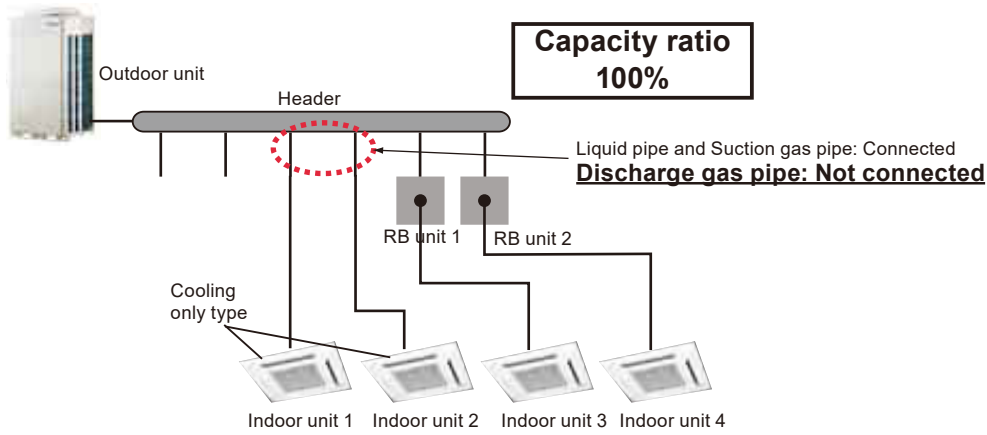
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000	② 50%	③ 150%	Prohibited Because must be connected at least 2 or more of RB unit.
Indoor unit 1	AUUB30	30000	①			
Indoor unit 2	AUUB30	30000	60000			
RB unit 1	RU01BH	-	①30000	②7500	③60000	

● Example 23 (Prohibited)



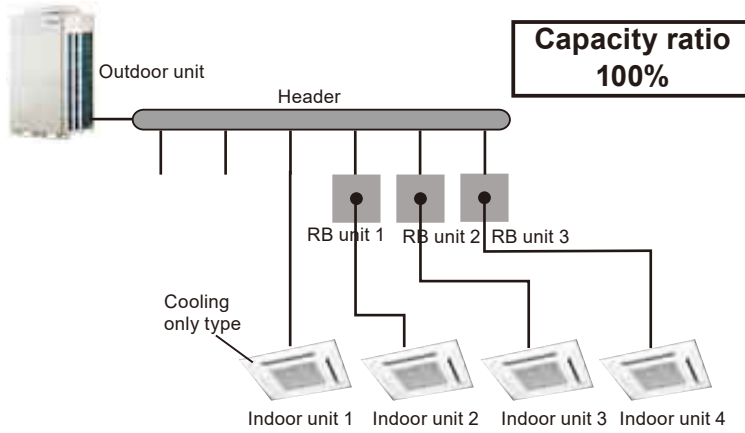
	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000			Prohibited Because Cooling only type of indoor unit is connected to the furthest branch from outdoor unit side.
Indoor unit 1	AUUA18	18000	① 72000	② 50% 36000	③ 150% 108000	
Indoor unit 2	AUUA18	18000				
Indoor unit 3	AUUA18	18000				
Indoor unit 4	AUUA18	18000				
RB unit 1	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ 7500 < 18000 < 27000 → OK
RB unit 2	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ 7500 < 18000 < 27000 → OK
RB unit 3	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ 7500 < 18000 < 27000 → OK

● Example 24 (Prohibited)



	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AOUA72T	72000	72000			Prohibited Because at least 3 or more of RB unit must be connected in port of header
Indoor unit 1	AUUA18	18000	① 72000	② 50% 36000	③ 150% 108000	
Indoor unit 2	AUUA18	18000				
Indoor unit 3	AUUA18	18000				
Indoor unit 4	AUUA18	18000				
RB unit 1	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ 7500 < 18000 < 27000 → OK
RB unit 2	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ 7500 < 18000 < 27000 → OK

● Example 25 (OK)



	Model	Cooling capacity (Btu/h)	Total capacity (Btu/h)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AQUA72T	72000	72000			
Indoor unit 1	AUUA18	18000	① 72000	② 50% 36000	③ 150% 108000	$② \leq ① \leq ③$ $36000 < 72000 < 108000 \rightarrow \text{OK}$ Capacity ratio of Cooling only type is $18000/72000=25\% < 50\% \rightarrow \text{OK}$
Indoor unit 2	AUUA18	18000				
Indoor unit 3	AUUA18	18000				
Indoor unit 4	AUUA18	18000				
RB unit 1	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ $7500 < 18000 < 27000 \rightarrow \text{OK}$
RB unit 2	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ $7500 < 18000 < 27000 \rightarrow \text{OK}$
RB unit 3	RU01AH	-	① 18000	② 7500	③ 27000	$② \leq ① \leq ③$ $7500 < 18000 < 27000 \rightarrow \text{OK}$

1-2. VRF NETWORK SYSTEM

■ MAXIMUM WIRING LENGTH OF VRF NETWORK SYSTEM

Transmission line	Maximum wiring length ft (m)
Total wiring length of transmission	11811 (3600)
Maximum wiring length between units	1312 (400)
Total wiring length in 1 segment *	1640 (500)










	VRF network system	segment *
Wiring length [ft (m)]	11811 (3600)	1640 (500)
Number of unit	400	64

■ THE MAXIMUM CONNECTABLE UNIT

● Outdoor unit and indoor unit











	Maximum connectable units in one VRF network system
Outdoor unit	100
Indoor unit	400

■ CONTROLLER AND CONVERTOR

		Model	Maximum connectable units in one VRF network system	Remarks		
Controller	Central Control	System Controller 	UTY-APGXZ1	1	*1:Note Max.controllable VRF network system : 4 Max.controllable remote controller groups : 1600 per 4 VRF network system Max.controllable indoor unit : 1600 per 4 VRF network system Max.controllable groups : 1600 per 4 VRF network system	
		System Controller Lite 	UTY-ALGXZ1	1		Max.controllable VRF network system : 1 Max.controllable remote controller groups : 400 Max.controllable indoor unit : 400 Max.controllable groups : 400
		Touch Panel Controller 	UTY-DTGYZ1	16	*2:Note Max.controllable remote controller groups : 400 Max.controllable indoor unit : 400 Max.controllable groups : 400	
		Central Remote Controller 	UTY-DCGY	16		Max.controllable indoor unit : 100 Max.controllable groups : 16
	Individual Control	Wired Remote Controller		UTY-RNRUZ2		Max controllable indoor units : 16
				UTY-RNKU		Max controllable indoor units : 16
		Simple Remote Controller (with master control) 	UTY-RSRY UTY-RSKU		Max controllable indoor units : 16	
		Simple Remote Controller (without master control) 	UTY-RHRY UTY-RHKU		Max controllable indoor units : 16	
		Wireless Remote Controller 	UTY-LNHU			

*1 Note: Different VRF series may be connected for each of the 4 VRF networks supported by the unit, but different series may not coexist within the same network.
(VR-II Series and V-II Series can exist together on same network.)

*2 Note : For one VRF network system, total number of Touch Panel Controller, Central Remote Controller, Network Convertor for Group Remote Controller, Modbus[®] Convertor for VRF, BACnet[®] Gateway (Hardware) is 16, including one Network Convertor for LONWORKS[®].

			Model	Maximum connectable units in one VRF network system	Remarks	
Adaptor / Converter	Signal Amplifier		UTY-VSGXZ1	40		The signal amplifier is required when 1640ft. (500m) or more in transmission line length or connected unit exceeds 64units.
	Network Converter		UTY-VTGX	Used for connecting split system : 100	Total number of refrigerant system and Network converter is maximum 100.	Max connectable Single split type or Multi type : 16 units.
			UTY-VGGXZ1			Max connectable Single split or Multi system in a UTY-VGGXZ1 : 16 units.
	Network Converter for LONWORKS®		UTY-VLGX	1	*2:Note	Max controllable indoor units : 128
	Modbus® Converter for VRF		UTY-VMGX	9		
	BACnet® Gateway (Hardware)		UTY-VBGX	4		
	BACnet® Gateway (Software)		UTY-ABGXZ1	1	*1:Note	Max.controllable VRF network system : 4 Max.controllable remote controller groups : 1600 per 4 VRF network system Max.controllable indoor unit : 1600 per 4 VRF network system Max.controllable groups : 1600 per 4 VRF network system
	External Switch Controller		UTY-TERX UTY-TEKX			Max connectable indoor units : 16
Service & Maintenance	Service Tool		UTY-ASGXZ1	1	1 Service Tool or 1 Web Monitoring Tool can be connected.	PC : Locally purchased USB adaptor is required.
	Web Monitoring Tool		UTY-AMGXZ1		*1:Note.	Web Monitoring Tool: Internet explorer 6.0 or higher. PC : Locally purchased Up to 4 VRF network system can be observed with one Web Monitoring Tool.

*1 Note: Different VRF series may be connected for each of the 4 VRF networks supported by the unit, but different series may not coexist within the same network.
(VR-II Series and V-II Series Series can exist together on same network.)

*2 Note : For one VRF network system, total number of Touch Panel Controller, Central Remote Controller, Network Converter for Group Remote Controller, Modbus® Converter for VRF, BACnet® Gateway (Hardware) is 16, including one Network Converter for LONWORKS®.

1-3. MOUNTING POSITION

■ OUTDOOR UNIT

For the air conditioner to operate satisfactorily, install it as outlined in the installation manual.

● Outdoor unit mounting position

- A position that satisfies the mounting space requirements described in "chapter 3.3 Installation space".
- A position where the unit can be installed level.
- A position with enough space for performing pipe work, service and maintenance.
- A position that satisfies the pipe limitations for height and length between the outdoor units to be connected.

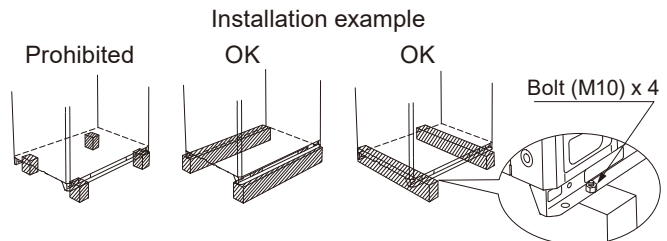
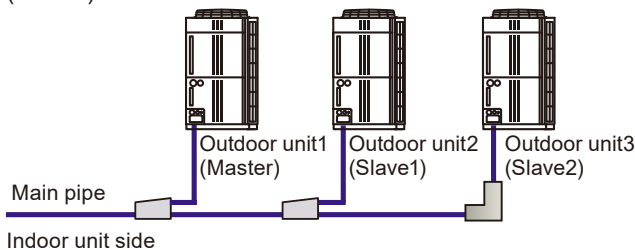
● Outdoor unit mounting limitation

- A position that is not exposed to strong or seasonal winds.
- A position where the blown air does not accumulate.
- A position where there are no obstructions to the air near to the inlet and outlet.
- A position not exposed to radiation from other heat sources.
- A position where the discharge air will not affect animals or plants.
- A position where the noise and hot air will not disturb the neighbor.
- A position with strong installation fixings, which can sufficiently bear the product weight.
- A position that does not transmit noise or vibration.
- A position where drain water discharge is not a problem.
- A position where snow does not accumulate.
- A position not easily affected by electrical noise.
- A position out of reach of children.
- A position where there is no danger of the generation, influx or accumulation of flammable gas.
- A position that does not have a special environment such as large amounts of oil, vapor or sulfide gas.

● Precaution for outdoor unit mounting position

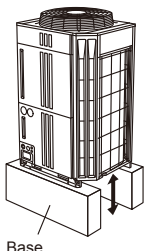
- Mount the outdoor unit in a position where its tilt is 3 degrees or less.
- When mounting units on each floor or multiple units, secure enough outlet space to prevent a short circuit effect.
- In cold or snowy regions, make sure that the mount is high enough and install a snow protection hood.
- Drain water is discharged from the outdoor unit during operation, so make sure that this drain water is possible to flow.
- Use material such as vibration-resistant rubber to prevent the transmission of vibration to the floor.
- Securely fix the unit when it may be in a position exposed to strong winds.
- When cooling operation will be conducted at outdoor air temperature below 23°F (-5°C), the outdoor unit must be installed in a position that is higher than or equal to those of indoor units.

Make sure to mount the outdoor unit 1 (master) closest to indoor unit side.



*Do not use a four-corner support foundation.

- Do not install directly on the ground, this may result in equipment failure.
- Provide ample space for ice buildup from condensate between the bottom of the unit and the flat surface on which it is mounted. Otherwise, there is risk that the drainage water will freeze between the device and the surface, disabling drainage.



⚠ CAUTION

If the unit is installed in a region that is exposed to high winds, freezing conditions, freezing rain, snow fall or heavy snow accumulation, take appropriate measures to protect it from those elements.

To ensure stable operation, the outdoor unit must be installed on a raised stand or rack, at or above the anticipated snow depth for the region.

The installation of snow hoods and drift prevention fencing is recommended when blowing and drifting snow is common to the region.

■ INDOOR UNIT

For the air conditioner to operate satisfactorily, install it as outlined in installation manual.

● Indoor unit mounting position

- Decide the mounting position with the customer
- Install the unit level on a strong wall, floor, ceiling which is not subject to vibration.
- The inlet and outlet ports should not be obstructed. The air should be able to blow all over the room.
- Install the unit where the refrigerant pipes can be easily installed.
- Install the unit where the drain pipe can be easily installed.
- Take servicing, etc. into consideration and leave the necessary space.
- Install the unit in a position that satisfies the pipe length and height limitations.

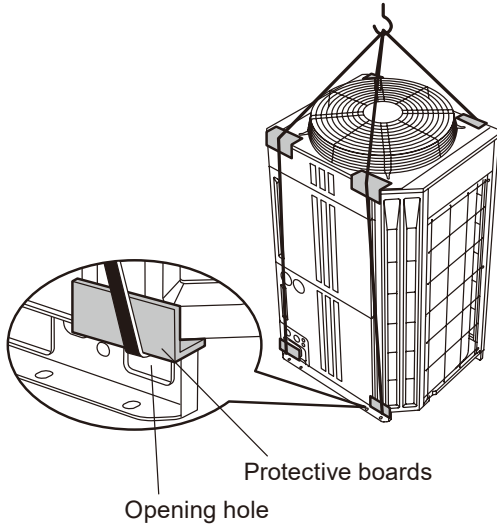
● Indoor unit mounting limitation

- Install at a place that can withstand the weight of the indoor unit and install securely so that the unit will not topple or fall.
- Do not install the unit where there is the danger of combustible gas leakage.
- Do not install the unit near heat sources and the location with high temperature.
- Mount with the lowest moving parts at least 7ft. (2.4m) above floor or grade level.
- Do not install the unit near a source of heat, steam, or flammable gas.
- Unit is designed for comfort cooling applications. Do not use where process type cooling equipment may be required.
- Do not allow children to interfere with the unit.
- Do not install where there is oily smoke, machine oil (i.e. factory), salty environment with direct sea breeze, and too much of dust.
- Install the unit where drainage does not cause any trouble.
- Welded parts may be damaged if the unit is installed where corrosive gases such as sulphuric acid are generated.
- Control may not operate correctly if the unit is installed near machinery which emit electromagnetic waves.
- Install the unit in a well-ventilated place avoiding rains and direct sunlight.
- Install the unit where air from the outlet and noise do not disturb the neighbor.
- Install the indoor and outdoor units, power wiring, signal wiring and remote control wiring 39-3/8in. (1 m) away from televisions and radios to avoid distorted images and noise. (However, distorted images and noise may not be avoidable even if the units and wiring mentioned above are installed 1m away from televisions and radios depending on conditions of the electromagnetic disturbance.)
- When installing an indoor unit in a small room, a care must be taken to keep refrigerant concentrations from exceeding limitations if there is a refrigerant leak.
- Ducted units should be considered for rooms that require quiet operation, such as bedrooms and hotel guest rooms.

1-4. TRANSPORTATION THE OUTDOOR UNIT

■ HOISTING METHOD

- When hanging the outdoor unit and conveying it to installation location, hang the unit with rope by passing through the 4 opening holes on bottom of front and rear side as shown in figure.
- Use 2 ropes at least 26ft. (8m) long. If a shorter length is used, it may cause damage to the unit.
- Use a rope strong enough to support the weight of the unit.
- Use protective boards, pads or tarps to protect the unit from being damaged by the lifting ropes.
- Keep the unit level while lifting.
- Lift carefully and protect the unit from any mechanical shock.



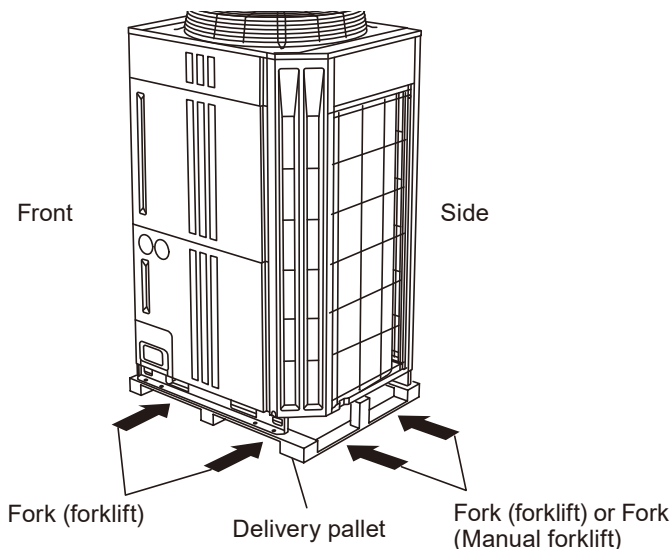
Model name	Weight lbs. (kg)
AOUA72TLBV	597 (271)
AOUA96TLBV	
AOUA120TLBV	639 (290)

■ LIFTING BY FORKLIFT

- When using a forklift to move the unit, place the forks in the pallet as shown below.
Front : Bottom of the wooden delivery pallet.
Side : Space between pallet and cabinet. (Enable to remove the pallet from cabinet.)
- The unit is removed from the pallet from the side.
- Be careful not to damage the unit.

■ LIFTING BY FORKLIFT(Manual forklift: Pallet Jack)

- When using the manual forklift to lift the unit, pass the forks through to the opening space between pallet and cabinet from side.



2. PIPING DESIGN

2-1. IMPORTANT ITEMS WHEN USING REFRIGERANT R410A

R410A operates at higher pressure and has less solubility with mineral oil than traditional R22 refrigerant. Therefore, 410A systems use a different lubricant and have different piping requirements.

■ REFRIGERANT PIPING MATERIAL AND WALL THICKNESS

Only seamless copper tube should be used for the refrigerant piping.

Thickness of tubes are shown in table below.

Endurance pressure of the pipe must be 609 psi (4.2 MPa).

Nominal Diameter	(in.)	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1-1/8"	1-3/8"	1-5/8"	
Outside Diameter	(mm)	6.35	9.52	12.70	15.88	19.05	22.22	28.58	34.92	41.27	
Material		JIS H3300 C1220T-O or equivalent *1					JIS H3300 C1220T-H or equivalent *2				
Wall Thickness *3	(mm)	0.8	0.8	0.8	1.0	1.2	1.0	1.0	1.2	1.43	

*1: Allowable tensile stress ≥ 33 (N/mm²)

*2: Allowable tensile stress ≥ 61 (N/mm²)

*3: Endurance pressure of the pipe must be 609 psi (4.2 MPa).

Select the pipe size in accordance with the regional standard.

■ LUBRICANT

Refrigerant	R410A (Mixed refrigerant)
Lubricant	Synthetic oil

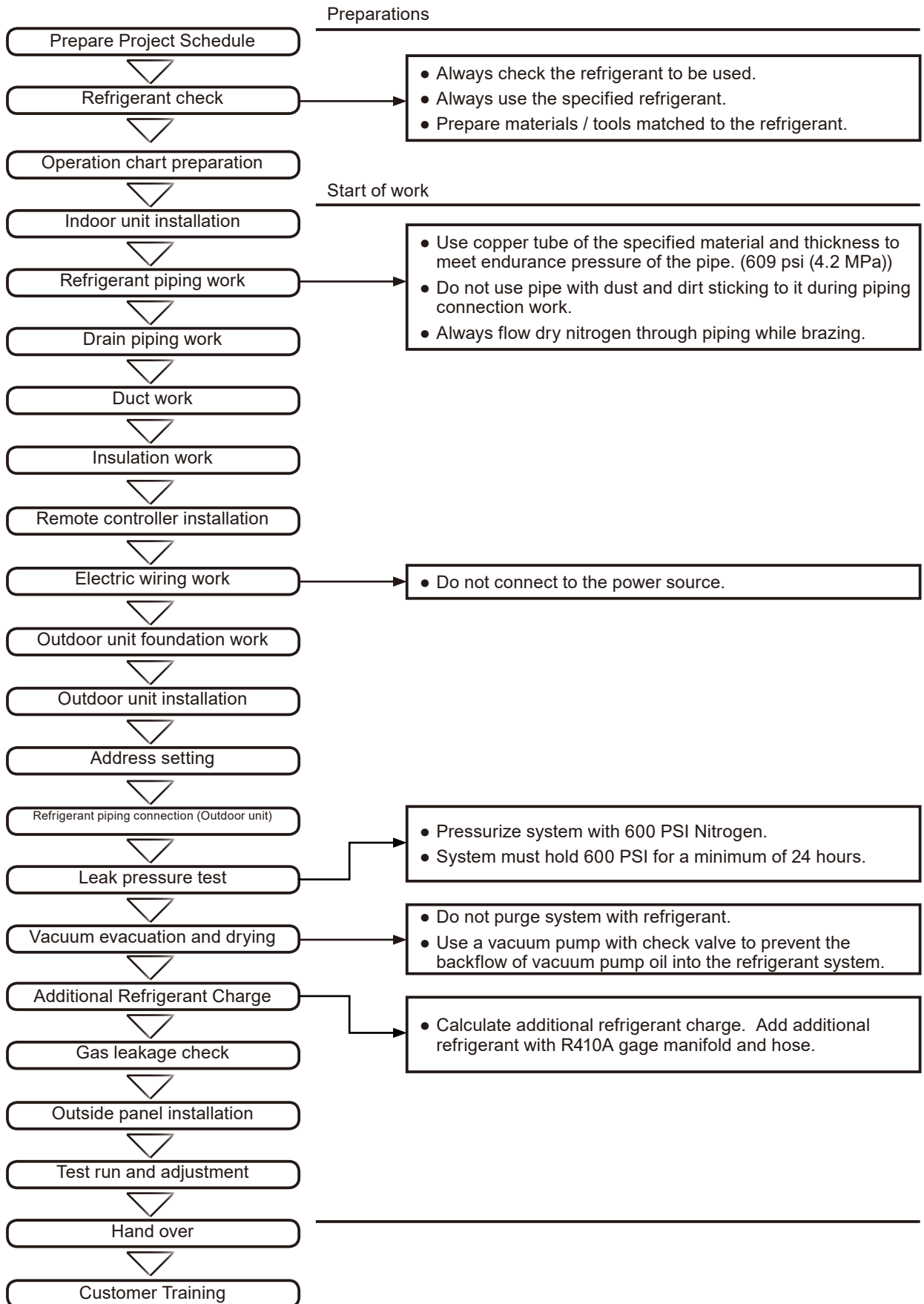
■ TOOLS

R410A work requires a number of special tools. The items below (*) are specialized for R410A use. Make sure that R22 tools are not used on R410A systems.

Tool name	Process and application	
Pipe cutter	Pipe cutting	Refrigerant piping work
Flaring tool *	Pipe flaring work	
Torque wrench *	Flare nut connection	
Expander	Expansion at pipe connection	
Pipe bender	Pipe bending work	
Nitrogen gas	Pipe interior oxidation prevention	Pressure test
Welder	Pipe brazing	
Gauge manifold *	Vacuum evacuation and refrigerant charging Operation check	Pressure Test/Additional Refrigerant Charging
Charging hose *		
Vacuum pump (with adaptor) *		Vacuum drying
Electronic scale for refrigerant charging		Additional Refrigerant Charging
Gas leakage test ⁴	Gas leakage test	

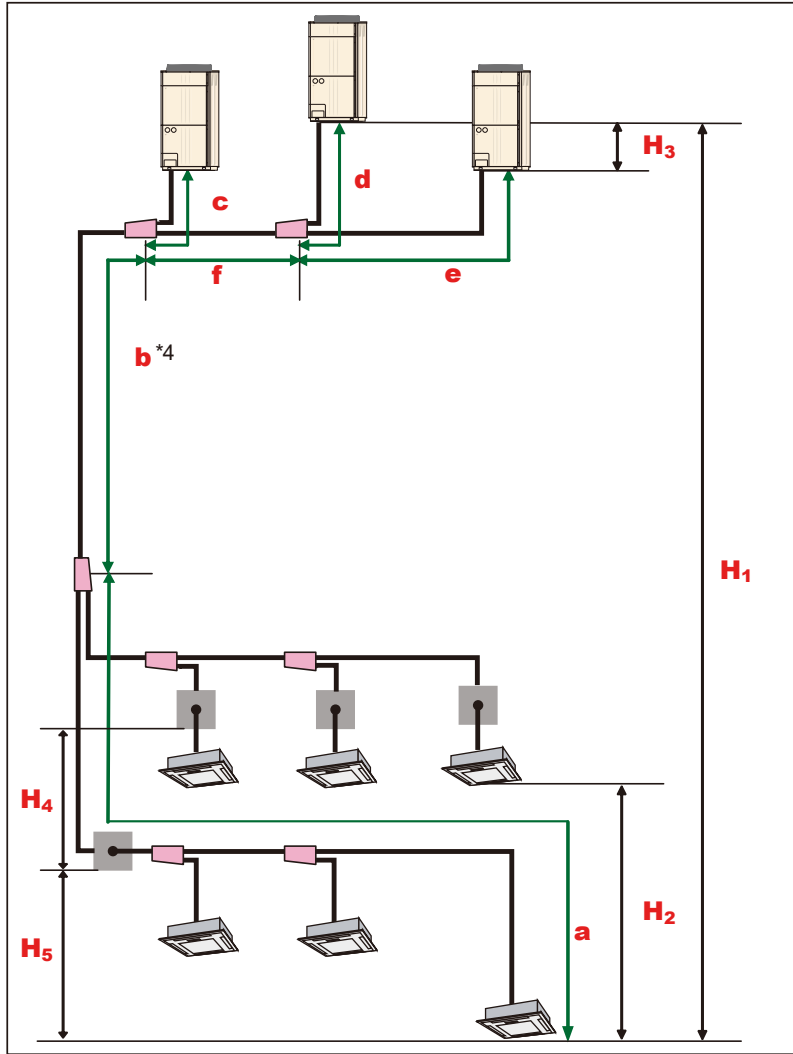
*: Refer to a service manual for details.

■ WORK FLOW (EXAMPLE)



2-2. LIMITATION

■ IN THE CASE OF THREE OUTDOOR UNITS CONNECTED



Limitation: ft. (m)			Diagram		
Allowable pipe length (actual pipe length)	Between master outdoor unit and the farthest indoor unit		541 (165) or less	a + b + c	
	Between the first separation tube and the farthest indoor unit		197 (60) or less	a	
	Total pipe length		3280 (1000) or less *1	Total	
	Between outdoor unit and outdoor unit branch kit		9 (3) or less	c, d, e	
	Between the farthest outdoor unit to the first outdoor unit branch kit		39 (12) or less	d + f, e + f	
Allowable height difference	Between outdoor unit and indoor unit	Outdoor unit is higher than indoor unit	164 (50) or less	H1	
		Outdoor unit is lower than indoor unit	*2 O.T. ≥ 23°F (-5°C)		131 (40) or less
			*2 O.T. < 23°F (-5°C)		16 (5) or less
	Between indoor unit		49 (15) or less	H2	
	Between outdoor unit		19-11/16in. (0.5) or less	H3	
	Between RB unit		49 (15) or less	H4	
	Between RB unit and indoor unit		16 (5) or less	H5	

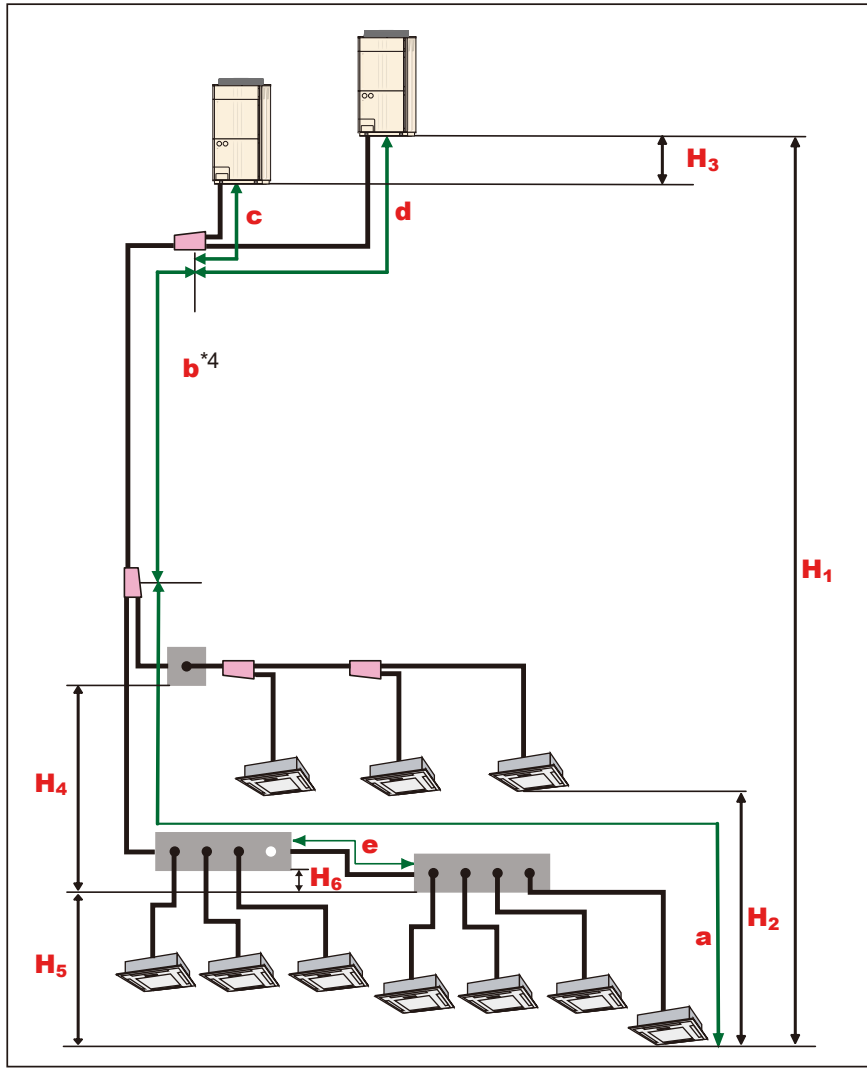
* 1: Total pipe length is limited by the condition that total refrigerant amount should not exceed 231lbs. (105kg).

* 2: O.T. = Outdoor Temperature.

* 4: Although "b" does not have limitation. Set to be 541' (165m) or less in total pipe length of "a+b+c".

* 5: The pipe length is 25' (7.5m) or more, between master outdoor unit and the nearest indoor unit.

■ IN THE CASE OF TWO OUTDOOR UNITS CONNECTED



			Limitation: ft. (m)	Diagram	
Allowable pipe length (actual pipe length)	Between master outdoor unit and the farthest indoor unit		541 (165) or less	a + b + c	
	Between the first separation tube and the farthest indoor unit		197 (60) or less	a	
	Total pipe length		3280 (1000) or less *1	Total	
	Between outdoor unit and outdoor unit branch kit		9 (3) or less	c, d	
	Between multi type of RB unit		3 (1) or less	e	
Allowable height difference	Between outdoor unit and indoor unit	Outdoor unit is higher than indoor unit	164 (50) or less	H1	
		Outdoor unit is lower than indoor unit	*2 O.T. \geq 23°F (-5°C)		131 (40) or less
			*2 O.T. $<$ 23°F (-5°C)		16 (5) or less
	Between indoor unit		49 (15) or less	H2	
	Between outdoor unit		19-11/16in. (0.5) or less	H3	
	Between RB unit		49 (15) or less	H4	
	Between RB unit and indoor unit		16 (5) or less	H5	
Between multi type of RB unit		13/16in. (20mm) or less *6	H6		

* 1 : Total pipe length is limited by the condition that total refrigerant amount should not exceed 154lbs. (70kg).

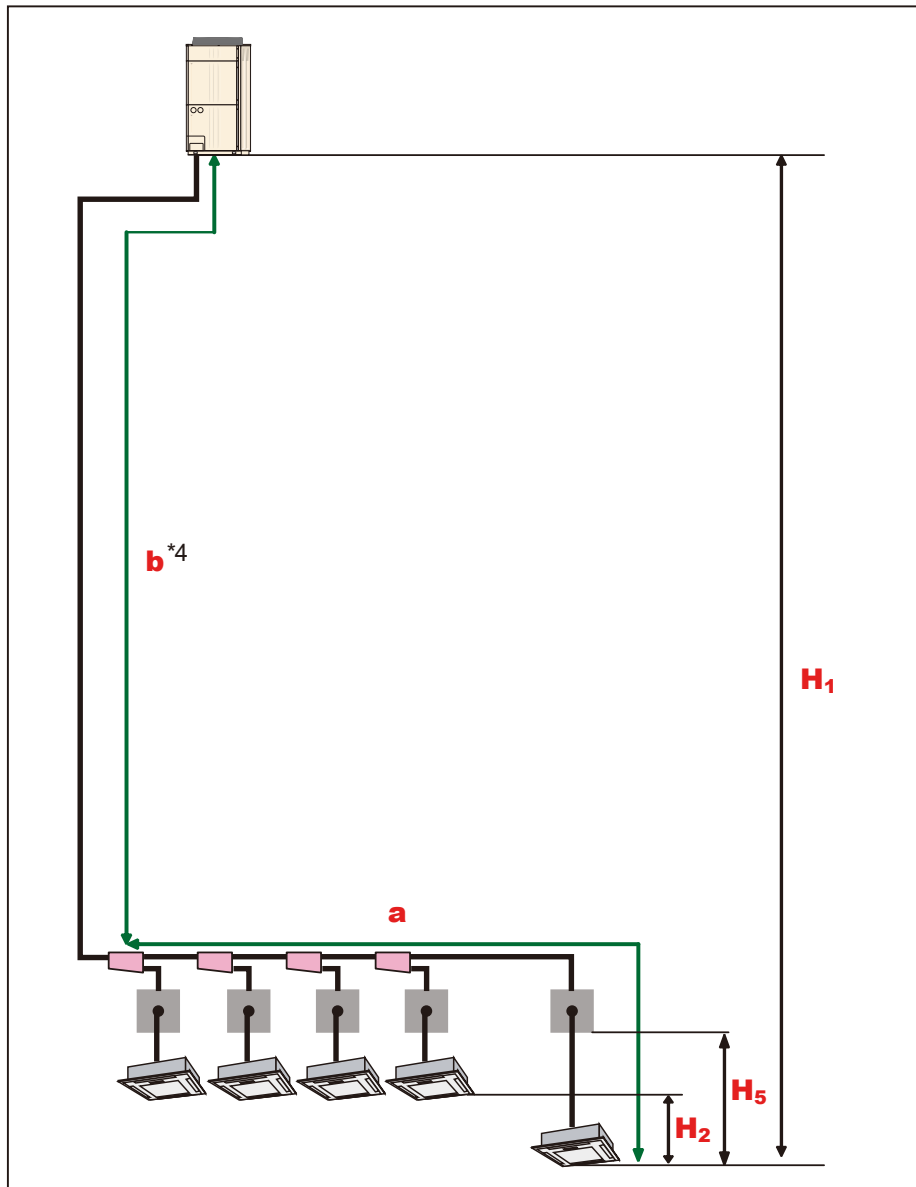
* 2 : O.T. = Outdoor Temperature.

* 4 : Although "b" does not have limitation. Set to be 541' (165m) or less in total pipe length of "a+b+c".

* 5 : The pipe length is 25' (7.5m) or more, between master outdoor unit and the nearest indoor unit.

* 6 : The height of "multi type of RB unit by the down stream" should be lower than "multi type of RB unit by the up stream".

■ IN THE CASE OF ONE OUTDOOR UNIT CONNECTED



Limitation: ft. (m)			Diagram	
Allowable pipe length (actual pipe length)	Between master outdoor unit and the farthest indoor unit		541 (165) or less	
	Between the first separation tube and the farthest indoor unit		197 (60) or less	
	Total pipe length		2296 (700) or less *1	
Allowable height difference	Between outdoor unit and indoor unit	Outdoor unit is higher than indoor unit	164 (50) or less	
		Outdoor unit is lower than indoor unit	*2 O.T. \geq 23°F (-5°C)	131 (40) or less
			*2 O.T. $<$ 23°F (-5°C)	16 (5) or less
	Between indoor unit		49 (15) or less	
	Between RB unit and indoor unit		16 (5) or less	

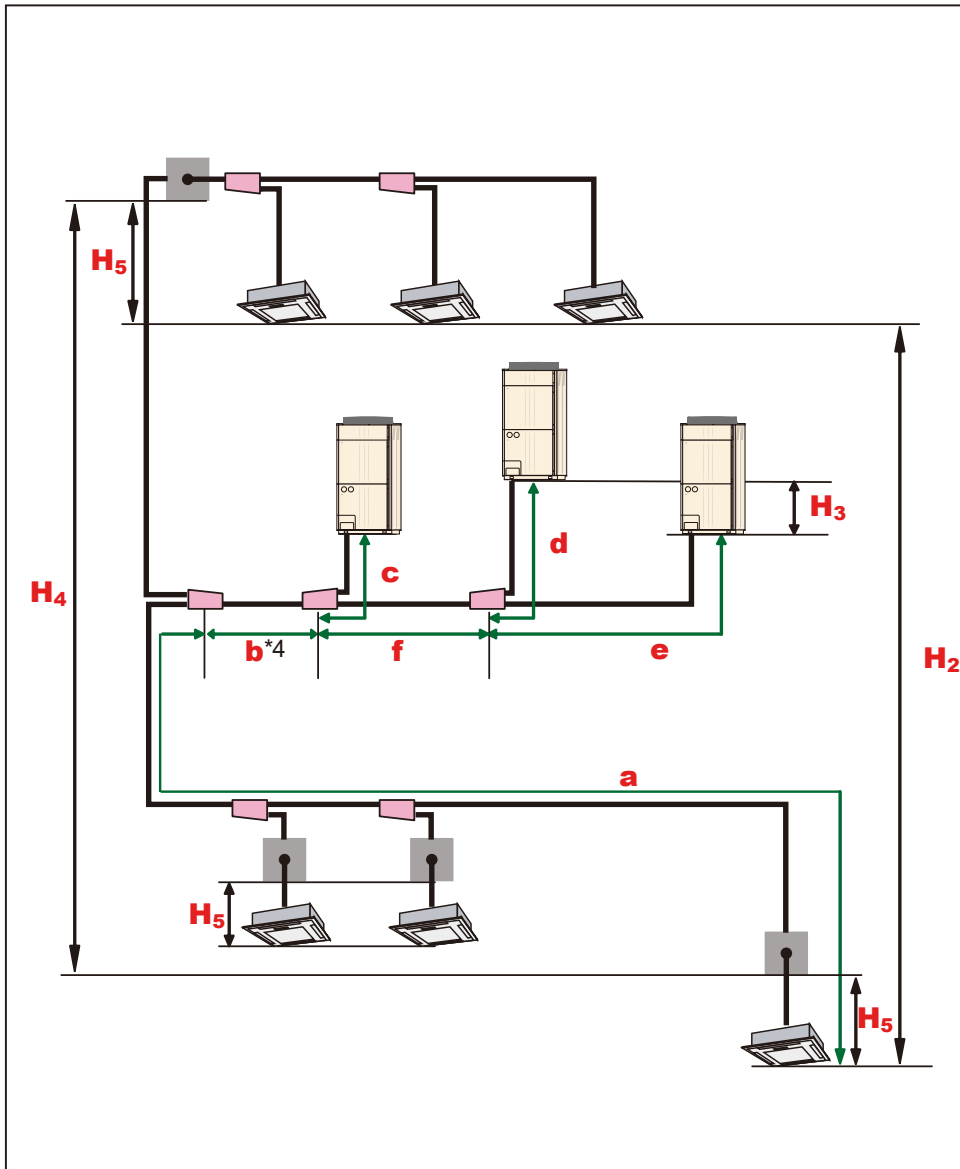
* 1 : Total pipe length is limited by the condition that total refrigerant amount should not exceed 77lbs. (35kg).

* 2: O.T. = Outdoor Temperature.

* 4 : Although "b" does not have limitation. Set to be 541' (165m) or less in total pipe length of "a+b".

* 5 : The pipe length is 25' (7.5m) or more, between master outdoor unit and the nearest indoor unit.

IN THE CASE OF SET UP THE INDOOR UNIT IN BOTH THE UPPER SIDE AND THE LOWER SIDE OF THE OUTDOOR UNIT



SYSTEM DESIGN

SYSTEM DESIGN

Limitation: ft. (m)			Diagram
Maximum allowable pipe length (actual pipe length)	Between master outdoor unit and the farthest indoor unit	541 (165) or less	a + b + c
	Between the first separation tube and the farthest indoor unit	197 (60) or less	a
	Total pipe length	3280 (1000) or less *1	Total
	Between outdoor unit and outdoor unit branch kit	9 (3) or less	c, d, e
	Between the farthest outdoor unit to the first outdoor unit branch kit	39 (12) or less	d + f, e + f
Maximum allowable height difference	Between indoor unit	49 (15) or less	H2
	Between outdoor unit	19-11/16in. (0.5) or less	H3
	Between RB unit	49 (15) or less	H4
	Between RB unit and indoor unit	16 (5) or less	H5

* 1 : Total pipe length is limited by the condition that total refrigerant amount should not exceed 231lbs. (105kg).

* 3 : When cooling operation will be conducted at outdoor air temperature below 23°F (-5°C), the outdoor unit must be installed in a position that is higher than indoor units or same level as indoor unit or 16' (5m) lower than indoor unit.

* 4 : Although "b" does not have limitation. Set to be 541' (165m) or less in total pipe length of "a+b+c".

* 5 : The pipe length is 25' (7.5m) or more, between master outdoor unit and the nearest indoor unit.

■ CAUTION

For proper operation, adhere to all “piping limitations”.

● Allowable height difference:

If the height difference between the indoor unit and outdoor unit is larger than the allowable value:

- * The pressure loss will be larger → Insufficient cooling and heating
- * The refrigerant in liquid pipe will flush → Refrigerant flow noise generate at indoor unit
- * The refrigerant oil will not return → Insufficient refrigerant oil resulting in compressor damage

If the height difference between indoor unit, between RB unit, or between RB unit and indoor unit is larger than the allowable value:

- * The refrigerant flow balance will be poor → Insufficient cooling and heating (poor balance)
- * Refrigerant oil will collect in the piping or non-operating indoor units
→ Insufficient refrigerant oil resulting in compressor damage

● Pipe length:

If the pipe length is longer than prescribed:

- * The pressure loss will be larger → Insufficient cooling and heating
- * Too much refrigerant will be charged → Liquid backs up resulting in compressor damage
- * The refrigerant oil will not return → Insufficient refrigerant oil resulting in compressor damage

● Pipe size:

If the pipe size is larger than designated size:

- * The refrigerant flow velocity will drop. Refrigerant oil will not return to the outdoor unit.
→ Insufficient refrigerant oil resulting in compressor damage
- * The refrigerant in liquid pipe will flush easily → Insufficient cooling and heating

If the pipe size is smaller than designated size:

- * The refrigerant circulation volume will drop → Insufficient cooling and heating
- * The pressure loss will be larger → Insufficient cooling and heating

● Indoor unit connected capacity:

If the indoor unit connected capacity is larger than the system capable capacity:

- * Insufficient system performance → Insufficient cooling and heating
- * When heating, refrigerant will collect in non-operating indoor units resulting in an insufficient refrigerant circulation volume → Insufficient cooling and heating
- * The refrigerant oil will not return → Compressor damage

If the indoor unit connected capacity is too small compared to the system capacity:

- * The liquid return will be too great → Compressor damage
- * The refrigerant will concentrate in the outdoor unit
→ Continuous operation will become difficult due to the outdoor unit stopping due to high head pressure. Also, excessive noise will be generated by the refrigerant flow when in heating mode.

2-3. PIPE SIZE

PIPE DIAMETER, RECOMMENDED MATERIAL AND WALL THICKNESS

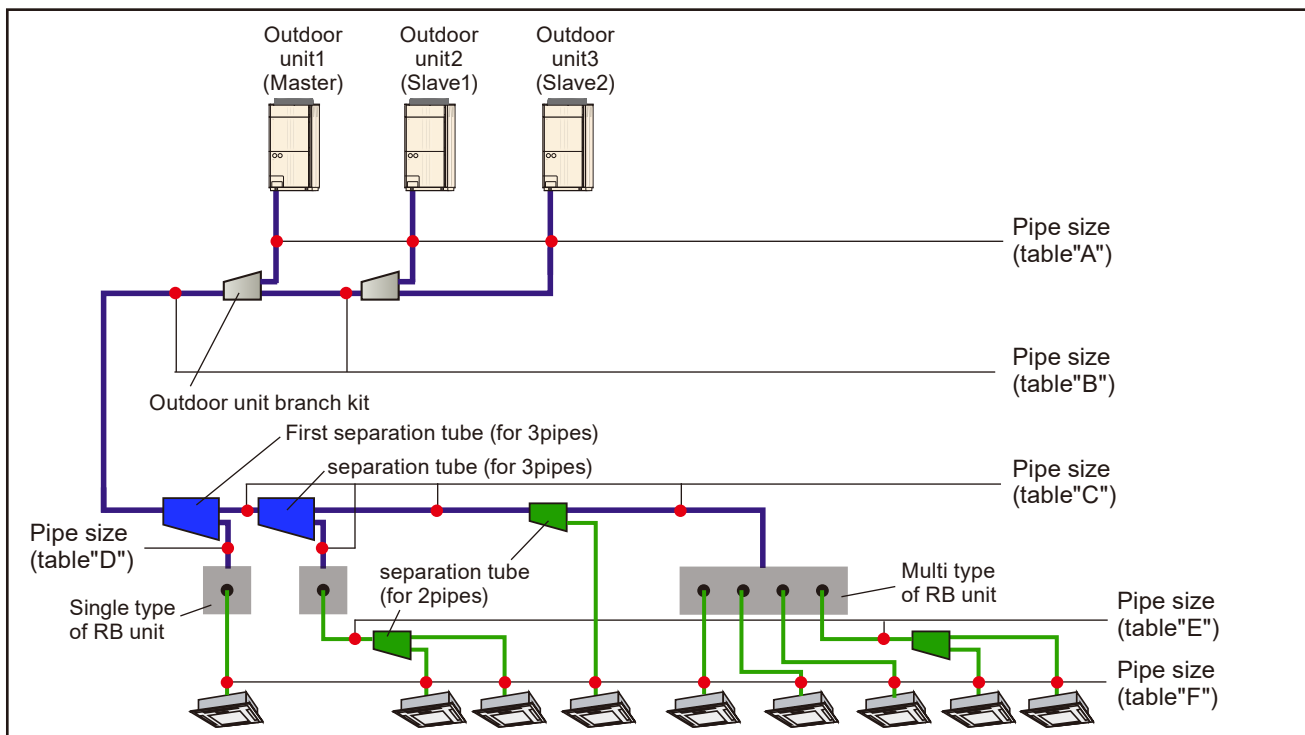
Nominal Diameter	(in.)	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1-1/8"	1-3/8"	1-5/8"	
Outside Diameter	(mm)	6.35	9.52	12.70	15.88	19.05	22.22	28.58	34.92	41.27	
Material		JIS H3300 C1220T-O or equivalent *1					JIS H3300 C1220T-H or equivalent *2				
Wall Thickness *3	(in.)	0.032	0.032	0.032	0.039	0.047	0.039	0.039	0.047	0.056	
	(mm)	0.8	0.8	0.8	1.0	1.2	1.0	1.0	1.2	1.43	

*1: Allowable tensile stress ≥ 33 (N/mm²)

*2: Allowable tensile stress ≥ 61 (N/mm²)

*3: Operating pressure of the pipe must be 609psi (4.2 MPa).

Select the pipe size in accordance with the regional standard.



PIPE SIZE SELECTION

Caution

Use the following tables to select the Refrigeration Pipe Size, Separation Tubes and Headers.

Pipe size table "A"

Between outdoor unit to outdoor unit branch kit

Ton	Model code	Outdoor unit cooling capacity (Btu/h)	Outside diameter: in. (mm)		
			Liquid pipe	Discharge Gas pipe	Suction Gas pipe
6	72	72,000	1/2" (12.70)	5/8" (15.88)	7/8" (22.22)
8	96	96,000	1/2" (12.70)	3/4" (19.05)	7/8" (22.22)
10	120	120,000	1/2" (12.70)	3/4" (19.05)	1-1/8" (28.58)

● Pipe size table "B"

Between outdoor unit branch kits or outdoor unit branch kit and first separation tube

Nominal cooling capacity of outdoor unit [Btu/h (Ton)]	Outside diameter: in. (mm)		
	Liquid pipe	Discharge Gas pipe	Suction Gas pipe
72,000 (6)	1/2" (12.70)	5/8" (15.88)	7/8" (22.22)
96,000 (8)	1/2" (12.70)	3/4" (19.05)	7/8" (22.22)
120,000 (10)	1/2" (12.70)	3/4" (19.05)	1-1/8" (28.58)
144,000 (12)	1/2" (12.70)	7/8" (22.22)	1-1/8" (28.58)
168,000 (14) 192,000 (16)	5/8" (15.88)	7/8" (22.22)	1-1/8" (28.58)
216,000 (18) 240,000 (20) 264,000 (22)	5/8" (15.88)	1-1/8" (28.58)	1-3/8" (34.92)
288,000 (24)	3/4" (19.05)	1-1/8" (28.58)	1-3/8" (34.92)

* Discharge gas pipe size selection :

Pipe diameter, in case of discharge gas pipe is not separated, is different between pipes which come from outdoor unit side and connected to RB unit, Thinner piping diameter should be selected.

● Pipe size table "C"

Between separation tubes or separation tube and RB unit

Case of some indoor units are connected in the downstream of separation tube.

Total cooling capacity of indoor unit (x) (Btu/h)	Outside diameter: in. (mm)		
	Liquid pipe	Discharge Gas pipe	Suction Gas pipe
8,000 < x ≤ 36,000	3/8" (9.52)	1/2" (12.70)	5/8" (15.88)
36,000 < x ≤ 48,000	3/8" (9.52)	1/2" (12.70)	3/4" (19.05)
48,000 < x ≤ 72,000	1/2" (12.70)	5/8" (15.88)	7/8" (22.22)
72,000 < x ≤ 96,500	1/2" (12.70)	3/4" (19.05)	7/8" (22.22)
96,500 < x ≤ 153,000	1/2" (12.70)	3/4" (19.05)	1-1/8" (28.58)
153,000 < x ≤ 161,000	5/8" (15.88)	3/4" (19.05)	1-1/8" (28.58)
161,000 < x ≤ 193,000	5/8" (15.88)	7/8" (22.22)	1-1/8" (28.58)
193,000 < x ≤ 274,500	5/8" (15.88)	1-1/8" (28.58)	1-3/8" (34.92)
274,500 < x ≤ 325,000	3/4" (19.05)	1-1/8" (28.58)	1-3/8" (34.92)
325,000 < x	3/4" (19.05)	1-1/8" (28.58)	1-5/8" (41.27)

* If the selected pipe diameter between separation tubes (based on table "C") becomes larger than the pipe diameter between outdoor unit branch kit and the first separation tube (based on table "B"), select the pipe whose diameter is equal to the one between outdoor unit branch kit and the first separation tube.

(If pipe diameter C > B, select pipe size from table B)

* Discharge gas pipe size selection :

① When indoor unit of cooling only type is connected, it calculates with the value except capacity of cooling only type.

② Pipe diameter, in case of discharge gas pipe is not separated, is different between pipes which come from outdoor unit side and connected to RB unit, Thinner piping diameter should be selected.

● Pipe size table "D"

Between separation tube and RB unit

Case of 1 indoor unit is connected in the downstream of separation tube.

Cooling capacity of indoor unit (Btu/h)	Outside diameter: in. (mm)		
	Liquid pipe	Discharge Gas pipe	Suction Gas pipe
4,000, 7,500, 9,500, 12,000, 14,000	1/4" (6.35)	3/8" (9.52)	1/2" (12.70)
18,000, 24,000, 30,000, 34,000	3/8" (9.52)	1/2" (12.70)	5/8" (15.88)
36,000, 48,000	3/8" (9.52)	1/2" (12.70)	3/4" (19.05)
60,000	3/8" (9.52)	5/8" (15.88)	3/4" (19.05)
72,000, 96,000	1/2" (12.70)	3/4" (19.05)	7/8" (22.22)

● Pipe size table "E"

Between separation tubes or RB unit and separation tube

Total cooling capacity of indoor unit (Btu/h)	Outside diameter: in. (mm)	
	Liquid pipe	Gas pipe
8,000 < x ≤ 36,000	3/8" (9.52)	5/8" (15.88)
36,000 < x ≤ 48,000	3/8" (9.52)	3/4" (19.05)
48,000 < x ≤ 96,500	1/2" (12.70)	7/8" (22.22)
96,500 < x ≤ 153,000	1/2" (12.70)	1-1/8" (28.58)
153,000 < x ≤ 193,000	5/8" (15.88)	1-1/8" (28.58)
193,000 < x ≤ 274,000	5/8" (15.88)	1-3/8" (34.92)
274,000 < x ≤ 325,000	3/4" (19.05)	1-3/8" (34.92)
325,000 < x	3/4" (19.05)	1-5/8" (41.27)

* If the selected pipe diameter based on table "E" becomes larger than the pipe diameter based on table "C", select the pipe whose diameter is equal to the table "C".

Gas pipe of table "E" should be compared with suction gas pipe of table "C".

(If pipe diameter E > C, select pipe size from table C)

● Pipe size table "F"

Between separation tube and indoor unit or RB unit and indoor unit

Cooling capacity of indoor unit (Btu/h)	Outside diameter: in. (mm)	
	Liquid pipe	Gas pipe
4,000, 7,500, 9,500, 12,000, 14,000	1/4" (6.35)	1/2" (12.70)
18,000, 24,000, 30,000, 34,000	3/8" (9.52)	5/8" (15.88)
36,000, 48,000	3/8" (9.52)	3/4" (19.05)
60,000	3/8" (9.52)	3/4" (19.05)
72,000, 96,000	1/2" (12.70)	7/8" (22.22)

For connecting to 4/7/9/18/36/48TLAV1 models, reducer (locally purchased) is necessary.

For details of reducer diameter, refer to the table below.

Cooling capacity of indoor unit (Btu/h)	Reducer diameter: in. (mm)	
	Liquid pipe	Gas pipe
4,000, 7,500, 9,500	—	3/8" (9.52) → 1/2" (12.70)
18,000	1/4" (6.35) → 3/8" (9.52)	1/2" (12.70) → 5/8" (15.88)
34,000, 36,000, 48,000	—	5/8" (15.88) → 3/4" (19.05)

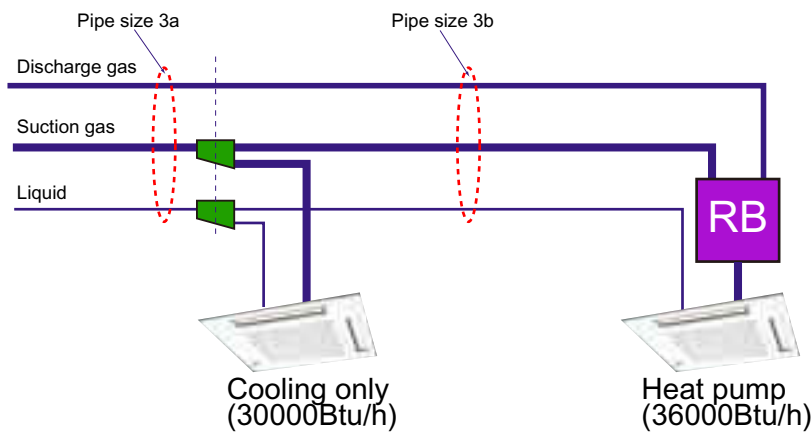
■ NOTES IN CASE OF CONNECTING INDOOR UNIT OF COOLING ONLY TYPE

● Pipe size

Only for discharge gas pipe.

- When indoor unit of cooling only type is connected, it calculates with the value except capacity of cooling only type.
- Pipe diameter, in case of discharge gas pipe is not separated, is different between pipes which come from outdoor unit side and connected to RB unit, Thinner piping diameter should be selected.

Example



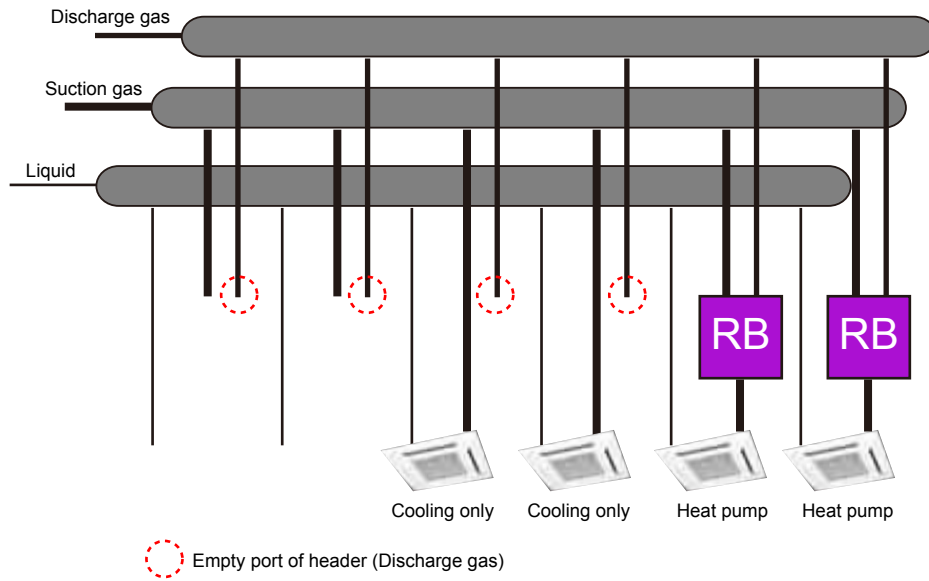
	3a	3b
Discharge gas	5/8" (15.88) → 1/2" (12.70)	1/2" (12.70)
Suction gas	7/8" (22.22)	3/4" (19.05)
Liquid	1/2" (12.70)	3/8" (9.52)

Note: Since discharge gas pipe may be selected to the same pipe size as liquid pipe, be careful of a connection mistake.

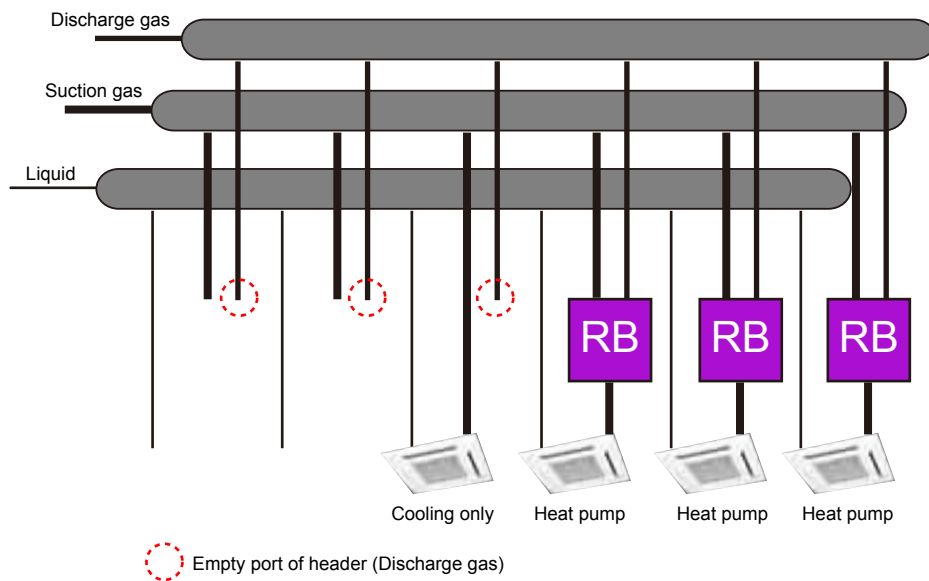
● Installation of header

- At least 3 or more of RB unit must be connected in port of header

Example (prohibited)

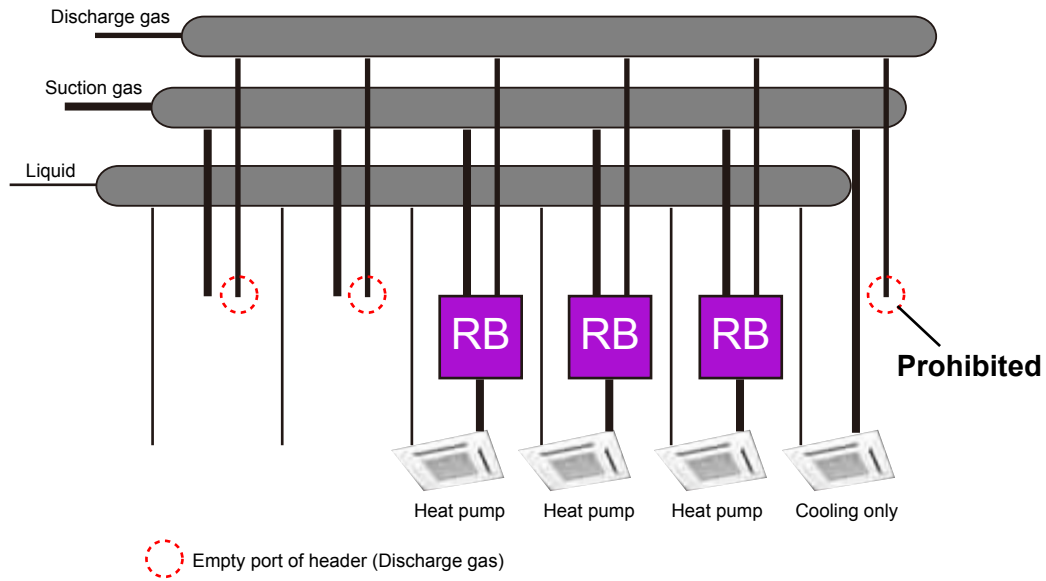


Example (OK)

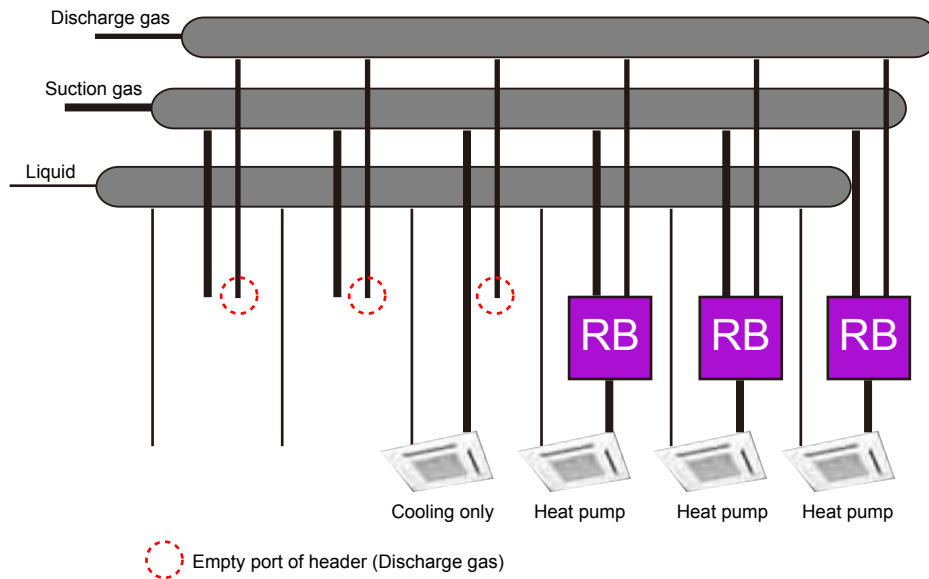


- Do not connected indoor unit of cooling only type to the farthest port of header.

Example (prohibited)



Example (OK)



- When all indoor unit connected to header is indoor unit of cooling only type, use header for 2pipe.

■ OUTDOOR UNIT BRANCH KIT

System	Model	Q'ty
2 outdoor units	UTP-DX567A	1
3 outdoor units		2

* When using single outdoor unit, outdoor unit branch kit is not necessary.

■ INDOOR BRANCH KIT

● RB unit

Total cooling capacity of indoor unit (Btu/h)	RB unit
$4,000 \leq x \leq 27,000$	UTP-RU01AH
$4,000 \leq x \leq 60,000$	UTP-RU01BH
$4,000 \leq x \leq 96,000$	UTP-RU01CH
$4,000 \leq x \leq 60,000$ (for 1 branch) $x \leq 191,000$ (Sum total of 4 branches) *1	UTP-RU04BH

*1: In case of two RB units connected in series (total 8-branches), maximum capacity of connectable indoor units is up to 191,000 Btu/h.

● Separation tube

Total cooling capacity of indoor unit (x) (Btu/h)	Separation tube	
	for 2 pipes	for 3 pipes
$x < 96,500$	UTP-AX090A	UTP-BX090A
$96,500 \leq x < 193,000$	UTP-AX180A	UTP-BX180A
$193,000 \leq x$	UTP-AX567A	UTP-BX567A

● Header

Total cooling capacity of indoor unit (x) (Btu/h)	Header			
	for 2 pipes		for 3 pipes	
	3-6 Branches	3-8 Branches	3-6 Branches	3-8 Branches
$x < 96,500$	UTR-H0906L	UTR-H0908L	UTP-J0906A	UTP-J0908A
$96,500 \leq x < 193,000$	UTR-H1806L	UTR-H1808L	UTP-J1806A	UTP-J1808A

* "Total Cooling Capacity of Indoor Unit" is the sum of all the cooling capacities of all units connected downstream .

■ COOLING CAPACITY TABLE

● Outdoor unit

Ton	Nominal Cooling Capacity (Btu/h)	Set model name	Unit1 (Model name)	Unit2 (Model name)	Unit3 (Model name)
6	72,000	AOUA72TLBV	AOUA72TLBV	-	-
8	96,000	AOUA96TLBV	AOUA96TLBV	-	-
10	120,000	AOUA120TLBV	AOUA120TLBV	-	-
12	144,000	AOUA144TLBVG	AOUA72TLBV	AOUA72TLBV	-
14	168,000	AOUA168TLBVG	AOUA96TLBV	AOUA72TLBV	-
16	192,000	AOUA192TLBVG	AOUA120TLBV	AOUA72TLBV	-
18	216,000	AOUA216TLBVG	AOUA120TLBV	AOUA96TLBV	-
20	240,000	AOUA240TLBVG	AOUA120TLBV	AOUA120TLBV	-
22	264,000	AOUA264TLBVG	AOUA96TLBV	AOUA96TLBV	AOUA72TLBV
24	288,000	AOUA288TLBVG	AOUA96TLBV	AOUA96TLBV	AOUA96TLBV

● Indoor unit

Type	Cooling capacity (Btu/h)	Model name
Compact cassette	4,000	AUUA4TLAV1
	7,500	AUUA7TLAV
	9,500	AUUA9TLAV
	12,000	AUUA12TLAV
	14,000	AUUA14TLAV
	18,000	AUUA18TLAV
	24,000	AUUA24TLAV
Circular flow cassette	18,000	AUUB18TLAV1
	24,000	AUUB24TLAV1
	30,000	AUUB30TLAV1
	36,000	AUUB36TLAV1
	48,000	AUUB48TLAV1
Cassette	18,000	AUUB18TLAV
	24,000	AUUB24TLAV
	30,000	AUUB30TLAV
	36,000	AUUB36TLAV
Mini duct	4,000	ARUL4TLAV1
Slim duct / Slim concealed floor	7,500	ARUL7TLAV
	9,500	ARUL9TLAV
	12,000	ARUL12TLAV
	14,000	ARUL14TLAV
	18,000	ARUL18TLAV
Medium static Pressure duct	24,000	ARUM24TLAV
	30,000	ARUM30TLAV
	36,000	ARUM36TLAV
High static pressure duct	36,000	ARUH36TLAV
	48,000	ARUH48TLAV
	60,000	ARUH60TLAV
	72,000	ARUH72TLAV1
	96,000	ARUH96TLAV

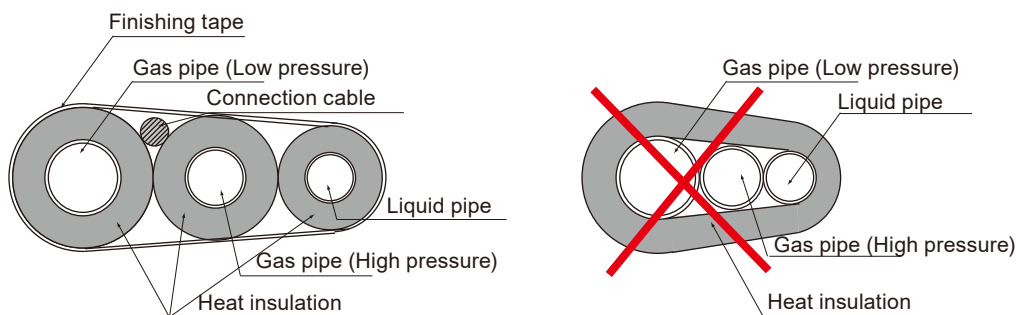
Type	Cooling capacity (Btu/h)	Model name
Vertical air handler	12,000	ARUV12TLAV
	18,000	ARUV18TLAV
	24,000	ARUV24TLAV
	30,000	ARUV30TLAV
	36,000	ARUV36TLAV
	48,000	ARUV48TLAV
	60,000	ARUV60TLAV
	Compact floor	4,000
7,500		AGUA7TLAV1
9,500		AGUA9TLAV1
12,000		AGUA12TLAV1
14,000		AGUA14TLAV1
Floor / ceiling		12,000
	14,000	ABUA14TLAV
	18,000	ABUA18TLAV
	24,000	ABUA24TLAV
Ceiling	30,000	ABUA30TLAV
	36,000	ABUA36TLAV
Wall mounted	4,000	ASUA4TLAV1
	7,500	ASUA7TLAV1 ASUA7TLAV
	9,500	ASUA9TLAV1 ASUA9TLAV
	12,000	ASUA12TLAV1 ASUA12TLAV
	14,000	ASUA14TLAV1 ASUA14TLAV
	18,000	ASUB18TLAV1 ASUB18TLAV
	24,000	ASUB24TLAV1 ASUB24TLAV
	30,000	ASUB30TLAV1
	34,000	ASUB36TLAV1

2-4. SELECTION OF PIPE HEAT INSULATING MATERIAL

- Always insulate the refrigerant pipe to prevent the formation of condensation and water droplets.
- Decide the thickness of the heat insulating material by referring to the recommended minimum thickness in Table 1. (For installation condition T=90°F DB (32°C DB), humidity≤70%, humidity≤75%, humidity≤80%, humidity≤85%)
- When the outdoor unit is installed above the indoor units, be sure to fill the building penetration with foam to prevent condensation in the outdoor unit from running down the refrigerant pipes into the building.
- Both of the refrigerant lines (liquid and gas) should be insulated according to the same specification.
- Water may leak from the refrigerant lines if the insulation is not completely sealed.
- Table 1 Size of refrigerant pipe and recommended minimum thickness of heat insulating material. This is based on the insulating material having a thermal conductivity of .0040 W/(m*k).

Relative humidity		Recommended minimum thickness for heat insulating material [in. (mm)]			
		≤70%	≤75%	≤80%	≤85%
Refrigerant pipe	1/4" (6.35)	5/16" (8)	13/32" (10)	1/2" (13)	21/32" (17)
	3/8" (9.52)	11/32" (9)	7/16" (11)	9/16" (14)	23/32" (18)
	1/2" (12.70)	13/32" (10)	15/32" (12)	19/32" (15)	3/4" (19)
	5/8" (15.88)	13/32" (10)	15/32" (12)	5/8" (16)	25/32" (20)
Outside diameter [in. (mm)]	3/4" (19.05)	13/32" (10)	1/2" (13)	5/8" (16)	13/16" (21)
	7/8" (22.22)	7/16" (11)	1/2" (13)	21/32" (17)	7/8" (22)
	1-1/8" (28.58)	7/16" (11)	9/16" (14)	23/32" (18)	29/32" (23)
	1-3/8" (34.92)	7/16" (11)	9/16" (14)	23/32" (18)	15/16" (24)
	1-5/8" (41.27)	15/32" (12)	19/32" (15)	3/4" (19)	31/32" (25)

- In application where the ambient temperature and humidity exceed 90F DB (32C DB) and 95% relative humidity, increase the size of the pipe insulation. It may also be necessary to insulate the indoor unit casing. Condensation may form on the insulation in these conditions if the thickness of the insulation is not increased.
- Since the gas line gets very hot during heating operation, select a pipe insulation material rated for at least 248F (120C).



- Make sure that the pipe is completely covered with insulation. Any exposed pipe could cause condensation.
- Do not insulate both liquid and gas pipes together as shown in the figure above. This may cause condensation and a drop in system capacity.

2-5. ADDITIONAL CHARGE CALCULATION

- The outdoor unit is charged refrigerant at the factory.
- The additional refrigerant charge is calculated based on pipe length and outdoor unit model.
- The additional refrigerant charge amount is calculated according to the following formula.
- The overall refrigerant amount should not be exceed 66.1 lbs. (30kg) per outdoor unit.
- Round up the calculated result to two decimal places.

■ CALCULATION OF ADDITIONAL CHARGE REFRIGERANT

1. Calculation of additional amount for outdoor unit

Model	Ton	d		b	
		Factory charged amount [lbs. (kg)]	Additional amount for outdoor unit [lbs. (kg)]	Diameter of liquid pipe [in. (mm)]	Additional amount for pipe length [lbs./ft. (kg/m)]
AOUA72TLBV	6	26.01 (11.80)	6.61 (3.00)	ø1/4" (6.35)	0.014 (0.021)
AOUA96TLBV	8	26.01 (11.80)	6.61 (3.00)	ø3/8" (9.52)	0.039 (0.058)
AOUA120TLBV	10	26.01 (11.80)	14.99 (6.80)	ø1/2" (12.70)	0.077 (0.114)
				ø5/8" (15.88)	0.120 (0.178)
				ø3/4" (19.05)	0.180 (0.268)

2. Calculation of additional amount for pipe length

$$A = \begin{array}{|c|} \hline \text{a : Outdoor unit 1} \\ \text{additional amount for} \\ \text{outdoor unit} \\ \hline \text{lbs. (kg)} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{a : Outdoor unit 2} \\ \text{additional amount for} \\ \text{outdoor unit} \\ \hline \text{lbs. (kg)} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{a : Outdoor unit 3} \\ \text{additional amount for} \\ \text{outdoor unit} \\ \hline \text{lbs. (kg)} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Total} \\ \hline \text{lbs. (kg)} \\ \hline \end{array}$$

$$B = \begin{array}{|c|c|} \hline \text{Total length} & \text{a :} \\ \text{of } \phi 3/4" & \times 0.180 \\ \text{(19.05mm)} & \text{lbs./ft.} \\ \text{liquid pipe} & \text{(0.268 kg/} \\ \text{ft. (m)} & \text{m)} \\ \hline \text{lbs. (kg)} \\ \hline \end{array} + \begin{array}{|c|c|} \hline \text{Total length} & \text{a :} \\ \text{of } \phi 5/8" & \times 0.120 \\ \text{(15.88mm)} & \text{lbs./ft.} \\ \text{liquid pipe} & \text{(0.178 kg/} \\ \text{ft. (m)} & \text{m)} \\ \hline \text{lbs. (kg)} \\ \hline \end{array} + \begin{array}{|c|c|} \hline \text{Total length} & \text{a :} \\ \text{of } \phi 1/2" & \times 0.077 \\ \text{(12.70mm)} & \text{lbs./ft.} \\ \text{liquid pipe} & \text{(0.114 kg/} \\ \text{ft. (m)} & \text{m)} \\ \hline \text{lbs. (kg)} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Total} \\ \hline \text{lbs. (kg)} \\ \hline \end{array}$$

$$\begin{array}{|c|c|} \hline \text{Total length} & \text{a :} \\ \text{of } \phi 3/8" & \times 0.039 \\ \text{(9.52mm)} & \text{lbs./ft.} \\ \text{liquid pipe} & \text{(0.058 kg/} \\ \text{ft. (m)} & \text{m)} \\ \hline \text{lbs. (kg)} \\ \hline \end{array} + \begin{array}{|c|c|} \hline \text{Total length} & \text{a :} \\ \text{of } \phi 1/4" & \times 0.014 \\ \text{(6.35mm)} & \text{lbs./ft.} \\ \text{liquid pipe} & \text{(0.021 kg/} \\ \text{ft. (m)} & \text{m)} \\ \hline \text{lbs. (kg)} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Total} \\ \hline \text{lbs. (kg)} \\ \hline \end{array}$$

3. Calculation of additional charge refrigerant

$$C = A + B = \boxed{} \text{ lbs. (kg)} \quad \text{Round up C to 2 decimal place.}$$

4. Calculation of factory charged amount

$$D = \begin{array}{|c|} \hline \text{d : Outdoor unit 1} \\ \text{factory charged amount} \\ \hline \text{lbs. (kg)} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{d : Outdoor unit 2} \\ \text{factory charged amount} \\ \hline \text{lbs. (kg)} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{d : Outdoor unit 3} \\ \text{factory charged amount} \\ \hline \text{lbs. (kg)} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Total} \\ \hline \text{lbs. (kg)} \\ \hline \end{array}$$

5. Total refrigerant amount check

$$E = C + D = \boxed{} \text{ lbs. (kg)}$$

Note : Check the total refrigerant amount under the following conditions.

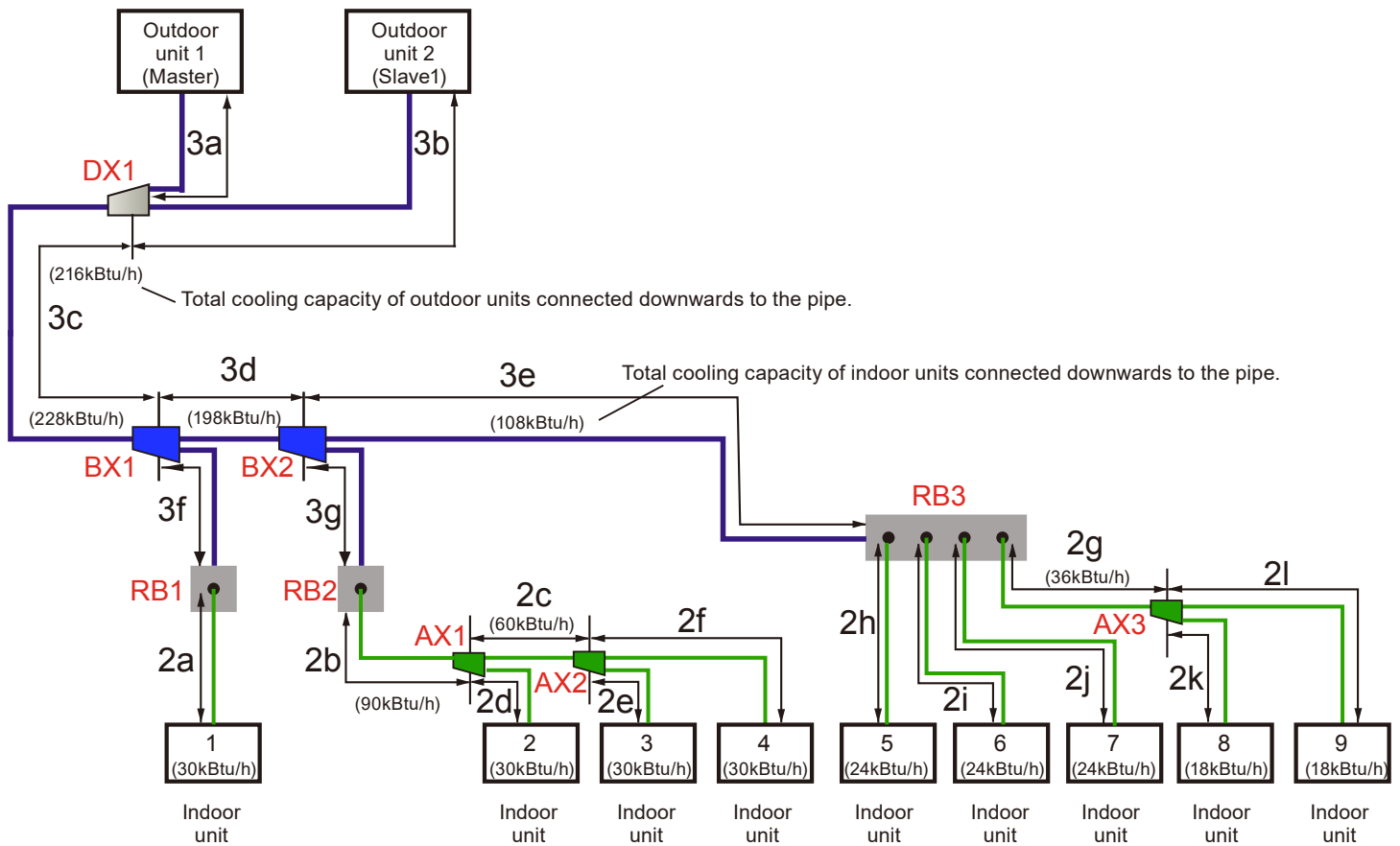
Condition	Computational formula
For 1 outdoor unit per refrigerant system : Total amount of refrigerant \leq 77.16lbs. (35.00kg)	$C \leq 77.16\text{lbs. (35.00kg)}$
For 2 outdoor units per refrigerant system : Total amount of refrigerant \leq 154.32lbs. (70.00kg)	$C \leq 154.32\text{lbs. (70.00kg)}$
For 3 outdoor units per refrigerant system : Total amount of refrigerant \leq 231.49lbs. (105.00kg)	$C \leq 231.49\text{lbs. (105.00kg)}$

When the total refrigerant amount exceeds the limitations.

- Reduce pipe length for refrigerant system.
- Change the refrigerant system configuration.

2-6. EXAMPLE OF PIPING DESIGN

REFRIGERANT SYSTEM 1



System configuration (Indoor units)

Indoor units	1	2	3	4	5	6	7	8	9	Total Capacity (kBTu/h)
Model name	AUUB30	AUUB30	AUUB30	AUUB30	AUUA24	AUUA24	AUUA24	AUUA18	AUUA18	228.0
Capacity (kBTu/h)	30.0	30.0	30.0	30.0	24.0	24.0	24.0	18.0	18.0	

System configuration (Outdoor units)

	Outdoor unit 1 (Master)	Outdoor unit 2 (Slave1)	Total Capacity
Model name	AOUA120	AOUA96	18Ton
Capacity (kBTu/h)	120.0	96.0	216.0 (kBTu/h)

Capacity ratio

$$\begin{aligned} & \text{(Total indoor unit capacity) / (Total outdoor unit capacity)} \\ & = (228.0) / (216.0) = 105.6\% \text{ (Within 50\% to 150\%)} \end{aligned}$$

● Selection of branch kit

Branch kit No.	Total cooling capacity of downstream indoor units (kBtu/h)	Model
DX1	-	UTP-DX567A
BX1	228.0	UTP-BX567A
BX2	198.0	UTP-BX567A
AX1	90.0	UTP-AX090A
AX2	60.0	UTP-AX090A
AX3	36.0	UTP-AX090A



Model	Q'ty
UTP-DX567A	1
UTP-BX567A	2
UTP-AX090A	3

● Selection of RB unit

RB unit No.	Total cooling capacity of downstream indoor units (kBtu/h)	Model	
RB1	30.0	UTP-RU01BH	
RB2	90.0	UTP-RU01CH	
RB3	24.0	108.0 (Total)	UTP-RU04BH
	24.0		
	24.0		
	36.0		



Model	Q'ty
UTP-RU01BH	1
UTP-RU01CH	1
UTP-RU04BH	1

● Selection of pipe size

1) 3pipes

	3a	3b	3c	3d	3e	3f	3g	
Liquid pipe in. (mm)	1/2 (12.70)	1/2 (12.70)	5/8 (15.88)	5/8 (15.88)	1/2 (12.70)	3/8 (9.52)	1/2 (12.70)	
Discharge gas pipe in. (mm)	3/4 (19.05)	3/4 (19.05)	1-1/8 (28.58)	1-1/8 (28.58)	3/4 (19.05)	1/2 (12.70)	3/4 (19.05)	
Suction gas pipe in. (mm)	1-1/8 (28.58)	7/8 (22.22)	1-3/8 (34.92)	1-3/8 (34.92)	1-1/8 (28.58)	5/8 (15.88)	7/8 (22.22)	
Length ft. (m)	6	6	164	33	66	16	16	
Example	(2)	(2)	(50)	(10)	(20)	(5)	(5)	

2) 2pipes

	2a	2b	2c	2d	2e	2f	2g	2h	2i	2j
Liquid pipe in. (mm)	3/8 (9.52)	1/2 (12.70)	1/2 (12.70)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)
Gas pipe in. (mm)	5/8 (15.88)	7/8 (22.22)	7/8 (22.22)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)
Length ft. (m)	16	16	16	16	16	26	16	16	22	26
Example	(5)	(5)	(5)	(5)	(5)	(8)	(5)	(5)	(7)	(8)
	2k	2l								
Liquid pipe in. (mm)	3/8 (9.52)	3/8 (9.52)								
Gas pipe in. (mm)	5/8 (15.88)	5/8 (15.88)								
Length ft. (m)	16	26								
Example	(5)	(8)								

● **Calculation of additional charge refrigerant**

1. Calculation of additional amount for outdoor unit

	Model	Additional amount for outdoor unit lbs.(kg)
Outdoor unit1	AOUA120	14.99 (6.80)
Outdoor unit2	AOUA96	6.61 (3.00)

A = 14.99 + 6.61 = 21.60 (lbs.)
[6.80 + 3.00 = 9.80 (kg)]

2. Calculation of additional amount for pipe length

Liquid pipe size	3/4 (19.05)	5/8 (15.88)	1/2 (12.70)	3/8 (9.52)	1/4 (6.35)
Additional refrigerant lbs./ft. (kg/m)	0.180 (0.268)	0.120 (0.178)	0.077 (0.114)	0.039 (0.058)	0.014 (0.021)
Liquid pipe length ft. (m)	0	197 (60)	128 (39)	217 (66)	0

B = (0.120 x 197) + (0.077 x 128) + (0.039 x 217) = 41.96 (lbs.)
[(0.178 x 60) + (0.114 x 39) + (0.058 x 66) = 18.95 (kg)]

3. Calculation of additional charge refrigerant

C = A + B = 21.60 + 41.96 = 63.56 (lbs.)
[9.80 + 18.95 = 28.75 (kg)]

4. Calculation of factory charged amount

	Model	Factory charged amount lbs.(kg)
Outdoor unit1	AOUA120	26.01 (11.80)
Outdoor unit2	AOUA96	26.01 (11.80)

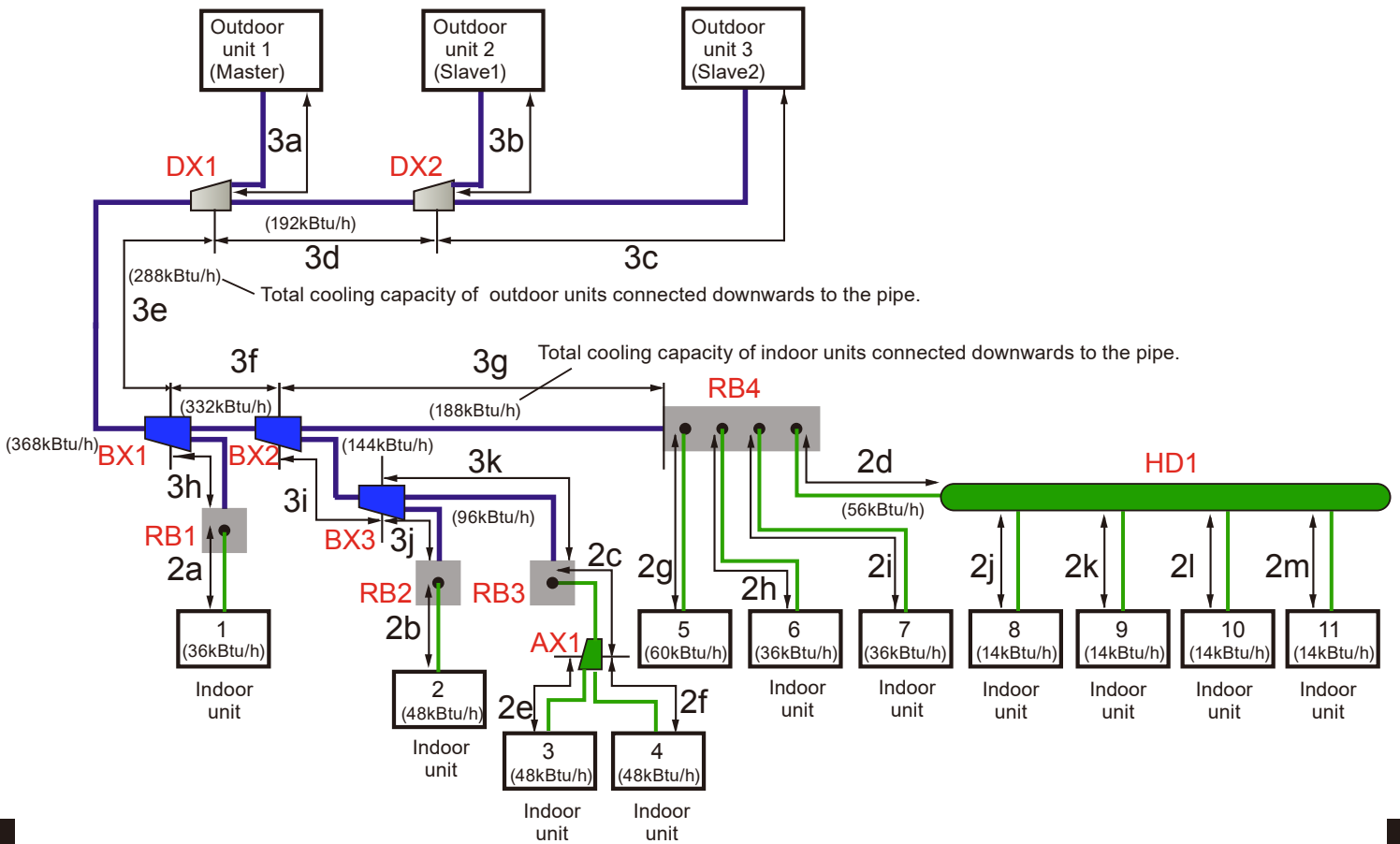
D = 26.01 + 26.01 = 52.02 (lbs.)
[11.80 + 11.80 = 23.60 (kg)]

5. Total refrigerant amount check

E = C + D = 63.56 + 52.02 = 115.58 (lbs.) < 231.49 (lbs.) → OK
[28.75 + 23.60 = 52.35 (kg) < 105.00 (kg) → OK]

Check pipe length and height difference between units by comparing with items shown in "2-2. LIMITATION".

REFRIGERANT SYSTEM 2



System configuration (Indoor units)

Indoor units	1	2	3	4	5	6	7	8	9	10	11	Total Capacity (kW)
Model name	AUUB36	ARUH48	ARUH48	ARUH48	ARUH60	AUUB36	AUUB36	AUUA14	AUUA14	AUUA14	AUUA14	368.0
Capacity (kBTu/h)	36.0	48.0	48.0	48.0	60.0	36.0	36.0	14.0	14.0	14.0	14.0	

System configuration (Outdoor units)

	Outdoor unit 1 (Master)	Outdoor unit 2 (Slave1)	Outdoor unit 3 (Slave2)	Total Capacity
Model name	AOUA96	AOUA96	AOUA96	24Ton
Capacity (kBTu/h)	96.0	96.0	96.0	288.0 (kBTu/h)

Capacity ratio

$$\text{Capacity ratio} = \frac{\text{Total indoor unit capacity}}{\text{Total outdoor unit capacity}}$$

$$= \frac{368.0}{288.0} = 127.8\% \text{ (Within 50\% to 150\%)}$$

● Selection of branch kit

Branch kit No.	Total cooling capacity of downstream indoor units (kBtu/h)	Model
DX1	-	UTP-DX567A
DX2	-	UTP-DX567A
BX1	368.0	UTP-BX567A
BX2	332.0	UTP-BX567A
BX3	144.0	UTP-BX180A
AX1	96.0	UTP-AX090A
HD1	56.0	UTR-H0906L



Model	Q'ty
UTP-DX567A	2
UTP-BX567A	2
UTP-BX180A	1
UTP-AX090A	1
UTR-H0906L	1

● Selection of RB unit

RB unit No.	Total cooling capacity of downstream indoor units (kBtu/h)	Model	
RB1	36.0	UTP-RU01BH	
RB2	48.0	UTP-RU01BH	
RB3	96.0	UTP-RU01CH	
RB4	60.0	188.0 (Total)	UTP-RU04BH
	36.0		
	36.0		
	56.0		



Model	Q'ty
UTP-RU01BH	2
UTP-RU01CH	1
UTP-RU04BH	1

● Selection of pipe size

1) 3pipes

	3a	3b	3c	3d	3e	3f	3g	3h	3i	3j	3k
Liquid pipe in. (mm)	1/2 (12.70)	1/2 (12.70)	1/2 (12.70)	5/8 (15.88)	3/4 (19.05)	3/4 (19.05)	5/8 (15.88)	3/8 (9.52)	1/2 (12.70)	3/8 (9.52)	1/2 (12.70)
Discharge gas pipe in. (mm)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	7/8 (22.22)	1-1/8 (28.58)	1-1/8 (28.58)	7/8 (22.22)	1/2 (12.70)	3/4 (19.05)	1/2 (12.70)	3/4 (19.05)
Suction gas pipe in. (mm)	7/8 (22.22)	7/8 (22.22)	7/8 (22.22)	1-1/8 (28.58)	1-3/8 (34.92)	1-5/8 (41.27) → 1-3/8 ^(*) (34.92)	1-1/8 (28.58)	3/4 (19.05)	1-1/8 (28.58)	3/4 (19.05)	7/8 (22.22)
Length ft. (m) Example	6 (2)	6 (2)	6 (2)	6 (2)	164 (50)	33 (10)	132 (40)	10 (3)	10 (3)	10 (3)	16 (5)

*1: Pipe size "3f" selection : Even though this pipe size might be selected based on downstream cooling capacity (332.0kBtu/h), This pipe size should not be larger than pipe size "3e". Therefore select pipe size equal to pipe size "3e".

2) 2pipes

	2a	2b	2c	2d	2e	2f	2g	2h	2i	2j
Liquid pipe in. (mm)	3/8 (9.52)	3/8 (9.52)	1/2 (12.70)	1/2 (12.70)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	1/4 (6.35)
Gas pipe in. (mm)	3/4 (19.05)	3/4 (19.05)	7/8 (22.22)	7/8 (22.22)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	1/2 (12.70)
Length ft. (m) Example	23 (7)	16 (5)	10 (3)	16 (5)	16 (5)	16 (5)	16 (5)	23 (7)	27 (8)	16 (5)
	2k	2l	2m							
Liquid pipe in. (mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)							
Gas pipe in. (mm)	1/2 (12.70)	1/2 (12.70)	1/2 (12.70)							
Length ft. (m) Example	16 (5)	16 (5)	16 (5)							

● **Calculation of additional charge refrigerant**

1. Calculation of additional amount for outdoor unit

	Model	Additional amount for outdoor unit lbs.(kg)
Outdoor unit1	AOUA96	6.61 (3.00)
Outdoor unit2	AOUA96	6.61 (3.00)
Outdoor unit3	AOUA96	6.61 (3.00)

A = 6.61 + 6.61 + 6.61 = 19.83 (lbs.)
[3.00 + 3.00 + 3.00 = 9.00 (kg)]

2. Calculation of additional amount for pipe length

Liquid pipe size	3/4 (19.05)	5/8 (15.88)	1/2 (12.70)	3/8 (9.52)	1/4 (6.35)
Additional refrigerant lbs./ft. (kg/m)	0.180 (0.268)	0.120 (0.178)	0.077 (0.114)	0.039 (0.058)	0.014 (0.021)
Liquid pipe length ft. (m)	197 (60)	138 (42)	73 (22)	158 (48)	66 (20)

B = (0.180 x 197) + (0.120 x 138) + (0.077 x 73) + (0.039 x 158) + (0.014 x 66) = 64.53 (lbs.)
[(0.268 x 60) + (0.178 x 42) + (0.114 x 22) + (0.058 x 48) + (0.021 x 20) = 29.27 (kg)]

3. Calculation of additional charge refrigerant

C = A + B = 19.83 + 64.53 = 84.36 (lbs.)
[9.00 + 29.27 = 38.27 (kg)]

4. Calculation of factory charged amount

	Model	Factory charged amount (kg) lbs.(kg)
Outdoor unit1	AOUA96	26.01 (11.80)
Outdoor unit2	AOUA96	26.01 (11.80)
Outdoor unit3	AOUA96	26.01 (11.80)

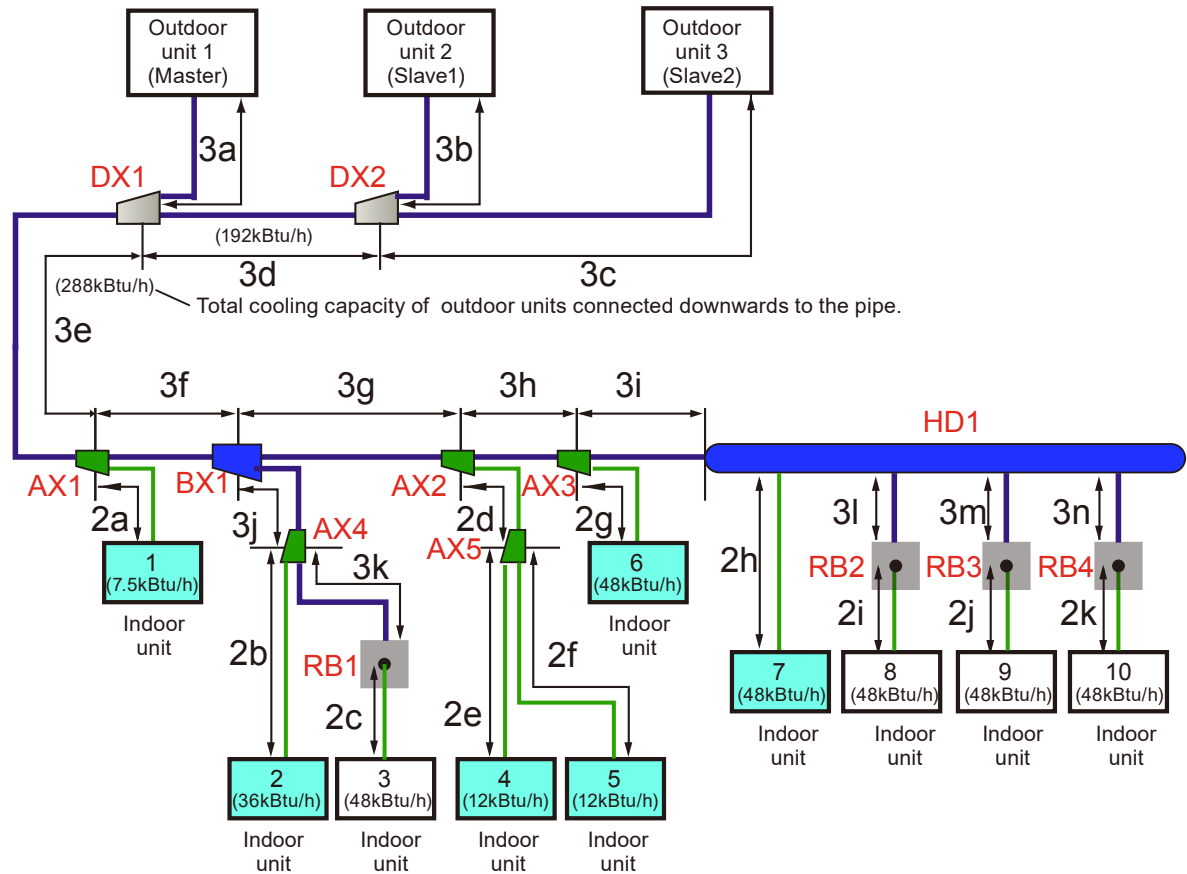
D = 26.01 + 26.01 + 26.01 = 78.03 (lbs.)
[11.80 + 11.80 + 11.80 = 35.40 (kg)]

5. Total refrigerant amount check

E = C + D = 84.36 + 78.03 = 162.39 (lbs.) < 231.49 (lbs.) → OK
[38.27 + 35.40 = 73.67 (kg) < 105.00 (kg) → OK]

Check pipe length and height difference between units by comparing with items shown in "2-2. LIMITATION".

REFRIGERANT SYSTEM 3 (Cooling only type is mixed)



System configuration (Indoor units)

Indoor units	1	2	3	4	5	6	7	8	9	10	Total Capacity (kW)
Model name	AUUA7	AUUB36	ARUH48	AUUA12	AUUA12	ARUH48	ARUH48	ARUH48	ARUH48	ARUH48	355.5
Capacity (k Btu/h)	7.5	36.0	48.0	12.0	12.0	48.0	48.0	48.0	48.0	48.0	
type	Cooling only	Cooling only	Heat pump	Cooling only	Cooling only	Cooling only	Cooling only	Heat pump	Heat pump	Heat pump	

System configuration (Outdoor units)

	Outdoor unit 1 (Master)	Outdoor unit 2 (Slave1)	Outdoor unit 3 (Slave2)	Total Capacity
Model name	AQUA96	AQUA96	AQUA96	24Ton
Capacity (k Btu/h)	96.0	96.0	96.0	288.0 (k Btu/h)

Capacity ratio

- (Total indoor unit capacity) / (Total outdoor unit capacity)

$$= (355.5) / (288.0) = 123.4\% \text{ (Within 50\% to 150\%)}$$

- (Total indoor unit capacity of cooling only) / (Total indoor unit capacity)

$$= (163.5) / (355.5) = 46.0\% \text{ (Less than 50\%)}$$

- Total cooling capacity of indoor units connected downwards to the pipe

Pipe No.	3f	3g	3h	3i	3j
Total of all indoor units	348.0	264.0	240.0	192.0	84.0
Total of Heat pump	192.0	144.0	144.0	144.0	48.0
Total of cooling only	156.0	120.0	96.0	48.0	36.0

● Selection of branch kit

Branch kit No.	Total cooling capacity of downstream indoor units (kBtu/h)	Model
DX1	-	UTP-DX567A
DX2	-	UTP-DX567A
BX1	348.0	UTP-BX567A
AX1	355.5	UTP-AX567A
AX2	264.0	UTP-AX567A
AX3	240.0	UTP-AX567A
AX4	84.0	UTP-AX090A
AX5	24.0	UTP-AX090A
HD1	192.0	UTP-J1806A



Model	Q'ty
UTP-DX567A	2
UTP-BX567A	1
UTP-AX567A	3
UTP-AX090A	2
UTP-J1806A	1

● Selection of RB unit

RB unit No.	Total cooling capacity of downstream indoor units (kBtu/h)	Model
RB1	48.0	UTP-RU01BH
RB2	48.0	UTP-RU01BH
RB3	48.0	UTP-RU01BH
RB4	48.0	UTP-RU01BH



Model	Q'ty
UTP-RU01BH	4

● Selection of pipe size

1) 3pipes

	3a	3b	3c	3d	3e	3f	3g	3h	3i	3j
Liquid pipe in. (mm)	1/2 (12.70)	1/2 (12.70)	1/2 (12.70)	5/8 (15.88)	3/4 (19.05)	3/4 (19.05)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	1/2 (12.70)
Discharge gas pipe in. (mm)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	7/8 (22.22)	1-1/8 (28.58) → 7/8 ⁽²⁾ (22.22)	1-1/8 (28.58) → 7/8 ⁽²⁾ (22.22)	1-1/8 (28.58) → 3/4 ⁽²⁾ (19.05)	1-1/8 (28.58) → 3/4 ⁽²⁾ (19.05)	7/8 (22.22) → 3/4 ⁽²⁾ (19.05)	3/4 (19.05) → 1/2 ⁽²⁾ (12.70)
Suction gas pipe in. (mm)	7/8 (22.22)	7/8 (22.22)	7/8 (22.22)	1-1/8 (28.58)	1-3/8 (34.92)	1-5/8 (41.27) → 1-3/8 ⁽¹⁾ (34.92)	1-3/8 (34.92)	1-3/8 (34.92)	1-1/8 (28.58)	7/8 (22.22)
Length ft. (m)	6 (2)	6 (2)	6 (2)	6 (2)	164 (50)	33 (10)	33 (10)	16 (5)	16 (5)	16 (5)
Example	(2)	(2)	(2)	(2)	(50)	(10)	(10)	(5)	(5)	(5)
	3k	3l	3m	3n						
Liquid pipe in. (mm)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)						
Discharge gas pipe in. (mm)	1/2 (12.70)	1/2 (12.70)	1/2 (12.70)	1/2 (12.70)						
Suction gas pipe in. (mm)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)						
Length ft. (m)	10 (3)	10 (3)	10 (3)	10 (3)						
Example	(3)	(3)	(3)	(3)						

*1: Pipe size "3f" selection : Even though this pipe size might be selected based on downstream cooling capacity (348.0kBtu/h), This pipe size should not be larger than pipe size "3e". Therefore select pipe size equal to pipe size "3e".

*2: Discharge gas pipe size selection :

①When indoor unit of cooling only type is connected, it calculates with the value except capacity of cooling only type. (except pipe size "3e")

②Pipe diameter, in case of discharge gas pipe is not separated, is different between pipes which come from outdoor unit side and connected to RB unit, Thinner piping diameter should be selected.

2) 2pipes

	2a	2b	2c	2d	2e	2f	2g	2h	2i	2j	2k
Liquid pipe in. (mm)	1/4 (6.35)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	1/4 (6.35)	1/4 (6.35)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)
Gas pipe in. (mm)	1/2 (12.70)	3/4 (19.05)	3/4 (19.05)	5/8 (15.88)	1/2 (12.70)	1/2 (12.70)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)
Length ft. (m) Example	33 (10)	27 (8)	16 (5)	16 (5)	27 (8)	27 (8)	33 (10)	33 (10)	16 (5)	16 (5)	16 (5)

● Calculation of additional charge refrigerant

1. Calculation of additional amount for outdoor unit

	Model	Additional amount for outdoor unit lbs.(kg)
Outdoor unit1	AOUA96	6.61 (3.00)
Outdoor unit2	AOUA96	6.61 (3.00)
Outdoor unit3	AOUA96	6.61 (3.00)

$$A = 6.61 + 6.61 + 6.61 = 19.83 \text{ (lbs.)}$$

$$[3.00 + 3.00 + 3.00 = 9.00 \text{ (kg)}]$$

2. Calculation of additional amount for pipe length

Liquid pipe size	3/4 (19.05)	5/8 (15.88)	1/2 (12.70)	3/8 (9.52)	1/4 (6.35)
Additional refrigerant lbs./ft. (kg/m)	0.180 (0.268)	0.120 (0.178)	0.077 (0.114)	0.039 (0.058)	0.014 (0.021)
Liquid pipe length ft. (m)	197 (60)	73 (22)	37 (11)	214 (65)	86 (26)

$$B = (0.180 \times 197) + (0.120 \times 73) + (0.077 \times 37) + (0.039 \times 214) + (0.014 \times 86) = 56.37 \text{ (lbs.)}$$

$$[(0.268 \times 60) + (0.178 \times 22) + (0.114 \times 11) + (0.058 \times 65) + (0.021 \times 26) = 25.57 \text{ (kg)}]$$

3. Calculation of additional charge refrigerant

$$C = A + B = 19.83 + 56.37 = 76.20 \text{ (lbs.)}$$

$$[9.00 + 25.57 = 34.57 \text{ (kg)}]$$

4. Calculation of factory charged amount

	Model	Factory charged amount (kg) lbs.(kg)
Outdoor unit1	AOUA96	26.01 (11.80)
Outdoor unit2	AOUA96	26.01 (11.80)
Outdoor unit3	AOUA96	26.01 (11.80)

$$D = 26.01 + 26.01 + 26.01 = 78.03 \text{ (lbs.)}$$

$$[11.80 + 11.80 + 11.80 = 35.40 \text{ (kg)}]$$

5. Total refrigerant amount check

$$E = C + D = 76.20 + 78.03 = 154.23 \text{ (lbs.)} < 231.49 \text{ (lbs.)} \rightarrow \text{OK}$$

$$[34.57 + 35.40 = 69.97 \text{ (kg)} < 105.00 \text{ (kg)} \rightarrow \text{OK}]$$

Check pipe length and height difference between units by comparing with items shown in "2-2. LIMITATION".

3. PIPING CONNECTION

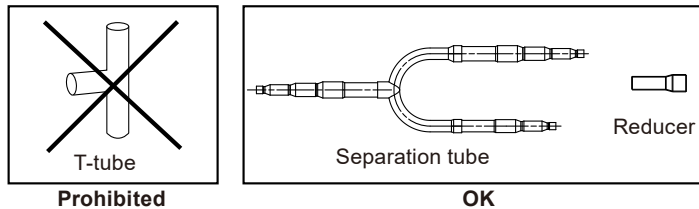
3-1. PIPING PRECAUTIONS

■ CAUTION

Stay within all piping limitations to prevent system damage or malfunction.

● Piping material

- Use the designated size (Diameter & thickness) of refrigerant pipes.
- Those pipes purchased locally may contain dust inside. Use dry nitrogen to blow out any duct.
- Do not use standard pipe Tees for branches , these can cause uneven refrigerant flow to the indoor units. Fujitsu branch kits should be used instead.



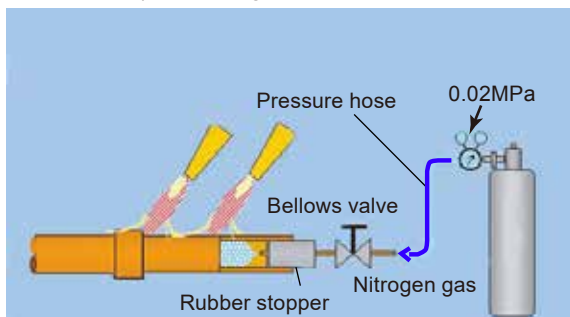
- Never reuse refrigerant pipe. Only new pipe should be used.

● Pipe Preparation and Installation

- Make sure that no dust or water enters the pipe during preparation or installation.
- When installing the pipe make as few bends as possible and make radiuses as large as possible.
- Cut the branch kit at the right size or use the reducer to match the pipe to the branch kit.

● Brazing

- While Brazing the pipes, be sure to blow dry nitrogen gas through them.
- If nitrogen gas is not blown through the pipes while they are being brazed, an oxidized layer may form on the inside of the pipes. If this occurs, the cooling efficiency may decrease and the air conditioner unit (compressor, valves, etc.) be damaged.



- When brazing the pipes, do not use flux. If the flux is chlorine-based, the pipes will corrode and when the flux contains fluorine, the refrigerant oil will deteriorate, etc. Using the flux has an adverse affect on the refrigerant piping system.
- For brazing materials, use phosphor copper solder that does not require flux.

● Piping treatment

- The pipes vibrate, expand, and contract during operation, so if loads are concentrated in one area, it could cause cracks in the pipes. Provide the pipe supports every 6ft.6-3/4in to 9ft.10-1/8in. (2 to 3m)
- Make sure to insulate both refrigerant lines separately with the appropriately sized insulation as described earlier. Make sure to overlap the ends to prevent any gaps.

■ CAUTION

● Brazing

While brazing the pipe, be sure to blow dry nitrogen gas through the pipes.

If not used, it will cause damage to the compressor and clog the strainer and electronic expansion valve.

Example) Inside of brazed pipe

Nitrogen gas used



Nitrogen gas used but not sufficient
(Oxygen gas still inside the pipe)



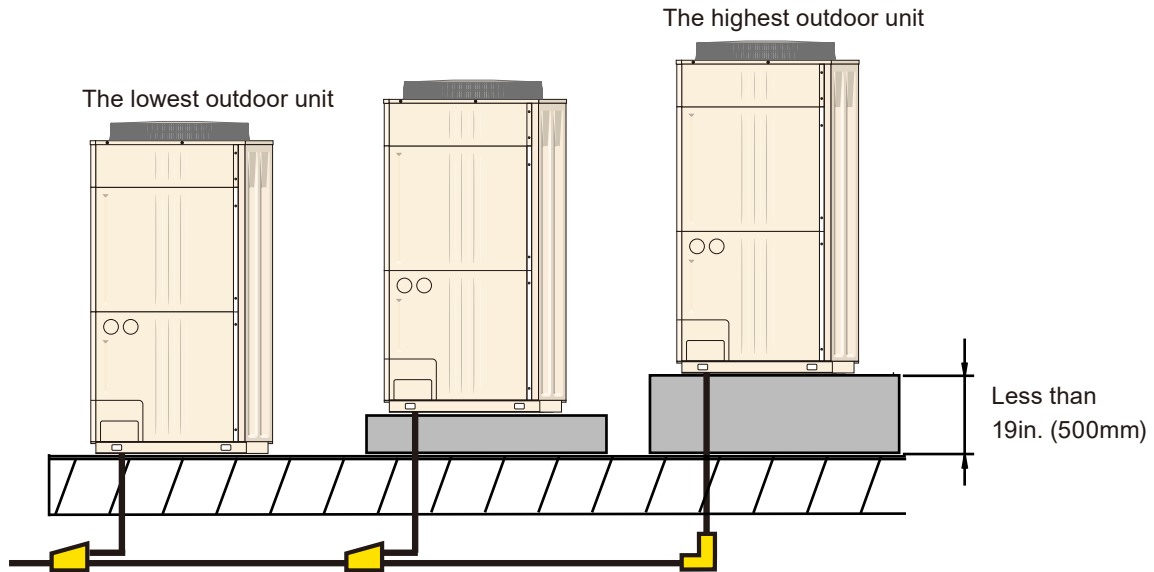
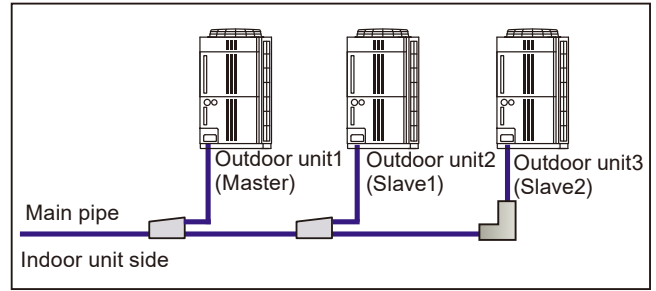
Nitrogen gas does not used



3-2. PIPING TO OUTDOOR UNIT

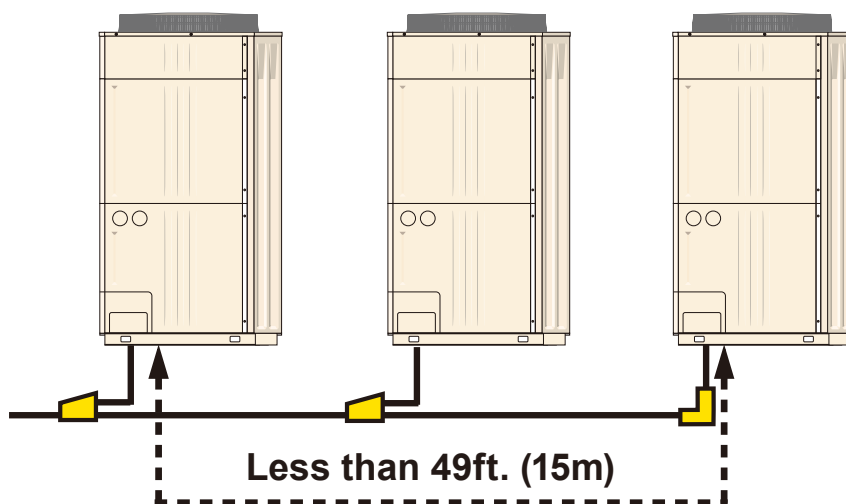
OUTDOOR UNIT POSITION

- When installing outdoor units, make the master unit closest to the main pipe.
- Select outdoor unit capacity in the order :
Outdoor unit1 ≥ Outdoor unit2 ≥ Outdoor unit3
(Master) (Slave 1) (Slave 2)
- When connecting Master unit with Slave unit(s), install them as close as possible.
- Select mounting positions of the master and slave units that stay within the piping limitations.



The height difference between the lowest and the highest outdoor unit in the same refrigerant system ≤ 19in. (500mm)

* Install the branch kit horizontally.



The maximum pipe length between master unit and the furthest slave unit ≤ 49ft. (15m)

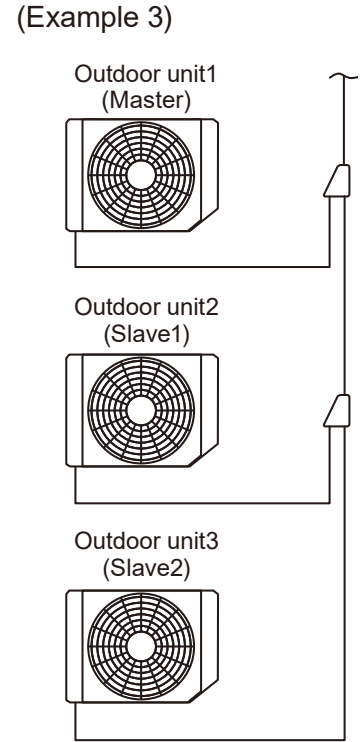
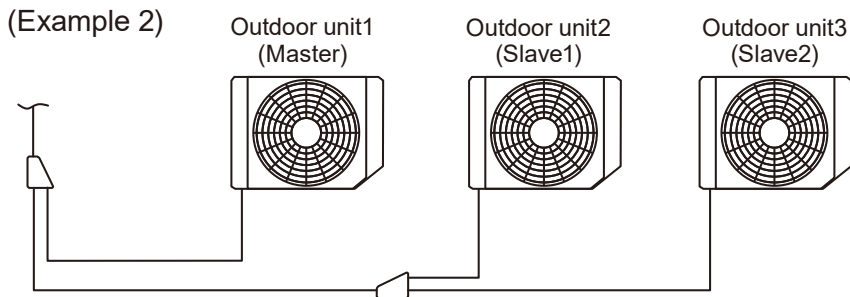
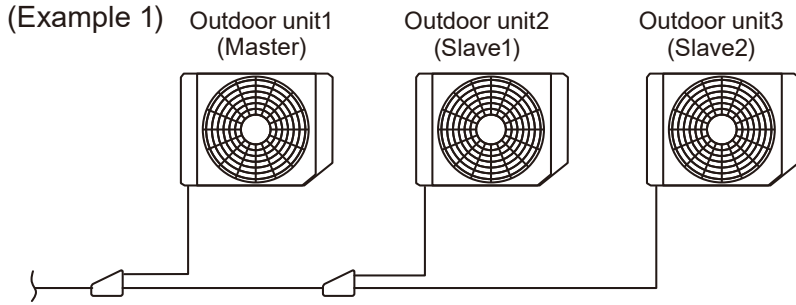
* Install the branch kit horizontally.

* Mount the outdoor unit with enough space to install the piping and service and maintain the unit.

OUTDOOR UNIT PIPING DIRECTION

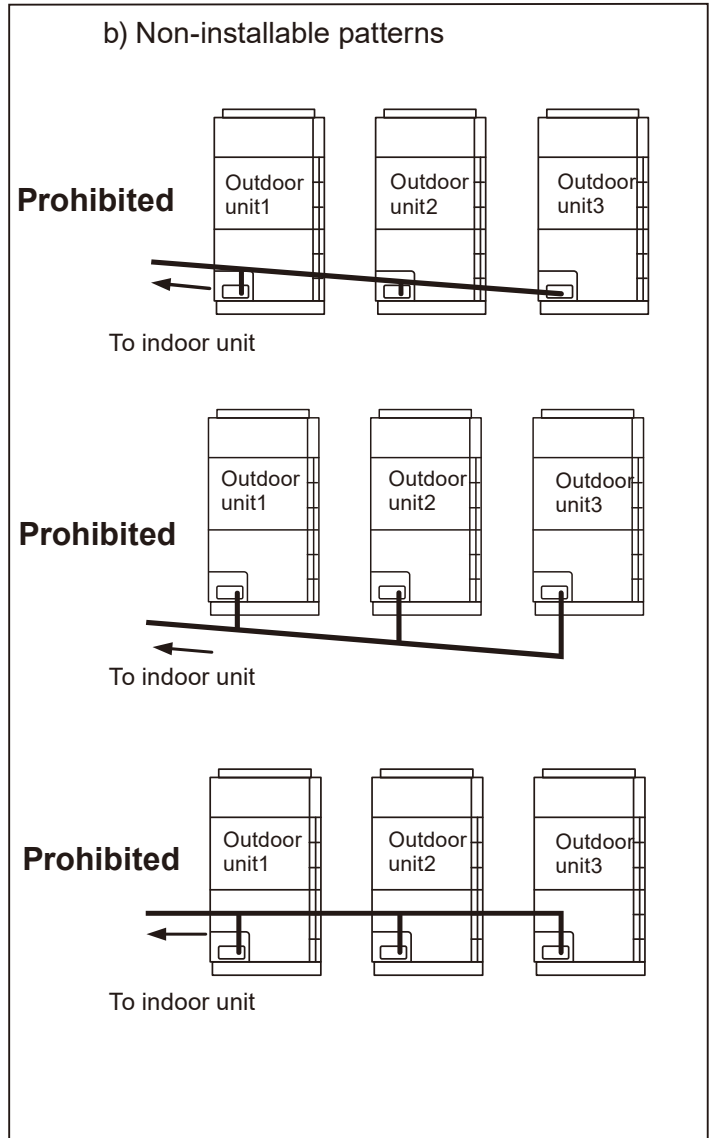
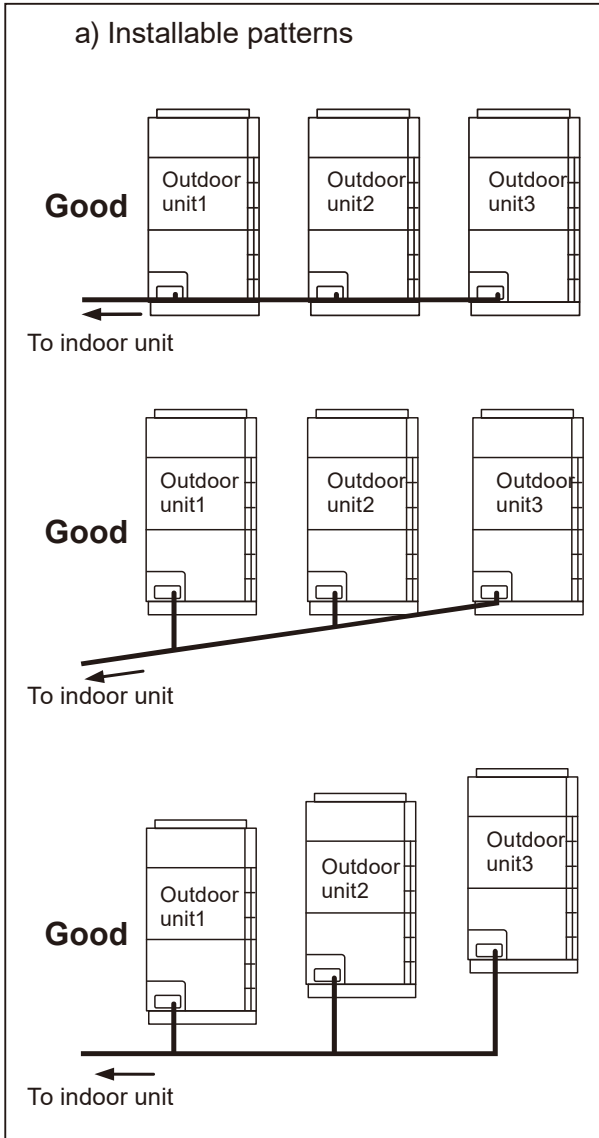
Piping pattern

Use the optional branch kit for multiple outdoor unit connection.



● Main pipe connection

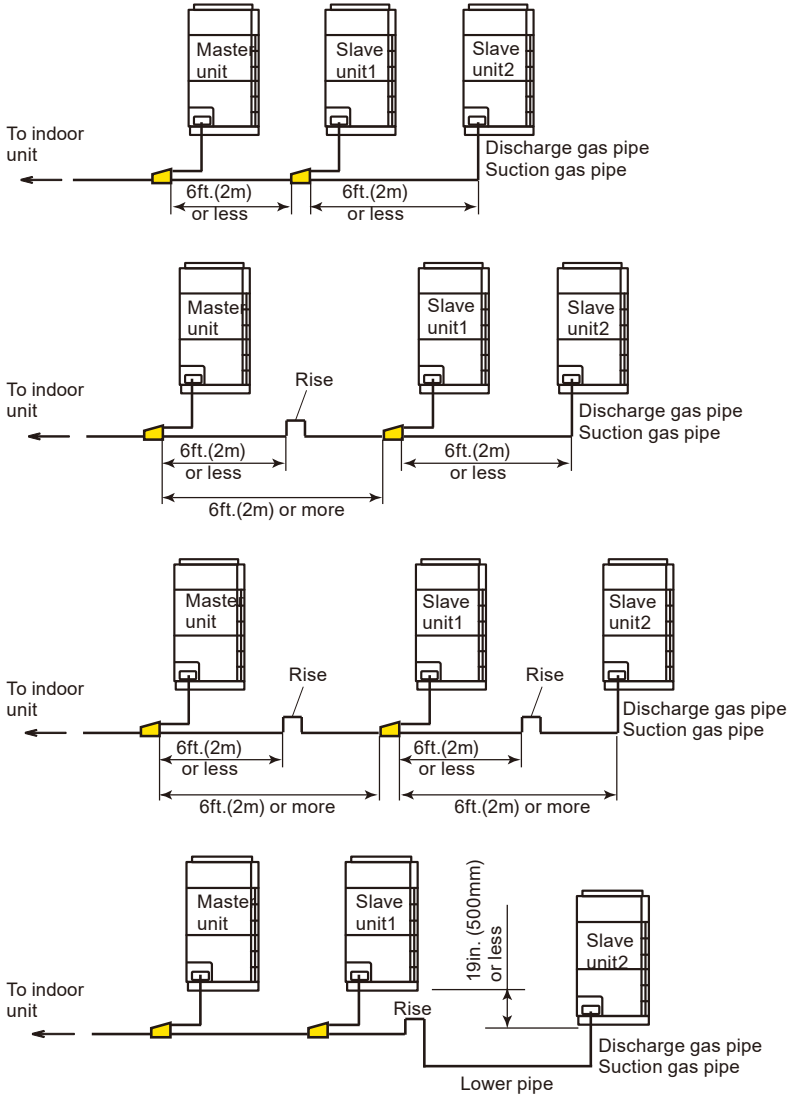
Make sure to arrange the pipe horizontally or upward as shown in the following to prevent oil from accumulating into stopped outdoor unit.



Note: If the pipe length between outdoor unit branch kit and outdoor unit branch kit (or slave unit) is longer than 6ft. (2m), or a lower pipe line exists between outdoor units, rise for gas pipe (Discharge gas pipe and Suction gas pipe) should be arranged to eliminate oil from entering into and remaining at pipes and the stopped outdoor unit.

However, there is no need to provide a rise on the pipe connecting between the master unit and the indoor unit even if the length exceeds 6ft. (2m).

Example



Rise height : 7-7/8in. (200mm) or more

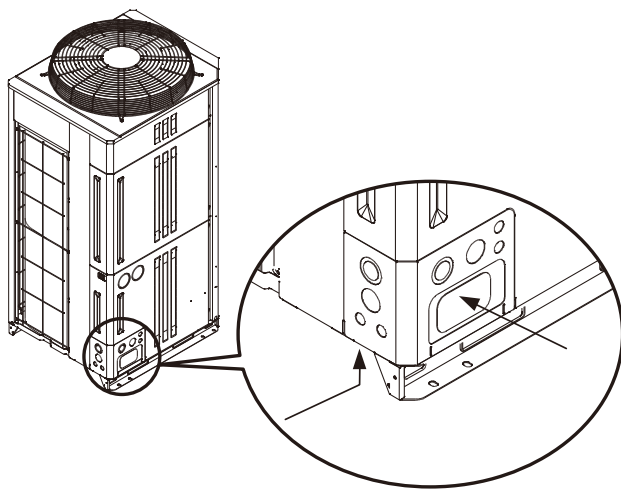
■ PIPING METHOD

● Knockout

⚠ CAUTION

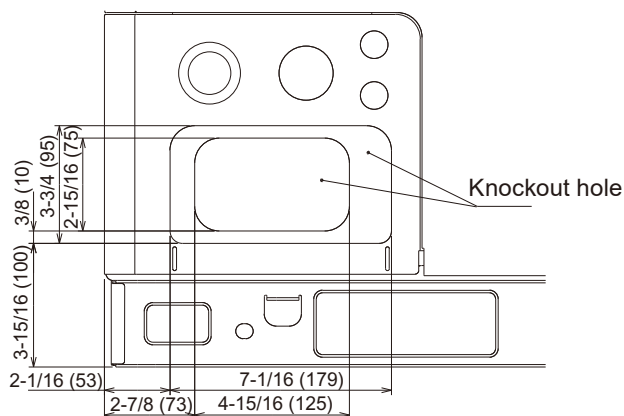
- Be careful not to damage the panel while removing the knockout.
- Remove all burrs from whole to prevent damage to the wiring. In addition, paint the exposed metal of to prevent rusting.

- The piping can be connected from two directions; the front or the bottom. (Knockout holes are provided so that the piping can be connected from two different directions.)
- Use the front knockout hole, as required.

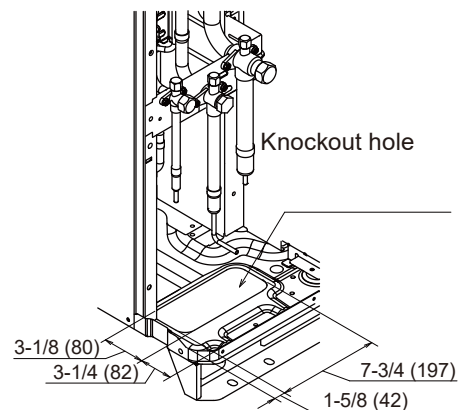


Knockout position

Unit : in. (mm)



Detail of knockout position (front)



Detail of knockout position (bottom)

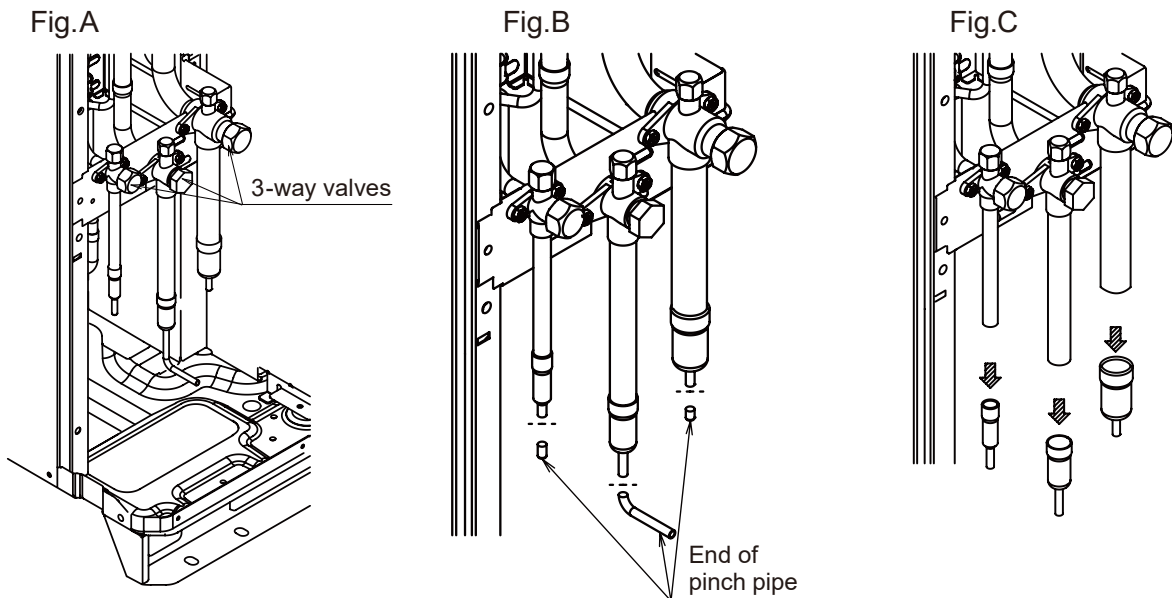
● Removing the pinch pipe

⚠ WARNING

- Remove the pinch pipe only when the internal gas is completely drained as shown on the below instructions.
- If gas still remains inside, the piping may crack if you melt the brazing filler metal of the junction area with a burner.

Before connecting the piping, remove the pinch pipe in accordance with the following instructions:

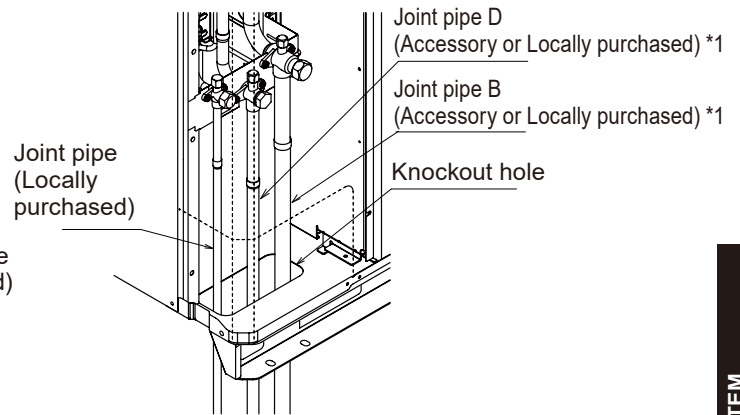
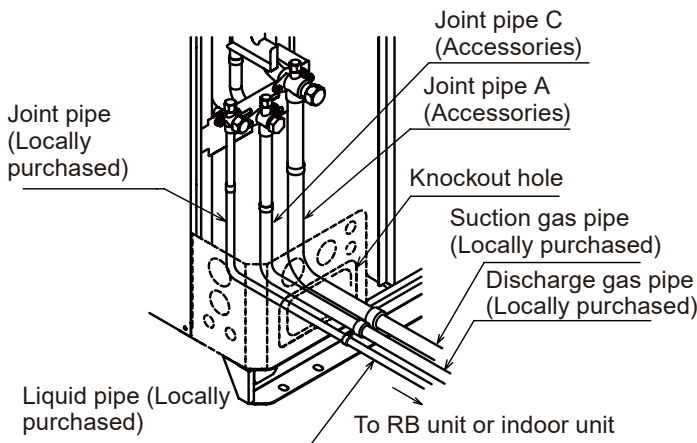
- 1) Verify that the liquid side , suction gas side and discharge gas side 3-way valves are closed. (Fig. A)
- 2) Cut the end of the liquid side , suction gas side and discharge gas side pinch pipe and vent the gas inside the pinch pipe. (Fig. B)
- 3) After all the gas is vented, melt the brazing filler metal on connecting part using a torch and remove the pinch pipe. (Fig. C)



● Pipe connection

⚠ CAUTION

- Seal the pipe route hole with putty (locally purchased) such that there are no gaps. Small insects or animals that are trapped in the outdoor unit may cause a short circuit in the electrical component box.
 - To prevent pipe damage; do not make sharp bends. Bend the pipe at a radius of 2-3/4in. (70mm) or greater.
 - Do not bent pipe many times at same part to prevent break.
 - After completing all the pipe connection by brazing, perform the indoor unit pipe connection with a flare joint.
 - When removing the pinch pipe or brazing the joint pipe, carry out the work while cooling down the 3-way valve sufficiently.
- Braze the joint pipe onto the 3-way valves at the liquid , suction gas and discharge gas side. Install the joint pipe appropriately so that it can be connected easily with the main pipe.
 - Braze the joint pipe at the liquid , suction gas and discharge gas side with the main pipe.
- * Be sure to supply nitrogen when brazing.



*1) Locally purchased and accessory depend on the model, so for details, refer to "accessories of outdoor unit".

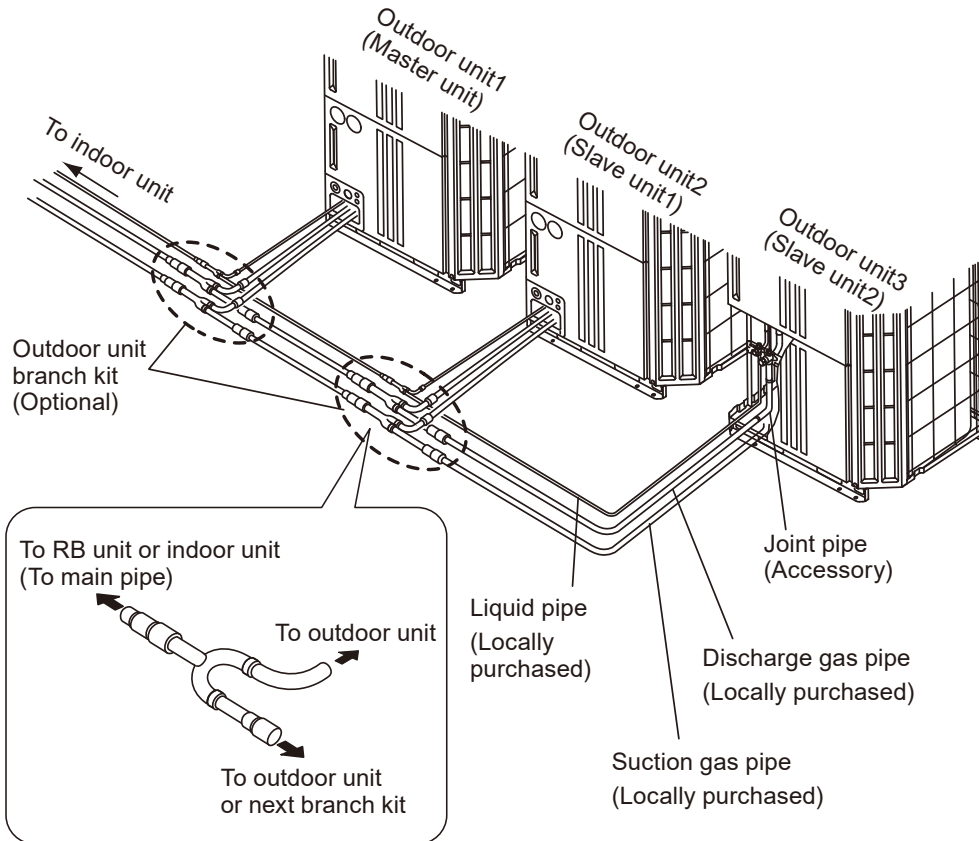
■ BRANCH KIT

Outdoor unit Branch Kit(s) is (are) required for multiple outdoor unit.

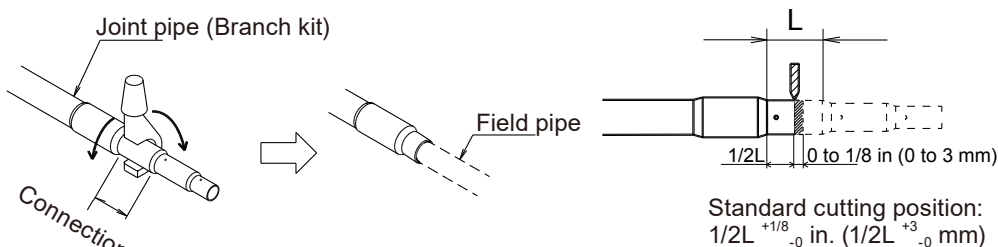
Outdoor unit	Model	Q'ty
2 outdoor units	UTP-DX567A	1
3 outdoor units		2

● Installation

Make sure to connect outdoor unit branch kit in correct direction.

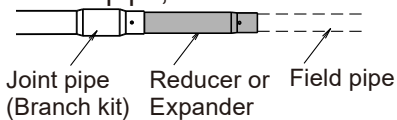


Use the pipe cutter to cut at the location which matches the piping size when the piping size is different.



NOTE: Insert the field pipe firmly until it touches the joint pipe (Branch kit).

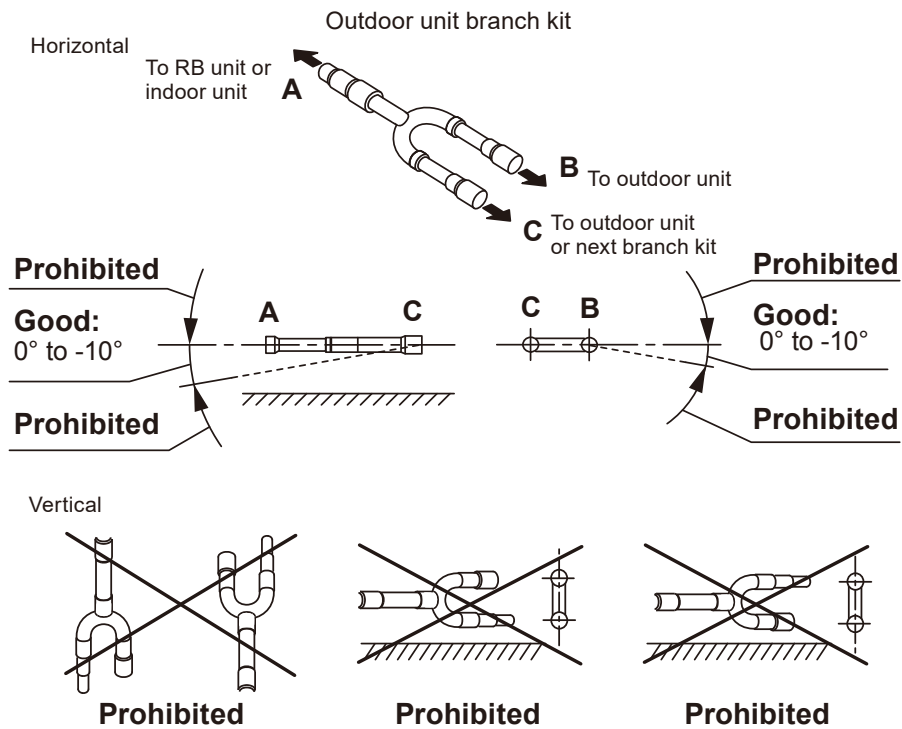
When the pipe size of the branch kit itself does not match, or when piping sizes differ even if it cuts the pipe, use attached Reducer or attached Expander.



● Branch kit restriction when install

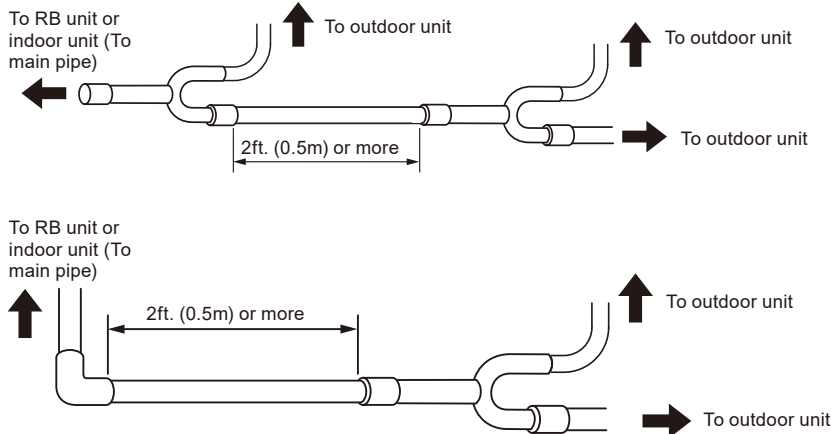
Be sure following restriction.

1) Installation angle



- Install the outdoor unit branch kit horizontally level, within 0° to -10°, so that the refrigerant separates evenly.
- Do not install the outdoor unit branch kit vertically.

2) Straight pipe length



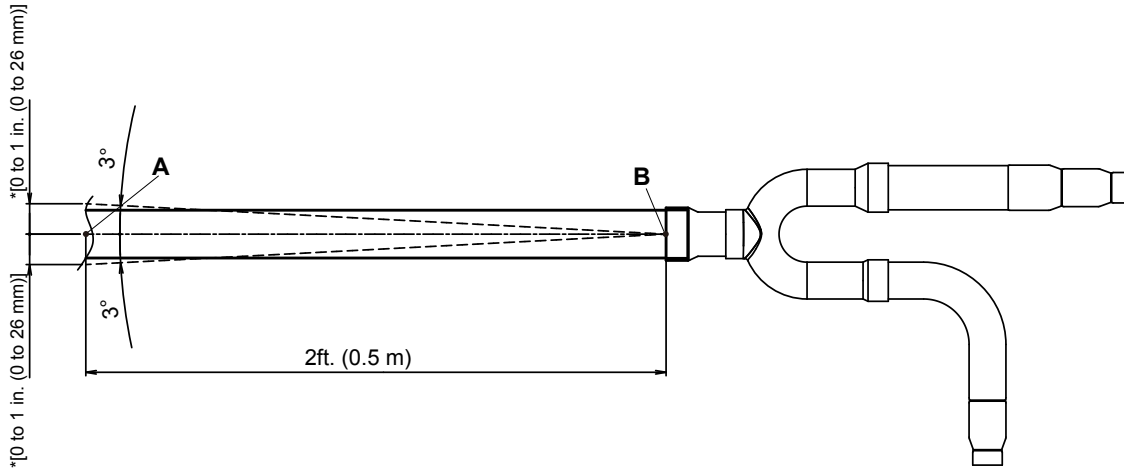
- Leave the distance 2ft. (0.5m) or more for straight part to outdoor unit branch kit.

3) For details, refer to the Installation Instruction Sheet of the outdoor unit branch kit.

CAUTION

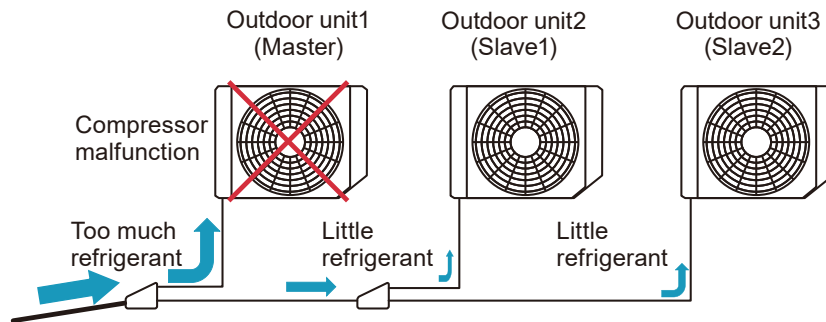
About the connecting curvature of field pipe and branch kit:

The field pipe should be connected to the branch kit so that the curved angle on each side is 3 degree or less.



*: Allowed value based on "A" (center of field pipe) at 2ft. (0.5 m) from "B" (junction of the branch kit).

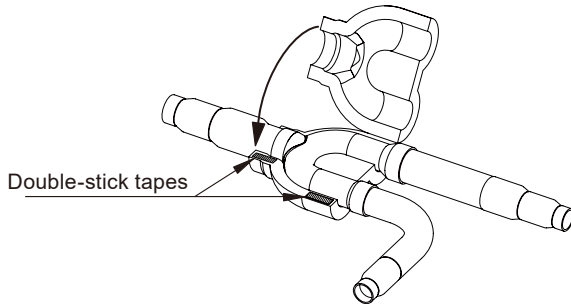
If the field pipe is connected with angle larger than specified, the balance of split refrigerant flow will be lost, and the refrigerant may concentrate upon specific outdoor unit as shown in the following figure. Such unbalanced refrigerant flow may cause a compressor malfunction.



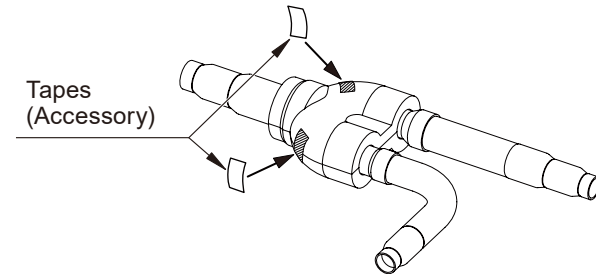
● Heat insulation installation

After brazing the pipes, and leak check use the supplied insulation to insulate them. (on liquid and gas pipes)

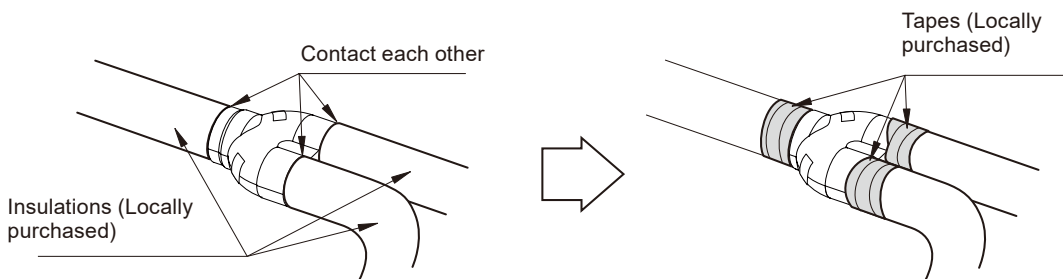
1) Remove the protective sheet from the double-stick tape that is affixed to the heat insulation.



2) Be sure to install the tape (Accessory) in each heat insulation to the 2 positions as shown in the following figure.



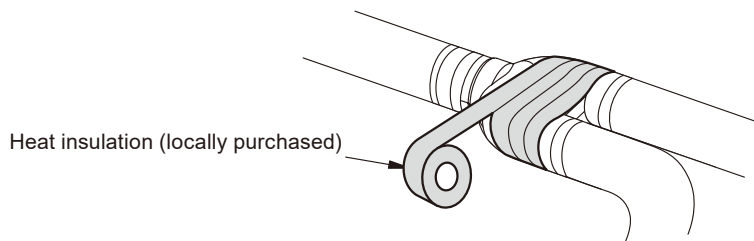
3) Use tape (Locally purchased) to seal the seam so that there will be gap at the junction between the aforementioned heat insulation and the heat insulation on the local piping.



⚠ CAUTION

- Insulate the liquid and gas pipe completely. If not, it may cause the water condensation or performance reduction.
- Wrap the heat insulation with tape or pipe cover in order to extend the life time of heat insulation.
- Take proper measurement to strengthen by using another heat insulation at the following installing environment.
 - (a) Environment temperature $\geq 95^{\circ}\text{F}$ (35°C) and humidity 85%.
 - (b) Environment temperature $\geq 77^{\circ}\text{F}$ (25°C) and humidity 90%.

Installation example



3-3. SEPARATION TUBE

■ INSTALLATION

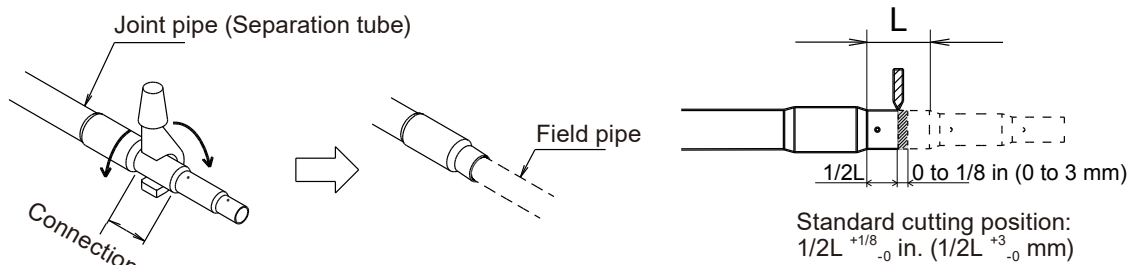
● Separation tube

Total cooling capacity of indoor units (x) (Btu/h)	Separation tube	
$x < 96,500$	UTP-AX090A	UTP-BX090A
$96,500 \leq x < 193,000$	UTP-AX180A	UTP-BX180A
$193,000 \leq x$	UTP-AX567A	UTP-BX567A

96,500 Btu/h and 193,000 Btu/h are the total values for the indoor unit cooling capacity connected downstream.

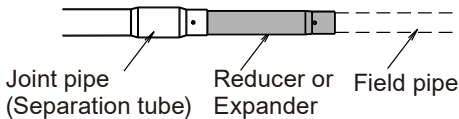
● Installation

Select the connections with the pipe diameters that match the selected pipe sizes from the separation tubes, and cut them with a pipe cutter.



NOTE: Insert the field pipe firmly until it touches the joint pipe (Separation tube).

When the pipe size of the separation tube itself does not match, or when piping sizes differ even if it cuts the pipe, use attached Reducer or attached Expander.

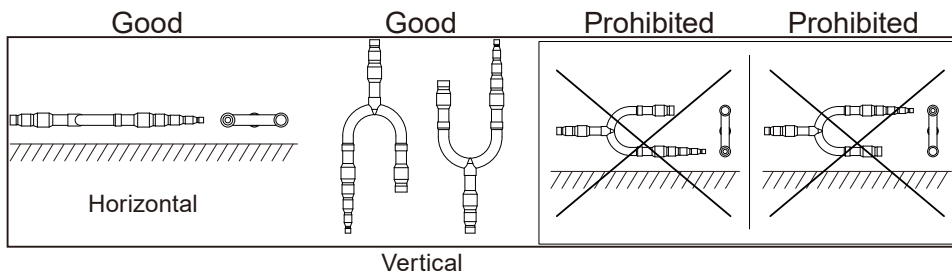


● Restriction when install

Be sure following restriction.

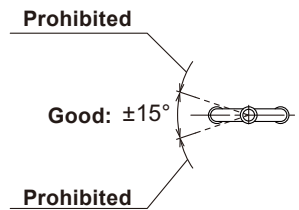
1) Installation angle

Place the separation tubes horizontally or vertically so that the refrigerant separates evenly.



⚠ CAUTION

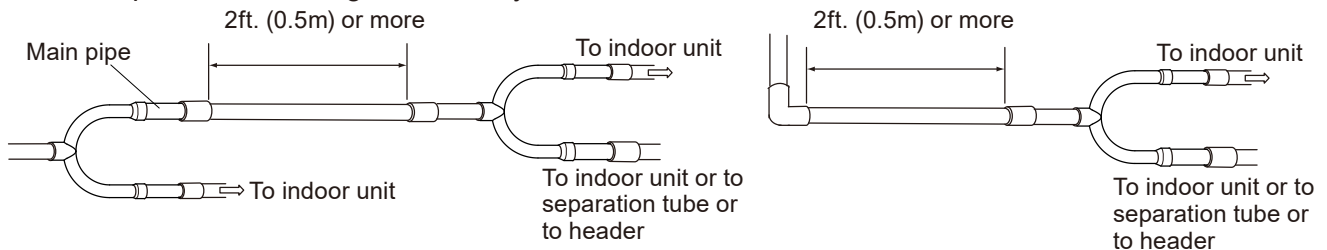
- If it is placed horizontally, keep it within $\pm 15^\circ$. Otherwise, it will not separate the refrigerant evenly, causing a reduction in performance.



- During piping work, apply nitrogen gas while brazing the pipes. If pipes are brazed without applying nitrogen gas, it will create a large amount of oxidation film, which will cause a critical malfunction.
- To prevent moisture or foreign matter from entering during work, do not leave the piping open.
- Refer to the Installation Manual supplied with the outdoor unit for airtightness test and evacuation procedures.

2) Straight pipe length

A straight pipe (minimum length 2ft. (0.5m)) before separation tube is necessary in order to separate the refrigerant exactly.

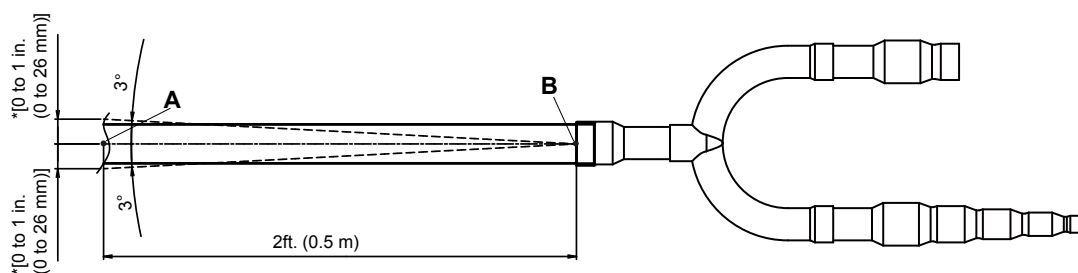


⚠ CAUTION

Keep the distance 2ft. (0.5m) or more for straight part to separation tube, in order to prevent the outdoor unit malfunction and generation of refrigerant noise

About the connecting curvature of field pipe and separation tube:

The field pipe should be connected to the branch kit so that the curved angle on each side is 3 degree or less.

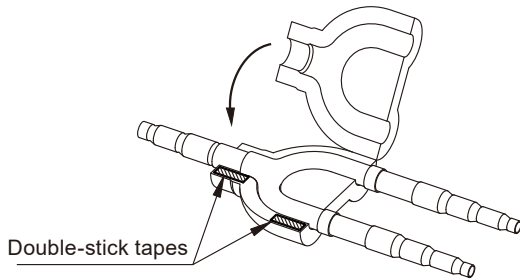


*: Allowed value based on "A" (center of field pipe) at 2ft. (0.5 m) from "B" (junction of the separation tube).

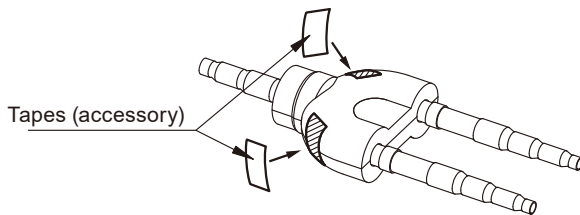
● Heat insulation installation

After brazing the pipes, and leak check use the supplied insulation to insulate them.

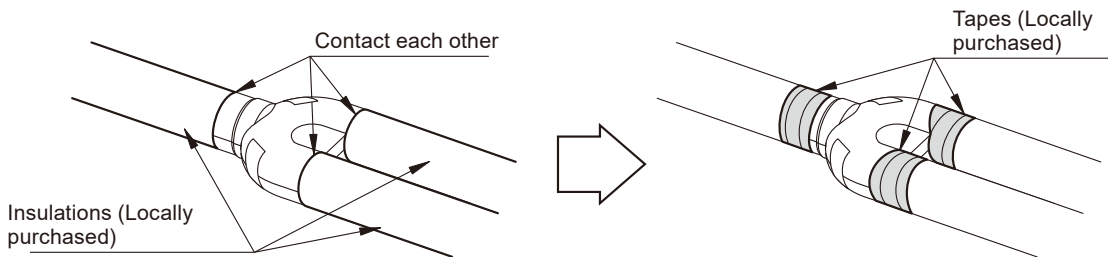
1) Remove the protective sheet from the double-stick tape that is affixed to the heat insulation.



2) Be sure to install the tape (accessory) in each heat insulation to the 2 positions as shown in the following figure.



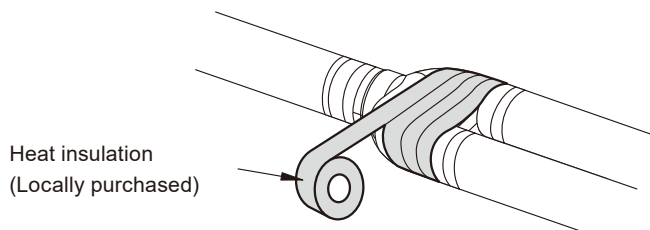
3) Use tape (Locally purchased) to seal the seam so that there will be no gap at the junction between the aforementioned heat insulation and the heat insulation on the local piping.



⚠ CAUTION

- Insulate the liquid and gas pipe completely. If not, it may cause the water condensation or performance reduction.
- Wrap the heat insulation with tape or pipe cover in order to extend the life time of heat insulation.
- Take proper measurement to strengthen by using another heat insulation at the following installing environment.
 - (a) Environment temperature $\geq 95^{\circ}\text{F}$ (35°C) and humidity 85%.
 - (b) Environment temperature $\geq 77^{\circ}\text{F}$ (25°C) and humidity 90%.

Installation example



3-4. HEADER

■ HEADER INSTALLATION

● Header selection

Total cooling capacity of indoor units (x) (Btu/h)	For 2 pipes		For 3 pipes	
	3 - 6 Branches	3 - 8 Branches	3 - 6 Branches	3 - 8 Branches
$x < 96,500$	UTR-H0906L	UTR-H0908L	UTP-J0906A	UTP-J0908A
$96,500 \leq x < 193,000$	UTR-H1806L	UTR-H1808L	UTP-J1806A	UTP-J1808A

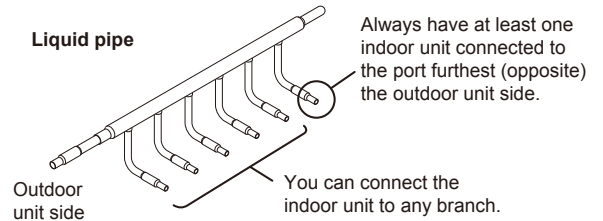
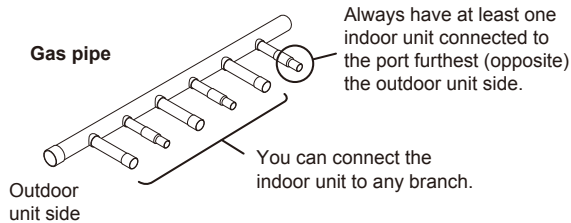
When 1) Total cooling capacity exceed 193,000kBtu or 2) Separate into two branches, use a separaton tube instead.

*When all indoor unit connected to header is indoor unit of cooling only type, use header for 2pipes.

*When header for 3pipes is used, at least 3 or more of RB unit must be connected in port of header

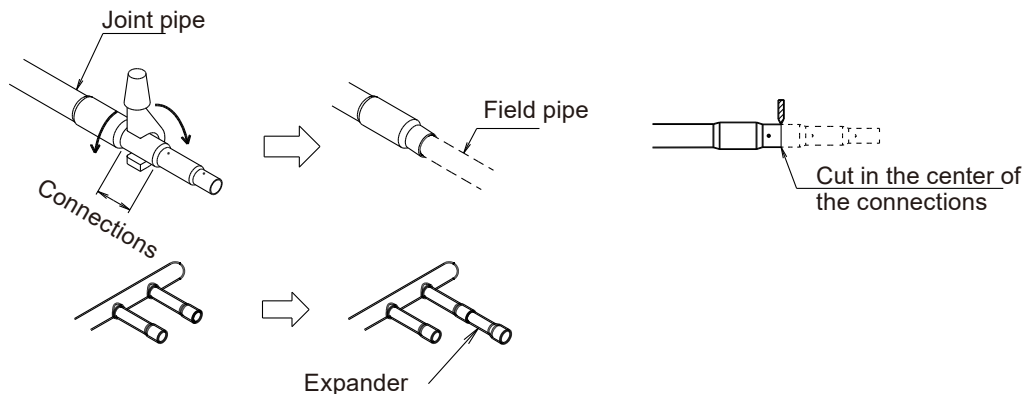
● Installation

(1) Connecting the connection pipes from the indoor units.

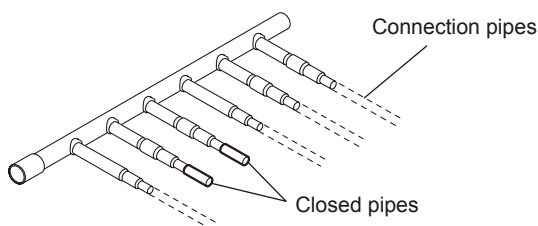


Note: Do not connected indoor unit of cooling only type to the position of "1" in header of 3pipes.

(2) Use a pipe cutter to cut at the location that matches the piping size or use expanders as necessary.

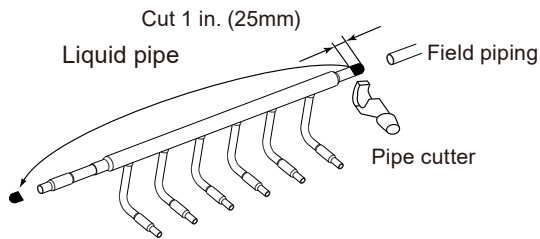


(3) Attach a plugging pipe provided if there is no piping connected at the headers.

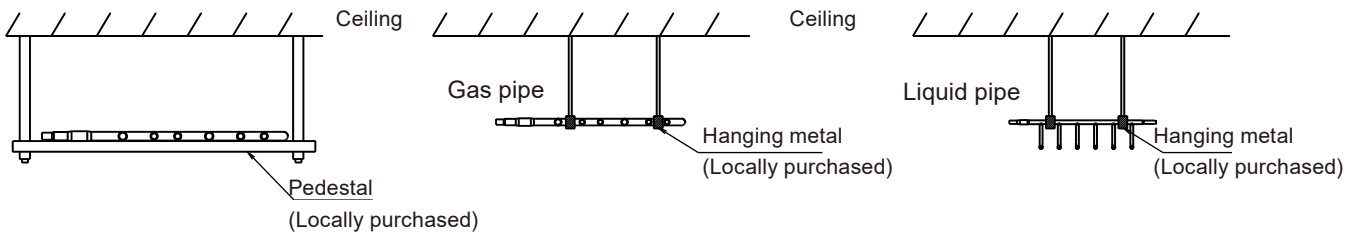


(4) Header can be piped to either side.

When piping to the closed end, remove the end cap using a pipe cutter and braze the cap to the opposite end of the header.



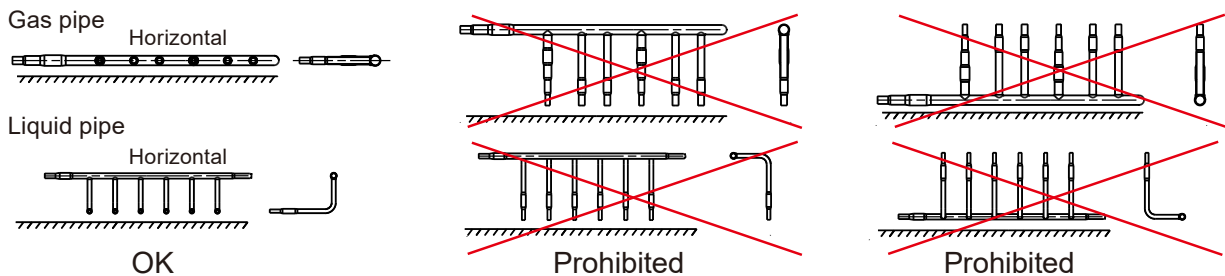
(5) Use header support as necessary.



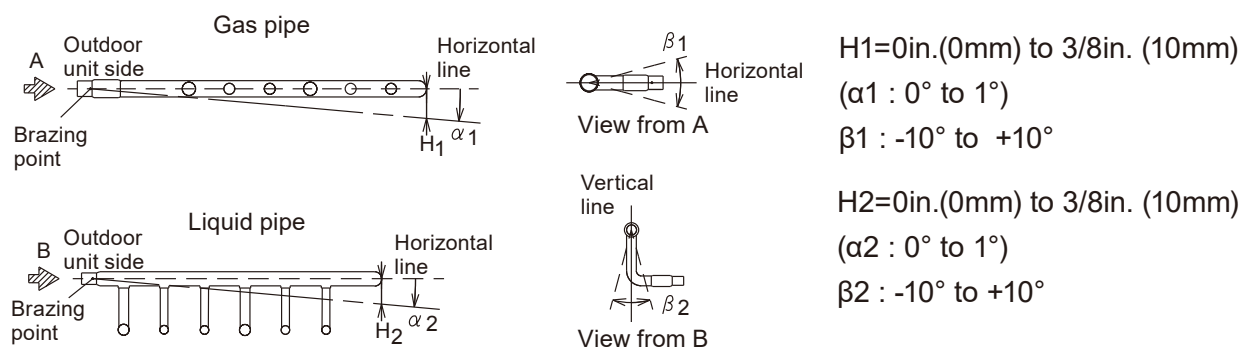
● Installation Restrictions

1) Installation angle

Install the header so that it branches horizontally.

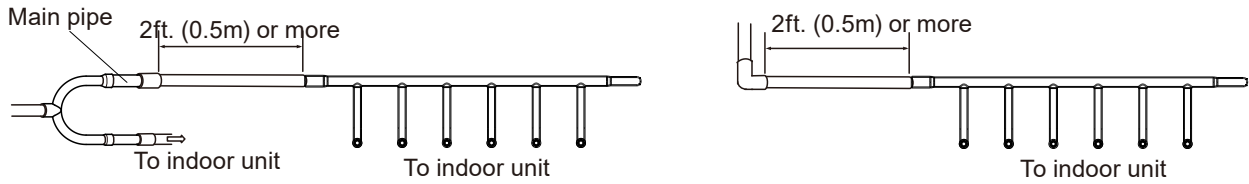


Use a level to make sure that the header is positioned as shown in following figure, and then, secure it in place.



2) Straight tube length

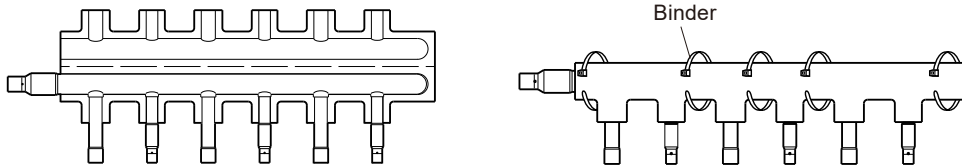
A straight tube (minimum length 2ft. (0.5m)) is necessary before header in order to separate the refrigerant exactly.



● Heat insulation installation

After brazing the piping, attach heat insulation.

Remove the protective paper for the tape on the heat insulation for the header and attach it. Tighten by using binders at five locations.

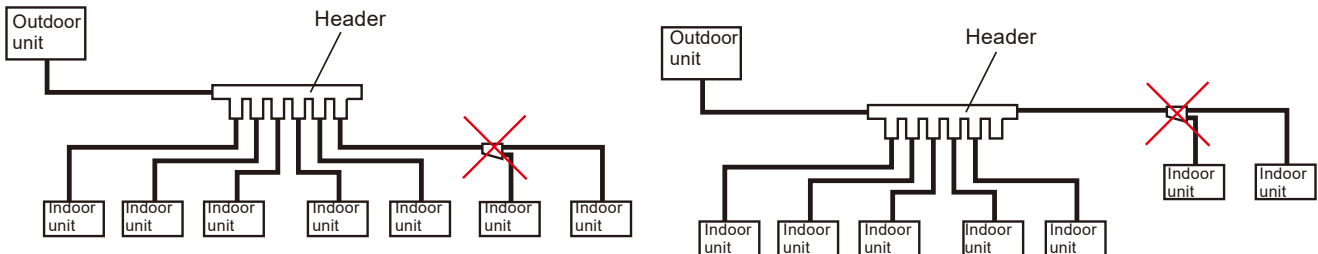


Cover the plugging pipe with heat insulation and seal with tape.



● Caution

Separation tube is not allowed to install header kit.

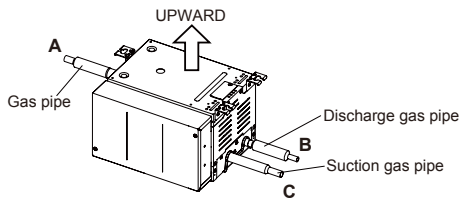


3-5. RB UNIT

MODELS

RB unit		Maximum number of connectable indoor units per branch	Connectable cooling capacity range
Single type	UTP-RU01AH	3	27,000 Btu/h or less
	UTP-RU01BH	8	60,000 Btu/h or less
	UTP-RU01CH	8	96,000 Btu/h or less
Multi type	UTP-RU04BH	8	60,000 Btu/h or less (for 1 branch)
			191,000 Btu/h or less (Sum total of 4 branches)

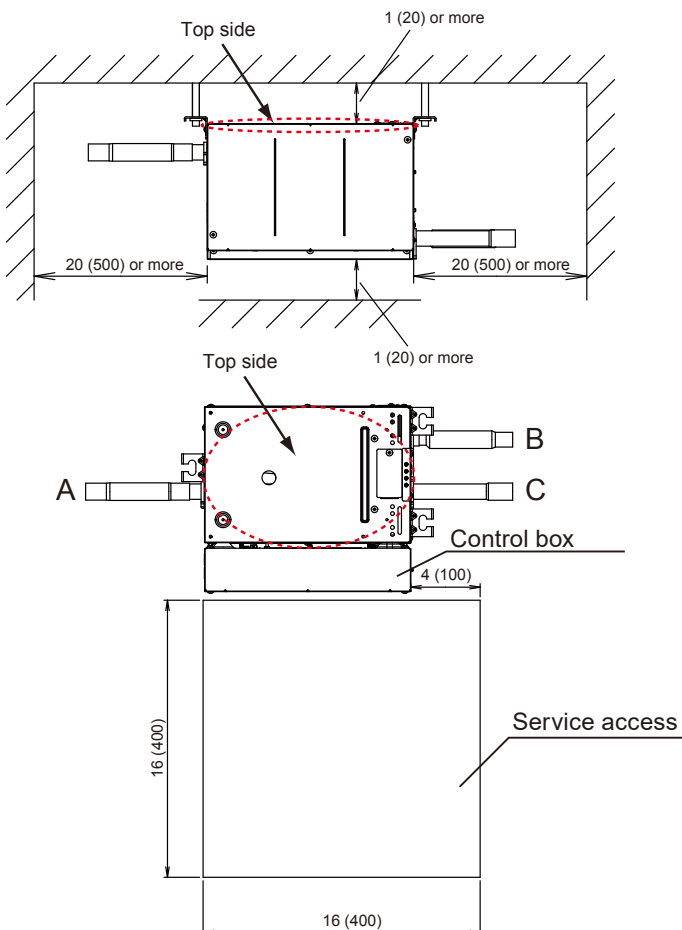
3-5-1. SINGLE TYPE



INSTALLATION

Be sure to install so that the top side faces up.

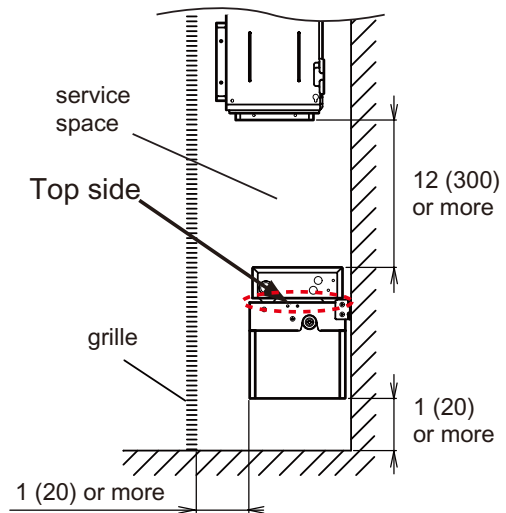
● Ceiling installation



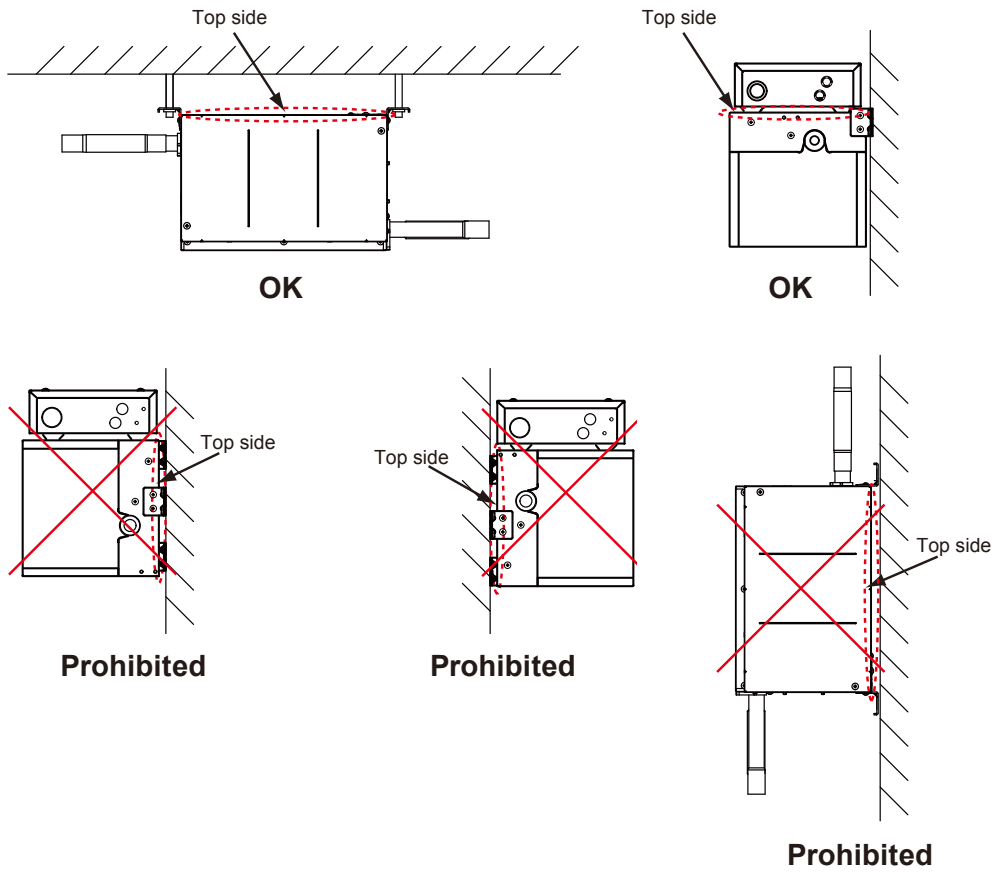
● Wall installation

Unit : in. (mm)

E.g.: If installing a duct model vertically.

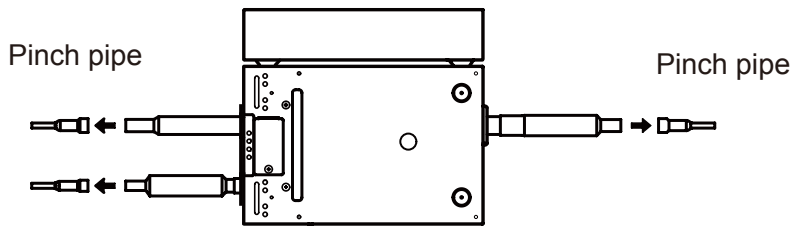


● Restriction when install



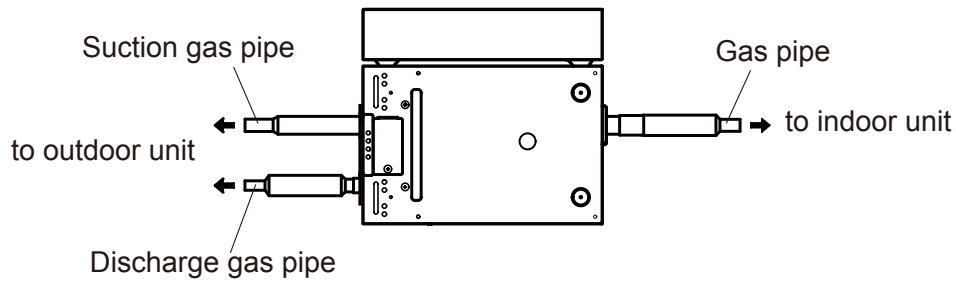
● Removing the pinch pipe

Melt the brazing filter metal on connecting part using a torch and remove the pinch pipe.



PIPE SELECTION

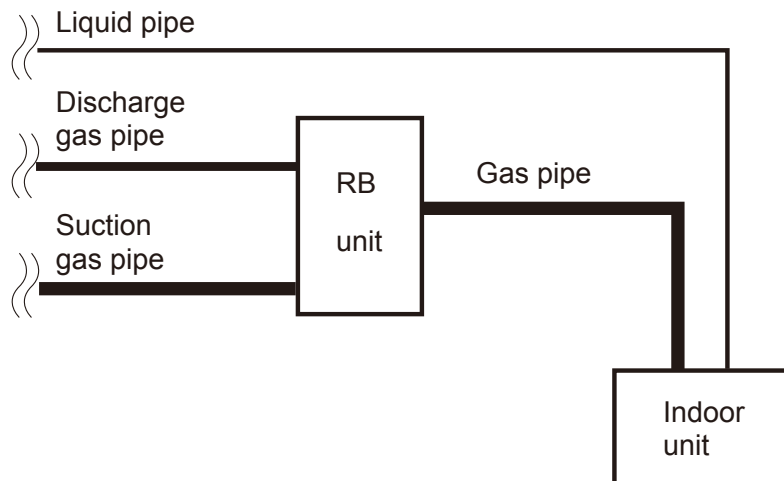
RB unit pipe size



Model name	Discharge Gas pipe	Suction Gas pipe	Gas pipe
UTP-RU01AH	3/8" (9.52)	1/2" (12.70)	1/2" (12.70)
UTP-RU01BH	1/2" (12.70)	3/4" (19.05)	3/4" (19.05)
UTP-RU01CH	3/4" (19.05)	7/8" (22.22)	7/8" (22.22)

Connection pipe size

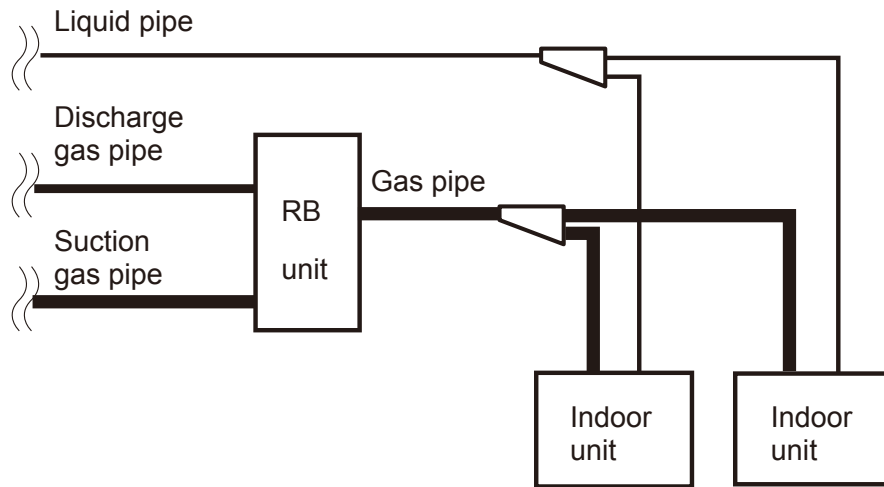
Connection pipe selection for when only 1 indoor unit is connected.



Model name	Indoor unit capacity (Btu/h)	Liquid pipe	Discharge Gas pipe	Suction Gas pipe	Gas pipe
UTP-RU01AH	4,000 7,500 9,500 12,000 14,000	1/4" (6.35)	3/8" (9.52)	1/2" (12.70)	1/2" (12.70)
	18,000 24,000	3/8" (9.52)	1/2" (12.70) +Reducer-A	5/8" (15.88) +Reducer-B	5/8" (15.88) +Reducer-B
UTP-RU01BH	4,000 7,500 9,500 12,000 14,000	1/4" (6.35)	3/8" (9.52) +Reducer-C	1/2" (12.70) +Reducer-E	1/2" (12.70) +Reducer-E
	18,000 24,000 30,000 34,000	3/8" (9.52)	1/2" (12.70)	5/8" (15.88) +Reducer-E	5/8" (15.88) +Reducer-E
	36,000 48,000	3/8" (9.52)	1/2" (12.70)	3/4" (19.05)	3/4" (19.05)
	60,000	3/8" (9.52)	15.88 (5/8") +Reducer-B	3/4" (19.05)	3/4" (19.05)
UTP-RU01CH	72,000 96,000	1/2" (12.70)	3/4" (19.05)	7/8" (22.22)	7/8" (22.22)








● Connection pipe size

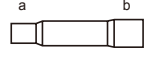
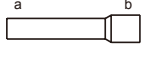
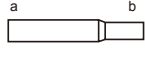
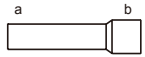
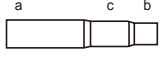
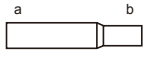
Connection pipe selection for when 2 or more indoor units are connected.



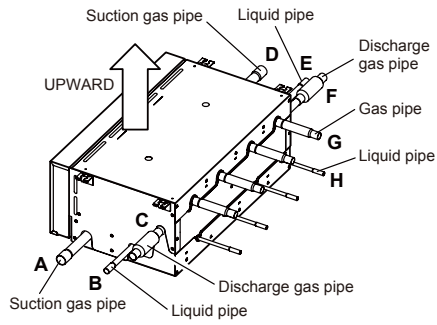
Model name	Total capacity of indoor unit (Btu/h)	Liquid pipe	Discharge Gas pipe	Suction Gas pipe	Gas pipe
UTP-RU01AH	$8,000 \leq x < 27,000$	3/8" (9.52)	1/2" (12.70) +Reducer-A	5/8" (15.88) +Reducer-B	5/8" (15.88) +Reducer-B
UTP-RU01BH	$8,000 \leq x < 36,000$	3/8" (9.52)	1/2" (12.70)	5/8" (15.88) +Reducer-E	5/8" (15.88) +Reducer-E
	$36,000 \leq x < 48,000$	3/8" (9.52)	1/2" (12.70)	3/4" (19.05)	3/4" (19.05)
	$48,000 \leq x < 60,000$	1/2" (12.70)	5/8" (15.88) +Reducer-B	7/8" (22.22) +Reducer-D	7/8" (22.22) +Reducer-D
UTP-RU01CH	$60,000 \leq x < 72,000$	1/2" (12.70)	5/8" (15.88) +Reducer-F	7/8" (22.22)	7/8" (22.22)
	$72,000 \leq x < 96,000$	1/2" (12.70)	3/4" (19.05)	7/8" (22.22)	7/8" (22.22)

■ ACCESSORY PARTS

Name and shape	Q'ty	Application
Installation manual 	1	
Hanger 	3	For suspending the RB unit from ceiling
Washer 	6	For suspending the RB unit from ceiling
Tapping screw A (Φ4×10) 	6	For suspending the RB unit from ceiling
Tapping screw B (Φ4×25) 	4	For suspending the RB unit from wall
Cable tie 	2	For mounting the transmission cable
Cable clamp 	1	For mounting the cable

Reducer type [in. (mm)]	UTP-RU01AH	UTP-RU01BH	UTP-RU01CH
Reducer-A  a: ø3/8 (9.52) [O.D.] b: ø1/2 (12.7) [I.D.]	4	-	-
Reducer-B  a: ø1/2 (12.7) [O.D.] b: ø5/8 (15.88) [I.D.]	2	1	-
Reducer-C  a: ø1/2 (12.7) [O.D.] b: ø3/8 (9.52) [I.D.]	-	1	-
Reducer-D  a: ø3/4 (19.05) [O.D.] b: ø7/8 (22.22) [I.D.]	-	2	-
Reducer-E  a: ø3/4 (19.05) [O.D.] b: ø1/2 (12.7) [I.D.] c: ø5/8 (15.88) [I.D.]	-	2	-
Reducer-F  a: ø3/4 (19.05) [O.D.] b: ø5/8 (15.88) [I.D.]	-	-	1

3-5-2.MULTI TYPE

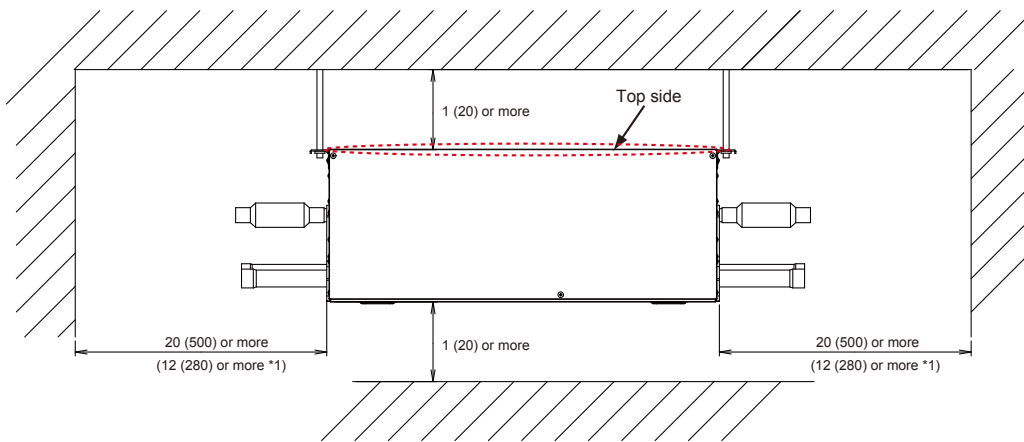


■ INSTALLATION

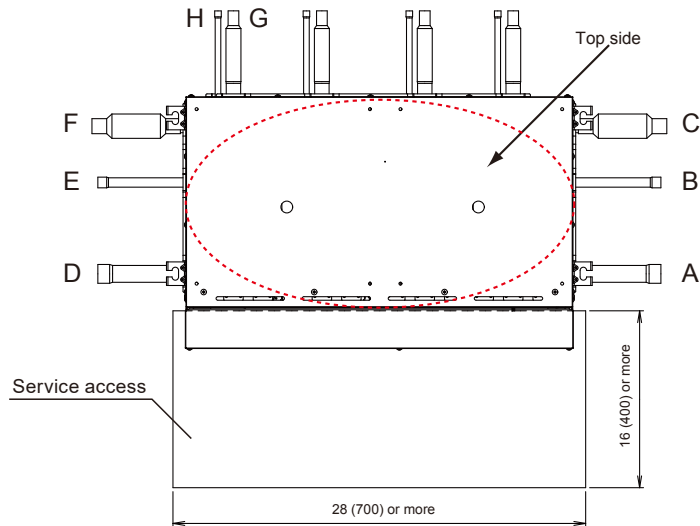
Be sure to install so that the top side faces up.

● Ceiling installation

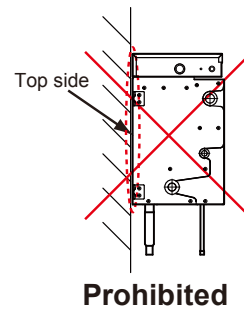
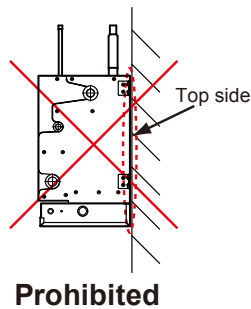
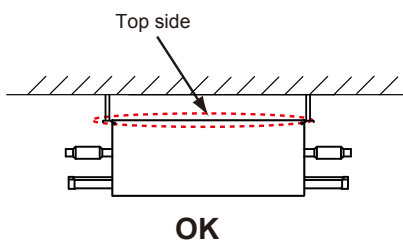
Unit : in. (mm)



*1: When piping is not connected



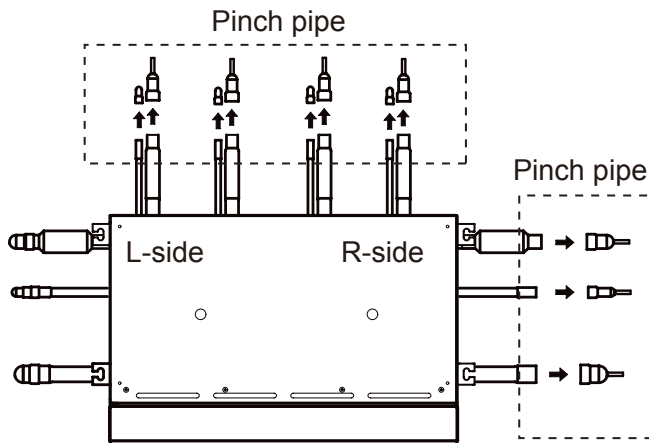
● Restriction when install



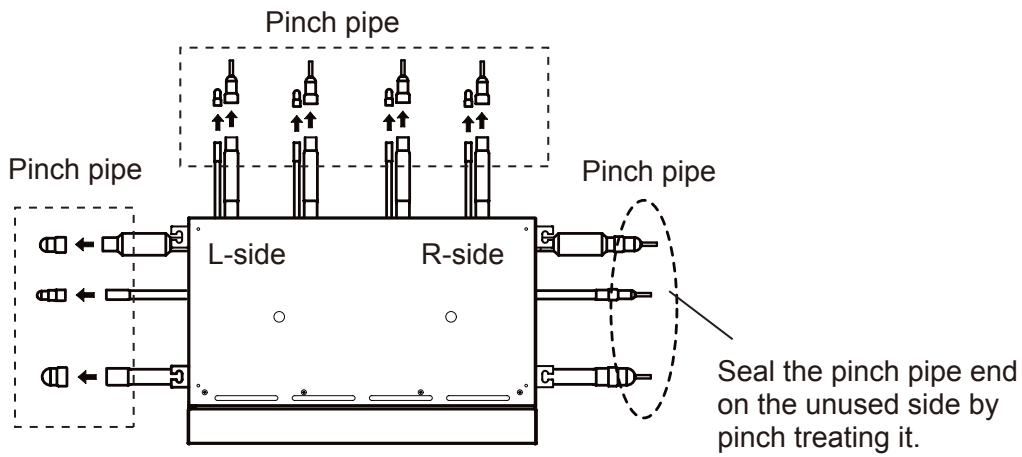
● Removing the pinch pipe

Melt the brazing filler metal on connecting part using a torch and remove the pinch pipe.

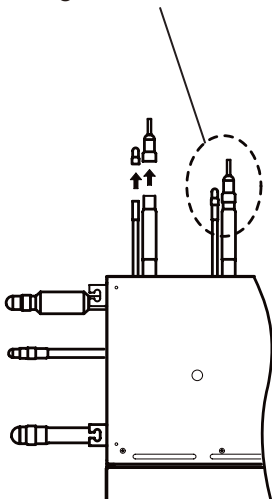
If using the R-side



If using the L-side

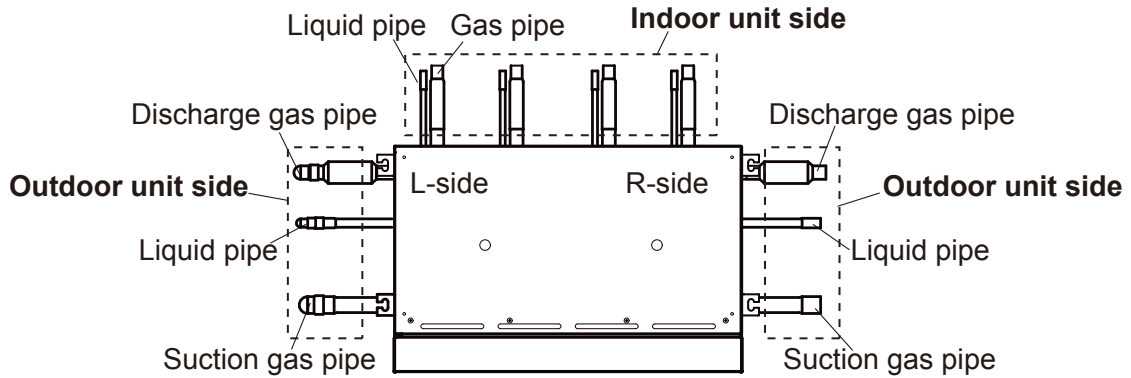


Seal the unused pinch pipe end by pinch treating it.



PIPE SELECTION

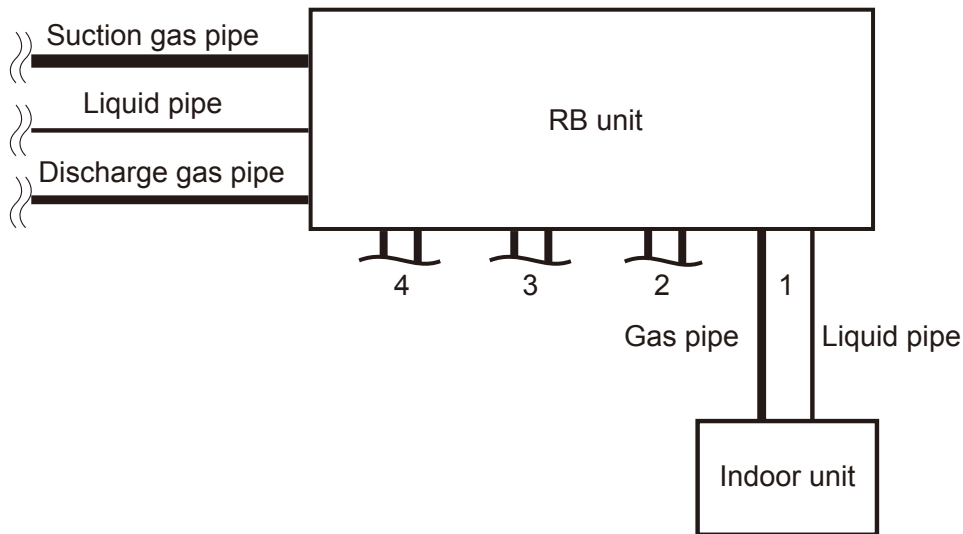
RB unit pipe size



Outdoor unit side [in. (mm)]			Indoor unit side [in. (mm)]	
Liquid pipe	Discharge Gas pipe	Suction Gas pipe	Liquid pipe	Gas pipe
5/8" (15.88)	7/8" (22.22)	1-1/8" (28.58)	3/8" (9.52)	3/4" (19.05)

Connection pipe size

Connection pipe selection for when only 1 indoor unit is connected.



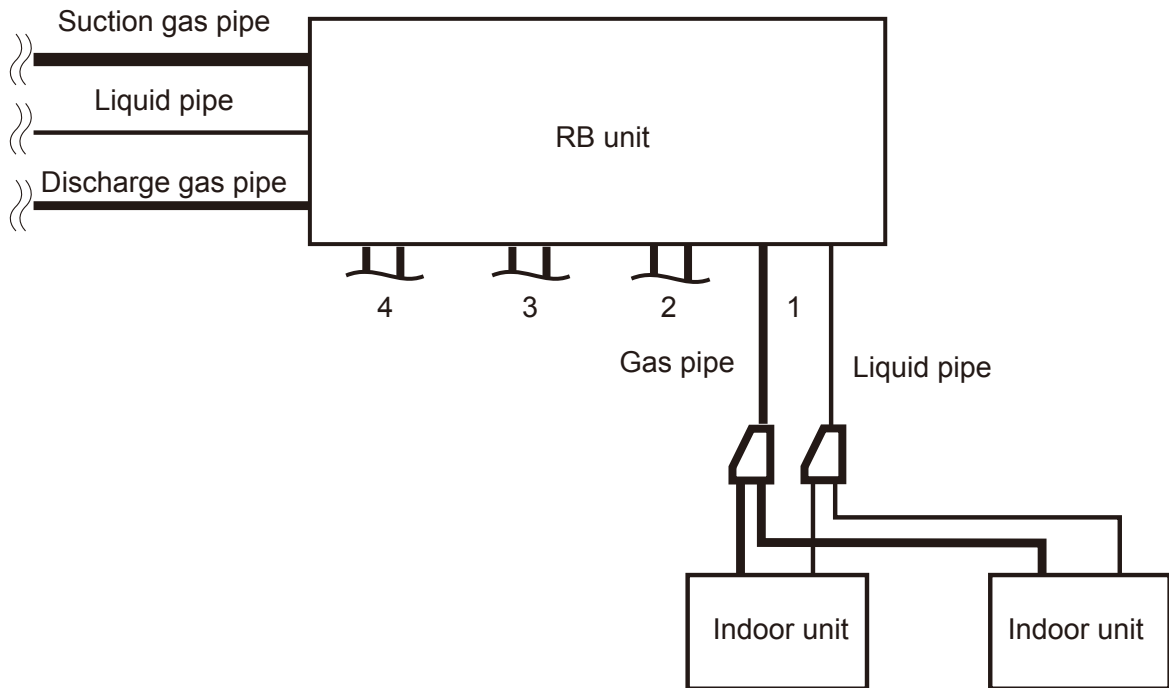
Note: Be sure to connect indoor unit to furthest port (position 1) from outdoor unit.

Total capacity of indoor unit (Btu/h)	Outdoor unit side [in. (mm)]		
	Liquid pipe	Discharge Gas pipe	Suction Gas pipe
4,000 ≤ x < 36,000	3/8" (9.52) +Reducer-M	1/2" (12.70) +Reducer-L	5/8" (15.88) +Reducer-K
36,000 ≤ x < 48,000	3/8" (9.52) +Reducer-M	1/2" (12.70) +Reducer-L	3/4" (19.05) +Reducer-K
48,000 ≤ x < 72,000	1/2" (12.70) +Reducer-M	5/8" (15.88) +Reducer-L	7/8" (22.22) +Reducer-K
72,000 ≤ x < 96,500	1/2" (12.70) +Reducer-M	3/4" (19.05) +Reducer-L	7/8" (22.22) +Reducer-K
96,500 ≤ x < 153,000	1/2" (12.70) +Reducer-M	3/4" (19.05) +Reducer-L	1-1/8" (28.58)
153,000 ≤ x < 161,000	5/8" (15.88)	3/4" (19.05) +Reducer-L	1-1/8" (28.58)
161,000 ≤ x < 193,000	5/8" (15.88)	7/8" (22.22)	1-1/8" (28.58)

Indoor unit capacity (Btu/h)	Indoor unit side [in. (mm)]	
	Liquid pipe	Gas pipe
4,000 7,500 9,000 12,000 14,000	1/4" (6.35) +Reducer-H	1/2" (12.70) +Reducer-J
18,000 24,000 30,000 34,000	3/8" (9.52)	5/8" (15.88) +Reducer-J
36,000 48,000 60,000	3/8" (9.52)	3/4" (19.05)

● Connection pipe size

Connection pipe selection for when 2 or more indoor units are connected.








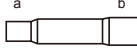
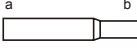
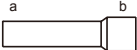

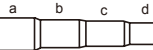
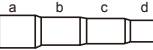
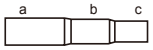
Note: Be sure to connect indoor unit to furthest port (position 1) from outdoor unit.

Total capacity of indoor unit (Btu/h)	Outdoor unit side [in. (mm)]		
	Liquid pipe	Discharge Gas pipe	Suction Gas pipe
$4,000 \leq x < 36,000$	3/8" (9.52) +Reducer-M	1/2" (12.70) +Reducer-L	5/8" (15.88) +Reducer-K
$36,000 \leq x < 48,000$	3/8" (9.52) +Reducer-M	1/2" (12.70) +Reducer-L	3/4" (19.05) +Reducer-K
$48,000 \leq x < 72,000$	1/2" (12.70) +Reducer-M	5/8" (15.88) +Reducer-L	7/8" (22.22) +Reducer-K
$72,000 \leq x < 96,500$	1/2" (12.70) +Reducer-M	3/4" (19.05) +Reducer-L	7/8" (22.22) +Reducer-K
$96,500 \leq x < 153,000$	1/2" (12.70) +Reducer-M	3/4" (19.05) +Reducer-L	1-1/8" (28.58)
$153,000 \leq x < 161,000$	5/8" (15.88)	3/4" (19.05) +Reducer-L	1-1/8" (28.58)
$161,000 \leq x < 193,000$	5/8" (15.88)	7/8" (22.22)	1-1/8" (28.58)

Total capacity of indoor unit (Btu/h)	Indoor unit side [in. (mm)]	
	Liquid pipe	Gas pipe
$8,000 \leq x < 36,000$	3/8" (9.52)	5/8" (15.88) +Reducer-J
$36,000 \leq x < 48,000$	3/8" (9.52)	3/4" (19.05)
$48,000 \leq x < 60,000$	1/2" (12.70) +Reducer-G	7/8" (22.22) +Reducer-I

■ ACCESSORY PARTS

Name and shape	Q'ty	Application
Installation manual 	1	
Hanger 	4	For suspending the RB unit from ceiling
Washer 	8	For suspending the RB unit from ceiling
Tapping screw (Φ4×10) 	8	For suspending the RB unit from ceiling
Cable tie 	5	For mounting the transmission cable

Reducer type	UTP-RU01CH
Reducer-G  a: $\varnothing 3/8$ (9.52) [O.D.] b: $\varnothing 1/2$ (12.7) [I.D.]	4
Reducer-H  a: $\varnothing 3/8$ (9.52) [O.D.] b: $\varnothing 1/4$ (6.35) [I.D.]	4
Reducer-I  a: $\varnothing 3/4$ (19.05) [O.D.] b: $\varnothing 7/8$ (22.22) [I.D.]	2
Reducer-J  a: $\varnothing 3/4$ (19.05) [O.D.] b: $\varnothing 1/2$ (12.7) [I.D.] c: $\varnothing 5/8$ (15.88) [I.D.]	2
Reducer-K  a: $\varnothing 1-1/8$ (28.58) [O.D.] b: $\varnothing 7/8$ (22.22) [I.D.] c: $\varnothing 3/4$ (19.05) [I.D.] d: $\varnothing 5/8$ (15.88) [I.D.]	2
Reducer-L  a: $\varnothing 7/8$ (22.22) [O.D.] b: $\varnothing 3/4$ (19.05) [I.D.] c: $\varnothing 5/8$ (15.88) [I.D.] d: $\varnothing 1/2$ (12.7) [I.D.]	2
Reducer-M  a: $\varnothing 5/8$ (15.88) [O.D.] b: $\varnothing 1/2$ (12.7) [I.D.] c: $\varnothing 3/8$ (9.52) [I.D.]	2

4. WIRING DESIGN

4-1. ELECTRICAL WIRING

■ PRECAUTION FOR ELECTRICAL WIRING

Regulations for wire diameter and selecting circuit breaker size differ from locality.

Always install in accordance with local standards.

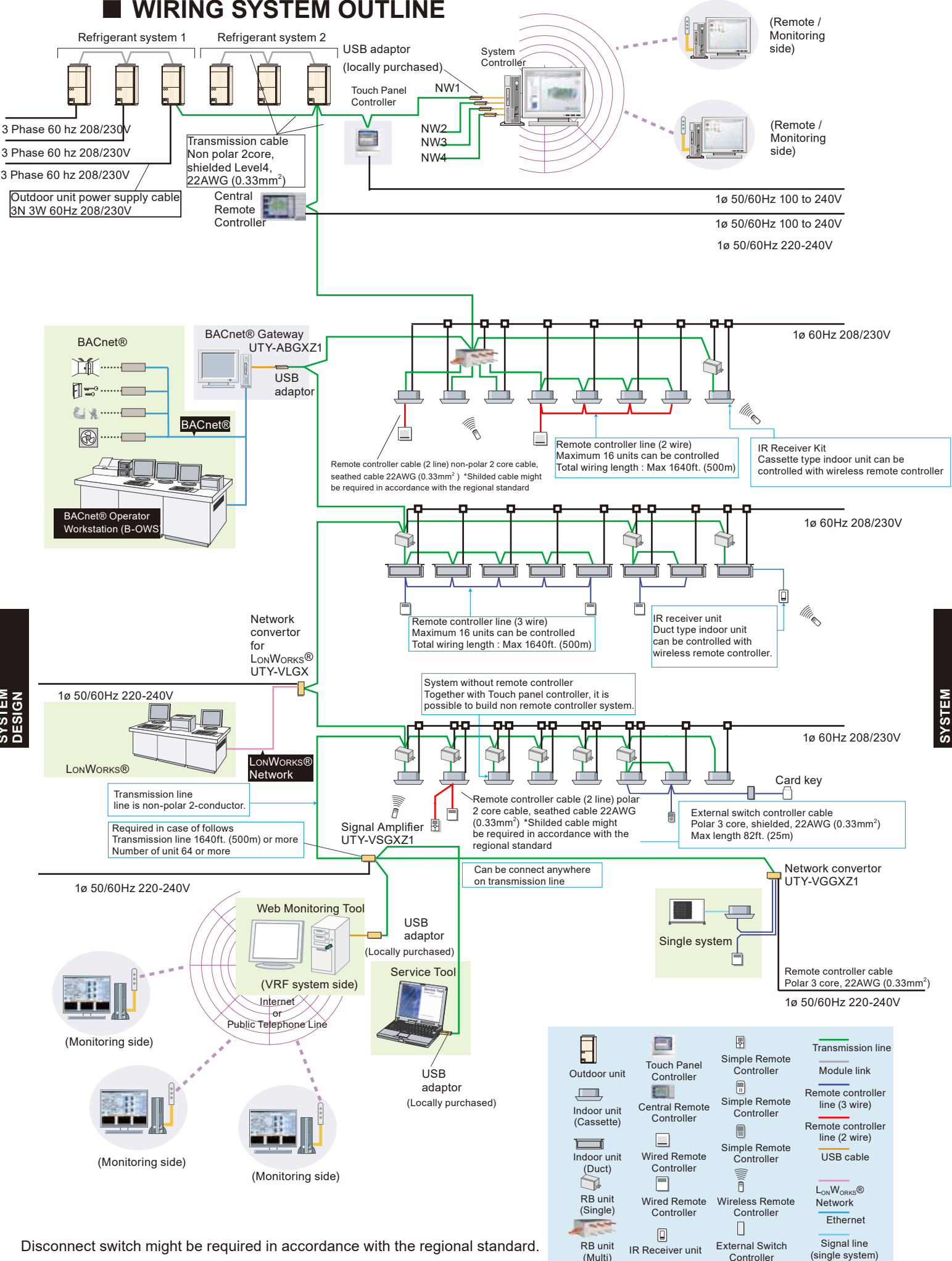
WARNING

- Do not turn on the power until all installation work is complete.
- Before starting work, check that power is not being supplied to the unit.
- Connect the connection cable firmly to the terminal board. Imperfect installation may cause fire.
- Always install a circuit breaker for each power supply circuit. Failure to use a circuit breaker could result in electrical shock or fire.
- Always install a disconnect switch for each power supply circuit.
- Always connect the ground wire.
- Never install a condenser for improving the power factor. (It will not improve the power factor and the condenser will become abnormally hot.)
- When installing this system in high humidity locations, install using Ground Fault Equipment Breaker (GFEB) to reduce the risk of leaking current which may result in electric shock or potential fire.

CAUTION

- When approved for use in local code, we suggest installing Ground Fault Equipment Breaker (GFEB). In that case, GFEB shall be per Fujitsu recommended capacity in order to prevent malfunction of breaker device.
- Always use a dedicated power circuit for each condensing unit (outdoor unit). Never use a power supply shared by another appliance.
- "Wire size" and "Breaker" are for reference only; always install according to local regulations.
- Make the wire length between disconnect switch and unit terminal as short as possible provided that it complies with local code.
- Installation and service of this product is only to be performed by qualified professionals.
- All field wiring and components must be provided by a licensed electrician.
- Use copper conductors only.
- Use crimp-type terminals and tighten the terminal screws to the specified torques, otherwise, abnormal overheating may be produced and possibly cause serious damage inside the unit.

WIRING SYSTEM OUTLINE



Disconnect switch might be required in accordance with the regional standard.

4-2. POWER SUPPLY CABLE WIRING

■ POWER SUPPLY CABLE SPECIFICATIONS

Use a separate power supply for the outdoor unit and indoor unit.

● Outdoor unit

Selection of the power supply cable and breaker when connecting single outdoor unit.

Refer to the table for the breaker specifications of each installation condition.

Model	MCA (A)	MAX.CKT.BKR (A)	GFEB
AOUA72TLBV	41	50	100 mA 0.1 sec or less
AOUA96TLBV			
AOUA120TLBV	50	60	

MCA : Minimum Circuit Ampacity

MAX.CKT.BKR : Maximum Circuit Breaker

GFEB : Ground Fault Equipment Breaker

- Select the power cable type and size in accordance with local regulations.
- Select a wire length (Max. wire length) such that the voltage drop is less than 2%.
- When the wire length is long and voltage drop exceeds this value, increase the wire diameter to stay within design limits.

● Indoor unit & RB unit

Refer to the table for the breaker specifications of each installation condition. Perform the power crossover wiring within the range of the same refrigerant system. When the crossover wiring is done, make a connection for "RB units" and "indoor units" to satisfy conditions Table A and Table B below.

Table A. Current breaker requirements

Model	MCA (A)	MAX.CKT.BKR (A)
All models	*1	15

MCA : Minimum Circuit Ampacity

MAX.CKT.BKR : Maximum Circuit Breaker

*1 : Refer chapter 4.2. ELECTRIC CHARACTERISTICS

When the power crossover wiring is done, make it so that the total of the MCA of the connected "RB units" and "indoor units" does not exceed the 11 A.

NOTE: With Vertical air handler type, connect only one indoor unit to a MAX.CKT.BKR. (Crossover wiring is prohibited.) Select a minimum of 7 or more multiples of rated current under the condition time in seconds 10 ms (0.01 S) or less at the current breaker trip curves (time in seconds/multiples of rated current).

Table B. Ground Fault Equipment Breaker requirements

Breaker capacity	Maximum connectable "Units"
30 mA, 0.1 sec or less	36 or less
100 mA, 0.1 sec or less	37 to 121

If the total number of units connected to the breaker exceeds 36, either add a 30mA breaker, or use breakers with a greater capacity.

● Meaning of "Units"

	Model name	"Units" Count
RB unit	UTP-RU01AH	1
	UTP-RU01BH	
	UTP-RU01CH	
	UTP-RU04BH	4
Indoor unit (Except High static pressure duct type (72/96 type) and Vertical air handler type)	AUUA4TLAV1	1
	AUUA7-24TLAV	
	AUUB18-48TLAV1	
	AUUB18-36TLAV	
	ARUL4TLAV1	
	ARUL7-18TLAV	
	ARUM24-36TLAV	
	ARUH36-60TLAV	
	AGUA4-14TLAV1	
	ABUA12-36TLAV	
	ASUA4-14TLAV1	
	ASUB18-36TLAV1	
	ASUA7-14TLAV	
	ASUB18-24TLAV	
Indoor unit (High static puessure duct (72/96 type))	ARUH72-96TLAV	3
Indoor unit (Vertical air handler type)	ARUV12-60TLAV	4

Example 1)

Connectable indoor unit : ASUA9TLAV x 4 + AUUB18TLAV x 2 + ARUL9TLAV

Amount of "Units" : $1 \times 4 + 1 \times 2 + 1 \times 1 = 7$

Example 2)

Connectable indoor unit : ARUH72TLAV1 + AUUB18TLAV x 2 + ARUL9TLAV

Amount of "Units" : $3 \times 1 + 1 \times 2 + 1 \times 1 = 6$

Example 3)

Connectable indoor unit : ARUV12TLAV + AUUA9TLAV x 2 + ARUL9TLAV x 2 + UTP-RU01AH x 1
+ UTP-RU04BH x 1

Amount of "Units": $4 \times 1 + 1 \times 2 + 1 \times 2 + 1 \times 1 + 4 \times 1 = 13$

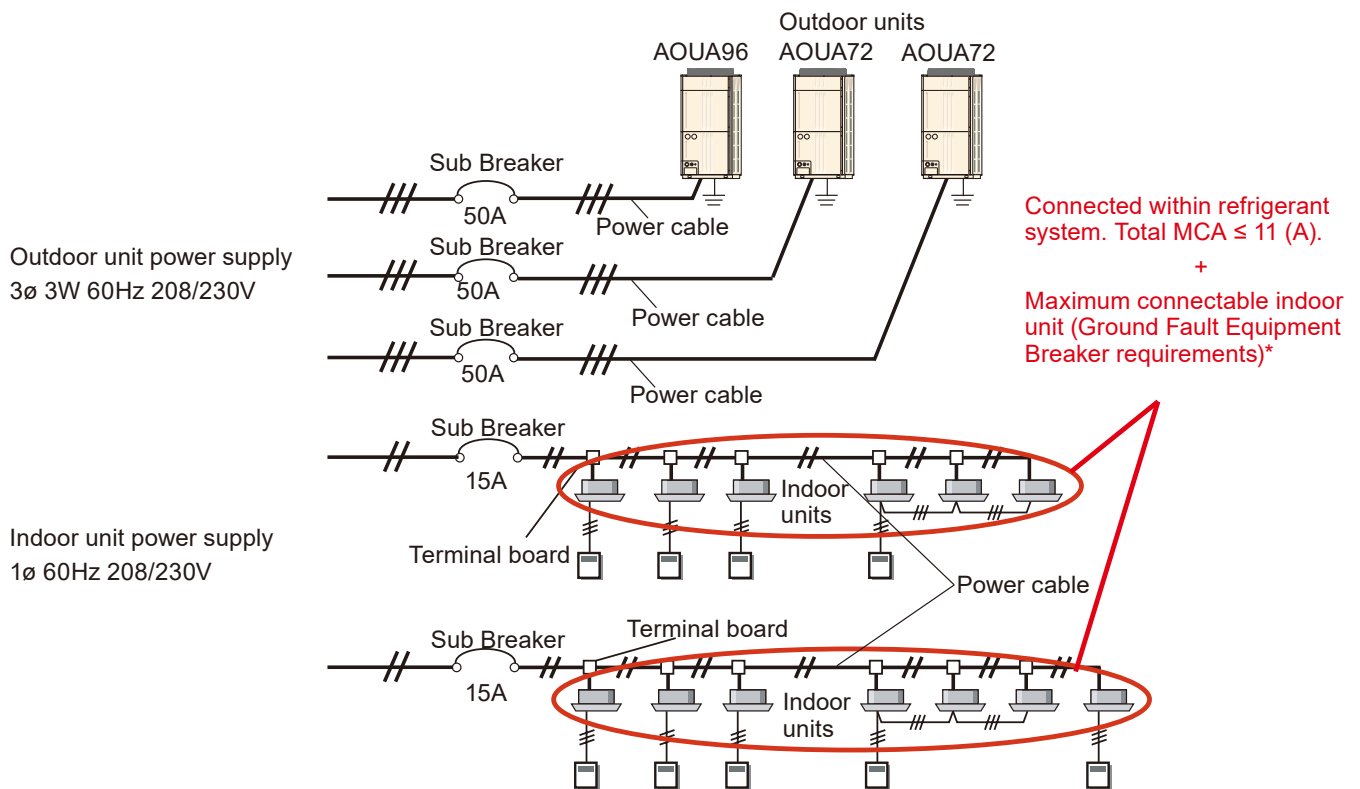
- Select the power cable type and size in accordance with local regulations.
- Include at least one breaker and one disconnect per refrigerant system.
- Power supply circuits should only be connected to units on the same refrigerant circuit.
- Design the power supply circuit to keep the voltage drop within 2%.

POWER SUPPLY CABLE WIRING

- **Example : Power supply cable wiring.**
(Using terminal board for indoor unit & RB unit)

CAUTION

- Except for EMERGENCY, never turn off main as well as sub breaker of the indoor units during operation. It will cause compressor failure as well as water leakage.
- First, stop the indoor unit by operating the control unit, convertor or external input device and then cut the breaker.
- Make sure to operate through the control unit, convertor or external input device.
- When the breaker is designed, locate it at a place where the users cannot start and stop in the daily work.
- Regulation of wire size and circuit breaker differs from each locality, refer in accordance with the regional standard.
- When approved for use in local code, we suggest installing Ground Fault Equipment Breaker (GFEB). In that case, GFEB shall be per Fujitsu recommended capacity in order to prevent malfunction of breaker device.



SYSTEM DESIGN

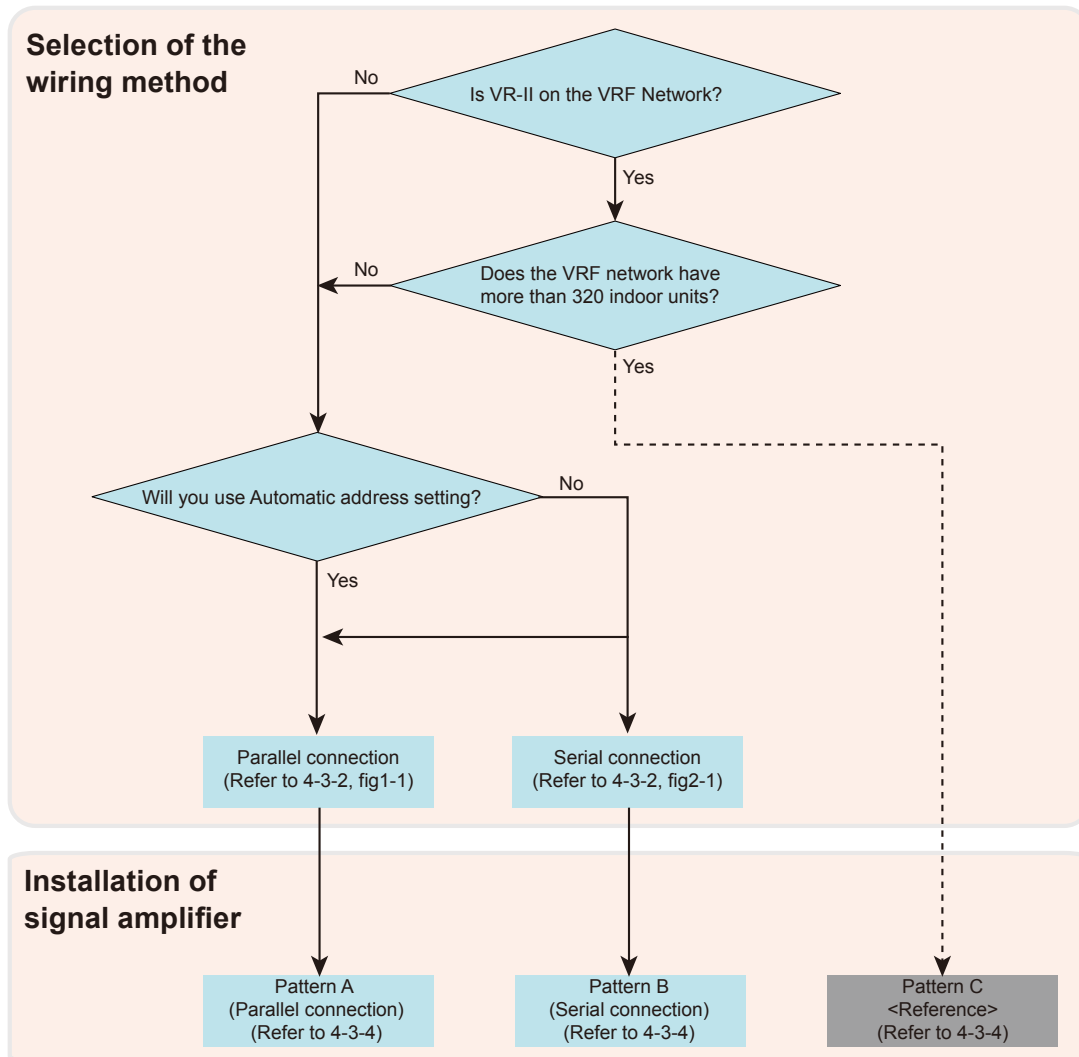
SYSTEM DESIGN

4-3. TRANSMISSION LINE

4-3-1. FLOW CHART

The following procedure outlines the wiring design of VRF Systems.

Choose the wiring method and the installation method for the signal amplifier according to this flow chart.



4-3-2.WIRING

■ TRANSMISSION WIRING SPECIFICATIONS

Use	Size	Wire type	Remarks
Transmission cable	22AWG (0.33mm ²)	LEVEL 4 (NEMA) non-polar 2core, twisted pair solid core diameter 0.65mm	LONWORKS® compatible cable

Use the shielded wire specified and always ground it both end.

22AWG (0.65mm) Level 4 cable with shielded (National Electrical Manufacturers Association (NEMA) Differs from the Category 4 specification proposed by the Electronic Industries Association / Telecommunication Industry Association (EIA/TIA)

● Reference specifications for transmission cable

No.	Item	Unit	Specifications
1	Wire type	mm	0.65dia (22AWG) Twisted pair with shield
2	Pair (Twisted pair cable) Note 1	-	1P or 2P
3	Loop DC Resistance (68°F (20°C))	Ohm/1000feet (Ohm/305m)	Less than 18
4	DC Resistance Unbalancing (68°F (20°C))	%	Less than 5
5	Dielectric Voltage (Between conductor to conductor)	V/min	AC 350
6	Insulation Resistance (68°F (20°C)) (Between conductor to conductor)	Mohm-km	More than 500 (after charging DC500V 1min.)
7	Mutual Capacitance of a Pair	pF/foot (pF/305mm)	Less than 17
8	Pair-to-Ground Capacitance Unbalance	pF/1000feet (pF/305m)	Less than 1000
9	Characteristic Impedance	772KHz	102+ - 15% (87 to 117)
		1MHz	100+ - 15% (85 to 115)
		4MHz	100+ - 15% (85 to 115)
		8MHz	100+ - 15% (85 to 115)
		10MHz	100+ - 15% (85 to 115)
		16MHz	100+ - 15% (85 to 115)
		20MHz	100+ - 15% (85 to 115)
10	Attenuation	772KHz	Less than 4.5
		1MHz	Less than 5.5
		4MHz	Less than 11.0
		8MHz	Less than 15.0
		10MHz	Less than 17.0
		16MHz	Less than 22.0
		20MHz	Less than 24.0
11	Cross talk attenuation (Note 2)	772KHz	Less than 58
		1MHz	Less than 56
		4MHz	Less than 47
		8MHz	Less than 42
		10MHz	Less than 41
		16MHz	Less than 38
		20MHz	Less than 36

Note :

- 1 : Number of twist is not specified. However, it shall satisfy the electrical specifications such as characteristic impedance, attenuation, etc. (Example : More than 40times/m)
- 2 : Cross talk attenuation is applied when the twisted cable has 2 pairs (2P)
- 3 : Material is not specified. However, it shall be selected by considering the operating environment (Temperature, Humidity), and the local regulation by the environmental condition (ROHS Directive, etc.)
- 4 : Mechanical specification is not specified. However, it shall be selected by considering the operating environment.
- 5 : Never bundle transmission cable with power supply cable.

■ WIRING METHOD

● Parallel connection

Parallel connection means one transmission wire extends for each refrigerant circuit.

The example of parallel connection wiring.

Connect the transmission cable like as Fig 1-1, 1-2.

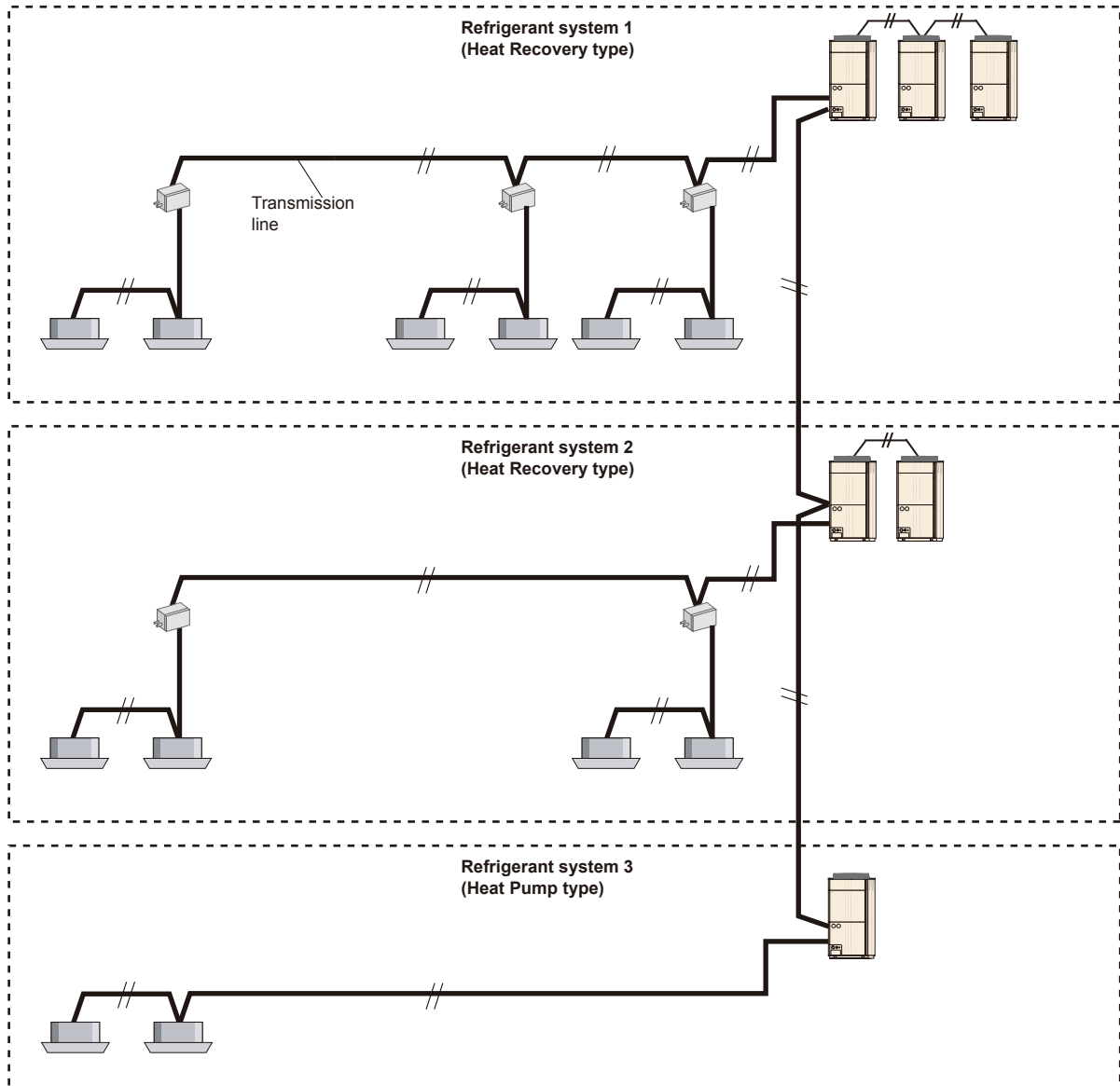


Fig. 1-1

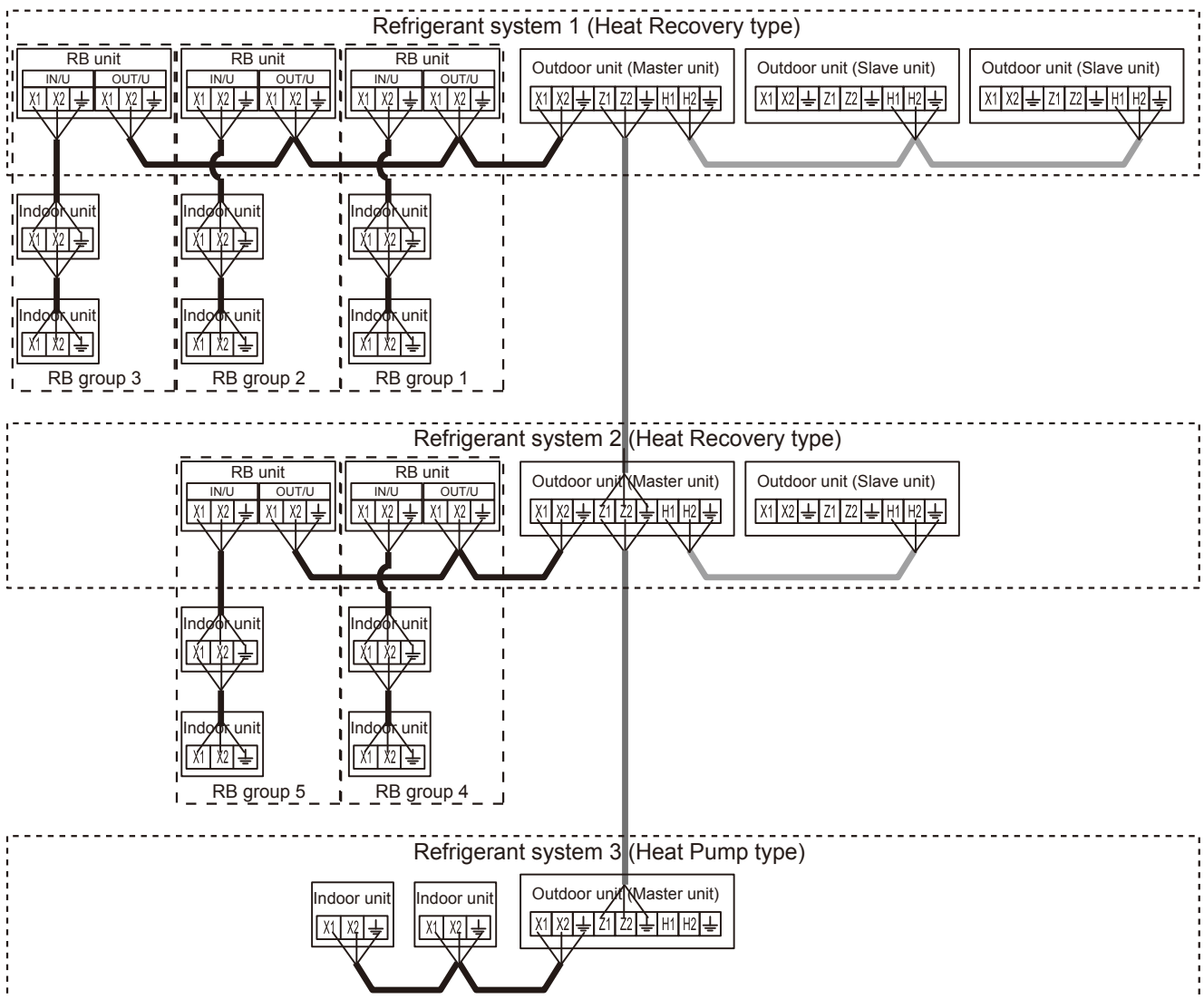


Fig. 1-2

- X1, X2 : Indoor unit to outdoor unit (Master)
Indoor unit to RB unit
RB unit to Outdoor unit (Master)
- Z1, Z2 : Connection for different refrigerant circuit of master outdoor unit
- H1, H2 : Module link connection between master and slave outdoor units
(It is required for combination use.)

● **Serial connection**

Serial connection means one transmission wire connects in series in a VRF Network.

The example of serial connection wiring.

Connect the transmission cable like as Fig 2-1, 2-2.

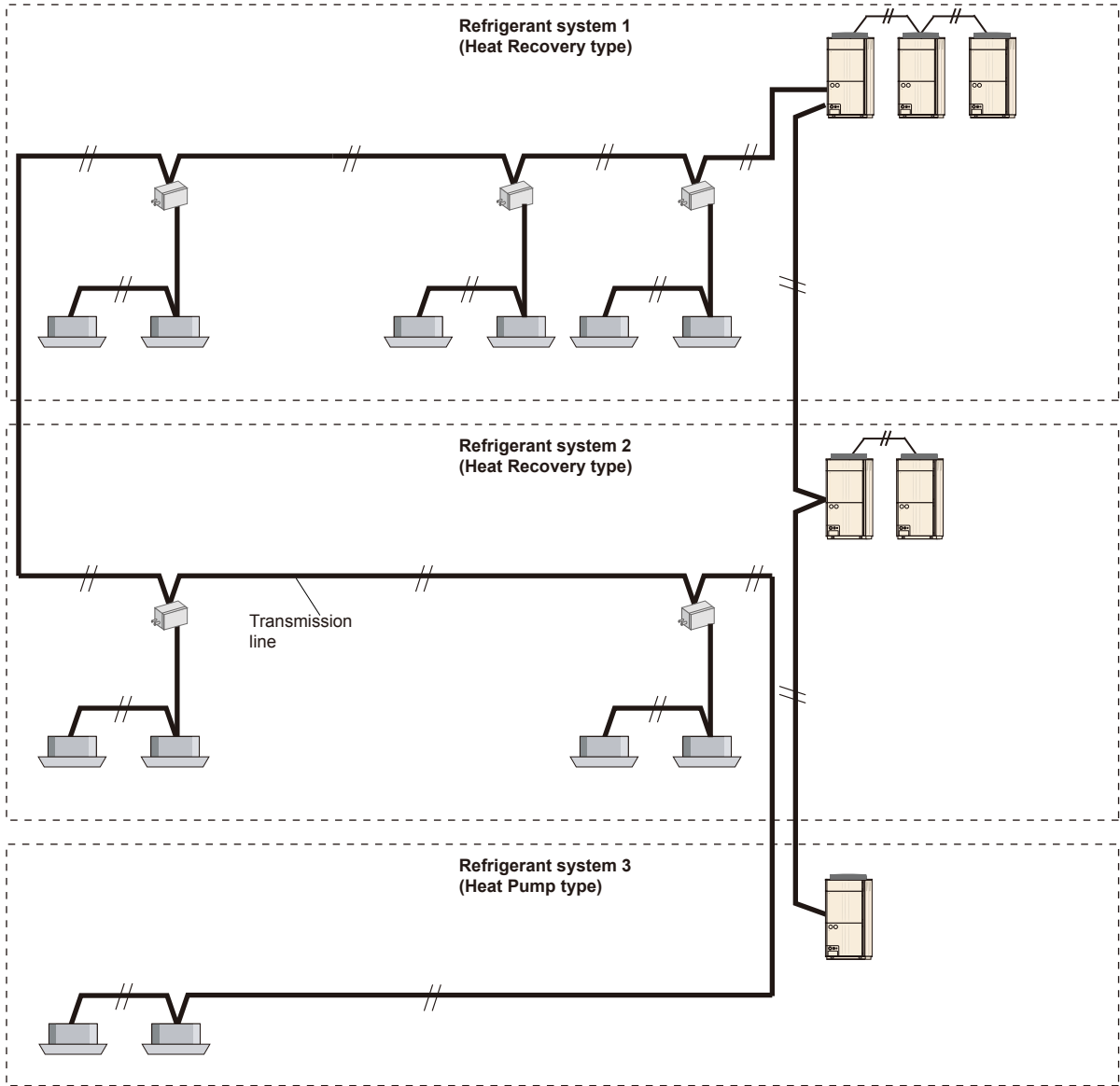


Fig. 2-1

SYSTEM DESIGN

SYSTEM DESIGN

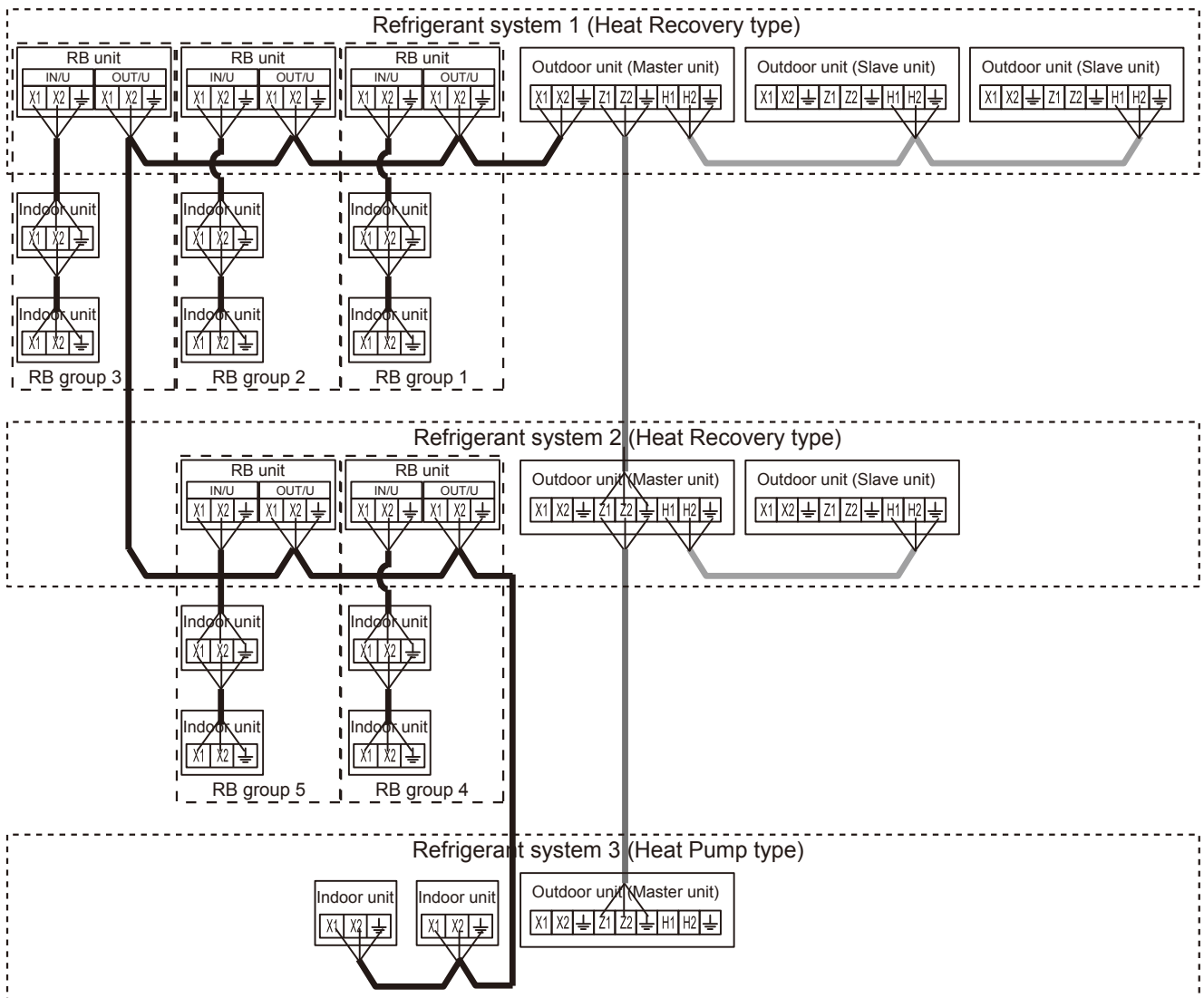
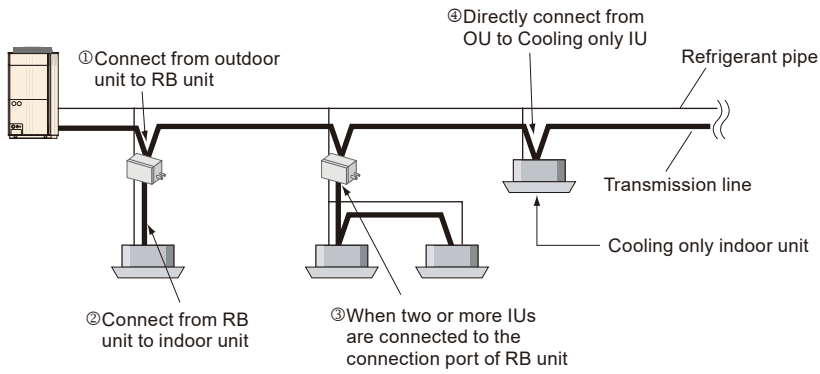


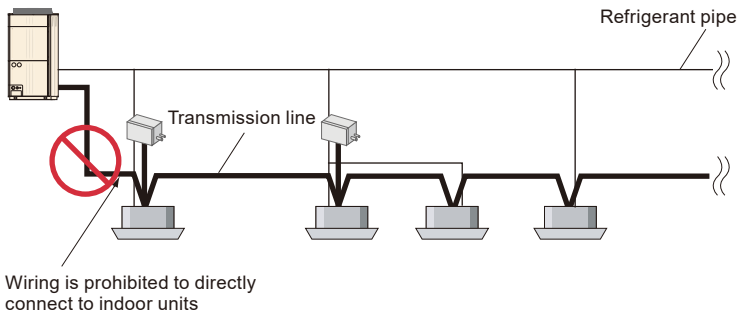
Fig. 2-2

- X1, X2 : Indoor unit to outdoor unit (Master)
Indoor unit to RB unit
RB unit to Outdoor unit (Master)
- Z1, Z2 : Connection for different refrigerant circuit of master outdoor unit
- H1, H2 : Module link connection between master and slave outdoor units
(It is required for combination use.)

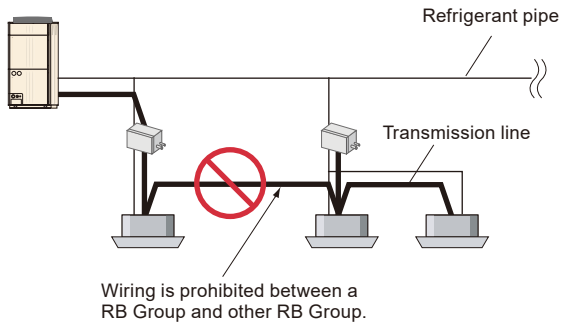
WIRING RULES



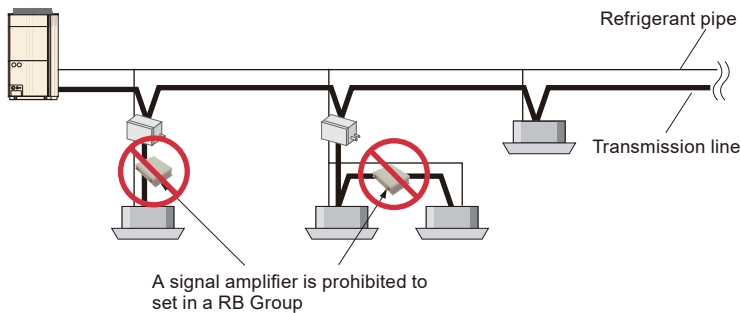
Prohibited 1



Prohibited 2

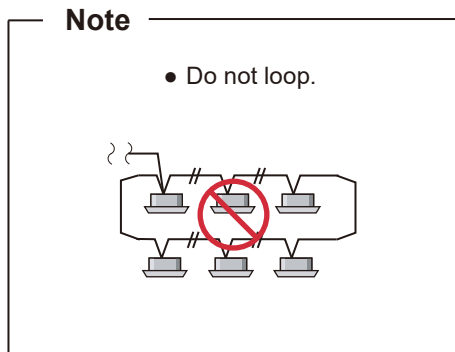


Prohibited 3

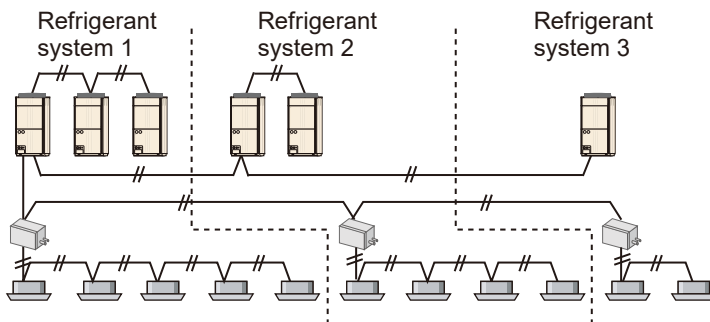


TRANSMISSION LINE SEPARATION RULES

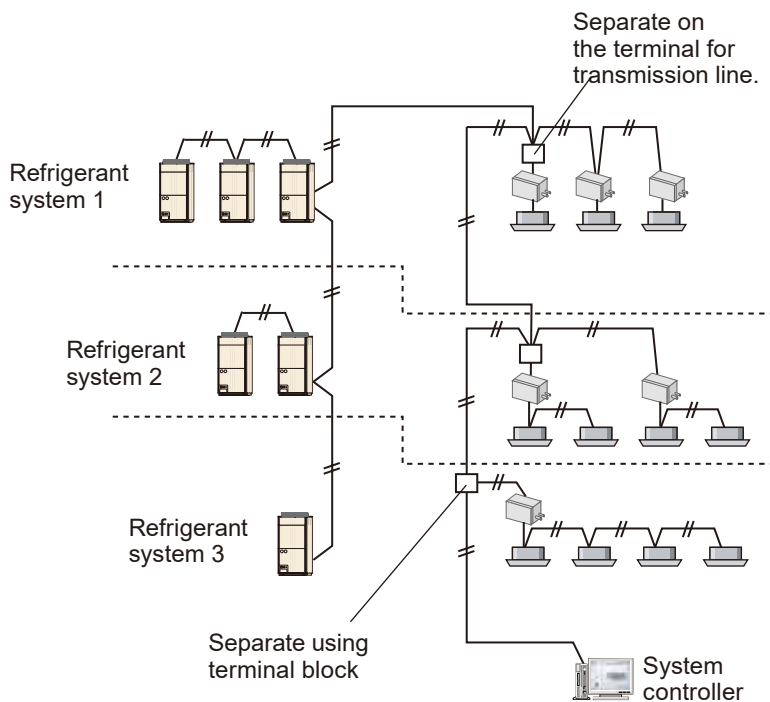
- To ensure a quality connection of communication wires, the use of a separate terminal block is recommended.
- Connection of three or more lines on one terminal may cause poor communication. In this case, use a terminal block.



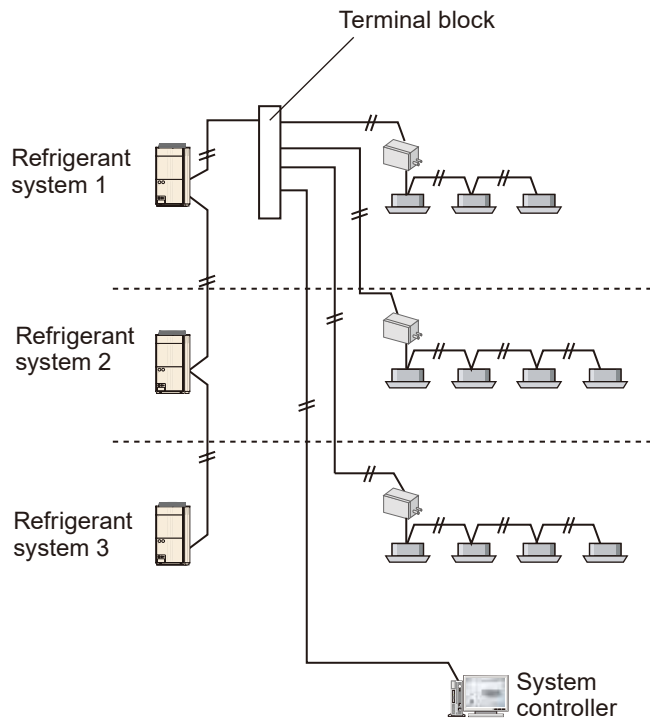
Example 1 : Connecting each outdoor and RB unit with one connection wiring.



Example 2 : Separating transmission line.



Example 3 : Separation wiring from one terminal block.

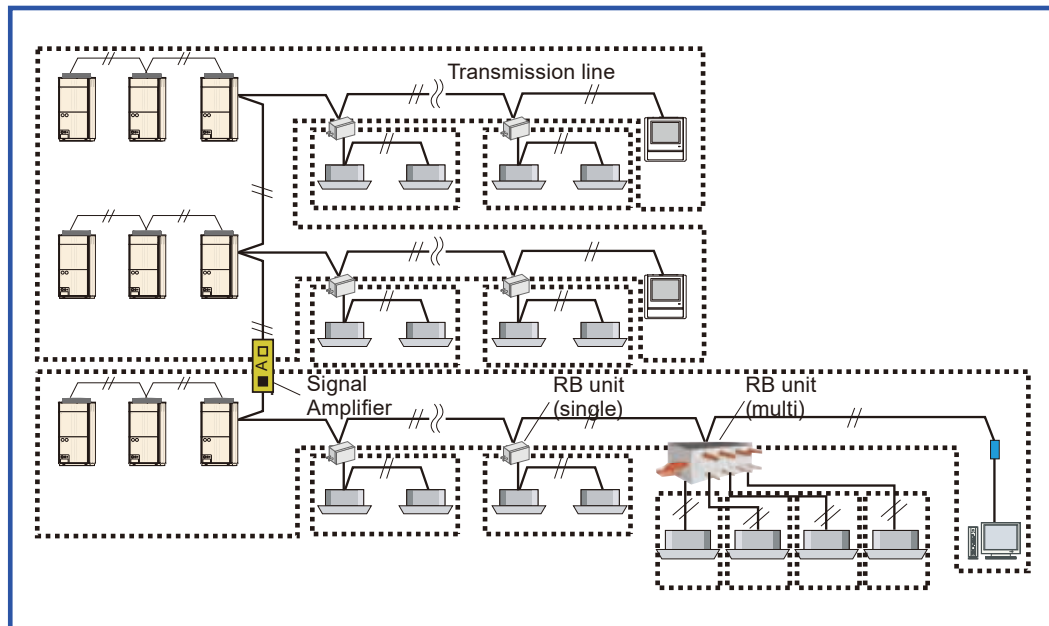


4-3-3.DETAILS OF VRF NETWORK SYSTEM

■ DEFINITION

- VRF Network→Connections of all units on a transmission line in a VRF series.
- Segment (Seg) →Each section of a network separated by a signal amplifier or an RB Unit.
- Auto Address Setting→Function that enables the indoor unit address to be set automatically.
- Serial connection→Transmission wiring method which connects all units in a series.
- Parallel connection→Transmission wiring method which transmission wire connects parallel VRF Networks.
- Terminal Resistor→Resistor that must be installed, either by dip-switch or by inserting resistor in circuit, in each segment.
- Element→Generic name for IU, OU, RB unit, SA, TPC, CRC and so on in Segment.

■ OVER VIEW



■ INSTALLATION CONDITION OF SIGNAL AMPLIFIER

To ensure proper communication in a VRF Network, the following conditions must be met:

- Wiring length
Total transmission line length: Maximum 1640 ft. (500 m).
Transmission line length between each unit: Maximum 1312 ft. (400 m).
- Number of element
The number of total element in 1 segment: Maximum 64 elements.
(Number of elements as defined in the table below)

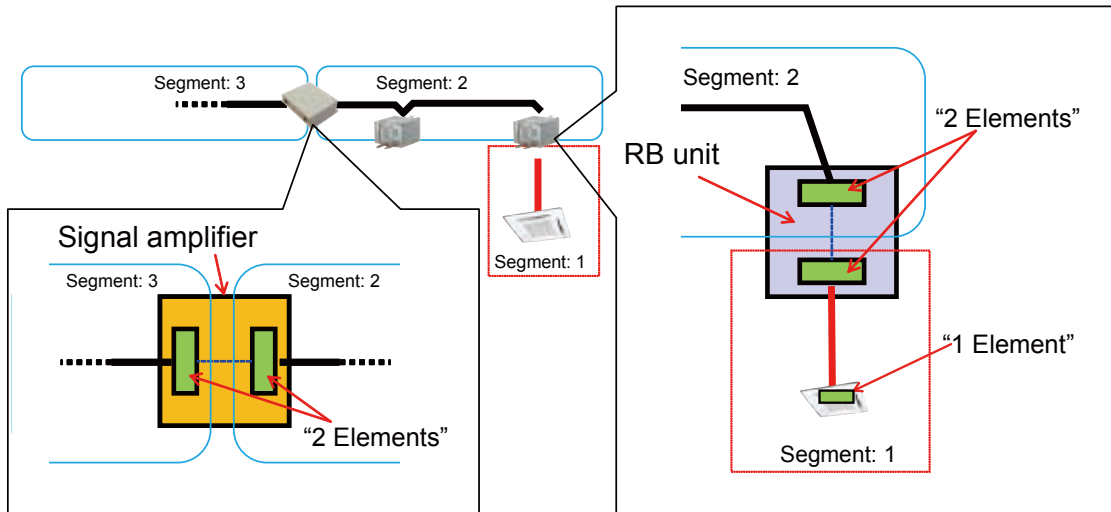
● Meaning of element

Each units below should be counted in Segment

		Model name	Count
Outdoor unit	Master	-	1
	Slave	-	0
All indoor unit		-	1
RB unit	Single type	UTP-RU01AH UTP-RU01BH UTP-RU01CH	1
	Multi type	UTP-RU04BH	*1 4
Controller	System controller	UTY-APGXZ1	1
	System controller Lite	UTY-ALGXZ1	*1 1
	Touch panel controller	UTY-DTG*Z1	1
	Central Remote controller	UTY-DCG*	1
	Group remote controller	UTY-CGG*	0
	Wired remote controller (Touch panel)	UTY-RNRUZ2	0
	Wired remote controller	UTY-RNK*	0
	Simple remote controller (With operation mode)	UTY-RSRY, UTY-RSKU	0
	Simple remote controller (Without operation mode)	UTY-RHRY, UTY-RHKU	0
	Wireless remote controller	UTY-LNH*	0
	IR receiver unit for Duct	UTB-*WC	0
IR receiver unit for Cassette	UTY-LRHBY1 UTY-LBHxD	0	
Adaptor / Convertor	External switch controller	UTY-TERX, UTY-TEKX	0
	Network convertor	UTY-VTGX, UTY-VGGXZ1	1
	Network convertor for LonWORKS®	UTY-VLGX	1
	Modbus® convertor for VRF	UTY-VMGX	1
	BACnet® Gateway (Hardware)	UTY-VBGX	1
	BACnet® Gateway (Software)	UTY-ABGXZ1	1
Signal amplifier	UTY-VSGXZ1	*1 1	
Maintenance	Service tool	UTY-ASGXZ1	1
	Web monitoring tool	UTY-AMGXZ1	1
Option	Others optional parts	-	0

*1: Signal Amplifier and RB unit should count each Segment.

The Signal amplifier and RB unit is located in the border of the different segments.
Therefore, the Signal amplifier and RB unit must be counted as element for the both segments.

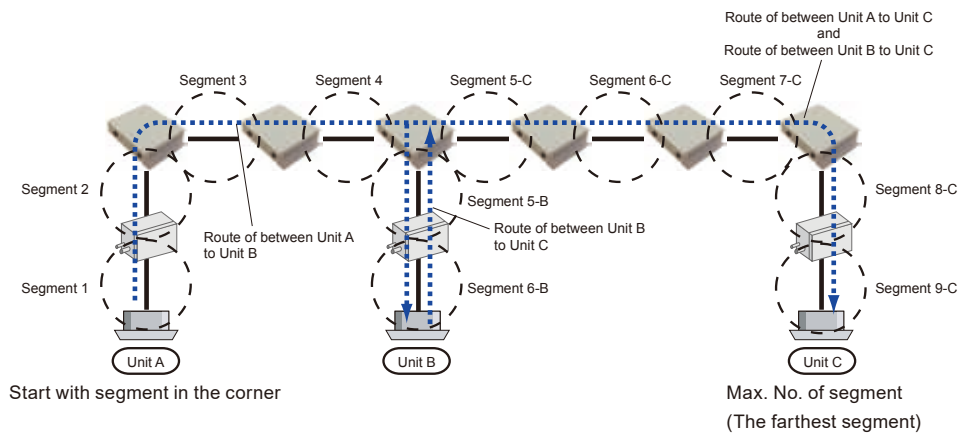


Block Diagram of Signal amplifier and RB unit

■ INSTALLATION RESTRICTION OF SIGNAL AMPLIFIER

- Rule of number of Signal amplifier
8 units or less
- Rule of number of Segment.
Total of number of Segment on the transmission line that connected each unit should be **9 or less**.

Example



The number of segment in route of between Unit A to Unit B: "6"

The number of segment in route of between Unit A to Unit C: "9"

The number of segment in route of between Unit B to Unit C: "7"

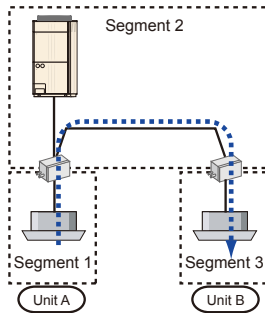
Judgement: The maximum number of segment is "9" → OK

● How to count Segments between each units

Counting conditions

- 1) Start counting from a corner of a segment.
- 2) Counting ends at the segment end.
- 3) When there are RB unit and Signal amplifier, the segment is divided there.
- 4) The path with the maximum number of segments will be used to determine proper installation.

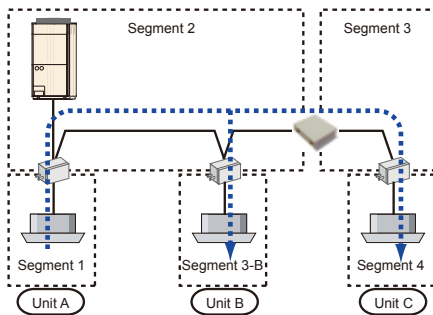
● Example 1



The number of segment in route of between Unit A to Unit B: "3"

Judgement: The maximum number of segment is "3" → OK

● Example 2

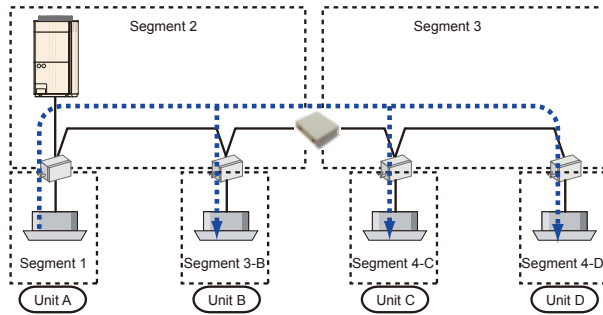


The number of segment in route of between Unit A to Unit B: "3"

The number of segment in route of between Unit A to Unit C: "4"

Judgement: The maximum number of segment is "4" → OK

● Example 3



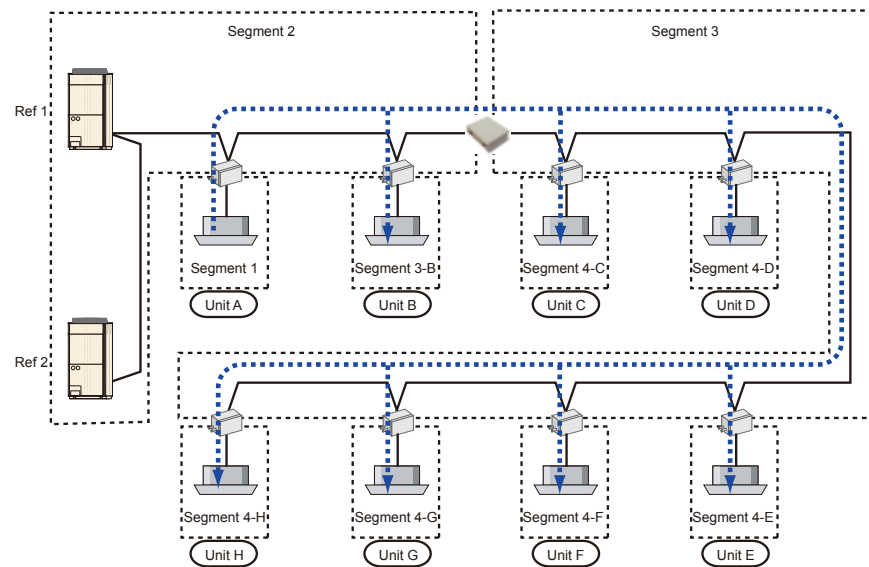
The number of segment in route of between Unit A to Unit B: "3"

The number of segment in route of between Unit A to Unit C: "4"

The number of segment in route of between Unit A to Unit D: "4"

Judgement: The maximum number of segment is "4" → OK

● Example 4



The number of segment in route of between Unit A to Unit B: "3"

The number of segment in route of between Unit A to Unit C: "4"

The number of segment in route of between Unit A to Unit D: "4"

The number of segment in route of between Unit A to Unit E: "4"

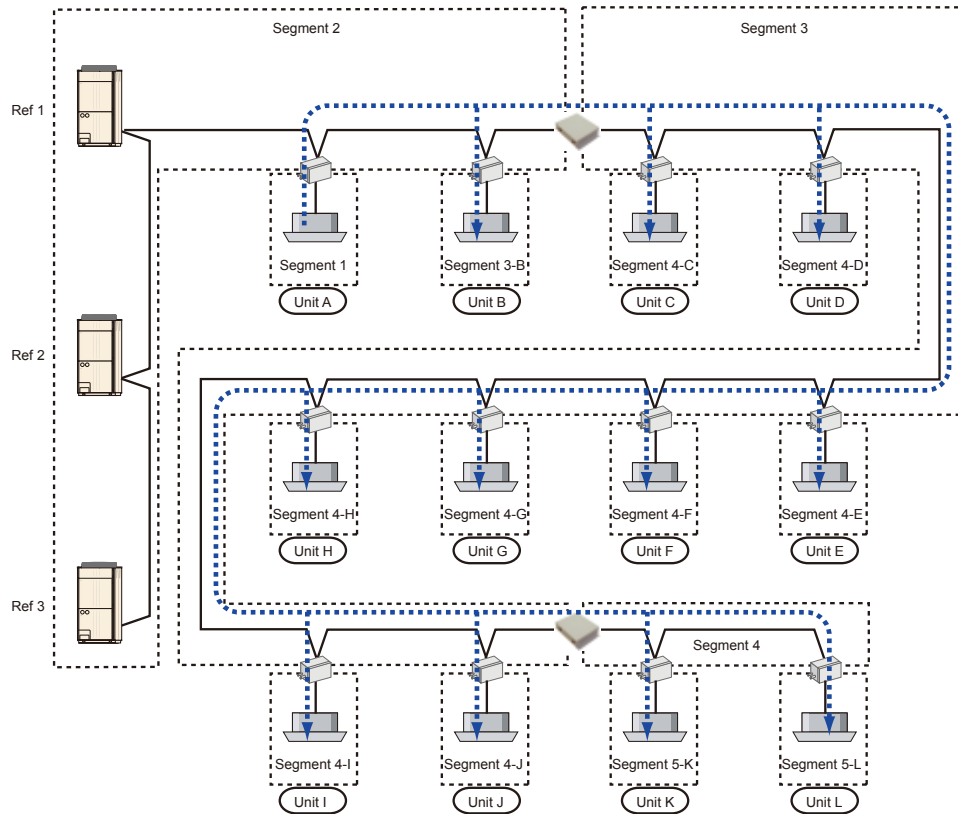
The number of segment in route of between Unit A to Unit F: "4"

The number of segment in route of between Unit A to Unit G: "4"

The number of segment in route of between Unit A to Unit H: "4"

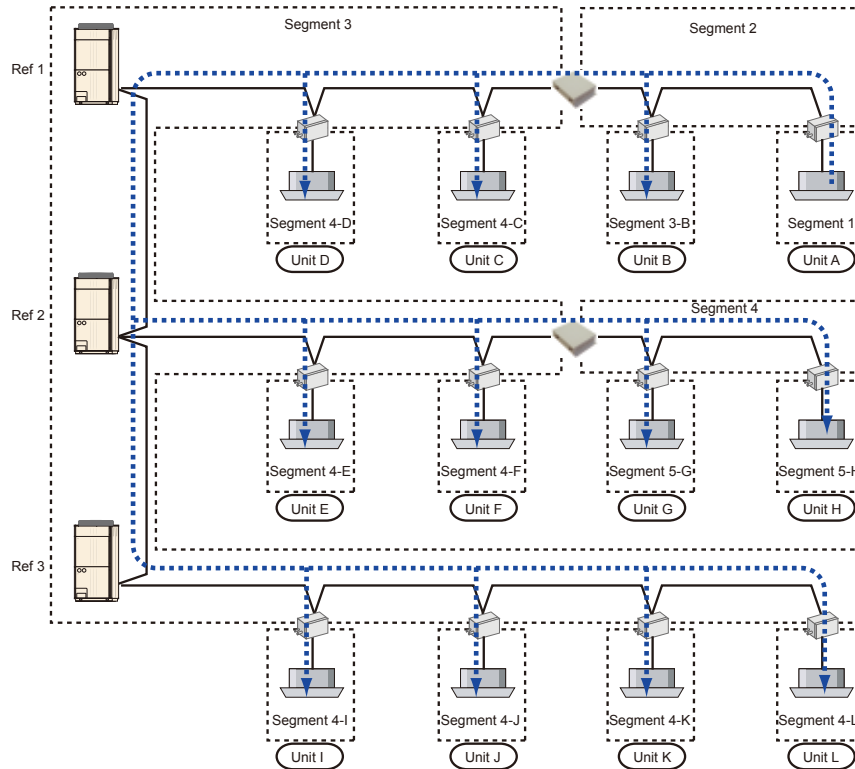
Judgement: The maximum number of segment is "4" → OK

● Example 5



- The number of segment in route of between Unit A to Unit B: "3"
 - The number of segment in route of between Unit A to Unit C: "4"
 - The number of segment in route of between Unit A to Unit D: "4"
 - The number of segment in route of between Unit A to Unit E: "4"
 - The number of segment in route of between Unit A to Unit F: "4"
 - The number of segment in route of between Unit A to Unit G: "4"
 - The number of segment in route of between Unit A to Unit H: "4"
 - The number of segment in route of between Unit A to Unit I: "4"
 - The number of segment in route of between Unit A to Unit J: "4"
 - The number of segment in route of between Unit A to Unit K: "5"
 - The number of segment in route of between Unit A to Unit L: "5"
- Judgement: The maximum number of segment is "5" → OK**

● Example 6 (Parallel connection)



The number of segment in route of between Unit A to Unit B: "3"

The number of segment in route of between Unit A to Unit C: "4"

The number of segment in route of between Unit A to Unit D: "4"

The number of segment in route of between Unit A to Unit E: "4"

The number of segment in route of between Unit A to Unit F: "4"

The number of segment in route of between Unit A to Unit G: "5"

The number of segment in route of between Unit A to Unit H: "5"

The number of segment in route of between Unit A to Unit I: "4"

The number of segment in route of between Unit A to Unit J: "4"

The number of segment in route of between Unit A to Unit K: "4"

The number of segment in route of between Unit A to Unit L: "4"

Judgement: The maximum number of segment is "5" → OK

4-3-4. INSTALLATION OF SIGNAL AMPLIFIER & TERMINAL RESISTOR

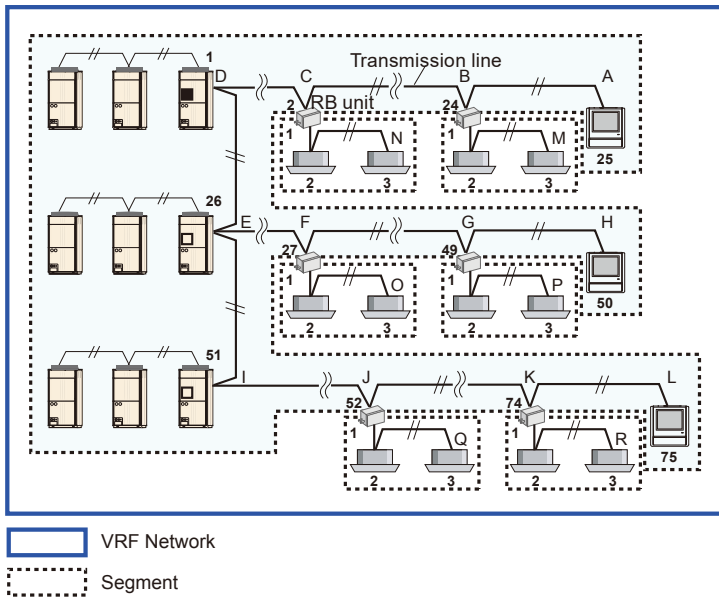
■ PATTERN A (Parallel connection)

● Step 1

Follow each step according to Wiring Rule.

- 1) Maximum transmission line length between units in 1 segment: Maximum 1312 ft. (400 m)
- 2) Total transmission line length in 1 segment: Maximum 1640 ft. (500 m)
- 3) Total transmission line length in 1 VRF network: Maximum 11811 ft. (3600 m)
- 4) The total number of element in 1 segment: Maximum 64
- 5) Total of Segment in 1 VRF network: Maximum 9 segments

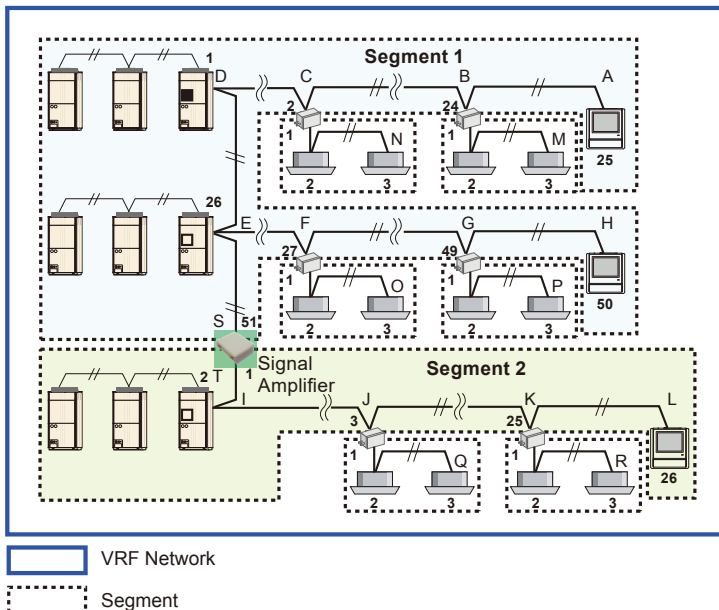
(Before Signal amplifier installation)



- 1) Maximum transmission line length between units in 1 segment:
IJ=328 ft. (100 m) < 1312 ft. (400 m) →OK
- 2) Total transmission line length in 1 segment:
● AB+BC+CD+DE+EF+FG+GH+EI+JJ+JK+KL = **1968 ft. (600m) > 1640 ft. (500m)**
→**Prohibited**
● BM=49 ft. (15m) < 1640 ft. (500m) →OK
● CN=49 ft. (15m) < 1640 ft. (500m) →OK
● FO=49 ft. (15m) < 1640 ft. (500m) →OK
● GP=49 ft. (15m) < 1640 ft. (500m) →OK
● JQ=49 ft. (15m) < 1640 ft. (500m) →OK
● KR=49 ft. (15m) < 1640 ft. (500m) →OK
- 3) Total transmission line length in 1 VRF network: 5249 ft. (1600 m) < 11811 ft. (3600 m) →OK
- 4) The total number of element in 1 segment: **75 > 64** →**Prohibited**
- 5) Total of Segment in 1 VRF network: 3 segments < 9 segments →OK



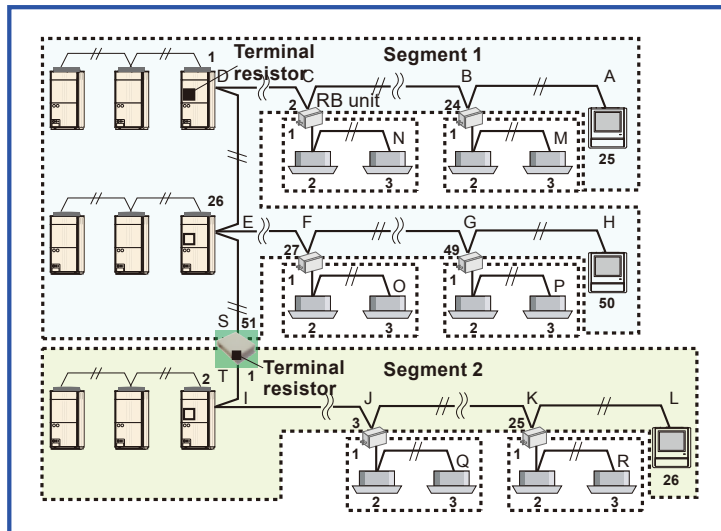
(After Signal amplifier installation)



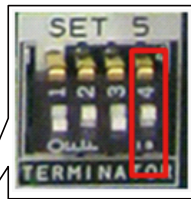
- 1) Maximum transmission line length between units in 1 segment:
328 ft. (100 m) < 1312 ft. (400 m) →OK
- 2) Total transmission line length in 1 segment:
● AB+BC+CD+DE+EF+FG+GH+ES = **1312 ft. (400m) (Seg 1) < 1640 ft. (500m) →OK**
● TI+IJ+JK+KL = **656 ft. (200m) (Seg 2) < 1640 ft. (500m) →OK**
● BM=49 ft. (15m) < 1640 ft. (500m) →OK
● CN=49 ft. (15m) < 1640 ft. (500m) →OK
● FO=49 ft. (15m) < 1640 ft. (500m) →OK
● GP=49 ft. (15m) < 1640 ft. (500m) →OK
● JQ=49 ft. (15m) < 1640 ft. (500m) →OK
● KR=49 ft. (15m) < 1640 ft. (500m) →OK
- 3) Total transmission line length in 1 VRF network: 5249 ft. (1600 m) < 11811 ft. (3600 m) →OK
- 4) The total number of element in 1 segment:
Segment 1: 51 < 64 →OK
Segment 2: 26 < 64 →OK
- 5) Total of Segment in 1 VRF network: 4 segments < 9 segments →OK

● Step 2

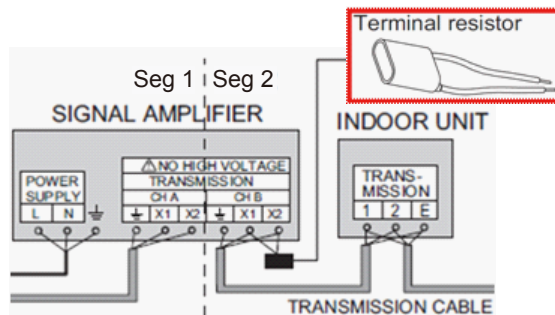
One Terminal resistor should be installed on each segment.



VRF Network
 Segment



The 4th switch in SET5 DipSW of Outdoor unit PCB
(On: Enable, Off: Disable)



Signal amplifier PCB

NOTE: It is not necessary to install a terminal resistor between the RB Unit and the indoor unit; the terminal resistor is built into the RB Unit.

● Step 3

- Confirm proper installation of transmission line.
- Confirm transmission line connections to indoor units.
- Confirm that there is one terminal resistor on each each network segment.

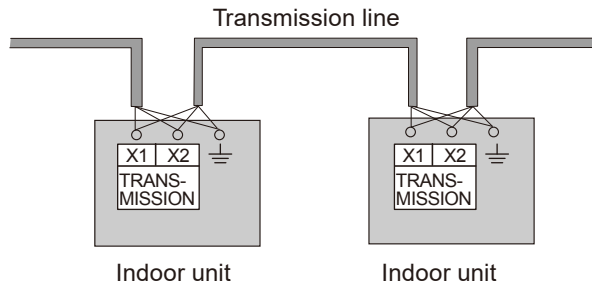
Measure the resistance of the signal amplifier terminal and the terminal of the indoor and outdoor units connected farthest away from the device where terminal resistor is measured.

A value from the table is displayed, depending on the distance from the signal amplifier and the device where the terminal resistor is set.

This value is an estimate.

	Distance from termination resistor ft. (m)				
	0 ~ 328 (0 ~ 100)	~ 656 (~ 200)	~ 984 (~ 300)	~ 1312 (~ 400)	~ 1640 (~ 500)
0 ~ 50	A short circuit somewhere or 2 or more termination resistors are connected				
50	█				
60		█			
70			█		
80				█	
90					█
100					█
110					█
120					█
130					█
140					█
150					█
160					█
170					█
180					█
190 ~	Faulty contact or wiring length over 1614 (500)				
1K ~ ∞	Faulty contact, open circuit, or no termination resistor				

- Always ground both ends of the transmission line.



● Step 4 : Confirm transmission wiring system in VRF network

Confirm all transmission wiring is within specified parameters.

Check list

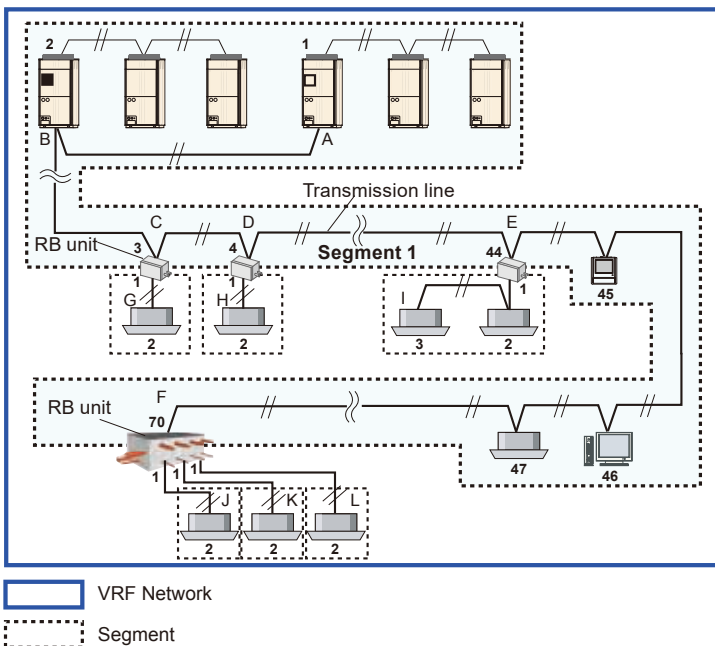
- 1) Maximum transmission line length between units in 1 segment: Maximum 1312 ft. (400 m)
- 2) Total transmission line length in 1 segment: Maximum 1640 ft. (500 m)
- 3) Total transmission line length in 1 VRF network: Maximum 11811 ft. (3600 m)
- 4) The total number of element in 1 segment: Maximum 64
- 5) Total of Segment in 1 VRF network: Maximum 9 segments

■ PATTERN B (Serial connection)

● Step 1

Follow each step according to Wiring Rule.

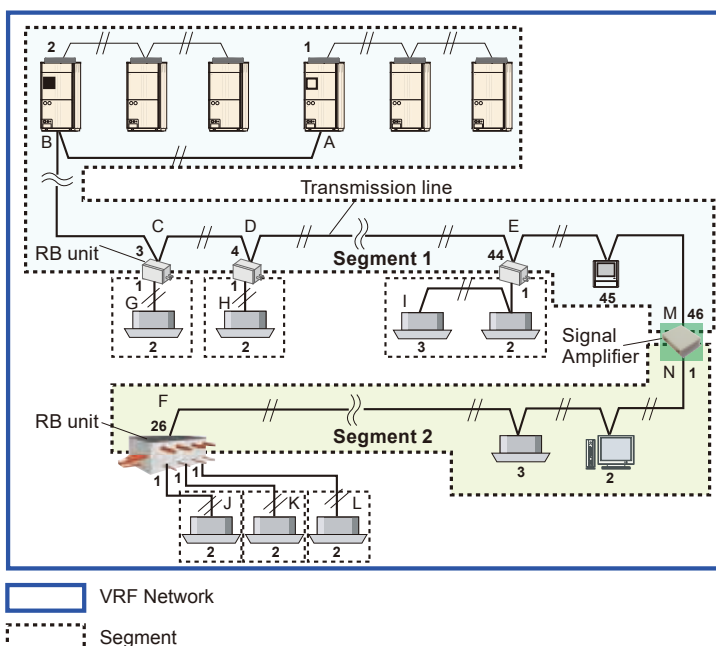
- 1) Maximum transmission line length between units in 1 segment: Maximum 1312 ft. (400 m)
- 2) Total transmission line length in 1 segment: Maximum 1640 ft. (500 m)
- 3) Total transmission line length in 1 VRF network: Maximum 11811 ft. (3600 m)
- 4) The total number of element in 1 segment: Maximum 64
- 5) Total of Segment in 1 VRF network: Maximum 9 segments
(Before Signal amplifier installation)



- 1) Maximum transmission line length between units in 1 segment:
BC=328 ft. (100 m) < 1312 ft. (400 m) →OK
- 2) Total transmission line length in 1 segment:
●AB+BC+CD+DE+EF = **2296 ft. (700m) > 500m →Prohibited**
●CG=32 ft. (10m) < 1640 ft. (500m) →OK
●DH=32 ft. (10m) < 1640 ft. (500m) →OK
●EI=49 ft. (15m) < 1640 ft. (500m) →OK
●FJ=32 ft. (10m) < 1640 ft. (500m) →OK
●FK=32 ft. (10m) < 1640 ft. (500m) →OK
●FL=32 ft. (10m) < 1640 ft. (500m) →OK
- 3) Total transmission line length in 1 VRF network: 4921 ft. (1500 m) < 11811 ft. (3600 m) →OK
- 4) The total number of element in 1 segment: **70 > 64 →Prohibited**
- 5) Total of Segment in 1 VRF network: 3 segments < 9 segments →OK



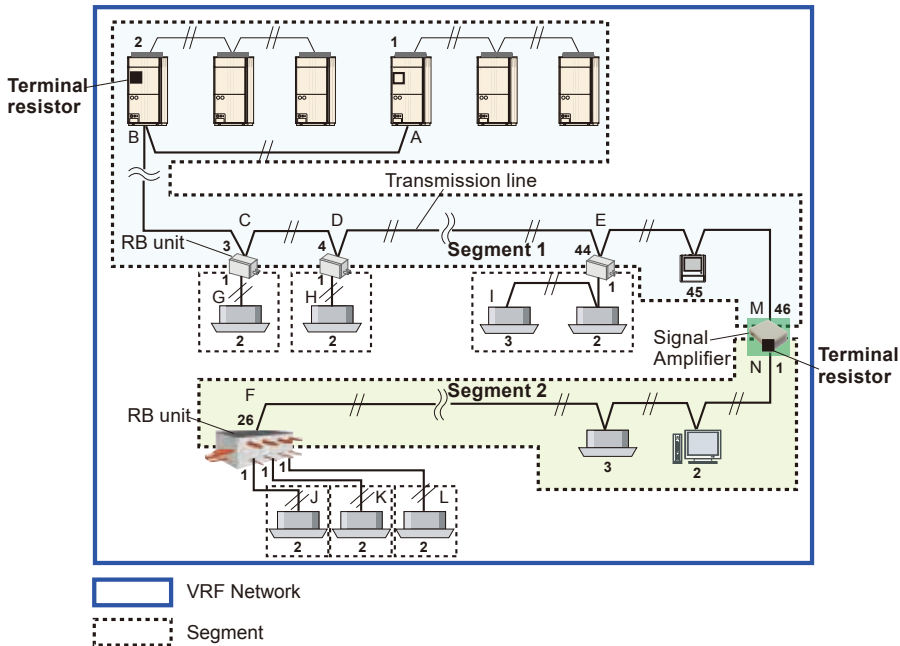
(After Signal amplifier installation)



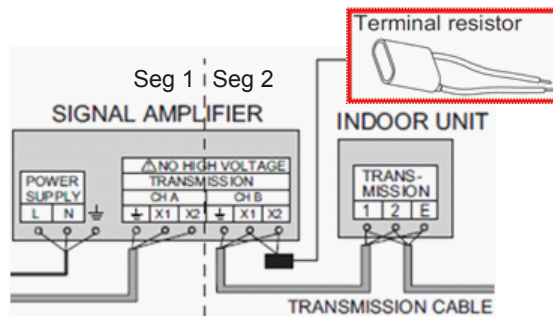
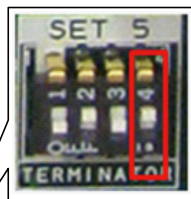
- 1) Maximum transmission line length between units in 1 segment:
BC=328 ft. (100 m) < 1312 ft. (400 m) →OK
- 2) Total transmission line length in 1 segment:
●AB+BC+CD+DE+EM = **1476 ft. (450m) (Seg 1) < 1640 ft. (500m) →OK**
●NF=**820 ft. (250m) (Seg 2) < 1640 ft. (500m) →OK**
●CG=32 ft. (10m) < 1640 ft. (500m) →OK
●DH=32 ft. (10m) < 1640 ft. (500m) →OK
●EI=49 ft. (15m) < 1640 ft. (500m) →OK
●FJ=32 ft. (10m) < 1640 ft. (500m) →OK
●FK=32 ft. (10m) < 1640 ft. (500m) →OK
●FL=32 ft. (10m) < 1640 ft. (500m) →OK
- 3) Total transmission line length in 1 VRF network: 4921 ft. (1500 m) < 11811 ft. (3600 m) →OK
- 4) The total number of element in 1 segment:
Segment 1: 46 < 64 →OK
Segment 2: 26 < 64 →OK
- 5) Total of Segment in 1 VRF network: 4 segments < 9 segments →OK

● Step 2

One Terminal resistor should be installed on each segment.



The 4th switch in SET5 DipSW of Outdoor unit PCB (On: Enable, Off: Disable)



Signal amplifier PCB

NOTE: It is not necessary to install a terminal resistor between the RB Unit and the indoor unit; the terminal resistor is built into the RB Unit.

● Step 3

- Confirm proper installation of transmission line.
- Confirm transmission line connections to indoor units.
- Confirm that there is one terminal resistor on each each network segment.

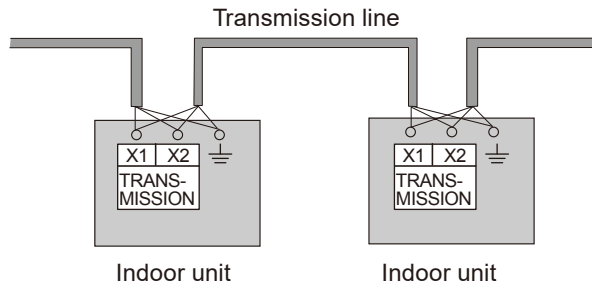
Measure the resistance of the signal amplifier terminal and the terminal of the indoor and outdoor units connected farthest away from the device where terminal resistor is measured.

A value from the table is displayed, depending on the distance from the signal amplifier and the device where the terminal resistor is set.

This value is an estimate.

	Distance from termination resistor ft. (m)				
	0 ~ 328 (0 ~ 100)	~ 656 (~ 200)	~ 984 (~ 300)	~ 1312 (~ 400)	~ 1640 (~ 500)
0 ~ 50	A short circuit somewhere or 2 or more termination resistors are connected				
50	█				
60		█			
70			█		
80				█	
90					█
100					█
110					█
120					█
130					█
140					█
150					█
160					█
170					█
180					█
190 ~	Faulty contact or wiring length over 1614 (500)				
1K ~ ∞	Faulty contact, open circuit, or no termination resistor				

- Always ground both ends of the transmission line.



● Step 4 : Confirm transmission wiring system in VRF network

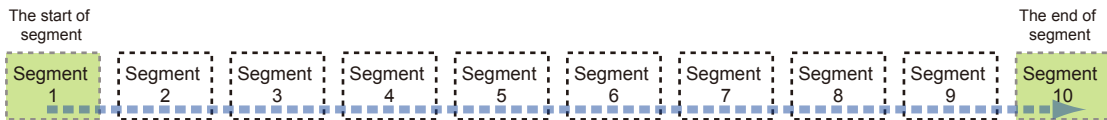
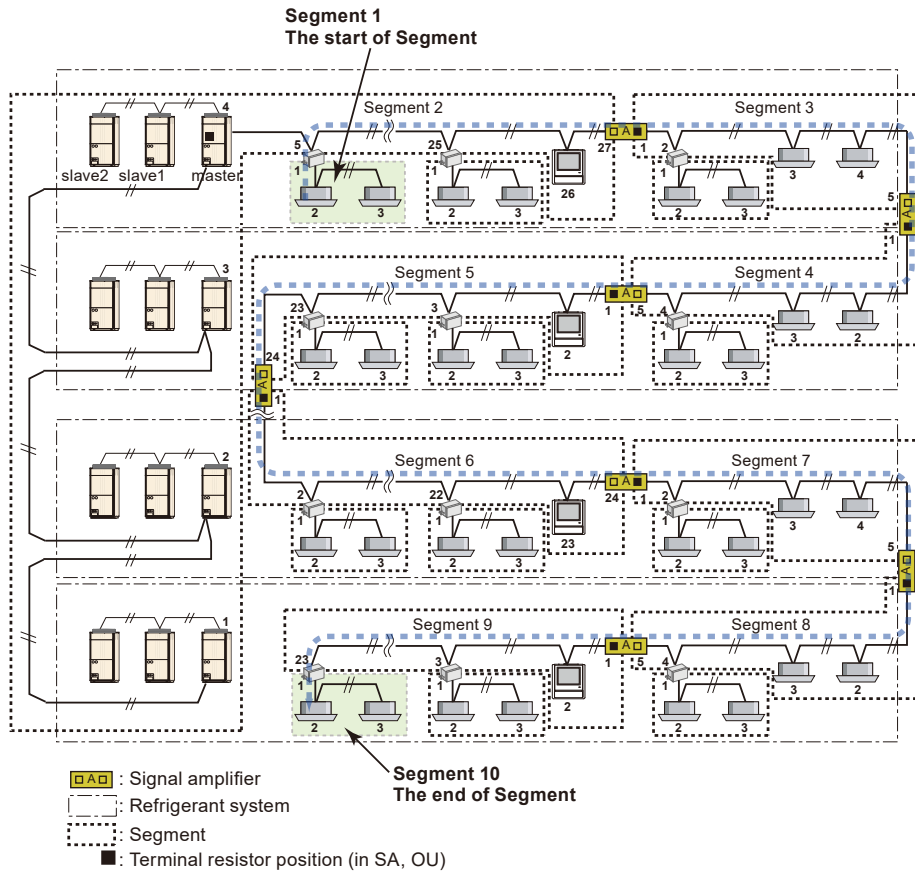
Confirm all transmission wiring is within specified parameters.

Check list

- 1) Maximum transmission line length between units in 1 segment: Maximum 1312 ft. (400 m)
- 2) Total transmission line length in 1 segment: Maximum 1640 ft. (500 m)
- 3) Total transmission line length in 1 VRF network: Maximum 11811 ft. (3600 m)
- 4) The total number of element in 1 segment: Maximum 64
- 5) Total of Segment in 1 VRF network: Maximum 9 segments

● Example B-1 (Prohibited)

- Conditions: 1) VRF system: VR-II only
 2) Total indoor unit: $45+45+45+45=180$ units (≤ 320)
 3) Total signal amplifier: 7units

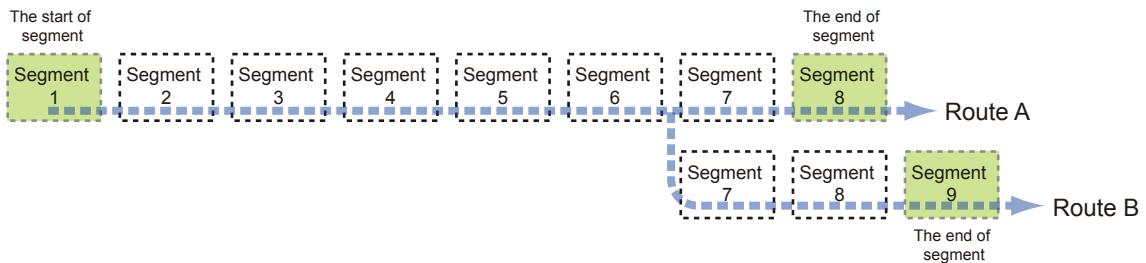
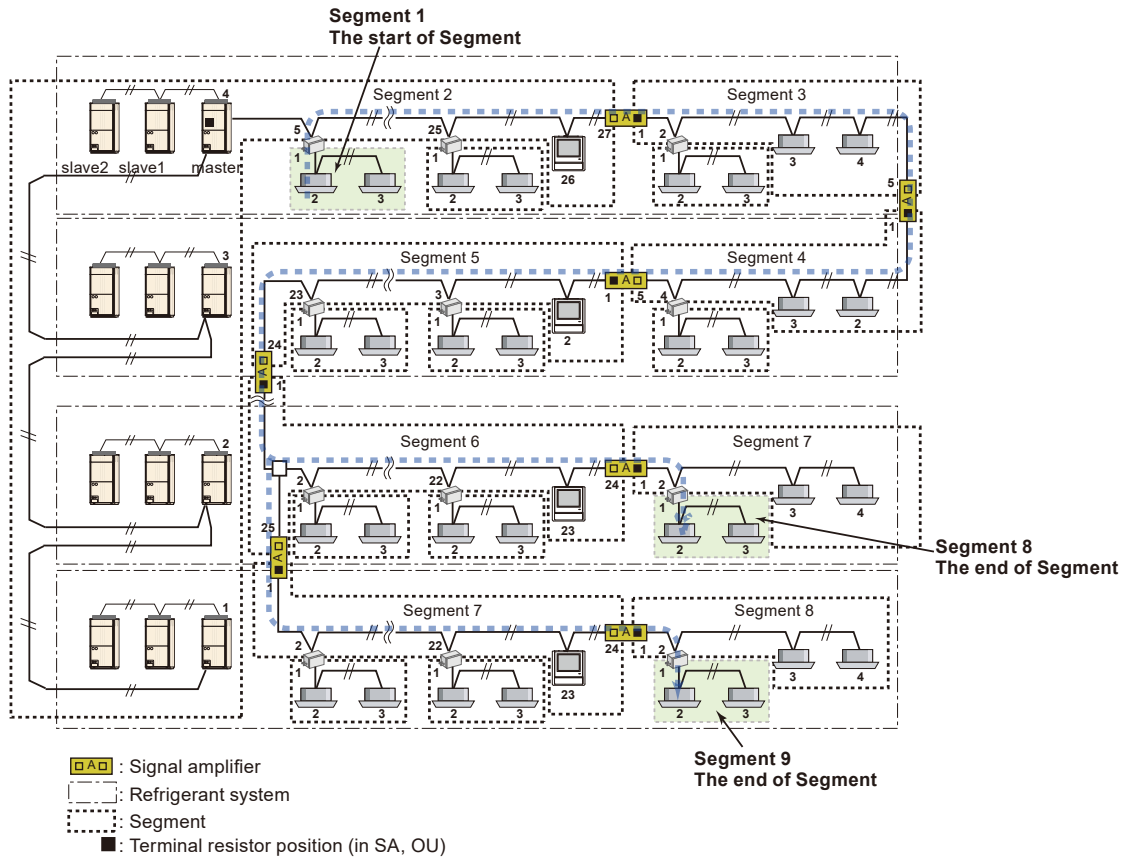


Judgement: Number of Segment = 10

- **Prohibited (Total of Segments should be 9 or less.)**
- Re-wiring with reference to Example A-2.

● Example B-2 (OK)

- Conditions: 1) VRF system: VR-II only
 2) Total indoor unit: 45+45+45+45=180units (≤ 320)
 3) Total signal amplifier: 7units

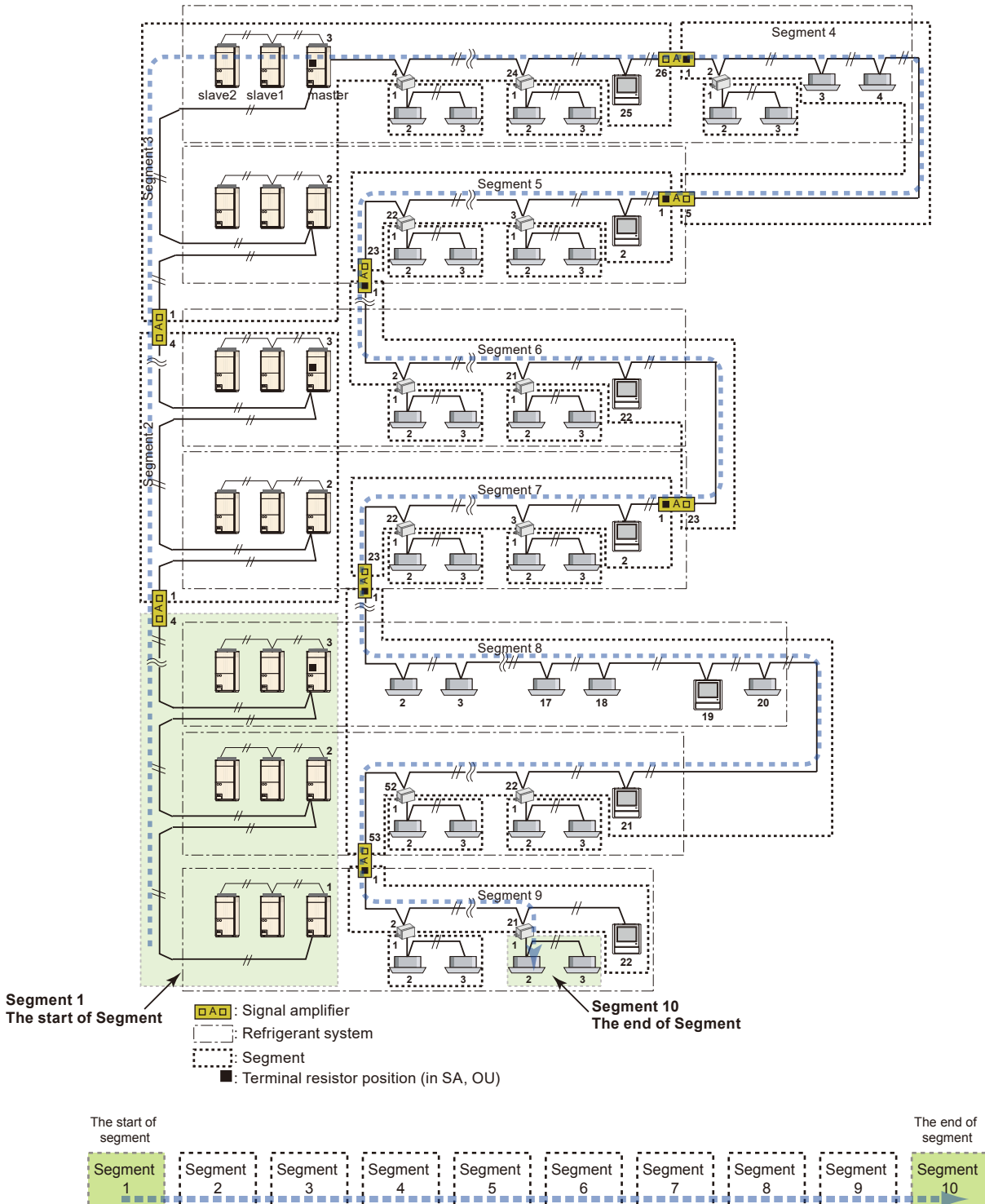


Route A Judgement: Number of Segment = 8
 → **OK (Total of Segments should be 9 or less.)**

Route B Judgement: Number of Segment = 9
 → **OK (Total of Segments should be 9 or less.)**

● Example B-3 (Prohibited)

- Conditions: 1) VRF system: VR-II and V-II
 2) Total indoor unit: 45+40+40+40+18+31+20=234units (≤ 320)
 3) Total signal amplifier: 8units



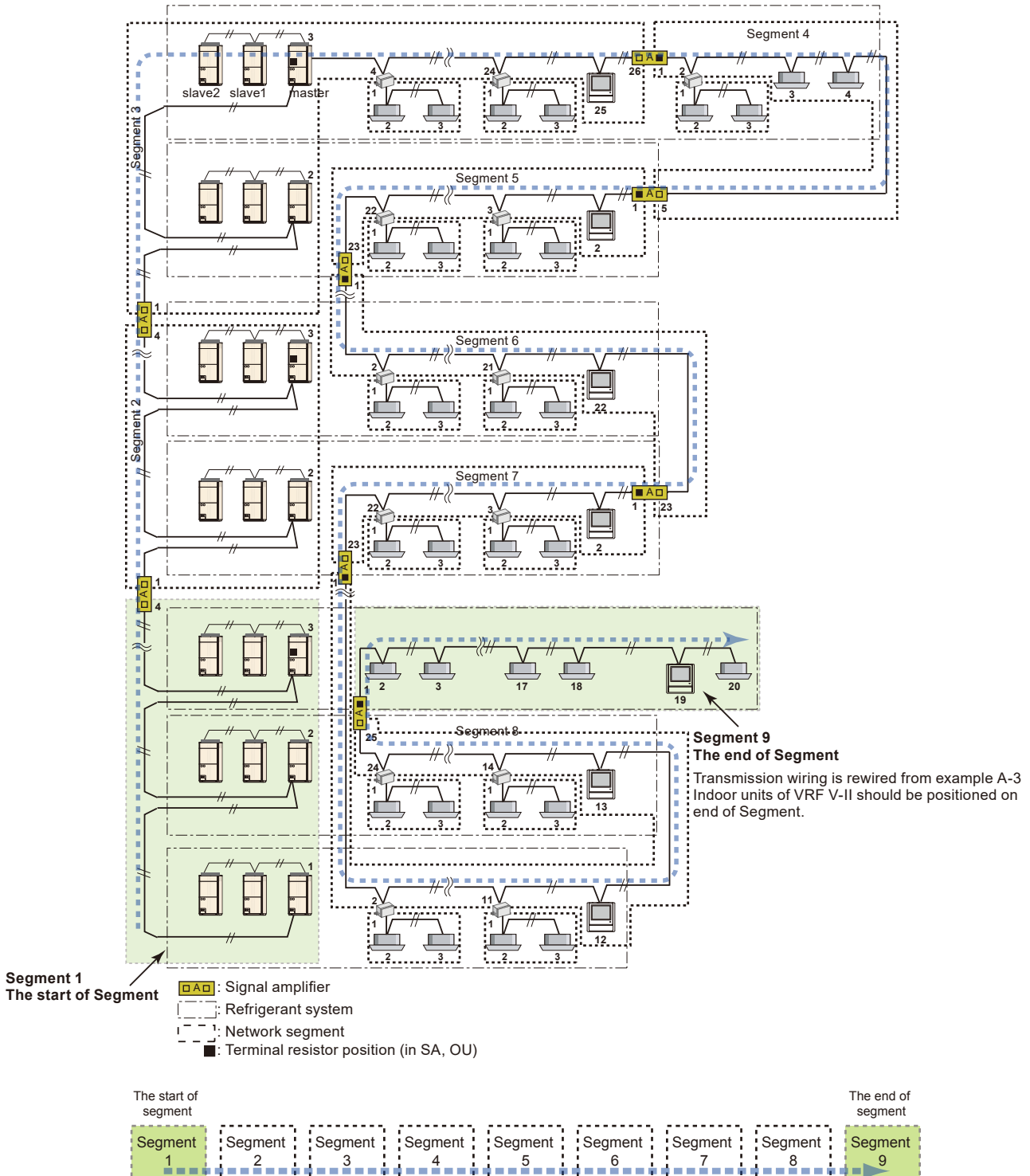
Judgement: Number of Segment = 10

→ **Prohibited (Total of Segments should be 9 or less.)**

→ Re-wiring with reference to Example A-4.

● Example B-4 (OK)

- Conditions: 1) VRF system: VR-II and V-II
 2) Total indoor unit: 45+40+40+40+18+31+20=234units (≤ 320)
 3) Total signal amplifier: 8units



Judgement: Number of Segment = 9

→ **OK (Total of Segments should be 9 or less.)**

■ PATTERN C (Reference)

NOTE: When total of indoor units are 321 units or more.

● Step 1

Count number of indoor unit on each refrigerant system.

● Step 2

Install Signal amplifier on refrigerant system.

Note: Additional signal amplifier might not be required, provided that there are 64 or fewer indoor units.

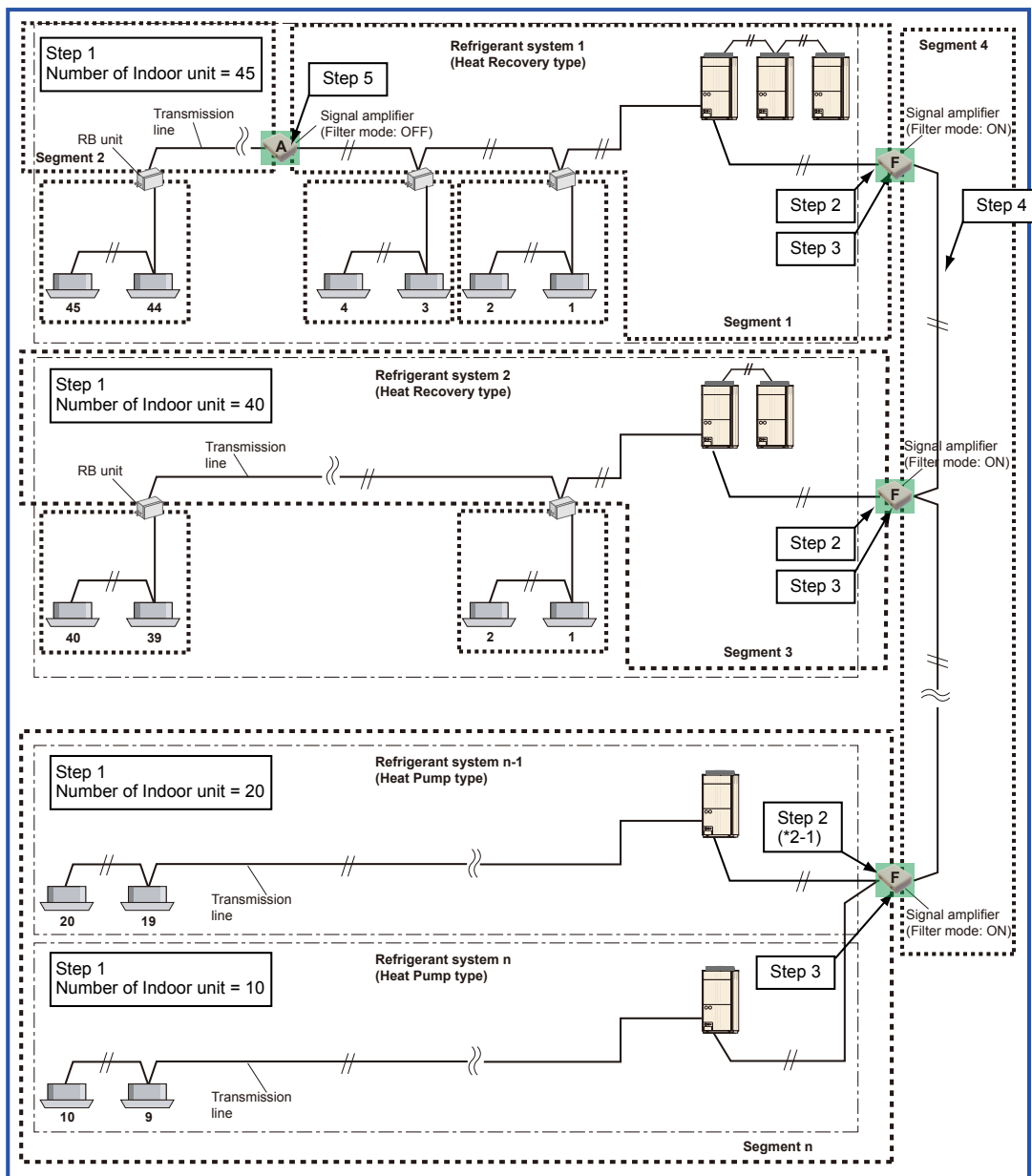
● Step 3

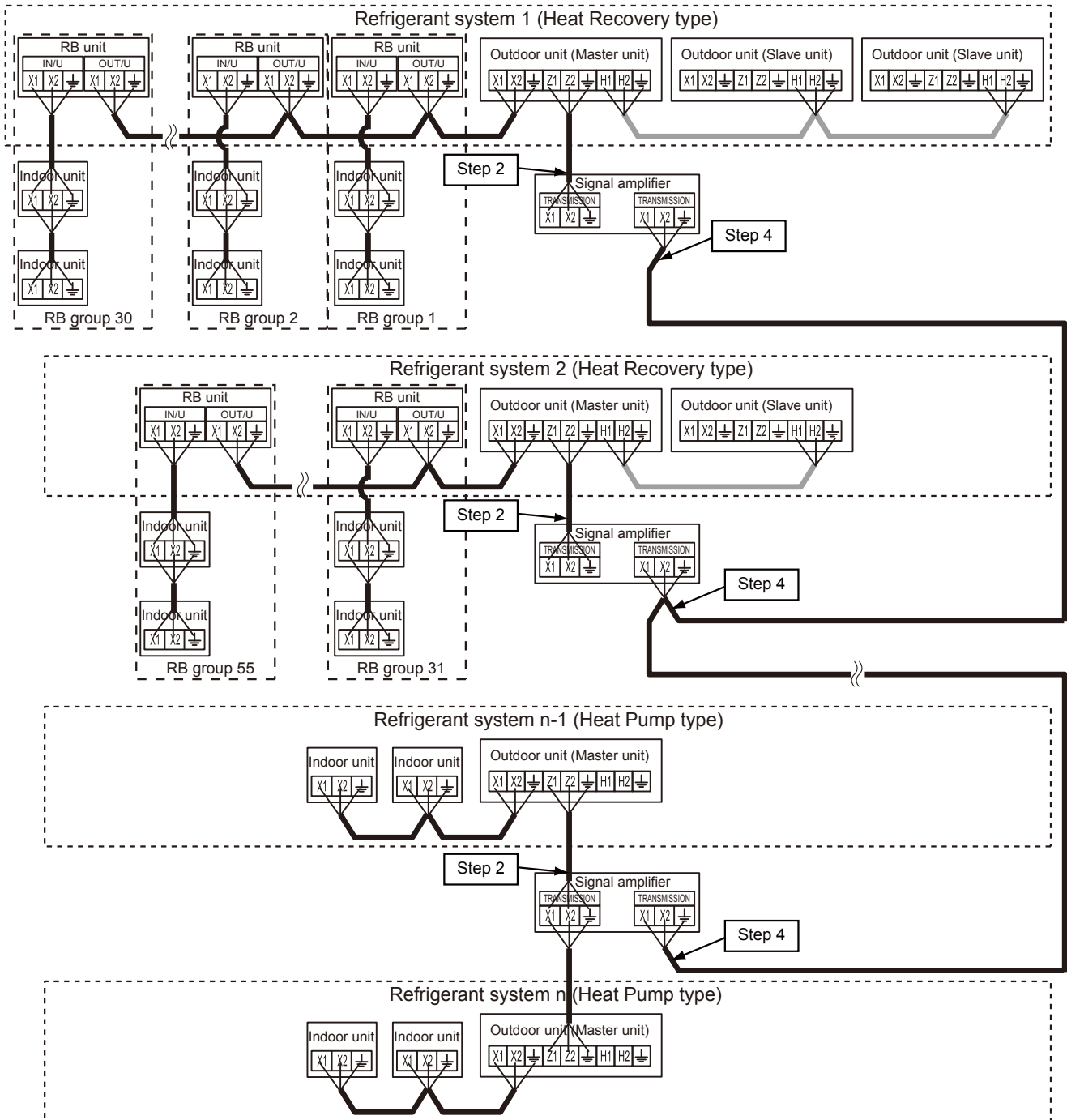
Each Signal amplifier should set filter mode ON.

● Step 4

Connect transmission wire between each Signal amplifiers that set filter mode ON.

● Example





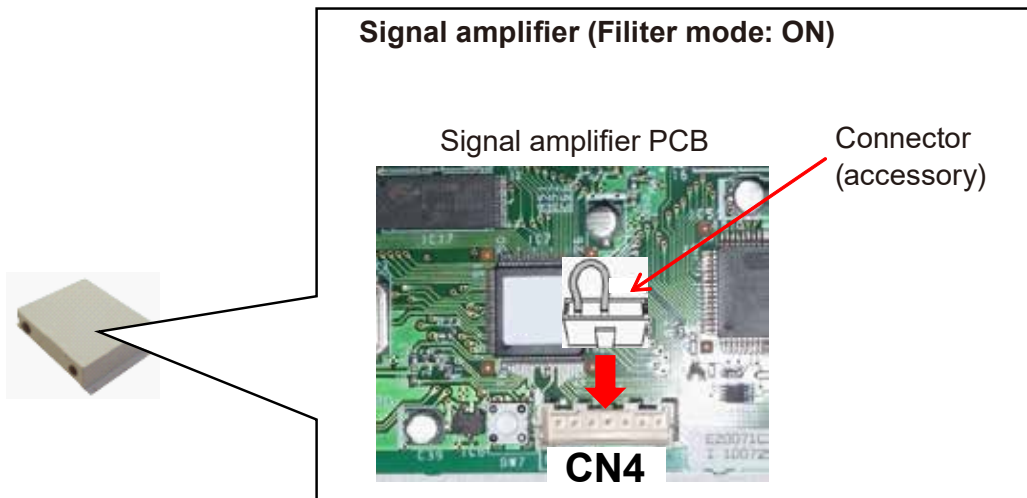
- X1, X2 : Indoor unit to outdoor unit (Master)
Indoor unit to RB unit
RB unit to Outdoor unit (Master)
- Z1, Z2 : Connection for different refrigerant circuit of master outdoor unit
- H1, H2 : Module link connection between master and slave outdoor units
(It is required for combination use.)

Caution: In Step 2 and Step 4 above, transmission line will connect to different terminals on the Signal Amplifier.

- **Signal amplifier (Filter mode: ON)**

Set the Filter mode to suppress an increase of the amount of communication information in the VR-II system.

- Filter mode is turned on by inserting the accessory connecting wire at the CN4 connector on the PC board.
- When the Filter mode setting is changed, turn the power off once. Otherwise, the setting will not be recognized.



- **Step 5**

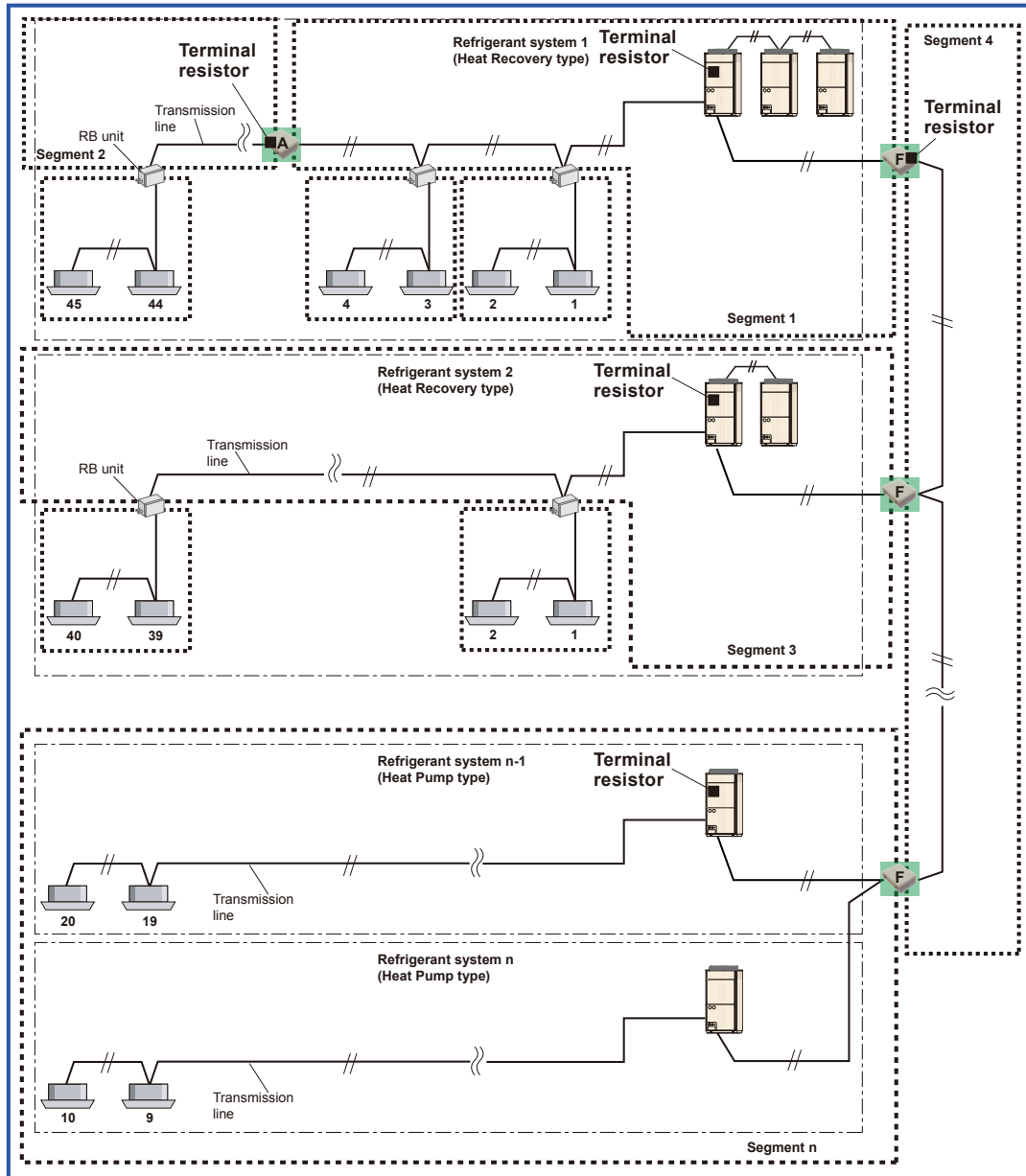
Confirm wiring lengths are within the following parameters:

- 1) Total transmission line length. (In 1 segment): MAX 1640 ft. (500 m)
- 2) Maximum wiring length between units. (In 1 segment): MAX 1312 ft. (400 m)

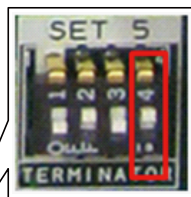
Note: If wiring length is not meet the rule, install a Signal amplifier that is set filter mode OFF.

● Step 6

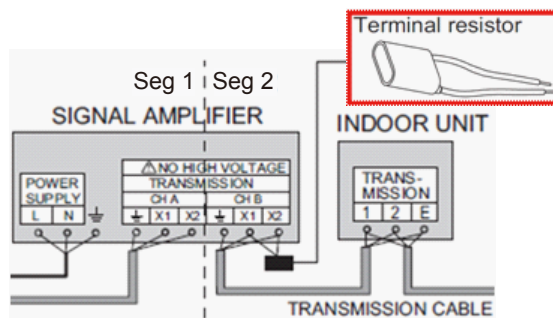
One Terminal resistor should be installed on each segment.



 VRF Network
 Segment



The 4th switch in SET5 DipSW of Outdoor unit PCB
(On: Enable, Off: Disable)



Signal amplifier PCB

NOTE: It is not necessary to install a terminal resistor between the RB Unit and the indoor unit; the terminal resistor is built into the RB Unit.

● Step 7

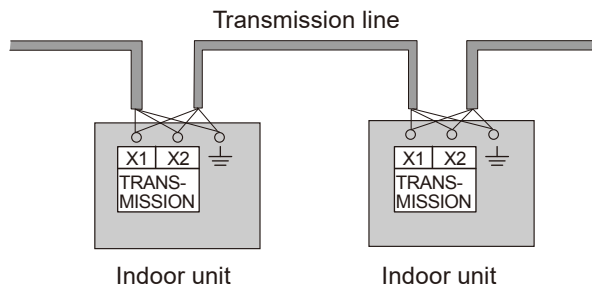
Confirm proper installation of transmission line.
 Confirm transmission line connections to indoor units.
 Confirm that there is one terminal resistor on each each network segment.

Measure the resistance of the signal amplifier terminal and the terminal of the indoor and outdoor units connected farthest away from the device where terminal resistor is measured.

A value from the table is displayed, depending on the distance from the signal amplifier and the device where the terminal resistor is set.

This value is an estimate.

- Always ground both ends of the transmission line.



	Distance from termination resistor ft. (m)				
	0 ~ 328 (0 ~ 100)	~ 656 (~ 200)	~ 984 (~ 300)	~ 1312 (~ 400)	~ 1640 (~ 500)
0 ~ 50	A short circuit somewhere or 2 or more termination resistors are connected				
50	█				
60					
70	█				
80					
90		█			
100					
110		█			
120					
130			█		
140					
150				█	
160					
170					█
180					
190 ~	Faulty contact or wiring length over 1614 (500)				
1K ~ ∞	Faulty contact, open circuit, or no termination resistor				

● Step 8

Confirm total Signal amplifier in VRF Network according following rule.

Signal amplifier of filter mode OFF ≤ 8 units

Signal amplifier of filter mode ON ≤ 32 units

● Step 9 : Confirm transmission wiring system in VRF network

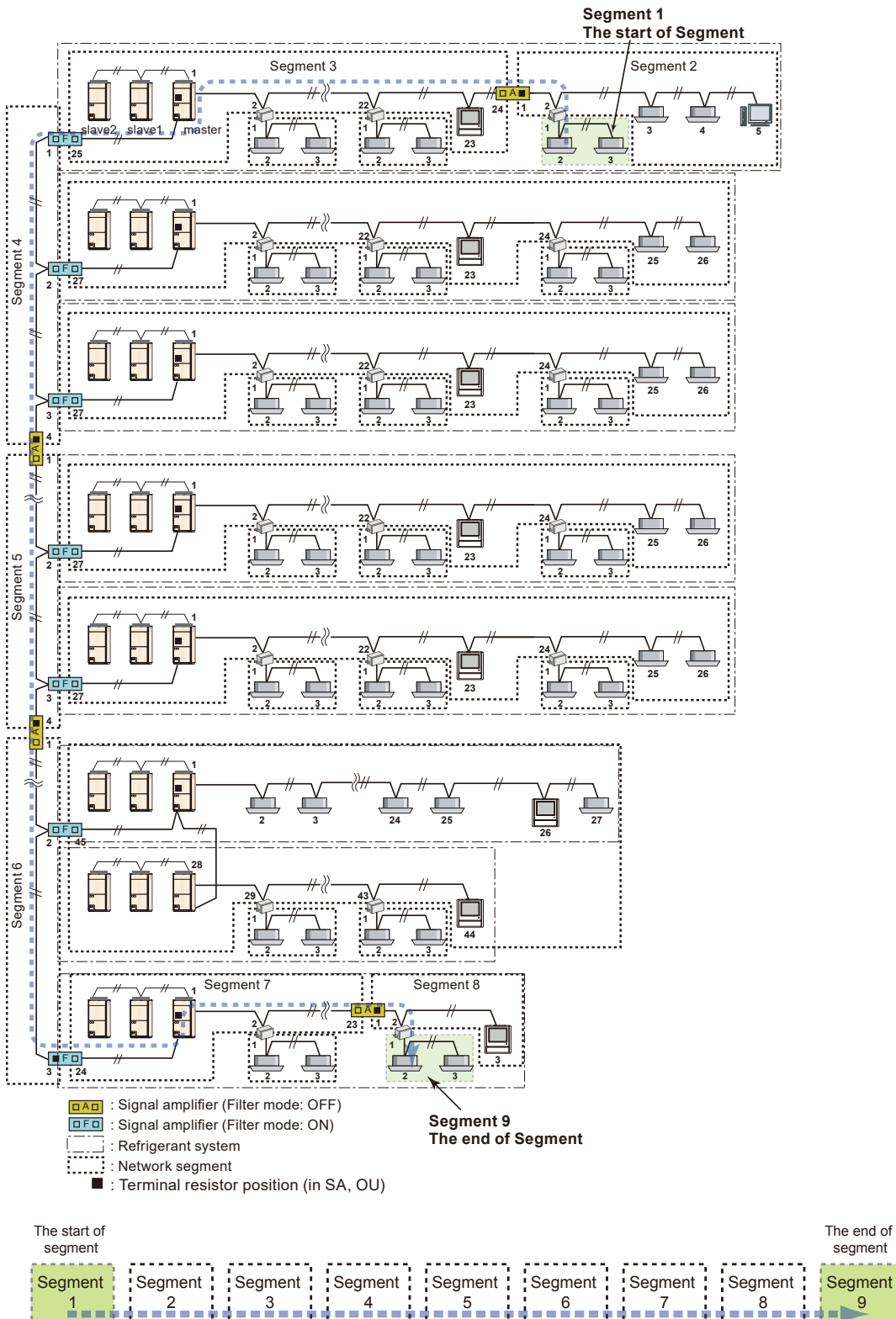
Confirm transmission wiring is within the following parameters:

Check list

- 1) Maximum transmission line length between units in 1 segment: Maximum 1312 ft. (400 m)
- 2) Total transmission line length in 1 segment: Maximum 1640 ft. (500 m)
- 3) Total transmission line length in 1 VRF network: Maximum 11811 ft. (3600 m)
- 4) The total number of element in 1 segment: Maximum 64
- 5) Total of Segment in 1 VRF network: Maximum 9 segments

● Example C-1 (OK)

- Conditions: 1) VRF system: VR-II and V-II
 2) Total indoor unit: 45+45+45+45+45+25+31+45=326units (≥ 321)
 3) Total signal amplifier: 11units (filter mode: OFF=4units, filter mode: ON=7units)



Judgement: Number of Segment = 9
 → **OK (Total of Segments should be 9 or less.)**

4-4. CONTROLLER CABLE WIRING

■ WIRING SPECIFICATIONS

Model type	Connection to	Wire	Size	Specification
System Controller	USB Adaptor	USB cable	-	
System Controller Lite	USB Adaptor	USB cable	-	
Touch Panel Controller	Transmission line			Refer to 4-3
Central Remote Controller	Transmission line			Refer to 4-3
Wired Remote Controller (UTY-RNRUZ2) *2	Indoor unit		22 to 16 AWG (0.33 to 1.25mm ²)	Sheathed, Non-polar 2core, Twisted pair *1
			18 AWG	Sheathed, Thermostat cable 2core, Non Twisted pair *1
Simple Remote Controller (UTY-RSRY, UTY-RHRY)	Indoor unit	Remote controller cable	22 to 16 AWG (0.33 to 1.25mm ²)	Sheathed, Non-polar 2core, Twisted pair *1
Wired Remote Controller (UTY-RNKU)	Indoor unit		22AWG (0.33mm ²)	Sheathed PVC cable Polar 3core *1
Simple Remote Controller (UTY-RSKU, UTY-RHKU)	Indoor unit			
External Switch Controller	Indoor unit	Remote controller cable	22AWG (0.33mm ²)	Shielded, Polar 3core
	External input		22AWG (0.33mm ²)	Shielded, Polar 2core, Twisted pair
IR Receiver Unit (UTB-YWC)	Indoor unit	Connection cable	-	(16ft. (5m) cable attached)
IR Receiver Unit (UTY-LRHYB1, UTY-LBHXD)	Indoor unit	Connection cable	-	
Remote Sensor	Indoor unit	Connection cable	-	(33ft. (10m) cable attached)
Drain Pump Unit	Indoor unit	Connection cable	-	

*1 : Use shielded cable (locally purchased) in accordance with the regional cable standard.

*2 : Refer to next page

⚠ CAUTION

- Install in accordance with the regional standard.
- Never bundle the power supply cable and controller cable together. Bundling these cords together will cause a malfunction.
- Always ground both ends of the shielded cable.
- For detail specification and connection, refer to "5 Control system".
- Controller might be required to connect power supply cable and transmission line. Use separate connection with other units for power supply cable.

■ WIRED REMOTE CONTROLLER (2-WIRE) WIRING SPECIFICATION

Note: UTY-RNRUZ2 only

Maximum connectable number of remote controllers by cable size and the length.

Cable size		Max.connectable number of remote controllers		
AWG	mm ²	*L ≤ 328ft. (100 m)	328ft. (100 m) < *L ≤ 820ft. (250 m)	820ft. (250 m) < *L ≤ 1640ft. (500 m)
16	1.25 (2 > *S ≥ 1.25)	4	4	4
18	0.75 (1.25 > *S ≥ 0.75)	4	4	2
20	0.5 (0.75 > *S ≥ 0.5)	4	2	2
22	0.3 (0.5 > *S ≥ 0.3)	4	1	1

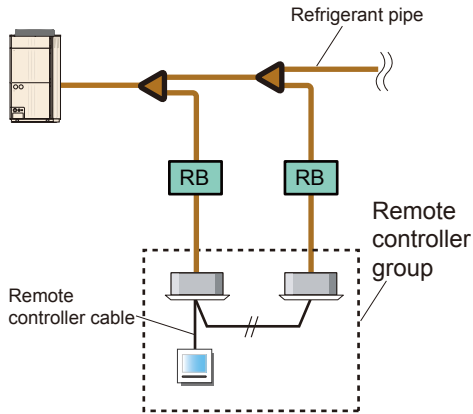
*L: Total cable length, *S: Cable size

4-4-1. WIRING EXAMPLES

■ EXAMPLE 1

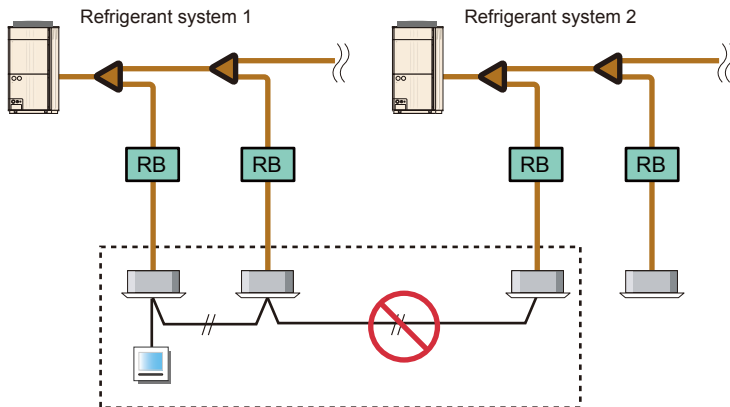
Individual indoor units connected to each RB unit can be connected as one remote controller group. (Max. 16 units)

NOTE: When connecting in one remote controller group, priority setting of external input on the RB unit is prohibited. (Factory setting change prohibited.)



■ EXAMPLE 2 (Prohibited)

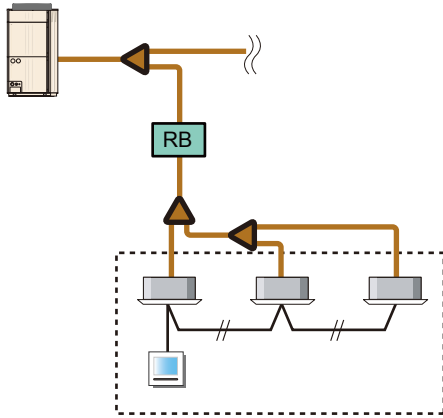
Cross-over wiring of the refrigerant system in same remote controller group is prohibited.



■ EXAMPLE 3

When multiple indoor units are connected to one RB unit, they can be connected as one remote controller group.

NOTE: Operational modes are COOL, HEAT, and DRY. FAN and AUTO cannot be performed.

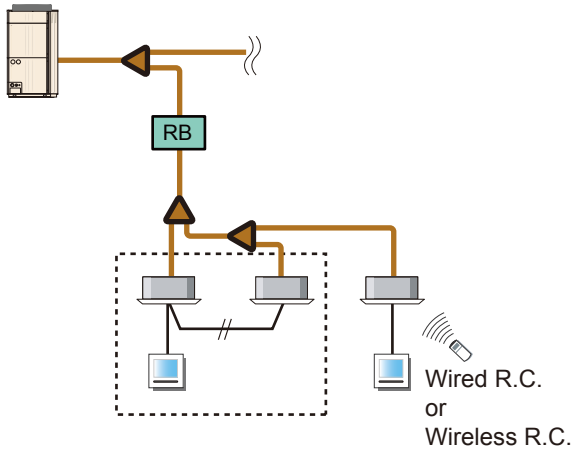


■ EXAMPLE 4

Connecting an independent indoor unit out of the remote controller group is allowed.

NOTE: Operational modes are COOL, HEAT, and DRY. FAN and AUTO cannot be performed.

For the performed operation mode, earlier input has the priority.

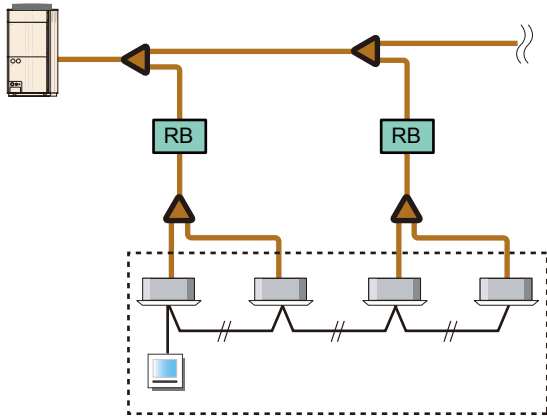


EXAMPLE 5

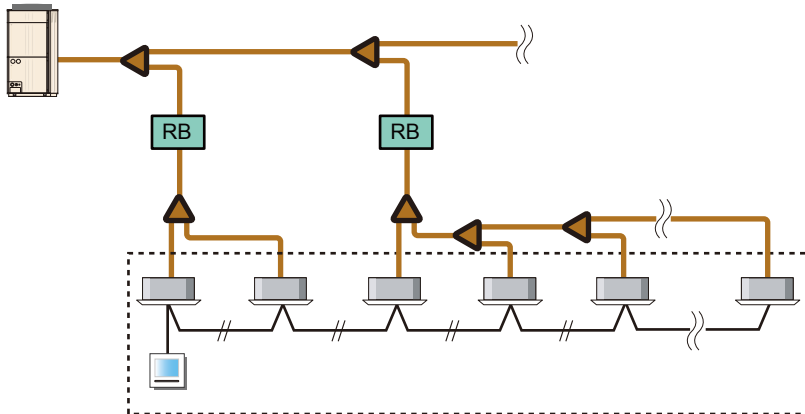
When each RB unit has multiple indoor units, and when grouping all the indoor units in different RB unit groups as one remote controller group, connect all the indoor units.

NOTE: Operational modes are COOL, HEAT, and DRY. FAN and AUTO cannot be performed.
When connecting in one remote controller group, priority setting of external input on the RB unit is prohibited. (Factory setting change prohibited.)

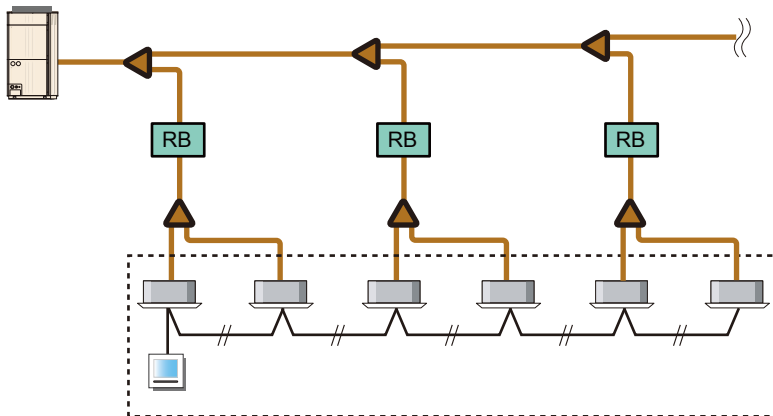
● Example 5-1



● Example 5-2

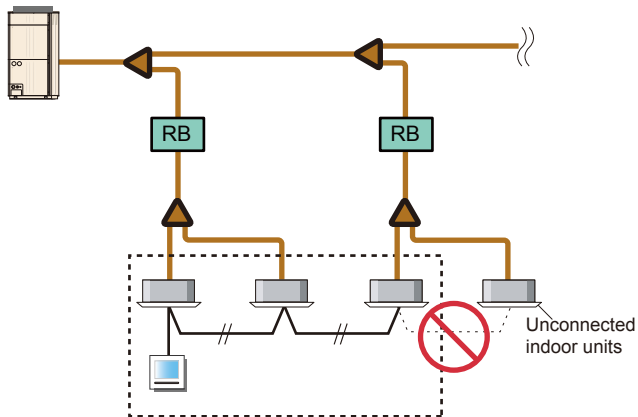


● Example 5-3



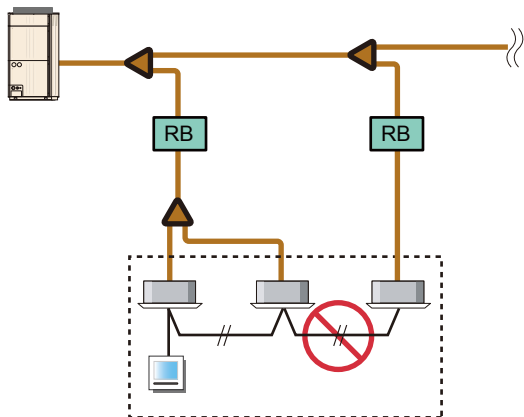
■ EXAMPLE 6 (Prohibited)

All the indoor units should be connected.



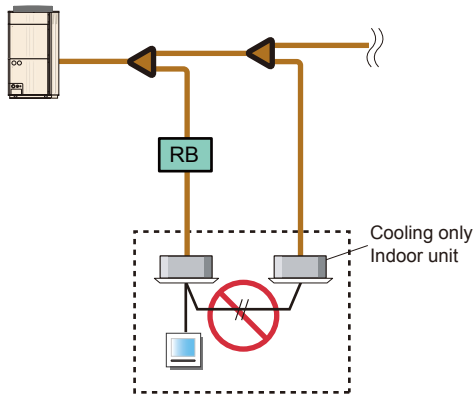
■ EXAMPLE 7 (Prohibited)

In same remote controller group, connecting 1 indoor unit connected to RB unit and 2 or more indoor units connected to RB unit is prohibited.



■ EXAMPLE 8 (Prohibited)

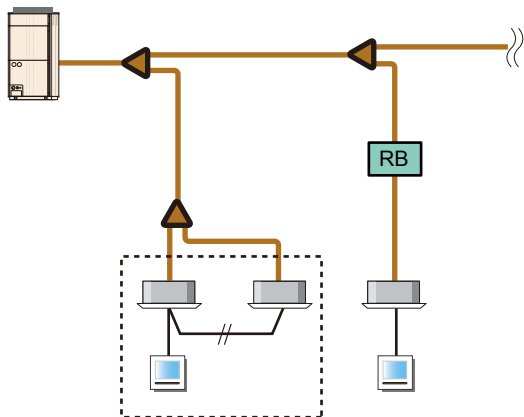
Connecting an RB-unit group and cooling-only-type indoor unit(s) in same remote controller group is prohibited.



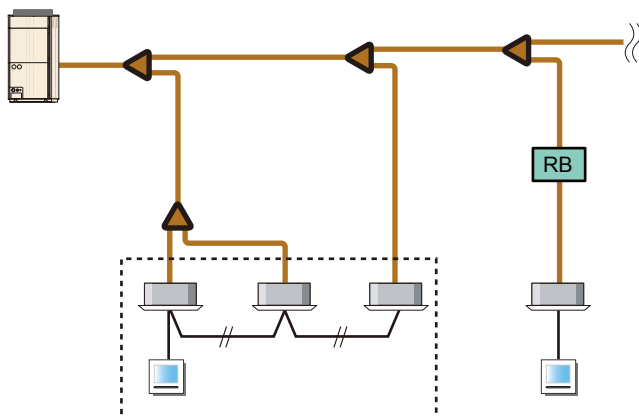
■ EXAMPLE 9

Connecting cooling-only-type indoor units only in same remote controller group is allowed.

● Example 9-1

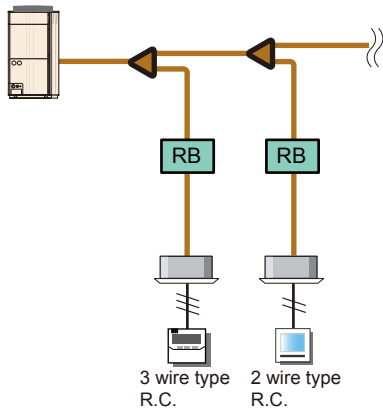


● Example 9-2



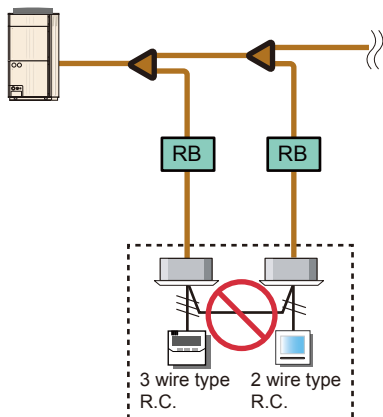
■ EXAMPLE 10

3-wire-type wired remote controller and 2-wire-type wired remote controller can coexist in same refrigerant system.



■ EXAMPLE 11 (Prohibited)

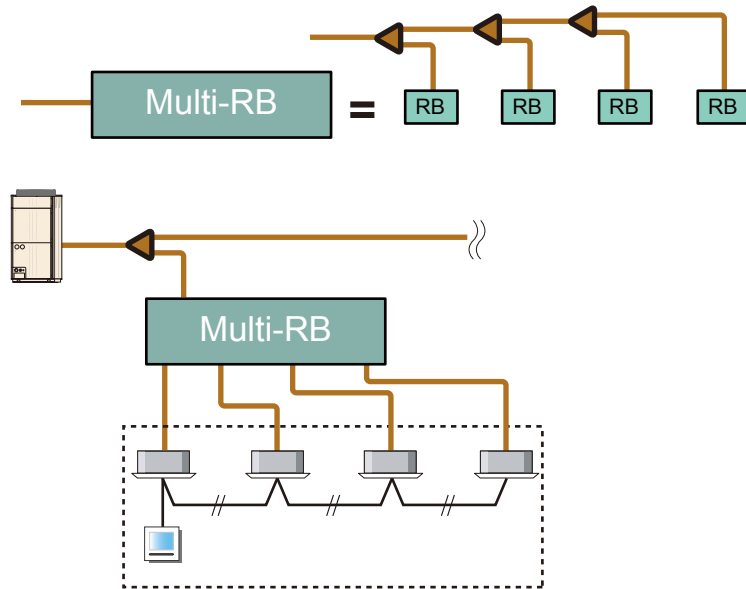
However, connecting 3-wire-type wired remote controller and 2-wire-type wired remote controller in same remote controller group is prohibited.



■ EXAMPLE 12

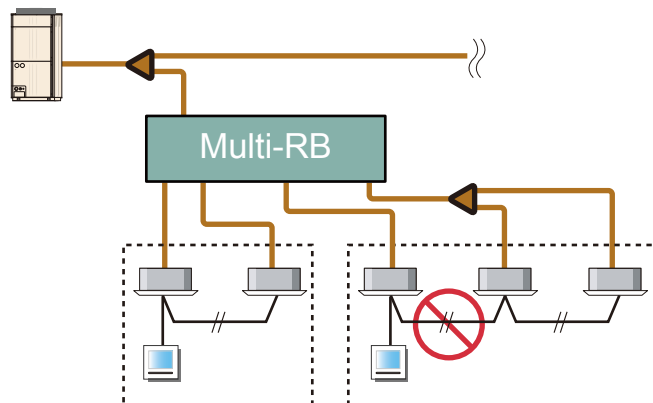
Connection in multi-type RB unit group is same as the one in single-type RB unit group.

NOTE: When connecting in one remote controller group, priority setting of external input on the RB unit is prohibited. (Factory setting change prohibited.)



■ EXAMPLE 13 (Prohibited)

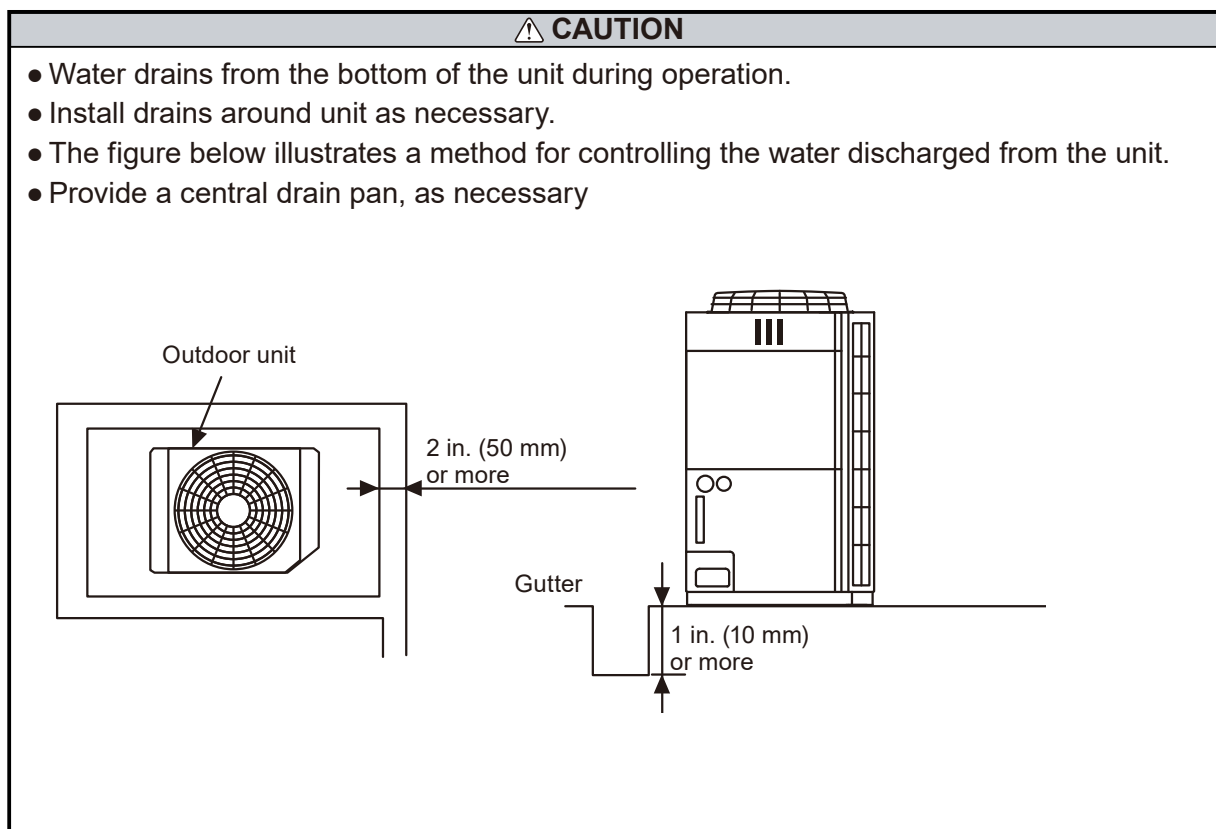
In same remote controller group, connecting 1 indoor unit connected to RB unit and 2 or more indoor units connected to RB unit is prohibited.



5. DRAIN CONNECTION

5-1. OUTDOOR UNIT

- During operation water is discharged from the bottom of the unit. Construct the foundation such that water drains away from the unit properly.
- When installing on a roof, make sure that the roof is properly waterproofed.

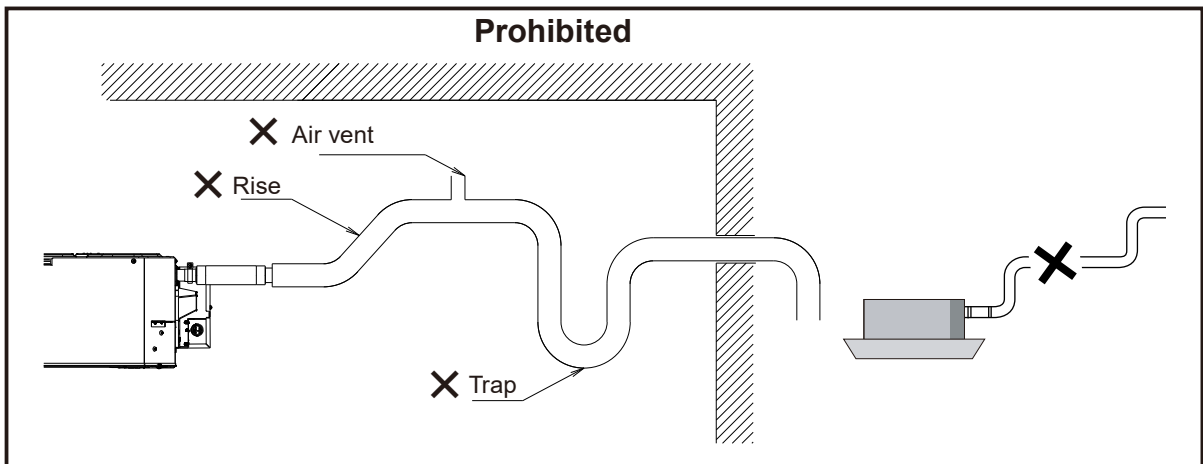
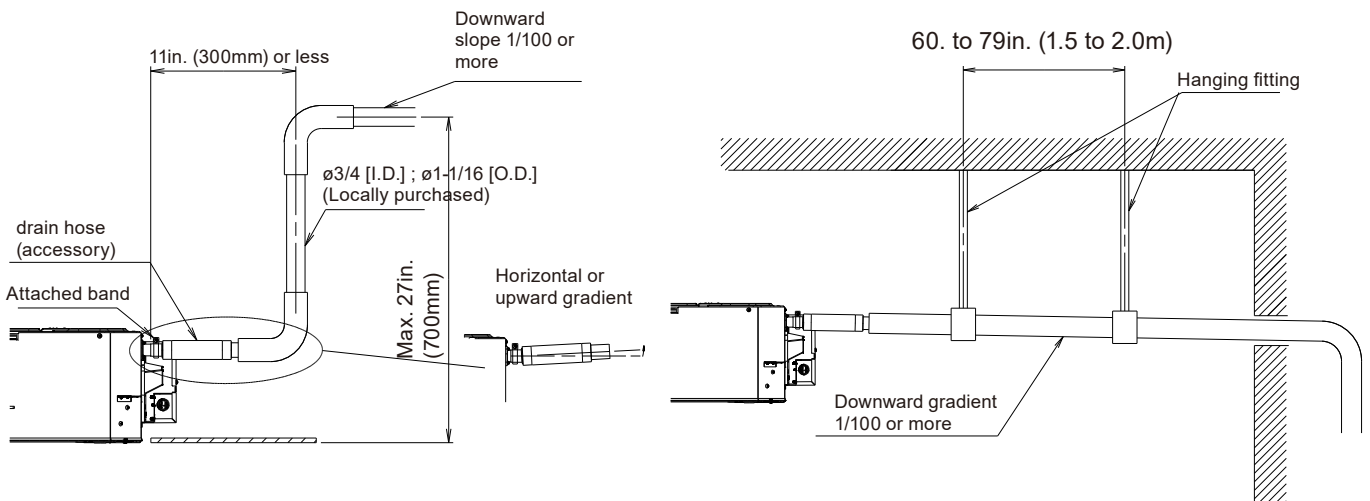


5-2. INDOOR UNIT

■ GENERAL RULES OF DRAIN PIPING

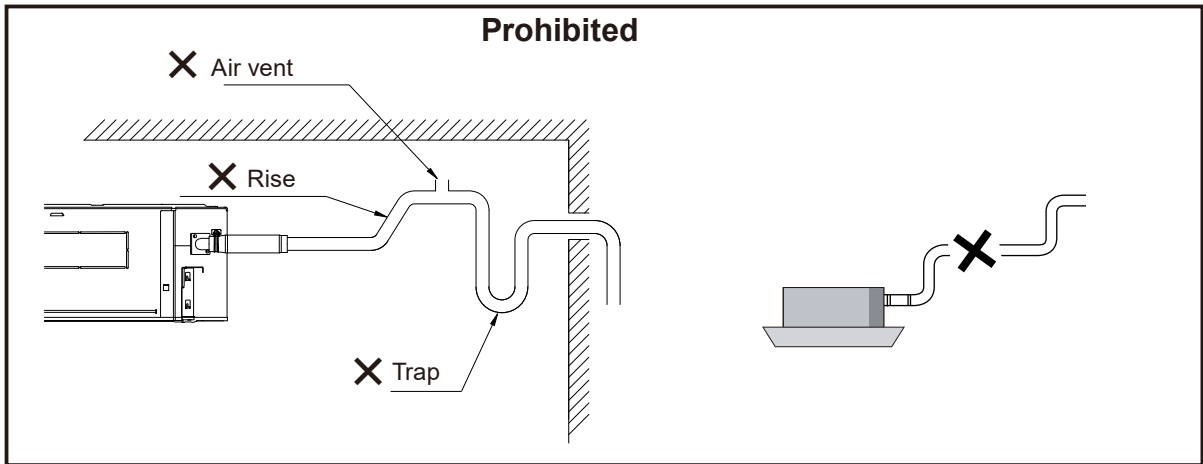
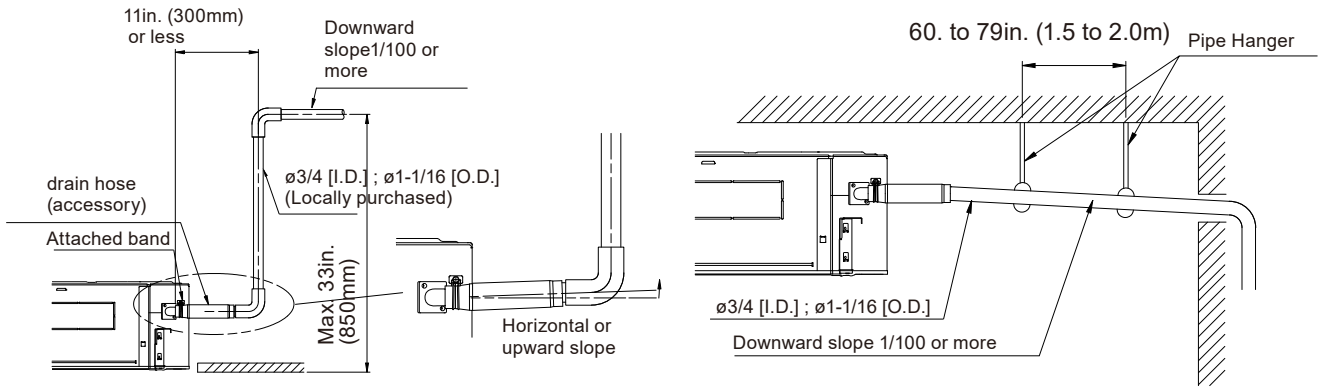
- Install the drain pipe with downward slope (1/100 or more) and so there are no rises in the pipe.
- Use general hard polyvinyl chloride pipe ($\phi 3/4$ [I.D.] ; $\phi 1-1/16$ [O.D.]) and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
- Support the drain pipe with supports each 60 to 79in. (1.5 to 2m)
- Do not install any air vents or traps.
- Always insulate the drain pipe to prevent condensation.
- When connecting the drain hose to the indoor unit, use the accessory band. (Except compact wall mounted type and wall mounted type)

■ COMPACT CASSETTE TYPE



- Drain lift-up pipe restrictions:
 - (1) Lift-up height \leq 27in. (700mm) (from ceiling)
 - (2) Drain hose (pipe) length \leq 11in. (300mm) (between indoor unit and lift-up pipe)
- When a dimensions exceed the above restrictions will cause water leakage.

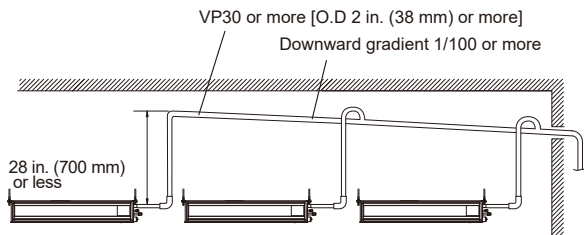
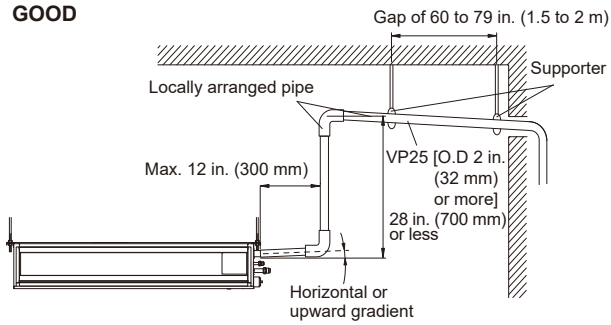
■ CIRCULAR FLOW CASSETTE TYPE / CASSETTE TYPE



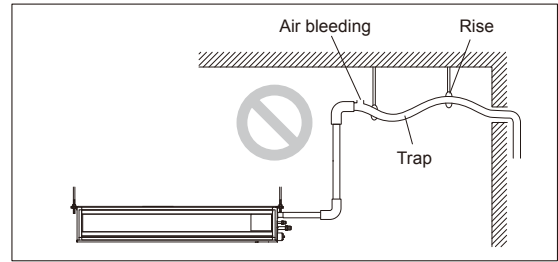
- Drain lift-up pipe restrictions:
 - (1) Lift-up height \leq 33in. (850mm) (from ceiling)
 - (2) Drain hose (pipe) length \leq 11in. (300mm) (between indoor unit and lift-up pipe)
- Water leakage may result from a failure to adhere to the restrictions above.

■ MINI DUCT TYPE

GOOD



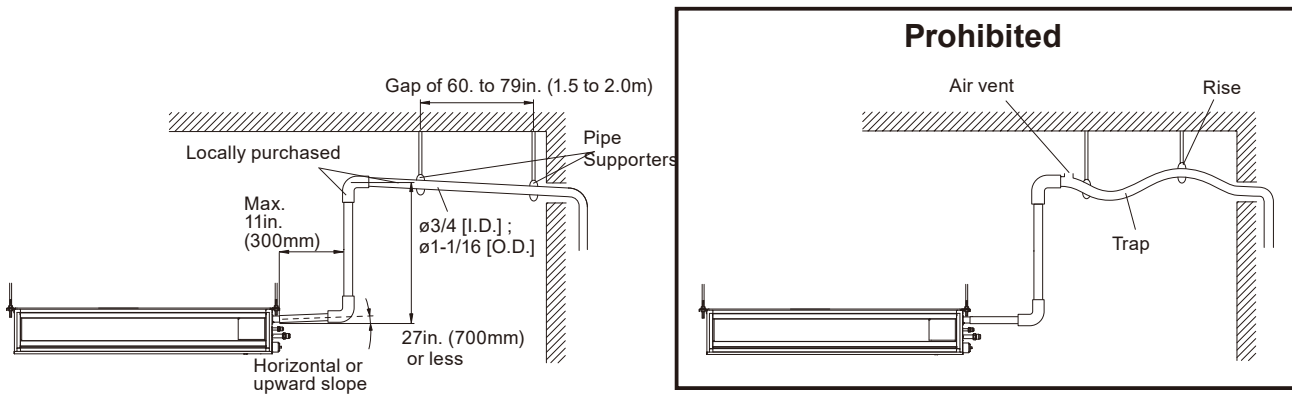
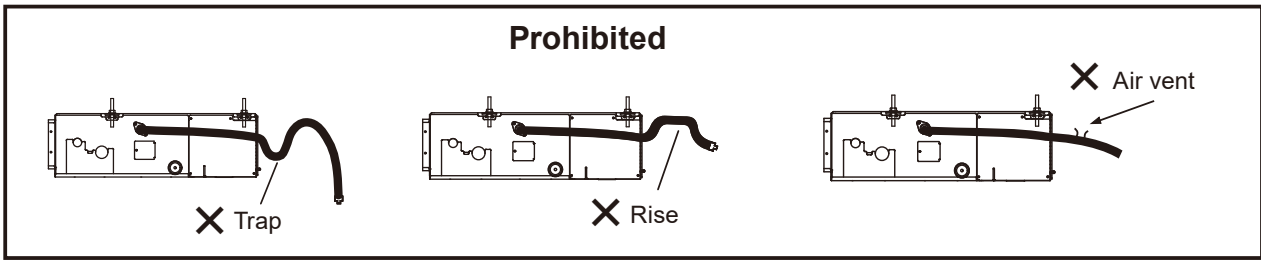
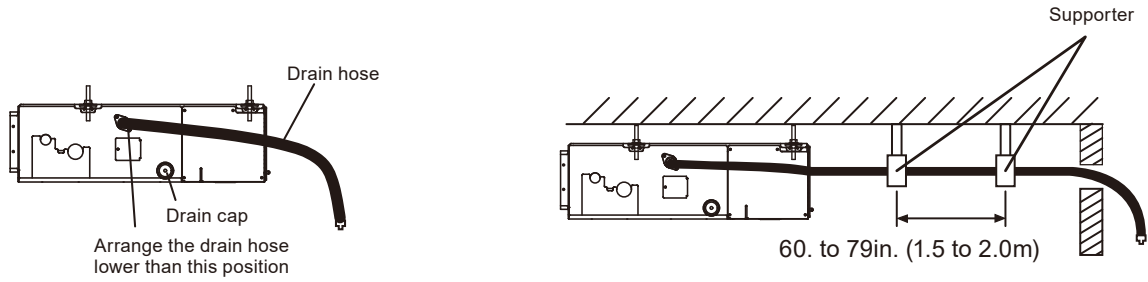
PROHIBITED



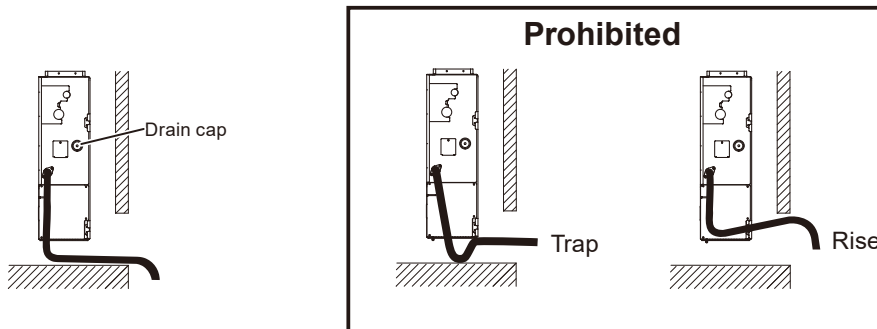
- Use general hard polyvinyl chloride pipe (VP25) [outside diameter 2 in. (32 mm)].
- Do not perform a rise, trap and air bleeding.
- Provide a downward gradient (1/100 or more).
- Provide supporters when long pipes are installed.
- Use an insulation material as needed, to prevent the pipes from freezing.
- Install the pipes in a way that allows for the removal of the control box.

■ SLIM DUCT / SLIM CONCEALED FLOOR TYPE

● Ceiling concealed setting

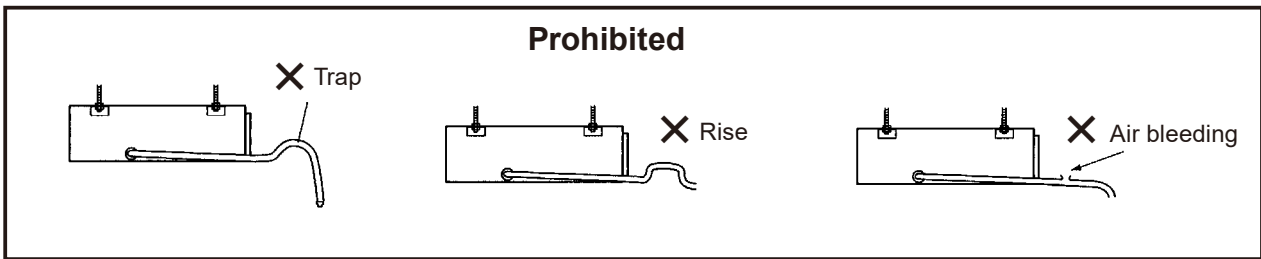
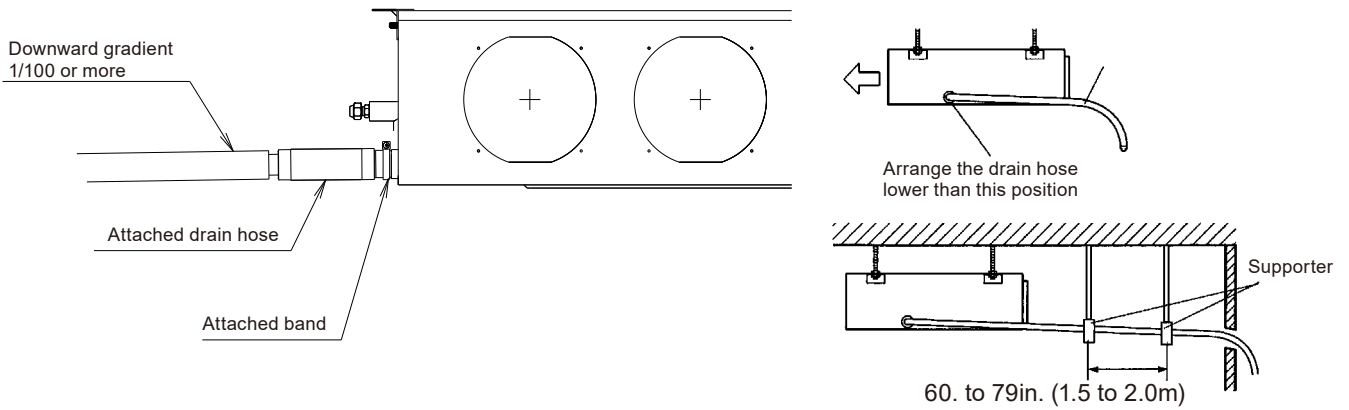


● Floor standing concealed setting

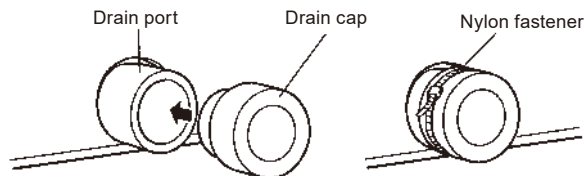
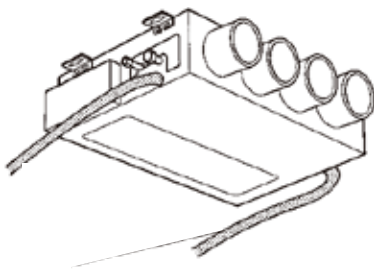


- Install the drain pipe with downward slope (1/50 to 1/100) and so there are no rises or traps in the pipe.
- Use general hard polyvinyl chloride pipe (ø3/4 [I.D.] ; ø1-1/16 [O.D.]) and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
- Install pipe supports on long lines.
- Do not install air vents on the drain lines.
- Always insulate the drain pipe to prevent condensation.

■ MEDIUM STATIC PRESSURE DUCT TYPE



There is a drain port on the left and right sides. Select the drain port to match the local conditions.

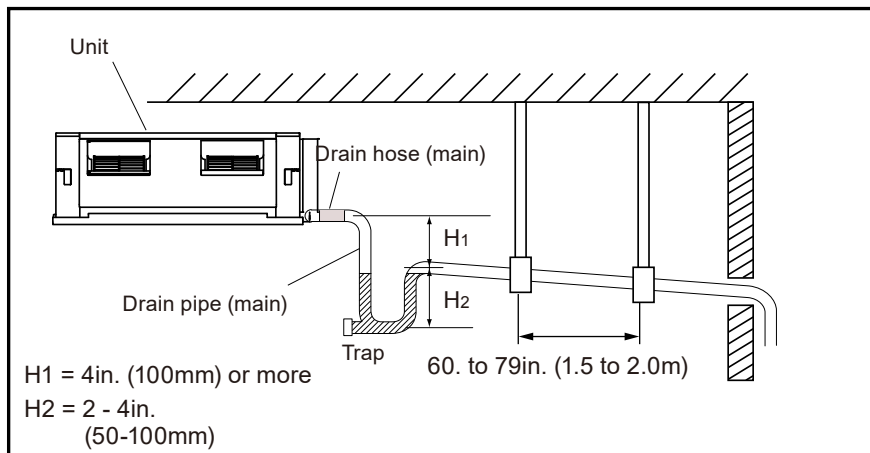


⚠ CAUTION

- Always check that the drain cap is installed to the unused drain port and is fastened with the nylon fastener.
- If the drain cap is not installed, or is not sufficiently fastened by the nylon fastener, water may drip during the cooling operation.

■ HIGH STATIC PRESSURE DUCT TYPE

● Main drain pipe

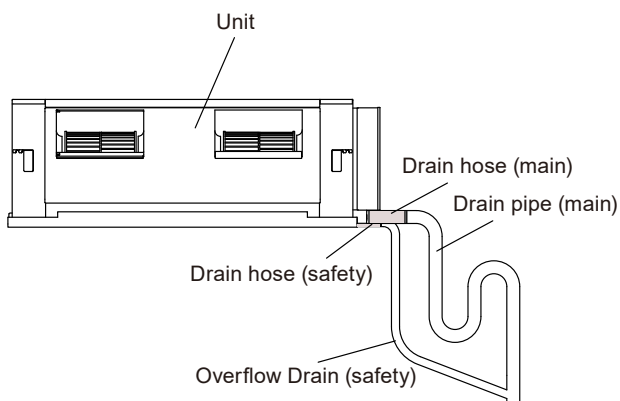


- Be sure to provide a drain trap for each indoor units.
- The drain trap will have no effect if placed after multiple indoor units.
- The position of the installed drain hose should have a downward slope of (1/100 or more).
- Make sure that the drain hose is installed without rises.
- Make the trap near to the indoor unit, Position the trap in a location where it can be cleaned.

● Safety drain pipe

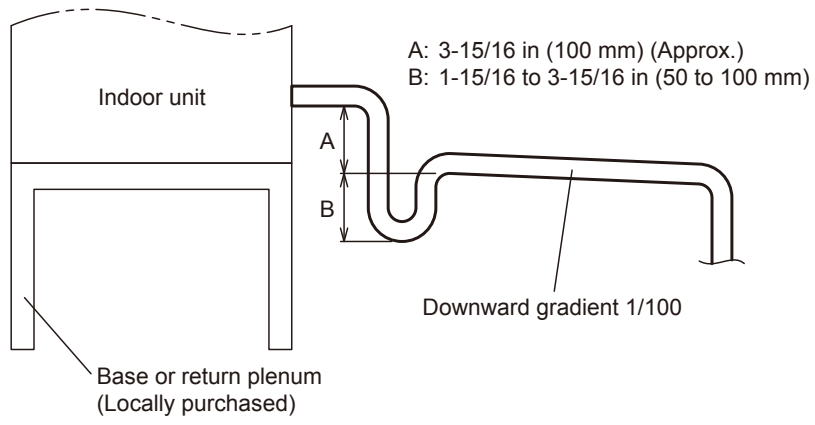
There is no need to provide a trap for the overflow drain. If the overflow drain is connected to the main drain pipe, make the connection below the trap on the main drain pipe.

Once installation is complete, check the flow of the drain water.

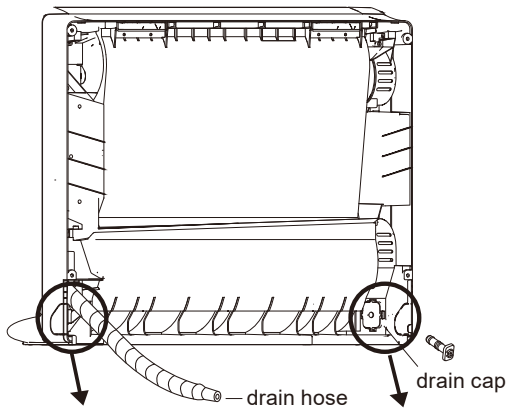


■ VERTICAL AIR HANDLER TYPE

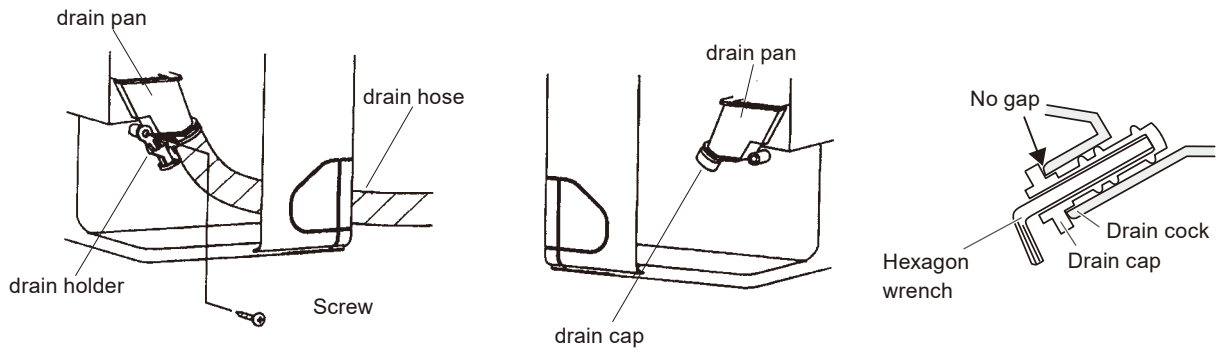
On the main drain, provide 1 trap near the indoor unit.
This unit has a primary and a secondary drain port.



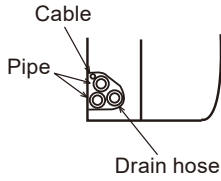
COMPACT FLOOR TYPE



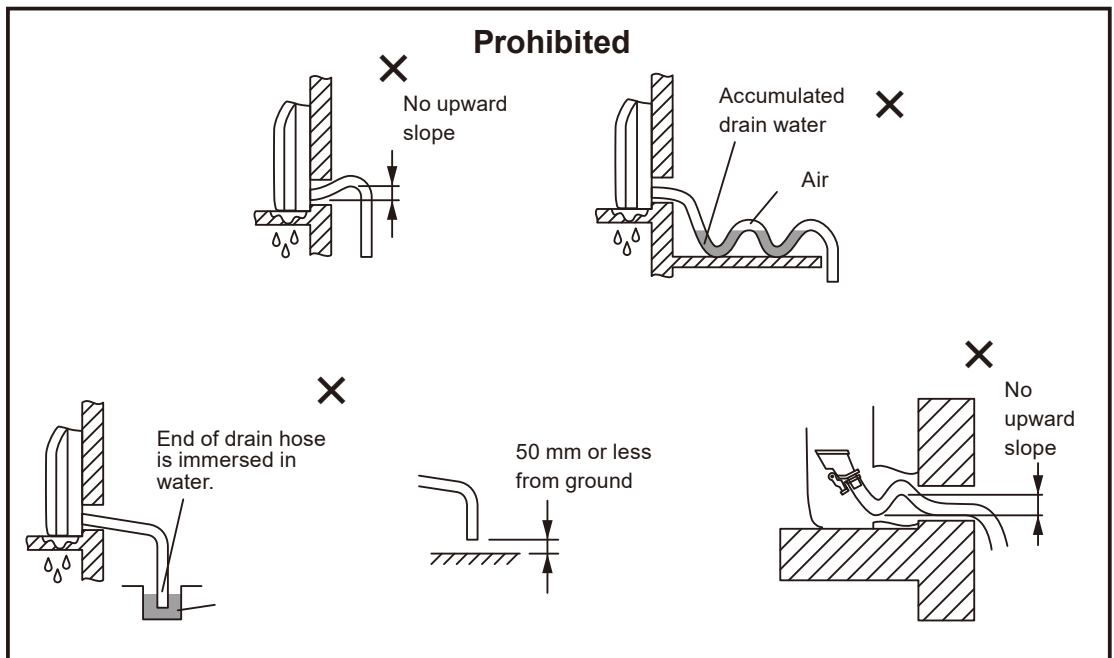
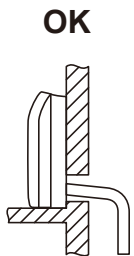
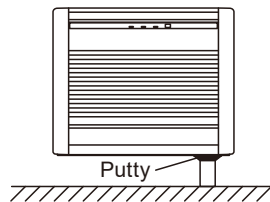
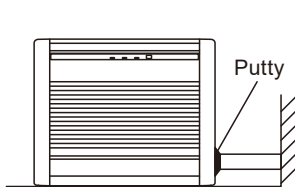
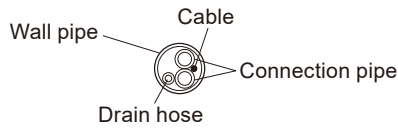
The drain hose can be connected at either side of the indoor unit.



Left piping

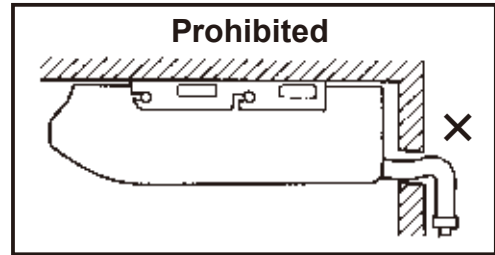
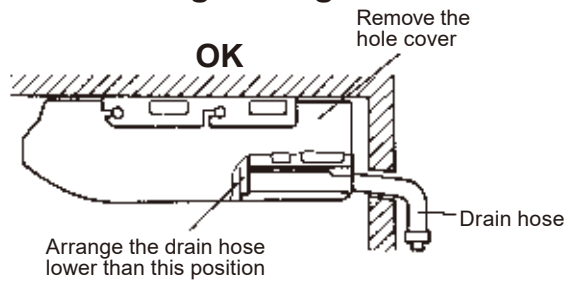


For connection from the left rear

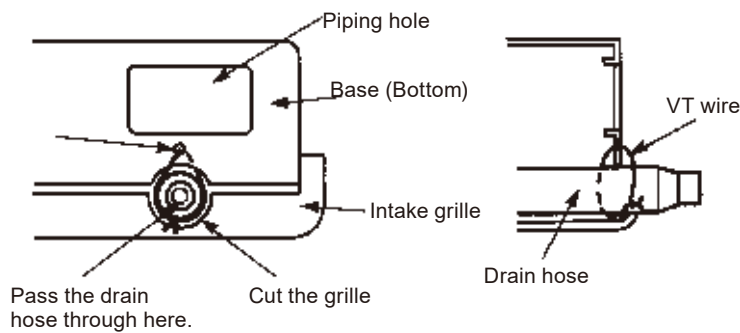


■ FLOOR / CEILING TYPE

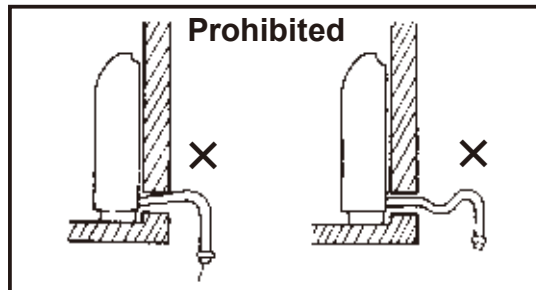
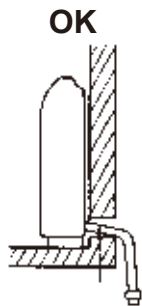
● Under ceiling setting



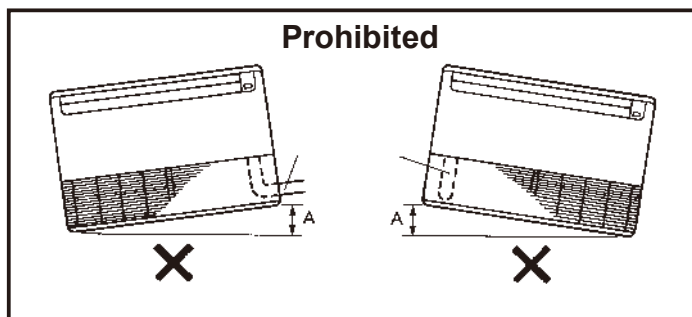
When drain hose is arranged backward.
Secure the drain hose with the VT wire.



● Floor console setting

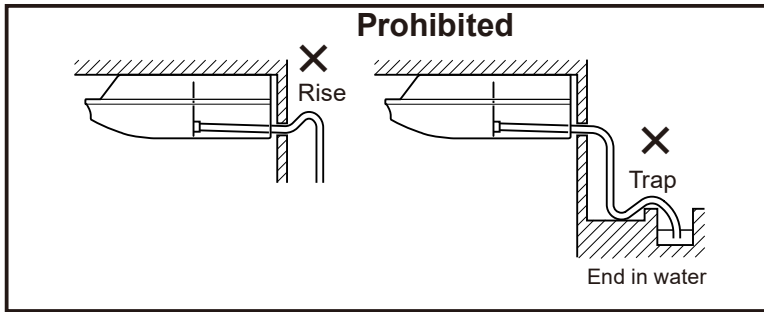
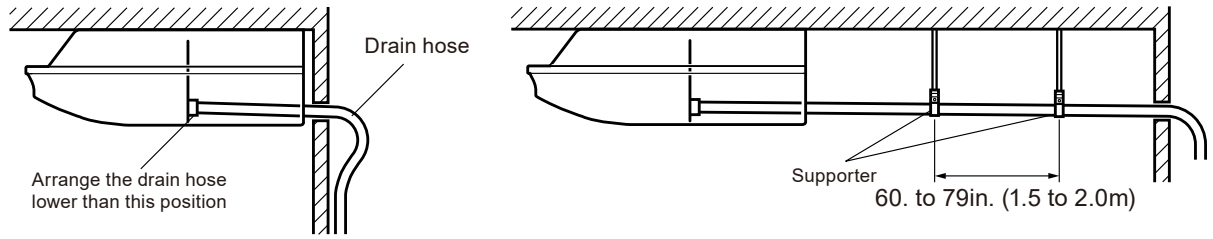


Arrange the drain hose lower than this position

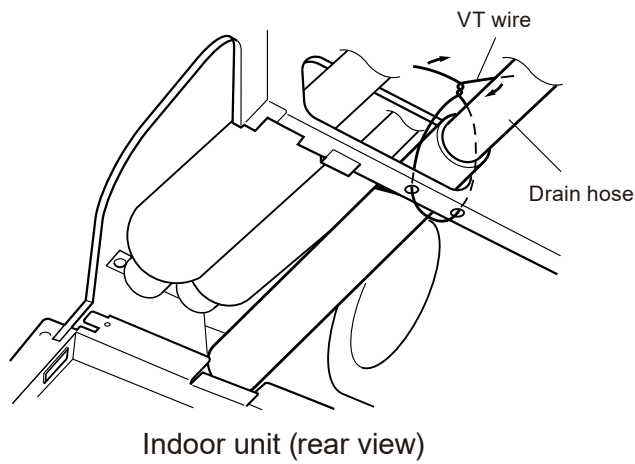


- Do not install the unit so that the drain hose side is too high.
- Height A should be less than 13/16in. (5mm)

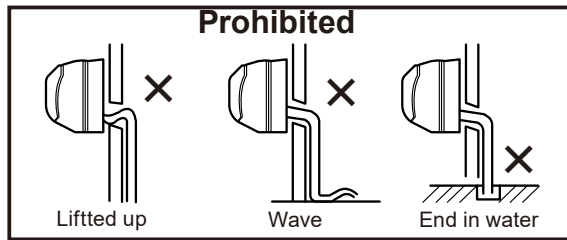
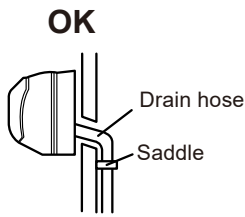
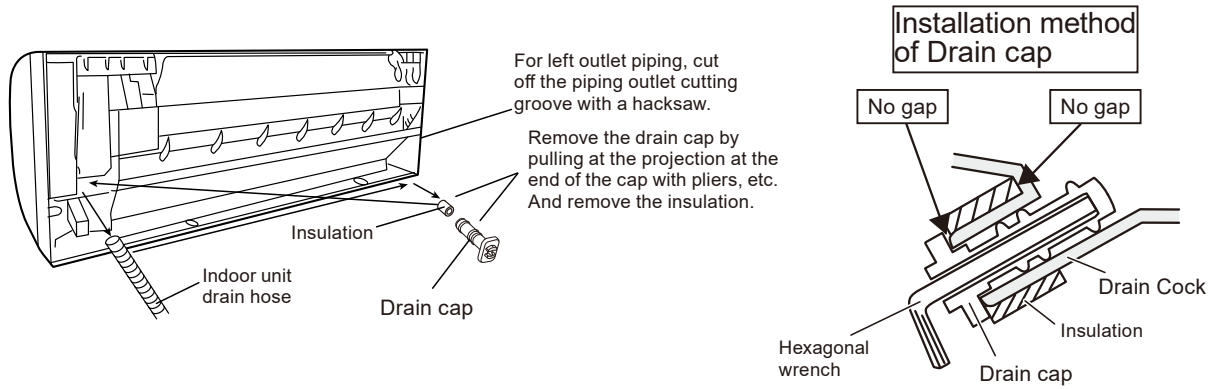
■ CEILING TYPE



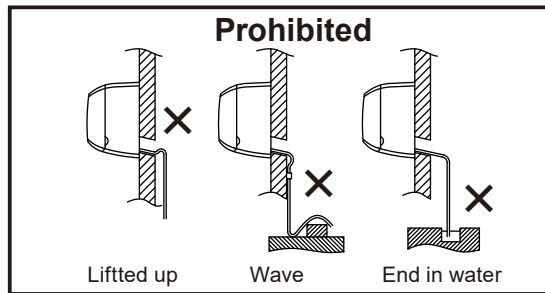
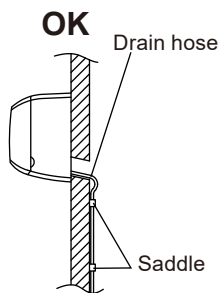
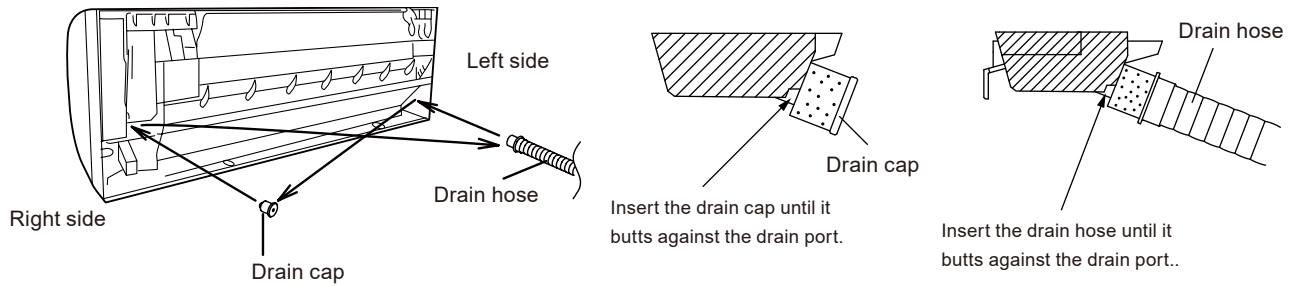
Fasten the drain pipe with VT wire so that the pipe slopes correctly within the indoor unit .



■ WALL MOUNTED TYPE (4-14 Models)



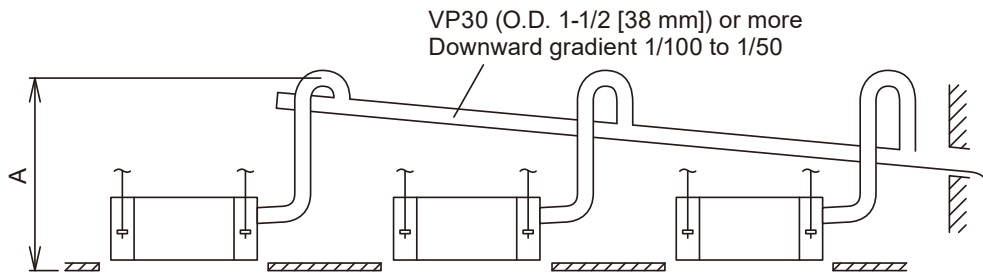
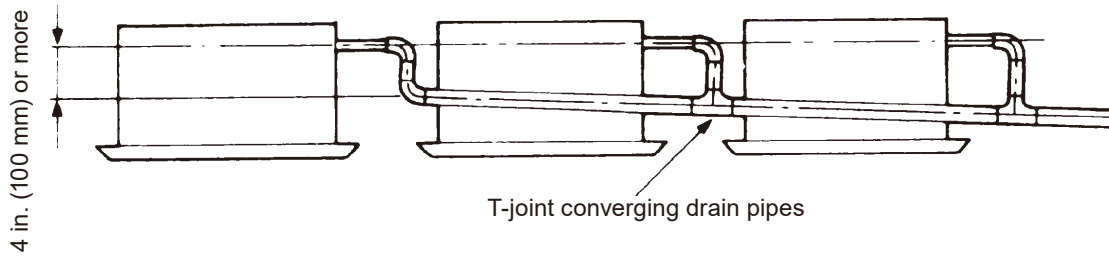
■ WALL MOUNTED TYPE (18-36 Models)



■ CENTRAL DRAIN PROCESS

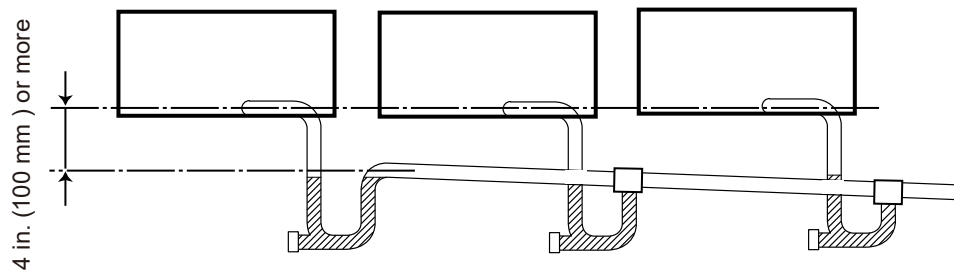
When converging multiple drain pipes, install according to the procedure shown below.

● For Compact Cassette type, Circular Flow Cassette type, Cassette type

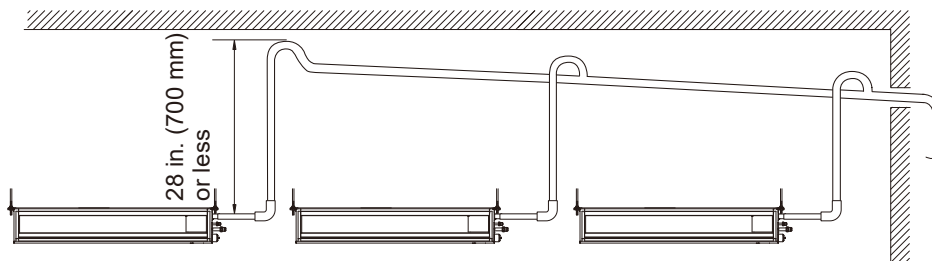


A	Compact Cassette type	28 in. (700 mm) or less
	Circular Flow Cassette type	34 in. (850 mm) or less
	Cassette type	

● For High static pressure duct type



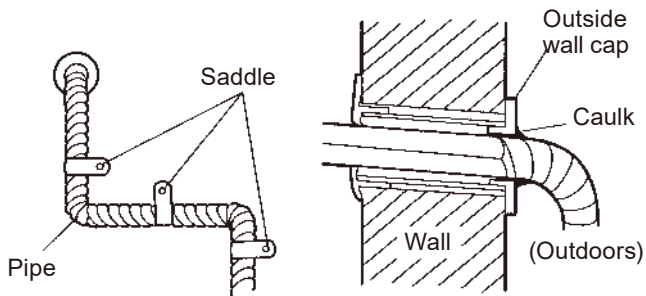
● For Mini duct type, Slim duct type



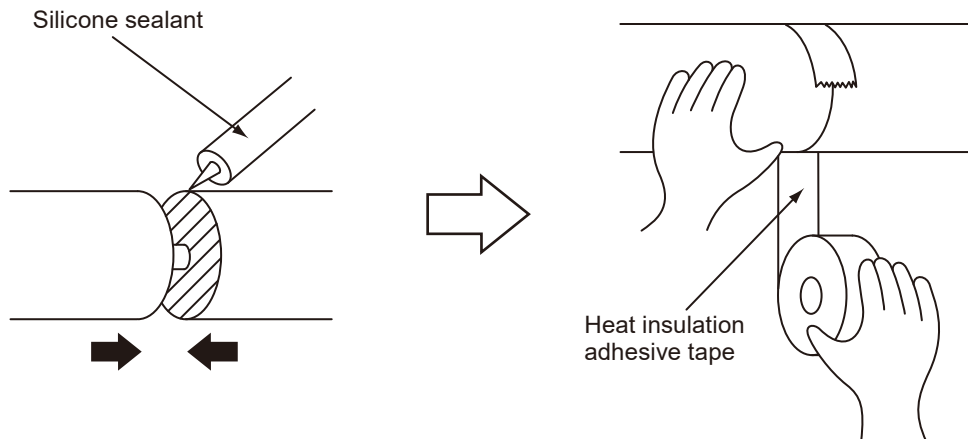
Select converging drain pipes whose diameter is suitable for the operating capacity of the unit.

■ DRAIN INSULATION

- Confirm water flows into Drain pan of the indoor unit, and drains from the pan once the drain hose is connected.
- Check drain pipes for leaks.
- Insulate the drain to prevent condensation.
- Secure the drain pipe to the wall with a saddle.



- Seal the hole around drain pipe with caulk.






- Be sure to coat the entire end surface.
If there is a gap it could cause condensation


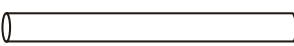
6. STANDARD ACCESSORIES

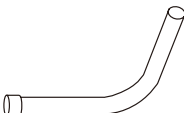
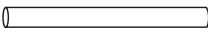
The following installation parts are supplied. Use them as required.

Do not discard any accessories until the installation work has been completed.

6-1. OUTDOOR UNIT

Name and shape	Q'ty	Application
Specifications manual 	1	
Installation manual 	1	
Cable tie 	4	For binding power cable and transmission cable










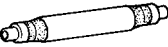

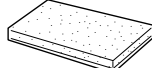
Joint pipe for Suction gas pipe	Model code		
	72	90	120
Joint pipe A (Large , L type) 	1	1	1
Joint pipe B (Large, Straight type) 	1	1	1

Joint pipe for Discharge gas pipe	Model code		
	72	90	108
Joint pipe C (Small , L type) 	1	1	1
Joint pipe D (Small , Straight type) 	-	1	1




6-2. INDOOR UNIT

■ COMPACT CASSETTE TYPE







INDOOR UNIT ACCESSORIES



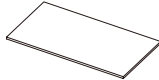
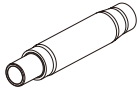


Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Cable Tie(s) (Large) 	4	For fixing the connection pipe (Large and Small)
Cable Tie(s) (Medium) 	2	For transmission and remote controller cable binding.
Pipe Insulation (Small) 	1	For indoor side pipe joint (Liquid pipe)
Pipe Insulation (Large) 	1	For indoor side pipe joint (Gas pipe)
Special nut A (Large flange) 	4	For installing indoor unit
Special nut B (Small flange) 	4	For installing indoor unit
Template (Carton top) 	1	For cutting opening. Also used as packing
Drain hose 	1	For connecting drain hose.
Hose band 	1	For installing drain hose
Drain hose insulation 	1	For installing drain hose

CASSETTE GRILLE ACCESSORIES







Name and shape	Q'ty	Application
Connector cover 	1	For covering connector
Tapping screw (M5 × 12mm) 	4	For mounting cassette grille
Tapping screw (M4 × 12mm) 	1	For mounting connector cover



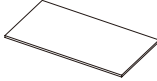
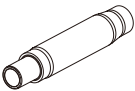


■ CIRCULAR FLOW CASSETTE TYPE

Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Cable tie (Large) 	4	For fixing the connection pipe (Large and Small)
Push mount cable tie 	1	For transmission and remote controller cable binding.
Coupler heat insulation (Small) 	1	For indoor side pipe joint (Liquid pipe)
Coupler heat insulation (Large) 	1	For indoor side pipe joint (Gas pipe)



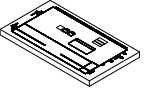



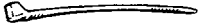
Name and shape	Q'ty	Application
Template (Carton top) 	1	For installing indoor unit.
Washer 	8	For installing indoor unit
Insulation 	1	For installing drain pipe
Drain hose assy 	1	For installing drain pipe
Hose band 	1	For installing drain hose
Drain pipe insulation 	1	For installing drain pipe

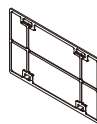
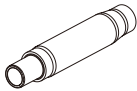


■ CASSETTE TYPE

Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Cable Tie(s) (Large) 	4	For fixing the connection pipe (Large and Small)
Cable Tie(s) (Medium) 	2	For transmission and remote controller cable binding.
Pipe Insulation (Small) 	1	For indoor piping connection (Liquid pipe)
Pipe Insulation (Large) 	1	For indoor piping connection (Gas pipe)



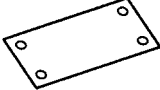
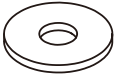


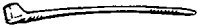
Name and shape	Q'ty	Application
Template (Carton top) 	1	For installing indoor unit.
Washer 	8	For installing indoor unit
Insulation 	1	For installing drain hose
Drain hose assy 	1	For installing drain hose
Hose band 	1	For installing drain hose
Drain pipe insulation 	1	For installing drain pipe

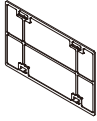
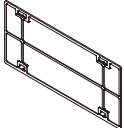
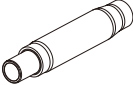


■ MINI DUCT TYPE

Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Template (Carton top) 	1	For ceiling openings cutting Also used as packing
Washer 	8	For installing indoor unit
Coupler heat insulation (Large) 	1	For indoor side pipe joint (Large pipe)
Coupler heat insulation (Small) 	1	For indoor side pipe joint (Small pipe)
Cable tie 	Medium 2	For transmission and remote control cable binding.
	Large 4	For fixing the coupler heat insulation.







Name and shape	Q'ty	Application
Filter 	2	
Drain hose 	1	For installing drain hose
Band 	1	For installing drain hose
Drain hose insulation B 	1	Insulates the drain hose



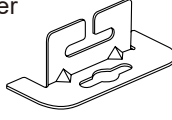



■ SLIM DUCT / SLIM CONCEALED FLOOR TYPE

Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Installation template 	1	For positioning the indoor unit
Washer 	8	For installing indoor unit
Pipe Insulation (Large) 	1	For indoor piping connection (Large pipe)
Pipe Insulation (Small) 	1	For indoor piping connection (Small pipe)
Cable Tie(s) 	Medium 2	For transmission and remote controller cable binding.
	Large 4	For fixing the coupler heat insulation.

Name and shape	Q'ty	Application
Filter (Small) 	2 (AR7/9/ 12/14)	
Filter (Big) 	2 (AR18)	
Drain hose 	1	For installing drain hose
Band 	1	For installing drain hose
Drain hose insulation B 	1	Insulates the drain hose






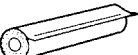
■ MEDIUM STATIC PRESSURE DUCT TYPE






Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Cable Tie(s) (Large) 	5	For fixing the connection pipe (Large and Small) and drain cap
Cable Tie(s) (Medium) 	3	For transmission and remote controller cable binding.
Pipe Insulation (Small) 	1	For indoor piping connection (Liquid pipe)
Pipe Insulation (Large) 	1	For indoor piping connection (Gas pipe)

Name and shape	Q'ty	Application
Special nut A (Large flange) 	4	For suspending the indoor unit from ceiling
Special nut B (Small flange) 	4	
Hanger 	4	For suspending the indoor unit from ceiling
Drain hose 	1	For connecting drain hose.
Hose band 	1	For installing drain hose
Drain hose insulation 	2	For installing drain hose

■ HIGH STATIC PRESSURE DUCT TYPE





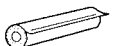

● Models : ARUH36, ARUH48, ARUH60






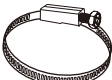


Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Cable Tie(s) (Large) 	4	For fixing the coupler heat insulation
Cable Tie(s) (Medium) 	2	For transmission and remote controller cable binding.
Pipe Insulation (Small) 	1	For indoor piping connection (Liquid pipe)
Pipe Insulation (Large) 	1	For indoor piping connection (Gas pipe)

Name and shape	Q'ty	Application
Special nut A (Large flange) 	4	For suspending the indoor unit from ceiling
Special nut B (Small flange) 	4	
Drain hose 	2	For connecting drain hose.
Hose band 	2	For installing drain hose
Drain hose insulation 	2	For installing drain hose





■ HIGH STATIC PRESSURE DUCT TYPE

● Models : ARUH72, ARUH96



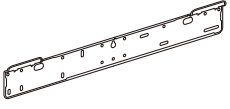
Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Cable tie (Large) 	4	For fixing the connection pipe (Large and Small)
Cable tie (Medium) 	2	For transmission and remote controller cable binding
Coupler heat insulation (Small) 	1	For indoor side pipe joint (Liquid pipe)
Coupler heat insulation (Large) 	1	For indoor side pipe joint (Gas pipe)

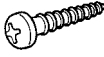
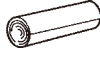


Name and shape	Q'ty	Application
Special nut A (Large flange) 	4	For suspending the indoor unit from ceiling
Special nut B (Small flange) 	4	
Washer 	8	
Drain hose (Large) 	1	For installing drain hose (For main drain port)
Drain hose (Small) 	1	For installing drain hose (For safety drain port)
Hose band (Large) 	1	For installing drain hose (Large)
Hose band (Small) 	1	For installing drain hose (Small)
Drain hose insulation 	2	For installing drain hose

■ VERTICAL AIR HANDLER TYPE






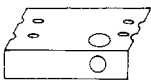

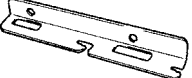


Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Cable Tie (Medium) 	1	For transmission and remote controller cable binding.
Gas pipe heat insulation 	1	For gas pipe at the unit inside

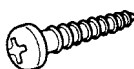

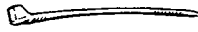
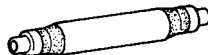




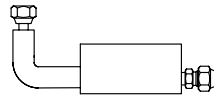
■ COMPACT FLOOR TYPE

Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Wall hook bracket 	1	For indoor unit installation


Name and shape	Q'ty	Application
Tapping screw 	8	For wall hook bracket installation
Cloth tape 	1	For indoor unit installation
Push mount cable tie 	1	For transmission and remote controller cable binding
Air cleaning filter 	2	For installation, refer to the "CLEANING AND CARE" in the operating manual.

■ FLOOR / CEILING TYPE








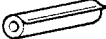
Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Cover plate (left) 	1	
Cover plate (right) 	1	
Tapping screw 	2	
Installation template 	1	For positioning the indoor unit For under ceiling type
Bracket (left) 	1	For suspending the indoor unit from ceiling
Bracket (right) 	1	
Special nut 	4	
Wall bracket 	2	For suspending the indoor unit on the wall

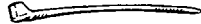




Name and shape	Q'ty	Application
Tapping screw 	6	For fixing the wall bracket
Pipe Insulation 	2	For indoor piping connection
Cable Tie(s) 	Large 4	For fixing the coupler heat insulation
	Medium 2	For transmission and remote controller cable binding
Drain hose 	1	For installing drain hose
Hose band 	1	For installing drain hose
Drain hose insulation 	1	Adhesive type 3-15/16 x 8-11/16 in. (100 x 220 mm)
VT wire 	1	For fixing the drain hose L=11 in. (280 mm)
Insulation (pipe) 	1	Adhesive type 6-5/16 x 4-5/16 in. (160 x 110 mm)
Silencer pipe 	1	Connect the silencer pipe to the small (Liquid) pipe

OPTIONAL PARTS

Name and shape	Part No.	Application
Auxiliary pipe 	9374714025	For indoor side pipe joint (For AB18, AB24)



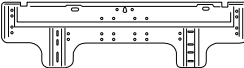
■ CEILING TYPE



Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Drain hose 	1	For installing drain hose
Hose band 	1	For installing drain hose
Drain hose insulation 	1	Adhesive type 3-15/16 x 8-11/16 in. (100 x 220 mm)
VT wire 	1	For fixing the drain hose 11 in. (L=280 mm)
Pipe Insulation (Large) 	2	For indoor piping connection (Gas pipe)
Pipe Insulation (Small) 	1	For indoor piping connection (Liquid pipe)

Name and shape	Q'ty	Application
Cable Tie(s) 	Extra large 4	For fixing the coupler heat insulation
	Large 2	
	Medium 2	For transmission and remote controller cable binding
Special nut A (Large flange) 	4	For installing indoor unit
Special nut B (Small flange) 	4	For installing indoor unit
Installation template 	1	For positioning the indoor unit
Auxiliary pipe assembly 	1	For connecting the piping



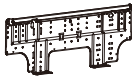
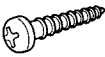
■ WALL MOUNTED TYPE





● Models : ASUA4, 7, 9TLAV1

Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Wall hook bracket 	1	For indoor unit installation



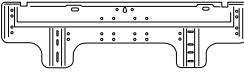


Name and shape	Q'ty	Application
Tapping screw 	5	For wall hook bracket installation
Cloth tape 	1	For indoor unit installation

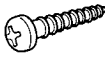
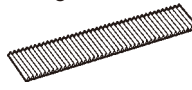
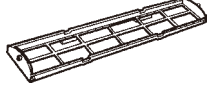

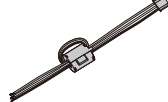
● Models : ASUA12, 14TLAV1

Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Wall hook bracket 	1	For indoor unit installation
Tapping screw 	5	For wall hook bracket installation



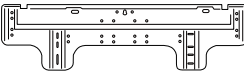

Name and shape	Q'ty	Application
Cloth tape 	1	For indoor unit installation
Seal A 	1	It is used when the diameter of gas pipe is $\varnothing 12.70$ or more It is necessary when using AS14
Air cleaning filter 	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
Air cleaning filter frame 	2	




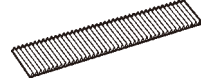

● Models : ASUB18, 24TLAV1

Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Wall hook bracket 	1	For indoor unit installation
Cable tie 	1	For transmission and remote controller cable binding
Cloth tape 	1	For indoor unit installation



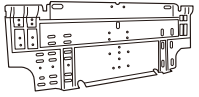


Name and shape	Q'ty	Application
Tapping screw 	8	For wall hook bracket installation
Air cleaning filter 	2	For installation, refer to the "CLEANING AND CARE" in the operating manual.
Air cleaning filter frame 	2	
Drain hose Insulation 	1	For drain hose installation
Connecting cable 	1	For wired remote controller installation

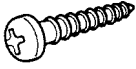


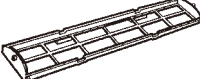

● Models : ASUB30, 36TLAV1

Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Wall hook bracket 	1	For indoor unit installation
Tapping screw 	8	For wall hook bracket installation



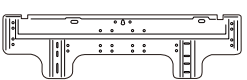


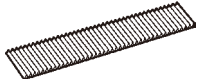
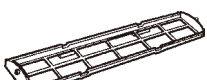
Name and shape	Q'ty	Application
Drain hose Insulation 	1	For installing drain hose
Cloth tape 	1	For indoor unit installation
Cable tie 	2	For transmission and remote controller cable binding
Air cleaning filter 	2	For installation, refer to the "CLEANING AND CARE" in the operating manual.
Air cleaning filter frame 	2	


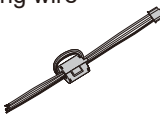

● **Models : ASUA7, 9, 12, 14TLAV**

Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Wall hook bracket 	1	For indoor unit installation
Cable tie 	1	For remote control cable binding
Cloth tape 	1	For indoor unit installation

Name and shape	Q'ty	Application
Tapping screw 	8	For wall hook bracket installation
Connecting cable 	1	For wired remote controller installation
Air cleaning filter 	2	For installation, refer to the "CLEANING AND CARE" in the operating manual.
Air cleaning filter frame 	2	
Seal A 	1	For indoor unit installation

● **Models : ASUA18, 24TLAV**

Name and shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	
Wall hook bracket 	1	For indoor unit installation
Cloth tape 	1	For indoor unit installation
Tapping screw 	8	For wall hook bracket installation
Air cleaning filter 	2	For installation, refer to the "CLEANING AND CARE" in the operating manual.
Air cleaning filter frame 	2	

Name and shape	Q'ty	Application
Drain hose Insulation 	1	For installing drain hose
Connecting wire 	1	For wired remote controller installation
Cable tie 	1	For transmission and remote controller cable binding



7. FUNCTION SETTING

CONTENTS

7. FUNCTION SETTING

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1. SYSTEM SETTING

1-1. SYSTEM TYPE SETTING

Set the DIP switch to the corresponding system type as shown in the table.

Do not change DIP switch setting not specified below.

NOTE
* Perform the system setting and address setting , before turning on the power.
* For the air conditioner to operate properly, perform the correct setting.

OUTDOOR UNIT SETTING

(◆ . . . Factory Setting)

<Step 1>

Set the outdoor unit address setting

(This function is available in VR-II, V-II series.)

SETTING FOR MASTER UNIT & SLAVE UNIT.

Set the DIP SW SET3-1 & 3-2.

Master : SET3-1 OFF, SET3-2 OFF ◆

Slave 1 : SET3-1 OFF, SET3-2 ON

Slave 2 : SET3-1 ON, SET3-2 OFF



<Step 2>

Set the number of slave unit

(This function is available in VR-II, V-II series.)

SETTING FOR MASTER UNIT ONLY.

Set the DIP SW SET3-3 & 3-4.

1 : SET3-3 OFF, SET3-4 OFF : Master x 1 ◆

2 : SET3-3 OFF, SET3-4 ON : Master x 1 Slave x 1

3 : SET3-3 ON, SET3-4 OFF : Mater x 1, Slave x 2



<Step 3>

Set the number of outdoor units installed

(This function is available in VR-II, V-II series.)

SETTING FOR MASTER UNIT & SLAVE UNIT.

Set the DIP SW SET5-1 & 5-2.

1 : SET5-1 OFF, SET5-2 OFF : Number of 1 ◆

2 : SET5-1 OFF, SET5-2 ON : Number of 2

3 : SET5-1 ON, SET5-2 OFF : Number of 3



<Step 4>

Refrigerant circuit address setting

SETTING FOR MASTER UNIT & SLAVE UNIT.

Set the Rotary SW REF AD x10 & x1.

For details of switch, refer to "1-2. ADDRESS SETTING".



<Step 5>

Terminal resistor setting

SETTING FOR MASTER UNIT & SLAVE UNIT.

Set the DIP SW SET5-4.

For details of switch, refer to "1-6. TERMINAL RESISTORSETTING".



<Step 6>

Indoor unit connection check

(This function is available in J-II series.)

For details, refer to "1-7. INDOOR UNIT CONNECTION CHECK".



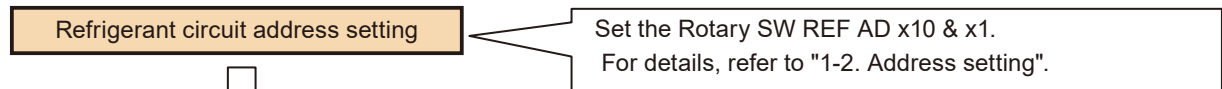
<Step 7>

Function setting

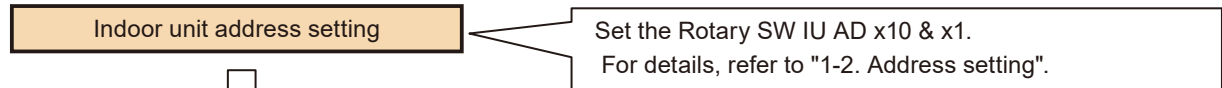
INDOOR UNIT SETTING

Refer to the correct SW position for 2. Function Setting.

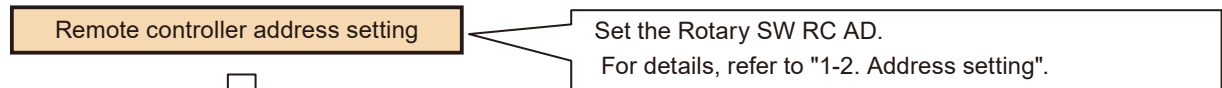
<Step 1>



<Step 2>



<Step 3>



<Step 4>

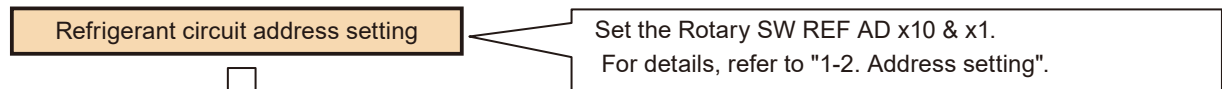


RB UNIT SETTING

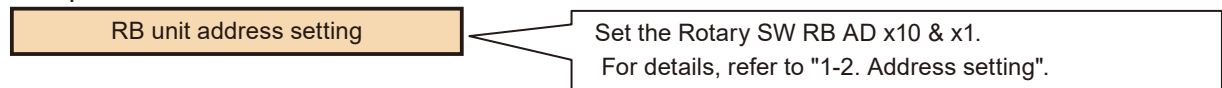
Refer to the correct SW position for 2. Function Setting.

(This function is available VR-II series.)

<Step 1>

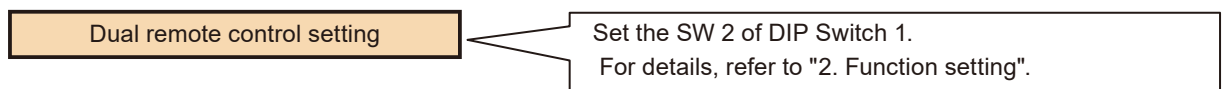


<Step 2>



REMOTE CONTROLLER SETTING

(Only for Wired remote controller and Simple remote controller)



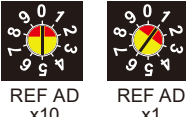





* Other than the unit above, refer to "2. Function setting" and the installation manual.

1-2. ADDRESS SETTING

For this system, each address should be preset before operation.

Refer following table for outdoor unit, indoor unit, RB unit and each remote controller.

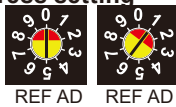

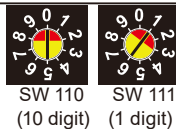
■ KINDS OF ADDRESS AND SETTING RANGE

UNIT	SETTING	SETTING RANGE	TYPE OF SWITCH	REMARKS	
Outdoor unit	A	Refrigerant circuit address	00 ~ 99	Setting example 01  REF AD x10 REF AD x1	Arbitrary numbers can be set in range of 00-99.
	B	Outdoor unit address *1	0 ~ 2	 SET3	DIP SW SET3-1 DIP SW SET3-2
	C	Number of slave unit *1	0 ~ 2		DIP SW SET3-3 DIP SW SET3-4 (Master unit only)
	L	Number of outdoor units installed *1	1 ~ 3	 SET5	DIP SW SET5-1 DIP SW SET5-2
		Terminal resistor	ON/OFF		DIP SW SET5-4 See the setting method 1-6.
Indoor unit	D	Refrigerant circuit address	00 ~ 99	Manual address setting Setting example 01  REF AD x10 REF AD x1	Arbitrary numbers can be set in range of 00-99.
				Infrared address setting Set this switch to 00 at factory setting.	See the setting method 1-4-1.
				Wired R.C. address setting Set this switch to 00 at factory setting.	See the setting method 1-4-2.
				Simple R.C. address setting Set this switch to 00 at factory setting.	See the setting method 1-4-4. and 1-4-5.
				Wired R.C. (Touch panel) address setting Set this switch to 00 at factory setting.	See the setting method 1-4-3.
				Automatic address setting Set this switch to 00 at factory setting.	See the setting method 1-5-2.
	E	Indoor unit address	00 ~ 63	Manual address setting Setting example 12  IU AD x10 IU AD x1	Arbitrary numbers can be set in range of 00-63.
				Infrared address setting Set this switch to 00 at factory setting.	See the setting method 1-4-1.
				Wired R.C. address setting Set this switch to 00 at factory setting.	See the setting method 1-4-2.
				Simple R.C. address setting Set this switch to 00 at factory setting.	See the setting method 1-4-4. and 1-4-5.
				Wired R.C. (Touch panel) address setting Set this switch to 00 at factory setting.	See the setting method 1-4-3.
				Automatic address setting Set this switch to 00 at factory setting.	See the setting method 1-5-2.
	F	Remote controller address	0 ~ 15	Manual address setting Setting example 10  RC AD	3-wire type R.C. can be set in range of 0-15.
				Automatic address setting Set this switch to 0 at factory setting.	2-wire type only

*Set up after confirming the details of each unit.

*1: This function is available VR-II and V-IIseries

■ KINDS OF ADDRESS AND SETTING RANGE

UNIT	SETTING	SETTING RANGE	TYPE OF SWITCH	REMARKS	
RB unit	O	Refrigerant circuit address	00 ~ 99	Manual address setting Setting example 01 	Arbitrary numbers can be set in range of 00-99. See the setting method 2-9.
				Automatic address setting Set this switch to 00 at factory setting.	See the setting method 1-5-3.
	P	RB unit address	00 ~ 63	Manual address setting Setting example 12 	Arbitrary numbers can be set in range of 00-63. See the setting method 2-9
				Automatic address setting Set this switch to 00 at factory setting.	See the setting method 1-5-3.
Touch panel controller	G	Controller / Converter address	00 ~ 15 *1		See the setting method 2-14.
Network convertor	H	Refrigerant circuit address	00 ~ 99	Setting example 01 	See the setting method 2-16.
Wired remote controller	I	Dual remote control	ON/OFF	SW 2 of DIP Switch 1	See the setting method 2-10.
Simple remote controller	I	Dual remote control	ON/OFF	SW 2 of DIP Switch 1	See the setting method 2-11. and 2-15.
Signal amplifier	K	Signal amplifier address	1 ~ 8	Manual address setting	See the setting method 2-17.
				Automatic address setting Set to 1 at factory setting.	See the setting method 1-5-1
Modbus® convertor	Q	Controller / Converter address	00 ~ 15 *1		See the setting method 2-18.
Network convertor for LONWORKS®	M				See the setting method 2-19.
Central remote controller	N				See the setting method 2-13.
Wired remote controller (Touch panel)	F	Remote controller address	1 ~ 32 *2	Manual address setting	See the setting method 2-14-1.
			0 ~ 15	Automatic address setting	
	J	Dual remote control	ON/OFF		See the setting method 2-14-2.

*Set up after confirming the details of each unit.

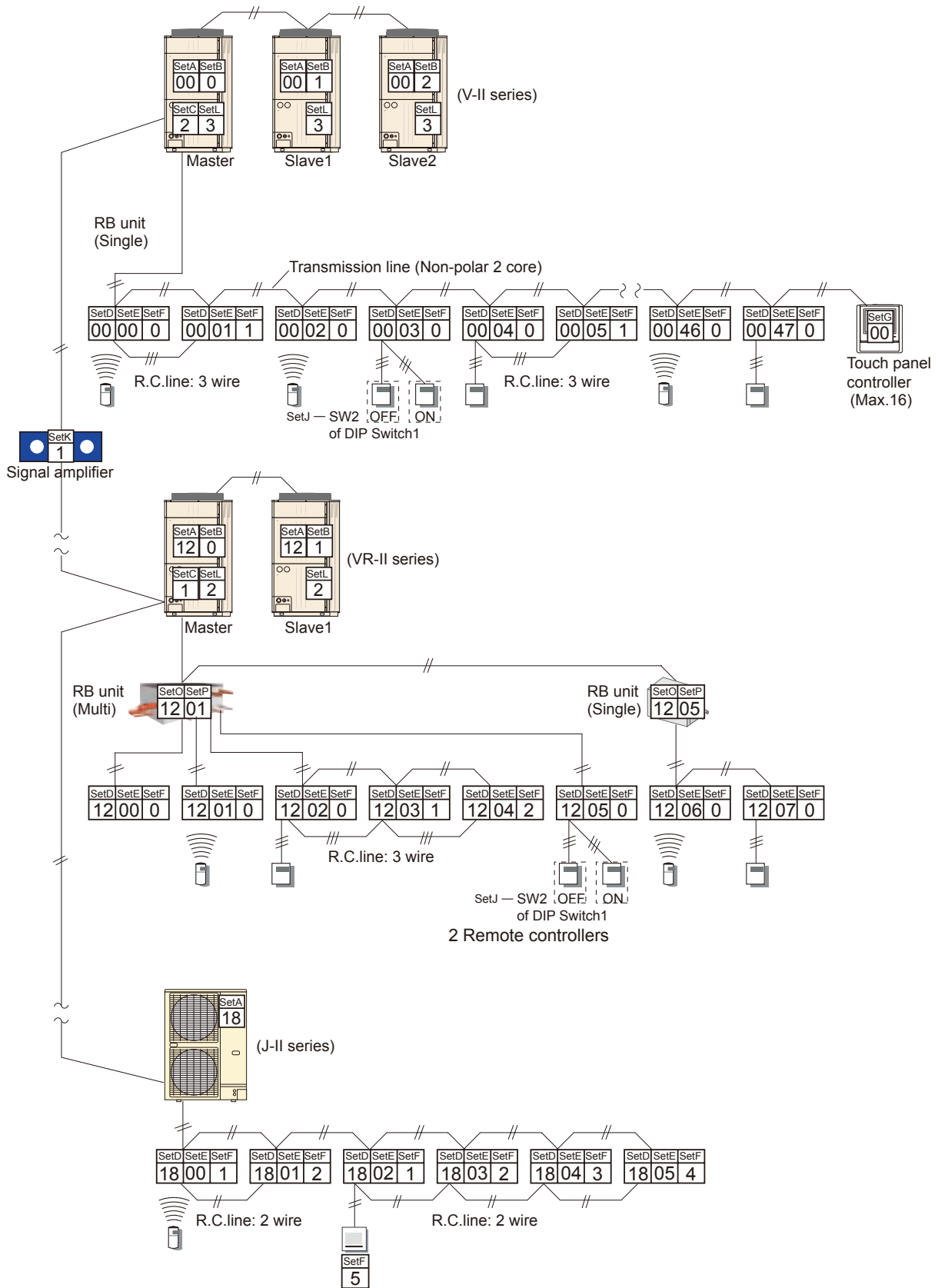
*1: The sum total of the Touch panel controller, Central remote controller and Network convertor for LONWORKS® is a maximum of 16.

NOTE: Address of the Touch panel controller, Central remote controller, Modbus® convertor and Network convertor for LONWORKS® must not be same.

*2: The address can be set from 1 to 32. However, do not set the same number as that for the remote-controller address of an indoor unit connected using the same remote-control cable.

Set "Remote controller address" of Wired remote controller (Touch panel) in Manual address setting only. It is not necessary to set in Automatic address setting.

SETTING EXAMPLE

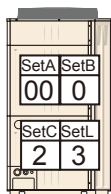


FUNCTION SETTING

FUNCTION SETTING

■ SETTING EXAMPLE

● Outdoor unit setting



- SetA: Refrigerant circuit address
(Rotary SW REF AD x10, x1)
- SetB: Outdoor unit address
(DIP SW SET3-1, 3-2)
- SetC: Number of slave unit
(DIP SW SET3-3, 3-4)
<Master unit only>
- SetL: Number of outdoor units
installed
(DIP SW SET5-1, 5-2)

● Touch panel controller setting

SetG: Controller address (Max.16)

● Network convertor setting

SetH: Refrigerant circuit address
(for Single split AC:Max.100)

● Central remote controller setting

SetN: Controller address (Max.16)

● Signal amplifier setting

SetK: Signal amplifier address

● Indoor unit setting

SetD	SetE	SetF
63	06	0

SetD		SetE		SetF
Refrigerant circuit address		Indoor unit address		Remote controller address
REF AD X10	REF AD X1	IU AD X10	IU AD X1	RC AD

● RB unit setting

SetO	SetP
63	06

SetO		SetP	
Refrigerant circuit address		RB unit address	
REF AD X10	REF AD X1	RB AD X10	RB AD X1

● Wired, Simple remote controller setting

SetI: Dual remote control
(SW2 of DIP Switch1)

● Network convertor for LonWORKS® setting

SetM: Convertor address

● Wired remote controller (Touch panel) setting

SetF: Remote controller address
SetI: Dual remote control

* Instructions for setting up the address

1. The refrigerant circuit address of the indoor units, outdoor units and RB units can be set to arbitrary numbers in the range of 0 to 99.
2. The Indoor unit address and RB unit address can be set to arbitrary numbers in the range of 0 to 63.
3. In case of 3 wire type of R.C., set the remote controller address in the order of 0,1,2, . . . ,15.(Blank is not allowed)
4. In case of 2 wire type of R.C.(Automatic address setting), set the remote controller address in the 0.
5. In case of 2 wire type of R.C.(Manual address setting), can be set to arbitrary numbers in the range of 1 to 15. Cannot be set to 0.
6. Touch panel controller address can be set to arbitrary numbers in the range of 0 to 15.
- 7 : The sum total of the Touch panel controller, Central remote controller and Network convertor for LonWORKS® is a maximum of 16.
8. Keep Address No. of Touch Panel Controller from overlapping the controller (Central remote controller and Network convertor for LonWORKS®) connected to the same VRF Network system.

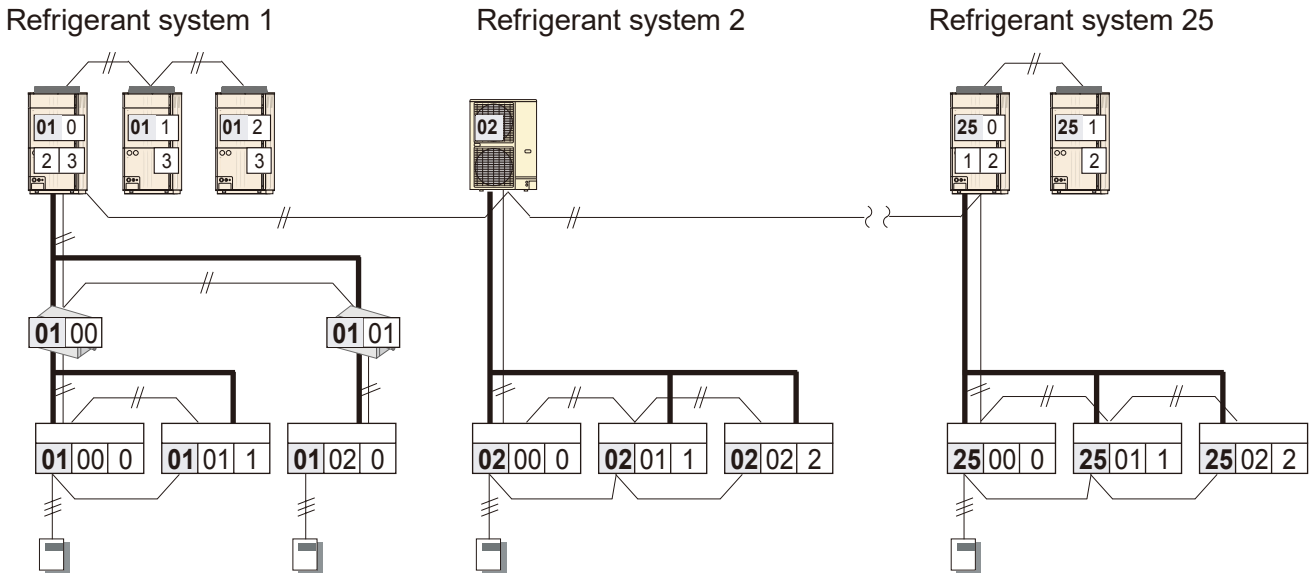
1-3. MANUAL ADDRESS SETTING METHOD

■ ADDRESS SETTING DESCRIPTION

● Refrigerant circuit address (Set A, Set D and Set O)









In case of 2 or more refrigerant system in VRF network system, each refrigerant system should be set an exclusive refrigerant circuit address.

Refrigerant system : It means same refrigerant circuit which has connected between outdoor unit and indoor unit by piping.



● Example

Outdoor unit (Set A), Indoor unit (Set D),
RB unit (Set O)

Refrigerant circuit address	Rotary SW setting	
	REF AD x10	REF AD x1
01	 0	 1
11	 1	 1
25	 2	 5
50	 5	 0

Setting range 00 - 99(Arbitrary numbers can be set)

All the indoor unit, all the RB unit and outdoor unit in same refrigerant circuit should be set same address.

● Outdoor unit address (Set B)

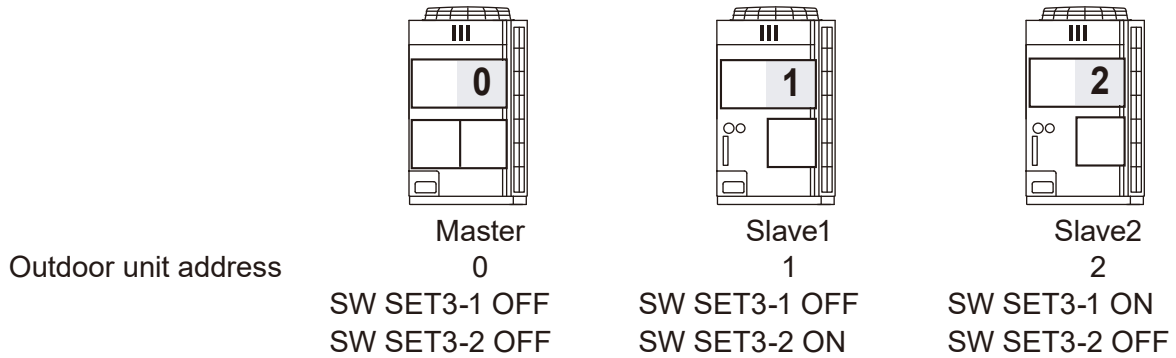
This function is available VR-II and V-II series.

Set the outdoor unit address for each outdoor unit.

Outdoor unit is preset "0", at factory setting.

No change to this setting needed for 1 Outdoor Unit systems.

In case of 2 or 3 outdoor units connected in same refrigerant circuit, set the slave unit which has installed farther from master unit to Slave2 setting "2".



Outdoor unit address		0 ◆	1	2
DIP SW	SET3-1	OFF	OFF	ON
	SET3-2	OFF	ON	OFF

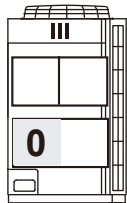
(◆ . . . Factory Setting)

● Number of slave unit (Set C)

This function is available VR-II and V-II series.

(Set at Master unit PCB only)

Set the number of slave unit on Master unit PCB.

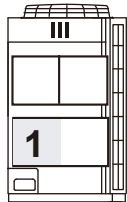


Number of slave unit

0

SW SET3-3 OFF
SW SET3-4 OFF

Master

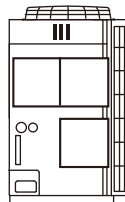


Number of slave unit

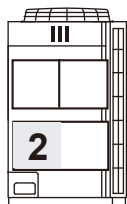
1

SW SET3-3 OFF
SW SET3-4 ON

Master

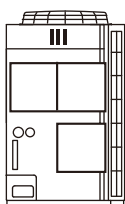


Slave 1

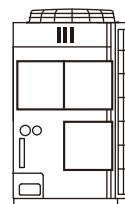


SW SET3-3 ON
SW SET3-4 OFF

Master



Slave 1



Slave 2

Number of slave unit

2

Number of slave unit		0 ◆	1	2
DIP SW	SET3-3	OFF	OFF	ON
	SET3-4	OFF	ON	OFF

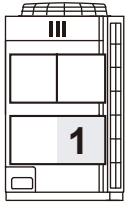
(◆ . . . Factory Setting)

● Number of outdoor units installed (Set L)

This function is available VR-II and V-II series.

The number of outdoor units installed in one refrigerant system must be set.

Set for all outdoor units.



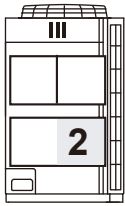
Master

Number of outdoor unit

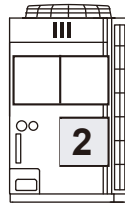
1

SW SET5-1 OFF

SW SET5-2 OFF



Master



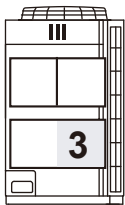
Slave 1

Number of outdoor unit

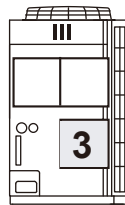
2

SW SET5-1 OFF

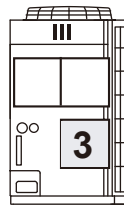
SW SET5-2 ON



Master



Slave 1



Slave 2

Number of outdoor unit

3

SW SET5-1 ON

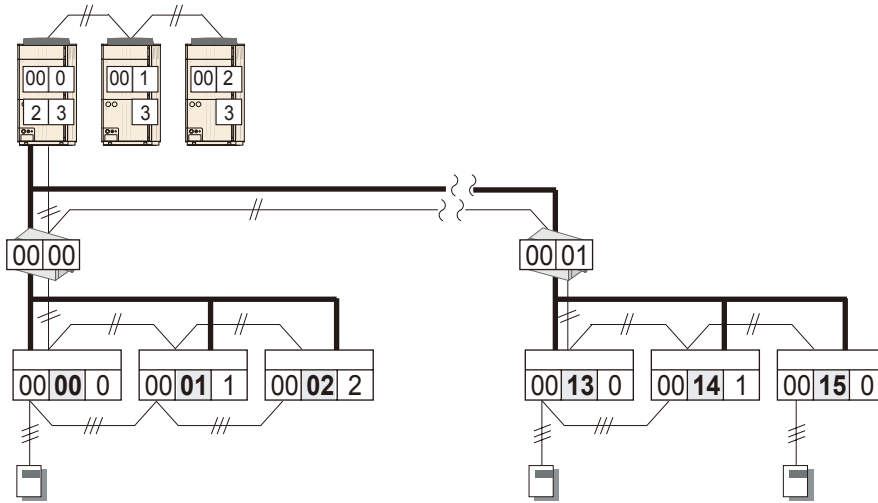
SW SET5-2 OFF









Number of outdoor unit		1 ◆	2	3
DIP SW	SET5-1	OFF	OFF	ON
	SET5-2	OFF	ON	OFF

(◆ . . . Factory Setting)

● Indoor unit address (Set E)

Each indoor unit on the same refrigerant system should be set to a different indoor unit address.



Indoor unit address	Rotary SW setting	
	IU AD x10	IU AD x1
03	 0	 3
11	 1	 1
30	 3	 0
47	 4	 7

*Setting range 00 - 63(Arbitrary numbers can be set)

*Do not set indoor unit address to the range of 64 from 99.

*Do not set the same address number to two or more indoor units.

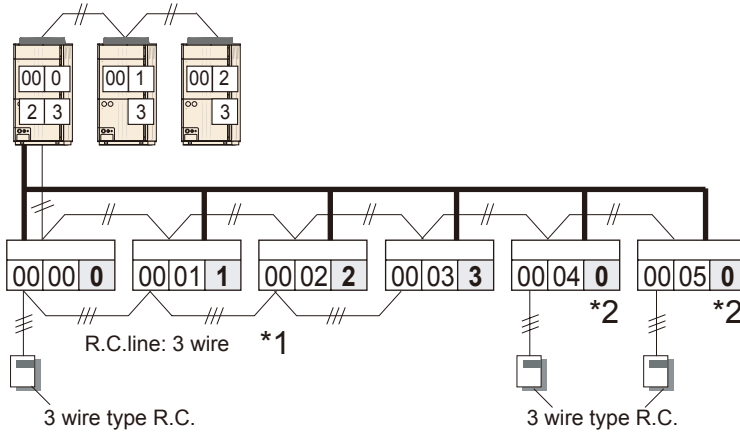
● Remote controller address (Set F)





One individual remote controller can control up to a max of 16 indoor units with a connecting cable.

All units connected to the same remote control area considered a remote control group.

i) 3 wire type

Only for manual address setting



Remote controller address	Rotary SW setting
	RC AD
0	 0
1	 1
11	 B
15	 F

Remote controller address	Rotary SW setting
	RC AD
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	A
11	B
12	C
13	D
14	E
15	F

*1 : Set the remote controller address in the order of 0,1,2, . . . ,15.(Blank is not allowed)

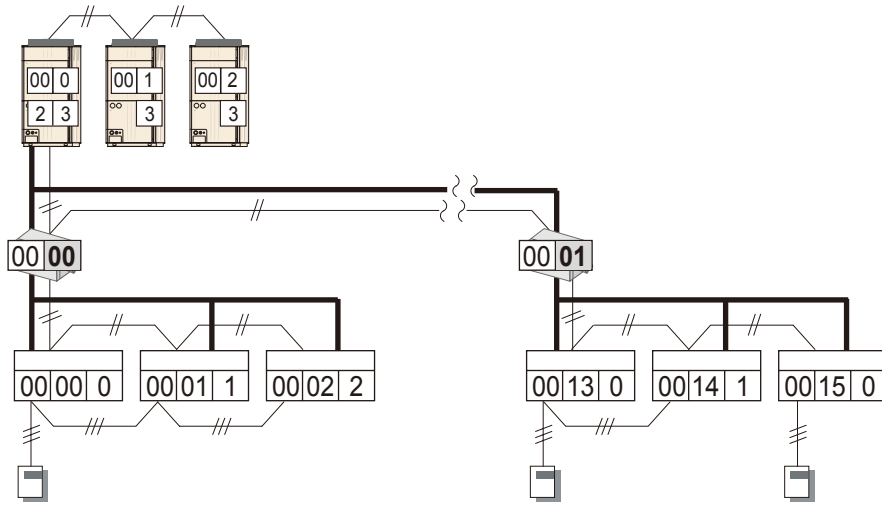
*2 : For units without a connected remote controller, make sure that the remote controller address is set to "0" (factory setting).









ii) 2 wire type

Addresses will be automatically set when initially starting up this unit. In such a case, do not change the remote controller address for the indoor unit, and keep it at the initial setting of 0.

● RB unit address (Set P)

Each RB unit in same refrigerant system should be set an exclusive RB unit address.



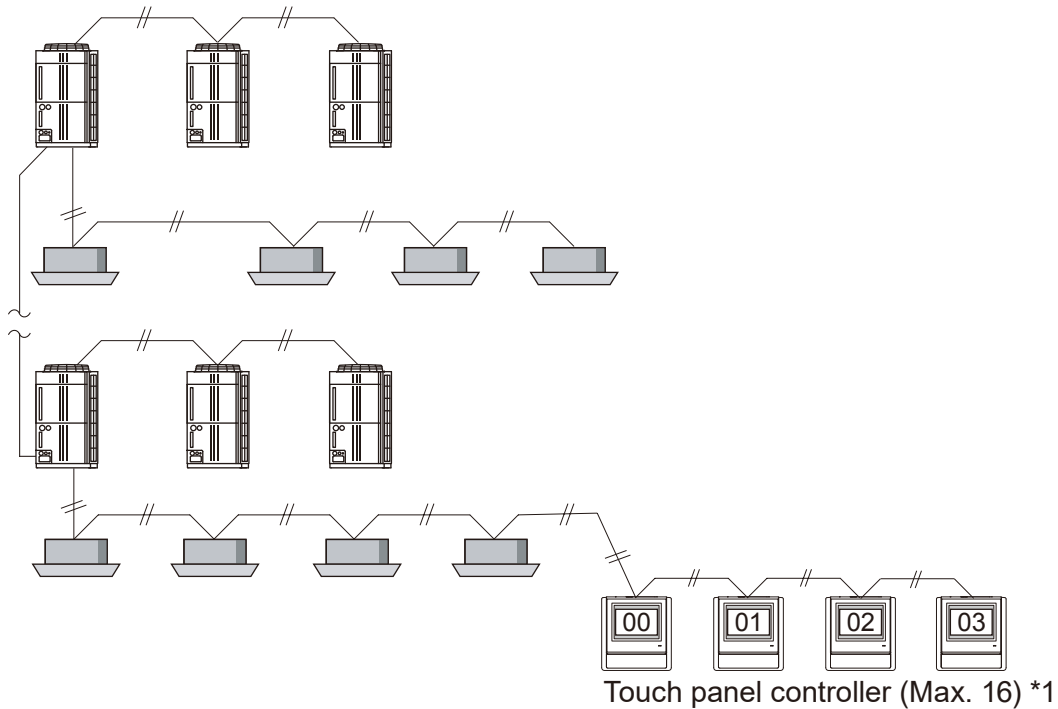
RB unit address	Rotary SW setting	
	RB AD x10	RB AD x1
03	 0	 3
11	 1	 1
30	 3	 0
47	 4	 7

*Setting range 00 - 63(Arbitrary numbers can be set)

*Do not set RB unit address to the range of 64 from 99.

*Do not set the same address number to two or more RB units.

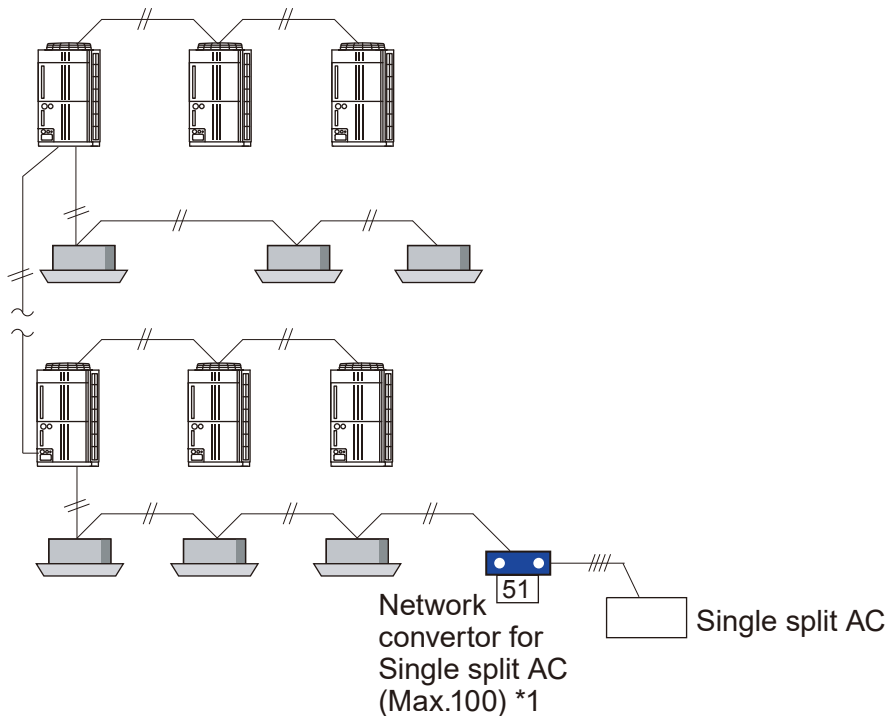
● Touch panel controller setting (Set G)



NOTE: Set Touch panel controller address first, to conduct the initial setting of it.
Refer to the "setting manual" for details.

*1 : The total of the Touch panel controller, Central remote controller and Network convertor for LONWORKS® is a maximum of 16.

● Network convertor setting (Set H)



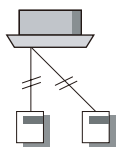
NOTE: Set the Rotary SW 110 and SW 111 on network convertor PCB.

*1 : When connecting the Network convertor for Single split AC , set up the number so that the Refrigerant circuit address number of outdoor unit and indoor unit does not overlap .
And the sum total of the Refrigerant circuit address of Network convertor for Single split AC and the Refrigerant circuit address of the outdoor unit and the indoor unit is a maximum of 100.

● **Dual remote control switch for Wired remote controller, Simple remote controller (Set I)**

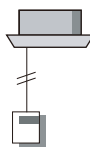
When 2 wired remote controllers are connected to the remote control group, select the.

- Slave remote controller cannot be used for timer setting.
- Last command is priority.



[Master] [Slave]
SW2 OFF ON
of DIP Switch 1

Remote controller unit PCB
Setting by SW 2 of DIP Switch 1



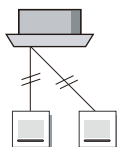
[Master]
SW2 OFF
of DIP Switch 1

When only 1 remote controller will connect, this SW 2 of DIP Switch 1 must be set OFF.

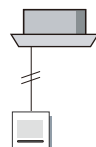
● **Dual remote control switch for Wired remote controller (Touch panel) (Set J)**

When 2 wired remote controllers are connected to the remote control group, select the [Master] or [Slave] on the “RC Master / Slave Setting” screen.

- Slave remote controller cannot be used for timer setting.
- Last command is priority.

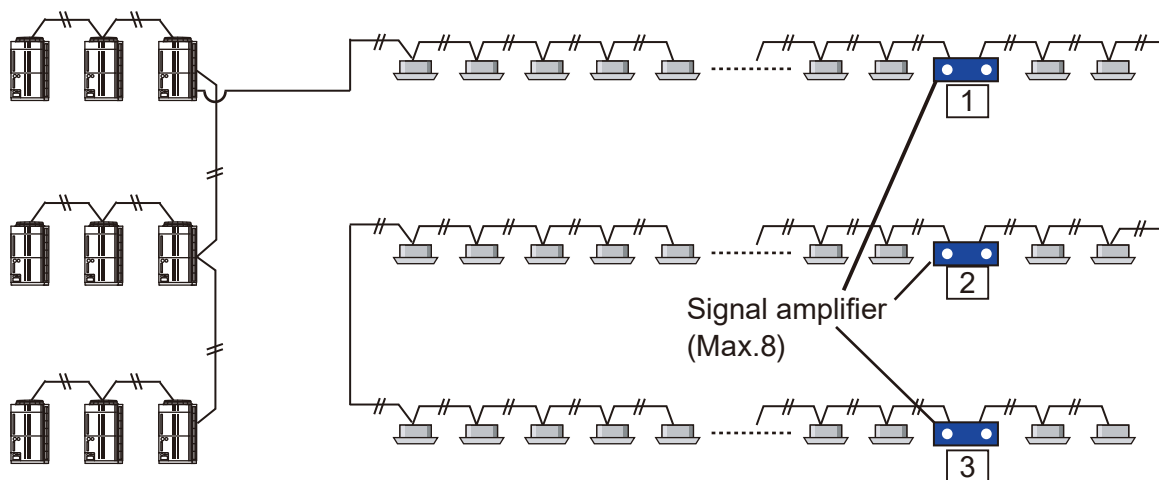


[Master] [Slave]

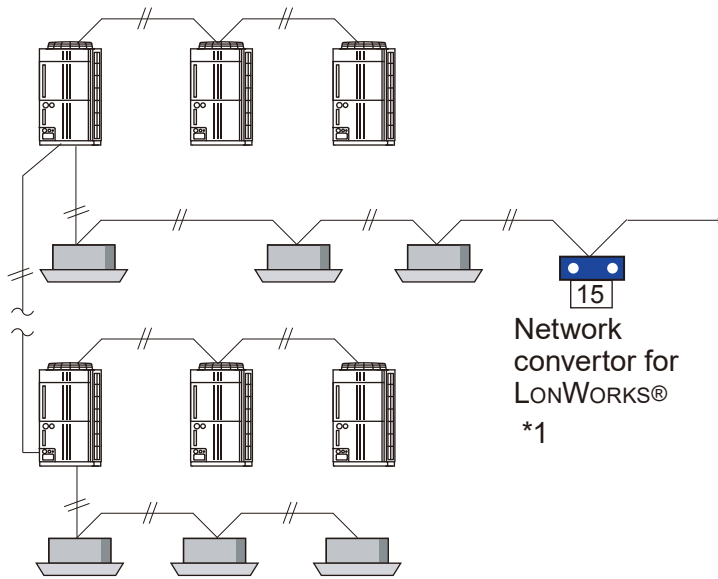


[Master]

● **Signal amplifier address (Set K)**



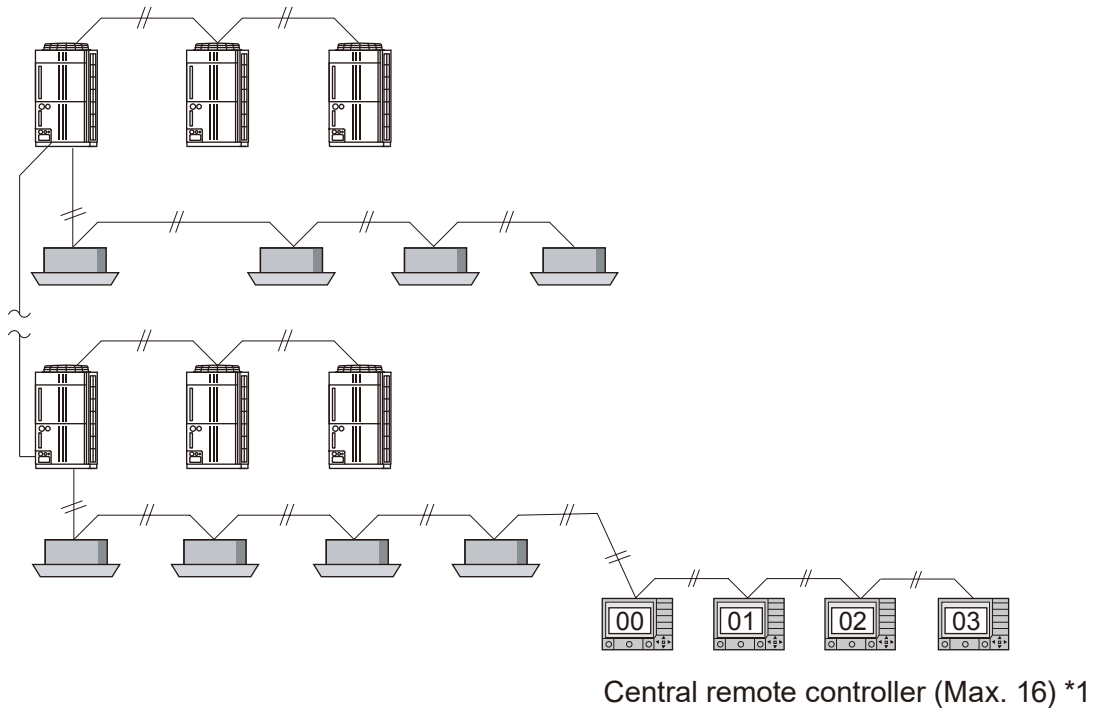
● Network convertor for LONWORKS® setting (Set M)



NOTE: Setting up more than one Network Converter in one VRF network system is prohibited.

*1 : The total of the Touch panel controller, Central remote controller and Network convertor for LONWORKS® is a maximum of 16.

● Central remote controller setting (Set N)



NOTE: Set Central remote controller address first, to conduct the initial setting of it.
Refer to the "setting manual" for details.

*1 : The total of the Touch panel controller, Central remote controller and Network convertor for LONWORKS® is a maximum of 16.

1-4. ADDRESS SETTING BY REMOTE CONTROLLER

1-4-1. WIRELESS REMOTE CONTROLLER

- A wireless remote controller is required to set the infrared address setting.
- This function is available in all indoor unit with infrared signal receiver.
- Infrared address setting for duct type and cassette type models can be made possible by using the optional IR receiver unit.

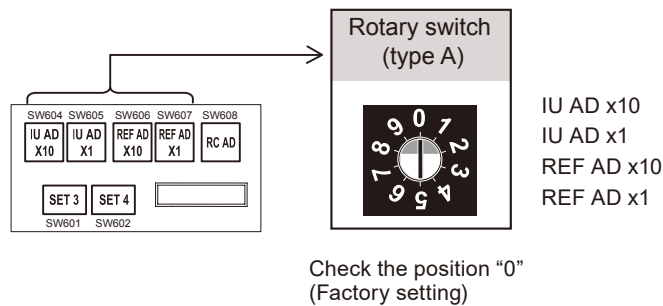
NOTE: Since the beeping sound is generated by the indoor unit PCB, it may be difficult to hear on some units.

- The indoor unit's refrigerant circuit address and indoor unit address can be set performing the infrared address setting.
- When remote controller address setting is required, set by the rotary switch on the indoor unit's PCB.

■ PREPARATION

(1) Set the manual address setting switch on the indoor unit PCB to "00" (factory setting).

(This process is not needed for new units(this is the factory setting).)

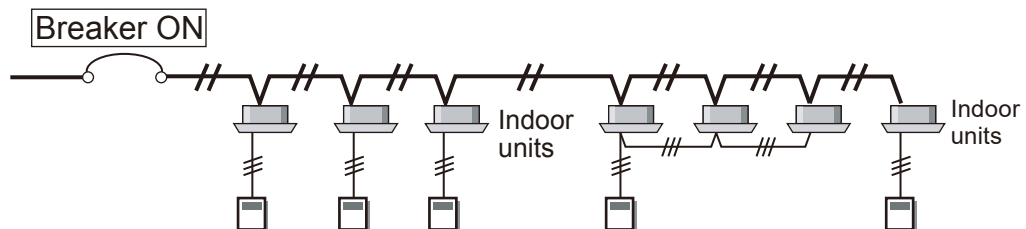


- If any of the switches is positioned at a value other than 0, this function will not activate.
- The layout of the switches differs depending on the type of the indoor unit. (Refer to 2-2.)

(2) Turn on the power to the indoor unit.

* By turning on the power indoor units initializes EEV, so make sure the pressure testing and vacuum drying have been conducted before turning on the power.

* Also check again to make sure no wiring mistakes were made before turning on the power.



■ SWITCHING SELECTION OF ADDRESS SETTING MODE

(3) Press and hold the “MANUAL/AUTO” button for 3 seconds.

IR RECEIVER UNIT

MANUAL/AUTO

MANUAL/AUTO

(4) Press and hold the “FAN” and the “SET TEMP. ▲” buttons. While holding these 2 buttons, press the “RESET” button.

FAN

SET TEMP. (▲)

RESET

Function setting mode display

- The position of the “MANUAL/AUTO” button varies depending on the model. Refer to the operation manual for the button position on your unit.
- Indoor unit will display on "TIMER ⊖"(ORANGE) and "FILTER ⏻"(RED) light (1sec ON / 1sec OFF) by continuously pressing the "MANUAL/AUTO" for 10 sec or more. In this case release the button or turn off the power.
- An explanation of the displayed information as shown below.

■ SELECTION AND CONFIRMATION OF CUSTOM CODE

(5) Press the “SET TEMP. ▲” or “SET TEMP. ▼” buttons to select the custom code that matches the setting with the indoor unit. By selecting the appropriate custom code, the communication between the indoor unit and the wireless RC become possible.

CUSTOM CODE
(R-b-c-d)

The initial setting is "R"

(6) Press the “TIMER MODE” button to send the code to the indoor unit.

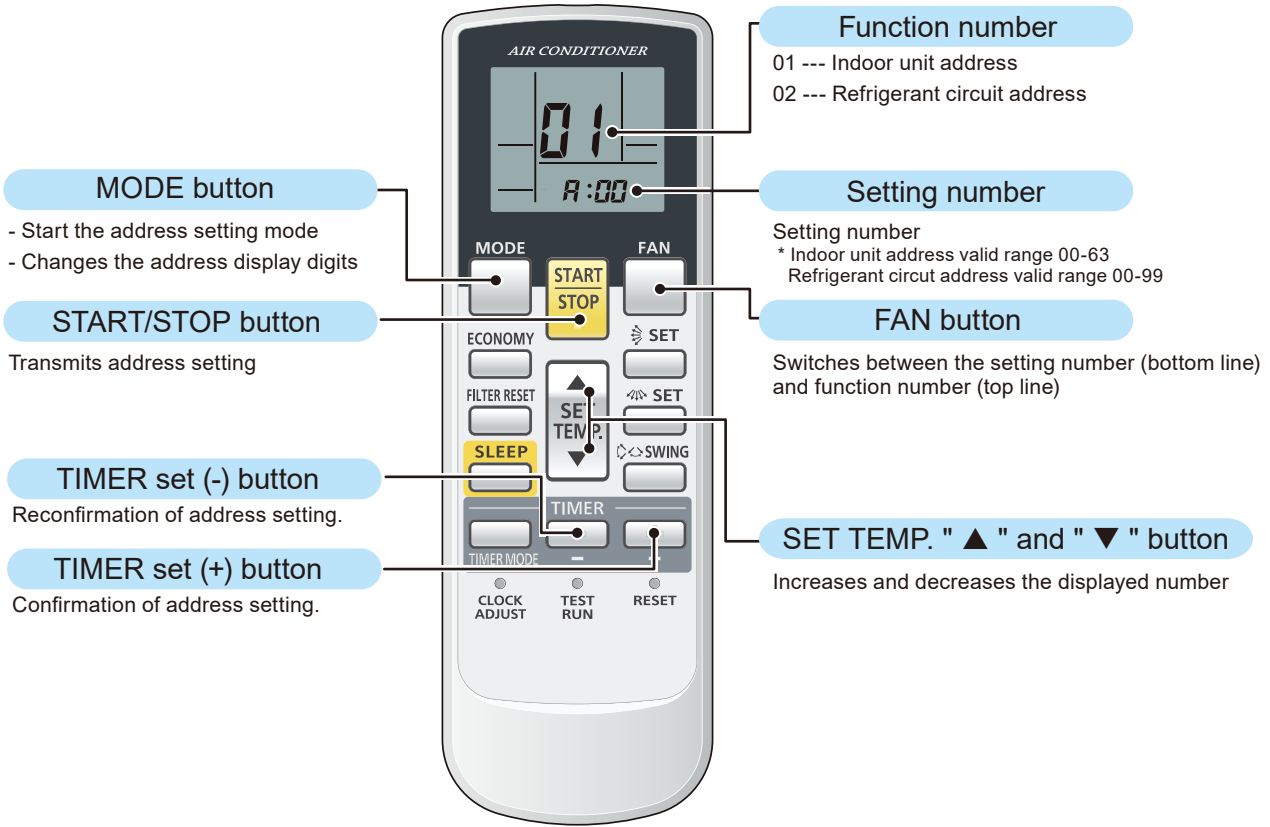
Correct code:
Pi Pi

Wrong code:
No Response

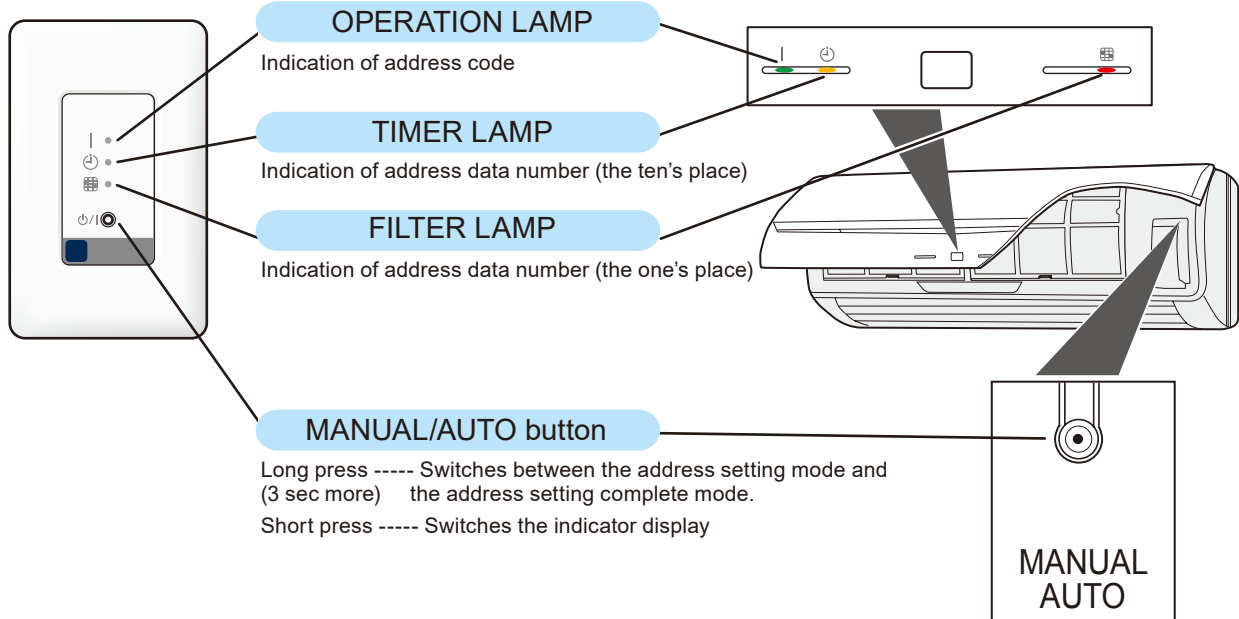
TIMER MODE

■ BUTTON NAME AND FUNCTION

- Refer to "1-2" for an outline of the address setting.
- It does not matter whether the refrigerant circuit address or indoor unit address is set first. (The method shown here sets the indoor unit address first.)
- During address setting mode, indoor unit will not recognize any remote controller operation commands.
- **NOTE:** Address code display is as follows (operation lamp display)



IR RECEIVER UNIT

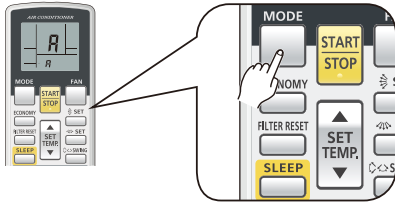


	INDOOR UNIT ADDRESS DISPLAY	REFRIGERANT CIRCUIT ADDRESS DISPLAY
OPERATION LAMP	<p>ON </p> <p>OFF </p> <p>(Light continuously)</p>	<p>ON </p> <p>OFF </p> <p>(Light 1 sec ON / 1 sec OFF)</p>

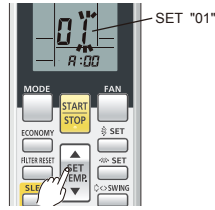
ADDRESS SETTING

INDOOR UNIT ADDRESS SETTING

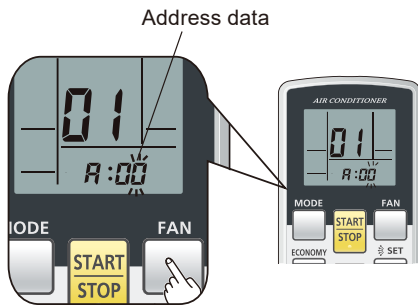
(7) Press the "MODE" button to access the address setting mode.



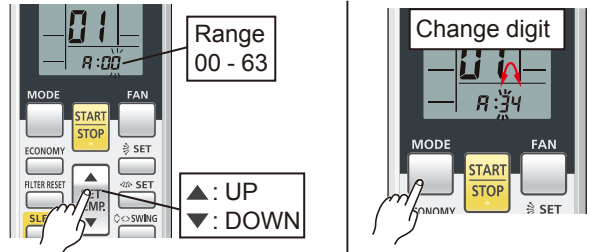
(8) Make sure the function number is '01'. If the number is other than '01', press the "▲" or the "▼" buttons to alter.



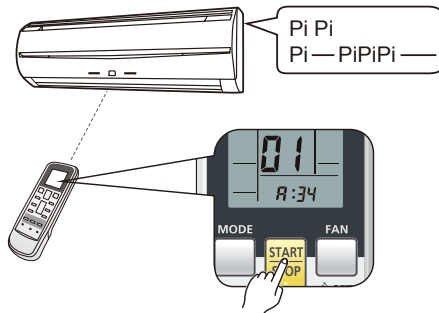
(9) Press the "FAN" button to access the address data setting mode. The address data will flash once this button is pressed.



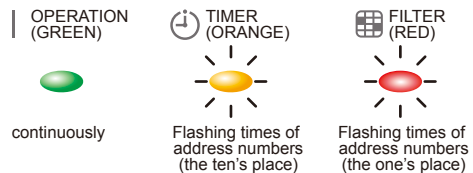
(10) Press the "▲" or the "▼" buttons to adjust the address data. The indoor unit address range is between 00 and 63. Each time the "MODE" button is pressed, it switches between the one' place and the ten's place positions.



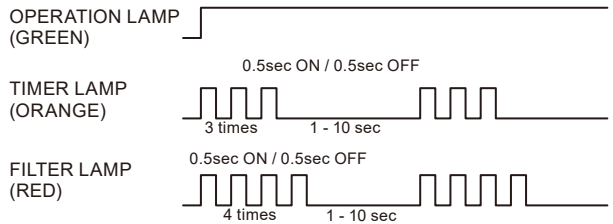
(11) Press the "START/STOP" button once to send the information. A beeping noise will be heard if the command is accepted.



(12) Indoor unit will display the indoor unit address data number on "TIMER ⌚" (ORANGE) and "FILTER 🧼" (RED) light.



(Example) ADDRESS : 34



* In the following cases the setting signal is not read and a buzzer sounds.

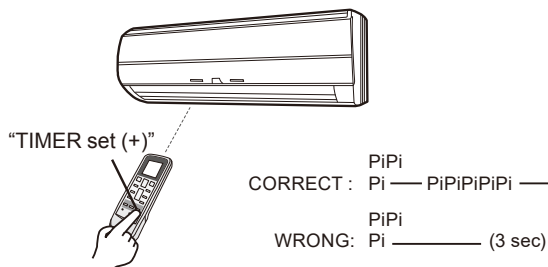
The indoor unit address No. is set out of range (64 or more) : Pi Pi Pi Pi Pi Pi

The setting of the rotary switch on the PCB is not "00" : Pi Pi Pi Pi Pi Pi

* ADDRESS 0 setting will not indicate TIMER LAMP and FILTER LAMP.

Confirmation of address setting

(13) Press the "TIMER set (+)" button.



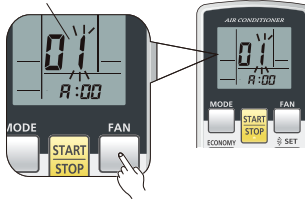
CORRECT : Pi Pi Pi Pi Pi Pi Pi Pi
WRONG: Pi Pi Pi Pi Pi Pi (3 sec)

● REFRIGERANT CIRCUIT ADDRESS SETTING

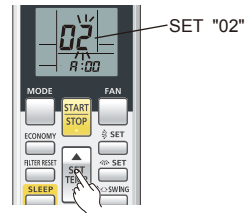
NOTE: The refrigerant circuit address is displayed when the following operations are performed even while indoor unit address is displayed on LED display of indoor unit.

(14) Press the "FAN" button to select the function number.

Function number

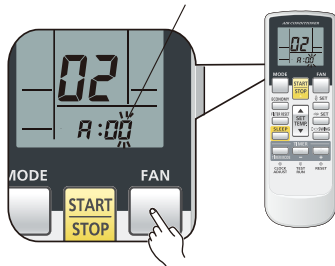


(15) Press the "▲" or the "▼" button to adjust function number 02.

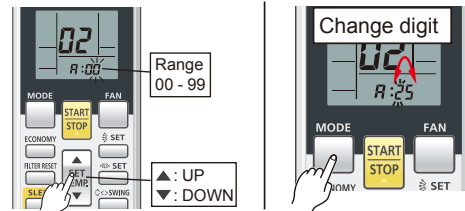


(16) Press the "FAN" button to access the address data setting mode. The address data will flash once this button is pressed.

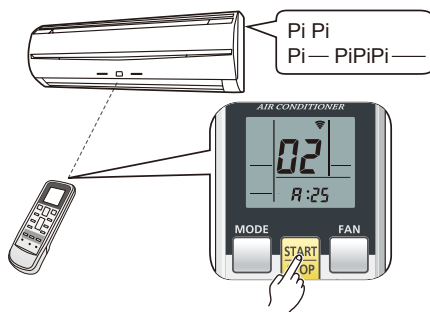
Address data



(17) Press the "▲" or the "▼" buttons to adjust the address data. The refrigerant circuit address range is between 00 and 99. Each time the "MODE" button is pressed, it switches between the one's place and the ten's place positions.



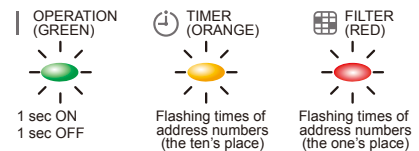
(18) Press the "START/STOP" button once to send the information. A beeping noise will be heard if the command is accepted.



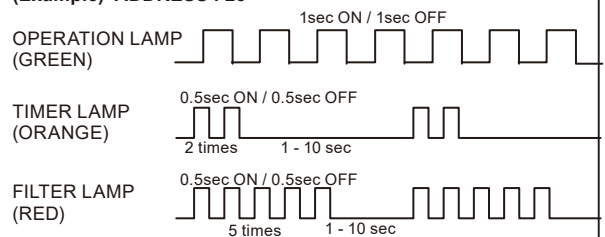
* In the following cases the setting signal is not read and a buzzer sounds.

The setting of the rotary switch on the PCB is not "00" : Pi Pi Pi Pi Pi Pi

(19) Indoor unit will display the refrigerant circuit address data number on "TIMER ⌚" (ORANGE) and "FILTER 🧼" (RED) light.



(Example) ADDRESS : 25

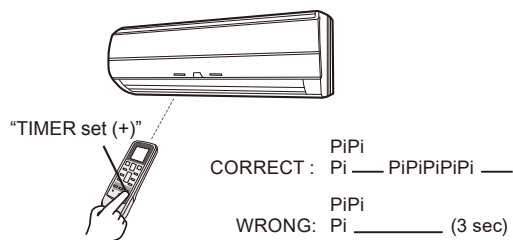


* ADDRESS 0 setting will not indicate TIMER LAMP and FILTER LAMP.

* ADDRESS display will automatically switched from indoor unit address to refrigerant circuit address.

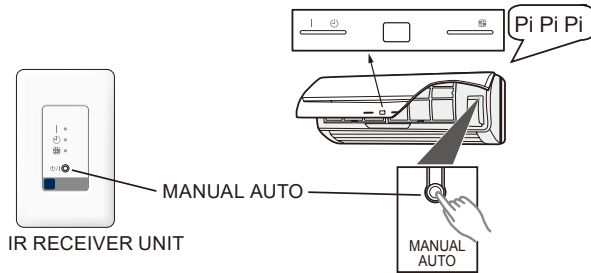
● Confirmation of address setting

(20) Press the "TIMER set (+)" button.



■ COMPLETION OF ADDRESS SETTING MODE

(21) Press and hold the "MANUAL/AUTO $\frac{1}{0}$ " button for 3 seconds.



* Each LED may be of a different brightness, but the content of the message does not change.

(22) Press the "RESET" button.

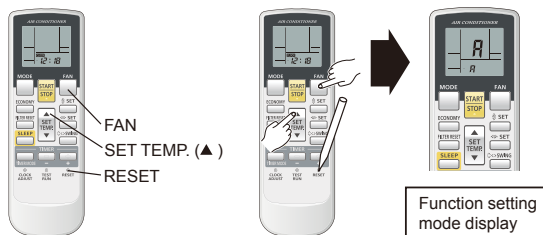


After pressing the RESET button, set the custom code again if b,c,d setting.

- * The address setting signal is not received after switched address setting completion mode. (Pi Pi Pi Pi Pi)
- * Press the "MANUAL/AUTO $\frac{1}{0}$ " button again for 3 sec to return to if required to return to the address setting mode.

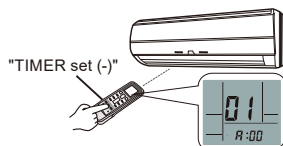
■ RECONFIRMATION OF ADDRESS SETTING

(23) Press and hold the "FAN" and the "SET TEMP. \blacktriangle " buttons. While holding these 2 buttons, press the "RESET" button.

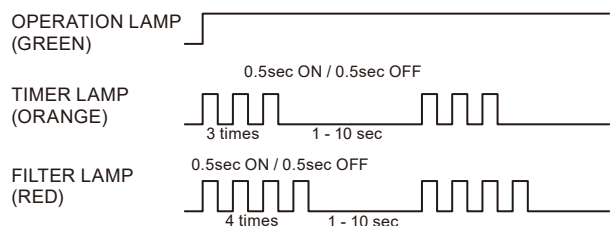


● INDOOR UNIT ADDRESS SETTING

(24) Make sure the function number is "01"
Refer to (8)
Press the "TIMER set (-)" button.

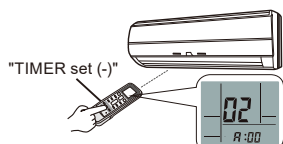


(Example) ADDRESS : 34

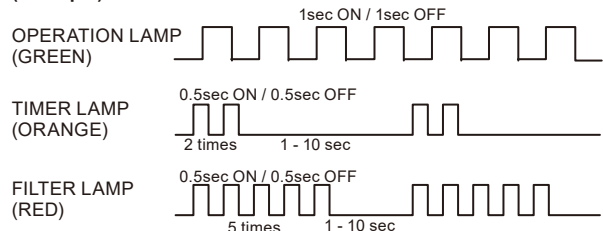


● REFRIGERANT CIRCUIT ADDRESS SETTING

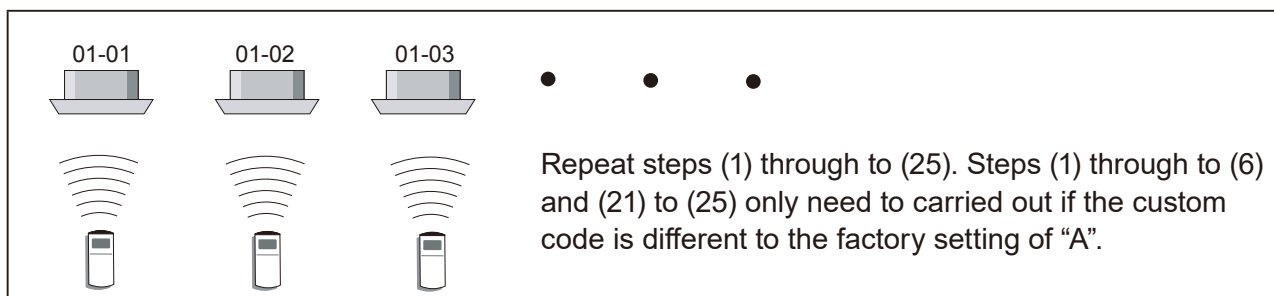
(25) Make sure the function number is "02"
Refer to (15)
Press the "TIMER set (-)" button.



(Example) ADDRESS : 25



■ SETTING UP EACH INDOOR UNIT



■ RESET THE POWER AFTER SETTING UP ADDRESS OF ALL INDOOR UNITS

Important

- If the reset is not performed, address cannot be read in normal operation.
- After all the addresses have been set, the circuit breaker needs to be switched off for at least 2 minutes.

After the 2 minutes has passed, power can be restored.

- The set address is stored in the PCB and will remain in memory even when the power is turned off.

However, the address can be reset after power reset (if needed).

Record the address set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

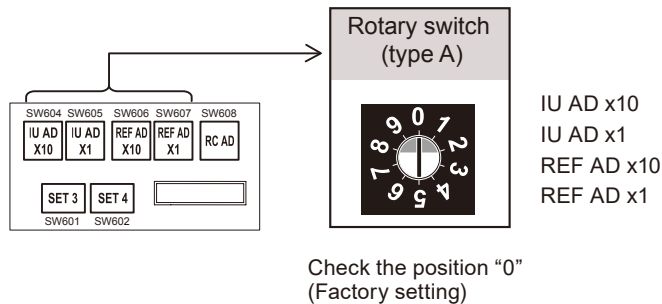
- * Address 0 setting will not indicate TIMER LAMP and FILTER LAMP.
- * Once the "RESET" button is pressed on the remote controller, the OPERATION MODE will be set in the "AUTO MODE".
Adjust the OPERATION MODE to either "COOLING" or "HEATING" before trying to operate the air conditioner.
- * **NOTE:** If CUSTOM CODE is set to anything other than "A", the remote control must be set accordingly to the .

1-4-2. WIRED REMOTE CONTROLLER (UTY-RNKU)

- Indoor unit addresses and refrigerant circuit addresses can be set up using wired remote controllers.
- This function allows setting the addresses of all indoor units to which a wired remote controller is being connected.
- This function cannot be used to set up remote controller addresses.
Be sure to set them up using the rotary switches on the PCB of each indoor unit. (Refer to 1-3.)
- This function cannot be used on the slave units.

■ PREPARATION

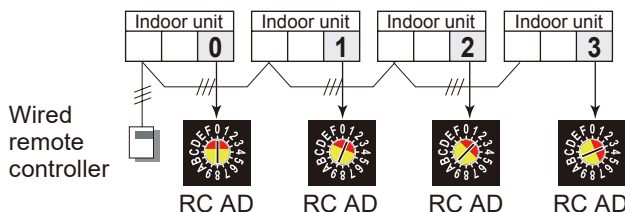
- 1) Make sure that all indoor unit address switches (IU AD x10, IU AD x1) and refrigerant circuit address switches (REF AD x10, REF AD x1) on the PCB of each indoor unit are set at 0 (factory setting).



- If any of the switches is positioned at a value other than 0, this function will not activate.
- The layout of the switches differs depending on the type of the indoor unit. (Refer to 2-2.)

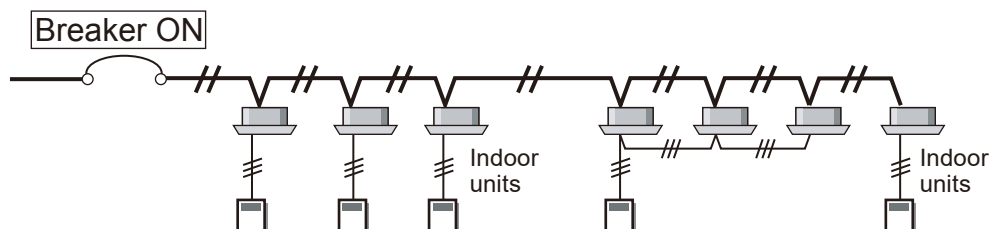
- 2) If multiple indoor units are connected to a single wired remote controller, make sure to manually set up the remote controller address (RC AD) on the PCBs of the indoor units. (Refer to 1-3.)

Ex.) When four indoor units are connected



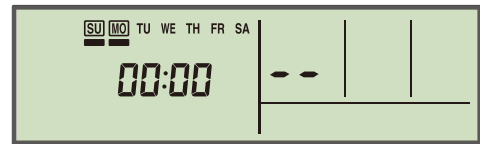
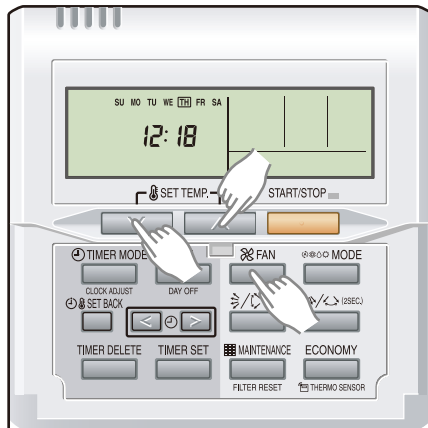
- 3) Turn on the power to the indoor unit.

- By turning on the power indoor units initializes EEV, so make sure the piping air-tight test and vacuuming have been conducted before turning on the power.
- Also check again to make sure no wiring mistakes were made before turning on the power.



■ SWITCHING SELECTION OF ADDRESS SETTING MODE

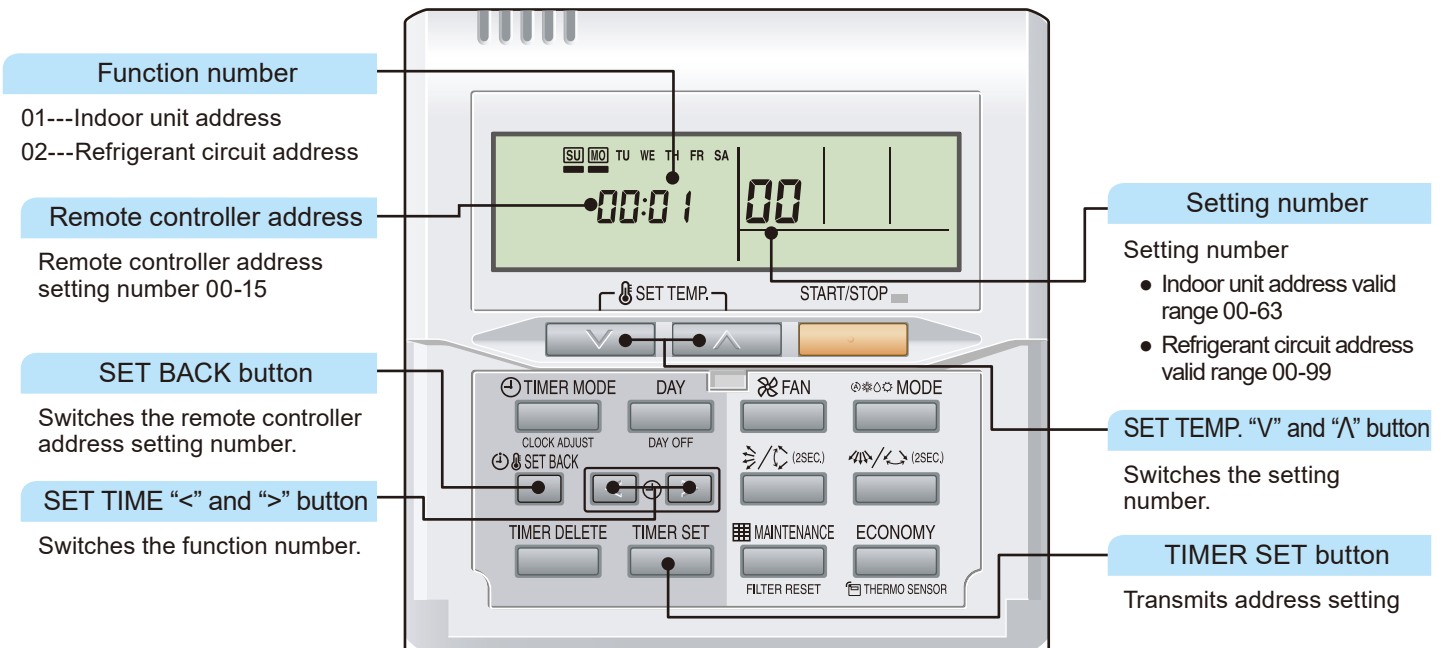
- 4) To activate the address setting mode, hold down the three buttons of SET TEMP. V, SET TEMP. Λ and FAN at the same time for 5 seconds or longer.



Address setting mode initial display

■ BUTTON NAME AND FUNCTION

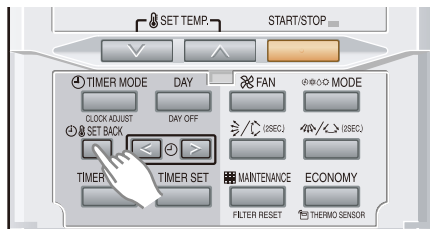
- Refer to “5-2” for an outline of the address setting.
- It does not matter whether the refrigerant circuit address or indoor unit address is set first. (The method shown here sets the indoor unit address first.)
- During address setting mode, indoor unit will not recognize any remote controller operation commands.



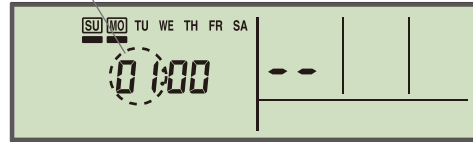
■ ADDRESS SETTING

● Indoor unit address setting

5) Pressing the SET BACK button, select a remote controller address (select the indoor unit you want to operate).

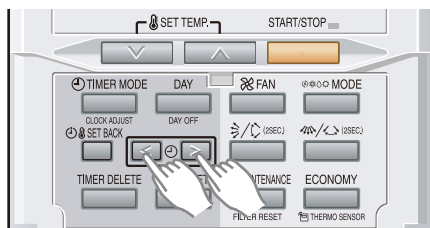


Remote controller address

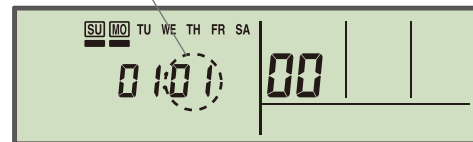


Ex.) When remote controller address "01" is selected

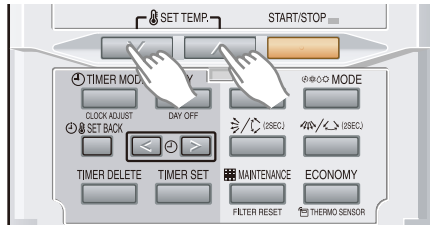
6) Pressing the SET TIME < button or the SET TIME > button, display function number 01.



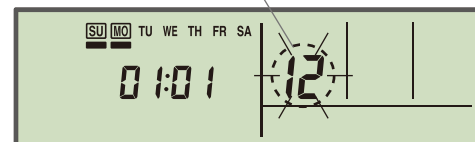
Function number



7) Pressing the SET TEMP. V button or the SET TEMP. Δ button, set up the indoor unit address. (The setting range is from 00 to 63.)

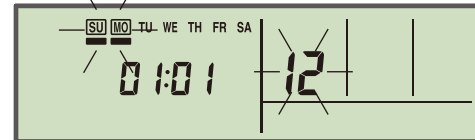
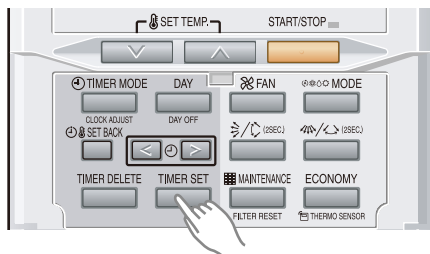


Indoor unit address data



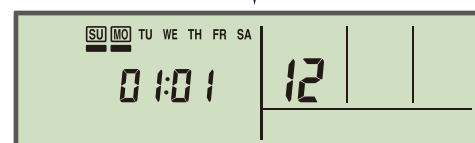
Ex.) When indoor unit address data "12" is set up

8) Pressing the TIMER SET button, confirm the selected indoor unit address data. (The data will be transferred to the indoor unit.)



ERROR

GOOD

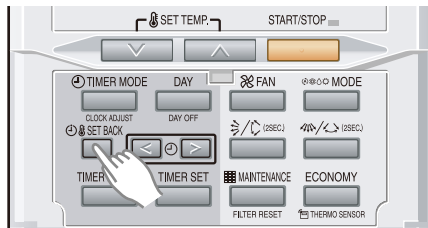


- When indoor unit address data was not set up on the indoor unit (-- is displayed.)
- Set up indoor unit address data again according to the procedure in step 7) above.

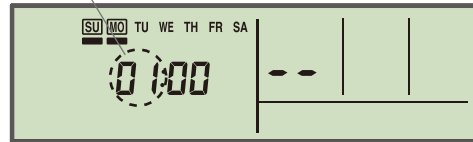
When indoor unit address data was normally set up on the indoor unit (Flashing display changes to illuminated display.)

● Refrigerant circuit address setting

9) Pressing the SET BACK button, select a remote controller address (select the indoor unit you want to operate).



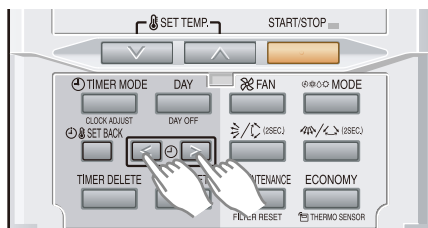
Remote controller address



Ex.) When remote controller address "01" is selected

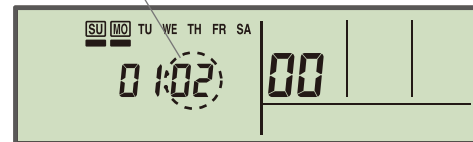
*If the indoor unit you want to operate has already been selected, skip step 9)

10) Pressing the SET TIME < button or the SET TIME > button, display function number 02.

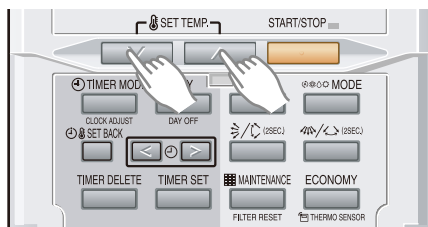


< : Down button
> : Up button

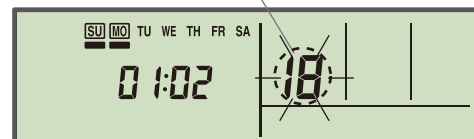
Function number



11) Pressing the SET TEMP. V button or the SET TEMP. ^ button, set up the refrigerant circuit address data. (The setting range is from 00 to 99.)

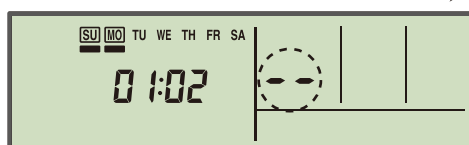
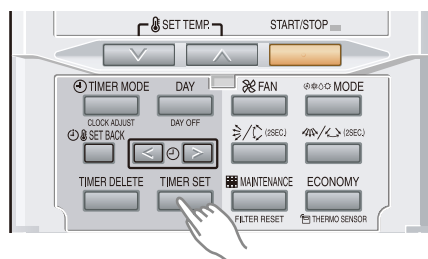


Refrigerant circuit address data

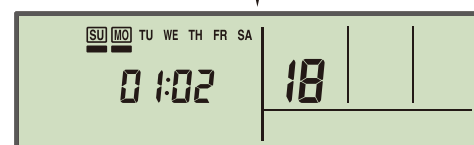


Ex.) When refrigerant circuit address data "18" is set up

12) Pressing the TIMER SET button, confirm the selected refrigerant circuit address data. (The data will be transferred to the indoor unit.)



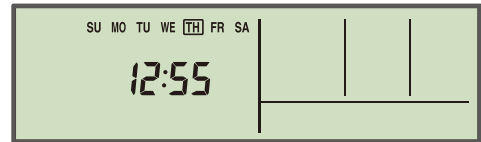
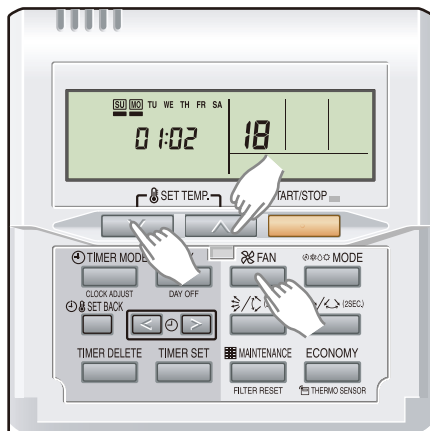
- When refrigerant circuit address data was not set up on the indoor unit (-- is displayed.)
- Set up refrigerant circuit address data again according to the procedure in step 11) above.



When refrigerant circuit address data was normally set up on the indoor unit (Flashing display changes to illuminated display.)

■ COMPLETION OF ADDRESS SETTING MODE

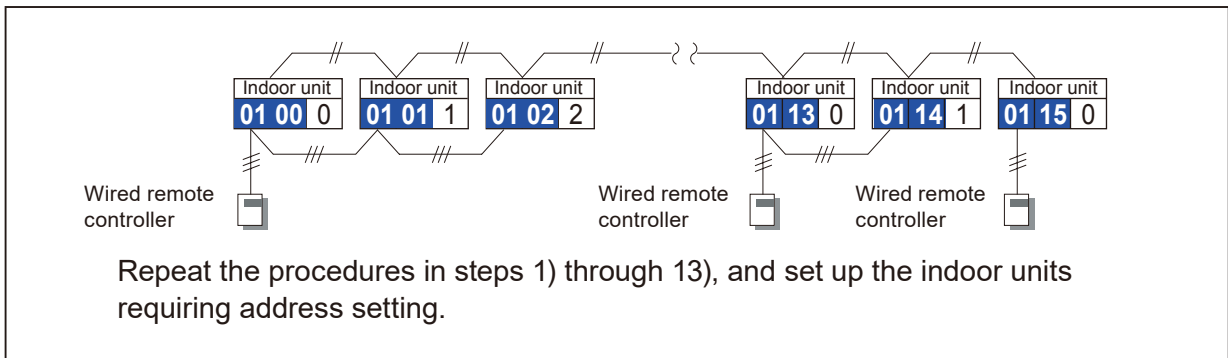
13) To clear the address setting mode and return to the regular display, hold down the three buttons of SET TEMP. V, SET TEMP. Λ and FAN at the same time.



Normal mode display

* If no key entry is made for 60 seconds, even though none of the above buttons is pressed, the address setting mode will automatically be cleared.
(If the address setting mode is automatically cleared while setting addresses, activate the mode again according to the procedure in step 4) above.)

■ SETTING UP EACH INDOOR UNIT



■ RESET THE POWER AFTER SETTING UP ADDRESS OF ALL INDOOR UNITS

Important

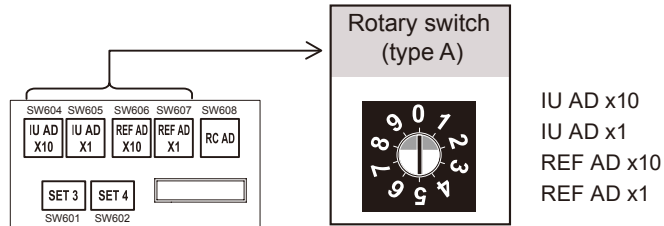
- * If the reset is not performed, address cannot be read in normal operation.
- * After all the addresses have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
- * The set address is stored in the PCB and will remain in memory even when the power is turned off.
However, the address can be reset after power reset (if needed).
Record the address set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

1-4-3. WIRED REMOTE CONTROLLER (UTY-RNRUZ*)

- Indoor unit addresses and refrigerant circuit addresses can be set up using wired remote controllers.
- This function allows setting the addresses of all indoor units to which a wired remote controller is being connected.
- This function cannot be used to set up remote controller addresses.
When setting of Remote controller address in "Manual address setting", Be sure to set them up using the rotary switches on the PCB of each indoor unit. (Refer to 1-3.)
- This function cannot be used on the slave units.

■ PREPARATION

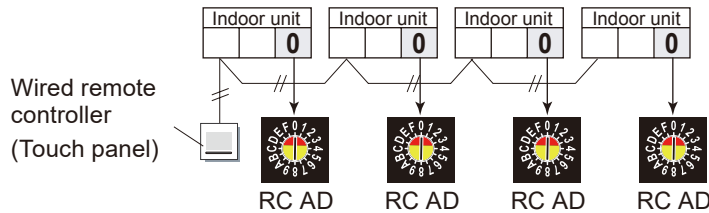
- 1) Make sure that all indoor unit address switches (IU AD x10, IU AD x1) and refrigerant circuit address switches (REF AD x10, REF AD x1) on the PCB of each indoor unit are set at 0 (factory setting).



Check the position "0"
(Factory setting)

- If any of the switches is positioned at a value other than 0, this function will not activate.
- The layout of the switches differs depending on the type of the indoor unit. (Refer to 2-2.)

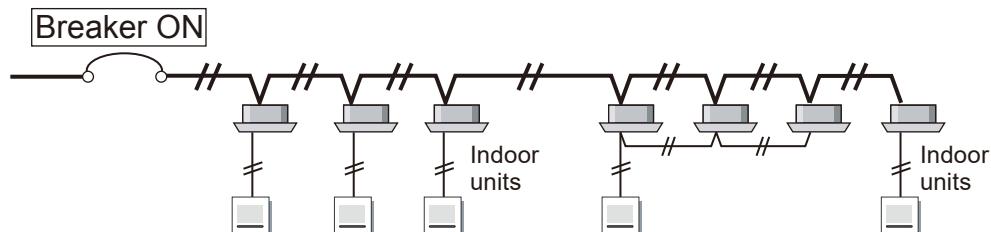
- 2) When multiple indoor units are connected to a single wired remote controller.
When setting of Remote controller address in "Automatic address setting"



■ PREPARATION

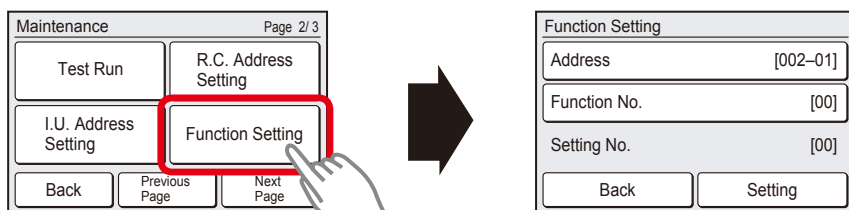
3) Turn on the power to the indoor unit.

- By turning on the power indoor units initializes EEV, so make sure the piping air-tight test and vacuuming have been conducted before turning on the power.
- Also check again to make sure no wiring mistakes were made before turning on the power.



■ SWITCHING SELECTION OF ADDRESS SETTING MODE

4) When the [Function Setting] on the “Maintenance” screen is touched, the “Installer Password Verification” screen is displayed. Enter the Installer Password, and touch the [OK]. “Function Setting” screen is displayed.

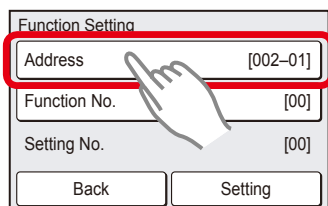


Address setting mode initial display

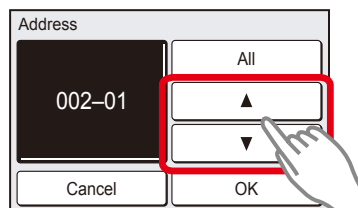
■ ADDRESS SETTING

● Indoor unit address setting

5) Touch the [Address] on the “Function Setting” screen.

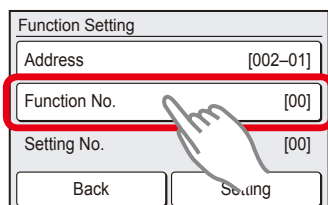


6) “Address” screen is displayed. Select the address of the indoor unit whose function number is to be set by touching [▲] or [▼].

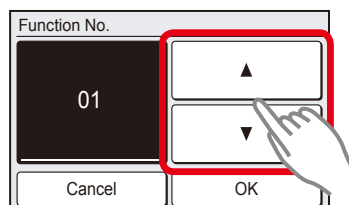


When the [OK] is touched, the display returns to the “Function Setting” screen.

7) Touch the [Function No.] on the “Function Setting” screen.

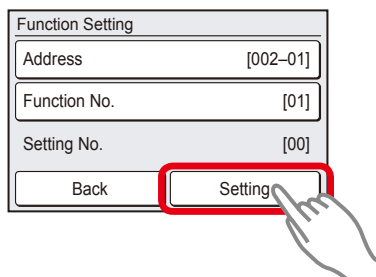


8) “Function No.” screen is displayed. Set the Function No."01". with the [▲] or [▼].

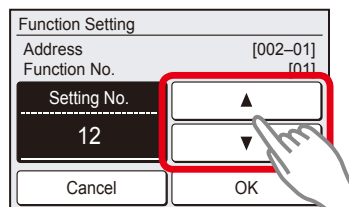


When the [OK] is touched, the display returns to the “Function Setting” screen.

9) Touch the [Setting] on the “Function Setting” screen.

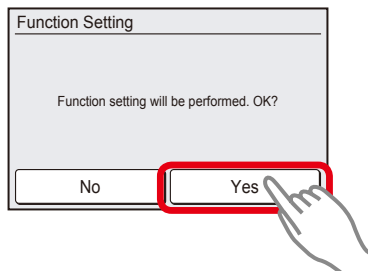


10) Setting screen of “Setting No.” is displayed. Set the Setting No. with the [▲] or [▼]. (The setting range is from 00 to 63.)



Ex.) When indoor unit address data "12" is set up
When the [OK] is touched, the “Function Setting”
verification screen is displayed.

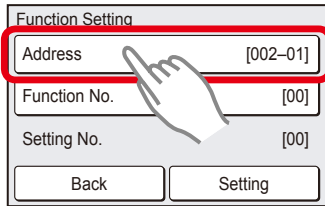
11) Touch the [YES] of the verification screen.



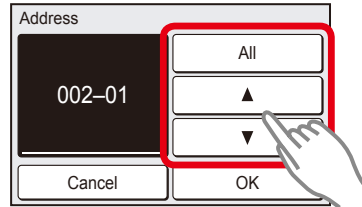
After the “Setting” screen was displayed,
the display returns to the “Function Setting”
screen.

● Refrigerant circuit address setting

12) Touch the [Address] on the “Function Setting” screen.

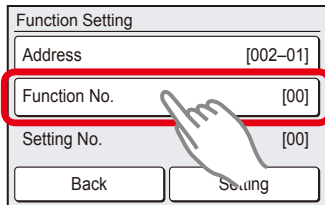


13) “Address” screen is displayed. Select the address of the indoor unit whose function number is to be set by touching [▲] or [▼]. When setting at all the indoor units, touch [All].

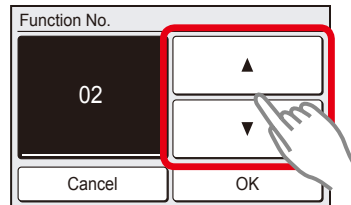


When the [OK] is touched, the display returns to the “Function Setting” screen.

14) Touch the [Function No.] on the “Function Setting” screen.

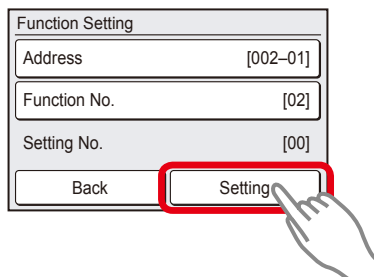


15) “Function No.” screen is displayed. Set the Function No."02". with the [▲] or [▼].

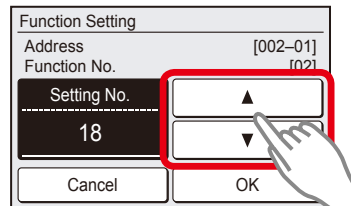


When the [OK] is touched, the display returns to the “Function Setting” screen.

16) Touch the [Setting] on the “Function Setting” screen.

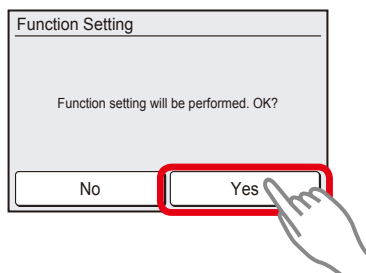


17) Setting screen of “Setting No.” is displayed. Set the Setting No. with the [▲] or [▼]. (The setting range is from 00 to 99.)



Ex.) When refrigerant circuit address data "18" is set up When the [OK] is touched, the “Function Setting” verification screen is displayed.

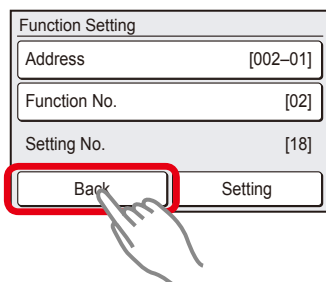
18) Touch the [YES] of the verification screen.



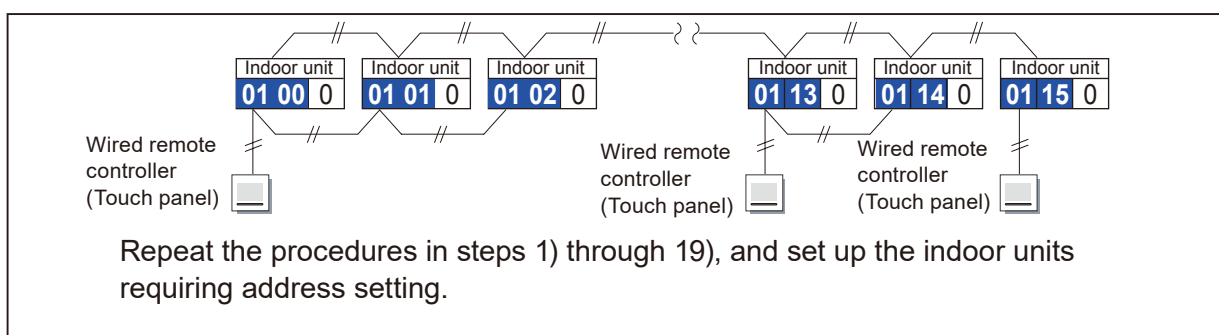
After the “Setting” screen was displayed, the display returns to the “Function Setting” screen.

■ COMPLETION OF ADDRESS SETTING MODE

19) When the [Back] on the “Function Setting” screen is touched, the display returns to the “Maintenance” screen.



■ SETTING UP EACH INDOOR UNIT



■ RESET THE POWER AFTER SETTING UP ADDRESS OF ALL INDOOR UNITS

Important

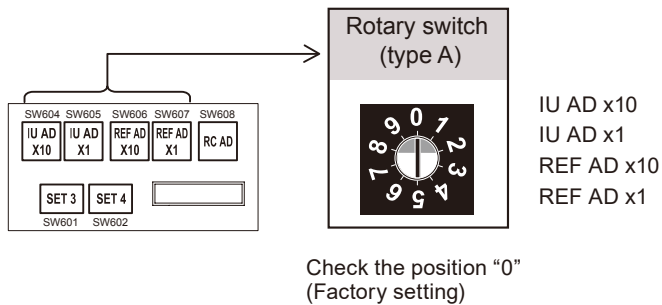
- * If the reset is not performed, address cannot be read in normally.
- * After all the addresses have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
- * The set address is stored in the PCB and will remain in memory even when the power is turned off.
However setting address is effective after power reset.
Record the address set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

1-4-4. SIMPLE REMOTE CONTROLLER (UTY-RSRY, UTY-RHRY)

- Indoor unit addresses and refrigerant circuit addresses can be set up using simple remote controllers.
- This function allows setting the addresses of all indoor units to which a simple remote controller is being connected.
- This function cannot be used to set up remote controller addresses.
Be sure to set them up using the rotary switches on the PCB of each indoor unit. (Refer to 1-3.)
- This function can be set up on both UTY-RSK* (With operation mode) and UTY-RHK* (Without operation mode) types.
- This function cannot be used on the slave units.

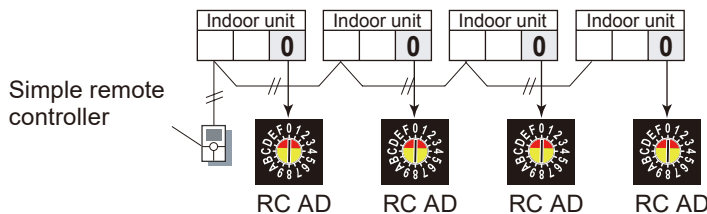
■ PREPARATION

- 1) Make sure that all indoor unit address switches (IU AD x10, IU AD x1) and refrigerant circuit address switches (REF AD x10, REF AD x1) on the PCB of each indoor unit are set at 0 (factory setting).



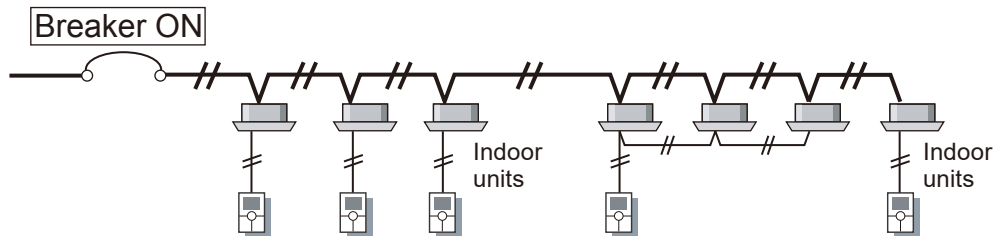
- If any of the switches is positioned at a value other than 0, this function will not activate.
- The layout of the switches differs depending on the type of the indoor unit. (Refer to 2-2.)

- 2) When multiple indoor units are connected to a single wired remote controller.
When setting of Remote controller address in "Automatic address setting"



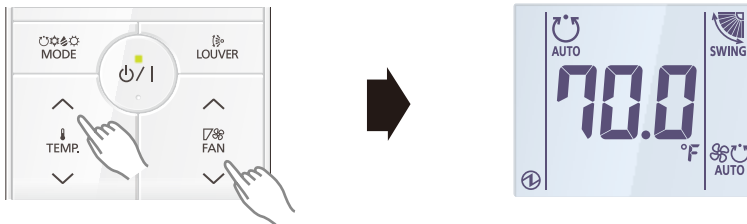
3) Turn on the power to the indoor unit.

- By turning on the power indoor units initializes EEV, so make sure the piping air-tight test and vacuuming have been conducted before turning on the power.
- Also check again to make sure no wiring mistakes were made before turning on the power.

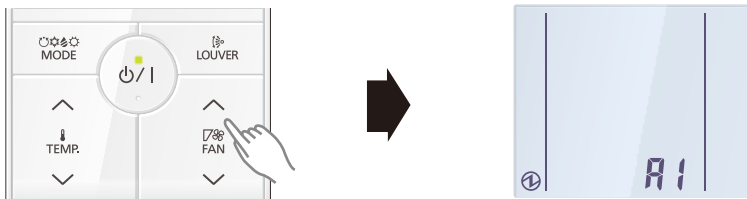


SWITCHING SELECTION OF ADDRESS SETTING MODE

4) With “Monitor Mode” screen displayed, press and hold the SET TEMP. “^” button and FAN “v” button simultaneously for at least 2 seconds.

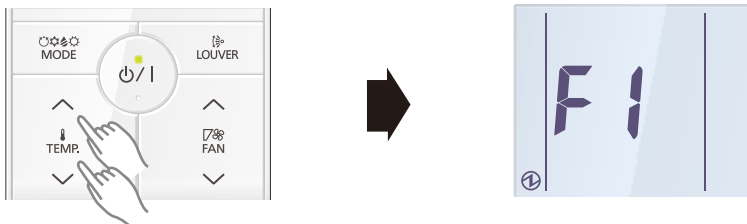


5) The Menu 1 screen is displayed. Press and hold the FAN “^” button for at least 2 seconds. Setting mode selection screen is displayed.

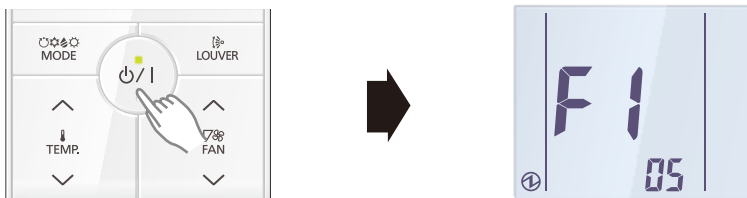


6) Press the SET TEMP. “^” or SET TEMP. “v” button to select F1 (Menu 2-F1) settings mode or F2 (Menu 2-F2) settings mode.

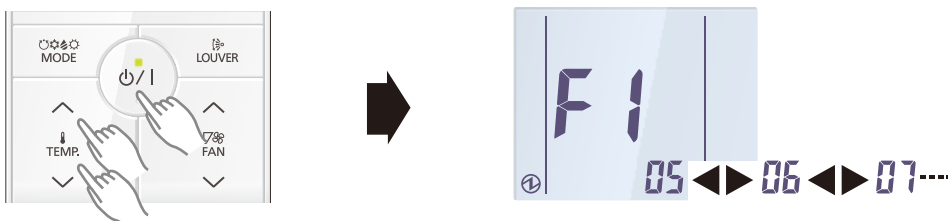
F1: Initial settings mode F2: Maintenance settings mode



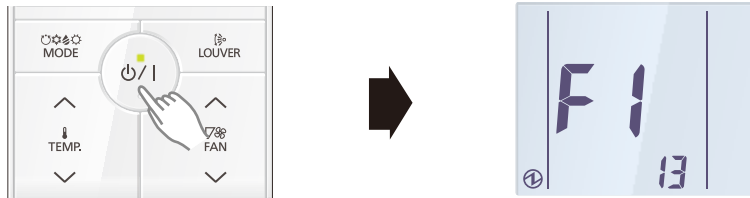
7) Press the “o/I” button. Setting item selection screen is displayed. (Item No. is displayed.)



8) Select the item number to be set with the SET TEMP. “^” or SET TEMP. “v” button, and press the “o/I” button to switch to the setting screen.



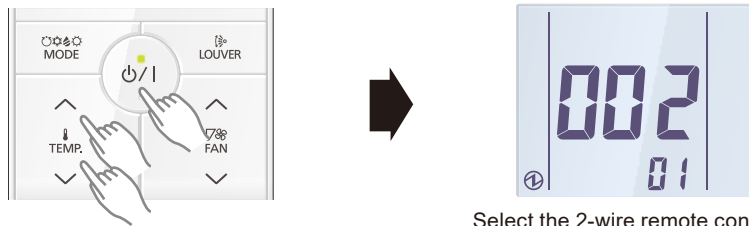
9) Select the “13” in Menu 2-F1 Settings. Then press the “⏻/|” button.



■ ADDRESS SETTING

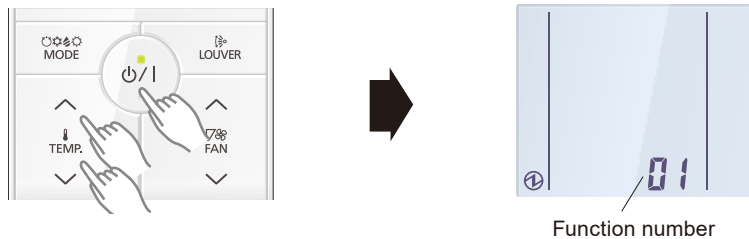
● INDOOR UNIT ADDRESS SETTING

10) Select the 2-wire remote controller address with the SET TEMP. “^” or SET TEMP. “v” button. Then press the “⏻/|” button.



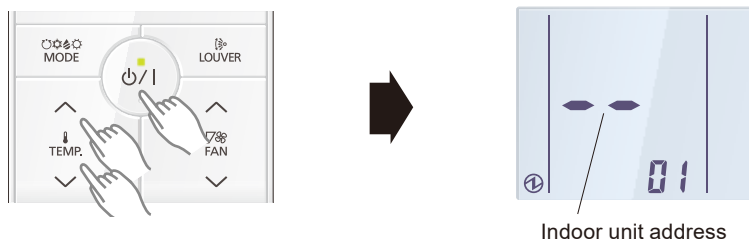
Select the 2-wire remote controller address (Ex. Select the 002-01)

11) Set the function number with the SET TEMP. “^” or SET TEMP. “v” button. Then press the “⏻/|” button.



Function number

12) Set the setting number with the SET TEMP. “^” or SET TEMP. “v” button. Then press the “⏻/|” button.



Indoor unit address

13) Setting results are displayed after data transmission.

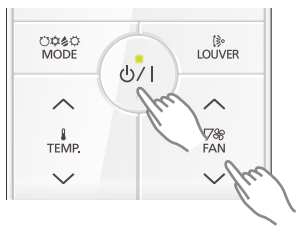
Indoor unit address

Ex.) When indoor unit address data "12" is set up

ERROR GOOD

- When indoor unit address data was not set up on the indoor unit (-- is displayed.)
- Set up indoor unit address data again.
- When indoor unit address data was normally set up on the indoor unit.

14) Press the “ O/I ” button to return to the 2-wire remote controller address selection screen of (2). If setting has been completed, press the FAN “ \checkmark ” button to return to the Menu 2-F1 item selection screen.

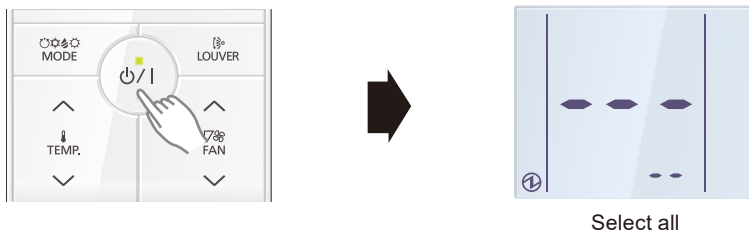


NOTE:

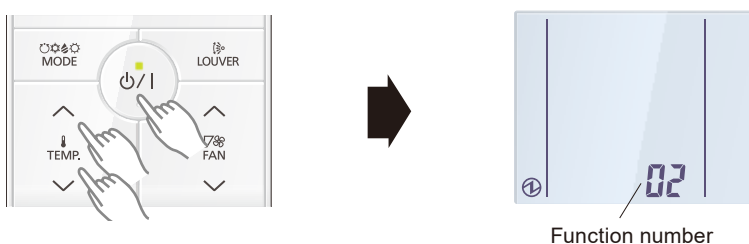
- This item cannot be set from slave remote controllers.

● Refrigerant circuit address setting

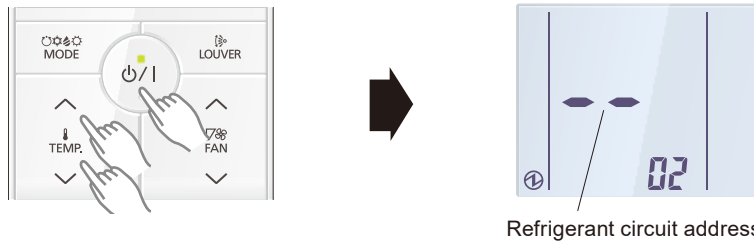
15) Select the 2-wire remote controller address with the SET TEMP. “ \wedge ” or SET TEMP. “ \vee ” button. Then press the “ O/I ” button.



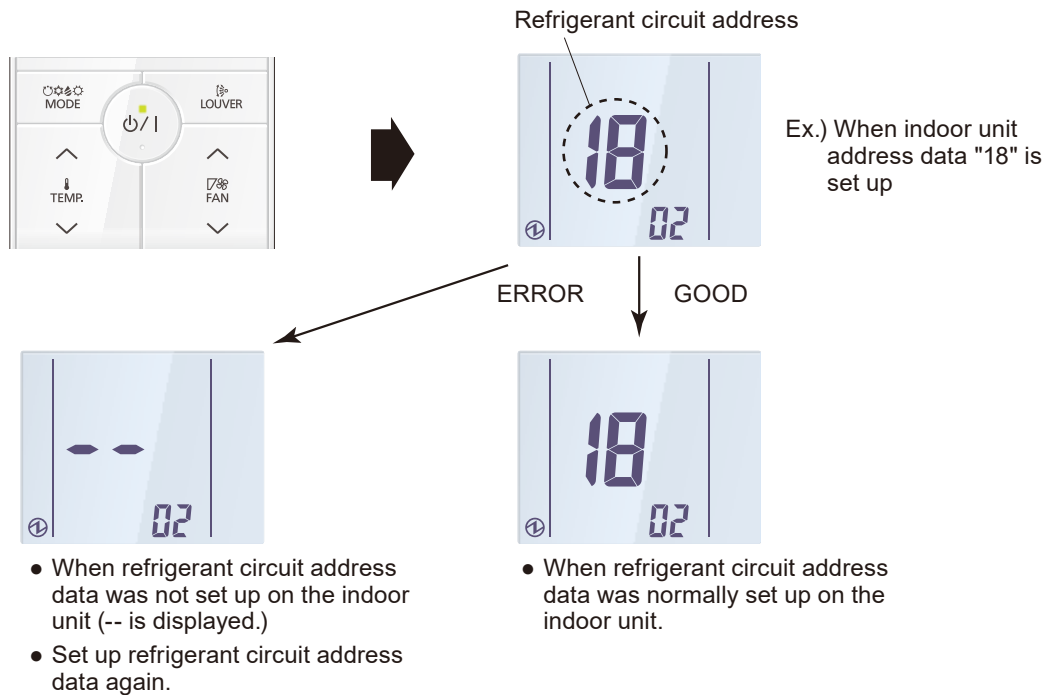
16) Set the function number with the SET TEMP. “ \wedge ” or SET TEMP. “ \vee ” button. Then press the “ O/I ” button.



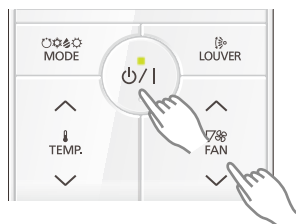
17) Set the setting number with the SET TEMP. “^” or SET TEMP. “v” button. Then press the “P/I” button.



18) Setting results are displayed after data transmission.



19) Press the “P/I” button to return to the 2-wire remote controller address selection screen of (2). If setting has been completed, press the FAN “v” button to return to the Menu 2-F1 item selection screen.



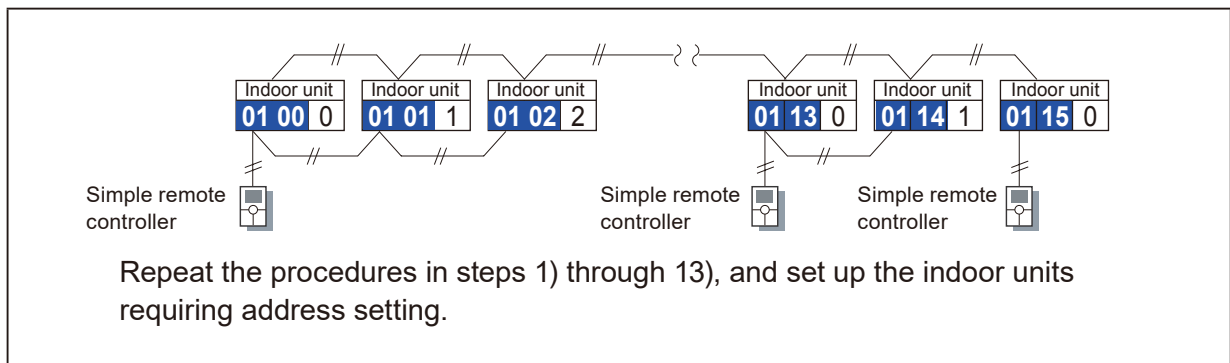
NOTE:

- This item cannot be set from slave remote controllers.

■ COMPLETION OF ADDRESS SETTING MODE

20) Press and hold the FAN “^” button for at least 2 seconds to return to the Menu 1 item selection screen. Then, press and hold the SET TEMP. “^” and FAN “v” button for at least 2 seconds at the same time to return to the “Monitor Mode” screen.

■ SETTING UP EACH INDOOR UNIT



■ RESET THE POWER AFTER SETTING UP ADDRESS OF ALL INDOOR UNITS

Important

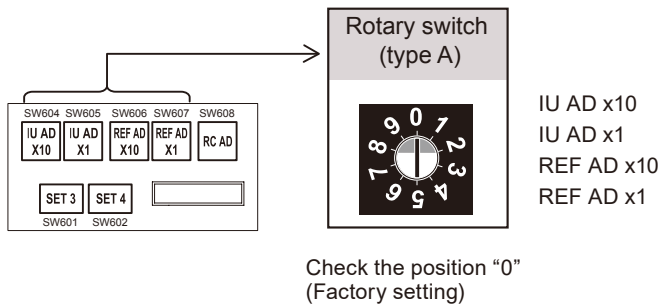
- * If the reset is not performed, address cannot be read in normally.
- * After all the addresses have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
- * The set address is stored in the PCB and will remain in memory even when the power is turned off.
However setting address is effective after power reset.
Record the address set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

1-4-5. SIMPLE REMOTE CONTROLLER (UTY-RSKU, UTY-RHKU)

- Indoor unit addresses and refrigerant circuit addresses can be set up using simple remote controllers.
- This function allows setting the addresses of all indoor units to which a simple remote controller is being connected.
- This function cannot be used to set up remote controller addresses.
Be sure to set them up using the rotary switches on the PCB of each indoor unit. (Refer to 1-3.)
- This function can be set up on both UTY-RSKU (With operation mode) and UTY-RHKU (Without operation mode) types.
- This function cannot be used on the slave units.

■ PREPARATION

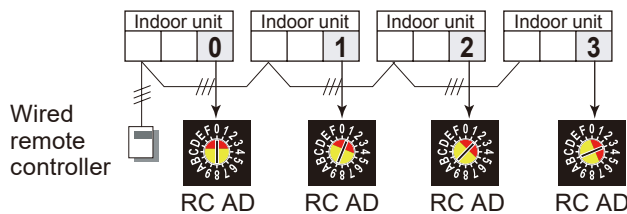
1) Make sure that all indoor unit address switches (IU AD x10, IU AD x1) and refrigerant circuit address switches (REF AD x10, REF AD x1) on the PCB of each indoor unit are set at 0 (factory setting).



- If any of the switches is positioned at a value other than 0, this function will not activate.
- The layout of the switches differs depending on the type of the indoor unit. (Refer to 2-2.)

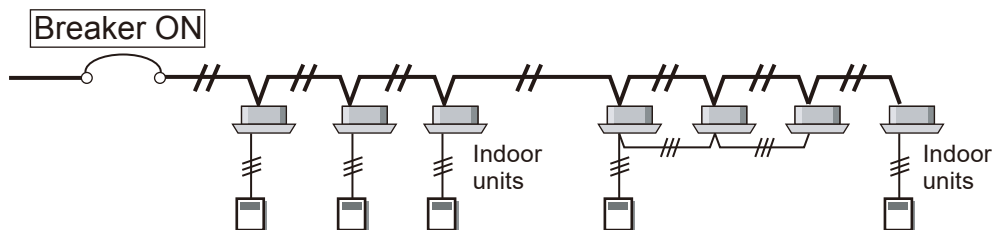
2) If multiple indoor units are connected to a single simple remote controller, make sure to manually set up the remote controller address (RC AD) on the PCBs of the indoor units. (Refer to 1-3.)

Ex.) When four indoor units are connected



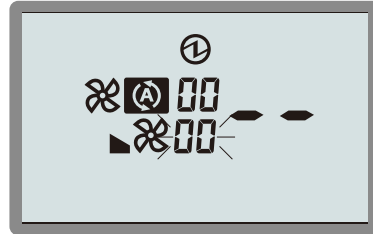
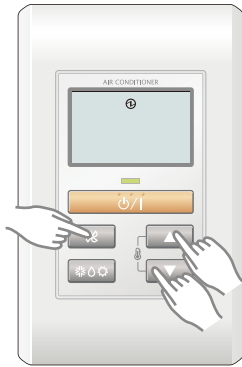
3) Turn on the power to the indoor unit.

- By turning on the power indoor units initializes EEV, so make sure the piping air-tight test and vacuuming have been conducted before turning on the power.
- Also check again to make sure no wiring mistakes were made before turning on the power.



SWITCHING SELECTION OF ADDRESS SETTING MODE

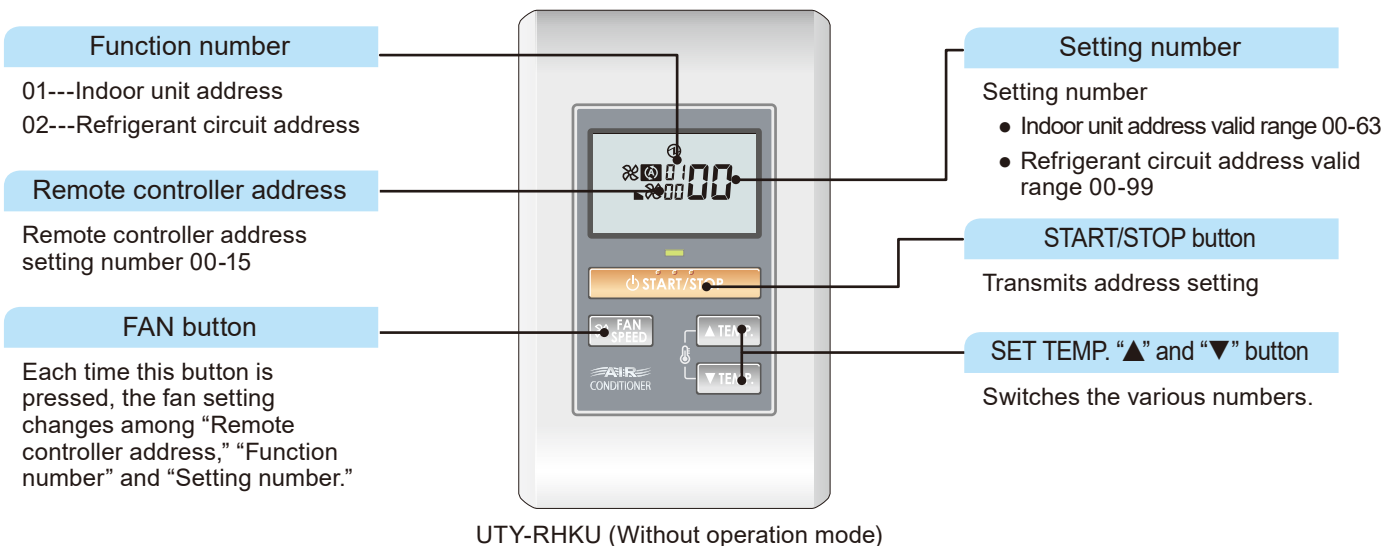
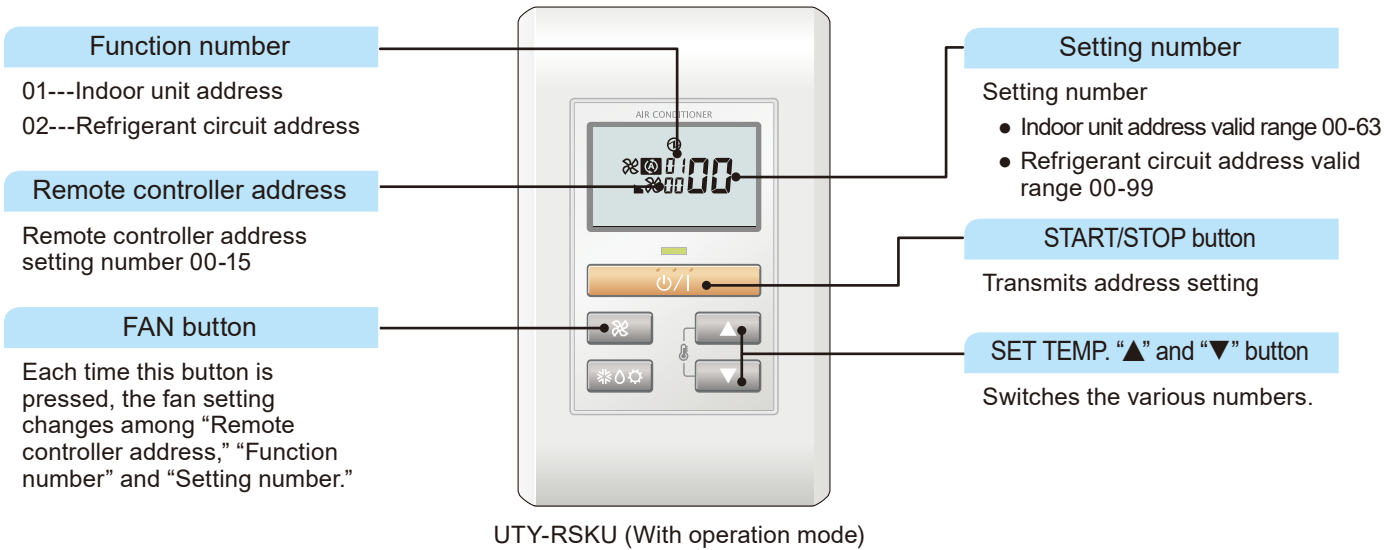
- 4) To activate the address setting mode, hold down the three buttons of SET TEMP. ▼, SET TEMP. ▲ and FAN at the same time for 5 seconds or longer.



Address setting mode initial display

BUTTON NAME AND FUNCTION

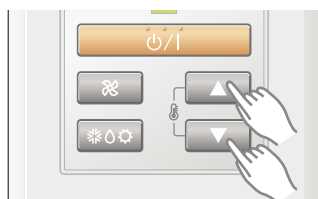
- Refer to “5-2” for an outline of the address setting.
- It does not matter whether the refrigerant circuit address or indoor unit address is set first.
(The method shown here sets the indoor unit address first.)
- During address setting mode, indoor unit reject the any operation command from remote controller.



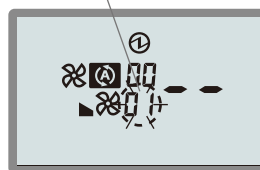
■ ADDRESS SETTING

● Indoor unit address setting

5) Pressing the SET TEMP. ▲ button or SET TEMP. ▼ button, select a remote controller address (select the indoor unit you want to operate).

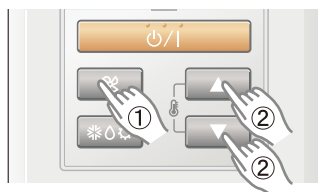


Remote controller address

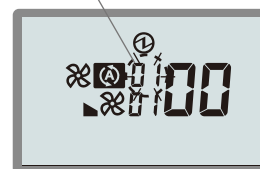


Ex.) When remote controller address "01" is selected

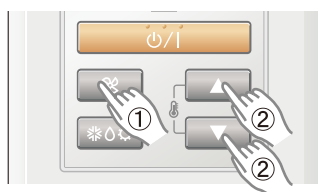
6) Press the FAN button so that the "Function number" display flashes. Then, press either the SET TEMP. ▲ button or the SET TEMP. ▼ button to display function number "01."



Function number



7) Press the FAN button so that the "Setting number" display flashes. Then, press either the SET TEMP. p button or the SET TEMP. q button to set up the indoor unit address data. (The setting range is from 00 to 63.)

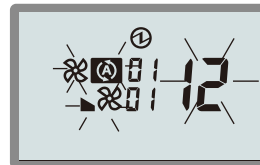


Indoor unit address data



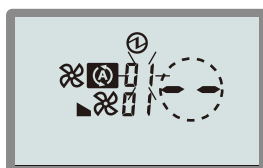
Ex.) When indoor unit address data "12" is set up

8) Pressing the START/STOP button, confirm the selected indoor unit address data. (The data will be transferred to the indoor unit.)



ERROR

GOOD

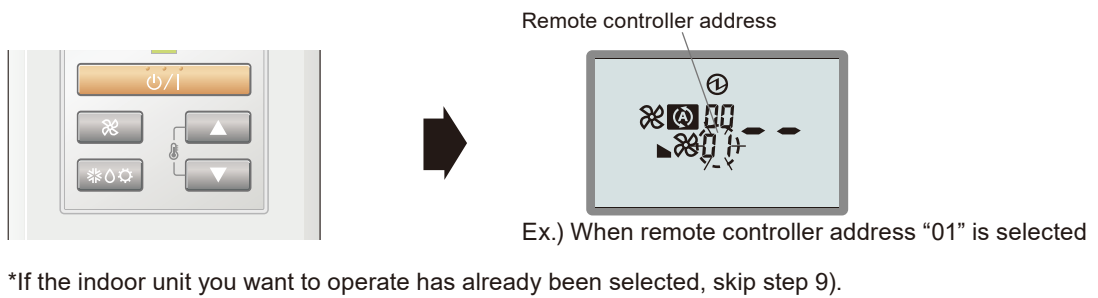


- When indoor unit address data was not set up on the indoor unit (-- is displayed.)
- Set up indoor unit address data again according to the procedure in step 7) above.

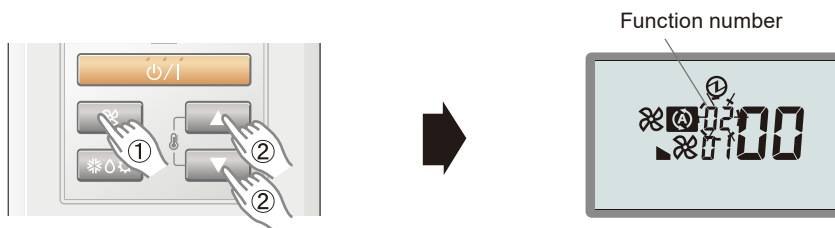
When indoor unit address data was normally set up on the indoor unit.

● Refrigerant circuit address setting

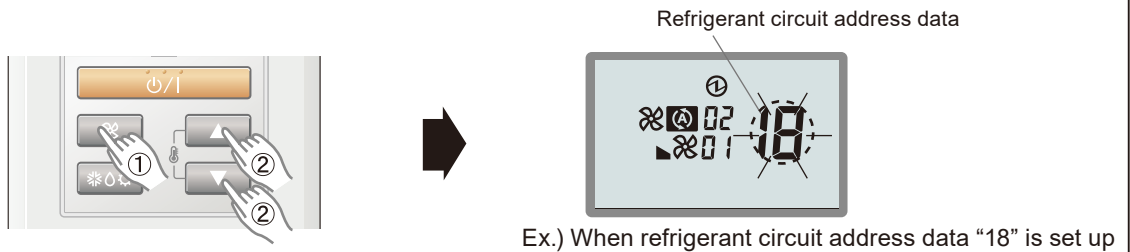
- 9) Pressing the SET TEMP. ▲ button or SET TEMP. ▼ button, select a remote controller address (select the indoor unit you want to operate).



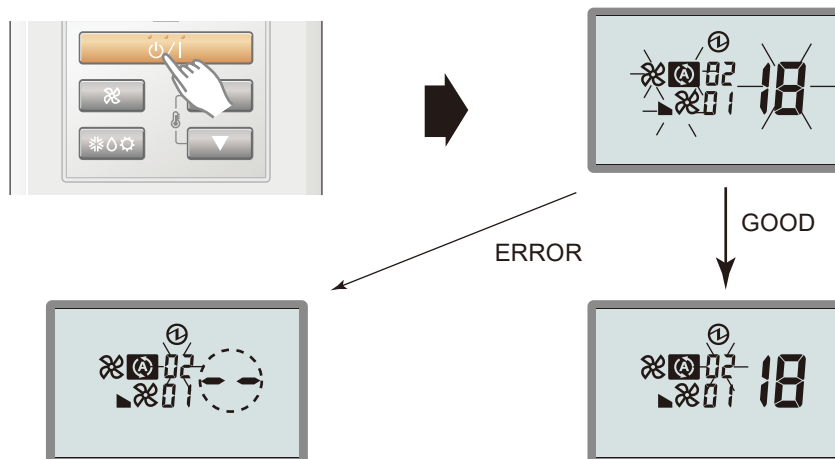
- 10) Press the FAN button so that the "Function number" display flashes. Then, press either the SET TEMP. ▲ button or the SET TEMP. ▼ button to display function number "02."



- 11) Press the FAN button so that the "Setting number" display flashes. Then, press either the SET TEMP. ▲ button or the SET TEMP. ▼ button to set up the refrigerant circuit address data. (The setting range is from 00 to 99.)



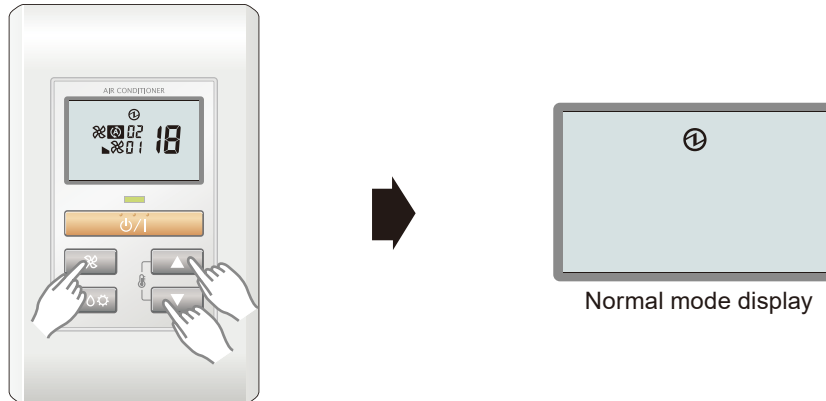
- 12) Pressing the START/STOP button, confirm the selected refrigerant circuit address data. (The data will be transferred to the indoor unit.)



- When refrigerant circuit address data was not set up on the indoor unit (-- is displayed.)
- When refrigerant circuit address data was normally set up on the indoor unit.
- Set up refrigerant circuit address data again according to the procedure in step 11) above.

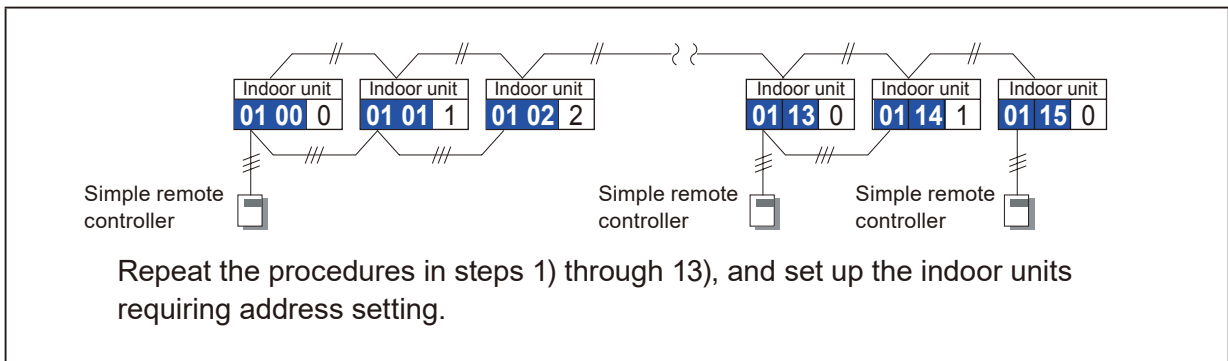
■ COMPLETION OF ADDRESS SETTING MODE

- 13) Press the three buttons of SET TEMP. ▲, SET TEMP. ▼ and FAN at the same time for 5 seconds or longer. The address setting mode will be cleared and the regular display will be restored.



- * If no key entry is made for 60 seconds, even though none of the above buttons is pressed, the address setting mode will automatically be cleared.
(If the address setting mode is automatically cleared while setting addresses, activate the mode again according to the procedure in step 4) above.)

■ SETTING UP EACH INDOOR UNIT



■ RESET THE POWER AFTER SETTING UP ADDRESS OF ALL INDOOR UNITS

Important

- * If the reset is not performed, address cannot be read in normal operation.
- * After all the addresses have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
- * The set address is stored in the PCB and will remain in memory even when the power is turned off.
However, the address can be reset after power reset (if needed).
Record the address set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

1-5. AUTOMATIC ADDRESS SETTING

The addresses of signal amplifiers, indoor units and RB units can be set automatically.

⚠ Caution

Following are cautions when performing AUTOMATIC ADDRESS SETTING.

1. The Controller cannot be used.
2. AUTOMATIC ADDRESS SETTING may take about 30 minutes.
3. Emergency stop signal is not accepted.

Refer to Chapter 8. EXTERNAL INPUT & OUTPUT for design related to emergency stop.

When setting addresses of signal amplifiers, indoor units and RB units automatically, be sure to always set the addresses of signal amplifiers first, set the addresses of indoor units second, set the addresses of RB units last.

■ AUTOMATIC ADDRESS SETTING METHOD

<Step 1>

Manual setting of Outdoor unit

Set up 1-3 (Set A, Set B, Set C, Set L) and 1-8 (terminal resistor setting).



<Step 2>

Turn Power ON of all units



<Step 3>

Automatic address setting of Signal Amplifier (1-5-1)



<Step 4>

Automatic address setting of Indoor unit (1-5-2)



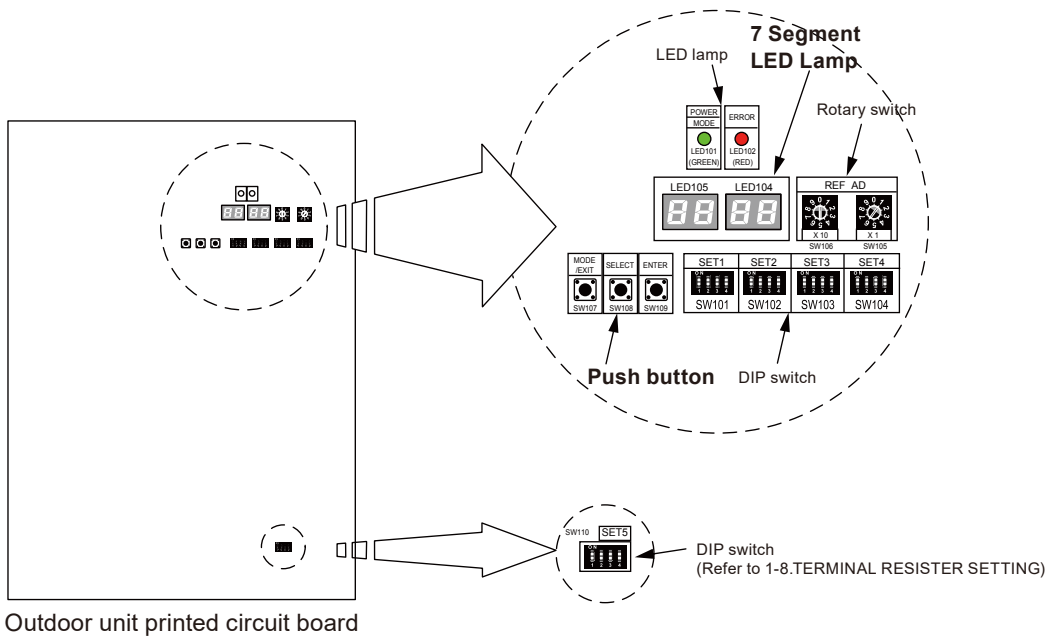
<Step 5>

Automatic address setting of RB unit (1-5-3)

This function is available VR-II series.

NOTE: Do not change an order of step 1 to step 5.

SWITCH POSITION

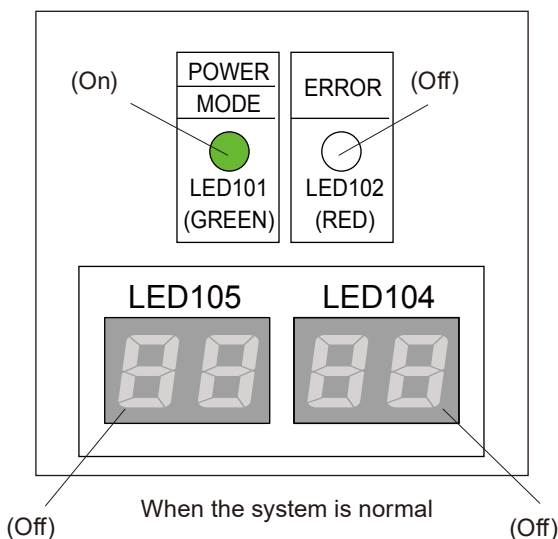


Switch position differs depending on outdoor unit.

- Set the functions of an outdoor unit with the push buttons (SW107, SW108 and SW109) while observing the 7-segment LED lamps (LED105 and LED104) on the printed circuit board.

PREPARATION

- 1) Be sure to check that the operation of the outdoor unit has stopped (be sure to stop the operation if it is still running), and turn off the power.
- 2) Remove the front panel of the outdoor unit, and remove the lid of the electrical component box in order to expose the printed circuit board.
- 3) Turn on the power of the outdoor unit.



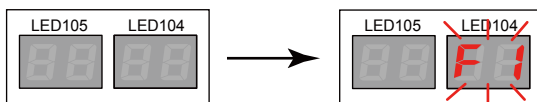
- As shown in the above figure, make sure that the POWER/MODE indicator lamp (LED101) is on and the ERROR indicator lamp (LED102) is off.
- If the ERROR indicator lamp (LED102) flashes, it indicates that an error has occurred. Check wiring and power supply. After making sure that the ERROR indicator lamp (LED102) has turned off, proceed to the next step.

1-5-1. SIGNAL AMPLIFIER AUTOMATIC ADDRESS SETTING

⚠ CAUTION

- The Signal Amplifier Automatic Address Setting function can be used for a maximum of 40 signal amplifiers installed within the same network.
- Perform the automatic address setting of signal amplifiers on only one outdoor unit (master unit) within the same network. (Do not set them again from other outdoor unit.)
- When setting the address of a signal amplifier automatically, be sure to always set the address on the printed circuit board of the Signal amplifier to "1"(factory setting).
- Perform automatic address setting after checking that filter mode setting of Signal amplifier is completed.

- 1) After verifying that the system is normally, press the MODE/EXIT button (SW107) once.



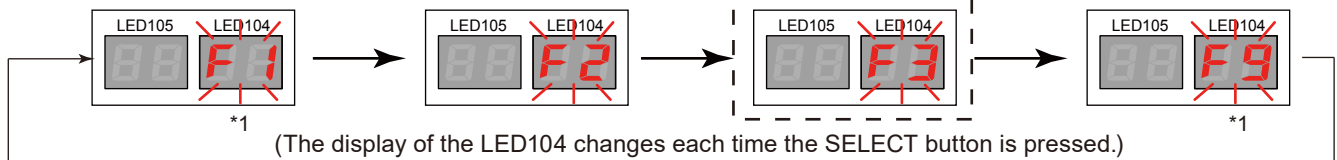
- 2) Press the SELECT button (SW108) to display "F3" on the LED104.

(Monitoring mode)

(Setting mode)

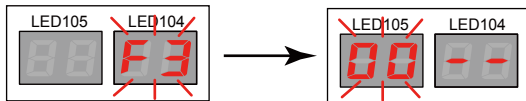
(Function mode)

(Error history mode)



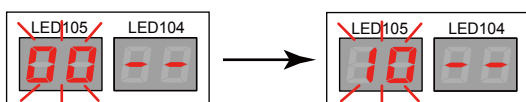
*1 : The "F1" and "F9" modes are used for maintenance, so do not set them in regular

- 3) When "F3" appears on the LED104, press the ENTER button (SW109).

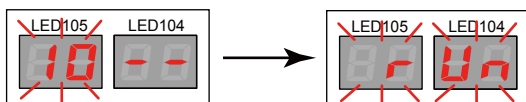


A flashing display appears on the LED105.

- 4) Press the SELECT button (SW108) to display "10" on the LED105.



- 5) When "10" appears on the LED105, hold down the ENTER button (SW109) for at least 3 seconds. (Unless it is held down for at least 3 seconds, the selection will not be confirmed.)



When the Automatic Address Setting function is activated, the display changes to "run."

- 6) When automatic address setting is completed, the number of signal amplifier is displayed on the LED104. Verify that the count matches the number of signal amplifiers being installed.

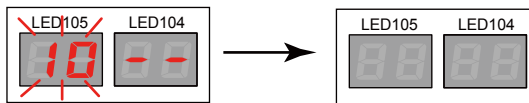


Ex.) When eight signal amplifiers are being connected

- 7) To exit automatic address setting, press the ENTER button (SW109) in the setting completed status shown in step 6) above.



Next, press the MODE/EXIT button (SW107) to exit the Function mode.



1-5-2. INDOOR UNIT AUTOMATIC ADDRESS SETTING

⚠ Caution

- The Indoor Unit Automatic Address Setting function can be used for a maximum of 64 indoor units installed within the same refrigerant system. However, a maximum of 45 indoor units can be installed within the same refrigerant system.
- The Indoor Unit Automatic Address Setting function cannot be used for indoor units being connected to other refrigerant systems via the network.
(Refer to "4-3. TRANSMISSION LINE" in Chapter 6. "SYSTEM DESIGN".)
- When setting addresses automatically for indoor units, be sure to position "IU AD x10" (SW6), "IU AD x1" (SW7), "REF AD x10" (SW8) and "REF AD x1" (SW9) at 0 (Factory setting).
- When an indoor unit address is set up, a refrigerant circuit address is also set up at the same time. (The refrigerant circuit address of an outdoor unit being connected within the same refrigerant system is set up.)

- 1) After verifying that the system is operating normally, press the MODE/EXIT button (SW107) once.



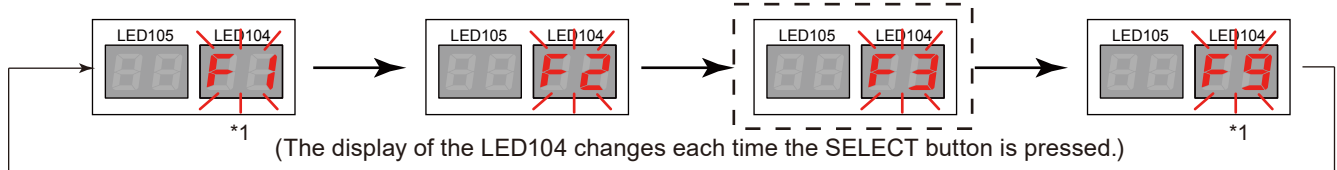
- 2) Press the SELECT button (SW108) to display "F3" on the LED104.

(Monitoring mode)

(Setting mode)

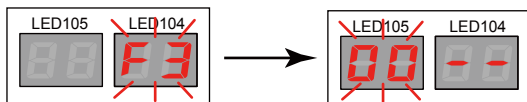
(Function mode)

(Error history mode)



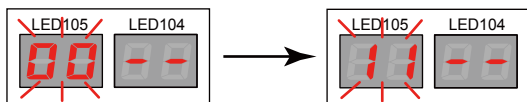
*1 : The "F1" and "F9" modes are used for maintenance, so do not set them in regular

- 3) When "F3" appears on the LED104, press the ENTER button (SW109).



A flashing display appears on the LED105.

- 4) Press the SELECT button (SW108) to display "11" on the LED105.



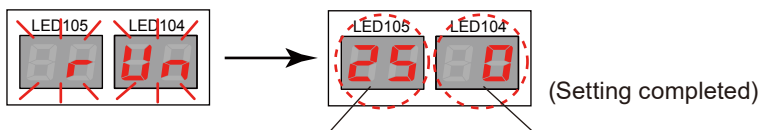
- 5) When “11” appears on the LED105, hold down the ENTER button (SW109) for at least 3 seconds.(Unless it is held down for at least 3 seconds, the selection will not be confirmed.)



When the Automatic Address Setting function is activated, the display changes to “run.”

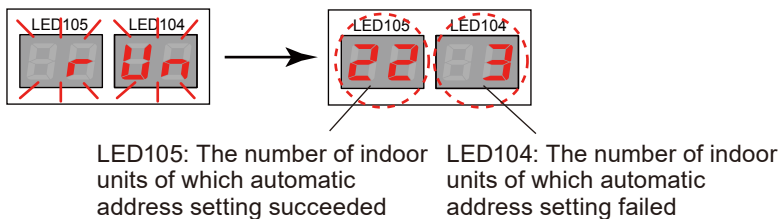
- 6) When automatic address setting is completed, the number of indoor units of which automatic address setting succeeded is displayed on the LED105, and the number of indoor units of which automatic address setting failed is displayed on the LED104.

Ex.) When 25 indoor units are connected, and the automatic setting of the addresses of all indoor units ended normally



LED105: The number of indoor units of which automatic address setting succeeded LED104: The number of indoor units of which automatic address setting failed

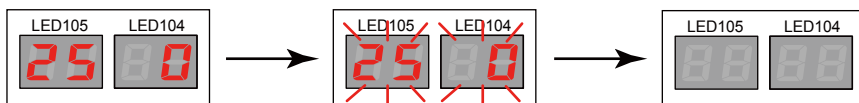
Ex.) When 25 indoor units are connected, and the automatic setting of the addresses of 3 indoor units failed



LED105: The number of indoor units of which automatic address setting succeeded LED104: The number of indoor units of which automatic address setting failed

If automatic address setting failed, make sure that all of the rotary switches SW6 to SW9 on the PCBs of the failed indoor units are positioned at 0 and that wiring and power supply are correct, and then perform automatic address setting again.

- 7) When the ENTER button (SW109) is pressed, it takes about 30 seconds to complete the setting process. During that time, the LED display flashes. Setting is complete when the LED display goes off.



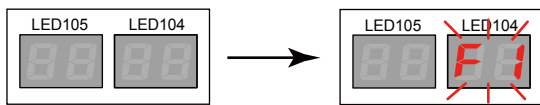
1-5-3. RB UNIT AUTOMATIC ADDRESS SETTING

This function is available VR-II series.

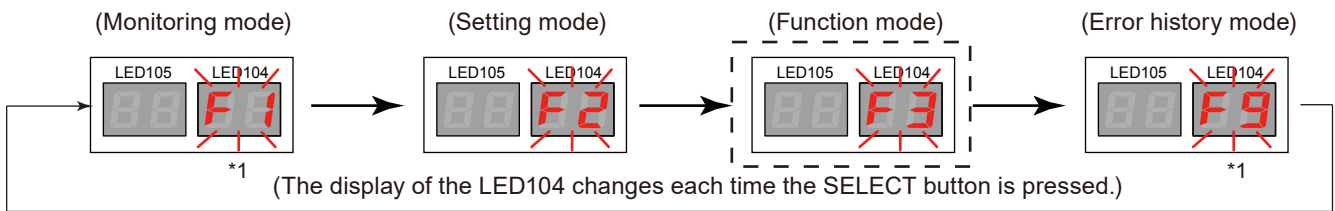
⚠ Caution

- Be sure to finish address setting of outdoor unit and indoor unit before performing the automatic address setting of RB unit.
- The RB Unit Automatic Address Setting function can be used for a maximum of 64 RB units installed within the same refrigerant system.
- When setting addresses automatically, be sure to position “RB AD x10” (SW11), “RB AD x1” (SW14), “REF AD x10” (SW13) and “REF AD x1” (SW12) at 0 (Factory setting).
- When a RB unit address is set up, a refrigerant circuit address is also set up at the same time. (The refrigerant circuit address of an outdoor unit being connected within the same refrigerant system is set up.)

- 1) After verifying that the system is operating normally, press the MODE/EXIT button (SW107) once.

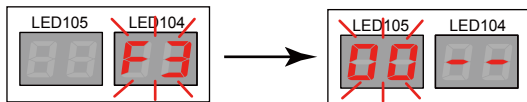


- 2) Press the SELECT button (SW108) to display “F3” on the LED104.



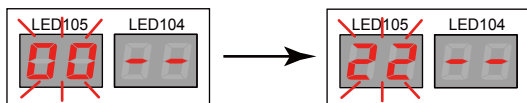
*1 : The “F1” and “F9” modes are used for maintenance, so do not set them in regular

- 3) When “F3” appears on the LED104, press the ENTER button (SW109).



A flashing display appears on the LED105.

- 4) Press the SELECT button (SW108) to display “22” on the LED105.



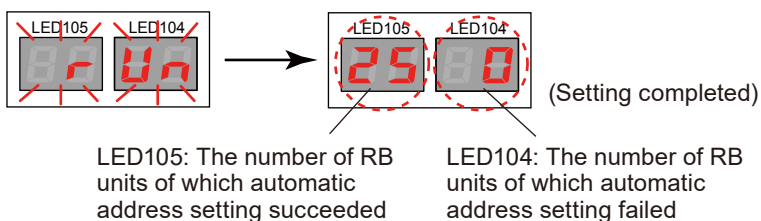
- 5) When “22” appears on the LED105, hold down the ENTER button (SW109) for at least 3 seconds.(Unless it is held down for at least 3 seconds, the selection will not be confirmed.)



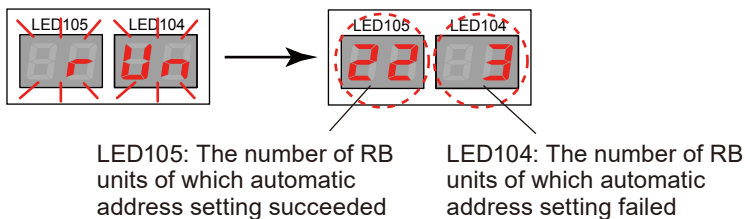
When the Automatic Address Setting function is activated, the display changes to “run.”

- 6) When automatic address setting is completed, the number of RB units of which automatic address setting succeeded is displayed on the LED105, and the number of RB units of which automatic address setting failed is displayed on the LED104.

Ex.) When 25 RB units are connected, and the automatic setting of the addresses of all RB units ended normally

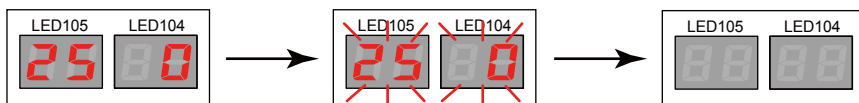


Ex.) When 25 RB units are connected, and the automatic setting of the addresses of three RB units failed



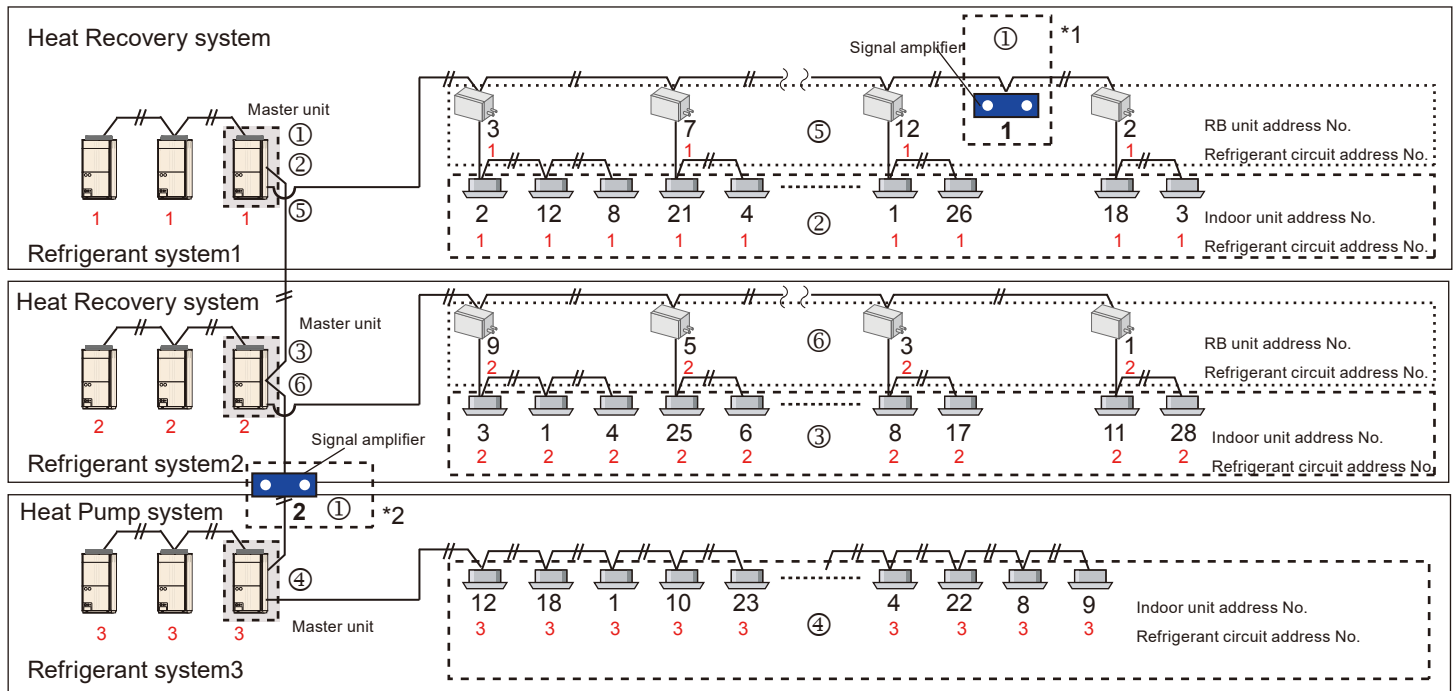
If automatic address setting failed, make sure that all of the rotary switches SW11 to SW14 on the PCBs of the failed RB units are positioned at 0 and that wiring and power supply are correct, and then perform automatic address setting again.

- 7) When the ENTER button (SW109) is pressed, it takes about 30 seconds for end processing. During that time, the LED display blinks. Setting is complete when the LED display goes off.



1-5-4.EXAMPLE FLOW

- **Example 1 : To automatically set the addresses of signal amplifiers, indoor units and RB units**
Follow the step below



- Step 1: ① Activate the Signal Amplifier Automatic Address Setting function on the master unit of Refrigerant System 1.
→An address is automatically assigned to all signal amplifiers on the network. (Because an address is also assigned to the signal amplifiers being connected in Refrigerant Systems 2 and 3, it is not necessary to perform the automatic address setting of these signal amplifiers again on the master units of Refrigerant Systems 2 and 3.)
- Step 2: ② Activate the Indoor Unit Automatic Address Setting function on the master unit of Refrigerant System 1.
→An indoor unit address and a refrigerant circuit address are automatically set up for all indoor units being connected in Refrigerant System 1.
- Step 3: ③ Activate the Indoor Unit Automatic Address Setting function on the master unit of Refrigerant System 2.
→An indoor unit address and a refrigerant circuit address are automatically set up for all indoor units being connected in Refrigerant System 2.
- Step 4: ④ Activate the Indoor Unit Automatic Address Setting function on the master unit of Refrigerant System 3.
→An indoor unit address and a refrigerant circuit address are automatically set up for all indoor units being connected in Refrigerant System 3.
- Step 5: ⑤ Activate the RB Unit Automatic Address Setting function on the master unit of Refrigerant System 1.
→A RB unit address and a refrigerant circuit address are automatically set up for all RB units being connected in Refrigerant System 1.
- Step 6: ⑥ Activate the RB Unit Automatic Address Setting function on the master unit of Refrigerant System 2.
→A RB unit address and a refrigerant circuit address are automatically set up for all RB units being connected in Refrigerant System 2.

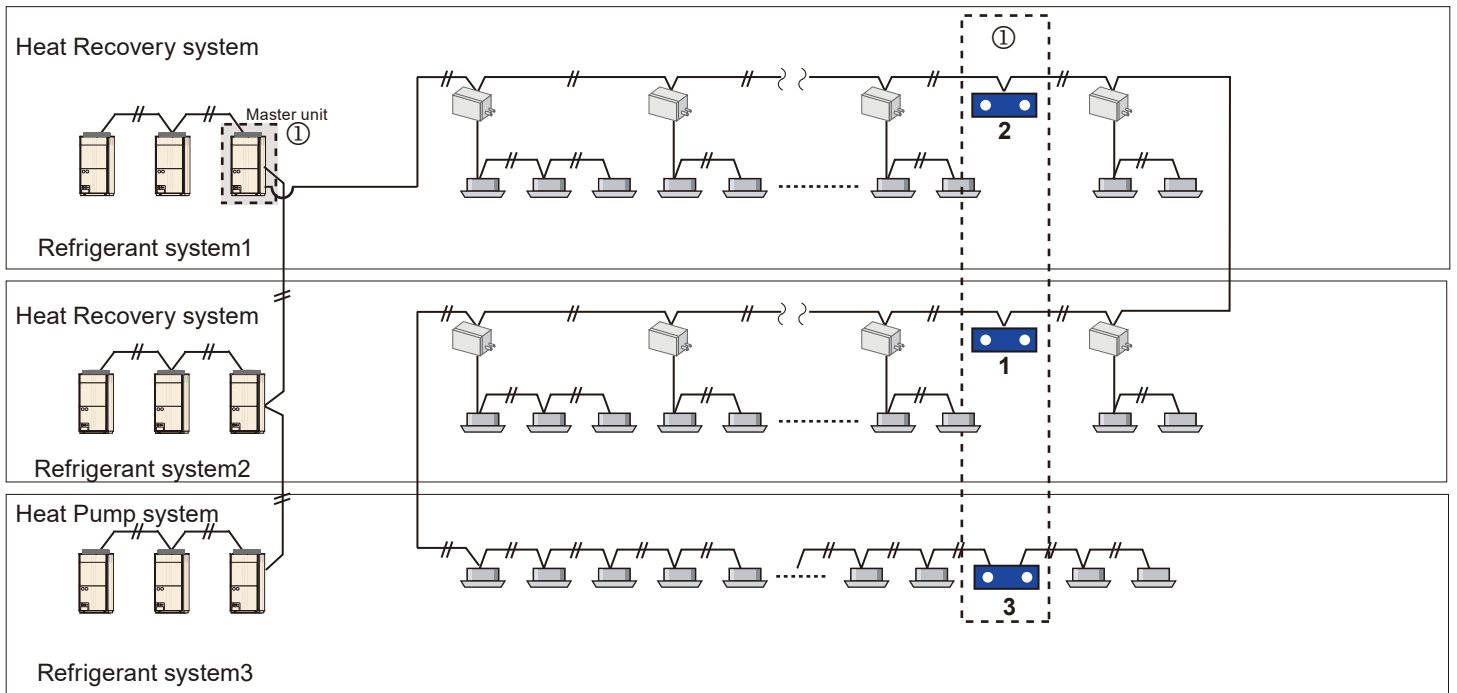
⚠ CAUTION

- Before activating the Automatic Address Setting function, be sure to finish setting the refrigerant circuit addresses of outdoor units.
- Setting the addresses of indoor units automatically does not necessary mean that addresses are assigned sequentially starting from the indoor unit which is located the closest to the outdoor units (instead, addresses are assigned randomly).
With respect to the setting of refrigerant circuit addresses, the same address numbers of the refrigerant circuit addresses of the outdoor units being connected within the same refrigerant system are assigned.
- To find out what addresses have been assigned to individual indoor units, it is necessary to perform a separate address check operation.
- When setting addresses of signal amplifiers, indoor units and RB units automatically, be sure to always set the addresses of signal amplifiers first, set the addresses of indoor units second, set the addresses of RB units last.
- Be sure to finish address setting of outdoor unit and indoor unit before performing the automatic address setting of RB unit.

*1: If the total wiring length within a segment is expected to exceed 1,640 ft. (500 m), insert a signal amplifier (Refer to Chapter 5).

*2: If the number of nodes (the number of units of indoor units, outdoor units, controllers and others) is expected to exceed 64 (including signal amplifiers), insert a signal amplifier (Refer to Chapter 5).

- **Example 2 : To automatically set the addresses of signal amplifiers only (When the addresses of indoor units and RB units will be set manually) Follow the step below**



- Step 1: ① Activate the Signal Amplifier Automatic Address Setting function on the master unit of Refrigerant System 1.
 →An address is automatically assigned to all signal amplifiers on the network.

⚠ CAUTION

- When indoor units are being connected via different refrigerant systems, never activate the Indoor Unit Automatic Address Setting function.
- As long as master units are on the same network, any master unit can set the addresses of signal amplifiers automatically. Perform the automatic address setting of signal amplifiers on only one outdoor unit (master unit) within the same network. (Do not set them again from other outdoor unit.)

1-6. TERMINAL RESISTOR SETTING

⚠ CAUTION

Be sure to set the terminal resistor according to specifications.

Set the terminal resistor for every network segment (NS).

- If terminal resistor is set in multiple devices, the overall communication system may be damaged.
- If terminal resistor is not set in a device, abnormal communication may occur.

- Be sure to set one terminal resistor in a network segment. You can set the terminal resistor at the outdoor unit or signal amplifier.
- When setting the terminal resistor of a signal amplifier, refer to the installation manual of the signal amplifier.
- When setting multiple terminal resistors, take note of the following items.

① How many network segments are there in a VRF system?

② Where will you set the terminal resistors in a network segment?

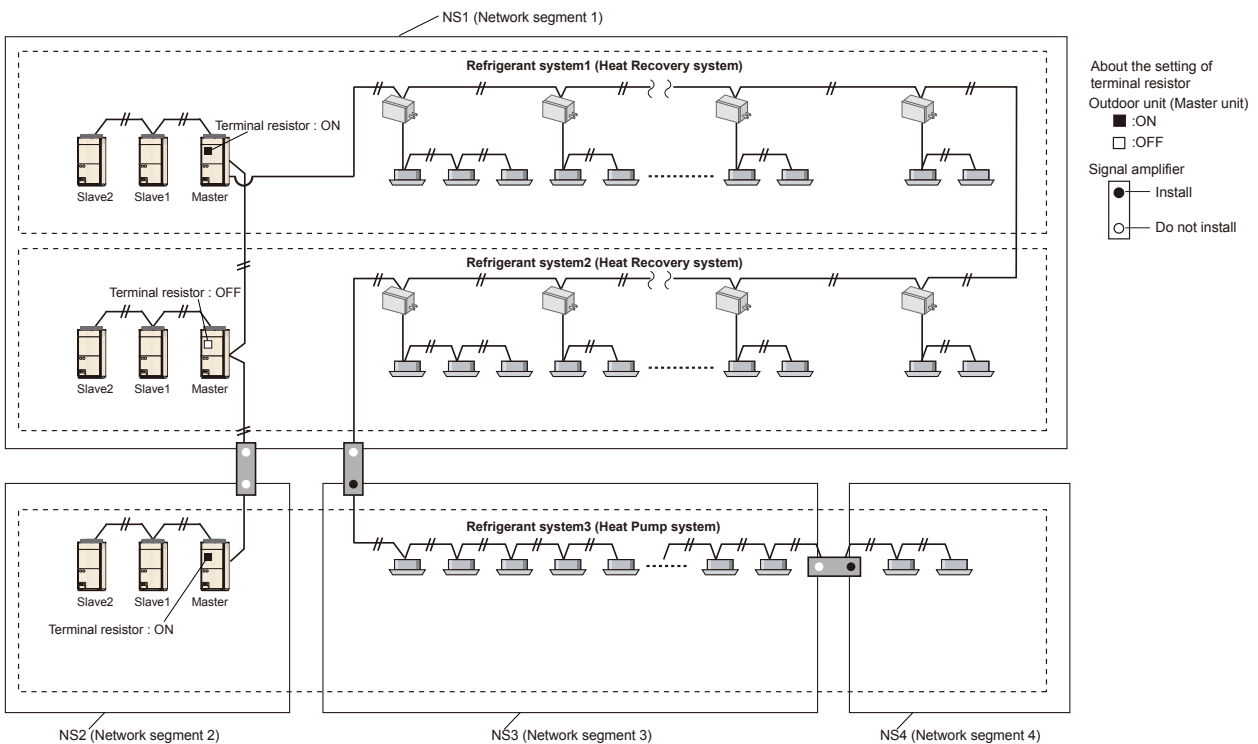
(Condition for 1 segment: Total number of outdoor and indoor units and signal amplifiers is less than 64, or the total length of the transmission line is less than 1,640 ft. (500 m))

③ How many outdoor units are connected in 1 Refrigerant system?

- From conditions ①-③, set outdoor unit DIP switch SET5-4 in accordance with the table below.

DIP SW SET5-4	Terminal resistor	Remarks
OFF	Disable	(Factory setting)
ON	Enable	-

■ SETTING EXAMPLE



FUNCTION SETTING

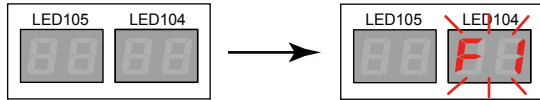
FUNCTION SETTING

1-7. INDOOR UNIT CONNECTION CHECK

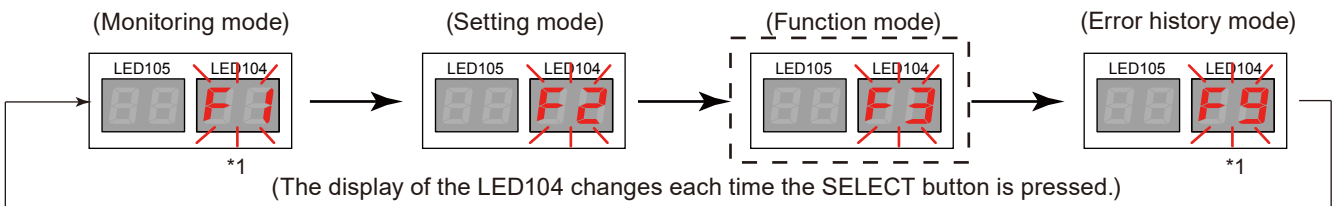
This function is available J-II series.

NOTE
<ul style="list-style-type: none"> It is necessary to stop SERVICE TOOL (UTY-ASGX) and WEB MONITORING TOOL (UTY-AMGX), when you will carry out indoor unit connection check.

- After verifying that the system is normally, press the MODE/EXIT button (SW107) once.

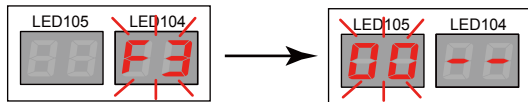


- Press the SELECT button (SW108) to display "F3" on the LED104.



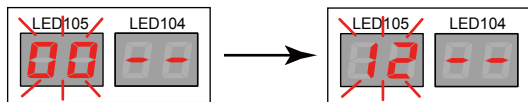
*1 : The "F1" and "F9" modes are used for maintenance, so do not set them in regular

- When "F3" appears on the LED104, press the ENTER button (SW109).



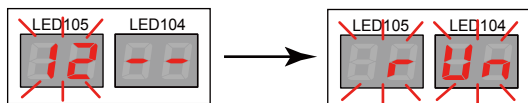
A flashing display appears on the LED105.

- Press the SELECT button (SW108) to display "12" on the LED105.

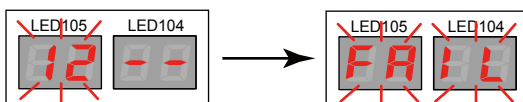


- When "12" appears on the LED105, hold down the ENTER button (SW109) for at least 3 seconds. (Unless it is held down for at least 3 seconds, the selection will not be confirmed.)

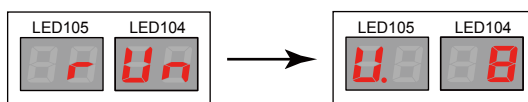
When the Indoor Unit Connection Check function is activated, the display changes to "run".



- When the Indoor Unit Connection Check function is not activated (during maintenance), the display changes to "FAIL".

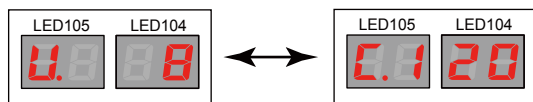


- When Indoor Unit Connection Check is completed, the number of indoor unit is displayed on the LED104, LED105. Verify that the count matches the number of indoor units being installed.



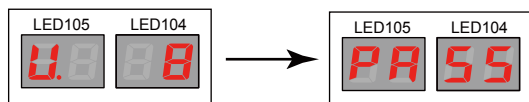
Ex.) When eight indoor units are being connected

- 7) When the number of indoor units appear on the LED104, LED105, press the SELECT button (SW108), the display changes to volume ratio of the indoor units.

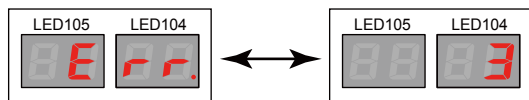


Ex.) When volume ratio of the indoor units is 120 %.

- 8) When “the number of indoor units” or “volume ratio of the indoor units connection” appears on the LED104, LED105, press the ENTER button (SW109). When Indoor Unit Connection Check is completed, the display changes to “PASS”.



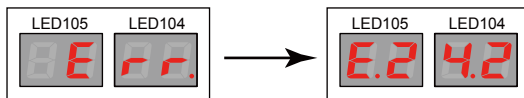
When Indoor Unit Connection Check is error, the display changes to “Err.” or “number of error” every one second.



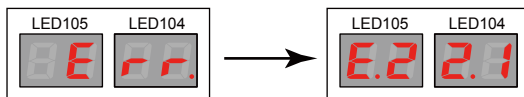
Ex.) Shown numbers of error are three.

When confirm the contents of the error , push the ENTER button (SW109). When there are some errors, display change by push the SELECT button (SW108).

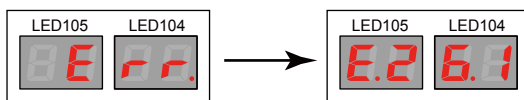
- Number of indoor unit connection is error (5 Ton:1~9, 4 Ton:1~8, 3 Ton:1~6).



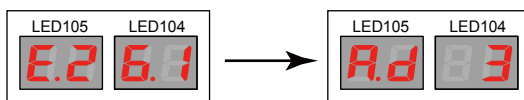
- Volume ratio of the indoor units connection is error (3, 4, 5 Ton:50~130%).



- Overlap address of the indoor unit is error.

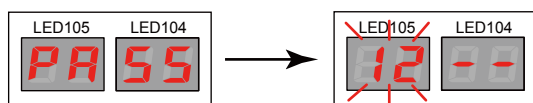


Display the address of the overlap indoor unit, hold down the ENTER button (SW109).

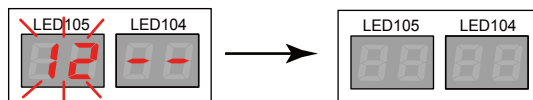


Ex.) Shown that overlap address to indoor unit address 3.

- 9) To exit the Indoor Unit Connection Check , press the ENTER button (SW109) in the setting completed status shown in step 8) above.



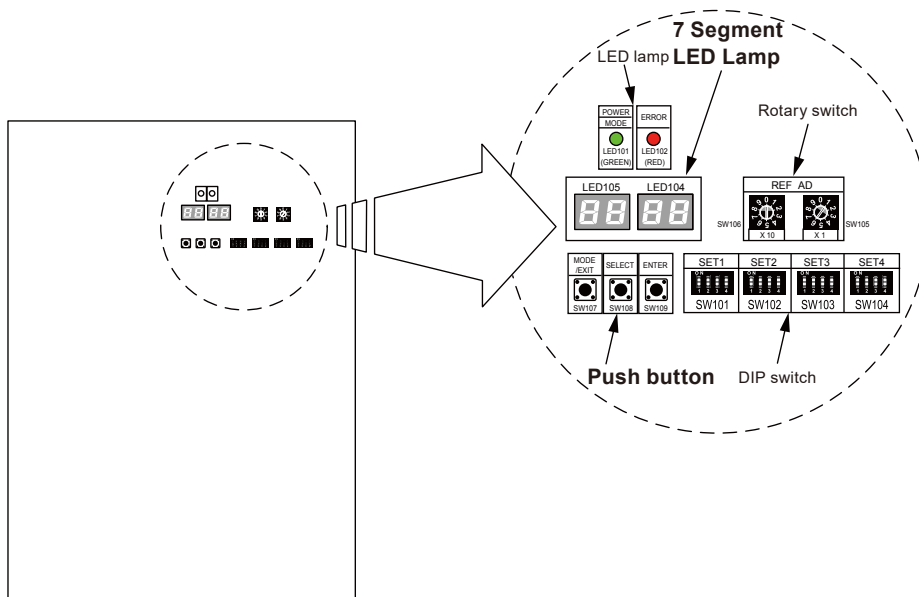
Next, press the MODE/EXIT button (SW107) to exit the Function mode.



2. FUNCTION SETTING

2-1. OUTDOOR UNIT

■ SWITCH POSITION

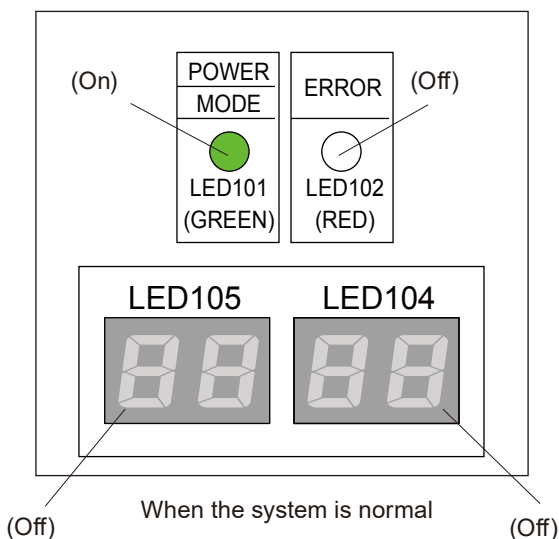


Outdoor unit printed circuit board

- Set the functions of an outdoor unit with the push buttons (SW107, SW108 and SW109) while observing the 7-segment LED lamps (LED105 and LED104) on the printed circuit board.

■ PREPARATION

- 1) Be sure to check that the operation of the outdoor unit has stopped (be sure to stop the operation if it is still running), and turn off the power.
- 2) Remove the front panel of the outdoor unit, and remove the lid of the electrical component box in order to expose the printed circuit board.
- 3) Turn on the power of the outdoor unit.



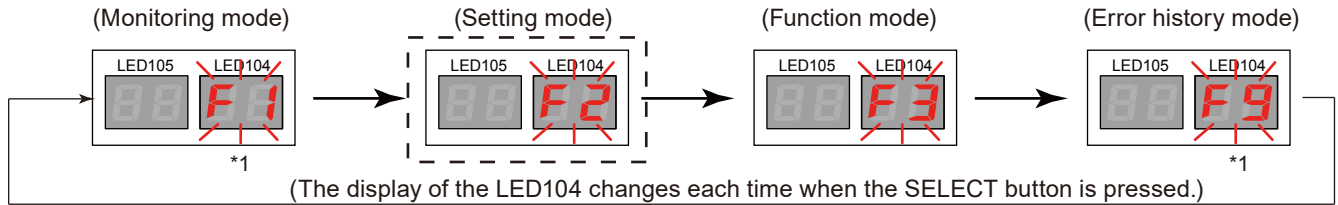
- As shown in the above figure, make sure that the POWER/MODE indicator lamp (LED101) is on and the ERROR indicator lamp (LED102) is off.
- If the ERROR indicator lamp (LED102) flashes, it indicates that an error has occurred. Check wiring and power supply. After making sure that the ERROR indicator lamp (LED102) has turned off, proceed to the next step.

■ FUNCTION SETTING

- 1) After verifying that the system is operating normally, press the MODE/EXIT button (SW107) once.



- 2) Press the SELECT button (SW108), and display "F2" on the LED104.



*1: The "F1" and "F9" modes are used for maintenance, so do not set them in regular operation.

- 3) When "F2" appears on the LED104, press the ENTER button (SW109).
A flashing display appears on the LED105, and the flashing display of "F2" on the LED104 changes to the illuminated display of a number.

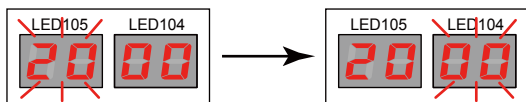


- 4) Referring to the Settings List shown below, press the SELECT button (SW108) and display the code number of the mode you want to set on the LED105.

Ex.) To select switching between Forced Stop and Emergency Stop



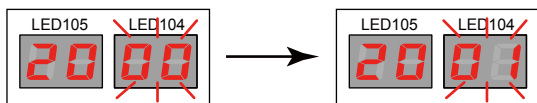
Next, press the ENTER button (SW109), and confirm the selection of the mode you want to set.



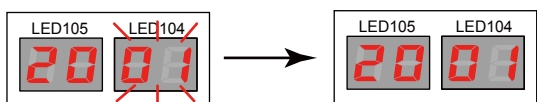
A flashing display on the LED105 changes to an illuminated display, and an illuminated display on the LED104 changes to a flashing display.

- 5) Again, referring to the Settings List shown below, press the SELECT button (SW108), and display the code number of the function you want to set on the LED104.

Ex.) To select the Emergency Stop function

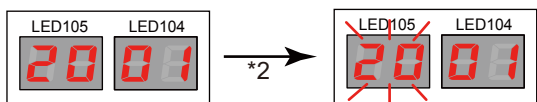


Next, press the ENTER button (SW109), and confirm the selection of the function you want to set.



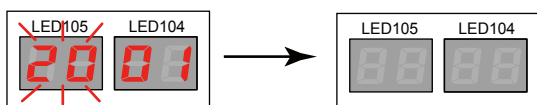
A flashing display on the LED104 changes to an illuminated display.
This completes FUNCTION SETTING.

- 6) To exit FUNCTION SETTING, press the ENTER button (SW109) in the setting completed status shown in step 5) above.

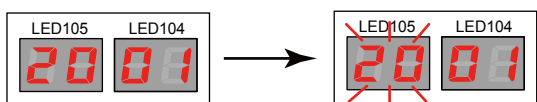


*2 : 5 seconds after, even if ENTER button(SW109) is not pressed , LED105 changes to a flashing display automatically.

Then, press the MODE/EXIT button (SW107) to exit FUNCTION SETTING MODE.



- 7) To set another function, press the ENTER button (SW109) in the setting completed status shown in step 5) above.



Repeat steps 4) and 5) above to set other functions.

When all settings are complete, perform the operation described in step 6) above to exit.

2-1-1. VR-II series

■ SETTINGS LIST

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks
						Master	Slave		
0	0	Pipe length setting	0	0	Standard (131 to 213ft.) (40 to 65m)	●	○	- *1	Pipe length means the length between master outdoor unit and the nearest indoor unit.
			0	1	Short (less than 131ft.) (less than 40m)				
			0	2	Medium (213 to 295ft.) (65 to 90m)				
			0	3	Long 1 (295 to 394ft.) (90 to 120m)				
			0	4	Long 2 (394 to 541ft.) (120 to 165m)				
1	0	Sequential start shift	0	0	Normal	●	○	- *1	The start-up timing of outdoor unit (compressor) can be set up so that it can delay several seconds. This feature is useful when multiple number of outdoor units are installed and turned on at the same time to limit the starting current.
			0	1	21sec. Delay				
			0	2	42sec. Delay				
			0	3	63sec. Delay				
1	1	Cooling capacity shift	0	0	Normal mode	●	○	- *1	
			0	1	Save energy mode 1				
			0	2	High power mode 1				
			0	3	High power mode 2				
			0	4	Prohibited				
1	2	Heating capacity shift	0	0	Normal mode	●	○	- *1	
			0	1	Save energy mode				
			0	2	High power mode 1				
			0	3	High power mode 2				
1	3	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
1	4	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
			0	2	Prohibited				
			0	3	Prohibited				
			0	4	Prohibited				
1	5	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
			0	2	Prohibited				
			0	3	Prohibited				

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks	
							Master	Slave		
2	0	Switching between batch stop or emergency stop	0	0	Batch stop	●	○	-	*1	<p>This mode selects the pattern of the stop function to be operated by the external input terminal (CN134).</p> <p>•Batch stop: The stop of all indoor units connected to same refrigerant system due to input signal coming from CN134.</p> <p>•Emergency stop: When emergency stop is actuated, the indoor unit does not accept the operation command from the remote controller. On the other hand, when the emergency stop is released (no input from CN134), the air conditioner does not return to the original operation until operate indoor unit by the remote controller.</p>
			0	1	Emergency stop					
2	2	Snow falling protection fan mode	0	0	Enable	●	○	-	*1	<p>This mode operates the fans of outdoor units in order to prevent the units from stopping operation when they are covered by snow.</p>
			0	1	Disable					
2	3	Interval setting for snow falling protection fan mode	0	0	Standard (30minutes)	●	○	-	*1	<p>When the snow falling protection fan mode is set, the operation interval of the fans of outdoor units can be selected.</p>
			0	1	Short1 (5minutes)					
			0	2	Short2 (10minutes)					
			0	3	Short3 (20minutes)					
2	4	High static pressure mode	0	0	Standard	●	○	○	<p>When installing a duct to the discharge of an outdoor unit, set the high static pressure mode according to the static pressure of the duct to be installed. Furthermore, use this setting if the Airflow from the discharge of an outdoor unit is poor, such as when installed in a place with a low ceiling.</p>	
			0	1	High static pressure 1 (equivalent to 30Pa)					
			0	2	High static pressure 2 (equivalent to maximum)					
			0	3	Prohibited					
2	5	Prohibited	0	0	Prohibited	●			<p>Setting prohibited</p>	
			0	1	Prohibited					
2	6	Prohibited	0	0	Prohibited	●			<p>Setting prohibited</p>	
			0	1	Prohibited					
2	7	Prohibited	0	0	Prohibited	●			<p>Setting prohibited</p>	
			0	1	Prohibited					
2	8	Change of unit (Temperature)	0	0	Celsius (°C)	●	○	○		
			0	1	Fahrenheit (°F)					
2	9	Change of unit (Pressure)	0	0	MPa	●	○	○		
			0	1	psi					

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks
						Master	Slave		
3	0	Energy saving level setting	0	0	Level 1 (stop)	●	○	- *1	The capacity limit can be selected by the external input terminal (CN133) when operating with the "Energy Saving Peak Cut function." The lower the level, the more the effect of energy saving, but the cooling/heating performance will also drop.
			0	1	Level 2 (operated at 40% capacity)				
			0	2	Level 3 (operated at 60% capacity)				
			0	3	Level 4 (operated at 80% capacity)				
			0	4	Level 5 (operated at 100% capacity)				
3	2	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
			0	2	Prohibited				
3	3	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
3	5	Presence of heater selection control using outdoor temperature	0	0	Disable	●	○	- *1	Setting required to validate the setting of heater selection control using outdoor temperature 1 and 2 (setting value: 03 or 04) in field setting 61 (indoor unit) for heater control switching. For details, refer to Chapter 8. 1-2-2. EXTERNAL OUTPUT.
			0	1	Enable				
3	6	Outdoor temperature zone boundary temperature A	0	0	-4.0°F (-20°C)	●	○	- *1	Setting required if changing of the outdoor temperature setting for heat pump prohibition zone is required when heater selection control using outdoor temperature 1 and 2 are performed on the indoor unit. For details, refer to Chapter 8. 1-2-2. EXTERNAL OUTPUT.
			0	1	-0.4°F (-18°C)				
			0	2	3.2°F (-16°C)				
			0	3	6.8°F (-14°C)				
			0	4	10.4°F (-12°C)				
			0	5	14.0°F (-10°C)				
			0	6	17.6°F (-8°C)				
			0	7	21.2°F (-6°C)				
			0	8	24.8°F (-4°C)				
3	7	Outdoor temperature zone boundary temperature B	0	0	42.8°F (6°C)	●	○	- *1	Setting required if changing of the outdoor temperature setting for heat pump only zone is required when heater selection control using outdoor temperature 1 is performed on the indoor unit. For details, refer to Chapter 8. 1-2-2. EXTERNAL OUTPUT.
			0	1	14.0°F (-10°C)				
			0	2	17.6°F (-8°C)				
			0	3	21.2°F (-6°C)				
			0	4	24.8°F (-4°C)				
			0	5	28.4°F (-2°C)				
			0	6	32.0°F (0°C)				
			0	7	35.6°F (2°C)				
			0	8	39.2°F (4°C)				
			0	9	42.8°F (6°C)				
			1	0	46.4°F (8°C)				
			1	1	50.0°F (10°C)				
			1	2	53.6°F (12°C)				
			1	3	57.2°F (14°C)				
			1	4	60.8°F (16°C)				
1	5	64.4°F (18°C)							

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks
							Master	Slave	
4	0	Capacity priority setting (in low noise mode)	0	0	Off (quiet priority)	●	○	- *1	If the cooling/heating performance becomes insufficient when the low noise mode is set, it is possible to set "capacity priority" that automatically cancels the low noise mode (once performance is restored, the mode will automatically return to the low noise mode).
			0	1	On (capacity priority)				
4	1	Low noise mode setting	0	0	Off (Normal)	●	○	- *1	
			0	1	On (Low noise mode)				
4	2	Low noise mode operation level setting	0	0	Level 1	●	○	- *1	Level1: The operating sound lowers from about 3 to 5 dB(A) more than the rated value Level2: The operating sound lowers from about 3 to 5 dB(A) more than the Level1
			0	1	Level 2				
6	0	Back up operation 1	0	0	On	●	○	- *1	
			0	1	Off				
6	1	Prohibited	0	0	On	●			Setting prohibited
			0	1	Off				
6	2	Prohibited	0	0	On	●			Setting prohibited
			0	1	Off				
6	3	Prohibited	0	0	On	●			Setting prohibited
			0	1	Off				

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks
							Master	Slave	
7	0	Electricity meter No. setting 1 *2	0	0	Setting number x00	●	○	○	Set the ones digit and tens digit of the No. of the electricity meter connected to CN135.
			0	1	Setting number x01				
			▪	▪	▪				
			▪	▪	▪				
			▪	▪	▪				
			9	8	Setting number x98				
			9	9	Setting number x99				
7	1	Electricity meter No. setting 2 *2"	0	0	Setting number 0xx	●	○	○	Set the hundreds digit of the No. of the electricity meter connected to CN135.
			0	1	Setting number 1xx				
			0	2	Setting number 2xx				
7	2	Electricity meter pulse setting 1 *3"	0	0	Setting number xx00	●	○	○	Set the ones digit and tens digit of the No. of the electricity meter pulse setting connected to CN135.
			0	1	Setting number xx01				
			▪	▪	▪				
			▪	▪	▪				
			▪	▪	▪				
			9	8	Setting number xx98				
			9	9	Setting number xx99				
7	3	Electricity meter pulse setting 2 *3"	0	0	Setting number 00xx	●	○	○	Set the hundreds digit and thousands digit of the electricity meter pulse setting connected to CN135.
			0	1	Setting number 01xx				
			▪	▪	▪				
			▪	▪	▪				
			▪	▪	▪				
			9	8	Setting number 98xx				
			9	9	Setting number 99xx				

*2: When electricity meter No. is set to "000" and "201 to 299", the pulses input to CN135 become ineffective.
Available setting number is "001" to "200"

*3: When the electricity meter pulse setting is set to "0000", the pulses input to CN135 become ineffective.
Available setting number is "0001" to "9999"

2-1-2. V-II (230V) series

■ SETTINGS LIST

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks	
							Master	Slave		
0	0	Pipe length setting	0	0	Standard (131 to 213ft.) (40 to 65m)	●	○	-	*1	Pipe length means the length between master outdoor unit and the nearest indoor unit.
			0	1	Short (less than 131ft.) (less than 40m)					
			0	2	Medium (213 to 295ft.) (65 to 90m)					
			0	3	Long 1 (295 to 394ft.) (90 to 120m)					
			0	4	Long 2 (394 to 492ft.) (120 to 150m)					
1	0	Sequential start shift	0	0	Normal	●	○	-	*1	The start-up timing of outdoor unit (compressor) can be set up so that it can delay several seconds. This feature is useful when multiple number of outdoor units are installed and turned on at the same time to limit the starting current.
			0	1	21sec. Delay					
			0	2	42sec. Delay					
			0	3	63sec. Delay					
1	1	Cooling capacity shift	0	0	Normal mode	●	○	-	*1	
			0	1	Save energy mode					
			0	2	High power mode 1					
			0	3	High power mode 2					
			0	4	Prohibited					
1	2	Heating capacity shift	0	0	Normal mode	●	○	-	*1	
			0	1	Save energy mode					
			0	2	High power mode 1					
			0	3	High power mode 2					
1	3	Prohibited	0	0	Prohibited	●				Setting prohibited
			0	1	Prohibited					
1	7	Height difference between indoor units	0	0	Standard	●	○	-	*1	If installing the indoor units (even only one set) to a lower floor than the outdoor unit, and the height difference between the indoor units is 3m or greater (i.e., if installing the indoor units on separate floors), set "02 (height difference)".
			0	1	Prohibited					
			0	2	Height difference					
			0	3	Prohibited					
			0	4	Prohibited					

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.	Setting Mode	LED104 CODE No.	Setting Function	Factory setting	Outdoor unit		Remarks	
					Master	Slave		
2	0	Switching between batch stop or emergency stop	0 0	Batch stop	●	○	- *1	<p>This mode selects the pattern of the stop function to be operated by the external input terminal (CN134).</p> <ul style="list-style-type: none"> •Batch stop: The stop of all indoor units connected to same refrigerant system due to input signal coming from CN134. •Emergency stop: When emergency stop is actuated, the indoor unit does not accept the operation command from the remote controller. On the other hand, when the emergency stop is released (no input from CN134), the air conditioner does not return to the original operation until the indoor unit is turned on by the remote controller.
			0 1	Emergency stop				
2	1	Operation mode selecting method	0 0	Priority given to the first command	●	○	- *1	<p>Select the priority setting of the operation mode.</p> <ul style="list-style-type: none"> •Priority given to the first command: Priority is given to the operation mode which is set first. •Priority given to external input of outdoor unit: Priority is given to the operation mode which is set by the external input terminal (CN132). •Priority given to administrative indoor unit: Priority is given to the operation mode of the administrative indoor unit which is set by the wired remote controller.
			0 1	Priority given to external input of outdoor unit				
			0 2	Priority given to administrative indoor unit				
2	2	Snow falling protection fan mode	0 0	Normal mode	●	○	- *1	<p>This mode operates the fans of outdoor units in order to prevent the units from stopping operation when they are covered by snow.</p>
			0 1	Snow falling protection fan mode				
2	3	Interval setting for snow falling protection fan mode	0 0	Standard (30minutes)	●	○	- *1	<p>When the snow falling protection fan mode is set, the operation interval of the fans of outdoor units can be selected.</p>
			0 1	Short1 (5minutes)				
			0 2	Short2 (10minutes)				
			0 3	Short3 (20minutes)				
2	4	High static pressure mode	0 0	Standard	●	○	○	<p>When installing a duct to the blow-off outlet of an outdoor unit, set the high static pressure mode according to the static pressure of the duct to be installed.</p> <p>Furthermore, use this setting if the air blow of an outdoor unit is poor, such as when installed in a place with a low ceiling.</p>
			0 1	High static pressure 1 (equivalent to 0.12in.WG (30Pa))				
			0 2	High static pressure 2 (equivalent to maximum)				
			0 3	Prohibited				

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks
						Master	Slave		
2	5	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
			0	2	Prohibited				
			0	3	Prohibited				
2	6	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
2	7	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
2	8	Change of unit (Temperature)	0	0	Celsius (°C)	●	○	○	
			0	1	Fahrenheit (°F)				
2	9	Change of unit (Pressure)	0	0	MPa	●	○	○	
			0	1	psi				
3	0	Energy saving level setting	0	0	Level 1 (stop)	●	○	*1	The capacity limit can be selected by the external input terminal (CN133) when operating with the "Energy Saving Peak Cut function." The lower the level, the more the effect of energy saving, but the cooling/heating performance will also drop.
			0	1	Level 2 (operated at 40% capacity)				
			0	2	Level 3 (operated at 60% capacity)				
			0	3	Level 4 (operated at 80% capacity)				
			0	4	Level 5 (operated at 100% capacity)				
3	2	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
			0	2	Prohibited				
3	3	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
3	5	Presence of heater selection control using outdoor temperature	0	0	No	●	○	*1	
			0	1	Yes				
3	6	Outdoor temperature zone boundary temperature A	0	0	-4.0 °F (-20 °C)	●	○	*1	
			0	1	-0.4 °F (-18 °C)				
			0	2	3.2 °F (-16 °C)				
			0	3	6.8 °F (-14 °C)				
			0	4	10.4 °F (-12 °C)				
			0	5	14.0 °F (-10 °C)				
			0	6	17.6 °F (-8 °C)				
			0	7	21.2 °F (-6 °C)				
0	8	24.8 °F (-4 °C)							

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks
							Master	Slave	
3	7	Outdoor temperature zone boundary temperature B	0	0	42.8 °F (6 °C)	●	○	*1	
			0	1	14.0 °F (-10 °C)				
			0	2	17.6 °F (-8 °C)				
			0	3	21.2 °F (-6 °C)				
			0	4	24.8 °F (-4 °C)				
			0	5	28.4 °F (-2 °C)				
			0	6	32.0 °F (0 °C)				
			0	7	35.6 °F (2 °C)				
			0	8	39.2 °F (4 °C)				
			0	9	42.8 °F (6 °C)				
			1	0	46.4 °F (8 °C)				
			1	1	50.0 °F (10 °C)				
			1	2	53.6 °F (12 °C)				
			1	3	57.2 °F (14 °C)				
			1	4	60.8 °F (16 °C)				
1	5	64.4 °F (18 °C)							
4	0	Capacity priority setting (in low noise mode)	0	0	Off (quiet priority)	●	○	- *1	If the cooling/heating performance becomes insufficient when the low noise mode is set, it is possible to set "capacity priority" that automatically cancels the low noise mode (once performance is restored, the mode will automatically return to the low noise mode).
			0	1	On (capacity priority)				
4	1	Low noise mode setting	0	0	Off (Normal)	●	○	- *1	
			0	1	On (Low noise mode)				
4	2	Low noise mode operation level setting	0	0	Level 1 (55dB)	●	○	- *1	The noise level when operating in the low noise mode can be set.
			0	1	Level 2 (50dB)				
6	1	Prohibited	0	0	On	●			Setting prohibited
			0	1	Off				
6	2	Prohibited	0	0	On	●			Setting prohibited
			0	1	Off				
6	3	Prohibited	0	0	On	●			Setting prohibited
			0	1	Off				

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks
							Master	Slave	
7	0	Electricity meter No. setting 1 *2	0	0	Setting number x00	●	○	○	Set the ones digit and tens digit of the No. of the electricity meter connected to CN135.
			0	1	Setting number x01				
			▪	▪	▪				
			▪	▪	▪				
			▪	▪	▪				
			9	8	Setting number x98				
			9	9	Setting number x99				
7	1	Electricity meter No. setting 2 *2"	0	0	Setting number 0xx	●	○	○	Set the hundreds digit of the No. of the electricity meter connected to CN135.
			0	1	Setting number 1xx				
			0	2	Setting number 2xx				
7	2	Electricity meter pulse setting 1 *3"	0	0	Setting number xx00	●	○	○	Set the ones digit and tens digit of the No. of the electricity meter pulse setting connected to CN135.
			0	1	Setting number xx01				
			▪	▪	▪				
			▪	▪	▪				
			▪	▪	▪				
			9	8	Setting number xx98				
			9	9	Setting number xx99				
7	3	Electricity meter pulse setting 2 *3"	0	0	Setting number 00xx	●	○	○	Set the hundreds digit and thousands digit of the electricity meter pulse setting connected to CN135.
			0	1	Setting number 01xx				
			▪	▪	▪				
			▪	▪	▪				
			▪	▪	▪				
			9	8	Setting number 98xx				
			9	9	Setting number 99xx				

*2: When electricity meter No. is set to "000" and "201 to 299", the pulses input to CN135 become ineffective.
Available setting number is "001" to "200"

*3: When the electricity meter pulse setting is set to "0000", the pulses input to CN135 become ineffective.
Available setting number is "0001" to "9999"

2-1-3. V-II (460V) series

■ SETTINGS LIST

LED105 CODE No.	Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks		
						Master	Slave			
0	0	Pipe length setting	0	0	Standard (131 to 213ft.) (40 to 65m)	●	○	-	*1	Pipe length means the length between master outdoor unit and the nearest indoor unit.
			0	1	Short (less than 131ft.) (less than 40m)					
			0	2	Medium (213 to 295ft.) (65 to 90m)					
			0	3	Long 1 (295 to 394ft.) (90 to 120m)					
			0	4	Long 2 (394 to 541ft.) (120 to 165m)					
1	0	Sequential start shift	0	0	Normal	●	○	-	*1	The start-up timing of outdoor unit (compressor) can be set up so that it can delay several seconds. This feature is useful when multiple number of outdoor units are installed and turned on at the same time to limit the starting current.
			0	1	21sec. Delay					
			0	2	42sec. Delay					
			0	3	63sec. Delay					
1	1	Cooling capacity shift	0	0	Normal mode	●	○	-	*1	
			0	1	Save energy mode					
			0	2	High power mode 1					
			0	3	High power mode 2					
			0	4	Prohibited					
1	2	Heating capacity shift	0	0	Normal mode	●	○	-	*1	
			0	1	Save energy mode					
			0	2	High power mode 1					
			0	3	High power mode 2					
1	3	Prohibited	0	0	Prohibited	●				Setting prohibited
			0	1	Prohibited					
1	7	Height difference between indoor units	0	0	Standard	●	○	-	*1	If installing the indoor units (even only one set) to a lower floor than the outdoor unit, and the height difference between the indoor units is 3m or greater (i.e., if installing the indoor units on separate floors), set "02 (height difference)".
			0	1	Prohibited					
			0	2	Height difference					
			0	3	Prohibited					
			0	4	Prohibited					

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks
							Master	Slave	
2	0	Switching between batch stop or emergency stop	0	0	Batch stop	●	○	- *1	<p>This mode selects the pattern of the stop function to be operated by the external input terminal (CN134).</p> <ul style="list-style-type: none"> •Batch stop: The stop of all indoor units connected to same refrigerant system due to input signal coming from CN134. •Emergency stop: When emergency stop is actuated, the indoor unit does not accept the operation command from the remote controller. On the other hand, when the emergency stop is released (no input from CN134), the air conditioner does not return to the original operation until the indoor unit is turned on by the remote controller.
			0	1	Emergency stop				
2	1	Operation mode selecting method	0	0	Priority given to the first command	●	○	- *1	<p>Select the priority setting of the operation mode.</p> <ul style="list-style-type: none"> •Priority given to the first command: Priority is given to the operation mode which is set first. •Priority given to external input of outdoor unit: Priority is given to the operation mode which is set by the external input terminal (CN132). •Priority given to administrative indoor unit: Priority is given to the operation mode of the administrative indoor unit which is set by the wired remote controller.
			0	1	Priority given to external input of outdoor unit				
			0	2	Priority given to administrative indoor unit				
2	2	Snow falling protection fan mode	0	0	Normal mode	●	○	- *1	<p>This mode operates the fans of outdoor units in order to prevent the units from stopping operation when they are covered by snow.</p>
			0	1	Snow falling protection fan mode				
2	3	Interval setting for snow falling protection fan mode	0	0	Standard (30minutes)	●	○	- *1	<p>When the snow falling protection fan mode is set, the operation interval of the fans of outdoor units can be selected.</p>
			0	1	Short1 (5minutes)				
			0	2	Short2 (10minutes)				
			0	3	Short3 (20minutes)				
2	4	High static pressure mode	0	0	Standard	●	○	○	<p>When installing a duct to the blow-off outlet of an outdoor unit, set the high static pressure mode according to the static pressure of the duct to be installed. Furthermore, use this setting if the air blow of an outdoor unit is poor, such as when installed in a place with a low ceiling.</p>
			0	1	High static pressure 1 (equivalent to 0.12in.WG (30Pa))				
			0	2	High static pressure 2 (equivalent to maximum)				
			0	3	Prohibited				

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks
						Master	Slave		
2	5	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
			0	2	Prohibited				
			0	3	Prohibited				
2	6	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
2	7	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
2	8	Change of unit (Temperature)	0	0	Celsius (°C)	●	○	○	
			0	1	Fahrenheit (°F)				
2	9	Change of unit (Pressure)	0	0	MPa	●	○	○	
			0	1	psi				
3	0	Energy saving level setting	0	0	Level 1 (stop)	●	○	- *1	The capacity limit can be selected by the external input terminal (CN133) when operating with the "Energy Saving Peak Cut function." The lower the level, the more the effect of energy saving, but the cooling/heating performance will also drop.
			0	1	Level 2 (operated at 40% capacity)				
			0	2	Level 3 (operated at 60% capacity)				
			0	3	Level 4 (operated at 80% capacity)				
			0	4	Level 5 (operated at 100% capacity)				
3	2	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
			0	2	Prohibited				
3	3	Prohibited	0	0	Prohibited	●			Setting prohibited
			0	1	Prohibited				
3	5	Presence of heater selection control using outdoor temperature	0	0	No	●	○	*1	
			0	1	Yes				
3	6	Outdoor temperature zone boundary temperature A	0	0	-4.0 °F (-20 °C)	●	○	*1	
			0	1	-0.4 °F (-18 °C)				
			0	2	3.2 °F (-16 °C)				
			0	3	6.8 °F (-14 °C)				
			0	4	10.4 °F (-12 °C)				
			0	5	14.0 °F (-10 °C)				
			0	6	17.6 °F (-8 °C)				
			0	7	21.2 °F (-6 °C)				
			0	8	24.8 °F (-4 °C)				

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks
							Master	Slave	
3	7	Outdoor temperature zone boundary temperature B	0	0	42.8 °F (6 °C)	●	○	*1	
			0	1	14.0 °F (-10 °C)				
			0	2	17.6 °F (-8 °C)				
			0	3	21.2 °F (-6 °C)				
			0	4	24.8 °F (-4 °C)				
			0	5	28.4 °F (-2 °C)				
			0	6	32.0 °F (0 °C)				
			0	7	35.6 °F (2 °C)				
			0	8	39.2 °F (4 °C)				
			0	9	42.8 °F (6 °C)				
			1	0	46.4 °F (8 °C)				
			1	1	50.0 °F (10 °C)				
			1	2	53.6 °F (12 °C)				
			1	3	57.2 °F (14 °C)				
			1	4	60.8 °F (16 °C)				
1	5	64.4 °F (18 °C)							
4	0	Capacity priority setting (in low noise mode)	0	0	Off (quiet priority)	●	○	- *1	If the cooling/heating performance becomes insufficient when the low noise mode is set, it is possible to set "capacity priority" that automatically cancels the low noise mode (once performance is restored, the mode will automatically return to the low noise mode).
			0	1	On (capacity priority)				
4	1	Low noise mode setting	0	0	Off (Normal)	●	○	- *1	
			0	1	On (Low noise mode)				
4	2	Low noise mode operation level setting	0	0	Level 1 (55dB)	●	○	- *1	The noise level when operating in the low noise mode can be set.
			0	1	Level 2 (50dB)				
6	1	Prohibited	0	0	On	●			Setting prohibited
			0	1	Off				
6	2	Prohibited	0	0	On	●			Setting prohibited
			0	1	Off				
6	3	Prohibited	0	0	On	●			Setting prohibited
			0	1	Off				

*1: Do not set this for outdoor units with Slave setting.

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Outdoor unit		Remarks
							Master	Slave	
7	0	Electricity meter No. setting 1 *2	0	0	Setting number x00	●	○	○	Set the ones digit and tens digit of the No. of the electricity meter connected to CN135.
			0	1	Setting number x01				
			▪	▪	▪				
			▪	▪	▪				
			▪	▪	▪				
			9	8	Setting number x98				
			9	9	Setting number x99				
7	1	Electricity meter No. setting 2 *2"	0	0	Setting number 0xx	●	○	○	Set the hundreds digit of the No. of the electricity meter connected to CN135.
			0	1	Setting number 1xx				
			0	2	Setting number 2xx				
7	2	Electricity meter pulse setting 1 *3"	0	0	Setting number xx00	●	○	○	Set the ones digit and tens digit of the No. of the electricity meter pulse setting connected to CN135.
			0	1	Setting number xx01				
			▪	▪	▪				
			▪	▪	▪				
			▪	▪	▪				
			9	8	Setting number xx98				
			9	9	Setting number xx99				
7	3	Electricity meter pulse setting 2 *3"	0	0	Setting number 00xx	●	○	○	Set the hundreds digit and thousands digit of the electricity meter pulse setting connected to CN135.
			0	1	Setting number 01xx				
			▪	▪	▪				
			▪	▪	▪				
			▪	▪	▪				
			9	8	Setting number 98xx				
			9	9	Setting number 99xx				

*2: When electricity meter No. is set to "000" and "201 to 299", the pulses input to CN135 become ineffective.
Available setting number is "001" to "200"

*3: When the electricity meter pulse setting is set to "0000", the pulses input to CN135 become ineffective.
Available setting number is "0001" to "9999"

2-1-4. J-II series

■ SETTINGS LIST

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Remarks
0	0	Pipe length setting	0	0	Standard (131 to 213ft.) (40 to 65m)	●	Pipe length means the length between outdoor unit and the nearest indoor unit.
			0	1	Short (less than 131ft.) (less than 40m)		
			0	2	Medium (213 to 295ft.) (65 to 90m)		
			0	3	Long 1 (295 to 394ft.) (90 to 120m)		
			0	4	Prohibited		
1	0	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
1	1	Cooling capacity shift	0	0	Normal mode	●	
			0	1	Save energy mode 1		
			0	2	High power mode 1		
			0	3	High power mode 2		
			0	4	Prohibited		
1	2	Heating capacity shift	0	0	Normal mode	●	
			0	1	Save energy mode		
			0	2	High power mode 1		
			0	3	High power mode 2		
1	3	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
1	4	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
			0	4	Prohibited		

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Remarks
2	0	Switching between batch stop or emergency stop	0	0	Batch stop	●	<p>This mode selects the pattern of the stop function to be operated by the external input terminal (CN134).</p> <ul style="list-style-type: none"> •Batch stop: The stop of all indoor units connected to same refrigerant system due to input signal coming from CN134. •Emergency stop: When emergency stop is actuated, the indoor unit does not accept the operation command from the remote controller. On the other hand, when the emergency stop is released (no input from CN134), the air conditioner does not return to the original operation until operate indoor unit by the remote controller.
			0	1	Emergency stop		
2	1	Operation mode selecting method	0	0	Priority given to the first command	●	<p>Select the priority setting of the operation mode.</p> <ul style="list-style-type: none"> •Priority given to the first command: Priority is given to the operation mode which is set first. •Priority given to external input of outdoor unit: Priority is given to the operation mode which is set by the external input terminal (CN132). •Priority given to administrative indoor unit: Priority is given to the operation mode of the administrative indoor unit which is set by the wired remote controller.
			0	1	Priority given to external input of outdoor unit		
			0	2	Priority given to administrative indoor unit		
2	2	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
2	3	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
2	4	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
2	5	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
2	6	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
2	7	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Remarks
2	8	Change of unit (Temperature)	0	0	Celsius (°C)	●	
			0	1	Fahrenheit (°F)		
2	9	Change of unit (Pressure)	0	0	MPa	●	
			0	1	psi		
3	0	Outdoor unit capacity save setting	0	0	Level 1 (stop)	●	The capacity limit can be selected by the external input terminal (CN133) when operating with the "Outdoor unit capacity save function." The lower the level, the more the effect of energy saving, but the cooling/heating performance will also drop.
			0	1	Level 2		
			0	2	Level 3		
			0	3	Level 4		
			0	4	Level 5		
3	1	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
3	4	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
3	5	Presence of heater selection control using outdoor temperature	0	0	Disable	●	Setting required to validate the setting of heater selection control using outdoor temperature 1 and 2 (setting value: 03 or 04) in field setting 61 (indoor unit) for heater control switching. For details, refer to Chapter 8. 1-2-2. EXTERNAL OUTPUT.
			0	1	Enable		
3	6	Outdoor temperature zone boundary temperature A	0	0	-4.0°F (-20°C)	●	Setting required if changing of the outdoor temperature setting for heat pump prohibition zone is required when heater selection control using outdoor temperature 1 and 2 are performed on the indoor unit. For details, refer to Chapter 8. 1-2-2. EXTERNAL OUTPUT.
			0	1	-0.4°F (-18°C)		
			0	2	3.2°F (-16°C)		
			0	3	6.8°F (-14°C)		
			0	4	10.4°F (-12°C)		
			0	5	14.0°F (-10°C)		
			0	6	17.6°F (-8°C)		
			0	7	21.2°F (-6°C)		
			0	8	24.8°F (-4°C)		

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Remarks
3	7	Outdoor temperature zone boundary temperature B	0	0	42.8°F (6°C)	●	Setting required if changing of the outdoor temperature setting for heat pump only zone is required when heater selection control using outdoor temperature 1 is performed on the indoor unit. For details, refer to Chapter 8. 1-2-2. EXTERNAL OUTPUT.
			0	1	14.0°F (-10°C)		
			0	2	17.6°F (-8°C)		
			0	3	21.2°F (-6°C)		
			0	4	24.8°F (-4°C)		
			0	5	28.4°F (-2°C)		
			0	6	32.0°F (0°C)		
			0	7	35.6°F (2°C)		
			0	8	39.2°F (4°C)		
			0	9	42.8°F (6°C)		
			1	0	46.4°F (8°C)		
			1	1	50.0°F (10°C)		
			1	2	53.6°F (12°C)		
			1	3	57.2°F (14°C)		
			1	4	60.8°F (16°C)		
1	5	64.4°F (18°C)					
4	0	Capacity priority setting (in low noise mode)	0	0	Off (quiet priority)	●	If the cooling/heating performance becomes insufficient when the low noise mode is set, it is possible to set "capacity priority" that automatically cancels the low noise mode (once performance is restored, the mode will automatically return to the low noise mode).
			0	1	On (capacity priority)		
4	1	Low noise mode setting	0	0	Off (Normal)	●	
			0	1	On (Low noise mode)		
4	2	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
6	0	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
6	1	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
6	2	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Remarks
7	0	Electricity meter No. setting 1 *1	0	0	Setting number x00	●	Set the ones digit and tens digit of the No. of the electricity meter connected to CN135.
			0	1	Setting number x01		
			▪	▪	▪		
			▪	▪	▪		
			▪	▪	▪		
			9	8	Setting number x98		
			9	9	Setting number x99		
7	1	Electricity meter No. setting 2 *1	0	0	Setting number 0xx	●	Set the hundreds digit of the No. of the electricity meter connected to CN135.
			0	1	Setting number 1xx		
			0	2	Setting number 2xx		
7	2	Electricity meter pulse setting 1 *2	0	0	Setting number xx00	●	Set the ones digit and tens digit of the No. of the electricity meter pulse setting connected to CN135.
			0	1	Setting number xx01		
			▪	▪	▪		
			▪	▪	▪		
			▪	▪	▪		
			9	8	Setting number xx98		
			9	9	Setting number xx99		
7	3	Electricity meter pulse setting 2 *2	0	0	Setting number 00xx	●	Set the hundreds digit and thousands digit of the electricity meter pulse setting connected to CN135.
			0	1	Setting number 01xx		
			▪	▪	▪		
			▪	▪	▪		
			▪	▪	▪		
			9	8	Setting number 98xx		
			9	9	Setting number 99xx		
9	0	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
			0	4	Prohibited		
			0	5	Prohibited		
			0	6	Prohibited		
			0	7	Prohibited		
			0	8	Prohibited		
			0	9	Prohibited		
			1	0	Prohibited		
			1	1	Prohibited		

*1: When electricity meter No. is set to "000" and "201 to 299", the pulses input to CN135 become ineffective. Available setting number is "001" to "200"

*2: When the electricity meter pulse setting is set to "0000", the pulses input to CN135 become ineffective. Available setting number is "0001" to "9999"

2-1-5. J-IIS series

■ SETTINGS LIST

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Remarks
0	0	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
			0	4	Prohibited		
1	0	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
1	1	Cooling capacity shift	0	0	Normal mode	●	
			0	1	Save energy mode 1		
			0	2	High power mode 1		
			0	3	High power mode 2		
			0	4	Prohibited		
1	2	Heating capacity shift	0	0	Normal mode	●	
			0	1	Save energy mode		
			0	2	High power mode 1		
			0	3	High power mode 2		
1	3	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Remarks
1	4	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
			0	4	Prohibited		
1	6	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
			0	4	Prohibited		
1	7	Height difference between indoor units	0	0	Standard	●	If installing the indoor units (even only one set) to a lower floor than the outdoor unit, and the height difference between the indoor units is 3m or greater (i.e., if installing the indoor units on separate floors), set "02 (height difference)".
			0	1	Prohibited		
			0	2	Height difference		
			0	3	Prohibited		
			0	4	Prohibited		

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Remarks
2	0	Switching between batch stop or emergency stop	0	0	Batch stop	●	This mode selects the pattern of the stop function to be operated by the external input terminal (CN134). •Batch stop: The stop of all indoor units connected to same refrigerant system due to input signal coming from CN134. •Emergency stop: When emergency stop is actuated, the indoor unit does not accept the operation command from the remote controller. On the other hand, when the emergency stop is released (no input from CN134), the air conditioner does not return to the original operation until operate indoor unit by the remote controller.
			0	1	Emergency stop		
2	1	Operation mode selecting method	0	0	Priority given to the first command	●	Select the priority setting of the operation mode. •Priority given to the first command: Priority is given to the operation mode which is set first. •Priority given to external input of outdoor unit: Priority is given to the operation mode which is set by the external input terminal (CN132). •Priority given to administrative indoor unit: Priority is given to the operation mode of the administrative indoor unit which is set by the wired remote controller.
			0	1	Priority given to external input of outdoor unit		
			0	2	Priority given to administrative indoor unit		
2	2	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
2	3	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
2	4	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
2	5	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Remarks
2	6	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
2	7	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
2	8	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
2	9	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
3	0	Outdoor unit capacity save setting	0	0	Level 1 (stop)	●	The capacity limit can be selected by the external input terminal (CN133) when operating with the "Outdoor unit capacity save function." The lower the level, the more the effect of energy saving, but the cooling/heating performance will also drop.
			0	1	Level 2		
			0	2	Level 3		
			0	3	Level 4		
			0	4	Level 5		
3	1	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
3	5	Presence of heater selection control using outdoor temperature	0	0	Disable	●	Setting required to validate the setting of heater selection control using outdoor temperature 1 and 2 (setting value: 03 or 04) in field setting 61 (indoor unit) for heater control switching. For details, refer to Chapter 8. 1-2-2. EXTERNAL OUTPUT.
			0	1	Enable		
3	6	Outdoor temperature zone boundary temperature A	0	0	-4.0°F (-20°C)	●	Setting required if changing of the outdoor temperature setting for heat pump prohibition zone is required when heater selection control using outdoor temperature 1 and 2 are performed on the indoor unit. For details, refer to Chapter 8. 1-2-2. EXTERNAL OUTPUT.
			0	1	-0.4°F (-18°C)		
			0	2	3.2°F (-16°C)		
			0	3	6.8°F (-14°C)		
			0	4	10.4°F (-12°C)		
			0	5	14.0°F (-10°C)		
			0	6	17.6°F (-8°C)		
			0	7	21.2°F (-6°C)		
0	8	24.8°F (-4°C)					

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Remarks
3	7	Outdoor temperature zone boundary temperature B	0	0	42.8°F (6°C)	●	Setting required if changing of the outdoor temperature setting for heat pump only zone is required when heater selection control using outdoor temperature 1 is performed on the indoor unit. For details, refer to Chapter 8. 1-2-2. EXTERNAL OUTPUT.
			0	1	14.0°F (-10°C)		
			0	2	17.6°F (-8°C)		
			0	3	21.2°F (-6°C)		
			0	4	24.8°F (-4°C)		
			0	5	28.4°F (-2°C)		
			0	6	32.0°F (0°C)		
			0	7	35.6°F (2°C)		
			0	8	39.2°F (4°C)		
			0	9	42.8°F (6°C)		
			1	0	46.4°F (8°C)		
			1	1	50.0°F (10°C)		
			1	2	53.6°F (12°C)		
			1	3	57.2°F (14°C)		
			1	4	60.8°F (16°C)		
1	5	64.4°F (18°C)					
4	0	Capacity priority setting (in low noise mode)	0	0	Off (quiet priority)	●	If the cooling/heating performance becomes insufficient when the low noise mode is set, it is possible to set "capacity priority" that automatically cancels the low noise mode (once performance is restored, the mode will automatically return to the low noise mode).
			0	1	On (capacity priority)		
4	1	Low noise mode setting	0	0	Off (Normal)	●	
			0	1	On (Low noise mode)		
4	2	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
6	0	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
6	1	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		

LED105 CODE No.		Setting Mode	LED104 CODE No.		Setting Function	Factory setting	Remarks
7	0	Electricity meter No. setting 1 *1	0	0	Setting number x00	●	Set the ones digit and tens digit of the No. of the electricity meter connected to CN135.
			0	1	Setting number x01		
			▪	▪	▪		
			▪	▪	▪		
			▪	▪	▪		
			9	8	Setting number x98		
			9	9	Setting number x99		
7	1	Electricity meter No. setting 2 *1	0	0	Setting number 0xx	●	Set the hundreds digit of the No. of the electricity meter connected to CN135.
			0	1	Setting number 1xx		
			0	2	Setting number 2xx		
7	2	Electricity meter pulse setting 1 *2	0	0	Setting number xx00	●	Set the ones digit and tens digit of the No. of the electricity meter pulse setting connected to CN135.
			0	1	Setting number xx01		
			▪	▪	▪		
			▪	▪	▪		
			▪	▪	▪		
			9	8	Setting number xx98		
			9	9	Setting number xx99		
7	3	Electricity meter pulse setting 2 *2	0	0	Setting number 00xx	●	Set the hundreds digit and thousands digit of the electricity meter pulse setting connected to CN135.
			0	1	Setting number 01xx		
			▪	▪	▪		
			▪	▪	▪		
			▪	▪	▪		
			9	8	Setting number 98xx		
			9	9	Setting number 99xx		
9	0	Prohibited	0	0	Prohibited	●	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
			0	4	Prohibited		
			0	5	Prohibited		
			0	6	Prohibited		
			0	7	Prohibited		
			0	8	Prohibited		
			0	9	Prohibited		
			1	0	Prohibited		
			1	1	Prohibited		

*1: When electricity meter No. is set to "000" and "201 to 299", the pulses input to CN135 become ineffective.
Available setting number is "001" to "200"

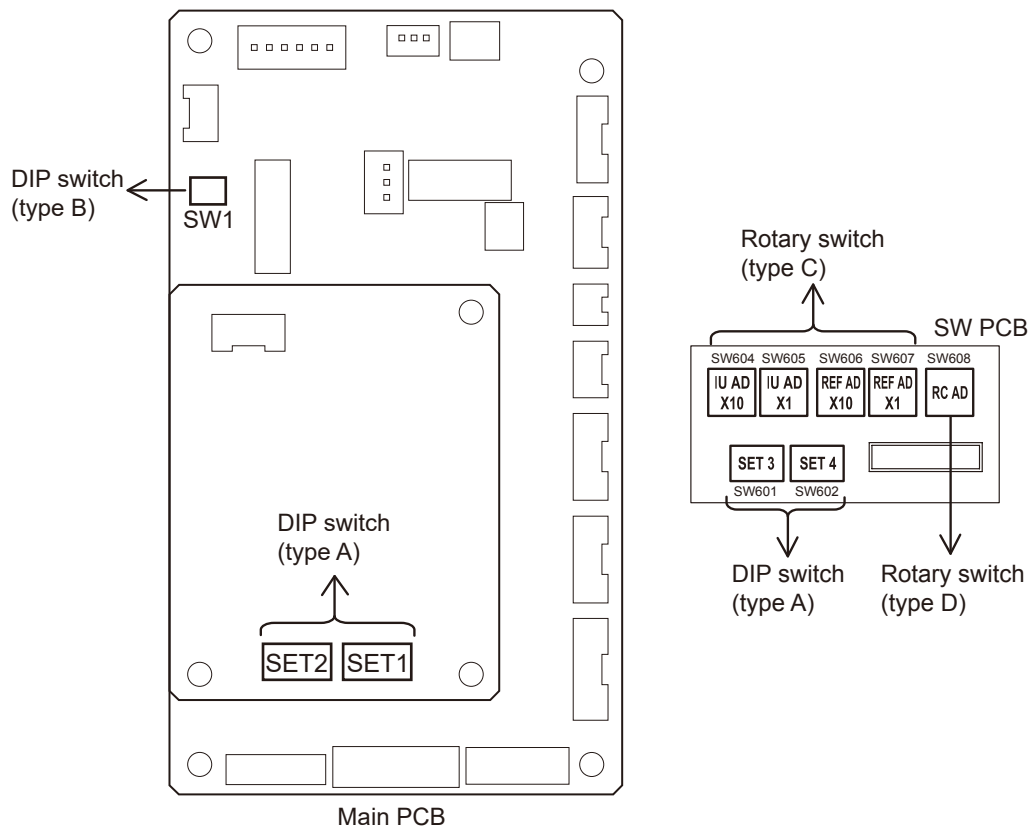
*2: When the electricity meter pulse setting is set to "0000", the pulses input to CN135 become ineffective.
Available setting number is "0001" to "9999"

2-2. INDOOR UNIT (setting by switch)

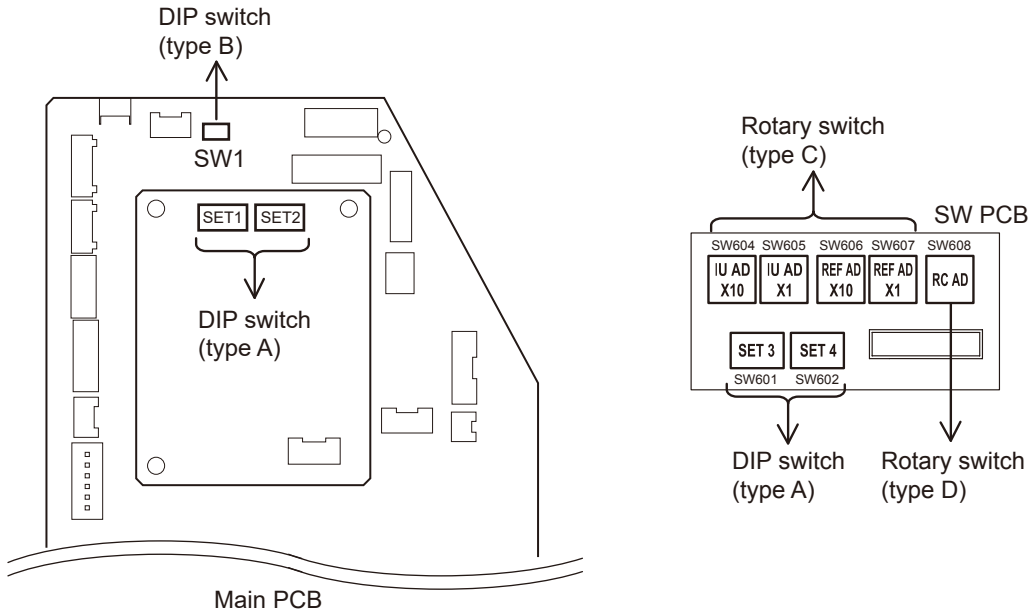
■ SWITCH POSITION

Type of PCB	Type of Indoor unit
Type 1	Compact cassette, Cassette, Mini duct, Slim duct/Slim concealed floor, Medium static pressure duct, High static pressure duct, Floor/ceiling, Ceiling, Vertical air handler
Type 2	Wall mounted (ASUB18, 24)
Type 3	Wall mounted (ASUA7, 9, 12, 14TLAV)
Type 4	Circular flow cassette
Type 5	Wall mounted (ASUA4, 7, 9, 12, 14TLAV1)
Type 6	Wall mounted (ASUB30, 36)
Type 7	Compact floor

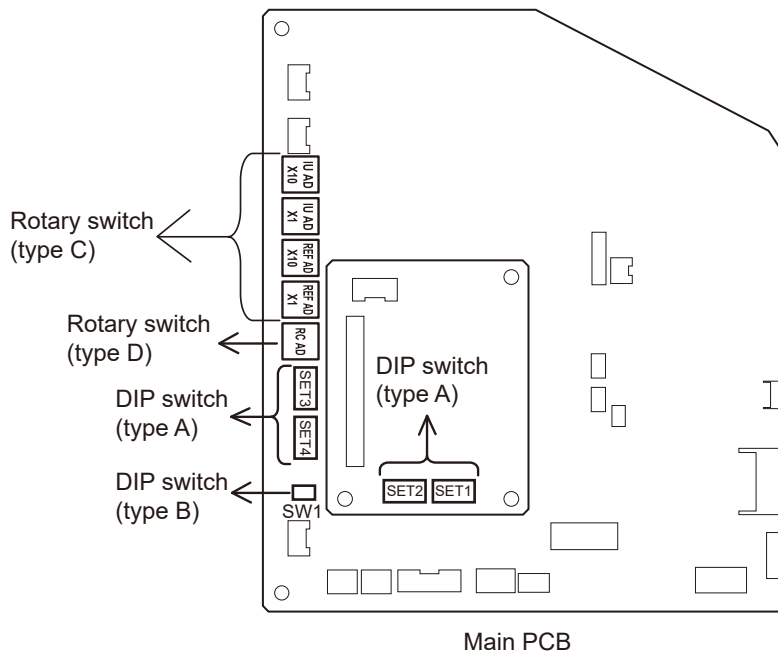
● Type 1



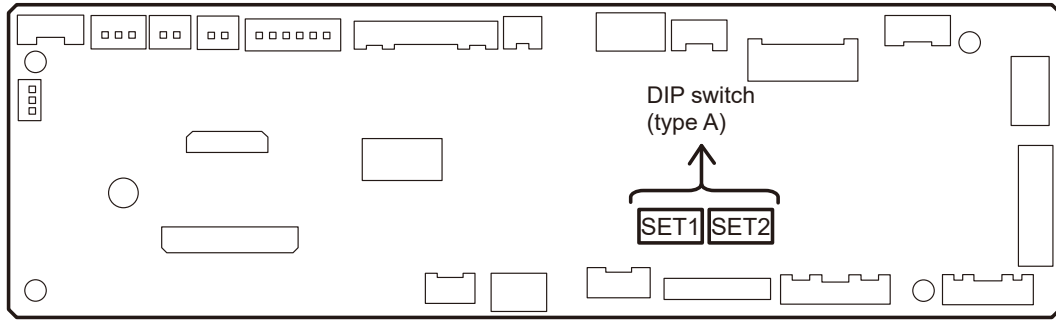
● Type 2



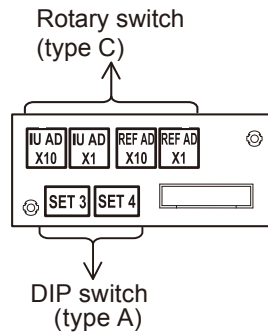
● Type 3



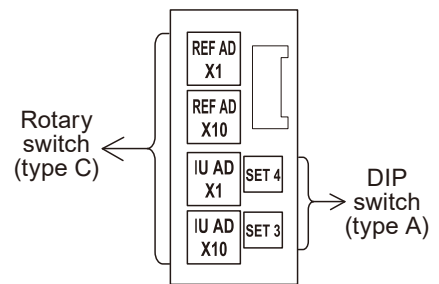
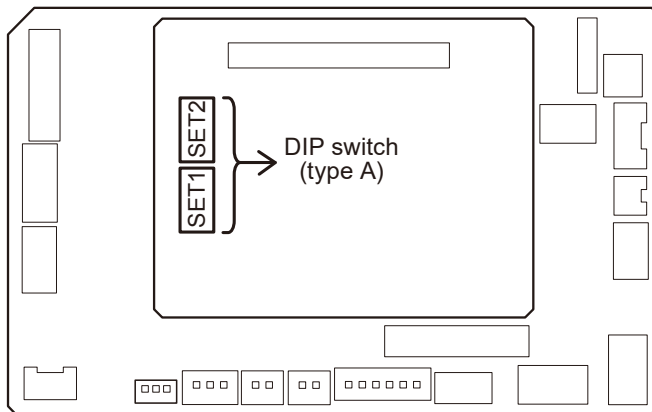
● Type 4



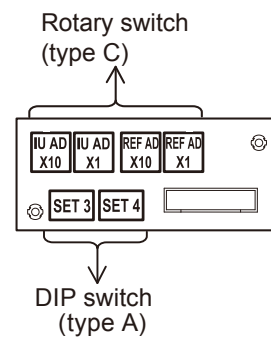
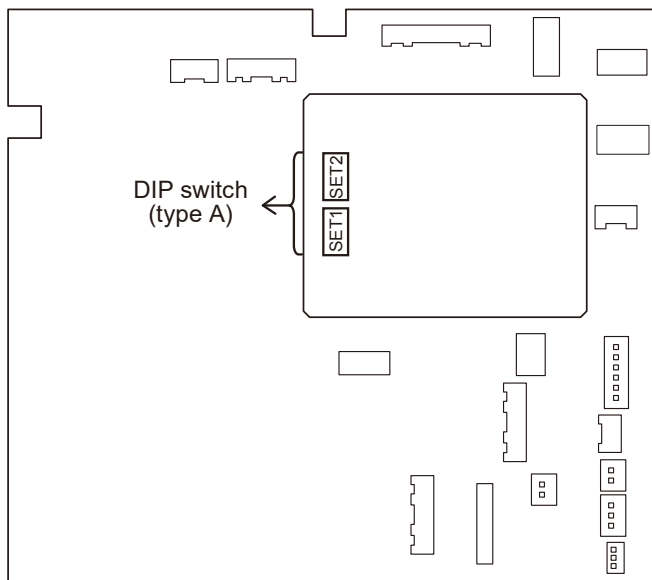
Main PCB



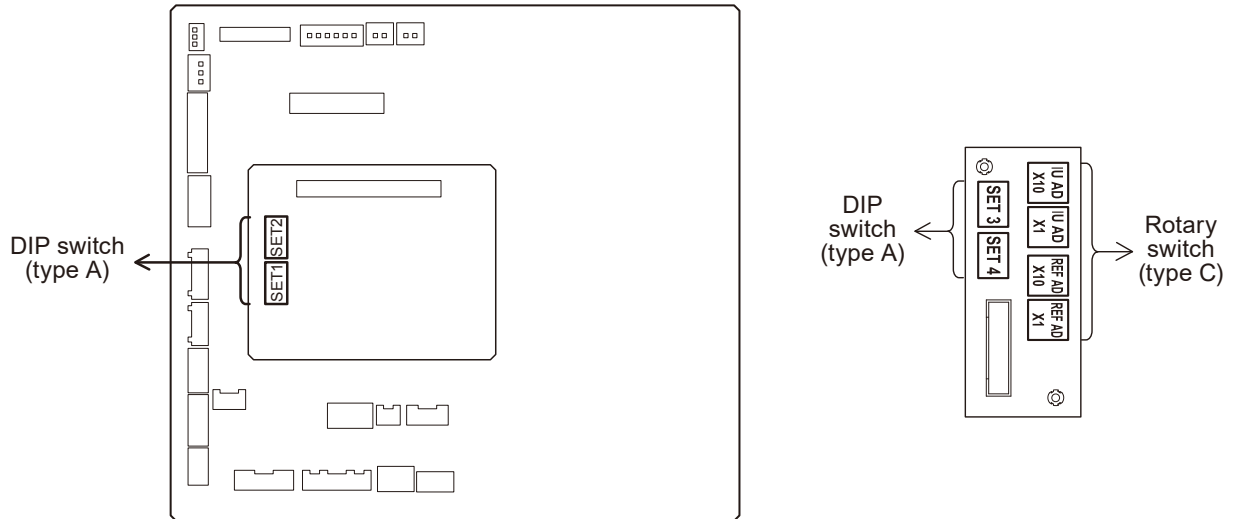
● Type 5



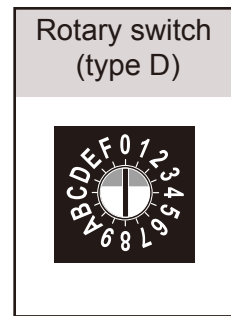
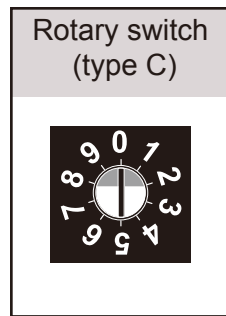
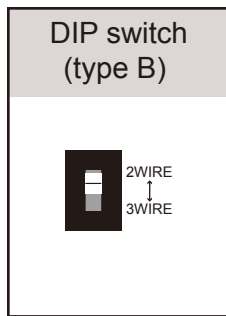
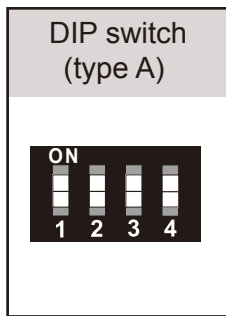
● Type 6



● Type 7



■ SWITCH TYPE



■ SWITCH TABLE

DIP-SW	type A	SET1	1	Prohibited (Indoor unit capacity setting)
			2	Prohibited (Indoor unit capacity setting)
			3	Prohibited (Indoor unit capacity setting)
			4	Prohibited (Indoor unit capacity setting)
		SET2	1	Prohibited (Indoor unit capacity setting)
			2	External input select "edge/pulse"
			3	Indoor unit fan setting for external heater
			4	Prohibited
		SET3	1	Wireless remote controller custom code switch 1
			2	Wireless remote controller custom code switch 2
			3	Prohibited
			4	Prohibited
		SET4	1	Drainage function switch (Slim Duct type only)
			2	Auto louver grille setting switch (Mini Duct and Slim Duct type only)
			3	Prohibited
			4	Prohibited
type B	SW1	Remote controller wire type switch		
Rotary SW	type C	IU AD x 1	Indoor unit address switch 1	
		IU AD x 10	Indoor unit address switch 2	
		REF AD x1	Refrigerant circuit address switch 1	
		REF AD x10	Refrigerant circuit address switch 2	
	type D	RC AD	Remote controller address switch	

■ DIP SWITCH SETTING

● SET2 setting

● External input select “Edge/Pulse”

(◆...Factory setting)

SET2-2	External input select
OFF	Edge
ON	Pulse

● Indoor unit fan setting for external heater

It is a function to delay the stop of cooling fan when the air conditioner is stopped.

When external heater is connected, turn "ON" this switch.

When you connect external heater, be careful enough.

(◆...Factory setting)

SET2-3	Fan delay
OFF	Disable
ON	Enable

When SET2-3 is set to "OFF", use room temperature sensor of wired remote controller to prevent erroneous detection of room temperature.

● SET2-4 setting prohibited

(◆...Factory setting)

SET2-4	
OFF	Fixed at OFF
ON	Setting prohibited

● SET3 setting

● Wireless remote controller custom code switch

This DIP switch sets the custom code of the wireless remote controller of an indoor unit.

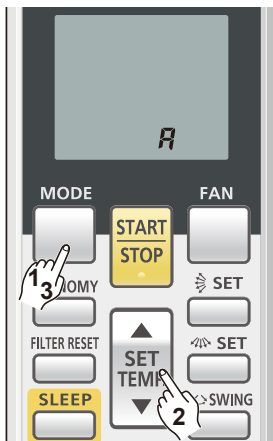
If multiple indoor units are being installed in the same room, switch the custom codes of the corresponding wireless remote controllers in order to prevent their signals from being mixed.

When switching the custom code of the wireless remote controller of an indoor unit, be sure to also switch the code setting on the paired wireless remote controller side at the same time.

(◆...Factory setting)

◆	SET3-1	SET3-2	Custom code
	OFF	OFF	Type A
	ON	OFF	Type B
	OFF	ON	Type C
	ON	ON	Type D

How to switch the code on the wireless remote controller side



1) Press the MODE button for more than five seconds to start the code change.

2) Press the SET TEMP. (▲) or (▼) button to select the desired code.

→ A → B → C → D →

3) Press the MODE button again to end the code change.

● SET3-3, SET3-4 setting prohibited

(◆...Factory setting)

◆	SET3-3	SET3-4	
	OFF	OFF	Fixed at OFF
	ON	ON	Setting prohibited

● SET4 setting

● Drainage function switch (Slim duct type only)

If contained drain pump is not used, set the drainage function to "Disable" in the drainage function switching.

(◆...Factory setting)

SET4-1	Drainage function
OFF	Enable
ON	Disable

***NOTE:** Always confirm proper setting. Incorrect setting may cause damage from water leakage.

● Auto louver grille setting switch (Mini duct type and Slim duct type only)

When Auto louver grille kit (optional parts) is attached, set the Auto louver grille setting "Enable".

(◆...Factory setting)

SET4-2	Auto louver grille setting
OFF	Disable
ON	Enable

● SET4-3 setting prohibited

(◆...Factory setting)

SET4-3	
OFF	Fixed at OFF
ON	Setting prohibited

● SET4-4 setting prohibited

(◆...Factory setting)

SET4-4	
OFF	Fixed at OFF
ON	Setting prohibited

● SW1 setting

● Remote controller wire type setting switch

(◆...Factory setting)

SW1	Remote controller wire type
◆ 2WIRE	2 Wire type
3WIRE	3 Wire type

■ ROTARY SWITCH SETTING

● IU AD setting

● Indoor unit address switch

Sets the indoor unit addresses.

Refer to "1-3. MANUAL ADDRESS SETTING METHOD" for indoor unit address conversion table.

INDOOR UNIT ADDRESS SWITCH (Factory setting IU AD x 1: 0, IU AD x 10: 0)

Rotary SW	Description	Remarks
IU AD x 1	Indoor unit address Switch 1	Indoor unit address (the first digit)
IU AD x 10	Indoor unit address Switch 2	Indoor unit address (the second digit)

● REF AD setting

● Refrigerant circuit address switch

Sets the refrigerant circuit address.

Refer to "1-3. MANUAL ADDRESS SETTING METHOD" for refrigerant circuit address conversion table.

REFRIGERANT CIRCUIT ADDRESS SWITCH (Factory setting REF AD x 1: 0, REF AD x 10: 0)

Rotary SW	Description	Remarks
REF AD x 1	Refrigerant circuit address Switch 1	Refrigerant circuit address (the first digit)
REF AD x 10	Refrigerant circuit address Switch 2	Refrigerant circuit address (the second digit)

● RC AD setting

● Remote controller address switch

When the indoor unit is wired by remote controller group, to identify the indoor unit in the remote controller group, the number (remote controller address) in the remote controller group is set.

i) 3 wire type

Only for manual address setting

Set the remote controller address in the 0.1.2,~,15 order (Blank is not allowed)

REMOTE CONTROLLER ADDRESS SWITCH (Factory setting : 0)

Rotary SW	Description	Remarks
RC AD	Remote controller address	Remote controller address

ii) 2 wire type

It can choose either automatic address setting or manual address setting.

① When setting the automatic address.

Set the remote controller address in the "0" only. (Factory setting is "0")

② When setting the manual address.

Set the remote controller address in the 1.2,~,15

REMOTE CONTROLLER ADDRESS SWITCH (Factory setting : 0)

Rotary SW	Description	Remarks
RC AD	Remote controller address	Remote controller address

NOTE: When setting the manual address, cannot be set the "0".

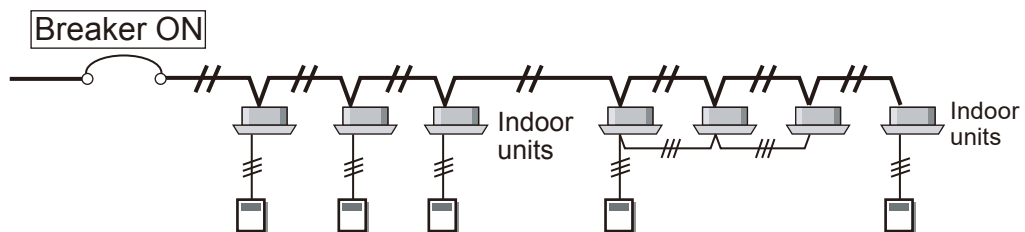
2-3. INDOOR UNIT (setting by wireless remote controller)

- This procedure changes to the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the “FUNCTION SETTING” according to the installation conditions using the remote controller.
- The settings may be selected from the following: Function Number or Setting Number.
- Settings will not be changed if disable numbers or setting numbers are selected.

■ PREPARATION

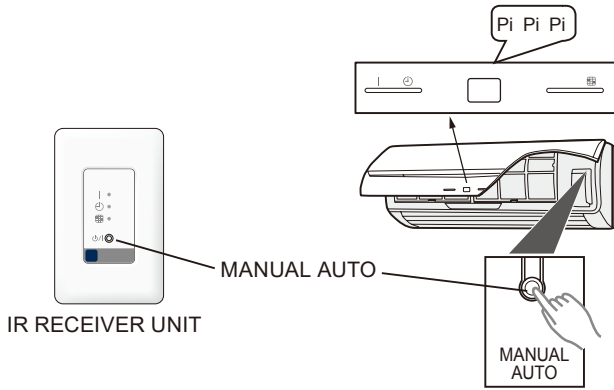
(1) Turn on the power to the indoor unit.

- * By turning on the power indoor units initializes EEV, so make sure the pressure testing and vacuum drying have been conducted before turning on the power.
- * Also check again to make sure no wiring mistakes were made before turning on the power.

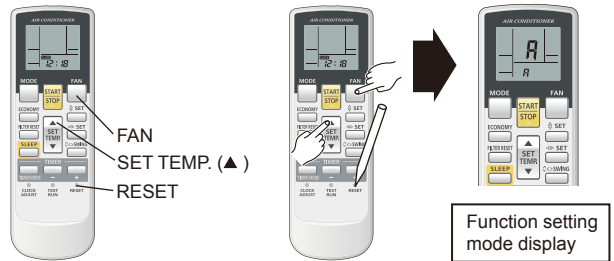


SWITCHING SELECTION OF FUNCTION SETTING MODE

(2) Press and hold the “MANUAL/AUTO” button for 3 seconds.



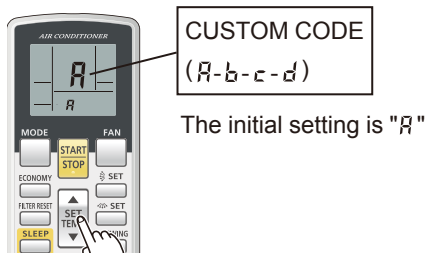
(3) Press and hold the “FAN” and the “SET TEMP. ▲” buttons. While holding these 2 buttons, press the “RESET” button.



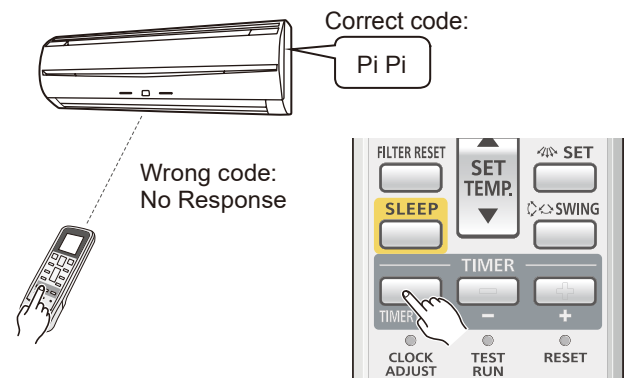
- The position of the “MANUAL/AUTO” button varies depending on the model. Refer to the operation manual for the button position on your unit.
- Indoor unit will display on "TIMER ☹"(ORANGE) and "FILTER 🗑"(RED) light (1sec ON / 1sec OFF) by continuously pressing the "MANUAL/AUTO" for 10 sec or more. In this case release the button or turn off the power.
- An explanation of the displayed information is shown below.

SELECTION AND CONFIRMATION OF CUSTOM CODE

(4) Press the “SET TEMP. ▲” or “SET TEMP. ▼” buttons to select the custom code that matches the setting with the indoor unit. By selecting the appropriate custom code, the communication between the indoor unit and the wireless RC is enabled.

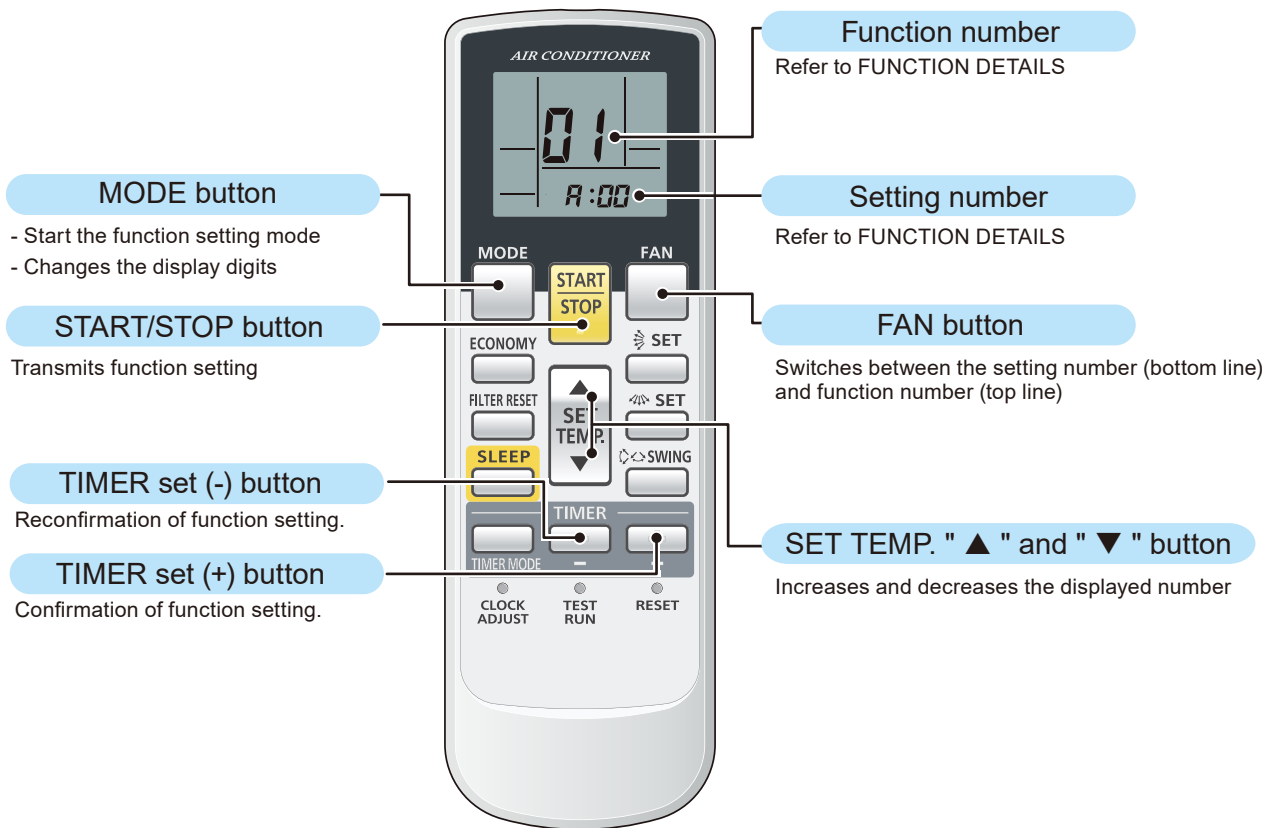


(5) Press the “TIMER MODE” button to send the code to the indoor unit.

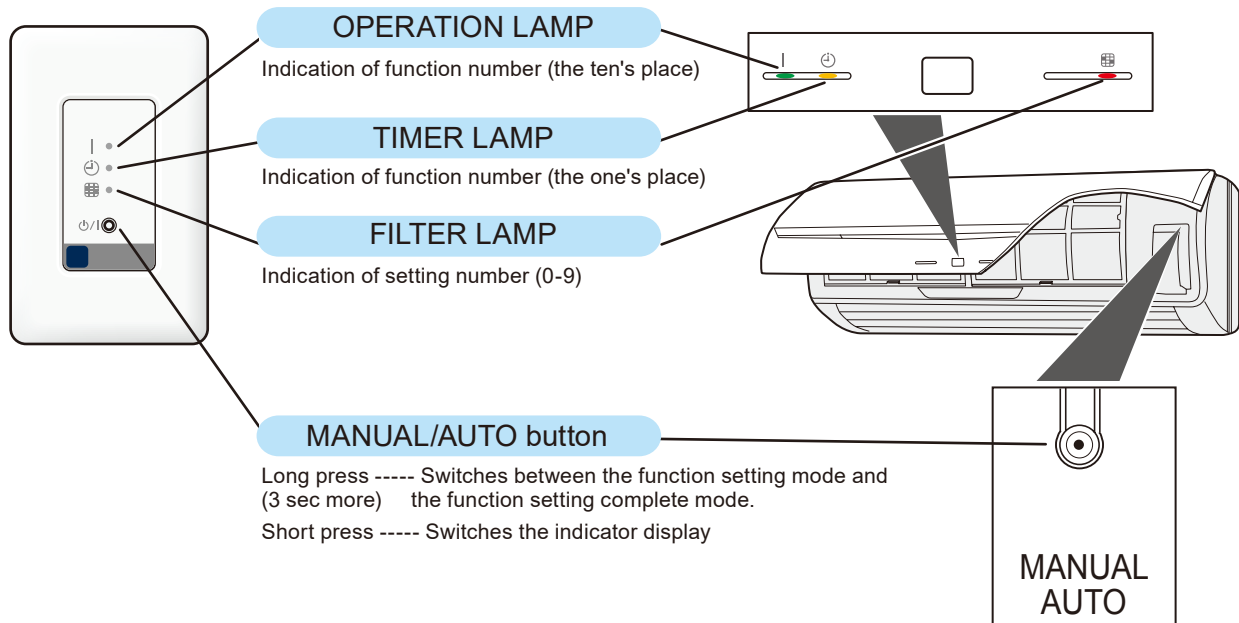


■ BUTTON NAME AND FUNCTION

- During address setting mode, indoor unit reject the any operation command from remote controller.

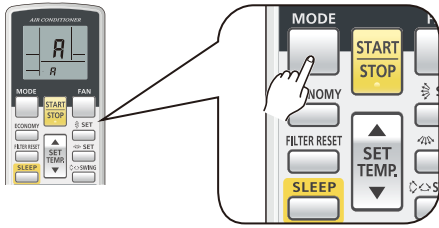


IR RECEIVER UNIT



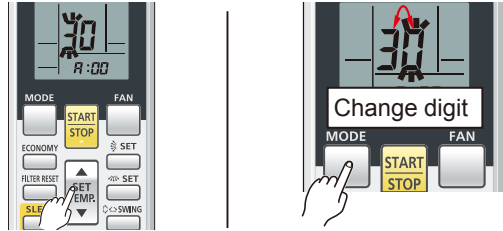
FUNCTION SETTING

(6) Press the "MODE" button to access the function setting mode.



(7) Press the "▲" or the "▼" buttons to select the function number.

Each time the "MODE" button is pressed, it switches between the one's place and the ten's place positions.

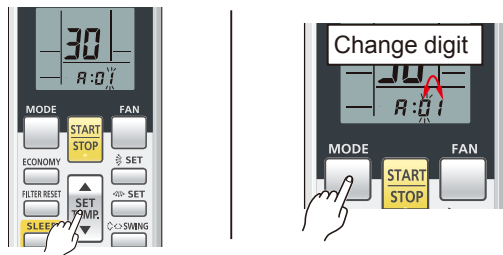


(8) Press the "FAN" button to proceed to setting the number. (Press the "FAN" button again to return to the function number selection.)

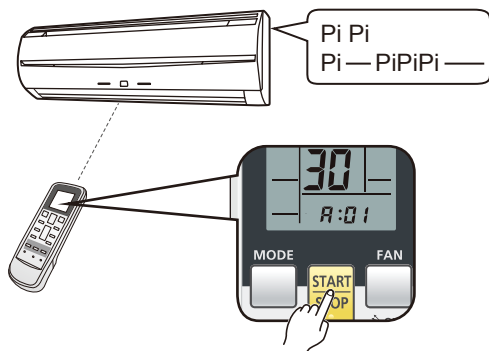


(9) Press the "▲" or the "▼" buttons to select the setting number.

Each time the "MODE" button is pressed, it switches between the one's place and the ten's place positions.



(10) Press the "START/STOP" button once to send the information. A beeping sound will be heard if the command is accepted.

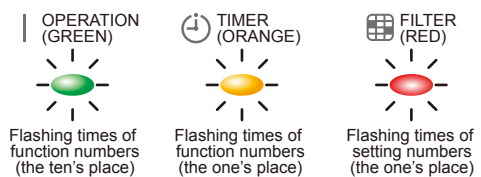


* In the following cases the setting signal is not read and a buzzer sounds.

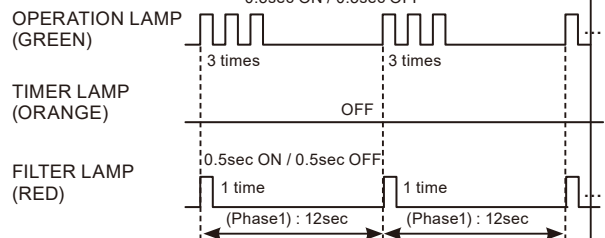
The function setting No. is set out of range : Pi Pi Pi Pi Pi Pi

Case1 : When setting number is one digit.

(11-1) Indoor unit will display the function setting number on "OPERATION"(GREEN), "TIMER" (ORANGE) and "FILTER" (RED) light.



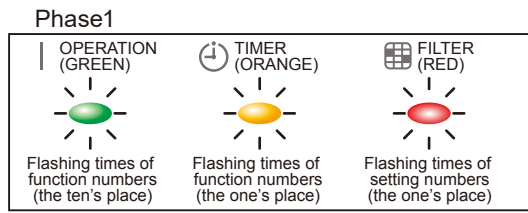
(Example) Function number : 30, Setting number : 01
0.5sec ON / 0.5sec OFF



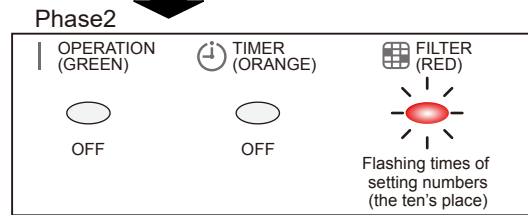
* Number 0 setting will not indicate TIMER LAMP and FILTER LAMP.

Case2 : When setting number is two digits.

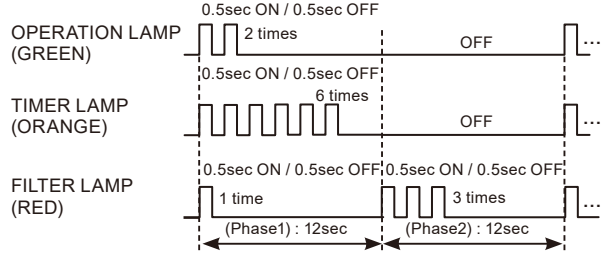
(11-2) Indoor unit will display the function setting number on "OPERATION"(GREEN), "TIMER⌚"(ORANGE) and "FILTER🧼"(RED) light.



The display of "Phase1" and "Phase2" is alternately repeated.



(Example) Function number : 26, Setting number : 31



* Number 0 setting will not indicate TIMER LAMP and FILTER LAMP.

● Confirmation of function setting

(12) Press the "TIMER set (+)" button.

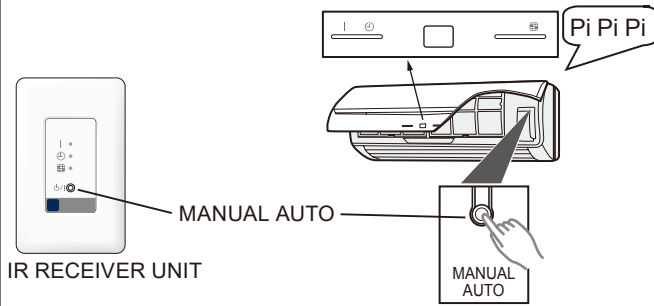
PiPi
 CORRECT : Pi — PiPiPiPiPi —
 PiPi
 WRONG: Pi — (3 sec)

■ FUNCTION DETAILS

Refer to 2-8. FUNCTION DETAILS.

■ COMPLETION OF FUNCTION SETTING MODE

(13) Press and hold the "MANUAL/AUTO I/O" button for 3 seconds.



* Each LED may be of a different brightness, but the content of the message does not change.

(14) Press the "RESET" button.

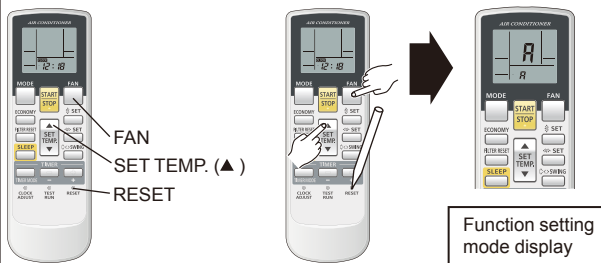


After pressing the RESET button, set the custom code again if b,c,d setting.

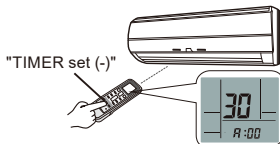
- * The function setting signal is not received after switched function setting completion mode. (Pi Pi Pi Pi Pi)
- * Press the "MANUAL/AUTO I/O" button again for 3 sec to return to if required to return the function setting mode.

■ RECONFIRMATION OF FUNCTION SETTING

(15) Press and hold the "FAN" and the "SET TEMP. ▲" buttons. Whilst holding these 2 buttons, press the "RESET" button.

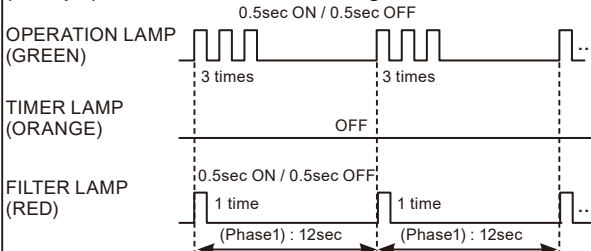


(16) Function number to be confirmed is displayed.
Refer to (7).
Press the "TIMER set (-)" button.



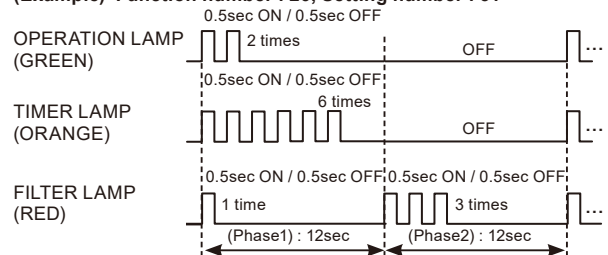
Case1 : When setting number is one digit.

(Example) Function number : 30, Setting number : 01

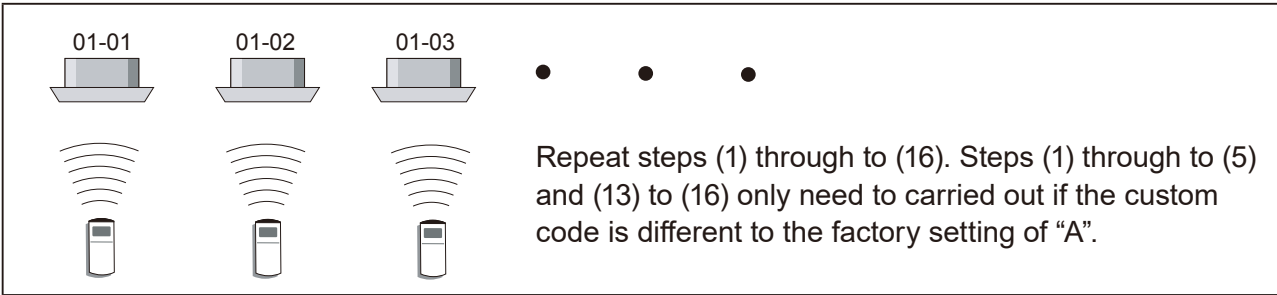


Case2 : When setting number is two digits.

(Example) Function number : 26, Setting number : 31



■ SETTING UP EACH INDOOR UNIT



Repeat steps (1) through to (16). Steps (1) through to (5) and (13) to (16) only need to be carried out if the custom code is different to the factory setting of "A".

■ RESET THE POWER AFTER SETTING UP FUNCTION OF ALL INDOOR UNITS

Important

- If the reset is not performed, function cannot be read in normally.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
- The set function is stored in the PCB and will remain in memory even when the power is turned off.
However, the address can be reset after power reset (if needed).
Record the function set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

* Number 0 setting will not indicate TIMER LAMP and FILTER LAMP.

* Once the "RESET" button is pressed on the remote controller, the OPERATION MODE will be set in the "AUTO MODE".

Adjust the OPERATION MODE to either "COOLING" or "HEATING" before trying to operate the air conditioner.

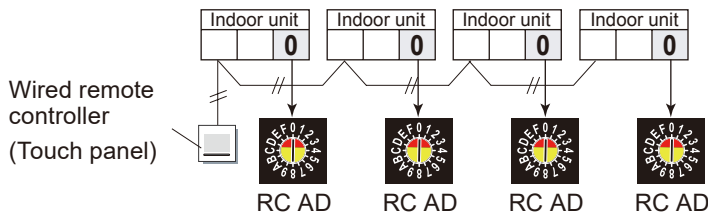
* **NOTE:** If CUSTOM CODE is set to anything other than "A", the remote control must be set accordingly to the INDOOR UNIT setting.

2-4. INDOOR UNIT (setting by wired remote controller [Touch panel])

- This procedure changes to the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the "FUNCTION SETTING" according to the installation conditions using the remote controller.
- The settings may be selected from the following: Function Number or Setting Number.
- Settings will not be changed if disable numbers or setting numbers are selected.
- This function cannot be used on the slave units.

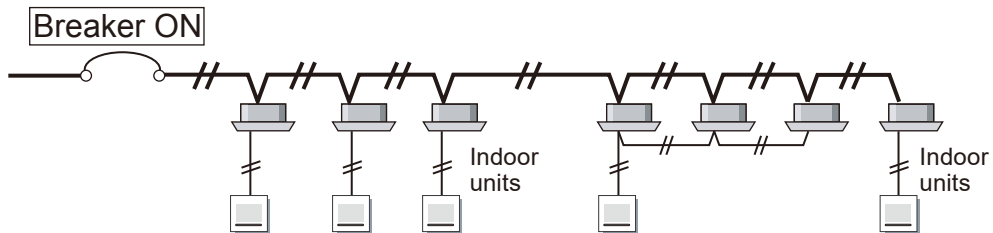
■ PREPARATION

- 1) When multiple indoor units are connected to a single wired remote controller.
When setting of Remote controller address in "Automatic address setting"



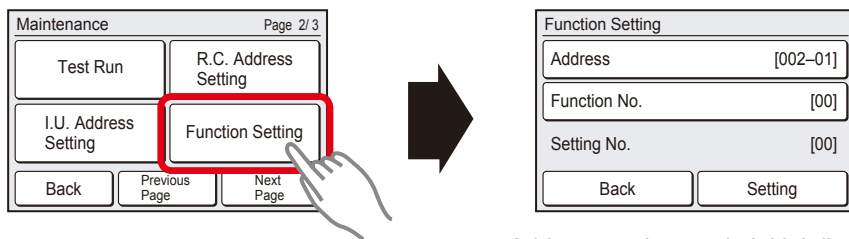
- 2) Turn on the power to the indoor unit.

- Turning on the power initializes (closes) the EEV; make sure all piping has been pressure tested and vacuum tested.
- Also check again to make sure no wiring mistakes were made before turning on the power.



■ SWITCHING SELECTION OF FUNCTION SETTING MODE

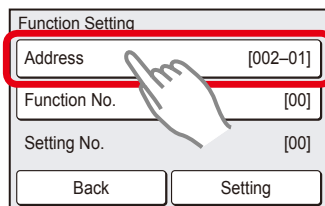
- 3) When the [Function Setting] on the “Maintenance” screen is touched, the “Installer Password Verification” screen is displayed. Enter the Installer Password, and touch the [OK]. “Function Setting” screen is displayed.



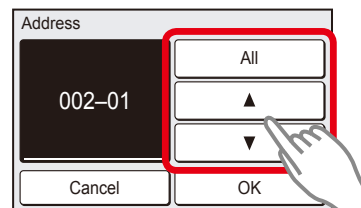
Address setting mode initial display

■ FUNCTION SETTING

- 4) Touch the [Address] on the “Function Setting” screen.

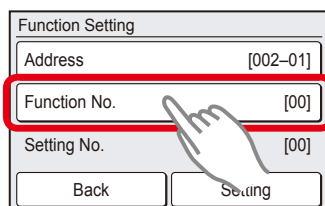


- 5) “Address” screen is displayed. Select the address of the indoor unit whose function number is to be set by touching [▲] or [▼]. When setting at all the indoor units, touch [All].

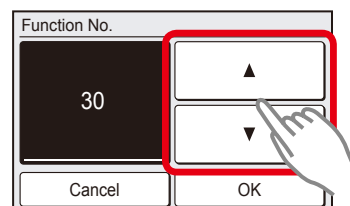


When the [OK] is touched, the display returns to the “Function Setting” screen.

- 6) Touch the [Function No.] on the “Function Setting” screen.

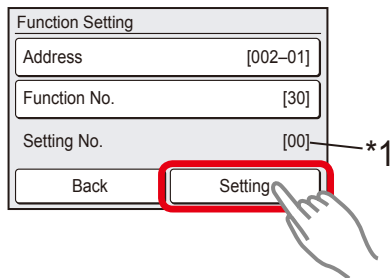


- 7) “Function No.” screen is displayed. Set the Function No. with the [▲] or [▼].



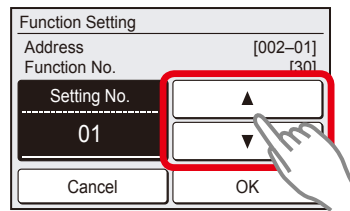
When the [OK] is touched, the display returns to the “Function Setting” screen.

8) Touch the [Setting] on the "Function Setting" screen.



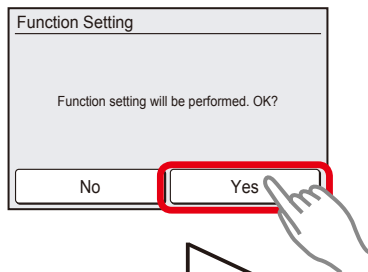
NOTE: *1 When All is chosen by 5), and different set up "Setting No." from two or more indoor units, [-] is displayed on "Setting No."

9) Setting screen of "Setting No." is displayed. Set the Setting No. with the [▲] or [▼].

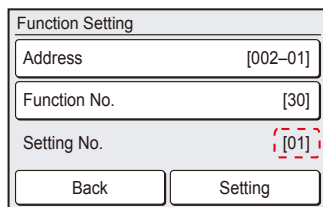


Ex.) Function number: 30, Setting number: 01
When the [OK] is touched, the "Function Setting" verification screen is displayed.

10) Touch the [YES] of the verification screen.

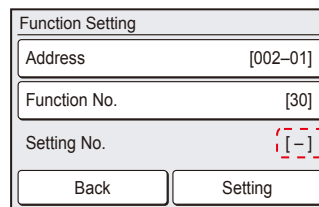


In case of OK



When the data was normally set up on the indoor unit

In case of ERROR



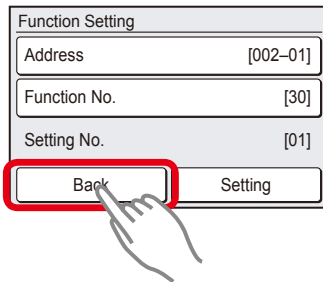
- When the data was not set up on the indoor unit ([-] is displayed.)
- Set up the data again according to the procedure in step 6) to 9) above

■ FUNCTION DETAILS

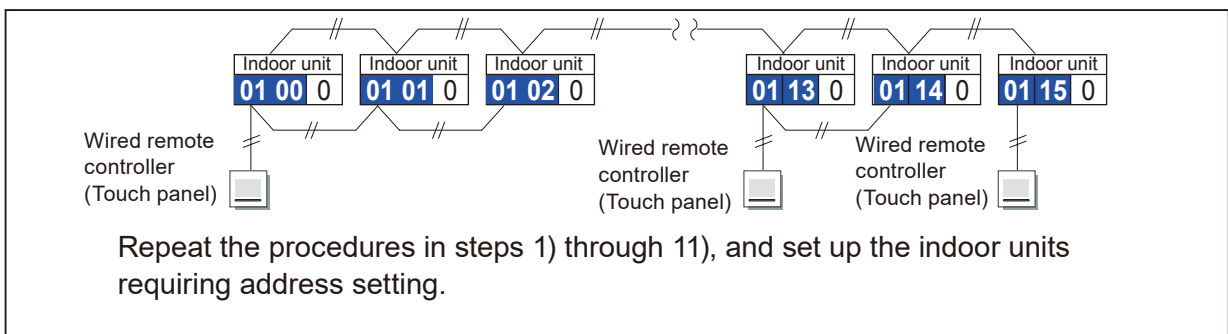
Refer to 2-8. FUNCTION DETAILS.

■ COMPLETION OF FUNCTION SETTING MODE

11) When the [Back] on the “Function Setting” screen is touched, the display returns to the “Maintenance” screen.



■ SETTING UP EACH INDOOR UNIT



■ RESET THE POWER AFTER SETTING UP ADDRESS OF ALL INDOOR UNITS

Important

- * If power is not reset, address will not read correctly.
- * After all the addresses have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
- * The set address is stored in the PCB and will remain in memory even when the power is turned off.
Address setting will only be effective after power has been reset.
Record the address set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

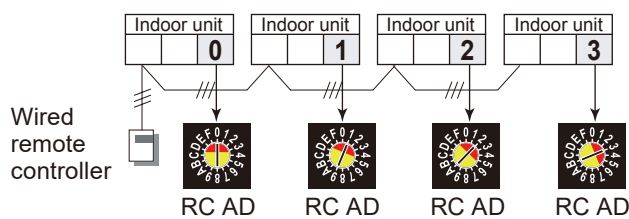
2-5. INDOOR UNIT (setting by wired remote controller)

- This procedure changes to the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the “FUNCTION SETTING” according to the installation conditions using the remote controller.
- The settings may be selected from the following: Function Number or Setting Number.
- Settings will not be changed if disable numbers or setting numbers are selected.
- This function cannot be used on the slave units.

■ PREPARATION

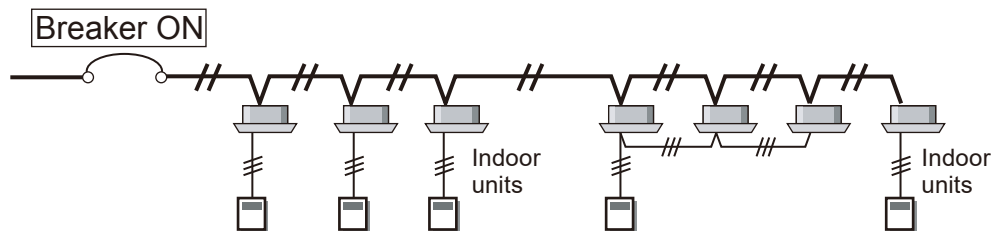
1) If multiple indoor units are connected to a single wired remote controller, make sure to manually set up the remote controller address (RC AD) on the PCBs of the indoor units. (Refer to 5-3.)

Ex.) When four indoor units are connected



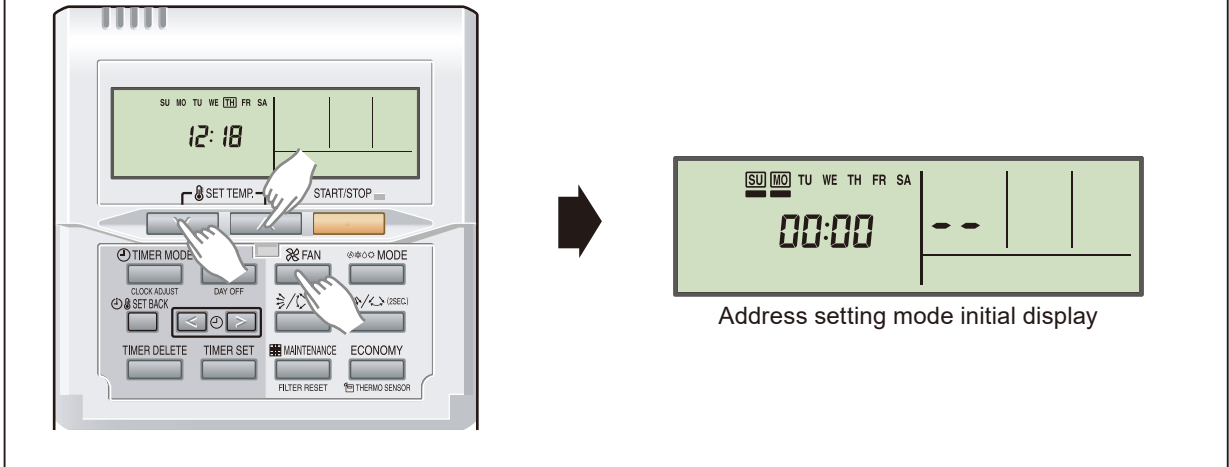
2) Turn on the power to the indoor unit.

- Turning on the power initializes (closes) the EEV; make sure all piping has been pressure tested and vacuum tested.
- Also check again to make sure no wiring mistakes were made before turning on the power.



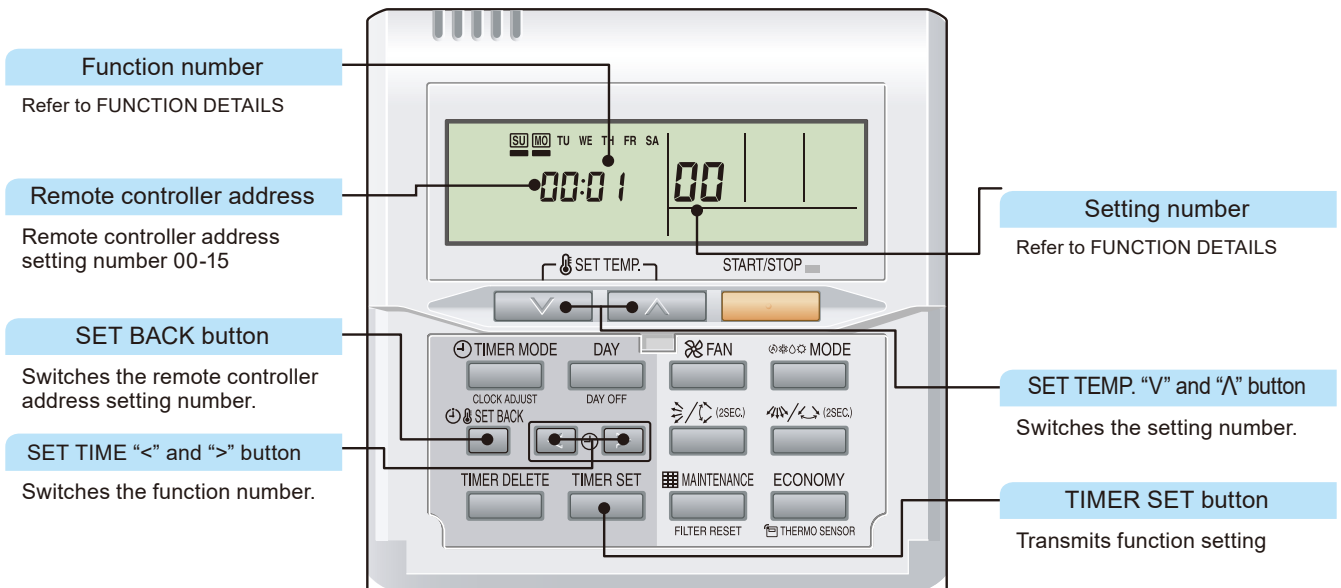
SWITCHING SELECTION OF FUNCTION SETTING MODE

- 3) To activate the function setting mode, hold down the three buttons of SET TEMP. V, SET TEMP. ^ and FAN at the same time for 5 seconds or longer.



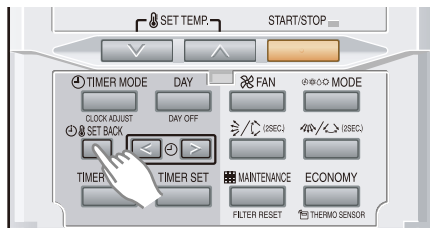
BUTTON NAME AND FUNCTION

- During address setting mode, indoor unit reject the any operation command from remote controller.

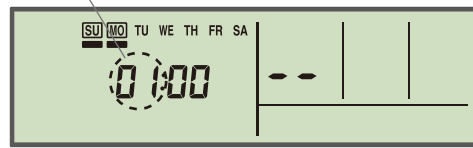


FUNCTION SETTING

4) Pressing the SET BACK button, select a remote controller address (select the indoor unit you want to operate)

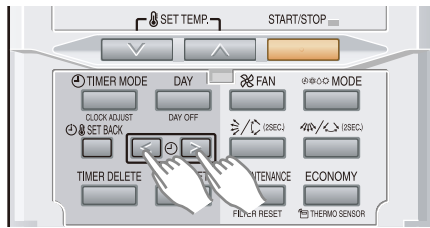


Remote controller address

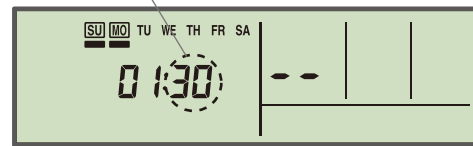


Ex.) When remote controller address "01" is selected

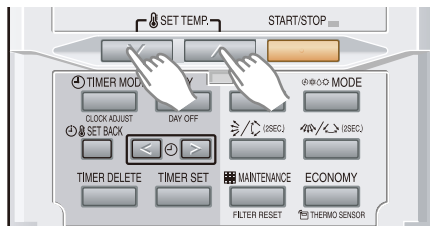
5) Pressing the SET TIME < button or the SET TIME > button, to select the function number.



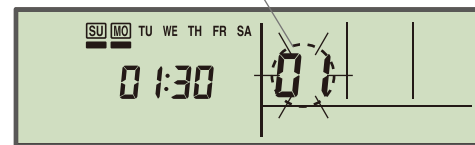
Function number



6) Pressing the SET TEMP. V button or the SET TEMP. ^ button, to select the setting number. The display flashes during setting number selection.

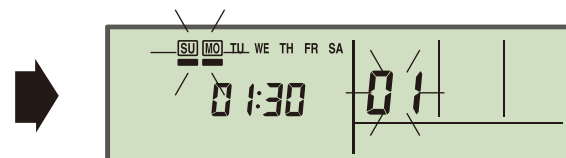
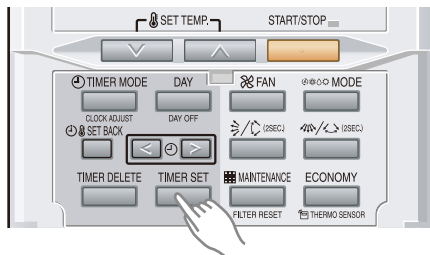


Setting number



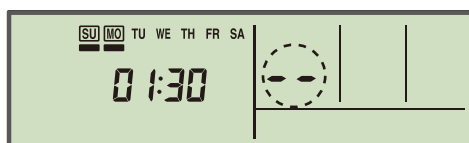
Ex.) Function number : 30, Setting number : 01

7) Pressing the TIMER SET button, confirm the setting.
(The data will be transferred to the indoor unit.)

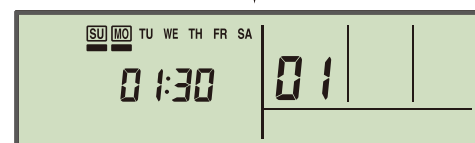


ERROR

GOOD



- When the data was not set up on the indoor unit (-- is displayed.)
- Set up the data again according to the procedure in step 5), 6) above.



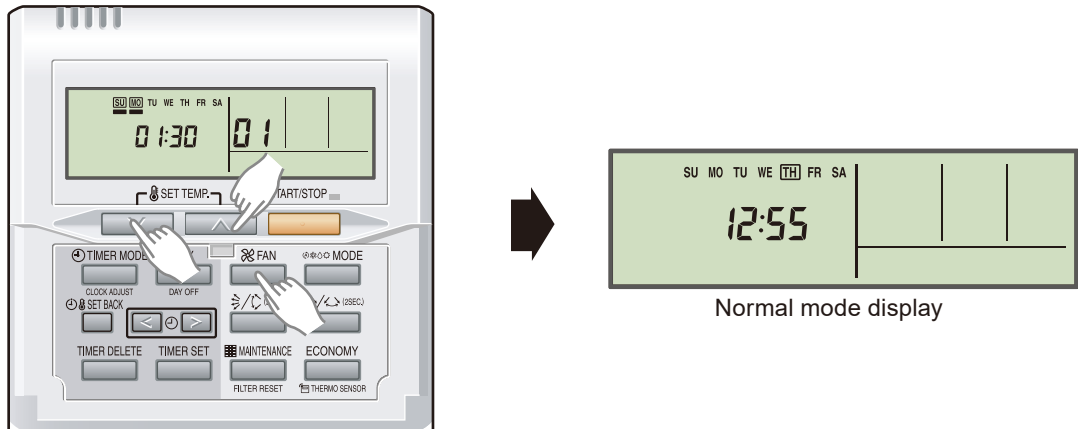
When the data was normally set up on the indoor unit
(Flashing display changes to illuminated display.)

FUNCTION DETAILS

Refer to 2-8. FUNCTION DETAILS.

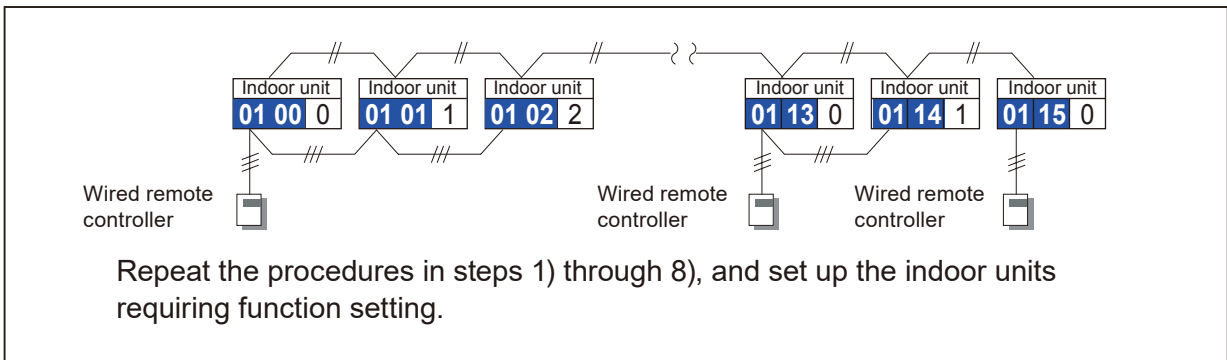
■ COMPLETION OF FUNCTION SETTING MODE

8) To clear the function setting mode and return to the regular display, hold down the three buttons of SET TEMP. V, SET TEMP. Λ and FAN at the same time.



* If no key entry is made for 60 seconds, even though none of the above buttons is pressed, the function setting mode will automatically be cleared.
(If the function setting mode is automatically cleared while setting addresses, activate the mode again according to the procedure in step 3) above.)

■ SETTING UP EACH INDOOR UNIT



■ RESET THE POWER AFTER SETTING UP FUNCTION OF ALL INDOOR UNITS

Important

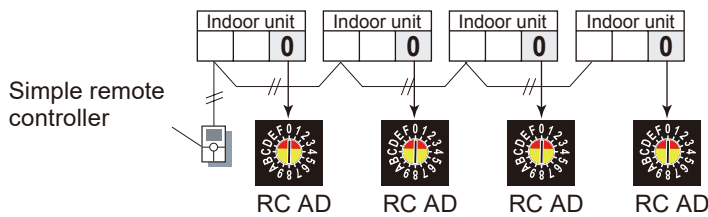
- * If the reset is not performed, function cannot be read in normally.
- * After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
- * The set function is stored in the PCB and will remain in memory even when the power is turned off.
However, the address can be reset after power reset (if needed).
Record the function set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

2-6. INDOOR UNIT (setting by UTY-RSRY, UTY-RHRY)

- This procedure changes to the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the "FUNCTION SETTING" according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function Number or Setting Number.
- Settings will not be changed if invalid numbers or setting numbers are selected.
- This function cannot be used on the slave units.

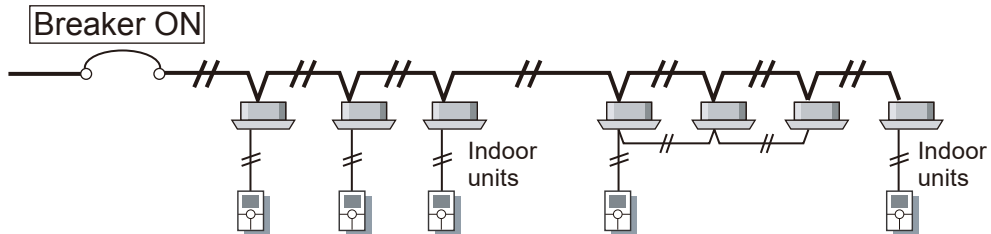
■ PREPARATION

- 1) When multiple indoor units are connected to a single wired remote controller.
When setting of Remote controller address in "Automatic address setting"



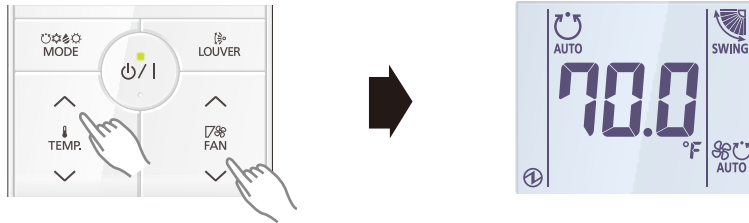
- 2) Turn on the power to the indoor unit.

- By turning on the power indoor units initializes EEV, so make sure the piping air-tight test and vacuuming have been conducted before turning on the power.
- Also check again to make sure no wiring mistakes were made before turning on the power.

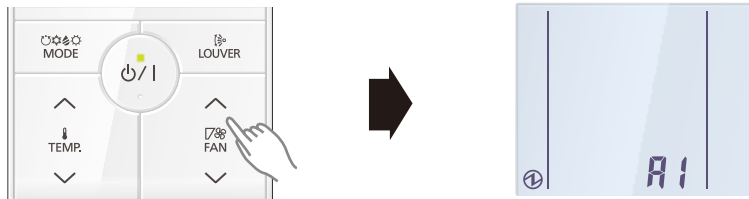


■ SWITCHING SELECTION OF ADDRESS SETTING MODE

- 3) With “Monitor Mode” screen displayed, press and hold the SET TEMP. “^” button and FAN “v” button simultaneously for at least 2 seconds.

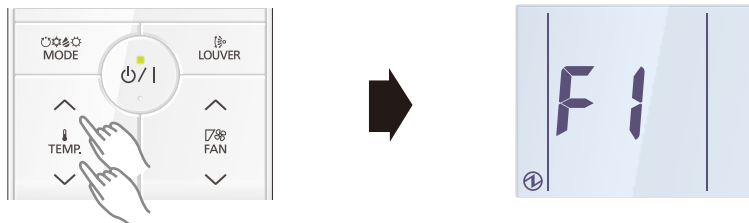


- 4) The Menu 1 screen is displayed. Press and hold the FAN “^” button for at least 2 seconds. Setting mode selection screen is displayed.

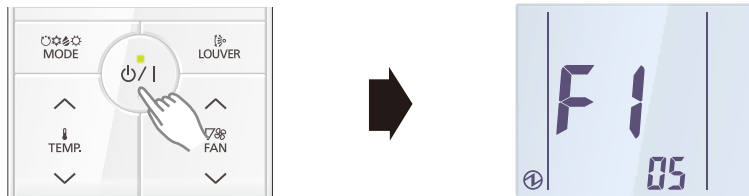


- 5) Press the SET TEMP. “^” or SET TEMP. “v” button to select F1 (Menu 2-F1) settings mode or F2 (Menu 2-F2) settings mode.

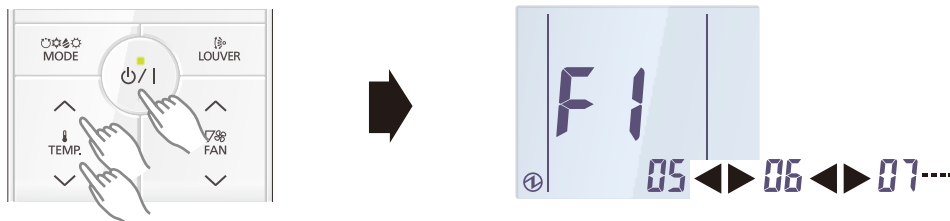
F1: Initial settings mode F2: Maintenance settings mode



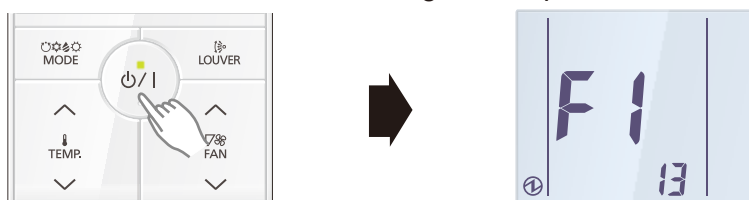
- 6) Press the “o/I” button. Setting item selection screen is displayed. (Item No. is displayed.)



- 7) Select the item number to be set with the SET TEMP. “^” or SET TEMP. “v” button, and press the “o/I” button to switch to the setting screen.



- 8) Select the “13” in Menu 2-F1 Settings. Then press the “o/I” button.

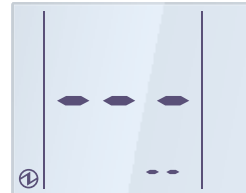
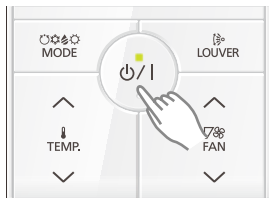


■ FUNCTION SETTING

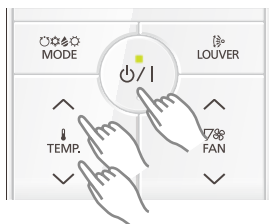
This procedure changes the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause the system to malfunction. Perform the "Function setting" according to the installation conditions using the remote controller.

- Prepare for setting of indoor unit referring to installation manual of indoor unit before start of function setting.
- Refer to the indoor unit installation manual for details on the function numbers and setting numbers.

9) Select the 2-wire remote controller address with the SET TEMP. "∧" or SET TEMP. "∨" button. Then press the "⏻/|" button.

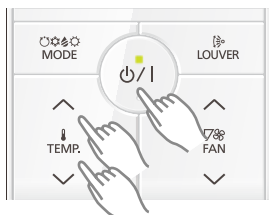


Select all



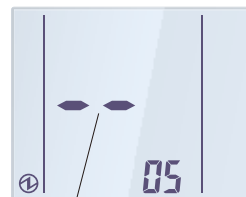
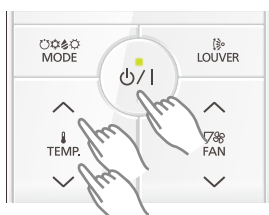
Select the 2-wire remote controller address (Ex. Select the 002-03)

10) Set the function number with the SET TEMP. "∧" or SET TEMP. "∨" button. Then press the "⏻/|" button.



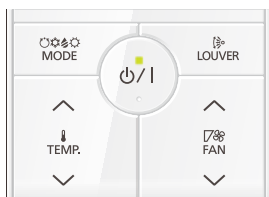
Function number

11) Set the setting number with the SET TEMP. "∧" or SET TEMP. "∨" button. Then press the "⏻/|" button.

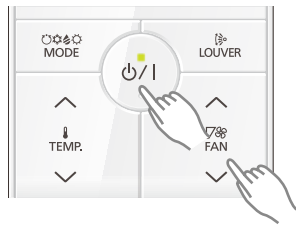


Setting number

12) Setting results are displayed after data transmission.



13) Press the “ $\text{P}/1$ ” button to return to the 2-wire remote controller address selection screen of (2). If setting has been completed, press the FAN “ \checkmark ” button to return to the Menu 2-F1 item selection screen.



NOTE:

- This item cannot be set from slave remote controllers.

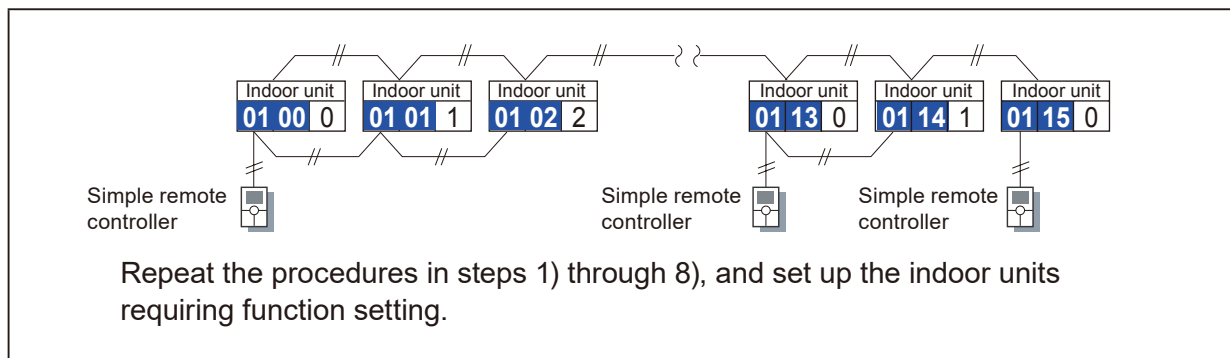
■ FUNCTION DETAILS

Refer to 2-8. FUNCTION DETAILS.

■ COMPLETION OF FUNCTION SETTING MODE

15) Press and hold the FAN “ \wedge ” button for at least 2 seconds to return to the Menu 1 item selection screen. Then, press and hold the SET TEMP. “ \wedge ” and FAN “ \checkmark ” button for at least 2 seconds at the same time to return to the “Monitor Mode” screen.

■ SETTING UP EACH INDOOR UNIT



■ RESET THE POWER AFTER SETTING UP FUNCTION OF ALL INDOOR UNITS

Important

- * If the reset is not performed, function cannot be read in normally.
- * After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
- * The set function is stored in the PCB and will remain in memory even when the power is turned off.
However setting function is effective after power reset.
Record the function set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

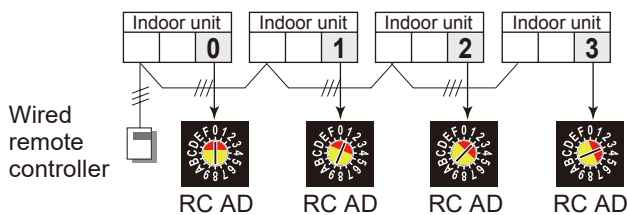
2-7. INDOOR UNIT (setting by UTY-RSKU, UTY-RHKU)

- This procedure changes to the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the “FUNCTION SETTING” according to the installation conditions using the remote controller.
- The settings may be selected from the following: Function Number or Setting Number.
- Settings will not be changed if disable numbers or setting numbers are selected.
- This function cannot be used on the slave units.

■ PREPARATION

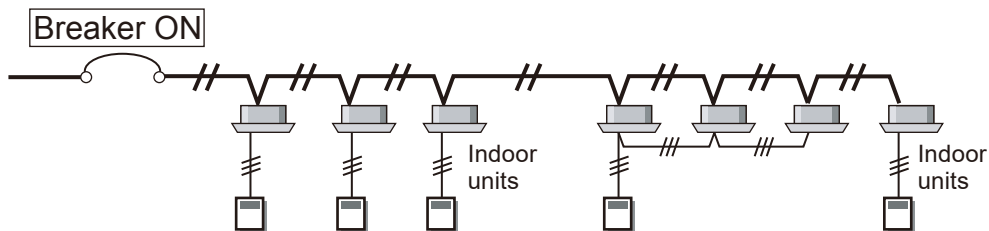
1) If multiple indoor units are connected to a single simple remote controller, make sure to manually set up the remote controller address (RC AD) on the PCBs of the indoor units. (Refer to 5-3.)

Ex.) When four indoor units are connected



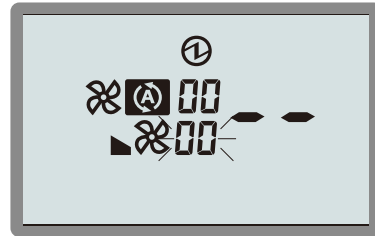
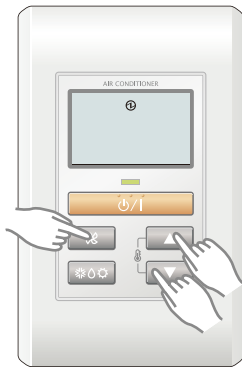
2) Turn on the power to the indoor unit.

- Turning on the power initializes (closes) the EEV; make sure all piping has been pressure tested and vacuum tested.
- Also check again to make sure no wiring mistakes were made before turning on the power.



SWITCHING SELECTION OF FUNCTION SETTING MODE

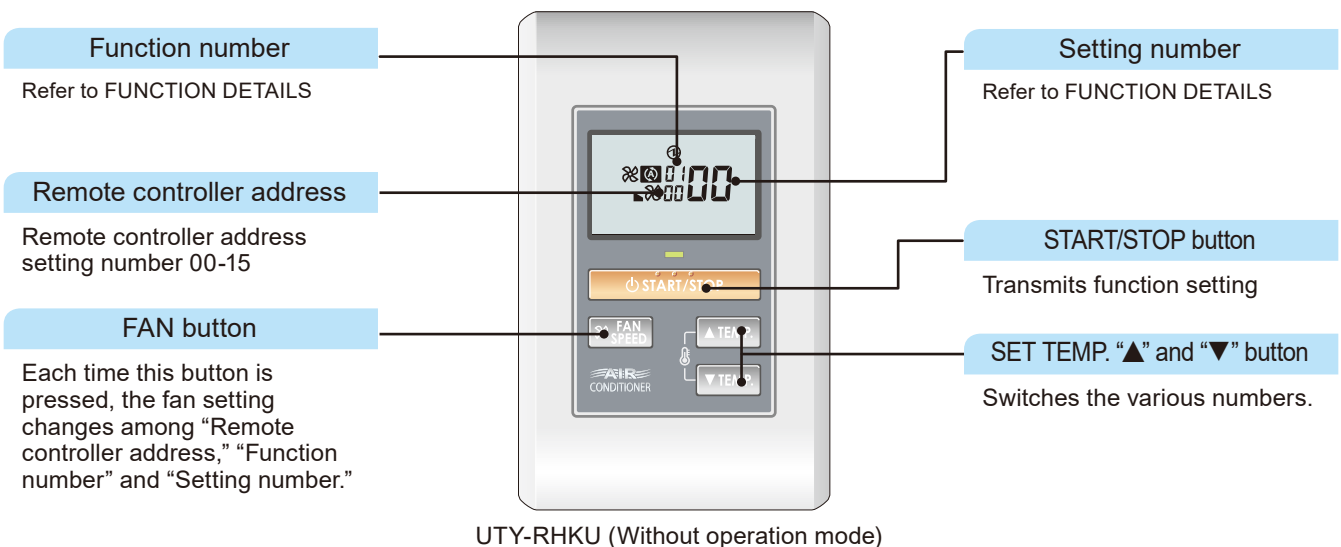
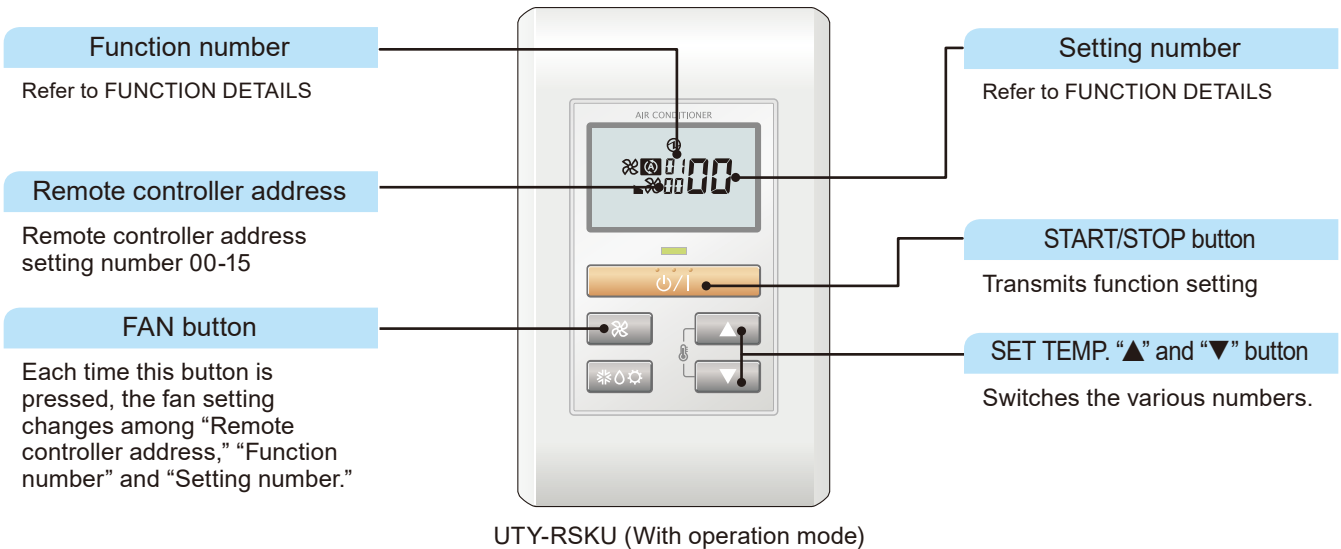
3) To activate the function setting mode, hold down the three buttons of SET TEMP. ▼, SET TEMP. ▲ and FAN at the same time for 5 seconds or longer.



Function setting mode initial display

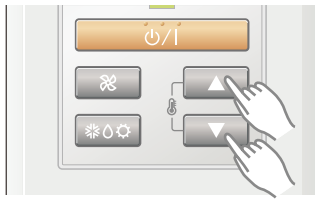
BUTTON NAME AND FUNCTION

• During function setting mode, indoor unit reject the any operation command from remote controller.

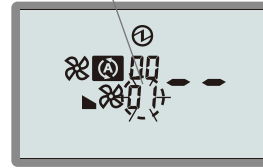


FUNCTION SETTING

- 4) Pressing the SET TEMP. ▲ button or SET TEMP. ▼ button, select a remote controller address (select the indoor unit you want to operate).

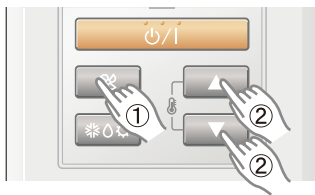


Remote controller address

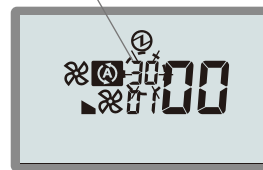


Ex.) When remote controller address "01" is selected

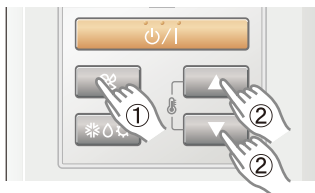
- 5) Press the FAN button so that the "Function number" display flashes. Then, press either the SET TEMP. ▲ button or the SET TEMP. ▼ button to set up the function number.



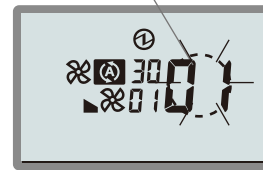
Function number



- 6) Press the FAN button so that the "Setting number" display flashes. Then, press either the SET TEMP. ▲ button or the SET TEMP. ▼ button to set up the setting number.

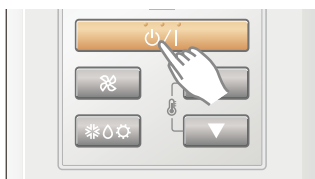


Setting number



Ex.) Function number : 30, Setting number : 01

- 7) Pressing the START/STOP button, confirm the setting.
(The data will be transferred to the indoor unit.)



ERROR

GOOD



- When the data was not set up on the indoor unit (-- is displayed.)
- Set up the data again according to the procedure in step 5), 6) above.

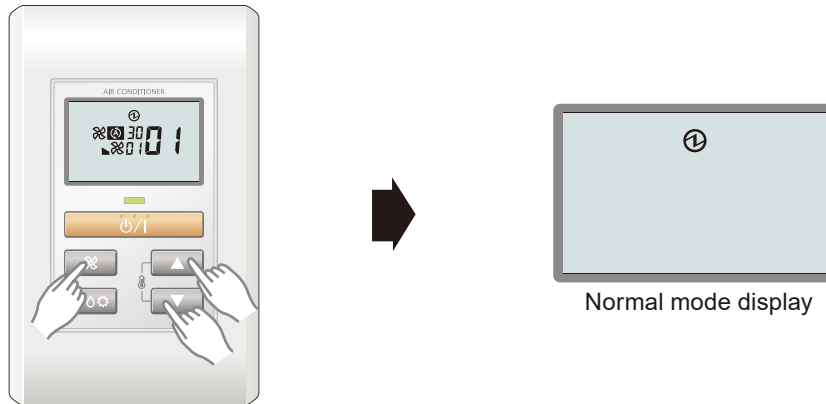
When the data was normally set up on the indoor unit.

FUNCTION DETAILS

Refer to 2-8. FUNCTION DETAILS.

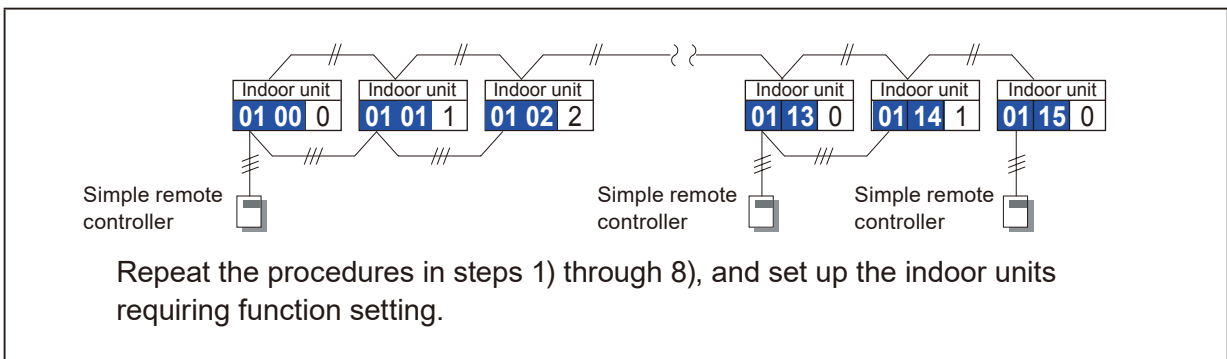
■ COMPLETION OF FUNCTION SETTING MODE

8) Press the three buttons of SET TEMP. ▲, SET TEMP. ▼ and FAN at the same time for 5 seconds or longer. The function setting mode will be cleared and the regular display will be restored.



* If no key entry is made for 60 seconds, even though none of the above buttons is pressed, the function setting mode will automatically be cleared.
(If the function setting mode is automatically cleared while setting addresses, activate the mode again according to the procedure in step 3) above.)

■ SETTING UP EACH INDOOR UNIT



■ RESET THE POWER AFTER SETTING UP FUNCTION OF ALL INDOOR UNITS

Important

- * If the reset is not performed, function cannot be read in normally.
- * After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
- * The set function is stored in the PCB and will remain in memory even when the power is turned off.
However, the address can be reset after power reset (if needed).
Record the function set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

2-8. FUNCTION DETAILS

Function	Function number	Setting number	Default	Details																												
Filter indicator interval	11	00	Default	● Adjusts the filter cleaning interval notification. If the notification is too early, change to setting 01. If the notification is too late, change to setting 02.																												
		01	Longer																													
		02	Shorter																													
Filter indicator action	13	00	Enable	● Enables or disables the filter indicator. Setting 02 is for use with a central remote control.																												
		01	Disable																													
		02	Display only on central remote control																													
Ceiling airflow	20	00	Default	● Regulates the airflow according to the needs of the installation location. When set to 01, the airflow will be stronger. (Cassette type only)																												
		01	High Ceiling																													
Vertical airflow direction	23	00	Default	● Adjusts the vertical airflow direction. All airflow direction louvers are adjusted together. (Cassette type only)																												
		01	Raise																													
Horizontal swing airflow direction	24	00	Default	● Adjusts the horizontal swing airflow direction. (For horizontal swing equipped models)																												
		01	Left half																													
		02	Right half																													
Static pressure	26	00	SP mode 00	<table border="1"> <thead> <tr> <th>Model name</th> <th>Range of static pressure mode</th> <th>Normal static pressure</th> </tr> </thead> <tbody> <tr> <td>ARUL4TLAV1</td> <td>SP mode 00 to 03</td> <td>0.04 in.WG (10 Pa)</td> </tr> <tr> <td>ARUL7TLAV</td> <td rowspan="5">SP mode 00 to 09</td> <td rowspan="5">0.10 in.WG (25 Pa)</td> </tr> <tr> <td>ARUL9TLAV</td> </tr> <tr> <td>ARUL12TLAV</td> </tr> <tr> <td>ARUL14TLAV</td> </tr> <tr> <td>ARUL18TLAV</td> </tr> <tr> <td>ARUM24TLAV</td> <td>SP mode 00 to 14</td> <td rowspan="2">0.16 in.WG (40 Pa)</td> </tr> <tr> <td>ARUM30TLAV</td> <td>SP mode 00 to 11</td> </tr> <tr> <td>ARUM36TLAV</td> <td>SP mode 00 to 09</td> <td rowspan="2">0.40 in.WG (100 Pa)</td> </tr> <tr> <td>ARUH36TLAV</td> <td>SP mode 02 to 16</td> </tr> <tr> <td>ARUH72TLAV1</td> <td>SP mode 05 to 30</td> <td rowspan="2">0.60 in.WG (150 Pa)</td> </tr> <tr> <td>ARUH96TLAV</td> <td>SP mode 05 to 29</td> </tr> </tbody> </table> <p>Refer to "7. FAN PERFORMANCE CURVE" in Chapter 4 for the characteristics of each indoor unit.</p>	Model name	Range of static pressure mode	Normal static pressure	ARUL4TLAV1	SP mode 00 to 03	0.04 in.WG (10 Pa)	ARUL7TLAV	SP mode 00 to 09	0.10 in.WG (25 Pa)	ARUL9TLAV	ARUL12TLAV	ARUL14TLAV	ARUL18TLAV	ARUM24TLAV	SP mode 00 to 14	0.16 in.WG (40 Pa)	ARUM30TLAV	SP mode 00 to 11	ARUM36TLAV	SP mode 00 to 09	0.40 in.WG (100 Pa)	ARUH36TLAV	SP mode 02 to 16	ARUH72TLAV1	SP mode 05 to 30	0.60 in.WG (150 Pa)	ARUH96TLAV	SP mode 05 to 29
		Model name	Range of static pressure mode		Normal static pressure																											
		ARUL4TLAV1	SP mode 00 to 03		0.04 in.WG (10 Pa)																											
		ARUL7TLAV	SP mode 00 to 09		0.10 in.WG (25 Pa)																											
		ARUL9TLAV																														
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		ARUH36TLAV	SP mode 02 to 16																													
		ARUH72TLAV1	SP mode 05 to 30		0.60 in.WG (150 Pa)																											
		ARUH96TLAV	SP mode 05 to 29																													
		01	SP mode 01																													
		02	SP mode 02																													
		03	SP mode 03																													
		04	SP mode 04																													
		05	SP mode 05																													
		06	SP mode 06																													
		07	SP mode 07																													
		08	SP mode 08																													
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26	SP mode 26																															
27	SP mode 27																															
28	SP mode 28																															
29	SP mode 29																															
30	SP mode 30																															
31	Normal SP	●																														
Cool air temperature trigger	30	00	Default	● Adjusts the cool air trigger temperature. To lower the trigger temperature, use setting 01. To raise the trigger temperature, use setting 02.																												
		01	Adjust (1)																													
		02	Adjust (2)																													
Heat air temperature trigger	31	00	Default	● Adjusts the heat air trigger temperature. To lower the trigger temperature by 6 degrees C, use setting 01. To lower the trigger temperature by 4 degrees C, use setting 02. To raise the trigger temperature, use setting 03.																												
		01	Adjust (1)																													
		02	Adjust (2)																													
		03	Adjust (3)																													

Function	Function number	Setting number	Default	Details	
*1 Auto restart	40	00	Enable	Enables or disables automatic system restart after a power outage.	
		01	Disable		●
Cool Air Prevention	43	00	Super low	Restrains the cold airflow with making the airflow lower when starting heating operation. To correspond to the ventilation, set to 01.	
		01	Follow the setting on the remote controller		●
External control	46	00	Start/Stop	Allows an external controller to start or stop the system, or to perform an emergency stop, or to perform a forced stop. * If an emergency stop is performed from an external controller, same refrigerant system will be disabled. *If forced stop is set,indoor unit stops by the input to the external input terminals,and Start/Stop by a remote controller is restricted.	
		01	Emergency stop		●
		02	Forced stop		
Error report target	47	00	All	Changes the target for reporting errors. Errors can either be reported in all locations, or only on the wired remote.	
		01	Display only on central remote control		●
Fan setting when cooling thermostat OFF	49	00	Follow the setting on the remote controller	When set 00, Indoor unit is continued operation based upon Central remote controller or individual controller set. Once indoor unit received signal from External controller, Indoor unit changed Fan mode forcibly. When set 01, Indoor unit is continued operation based upon Central remote controller or individual controller set. Once indoor unit received signal from External controller, Indoor unit stop forcibly. Connection of the wired remote controller (2-wire type or 3-wire type) and switching its thermistor are necessary.	
		01	Stop		●
*2 Switching functions for external inputs and external outputs terminals	60	00	Mode 0	Set this function when connected to external devices such as the VRF system ventilator, economizer, humidifier, etc. The connection terminal functions can be changed depending on the type of external device. For details of the connection terminal functions, refer to Chapter 8. 1-2. INDOOR UNIT.	
		01	Mode 1		●
		02	Mode 2		
		03	Mode 3		
		04	Mode 4		
		05	Mode 5		
		06	Mode 6		
		07	Mode 7		
		08	Mode 8		

*1 : Auto restart is an emergency function such as for power failure etc.
Do not start and stop the indoor unit by this function in normal operation.
Be sure to operate by the control unit, converter or external input device.

*2 : Inappropriate setting may cause an external device malfunction. Confirm whether all the settings have been performed appropriately according to the installing condition.

Function	Function number	Setting number	Default	Details
Control switching of external heaters	61	00	Auxiliary heater control 1 ●	Sets the control method for the external heater being used. For details of the control method, refer Chapter 8. 1-2-2. EXTERNAL OUTPUT (heater: external heater, heat pump: VRF outdoor unit).
		01	Auxiliary heater control 2	
		02	Heat pump prohibition control	
		03	Auxiliary heater control by outdoor temperature 1	
		04	Auxiliary heater control by outdoor temperature 2	
		05	Auxiliary heater control by outdoor temperature 3	
		06	Auxiliary heat pump control	
		07	Auxiliary heat pump control by outdoor temperature 1	
		08	Auxiliary heat pump control by outdoor temperature 2	
		09	Auxiliary heat pump control by outdoor temperature 3	
Operating temperature switching of external heaters	62	00	Setting 0 ●	Sets the temperature conditions when the external heater is ON. For the temperature conditions, see "Temperature conditions when the external heater is ON".
		01	Setting 1	
		02	Setting 2	
		03	Setting 3	
		04	Setting 4	
		05	Setting 5	
		06	Setting 6	
		07	Setting 7	
		08	Setting 8	
		09	Setting 9	
		10	Setting 10	
		11	Setting 11	
		12	Setting 12	
		13	Setting 13	
		14	Setting 14	
		15	Setting 15	
		16	Setting 16	
17	Setting 17			
Auto mode type*	68	00	Single setpoint auto mode (traditional) ●	Switches the setting method of auto mode to single or dual (cooling/heating). For heat pump systems, it is necessary to set the master indoor unit (by wired remote controller).
		01	Dual setpoint auto mode	

*: Function number 68 and 69 will be usable provided that the corresponding operating device is connected.

Function	Function number	Setting number	Default	Details	
*1 Deadband value	69	00	0°C	●	Choose the minimum temperature between cooling and heating settings (deadband) for Dual setpoint auto mode (set in No. 68).
		01	0.5°C		
		02	1.0°C		
		03	1.5°C		
		04	2.0°C		
		05	2.5°C		
		06	3.0°C		
		07	3.5°C		
		08	4.0°C		
		09	4.5°C		
Standby time for auxiliary equipment operation	71	00	Disable	●	Sets the standby time until the auxiliary equipment operation starts during primary equipment operation. For details, refer Chapter 8. 1-2-2. EXTERNAL OUTPUT.
		01	1 minute		
		02	2 minutes		
		▪	▪	▪	
		▪	▪	▪	
		▪	▪	▪	
		98	98 minutes		
		99	99 minutes		
Emergency heat	73	00	Disable	●	Enables or disable of emergency heat input
		01	Enable		
Fan delay time	74	00	1 minute	●	Sets the fan delay time when the heater is turned off.
		01	50 seconds		
		02	40 seconds		
		03	30 seconds		
*2 External heater use in defrosting	75	00	Disable	●	Enables or disables the external heater use in defrosting.
		01	Enable		

*1: Function number 68 and 69 will be usable provided that the corresponding operating device is connected.

*2: When using function number 75, inappropriate heater selection may cause cold air in defrosting.

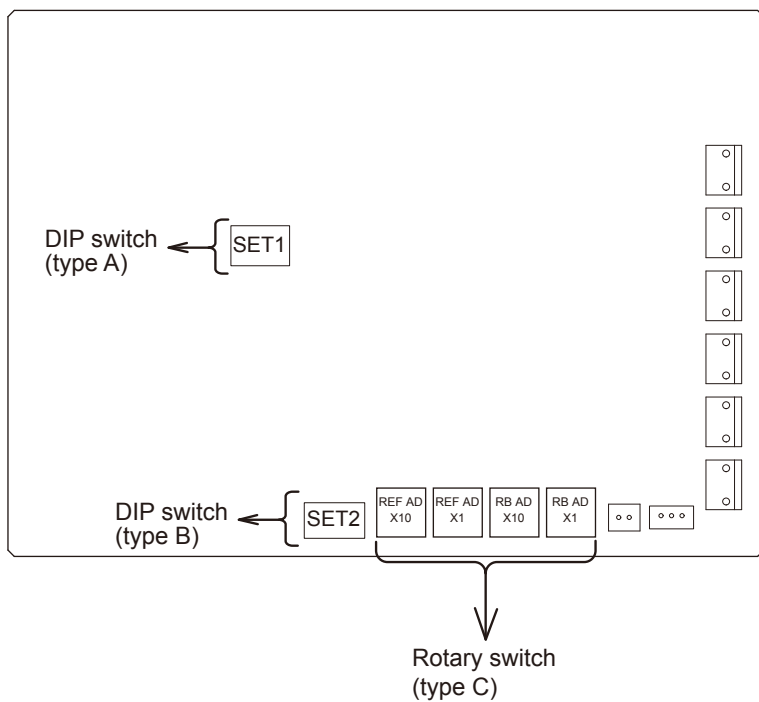
● **Temperature conditions when the external heater is ON/OFF**

Temperature (t) = Room temperature - set temperature

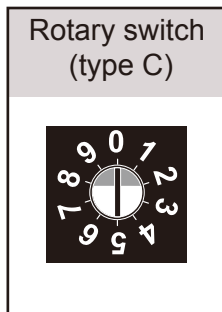
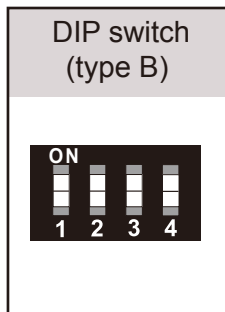
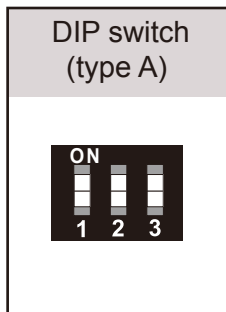
		Set value of function: 61			
		00		01 to 09	
		ON	OFF	ON	OFF
Set value of function: 62	00	$t < -5.4^{\circ}\text{F} (-3^{\circ}\text{C})$	$t \geq -1.8^{\circ}\text{F} (-1^{\circ}\text{C})$	$t \leq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$	$t \geq 0.9^{\circ}\text{F} (+0.5^{\circ}\text{C})$
	01	$t < -3.6^{\circ}\text{F} (-2^{\circ}\text{C})$	$t \geq -1.8^{\circ}\text{F} (-1^{\circ}\text{C})$	$t \leq -1.8^{\circ}\text{F} (-1^{\circ}\text{C})$	$t \geq 0.9^{\circ}\text{F} (+0.5^{\circ}\text{C})$
	02	$t < -3.6^{\circ}\text{F} (-2^{\circ}\text{C})$	$t \geq -1.8^{\circ}\text{F} (-1^{\circ}\text{C})$	$t \leq -3.6^{\circ}\text{F} (-2^{\circ}\text{C})$	$t \geq 0.9^{\circ}\text{F} (+0.5^{\circ}\text{C})$
	03	$t < -5.4^{\circ}\text{F} (-3^{\circ}\text{C})$	$t \geq -1.8^{\circ}\text{F} (-1^{\circ}\text{C})$	$t \leq -5.4^{\circ}\text{F} (-3^{\circ}\text{C})$	$t \geq 0.9^{\circ}\text{F} (+0.5^{\circ}\text{C})$
	04	$t < -7.2^{\circ}\text{F} (-4^{\circ}\text{C})$	$t \geq -1.8^{\circ}\text{F} (-1^{\circ}\text{C})$	$t \leq -7.2^{\circ}\text{F} (-4^{\circ}\text{C})$	$t \geq 0.9^{\circ}\text{F} (+0.5^{\circ}\text{C})$
	05	$t < -9.0^{\circ}\text{F} (-5^{\circ}\text{C})$	$t \geq -1.8^{\circ}\text{F} (-1^{\circ}\text{C})$	$t < -9.0^{\circ}\text{F} (-5^{\circ}\text{C})$	$t \geq 0.9^{\circ}\text{F} (+0.5^{\circ}\text{C})$
	06	$t < -5.4^{\circ}\text{F} (-3^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$	$t \leq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$
	07	$t < -3.6^{\circ}\text{F} (-2^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$	$t \leq -1.8^{\circ}\text{F} (-1^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$
	08	$t < -3.6^{\circ}\text{F} (-2^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$	$t \leq -3.6^{\circ}\text{F} (-2^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$
	09	$t < -5.4^{\circ}\text{F} (-3^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$	$t \leq -5.4^{\circ}\text{F} (-3^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$
	10	$t < -7.2^{\circ}\text{F} (-4^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$	$t \leq -7.2^{\circ}\text{F} (-4^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$
	11	$t < -9.0^{\circ}\text{F} (-5^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$	$t < -9.0^{\circ}\text{F} (-5^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$
	12	$t < -5.4^{\circ}\text{F} (-3^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$	$t \leq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$
	13	$t < -3.6^{\circ}\text{F} (-2^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$	$t \leq -1.8^{\circ}\text{F} (-1^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$
	14	$t < -3.6^{\circ}\text{F} (-2^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$	$t \leq -3.6^{\circ}\text{F} (-2^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$
	15	$t < -5.4^{\circ}\text{F} (-3^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$	$t \leq -5.4^{\circ}\text{F} (-3^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$
	16	$t < -7.2^{\circ}\text{F} (-4^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$	$t \leq -7.2^{\circ}\text{F} (-4^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$
17	$t < -9.0^{\circ}\text{F} (-5^{\circ}\text{C})$	$t \geq 0^{\circ}\text{F} (0^{\circ}\text{C})$	$t < -9.0^{\circ}\text{F} (-5^{\circ}\text{C})$	$t \geq -0.9^{\circ}\text{F} (-0.5^{\circ}\text{C})$	

2-9. RB UNIT

■ SWITCH POSITION



■ SWITCH TYPE



■ SWITCH TABLE

DIP-SW	type A	SET1	1	Prohibited
			2	Prohibited
			3	Prohibited
	type B	SET2	1	Operation mode selecting switch 1
			2	Operation mode selecting switch 2
			3	Cool/heat selection control time switch 1
			4	Cool/heat selection control time switch 2
	Rotary SW	type C	RB AD x 1	RB unit address switch 1
RB AD x 10			RB unit address switch 2	
REF AD x1			Refrigerant circuit address switch 1	
REF AD x10			Refrigerant circuit address switch 2	

■ DIP SWITCH SETTING

● SET1 setting

● SET1-1, SET1-2, SET1-3 setting prohibited

(◆...Factory setting)

	SET1-1	SET1-2	SET1-3	
◆	OFF	OFF	OFF	Fixed at OFF
	ON	ON	ON	Setting prohibited

● SET2 setting

● Operation mode selecting switch

(◆...Factory setting)

	SET2-1	SET2-2	Description	Remarks
◆	OFF	OFF	Priority given to the first command	Priority is given to the operation mode which is set first.
	ON	OFF	Priority given to external input of RB unit	Priority is given to the operation mode which is set by the external input terminal (CNA01 or CNA02).
	OFF	ON	Priority given to administrative indoor unit	Priority is given to the operation mode of the administrative indoor unit which is set by the wired remote controller
	ON	ON	Setting prohibited	

● **Cool/heat selection control time setting**

Setting to reduce the time to switch between heating and cooling mode at the RB unit.
When the switching time is short, refrigerant noise may be heard when switching between modes.

Always locate the RB unit in a space that will not be affected by refrigerant noise.

(◆...Factory setting)

SET2-3	SET2-4	Cool/heat selection control time
◆ OFF	OFF	6 min.
ON	OFF	3 min.
OFF	ON	Setting prohibited
ON	ON	Setting prohibited

■ **ROTARY SWITCH SETTING**

● **RB AD setting**

● **RB unit address switch**

Sets the RB unit addresses.

Refer to "1-3. MANUAL ADDRESS SETTING METHOD" for RB unit address conversion table.

RB UNIT ADDRESS SWITCH (Factory setting RB AD x 1: 0, RB AD x 10: 0)

Rotary SW	Description	Remarks
RB AD x 1	RB unit address Switch 1	RB unit address (the first digit)
RB AD x 10	RB unit address Switch 2	RB unit address (the second digit)

● **REF AD setting**

● **Refrigerant circuit address switch**

Sets the refrigerant circuit address.

Refer to "1-3. MANUAL ADDRESS SETTING METHOD" for refrigerant circuit address conversion table.

REFRIGERANT CIRCUIT ADDRESS SWITCH (Factory setting REF AD x 1: 0, REF AD x 10: 0)

Rotary SW	Description	Remarks
REF AD x 1	Refrigerant circuit address Switch 1	Refrigerant circuit address (the first digit)
REF AD x 10	Refrigerant circuit address Switch 2	Refrigerant circuit address (the second digit)

2-10. WIRED REMOTE CONTROLLER (UTY-RNKU)

DIP Switch 1	SW1	Prohibited
	SW2	Dual remote controller setting
	SW3	Prohibited
	SW4	Fahrenheit (°F) / Celsius (°C) setting
	SW5	Prohibited
	SW6	Memory backup setting

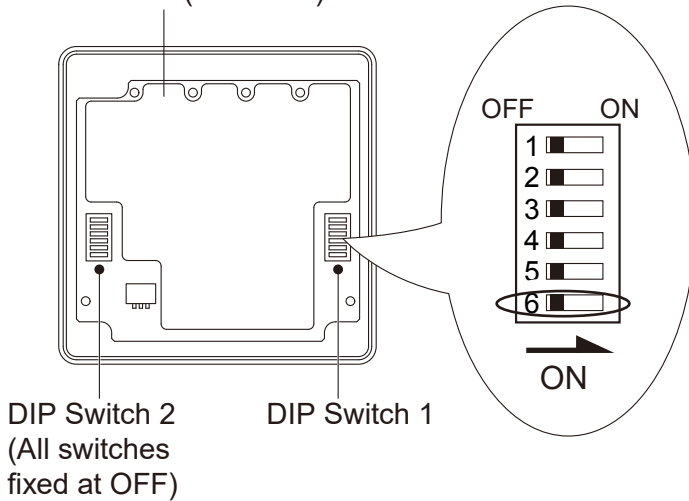
* Do not use DIP Switch 2

SWITCH POSITION

Wired remote controller

Model : UTY-RNK*

Front case (back side)



DIP SWITCH 1 SETTING

SW1 setting prohibited

(◆...Factory setting)

◆	SW1	
	OFF	Fixed at OFF
	ON	Setting prohibited

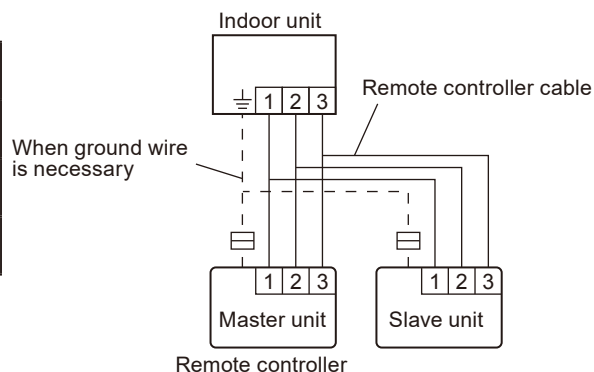
● SW2 setting

● Dual remote controller setting

Set the remote controller SW2 according to the following table.

(◆...Factory setting)

Number of remote controller	Master unit	Slave unit
	SW2	SW2
◆ 1 (Normal)	OFF	-
2 (Dual)	OFF	ON



● SW3 setting prohibited

(◆...Factory setting)

SW3	
◆ OFF	Fixed at OFF
ON	Setting prohibited

● SW4 setting

● Fahrenheit (°F) / Celsius (°C) setting

SW4	
*1 OFF	Celsius (°C)
*2 ON	Fahrenheit (°F)

*1: Factory setting at UTY-RNKY

*2: Factory setting at UTY-RNKU

● SW5 setting prohibited

(◆...Factory setting)

SW5	
◆ OFF	Fixed at OFF
ON	Setting prohibited

● SW6 setting

● Memory backup setting (Wired remote controller only)

Set to ON to use batteries for the memory backup.

If batteries are not used, all of settings stored in memory will be delete if there is a power failure.

(◆...Factory setting)

SW6	Memory backup
◆ OFF	Disable
ON	Enable

Never turn it ON in the case of simple remote controller.

2-11. SIMPLE REMOTE CONTROLLER

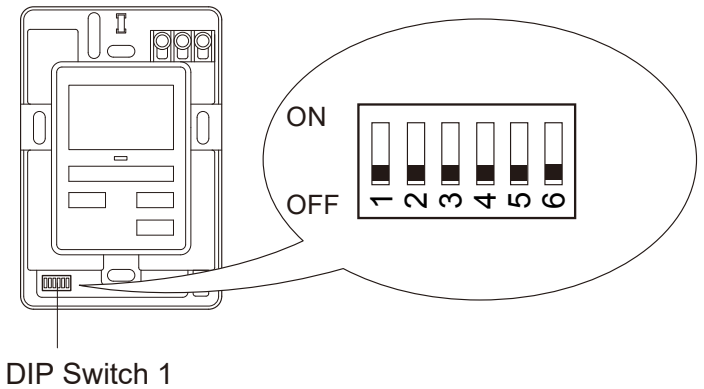
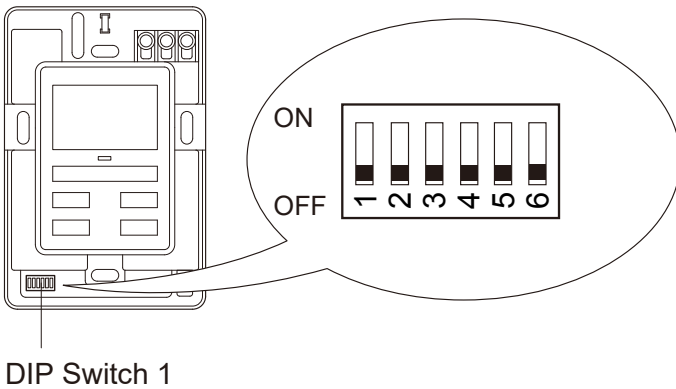
DIP Switch 1	SW1	Prohibited
	SW2	Dual remote controller setting
	SW3	°F / °C setting
	SW4	Prohibited
	SW5	Prohibited
	SW6	Prohibited

■ SWITCH POSITION

● Simple remote controller

Model : UTY-RSKU

Model : UTY-RHKU



■ DIP SWITCH 1 SETTING

● SW1 setting prohibited

(◆...Factory setting)

◆	SW1	
	OFF	Fixed at OFF
	ON	Setting prohibited

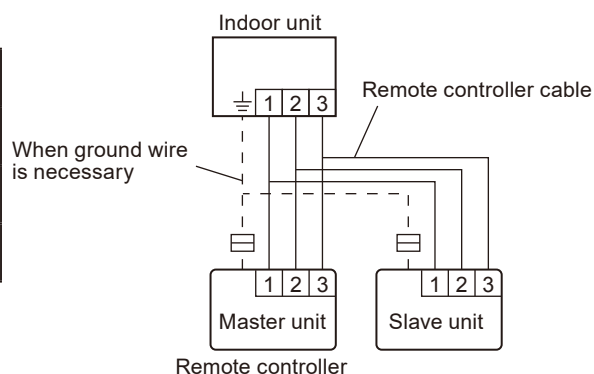
● **SW2 setting**

● **Dual remote controller setting**

Set the remote controller SW2 according to the following table.

(◆...Factory setting)

Number of remote controller	Master unit	Slave unit
	SW2	SW2
◆ 1 (Normal)	OFF	-
2 (Dual)	OFF	ON



● **SW3 setting**

● **°F / °C setting**

	SW3	
*1	OFF	°C
*2	ON	°F

*1: Factory setting at UTY-RSKY, UTY-RHKY

*2: Factory setting at UTY-RSKU, UTY-RHKU

● **SW4 setting prohibited**

(◆...Factory setting)

	SW4	
◆	OFF	Fixed at OFF
	ON	Setting prohibited

● **SW5 setting prohibited**

(◆...Factory setting)

	SW5	
◆	OFF	Fixed at OFF
	ON	Setting prohibited

● **SW6 setting prohibited**

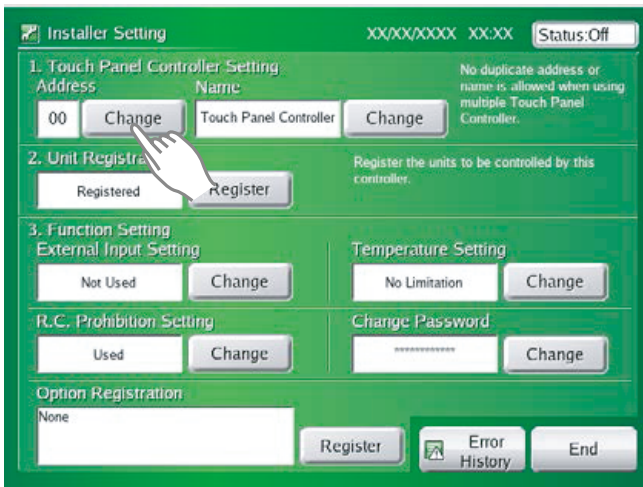
(◆...Factory setting)

	SW6	
◆	OFF	Fixed at OFF
	ON	Setting prohibited

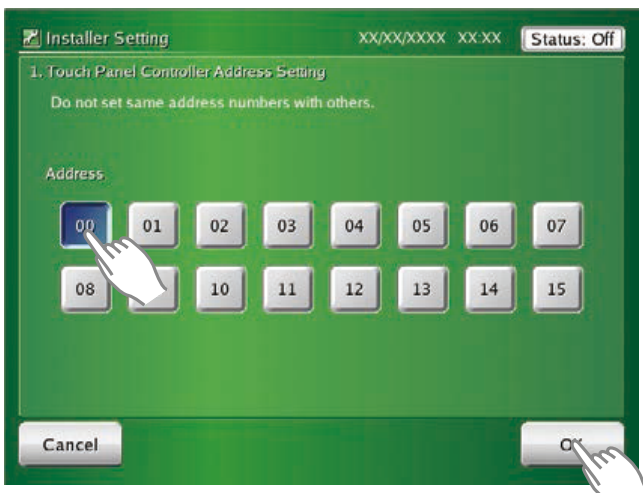
2-12. TOUCH PANEL CONTROLLER

■ ADDRESS SETTING

- Display the Installer Setting screen and press "Change" button of "1. Touch panel controller address setting".



- Select "Address" from 00 to 15 on the screen and click the button. At the end of setting, click "OK" button.



NOTES:

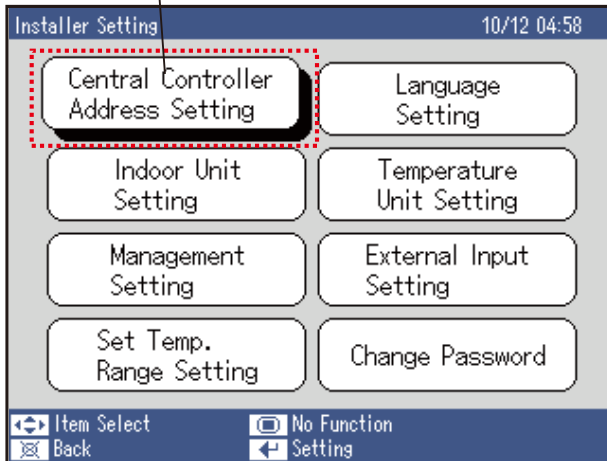
- Address No. can be set between "00" and "15". (Up to maximum 16 Touch Panel Controller can be installed to 1 system).
- When installing two or more Touch Panel Controller, set up so that Address No. does not overlap.
- Refer to the OPERATING MANUAL of Touch Panel Controller for details.
- Keep Address No. of Touch Panel Controller from overlapping the controller (Central remote controller, Network convertor for LONWORKS® and Modbus® convertor connected to the same VRF Network system)

2-13. CENTRAL REMOTE CONTROLLER

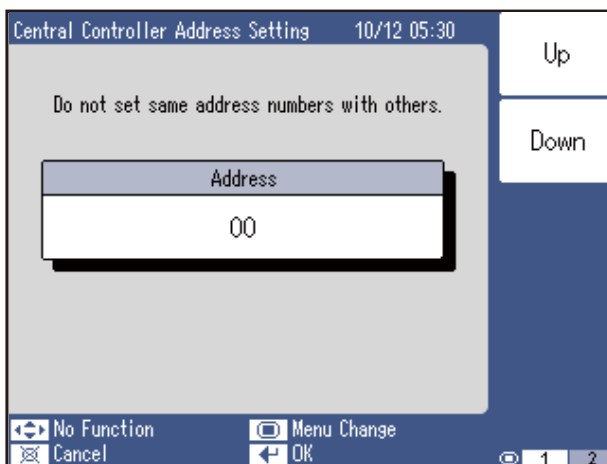
■ ADDRESS SETTING

- Display the Installer Setting screen and Press the [↔] button and move the cursor to "Central Controller Address Setting".
- Press the [←] button.

Central remote controller address setting



- Press the [UP] button or [Down] button.
- Set the Address value.
The Address value can be set from 00 to 15.
- When the [←] button is pressed, setting is complete.



NOTES:

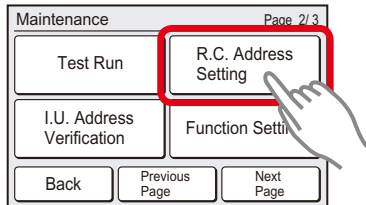
- Address No. can be set between "00" and "15". (Up to maximum 16 Central Remote Controller can be installed to 1 system).
- When installing two or more Central Remote Controller, set up so that Address No. does not overlap.
- Refer to the OPERATING MANUAL of Central Remote Controller for details.
- Keep Address No. of Central Remote Controller from overlapping the controller (Touch Panel Controller and Network Converter for LonWORKS®) connected to the same VRF Network system

2-14. WIRED REMOTE CONTROLLER (Touch panel)

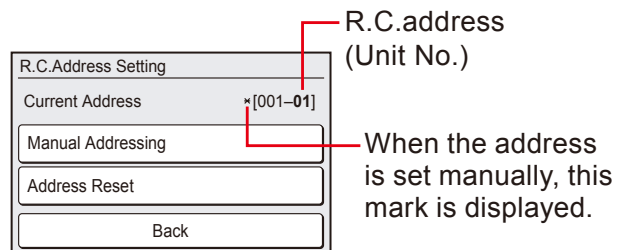
2-14-1. REMOTE CONTROLLER ADDRESS SETTING

■ CONFIRM THE REMOTE CONTROLLER ADDRESS

1) When the [RC Address Setting] on the "Maintenance" screen is touched, the "Installer Password Verification" screen is displayed.



2) Enter the Installer Password, and touch the [OK]. "R.C.Address Setting" screen is displayed. The address of this unit is displayed on the "R.C.Address Setting" screen.



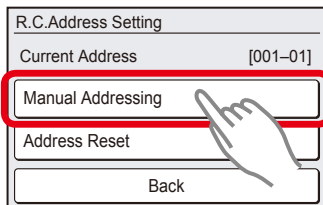
When the [Back] is touched, the display returns to the "Maintenance" screen.

NOTE:

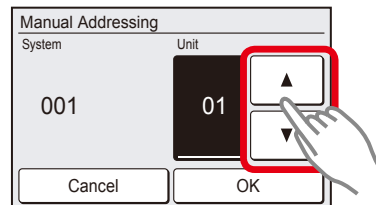
The address of this unit is set automatically. Do not change the indoor unit remote controller address from the factory setting "0". (Verify that the address is "0".)

■ IF MANUALLY SETTING THE REMOTE CONTROLLER ADDRESS

1) Touch the [Manual Addressing] on the "R.C.Address Setting" screen.

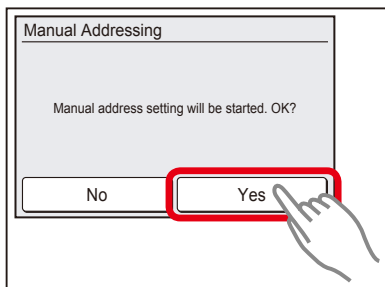


2) "Manual Addressing" screen is displayed. Set the address with [▲] or [▼].

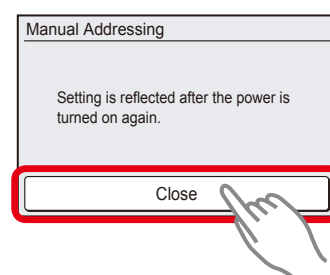


When the [OK] is touched, a verification screen is displayed.

3) When the [Yes] on the verification screen is touched, a message screen is displayed.



4) When the [Close] on the message screen is touched, the display returns to the "R.C.Address Setting" screen. Turn on the power again.

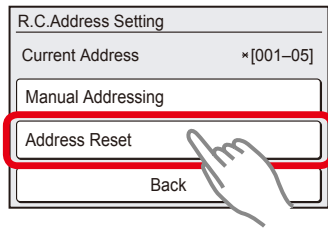


NOTES:

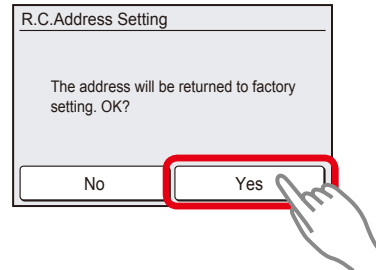
- Perform manual address setting only when setting the address with an arbitrary number. Indoor unit remote controller address setting is necessary. Set the remote controller address of indoor units connected by the same remote controller cable within a range of 1 to 9 and A (10) to F(15) so that there is no duplication. (Do not set to "0".)
- The address of this unit is set within a range of 1 to 32, but set it so that it does not duplicate the remote controller address of an indoor unit connected by the same remote controller cable.

■ WHEN MANUAL ADDRESS SETTING NUMBER IS RESET

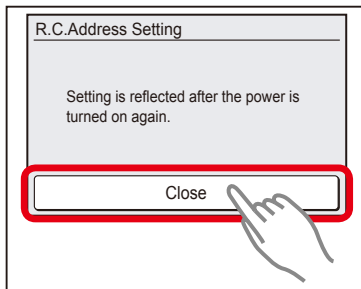
1) Touch the [Address Reset] on the “R.C.Address Setting” screen.



2) A verification screen is displayed. When the [Yes] is touched, a verification screen is displayed.

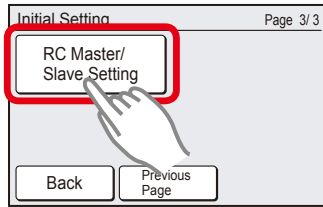


3) When the [Close] on the message screen is touched, the display returns to the “R.C.Address Setting” screen. Turn on the power again.

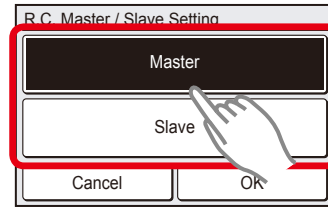


2-14-2. REMOTE CONTROLLER MASTER/SLAVE SETTING

1) Touch the [RC Master/Slave Setting] on the "Initial Setting" screen.



2) "RC Master/Slave Setting" screen is displayed. Select the [Master] or [Slave].



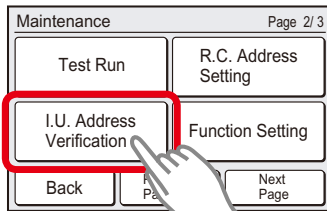
When the [OK] is touched, the display returns to the "Initial Setting" screen.

NOTE:

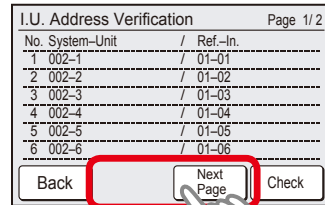
Set only one Master remote controller. Units other than Master are set to Slave automatically. Do not perform "RC Mater/Slave Setting" during setting or operating from the Master unit.

2-14-3. INDOOR UNIT ADDRESS VERIFICATION

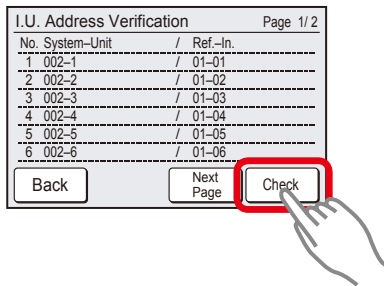
- 1) Touch the [I.U. Address Verification] on the “Maintenance” screen. “Installer Password Verification” screen is displayed.



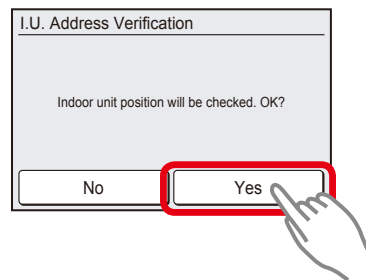
- 2) Enter the Installer Password and touch the [OK]. “I.U. Address Verification” screen is displayed. Enter the Installer Password and touch the [OK]. “I.U. Address Verification” screen is displayed. When the screen has multiple pages, they can be switched by touching the [Next Page] or [Previous Page].



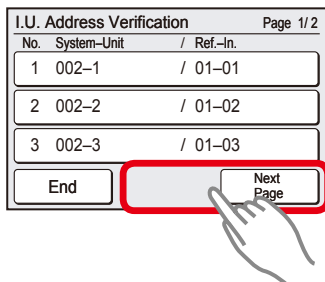
- 3) Touch the [Check] on the “I.U. Address Verification” screen.



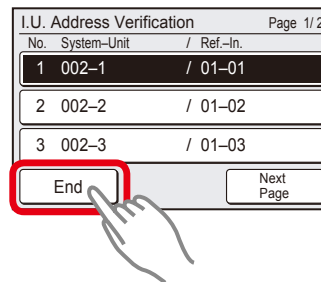
- 4) When the [YES] on the verification screen of indoor unit verification is touched, all indoor units will stop, verification mode starts.



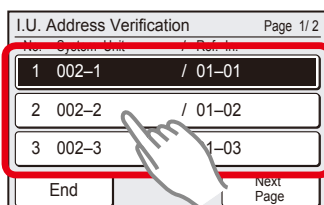
- 5) When indoor unit position verification ends, a screen displaying the indoor units in a list is displayed. When the screen has multiple pages, they can be switched by touching the [Next Page] or [Previous Page].



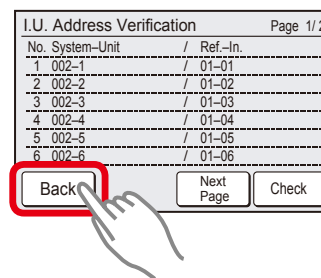
- 6) When the [End] is touched, the display returns to the screen of (2).



When the indoor unit address to be verified is touched, the appropriate indoor unit performs the air blow and LED lamps blink*. (*Only when the indoor unit has that function.)



When the [Back] on the screen of (2) is touched, the display returns to the “Maintenance” screen.



2-15. SIMPLE REMOTE CONTROLLER (UTY-RSRY, UTY-RHRY)

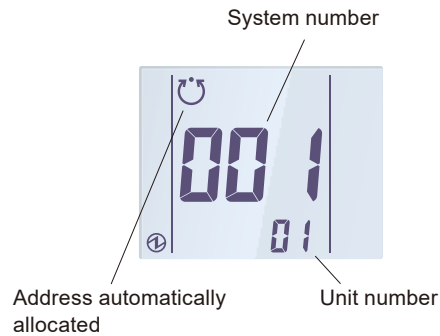
2-15-1. REMOTE CONTROLLER ADDRESS SETTING

■ CONFIRM THE REMOTE CONTROLLER ADDRESS

1) Select the "15" in Menu 2-F1 Settings. Then press the "⏪/I" button.



2) You can check current allocation of 2-wire remote controller address (system number and unit number).



Press the "⏪/I" button to return to the Menu 2-F1 item selection screen.

NOTE:

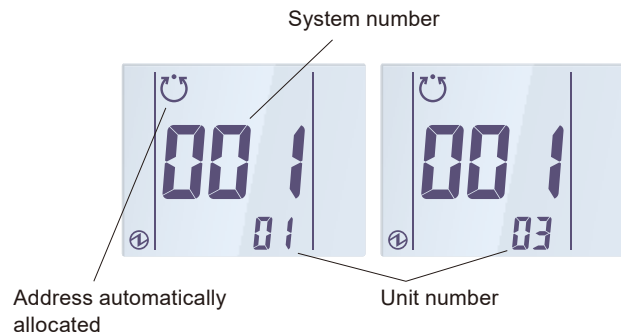
In the case of automatic address settings, do not change the remote controller address for the indoor unit, and keep it at the initial setting of 0. Addresses will be automatically set when initially starting up this unit.

■ IF MANUALLY SETTING THE REMOTE CONTROLLER ADDRESS

1) Select the "15" in Menu 2-F1 Settings. Then press the "⏪/I" button.



2) You can check current allocation of 2-wire remote controller address (system number and unit number). Set the unit number with the SET TEMP. "∧" or SET TEMP. "∨" button. System number cannot be changed.



Press the "⏪/I" button to return to the Menu 2-F1 item selection screen.

NOTES:

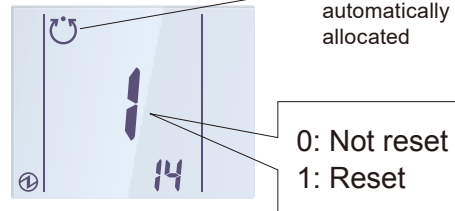
- Only set addresses manually when using different numbers for addresses. A remote controller address for the indoor unit needs to be set. Set the remote controller addresses for the indoor units which are connected using the same remote controller cable with a range from 1 to 9 and from A (10) to F(15), without any duplicates. (Do not use "0" for configuration.) For how to configure the remote controller addresses for the indoor unit, refer to its installation manual.
- The address for this unit can be set from 1 to 32. However, do not set the same number as that for the remote controller address of an indoor unit, remote controller, or other unit connected using the same remote controller cable.

■ WHEN MANUAL ADDRESS SETTING NUMBER IS RESET

- 1) Select the "14" in Menu 2-F1 Settings. Then press the "⏻/|" button.



- 2) To reset the 2-wire remote controller address, select "1: Reset" with the SET TEMP. "∧" or SET TEMP. "∨" button. If not resetting, select "0: Not reset" with the SET TEMP. "∧" or SET TEMP. "∨" button.



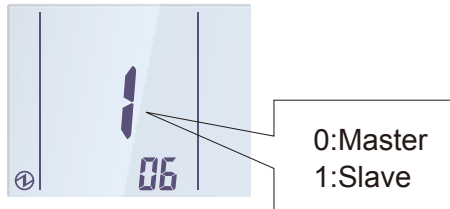
Press the "⏻/|" button to return to the Menu 2-F1 item selection screen.

2-15-2. REMOTE CONTROLLER MASTER/SLAVE SETTING

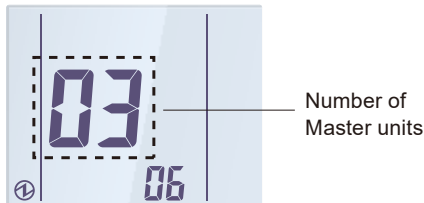
1) Select the "06" in Menu 2-F1 Settings. Then press the "⏻/|" button.



2) Select the "0: Master" or the "1: Slave" with the SET TEMP. "∧" or SET TEMP. "∨" button.



3) Press the "⏻/|" button. If there is no problem, return to Menu 2-F1 items selection screen. In the case of settings at initial booting, display "Monitor mode" screen. If there's 0 or more than 2 "Master" units, the number will be displayed. If "Master" is 0, press the "⏻/|" button to return to the Menu 2-F1 item selection screen. If "Master" is more than 2, press the "⏻/|" button to return to the screen of (2). To suspend the settings part way through, press the FAN "∨" button. Return to the Menu 2-F1 item selection screen.

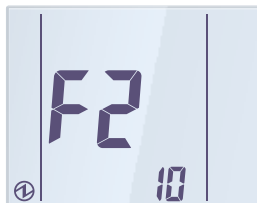


NOTE:

Set only one Master remote controller.

2-15-3. INDOOR UNIT ADDRESS VERIFICATION

1) Select the "10" in Menu 2-F2 Settings. Then press the "⏪/I" button.



2-1) Display the smallest 2-wire remote controller address of indoor unit (system number and unit number) of the remote controller group. This address displayed can be switched by the SET TEMP. "∧" or SET TEMP. "∨" button.

If an indoor unit other than VRF is connected, "-" is displayed.



(a) (b)

2-2) Press the "⏪/I" button to display the Refrigerant system address and Indoor unit address.

(a) System number (002: Indoor unit)

(b) Unit number (01 to 32)

(c) Refrigerant system address (00 to 99)

(d) Indoor unit address (00 to 63)



(c) (d)

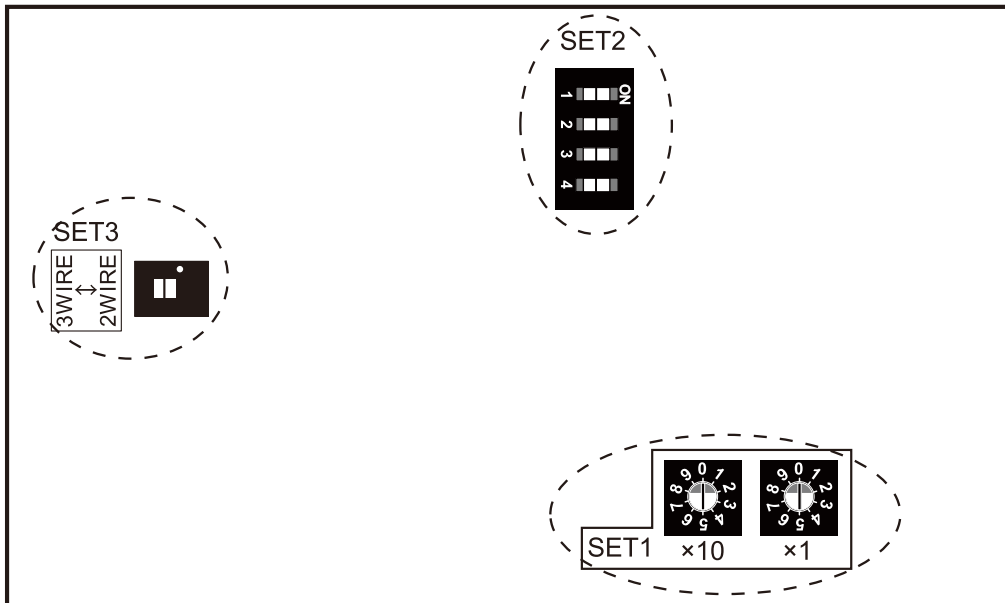
3) Press the FAN "∨" button to return to the Menu 2-F2 item selection screen.

2-16. NETWORK CONVERTOR

2-16-1. MODEL: UTY-VTGX





■ SWITCH POSITION

- Set network convertor rotary switch SET1, and Dip switch SET2, SET3.



■ REFRIGERANT CIRCUIT ADDRESS SETTING (SET 1)

● Example

Refrigerant circuit address	SW setting	
	SET1 (x10) (10 digit)	SET1 (x1) (1 digit)
01	 0	 1
99	 9	 9

*Setting range 00 - 99 (Arbitrary numbers can be set)

*When connecting the Network convertor for Single split AC , set up the number so that the Refrigerant circuit address number of outdoor unit and indoor unit does not overlap .

And the sum total of the Refrigerant circuit address of Network convertor for Single split AC and the Refrigerant circuit address of the outdoor unit and the indoor unit is a maximum of 100.

■ TERMINAL RESISTER SETTING (SET 2)

Set to "ON" when there is no termination resistance in the segment separated by the signal amplifier.
(Default: OFF)

■ REMOTE CONTROLLER 2WIRE/3WIRE SWITCHING (SET 3)

Match with the setting of the used indoor unit.

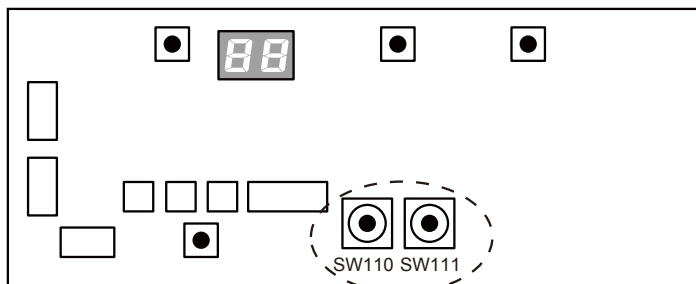
Set matched with the connection method of the remote controller cable to be connected.

(Default: 2WIRE)

2-16-2. MODEL: UTY-VGGXZ1

■ SWITCH POSITION

- Set network convertor rotary switch SW110 and SW111.







Network convertor PCB

■ REFRIGERANT CIRCUIT ADDRESS SETTING

For Split system

● Example

Refrigerant circuit address	SW setting	
	Rotary SW110 (10 digit)	Rotary SW111 (1 digit)
01	 0	 1
99	 9	 9

*Setting range 00 - 99 (Arbitrary numbers can be set)

*When connecting the Network convertor for Single split AC, set up the number so that the Refrigerant circuit address number of outdoor unit and indoor unit does not overlap.

And the sum total of the Refrigerant circuit address of Network convertor for Single split AC and the Refrigerant circuit address of VRF outdoor units and the indoor unit is a maximum of 100.

2-17. SIGNAL AMPLIFIER

■ SWITCH POSITION

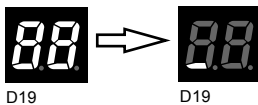


■ AUTOMATIC ADDRESS SETTING

- Refer to 1-5

■ MANUAL ADDRESS SETTING

- 1) Turn on the power for the signal amplifier.



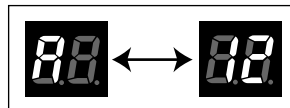
- 2) While holding down SW4 (the set button), press and release SW7 (the reset button) to enter the address setting mode. The address setting mode is activated only if the set button is held down when SW7 is released.



- 3) Press SW4 (the set button) to display the current address. The address is set to A1 at the factory.



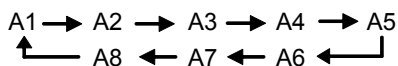
Example 1)
When A1 is set



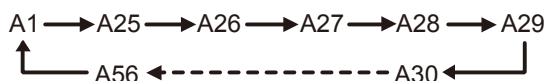
Example 2) When A12 is set

- 4) Press SW3 (the mode button) to select the address. The displayed address changes as follows each SW3 button is pressed. When the manual setting is selected, the indicators change as follows:

Filter mode: OFF



Filter mode: ON



Ex.) Address No.5 is selected.

- Press the SW3 when A9-A16 or A57-A88 is displayed, then A1 will be displayed.
- If connecting multiple signal amplifiers, be sure to select a different address for each amplifier.
- If the same address is used for different signal amplifiers, normal communication cannot be done.

5) Press SW4 (the set button) to set the selected address.



Ex.) Address No.5 is set.

6) Turn the power off and on or press SW7 (the reset button) to exit the address setting mode and return to the normal mode.

If an address setting error occurs ("26" is displayed on the D19-indicator), the address will not be set. Perform address setting again.



Normal mode



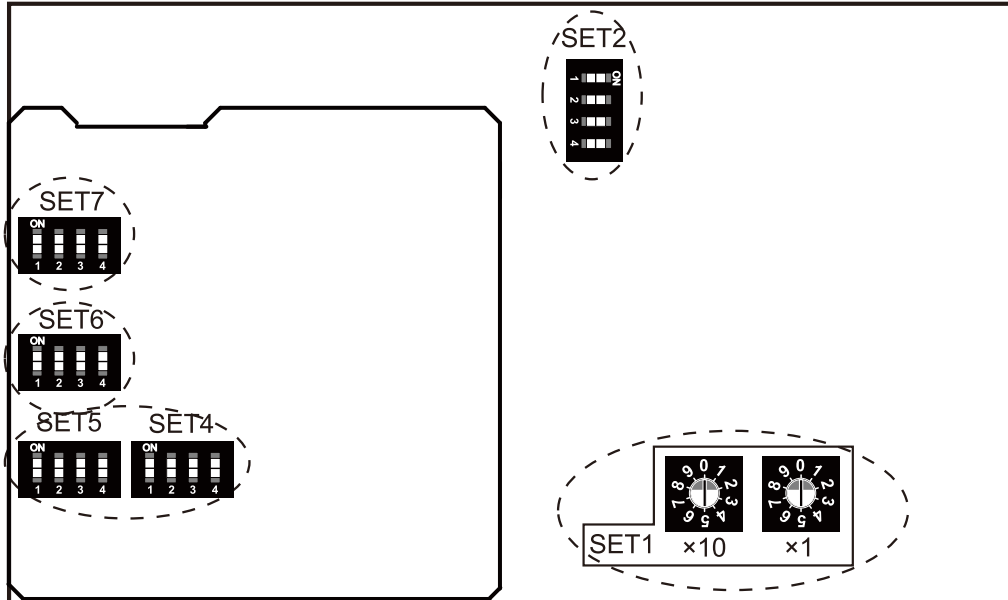
Address setting error

2-18. MODBUS[®] CONVERTOR FOR VRF

■ MODEL: UTY-VMGX





■ SWITCH POSITION

- Set MODBUS[®] convertor rotary switch SET1 and Dip switch SET2, SET4, SET5, SET6, SET7.



■ MODBUS[®] CONVERTOR REMOTE CONTROLLER ADDRESS SETTING (SET 1)

● Example

Refrigerant circuit address	SW setting	
	SET1 (x10) (10 digit)	SET1 (x1) (1 digit)
01	 0	 1
15	 1	 5

Factory setting is "00"

*Setting range 00 - 15 (Arbitrary numbers can be set).

*When the Rotary switch is set to 16 or more, Modbus[®] convertor Remote Controller Address setting is 15.

*The sum total of the Touch panel controller, Central remote controller, Network convertor for Group remote controller, Network convertor for LONWORKS[®] and Modbus[®] convertor is a maximum of 16.

*Address of the Touch panel controller, Central remote controller, Network convertor for Group remote controller, Network convertor for LONWORKS[®] and Modbus[®] convertor must not be same.

*Modbus[®] convertor is connectable a maximum of 9 in 1 VRF network system.

■ VRF TERMINAL RESISTER SETTING (SET 2-1)

When there is no outdoor unit or signal amplifier in the VRF network segment to which the converter is connected, set to "ON."

ON: Terminal resistance enable

OFF: Terminal resistance disable (Default)

■ TEST RUN SETTING (SET 2-3)

Test run start and reset can be set.

ON: Test run starts

OFF: Test run resets (Default)

■ SCAN SETTING (SET 2-4)

SCAN start and reset can be set.

ON: SCAN starts

OFF: SCAN resets (Default)

■ MODBUS[®] SLAVE ADDRESS SETTING (SET 4, SET 5)

Setting range 1 - 247 (Arbitrary numbers can be set).

Refer to "Installation Manual".

■ MODBUS[®] COMMUNICATION BAUD RATE SETTING (SET 6-4)

ON: 19200bps

OFF: 9600bps (Default)

■ MODBUS[®] COMMUNICATION PARITY SETTING (SET 6-3)

ON: odd

OFF: even (Default)

* When the STOP bit setting is "2bit," parity is set to "None" regardless of the setting of this switch.

■ MODBUS[®] COMMUNICATION STOP BIT SETTING (SET 6-2)

Stop bit can be set (1 bit or 2 bit).

ON: 2bit

OFF: 1bit (Default)

■ MODBUS[®] TERMINAL RESISTER SETTING (SET 7-4)

Modbus[®] communication terminal resistance can be set (Enable or Disable).

Terminal resistance: 120 Ω

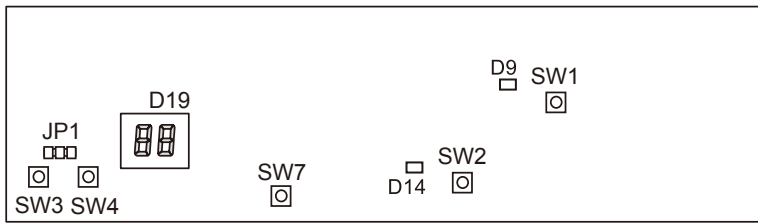
In case of circuit terminal resistance, set the terminal resistance to be enabled.

ON: Terminal resistance enable

OFF: Terminal resistance disable (Default)

2-19. NETWORK CONVERTOR FOR LONWORKS®

■ SWITCH POSITION

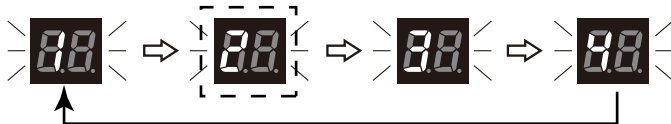


■ ADDRESS SETTING

When setting address, please be sure that the address of Network Convertor for LONWORKS® is not overlap the address of other controller like, Touch Panel Controller, Central Remote Controller & Network Convertor for Group Remote Controller.

Following steps are necessary for setting address of Network Convertor.

- 1) Turn on the power of network convertor.
- 2) Select the special mode by pressing and releasing SW7 (reset button) while holding down SW4 (set button) until special mode "1" is displayed.



Special mode changes from '1' to '4' as shown in the above mentioned way.

- 3) Press SW3 (mode button) to set special mode "2". Special mode "2" is the address setting mode.
- 4) Press SW4 (set button). Present address is displayed.



Ex.) Address No. 15 is factory setting.

- 5) Press SW3 (mode button) to select the address. The displayed address changes as follows each time the mode button is pressed.



Ex.) Address No. 3 is selected.

- 6) Press SW4 (set button) to set the selected address.



Ex.) Address No. 3 is set.

- 7) Turn the power off and on or press SW7 (reset button) to exit from address setting mode. Anyone of the following indication will disappear:

11 : VRF Network address allocation is not registered by using Tool for Network Convertor

12 : Binding and Commissioning is not executed

13 : Normal Mode (Ready for operation)

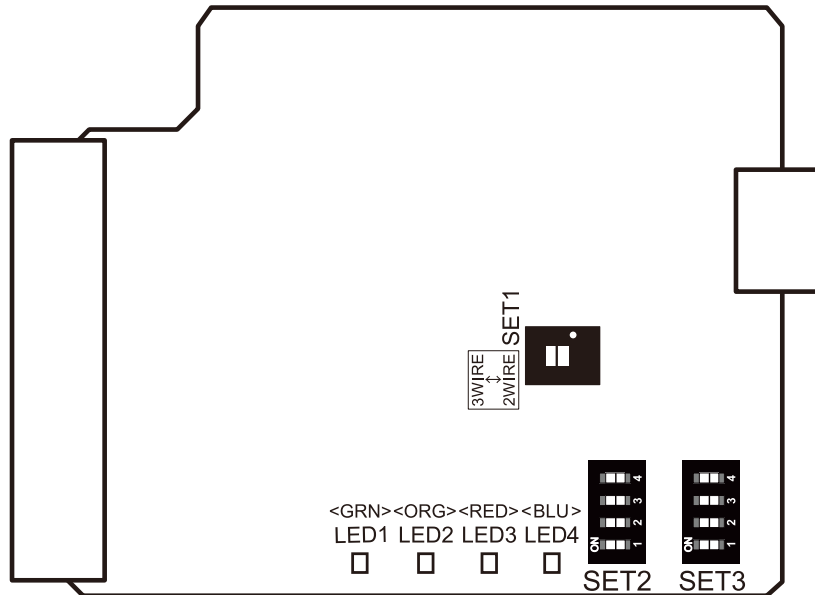
: Others (Please check Installation Manual for more detail)

2-20. THERMOSTAT CONVERTOR

■ MODEL: UTY-TTRX

■ SWITCH POSITION

Perform the initial settings using 3 DIP switches (SET 1 to 3) on the circuit board.



■ 2WIRE/3WIRE setting (SET1)

Remote controller 2WIRE/3WIRE switching SW

Factory setting: 2WIRE

Set matched with the connection method of the remote controller cable to be connected.

■ Single-stage or Two-stage setting (SET3)

(◆...Factory setting)

SW SET3-1	Contents
OFF	Temperature setting: Single-stage
ON	Temperature setting: Two-stage

■ Single-stage or Two-stage setting (SET3)

● SET3-1: Single-stage setting

Cooling setting temperature

(◆...Factory setting)

SW SET3-2	Cooling stage 1 setting Temperature °F (°C)	Remarks
OFF	64 (18)	Pattern 1
ON	68 (20)	Pattern 2

Heating setting temperature

(◆...Factory setting)

SW SET3-3	SW SET3-4	Cooling stage 1 setting Temperature °F (°C)	Remarks
OFF	OFF	86 (30)	Pattern 1
OFF	ON	81 (27)	Pattern 2
ON	OFF	75 (24)	Pattern 3
ON	ON	70 (21)	Pattern 4

● SET3-1: Two-stage setting

Cooling setting temperature

(◆...Factory setting)

SW SET3-2	Cooling stage 1 setting Temperature °F (°C)	Cooling stage 2 setting Temperature °F (°C)	Remarks
OFF	68 (20)	64 (18)	Pattern 1
ON	72 (22)	68 (20)	Pattern 2

Heating setting temperature

(◆...Factory setting)

SW SET3-3	SW SET3-4	Cooling stage 1 setting Temperature °F (°C)	Cooling stage 2 setting Temperature °F (°C)	Remarks
OFF	OFF	81 (27)	86 (30)	Pattern 1
OFF	ON	77 (25)	82 (28)	Pattern 2
ON	OFF	75 (24)	79 (26)	Pattern 3
ON	ON	70 (21)	75 (24)	Pattern 4

NOTES:

- Setting values are the limit temperature for cooling and heating.
- Energy saving performance is improved in the order from Cooling Pattern 1 to 2 and Heating pattern 1 to 4.

■ Delay OFF setting (SET2)

Delay OFF is the function to operate continuously even after reaching to the set temperature of thermostat. This function may make air conditioning efficient.

Set the Delay OFF time by SW SET2-3 and SW SET2-4.

(◆...Factory setting)

SW SET2-3	SW SET2-4	Delay off time
OFF	OFF	0 minute
OFF	ON	5 minutes
ON	OFF	10 minutes
ON	ON	20 minutes

■ Fun setting (Signal on terminal G) (SET2)

(◆...Factory setting)

SW SET2-1	SW SET2-2	Indoor unit airflow
OFF	OFF	AUTO
OFF	ON	HIGH
ON	OFF	MED
ON	ON	LOW

2-21. DUCT STATIC PRESSURE SETTING

■ MODEL: ARUL4TLAV1

■ MODELS: ARUL7TLAV, ARUL9TLAV, ARUL12TLAV, ARUL14TLAV, ARUL18TLAV

■ MODELS: ARUM24TLAV, ARUM30TLAV, ARUM36TLAV

■ MODELS: ARUH72TLAV1, ARUH96TLAV

Change the airflow setting when the external static pressure is different than the default static pressure.

Static pressure setting can be performed using: wireless remote controller, wired remote controller, and simple remote controller.

How to set airflow (external static pressure)

- Wireless remote controller

Airflow is set by function number 26 (static pressure).

Refer to "BUTTON NAME AND FUNCTION", "FUNCTION SETTING" and "FUNCTION DETAILS" in 2-3. INDOOR UNIT (setting by wireless remote controller).

- Wired remote controller

Airflow is set by function number 26 (static pressure).

Refer to "BUTTON NAME AND FUNCTION", "FUNCTION SETTING" and "FUNCTION DETAILS" in 2-4. INDOOR UNIT (setting by wired remote controller).

- Simple remote controller

Airflow is set by function number 26 (static pressure).

Refer to "BUTTON NAME AND FUNCTION", "FUNCTION SETTING" and "FUNCTION DETAILS" in 2-5. INDOOR UNIT (setting by simple remote controller).

- Wired remote controller (Touch panel)

Airflow is set by function number 26 (static pressure).

Refer to "FUNCTION SETTING" and "FUNCTION DETAILS" in 2-6. INDOOR UNIT (setting by wired remote controller [Touch panel]).

- FAN PERFORMANCE CURVE

Refer to "7. FAN PERFORMANCE CURVE" in Chapter 4.

NOTE

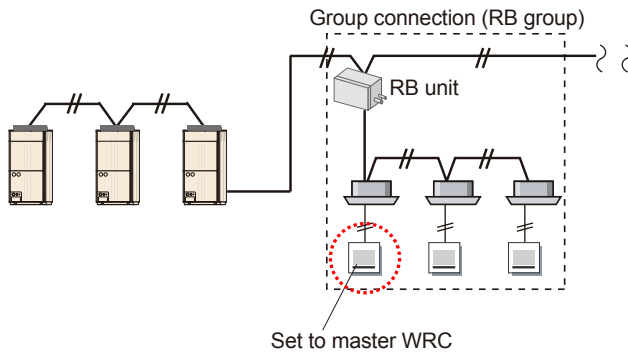
- If airflow is set incorrectly, unit may perform incorrectly; insufficient airflow or condensate carry-over (water leakage) are possible.

2-22. ADMINISTRATIVE INDOOR UNIT SETTING

- When multiple indoor units with separate wired remote controller are connected to one branch port of RB unit (group connection), it is possible to give the cool / heat mode selection authority to one particular wired remote controller (called master wired remote controller).
- When the master wired remote controller setting is not performed, mode(cool/ heat) selection priority goes to wired remote controller which executed first.

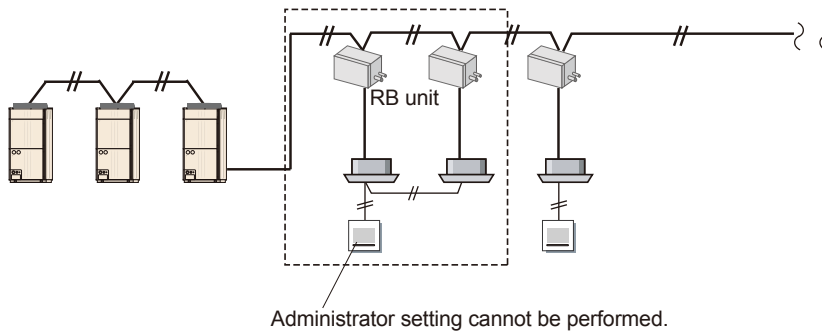
■ EXAMPLE

● Example 1 (OK)



● Example 2 (Prohibited)

When indoor units which connected to different RB units are operated by one wired remote controller, administrative indoor unit setting cannot be performed.



2-22-1. SETTING METHOD

■ WIRED R.C.(Touch panel)

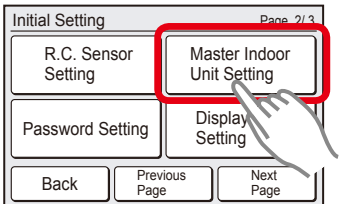
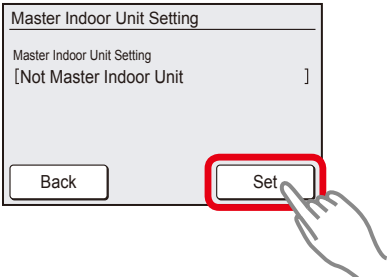
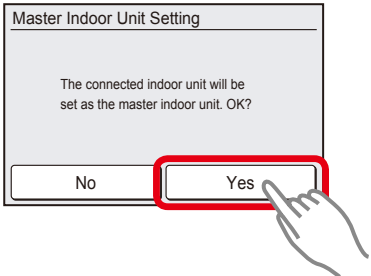
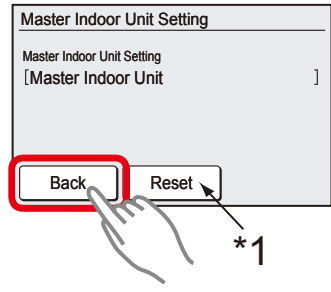
● Step1: RB unit function setting (Case of VR-II series)

Set SET2 of DIP switch to "Priority given to administrative indoor unit" with function setting of RB unit. (SET2-1: OFF, SET2-2:ON)
→Refer to 2-9. RB UNIT.

● Step1: Outdoor unit function setting (Case of V-II series)

Set to "Priority given to administrative indoor unit" with function setting of outdoor unit.
→Refer to 2-1. OUTDOOR UNIT.

● Step2: Wired remote controller setting

<p>1) Touch the [Master Indoor Unit Setting] on the "Initial Setting" screen.</p> 	<p>2) "Master Indoor Unit Setting" screen is displayed. When the [Set] is touched, a verification screen is displayed.</p> 
<p>3) When the [Yes] is touched, after the data is transmitted to the indoor unit, the display returns to the "Master Indoor Unit Setting" screen.</p> 	<p>4) When the [Back] on the "Master Indoor Unit Setting" screen is touched, the display returns to the "Initial Setting" screen.</p>  <p>*1: To clear a master indoor unit, touch [Reset]. ("Reset" cannot be performed while the indoor unit is operating.)</p>

NOTE:

- When changing the Master Indoor Unit, first cancel the setting of the indoor unit currently set as the Master Indoor Unit. Otherwise, a different indoor unit cannot be registered as the Master Indoor Unit.

■ WIRED R.C.

● Step1: RB unit function setting (Case of VR-II series)

Set SET2 of DIP switch to "Priority given to administrative indoor unit" with function setting of RB unit. (SET2-1:OFF, SET2-2:ON)

→Refer to 2-9. RB UNIT

● Step1: Outdoor unit function setting (Case of V-II)

Set to "Priority given to administrative indoor unit" with function setting of outdoor unit.

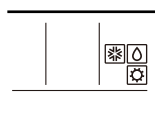
→Refer to 2-1. OUTDOOR UNIT

● Step2: Wired remote controller setting

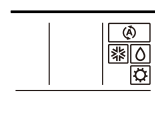
(1) After the indoor unit stops operation, press the "MODE" button of wired remote controller for 5 seconds continuously.

The operating mode of the wired remote controller display lights on after 5 seconds as follows.


(1)-a) The indication not set as "Administrative indoor unit"



(1)-b) The indication set as "Administrative indoor unit"



NOTES

- "MODE" button is locked by below reasons while the marking  lights on. In such case, "Administrative Indoor Unit" cannot be set or released.



- "Priority on Administrative Indoor Unit" is not selected in the setting of priority mode of outdoor unit.
→Set "Administrative Indoor Unit" in the wired remote controller after selecting "Priority on Administrative Indoor Unit" in setting of priority mode of outdoor unit.
- Another indoor unit was set to "Administrative Indoor Unit" already.
→Release the setting "Administrative Indoor Unit" of another indoor unit.

(2) Press the "MODE" button.

Display (1)-b) when setting, and display (1)-a) when releasing.

→The display blinks when the "MODE" button is pressed, and the display of (1)-a) and (1)-b) alters whenever the "MODE" button is pressed.

→The contents set in the wired remote controller are transferred to the indoor unit immediately after the display is selected. It may take 10 seconds depending on communication conditions. While this period, the button operation will be suspended.

→It returns to the normal display after 20 seconds automatically if the operation button is not pressed.

→When setting or releasing is completed, the indication on wired remote controller changes to the normal indication from blinking.

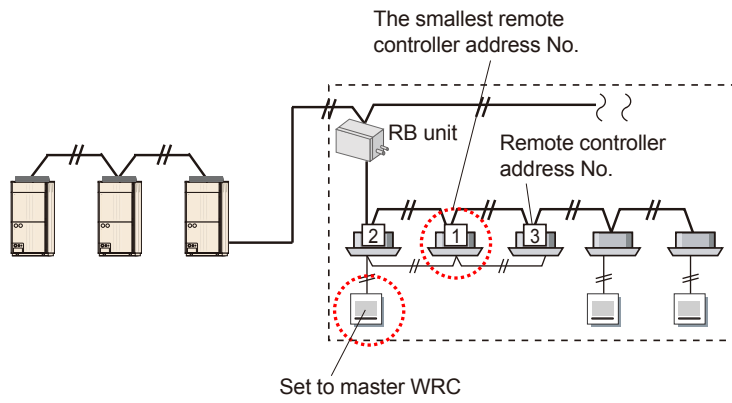
(3) Complete the setting or releasing of "Administrative Indoor Unit".

Press the "MODE" button of the wired remote controller again for 5 seconds continuously.

→The indication returns to normal display if the "MODE" button is pressed for 5 seconds continuously.

(It returns to normal indication after 20 seconds even if the "MODE" button is not pressed.)

■ NOTE



NOTE: In remote controller group, the cool/heat mode is changed over according to a detected room temperature of an indoor unit with the smallest remote controller address number.

2-23. ENERGY SAVING SETTING (SYSTEM CONTROLLER)

In this section, an energy saving function which uses electricity meters is explained. System Controller (UTY-APGXZ1, UTY-PEGXZ1) or System Controller Lite (UTY-ALGXZ1, UTY-PLGXE2) is required to perform these functions.

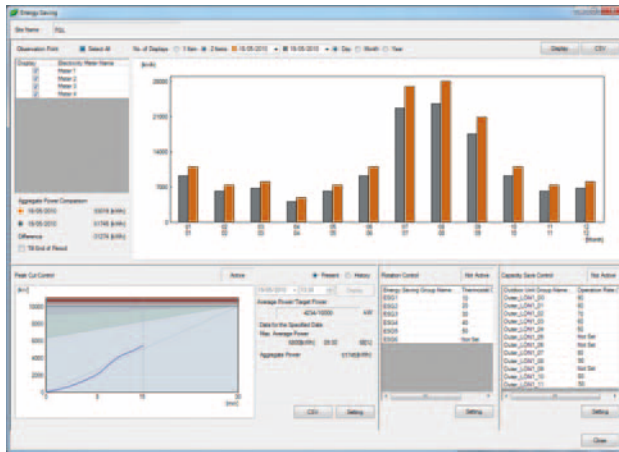
■ FEATURES OF ENERGY SAVING FUNCTION

● Input Power graph function

Displays by bar graph the Input Power measured by the electricity meter connected to the air conditioner. This graph can be used to analyze the Input Power.

The Input Power for 3 years is saved and the past history can be referenced.

In addition, the data of an arbitrary 2 periods can be displayed for comparison.

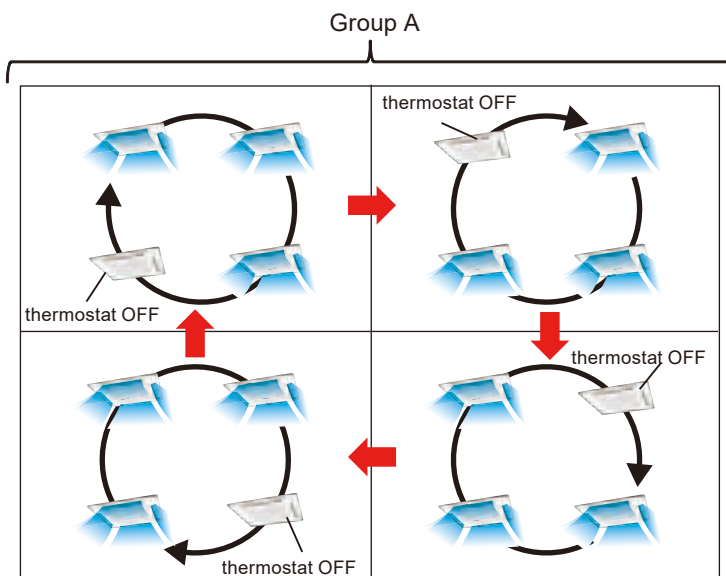


● Indoor unit rotation operation function

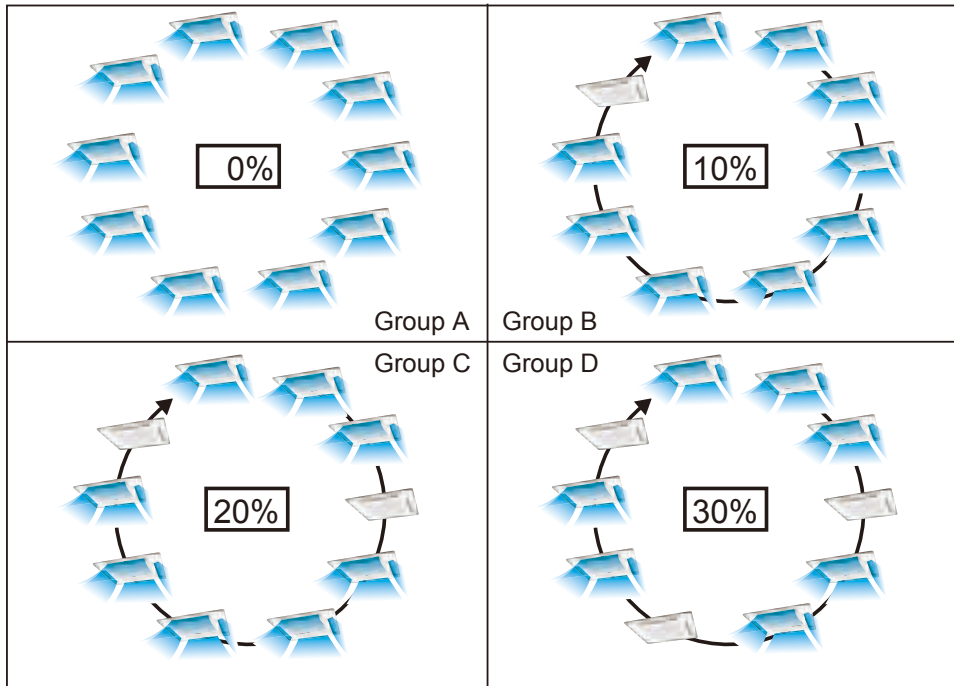
Reduces the Input Power by rotating the indoor units which are set to forced thermostat OFF. Operating the the air conditioner with this function in the spring and autumn when the heat load is comparatively light may have an energy saving effect.

Because it is intermittent , and there is little change in the rooms temperature, the occupants may not even sense it's operation.

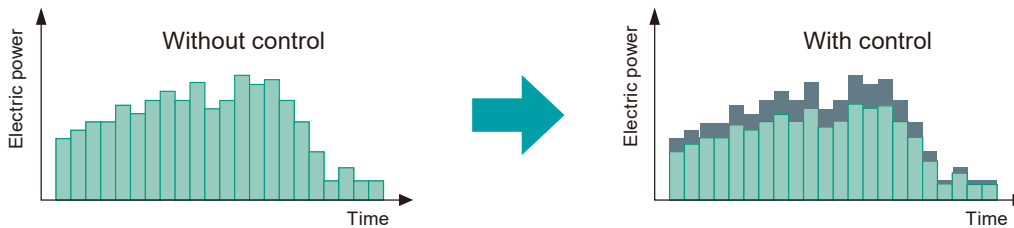
- The electric power consumed in the arbitrarily defined group is reduced by rotating indoor units which are set to forced thermostat OFF.



- Indoor units can be rotated according to the stoppage rate set for each group.



*The indoor unit operation stoppage rate can be selected from 10% to 30%.



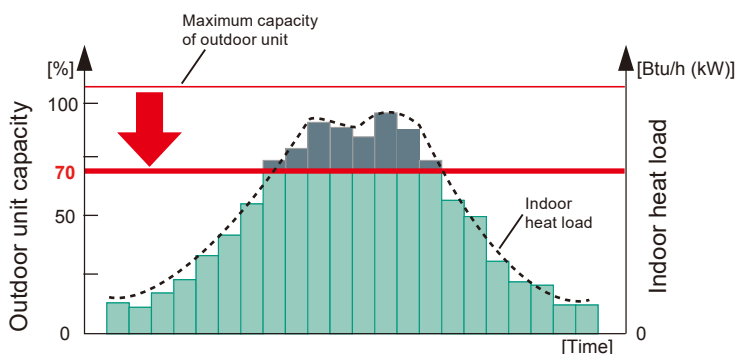
● Outdoor unit capacity save function

The Input Power is reduced by limiting the upper limit of the outdoor unit capacity for each refrigerant system.

This has an energy saving effect, especially in the summer, winter and other times when the heat load is high.

In addition, because the upper limit capacity of the outdoor unit is limited directly, it is a control which easily exhibits an energy saving effect compared to rotation control. However, because the outdoor unit does not operate above the limited capacity, there may be a loss of comfort, depending on the indoor heat load.

*The operation capacity upper limit rate [%] of the outdoor unit is specified for each refrigerant system.

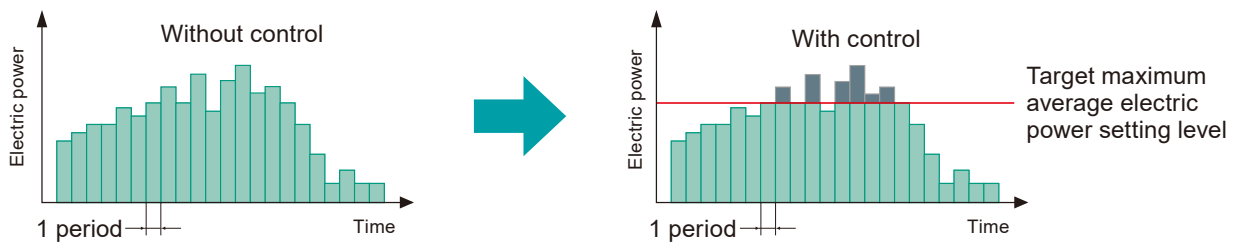
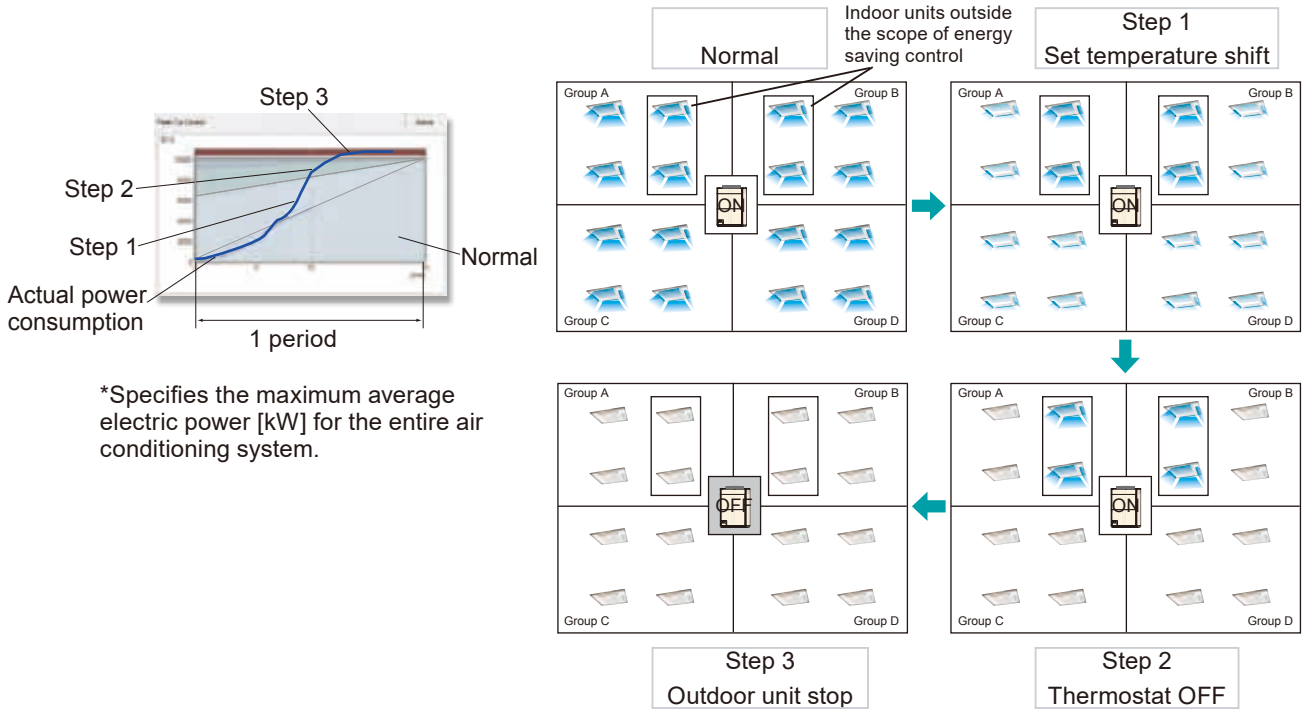


● Peak cut operation function

Reduces the Input Power by setting a specific target value (maximum average power [kW]) for all the air conditioners and controlling operation so that this value is not exceeded.

Limit control is performed in 3 steps of “Step 1: Set temperature shift” → “Step 2: Thermostat OFF” → “Step 3: Outdoor unit stop”.

To perform this control, an electricity meter must be installed.



■ GENERAL SETTING PROCESS FOR ENERGY SAVING AND ELECTRICITY CHARGE APPORTIONMENT USING ELECTRICITY METER

The general setting process for realizing an energy saving function and an electricity charge apportionment function using an electricity meter is shown as an example in the table below.

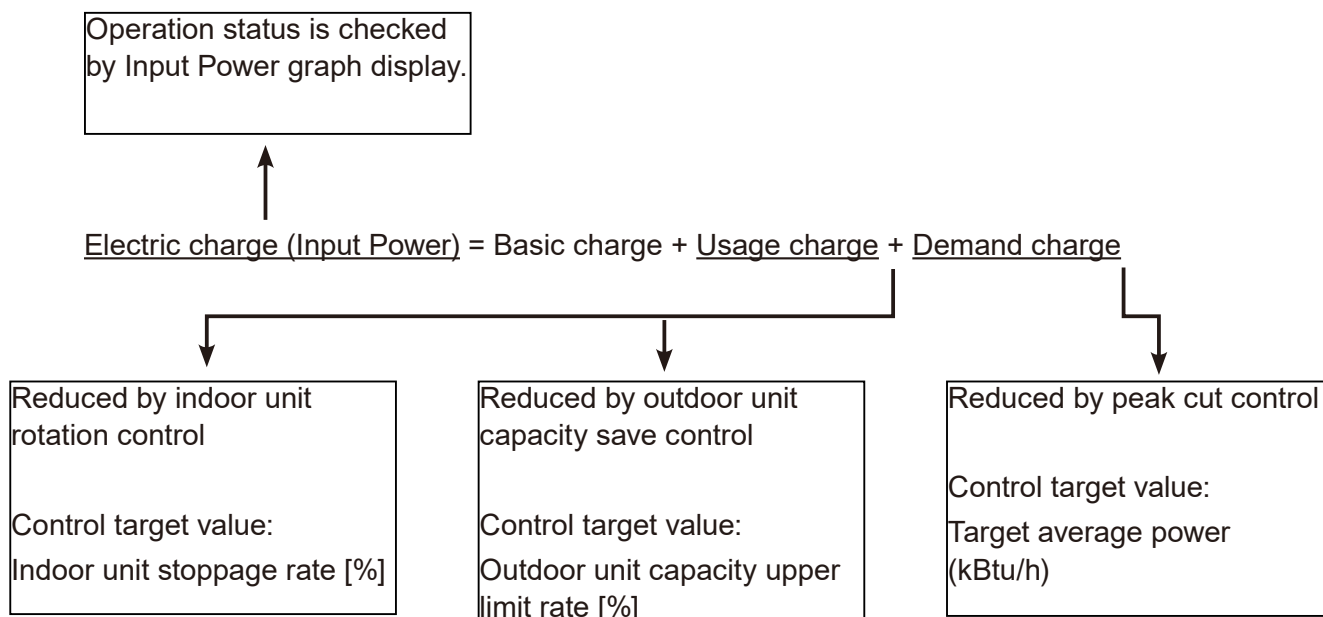
	Process	Reference item
1	Overview of the energy saving function and electricity charge apportionment function using an electricity meter and an understanding of the usage method and restrictions, etc.	<ul style="list-style-type: none"> ■Features of Energy Saving Function ■Operation Example ■Notes on Energy Saving Function ■Installation Restriction of Energy Saving Units ■Electricity Charge Apportionment and Electricity Meter
2	Deciding the power source supply system. Deciding the electricity meter installation sites, number and the outdoor units which are connected. Deciding the appropriate VT/CT specifications.	<ul style="list-style-type: none"> ■Electrical Wiring ■Installation Restriction of Electricity Meter ■Electricity Meter System
3	Procuring the electricity meters and related hardware and materials.	■Electrical Wiring
4	Electricity meters and related hardware and materials installation work.	■Electrical Wiring
5	Electricity meter setting.	■Setting of Outdoor Unit and System Controller
6	Outdoor unit setting.	<ul style="list-style-type: none"> ■Setting of Outdoor Unit and System Controller Refer also to "2-1.OUTDOOR UNIT"
7	System controller setting.	<ul style="list-style-type: none"> ■Setting of Outdoor Unit and System Controller Refer also to "System Controller Instruction Manual"

NOTE: Outdoor units and indoor units layout, remote controller group combination method, and other design shall be performed separately.

■ OPERATION EXAMPLE

Electric charges usually consist of the following elements.

With the energy saving function, operation for each element is as follows.



*Basic charge: Charge billed according to contract with the electric power company. Includes meter reading cost and billing cost.

*Usage charge: Charge billed according the power consumed.

*Demand charge: Charge billed according to the scale in the contract with the electric power company.

■ NOTES ON ENERGY SAVING FUNCTION

Energy saving function precautions and scope of guarantee

The effect of the energy saving function depends on the units used, usage environment, installation environment, and so forth. No guarantee is made as to the specific savings from the energy saving functions. Reading and understanding the following precautions is requested before using the function.

(1) How to use the energy saving function

Since the effect of the energy saving function depends on the units used, usage environment, installation environment, and so forth, a different effect may appear according to the building and operating period even when operated with the same settings and schedule. Try to gain an understanding of the features of each energy saving function and confirm the actual effect through operation and apply appropriate settings, etc. as required.

(2) Target electric power of peak cut function

These are values used as target values when performing peak cut control. These values do not always guarantee that the consumed power is within the target value. For example, even if forced thermostat off and outdoor unit stoppage are activated, the control becomes ineffective if the outdoor unit is performing a protective operation (oil recovery and defrosting). As a result, the electric power consumed may exceed the target electric power.

(3) Relationship between unit protection and energy saving function

For VRF, there are operations and restrictions for protecting units. The energy saving function operates within the range of these protective operations and restrictions. When the energy saving function performs control against these protective operations and restrictions, the protective operations and restrictions have priority and the energy saving function is either restricted or may not operate. The protective operations of the units are oil recovery, defrosting, etc. which are automatically performed periodically or under specified conditions.

(4) Failure, etc.

An energy saving function operates only when the related units are operating normally. When the power of the electricity meter and the outdoor units connected to an electricity meter and the SYSTEM CONTROLLER is turned off due to a failure, etc. the energy saving function will not operate normally.

(5) Explaining to the building tenants

During energy saving function operation, control from the remote controller may be overridden by the energy saving control. For this reason, it is recommended that the building tenants be informed of this beforehand.

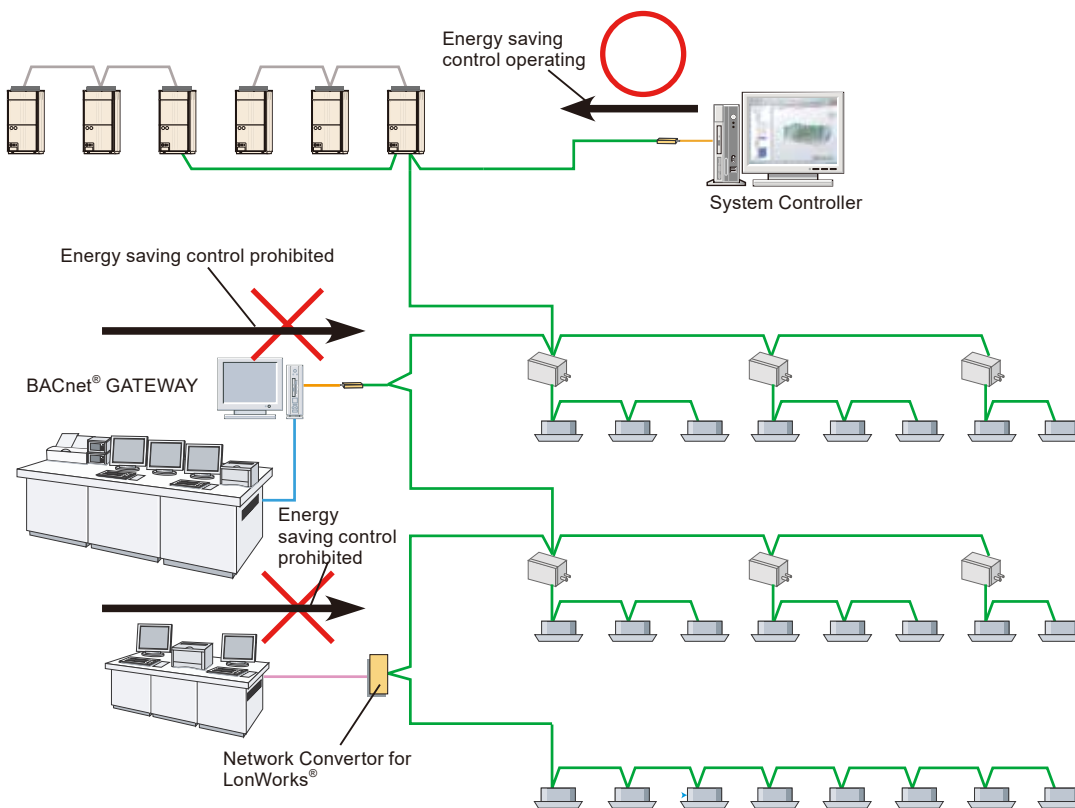
■ INSTALLATION RESTRICTION OF ENERGY SAVING UNITS

(1) Only 1 unit may perform energy saving control at a time. When energy saving control is performed by SYSTEM CONTROLLER (UTY-APGXZ1/PEGXZ1), stop energy saving control *1 from the building management system through the following units.

- BACnet® GATEWAY (UTY-ABGX)
- NETWORK CONVERTOR for LonWorks® (UTY-VLGX)

When energy saving control is performed from multiple points, trouble may occur.

*1: Forced thermostat OFF, outdoor unit forced OFF and outdoor unit capacity save.



(2) Electricity meter installation

Among energy saving control, there are functions which require installation of an electricity meter.

- Input Power graph display function
- Peak cut control

When performing these functions, refer to the installation rules and install an electricity meter in advance.

2-24. ELECTRICITY CHARGE APPORTIONMENT SETTING (SYSTEM CONTROLLER, TOUCH PANEL CONTROLLER)

In this section, an electricity charge apportionment function which uses electricity meters is explained. System Controller (UTY-APGXZ1, UTY-PEGXZ1) or System Controller Lite (UTY-ALGXZ1, UTY-PLGXA2) or Touch panel controller (UTY-DTGYZ1, UTY-PTGXA) is required to perform these functions.

■ ELECTRICITY CHARGE APPORTIONMENT AND ELECTRICITY METER

When implementing the electricity charge apportionment function in a VRF System, a configuration which does not use electricity meters or a configuration which uses electricity meters can be selected. The differences between these two configurations are explained below.

The electricity charge apportionment function apportions the Input Power to each block (tenant indoor unit) defined in advance according to the usage record, after the Input Power (electricity charge) of the air conditioners is input to the System Controller. Electricity charge apportionment calculation becomes possible only after inputting the Input Power (or electricity charge).

[Electricity charge apportionment when electricity meter not used]

Only after the electricity bill is received from the electric power company and the billed amount is input into the System Controller, can electricity charge apportionment for the billed period be calculated.

[Electricity charge apportionment when electricity meter used]

Since the Input Power data is sent from the electricity meter to the System Controller at any time, electricity charge apportionment calculation can be performed at any time. Because the System Controller calculates the energy charge on a daily basis, it can be performed at any time.

Example (1)

When the tenants are billed for their air conditioning electricity charge once a month and the electricity bill arrives from the electric power company each month, the electricity charge apportionment function can be used without electricity meters. Because electricity charge apportionment can be performed based on that bill. Even if there are tenants moving in and out within a month, appropriate billing can be performed after the bill was received from the electric power company. When the electricity bill is received from the electric power company once every 3 months, the building owner can only bill the building tenants for air conditioning electricity charges every 3 months. However, if electricity meters are installed, billing at an arbitrary interval, for example, once a month, is possible.

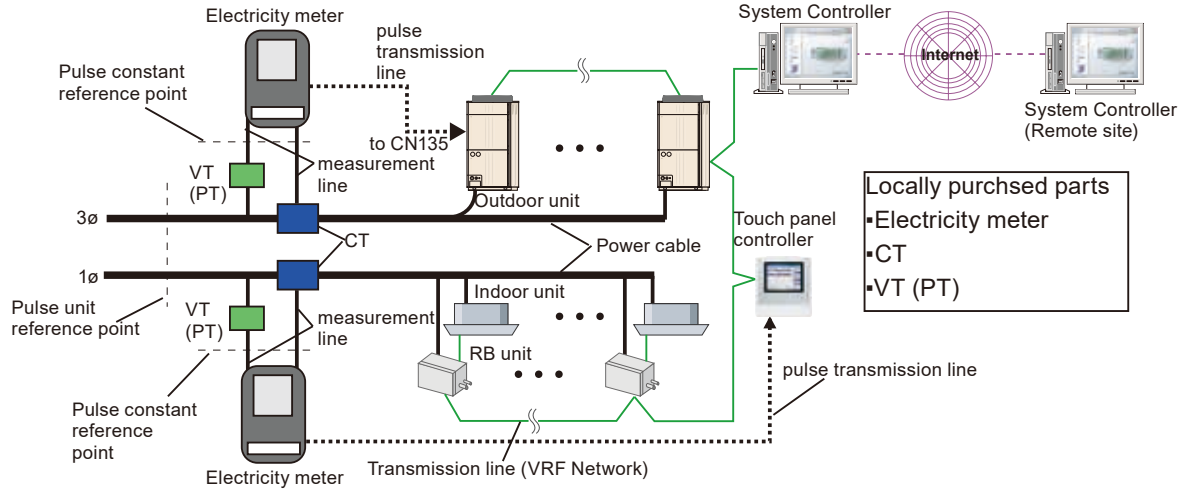
Example (2)

When air conditioning electricity charge is billed based on the electricity charge apportionment function for each room in a hotel etc., because guests leave and arrive daily, the electricity charge is calculated each time they leave. Therefore, you cannot wait for the electricity bill to arrive from the electric power company. In such cases, an electricity meter must be used to calculate electricity charge apportionment.

■ ELECTRICAL WIRING

● Electricity meter connection composition

To perform energy saving peak cut control, electricity meters with pulse transmission function measuring all the power consumed by the air conditioner are necessary. Multiple meter installations are also possible as long as the number of electricity meters is within the specified limit. A general electricity meter installation configuration is shown below.



Item	Description	Remarks
Electricity meter	Measures the voltage and current of the power cable to which measurement line is connected and finds the Input Power from these. In addition, pulses corresponding to the measured value are output to the transmission line.	
VT(PT)	Voltage Transformer (Power Transformer) Transform the power source voltage to a measurable voltage. Transformation ratio is indicated by VT (PT) ratio. Normally unnecessary for the voltage value level used by outdoor units and indoor units.	
CT	Current Transformer Transform the power line current value to a current measurable by an electricity meter. Transformation ratio is indicated by CT ratio. Some meters are connected inline with the power lines and some are clamped on the power lines.	
Pulse unit	Pulse unit indicates the relationship between electricity meter output pulse and measured power. The value specified in pulse unit indicates the power in kWh consumed on the power cable for 1 pulse. Units: [kWh/pulse] The value specified by pulse unit takes into account the VT and CT ratio used and corresponds to the actual Input Power itself.	
Pulse unit reference point	Indicates the measurement point of the Input Power specified in pulse units.	
Pulse constant	Pulse constant indicates the relationship between electricity meter measured power and output pulses. The value specified by pulse constant indicates how many pulses are equivalent to 1kWh of Input Input Power to an electricity meter. Units: [pulse/kWh] Because the ratio of VT and CT used is not taken into account in the value specified by pulse constant, to find the actual Input Power on the power cable, the pulse constant value must be multiplied by both the VT and CT ratio.	
Pulse constant reference point	Indicates the measurement point of Input Power specified by pulse constant.	

● **Selection of Electricity meter, CT, and VT**

Select the electricity meter, CT, and VT by considering the following items.

- (1) Install electricity meters for each refrigerant system, if circumstances allow.
- (2) Select VT/CT with a small VT/CT ratio.
- (3) When using an electricity meter which is specified in pulse units (kWh/pulse), usually select a meter with a 1kWh/pulse output.

● **Outdoor unit connection interface (CN135) or touch panel controller connection interface (TM201 CH1) to electricity meter**

Item		Specifications	Remarks
Interface		Dry contact "a" contacts	"a" contacts: ON when shorted *1
Pulse	Specifi- cations	Width: 50ms or more Interval: 50ms or more	
	Units	1kWh/pulse (pulse units) recommended	
	Constant	Considering the electricity meters available in some countries, use of electricity meters with 3200 pulse/kWh (pulse constant) or less pulses are possible.	
Line length restriction		492ft. (150m) or less	Between Electricity meter to Outdoor unit
Wiring specifications		Control and instrumentation cable CVV-S (Control-use Vinyl insulated Vinyl sheathed cable – Shielding) *2 2-conductor 16AWG (1.25mm ²)	
Line length restriction		25m or less	Between Electricity meter to Touch panel controller
Wiring specifications		2 core, twisted pair, 0.33mm ² (22AWG) *3	

*1: Pulse signal: normally OFF (open), ON (closed) when shorted

*2: When affected by interference by induction, select shielded CVV cable (CVV-S cable). This is because copper shielding tape is wrapped around CVV cable and induction interference from adjacent power cables is alleviated and normal communication is maintained.

In addition, when the wiring is outdoors, select weather resistance cable.

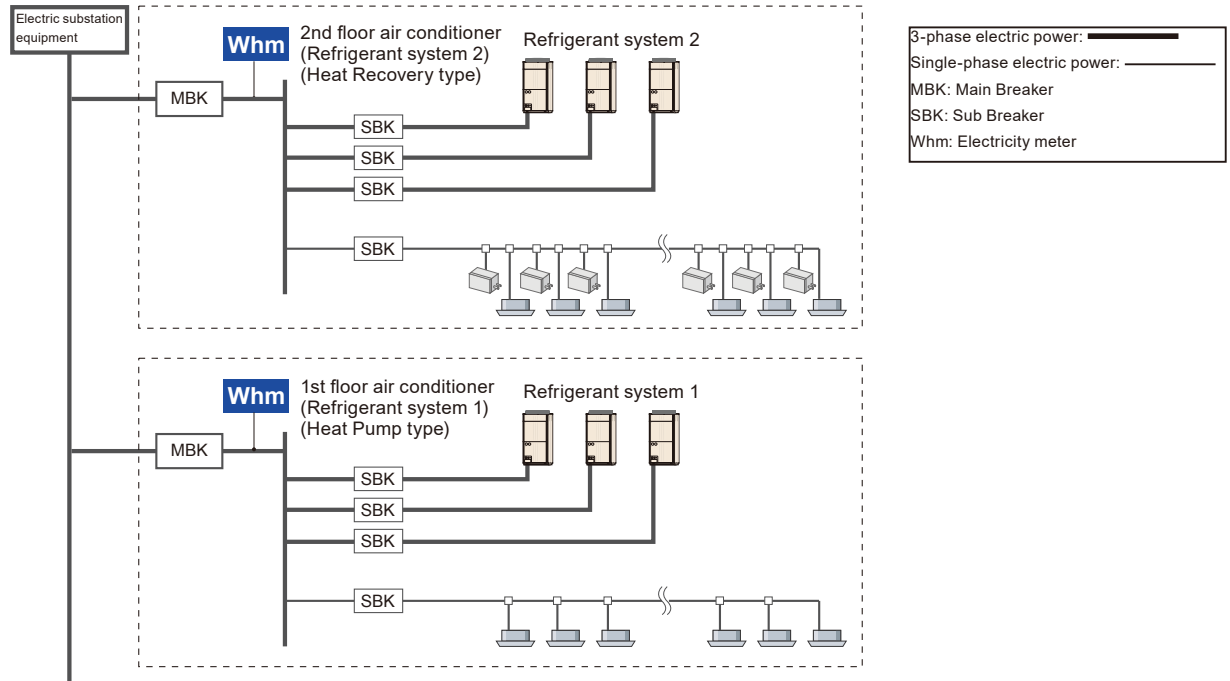
*3: Use cable in accordance with local rules for cable.

● **Number of electricity meters installed and connection destination**

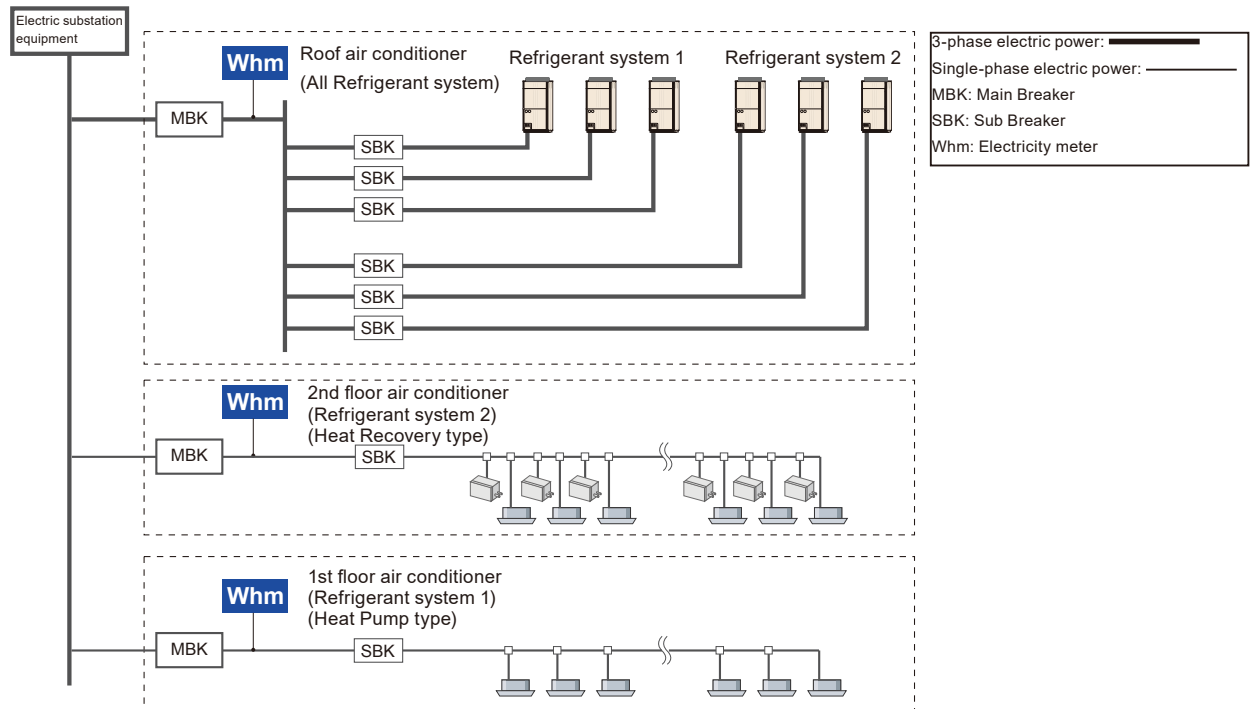
Item	Specifications	Remarks
Number of electricity meters installed	Max.200	Per Site (include Max. 4 VRF systems)

● Installation example of Electricity meter

● Example of installation for each refrigerant system



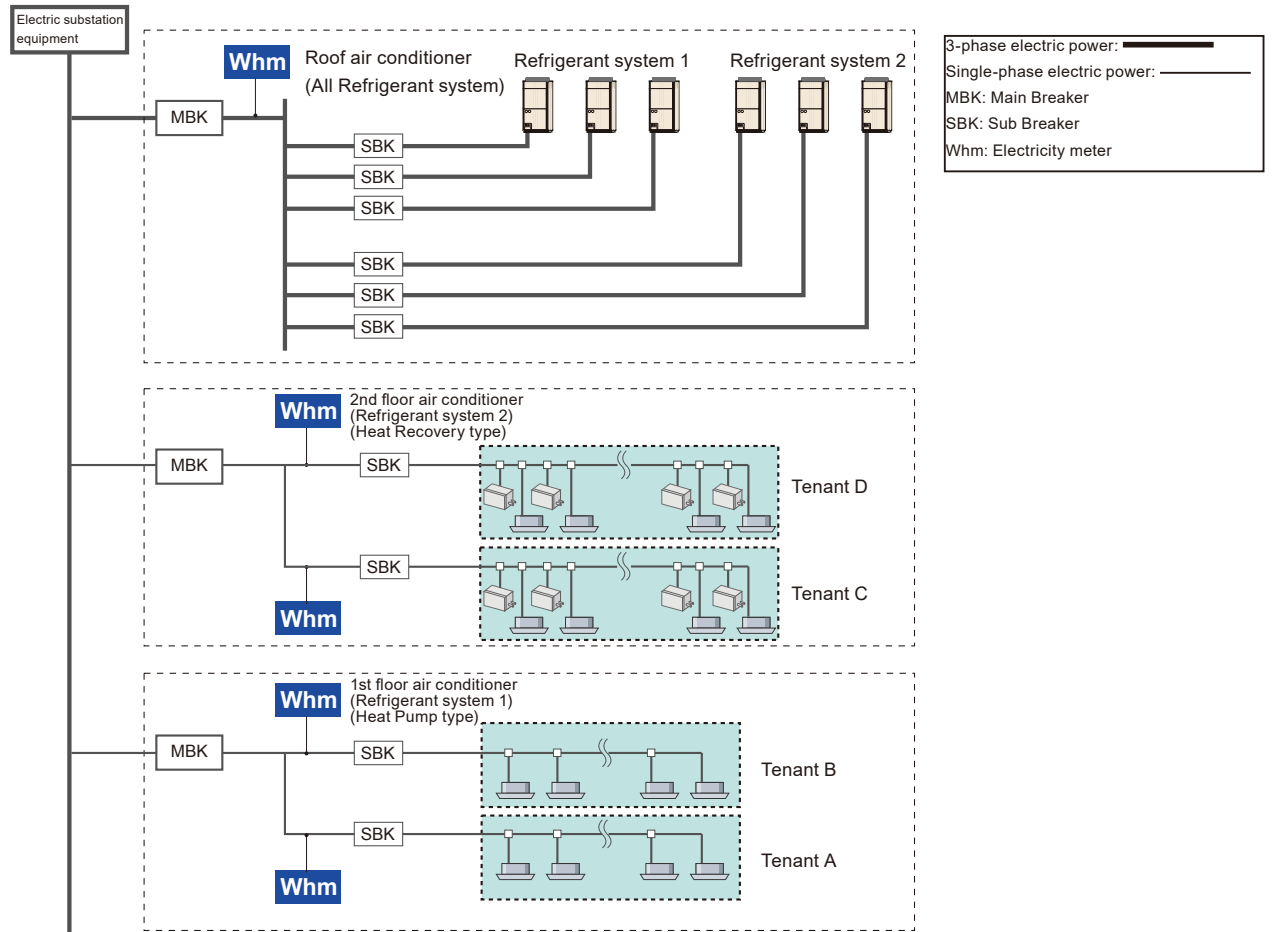
● Example of installation for indoor units and outdoor units



FUNCTION SETTING

FUNCTION SETTING

● Example of installation for each tenant



■ INSTALLATION RESTRICTION OF ELECTRICITY METER

● Functions that requires installation of electricity meter

Use an electricity meter having the following functions:

- Electricity charge apportionment function

Install for operation using an electricity meter. (Operation without an electricity meter is also possible.)

When using an electricity meter, an electricity meter must be installed for all the units which perform apportionment calculation.

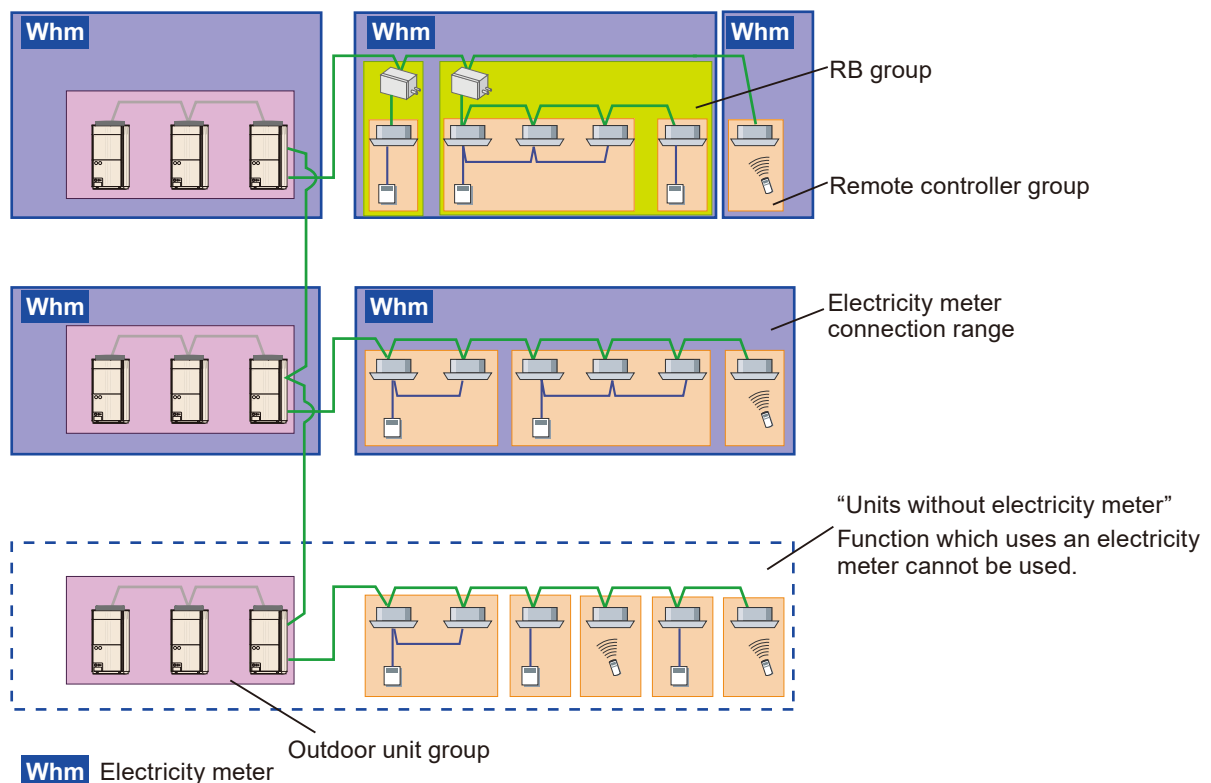
- Peak cut control function (Only for System controller)

Installation of an electricity meter is essential.

- Input Power graph display function (Only for System controller)

Installation of an electricity meter is essential.

[Installation example]



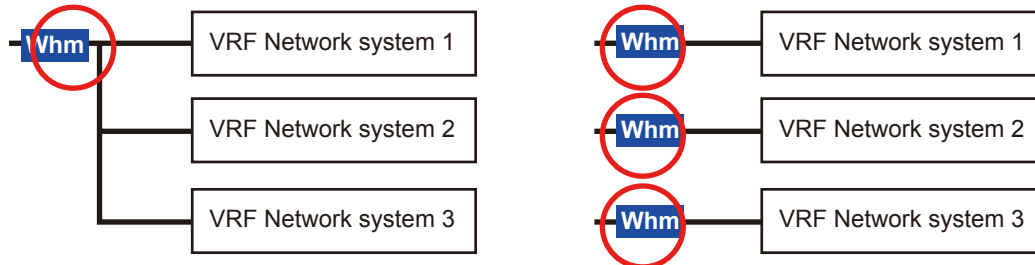
● Installation abstract

NOTE:

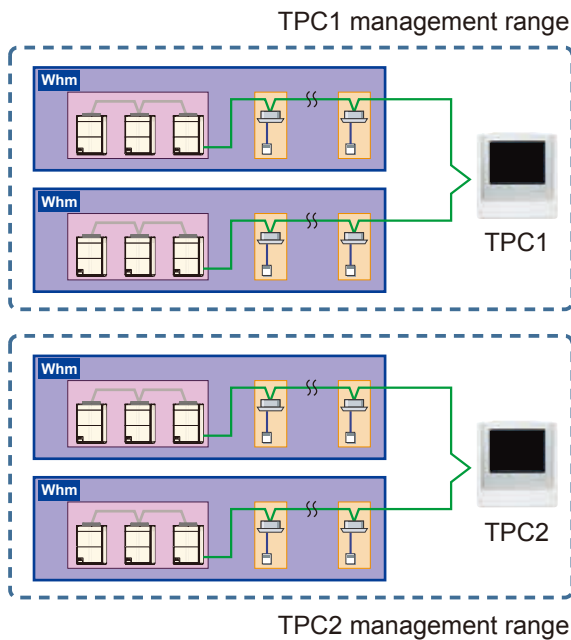
The belows are electricity meter connection methods which can be adapted by the System Controller and TPC (Touch panel controller). However, the following mentioned setting restrictions must be observed.

(1) Multiple VRF Networks can connect to 1 electricity meter. (with network crossover)

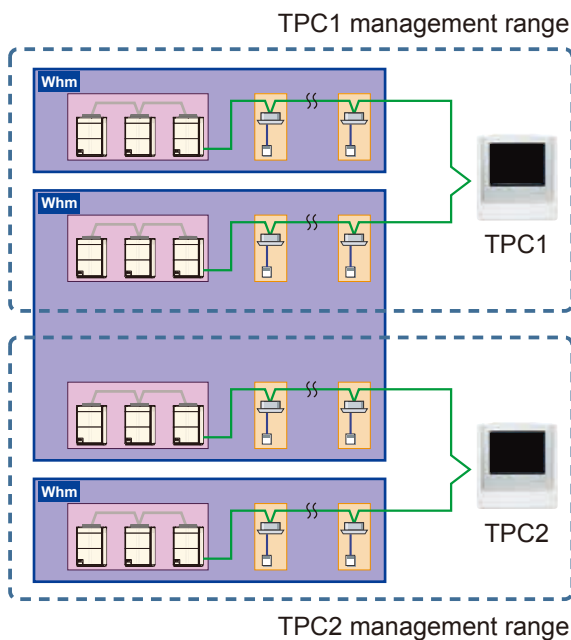
NOTE: UTY-ALGXZ1 (+UTY-PLGXE2) does not support multiple VRF Networks.



(2) With the electricity charge apportionment function, an electricity meter system cannot span TPC.

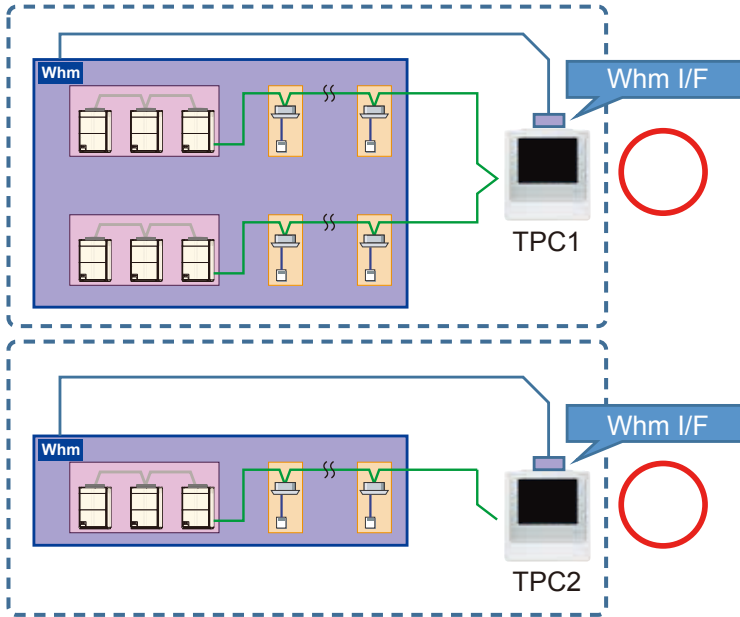


Create an electricity meter system within the range of the units managed by each TPC.



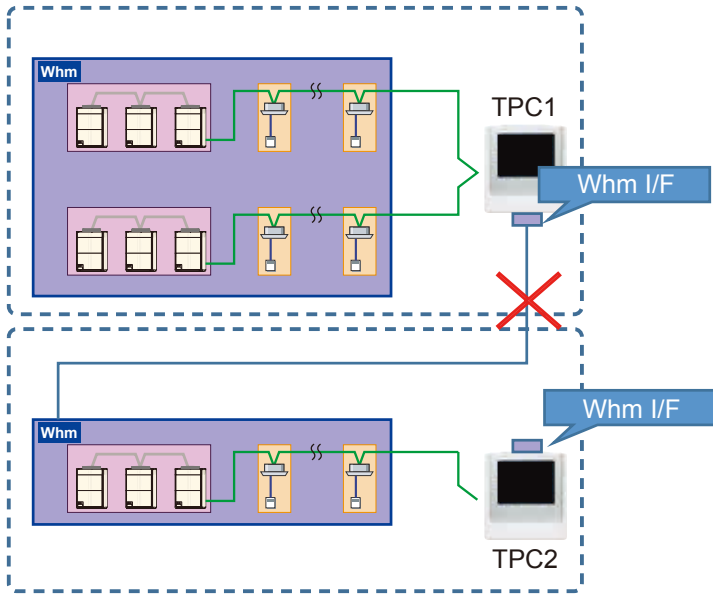
An electricity meter system spanning units managed by TPC cannot be created.

TPC1 management range

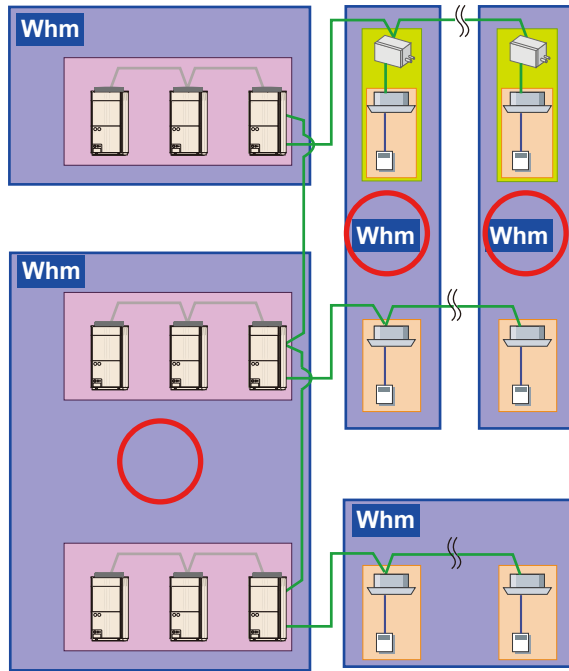


Connect the electricity meter that measures the units managed by the appropriate TPC to the electricity meter I/F belonging to the TPC main unit.

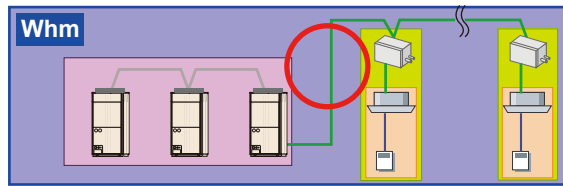
TPC1 management range



(3) Installation crossing over refrigerant systems is possible.



(4) Outdoor unit/indoor unit/RB unit mixed in 1 meter is possible.



(5) There are no restrictions on outdoor units which connect an electricity meter. An arbitrary electricity meter can be connected to an arbitrary outdoor unit.

● Installation restriction

Install electricity meters in accordance with the following restrictions:

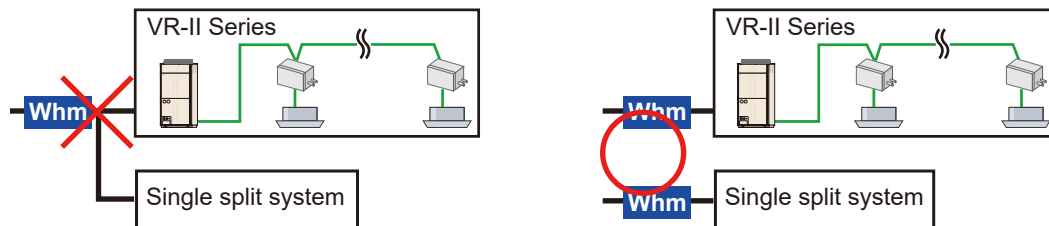
- (1) Install an electricity meter only to air conditioners which are the target of the function.
When electric lights and other OA equipment are connected to the electricity meter, also their Input Powers are calculated.
Connect electricity meters to only the necessary air conditioners.
- (2) An electricity meter cannot be connected to S Series and V Series units because they are not electricity meter supported.
- (3) Electricity meter supported/unsupported units cannot be mixed under one electricity meter.
(Because the available functions are different)
When connecting single type air conditioners via network converter (UTY-VGGXZ1), separately connect the electricity meter to VRF air conditioners because there are some functions *2 that are electricity meter unsupported.

*2: [Electricity charge apportionment function]

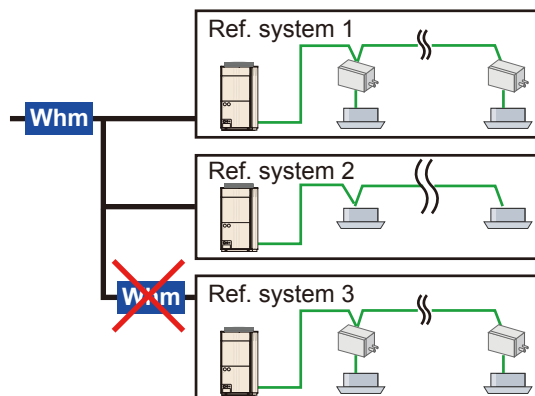
The electricity charge apportionment function cannot be used with single types air conditioners which are connected to a network converter.

[Energy saving function]

In the peak cut control, though the power will be included in the target power, the actual control will not be performed.

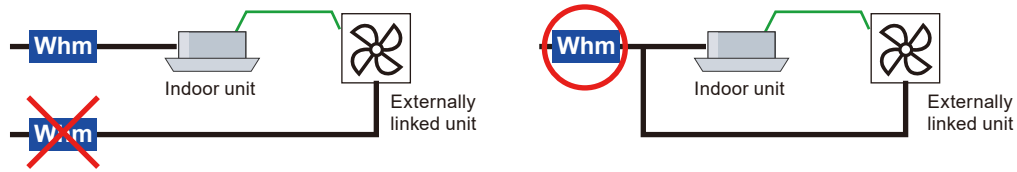


- (4) Electricity power meters cannot be nested
Installation of the meters themselves is possible, but use only one electricity meter for the System Controller or Touch Panel Controller. (If both are used, the Input Power will be measured twice.)

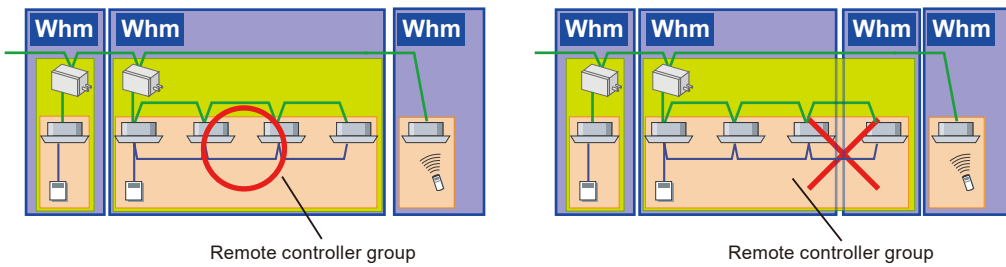


(5) The externally linked units* shall be connected to the same electricity meter as the air conditioner to which they are connected.

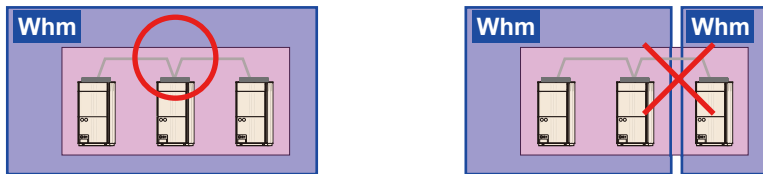
*General-purpose unit which performs calculation as an externally linked unit by electricity charge apportionment function.



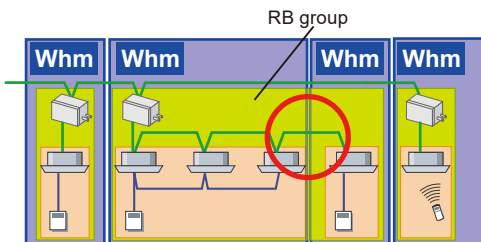
(6) Installation of electricity meter which divides remote control groups is prohibited.



(7) Installation of electricity meter which divides outdoor unit groups is prohibited.

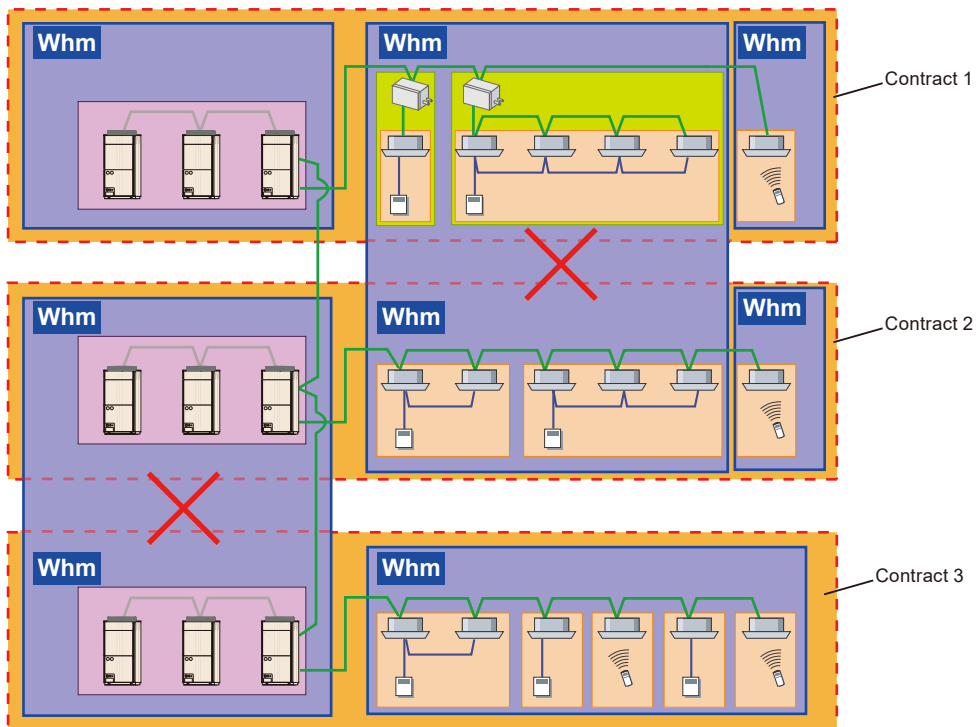
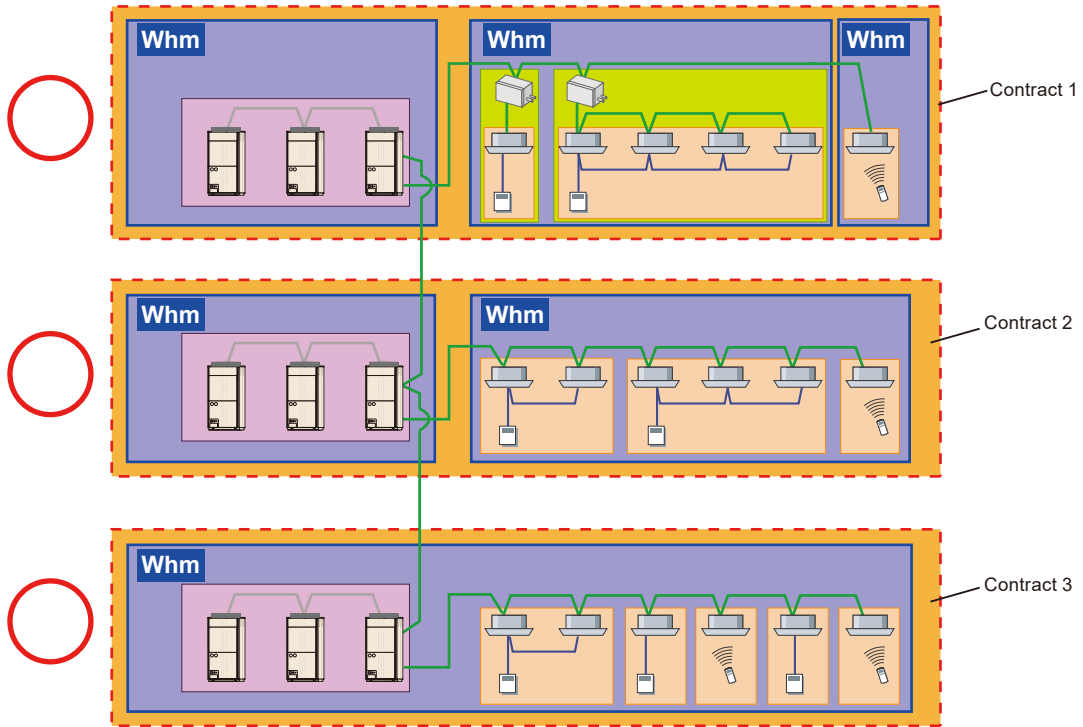


(8) Installation of electricity meter which divides RB groups is OK.



(9) Installation of electricity meter which crosses the contract is prohibited.

When an electricity meter is used by electricity charge apportionment function, install the electricity meter so that it does not cross over the “contract setting” set by electricity charge apportionment.

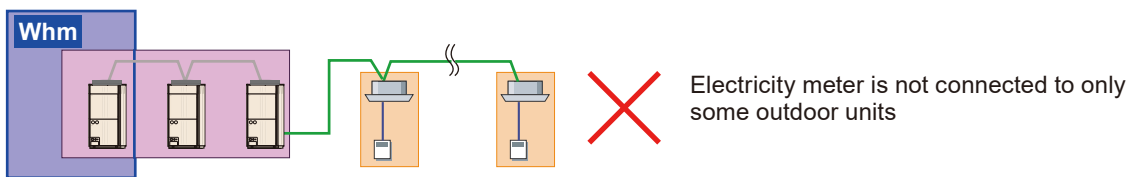
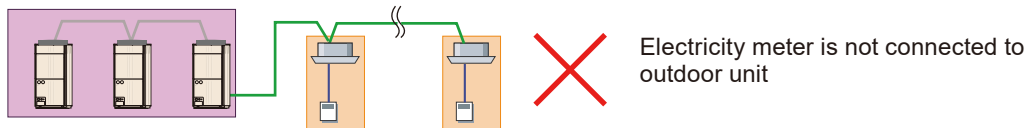
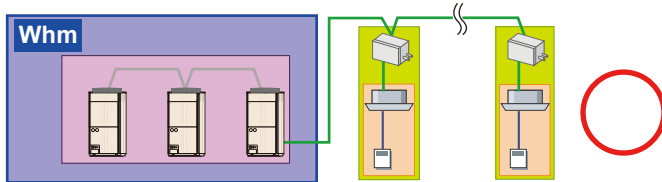


(10) When performing apportionment calculation using electricity meter

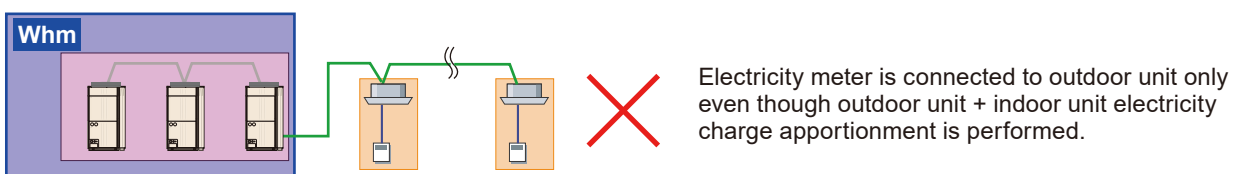
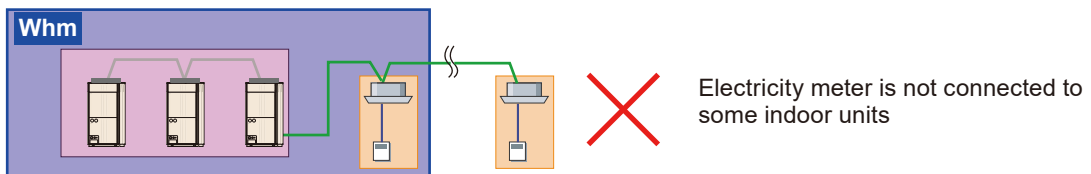
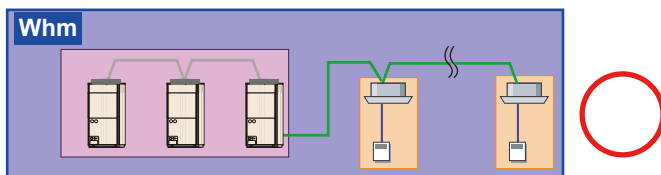
The electricity meter shall be connected to the necessary air conditioners which are the target of calculation by the electricity charge apportionment function.

When an electricity meter is not connected, electricity charge apportionment calculation using an electricity meter may not be possible.

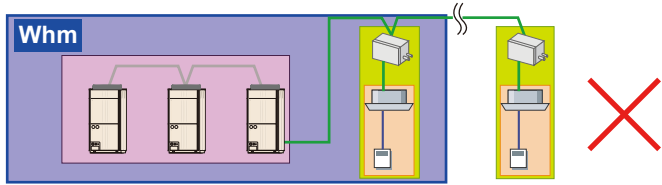
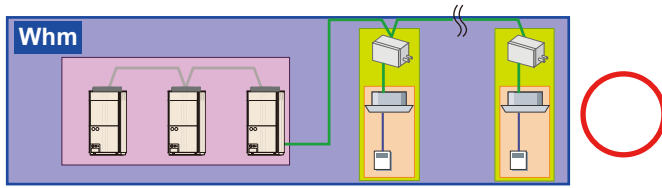
<<Electricity charge apportionment with outdoor unit only>> → Connect the electricity meter to the outdoor unit.



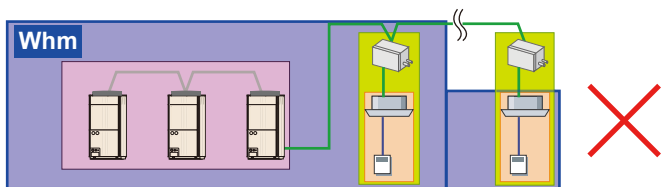
<<Outdoor unit + indoor unit electricity charge apportionment>> → Connection of an electricity meter to the outdoor unit and indoor unit is necessary.



<<Outdoor unit + indoor unit + RB unit electricity charge apportionment>> → Connection of an electricity meter to the outdoor unit, indoor unit and RB unit is necessary.



Electricity meter is not connected to some indoor units and RB units



Electricity meter is not connected to some RB units

(11) Electricity apportionment for DX-Kit

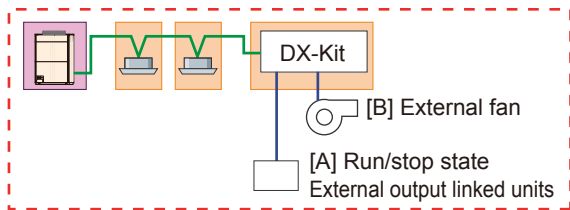
- When electricity meter not connected

The following units can be linked to the DX-Kit, by using external output terminals.

[A]: External fan

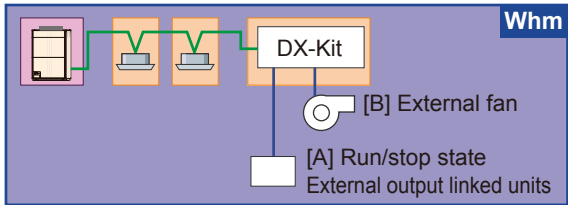
[B]: Units linked to run/stop state external output

At electricity apportionment, the DX-Kit itself and units [A] and [B] mentioned above can be handled. Set the electricity value at ON beforehand for the units [A] and [B] from the "Parameter Setting" screen. The input value is included in the calculation as a constant value when the external output terminal is ON.

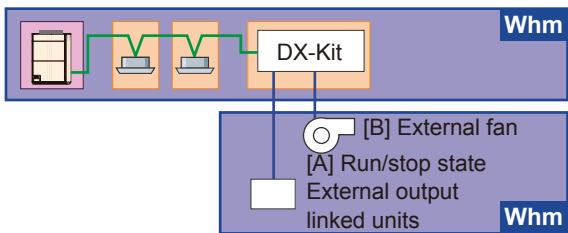


- When electricity meter is connected

At electricity apportionment, the DX-Kit itself and units [A] and [B] mentioned above can be handled the same as when an electricity meter is not connected. Set the electricity value at ON beforehand for the units [A] and [B] from the “Parameter Setting” screen and install the electricity meter so that the units [A] and [B] are included. The input value in the calculation as a constant value when the external output value is ON is included.

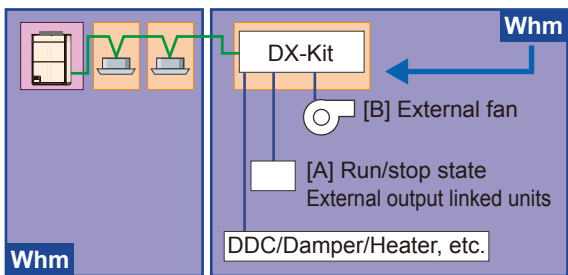


○ The electricity meter is installed so that the units [A] and [B] are included.



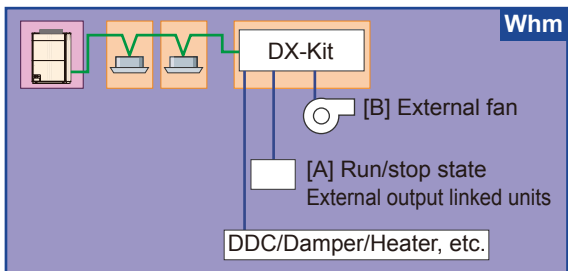
✗ The electricity meter is installed independently from the units [A] and [B].

If there is a unit related to the DX-Kit other than [A] and [B], if the DX-Kit is connected as an independent electricity meter system and installed so that other units are included, it may be included in electricity charge apportionment. (All the value of that electricity meter is charged to the DX-Kit.)



○ The electricity meter is installed so that [A], [B], and other units are included.

Units other than [A] and [B] must not be connected to an electricity meter together with other indoor units. If connected, the electricity amount of DDC, damper and heater is also charged to the other indoor units.



✗ The electricity meter is installed so that the units other than [A], [B] and indoor units are included.

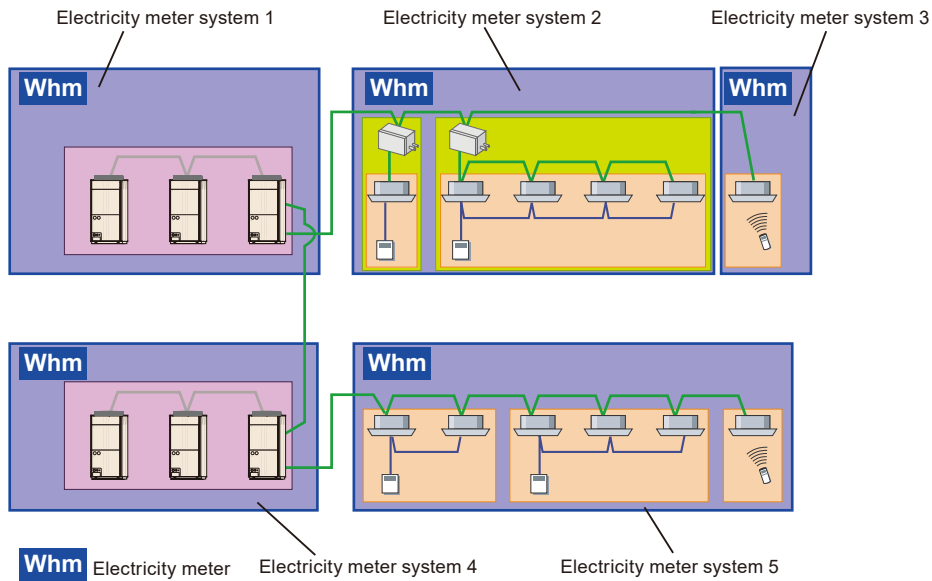
■ ELECTRICITY METER SYSTEM

Electricity meter system is the connection configuration of one electricity meter and the air conditioner units which are connected to the power line under it. This is set on the System Controller.

Set the System Controller to match the actual electricity meter installation configuration.

Since the electricity charge apportionment function/energy saving function perform control using the Input Power data from an electricity meter, it is necessary to set an electricity meter system on the System Controller.

When installing electricity meters as shown below, 5 electricity meters systems are set.



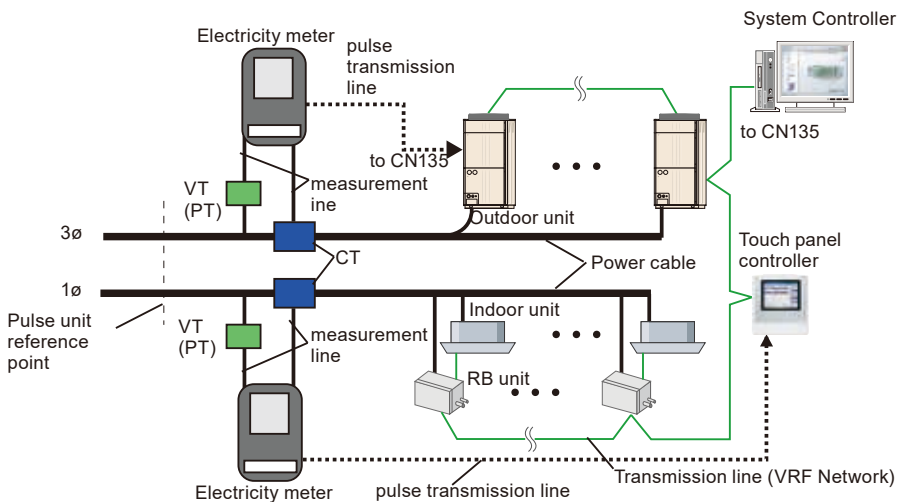
■ SETTING OF OUTDOOR UNIT AND SYSTEM CONTROLLER OR TOUCH PANEL CONTROLLER

To obtain the appropriate Input Power by System Controller or Touch Panel Controller, the power value measured by an electricity meter must be properly conveyed. To do this, appropriate setting at the electricity meter, outdoor unit, and System Controller or Touch Panel Controller is necessary. The method of setting the pulse from the electricity meter received by an outdoor unit and the method of setting the pulse value set by System Controller or Touch Panel Controller are described here. When electricity meter setting is necessary, perform it in accordance with the instruction manual supplied with the electricity meter.

Below, the setting method of electricity meters specified in pulse units and that specified in pulse constant are described.

(1) When electricity meter used is specified in pulse units

The connection configuration is shown below.



For the electricity meter specified in pulse units, the output pulses are normalized in advance (normally 1kWh/pulse) and is output. In this case, the settings are as follows:

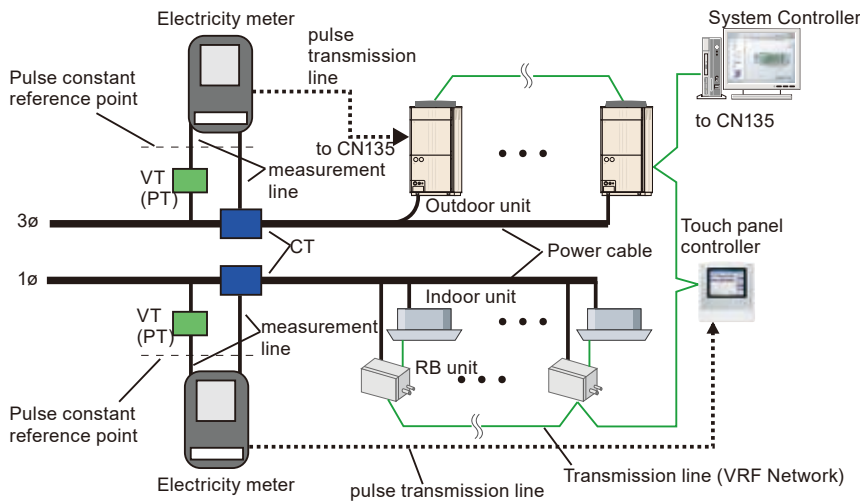
Set point	Set item	Set value	Description	Remarks
Electricity meter	Set in accordance with the product manual.	-	When there is a product unique setting, setting is performed in accordance with the product manual. (Pulse units value, VT/CT ratio, output coefficient, etc.)	
Outdoor unit	Meter No. setting	Arbitrary	Set a unique electricity meter No. for electricity meter identification.	The information will become necessary when setting System Controller or ECA Tool later. Refer also to 2-1 OUTDOOR UNIT.
	Electricity meter pulse setting	1	Fixed to "1". When 1 pulse comes from the electricity meter, the outdoor unit communicates "1" to the System Controller or ECA Tool.	
System Controller or ECA Tool	Electricity meter system setting	Units measured by electricity meter	Set the outdoor unit and indoor unit, measured by the electricity meter of the meter No. set at the outdoor unit.	The value set by each outdoor unit is used.
	Pulse setting	Electricity meter pulse units value (Usually either of 1, 10, or 100 [kWh/ pulse])	Set the pulse units specified by the electricity meter as they are. Set the number of kWh that corresponds to the "1" communicated from the outdoor unit.	Refer to the value set by each outdoor unit.

[Setting example]

Equipment conditions: VT ratio=1 (not used), CT ratio=50(250/5A), electricity meter=1kWh/pulse

Set value: Electricity meter pulse setting=1(fixed), pulse setting=1(corresponds to electricity meter used)

(2) When electricity meter used is specified by pulse constant
The connection configuration is shown below.



For the electricity meter specified by pulse constant, the Input Power indicated by output pulse must be corrected by VT/CT ratio. In this case, the settings are as follows:

Set point	Set item	Set value	Description	Remarks
Electricity meter	Set in accordance with the product manual.	-	When there is a product unique setting, setting is performed in accordance with the product manual. (Pulse constant value, output coefficient, etc.)	
Outdoor unit	Meter No. setting	Arbitrary	Set an unique electricity meter No. for electricity meter identification.	The information will become necessary when setting System Controller or ECA Tool later. Refer also to 2-1.OUTDOOR UNIT
	Electricity meter pulse setting	The pulse constant value / (VT ratio x CT ratio). However, truncated after the decimal point	Set the approximate number of power meter pulses that are equivalent to 1kWh. When set number of pulses come from the electricity meter, the outdoor unit communicates "1" to the System Controller or ECA Tool.	
System Controller or ECA Tool	Electricity meter system setting	Unit to be measured by electricity meter	Sets the outdoor unit and indoor unit, measured by the electricity meter of the meter No. set at the outdoor unit.	The value set by each outdoor unit is used.
	Pulse setting	(Electricity meter pulse setting value) x (VT ratio x CT ratio)/pulse constant Values after the decimal point must be also input. *1	Set the standard number of kWh for the value communicated from the outdoor unit. Set the number of kWh that corresponds to the "1" communicated from the outdoor unit.	Refer to the value set by each outdoor unit.

*1: Input up to 6 decimal digits

[Setting example]

Equipment conditions: VT ratio=1 (not used), CT ratio=500(2500/5A), electricity meter=3200 pulse/kWh

Set value: Electricity meter pulse setting=6 (3200/ (1x500)),

Pulse setting=0.9375 (6x (1x500)/3200) ---Refer to the calculating formula of the table above.

NOTE: Be sure to select an electricity meter that sends more pulses per 1kWh than VT ratio x CT ratio. Otherwise, the measurement error of the power will be larger than 1kWh, thus affecting the accuracy of ECA.



8. EXTERNAL INPUT & OUTPUT

CONTENTS

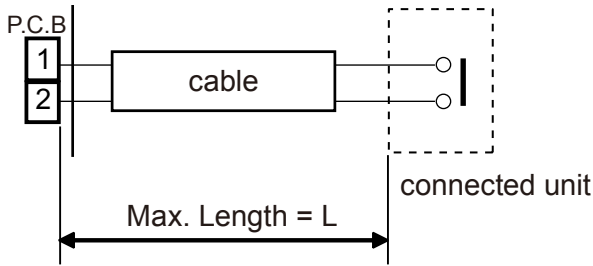
8. EXTERNAL INPUT & OUTPUT

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1. EXTERNAL INPUT & OUTPUT

Note :

The length regulations of the cable are as shown in the following figures.



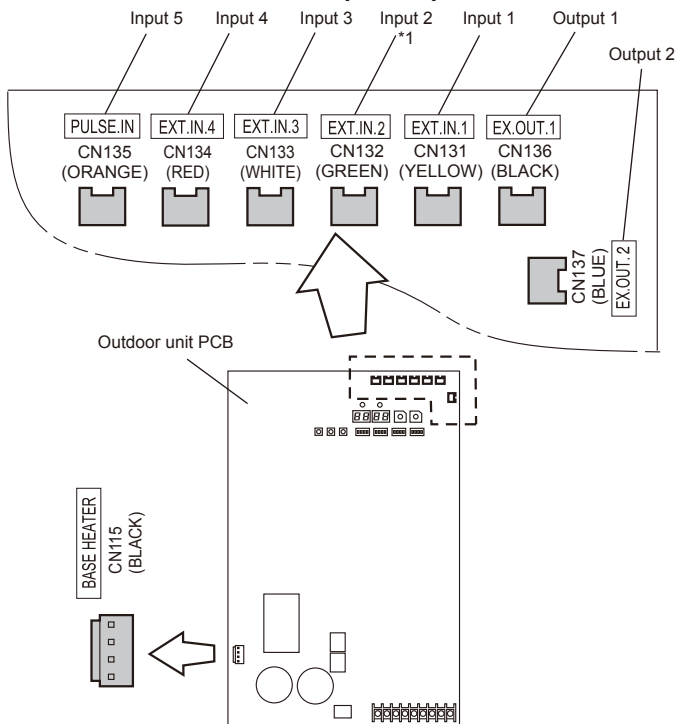
Type	L (m)
	[ft. (m)] Input / Output
Outdoor unit	492 / 492 (150 / 150)
Indoor unit	492 / 82 (150 / 25)
RB unit	150 / - (492 / -)
Touch Panel Controller	82 / 82
Central Remote Controller	(25 / 25)

1-1. OUTDOOR UNIT

External input	External output	Connector	VR-II	V-II	J-II	External connect kit (Optional parts)
Low noise mode	-	CN131	○	○	○	UTY-XWZXZ6
Cooling/Heating priority	-	CN132	×	○	○	
Outdoor unit operation peak control	-	CN133	○	○	○	
Emergency/batch stop	-	CN134	○	○	○	
Electricity meter pulse	-	CN135	○	○	○	UTY-XWZXZF
-	Error status	CN136	○	○	○	UTY-XWZXZ6
-	Operation status	CN137	○	○	○	
-	Base heater	CN115	○	○	○	UTY-XWZXZ9

■ TERMINAL POSITION

● VR-II series and V-II (460V) series

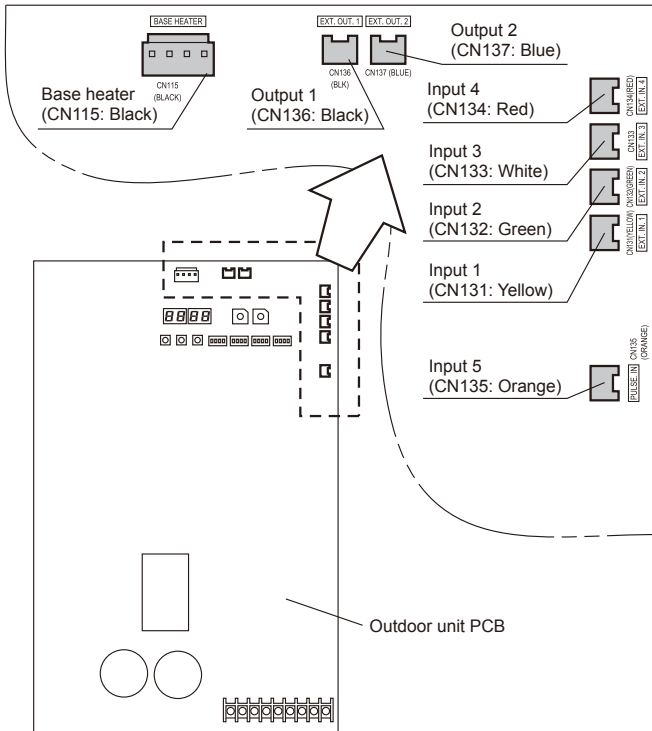


*1: Input 2 Terminal(CN132) is not in VR-II series.

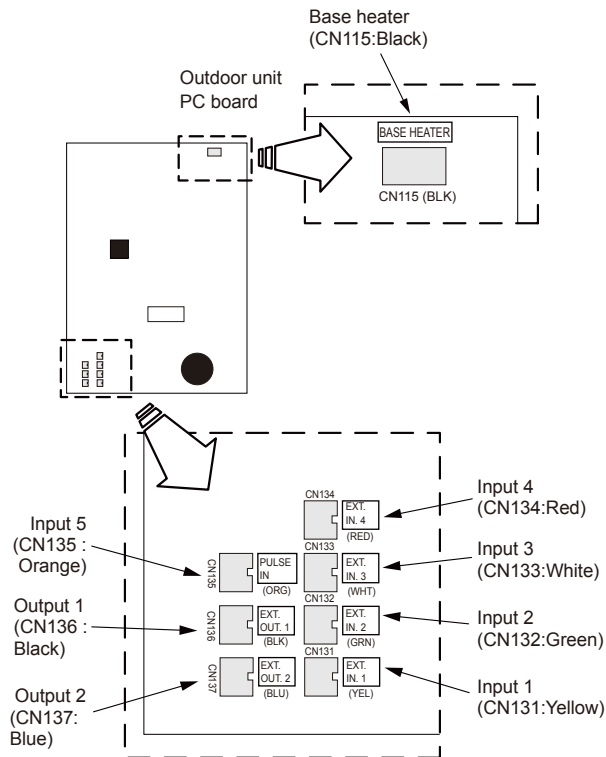
EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

● V-II (230V) series



● J-II series



EXTERNAL INPUT
& OUTPUT

EXTERNAL INPUT
& OUTPUT

1-1-1. EXTERNAL INPUT

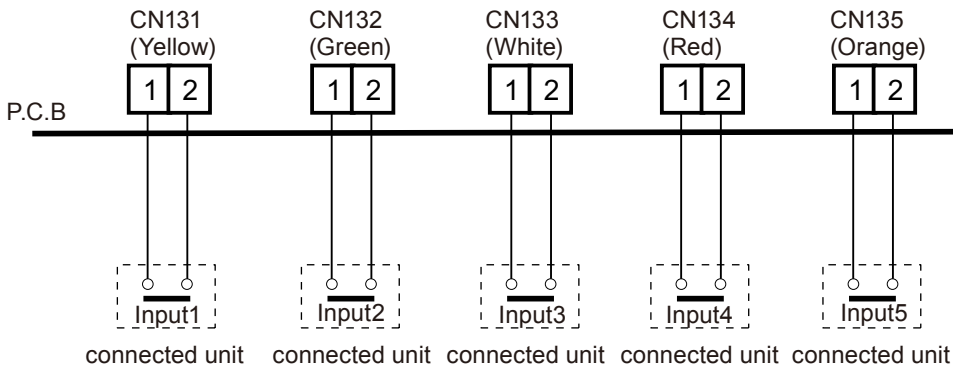
Setting to low noise mode, cooling priority/heating priority selection, outdoor unit operation peak control setting, emergency/batch stop and electricity meter pulse are possible from The electricity meter connections that are can be used by the System Controller are shown below.

■ WIRING METHOD AND SPECIFICATIONS

*A twisted pair cable (22AWG) should be used. Maximum length of cable is 492 ft. (150 m)

*Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed

*For each input, pin No.1 is of positive polarity and pin No.2 is the ground.



■ OPERATION BEHAVIOR

Connector	Input signal	Status	Outdoor unit	
			Master	Slave
CN131 (Yellow)	OFF	Normal operation	○	×
	ON	Low noise mode operation	○	×
CN132 (Green) *1	OFF	Cooling priority	○	×
	ON	Heating priority	○	×
CN133 (White)	OFF	Normal operation	○	×
	ON	Outdoor unit operation peak control	○	×
CN134 (Red)	OFF	Normal operation	○	×
	ON	Batch stop or Emergency stop operation *2, *3	○	×
CN135 (Orange) *4	No pulse	No information from electricity meter	○	○
	Pulse	Power usage information from electricity meter	○	○

Slave unit can connect only input5 (CN135).

NOTES :

*1: The "external input priority mode" must be set by pressing push button on PCB of outdoor unit.

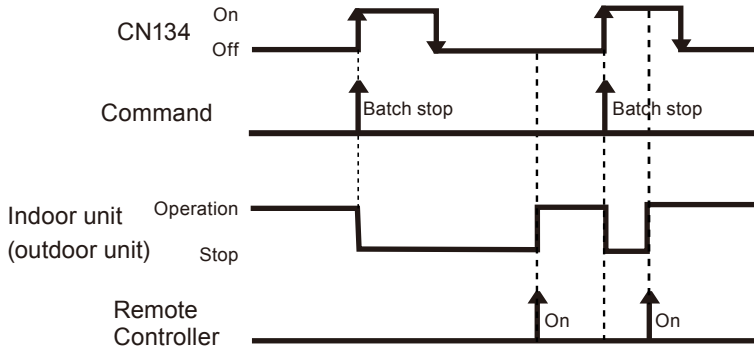
*2: Batch stop or Emergency stop pattern can be selected by outdoor unit PCB push button.

*3: The emergency stop function is not guaranteed to meet the regulations of each country. Consult local codes regarding use. Especially, since the emergency-stop may not function in the case of broken wiring to the external input terminals and communication line, communication errors due to noise, VRF external input circuit troubles, etc. In such cases, backup measures that add direct interruption of the power supply is recommended.

*4: Pulse input to CN135 must be width 50 ms or more, and must be interval 50 ms or more.

● When function setting is "Batch stop" mode

Connector	Input signal	Command
CN134	OFF → ON	Batch stop
	ON → OFF	-

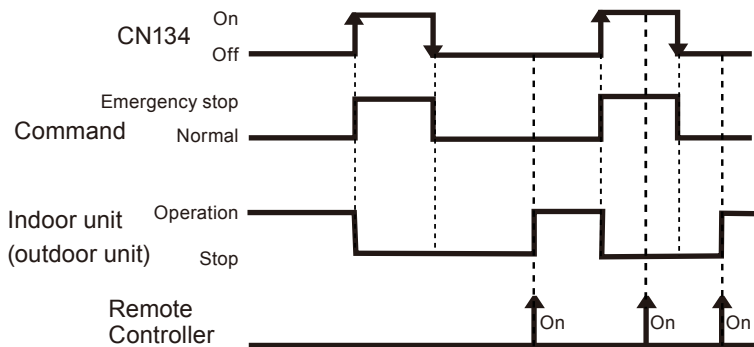


NOTES :

- All indoor units of same refrigerant system stops when Batch stop operates.
- After a batch stop, the operation by remote controller is possible.

● When function setting is "Emergency stop" mode

Connector	Input signal	Command
CN134	OFF → ON	Emergency stop
	ON → OFF	Normal



NOTES :

- All indoor units of same refrigerant system stops when Emergency stop operates.
- When the Emergency stop is triggered, indoor unit stops and Start/Stop operation by a remote controller is restricted.

1-1-2. EXTERNAL OUTPUT

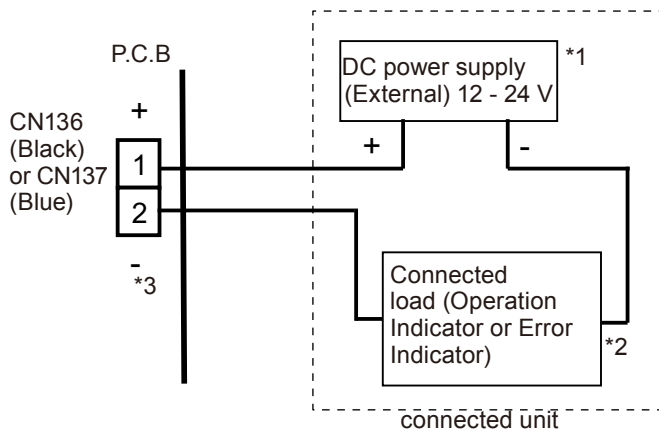
Connector	Output voltage	Status
CN136 (Black)	0 V	Normal
	DC 12-24 V *1	Error
CN137 (Blue)	0 V	Stop
	DC 12-24 V *1	Operation

■ ERROR STATUS (Master unit only)

This output indicates the outdoor unit and connected indoor unit's "Normal" or "Error" status.

■ OPERATION STATUS (Master unit only)

This output indicates the outdoor unit's "Operation" status.



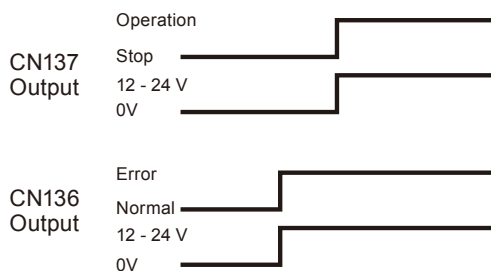
*1: Provide a DC 12 to 24 V power supply. Select a power supply capacity with an ample surplus for the connected load.

*2: The allowable current is 30 mA or less. Provide a load resistance such that the current becomes 30 mA or less.

*3: Polarity is [+] for pin 1 and [-] for pin 2.

Connect correctly.

Do not impress a voltage exceeding 24V across pins 1-2.

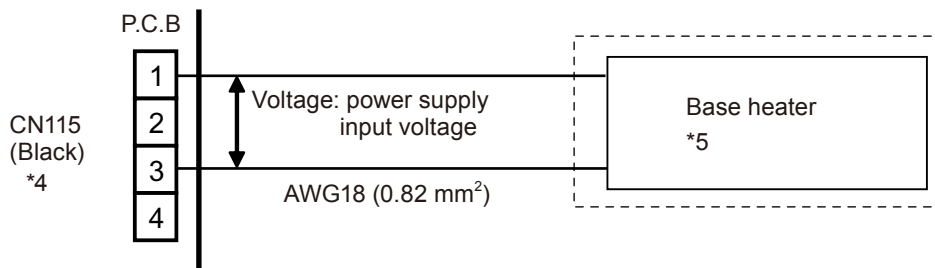


*A twisted pair cable (22AWG) should be used. Maximum length of cable is 492 ft. (150 m).

*Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.

■ BASE HEATER

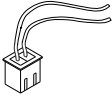
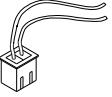
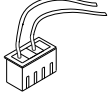
This is the output signal for base heater. Output signal ON, when the outdoor temperature goes down below 36°F (2°C), and signal OFF at the outdoor temperature 39°F (4°C).



*4: Connect to pin 1 and pin 3. No connection pin 2 and pin 4.

*5: The allowable current is 1 A or less.

1-1-3. OPTIONAL PARTS

Usage	Name and shapes	Q'ty	Models
For external input	EXTERNAL CONNECT KIT 	1	UTY-XWZXZ6
For external output (Error display, Operation display)			
For external input (Electricity meter pulse)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZF
For external output (Base heater)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZ9

1-1-4. OUTDOOR UNIT EXTERNAL INPUT / OUTPUT FUNCTION SUMMARY

■ OUTDOOR UNIT EXTERNAL INPUT FUNCTION

Item	Dry contact / Apply voltage	Function						Specifications	
		Emergency stop	Low noise mode operation	Cooling/ Heating priority	Outdoor unit operation peak control	Batch stop	Power usage information from electricity meter	Terminal	Signal type
Outdoor unit input function specification	Dry contact DC12[V]	-	● *2	-	-	-	-	CN 131 (PIN 1-2)	Edge
		-	-	●	-	-	-	CN 132 (PIN 1-2)	
		-	-	-	● *1	-	-	CN 133 (PIN 1-2)	
		● (20-01)	-	-	-	● (20-00)	-	CN 134 (PIN 1-2)	
	-	-	-	-	-	-	●	CN 135 (PIN 1-2)	Pulse

*1 : If you use Outdoor unit operation peak control, select energy saving level from below.

- 30-00 Energy saving level 1 (Stop)
- 30-01 Energy saving level 2 (Operated at 40% capacity)
- 30-02 Energy saving level 3 (Operated at 60% capacity)
- 30-03 Energy saving level 4 (Operated at 80% capacity)
- 30-03 Energy saving level 5 (Operated at 100% capacity)

*2 : If you use Low noise mode operation, select low noise level from below.

- 42-00 Low noise level 1 (lower than rated value)
- 42-01 Low noise level 2 (lower than level 1)

NOTES :

- For selecting relay, minimum permissible load must be less than 1 (mA).
- When you use Apply voltage, Take "+" polarity for PIN 1
- Number inside bracket "()" indicates function number and setting number.
- Expression "●" is equipping function.

■ OUTDOOR UNIT EXTERNAL OUTPUT FUNCTION

Item	Dry contact / Apply voltage	Function			Specifications			
		Operation status	Error status	Base heater	Terminal	Terminal output voltage	External power supply	
							Allowable voltage	Allowable current
Outdoor unit output function specification	Apply voltage	-	●	-	CN 136 (PIN 1-2)	-	DC12-24 [V]	30 mA or less
		●	-	-	CN 137 (PIN 1-2)			
	Dry contact	-	-	●	CN 115 (PIN 1-3)	AC240 [V]	-	1 A or less

NOTES :

- When you use Apply voltage, Take "+" porarity for PIN 1
- Expression "●" is equipping function.

1-2. INDOOR UNIT

External input	External output	Input select	Connector	External connect kit (Optional parts)
Control input	-	Apply voltage	CNA01	UTY-XWZXZB
		Dry contact	CNA02	UTY-XWZXZD
Forced thermostat off	-	Apply voltage	CNA03	UTY-XWZXZ7
		Dry contact	CNA04	UTY-XWZXZE
-	Operation status	-	CNB01	UTY-XWZXZC
-	Error status			
-	Indoor unit status			
-	Auxiliary heater output			

1-2-1. EXTERNAL INPUT

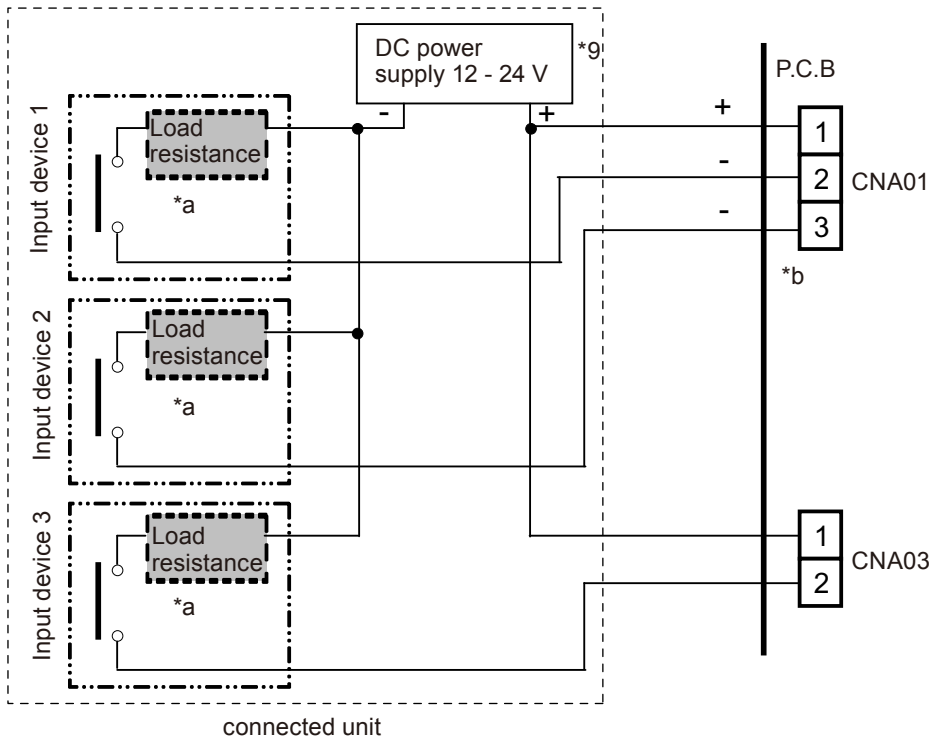
- Indoor unit can be Operation/Stop or Emergency stop or Forced stop by using indoor unit PCB CNA01 or CNA02.
- "Start/Stop" mode or "Emergency stop" mode or "Forced stop" mode can be selected with function setting of indoor unit.
- A twisted pair cable (22AWG) should be used. Maximum length of cable is 492 ft. (150 m).
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- The wire connection should be separate from the power cable line.

■ INPUT SELECT

Use either one of these types of terminal according to the application. (Both types of terminals cannot be used simultaneously.)

● Apply voltage terminal ([CNA01], [CNA03])

When a power supply must be provided at the input device you want to connect, use the Apply voltage terminal ([CNA01], [CNA03])



*9: Make the power supply DC 12 to 24 V. Select a power supply capacity with an ample surplus for the connected load.

Do not connect a voltage exceeding 24 V across pins 1-2, and 1-3.

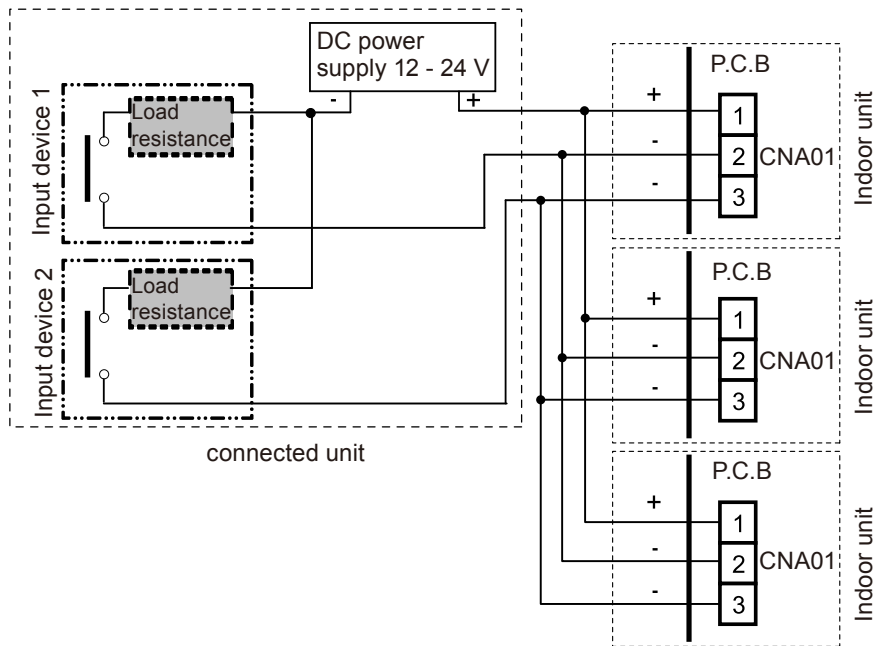
*a: The allowable current is DC 5 mA to 10 mA. (Recommended: DC 5 mA)

Provide a load resistance such that the current becomes DC 10 mA or less.

Select very low current use contacts (usable at DC 12 V, DC 1 mA or less).

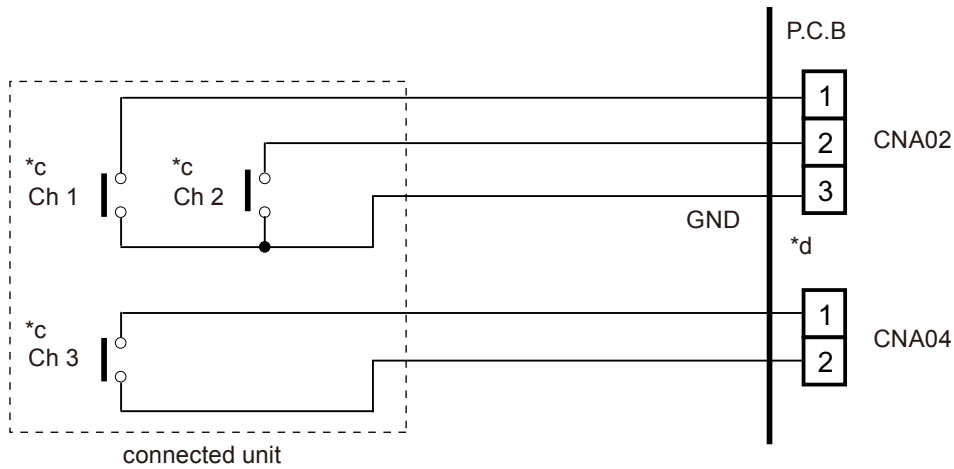
*b: The polarity is [+] for pin 1 and [-] for pin 2 and 3. Connect correctly.

When connected to Apply voltage terminals of multiple indoor units with a connected unit, be sure to make a branch outside the indoor unit using a pull box, etc. as shown on below example.



● **Dry contact terminal ([CNA02], [CNA04])**

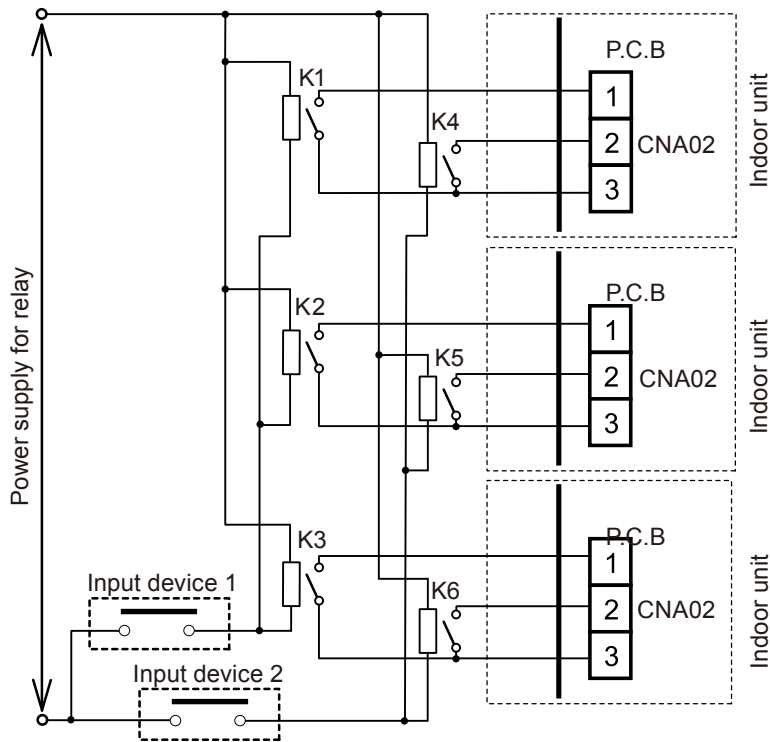
When a power supply is not required, use the Dry contact terminal ([CNA02], [CNA04]).



*c: Select very low current use contacts (usable at DC 12 V, DC 1 mA or less).

*d: The wiring is different from Apply voltage terminals. Be sufficiently careful when wiring.

When connected to Dry contact terminals of multiple indoor units with a connected unit, insulate each indoor unit with relay, etc. as shown on below example.



K1 - K6 : Relay
(Device for DC Current)

NOTE :

- If power is connected to dry contact on indoor units, damage will occur.

EXTERNAL INPUT & OUTPUT

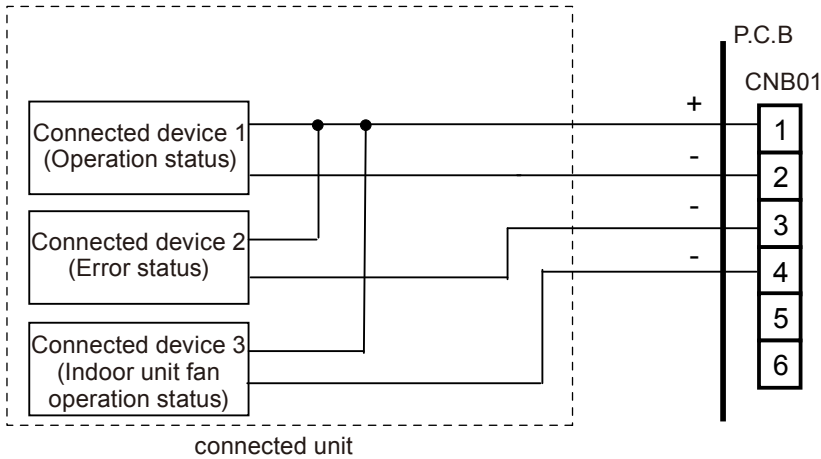
EXTERNAL INPUT & OUTPUT

1-2-2. EXTERNAL OUTPUT

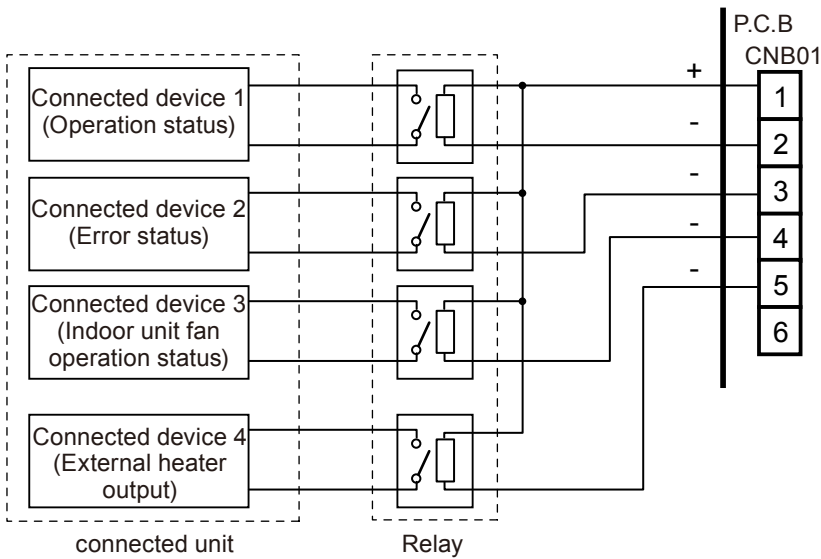
- A twisted pair cable (22AWG) should be used. Maximum length of cable is 82 ft. (25 m).
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- Output voltage: Hi DC 12 V± 2 V, Lo 0 V.
- Permissible current: 50 mA
- If function setting "60" is set to "00" shown below. Refer to 1-2-3. for other function setting.

■ OUTPUT SELECT

● When indicator etc. are connected directly



● When connecting with unit equipped with a power supply



1-2-3. COMBINATION OF EXTERNAL INPUT AND OUTPUT

Function setting	Mode	situation	External input		External output			
			CNA01 or CNA02	CNA03 or CNA04	CNB01 (EXT.OUT)			
			EXT. IN1	EXT. IN2	Output 1 Pins 1-2	Output 2 Pins 1-3	Output 3 Pins 1-4	Output 4 Pins 1-5
60-00	0	Thermostat off by External input	Operation/ Stop (46-00) or Emergency stop (46-01) or Forced stop (46-02)	Forced thermostat OFF	Operation status	Error status	Indoor unit fan operation status	External heater output
60-01	1	Fresh air conditioner (for external control module)		VRF cooling OFF	Cooling thermostat ON	Error status	Indoor unit fan operation status	External heater output
60-02	2	Economizer 1 (Cooling 1 output)		Forced thermostat OFF	Cooling thermostat ON	Error status	Remote controller output	External heater output
60-03	3	Economizer 2 (Cooling 2 output, nothing error output)		VRF cooling ON	Cooling thermostat ON	Cooling high / low output	Remote controller output	External heater output
60-04	4	Economizer 3 (Cooling 2 output, nothing heater output)		VRF cooling ON	Cooling thermostat ON	Error status	Remote controller output	Cooling high / low output
60-05	5	Humidifier 1 (Nothing operation status output)		Forced thermostat OFF	Heating thermostat ON	Error status	Indoor unit fan operation status	External heater output
60-06	6	Humidifier 2 (Nothing heater output)		Forced thermostat OFF	Operation status	Error status	Indoor unit fan operation status	Heating thermostat ON
60-07	7	Humidifier 3 (+ Fresh air conditioner (for external control module))		VRF cooling OFF	Cooling thermostat ON	Error status	Heating thermostat ON	External heater output
60-08	8	Humidifier 4 (+ Economizer 1)		Forced thermostat OFF	Cooling thermostat ON	Heating thermostat ON	Remote controller output	External heater output

EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

1-2-4. INDOOR UNIT EXTERNAL INPUT / OUTPUT FUNCTION SUMMARY

■ INDOOR UNIT EXTERNAL INPUT FUNCTION






Item	Dry contact / Apply voltage	Function		Specifications				
		EXT. IN1	EXT. IN2	Terminal	Signal type	External power supply		Wire size / length
						Allowable voltage	Allowable current	
Indoor unit input function specification	Dry contact DC 12 [V]	●	-	CNA02 (PIN1-3)	Edge	-	-	AWG22 Twist / Max. Cable length 492 ft. (150 m)
				CNA02 (Ch1:PIN1-3) (Ch2:PIN2-3)	Pulse *1			
		-	●	CNA04 (PIN1-2)	Edge			
	Apply voltage	●	-	CNA01 (PIN1-2)	Edge	DC 12-24 [V]	10 [mA] or less	
				CNA01 (Ch1:PIN1-2) (Ch2:PIN1-3)	Pulse *1			
		-	●	CNA03 (PIN1-2)	Edge			

*1 : Default setting is Edge signal, if you use pulse signal, must be set Dip SW2-2 to ON position.

■ INDOOR UNIT EXTERNAL OUTPUT FUNCTION

Item	Dry contact / Apply voltage	Function				Specifications			
		Output 1	Output 2	Output 3	Output 4	Terminal	Terminal output voltage	Wire size	Maximum length of cable
Indoor unit output function specification	Dry contact	●	-	-	-	CNB01 (PIN1-2)	DC 12 [V]	AWG22 Twist	82 ft. (25 m)
		-	●	-	-	CNB01 (PIN1-3)			
		-	-	●	-	CNB01 (PIN1-4)			
		-	-	-	● *	CNB01 (PIN1-5)			

1-2-5. OPTIONAL PARTS

Usage	Name and shapes	Q'ty	Models
For output port	EXTERNAL CONNECT KIT 	1	UTY-XWZXZC
For control input port (Apply voltage terminal)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZB
For control input port (Dry contact terminal)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZD
For forced thermostat off port (Apply voltage terminal)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZ7
For forced thermostat off port (Dry contact terminal)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZE

EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

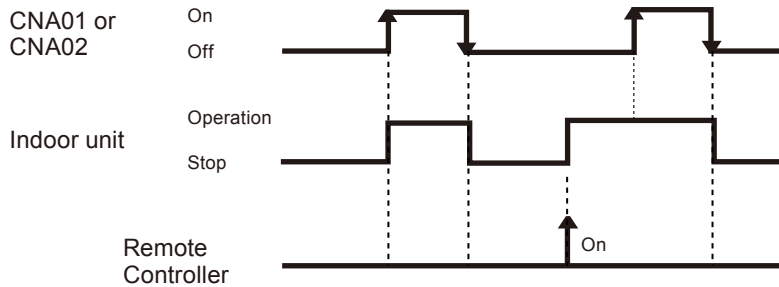
1-2-6. DETAILS OF FUNCTION

① CONTROL INPUT FUNCTION

①-1: Operation/Stop mode

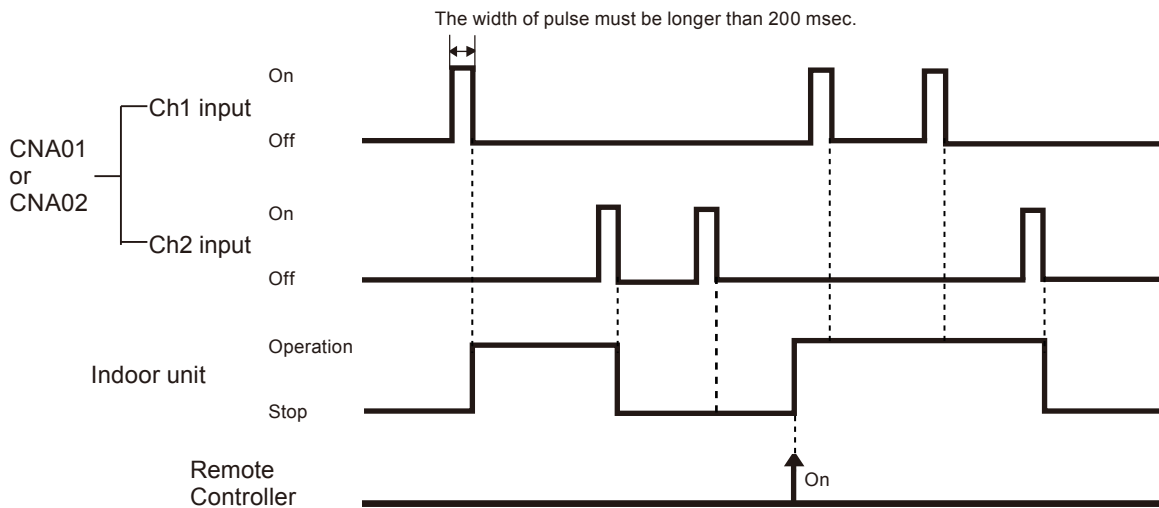
● In the case of "Edge" input

Function setting	Dip-SW	External input	Input signal	Command
46-00	SET2-2: OFF (Factory setting)	CNA01 or CNA02 (EXT.IN1)	OFF → ON	Operation
			ON → OFF	Stop



● In the case of "Pulse" input

Function setting	Dip-SW	External input	Input signal	Command	
46-00	SET2-2: ON	CNA01 or CNA02 (EXT.IN1)	Ch1	OFF → ON	Operation
			Ch2	OFF → ON	Stop



NOTES :

- The last command has priority.
- The indoor units within the same remote controller group operates in the same mode.

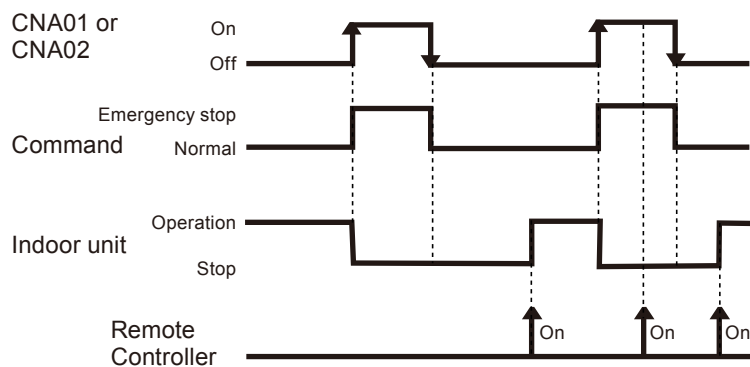
EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

①-2: Emergency stop mode

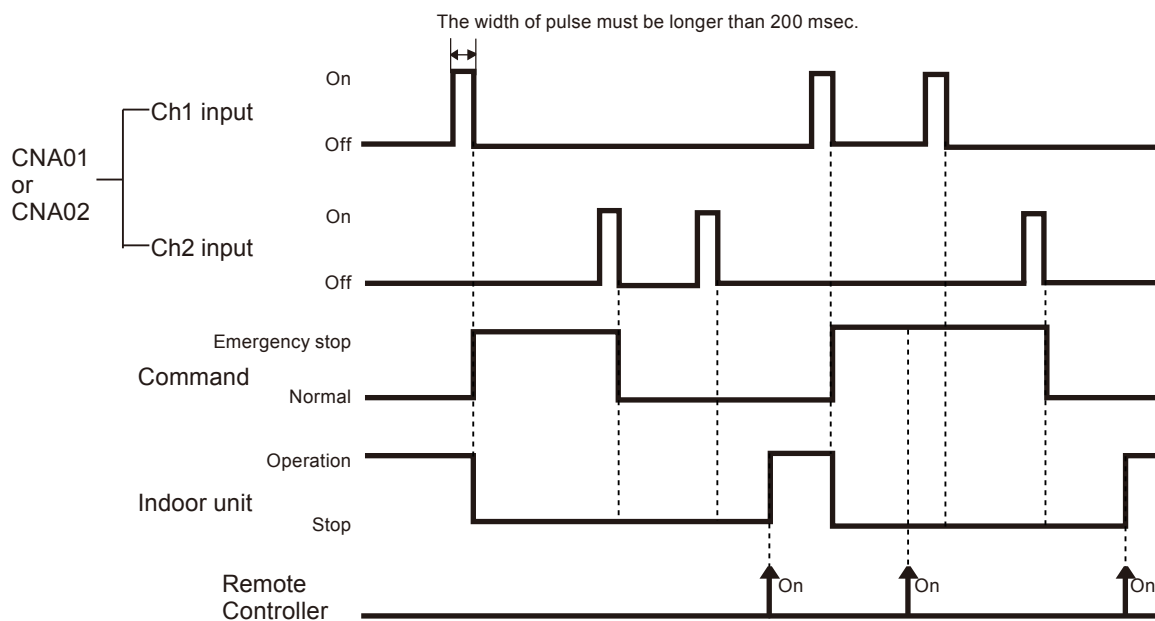
● In the case of "Edge" input

Function setting	Dip-SW	External input	Input signal	Command
46-01	SET2-2: OFF (Factory setting)	CNA01 or CNA02 (EXT.IN1)	OFF → ON	Emergency stop
			ON → OFF	Normal



● In the case of "Pulse" input

Function setting	Dip-SW	External input	Input signal	Command
46-01	SET2-2: ON	CNA01 or CNA02 (EXT.IN1)	Ch1 OFF → ON	Emergency stop
			Ch2 OFF → ON	Normal



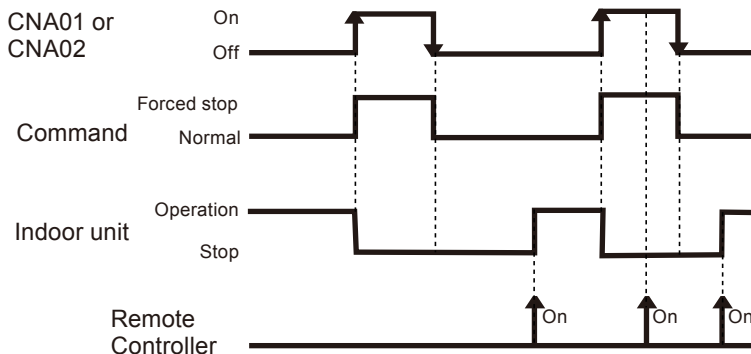
NOTE :

- All indoor units of same refrigerant system stop when Emergency stop operates.

①-3: Forced stop" mode

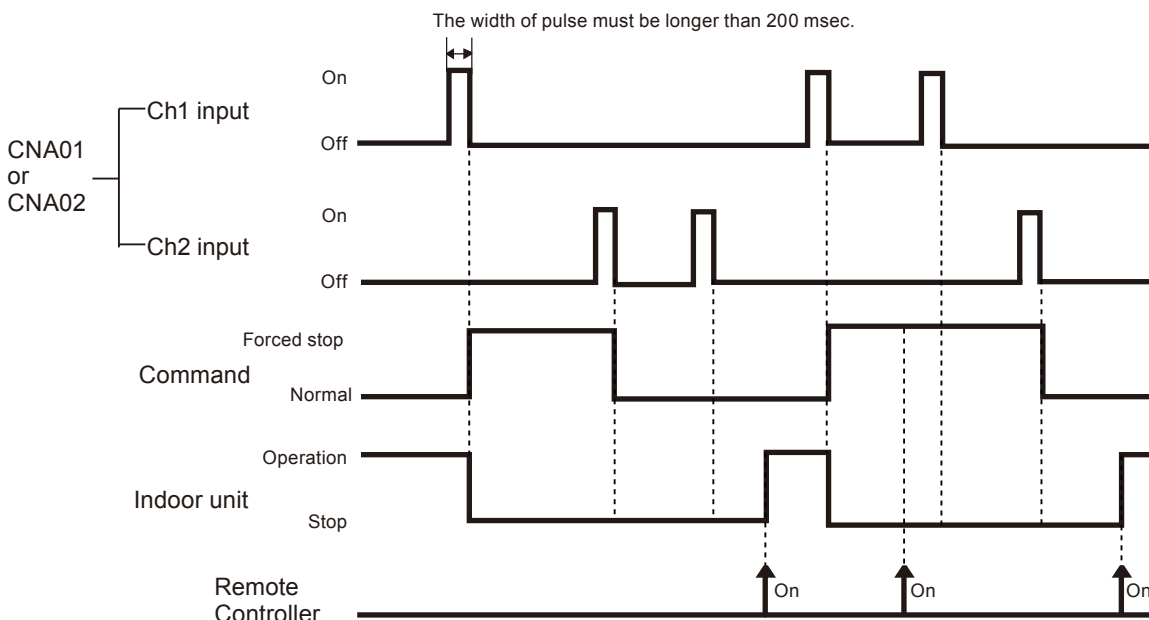
●In the case of "Edge" input

Function setting	Dip-SW	External input	Input signal	Command
46-02	SET2-2: OFF (Factory setting)	CNA01 or CNA02 (EXT.IN1)	OFF → ON	Forced stop
			ON → OFF	Normal



●In the case of "Pulse" input

Function setting	Dip-SW	External input	Input signal	Command
46-02	SET2-2: ON	CNA01 or CNA02 (EXT.IN1)	Ch1 OFF → ON	Forced stop
			Ch2 OFF → ON	Normal



NOTE :

- When the forced stop is triggered, indoor unit stops and Operation/Stop operation by a remote controller is restricted.

EXTERNAL INPUT & OUTPUT

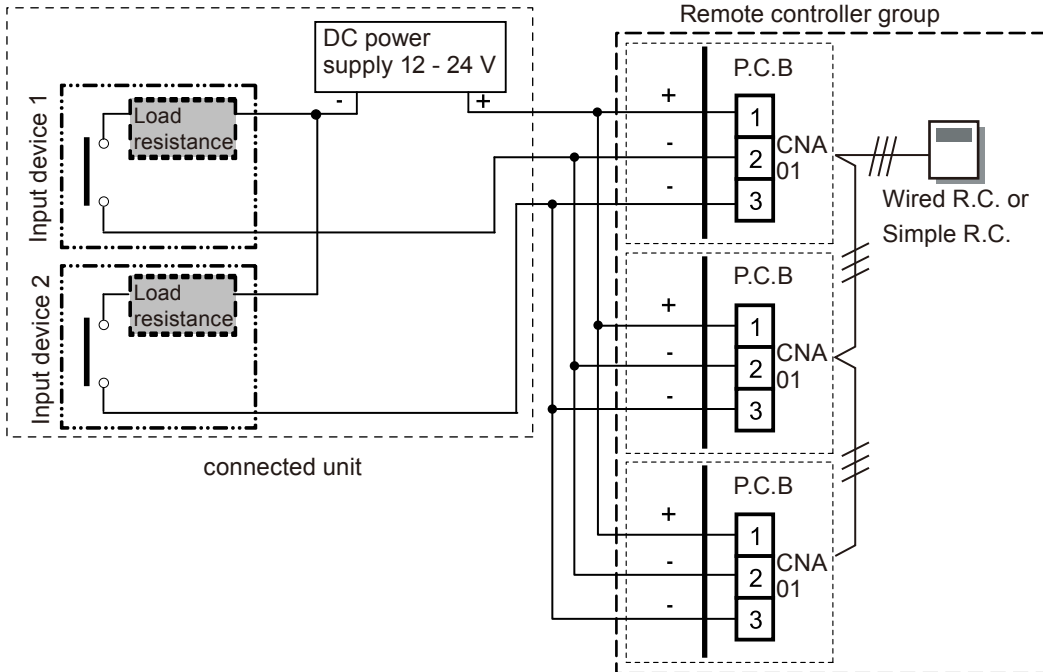
EXTERNAL INPUT & OUTPUT

● **Considerations when setting forced stop**

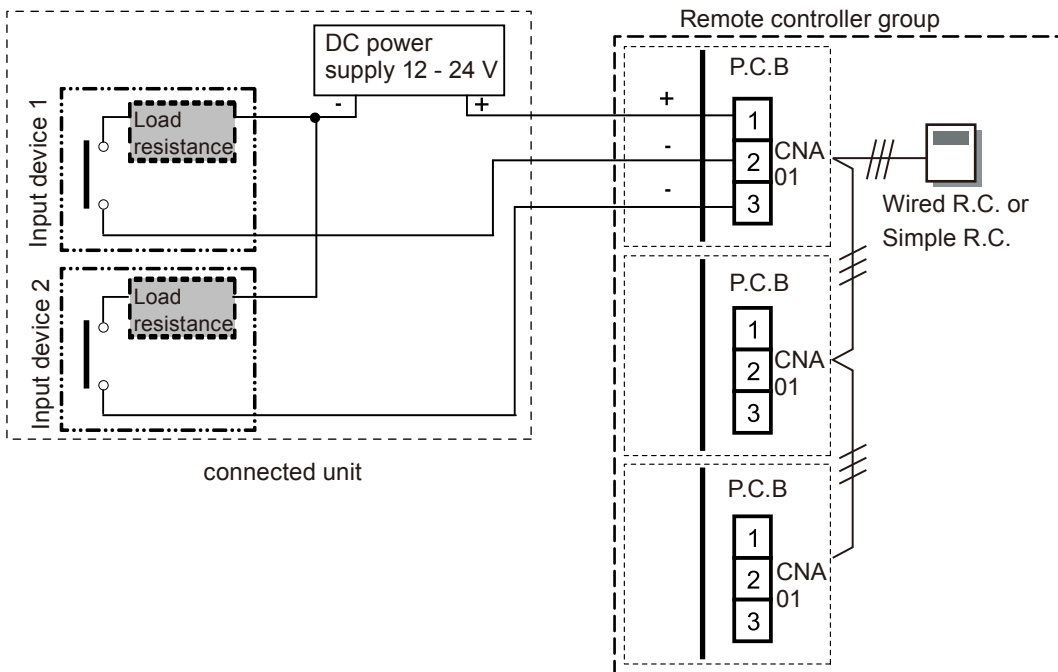
⚠ CAUTION

When forced stop function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

Example 1 : OK



Example 2 : Prohibited



EXTERNAL INPUT & OUTPUT

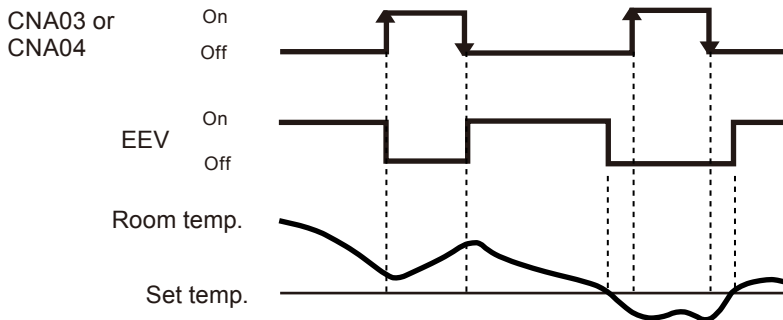
EXTERNAL INPUT & OUTPUT

② FORCED THERMOSTAT OFF FUNCTION

Function setting	Mode	External input	Input signal *	Command
60-00, 02, 05, 06, 08	0, 2, 5, 6, 8	CNA03 or CNA04 (EXT.IN2)	OFF → ON	EEV OFF
			ON → OFF	Normal operation

*Edge input only

Example of cooling mode



NOTE :

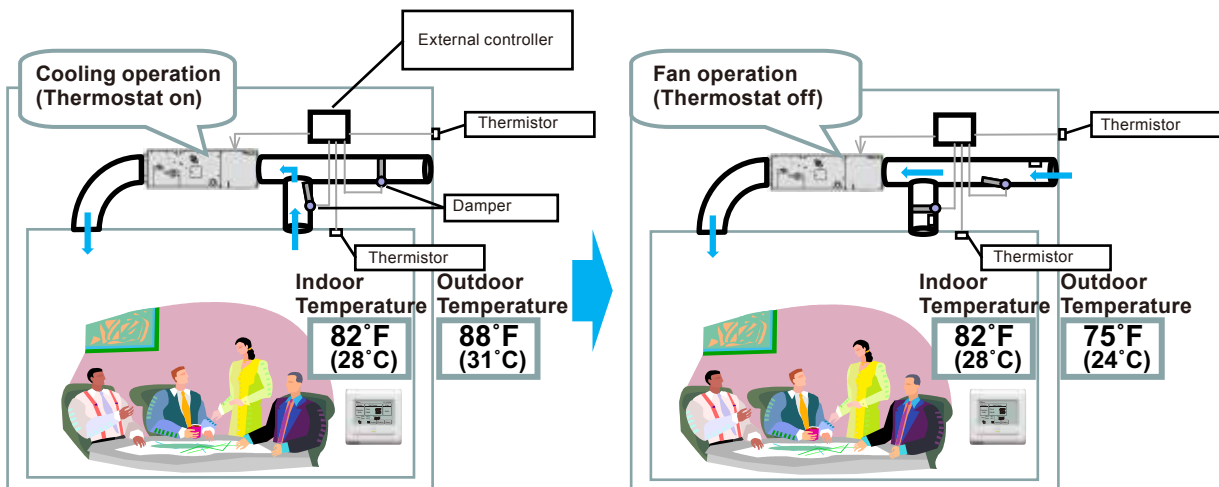
- When the signal is received from another unit on the refrigerant circuit, there may be a delay in thermostat off function at the unit.

● Example 1

- In - line connection

- Function setting for Fan setting when cooling thermostat OFF
Number 49-00 (Follow the setting on the remote controller)

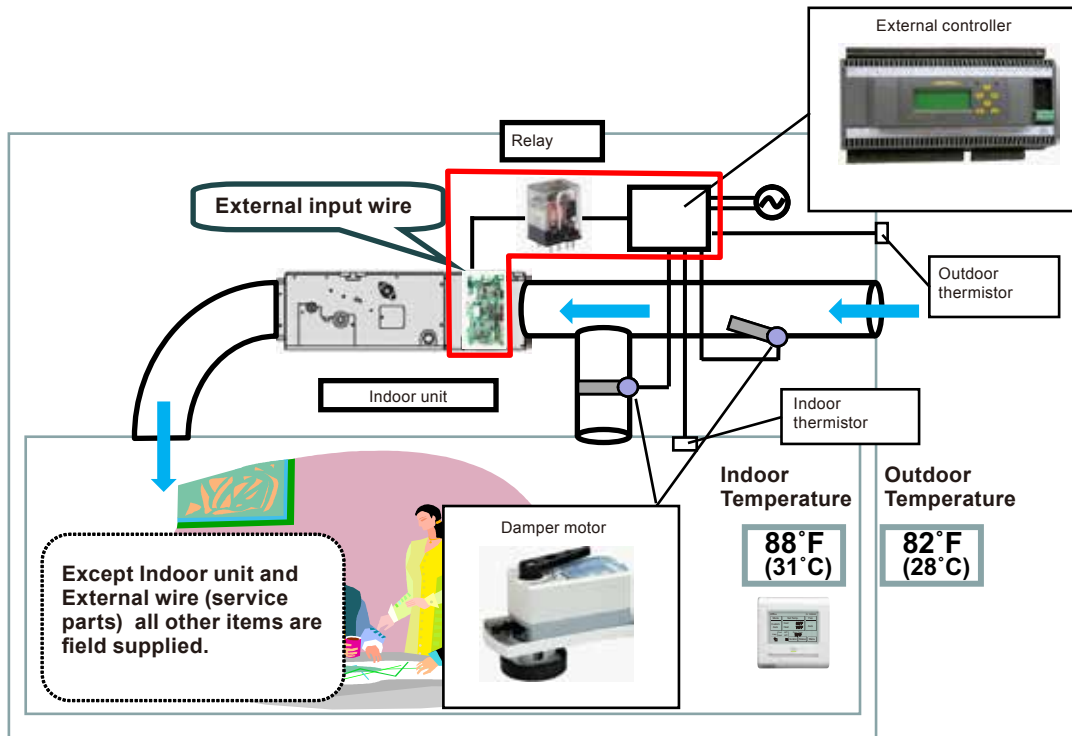
Forced thermostat off is one of the function to save energy. For example, case of outdoor temperature is lower than Indoor temperature, Indoor unit of air conditioner worked as Fan operation based upon receiving signal from external controller. (Cooling Only)



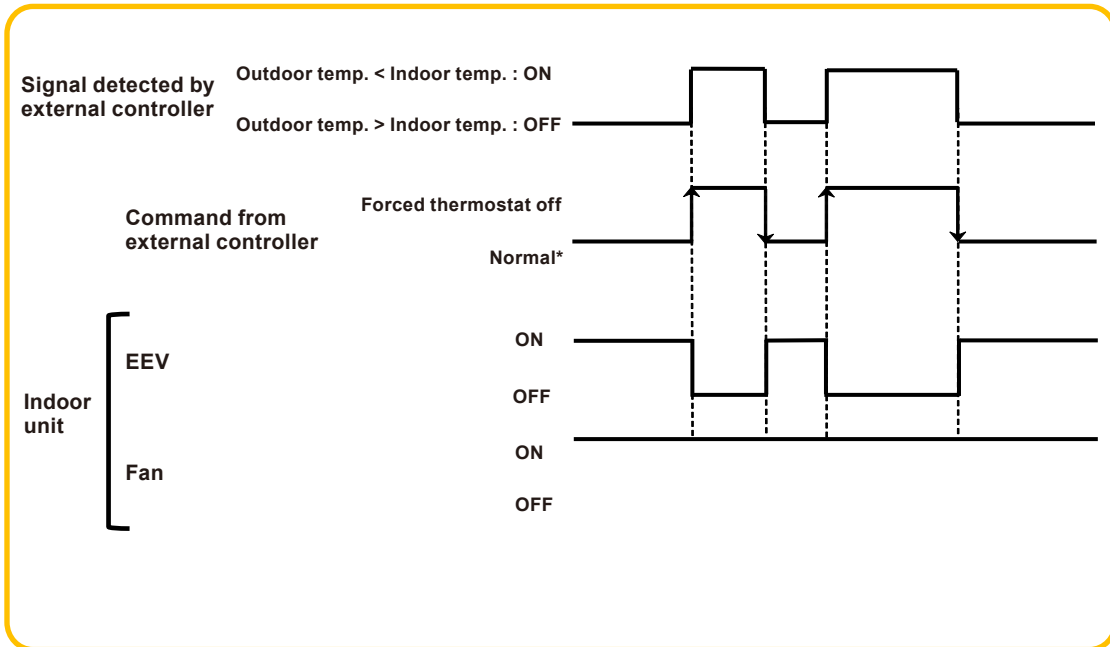
EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

● System figure example

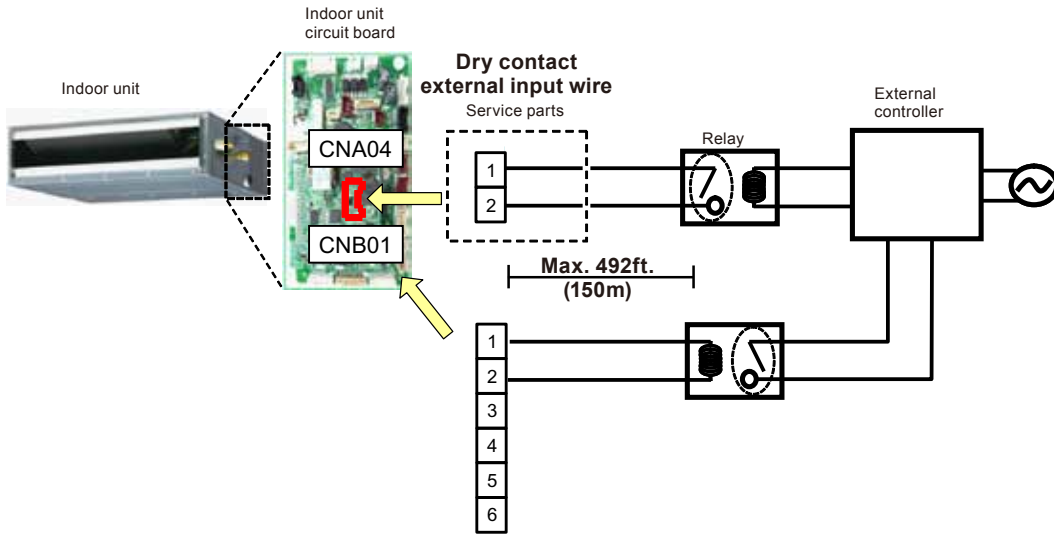


● Operation status



*Normal means that Indoor unit is continues to operate until [Forced thermostat off] signal received, at condition which are set by central and individual controller or detected by thermo sensors of indoor unit. Indoor unit continues to operate until [Forced thermostat off] signal received, at condition which are set by central and individual controller or detected by thermo sensors of indoor unit. Once [Forced thermostat off] signal received, Indoor unit start operation under Fan mode.

● Example of Electrical circuit



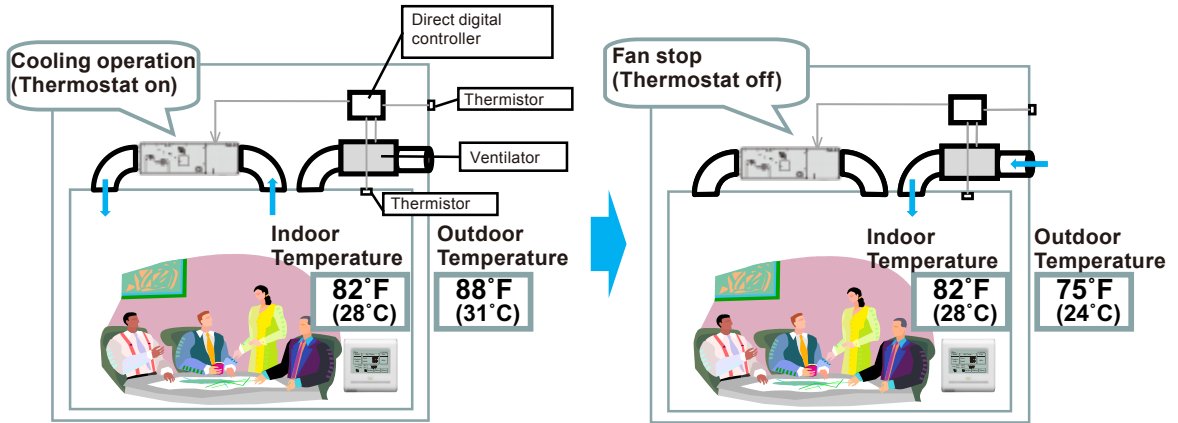
Specification of external input	
Item	Spec
Terminal	CNA04
Output voltage	DC 12 V
Wire diameter	AWG22 Twist (0.33 mm ²)
Service parts No.	9368778019

Requirement for relay switch	
Item	Spec
Min. permissible load	1 mA or less

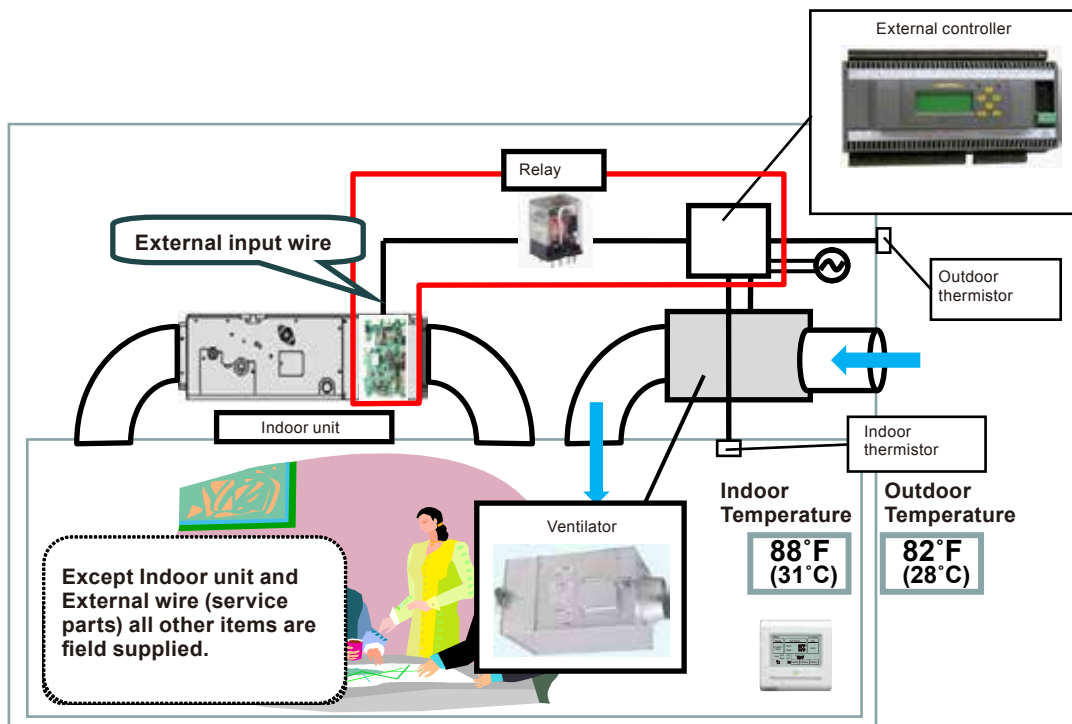
● **Example 2**

- Individual connection
- Function setting for Fan setting when cooling thermostat OFF
Number 49-01 (Stop)

Forced thermostat off is one of the function to save energy. For example, case of using ventilator at condition with outdoor temperature is lower than Indoor temperature, Indoor unit of air conditioner stop based upon receiving signal from external controller. (Cooling Only)



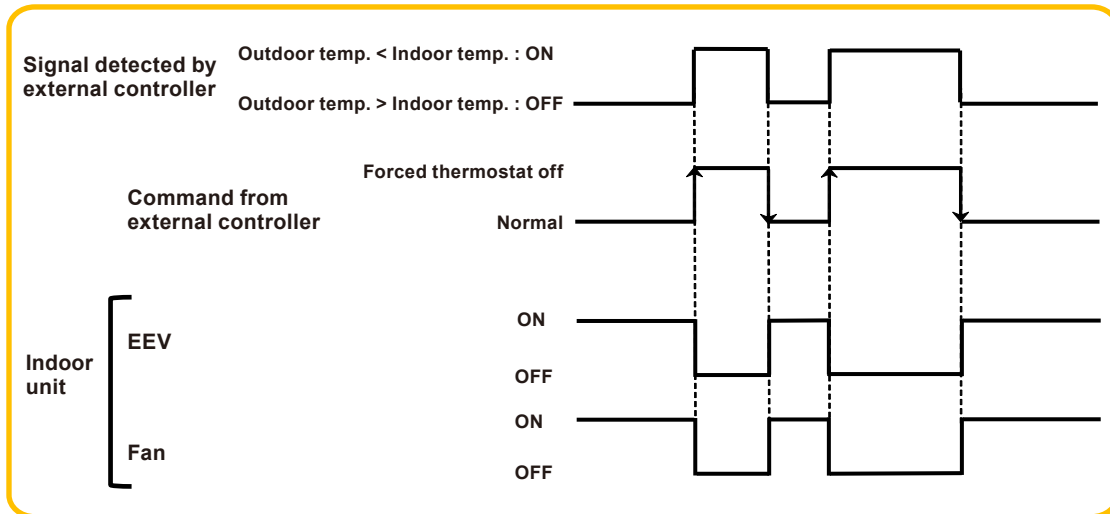
● **System figure example**



EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

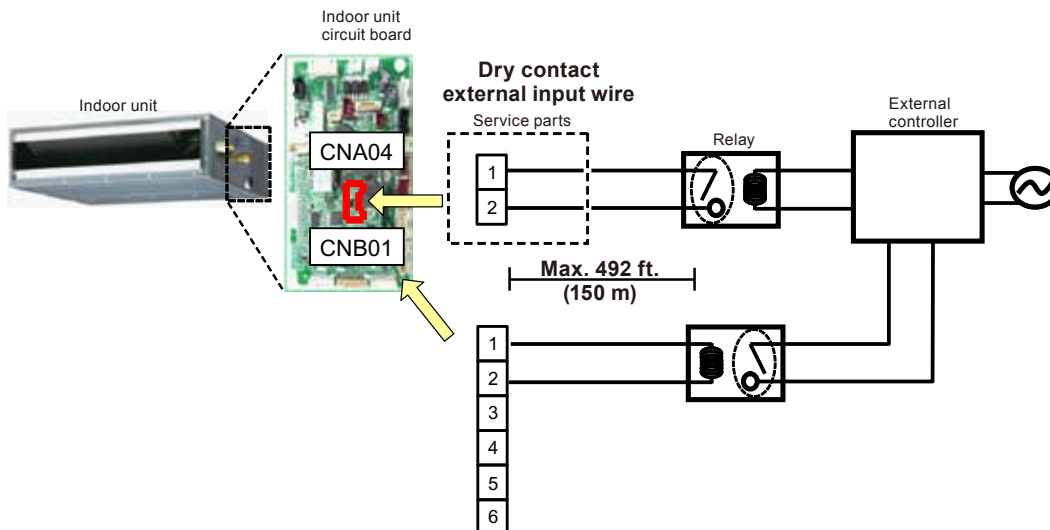
● Operation status



Normal means that Indoor unit continues to operate until [Forced thermostat off] signal received, at condition which are set by central and individual controller or detected by thermo sensors of indoor unit.

Indoor unit continues to operate until [Forced thermostat off] signal received, at condition which are set by central and individual controller or detected by thermo sensors of indoor unit. Once [Forced thermostat off] signal received, Indoor unit stop operation.

● Example of Electrical circuit



Specification of external input	
Item	Spec
Terminal	CNA04
Output voltage	DC 12 V
Wire diameter	AWG22 Twist (0.33 mm ²)
Service parts No.	9368778019

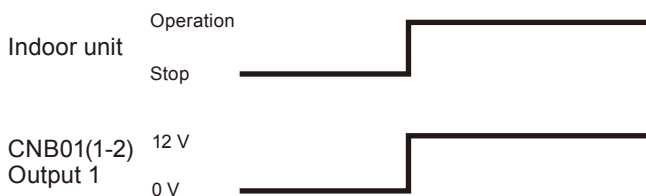
Requirement for relay switch	
Item	Spec
Min. permissible load	1 mA or less

③ OPERATION STATUS (External output1)

Function setting	Mode	External output 1	Output signal	Command
60-00, 06	0, 6	CNB01 (PIN 1-2)	0 V → 12 V	Operation
			12 V → 0 V	Stop

The output for CNB01 (1-2) is ON when the indoor unit is operating.

The output is off when the unit is stopped.



④ ERROR STATUS (External output2)

Function setting	Mode	External output 2	Output signal	Command
60-00, 01, 02, 04, 05, 06, 07	0, 1, 2, 4, 5, 6, 7	CNB01 (PIN 1-3)	0 V → 12 V	Error
			12 V → 0 V	Normal

The output for CNB01 (1-3) is ON when an error is generated for the indoor unit.



⑤ INDOOR UNIT FAN OPERATION STATUS (External output3)

Function setting	Mode	External output 3	Output signal	Command
60-00, 01, 05, 06	0, 1, 5, 6	CNB01 (PIN 1-4)	0 V → 12 V	Fan run
			12 V → 0 V	Fan stopl

The output for CNB01 (1-4) is ON when the indoor unit fan is operating.

The output is off when the fan is stopped or during cold air prevention.

The output for CNB01 (1-4) is OFF during thermostat OFF when DRY mode operation.



Ex) Used for inter lock energize for exhaust fan.

⑥ FRESH AIR CONDITIONER (FOR EXTERNAL CONTROL MODULE*) INPUT FUNCTION (mode 1 or 7)

* Module that reduces or stops the cooling operating ratio of the air conditioner by intaking fresh air.

Example: Direct Digital Controller

Function setting	Mode	External input	External output	Input signal *	Command
60-01, 07	1, 7	CNA03 or CNA04 (EXT.IN2) [VRF cooling OFF]	CNB01 (PIN 1-2) [Cooling thermostat ON]	OFF → ON	EEV OFF (VRF cooling OFF)
				ON → OFF	Normal operation

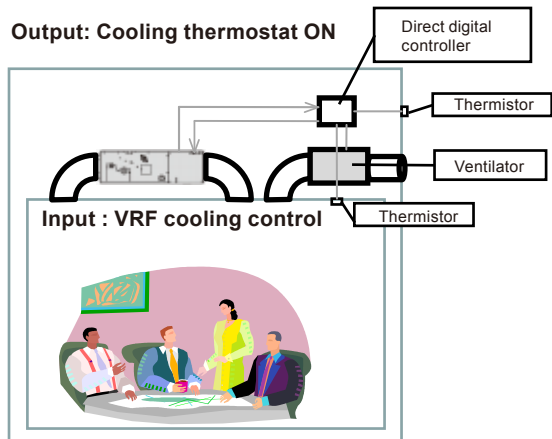
*Edge input only

- With using Fresh air conditioner input and Cooling thermostat ON output, External control module controls the cooling operation by the VRF.
- When Fresh air conditioner ON is input during Cooling thermostat ON, Fresh air conditioning is performed with stopping the cooling operation by the air conditioner.

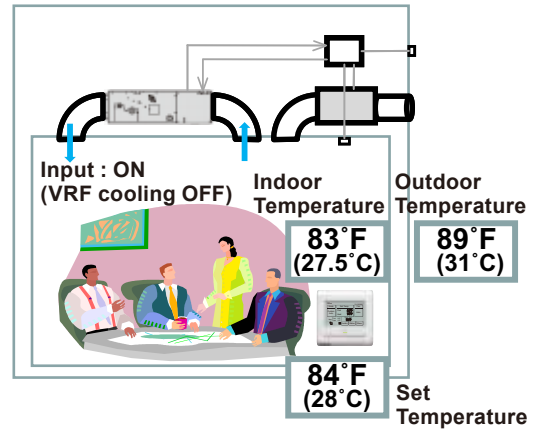
NOTE :

- During operations other than cooling such as heating or dry, Fresh air conditioner ON input is disable.

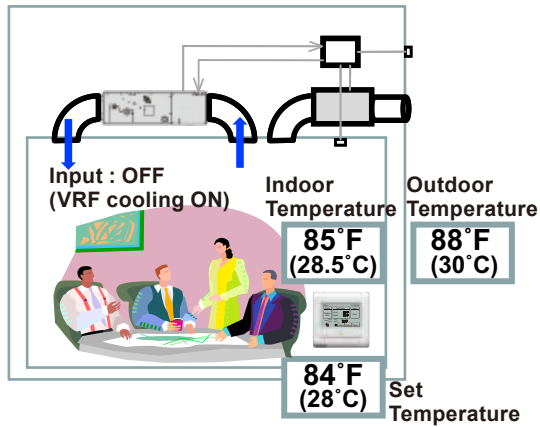
● Example (Individual connection)



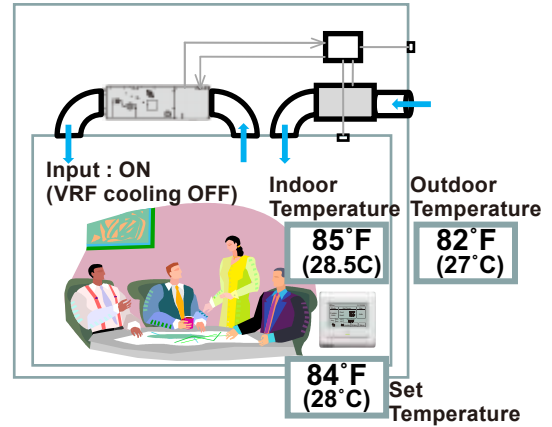
① Output : OFF (Cooling thermostat OFF)



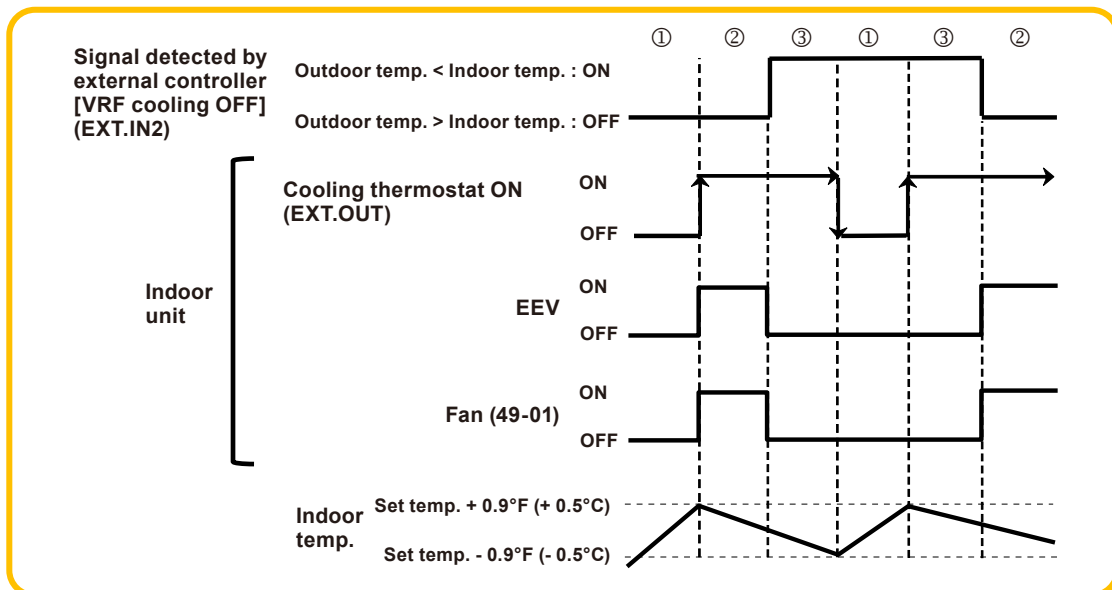
② Output: ON (Cooling thermostat ON)



③ Output: ON (Cooling thermostat ON)



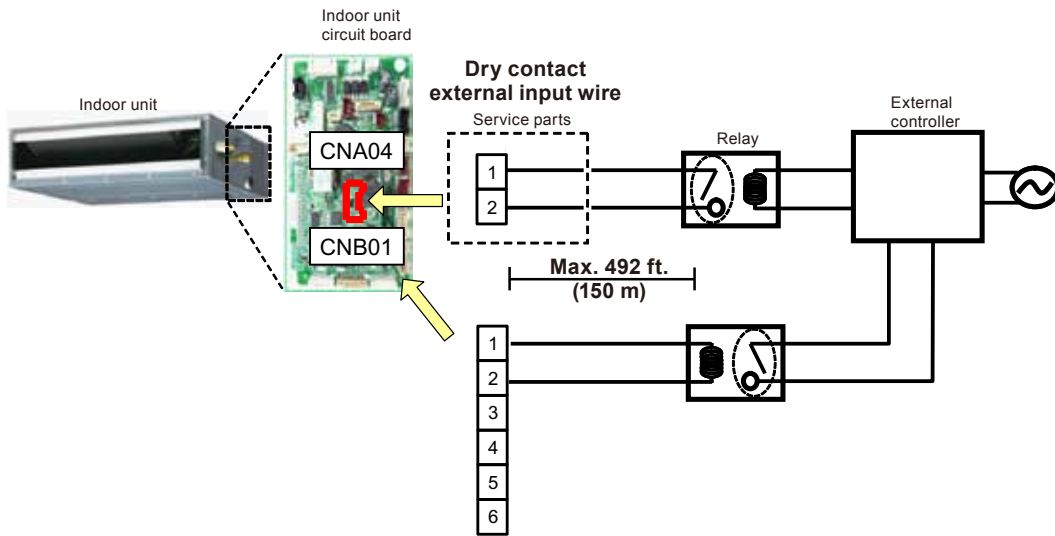
● Operation status



EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

● Example of Electrical circuit



Specification of external input	
Item	Spec
Terminal	CNA04
Output voltage	DC 12 V
Wire diameter	AWG22 Twist (0.33 mm ²)
Service parts No.	9368778019

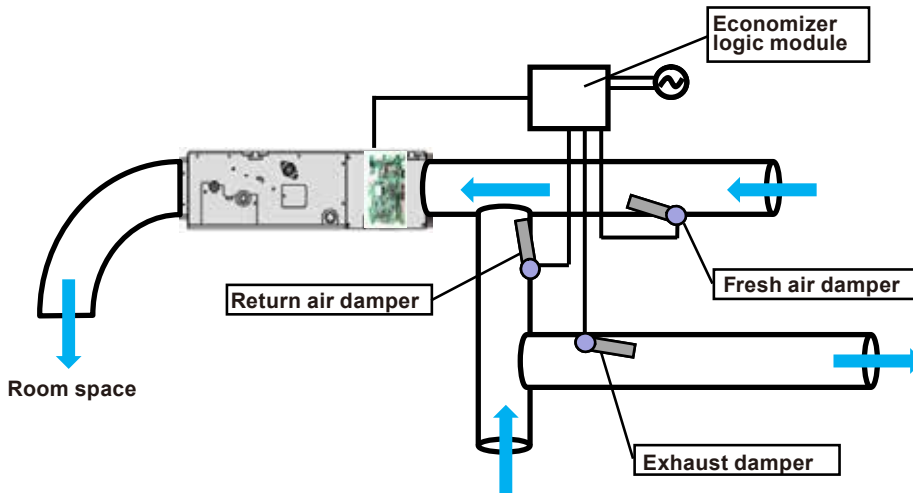
Requirement for relay switch	
Item	Spec
Min. permissible load	1 mA or less

⑦ ECONOMIZER INPUT FUNCTION

Cooling economizer:

Consists of ducts, dampers, and automatic controlling system. In cold or warm climate, the economizer reduces or stops the VRF compressor, providing cooling using outside air.

● Example of economizer



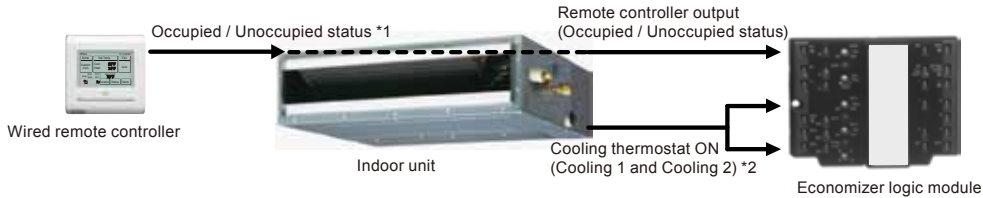
● How to use economizer

Operation mode	Environmental condition	Intaking fresh air	Air conditioner	Economizer	Remarks
Heating	Cold climate (~34°F [1°C])	Minimum*	Heating	Disable	Heating by the air conditioner
Fresh air intake cooling	Cool climate (34~55°F [1~13°C])	Optimum	Stop	Enable	Cooling by intaken fresh air only
Combined	Warm climate (55~75°F [13~24°C])	100%	Cooling	Enable	Combined cooling by intaken fresh air and the air conditioner
VRF cooling	Hot climate (75°F~ [24°C~])	Minimum*	Cooling	Disable	Cooling by the air conditioner

*Minimum fresh air requirements are specified in **ASHRAE Standard 62.1**.

⑦-1: Economizer 1 (Cooling 1 output + occupied)
In / Out Mode 2 or 8 (60-02 or 08)

Function setting	Mode	External output		Remote controller
60-02, 08	2, 8	CNB01 (PIN 1-2) [Cooling thermostat ON]	CNB01 (PIN 1-4) [Remote controller output]	UTY-RNRU Occupied/Unoccupied status



*1. By the Wired remote controller (Touch panel), external output indication is transferred to Economizer logic module through the indoor unit.

*2. Branches the output to Economizer logic module, and connect to Cooling 1 and Cooling 2.

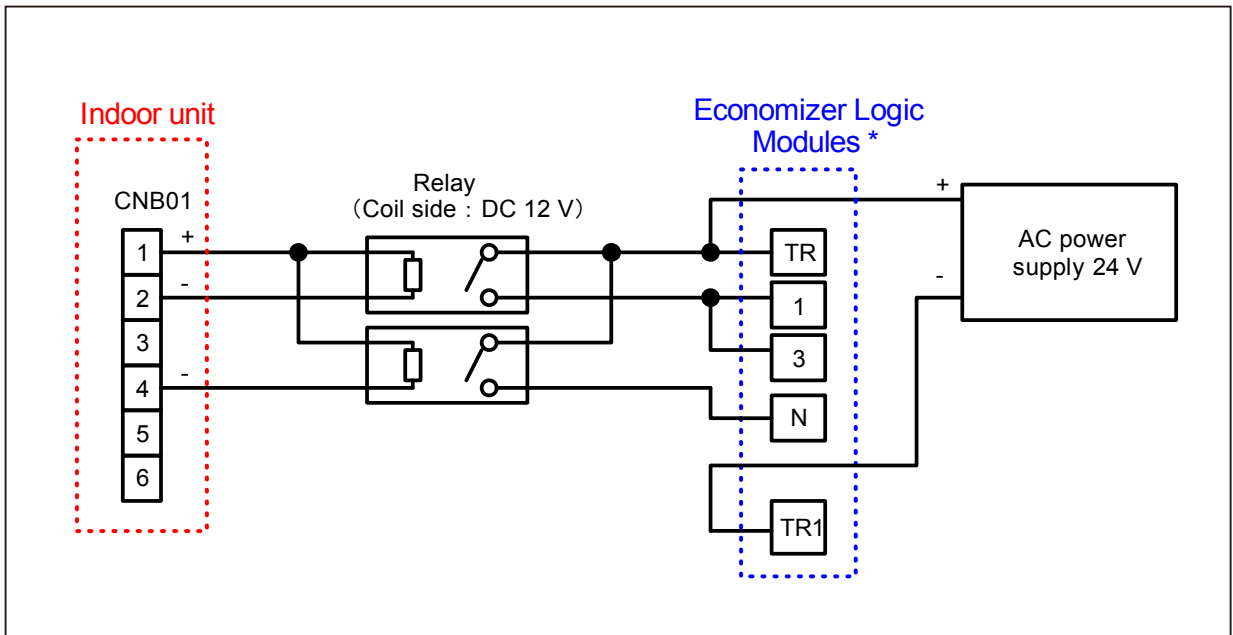
- Economizer Logic module is required for Economizer operation.
- Economizer Logic module judges the amount of outdoor air intake depending on indoor unit output of operating condition, occupied status and outdoor temperature etc.

Operating Mode	Operation		Condition (Enthalpy or Temp.)		Indoor unit output			Indoor unit Input	Outdoor air intake*3
	VRF Indoor unit	Damper (Free Cooling)	Outdoor	Return	Cooling Thermostat ON	Cooling High/Low	Occ/Unocc (RC output)	VRF Cooling ON	
Mechanical Cooling	Cooling ON	OFF	High	Low	ON	-	ON(Occ)	-	Minimum
Mechanical & Free Cooling	Cooling ON	ON	Low	High	ON	-	ON(Occ)	-	Modulating (Min-Max)
Cooling Thermostat OFF or Heating	Cooling OFF	OFF	-	-	OFF	-	ON(Occ)	-	Minimum
OFF	Cooling OFF	OFF	-	-	OFF	-	OFF(Unocc)	-	None

*3.: When external output by remote controller is OFF, the amount of intaken fresh air differs as follows:

- Cooling by intaken fresh air is performed: None to Maximum amount
- Cooling by intaken fresh air is not performed: None

●Wiring diagram example

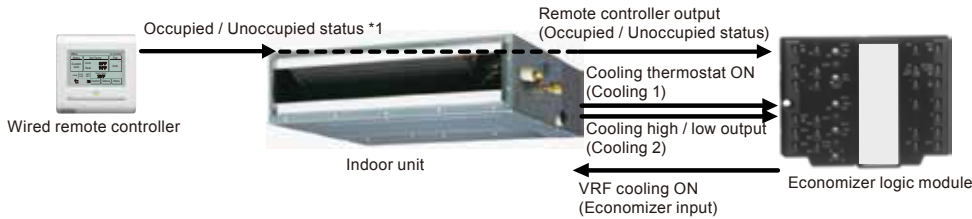


*Only the terminals connected to the indoor unit are mentioned here for description.

- As for the connected sensors or other connections to Economizer logic module, refer to the manual for the module.

**⑦-2: Economizer 2, 3 (Cooling 2 stage output + occupied)
In / Out Mode 3 or 4 (60-03 or 04)**

Function setting	Mode	External input	External output			Remote controller
60-03	3	CNA03 or CNA04 (EXT. IN2) [VRF cooling ON]	CNB01 (PIN 1-2) [Cooling thermostat ON]	CNB01 (PIN 1-3) [Cooling high / low output]	CNB01 (PIN 1-4) [Remote controller output]	UTY-RNRU Occupied/ Unoccupied status
60-04	4		CNB01 (PIN 1-2) [Cooling thermostat ON]	CNB01 (PIN 1-5) [Cooling high / low output]	CNB01 (PIN 1-4) [Remote controller output]	



*1. By the Wired remote controller (Touch panel), external output indication is transferred to Economizer logic module through the indoor unit.

- Economizer Logic module is required for Economizer operation.
- Economizer Logic module judges the amount of outdoor air intake depending on indoor unit output at operating condition, occupied status and outdoor temperature etc.
- Cooling operation by only free cooling is possible.

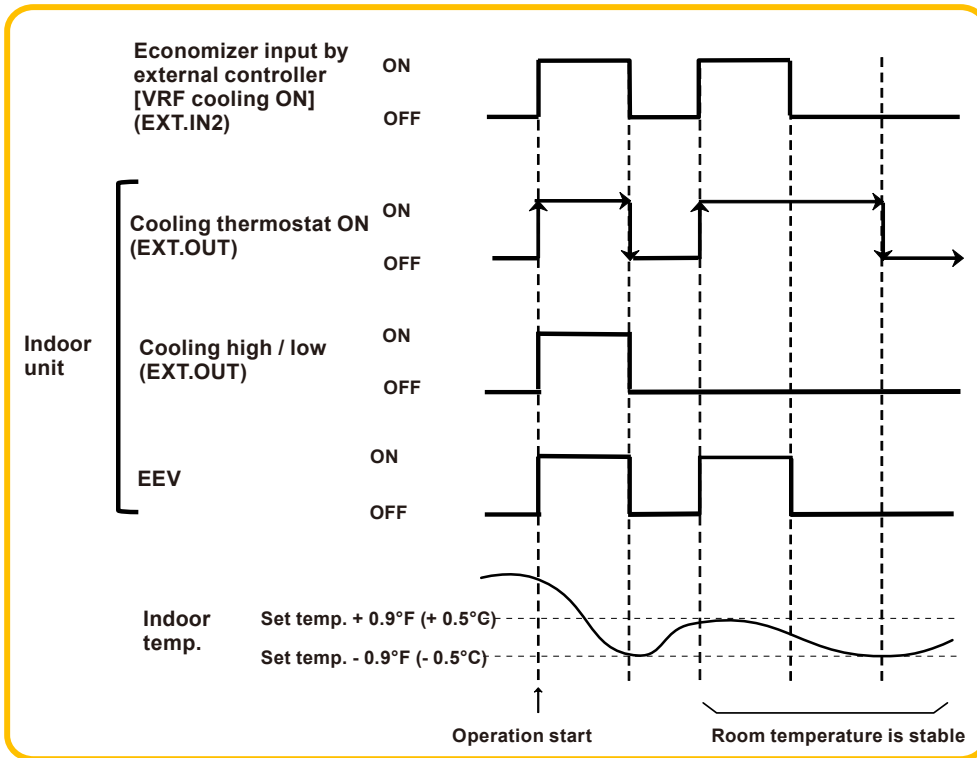
Operating Mode	Operation		Condition (Enthalpy or Temp.)		Indoor unit output			Indoor unit Input	Outdoor air intake*3
	VRF Indoor unit	Damper (Free Cooling)	Outdoor	Return	Cooling Thermostat ON	Cooling High/Low*2	Occ/Unocc (RC output)	VRF Cooling ON	
Mechanical Cooling Low	Cooling ON	OFF	High	Low	ON	OFF(Low)	ON(Occ)	ON	Minimum
Mechanical Cooling High	Cooling ON	OFF	High	Low	ON	ON(High)	ON(Occ)	ON	Minimum
Free Cooling only	Cooling OFF	ON	Low	High	ON	OFF(Low)	ON(Occ)	OFF	Modulating (Min-Max)
Mechanical & Free Cooling	Cooling ON	ON	Low	High	ON	ON(High)	ON(Occ)	ON	Modulating (Min-Max)
Cooling Thermostat OFF or Heating	Cooling OFF	OFF	-	-	OFF	OFF	ON(Occ)	OFF	Minimum
OFF	Cooling OFF	OFF	-	-	OFF	OFF	OFF(Unocc)	OFF	None

*2. Indoor unit decides the cooling high/low based on the set temperature and the indoor temperature.

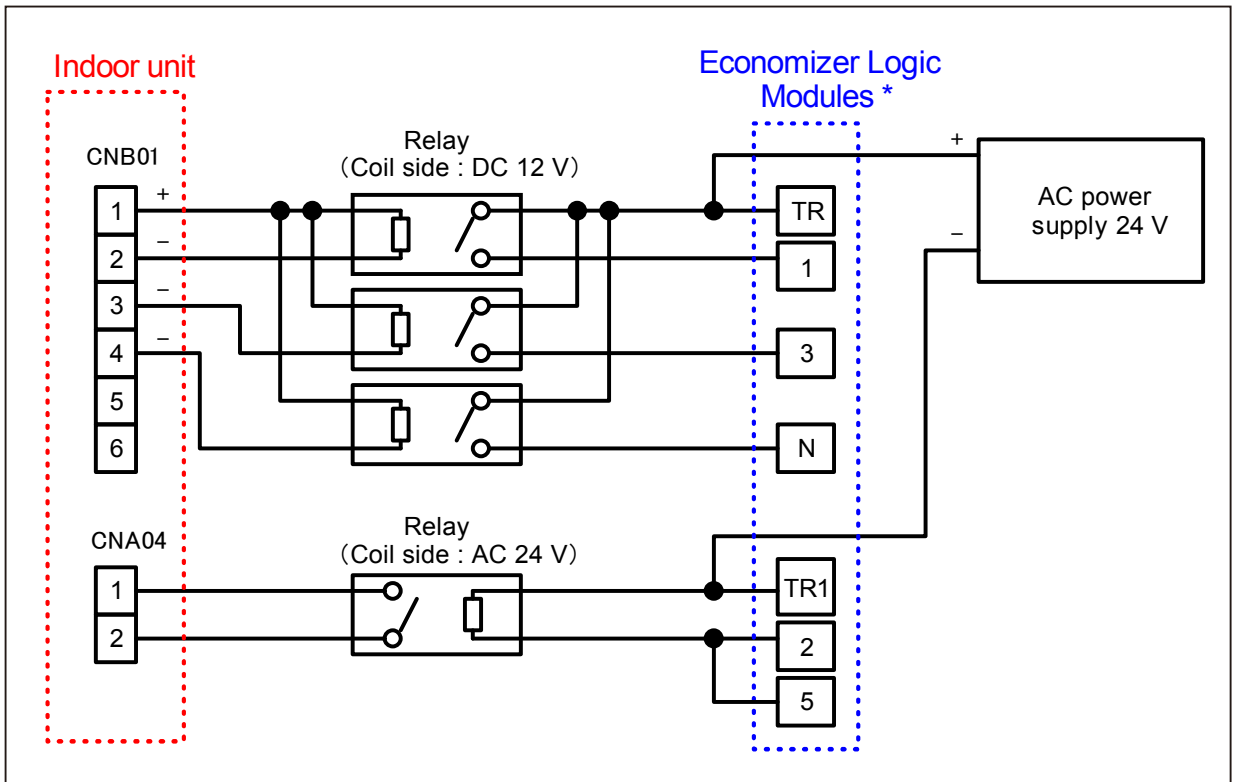
*3. When external output by remote controller is OFF, the amount of intaken fresh air differs as follows:

- Cooling by intaken fresh air is performed: None to Maximum amount
- Cooling by intaken fresh air is not performed: None

● Operation status



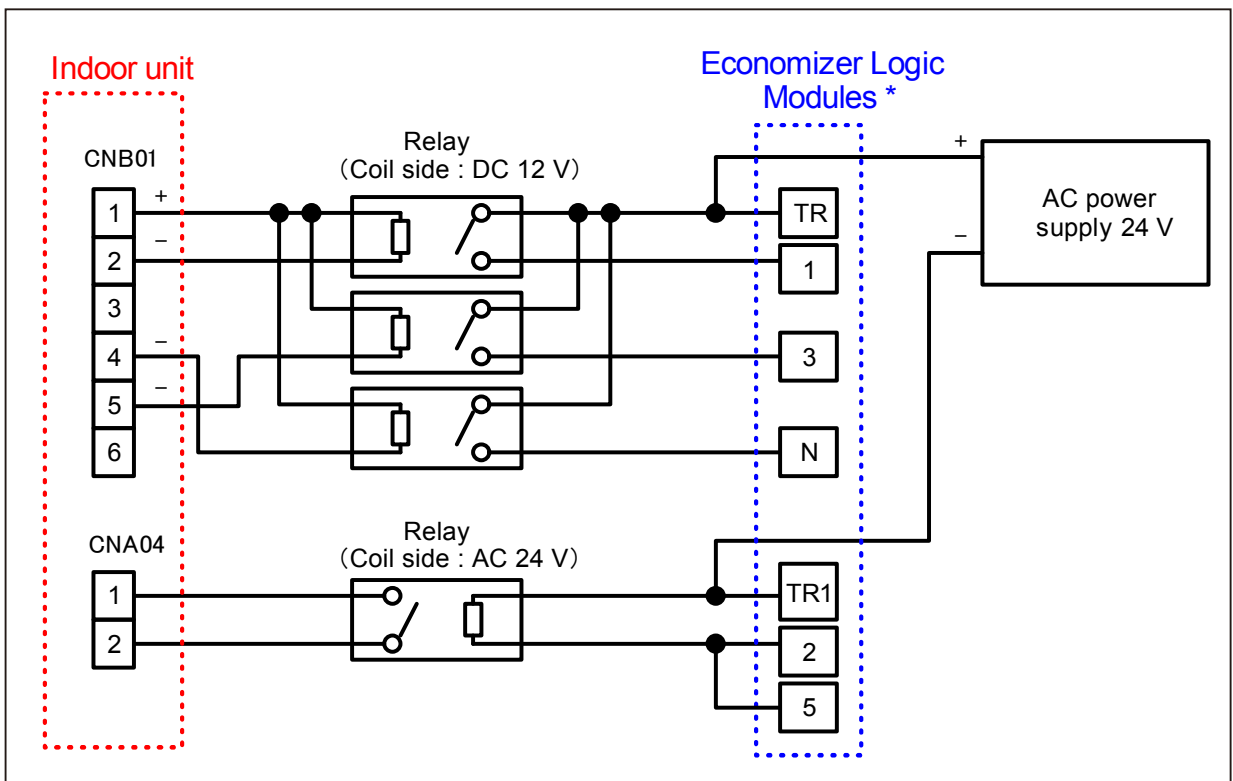
●Wiring diagram example (Economizer 2: Mode 3, Function 60-03)



*Only the terminals connected to the indoor unit are mentioned here for description.

- As for the connected sensors or other connections to Economizer logic module, refer to the manual for the module.

●Wiring diagram example (Economizer 3: Mode 4, Function 60-04)



*Only the terminals connected to the indoor unit are mentioned here for description.

- As for the connected sensors or other connections to Economizer logic module, refer to the manual for the module.

EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

⑧ EXTERNAL HEATER OUTPUT (External output4)

Control	Primary heater	Auxiliary heater	Installation configuration	Function Setting			
				Indoor unit		Wired R. C.	Outdoor unit
				Control switching external heaters No.61	IU fan setting for external heater DIP-SW2-3	Sensor activation (UTY-RNRU, UTY-RNRUZ*, UTY-RSRY, UTY-RHRY, or UTY-RNKU)	Presence of heater selection control using outdoor unit sensor No.35
Auxiliary heater control 1	VRF Heat Pump	External device	In-line	61-00	ON (Enable)	-	-
			Individual		OFF	-	-
Auxiliary heater control 2	VRF Heat Pump	External device	In-line	61-01	ON (Enable)	-	-
			Individual		OFF	-	-
Heat pump prohibition control	External device	None	In-line	61-02	ON (Enable)	-	-
			Individual		OFF	ON (Enable) *1	-
Auxiliary heater control by outdoor temperature 1	VRF Heat Pump	External device *2	In-line	61-03	ON (Enable)	-	35-01 (Enable)
			Individual		OFF	ON (Enable) *1	
Auxiliary heater selection control by outdoor temperature 2	VRF Heat Pump	External device	In-line	61-04	ON (Enable)	-	35-01 (Enable)
			Individual		OFF	ON (Enable) *1	
Auxiliary heater selection control by outdoor temperature 3	VRF Heat Pump	External device *2	In-line	61-05	ON (Enable)	-	35-01 (Enable)
			Individual		OFF	ON (Enable) *1	
Auxiliary heat pump control	External device	VRF Heat Pump	In-line	61-06	ON (Enable)	-	-
			Individual		OFF	ON (Enable) *1	-
Auxiliary heat pump control by outdoor temperature 1	External device	VRF Heat Pump *3	In-line	61-07	ON (Enable)	-	35-01 (Enable)
			Individual		OFF	ON (Enable) *1	

NOTES :

- Corresponding indoor units: Except wall mounted type.
 - After turning off the heater, 3 minutes of standby time is required by next power-on of the heater.
 - For items marked "-" in the table, any of validate or invalidate of the setting are acceptable.
 - For shaded items in the table, setting change from the factory setting is required.
- * 1: Indoor unit fan setting will be ON for safety reason without sensor activation of Wired R.C.
- * 2: Heating operation is not performed when the outdoor temperature exceeds the boundary specified in function number 37 setting.
- * 3: Heating operation is not performed when the outdoor temperature is lower than the boundary specified in function number 36 setting.

Control	Primary heater	Auxiliary heater	Installation configuration	Function Setting			
				Indoor unit		Wired R. C.	Outdoor unit
				Control switching external heaters No.61	IU fan setting for external heater DIP-SW2-3	Sensor activation (UTY-RNRU, UTY-RNRUZ*, UTY-RSRY, UTY-RHRY, or UTY-RNKU)	Presence of heater selection control using outdoor unit sensor No.35
Auxiliary heat pump control by outdoor temperature 2	External device	VRF Heat Pump *2	In-line	61-08	ON (Enable)	-	35-01 (Enable)
			Individual		OFF	ON (Enable) *1	
Auxiliary heat pump control by outdoor temperature 3	External device	VRF Heat Pump *2 *3	In-line	61-09	ON (Enable)	-	35-01 (Enable)
			Individual		OFF	ON (Enable) *1	

NOTES :

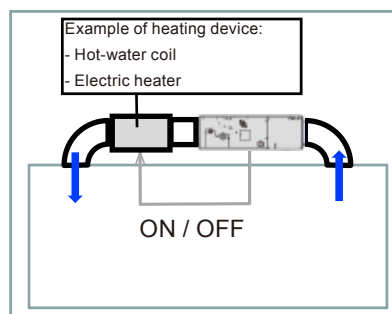
- Corresponding indoor units: Except wall mounted type.
- After turning off the heater, 3 minutes of standby time is required by next power-on of the heater.
- For items marked "-" in the table, any of validate or invalidate of the setting are acceptable.
- For shaded items in the table, setting change from the factory setting is required.
- * 1: Indoor unit fan setting will be ON for safety reason without sensor activation of Wired R.C.
- * 2: Heating operation is not performed when the outdoor temperature exceeds the boundary specified in outdoor unit function number 37 setting.
- * 3: Heating operation is not performed when the outdoor temperature is lower than the boundary specified in outdoor unit function number 36 setting.

■ INSTALLATION CONFIGURATION

1. In-line connection

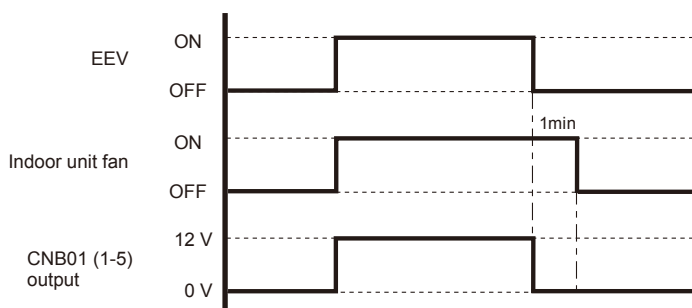
Connecting the external heating device in between the indoor unit and the outlet

External heating device uses the indoor unit fan.



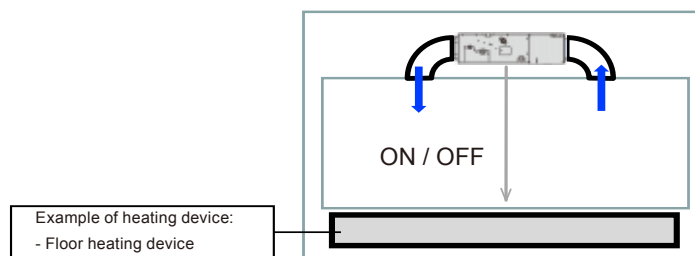
● Indoor unit fan setting for external heater (DIP-SW 2-3 : ON)

- Activate fan control for auxiliary heater.
- Indoor unit fan stop 1 minute later after the EEV is OFF.



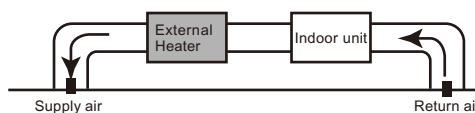
2. Individual connection

External heating device is installed individually. Not use indoor unit fan.



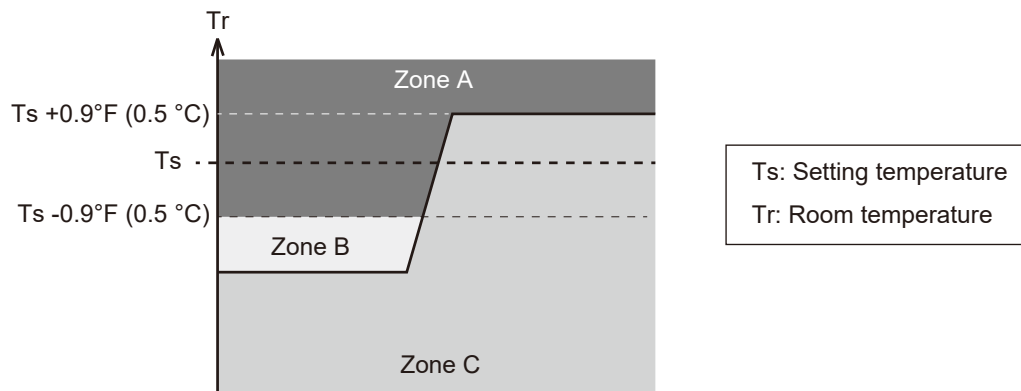
⚠ WARNING

- When in-line auxiliary heater is installed, always set "indoor unit fan setting for external heater"
- Design and install external heater appropriately with considering its protection.
- Inappropriate designing and installation of external heater may cause a fire by emitted heat from the external heater.
- Fujitsu-general is not responsible for inappropriate designing or installation of external heating device.



■ AUXILIARY EQUIPMENT CONTROL BY ROOM TEMPERATURE

Auxiliary equipment control is switchable by room temperature. Auxiliary equipment switching is performed for each room temperature divided to following 3 zones.



Zone	Application	When temperature dropping		When temperature rising	
		Primary	Auxiliary	Primary	Auxiliary
A	Both of primary and auxiliary equipment is unnecessary.	OFF	OFF	OFF	OFF
B	Primary heater only. When room temperature stays in zone B for a long time, auxiliary equipment also operates.	ON	OFF ^{*1}	—	—
C	Auxiliary equipment also operates.	ON	ON ^{*2}	ON	ON ^{*2}

*1: For standby time for auxiliary equipment operation, refer to indoor unit function number 71 of "FUNCTION DETAILS" in Chapter 7. FUNCTION SETTING.

*2: When indoor unit function number 61 is set to "00", auxiliary equipment operates according to the following conditions.

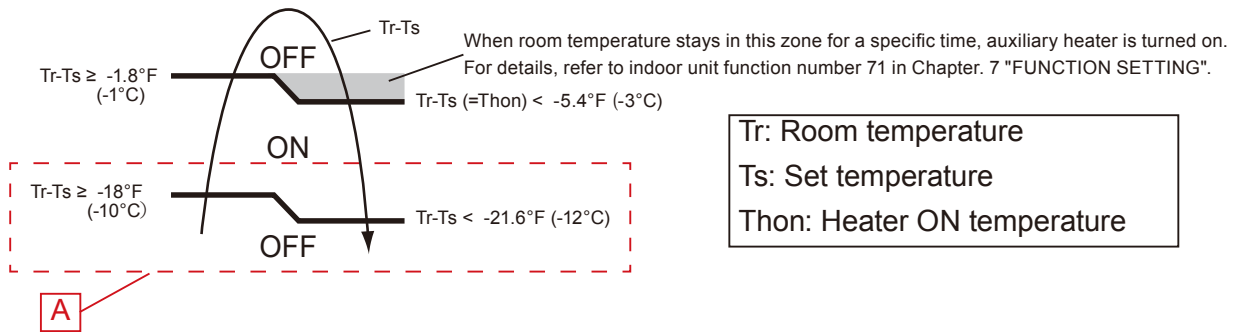
$T_s - T_r > 21.6 \text{ }^\circ\text{F}$ ($-12.0 \text{ }^\circ\text{C}$): Auxiliary equipment turn off.

$T_s - T_r > 18.0 \text{ }^\circ\text{F}$ ($-10.0 \text{ }^\circ\text{C}$): Auxiliary equipment turn on.

■ AUXILIARY HEATER CONTROL 1

Operation	Condition
Heater ON	<ul style="list-style-type: none"> Heater ON as shown in diagram of heating temperature
Heater OFF	<ul style="list-style-type: none"> Heater OFF as shown in diagram of heating temperature Other than Heating mode Error occurred Forced thermostat off Fan stop protection

- Temperature of heater ON (Thon) ... Adjustable by Function setting No.62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting "Thon".



Example. When Set Temperature (Ts) is 72°F (22°C) *Factory setting

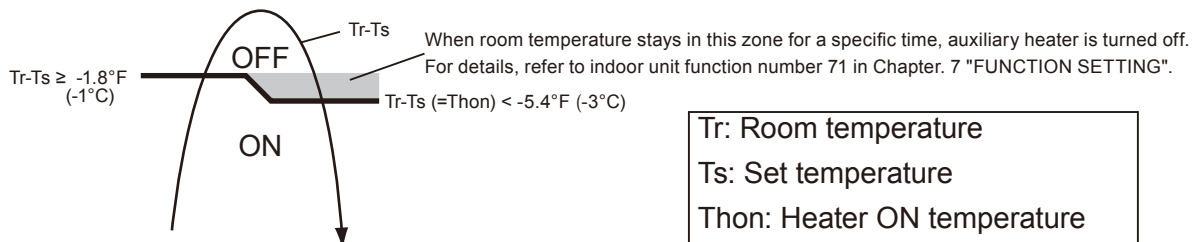
- and Room Temperature (Tr) increase above 53.6°F (12°C), signal output is on.
- and Room Temperature (Tr) increase above 69.8°F (21°C), signal output is off.
- and Room Temperature (Tr) decrease below 66.2°F (19°C), signal output is on.
- and Room Temperature (Tr) decrease below 50°F (10°C), signal output is off.

■ AUXILIARY HEATER CONTROL 2

Control that excludes "A" from Auxiliary heater control 1 mentioned above.

Operation	Condition
Heater ON	<ul style="list-style-type: none"> Heater ON as shown in diagram of heating temperature
Heater OFF	<ul style="list-style-type: none"> Heater OFF as shown in diagram of heating temperature Other than Heating mode Error occurred Forced thermostat off Fan stop protection

- Temperature of heater ON (Thon) ... Adjustable by Function setting No.62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting "Thon".



EXTERNAL INPUT & OUTPUT

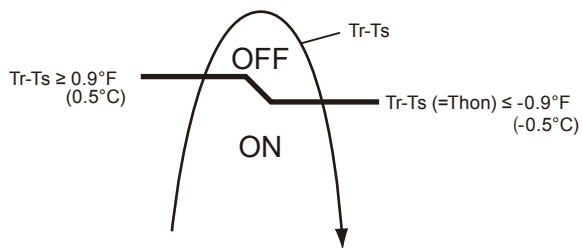
EXTERNAL INPUT & OUTPUT

■ HEAT PUMP PROHIBITION CONTROL

Perform heating by external heater only. VRF indoor unit is Continuous thermostat OFF.

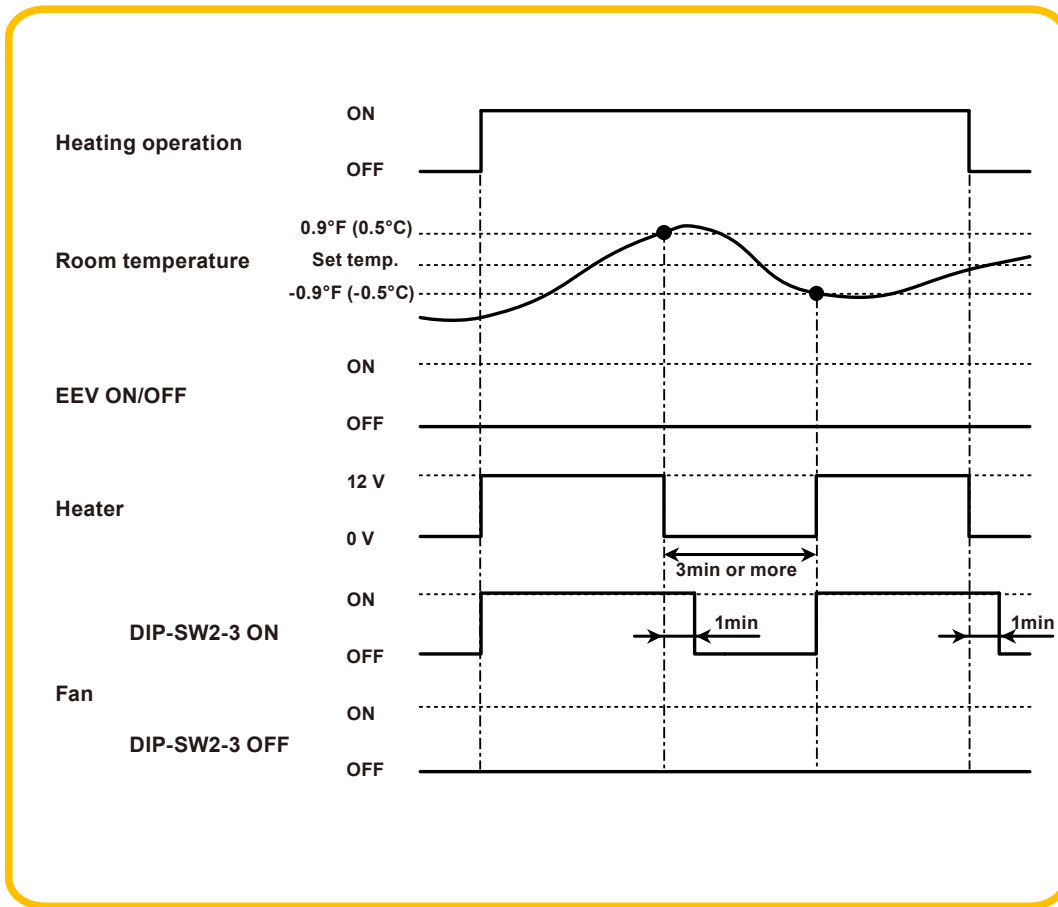
Operation		Condition
Heater ON		•Heater ON as shown in diagram of heating temperature
Heater OFF	DIP-SW2-3 ON Indoor unit fan setting for external heater: Enable	•Heater OFF as shown in diagram of heating temperature •Other than Heating mode •Error occurred •Forced thermostat off •Fan stop protection
	DIP-SW2-3 OFF Indoor unit fan setting for external heater: Disable	•Heater OFF as shown in diagram of heating temperature •Other than Heating mode •Error occurred •Forced thermostat off

- Temperature of heater ON (Thon) ... Adjustable by Function setting No.62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting "Thon".



Tr: Room temperature
Ts: Set temperature
Thon: Heater ON temperature

● Operation status



NOTE :

- In following operations, EEV will be ON.
 - Other than Heating
 - Test Run.

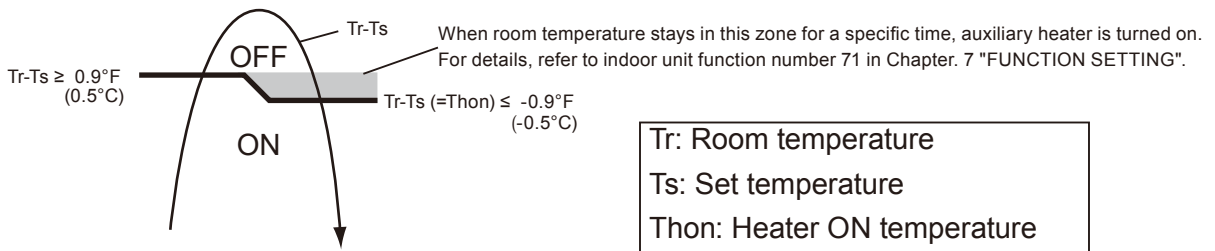
AUXILIARY HEATER CONTROL BY OUTDOOR TEMPERATURE 1

Selects Heat pump or External heater according to the outdoor temperature. When outdoor temperature is high, the heating is performed by using heat pump only.

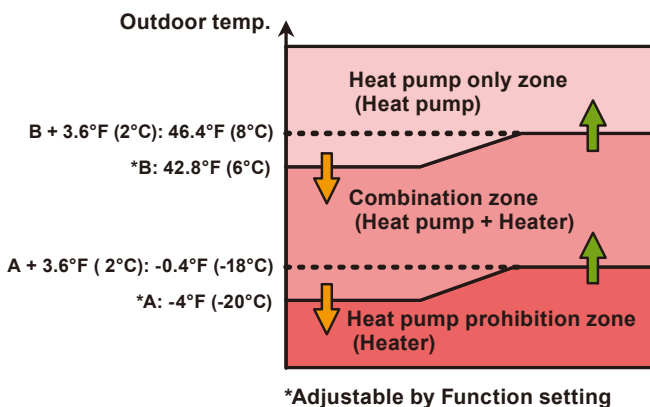
Operation		Condition
Heater ON		<ul style="list-style-type: none"> Heater ON as shown in diagram of heating temperature
Heater OFF	DIP-SW2-3 ON Indoor unit fan setting for external heater: Enable	<ul style="list-style-type: none"> Heater OFF as shown in diagram of heating temperature Other than Heating mode Error occurred Forced thermostat off Heat pump only zone Fan stop protection
	DIP-SW2-3 OFF Indoor unit fan setting for external heater: Disable	<ul style="list-style-type: none"> Heater OFF as shown in diagram of heating temperature Other than Heating mode Error occurred Forced thermostat off Heat pump only zone

- Temperature of heater ON (Thon) ... Adjustable by Function setting No.62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting "Thon".
- Outdoor temperature zone boundary A and B ... Adjustable individually by Function setting No. 36 and 37 for outdoor unit.

External heater output



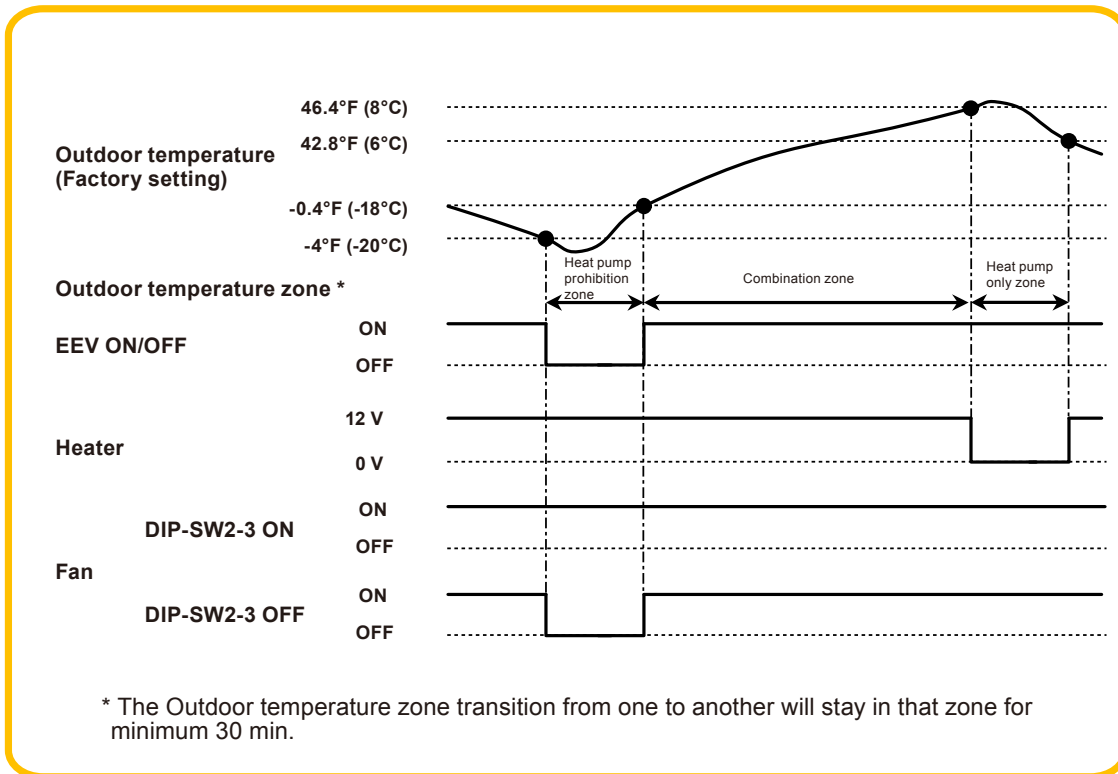
Outdoor temperature zone



EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

● Operation status



NOTES :

- In following operations, EEV will be ON in Heat pump prohibition zone.
 - Other than Heating
 - Test Run
- This control is enable when the setting code no. 35 of the outdoor unit (Presence of heater selection control by outdoor temperature) is "Enable".

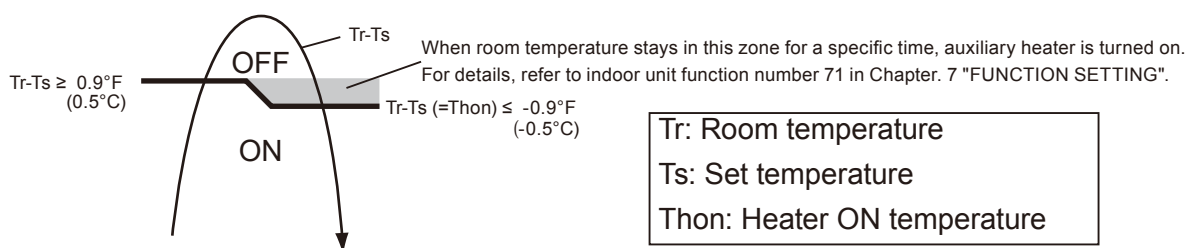
■ AUXILIARY HEATER CONTROL BY OUTDOOR TEMPERATURE 2

Selects Heat pump or External heater according to the outdoor temperature. Even when outdoor temperature is high, the heating is performed by using both of heat pump and external heater.

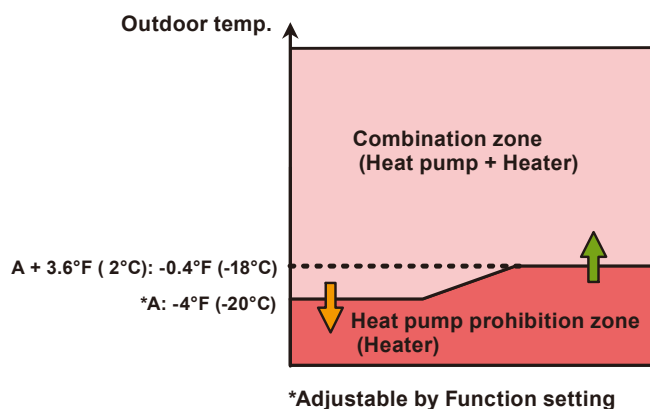
Operation		Condition
Heater ON		•Heater ON as shown in diagram of heating temperature
Heater OFF	DIP-SW2-3 ON Indoor unit fan setting for external heater: Enable	•Heater OFF as shown in diagram of heating temperature •Other than Heating mode •Error occurred •Forced thermostat off •Fan stop protection
	DIP-SW2-3 OFF Indoor unit fan setting for external heater: Disable	•Heater OFF as shown in diagram of heating temperature •Other than Heating mode •Error occurred •Forced thermostat off

- Temperature of heater ON (Thon) ... Adjustable by Function setting No.62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting "Thon".
- Outdoor temperature zone boundary A ... Adjustable by Function setting No. 36 for outdoor unit.

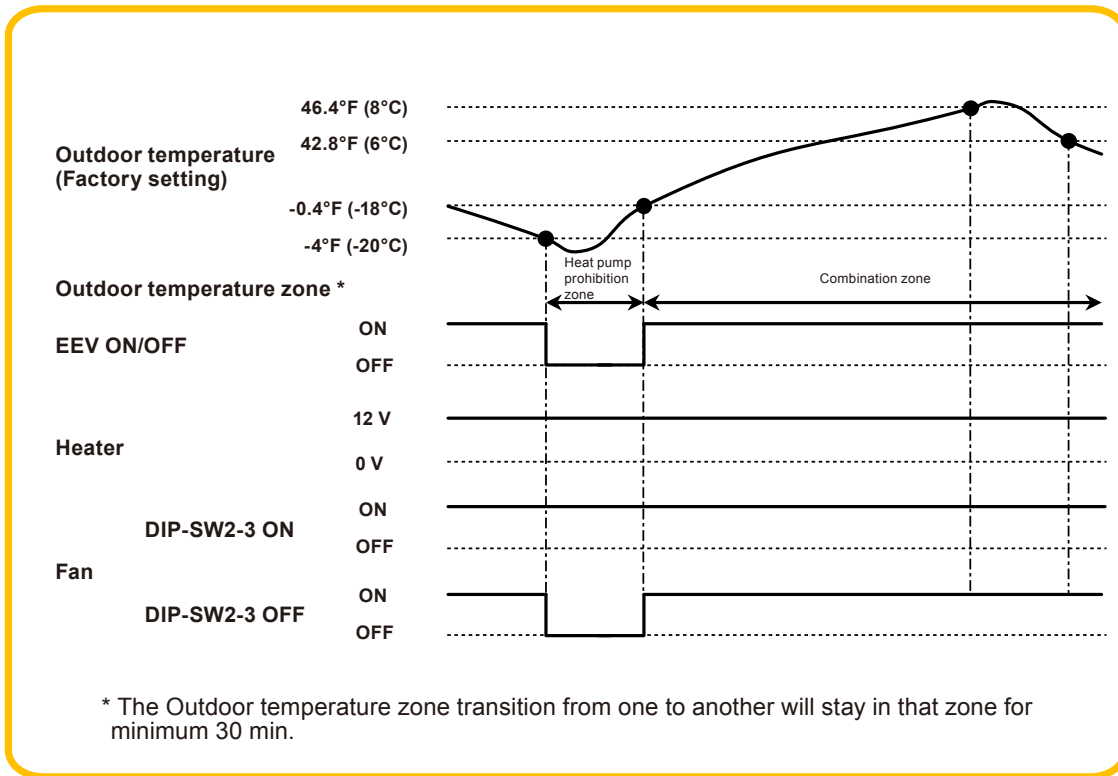
● External heater output



● Outdoor temperature zone



● Operation status



NOTES :

- In following operations, EEV will be ON in Heat pump prohibition zone.
 - Other than Heating
 - Test Run
- This control is enable when the setting code no. 35 of the outdoor unit (Presence of heater selection control by outdoor temperature) is "Enable".

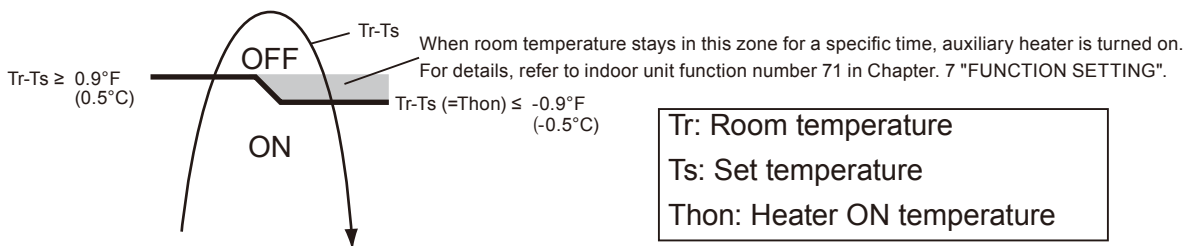
■ AUXILIARY HEATER CONTROL BY OUTDOOR TEMPERATURE 3

Selects Heat pump or External heater according to the outdoor temperature. Even when outdoor temperature is high, the heating is performed by using both of heat pump and external heater.

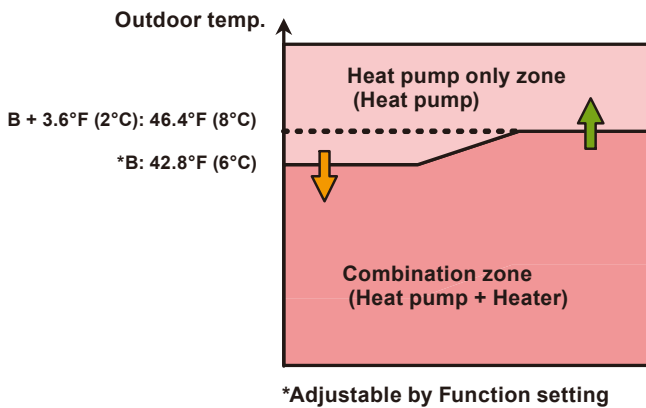
Operation		Condition
Heater ON		<ul style="list-style-type: none"> Heater ON as shown in diagram of heating temperature
Heater OFF	DIP-SW2-3 ON Indoor unit fan setting for external heater: Enable	<ul style="list-style-type: none"> Heater OFF as shown in diagram of heating temperature Other than Heating mode Error occurred Forced thermostat off Fan stop protection
	DIP-SW2-3 OFF Indoor unit fan setting for external heater: Disable	<ul style="list-style-type: none"> Heater OFF as shown in diagram of heating temperature Other than Heating mode Error occurred Forced thermostat off

- Temperature of heater ON (Thon) ... Adjustable by Function setting No.62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting "Thon".
- Outdoor temperature zone boundary A and B ... Adjustable individually by Function setting No. 36 and 37 for outdoor unit.

● External heater output



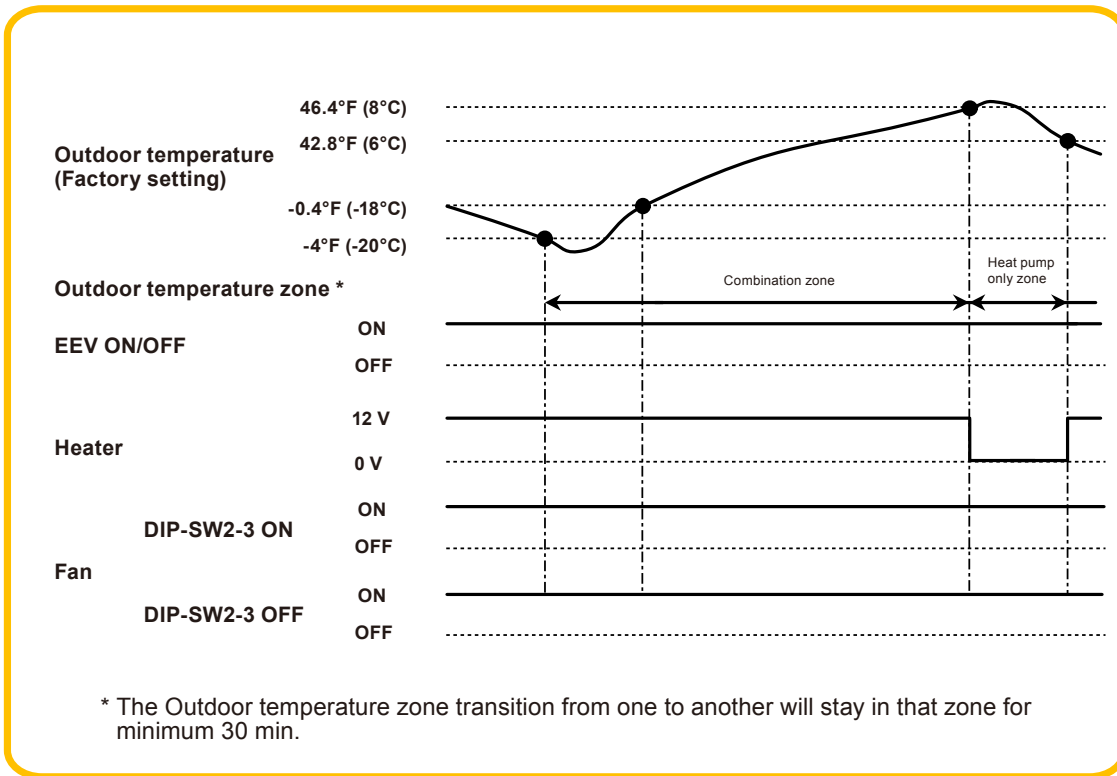
● Outdoor temperature zone



EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

● Operation status



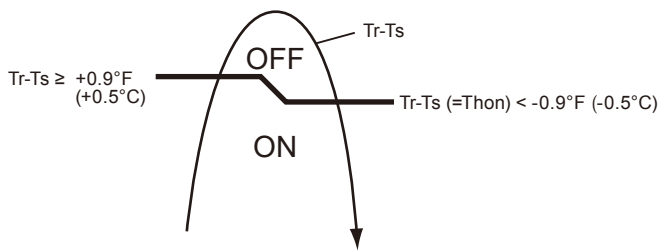
- NOTES :
- In following operations, EEV will be ON in Heat pump prohibition zone.
 - Other than Heating
 - Test Run
 - This control is enable when the setting code no. 35 of the outdoor unit (Presence of heater selection control by outdoor temperature) is "Enable".

■ AUXILIARY HEAT PUMP CONTROL

● External heater output

Operation		Condition
Heater ON		• Heater ON as shown in diagram of heating temperature
Heater OFF	DIP-SW2-3 ON Indoor unit fan setting for external heater: Enable	• Heater OFF as shown in diagram of heating temperature • Other than Heating mode • Error occurred • Forced thermostat off • Fan stop protection
	DIP-SW2-3 OFF Indoor unit fan setting for external heater: Disable	• Heater OFF as shown in diagram of heating temperature • Other than Heating mode • Error occurred • Forced thermostat off

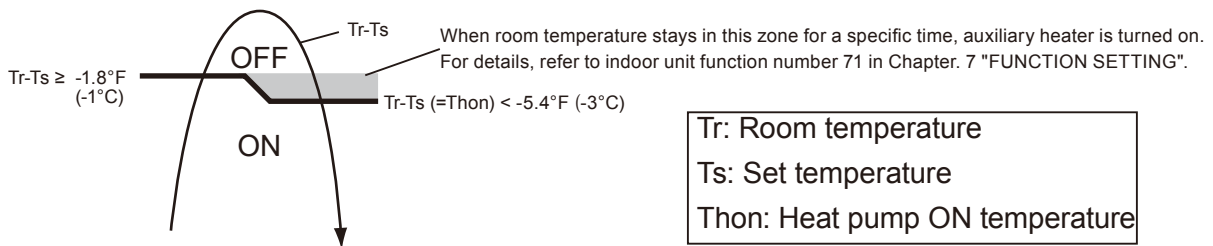
- Temperature of heater ON (Thon) ... Set temperature (Ts) - 0.9 °F (0.5 °C)
- Temperature of heater OFF ... Set temperature (Ts) + 0.9 °F (0.5 °C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater ON temperature

● Auxiliary heat pump thermo ON/OFF

- Temperature of auxiliary heat pump ON (Thon) ... Adjustable by Function setting No.62 (Operating temperature switching of heat pump).
- All control temperatures will shift by adjusting "Thon".



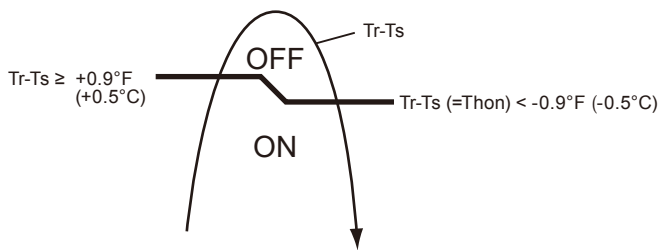
Tr: Room temperature
Ts: Set temperature
Thon: Heat pump ON temperature

■ AUXILIARY HEAT PUMP CONTROL BY OUTDOOR TEMPERATURE 1

● External heater output

Operation		Condition
Heater ON		• Heater ON as shown in diagram of heating temperature
Heater OFF	DIP-SW2-3 ON Indoor unit fan setting for external heater: Enable	• Heater OFF as shown in diagram of heating temperature • Other than Heating mode • Error occurred • Forced thermostat off • Fan stop protection
	DIP-SW2-3 OFF Indoor unit fan setting for external heater: Disable	• Heater OFF as shown in diagram of heating temperature • Other than Heating mode • Error occurred • Forced thermostat off

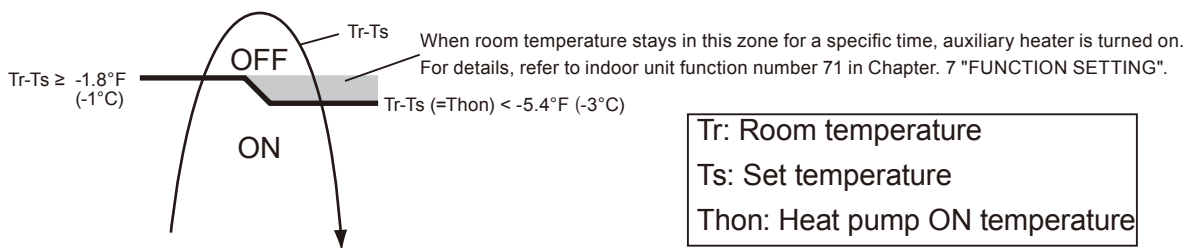
- Temperature of heater ON (Thon) ... Set temperature (Ts) - 0.9 °F (0.5 °C)
- Temperature of heater OFF ... Set temperature (Ts) + 0.9 °F (0.5 °C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater ON temperature

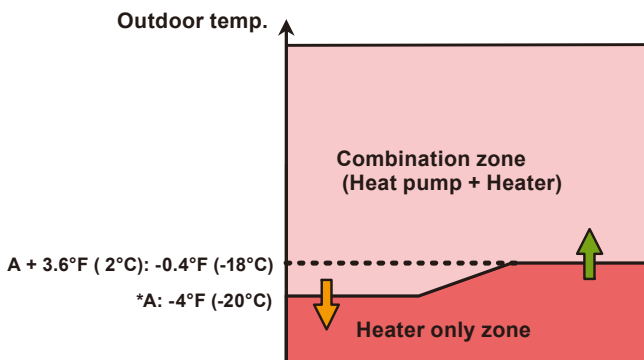
● Auxiliary heat pump thermo ON/OFF

- Temperature of auxiliary heat pump ON (Thon) ... Adjustable by Function setting No.62 (Operating temperature switching of heat pump).
- All control temperatures will shift by adjusting "Thon".



Tr: Room temperature
Ts: Set temperature
Thon: Heat pump ON temperature

● Outdoor temperature zone

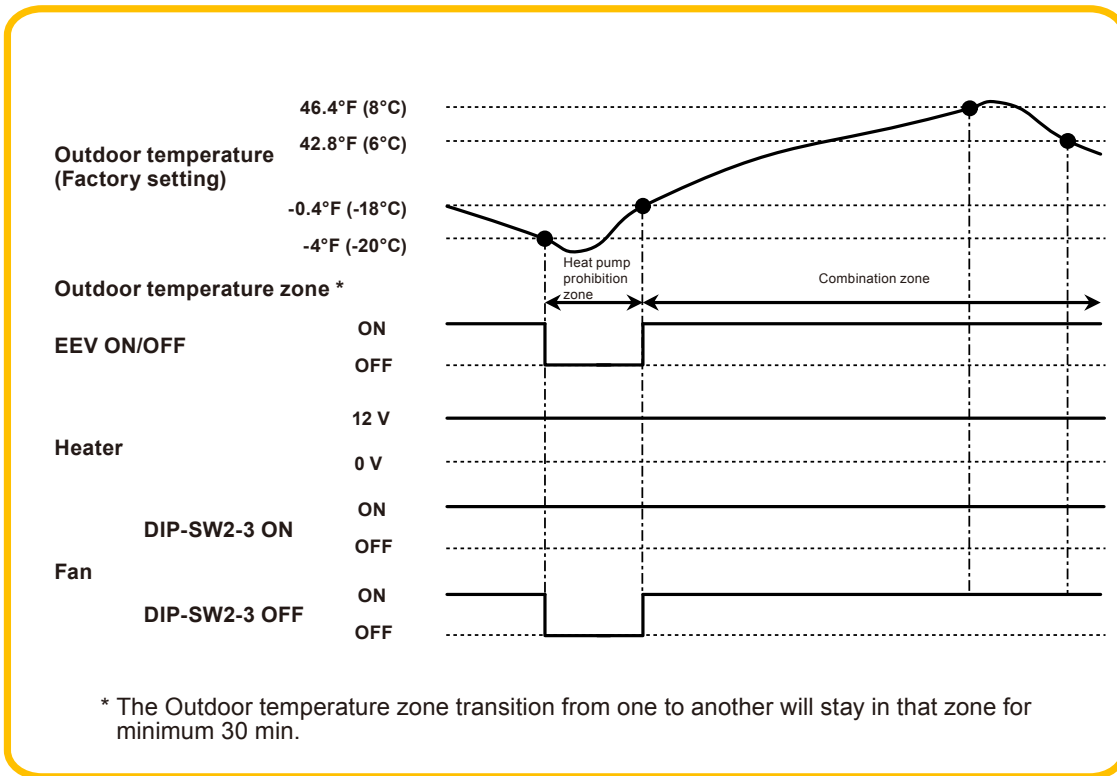


*Adjustable by Function setting

EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

● Operation status



NOTES :

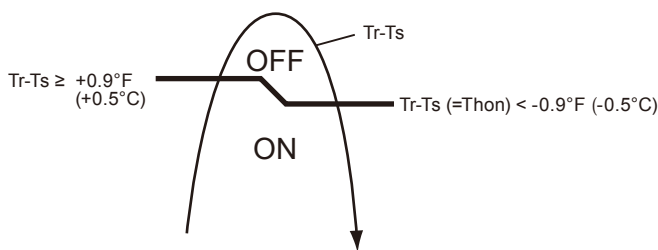
- In following operations, EEV will be ON in Heat pump prohibition zone.
 - Other than Heating
 - Test Run
- This control is enable when the setting code no. 35 of the outdoor unit (Presence of heater selection control by outdoor temperature) is "Enable".

AUXILIARY HEAT PUMP CONTROL BY OUTDOOR TEMPERATURE 2

External heater output

Operation		Condition
Heater ON		•Heater ON as shown in diagram of heating temperature
Heater OFF	DIP-SW2-3 ON Indoor unit fan setting for external heater: Enable	•Heater OFF as shown in diagram of heating temperature •Other than Heating mode •Error occurred •Forced thermostat off •Fan stop protection
	DIP-SW2-3 OFF Indoor unit fan setting for external heater: Disable	•Heater OFF as shown in diagram of heating temperature •Other than Heating mode •Error occurred •Forced thermostat off

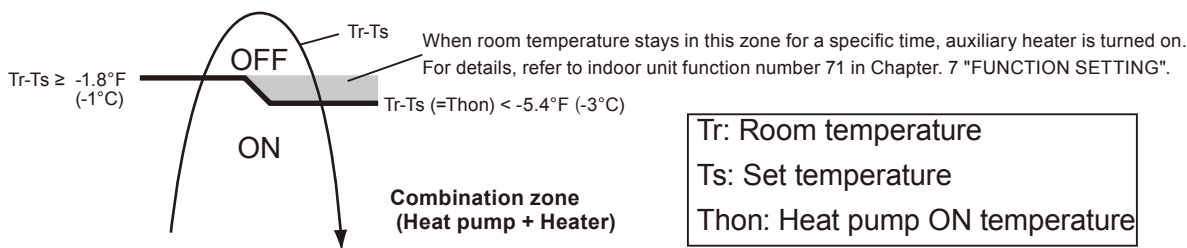
- Temperature of heater ON (Thon) ... Set temperature (Ts) - 0.9 °F (0.5 °C)
- Temperature of heater OFF ... Set temperature (Ts) + 0.9 °F (0.5 °C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater ON temperature

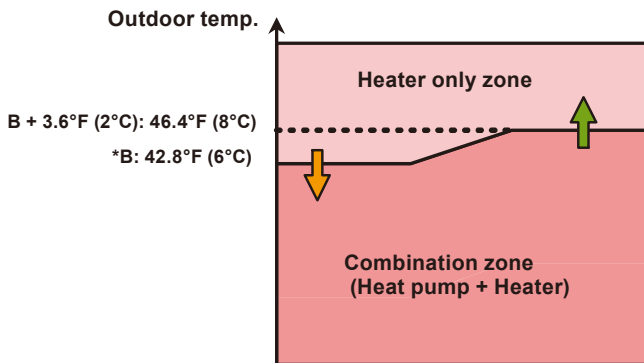
Auxiliary heat pump thermo ON/OFF

- Temperature of auxiliary heat pump ON (Thon) ... Adjustable by Function setting No.62 (Operating temperature switching of heat pump).
- All control temperatures will shift by adjusting "Thon".



Tr: Room temperature
Ts: Set temperature
Thon: Heat pump ON temperature

Outdoor temperature zone

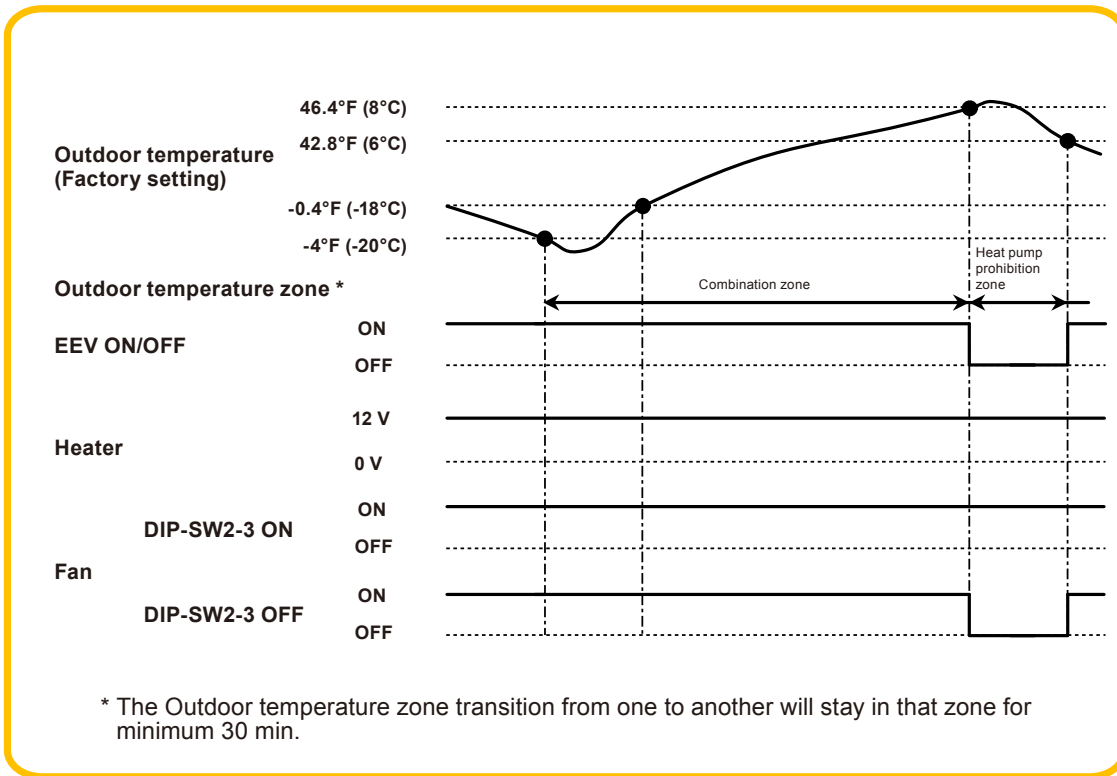


*Adjustable by Function setting

EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

● Operation status



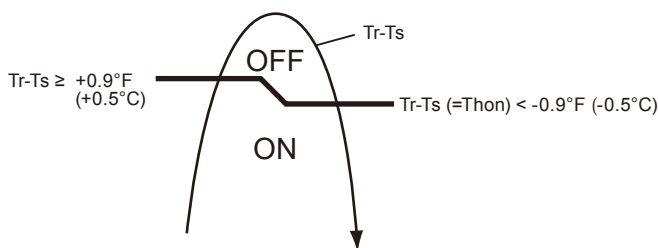
- NOTES :
- In following operations, EEV will be ON in Heat pump prohibition zone.
 - Other than Heating
 - Test Run
 - This control is enable when the setting code no. 35 of the outdoor unit (Presence of heater selection control by outdoor temperature) is "Enable".

AUXILIARY HEAT PUMP CONTROL BY OUTDOOR TEMPERATURE 3

External heater output

Operation		Condition
Heater ON		• Heater ON as shown in diagram of heating temperature
Heater OFF	DIP-SW2-3 ON Indoor unit fan setting for external heater: Enable	• Heater OFF as shown in diagram of heating temperature • Other than Heating mode • Error occurred • Forced thermostat off • Fan stop protection
	DIP-SW2-3 OFF Indoor unit fan setting for external heater: Disable	• Heater OFF as shown in diagram of heating temperature • Other than Heating mode • Error occurred • Forced thermostat off

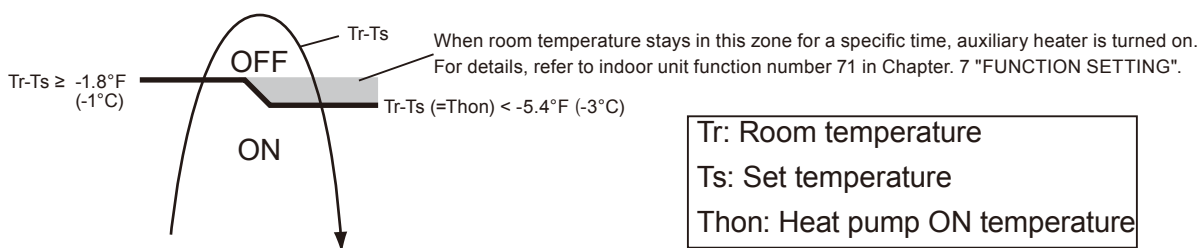
- Temperature of heater ON (Thon) ... Set temperature (Ts) - 0.9 °F (0.5 °C)
- Temperature of heater OFF ... Set temperature (Ts) + 0.9 °F (0.5 °C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater ON temperature

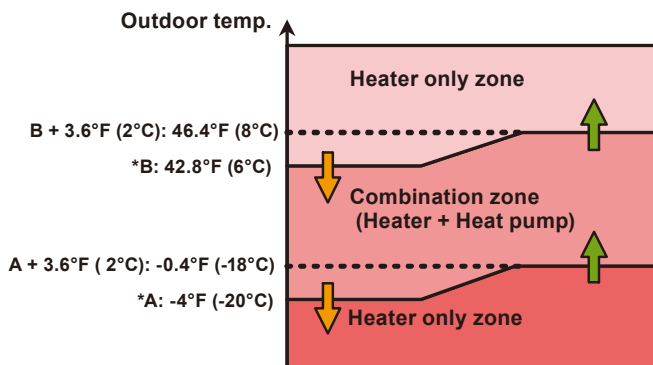
Auxiliary heat pump thermo ON/OFF

- Temperature of auxiliary heat pump ON (Thon) ... Adjustable by Function setting No.62 (Operating temperature switching of heat pump).
- All control temperatures will shift by adjusting "Thon".



Tr: Room temperature
Ts: Set temperature
Thon: Heat pump ON temperature

Outdoor temperature zone

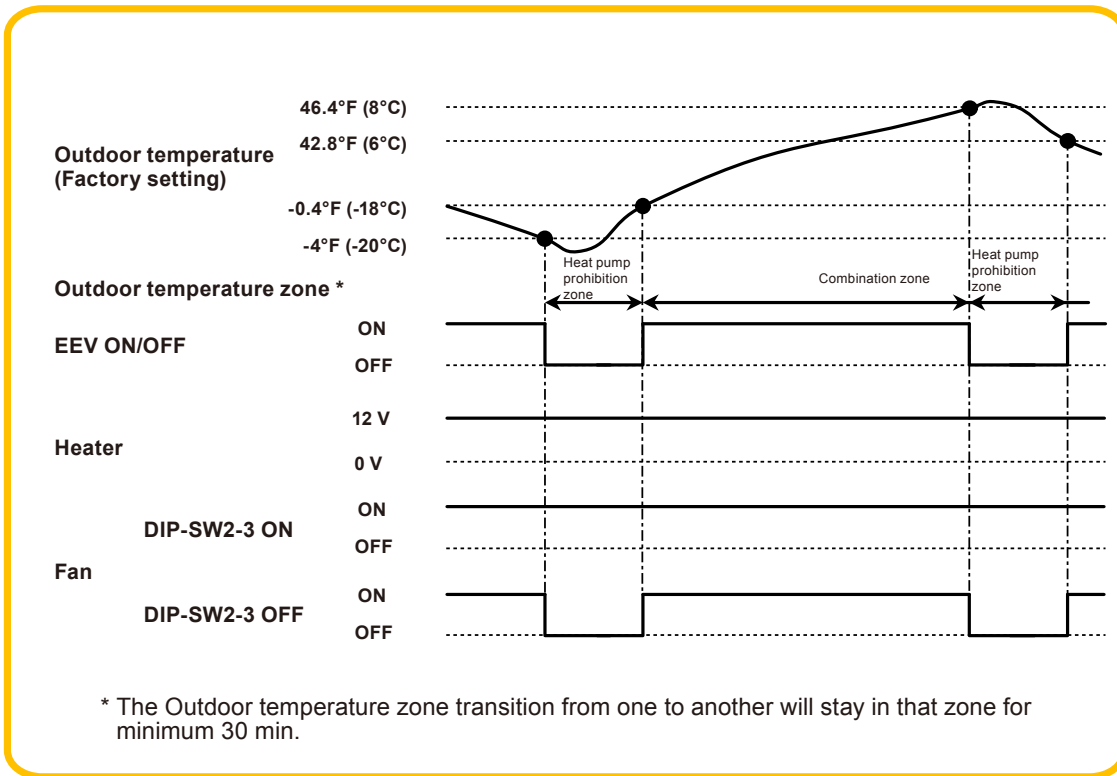


*Adjustable by Function setting

EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

● Operation status



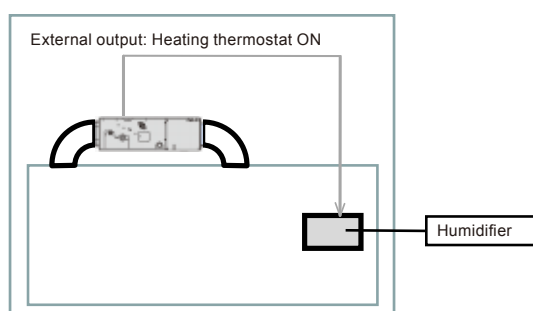
NOTES :

- In following operations, EEV will be ON in Heat pump prohibition zone.
 - Other than Heating
 - Test Run
- This control is enable when the setting code no. 35 of the outdoor unit (Presence of heater selection control by outdoor temperature) is "Enable".

⑨ HEATING THERMOSTAT ON FOR HUMIDIFIER

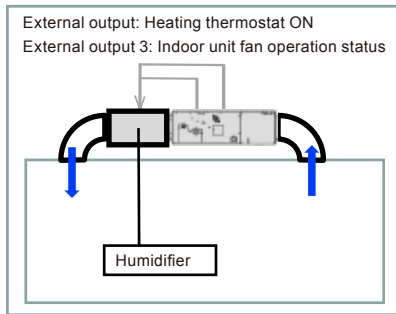
Situation (Example)	Installation configuration	Indoor unit			
		Function Setting		External output	
		Heating thermostat ON No.60	Cool Air Prevention No.43	Heating thermostat ON	Indoor unit fan operation status
Example 1	Individual	60-05	43-00 (Enable)	CNB01 Output 1 (PIN 1-2)	Not use
		60-06		CNB01 Output 4 (PIN 1-5)	
		60-07		CNB01 Output 3 (PIN 1-4)	
		60-08		CNB01 Output 2 (PIN 1-2)	
Example 2		60-05	43-00 (Enable)	CNB01 Output 1 (PIN 1-2)	CNB01 Output 3 (PIN 1-4)
		60-06		CNB01 Output 4 (PIN 1-5)	
Example 3	In-line	60-05	43-01 (Disable)	CNB01 Output 1 (PIN 1-2)	Not use
		60-06		CNB01 Output 4 (PIN 1-5)	
		60-07		CNB01 Output 3 (PIN 1-4)	
		60-08		CNB01 Output 2 (PIN 1-2)	

● Example 1 (Individual connection)



● Example 2 (In-line connection)

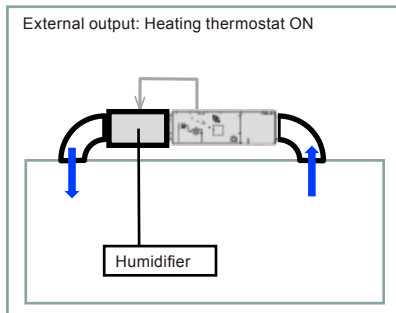
Indoor unit fan operation status use



● Example 3 (In-line connection)

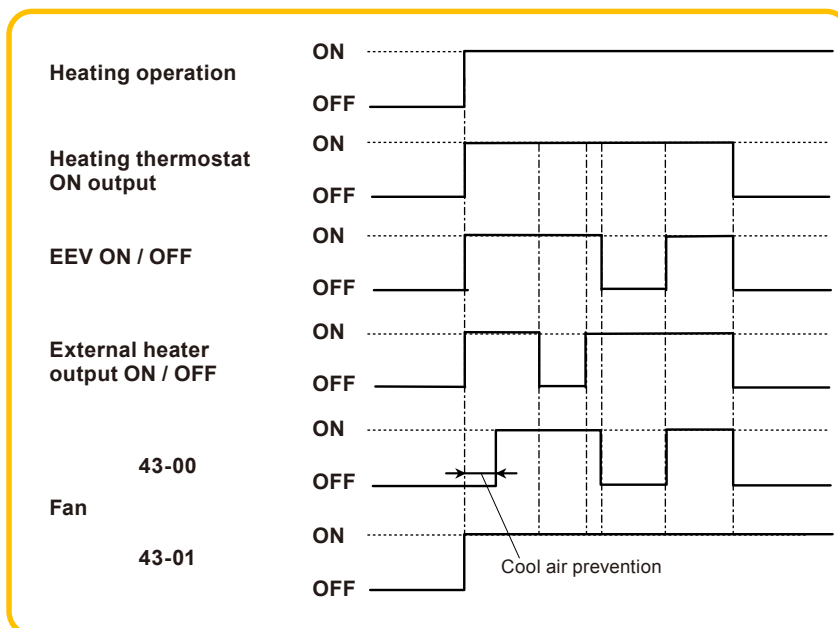
Disable cool air prevention function.

The indoor unit fan is operated at the set speed continuously.



The Heating thermostat output for CNB01 (1-2 or 1-3 or 1-4 or 1-5) will be ON when EEV ON or external heater ON.

The Heating thermostat output will be OFF when EEV OFF and external heater OFF.



EXTERNAL INPUT
& OUTPUT

EXTERNAL INPUT
& OUTPUT

1-3. RB UNIT

External input	External output	Input select	Connector	External connect kit (Optional parts)
Cooling priority/ Heating priority	-	Dry contact	CNA01	UTY-XWZXZ6
		Apply voltage	CNA02	UTY-XWZXZB

1-3-1. EXTERNAL INPUT

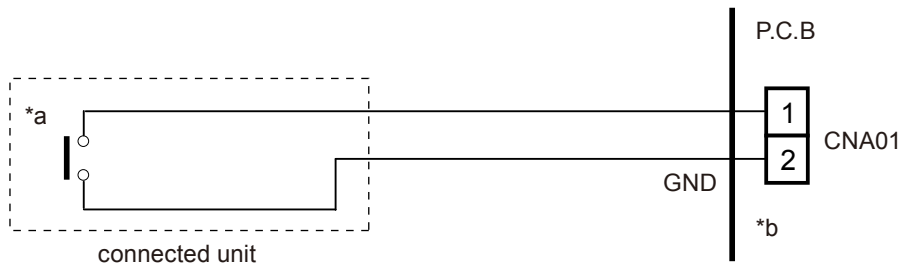
- RB unit can be cooling priority/heating priority selection by using RB unit PCB CNA01 or CNA02.
- The "external input priority mode" must be set by changing DIP SW on PCB of RB unit.
- A twisted pair cable (22AWG) should be used. Maximum length of cable is 492 ft. (150 m)
- Use an external input cable with appropriate external dimension, depending on the number of cables to be installed.
- The wire connection should be separate from the power cable line.

■ INPUT SELECT

Use either one of these types of terminal according to the application. (Both types of terminals cannot be used simultaneously.)

● Dry contact terminal ([CNA01])

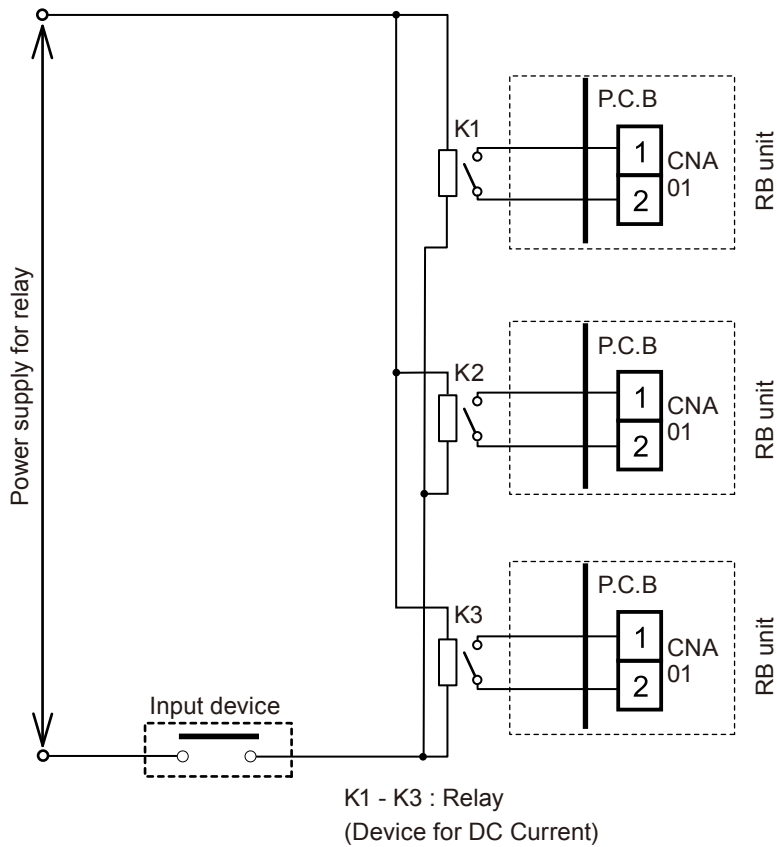
When a power supply is unnecessary at the input device you want to connect, use the Dry contact terminal ([CNA01]).



*a: Select very low current use contacts (usable at DC 12 V, DC 1 mA or less).

*b: The wiring is different from Apply voltage terminals. Be sufficiently careful when wiring.

When connected to Dry contact terminals of multiple RB units with a connected unit, insulate each RB unit with relay, etc. as shown on below example.

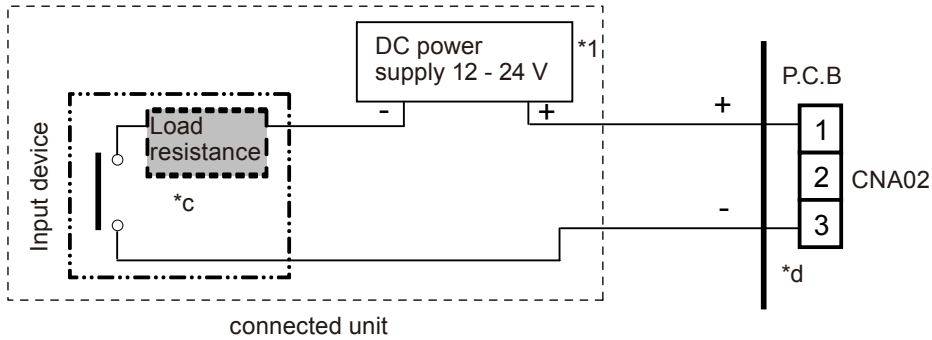


NOTE :

- If power is connected to dry contact on indoor units, damage will occur.

● Apply voltage terminal ([CNA02])

When a power supply must be provided at the input device you want to connect, use the Apply voltage terminal ([CNA02])

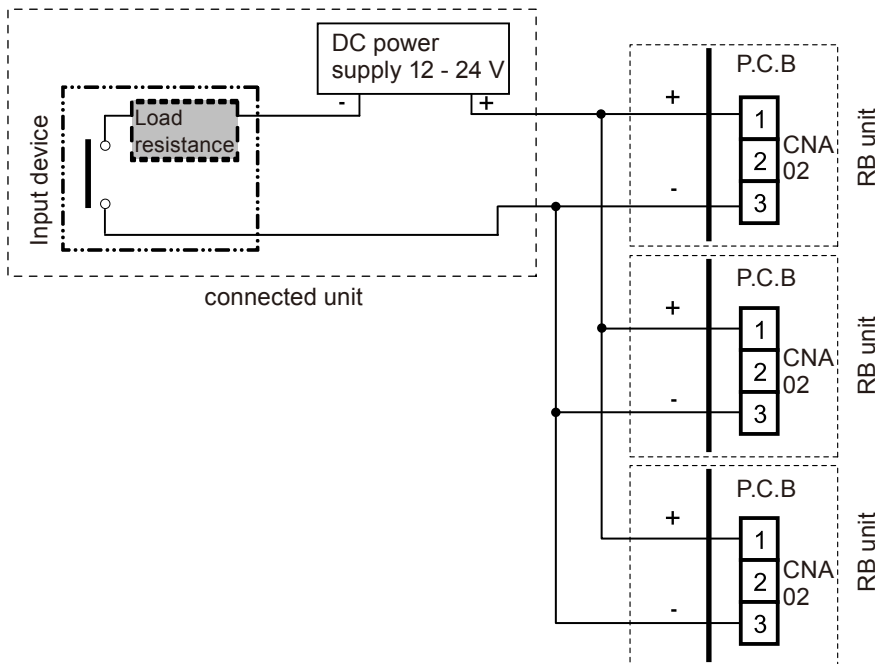


*1: Make the power supply DC 12 to 24 V. Select a power supply capacity with an ample surplus for the connected load.
Do not impress a voltage exceeding 24 V across pins 1-3.

*c: The allowable current is DC 5mA to 10mA. (Recommended: DC 5 mA)
Provide a load resistance such that the current becomes DC 10 mA or less.
Select very low current use contacts (usable at DC 12 V, DC 1 mA or less).

*d: The polarity is [+] for pin 1 and [-] for pin 3. Connect correctly.

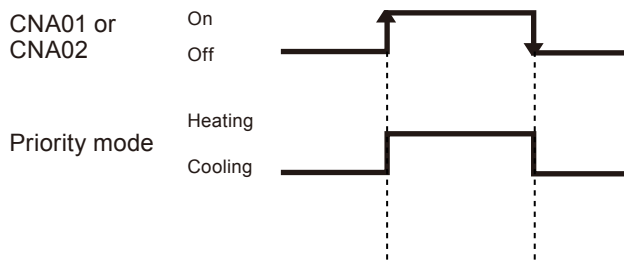
When connected to Apply voltage terminals of multiple RB units with a connected unit, be sure to make a branch outside the RB unit using a pull box, etc. as shown on below example.





■ COOLING/HEATING PRIORITY FUNCTION

- "Edge" input only

Connector	Input signal	Command
CNA01 or CNA02	OFF → ON	Heating priority
	ON → OFF	Cooling priority



1-3-2. OPTIONAL PARTS

Usage	Name and shapes	Q'ty	Models
For control input port (Dry contact terminal)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZ6
For control input port (Apply voltage terminal)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZB

1-4. TOUCH PANEL CONTROLLER

External input	External output	Connector	External connect kit (Optional parts)
Control input	-	TM201 (CN411 or CN412)	-
Electricity meter	-		-
-	Operation status	CN410	UTY-XWZXZA
-	Error status		

1-4-1. EXTERNAL INPUT

- This function performs "Emergency stop" or "All On / All Off" by using the signal to be input externally at external input terminals.

INPUT SELECT

Use either one of these types of terminal according to the application. (Both types of terminals cannot be used simultaneously.)

For more details on the selection setting, refer to the operation manual of Touch Panel Controller.

It is possible to switch to the Dry contact terminal or the Apply voltage terminal by connecting the CN201 on the TM201 printed circuit board to the CN411 or the CN412 on the printed circuit board of the panel side.

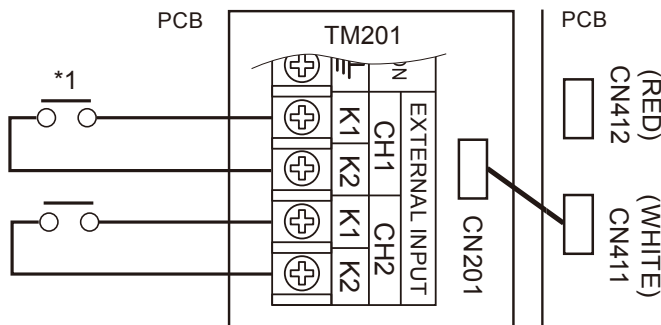
* The Dry contact terminal (connected to the CN411) is set when shipped from the factory.

TM201 - CH1, CH2	Connect with the CN201
Dry contact terminal	CN411
Apply voltage terminal	CN412

Dry contact terminal TM201 (CN411)

When a power supply is unnecessary at the input device you want to connect, use the Dry contact terminal TM201 (CN411).

Connection example 1: When the switch is connected



*1: Short circuit detection resistance (R_{ON}) : ≤ 500 (ohm).

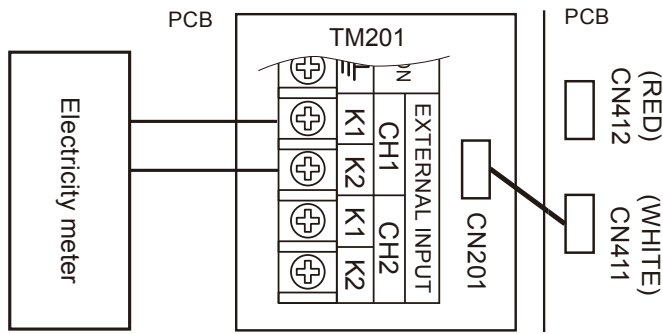
Open circuit detection resistance (R_{OFF}) : ≥ 100 (kilo-ohm).

A twisted pair cable(22AWG) should be used. Maximum length of cable is 82 ft. (25 m)

EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT

Connection example 2: When the electricity meter is connected

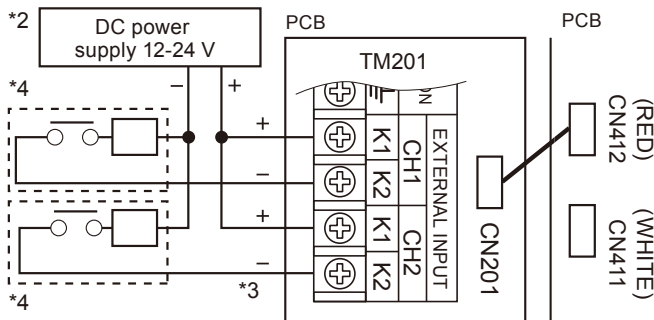


Connect the electricity meter to CH1. In this case, the use of CH2 is prohibited.

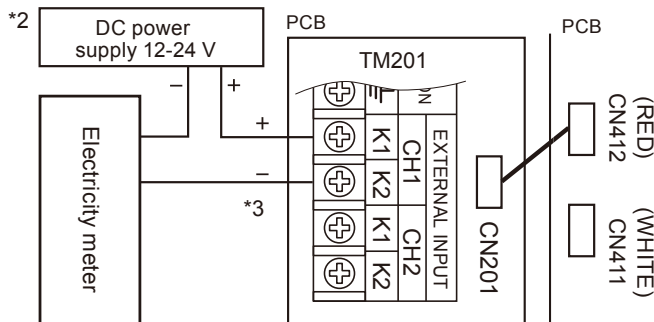
● Apply voltage terminal TM201 (CN412)

When a power supply must be provided at the input device you want to connect, use the Apply voltage terminal TM201 (CN412).

Connection example 1: When the switch is connected



Connection example 2: When the electricity meter is connected



*2: Make the power supply DC 12 to 24 V. Select a power supply capacity with an ample surplus for the connected load.

*3: Do not impress a voltage exceeding 24 V across K1-K2.

*4: The allowable current is DC 10 mA or less. (Recommended DC 5 mA) Provide a load resistance such that the current becomes DC 10 mA or less. Select very low current use contacts (usable at DC 12 V, DC 1 mA or less). A twisted pair cable 0.33 mm² (22AWG) should be used. Maximum length of cable is 25 m (82 ft).

■ SELECTING THE FUNCTION

The function of the external input terminals is disabled at the factory.

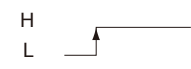
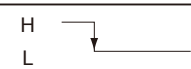
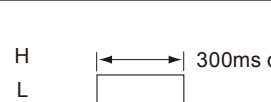

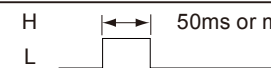
Select the function to be used (following table) by installer setting of application.

* Turn on the power and select by installer setting after starting the application.

Emergency stop	Edge / Pulse
All on / All off	
Electricity meter	Pulse

■ INPUT SIGNAL TYPE

The input signal type can be selected.

Edge	H  L	Emergency stop or All on	CH1
	H  L	Emergency stop reset or All off	
Pulse	H  L	Emergency stop or All on	CH1
	H  L	Emergency stop reset or All off	CH2
	H  L	Electricity meter signal	CH1

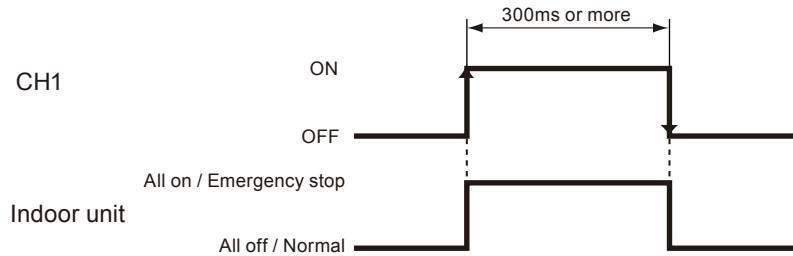
H: Energized state L: Shutoff state

When Edge was selected, only CH1 can be used. CH2 cannot be used.

■ CONTROL INPUT FUNCTION

● In the case of "Edge" input

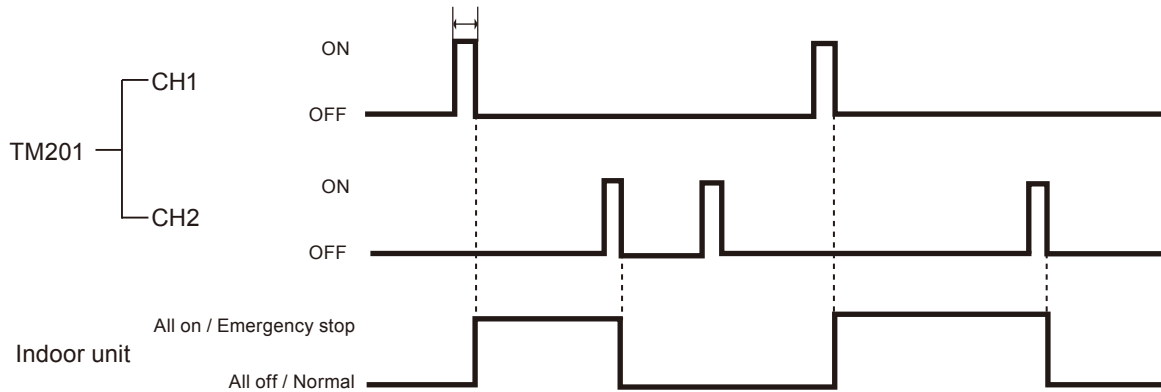
Terminal		Input signal	Command
TM201	CH1	OFF → ON	All on / Emergency stop
		ON → OFF	All off / Normal



● In the case of "Pulse" input

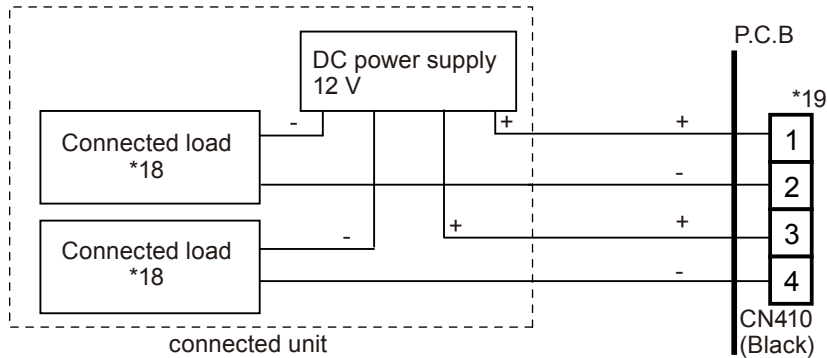
Terminal		Input signal	Command
TM201	CH1	Pulse	All on / Emergency stop
	CH2		All off / Normal

The width of pulse must be longer than 300msec.



1-4-2. EXTERNAL OUTPUT

Connector		Output voltage	Status
CN410 (Black)	Ch1	0 V	All of indoor units "Stop"
	Pins1-2	DC 12 V *17	At least one more indoor units "Operation"
	Ch2	0 V	Normal
	Pins3-4	DC 12 V *17	Error



*17: Provide a DC 12 V power supply. Select a power supply capacity with an ample surplus for the connected load.

Do not impress a voltage exceeding 12 V across pins 1-2, and 3-4

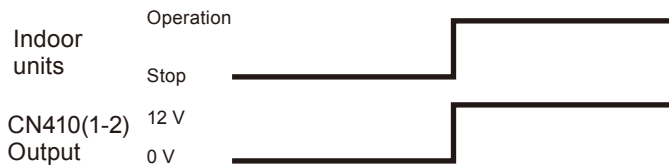
*18: The allowable current is DC15mA or less. Provide a load resistance such that the current becomes DC 15 mA or less.

*19: Polarity is [+] for pins 1,3 and [-] for pins 2,4.

■ OPERATION STATUS (External output1)

The output for CN410(1-2) is ON when at least one more indoor units is operating.

The output is OFF when all of indoor units is stopped.




■ ERROR STATUS (External output2)

The output for CN410(3-4) is ON when Error of at least one more indoor unit or outdoor unit or Touch panel controller is generated.



1-4-3. PARTS

Name and shapes	Q'ty	Model
EXTERNAL CONNECT KIT 	1	UTY-XWZXZA

1-5. CENTRAL REMOTE CONTROLLER

External input	External output	Input select	Connector	External connect kit (Optional parts)
Control input	-	Dry contact	CN6 (and CN7)	UTY-XWZXZ7
		Apply voltage	CN11 (and CN12)	UTY-XWZXZ8
-	Operation status	-	CN9	UTY-XWZXZA
-	Error status			

1-5-1. EXTERNAL INPUT

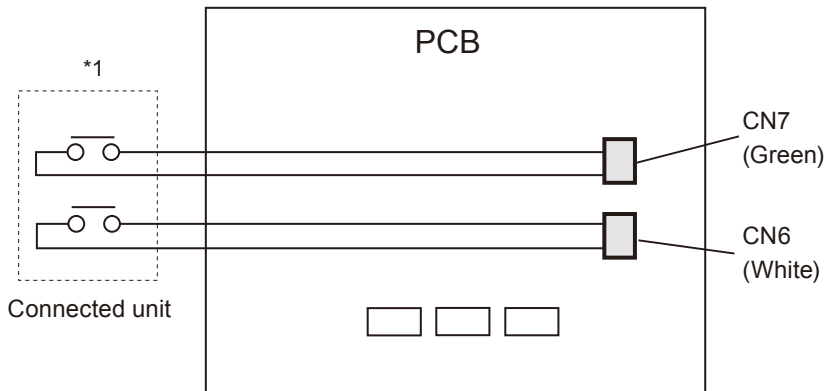
- This function performs “Emergency stop” or “All On / All Off” by using the signal to be input externally at external input terminals.

■ INPUT SELECT

There are 2 kinds of input method of External input terminal: “Dry contact” or “Apply voltage contact”.

● Dry contact

When a power supply is unnecessary at the input device you want to connect, connect to CN6 and CN7.



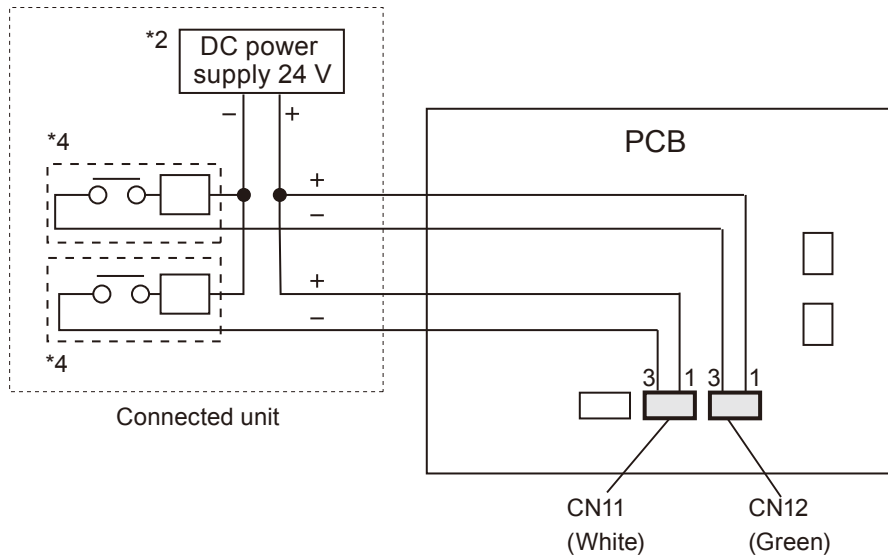
*1 : Short circuit detection resistance (R_{ON}) : ≤ 500 (ohm).

Open circuit detection resistance (R_{OFF}) : ≥ 100 (kilo-ohm).

* A twisted pair cable(22AWG) should be used. Maximum length of cable is 82 ft. (25 m)

● Apply voltage contact

When a power supply must be provided at the input device, connect to CN11 and CN12.



*2 : Make the power supply 24 V. Select a power supply capacity with an ample surplus for the connected load.

*3 : Do not impress a voltage exceeding 24 V across pin 1, 3.

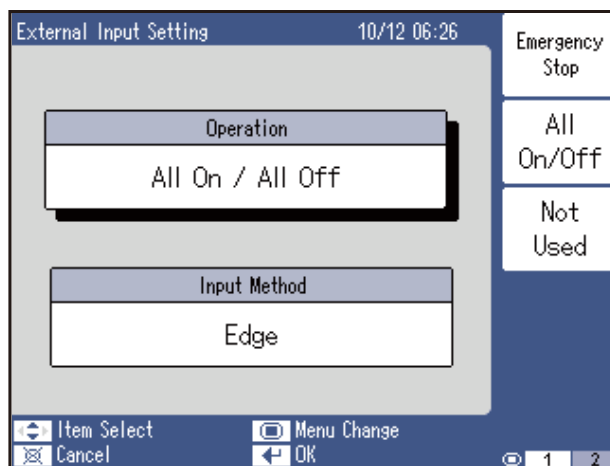
*4 : The allowable current is DC 5 mA or less. (Recommended DC 5 mA)

Provide a load resistance such that the current becomes DC 5 mA or less.

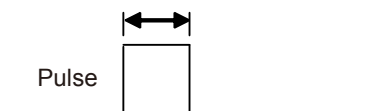
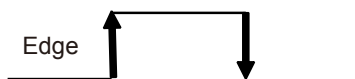
* A twisted pair cable(22AWG) should be used. Maximum length of cable is 82 ft. (25 m)

■ INPUT SIGNAL TYPE

The input signal type can be selected.



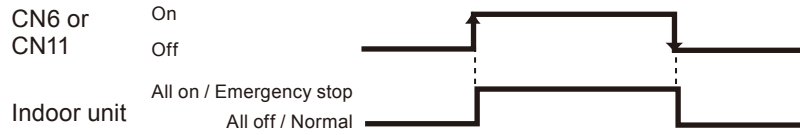
- Press the [↔] button and move the cursor to the “Operation” menu.
[Emergency Stop] button : Enables Emergency stop by external input.
[All On/All Off] button : Enables batch operation On/Off by external input.
[Not Used] button : Does not receive external input signals.
- Press the [↔] button and move the cursor to the “Input Method” menu.
[Edge] button : Detects the signal rise and fall.
[Pulse] button : Detects the signal level.
- When the [↔] button is pressed, setting is complete.



■ CONTROL INPUT FUNCTION

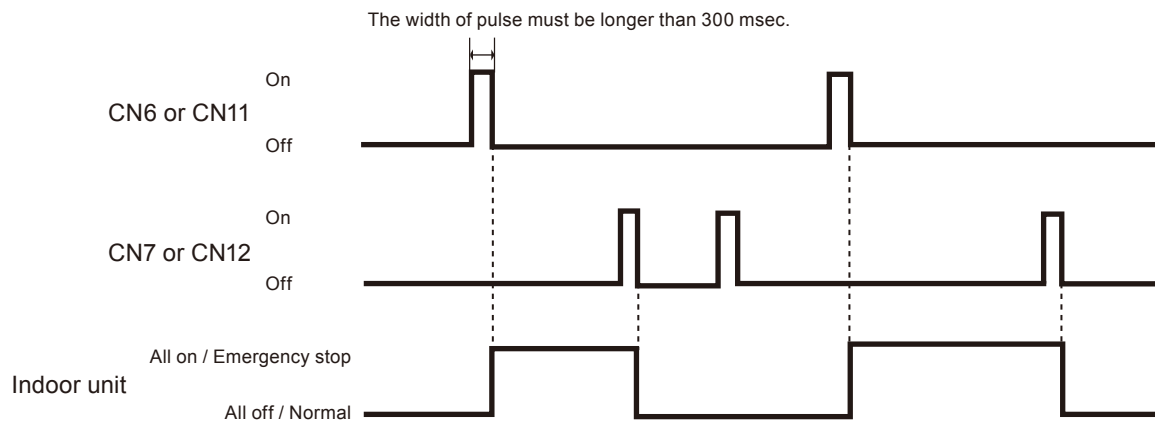
● In the case of "Edge" input

Connector	Input signal	Command
CN6 or CN11	OFF → ON	All on / Emergency stop
	ON → OFF	All off / Normal



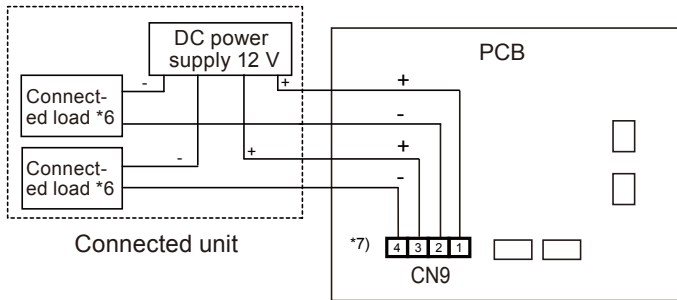
● In the case of "Pulse" input

Connector	Input signal	Command
CN6 or CN11	OFF → ON	All on / Emergency stop
CN7 or CN12	OFF → ON	All off / Normal



1-5-2. EXTERNAL OUTPUT

Connector		Output voltage	Status
CN9 (Black)	Ch1	0 V	All of indoor units "Stop"
	Pins3-4	DC 12 V *5	At least one more indoor units "Operation"
	Ch2	0 V	Normal
	Pins1-2	DC 12 V *5	Error



*5: Provide a DC12 V power supply. Select a power supply capacity with an ample surplus for the connected load. Do not impress a voltage exceeding 12 V across pins 1-2, and 3-4

*6: The allowable current is DC 15 mA or less. Provide a load resistance such that the current becomes DC 15 mA or less.

*7: Polarity is [+] for pins 1,3 and [-] for pins 2,4.

■ OPERATION STATUS (External output1)

The output for CN9 (3-4) is ON when at least one more indoor units is operating.

The output is OFF when all of indoor units is stopped.






■ ERROR STATUS (External output2)

The output for CN9 (1-2) is ON when Error of at least one more indoor unit or outdoor unit or Central remote controller is generated.



1-5-3. PARTS

Usage	Name and shapes	Q'ty		Models
		Edge	Pulse	
For control input port (Dry contact terminal)	External CONNECT KIT 	1	2	UTY-XWZXZ7
		1	2	
For control input port (Apply voltage terminal)	External CONNECT KIT 	1	2	UTY-XWZXZ8
		1	2	
For output port	External CONNECT KIT 	1		UTY-XWZXZA

1-5-4. CONTROLLER EXTERNAL INPUT / OUTPUT FUNCTION SUMMARY

■ CONTROLLER EXTERNAL INPUT FUNCTION

Central controller (Input function)	Dry contact / Apply voltage	Function		Specifications				
		Emergency stop	Batch on / Batch off	Terminal	Signal type	External power supply		Wire size / length
						Allowable voltage	Allowable current	
Touch Panel Controller	Dry contact	● (Screen icon)	● (Screen icon)	TM201 (CH1-K1,K2) [CN201 ↔ CN411]	Edge	-	-	AWG22 Twist / 82 ft. (25 m)
				TM201 (CH1-K1,K2) (CH2-K1,K2) [CN201 ↔ CN411]	Pulse *1			
	Apply voltage	● (Screen icon)	● (Screen icon)	TM201 (CH1-K1,K2) [CN201 ↔ CN412]	Edge	DC 12 [V]	10 mA or less	
				TM201 (CH1-K1,K2) (CH2-K1,K2) [CN201 ↔ CN412]	Pulse *1			
Central Remote Controller	Dry contact	● (Screen icon)	● (Screen icon)	CN6 (PIN1-2)	Edge	-	-	
				CN6 (Ch1:PIN1-2) CN7 (Ch2:PIN1-2)	Pulse *1			
	Apply voltage	● (Screen icon)	● (Screen icon)	CN11 (PIN1-3)	Edge	DC 24 [V]	5 mA or less	
				CN11 (Ch1:PIN1-3) CN12 (Ch2:PIN1-3)	Pulse *1			

*1 : Default setting is Edge signal, if you use pulse signal, must be set pulse signal from screen icon.

■ CONTROLLER EXTERNAL OUTPUT FUNCTION

Central Controller (Output Function)	Dry contact / Apply voltage	Function		Specifications			
		Operation status	Error status	Terminal	External power supply		Wire size/ length
					Allowable voltage	Allowable current	
Touch Panel Controller	Apply voltage	●	-	CN410 (PIN1-2)	DC 12 [V]	15 mA or less	AWG22 Twist / Max. 82 ft. (25 m)
		-	●	CN410 (PIN3-4)			
Central Remote Controller	Apply voltage	●	-	CN9 (PIN3-4)			
		-	●	CN9 (PIN1-2)			

EXTERNAL INPUT & OUTPUT

EXTERNAL INPUT & OUTPUT



9. NOTES

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9. NOTES

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1. REFRIGERANT CONCENTRATION PRECAUTIONS

The system designer and installer are to ensure that the system adheres to all local regulations regarding refrigerant leakage.

1-1. INTRODUCTION

Designing VRF systems requires special attention to codes and standards relating to Refrigeration Concentration Limit (RCL). The RCL is intended to “reduce the risks of acute toxicity, asphyxiation and flammability hazards in normally occupied, enclosed spaces”.

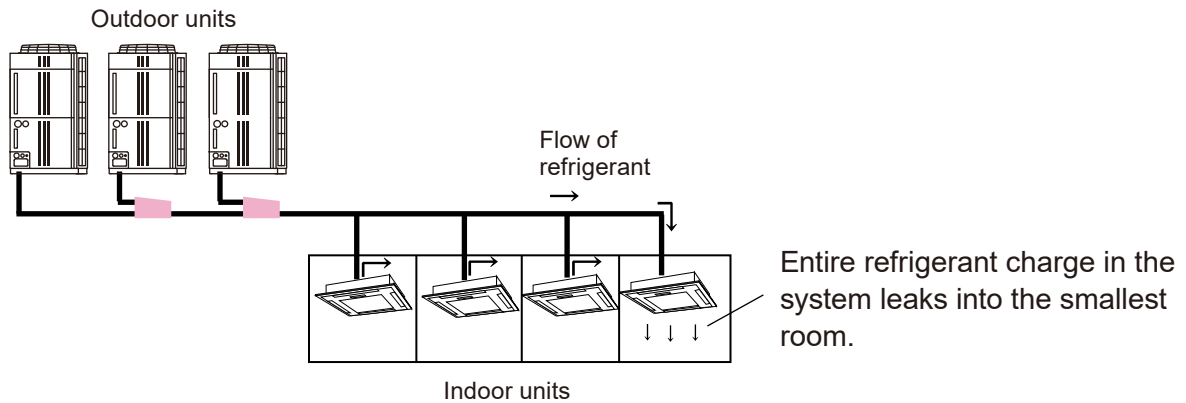
Because R-410A is neither toxic nor flammable; the primary safety concern is asphyxiation due to oxygen deprivation.

● Concentration limit

The purpose of the concentration limit is to protect occupants in the unlikely event that the entire refrigerant system leaks into the smallest room served by the system. To calculate the potential refrigerant concentration, divide the total refrigerant in the system by the volume of the smallest space served by the system.

The Concentration Limit for R-410A : 25lbs./1,000 ft³ (0.40kg/m³)*.

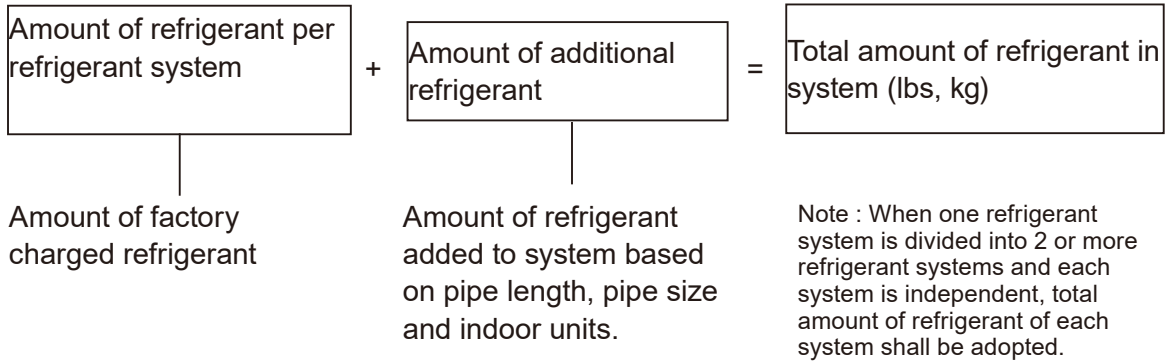
*Based on ASHRAE 34-2007 and IMC-2009



1-2. CHECKING CONCENTRATION LIMIT

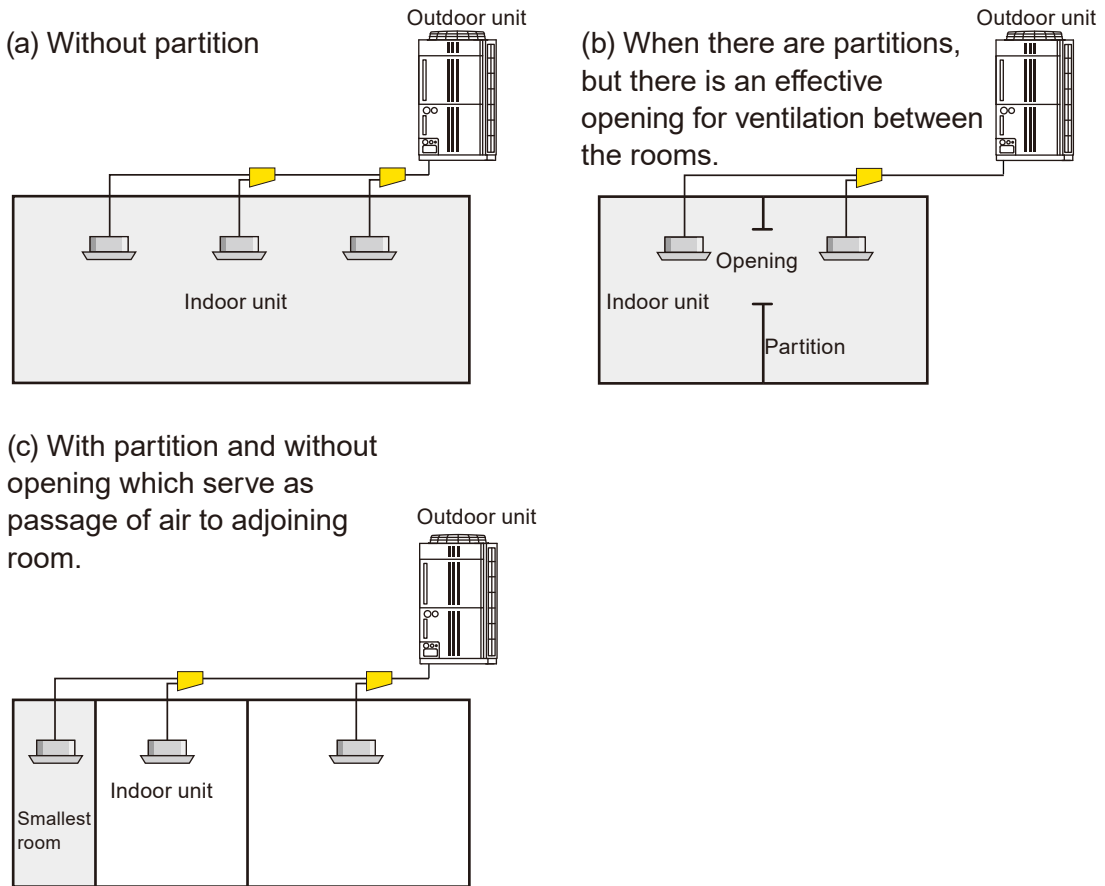
Check concentration limit following steps ①②, and take appropriate measures depending on the situation.

① Calculate amount of refrigerant [lbs. (kg)] per refrigerant system.



② Smallest room volume.

Calculate room volume by regarding portion as one room or the smallest room.



③ Calculate refrigerant concentration from the results of ① and ②

Total amount of refrigerant in refrigerant system (lbs,kg)

$$\frac{\text{Total amount of refrigerant in refrigerant system (lbs,kg)}}{\text{Capacity of smallest room where indoor unit is installed [cf (m}^3\text{)]}} \leq \text{Refrigerant concentration [lbs./Mcf (kg/m}^3\text{)]}$$

(R410A)

When the result of calculation exceeds the limiting concentration, perform the same calculations by shifting to the second smallest, and the third smallest rooms until the final result is below the limiting concentration.

1-3. REFRIGERATION CONCENTRATION COUNTERMEASURES

When the concentration limit is exceeded, the designer will need to change the original design or use one of the countermeasures below to reduce potential exposure to refrigerant. Always consult local codes to ensure proper design.

- Countermeasure 1

Provide opening for ventilation.

Provide 0.15% or more opening to floor space both above and below or provide opening without door. (0.15% floor opening based on standard ceiling height of 8.8 ft. (2.7m))

- Countermeasure 2

Reduce the total refrigerant charging amount of the refrigerant equipment

(1) Shorten the length of the refrigerant pipes

Move the location of the outdoor unit closer to the indoor unit, and reduce the total refrigerant charging amount by shortening the length of the refrigerant pipes.

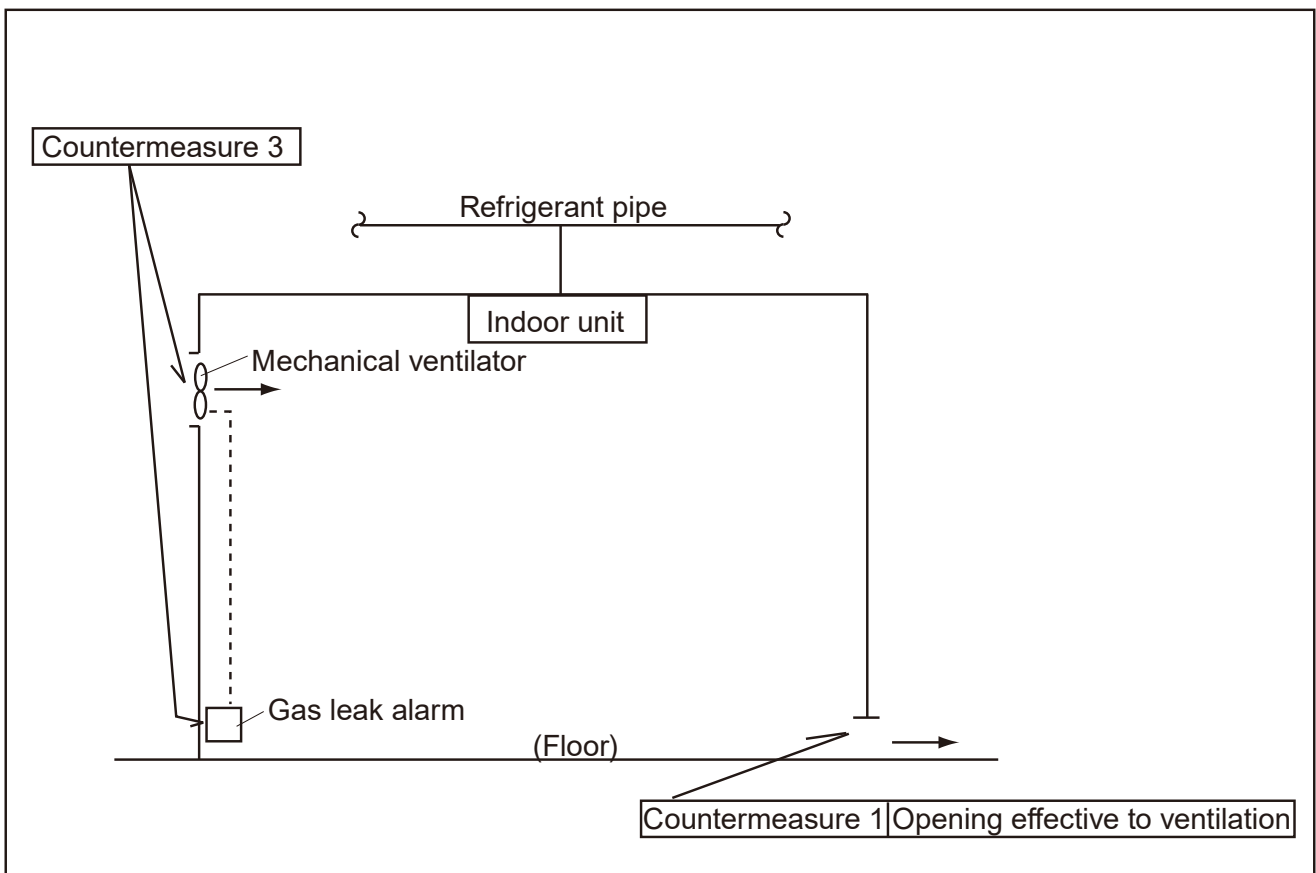
(2) Lower the capacity of the outdoor unit.

Separate the outdoor unit into multiple units to lower the outdoor unit capacity for each refrigerant system and reduce the refrigerant charging amount.

For example, by changing a 12Ton × 1 unit system to a 6Ton × 2 units system, the refrigerant amount for each refrigerant system can be reduced by about half.

- Countermeasure 3

Provide gas leak alarm linked with mechanical ventilator. If using the mechanical ventilator, The back up power supply is required.



Pay special attention to areas where refrigerant can accumulate (like a basement), since refrigerant is heavier than air.

2. INSTALLATION PRECAUTIONS

2-1. INDOOR UNIT INSTALLATION PRECAUTIONS

Note: The information listed below are general precautions. Some models also include items that do not apply.

■ PLACES WHERE USE PROHIBITED

- Places where there is the danger of combustible gas leakage.
- Places where sulfur gas, chlorine gas, acid, alkali, or other matter which effects equipment is generated
- Places where there is a lot of oil splash and steam (kitchen, machinery room, etc.)
- Places where machinery which generates high frequencies is used
- Ocean beaches and other areas where there is a lot of salt
- Places where carbon fibers and metal powder, powder, etc. suspended in the air
- Installation in vehicles, ships, and other conveyances
- Factory, etc. where voltage fluctuations are large

■ POINTS TO REMEMBER WHEN INSTALLING

- 1) Install the indoor unit in a location that can withstand the weight and vibration of the unit.
- 2) Leave space (or a service port) for servicing the refrigerant piping, drain piping and electrical wiring.

*Installation service space is shown on " DIMENSIONS ".

- 3) Be careful when installing the indoor unit in the following places.

[Installation precautions]

	Contents	Countermeasures (Reference)
When the ceiling is high	If the indoor unit is installed where the installation height given in the installation manual is exceeded, the temperature difference between the floor and ceiling of the room will be large and the heating effect will be poor. Moreover, even if the indoor unit is installed within the installation height, a similar phenomena will occur when installed in a room in which the doors are opened and closed frequently and hot air circulation is obstructed by desks, chairs, etc.	1) Switch the setting to the high ceiling mode. 2) Install a circulator. 3) Arrange the furniture in the room so that it does not obstruct the hot air.
When lower level directly contacts the outside air.	When the lower level of the shop and office is a warehouse, parking lot, etc., the surface temperature of the flooring will become low and the radiation of cold from the floor will increase. In this case, your feet will feel cold even if the room temperature is suitable.	
When the airflow distribution is poor	When an indoor unit is installed in a position where the outlet airflow will directly contact people, a draft may be felt. In addition, when there are obstructions in the path of the intake and outlet airflow, the air distribution may become extremely bad.	1) Adjust the louver fins or take other measures matched to the site. 2) Change the indoor unit outlet.

[Installation precautions]

	Contents	Countermeasures (Reference)
When inside the ceiling is high temperature and high humidity	<p>When the indoor unit is installed where the inside of the ceiling is 86°F (30°C) RH80% or greater, the dew point temperature of the outer perimeter may become higher than the cabinet surface temperature and moisture will condense on the surface of the cabinet and water drops may fall inside the room.</p> <p>→Refer to Fig.A</p> <p>In addition, the humidity may vary considerably the same as when the inside of the ceiling is close to hermetically sealed and used as the outside air intake path.</p>	<p>1) Add heat insulating material to the outside of the indoor unit cabinet.</p> <p>*Regarding the cassette type, use of the “high humidity correspondence kit (option)” is recommended.</p> <p>2) Strengthen the heat insulating material of the refrigerant piping and drain piping also.</p> <p>→Refer to Fig.B</p> <p>3) When the humidity inside the ceiling changes considerably, install a ventilation port.</p>

Work method when reinforcing the heat insulation of on-site piping

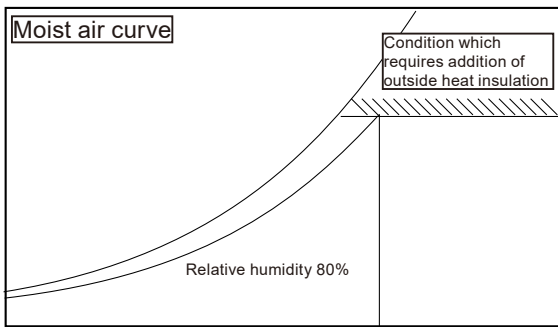


Fig.A

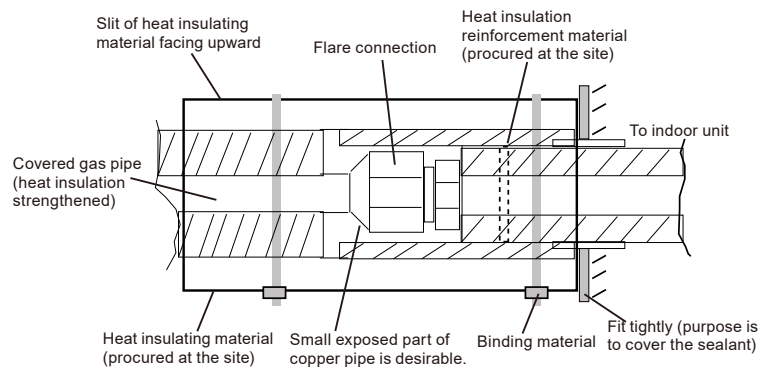


Fig.B

	Contents	Countermeasures (Reference)
When using an external duct	<p>When using an external duct to take in new fresh air, etc., condensation may form on the surface of the duct due to the effect of the outside air temperature and the humidity inside the ceiling.</p>	<p>1) Always perform heat insulation processing. (Heat insulating material: Glass wool 31/32in (25mm) thick or more.)</p>
When the remote controller installation site is bad	<p>If the cold or warm air blown out from the air conditioner directly contacts the thermostat section of the remote controller, the outlet temperature of the air conditioner may be sensed and room temperature control will be different from the room temperature and “not cooled” or “not heated” or other trouble may occur.</p> <p>In addition, there is the possibility that the same kind of trouble may also occur when the remote controller is effected by direct sunlight.</p>	<p>1) Install the remote controller where it will not be directly exposed to the cold or hot air.</p> <p>2) Install the remote controller where it will not be directly exposed to sunlight or strong lighting.</p>

NOTES

NOTES

[Installation precautions]

	Contents	Countermeasures (Reference)
When installing duct type in an attic	In are is returned through the attic, the thermistor in the indoor unit may not correctly detect the room temperature. Heating operation: Room is not heated because the indoor unit is easily turned off by the thermostat. Cooling operation: Room is too cold because the indoor unit is difficult to turn off by the thermostat.	1) Replace the indoor unit thermistor with a Remote sensor unit (optional parts) and install the sensor where the room temperature can be correctly detected.
When the duct type outlet blows on the inlet (short circuit)	Cooling operation does not cool the room and heating operation does not heat the room because the short circuited indoor unit is not turned on by the thermostat.	1) Reconsider the ventilation port construction. 2) Replace the indoor unit thermistor with a Remote sensor unit (optional parts) and install the sensor where the room temperature can be correctly detected.
When using the wireless remote controller	Signals may not be received when using it in a room illuminated by an inverter fluorescent lamp.	1) Turn on the fluorescent lamp and check if the indoor unit receives the signals from the remote controller. If the indoor unit does not receive the signals, consult an authorized service personnel.
When installing the inverter type	It may generate noise in TV sets, stereos and PCs.	1) The inverter type should be installed at a sufficient distance from these equipment.

2-2. OUTDOOR UNIT INSTALLATION PRECAUTIONS

Note: The information listed below are general precautions. Some models also include items that do not apply.

■ PLACES WHERE USE PROHIBITED

- Places where there is the danger of combustible gas leakage
- Places where sulfur gas, chlorine gas, acid, alkali, or other matter which effects equipment is generated
- Places not affected by heat radiation from other heat sources
- Places where the air is not stagnant
- Places where machinery which generates high frequencies is used
- Ocean beaches and other areas where there is a lot of salt
- Installation in vehicles, ships, and other conveyances
- Factory, etc. where voltage fluctuations are large

■ POINTS TO REMEMBER WHEN INSTALLING

- 1) The set shall be installed at a place which can withstand the weight and vibration of the outdoor unit.
- 2) To allow maintenance after refrigerant piping, drain piping, and electric wiring connection and installation, provide an installation service space.

*Installation service space is shown on "INSTALLATION SPACE".

- 3) Be careful when installing the outdoor unit I the following places.

[Installation precautions]

	Contents	Countermeasures (Reference)
When installed near adjacent houses	Perform installation work so that operating sound does not disturb the neighbors.	1) Install a soundproof barrier. 2) Change the installation site.
When there is the possibility of strong wind	1) If the outdoor unit is exposed to strong wind, capacity may drop, frost may form during heating, and operation may be stopped by high pressure safety switch. In addition, when a very strong wind blows, the fan may be damaged. 2) When a very strong wind blows, there is the possibility of the outdoor unit being toppled over if held only by foundation bolts.	1) Do not install the unit too close to a wall or overhang. 2) Make the outlet direction and wind direction perpendicular. 3) Fasten the outdoor unit using toppling prevention hardware (procured at the site).
When snow accumulates	If the outdoor unit is covered by accumulated snow, it may not be able to operate.	1) Make the foundation as high as possible. 2) Perform snow prevention work.
When installing the inverter type	It may generate noise in TV sets, stereos and PCs.	1) The inverter type should be installed at a sufficient distance from these equipment.

3. COMPATIBILITY OF VRF SYSTEM

■ COMPATIBILITY OF OUTDOOR UNIT AND INDOOR UNIT

● OUTDOOR UNIT AND INDOOR UNIT

Compatibility of outdoor unit and indoor unit in refrigerant system as follows.










			Indoor unit	
			New model *1	Previous model *2
Outdoor unit	VR- II series (230V)	Heat Recovery	○ OK	✕ Prohibited
	VR- II series (460V)	Heat Recovery	○ OK	✕ Prohibited
	V- II series (230V)	Heat Pump	○ OK	○ OK
	V- II series (460V)	Heat Pump	○ OK	○ OK
	J- II series	Heat Pump	○ *3 OK	○ *3 OK

*1: New model name is "A*****TLAV" (*: arbitrary character)










*2: Previous model name is "A*****RLAV" (*: arbitrary character)

*3: Following indoor units cannot be connected. (ARUH 72 / 96)

● Example cases for compatibility













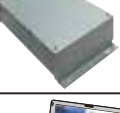


	Outdoor unit	Indoor unit	Judgement
Case 1	 VR- II series (230 / 460V)	 ARUM24TLAV (New model)	○ OK
Case 2		 ARUM24RLAV (Previous model)	✕ Prohibited
Case 3	 V- II series (230 / 460V)	 ARUM24TLAV (New model)	○ OK
Case 4		 ARUM24RLAV (Previous model)	○ OK
Case 5	 J- II series	 ARUM24TLAV (New model)	○ OK
Case 6		 ARUM24RLAV (Previous model)	○ OK

■ COMPATIBILITY OF CONTROLLER SYSTEM

			Model	VR- II series	V- II series J- II series
Controller	Central Controller	System Controller	 UTY-APGXZ1 UTY-APGX	○*1 OK	○*1 OK
		System Controller Lite	 UTY-ALGXZ1 UTY-ALGX	○ OK	○ OK
		Touch Panel Controller	 UTY-DTGYZ1 UTY-DTGY	○ OK	○ OK
		Central Remote Controller	 UTY-DCGY	○ OK	○ OK
	Individual Controller	Wired Remote Controller (Touch panel)	 UTY-RNRUZ* UTY-RNRU	○ OK	○*2 OK
		Wired Remote Controller	 UTY-RNKU	○ OK	○ OK
		Simple Remote Controller (with master control)	 UTY-RSRY UTY-RSKU	○ OK	○ OK
		Simple Remote Controller (without master control)	 UTY-RHRY UTY-RHKU	○ OK	○ OK
		Wireless Remote Controller	 UTY-LNHU	○ OK	○ OK

*1: Different VRF series may be connected for each of the 4 VRF networks supported by the unit.

*2: It is not connectable with indoor unit ("A****RLAV" (*: arbitrary character)) of the old type.

			Model	VR- II series	V- II series J- II series
Adaptor / Converter	External Switch Controller		UTY-TERK UTY-TEKX	○ OK	○ OK
	IR Receiver unit (for all Duct type)		UTB-YWC	○ OK	○ OK
	IR Receiver unit (for Cassette type)		UTY-LRHYB1	○ OK	○ OK
	IR Receiver unit [for Cassette (circular flow type)]		UTY-LBHXD	○ OK	○ OK
	Human Sensor Kit [for Cassette (circular flow type)]		UTY-SHZXC	○ OK	○ OK
	Signal amplifier		UTY-VSGXZ1	○ OK	○ OK
			UTY-VSGX	○*1 OK	○*1 OK
	Network Converter		UTY-VTGX	○ OK	○ OK
			UTY-VGGXZ1 UTY-VGGX	○ OK	○ OK
	Network Converter for LonWorks®		UTY-VLGX	○ OK	○ OK
	BACnet® Gateway (Hardware)		UTY-VBGX	○ OK	○ OK
	BACnet® Gateway (Software)		UTY-ABGXZ1 UTY-ABGX	○*2 OK	○*2 OK
Modbus® Converter for VRF		UTY-VMGX	○ OK	○ OK	
Service and Maintenance	Service Tool		UTY-ASGXZ1	○ OK	○ OK
	Web Monitoring Tool		UTY-AMGXZ1	○*2 OK	○*2 OK

*1: Since Signal filter mode is not contained, use "UTY-VSGXZ1", when use Signal filter mode.

*2: Different VRF series may be connected for each of the 4 VRF networks supported by the unit, but different series may not coexist within the same network.

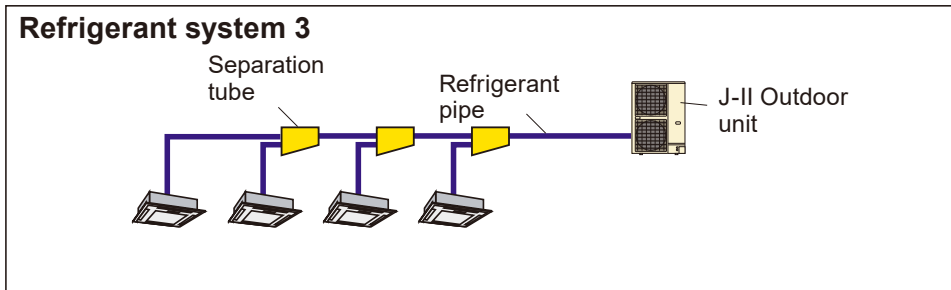
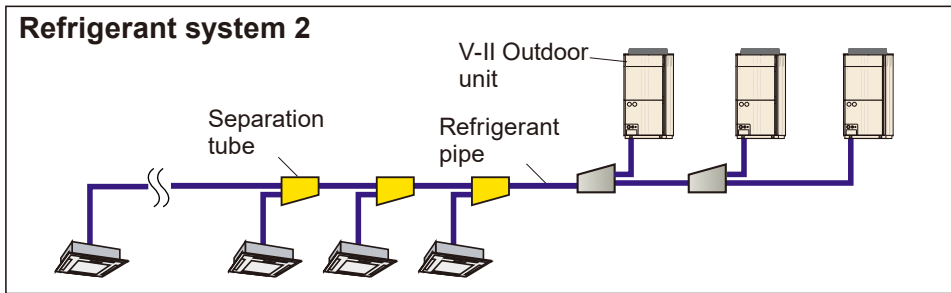
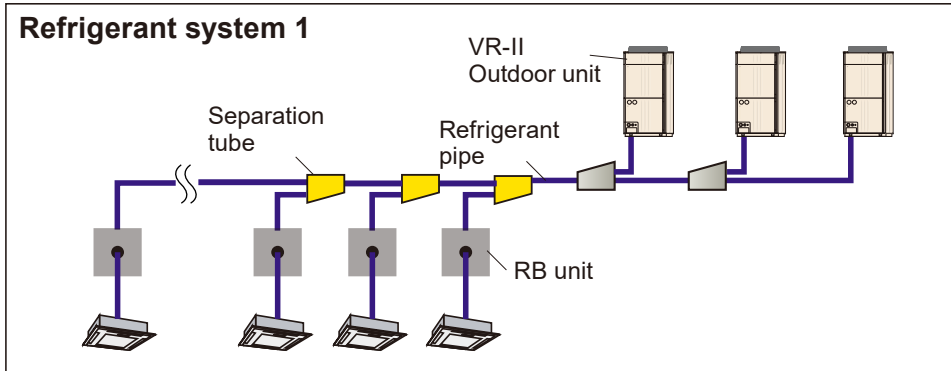
4. ABOUT CONNECTION BETWEEN SERIES

4-1. PIPING CONNECTION

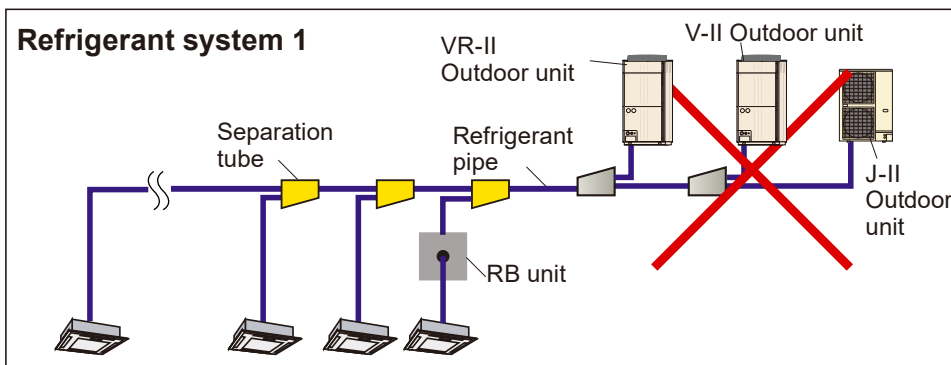
Note: · Piping connection of VR-II V-II and J-II in the same refrigerant system is prohibited.

· Mixed connection of 230V model and 460V model is prohibited.

■ EXAMPLE1 (OK)



■ EXAMPLE2 (Prohibited)



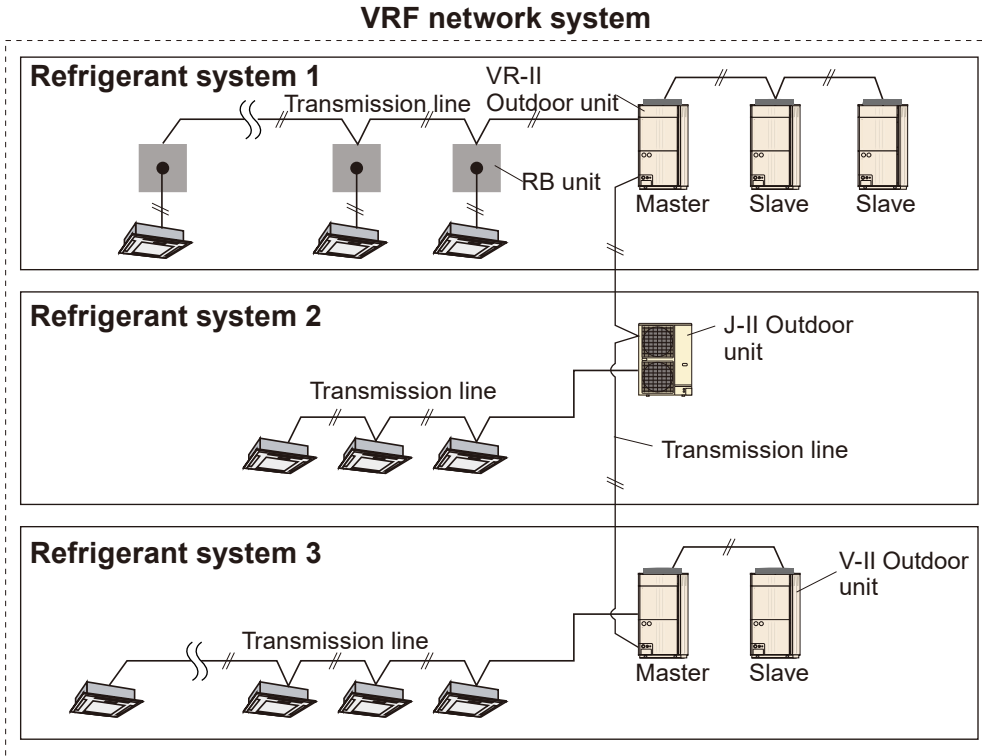
4-2. WIRING CONNECTION

Note: · Wiring connection of VR-II V-II and J-II in the same refrigerant system is prohibited.

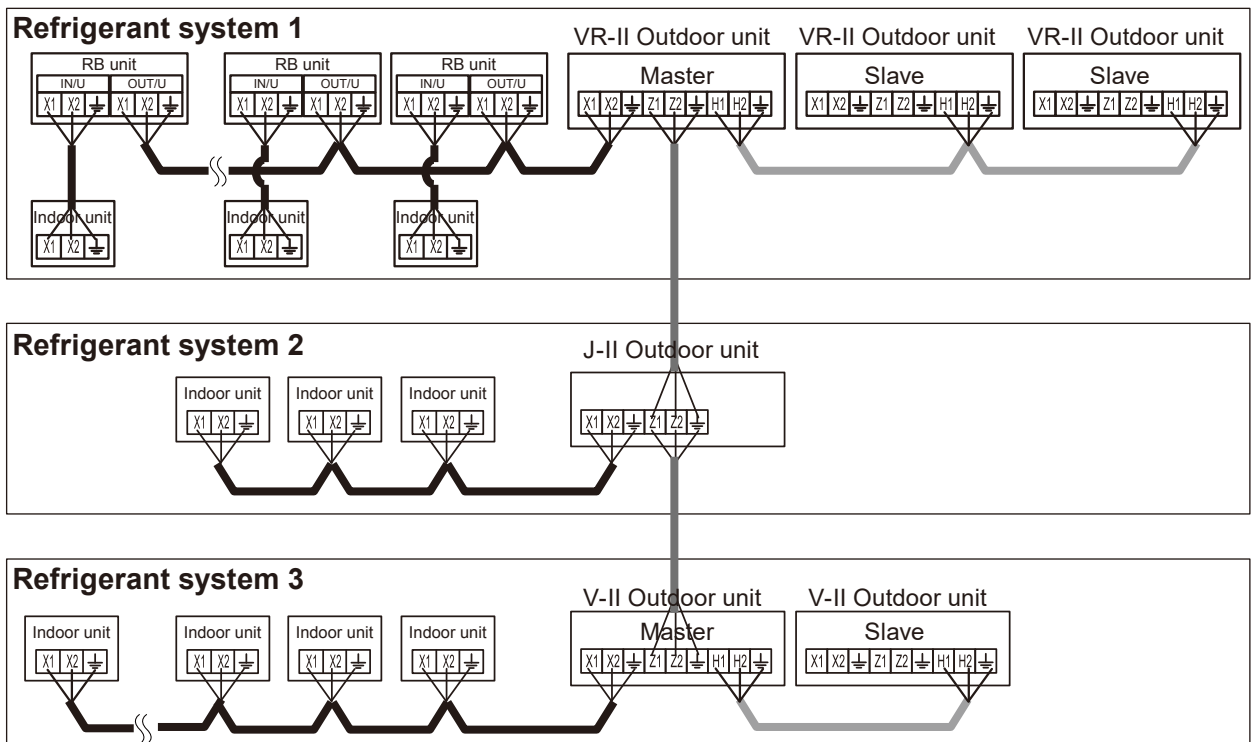
· Mixed connection of 230V model and 460V model is possible.

■ EXAMPLE1 (OK)

When wiring to each refrigerant system



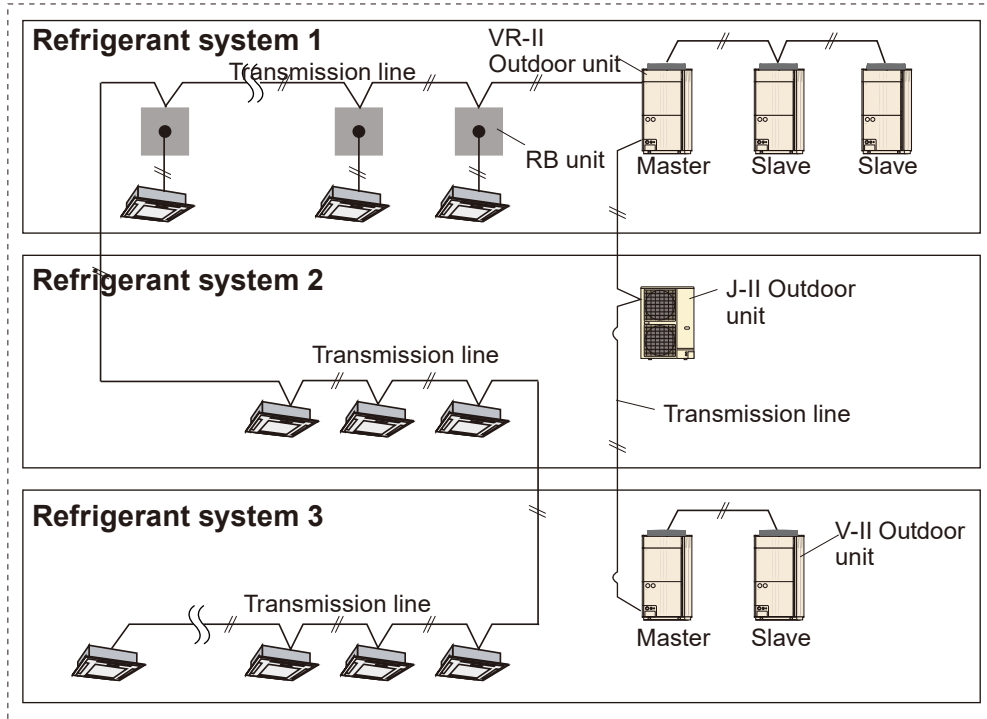
● Connection method to terminal



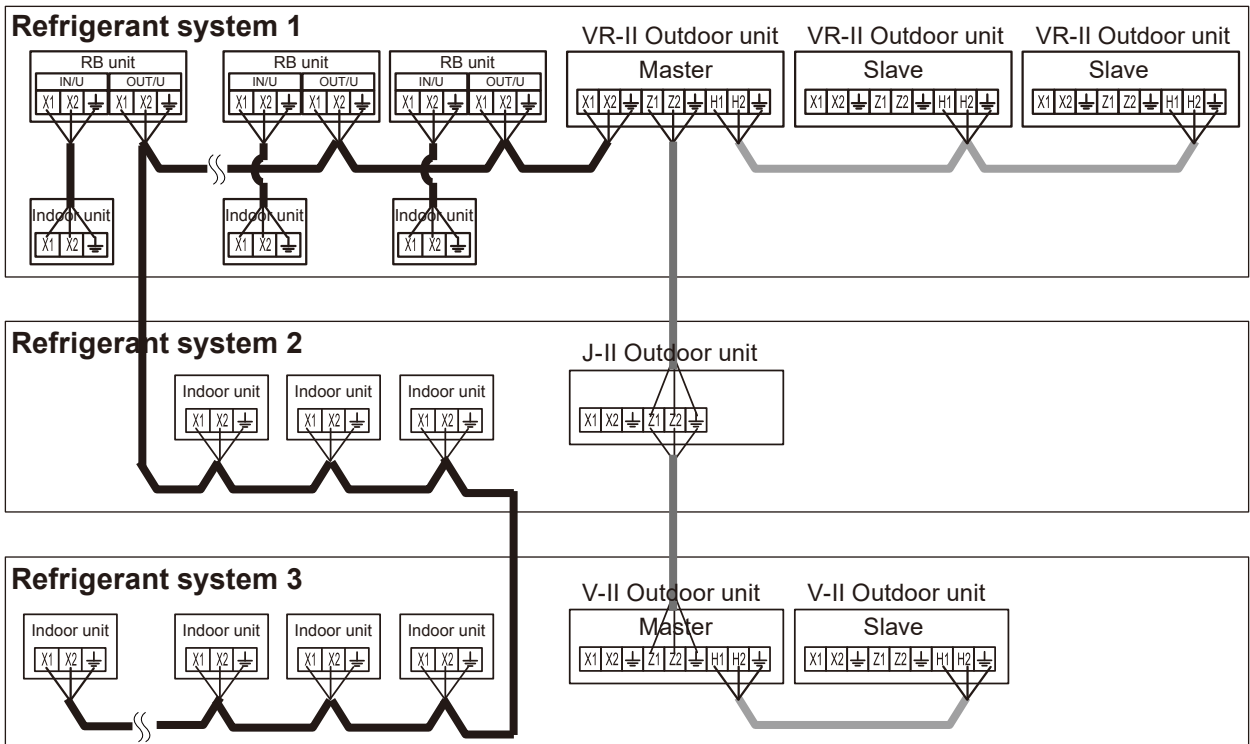
EXAMPLE2 (OK)

When stepping over, and wiring to the refrigerant system

VRF network system



● Connection method to terminal



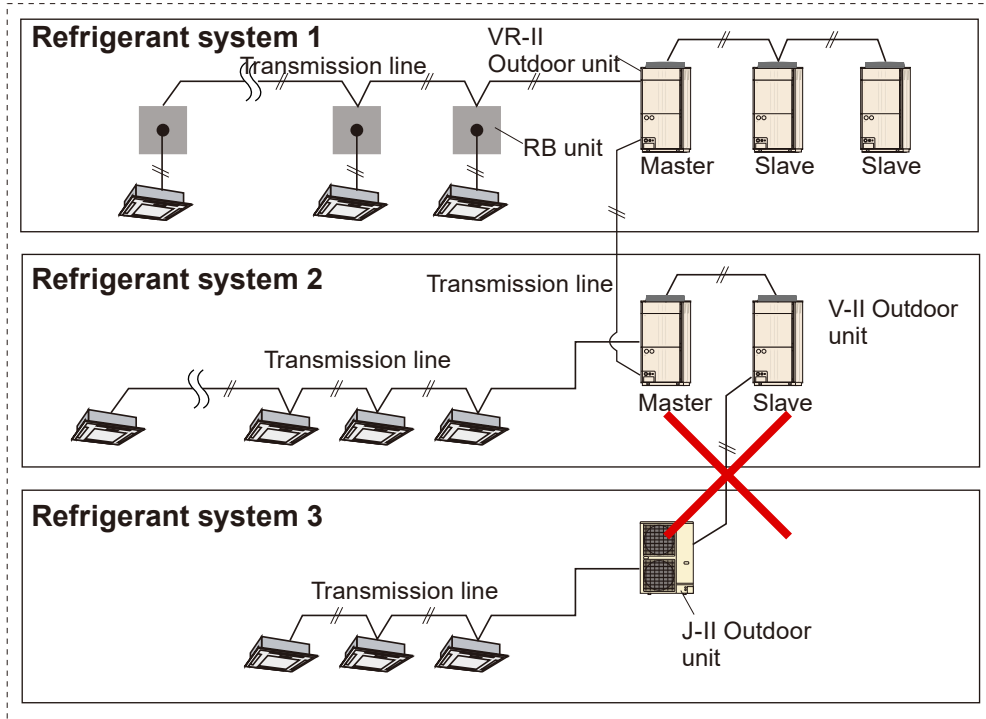
NOTES

NOTES

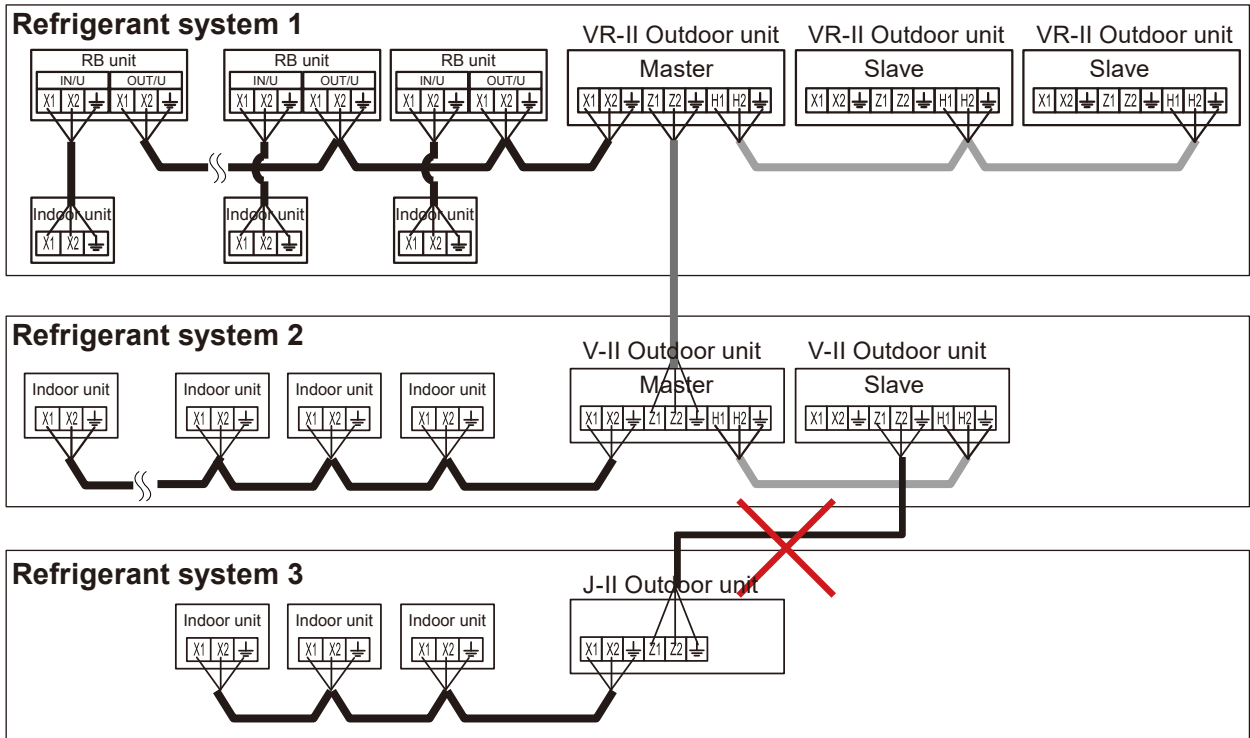
EXAMPLE3 (Prohibited)

Note: Slave unit of VR-II V-II and J-II cannot be connected

VRF network system



● Connection method to terminal





10. OPTIONAL PARTS

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10. OPTIONAL PARTS

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1. SEPARATION TUBE

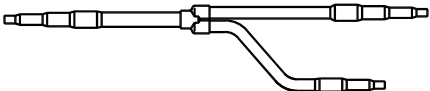
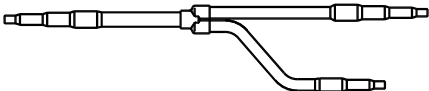
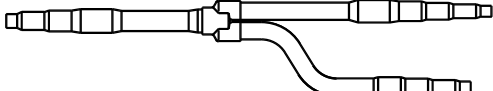

■ CONNECTION CAPACITY

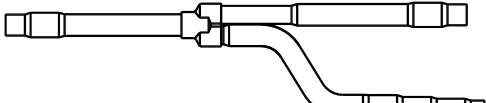
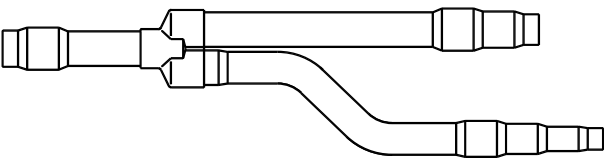
Total cooling capacity of indoor units (x) (kBtu/h)	Separation tube	
	For 2 pipes	For 3 pipes
$x < 96.5$	UTR-BP090X or UTP-AX090A	UTP-BX090A
$96.5 \leq x < 193$	UTR-BP180X or UTP-AX180A	UTP-BX180A
$193 \leq x$	UTR-BP567X or UTP-AX567A	UTP-BX567A

The total cooling capacity (x) is the total capacity for all indoor units downstream of the separation tube.

● For 2 pipes

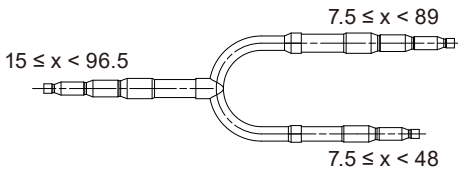
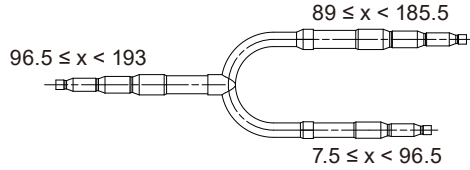
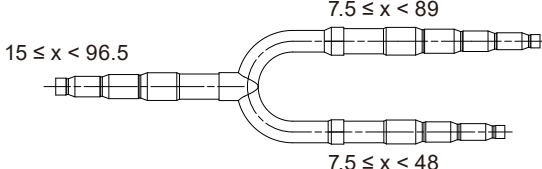
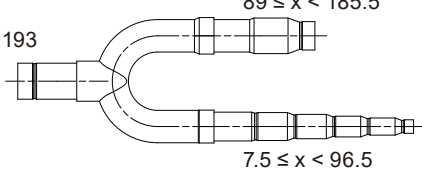
Unit: kBtu/h

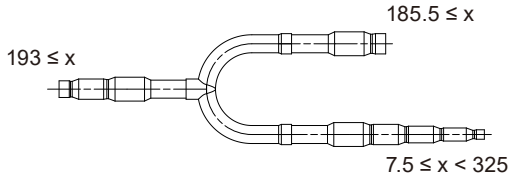
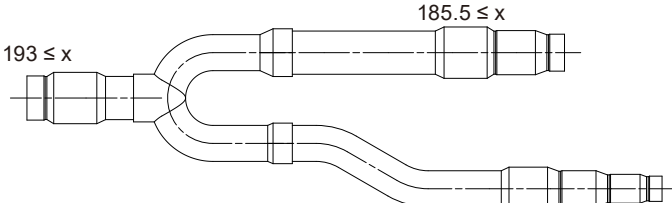
UTR-BP090X		UTR-BP180X	
Separation Tube (liquid pipe)		Separation Tube (liquid pipe)	
$15 \leq x < 96.5$	$7.5 \leq x < 89$	$96.5 \leq x < 193$	$89 \leq x < 185.5$
	$7.5 \leq x < 48$		$7.5 \leq x < 96.5$
Separation Tube (gas pipe)		Separation Tube (gas pipe)	
$15 \leq x < 96.5$	$7.5 \leq x < 89$	$96.5 \leq x < 193$	$89 \leq x < 185.5$
	$7.5 \leq x < 48$		$7.5 \leq x < 96.5$

UTR-BP567X	
Separation Tube (liquid pipe)	
$193 \leq x$	$185.5 \leq x$
	$7.5 \leq x < 325$
Separation Tube (gas pipe)	
$193 \leq x$	$185.5 \leq x$
	$7.5 \leq x < 325$

● For 2 pipes

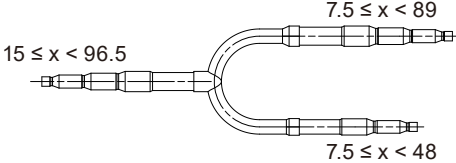
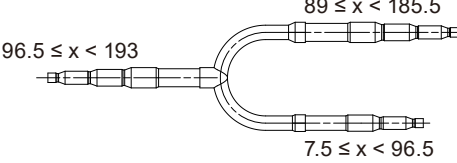
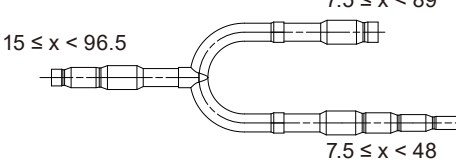
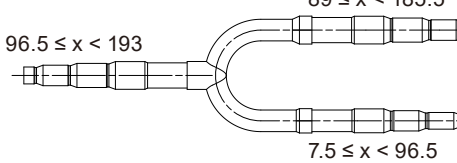
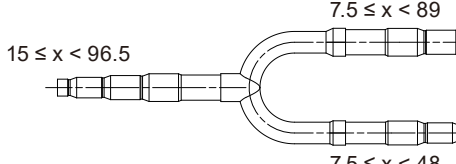
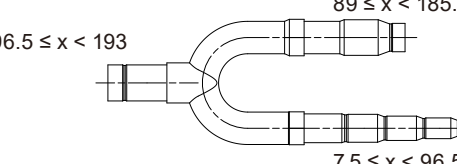
Unit: KBtu/h

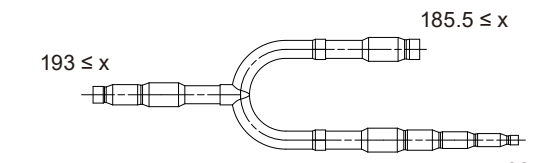
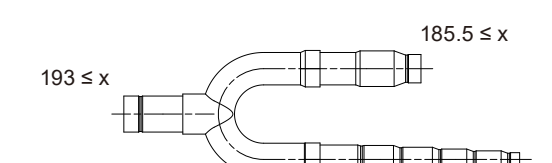
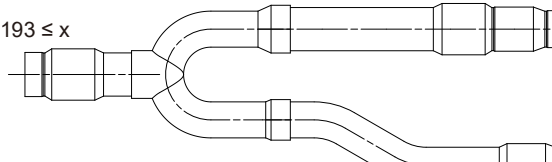
UTP-AX090A	UTP-AX180A
<p>Liquid pipe</p>  <p>$15 \leq x < 96.5$</p> <p>$7.5 \leq x < 89$</p> <p>$7.5 \leq x < 48$</p>	<p>Liquid pipe</p>  <p>$96.5 \leq x < 193$</p> <p>$89 \leq x < 185.5$</p> <p>$7.5 \leq x < 96.5$</p>
<p>Gas pipe</p>  <p>$15 \leq x < 96.5$</p> <p>$7.5 \leq x < 89$</p> <p>$7.5 \leq x < 48$</p>	<p>Gas pipe</p>  <p>$96.5 \leq x < 193$</p> <p>$89 \leq x < 185.5$</p> <p>$7.5 \leq x < 96.5$</p>

UTP-AX567A
<p>Liquid pipe</p>  <p>$193 \leq x$</p> <p>$185.5 \leq x$</p> <p>$7.5 \leq x < 325$</p>
<p>Gas pipe</p>  <p>$193 \leq x$</p> <p>$185.5 \leq x$</p> <p>$7.5 \leq x < 325$</p>

● For 3 pipes

Unit: KBtu/h

UTP-BX090A	UTP-BX180A
<p>Liquid pipe</p>  <p>$15 \leq x < 96.5$</p> <p>$7.5 \leq x < 89$</p> <p>$7.5 \leq x < 48$</p>	<p>Liquid pipe</p>  <p>$96.5 \leq x < 193$</p> <p>$89 \leq x < 185.5$</p> <p>$7.5 \leq x < 96.5$</p>
<p>Discharge gas pipe</p>  <p>$15 \leq x < 96.5$</p> <p>$7.5 \leq x < 89$</p> <p>$7.5 \leq x < 48$</p>	<p>Discharge gas pipe</p>  <p>$96.5 \leq x < 193$</p> <p>$89 \leq x < 185.5$</p> <p>$7.5 \leq x < 96.5$</p>
<p>Suction gas pipe</p>  <p>$15 \leq x < 96.5$</p> <p>$7.5 \leq x < 89$</p> <p>$7.5 \leq x < 48$</p>	<p>Suction gas pipe</p>  <p>$96.5 \leq x < 193$</p> <p>$89 \leq x < 185.5$</p> <p>$7.5 \leq x < 96.5$</p>

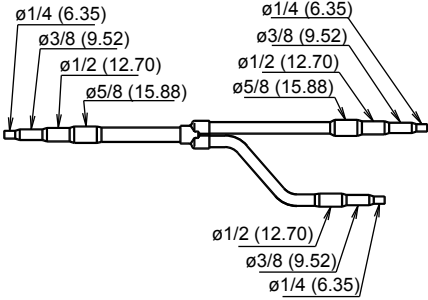
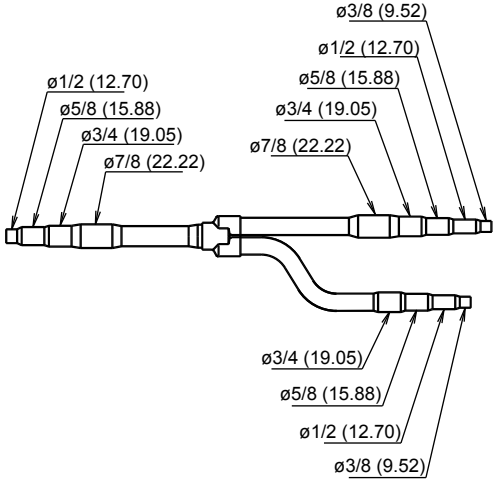
UTP-BX567A
<p>Liquid pipe</p>  <p>$193 \leq x$</p> <p>$185.5 \leq x$</p> <p>$7.5 \leq x < 325$</p>
<p>Discharge gas pipe</p>  <p>$193 \leq x$</p> <p>$185.5 \leq x$</p> <p>$7.5 \leq x < 325$</p>
<p>Suction gas pipe</p>  <p>$193 \leq x$</p> <p>$185.5 \leq x$</p> <p>$7.5 \leq x < 325$</p>

1-1. SEPARATION TUBE FOR 2 PIPES

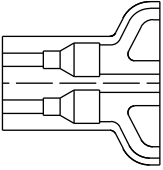
■ UTR-BP090X

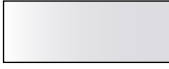
● Port diameters

Unit: in. (mm)

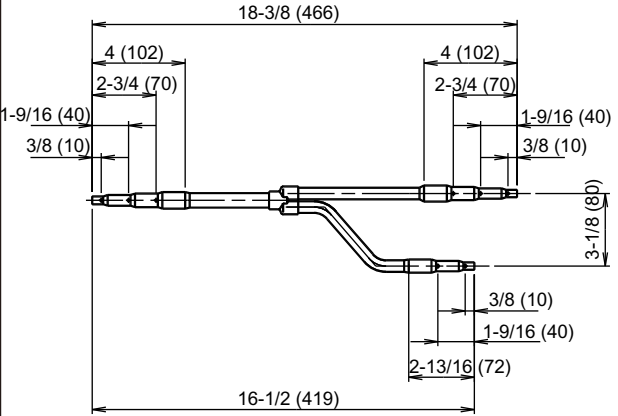
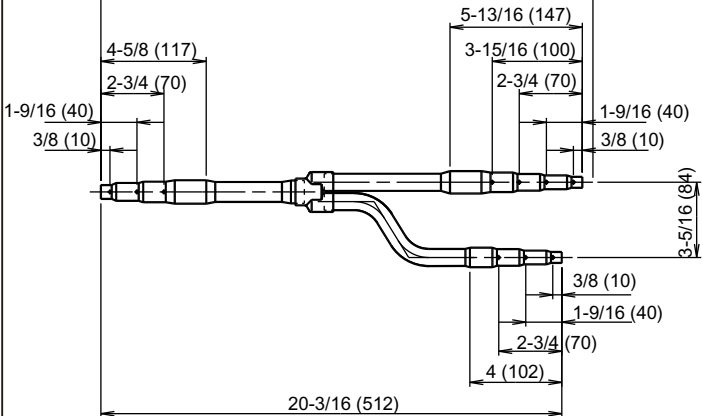
Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

● Heat insulation

Heat insulation	Q'ty	Application
	2	Large × 1 (for gas pipe) Small × 1 (for liquid pipe)

Tape	Q'ty
	8

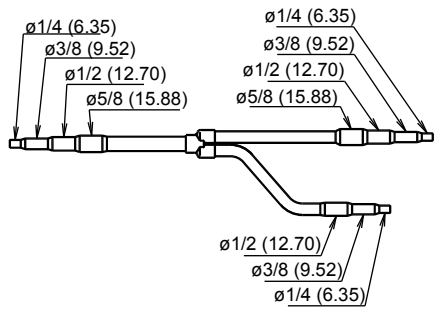
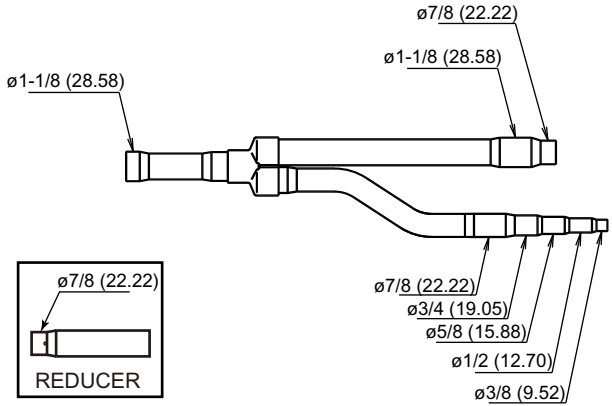
● Dimensions

Liquid pipe	Gas pipe
	

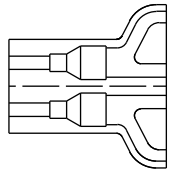

■ UTR-BP180X

● Port diameters

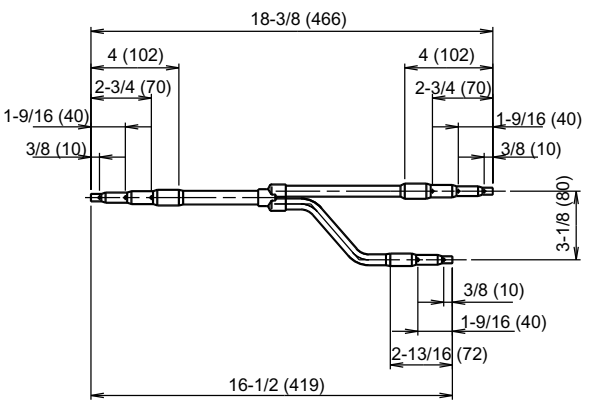
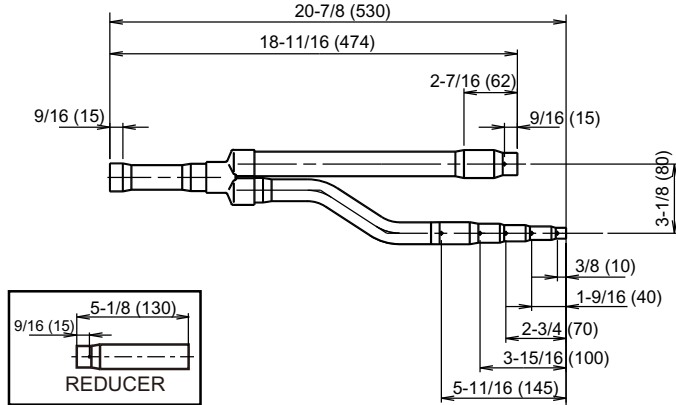
Unit: in. (mm)

Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

● Heat insulation

Heat insulation	Q'ty	Application	Tape	Q'ty
	2	Large × 1 (for gas pipe) Small × 1 (for liquid pipe)		8

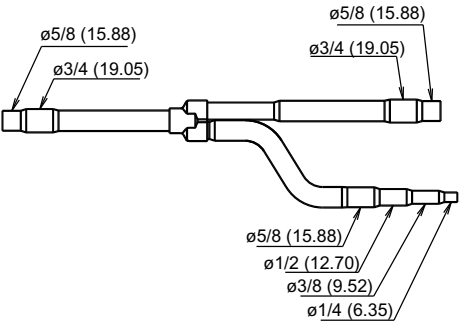
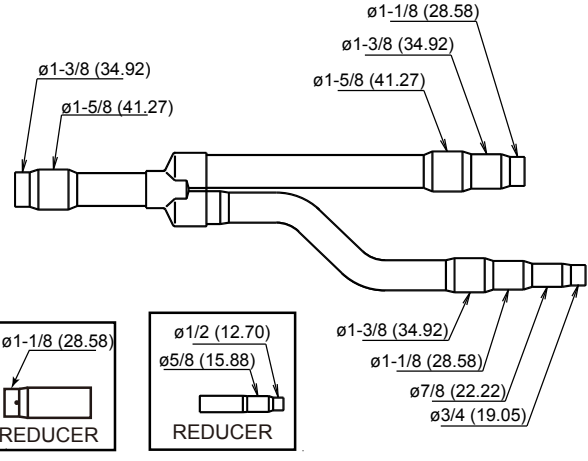
● Dimensions

Liquid pipe	Gas pipe
	

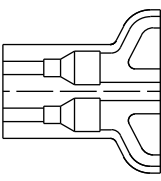

■ UTR-BP567X

● Port diameters

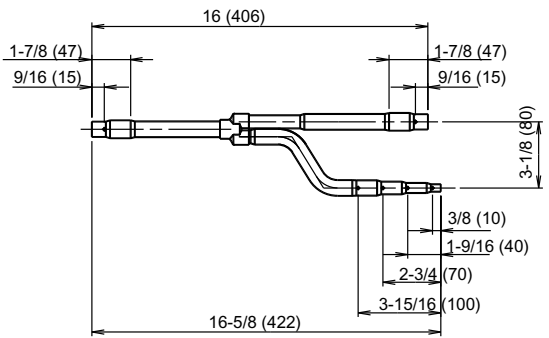
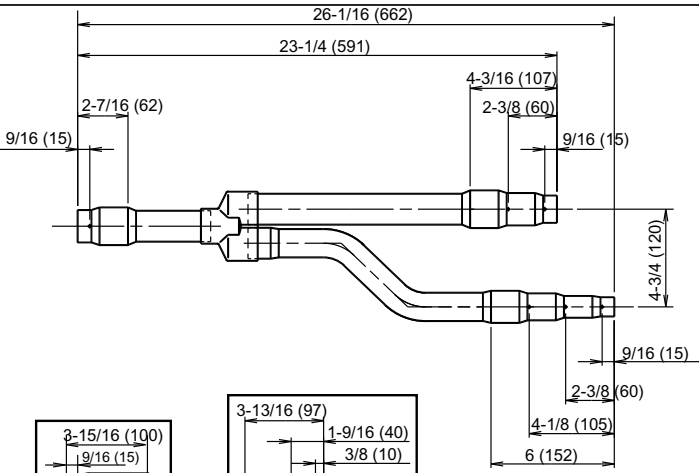
Unit: in. (mm)

Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

● Heat insulation

Heat insulation	Q'ty	Application	Tape	Q'ty
	2	Large × 1 (for gas pipe) Small × 1 (for liquid pipe)		8

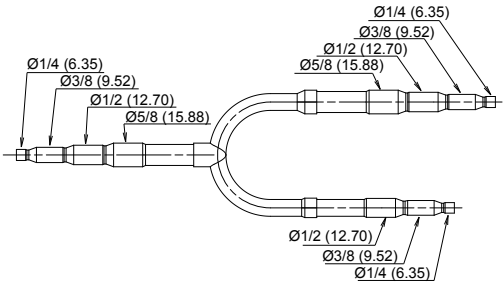
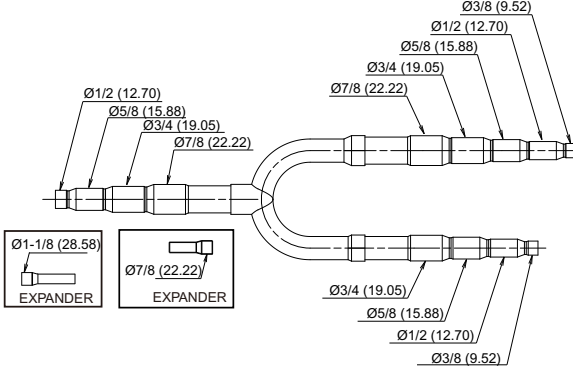
● Dimensions

Liquid pipe	Gas pipe
	

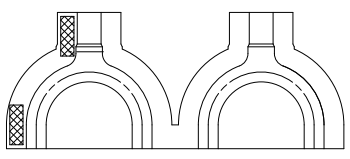

■ UTP-AX090A

● Port diameters

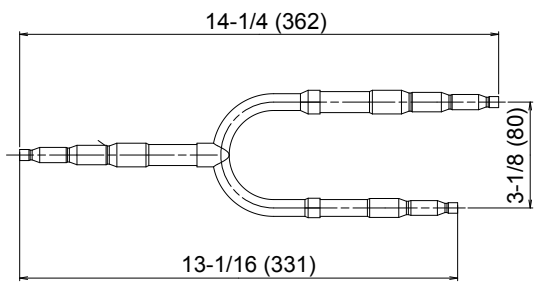
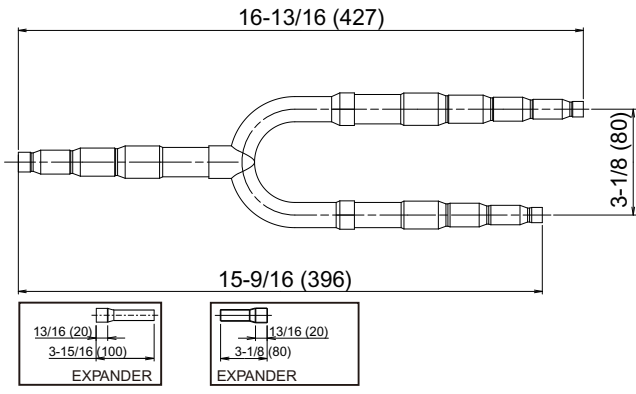
Unit: in. (mm)

Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

● Heat insulation

Heat insulation	Q'ty	Application	Tape	Q'ty
	2	for Liquid pipe × 1 for Gas pipe × 1		8

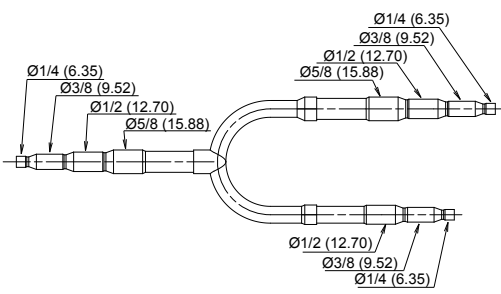
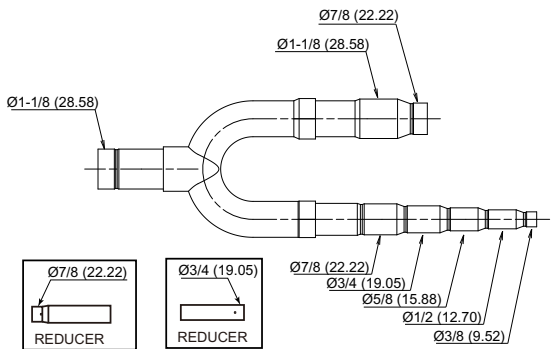
● Dimensions

Liquid pipe	Gas pipe
	

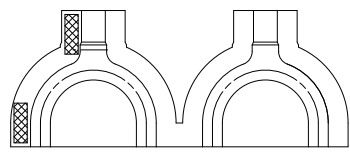

■ UTP-AX180A

● Port diameters

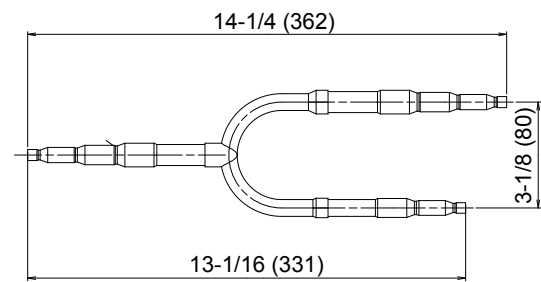
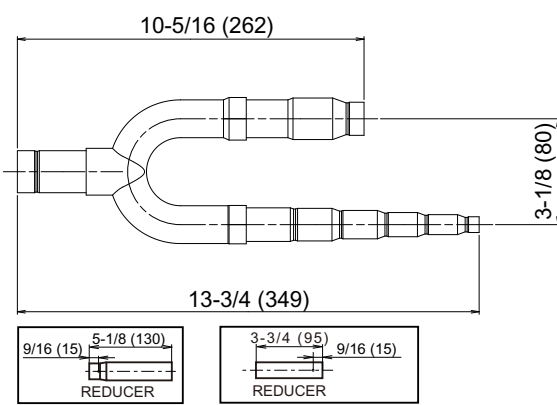
Unit: in. (mm)

Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

● Heat insulation

Heat insulation	Q'ty	Application	Tape	Q'ty
	2	for Liquid pipe × 1 for Gas pipe × 1		8

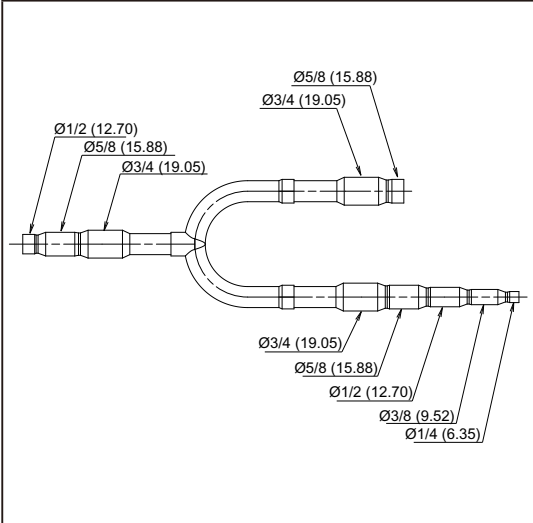
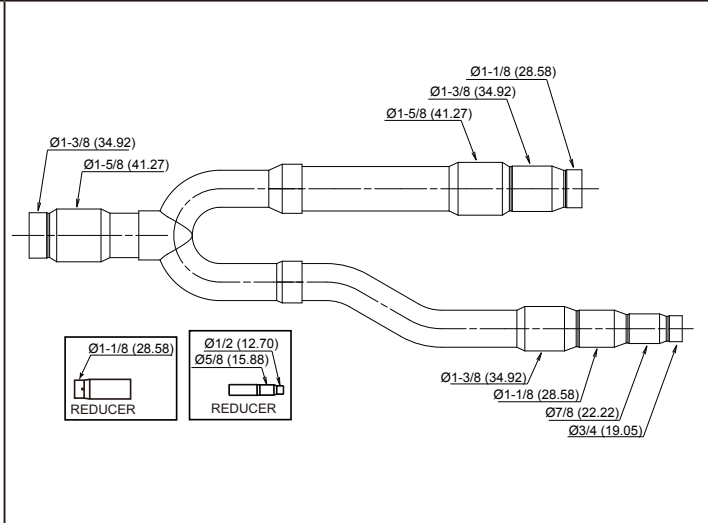
● Dimensions

Liquid pipe	Gas pipe
	

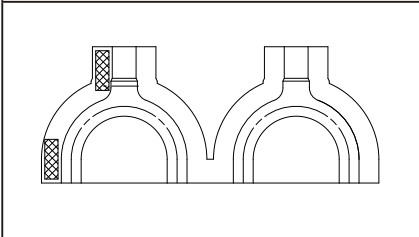
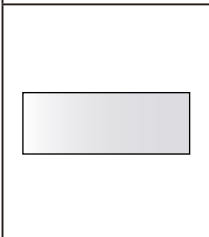
■ UTP-AX567A

● Port diameters

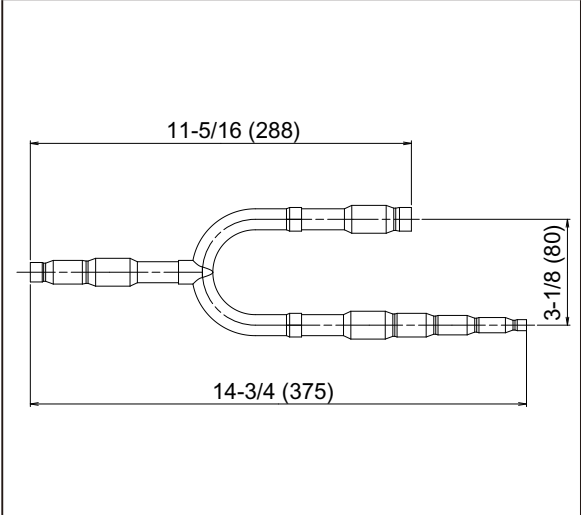
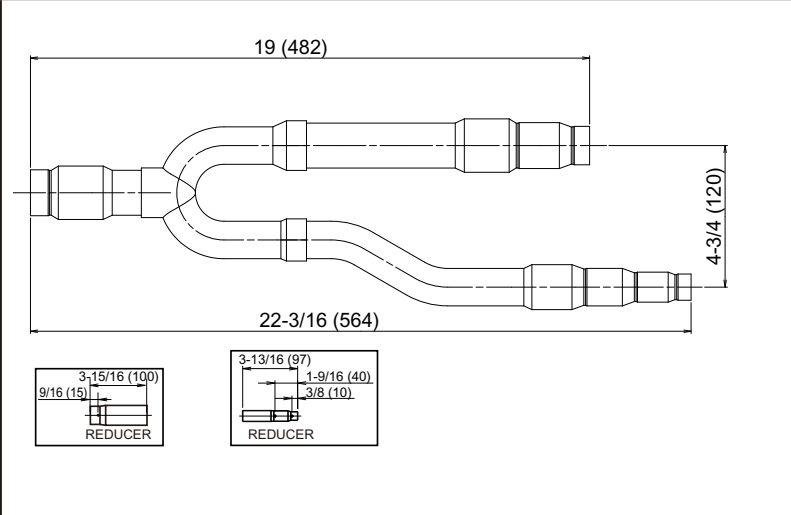
Unit: in. (mm)

Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

● Heat insulation

Heat insulation	Q'ty	Application	Tape	Q'ty
	2	for Liquid pipe × 1 for Gas pipe × 1		8

● Dimensions

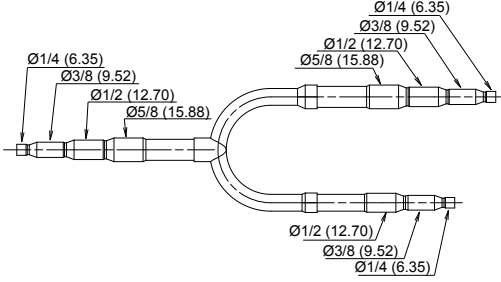
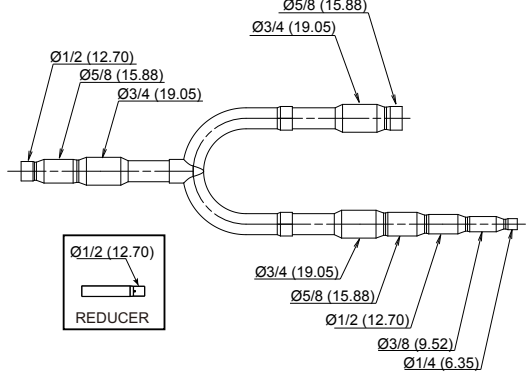
Liquid pipe	Gas pipe
	

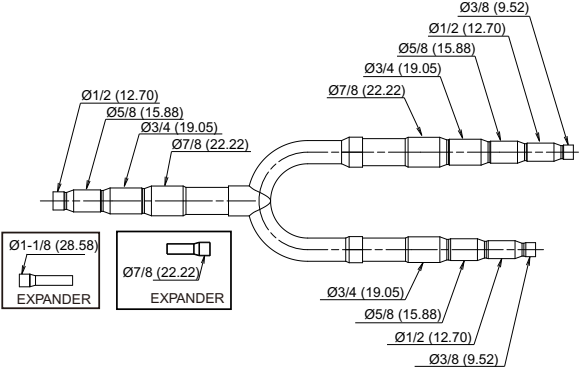
1-2. SEPARATION TUBE FOR 3 PIPES

■ UTP-BX090A

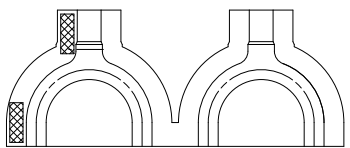
● Port diameters

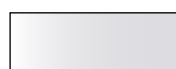
Unit: in. (mm)

Liquid pipe	Q'ty	Discharge gas pipe	Q'ty
	1		1

Suction gas pipe	Q'ty
	1

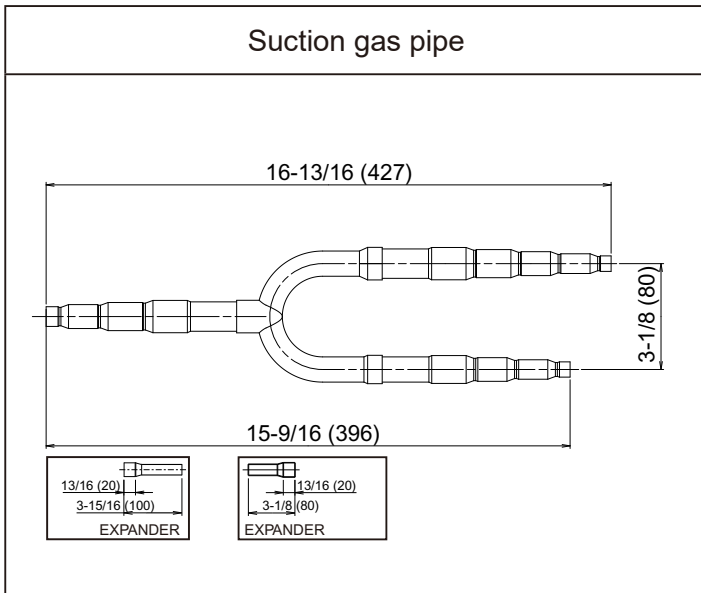
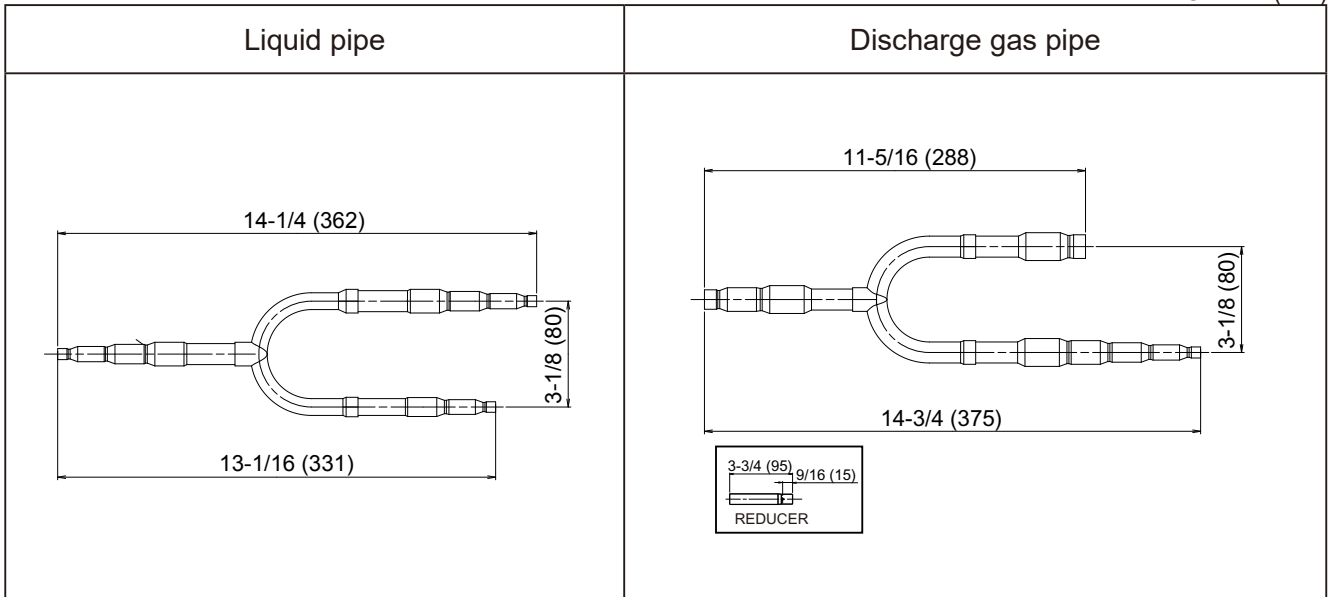
● Heat insulation

Heat insulation	Q'ty	Application
	3	for Liquid pipe × 1 for Discharge gas pipe × 1 for Suction gas pipe × 1

Tape	Q'ty
	8

● Dimensions

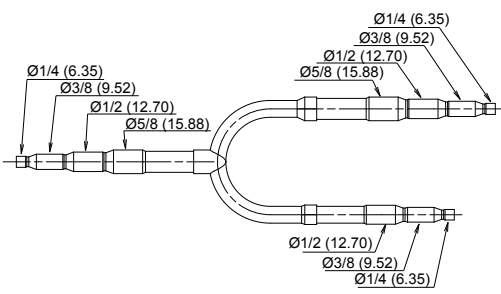
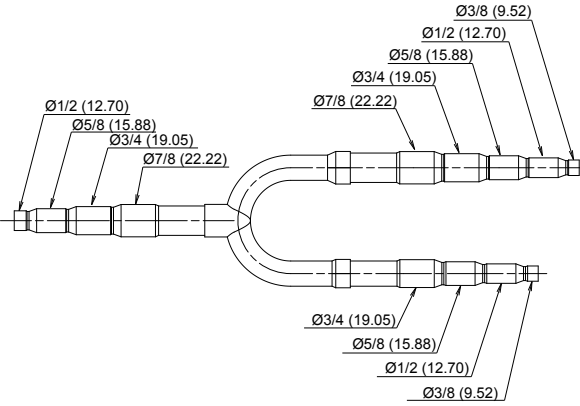
Unit: in. (mm)

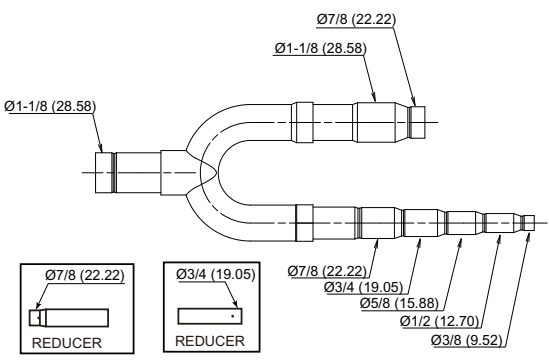


■ UTP-BX180A

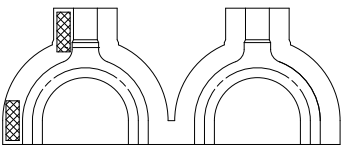
● Port diameters


Unit: in. (mm)

Liquid pipe	Q'ty	Discharge gas pipe	Q'ty
	1		1

Suction gas pipe	Q'ty
	1

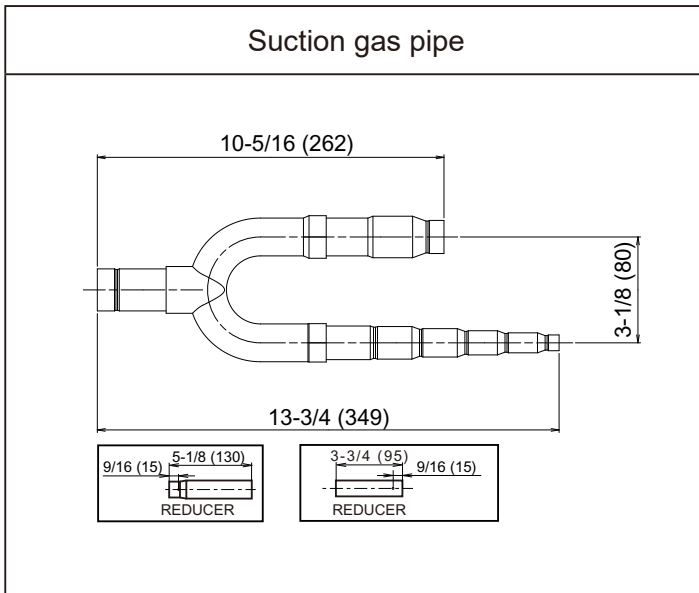
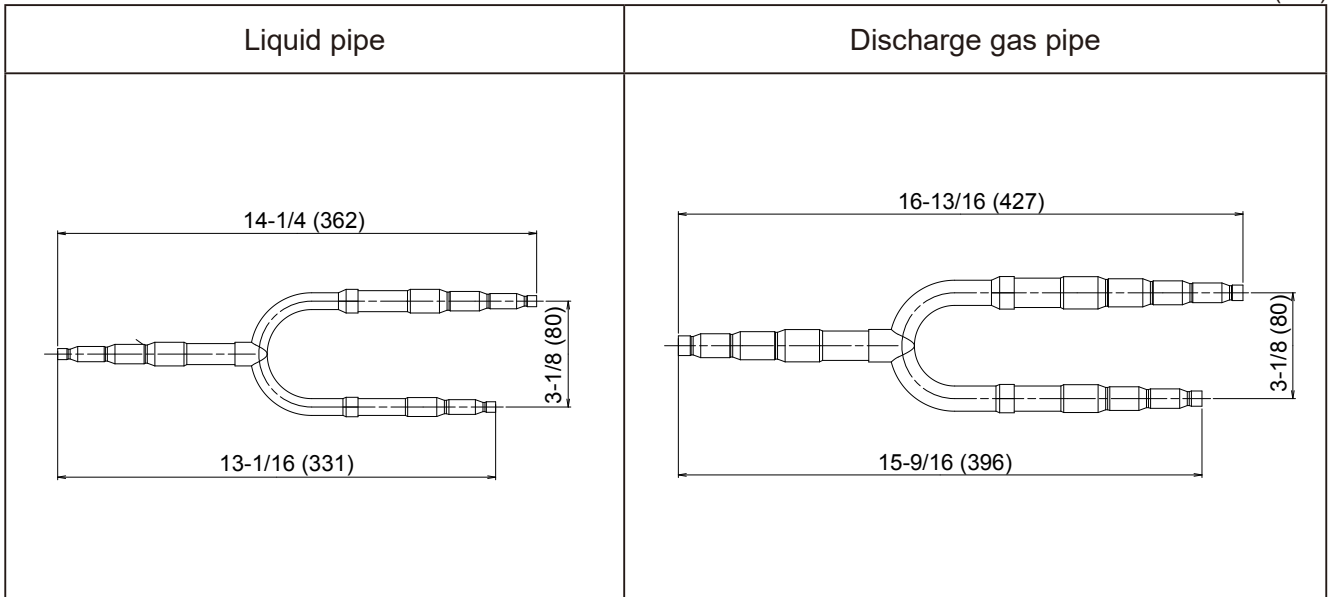
● Heat insulation

Heat insulation	Q'ty	Application
	3	for Liquid pipe × 1 for Discharge gas pipe × 1 for Suction gas pipe × 1

Tape	Q'ty
	8

● Dimensions

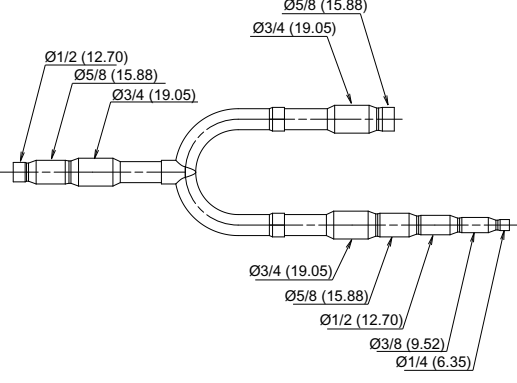
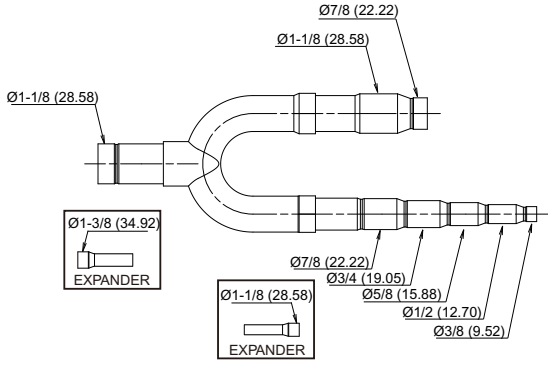
Unit: in. (mm)

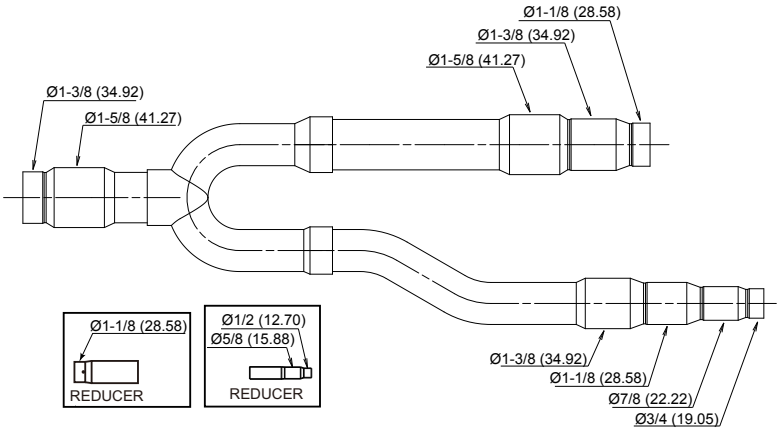


■ UTP-BX567A

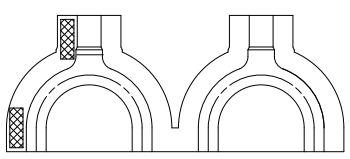
● Port diameters


Unit: in. (mm)

Liquid pipe	Q'ty	Discharge gas pipe	Q'ty
	1		1

Suction gas pipe	Q'ty
	1

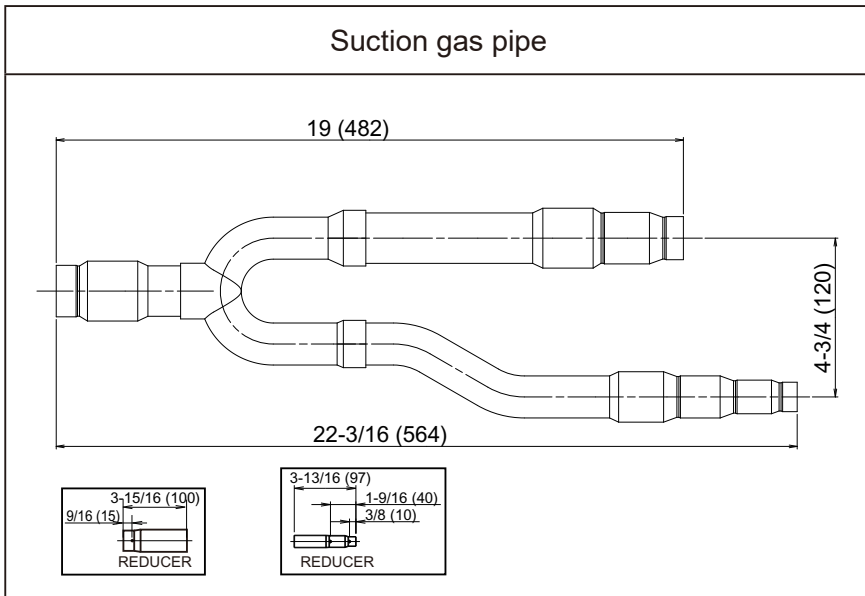
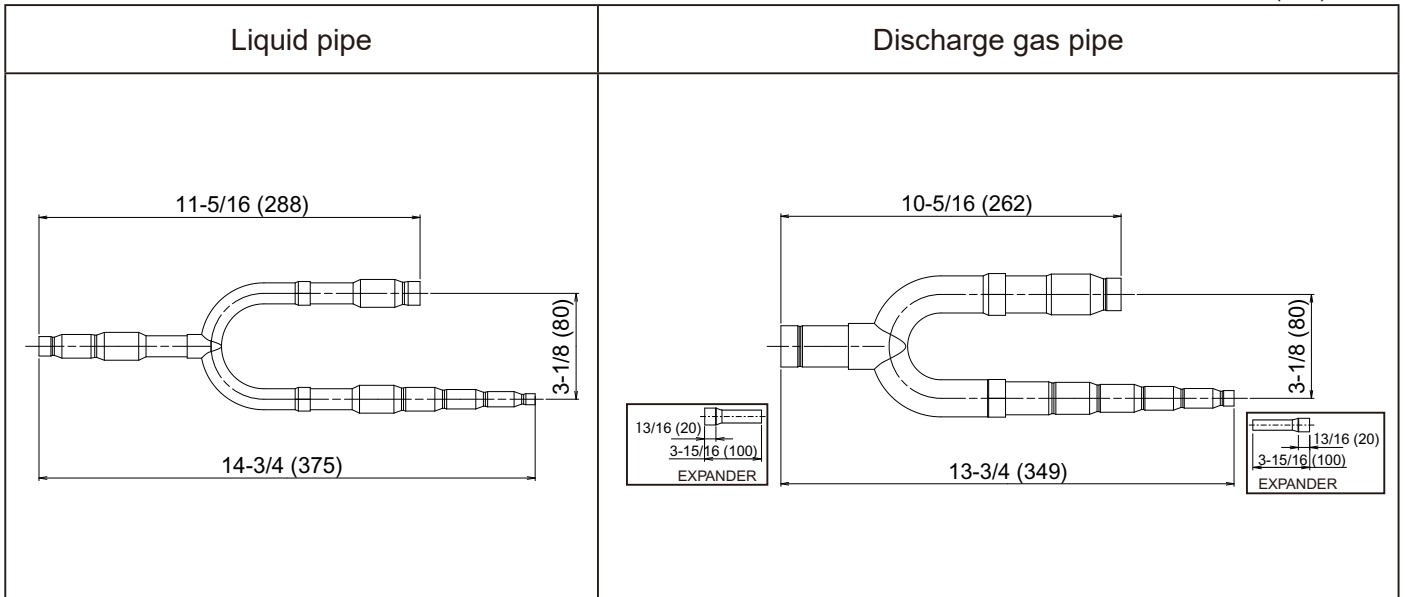
● Heat insulation

Heat insulation	Q'ty	Application
	3	for Liquid pipe × 1 for Discharge gas pipe × 1 for Suction gas pipe × 1

Tape	Q'ty
	8

● Dimensions

Unit: in. (mm)



2. OUTDOOR UNIT BRANCH KIT

■ UTP-DX567A

NOTE: Only for VR-II series.

● Port diameters

Unit: in. (mm)

Liquid pipe	Q'ty	Discharge gas pipe	Q'ty
	1		1

Suction gas pipe	Q'ty
	1

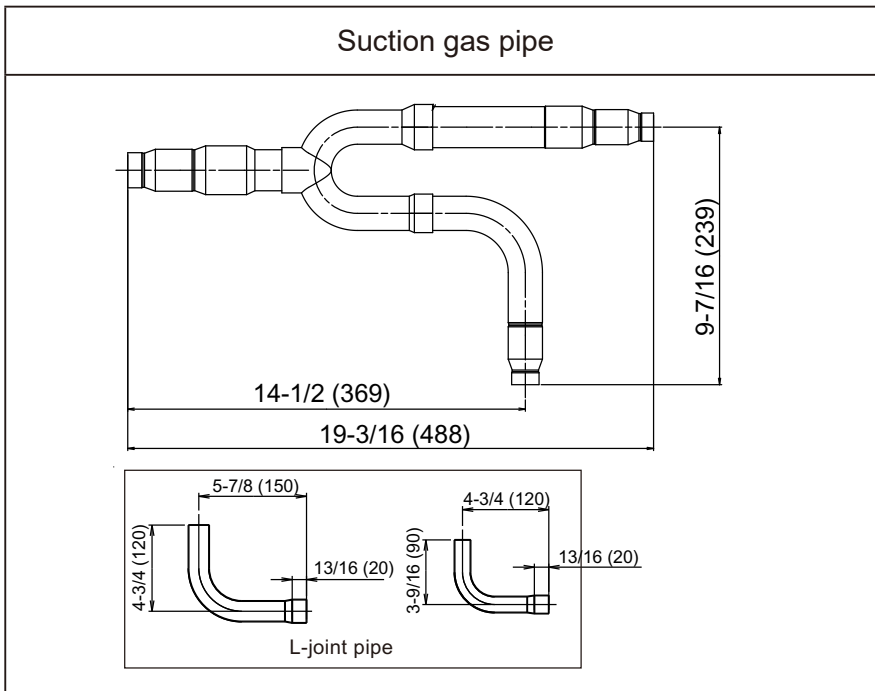
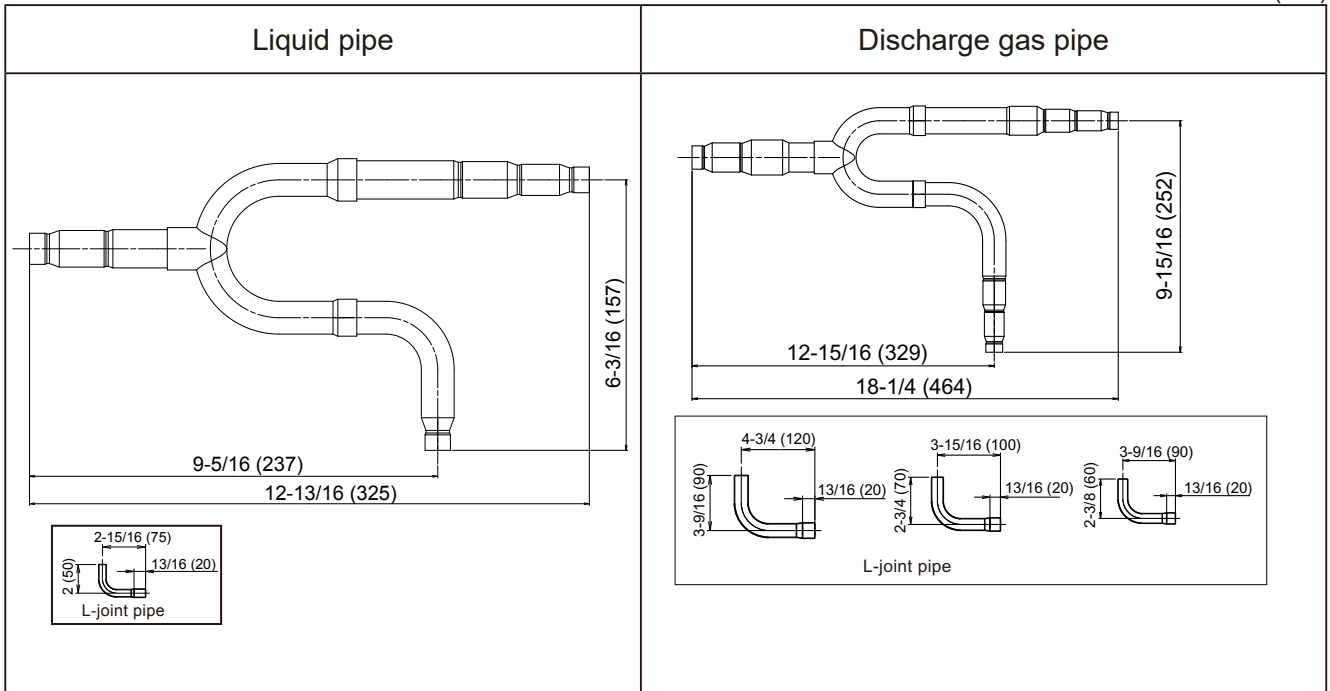
● Heat insulation

Heat insulation	Q'ty	Application
	3	for Liquid pipe × 1 for Discharge gas pipe × 1 for Suction gas pipe × 1

Tape	Q'ty
	8

● Dimensions

Unit: in. (mm)



UTP-CX567A

NOTE: Only for V-II series.

● Port diameters

Unit: in. (mm)

Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

● Heat insulation

Heat insulation	Q'ty	Application	Tape	Q'ty
	2	for Liquid pipe × 1 for Gas pipe × 1		8

● Dimensions

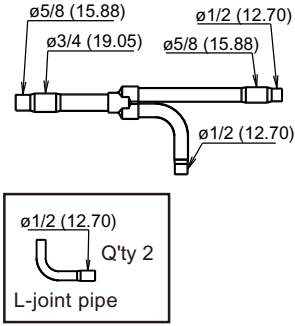
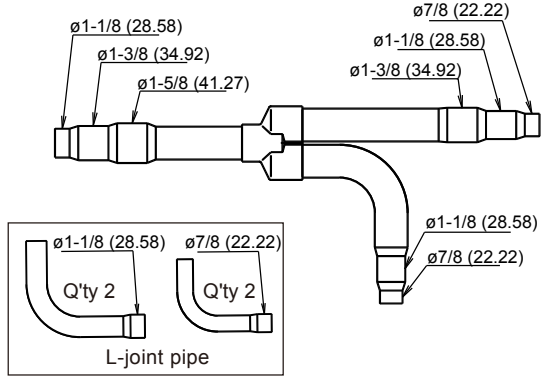
Liquid pipe	Gas pipe

■ UTR-CP567X

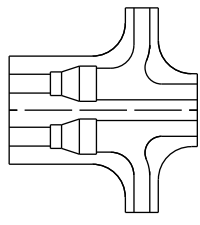
NOTE: Only for V-II series.


● Port diameters

Unit: in. (mm)

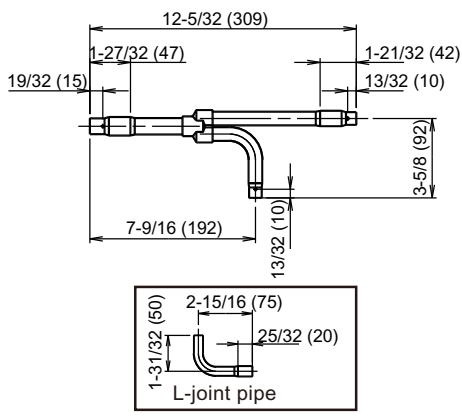
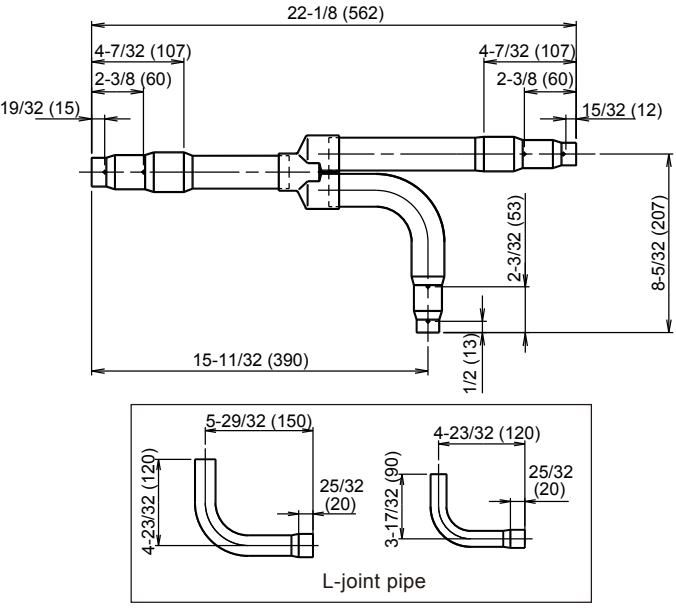
Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

● Heat insulation

Heat insulation	Q'ty	Application
	2	Large × 1 (for gas pipe) Small × 1 (for liquid pipe)

Tape	Q'ty
 for UTR-CP567X only	8

● Dimensions

Liquid pipe	Gas pipe
	

3. HEADER

■ CONNECTING CAPACITY

Total cooling capacity of indoor units (x) (kBtu/h)	For 2 pipes		For 3 pipes	
	3 - 6 Branches	3 - 8 Branches	3 - 6 Branches	3 - 8 Branches
$x < 96.5$	UTR-H0906L	UTR-H0908L	UTP-J0906A	UTP-J0908A
$96.5 \leq x < 193$	UTR-H1806L	UTR-H1808L	UTP-J1806A	UTP-J1808A

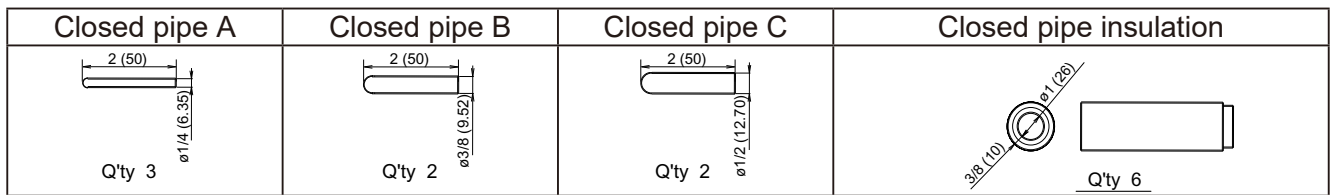
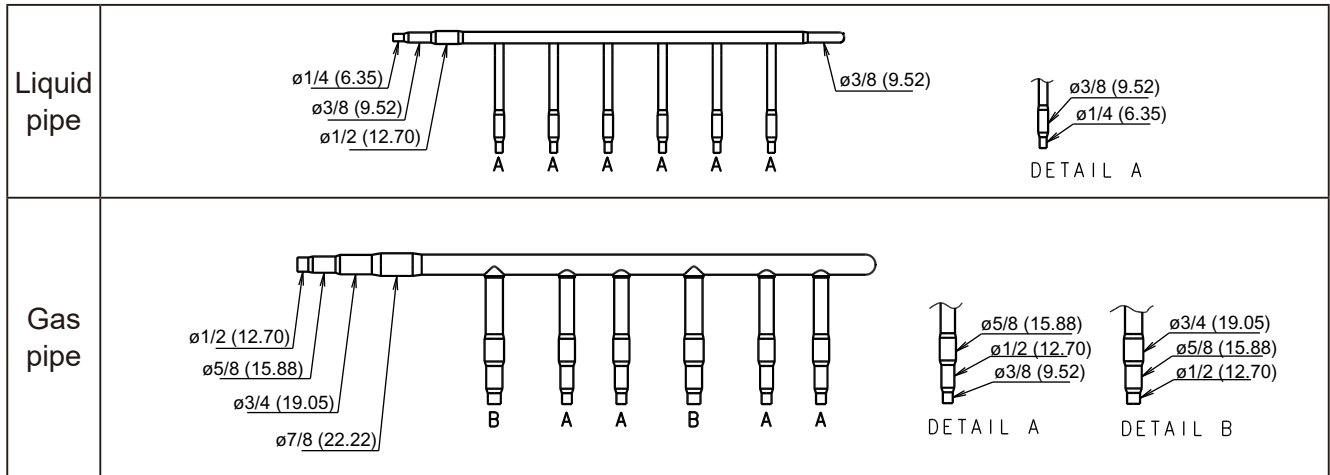
The total cooling capacity (x) is the total capacity for all indoor units downstream of the separation tube.

3-1. HEADER FOR 2 PIPES

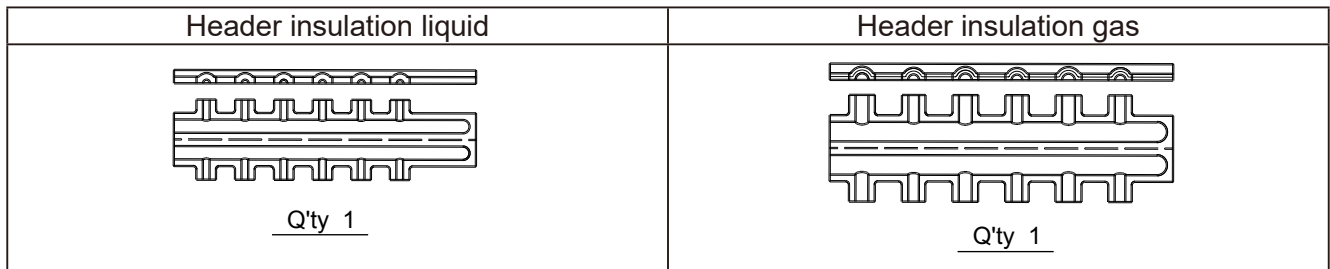
MODEL: UTR-H0906L

Port diameters

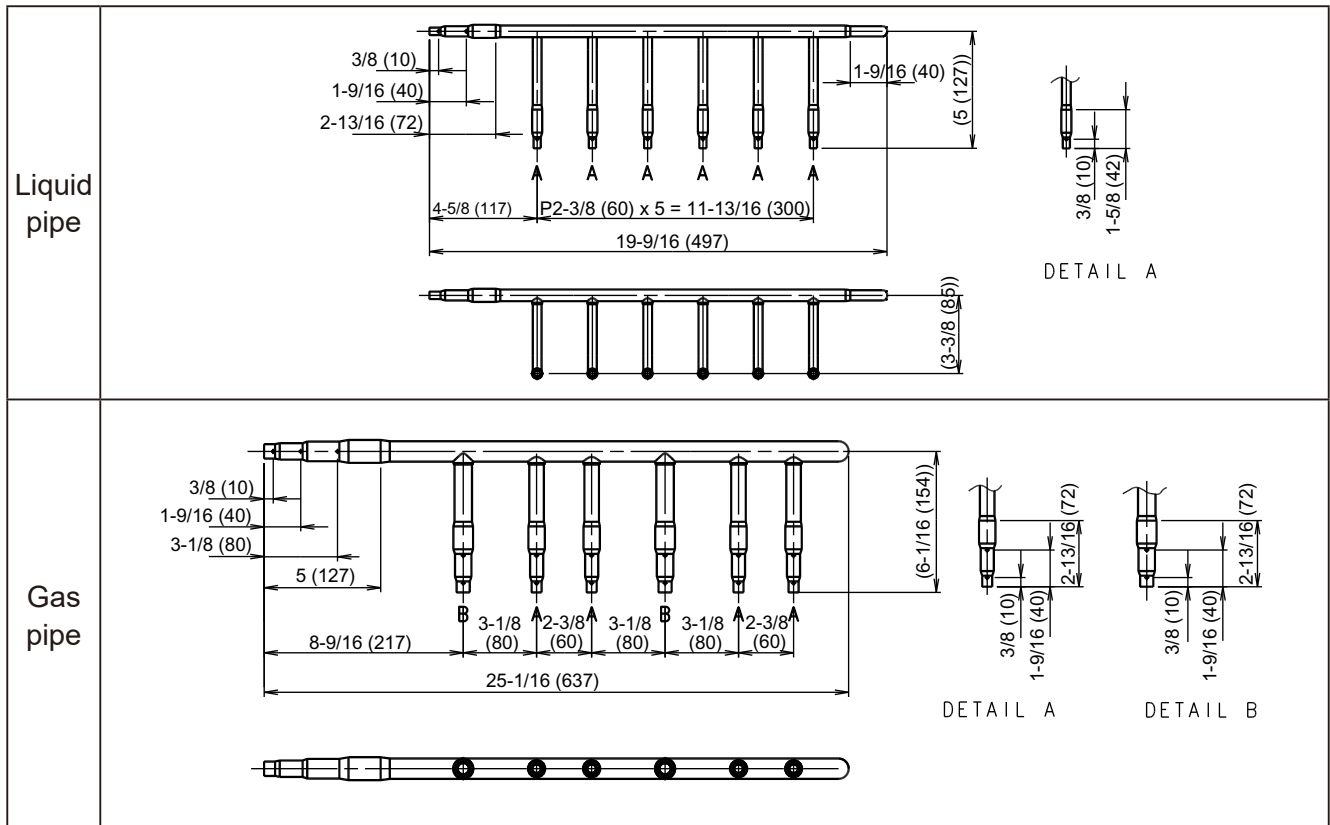
Unit: in. (mm)



Heat insulation



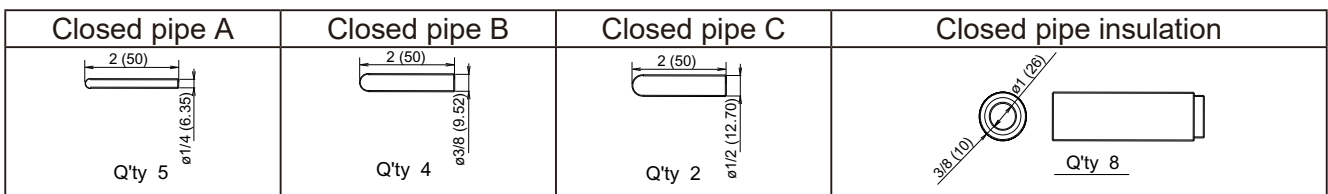
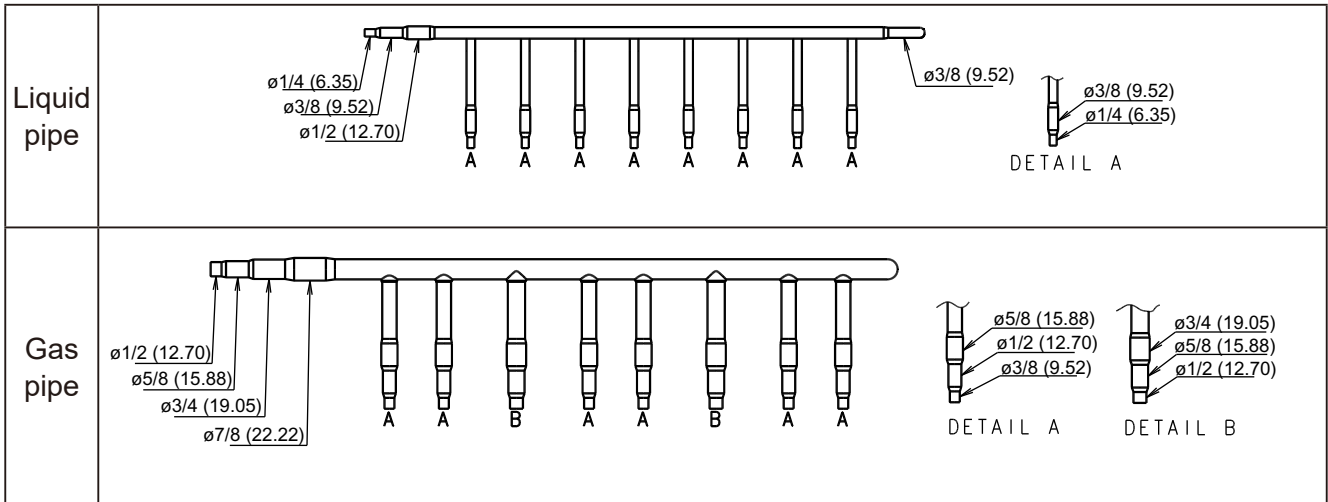
Dimensions



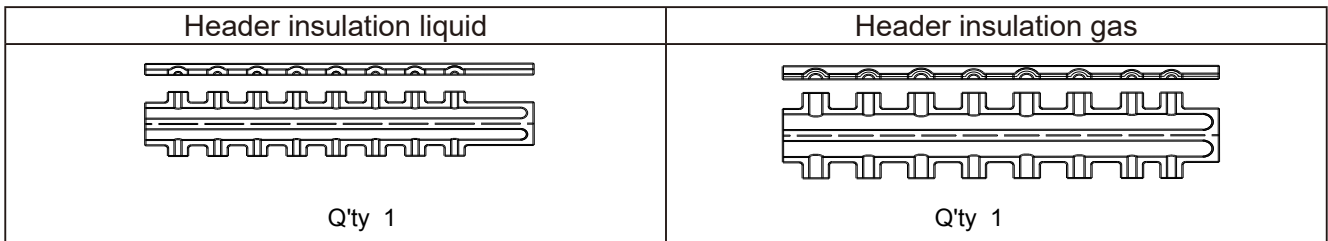
MODEL: UTR-H0908L

● Port diameters

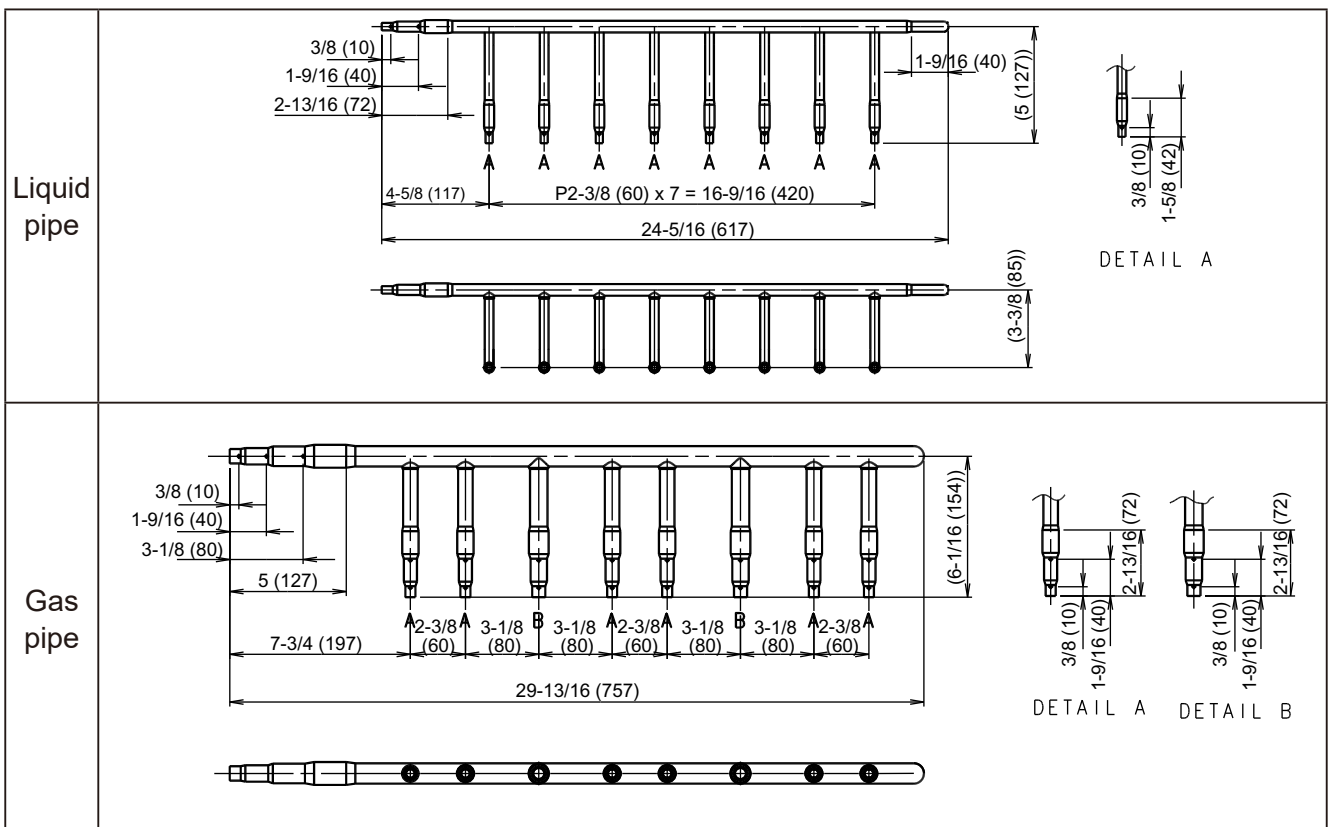
Unit: in. (mm)



● Heat insulation



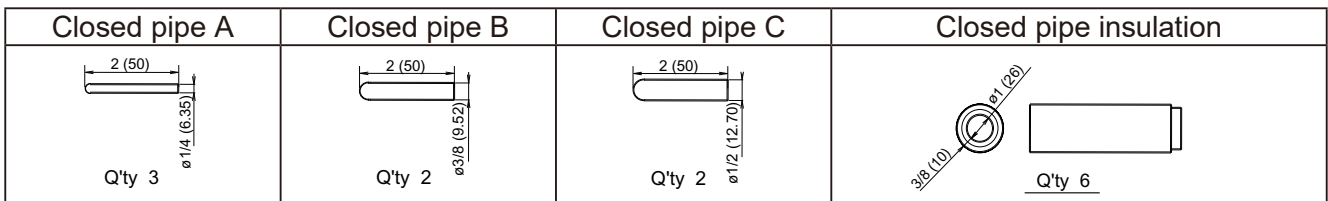
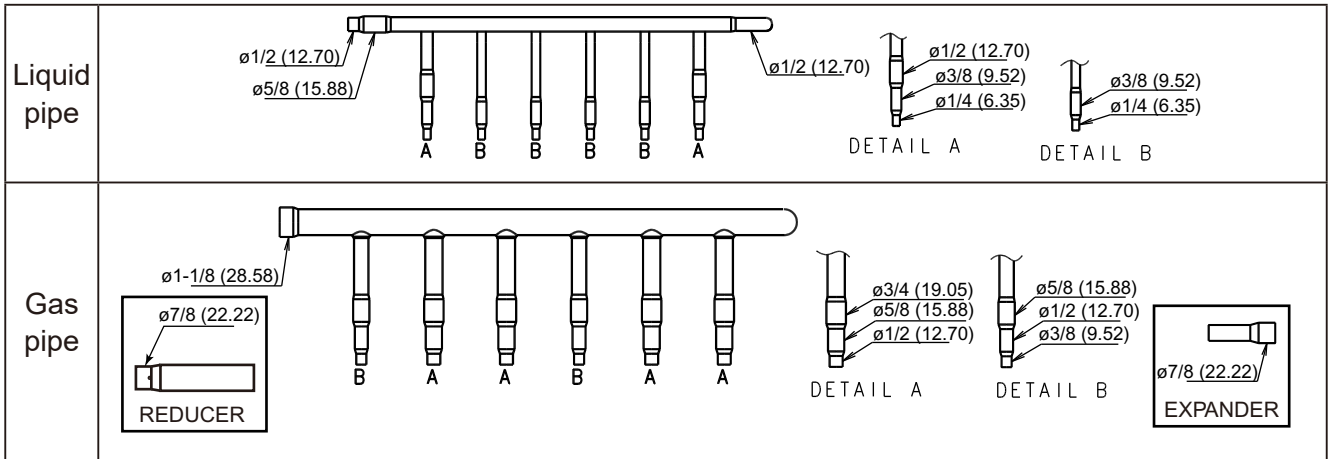
● Dimensions



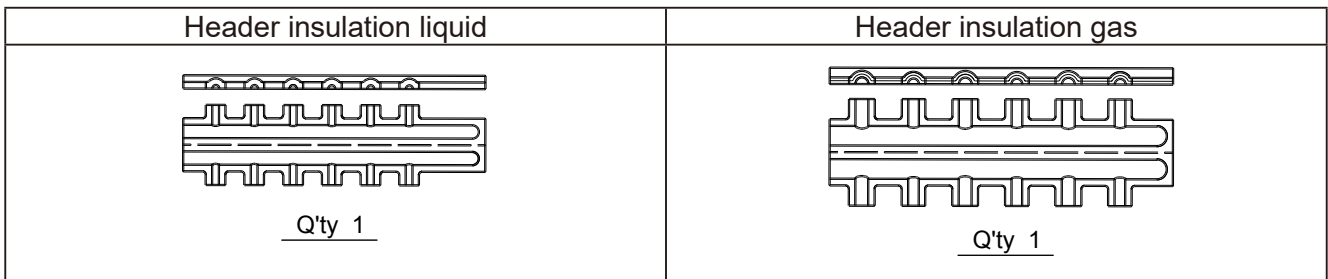
MODEL: UTR-H1806L

Port diameters

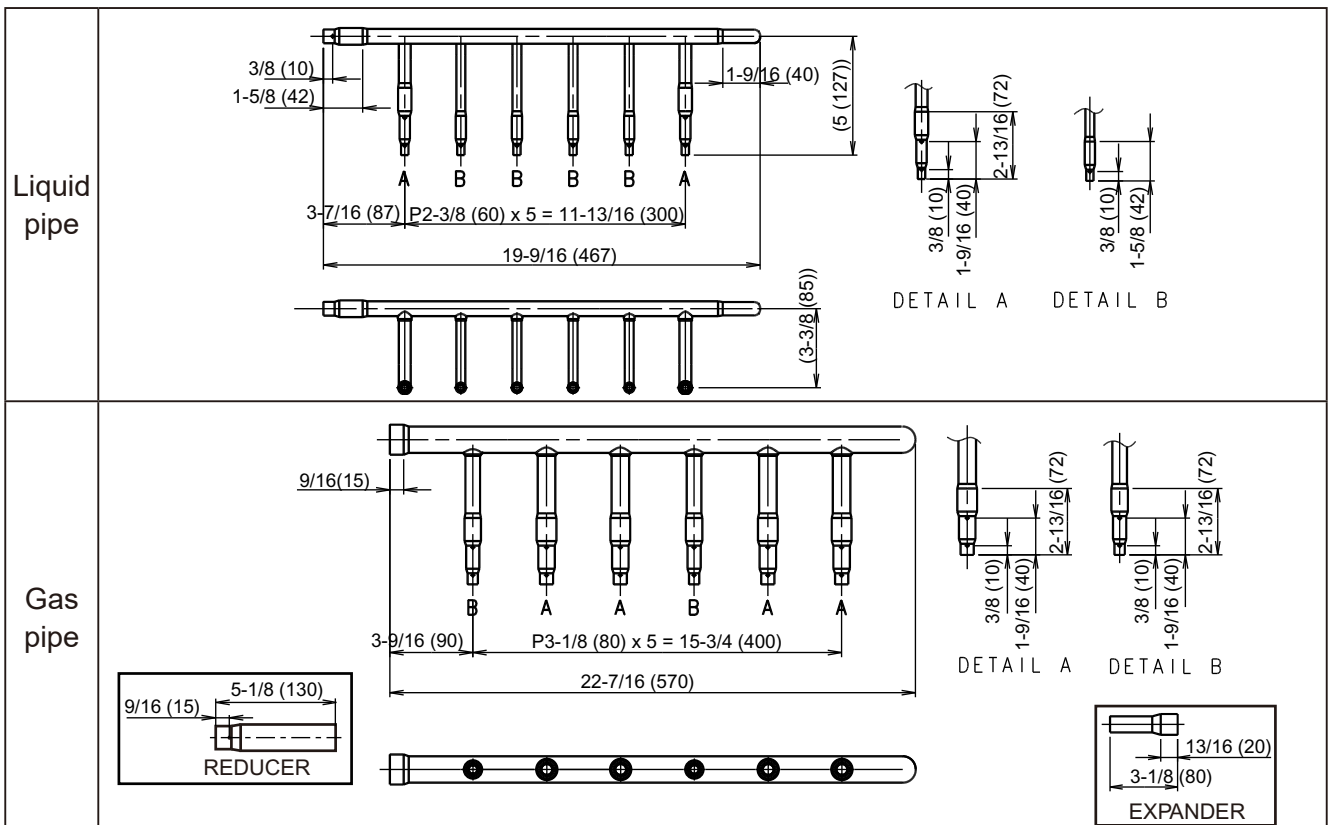
Unit: in. (mm)



Heat insulation



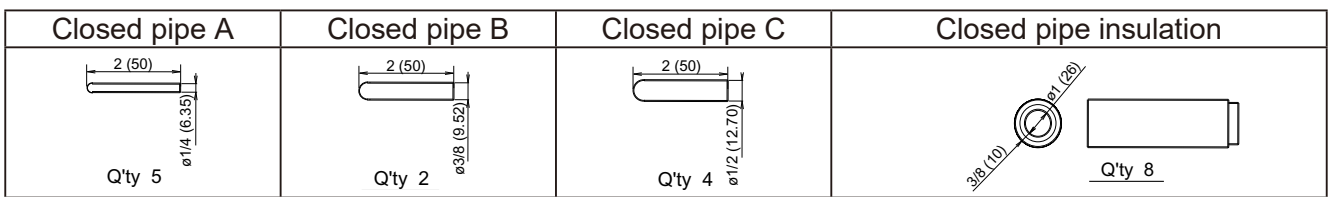
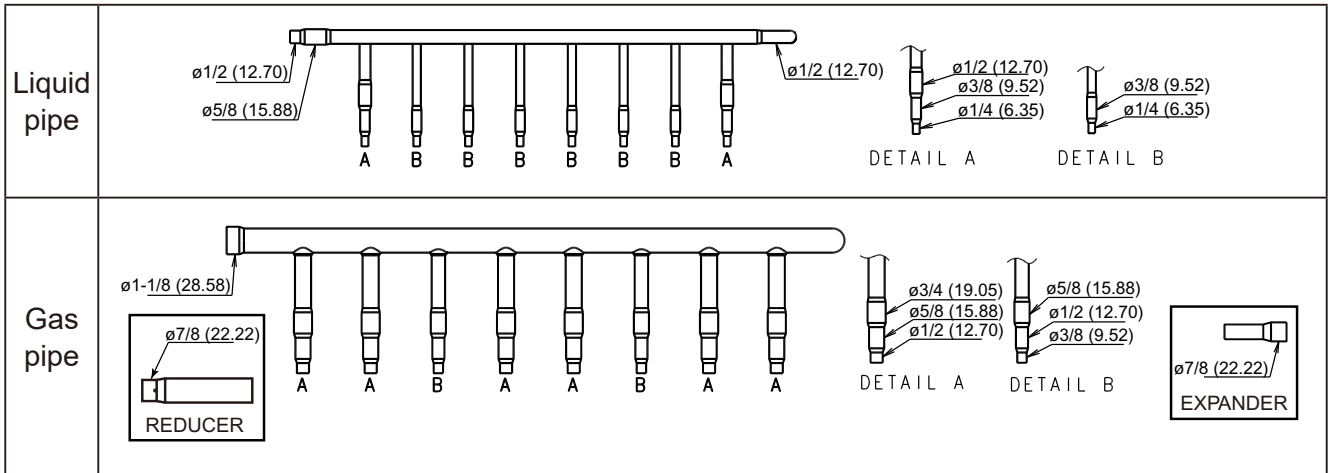
Dimensions



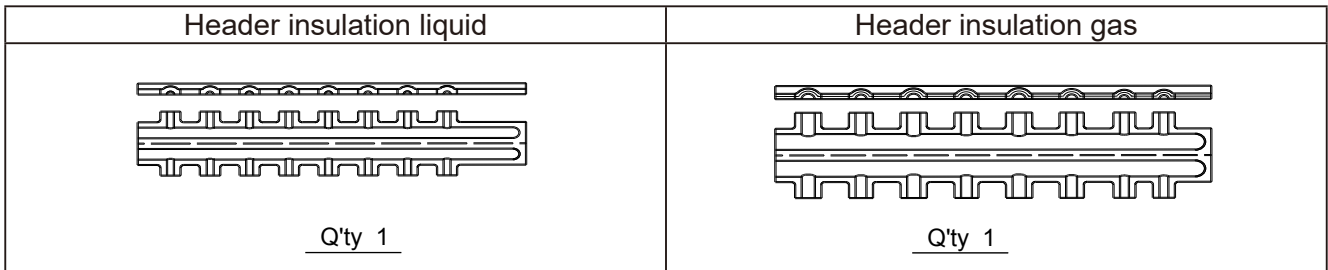
MODEL: UTR-H1808L

Port diameters

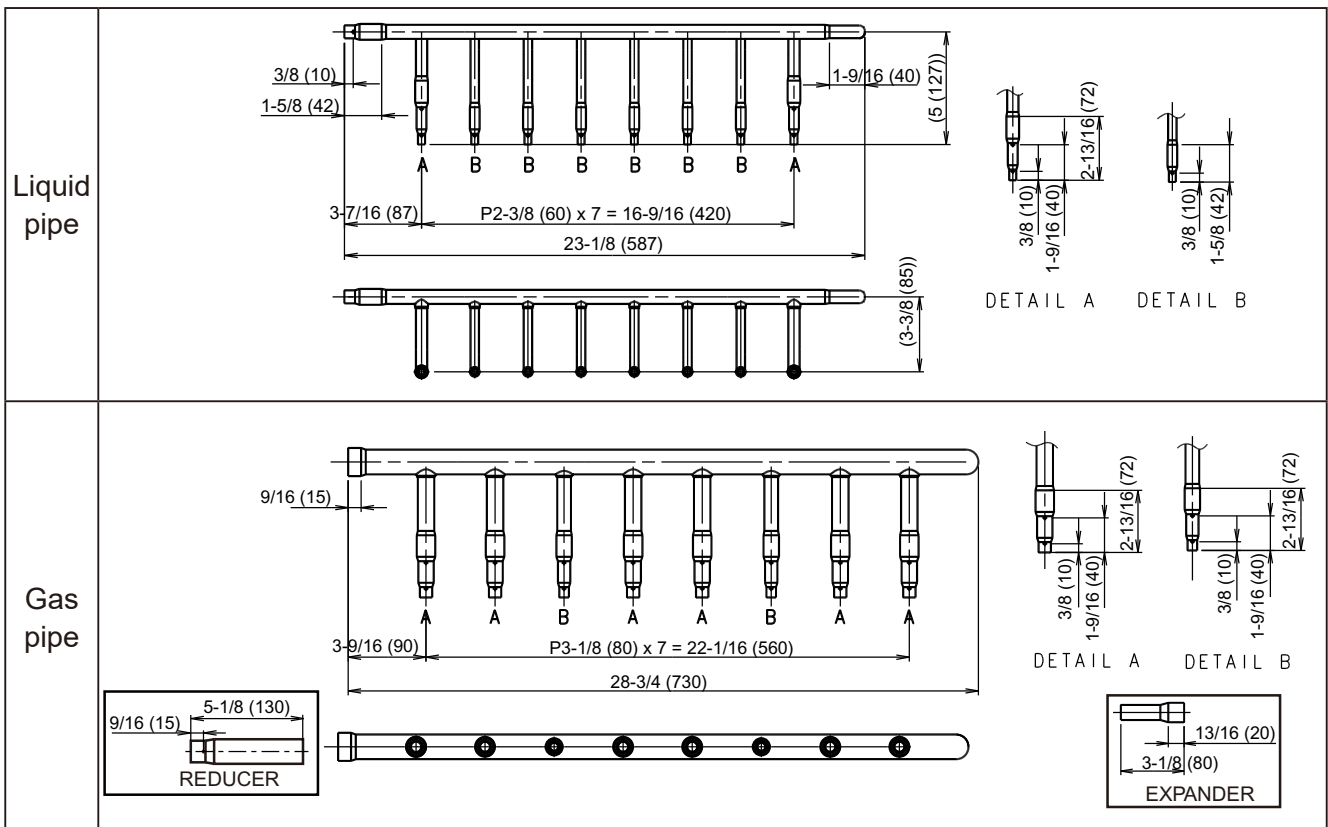
Unit: in. (mm)



Heat insulation



Dimensions

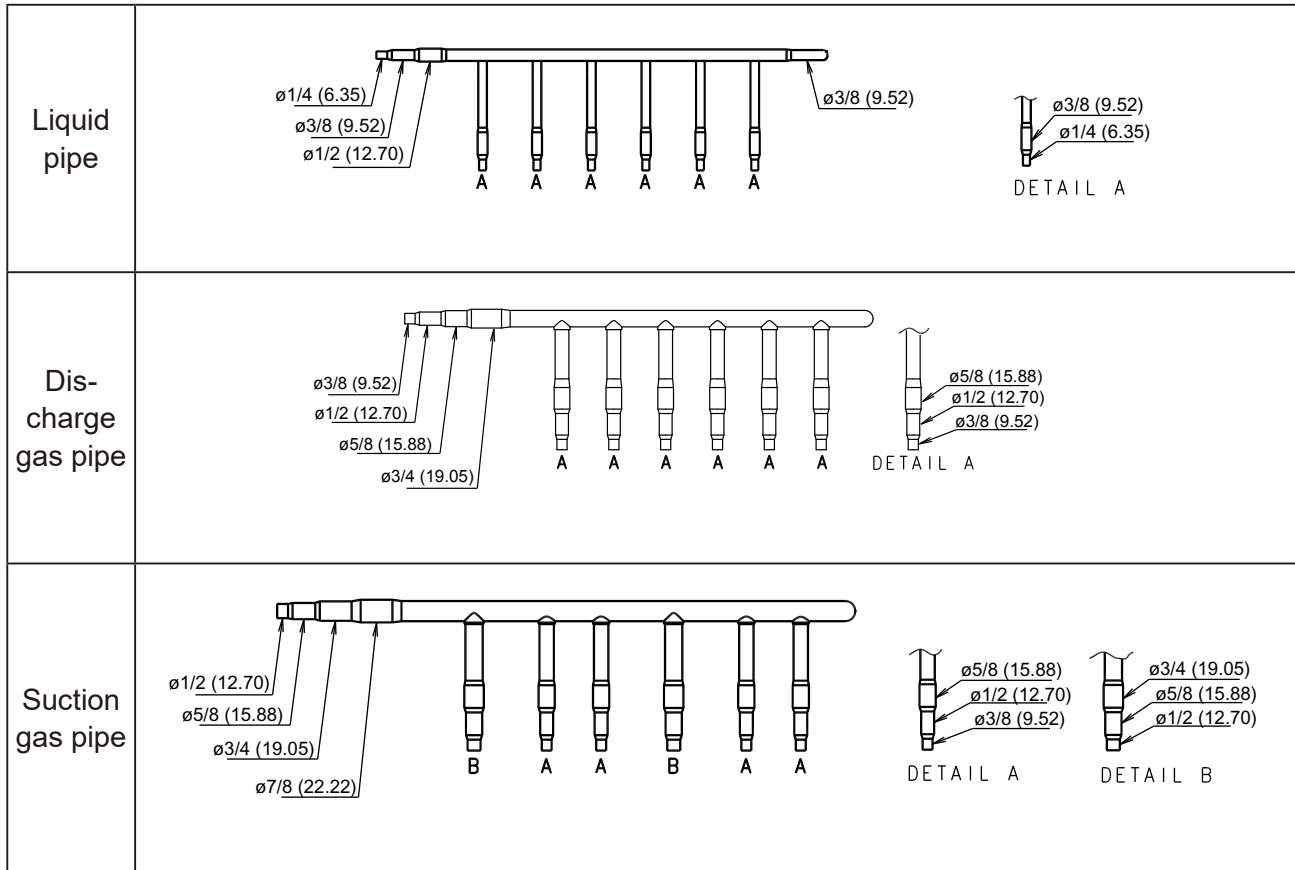


3-2. HEADER FOR 3 PIPES

MODEL: UTP-J0906A

● Port diameters

Unit: in. (mm)



Closed pipe A	Closed pipe B	Closed pipe C	Closed pipe insulation

● Heat insulation

Heat insulation	Q'ty	Application
	3	for Liquid pipe × 1 for Discharge gas pipe × 1 for Suction gas pipe × 1

● Dimensions

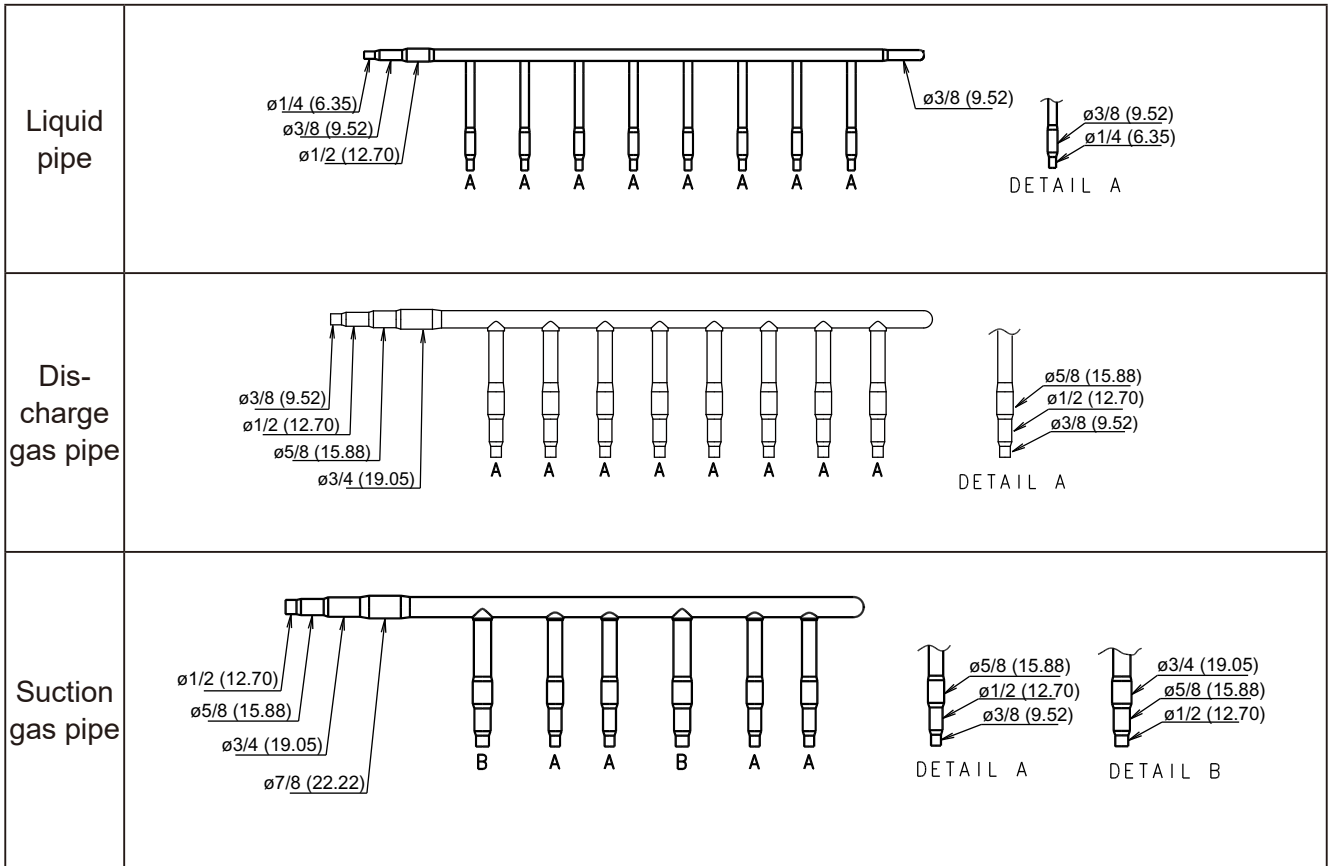
Unit: in. (mm)

<p>Liquid pipe</p>	<p>Technical drawing of a liquid pipe showing dimensions and detail A. The main drawing includes dimensions: 3/8 (10), 1-9/16 (40), 2-13/16 (72), 4-5/8 (117), 19-9/16 (497), 1-9/16 (40), 5 (127), and 3-3/8 (85). A note indicates P2-3/8 (60) x 5 = 11-13/16 (300). Detail A shows dimensions 3/8 (10) and 1-5/8 (42).</p>
<p>Dis-charge gas pipe</p>	<p>Technical drawing of a discharge gas pipe showing dimensions and detail A. The main drawing includes dimensions: 3/8 (10), 1-9/16 (40), 2-3/4 (70), 4-11/16 (112), 7-3/16 (182), 21-5/16 (542), 6 (152), and 2-13/16 (72). A note indicates P2-3/8 (60) x 5 = 11-13/16 (300). Detail A shows dimensions 3/8 (10), 1-9/16 (40), and 2-13/16 (72).</p>
<p>Suction gas pipe</p>	<p>Technical drawing of a suction gas pipe showing dimensions and details A and B. The main drawing includes dimensions: 3/8 (10), 1-9/16 (40), 3-1/8 (80), 5 (127), 8-9/16 (217), 25-1/16 (637), 6-1/16 (154), 3-1/8 (80), 2-3/8 (60), 3-1/8 (80), 3-1/8 (80), and 2-3/8 (60). Details A and B show dimensions 3/8 (10), 1-9/16 (40), and 2-13/16 (72).</p>

MODEL: UTP-J0908A

● Port diameters

Unit: in. (mm)



Closed pipe A	Closed pipe B	Closed pipe C	Closed pipe insulation
<p>Q'ty 5</p>	<p>Q'ty 9</p>	<p>Q'ty 2</p>	<p>Q'ty 15</p>

● Heat insulation

Heat insulation	Q'ty	Application
	3	for Liquid pipe × 1 for Discharge gas pipe × 1 for Suction gas pipe × 1

● Dimensions

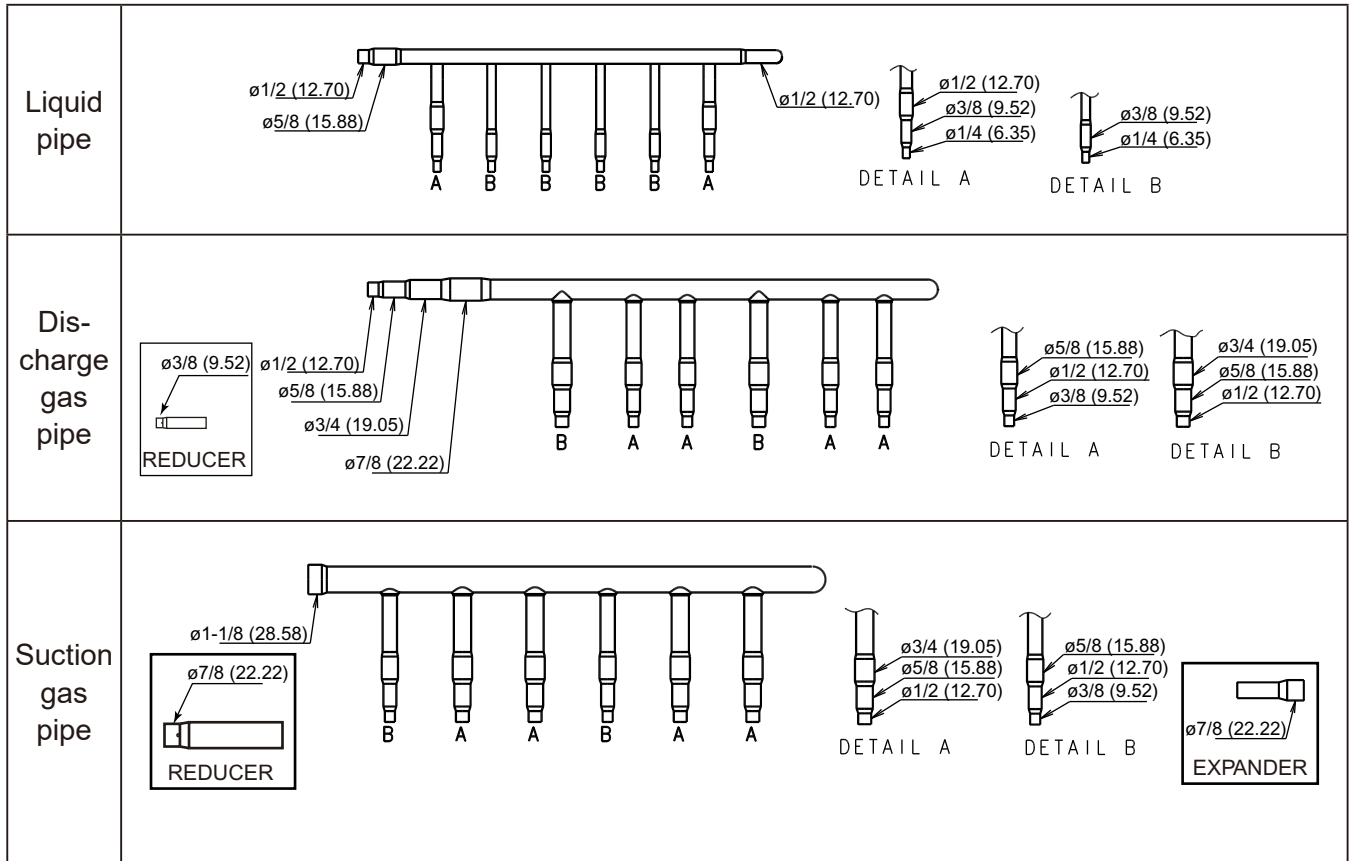
Unit: in. (mm)

<p>Liquid pipe</p>	<p>Technical drawing of a liquid pipe showing dimensions and detail A. The main drawing includes a top view and a side view. Dimensions are provided in inches and millimeters. Key dimensions include: 3/8 (10), 1-9/16 (40), 2-13/16 (72), 4-5/8 (117), 24-5/16 (617), 1-9/16 (40), 5 (127), 3-3/8 (85), and 4-5/8 (117). The pipe is labeled P2-3/8 (60) x 7 = 16-9/16 (420). Detail A shows a close-up of the pipe with dimensions 3/8 (10) and 1-5/8 (42).</p>
<p>Dis-charge gas pipe</p>	<p>Technical drawing of a discharge gas pipe showing dimensions and detail A. The main drawing includes a top view and a side view. Dimensions are provided in inches and millimeters. Key dimensions include: 3/8 (10), 1-9/16 (40), 2-3/4 (70), 4-11/16 (112), 7-3/16 (182), 26-1/16 (662), 6 (152), 3/8 (10), 1-9/16 (40), and 2-13/16 (72). The pipe is labeled P2-3/8 (60) x 7 = 16-9/16 (420). Detail A shows a close-up of the pipe with dimensions 3/8 (10) and 1-9/16 (40).</p>
<p>Suction gas pipe</p>	<p>Technical drawing of a suction gas pipe showing dimensions and details A and B. The main drawing includes a top view and a side view. Dimensions are provided in inches and millimeters. Key dimensions include: 3/8 (10), 1-9/16 (40), 3-1/8 (80), 5 (127), 7-3/4 (197), 29-13/16 (757), 6-1/16 (154), 2-3/8 (60), 3-1/8 (80), 3-1/8 (80), 2-3/8 (60), 3-1/8 (80), 3-1/8 (80), 3-1/8 (80), 2-3/8 (60), 3/8 (10), 1-9/16 (40), 2-13/16 (72), 3/8 (10), 1-9/16 (40), and 2-13/16 (72). The pipe is labeled P2-3/8 (60) x 7 = 16-9/16 (420). Detail A shows a close-up of the pipe with dimensions 3/8 (10) and 1-9/16 (40). Detail B shows a close-up of the pipe with dimensions 3/8 (10) and 1-9/16 (40).</p>

MODEL: UTP-J1806A

● Port diameters

Unit: in. (mm)



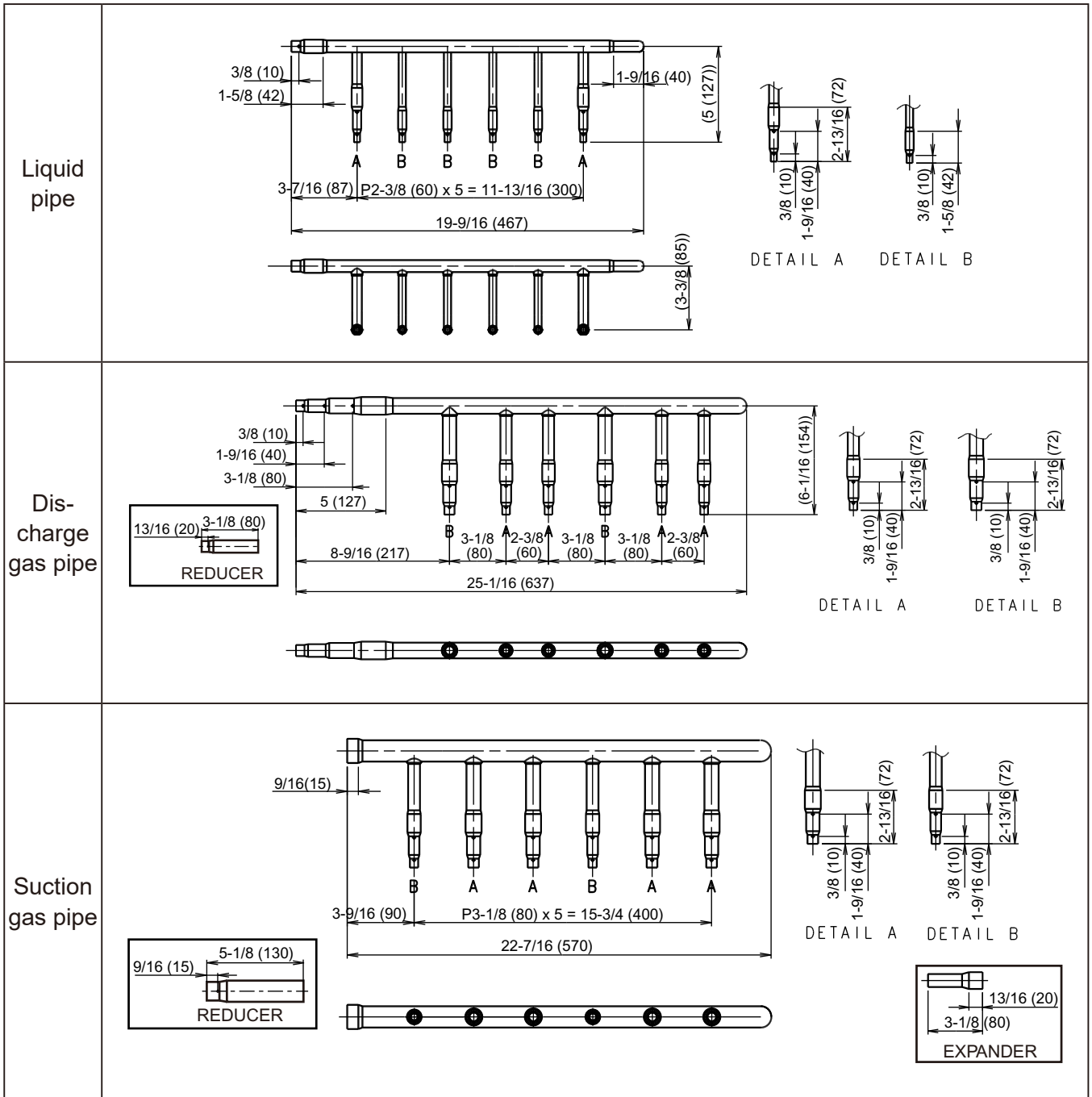
Closed pipe A	Closed pipe B	Closed pipe C	Closed pipe insulation
<p>Q'ty 3</p>	<p>Q'ty 4</p>	<p>Q'ty 4</p>	<p>Q'ty 9</p>

● Heat insulation

Heat insulation	Q'ty	Application
	3	for Liquid pipe × 1 for Discharge gas pipe × 1 for Suction gas pipe × 1

● Dimensions

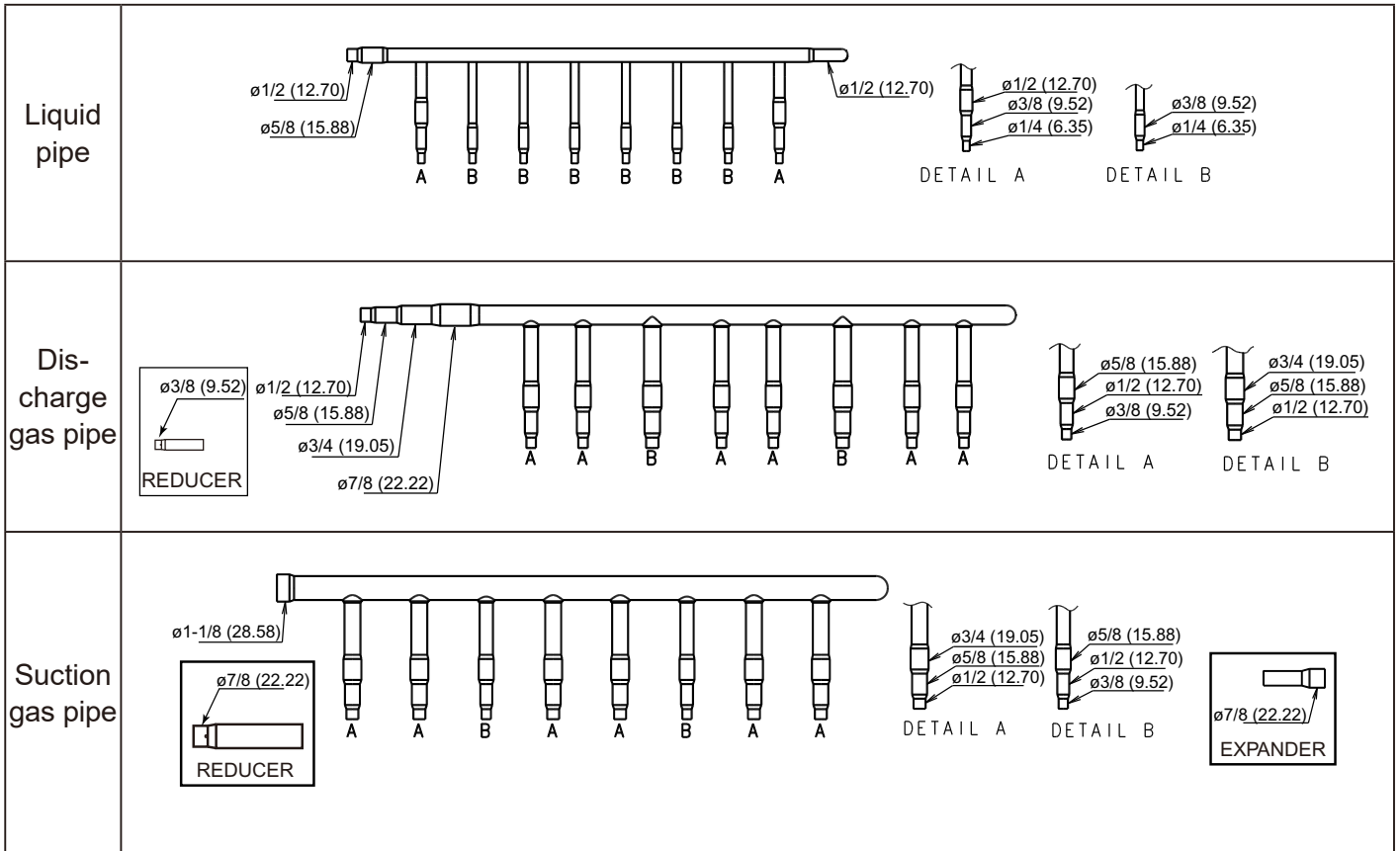
Unit: in. (mm)



MODEL: UTP-J1808A

● Port diameters

Unit: in. (mm)



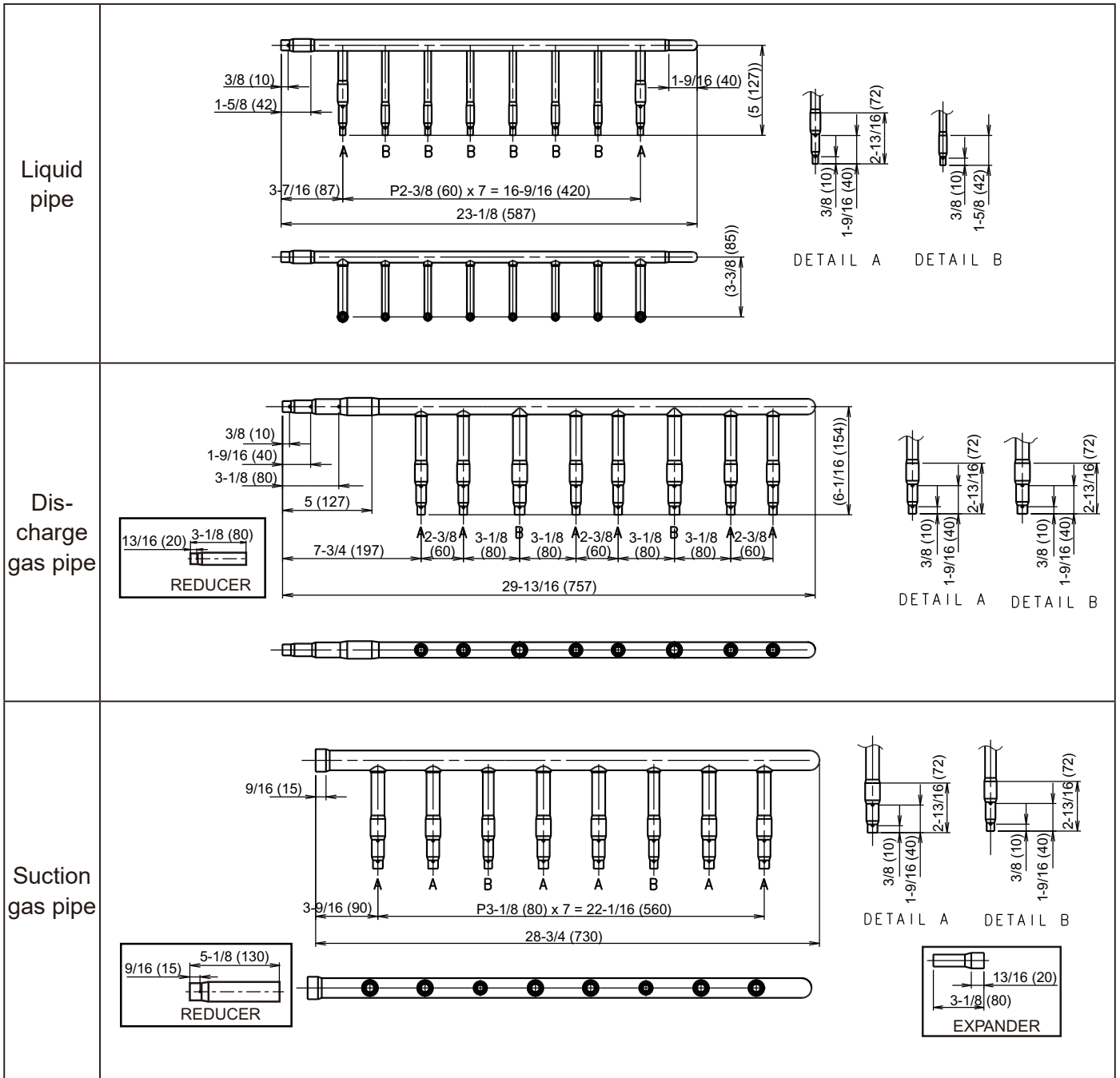
Closed pipe A	Closed pipe B	Closed pipe C	Closed pipe insulation
<p>Q'ty 5</p>	<p>Q'ty 6</p>	<p>Q'ty 6</p>	<p>Q'ty 15</p>

● Heat insulation

Heat insulation	Q'ty	Application
	<p>3</p>	for Liquid pipe × 1 for Discharge gas pipe × 1 for Suction gas pipe × 1

● Dimensions

Unit: in. (mm)



4. RB UNIT

4-1. SPECIFICATIONS

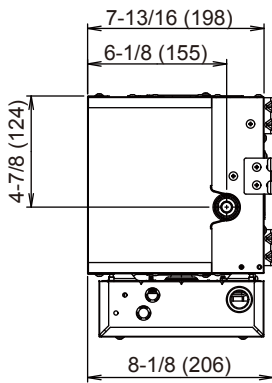
Model name		UTP-RU01AH	UTP-RU01BH	UTP-RU01CH	UTP-RU04BH		
Power source		1 Phase 208 / 230V ~ 60Hz					
Available voltage range		187 to 253V					
Number of branches		1	1	1	4		
Maximum number of connectable indoor units per branch		3	8	8	8		
Maximum capacity of connectable indoor units(Q)		Btu / h	Q ≤ 27,000	Q ≤ 60,000	Q ≤ 96,000	Q ≤ 191,000 *1	
Maximum capacity of connectable indoor units per branch(Q)			Q ≤ 27,000	Q ≤ 60,000	Q ≤ 96,000	Q ≤ 60,000	
Input power		W	28	28	41	110	
Running current		A	0.2	0.2	0.3	0.8	
Refrigerant type		R410A					
Dimensions (H × W × D)		Net	7-13/16 × 11-3/4 × 10-9/16 (198 × 298 × 268)		10-1/4 × 25-7/8 × 16-7/8 (260 × 658 × 428)		
		Gross	10-5/16 × 32-13/16 × 14-3/4 (262 × 833 × 374)		13-11/16 × 49-3/16 × 30-1/2 (348 × 1,250 × 775)		
Weight		Net	lbs (kg)	16 (7)	17 (7.5)	18 (8)	70 (31.5)
		Gross	lbs (kg)	21 (9.5)	24 (10.5)	25 (11)	88 (39.5)
Connection pipe	Outdoor unit side	Suction gas pipe	in. (mm)	ø1/2 (12.70)	ø3/4 (19.05)	ø7/8 (22.22)	ø1-1/8 (28.58)
		Discharge gas pipe		ø3/8 (9.52)	ø1/2 (12.70)	ø3/4 (19.05)	ø7/8 (22.22)
		Liquid pipe		None			ø5/8 (15.88)
	Indoor unit side	Gas pipe		ø1/2 (12.70)	ø3/4 (19.05)	ø7/8 (22.22)	ø3/4 (19.05)
		Liquid pipe		None			ø3/8 (9.52)
		Method		Brazing			
Operation range		°F (°C)	5 to 115 (-15 to 46)				
		%RH	80 or less				

*1: In case of two RB units connected in series (total 8-branches), maximum capacity of connectable indoor units is up to 191,000 Btu/h.

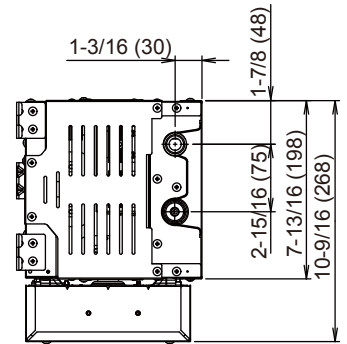
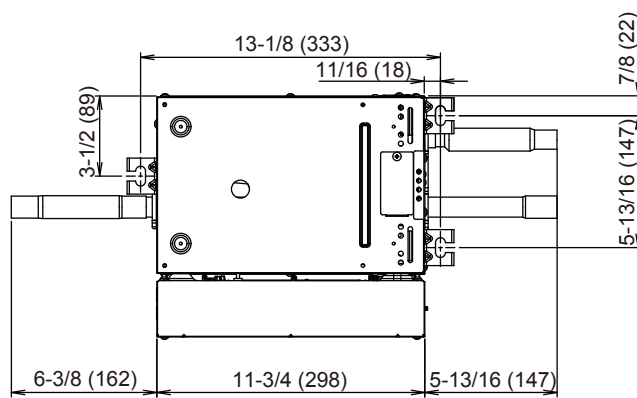
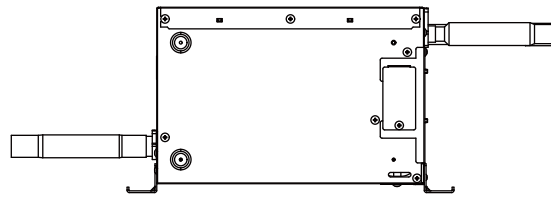
4-2. DIMENSIONS

■ MODELS: UTP-RU01AH, UTP-RU01BH, UTP-RU01CH

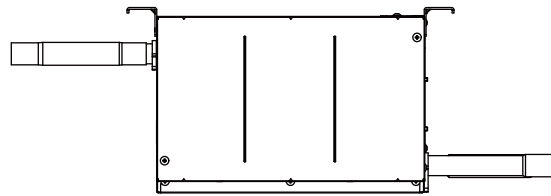
Unit: in. (mm)



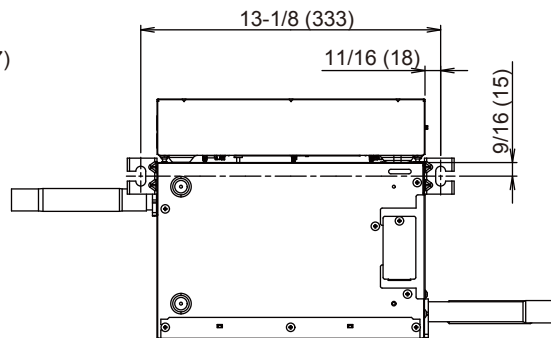
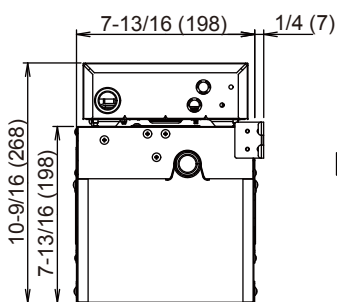
Indoor unit side



Outdoor unit side



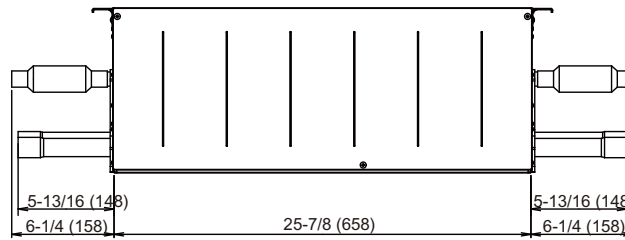
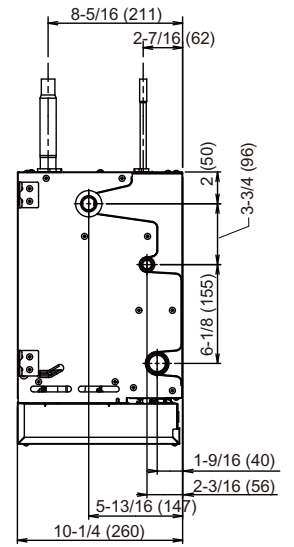
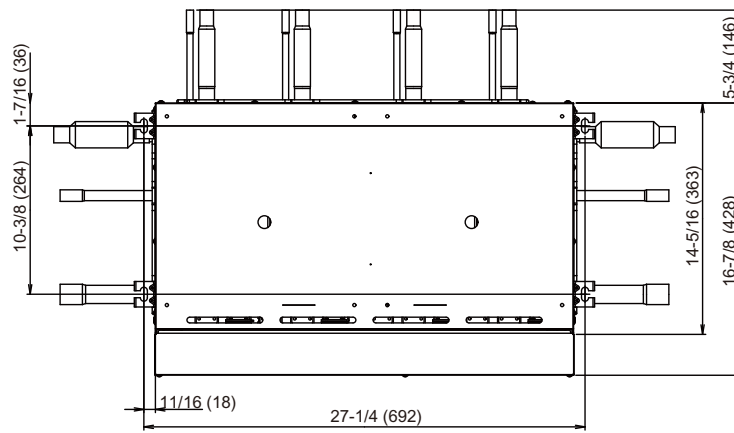
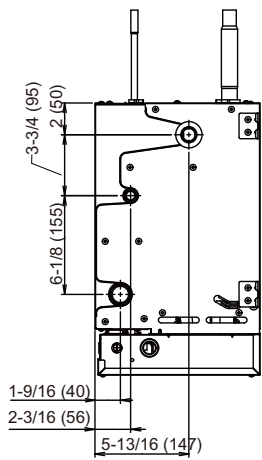
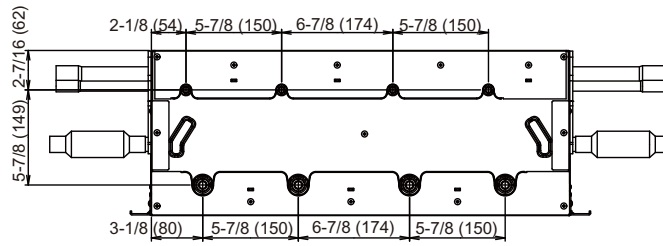
Ceiling hanging



Wall hanging

MODEL: UTP-RU04BH

Unit: in. (mm)



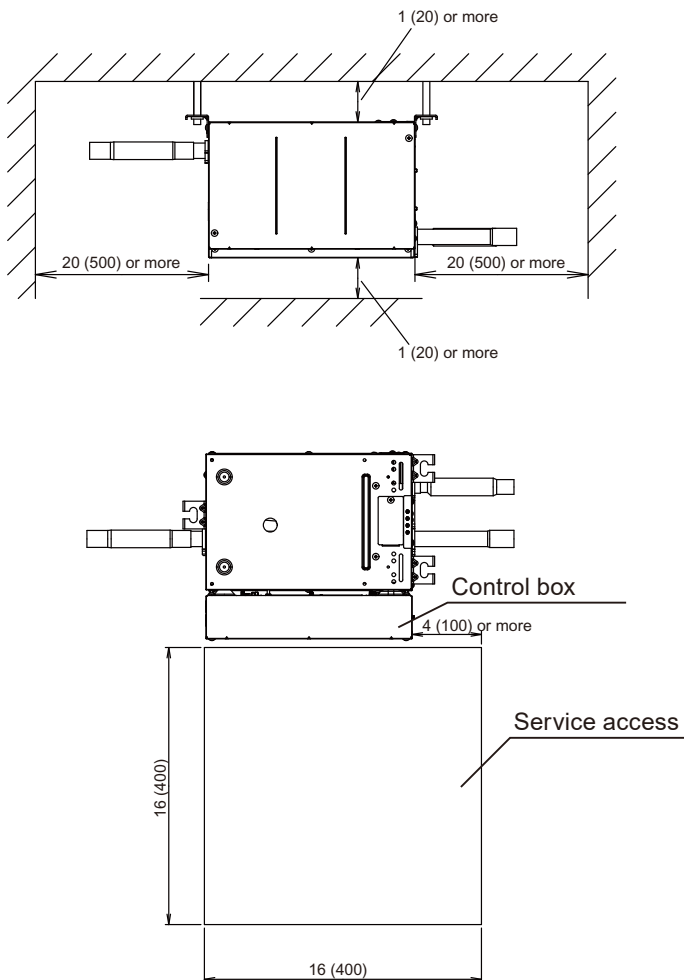
4-3. INSTALLATION

- Control box which is a part of RB units can be also changed the position depending on installation condition at each side of RB units
- Be sure to prepare Service access in control box side.
- Since the sound of refrigerant flow may be felt as an unusual sound, do not install in the underpart of the roof, such as a bedroom which sound worries.

■ MODELS: UTP-RU01AH, UTP-RU01BH, UTP-RU01CH

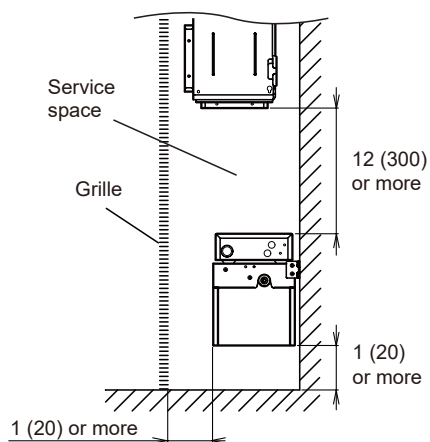
● Ceiling installation

Unit: in. (mm)



● Wall installation

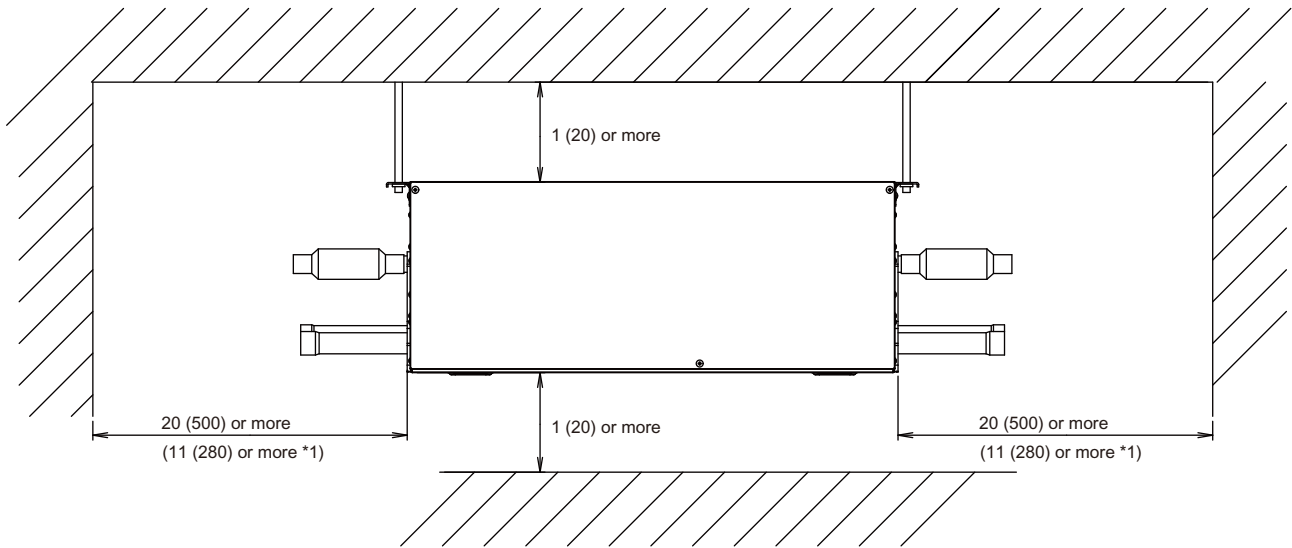
E.g.: If installing a duct model vertically.



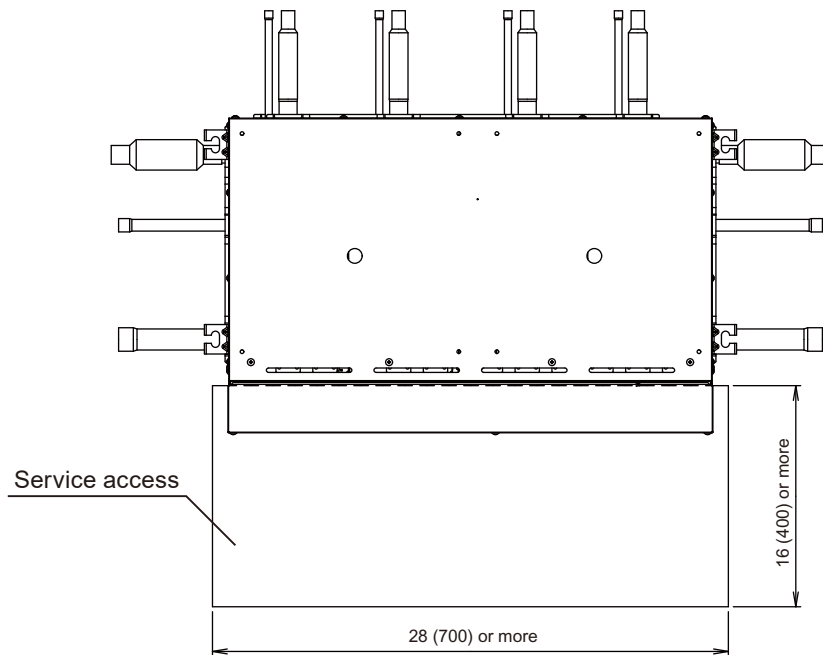
MODEL: UTP-RU04BH

● Ceiling installation

Unit: in. (mm)

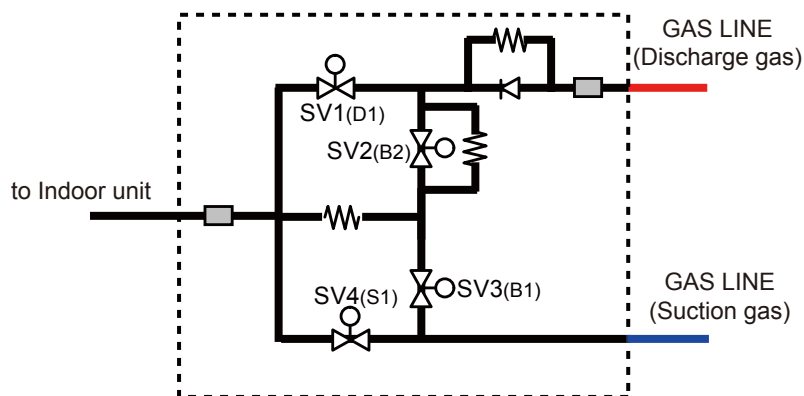


*1: When piping is not connected

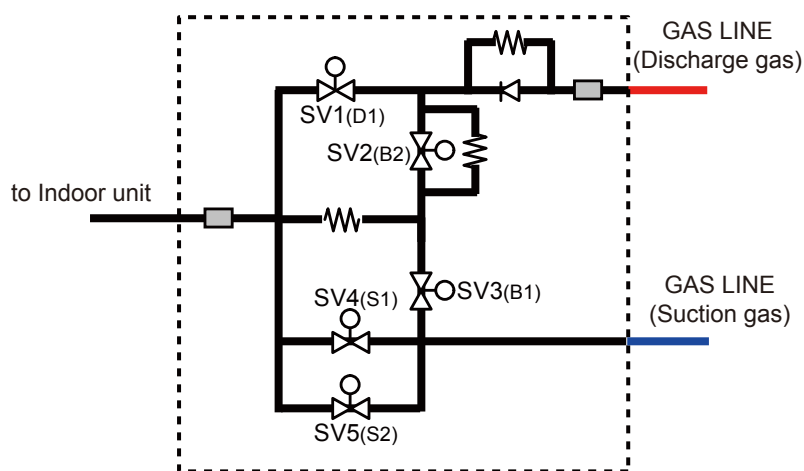


4-4. REFRIGERANT CIRCUIT

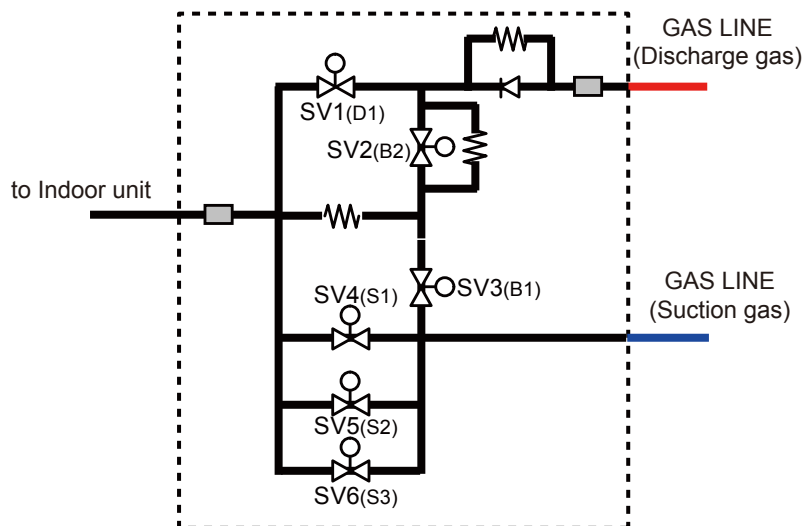
■ MODEL: UTP-RU01AH



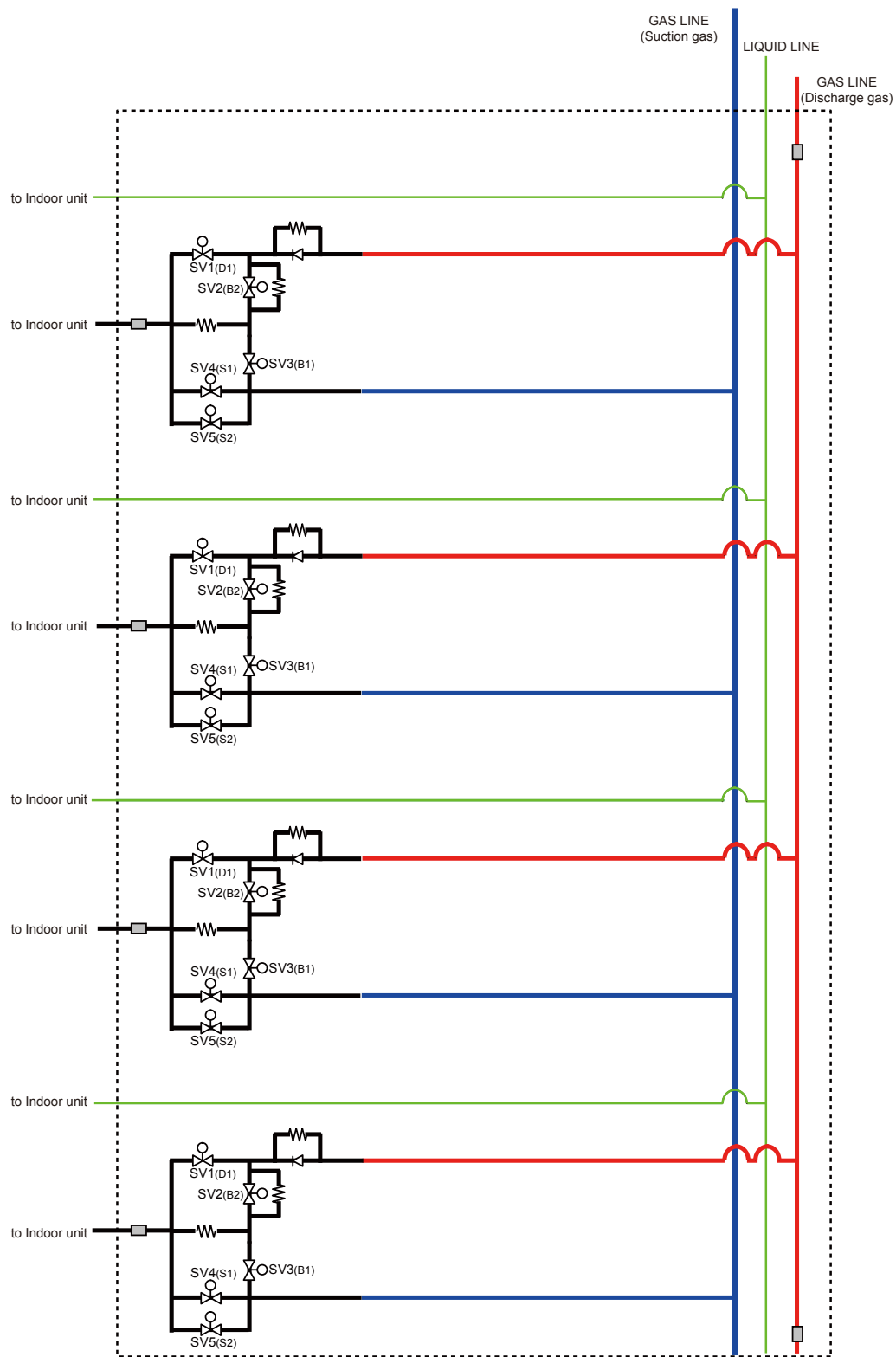
■ MODEL: UTP-RU01BH



■ MODEL: UTP-RU01CH



MODEL: UTP-RU04BH

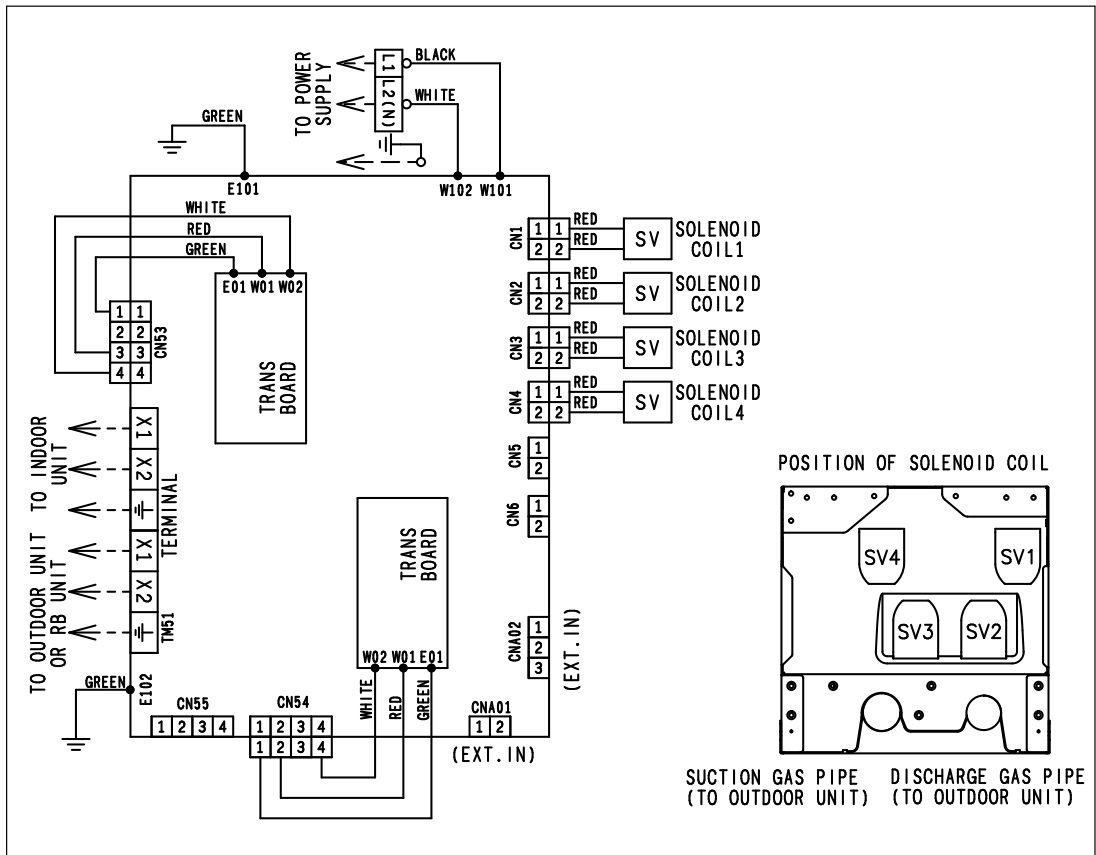


SYMBOL DESCRIPTION

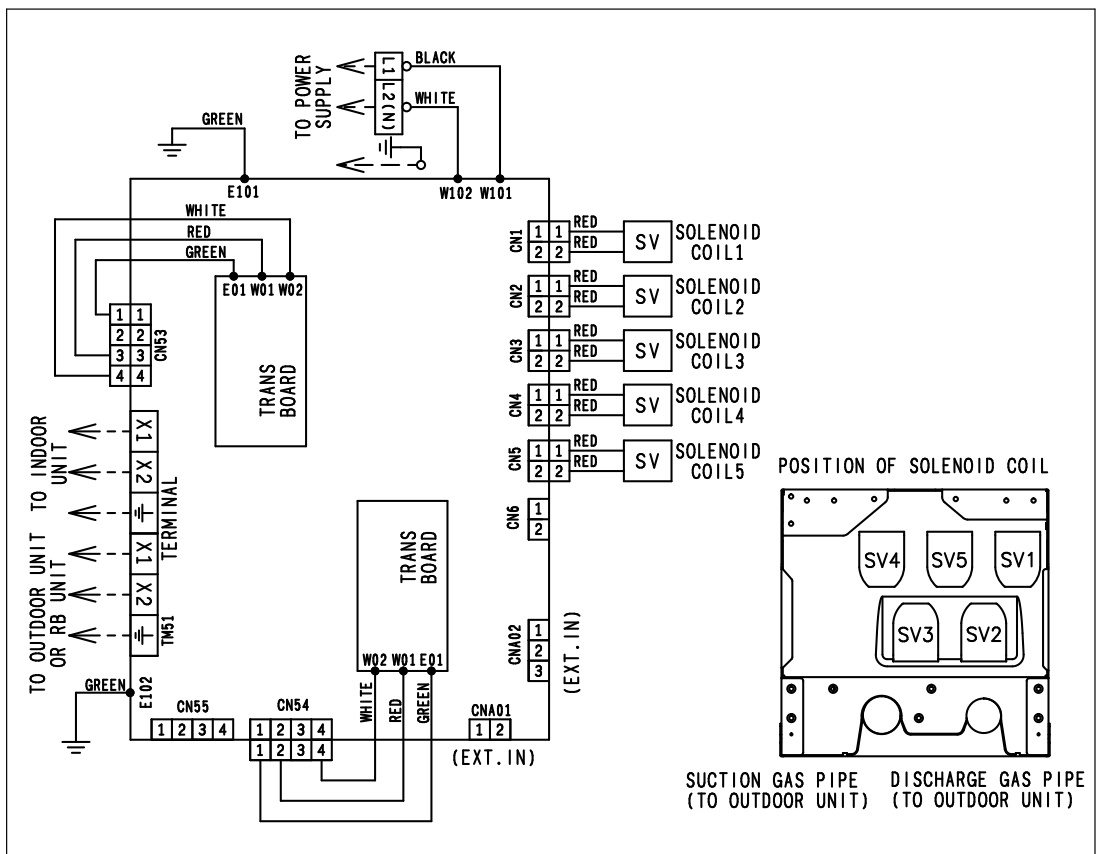
MARK	DESCRIPTION
SV1(D1)	Solenoid valve (Discharge 1)
SV2(B2)	Solenoid valve (Bypass 2)
SV3(B1)	Solenoid valve (Bypass 1)
SV4(S1)	Solenoid valve (Suction 1)
SV5(S2)	Solenoid valve (Suction 2)
SV6(S3)	Solenoid valve (Suction 3)

4-5. WIRING DIAGRAMS

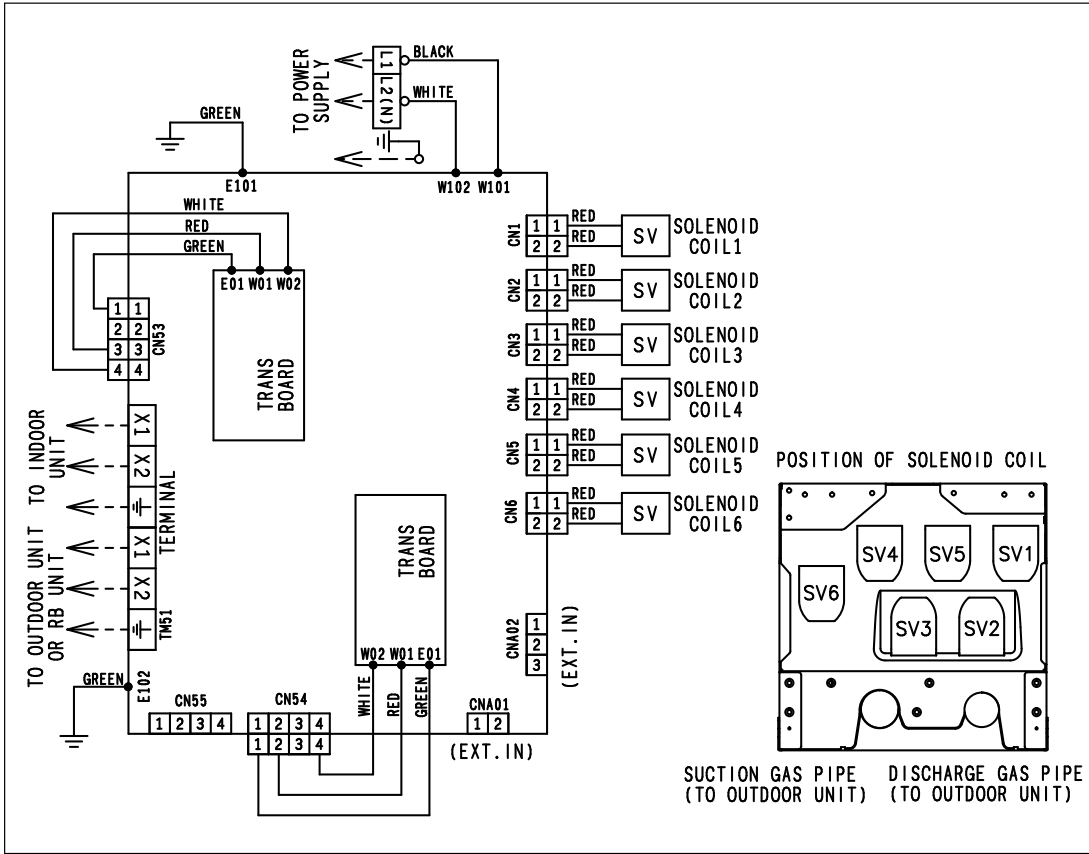
MODEL: UTP-RU01AH



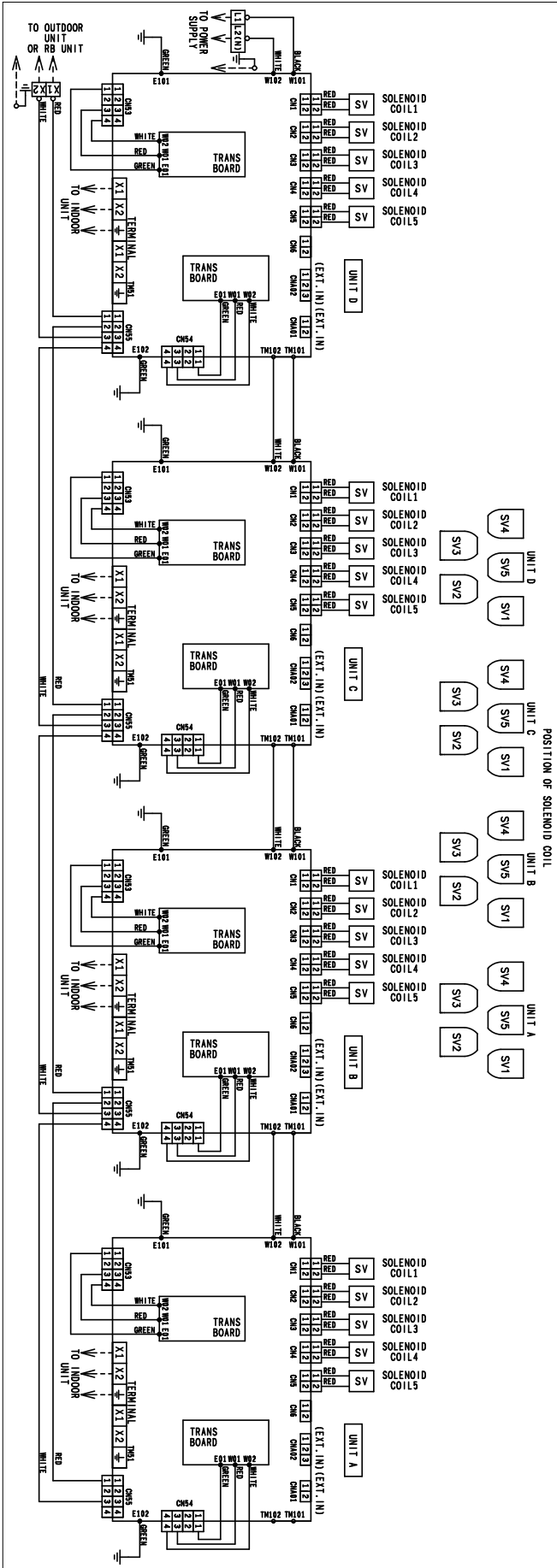
MODEL: UTP-RU01BH



MODEL: UTP-RU01CH



MODEL: UTP-RU04BH



4-6. ELECTRIC CHARACTERISTICS

Model	Voltage (V)	Frequency (Hz)	MCA (A)	MFA (A)
UTP-RU01AH	230	60	0.25	15
UTP-RU01BH			0.25	
UTP-RU01CH			0.38	
UTP-RU04BH			1.00	

MCA: Min Circuit Amps = Max Operating Current (Full Load).

MFA: Main Fuse (Circuit breaker) Amps.

4-7. SAFETY DEVICES

Model	PCB fuse
UTP-RU01AH	250V, 3.15A × 1
UTP-RU01BH	250V, 3.15A × 1
UTP-RU01CH	250V, 3.15A × 1
UTP-RU04BH	250V, 3.15A × 4

5. CONTROLLER

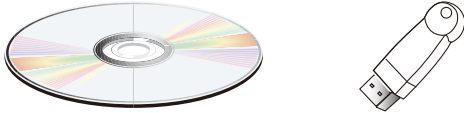
■ SYSTEM CONTROLLER (Software)

- UTY-APGXZ1 (Option: UTY-PEGXZ1, UTY-PPGX2)



- Software protection key with software

- UTY-APGX (Option: UTY-PEGX)



- DVD-ROM
- Software protection key

- Maximum 1600 groups / 1600 indoor units can be controlled
- Monitoring status of operation

■ SYSTEM CONTROLLER LITE (Software)

- UTY-ALGXZ1 (Option: UTY-PLGXA2, UTY-PLGXR2, UTY-PLGXE2, UTY-PLGXP2, UTY-PLGXX2)



- Software protection key with software

- UTY-ALGX (Option: UTY-PLGXA1, UTY-PLGXR1, UTY-PLGXE1)



- DVD-ROM
- Software protection key

- Maximum 400 groups / 400 indoor units can be controlled
- Monitoring status of operation

■ TOUCH PANEL CONTROLLER

- UTY-DTGYZ1
- UTY-DTGY



- Maximum 400 groups / 400 indoor units can be controlled
- With yearly timer

■ CENTRAL REMOTE CONTROLLER

- UTY-DCGY



- Maximum 16 groups / 100 indoor units can be controlled
- With weekly timer

■ WIRED REMOTE CONTROLLER (Touch panel)

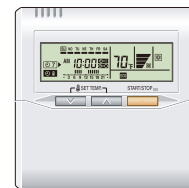
- UTY-RNRUZ*
- UTY-RNRU



- Largest LCD touch panel
- On / Off weekly timer

■ WIRED REMOTE CONTROLLER

- UTY-RNKU



- On / Off weekly timer
- Built in thermo sensor

■ SIMPLE REMOTE CONTROLLER

- UTY-RSRY
 - UTY-RSKU
 - UTY-RHRY
 - UTY-RHKU
- With Operation mode Without Operation mode



- Background light
- Easy operation

■ WIRELESS REMOTE CONTROLLER

- UTY-LNHU



- On / Off sleep, program timer
- Easy operation

6. ADAPTOR / CONVERTOR / MAINTENANCE TOOL

■ NETWORK CONVERTOR

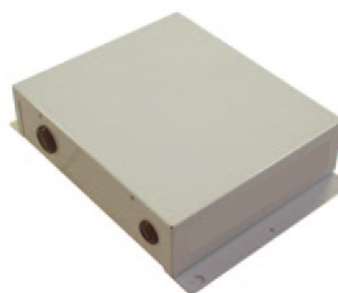
● UTY-VTGX



● Split system convertor

■ NETWORK CONVERTOR

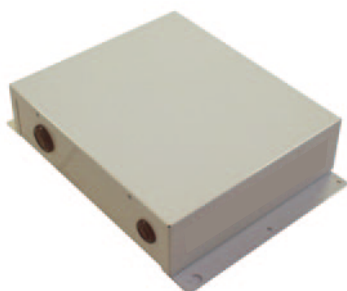
● UTY-VGGXZ1



● (Split system convertor)
● (Group remote convertor)

■ NETWORK CONVERTOR for LonWORKS®

● UTY-VLGX



● LON / LON Convertor

■ MODBUS® CONVERTOR for VRF

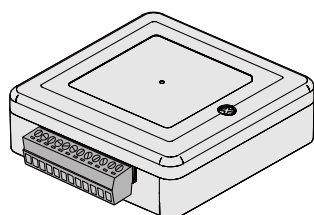
● UTY-VMGX



● Modbus® Convertor

■ THERMOSTAT CONVERTOR

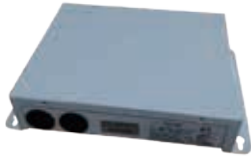
● UTY-TTRX



Signal convertor between the air conditioner and locally purchased thermostat controller

■ BACnet® GATEWAY (Hardware)

- UTY-VBGX



VRF network system to the BMS system using BACnet® protocol.

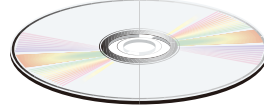
■ BACnet® GATEWAY (Software)

- UTY-ABGXZ1



- Software protection key with software

- UTY-ABGX



- DVD-ROM
- Software protection key

■ SIGNAL AMPLIFIER

- UTY-VSGXZ1



If the total length of transmission line exceeds 1,640 ft.(500 m), or the number of units exceeds 64 units, Signal Amplifier will be necessary to use

■ EXTERNAL SWITCH CONTROLLER

- UTY-TERX
- UTY-TEKX



UTY-TERX



UTY-TEKX

Air conditioner switching can be controlled by connecting other sensor switches

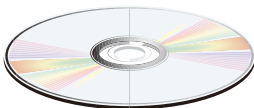
■ SERVICE TOOL

- UTY-ASGXZ1



- Software protection key with software

- UTY-ASGX



- DVD-ROM
- Software protection key

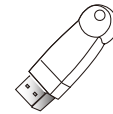
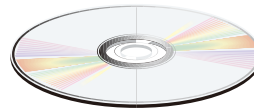
■ WEB MONITORING TOOL

- UTY-AMGXZ1



- Software protection key with software

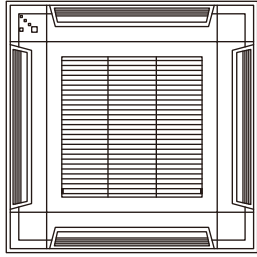
- UTY-AMGX



- DVD-ROM
- Software protection key

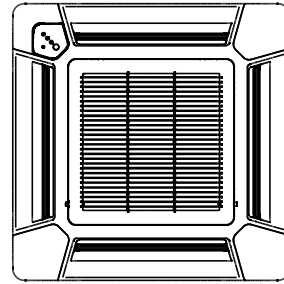
7. CASSETTE GRILLE

- UTG-CCGVG
- For Compact Cassette type



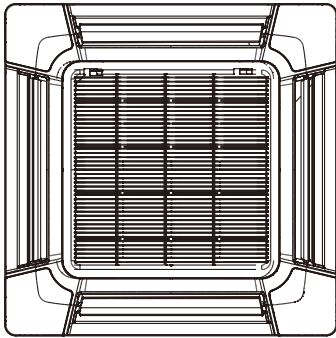
- *IR receiver attached
- *For grid ceiling

- UTG-CCGV
- For Compact Cassette type

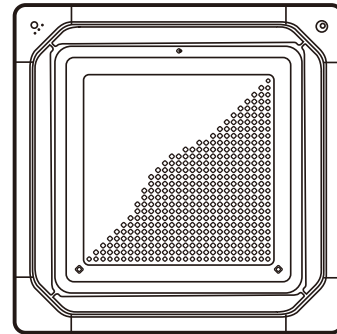


- *IR receiver attached

- UTG-LCGV
- For Cassette type



- UTG-LCGVCW, UTG-LCGVCB
- For Circular Flow Cassette type



8. OTHERS

8-1. PARTS LIST

8-1-1. INDOOR UNIT

Type	Model name	Air outlet shutter plate		Panel spacer	Wide panel	Insulation kit for high humidity		
		UTR-YDZB	UTR-YDZK UTR-YDZC	UTG-BKXA-W UTG-BGYA-W	UTG-AKXA-W UTG-AGYA-W	UTZ-KXRA UTZ-KXGA	UTZ-KXRA UTZ-KXGB	UTZ-KXGC
Compact cassette	AUUA4TLAV1	○						○
	AUUA7TLAV	○						○
	AUUA9TLAV	○						○
	AUUA12TLAV	○						○
	AUUA14TLAV	○						○
	AUUA18TLAV	○						○
	AUUA24TLAV	○						○
Cassette	AUUB18TLAV		○	○	○		○	
	AUUB24TLAV		○	○	○		○	
	AUUB30TLAV		○	○	○	○		
	AUUB36TLAV		○	○	○	○		
Circular flow cassette	AUUB18TLAV1		○	○	○		○	
	AUUB24TLAV1		○	○	○		○	
	AUUB30TLAV1		○	○	○		○	
	AUUB36TLAV1		○	○	○	○		
	AUUB48TLAV1		○	○	○	○		
Mini duct	ARUL4TLAV1							
Slim duct / Slim concealed floor	ARUL7TLAV							
	ARUL9TLAV							
	ARUL12TLAV							
	ARUL14TLAV							
	ARUL18TLAV							
Medium static pressure duct	ARUM24TLAV							
	ARUM30TLAV							
	ARUM36TLAV							
High static pressure duct	ARUH36TLAV							
	ARUH48TLAV							
	ARUH60TLAV							
	ARUH72TLAV1							
	ARUH96TLAV							
Vertical air handler	ARUV12TLAV							
	ARUV18TLAV							
	ARUV24TLAV							
	ARUV30TLAV							
	ARUV36TLAV							
	ARUV48TLAV							
	ARUV60TLAV							
Compact floor	AGUA4TLAV1							
	AGUA7TLAV1							
	AGUA9TLAV1							
	AGUA12TLAV1							
	AGUA14TLAV1							
Floor / Ceiling	ABUA12TLAV							
	ABUA14TLAV							
	ABUA18TLAV							
	ABUA24TLAV							
Ceiling	ABUA30TLAV							
	ABUA36TLAV							
Wall mounted	ASUA7TLAV							
	ASUA9TLAV							
	ASUA12TLAV							
	ASUA14TLAV							
	ASUB18TLAV							
	ASUB24TLAV							
	ASUA7TLAV1							
	ASUA9TLAV1							
	ASUA12TLAV1							
	ASUA14TLAV1							
	ASUB18TLAV1							
	ASUB24TLAV1							
	ASUB30TLAV1							
	ASUB36TLAV1							

Type	Model name	Fresh air intake kit		IR receiver unit			Human sensor kit
		UTZ-VXAA	UTZ-VXRA UTZ-VXGA	UTY-LRHYB1	UTB-YWC	UTY-LBHXD	UTY-SHZXC
Compact cassette	AUUA4TLAV1						
	AUUA7TLAV	○					
	AUUA9TLAV	○					
	AUUA12TLAV	○					
	AUUA14TLAV	○					
	AUUA18TLAV	○					
	AUUA24TLAV	○					
Cassette	AUUB18TLAV		○	○			
	AUUB24TLAV		○	○			
	AUUB30TLAV		○	○			
	AUUB36TLAV		○	○			
Circular flow cassette	AUUB18TLAV1					○	○
	AUUB24TLAV1					○	○
	AUUB30TLAV1					○	○
	AUUB36TLAV1					○	○
	AUUB48TLAV1					○	○
Mini duct	ARUL4TLAV1				○		
Slim duct / Slim concealed floor	ARUL7TLAV				○		
	ARUL9TLAV				○		
	ARUL12TLAV				○		
	ARUL14TLAV				○		
	ARUL18TLAV				○		
Medium static pressure duct	ARUM24TLAV				○		
	ARUM30TLAV				○		
	ARUM36TLAV				○		
High static pressure duct	ARUH36TLAV				○		
	ARUH48TLAV				○		
	ARUH60TLAV				○		
	ARUH72TLAV1				○		
	ARUH96TLAV				○		
Vertical air handler	ARUV12TLAV				○		
	ARUV18TLAV				○		
	ARUV24TLAV				○		
	ARUV30TLAV				○		
	ARUV36TLAV				○		
	ARUV48TLAV				○		
	ARUV60TLAV				○		
Compact floor	AGUA4TLAV1						
	AGUA7TLAV1						
	AGUA9TLAV1						
	AGUA12TLAV1						
	AGUA14TLAV1						
Floor / Ceiling	ABUA12TLAV						
	ABUA14TLAV						
	ABUA18TLAV						
	ABUA24TLAV						
Ceiling	ABUA30TLAV						
	ABUA36TLAV						
Wall mounted	ASUA7TLAV						
	ASUA9TLAV						
	ASUA12TLAV						
	ASUA14TLAV						
	ASUB18TLAV						
	ASUB24TLAV						
	ASUA7TLAV1						
	ASUA9TLAV1						
	ASUA12TLAV1						
	ASUA14TLAV1						
	ASUB18TLAV1						
	ASUB24TLAV1						
	ASUB30TLAV1						
	ASUB36TLAV1						

Type	Model name	Auto louver grille kit				Air filter	
		UTD-GXSA-W	UTD-GXSB-W	UTD-GXTA-W	UTD-GXTB-W	UTD-LF25NA	UTD-LF60KA
Compact cassette	AUUA4TLAV1						
	AUUA7TLAV						
	AUUA9TLAV						
	AUUA12TLAV						
	AUUA14TLAV						
	AUUA18TLAV						
	AUUA24TLAV						
Cassette	AUUB18TLAV						
	AUUB24TLAV						
	AUUB30TLAV						
	AUUB36TLAV						
Circular flow cassette	AUUB18TLAV1						
	AUUB24TLAV1						
	AUUB30TLAV1						
	AUUB36TLAV1						
	AUUB48TLAV1						
Mini duct	ARUL4TLAV1			○			
Slim duct / Slim concealed floor	ARUL7TLAV	○		○			
	ARUL9TLAV	○		○			
	ARUL12TLAV	○		○			
	ARUL14TLAV	○		○			
	ARUL18TLAV		○		○		
Medium static pressure duct	ARUM24TLAV					○	
	ARUM30TLAV					○	
	ARUM36TLAV					○	
High static pressure duct	ARUH36TLAV						○
	ARUH48TLAV						○
	ARUH60TLAV						○
	ARUH72TLAV1						
	ARUH96TLAV						
Vertical air handler	ARUV12TLAV						
	ARUV18TLAV						
	ARUV24TLAV						
	ARUV30TLAV						
	ARUV36TLAV						
	ARUV48TLAV						
	ARUV60TLAV						
Compact floor	AGUA4TLAV1						
	AGUA7TLAV1						
	AGUA9TLAV1						
	AGUA12TLAV1						
	AGUA14TLAV1						
Floor / Ceiling	ABUA12TLAV						
	ABUA14TLAV						
	ABUA18TLAV						
	ABUA24TLAV						
Ceiling	ABUA30TLAV						
	ABUA36TLAV						
Wall mounted	ASUA7TLAV						
	ASUA9TLAV						
	ASUA12TLAV						
	ASUA14TLAV						
	ASUB18TLAV						
	ASUB24TLAV						
	ASUA7TLAV1						
	ASUA9TLAV1						
	ASUA12TLAV1						
	ASUA14TLAV1						
	ASUB18TLAV1						
	ASUB24TLAV1						
	ASUB30TLAV1						
	ASUB36TLAV1						

Type	Model name	Flange		Drain pump unit			Remote sensor unit	
		UTD-SF045T	UTD-RF204	UTZ-PU1NBA	UTZ-PU1EBA	UTR-DPB24T	UTY-XSZX	
Compact cassette	AUUA4TLAV1							
	AUUA7TLAV							
	AUUA9TLAV							
	AUUA12TLAV							
	AUUA14TLAV							
	AUUA18TLAV							
	AUUA24TLAV							
Cassette	AUUB18TLAV							
	AUUB24TLAV							
	AUUB30TLAV							
	AUUB36TLAV							
Circular flow cassette	AUUB18TLAV1							
	AUUB24TLAV1							
	AUUB30TLAV1							
	AUUB36TLAV1							
	AUUB48TLAV1							
Mini duct	ARUL4TLAV1						○	
Slim duct / Slim concealed floor	ARUL7TLAV							○
	ARUL9TLAV							○
	ARUL12TLAV							○
	ARUL14TLAV							○
	ARUL18TLAV							○
Medium static pressure duct	ARUM24TLAV	○	○	○				○
	ARUM30TLAV	○	○	○				○
	ARUM36TLAV	○	○	○				○
High static pressure duct	ARUH36TLAV							○
	ARUH48TLAV							○
	ARUH60TLAV							○
	ARUH72TLAV1							○
	ARUH96TLAV							○
Vertical air handler	ARUV12TLAV							○
	ARUV18TLAV							○
	ARUV24TLAV							○
	ARUV30TLAV							○
	ARUV36TLAV							○
	ARUV48TLAV							○
	ARUV60TLAV							○
Compact floor	AGUA4TLAV1							
	AGUA7TLAV1							
	AGUA9TLAV1							
	AGUA12TLAV1							
	AGUA14TLAV1							
Floor / Ceiling	ABUA12TLAV							
	ABUA14TLAV							
	ABUA18TLAV							
	ABUA24TLAV							
Ceiling	ABUA30TLAV		○		○	○		
	ABUA36TLAV		○		○	○		
Wall mounted	ASUA7TLAV							
	ASUA9TLAV							
	ASUA12TLAV							
	ASUA14TLAV							
	ASUB18TLAV							
	ASUB24TLAV							
	ASUA7TLAV1							
	ASUA9TLAV1							
	ASUA12TLAV1							
	ASUA14TLAV1							
	ASUB18TLAV1							
	ASUB24TLAV1							
	ASUB30TLAV1							
ASUB36TLAV1								

Type	Model name	Half concealed kit	External connect kit				
		UTR-STA	UTY-XWZXZ7	UTY-XWZXZB	UTY-XWZXZC	UTY-XWZXZD	UTY-XWZXZE
Compact cassette	AUUA4TLAV1		○	○	○	○	○
	AUUA7TLAV		○	○	○	○	○
	AUUA9TLAV		○	○	○	○	○
	AUUA12TLAV		○	○	○	○	○
	AUUA14TLAV		○	○	○	○	○
	AUUA18TLAV		○	○	○	○	○
Cassette	AUUA24TLAV		○	○	○	○	○
	AUUB18TLAV		○	○	○	○	○
	AUUB24TLAV		○	○	○	○	○
	AUUB30TLAV		○	○	○	○	○
Circular flow cassette	AUUB36TLAV		○	○	○	○	○
	AUUB18TLAV1		○	○	○	○	○
	AUUB24TLAV1		○	○	○	○	○
	AUUB30TLAV1		○	○	○	○	○
Mini duct	AUUB36TLAV1		○	○	○	○	○
	AUUB48TLAV1		○	○	○	○	○
	ARUL4TLAV1		○	○	○	○	○
	ARUL7TLAV		○	○	○	○	○
Slim duct / Slim concealed floor	ARUL9TLAV		○	○	○	○	○
	ARUL12TLAV		○	○	○	○	○
	ARUL14TLAV		○	○	○	○	○
	ARUL18TLAV		○	○	○	○	○
Medium static pressure duct	ARUM24TLAV		○	○	○	○	○
	ARUM30TLAV		○	○	○	○	○
	ARUM36TLAV		○	○	○	○	○
High static pressure duct	ARUH36TLAV		○	○	○	○	○
	ARUH48TLAV		○	○	○	○	○
	ARUH60TLAV		○	○	○	○	○
	ARUH72TLAV1		○	○	○	○	○
Vertical air handler	ARUH96TLAV		○	○	○	○	○
	ARUV12TLAV		○	○	○	○	○
	ARUV18TLAV		○	○	○	○	○
	ARUV24TLAV		○	○	○	○	○
	ARUV30TLAV		○	○	○	○	○
	ARUV36TLAV		○	○	○	○	○
Compact floor	ARUV48TLAV		○	○	○	○	○
	ARUV60TLAV		○	○	○	○	○
	AGUA4TLAV1	○	○	○	○	○	○
	AGUA7TLAV1	○	○	○	○	○	○
	AGUA9TLAV1	○	○	○	○	○	○
Floor / Ceiling	AGUA12TLAV1	○	○	○	○	○	○
	AGUA14TLAV1	○	○	○	○	○	○
	ABUA12TLAV		○	○	○	○	○
	ABUA14TLAV		○	○	○	○	○
Ceiling	ABUA18TLAV		○	○	○	○	○
	ABUA24TLAV		○	○	○	○	○
Wall mounted	ABUA30TLAV		○	○	○	○	○
	ABUA36TLAV		○	○	○	○	○
	ASUA7TLAV		○	○	○	○	○
	ASUA9TLAV		○	○	○	○	○
	ASUA12TLAV		○	○	○	○	○
	ASUA14TLAV		○	○	○	○	○
	ASUB18TLAV		○	○	○	○	○
	ASUB24TLAV		○	○	○	○	○
	ASUA7TLAV1		○	○	○	○	○
	ASUA9TLAV1		○	○	○	○	○
	ASUA12TLAV1		○	○	○	○	○
	ASUA14TLAV1		○	○	○	○	○
	ASUB18TLAV1		○	○	○	○	○
	ASUB24TLAV1		○	○	○	○	○
ASUB30TLAV1		○	○	○	○	○	
ASUB36TLAV1		○	○	○	○	○	

8-1-2. OUTDOOR UNIT

			Pressure sensor kit
Type		Model name	UTY-SPWX
Outdoor Unit	V-II (230 V)	AOUA72RLBV1	○
		AOUA96RLBV1	○
		AOUA120RLBV1	○
	VR-II (230 V)	AOUA72TLBV	
		AOUA96TLBV	
		AOUA120TLBV	
	V-II (460 V)	AOUA72RLCV	○
		AOUA96RLCV	○
		AOUA120RLCV	○
	VR-II (460 V)	AOUA72TLCV	
		AOUA96TLCV	
		AOUA120TLCV	
	J-IIS	AOU36RLAVS	
		AOU48RLAVS	
	J-II	AOU36RLAVM	
AOU48RLAVM			
AOU60RLAVM			

8-1-3. OTHERS

		External connect kit						
Type	Model name	UTY- XWZXZ6	UTY- XWZXZ7	UTY- XWZXZ8	UTY- XWZXZ9	UTY- XWZXZA	UTY- XWZXZB	UTY- XWZXZF
Outdoor Unit	V-II (230 V)	AOUA72RLBV1	○			○		○
		AOUA96RLBV1	○			○		○
		AOUA120RLBV1	○			○		○
	VR-II (230 V)	AOUA72TLBV	○			○		○
		AOUA96TLBV	○			○		○
		AOUA120TLBV	○			○		○
	V-II (460 V)	AOUA72RLCV	○			○		○
		AOUA96RLCV	○			○		○
		AOUA120RLCV	○			○		○
	VR-II (460 V)	AOUA72TLCV	○			○		○
		AOUA96TLCV	○			○		○
		AOUA120TLCV	○			○		○
	J-IIS	AOU36RLAVS	○			○		○
		AOU48RLAVS	○			○		○
	J-II	AOU36RLAVM	○			○		○
AOU48RLAVM		○			○		○	
	AOU60RLAVM	○			○		○	
RB unit	UTP-RU01AH	○					○	
	UTP-RU01BH	○					○	
	UTP-RU01CH	○					○	
	UTP-RU04BH	○					○	
Touch Panel Controller	UTY-DTGY					○		
	UTY-DTGYZ1					○		
Central Remote Controller	UTY-DCGY		○	○		○		

■ AIR OUTLET SHUTTER PLATE

- UTR-YDZB
 - For Compact Cassette type



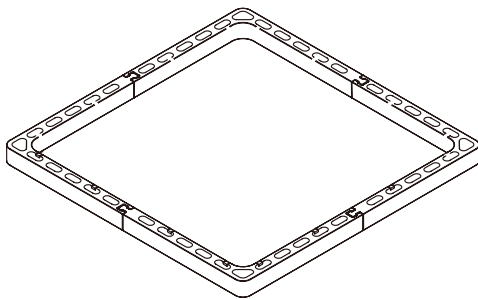
■ AIR OUTLET SHUTTER PLATE

- UTR-YDZC, UTR-YDZK
 - For Cassette type
 - For Circular flow Cassette type



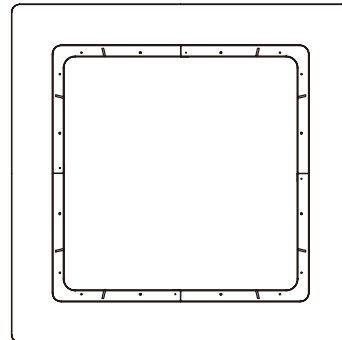
■ PANEL SPACER

- UTG-BGYA-W, UTG-BKXA-W
 - For Cassette type
 - For Circular flow Cassette type



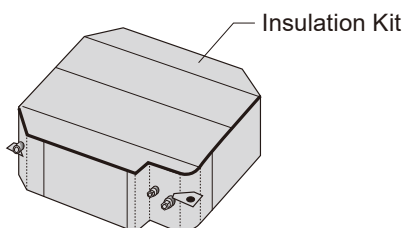
■ WIDE PANEL

- UTG-AGYA-W, UTG-AKXA-W
 - For Cassette type
 - For Circular flow Cassette type



■ INSULATION KIT for High Humidity

- UTZ-KXGA, UTZ-KXGB, UTZ-KXRA
 - For Cassette type
 - For Circular flow Cassette type
- UTZ-KXGC
 - For Compact Cassette type



Install when the condition under the roof is over 80% in humidity and over 86°F (30°C) in temperature.

■ FRESH AIR INTAKE KIT

- UTZ-VXAA
 - For Compact Cassette type



■ FRESH AIR INTAKE KIT

- UTZ-VXGA, UTZ-VXRA
 - For Cassette type



■ IR RECEIVER UNIT

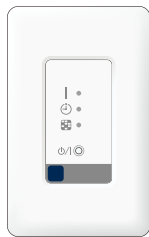
- UTY-LRHYB1
 - For Cassette type



For use with wireless remote controller Model UTY-LNHU (must be purchased separately).

■ IR RECEIVER UNIT

- UTB-YWC
 - For All Duct type



For use with wireless remote controller Model UTY-LNHU (must be purchased separately).

■ IR RECEIVER UNIT

- UTY-LBHDXD
 - For Circular flow cassette type



The wireless remote controller (Model: UTY-LNHU) is necessary separately

■ HUMAN SENSOR KIT

- UTY-SHZXC
 - For Circular flow cassette type



Touch Panel Wired RC (Model: UTY-RNRUZ*) is necessary.

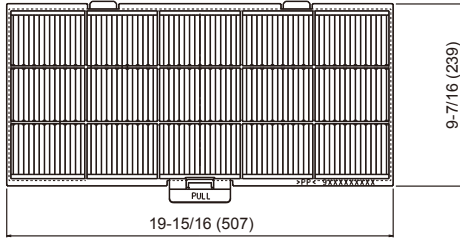
■ AUTO LOUVER GRILLE KIT

- UTD-GXSA-W, UTD-GXTA-W
 - For Mini duct
 - For Slim duct (7-14 models)
- UTD-GXSB-W, UTD-GXTB-W
 - For Slim duct (18 model)



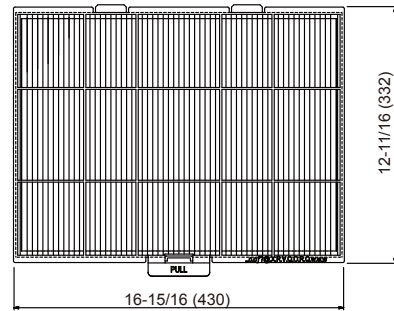
■ AIR FILTER

- UTD-LF25NA (2pcs.)
- For Medium Static Pressure Duct type



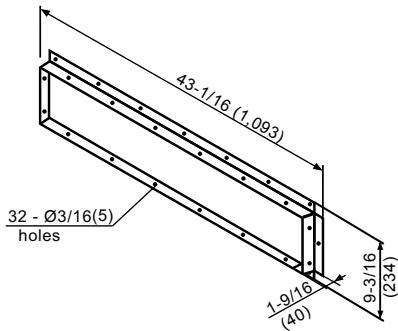
■ AIR FILTER

- UTD-LF60KA (2pcs.)
- For High Static Pressure Duct type



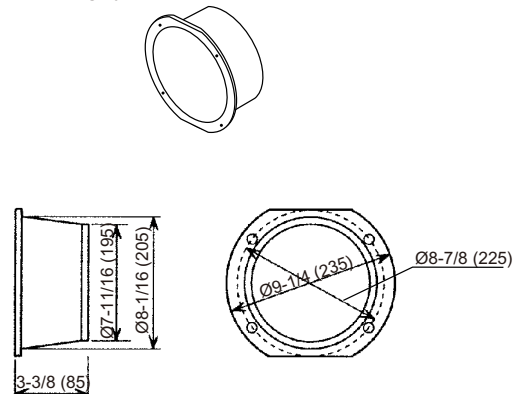
■ FLANGE (Square)

- UTD-SF045T
- For Medium Static Pressure Duct type



■ FLANGE (Round)

- UTD-RF204 (4pcs.)
- For Medium Static Pressure Duct type
- For Ceiling type



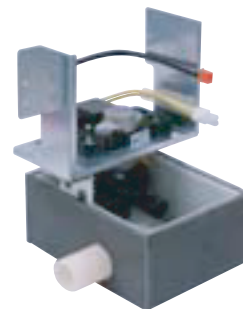
■ DRAIN PUMP UNIT

- UTZ-PU1NBA
- For Duct type



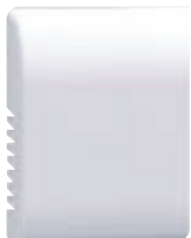
■ DRAIN PUMP UNIT

- UTR-DPB24T, UTZ-PU1EBA
- For Ceiling type



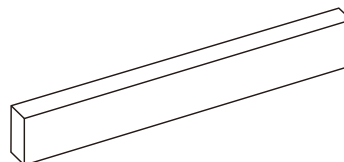
■ REMOTE SENSOR UNIT

- UTY-XSZX
 - For All Duct type



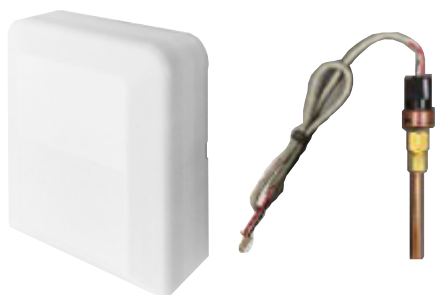
■ HALF CONCEALED KIT

- UTR-STA
 - For Compact Floor type



■ PRESSURE SENSOR KIT

- UTY-SPWX
 - For V-II series



Controller

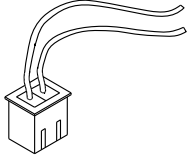
Sensor

Controller: Connect to Master outdoor unit

Sensor: On the closest pipe of the indoor unit

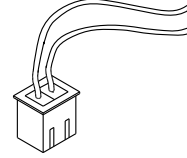
■ EXTERNAL CONNECT KIT

- UTY-XWZXZ6
- For Outdoor unit / RB unit



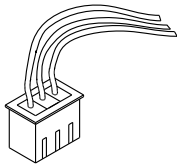
■ EXTERNAL CONNECT KIT

- UTY-XWZXZ7
- For Indoor unit /
Central remote controller



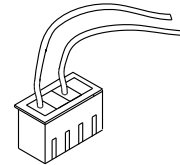
■ EXTERNAL CONNECT KIT

- UTY-XWZXZ8
- For Central remote controller



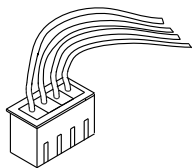
■ EXTERNAL CONNECT KIT

- UTY-XWZXZ9
- For Outdoor unit



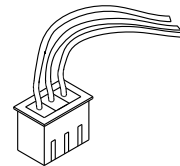
■ EXTERNAL CONNECT KIT

- UTY-XWZXZA
- For Touch panel controller /
Central remote controller



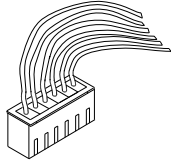
■ EXTERNAL CONNECT KIT

- UTY-XWZXZB
- For Indoor unit / RB unit



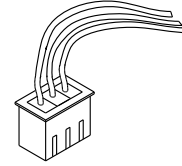
■ EXTERNAL CONNECT KIT

- UTY-XWZXZC
- For Indoor unit



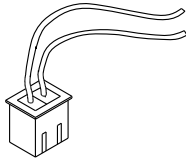
■ EXTERNAL CONNECT KIT

- UTY-XWZXZD
- For Indoor unit



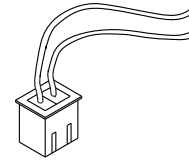
■ EXTERNAL CONNECT KIT

- UTY-XWZXZE
- For Indoor unit



■ EXTERNAL CONNECT KIT

- UTY-XWZXZF
- For Outdoor unit



9. OPTIONAL PARTS INSTALLATION

9-1. DRAIN PUMP UNIT

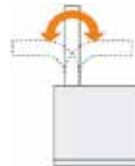
■ MODEL: UTZ-PU1NBA

● Specifications

	Unit	Specifications
Pump Lift-up	in. (mm)	Maximum 39-3/8 (1,000)
Power source	-	220-240V, 50/60Hz
Input Power (230V, 50/60Hz)	W	12 / 10.8
Current (230V, 50/60Hz)	mA	114 / 92
Dimensions (H × W × D)	in. (mm)	6-15/16 × 7 × 6-1/16 (176 × 178 × 154)
Weight	lbs. (kg)	6 (2.5)
Connection pipe diameter	in.	I.D.3/4, O.D.1-1/16
Direction of pipe connection *1	-	360°
Angle of pipe connection *2	-	0° (Horizontal)-90° (Vertical)
Control method	-	Control board of indoor unit
safety device	-	Float switch, Thermal fuse

*1: Direction of pipe connection

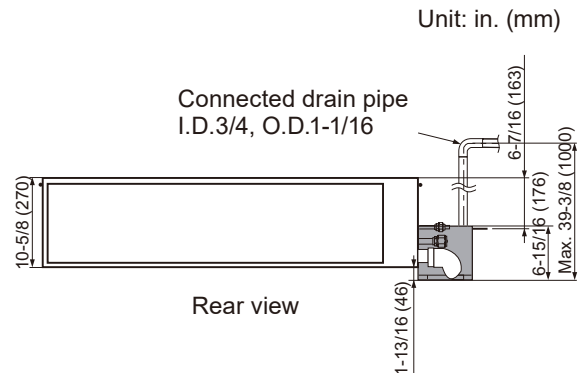
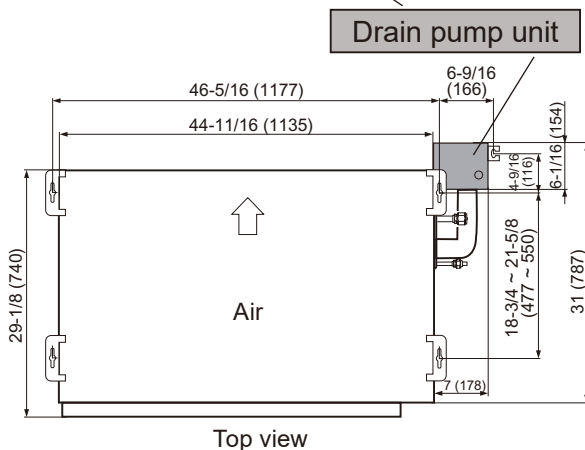
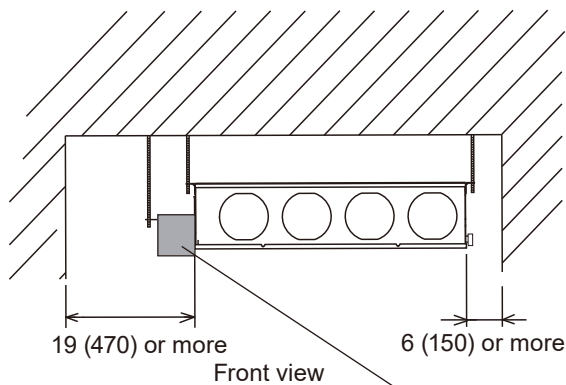
*2: Angle of pipe connection



● Application indoor units

Type	Model name
Duct	ARUM24TLAV, ARUM30TLAV, ARUM36TLAV

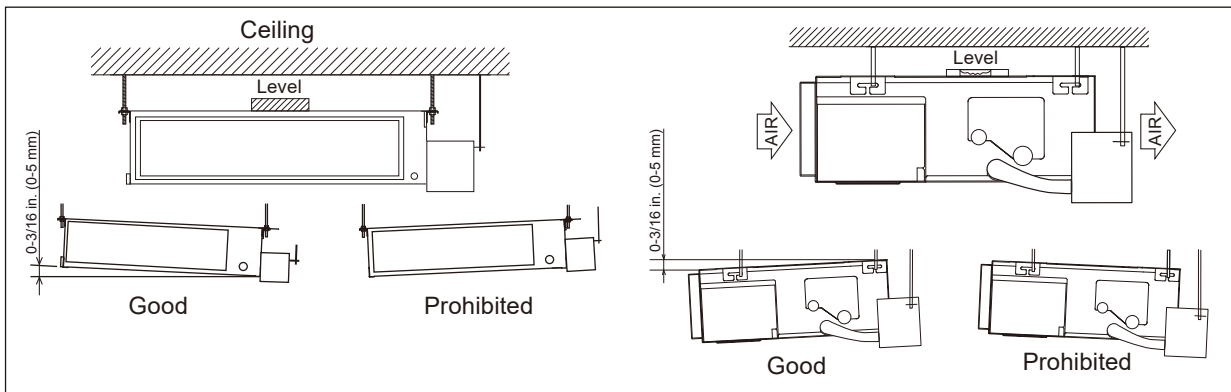
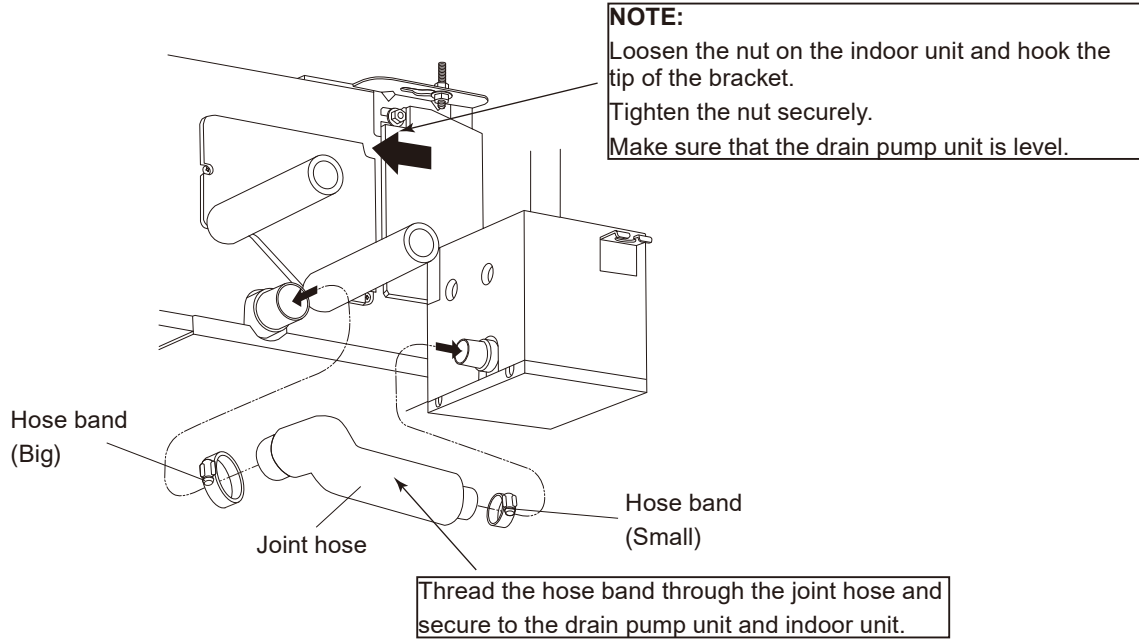
● Mounting position



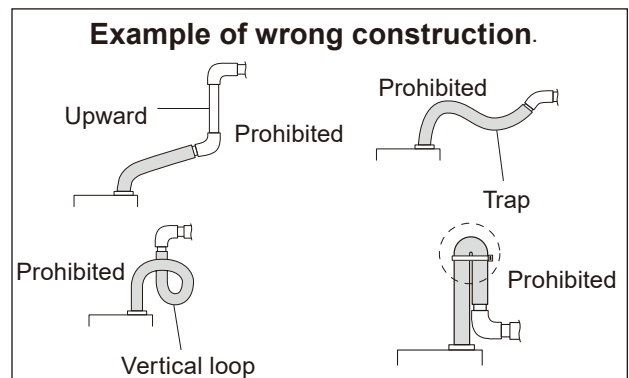
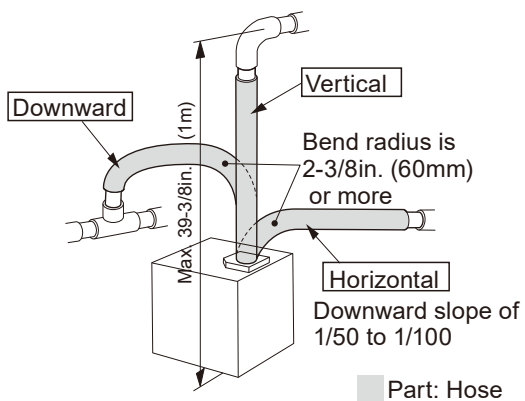
NOTE:

Leave space to service the unit. Make sure that a service access is left near the drain pump.

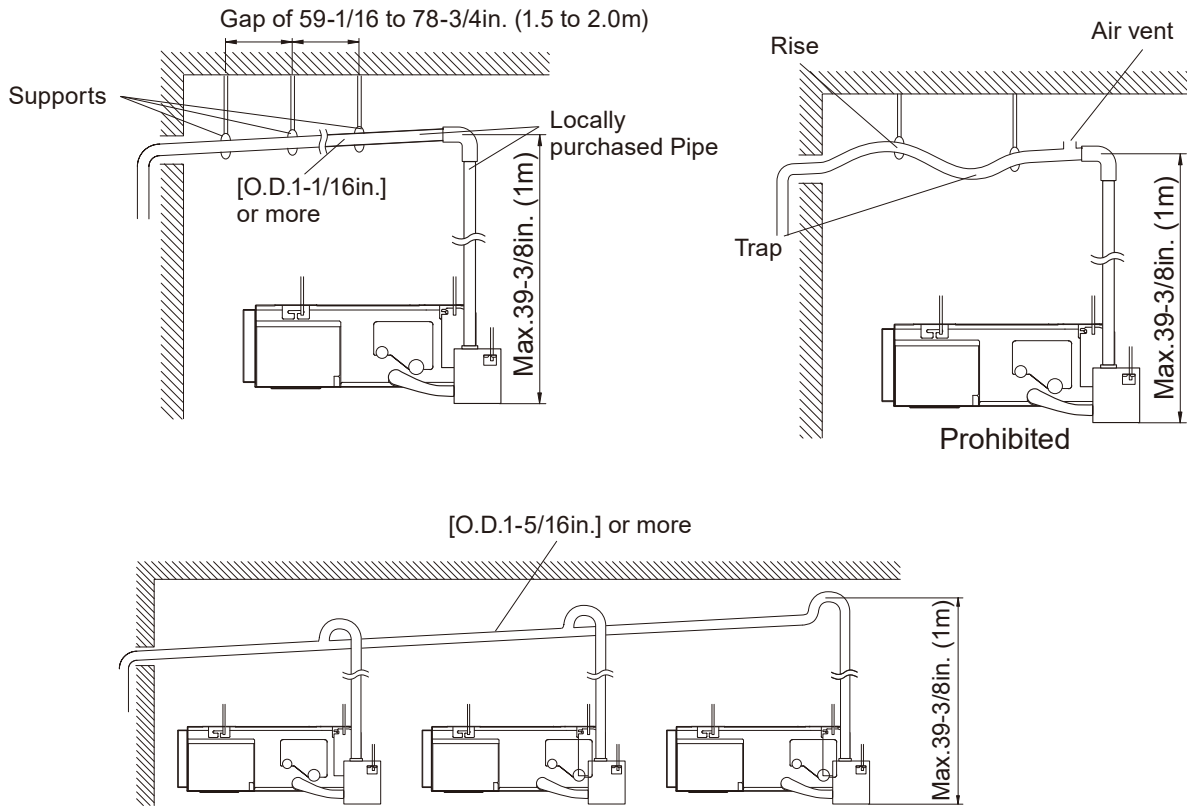
● Installing drain pump unit



● Installing hose

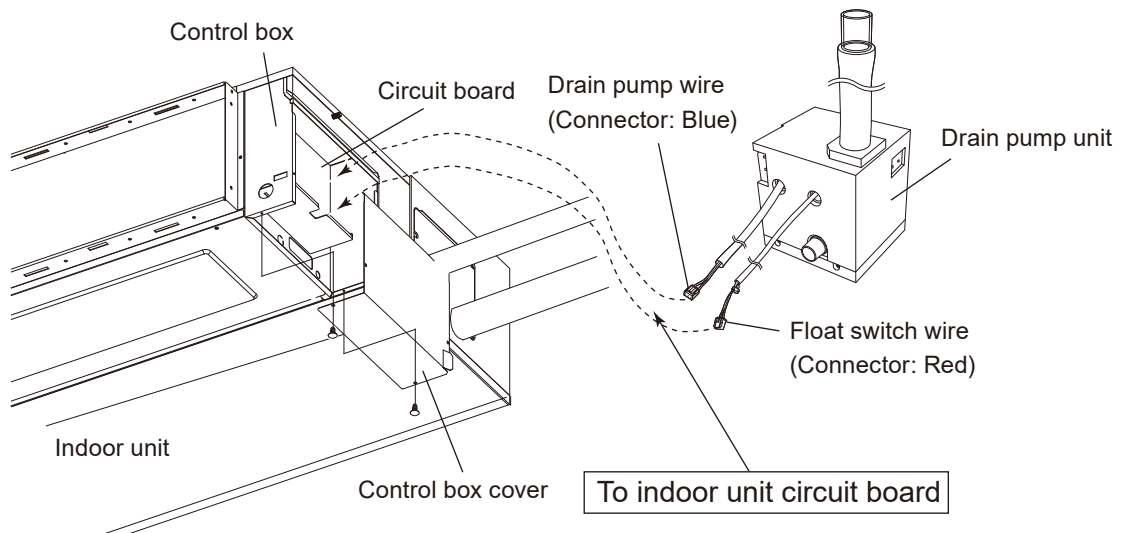


● Installing pipe



Observe the following procedures to construct centralized drain pipe fittings.

● Electrical wiring

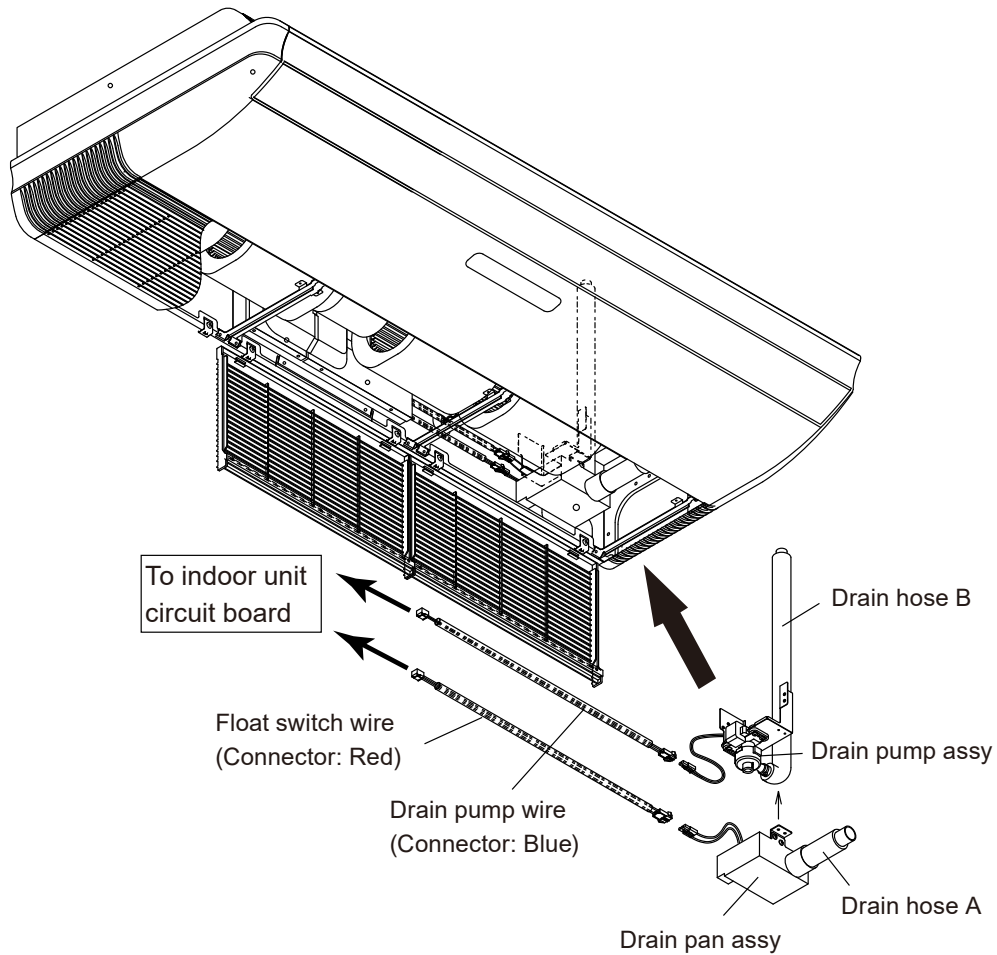


■ MODEL: UTZ-PU1EBA

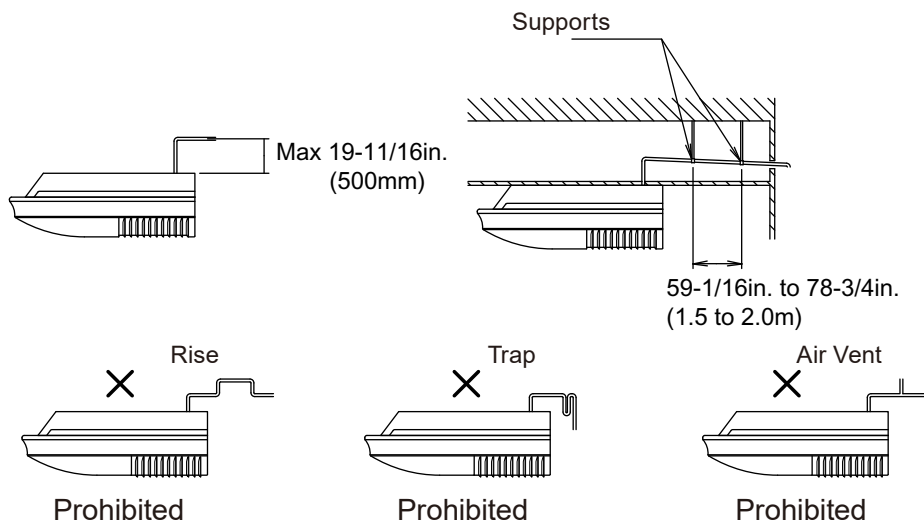
● Application indoor units

Type	Model name
Ceiling	ABUA30TLAV, ABUA36TLAV

● Installing drain pump unit & Electrical wiring



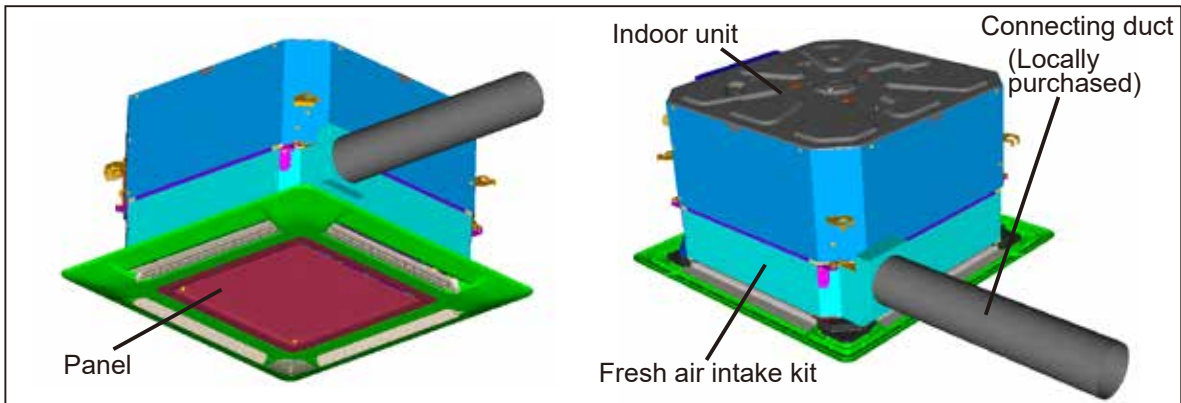
● Installing pipe



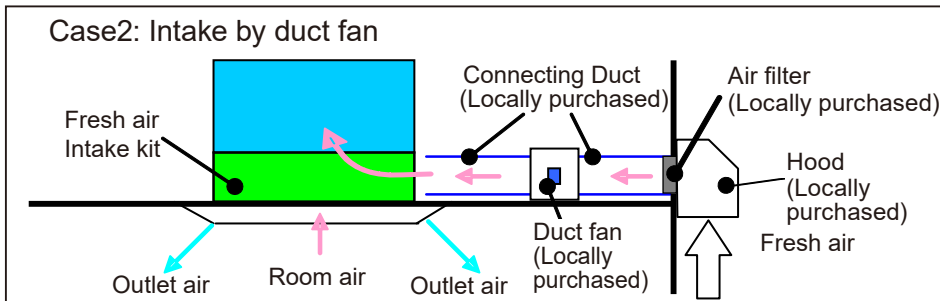
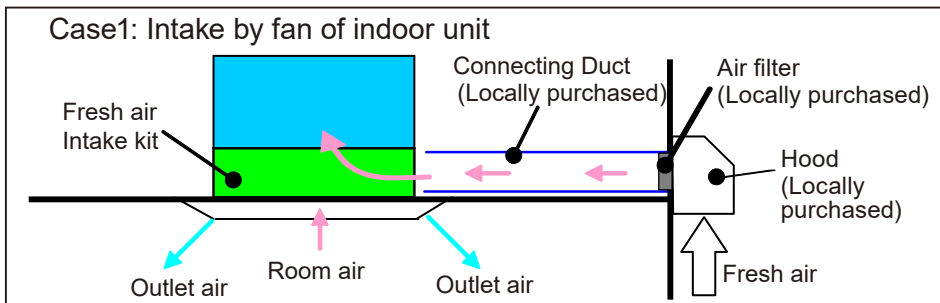
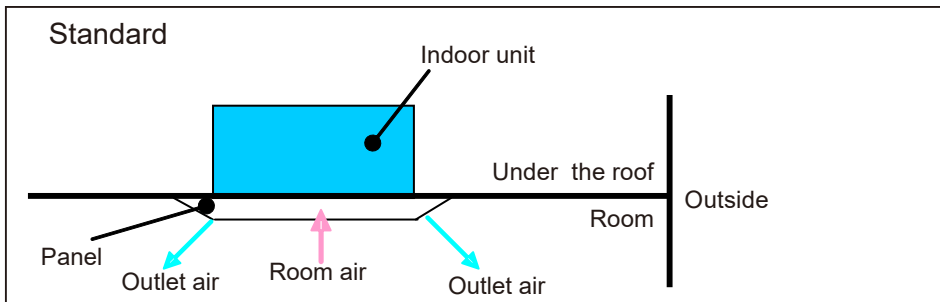
9-2. FRESH AIR INTAKE KIT (MODEL: UTZ-VXAA)

■ FEATURE

- Up to 10% of the units “high” air volume of outside air can be introduced into the “Fresh Air Intake Kit”.



■ INSTALLATION EXAMPLE



■ SPECIFICATIONS

Model name			UTZ-VXAA
Fresh air intake	Max. fresh air intake volume	%(for High)	10
Connection duct type		in. (mm)	ø 3-15/16 (100)
		Pcs	1
Dimension (H × W × D)	Net	in. (mm)	4-3/4 × 22-7/16 × 22-7/16 (120 × 570 × 570)
	Gross		6-1/2 × 23-1/16 × 23-1/16 (165 × 585 × 585)
Weight	Net	lbs. (kg)	8 (3.5)
	Gross		12 (5.5)

■ PRECAUTION

● About fresh air intake kit

- The Fresh Air Intake Kit can be installed onto cassette type air conditioners.
- The volume of ventilated air provided by the Fresh Air Intake Kit may be unable to fulfill ventilation regulations in all countries.
On such occasions we ask that this kit be used along with Energy recovery ventilators.
- When in taking outside air, ensure correct air-conditioning design as based on air-conditioning load calculations.
As outside air is not being processed an increase in outside air load can affect air conditioning.

● Installation location

- Areas that generate corrosive gases such as sulfuric acid, chlorine gas and alkalis that will cause copper pipes and brazed joints to corrode and could cause refrigerant leaks.
- Coastal areas with exposure to salt air. Salt air can cause corrosion leading to unit failure or condensate leaks.
- Be certain to use electric dampers and shutters to avoid infiltration of cold air, wind and fog during shutdown in areas with cold climates, strong winds, or where fogs are common.
- Ensure the product is installed a distance of at least three times the duct diameter away from exterior wall air inlets, or air exhausts for the prevention of short circuits.

● Temperature conditions

- Condensation may form on the product when outside air temperature is low, and the temperature and humidity surrounding the product are high. Do not intake the air of below 32°F (0°C) into the Fresh air intake kit.
- The unit should not be operated above the max outdoor operating temperature.

● About duct fan

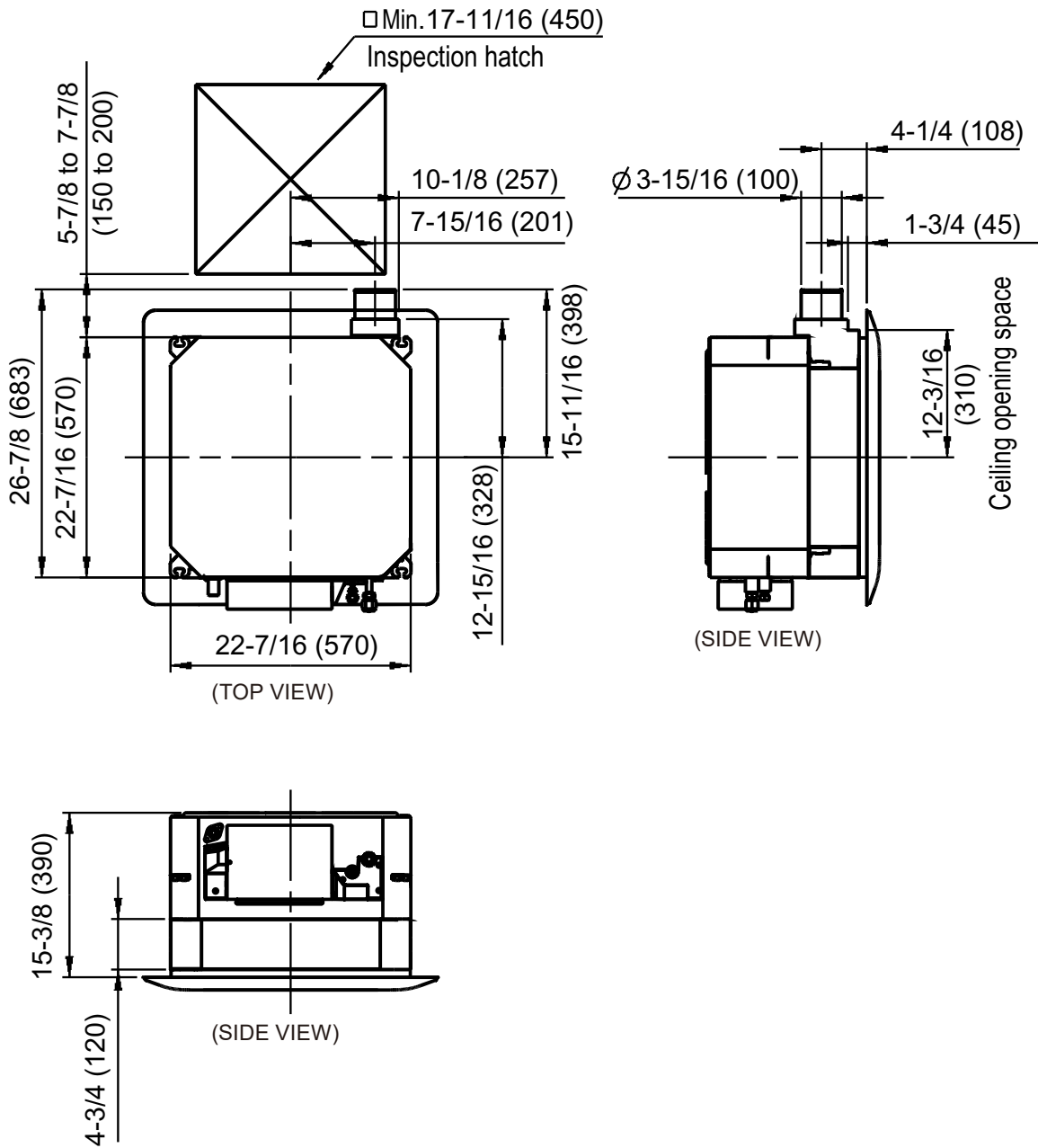
- When installing the duct fan, connect the drive relay (locally purchased) and operate with the indoor unit.
- Ensure that outside air introduced into the unit is below 10% of the units "high" air volume. Exceeding this limit could cause excessive noise temperature fluctuations.

● About the duct connection

- Procure a duct with internal diameter that fits the external diameter of the duct flange.
- Note that regulations of some countries may require the use of a nonflammable duct.
- If the duct penetrates a fire-retarding division or other fire-proofing measures, the installation of fire dampers, or a construction that does not adversely affect fire control measures is a regulatory requirement of some countries.
- When using metallic ducts, ensure metals (i.e., metal lath, wire lath, stainless sheeting) are electrically insulated. (A short occurring by electrical connection can cause fire)
- Ensure to thermally insulate connected ducts to prevent condensation.
- Make certain that netting or other measures are installed in parts exposed to the outside air to prevent infiltration of small animals such as birds and insects.
- Install filters on the outside air to protect the indoor unit heat exchanger.
- Avoid the infiltration of rain water by installing outside ducts with an incline of at least 1/30, and fitting hoods on openings.

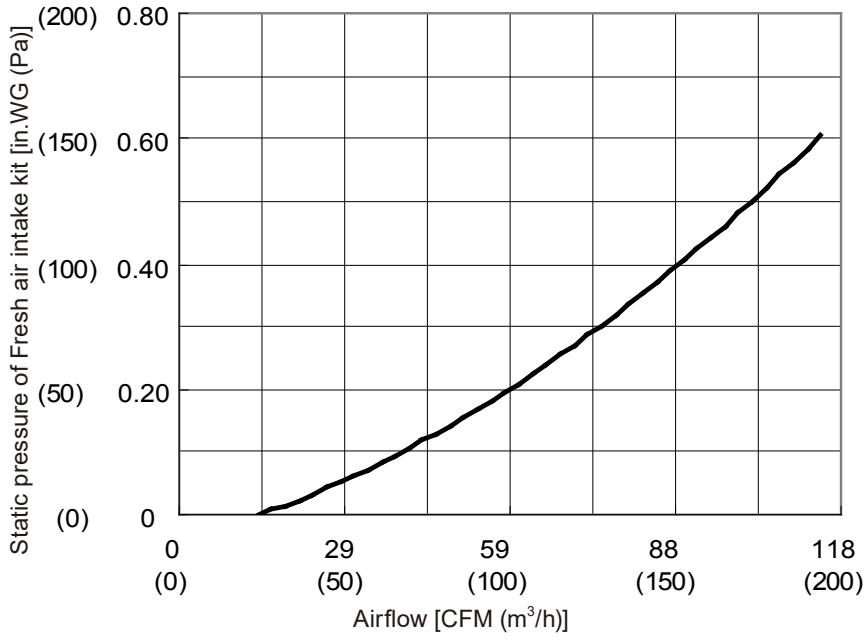
■ DIMENSIONS

Unit: in. (mm)

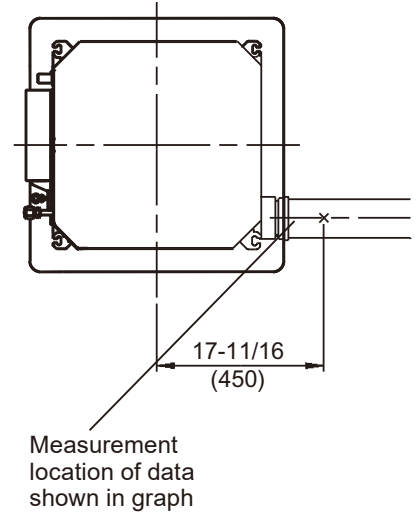


- When installing this kit, inspection hatch is necessary. (It is necessary when servicing.)

■ AIRFLOW



Unit: in. (mm)

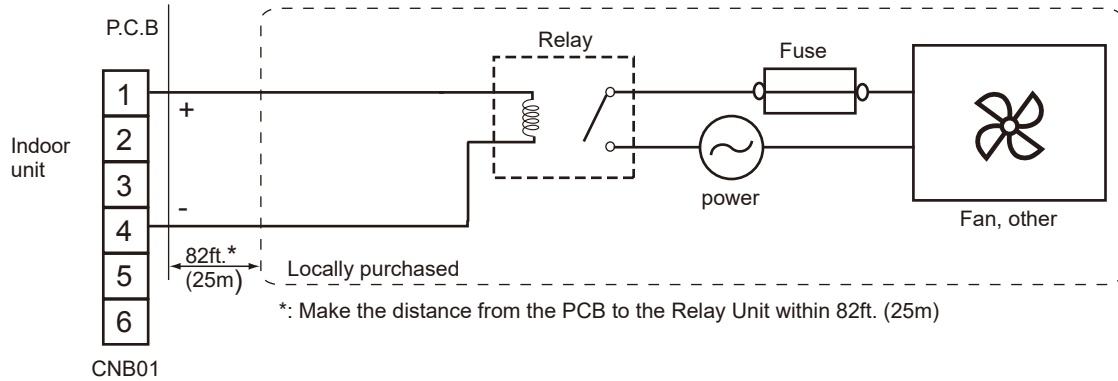


■ FRESH AIR CONTROL OUTPUT

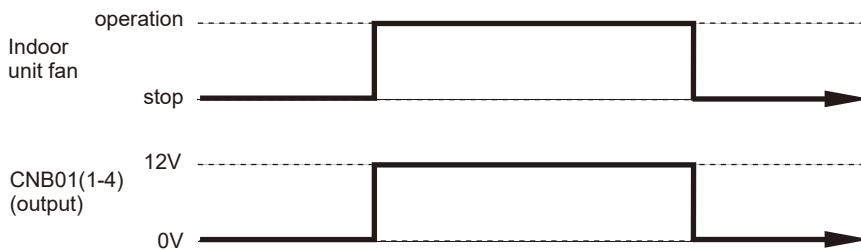
- You can control duct fan by synchronization with fan operation of indoor unit.
- Wire for fresh air control output is supplied with Fresh Air Intake Kit.
- Extended length of the wire : Max. 82ft. (25m)

● Connection diagram

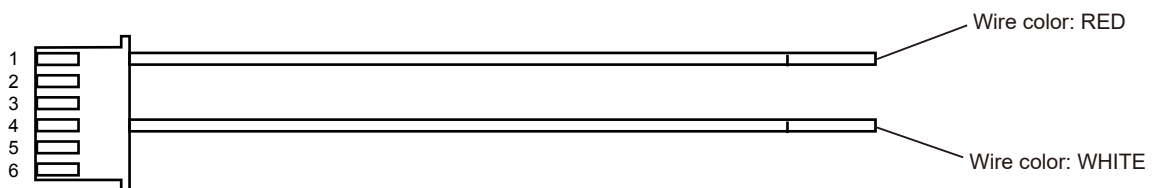
- For Relay Output voltage: DC12 ± 2V
Permissible current: 50mA





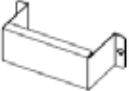


● Indoor unit status









● Wire (External output ③)



■ ACCESSORY PARTS

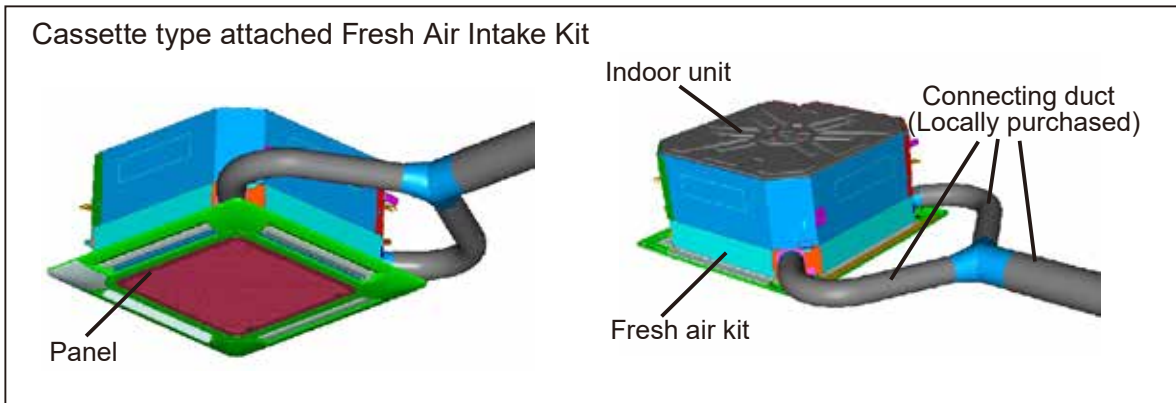
Name and shape	Q'ty	Application
Installation manual 	1	
Chamber 	1	Adaptor for connecting duct
Wire cover 	1	Cover for extension wire
Screw 	4	Attaching for chamber Attaching for wire cover
Extension wire for louver 	2	Extension wire for louver

Name and shape	Q'ty	Application
Extension wire for receiver kit 	1	Extension wire for receiving kit
Wire (External output ①) 	1	For connect indoor unit to relay of duct fan (For single or multi)
Wire (External output ②) 	1	For connect indoor unit to relay of duct fan (For VRF)
Wire (External output ③) 	1	For connect indoor unit to relay of duct fan (For VRF)
Bolt 	4	For attaching kit to indoor unit
Cable Tie 	1	For securing wire

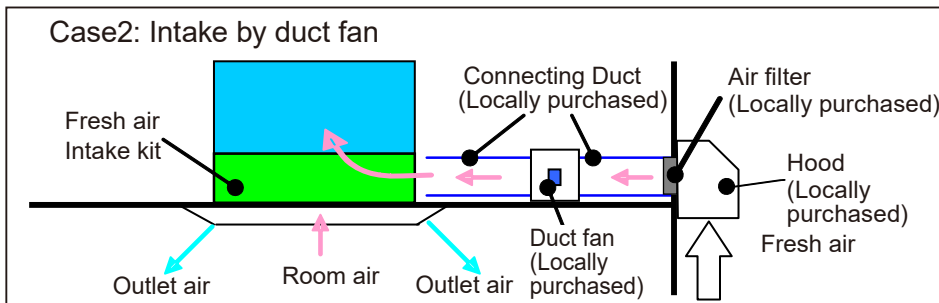
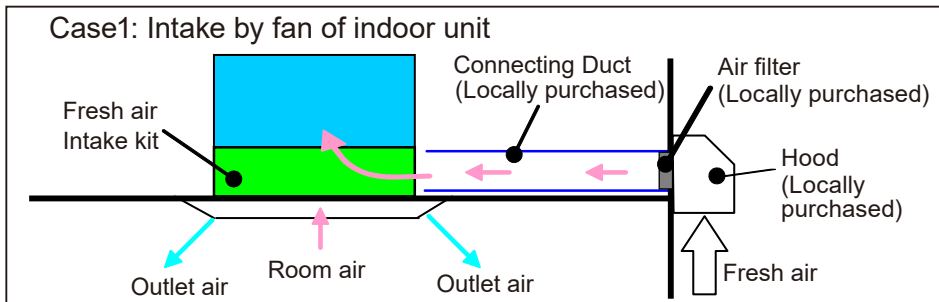
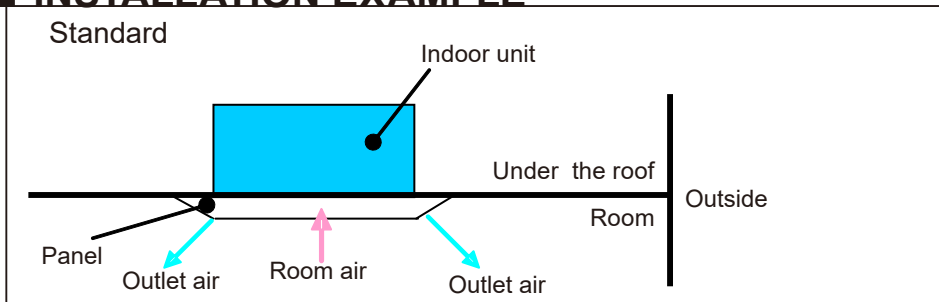
9-3. FRESH AIR INTAKE KIT (MODELS: UTZ-VXRA, UTZ-VXGA)

■ FEATURE

- Up to 10% of the units “high” air volume of outside air can be introduced into the “Fresh Air Intake Kit”.



■ INSTALLATION EXAMPLE



■ SPECIFICATIONS

Model name				UTZ-VXRA, UTZ-VXGA
Fresh air intake	Max. fresh air intake volume	% (for High)	2- way intake	10
			1- way intake	5
Connection duct type		in. (mm)		ø 3-15/16 (100)
		Pcs		2
Dimension (H × W × D)		in. (mm)	Net	4-3/4 × 33-1/16 × 33-1/16 (120 × 840 × 840)
			Gross	6-1/2 × 33-7/8 × 33-7/8 (165 × 860 × 860)
Weight		lbs. (kg)	Net	12 (5.5)
			Gross	20 (9.0)

■ PRECAUTION

● About fresh air intake kit

- The Fresh Air Intake Kit can be installed onto cassette type air conditioners.
- The volume of ventilated air provided by the Fresh Air Intake Kit may be unable to fulfill ventilation regulations in all countries.

On such occasions we ask that this kit be used along with Energy recovery ventilators.

- When in taking outside air, ensure correct air-conditioning design as based on air-conditioning load calculations.

As outside air is not being processed an increase in outside air load can affect air conditioning.

● Installation location

- Areas that generate corrosive gases such as sulfuric acid, chlorine gas and alkalis that will cause copper pipes and brazed joints to corrode and could cause refrigerant leaks.
- Coastal areas with exposure to salt air. Salt air can cause corrosion leading to unit failure or condensate leaks.
- Be certain to use electric dampers and shutters to avoid infiltration of cold air, wind and fog during shutdown in areas with cold climates, strong winds, or where fogs are common.
- Ensure the product is installed a distance of at least three times the duct diameter away from exterior wall air inlets, or air exhausts for the prevention of short circuits.

● Temperature conditions

- Condensation may form on the product when outside air temperature is low, and the temperature and humidity surrounding the product are high. Do not intake the air of below 32°F (0°C) into the fresh air intake kit.
- The unit should not be operated above the max outdoor operating temperature.

● About duct fan

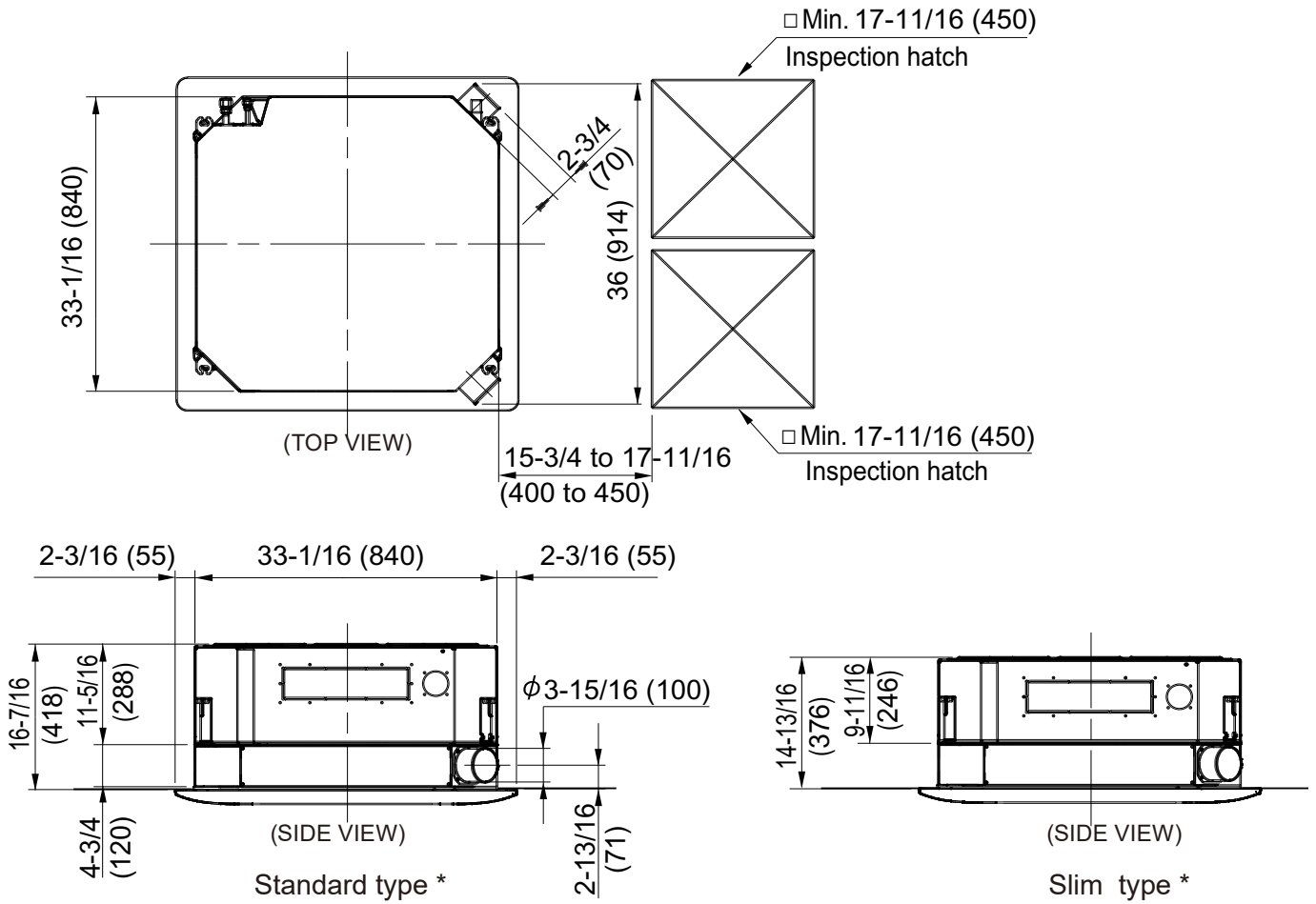
- When installing the duct fan, connect the drive relay (locally purchased) and operate with the indoor unit.
- Ensure that outside air introduced into the unit is below 10% of the units "high" air volume. Exceeding this limit could cause excessive noise temperature fluctuations.

● About the duct connection

- Procure a duct with internal diameter that fits the external diameter of the duct flange.
- Note that regulations of some countries may require the use of a nonflammable duct.
- If the duct penetrates a fire-retarding division or other fire-proofing measures, the installation of fire dampers, or a construction that does not adversely affect fire control measures is a regulatory requirement of some countries.
- When using metallic ducts, ensure metals (i.e., metal lath, wire lath, stainless sheeting) are electrically insulated. (A short occurring by electrical connection can cause fire)
- Ensure to thermally insulate connected ducts to prevent condensation.
- Make certain that netting or other measures are installed in parts exposed to the outside air to prevent infiltration of small animals such as birds and insects.
- Install filters on the outside air to protect the indoor unit heat exchanger.
- Avoid the infiltration of rain water by installing outside ducts with an incline of at least 1/30, and fitting hoods on openings.

■ DIMENSIONS

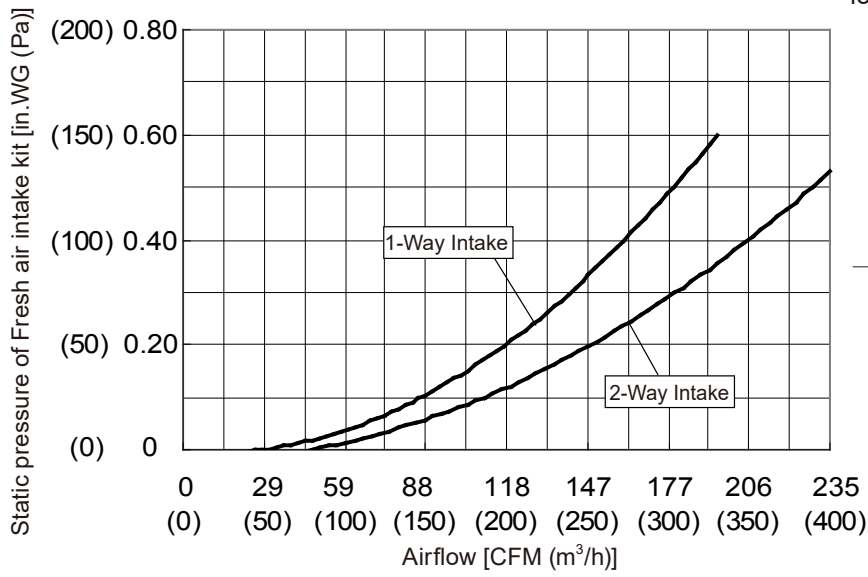
Unit: in. (mm)



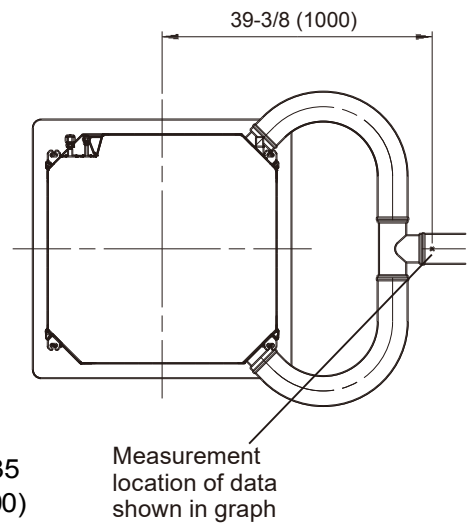
*: The size is different according to indoor unit used.

- When installing this kit, inspection hatch is necessary. (It is necessary when servicing.) Either one of inspection hatches must be installed.

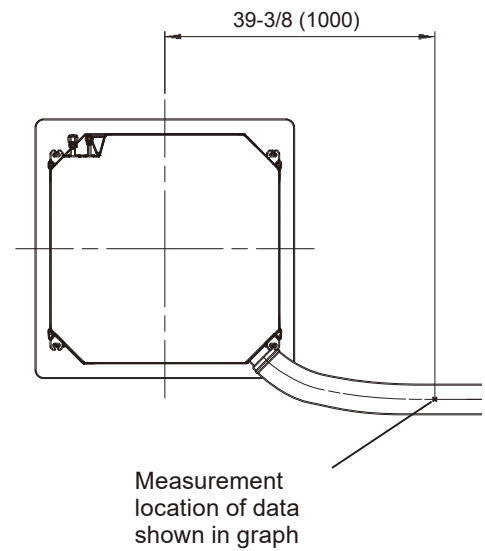
AIRFLOW



for 2-Way Intake Unit: in. (mm)



for 1-Way Intake

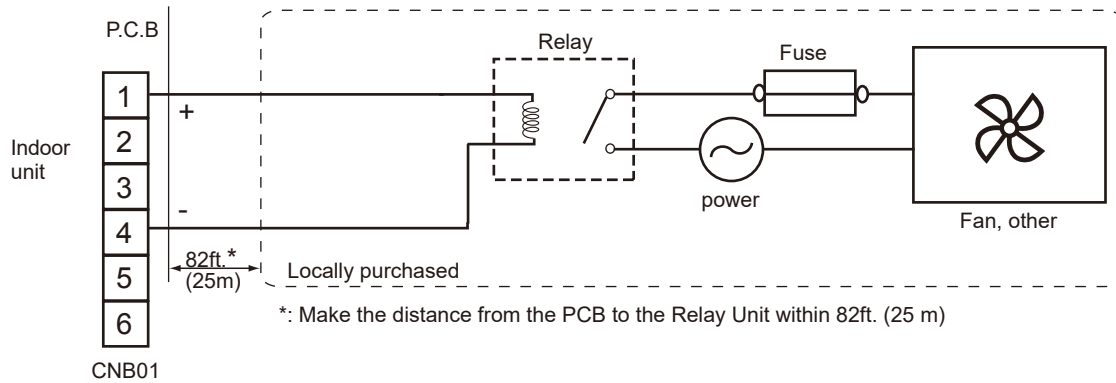


■ FRESH AIR CONTROL OUTPUT

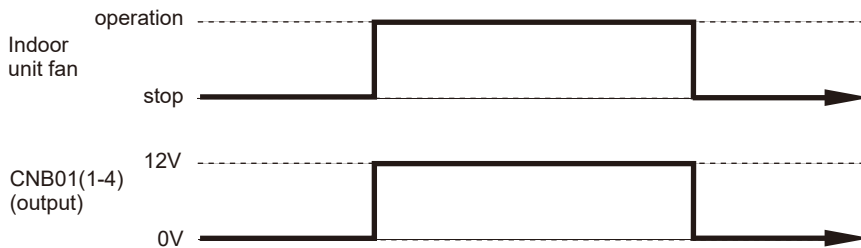
- You can control duct fan by synchronization with fan operation of indoor unit.
- Wire for fresh air control output is supplied with Fresh Air Intake Kit.
- Extended length of the wire: Max. 82ft. (25m)

● Connection diagram

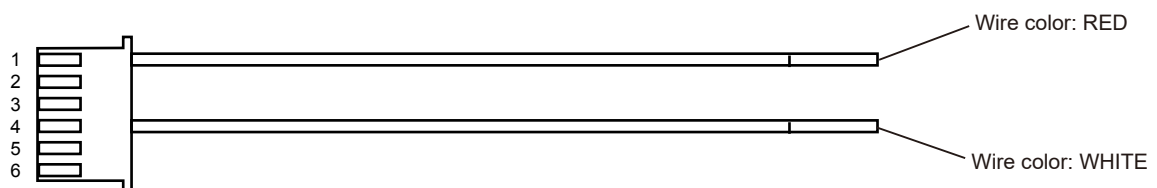
- For Relay Output voltage: DC12 ± 2V
Permissible current: 50mA











● Indoor unit status

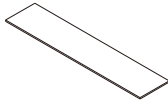










● Wire (External output ③)



■ ACCESSORY PARTS

Name and shape	Q'ty	Application
Installation manual 	1	
Duct Flange 	2	Adaptor for connecting duct
Cover 	2	Protective cover to prevent surface condensation
Screw 	16	For Attaching duct flange For Attaching Cover
Hook plate 	4	Plate for attaching panel
Shutter plate 	1	Shutter plate for 1-way intake
Insulation ① 	2	Affixing the insulation outside of the kit
Insulation ② 	1	Affixing the insulation to tube of drain pump for prevent condensation

Name and shape	Q'ty	Application
Insulation ③ 	3	Affixing the insulation outside of the kit
Insulation ④ 	4	Affixing the insulation outside of the cover
Cable Tie 	1	Securing tube of drain pump
Extension wire for louver  white red	2	Extension wire for louver
Extension wire for receiver kit 	1	Extension wire for receiver kit
Wire (External output ①) 	1	For connect indoor unit to relay of duct fan
Wire (External output ②) 	1	For connect indoor unit to relay of duct fan
Wire (External output ③) 	1	For connect indoor unit to relay of duct fan (For VRF)
Bolt 	4	For attaching the kit to indoor unit

9-4. AUTO LOUVER GRILLE KIT

■ MODELS:

UTD-GXSA-W, UTD-GXTA-W

UTD-GXSB-W, UTD-GXTB-W

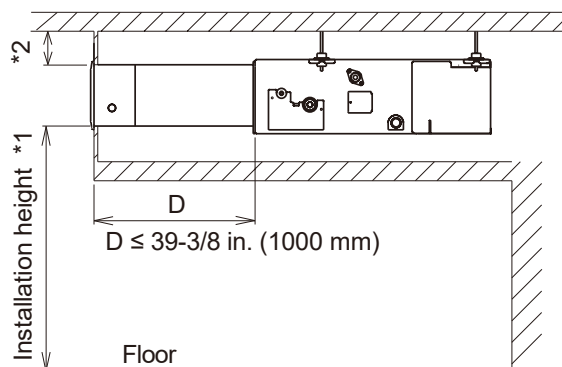
■ SPECIFICATIONS

Model name		UTD-GXSA-W UTD-GXTA-W	UTD-GXSB-W UTD-GXTB-W
Power Supply		Connecting with Control box of indoor unit	
Attachment of Auto Louver		Louver attached by screws to the flange or rectangular duct	
Extension Square Duct Limit	in. (mm)	39-3/8 (1.0) (Max. duct length between indoor unit and Grille)	
Net Dimension (H × W × D)	in. [mm]	7-1/16 × 26-7/8 × (3-5/16 + 3/8) [180 × 683 × (84 + 9)]	7-1/16 × 34-3/4 × (3-5/16 + 3/8) [180 × 883 × (84 + 9)]
Weight	Net	4.4 (2.0)	5.6 (2.5)
	Gross	6.7 (3.0)	7.8 (3.5)
Color		White	
Louver Motor		Stepping Motor	
Material		Flame retardant ABS	
Accessories		Attachment Frame	
Operation range	Cooling	°F (°C)	64 to 90 (18 to 32)
		% RH	80% or less
	Heating	°F (°C)	60 to 88 (16 to 30)

■ PRECAUTION

- Select the installation location that meets the following requirement and that is approved by the customer.

- Cold and warm air should reach the entire room.



*1) Refer to Design & Technical manual for Air velocity distribution and Air temperature distribution during heating.

*2) If the distance from the ceiling is not adequate, it may cause mildew stains on the wall or the ceiling. Install at least 5-7/8" (150 mm) away from any surface.

- Do not install the unit in the following areas

- Near an entrance to the room. This may cause condensation on the outlet.
- Near a wall surface. It may cause condensation on the wall during cooling.
- Area filled with mineral oil or containing a large amount of splashed oil or steam, such as a kitchen.
- In direct sunlight. This may cause discoloration of the unit.

- When the installation area is exposed to direct sunlight, take measures to block the light such as curtains or blinds to prevent discoloration of the unit.

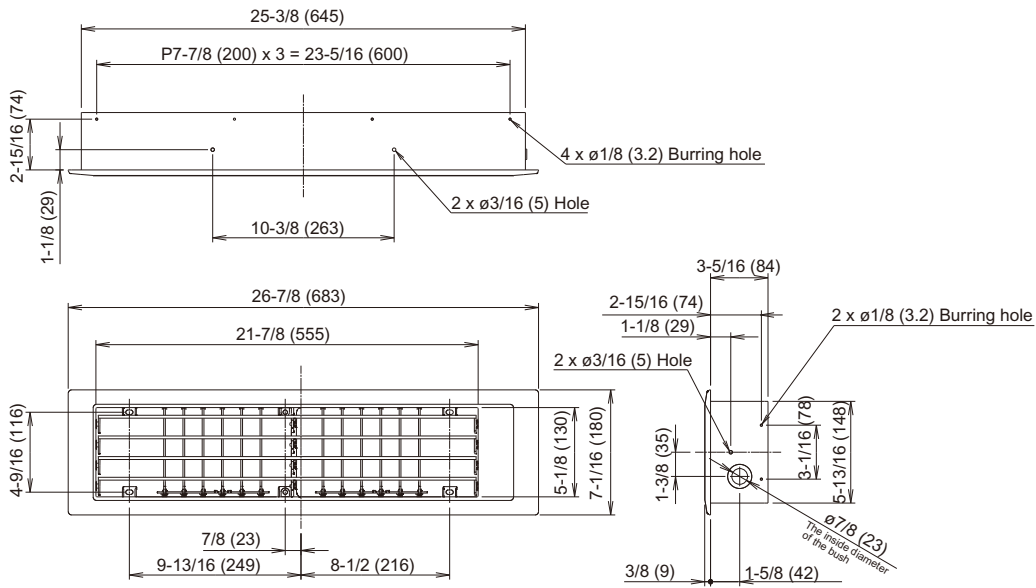
- Use an appropriate Grille that is compatible with the indoor unit. If not used with the correct combination, it may cause condensation.

- Perform heat insulation and field setting according the Design & Technical manual of Indoor unit. Not installing as per the instructions may cause condensation.

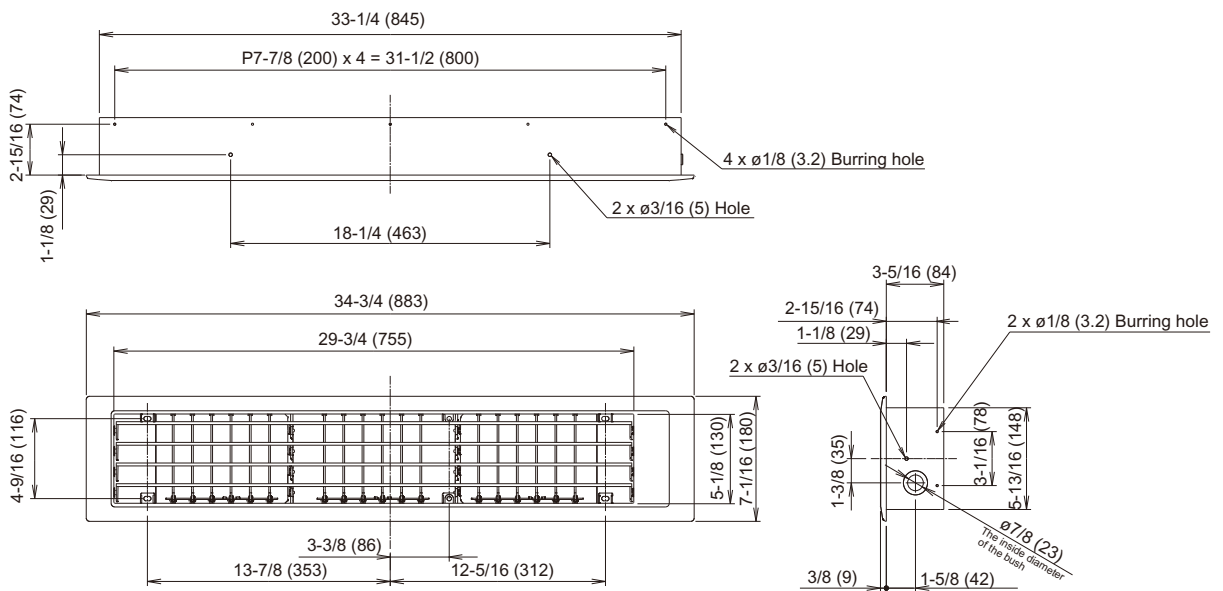
■ DIMENSIONS

● MODELS : UTD-GXSA-W, UTD-GXTA-W



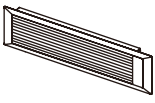
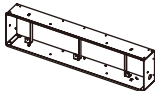
Unit : in. (mm)

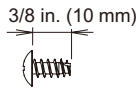
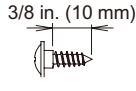





● MODELS : UTD-GXSB-W, UTD-GXSB-W



■ ACCESSORY PARTS

Name and shape	Q'ty
Installation manual 	1
Operating manual 	1
Grille 	1
Bracket frame 	1

Name and shape	Q'ty
Screw-A 	16
Screw-B 	6
Cable clip 	2
Cable tie 	3
Bushing 	1

AIRSTAGE™ VR-II

Variable Refrigerant Flow System



FUJITSU GENERAL LIMITED

3-3-17, Suenaga, Takatsu-ku, Kawasaki 213-8502, Japan

URL : <http://www.fujitsu-general.com>

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