Haier



SUPER MATCH

Service Manual

SYJS-06-2018 REVB Edition: 2018-06

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Part 1 General Information

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1. Indoor/outdoor unit models

Indoor unit models

4-way Cassette Type (PB-700IB) AB09CS1ERA AB09CS2ERA AB12CS1ERA(S) AB12CS2ERA(S) AB18CS1ERA(S) AB18CS2ERA(S) 	**Low ESP duct (25Pa)** AD12LS1ERA AD18LS1ERA AD24LS1ERA 
4-way Cassette Type (PB-950JB) AB24ES1ERA(S) AB28ES1ERA(S) 	**Medium ESP duct (70Pa)** AD12MS1ERA AD12MS1ERA(D) AD18MS1ERA AD18MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) AD28MS2ERA(S) AD28MS2ERA(S)(D) 
4-way Cassette Type (PB-950JB) AB36ES1ERA(S) AB48ES1ERA(S) AB60ES2ERA(S) 	**Medium ESP duct (70Pa)** AD24MS1ERA AD24MS1ERA(D)  AD28NS1ERA(S) AD36NS1ERA(S) AD48NS1ERA(S) 
4-way Cassette Type (PB-1340IB) AB60CS1ERA(S) 	**Medium ESP duct (150Pa)** AD48HS1ERA(S) AD60HS1ERA(S) 
Slim Low ESP duct (30Pa) AD09SS1ERA(N)(P) AD12SS1ERA(N)(P) AD18SS1ERA(N)(P) AD24SS1ERA(N)(P)  AD09SS1ERA(N) AD12SS1ERA(N) AD18SS1ERA(N) AD24SS1ERA(N) AD09SS1ERA AD12SS1ERA AD18SS1ERA AD24SS1ERA	**Cabinet type** AP48DS1ERA(S)  AP48KS1ERA(S) AP60KS1ERA(S) 

Outdoor unit models

1U24GS1ERA 	3U19FS1ERA 3U19FS1ERA(N) 
1U28HS1ERA(S) 1U28GS2ERA(S) 1U36HS1ERA(S) 	3U24GS1ERA 3U24GS1ERA(N) 
1U48LS1ERA(S) 1U48LS1ERB(S) 1U48LS1EAB(S) 	4U26HS1ERA 4U30HS1ERA 5U34HS1ERA 
1U48IS1ERB(S) 1U48IS1EAB(S) 1U60IS1ERB(S) 1U60IS2ERB(S) 1U60IS1EAB(S) 1U48IS1EAB(S) 1U60IS2EAB(S) 	5U45LS1ERA 

2. Feature

2.1 Easy Instalaltion, More User Friendly

• Easy vacuum & charging

Vacuum and charging every indoor unit just one time from general stop valve(1:4 to 1:5 outdoor unit)



General stop valve

• Easy start up& maintenance

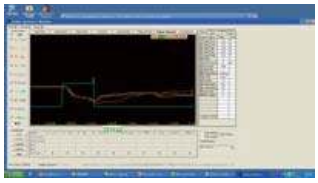
§ Wiring & piping check program: When start up, PCB programme can check wiring & piping correctness automatically, only need 10min for every indoor unit. If something wrong, the outdoor unit malfunction display screen will show code. Boost the start up correctness.



§ One screw maintenance panel:New maintencance panel is fixed on the side panel, installer only take down the maintencan panel by take down only one screw, then to check the compressor running frequency and error from the double 8 screen.

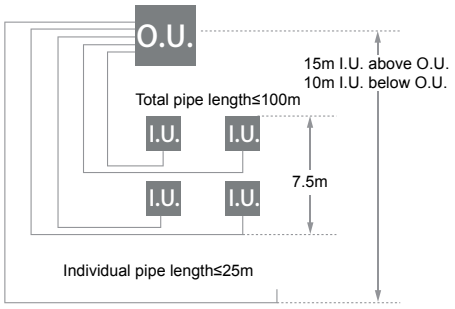


§ In start up & maintenance, software can connect with outdoor unit by TD-02, read all indoor unit & outdoor unit running parameter, also with the function to show parameter curve. When malfunction happen, show failure code.



2.2 Wider Installation

• Wider installation

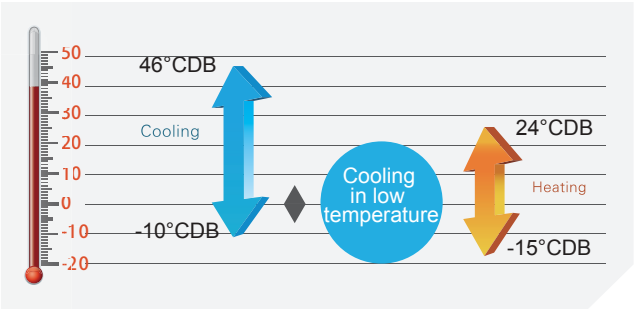


• Wider range operation:

Wider range operation of outside temperature

Cooling: from -10°C to 46°C

Heating: from -15°C to 24°C



2.3 Easy control

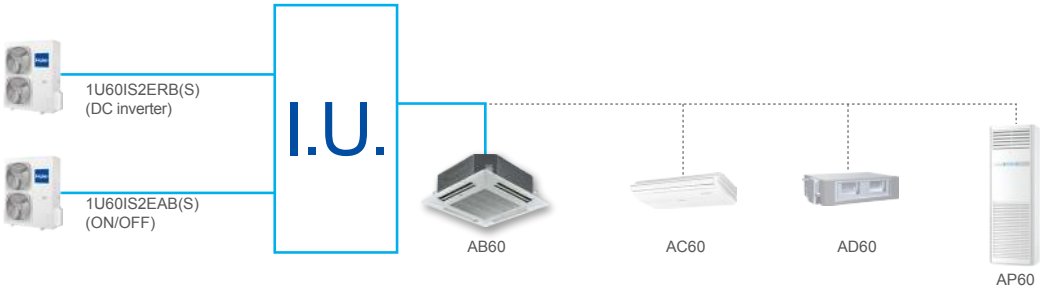
The universal wireless controller for console, cassette, convertible, duct can be used for everyone easily



Separate cool, heat, dry, quiet buttens easy to use!

2.4 Easy Stock

Indoor units are universal insoor units for inverter combination or ON/OFF combination.



Indoor units are universal indoor units for single split combination or maxi split **combination or multi split combination**



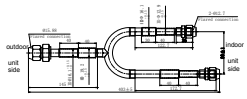
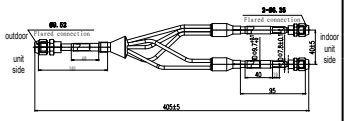
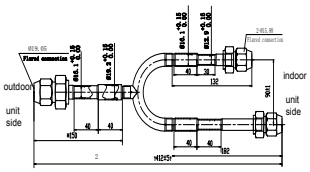
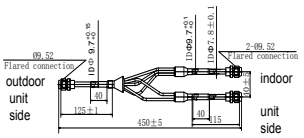
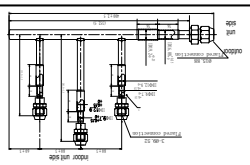
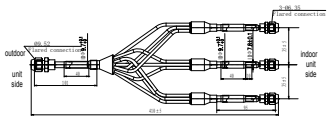
3. Maxi split and function

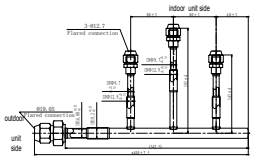
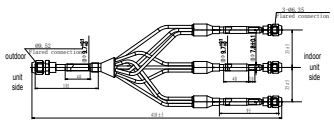
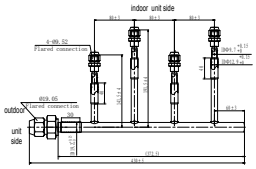
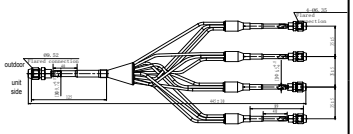
What is Maxi: The maxi split is that outdoor unit connect with 2/3/4 same model indoor units to realize comfortable air flow with all indoor units turning on or off all in the same time.

3.1 Match table

Outdoor model	AB12CS1ERA(S) AB12CS2ERA(S)	AB18CS1ERA(S) AB18CS2ERA(S)	AB24ES1ERA(S)	AB28ES1ERA(S)
1U36HS1ERA(S)	3	2	/	/
1U48LS1ERA(S)	4	3	2	/
1U48LS1ERB(S)	4	3	2	/
1U48IS1ERB(S)	4	3	2	/
1U60IS1ERB(S)	4	3	/	2
1U60IS2ERB(S)	4	3	2	/
Outdoor model	AC12CS1ERA(S)	AC18CS1ERA(S)	AC24ES1ERA(S)	AC28ES1ERA(S)
1U36HS1ERA(S)	3	2	/	/
1U48LS1ERA(S)	4	3	2	/
1U48LS1ERB(S)	4	3	2	/
1U48IS1ERB(S)	4	3	2	/
1U60IS1ERB(S)	4	3	/	2
1U60IS2ERB(S)	4	3	2	/

3.2 Branch pipe table

The matching table of MAXI SPLIT Series					
Outdoor unit Model	Indoor Unit Model	Number of indoor Units	Gas pipe	Liquid pipe	Branch pipe Model
1U36HS1ERA(S)	AB18CS1ERA(S) AB18CS2ERA(S)	2			FQG-2Y100A
	AC18CS1ERA(S)	2			
1U48LS1ERA(S) 1U48LS1ERB(S) 1U48IS1ERB(S) 1U60IS2ERB(S)	AB24ES1ERA (S)	2			FQG-2Y200A
	AC24CS1ERA(S)	2			
1U60IS1ERB(S)	AB28ES1ERA (S)	2			
	AC28ES1ERA(S)	2			
1U36HS1ERA(S)	AB12CS1ERA (S) AB12CS2ERA (S)	3			FQG-3Y100A
	AC12CS1ERA(S)	3			

The matching table of MAXI SPLIT Series					
Outdoor unit Model	Indoor Unit Model	Number of indoor Units	Gas pipe	Liquid pipe	Branch pipe Model
1U48LS1ERA(S) 1U48LS1ERB(S) 1U48IS1ERB(S) 1U60IS1ERB(S) 1U60IS2ERB(S)	AB18CS1ERA(S) AB18CS2ERA (S)	3			FQG-3Y200A
	AC18CS1ERA(S)	3			
1U48LS1ERA(S) 1U48LS1ERB(S) 1U48IS1ERB(S) 1U60IS1ERB(S) 1U60IS2ERB(S)	AB12CS1ERA(S) AB12CS2ERA (S)	4			FQG-4Y200A
	AC12CS1ERA(S)	4			
Note: *For MAXI series models, please choose suitable Branch pipes according to combinations of indoor and outdoor unit ; detailed installation methods and precautions, please refer to the installation instructions of the Branch pipes ; Branch pipes is an optional component; please purchase separately according to the actual installation requirements;*					

3.3 Feature

• Easy Pipe Connection

Maxi split pipe connection takes flared way, not the traditional welding way,easier for installation work.

• Not need to set address

Not matter indoor units are 2/3/4 pieces in the system, installer don't need to set address in indoor units, master indoor unit will programmed automaticalall. All other indoor units autpmatic become slave insoor units.

Part 2 Indoor Units

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1.1 Features



AB09CS1ERA
AB09CS2ERA
AB12CS1ERA(S)
AB12CS2ERA(S)
AB18CS1ERA(S)
AB18CS2ERA(S)





AB24ES1ERA(S)



AB36ES1ERA(S)
AB48ES1ERA(S)
AB60ES2ERA(S)



AB60CS1ERA(S)

Compact Design (Only for units AB12-AB18)
The panel dimension is 700mm*700mm, smaller and universal. Harmony with the environment.
The unit diamnesion is 570mm*570mm*260mm for easy installation.
It is universal and harmonious with standart ceiling 600mm*600m, which avoids the breakage for ceiling during installation.

Built-in High Head Drain Pump
One standard drain-head height up to 600mm is possible, creating the ideal solution for perfect water drainage.

Fresh Air Inlet (AB12-AB18)
Pre-set fresh air inlet can instroduce the outside fresh air into the room, greatly improme the indoor air quality, away from "air conditioner symptom".

Antifouling and Movable Blade
The movable blade has antifouling design and can effectively control the airflow and air direction. It is clean to use without polluting the ceiling. It has standard long acting filter screen to make the cleaning time largely extended.When there are many units, the operation of cleaning and maintenance will be largely reduced.

1.2 Specification

Item			Model	AB09CS1ERA (S)	
Function			——	Cooling	Heating
Capacity			W	2600	2900
Censible heat ratio			W	0.71	/
Dehumidifying capacity			10-³xm³/h	1.0	
indoor unit	power supply			1PH, 220-230V~, 50/60Hz	
	Fan	Type × Number	——	centrifugal*1	
		Speed(H-M-L)	r/min	690/620/560	
		Fan motor output/input power	W	10/33	
		Air-flows (H/M/L)	m³/h	620/520/450	
		Speed (Hi/Me/Lo)	rpm	700/640/580	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/¢ 7.0	
		Row	——	1	
		Total area	m²	0.272	
		Temp.scope	℃	2.0-7.0	
	Dimension (LxWxH)	External	mmxmmxmm	570*570*260	
		Package	mmxmmxmm	718*680*380	
	Drainage pipe (material,I.D/O.D)		mm	PVC 26/32	
	Control type(Remote/Wired)			Remote or Wired	
	Fresh air hole dimension		mm	95	
	Electricity Heater		kW	none	
	Noise level(H-M-L)	Sound power level	dB(A)	50	
		Sound pressure level	dB(A)	40/36/32	
	weight(Net/Shipping)		kg/kg	17/20	
panel	panel model(color)			PB-700IB(White)	
	Dimension	External(L*W*H)	mmxmmxmm	700*700*60	
		Package(L*W*H)	mmxmmxmm	740*750*115	
	Weight(Net/Shipping)		kg/kg	2.8/4.8	
Piping	Refrigerant	Type		R410A	
	Pipe	Liquid	mm	Φ6.35(1/4)	
		Gas	mm	Φ9.52(3/8)	
	Connecting method			Flared	

Item			Model	AB09CS2ERA (S)	
Function			——	Cooling	Heating
Capacity			W	2600	2900
Censible heat ratio			W	0.71	/
Dehumidifying capacity			10-³xm³/h	1.0	
indoor unit	power supply			1PH, 220-230V~, 50/60Hz	
	Fan	Type × Number	——	centrifugal*1	
		Speed(H-M-L)	r/min	690/620/560	
		Fan motor output/input power	W	10/33	
		Air-flows (H/M/L)	m³/h	620/520/450	
		Speed (Hi/Me/Lo)	rpm	700/640/580	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/¢ 7.0	
		Row	——	1	
		Total area	m²	0.272	
		Temp.scope	℃	2.0-7.0	
	Dimension (LxWxH)	External	mmxmmxmm	570*570*260	
		Package	mmxmmxmm	718*680*380	
	Drainage pipe (material,I.D/O.D)		mm	PVC 26/32	
	Control type(Remote/Wired)			Remote or Wired	
	Fresh air hole dimension		mm	95	
	Electricity Heater		kW	none	
	Noise level(H-M-L)	Sound power level	dB(A)	52	
		Sound pressure level	dB(A)	42/40/36/32/28	
	weight(Net/Shipping)		kg/kg	17/20	
panel	panel model(color)			PB-700IB(White)	
	Dimension	External(L*W*H)	mmxmmxmm	700*700*60	
		Package(L*W*H)	mmxmmxmm	740*750*115	
	Weight(Net/Shipping)		kg/kg	2.8/4.8	
Piping	Refrigerant	Type		R410A	
	Pipe	Liquid	mm	Φ6.35(1/4)	
		Gas	mm	Φ9.52(3/8)	
	Connecting method			Flared	

Item			Model		AB12CS1ERA（S）	
Function					cooling	heating
Capacity				KW	3.50（0.9～4.5）	3.7（1～4.8）
Sensible heat ratio					0.71	/
Total power input				KW	1.06(0.28~1.8)	0.99(0.28~1.8)
Max. power input				W	1800	1800
EER or COP				W/W	3.31	3.71
Dehumidifying capacity				10 - ³×m³/h	1.5	
Power cable					H05RN-F 4G 4.0mm2	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	5.0(1.2-8.0)/8.0	4.7(1.2-8.0)/8.0
Start Current				A	3	
Indoor unit	Unit model (color)				AB12CS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX1	
		Speed(H-M-L)		r/min	690/560/520	
		Fan motor output/ input power		W	11/30	
		Air-flow(H-M-L)		m³/h	620/520/450	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			2	
		Total Area		m²	/	
	Dimension	External（L×W×H）		mm×mm×mm	570×570×260	
		Package（L×W×H）		mm×mm×mm	718×680×380	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 26/32	
	Controller (O-Optional,S-Standard)			Wired	YR-E16A(O)/YR-E17(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	95	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	50	
	Sound pressure Noise level (H-M-L)			dB(A)	40/36/32	
	Panel	Model			PB-700IB	
		External dimensions(W/D/H)		mm	700/700/60	
		Shipping dimensions(W/D/H)		mm	740/750/115	
		Net weight/Shipping weight		kg	2.8/4.8	
	Weight	(Net / Shipping)		kg / kg	18.5/22	
PIPING	Refrigerant	Type / Refrigerant load in factory		g	R410A/1200	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant		m	5	
	Pipe	Liquid		mm	6.35	
		Gas		mm	9.52	
	Between I.D &O.D	MAX.Drop		m	10	
		MAX.Piping length		m	15	

Coling		Pdesignc(kW)：	3.5Kw	SEER/CLASS	6.1/A++	QCE (Annual electricity consumption for cooling) kWh：	222	
heating	Average	Pdesignh(-10℃)	3.4Kw	SCOP/CLASS	3.8/A	QHE (Annual electricity consumption for heating) kWh：	1427	
	Warmer	Pdesignh(2℃)	3.7Kw	SCOP/CLASS	4.0/A+	QHE (Annual electricity consumption for heating) kWh：	1307	
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE (Annual electricity consumption for heating) kWh：	/	
Tdesignh：-10℃		Tbivalent：-8℃		TOL：-15℃		Elbu:0		
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃		
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃		

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AB12CS2ERA（S）	
Function					cooling	heating
Capacity				KW	3.50（0.9 ～ 4.5）	3.7（1 ～ 4.8）
Sensible heat ratio					0.71	/
Total power input				KW	1.06(0.28~1.8)	0.99(0.28~1.8)
Max. power input				W	1800	1800
EER or COP				W/W	3.31	3.71
Dehumidifying capacity				10 - ³×m³/h	1.5	
Power cable					H05RN-F 4G 4.0mm2	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	5.0(1.2-8.0)/8.0	4.7(1.2-8.0)/8.0
Start Current				A	3	
Indoor unit	Unit model (color)				AB12CS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX1	
		Speed(H-M-L)		r/min	690/560/520	
		Fan motor output/ input power		W	11/30	
		Air-flow(H-M-L)		m³/h	620/520/450	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			2	
		Total Area		m²	/	
	Dimension	External（L×W×H）		mm×mm×mm	570×570×260	
		Package（L×W×H）		mm×mm×mm	718×680×380	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 26/32	
	Controller (O-Optional,S-Standard)			Wired	YR-E16A(O)/YR-E17(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	95	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	50/46/42	
	Sound pressure Noise level (H-M-L)			dB(A)	40/36/32	
	Weight	(Net / Shipping)		kg / kg	18.5/22	
	Panel	Model			PB-700IB	
		External dimensions(W/D/H)		mm	700/700/60	
		Shipping dimensions(W/D/H)		mm	740/750/115	
		Net weight/Shipping weight		kg	2.8/4.8	
PIPING	Refrigerant	Type / Refrigerant load in factory		g	R410A/1200	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant		m	5	
	Pipe	Liquid		mm	6.35	
		Gas		mm	9.52	
	Between I.D &O.D	MAX.Drop		m	10	
		MAX.Piping length		m	15	

Cooling		Pdesignc(kW)：	3.5Kw	SEER/CLASS	6.1/A++	QCE (Annual electricity consumption for cooling)	222kWh
Heating	Average	Pdesignh(-10℃)	3.4Kw	SCOP/CLASS	3.8/A	QHE (Annual electricity consumption for heating)	1427kWh
	Warmer	Pdesignh(2℃)	3.7Kw	SCOP/CLASS	4.0/A+	QHE (Annual electricity consumption for heating)	1307kWh
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE (Annual electricity consumption for heating)	/
Tdesignh：-10℃		Tbivalent：-8℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AB18CS1ERA(S)	
Function					cooling	heating
Capacity				KW	5(1.8~5.8)	5.2(2~6.5)
Sensible heat ratio					0.71	/
Total power input				KW	1.53(0.55~2)	1.52(0.6~2)
Max. power input				W	2000	2000
EER or COP				W/W	3.26	3.42
Dehumidifying capacity				10 - ³×m³/h	1.5	
Power cable					H05RN-F 4G 4.0mm2	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	6.8(2.3-9.5)/9.5	6.7(2.3-9.5)/9.5
Start Current				A	3	
Indoor unit	Unit model (color)				AB18CS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX1	
		Speed(H-M-L)		r/min	795/690/550	
		Fan motor output/ input power		W	14/40	
		Air-flow(H-M-L)		m³/h	700/620/500	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			2	
		Total Area		m²	1.25	
	Dimension	External（L×W×H）		mm×mm×mm	570×570×260	
		Package（L×W×H）		mm×mm×mm	718×680×380	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 26/32	
	Controller (O-Optional,S-Standard)			Wired	YR-E16A(O)/YR-E17(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	95	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	55	
	Sound pressure Noise level (H-M-L)			dB(A)	42/37/35	
	Weight (Net / Shipping)			kg / kg	18.5/22	
	Panel	Model			PB-700IB	
		External dimensions(W/D/H)		mm	700/700/60	
		Shipping dimensions(W/D/H)		mm	740/750/115	
		Net weight/Shipping weight		kg	2.8/4.8	
PIPING	Refrigerant	Type / Refrigerant load in factory		g	R410A/1300	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant		m	5	
	Pipe	Liquid		mm	6.35	
		Gas		mm	12.7	
	Between I.D &O.D	MAX.Drop		m	15	
		MAX.Piping length		m	25	

Cooling		Pdesignc(kW)：	5.0kW	SEER/CLASS	5.1/A	QCE(Annual electricity consumption for cooling)	363kWh
heating	Average	Pdesignh(-10℃)	4.7kW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)	1932kWh
	Warmer	Pdesignh(2℃)	5.4kW	SCOP/CLASS	4.1/A+	QHE(Annual electricity consumption for heating)	1845kWh
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)	/
Tdesignh：-10℃		Tbivalent：-8℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AB18CS2ERA（S）	
Function					cooling	heating
Capacity				KW	3.50（0.9 ～ 4.5）	3.7（1 ～ 4.8）
Sensible heat ratio					0.71	/
Total power input				KW	1.06(0.28~1.8)	0.99(0.28~1.8)
Max. power input				W	1800	1800
EER or COP				W/W	3.31	3.71
Dehumidifying capacity				10 - ³×m³/h	1.5	
Power cable					H05RN-F 4G 4.0mm2	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	5.0(1.2-8.0)/8.0	4.7(1.2-8.0)/8.0
Start Current				A	3	
Indoor unit	Unit model (color)				AB12CS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX1	
		Speed(H-M-L)		r/min	690/560/520	
		Fan motor output/ input power		W	11/30	
		Air-flow(H-M-L)		m³/h	620/520/450	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			2	
		Total Area		m²	/	
	Dimension	External（L×W×H）		mm×mm×mm	570×570×260	
		Package（L×W×H）		mm×mm×mm	718×680×380	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 26/32	
	Controller (O-Optional,S-Standard)			Wired	YR-E16A(O)/YR-E17(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	95	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	50/46/42	
	Sound pressure Noise level (H-M-L)			dB(A)	40/36/32	
	Weight	(Net / Shipping)		kg / kg	18.5/22	
	Panel	Model			PB-700IB	
		External dimensions(W/D/H)		mm	700/700/60	
		Shipping dimensions(W/D/H)		mm	740/750/115	
		Net weight/Shipping weight		kg	2.8/4.8	
PIPING	Refrigerant	Type / Refrigerant load in factory		g	R410A/1300	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant		m	5	
	Pipe	Liquid		mm	6.35	
		Gas		mm	12.7	
	Between I.D &O.D	MAX.Drop		m	15	
		MAX.Piping length		m	25	

Cooling		Pdesignc(kW)：	3.5Kw	SEER/CLASS	6.1/A++	QCE (Annual electricity consumption for cooling)		222kWh
Heating	Average	Pdesignh(-10℃)	3.4Kw	SCOP/CLASS	3.8/A	QHE (Annual electricity consumption for heating)		1427kWh
	Warmer	Pdesignh(2℃)	3.7Kw	SCOP/CLASS	4.0/A+	QHE (Annual electricity consumption for heating)		1307kWh
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE (Annual electricity consumption for heating)		/
Tdesignh：-10℃		Tbivalent：-8℃		TOL：-15℃		Elbu:0		
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃		
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃		

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item		Model		AB24ES1ERA(S)/1U24GS1ERA	
Function				cooling	heating
Capacity			KW	7.1(2~7.3)	7.1(2.5~8)
Sensible heat ratio				0.72	/
Total power input			KW	2.20(0.5~2.6)	1.91(0.5~2.6)
Max. power input			W	2600	2600
EER or COP			W/W	3.23	3.72
Dehumidifying capacity			10 - ³×m³/h	2.5	
Power cable				H05RN-F 4G 4.0mm2	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	9.4(2.3-12)/12	9.0(2.3-12)/12
Start Current			A	3	
Indoor unit	Unit model (color)			AB24ES1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX1	
		Speed(H-M-L)	r/min	670/550/460	
		Fan motor output/ input power	W	38/133	
		Air-flow(H-M-L)	m³/h	1300/1100/870	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		2	
		Total Area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	840/840/240	
		Package（L×W×H）	mm×mm×mm	930/930/330	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32	
	Controller (O-Optional,S-Standard)		Wired	YR-E16A(O)/YR-E17(O)	
			Infrared	YR-HD01(S)	
	Fresh air hole dimension		mm	95	
	Electricity Heater		kW	NONE	
	Sound power Noise level (H-M-L)		dB(A)	59	
	Sound pressure Noise level (H-M-L)		dB(A)	46/44/39	
	Weight (Net / Shipping)		kg / kg	25.5/30.5	
	Panel	Model		PB-950JB	
		External dimensions(W/D/H)	mm	950/950/60	
		Shipping dimensions(W/D/H)	mm	985/985/115	
		Net weight/Shipping weight	kg	6.0/7.5	
PIPING	Refrigerant	Type / Refrigerant load in factory	g	R410A/1600	
		Recharge quantity	g/m	45	
		Max. pipe length without charge refriigerant	m	7	
	Pipe	Liquid	mm	6.35	
		Gas	mm	9.52	
	Between I.D &O.D	MAX.Drop	m	15	
		MAX.Piping length	m	25	

Cooling		Pdesignc(kW)：	7.1Kw	SEER/CLASS	6.1/A++	QCE(Annual electricity consumption for cooling)	435kWh
Heating	Average	Pdesignh(-10℃)	5.2Kw	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)	2044
	Warmer	Pdesignh(2℃)	6.1Kw	SCOP/CLASS	4.8/A++	QHE(Annual electricity consumption for heating)	1783
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)	/
Tdesignh：-10℃		Tbivalent：-8℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AB28ES1ERA(S)/1U28HS1ERA(S)	
Function					cooling	heating
Capacity				KW	8（2.2-9.5）	9.1（2.5-10.0）
Sensible heat ratio					/	/
Total power input				KW	2.492（0.5-4.2）	2.668（0.5-4.2）
Max. power input				W	4600	4600
EER or COP				W/W	3.21	3.41
Dehumidifying capacity				10-³×m³/h	2.8	
Power cable					/	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	10.8(2.2-18.5)/20	11.6(2.2-18.5)/20
Start Current				A	5	
Indoor unit	Unit model (color)				AB28ES1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX1	
		Speed(H-M-L)		r/min	670±40/550±50/460±50	
		Fan motor output/ input power		W	55/140	
		Air-flow(H-M-L)		m³/h	1300/1100/870	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			2	
		Total Area		m²	/	
	Dimension	External （L×W×H）		mm×mm×mm	840/840/240	
		Package （L×W×H）		mm×mm×mm	930/930/330	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 26/32	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(O) OR YR-E16A(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	/	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	59	
	Sound pressure Noise level (H-M-L)			dB(A)	46/44/39	
	Weight (Net / Shipping)			kg / kg	25.5/30.5	
	Panel	Model			PB-950JB	
		External dimensions(W/D/H)		mm	950/950/60	
		Shipping dimensions(W/D/H)		mm	985/985/115	
		Net weight/Shipping weight		kg	6.0/7.5	
PIPING	Refrigerant	Type / Refrigerant load in factory		g	R410A/2000	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant		m	20	
	Pipe	Liquid		mm	9.52	
		Gas		mm	15.88	
	Between I.D &O.D	MAX.Drop		m	15	
		MAX.Piping length		m	25	

Cooling		Pdesignc(kW)	8.0KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling) kWh		540
heating	Average	Pdesignh(-10°C)	7.2KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating) kWh		2806
	Warmer	Pdesignh(2°C)	8.3	SCOP/CLASS	5.0/A++	QHE(Annual electricity consumption for heating) kWh		2509
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating) kWh		/
Tdesignh：-10℃		Tbivalent:-10°C		TOL:-15OC		Elbu:0		
Max. cooling condition		Indoor temperature：32°C/23°C		Max. heating condition		Indoor temperature:27°C/-°C		
		Outdoor temperature：46°C/-°C				Outdoor temperature:24°C/18°C		

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB;Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB;the noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AB28ES1ERA(S)/1U28GS2ERA(S)	
Function					cooling	heating
Capacity				kW	7.8(2.2-9.5)	8.5(2.5-10.0)
Sensible heat ratio					0.74	
Total power input				kW	2.43(0.5-4.2)	2.49(0.5-4.2)
Max. power input				W	4200	4200
EER or COP				W/W	3.21	3.41
Dehumidifying capacity				10 - ³×m³/h	3.8	
Power cable					/	
Power source(indoor unit)				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	10.8（2.3-14.3)/14.3	10.5(2.3-14.3)/14.3
Start Current				A	5	
Indoor unit	Unit model (color)				AB28ES1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX1	
		Speed(H-M-L)		r/min	670±40/550±50/460±50	
		Fan motor output / input power		W	55/140	
		Air-flow(H-M-L)		m³/h	1300/1100/870	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			2	
		Total Area		m²	/	
	Dimension	External	（L×W×H）	mm×mm×mm	840/840/240	
		Package	（L×W×H）	mm×mm×mm	930/930/330	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 26/32	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(O) OR YR-E16A(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	/	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	59	
	Sound pressure Noise level (H-M-L)			dB(A)	46/44/39	
	Weight (Net / Shipping)			kg / kg	25.5/30.5	
	Panel	Model			PB-950JB	
		External dimensions(W/D/H)		mm	.950/950/60	
		Shipping dimensions(W/D/H)		mm	985/985/115	
		Net weight/Shipping weight		kg	6.0/7.5	
PIPING	Refrigerant	Type / Refrigerant load in factory		g	R410A/2000	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant			20	
	Pipe	Liquid		mm	9.52	
		Gas		mm	15.88	
	Between I.D &O.D	MAX.Drop		m	15	
		MAX.Piping length		m	25	

cooling		Pdesignc(kW)：	7.8Kw	SEER/CLASS	5.1/A	QCE(Annual electricity consumption for cooling)kWh：	530
heating	Average	Pdesignh(-10℃)	7.2Kw	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh：	2653
	Warmer	Pdesignh(2℃)	8.3Kw	SCOP/CLASS	5.0/A++	QHE(Annual electricity consumption for heating)kWh：	2509
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh：	/
Tdesignh：-10℃		Tbivalent：-8℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AB36ES1ERA(S)/1U36HS1ERA(S)	
Function					cooling	heating
Capacity				KW	9.5(2.2-11.2)	10.1(2.5-11.8)
Sensible heat ratio					/	/
Total power input				KW	2.96(0.5-4.3)	2.798(0.5-4.3)
Max. power input				W	4300	4300
EER or COP				W/W	3.21	3.61
Dehumidifying capacity				10-³×m³/h	3.5	
Power cable					/	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	12.87(2.2-19.3)/19.3	12.1(2.2-19.3)/19.3
Start Current				A	5	
Indoor unit	Unit model (color)				AB36ES1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX1	
		Speed(H-M-L)		r/min	680/600/530	
		Fan motor output/ input power		W	50/145	
		Air-flow(H-M-L)		m³/h	1600/1450/1300	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			2	
		Total Area		m²	/	
	Dimension	External （L×W×H）		mm×mm×mm	840/840/290	
		Package （L×W×H）		mm×mm×mm	930/930/390	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 26/32	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(O) OR YR-E16A(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	100	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	62	
	Sound pressure Noise level (H-M-L)			dB(A)	49/47/44	
	Weight (Net / Shipping)			kg / kg	31/37	
	Panel	Model			PB-950JB	
		External dimensions(W/D/H)		mm	950/950/60	
		Shipping dimensions(W/D/H)		mm	985/985/115	
		Net weight/Shipping weight		kg	6.0/7.5	
PIPING	Refrigerant	Type / Refrigerant load in factory		g	R410A/2500	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant		m	20	
	Pipe	Liquid		mm	9.52	
		Gas		mm	15.88	
	Between I.D &O.D	MAX.Drop		m	20	
		MAX.Piping length		m	30	

Cooling		Pdesignc(kW)	9.5KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh	636
heating	Average	Pdesignh(-10°C)	8.1KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh	3251
	Warmer	Pdesignh(2°C)	9.1	SCOP/CLASS	4.9/A++	QHE(Annual electricity consumption for heating)kWh	2707
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh	/
Tdesignh：-10℃		Tbivalent:-10°C		TOL:-15OC		Elbu:0	
Max. cooling condition		Indoor temperature：32°C/23°C		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46°C/-°C				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB;Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB;the noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AB48ES1ERA(S)/1U48IS1EAB(S)	
Function					cooling	heating
Capacity				kW	14.1	15.5
Sensible heat ratio					0.74	
Total power input				kW	4.66	4.82
Max. power input				W	6500	6500
EER or COP				W/W	3.03(B)	3.22(C)
Dehumidifying capacity				10 - ³×m³/h	4.9	
Power cable					/	
Power source				N, V, Hz	1, 220~230, 50/60	
Running /Max.Running current				A / A	8.4/10.5	8.5/10.5
Start Current				A	/	
Indoor unit	Unit model (color)				AB48ES1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX1	
		Speed(H-M-L)		r/min	890/760/520	
		Fan motor input power		kW	0.15	
		Fan motor output power		kW	0.055	
		Air-flow(H-M-L)		m³/h	1650/1400/1300	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Total area		m²	/	
	Dimension	External（L×W×H）		mm×mm×mm	840/840/290	
		Package（L×W×H）		mm×mm×mm	930/930/390	
	Drainage pipe（material , I.D./O.D.）			mm	PVC 26/32	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(O) OR YR-E16A(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	100	
	Electricity heater			kW	0	
	Noise level (H-M-L)			dB(A)	49/47/44	
	Weight (Net / Shipping)			kg / kg	31/37	
	Panel	Model			PB-950JB	
		External dimensions(W/D/H)		mm	950/950/60	
		Shipping dimensions(W/D/H)		mm	985/985/115	
		Net weight/Shipping weight		kg	6/7.5	
Piping	Refrigerant	Type / Charge		g	R410A/2850	
		Recharge quantity		g/m	45	
	Pipe	Liquid		mm	9.52	
		Gas		mm	19.05	
	Between I.D &O.D	MAX.Drop		m	30	
		MAX.Piping length		m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item		Model		AB48ES1ERA(S)/1U48IS1ERB(S)	
Function				cooling	heating
Capacity			kW	13.6(6.0-15)	14.5(6.0~16.5)
Sensible heat ratio				0.74	
Total power input			kW	4.5(2.0---6.0)	4.25(2.0---6.0)
Max. power input			W	6000	6000
EER or COP			W/W	3.02(B)	3.41(B)
Dehumidifying capacity			10 - ³×m³/h	3.8	
Power cable				/	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	7.0(2.9-10.0)/10.0	6.5(2.9-10.0)/10.0
Start Current			A	/	
Indoor unit	Unit model (color)			AB48ES1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX1	
		Speed(H-M-L)	r/min	890/760/520	
		Fan motor input power	kW	0.15	
		Fan motor output power	kW	0.055	
		Air-flow(H-M-L)	m³/h	1600/1450/1300	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		2	
		Total area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	840/840/290	
		Package（L×W×H）	mm×mm×mm	930/930/390	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32	
	Controller (O-Optional,S-Standard)		Wired	YR-E14(O)	
			Infrared	YR-HD01(S)	
	Fresh air hole dimension		mm	100	
	Electricity heater		kW	0	
	Noise level (H-M-L)		dB(A)	49/47/44	
	Weight (Net / Shipping)		kg / kg	31/37	
	Panel	Model		PB-950JB	
		External dimensions(W/D/H)	mm	950/950/60	
		Shipping dimensions(W/D/H)	mm	985/985/115	
		Net weight/Shipping weight	kg	6.0/7.5	
Piping	Refrigerant	Type / Charge	g	R410A/3300	
		Recharge quantity	g/m	45	
		Max. pipe length without charge refriigerant	m	20	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AB48ES1ERA(S)/1U48LS1EAB(S)	
Function			cooling	heating
Capacity		kW	13.0	14.1
Sensible heat ratio			0.8	
Total power input		kW	4.62	4.85
Max. power input		W	6500	6500
EER or COP		W/W	2.81(C)	2.91(E)
Dehumidifying capacity		10 - ³×m³/h	4.5	
Power cable			/	
Power source		N, V, Hz	1N~,220~230, 50/60	
Running /Max.Running current		A / A	8.0/10.5	8.1/10.5
Start Current		A	64	
Indoor unit	Unit model (color)		AB48ES1ERA(S)	
	Fan	Type × Number	CENTRIFUGALX1	
		Speed(H-M-L)	r/min	890/760/520
		Fan motor input power	kW	0.15
		Fan motor output power	kW	0.055
		Air-flow(H-M-L)	m³/h	1650/1400/1300
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	840/840/290
		Package（L×W×H）	mm×mm×mm	910/910/370
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32
	Controller (O-Optional,S-Standard)		Wired	YR-E14(O)
			Infrared	YR-HD(S)
	Fresh air hole dimension		mm	100
	Electricity heater		kW	0
	Noise level (H-M-L)		dB(A)	49/47/44
	Weight (Net / Shipping)		kg / kg	31/37
	Panel	Model		PB-950JB
		External dimensions(W/D/H)	mm	950/950/60
		Shipping dimensions(W/D/H)	mm	985/985/115
		Net weight/Shipping weight	kg	6/7.5
Piping	Refrigerant	Type / Charge	g	R410A/2600
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item		Model		AB48ES1ERA(S)/1U48LS1ERA(S)	
Function				cooling	heating
Capacity			kW	12.1(6.0-14.1)	13.0(6.0~16.0)
Sensible heat ratio				0.74	
Total power input			kW	4.02（2.0---6.0)	4.0（2.0---6.0)
Max. power input			W	5600	5600
EER or COP			W/W	3.01(B)	3.25(C)
Dehumidifying capacity			10 - ³×m³/h	3.8	
Power cable				/	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	18.5(2.7-26)/26	19.2(2.7-26)/26
Start Current			A	/	
Indoor unit	Unit model (color)			AB48ES1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX1	
		Speed(H-M-L)	r/min	890/760/520	
		Fan motor input power	kW	0.15	
		Fan motor output power	kW	0.055	
		Air-flow(H-M-L)	m³/h	1650/1400/1300	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Total area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	840/840/290	
		Package（L×W×H）	mm×mm×mm	933/933/395	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32	
	Controller (O-Optional,S-Standard)		Wired	YR-E17(O) YR-E16A(O)	
			Infrared	YR-HD01(S)	
	Fresh air hole dimension		mm	100	
	Electricity heater		kW	0	
	Sound power Noise level (H-M-L)		dB(A)	65	
	Sound pressure Noise level (H-M-L)		dB(A)	50/48/46	
	Weight (Net / Shipping)		kg / kg	31/37	
	Panel	Model		PB-950JB	
		External dimensions(W/D/H)	mm	950/950/60	
		Shipping dimensions(W/D/H)	mm	985/985/115	
		Net weight/Shipping weight	kg	6/7.5	
Piping	Refrigerant	Type / Charge	g	R410A/2850	
		Recharge quantity	g/m	45	
		Max. pipe length without charge refrigerant	m	20	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AB48ES1ERA(S)/1U48LS1ERB(S)	
Function					cooling	heating
Capacity				kW	12.1(6.0-14.1)	13.0(6.0~16.0)
Sensible heat ratio					0.74	
Total power input				kW	4.02(2.0---6.0)	4.0(2.0---6.0)
Max. power input				W	6000	6000
EER or COP				W/W	3.01(B)	3.25(C)
Dehumidifying capacity				10 - ³×m³/h	3.8	
Power cable					/	
Power source				N, V, Hz	3, 380~400, 50	
Running /Max.Running current				A / A	6.5（2.9-10.0）/10.0	6.7（2.9-10.0）/10.0
Start Current				A	5	
Indoor unit	Unit model (color)				AB48ES1ERA(S)	
	Fan		Type × Number		CENTRIFUGALX1	
			Speed(H-M-L)	r/min	890/760/520	
			Fan motor input power	kW	0.15	
			Fan motor output power	kW	0.055	
			Air-flow(H-M-L)	m³/h	1650/1400/1300	
	Heat exchanger		Type / Diameter	mm	inner grooved pipe/φ7.0	
			Total area	m²	/	
	Dimension		External（L×W×H）	mm×mm×mm	840/840/290	
			Package（L×W×H）	mm×mm×mm	933/933/395	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 26/32	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(O) YR-E16A(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	100	
	Electricity heater			kW	0	
	Sound power Noise level (H-M-L)			dB(A)	65	
	Sound pressure Noise level (H-M-L)			dB(A)	50/48/46	
	Weight (Net / Shipping)			kg / kg	31/37	
	Panel		Model		PB-950JB	
			External dimensions(W/D/H)	mm	950/950/60	
			Shipping dimensions(W/D/H)	mm	985/985/115	
			Net weight/Shipping weight	kg	6.0/7.5	
Piping	Refrigerant		Type / Charge	g	R410A/2850	
			Recharge quantity	g/m	45	
			Max. pipe length without charge refrigerant	m	20	
	Pipe		Liquid	mm	9.52	
			Gas	mm	19.05	
	Between I.D &O.D		MAX.Drop	m	30	
			MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item		Model		AB60CS1ERA(S)/1U60IS1EAB(S)	
Function				cooling	heating
Capacity			kW	15.1	16.3
Sensible heat ratio				0.73	
Total power input			kW	5.01	5.07
Max. power input			W	6500	6500
EER or COP			W/W	3.01(B)	3.21(C)
Dehumidifying capacity			10 - ³×m³/h	5.5	
Power cable				/	
Power source			N, V, Hz	1, 220 ～ 230, 50	
Running /Max.Running current			A / A	8.6/10.5	8.6/10.5
Start Current			A	/	
Indoor unit	Unit model (color)			AB60CS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX1	
		Speed(H-M-L)	r/min	630/550/440±50	
		Fan motor input power	kW	0.19	
		Fan motor output power	kW	0.06	
		Air-flow(H-M-L)	m³/h	1980/1750/1500	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		2	
		Total area	m²	0.576	
	Dimension	External（L×W×H）	mm×mm×mm	1230×840×280	
		Package（L×W×H）	mm×mm×mm	1325×920×370	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32	
	Controller (O-Optional,S-Standard)		Wired	YR-E17(O) YR-E16A(O)	
			Infrared	YR-HD(S)	
	Fresh air hole dimension		mm	/	
	Electricity heater		kW	0	
	Noise level (H-M-L)		dB(A)	50/45/42	
	Weight (Net / Shipping)		kg / kg	46/53	
	Panel	Model		PB-1340IB	
		External dimensions(W/D/H)	mm	1340/950/80	
		Shipping dimensions(W/D/H)	mm	1400/995/115	
		Net weight/Shipping weight	kg	8.4/12.0	
Piping	Refrigerant	Type / Charge	g	R410A/3300	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AB60CS1ERA(S)/1U60IS1ERB(S)	
Function			cooling	heating
Capacity		kW	15.3(4.0~16.5)	16.3(4.0~17.5)
Sensible heat ratio			0.73	
Total power input		kW	5.06(2.0---6.5)	5.07(2.0----6.5)
Max. power input		W	6500	6500
EER or COP		W/W	3.02(B)	3.21（C)
Dehumidifying capacity		10 - ³×m³/h	5.0	
Power cable			/	
Power source		N, V, Hz	1, 220 ～ 230, 50	
Running /Max.Running current		A / A	8.5（2.9-10.5）A/10.5A	8.5（2.9-10.5）A/10.5A
Start Current		A	/	
Indoor unit	Unit model (color)			AB60CS1ERA(S)
	Fan	Type × Number		CENTRIFUGALX1
		Speed(H-M-L)	r/min	670/550/460±50
		Fan motor input power	kW	0.19
		Fan motor output power	kW	0.06
		Air-flow(H-M-L)	m³/h	1980/1750/1500
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		2
		Total area	m²	0.576
	Dimension	External（L×W×H）	mm×mm×mm	1230×840×280
		Package（L×W×H）	mm×mm×mm	1325×920×370
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32
	Controller (O-Optional,S-Standard)		Wired	YR-E17(O) YR-E16A(O)
			Infrared	YR-HD01(S)
	Fresh air hole dimension		mm	/
	Electricity heater		kW	0
	Sound power Noise level (H-M-L)		dB(A)	66
	Sound pressure Noise level (H-M-L)		dB(A)	50/45/42
	Weight (Net / Shipping)		kg / kg	41/44
	Panel	Model		PB-1340IB
		External dimensions(W/D/H)	mm	1340/950/80
		Shipping dimensions(W/D/H)	mm	1400/995/115
		Net weight/Shipping weight	kg	8.4/12.7
Piping	Refrigerant	Type / Charge	g	R410A/3300
		Recharge quantity	g/m	45
		Max. pipe length without charge refrigerant	m	20
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter.
It is a sound pressure noise level.

Item	Model		AB60ES2ERA(S)/1U60IS2EAB（S）	
Function			cooling	heating
Capacity		kW	14.1	15.5
Sensible heat ratio			0.74	
Total power input		kW	4.66	4.82
Max. power input		W	6500	6500
EER or COP		W/W	3.03(B)	3.22(C)
Dehumidifying capacity		10 - ³×m³/h	4.9	
Power cable			/	
Power source		N, V, Hz	1PH, 220~230V, 50/60Hz	
Running /Max.Running current		A / A	8.4/10.5	8.5/10.5
Start Current		A	/	
Indoor unit	Unit model (color)		AB60ES2ERA(S)	
	Fan	Type × Number	CENTRIFUGALX1	
		Speed(H-M-L)	r/min	890/760/520
		Fan motor input power	kW	0.15
		Fan motor output power	kW	0.055
		Air-flow(H-M-L)	m³/h	1650/1400/1300
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total Area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	840/840/290
		Package（L×W×H）	mm×mm×mm	930/930/390
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32
	Controller		Wired	YR-E14(O)
	(O-Optional,S-Standard)		Infrared	YR-HD(S)
	Fresh air hole dimension		mm	100
	Electricity Heater		kW	0
	Noise level (H-M-L)		dB(A)	49/47/44
	Weight (Net / Shipping)		kg / kg	31/37
	Panel	Model		PB-950JB
		External dimensions(W/D/H)	mm	950/950/60
		Shipping dimensions(W/D/H)	mm	985/985/115
		Net weight/Shipping weight	kg	6/7.5
PIPING	Refrigerant	Type / Charge	g	R410A/3600
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

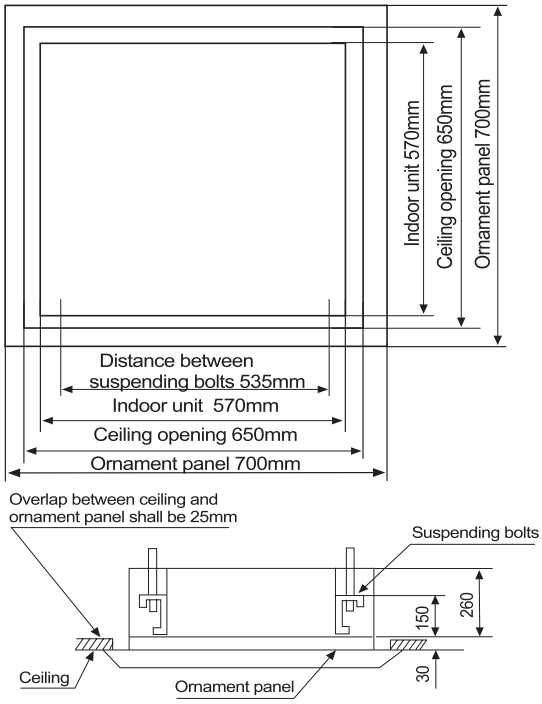
Item	Model		AB60ES2ERA(S)/1U60IS2EAB（S）	
Function			cooling	heating
Capacity		kW	13.6(6.0-15)	14.5(6.0~16.5)
Sensible heat ratio			0.74	
Total power input		kW	4.24(2.0---6.0)	4.02(2.0---6.0)
Max. power input		W	6000	6000
EER or COP		W/W	3.21(A)	3.61(A)
Dehumidifying capacity		10 - ³×m³/h	3.8	
Power cable			/	
Power source		N, V, Hz	1PH, 220~230V, 50/60Hz	
Running /Max.Running current		A / A	6.5(2.9-10.0)/10.0	6.2(2.9-10.0)/10.0
Start Current		A	/	
Indoor unit	Unit model (color)		AB60ES2ERA(S)	
	Fan	Type × Number	CENTRIFUGALX1	
		Speed(H-M-L)	r/min	890/760/520
		Fan motor input power	kW	0.15
		Fan motor output power	kW	0.055
		Air-flow(H-M-L)	m³/h	1650/1400/1300
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total Area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	840/840/290
		Package（L×W×H）	mm×mm×mm	930/930/390
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32
	Controller		Wired	YR-E14(O)
	(O-Optional,S-Standard)		Infrared	YR-HD(S)
	Fresh air hole dimension		mm	100
	Electricity Heater		kW	0
	Noise level (H-M-L)		dB(A)	49/47/44
	Weight (Net / Shipping)		kg / kg	31/37
	Panel	Model		PB-950JB
		External dimensions(W/D/H)	mm	950/950/60
		Shipping dimensions(W/D/H)	mm	985/985/115
		Net weight/Shipping weight	kg	6/7.5
PIPING	Refrigerant	Type / Charge	g	R410A/3600
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

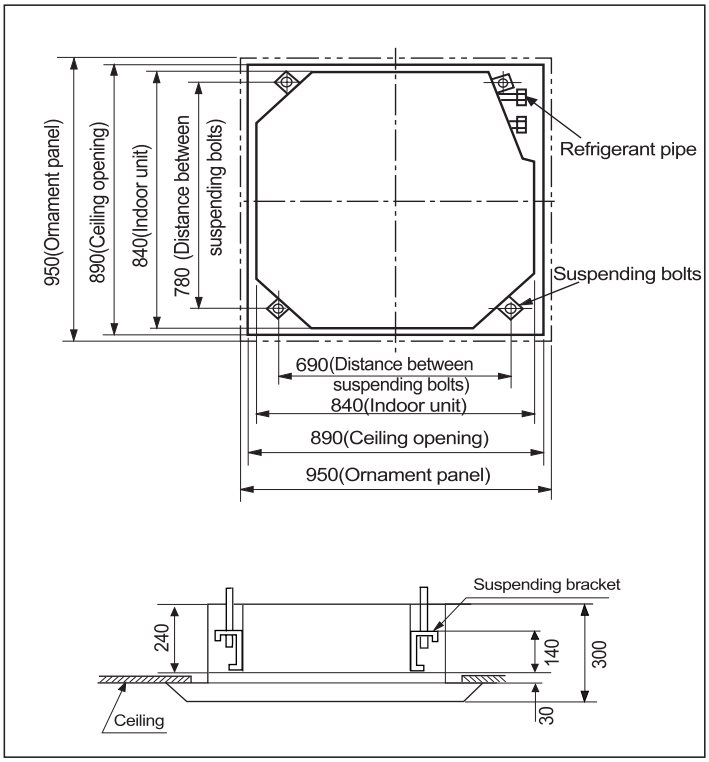
1.3 Dimension

(1) Position of ceiling opening between unit and suspending bolt.

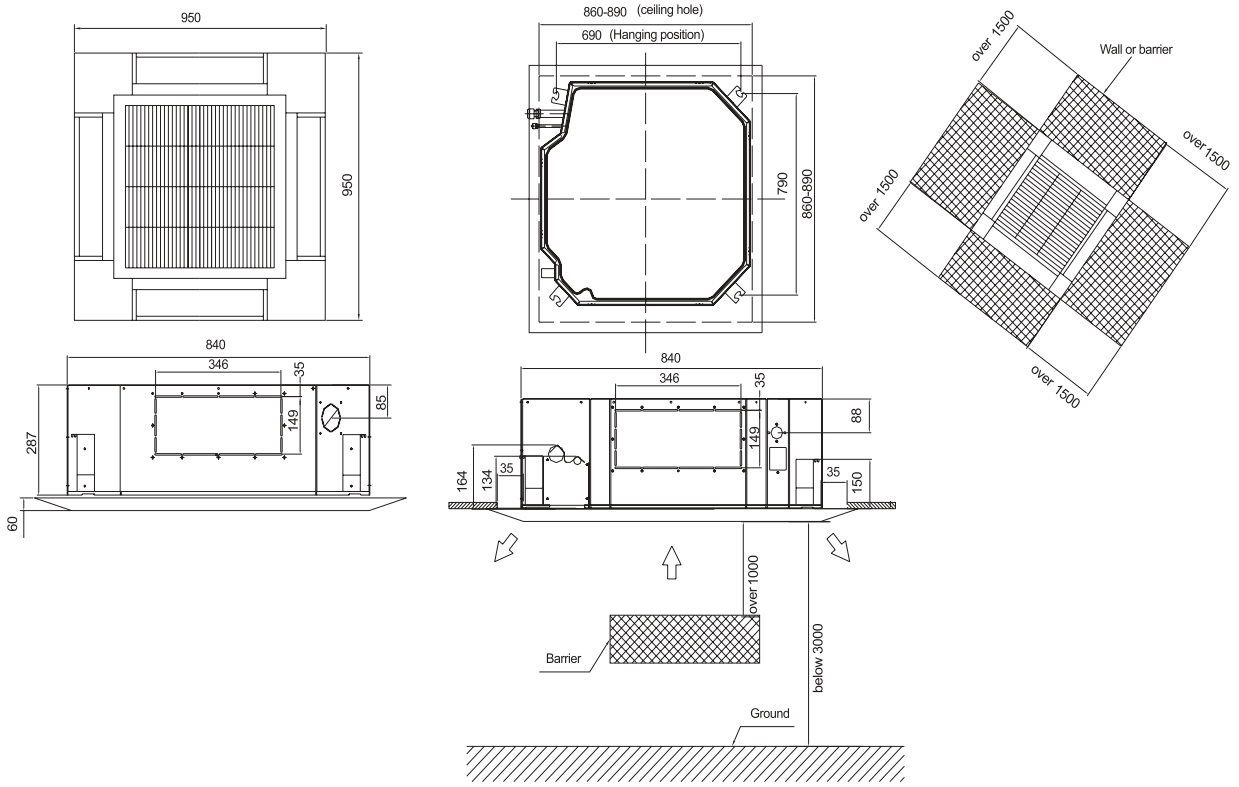
AB09CS1ERA AB12CS1ERA(S) AB18CS1ERA(S) AB09CS2ERA AB12CS2ERA(S) AB18CS2ERA(S)



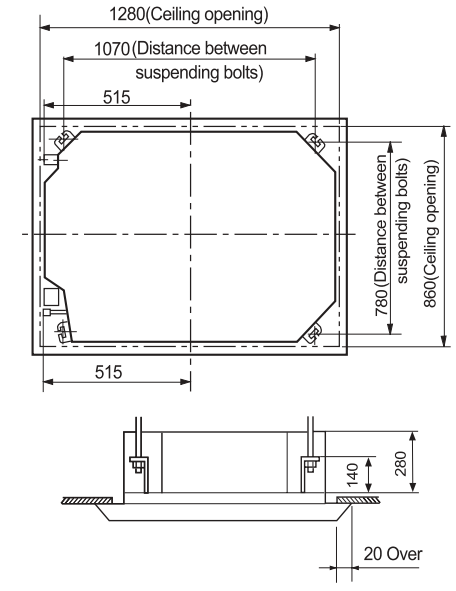
AB24ES1ERA(S) AB28ES1ERA(S)



AB36ES1ERA(S) AB48ES1ERA(S) AB60ES2ERA(S)

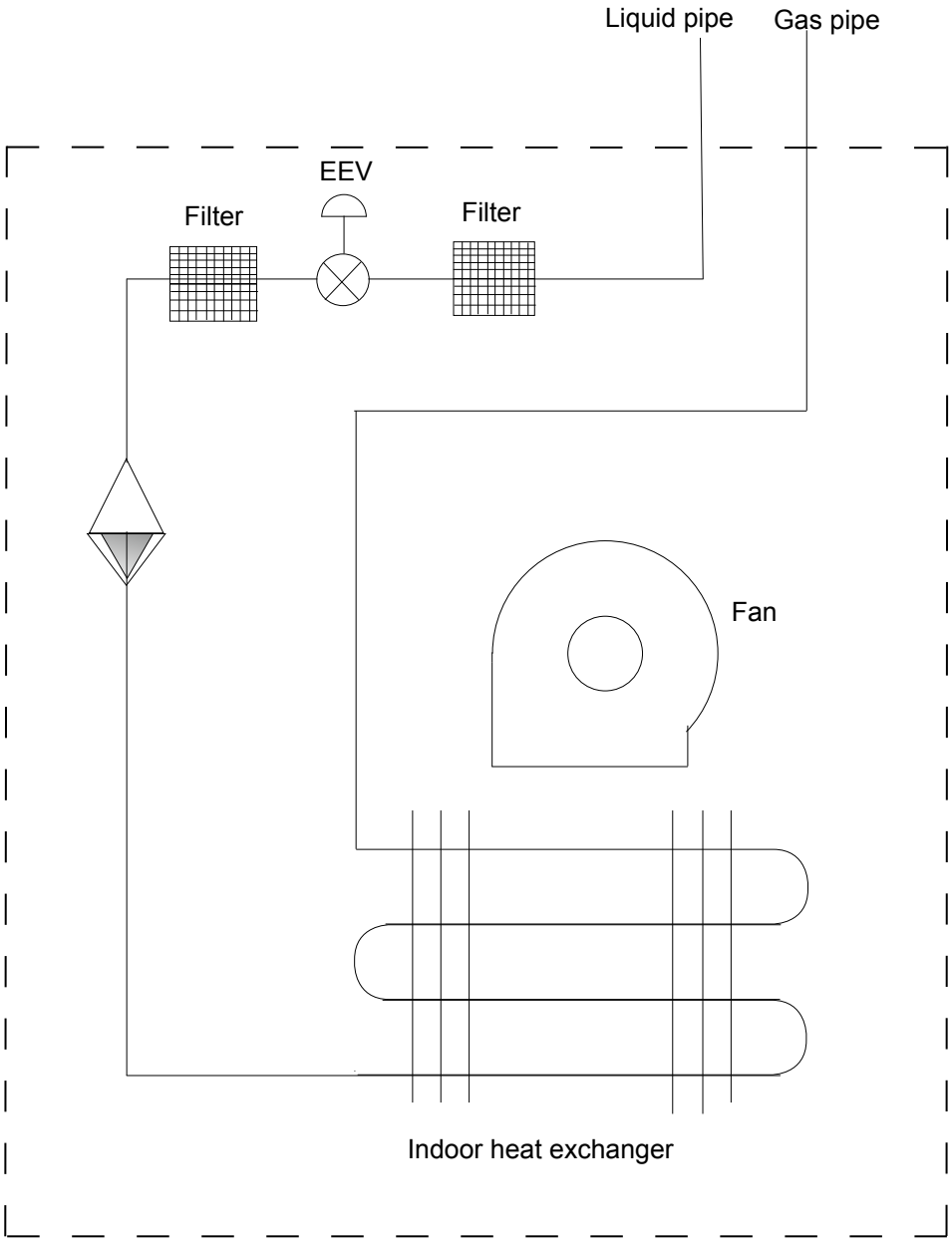


AB60CS1ERA(S)



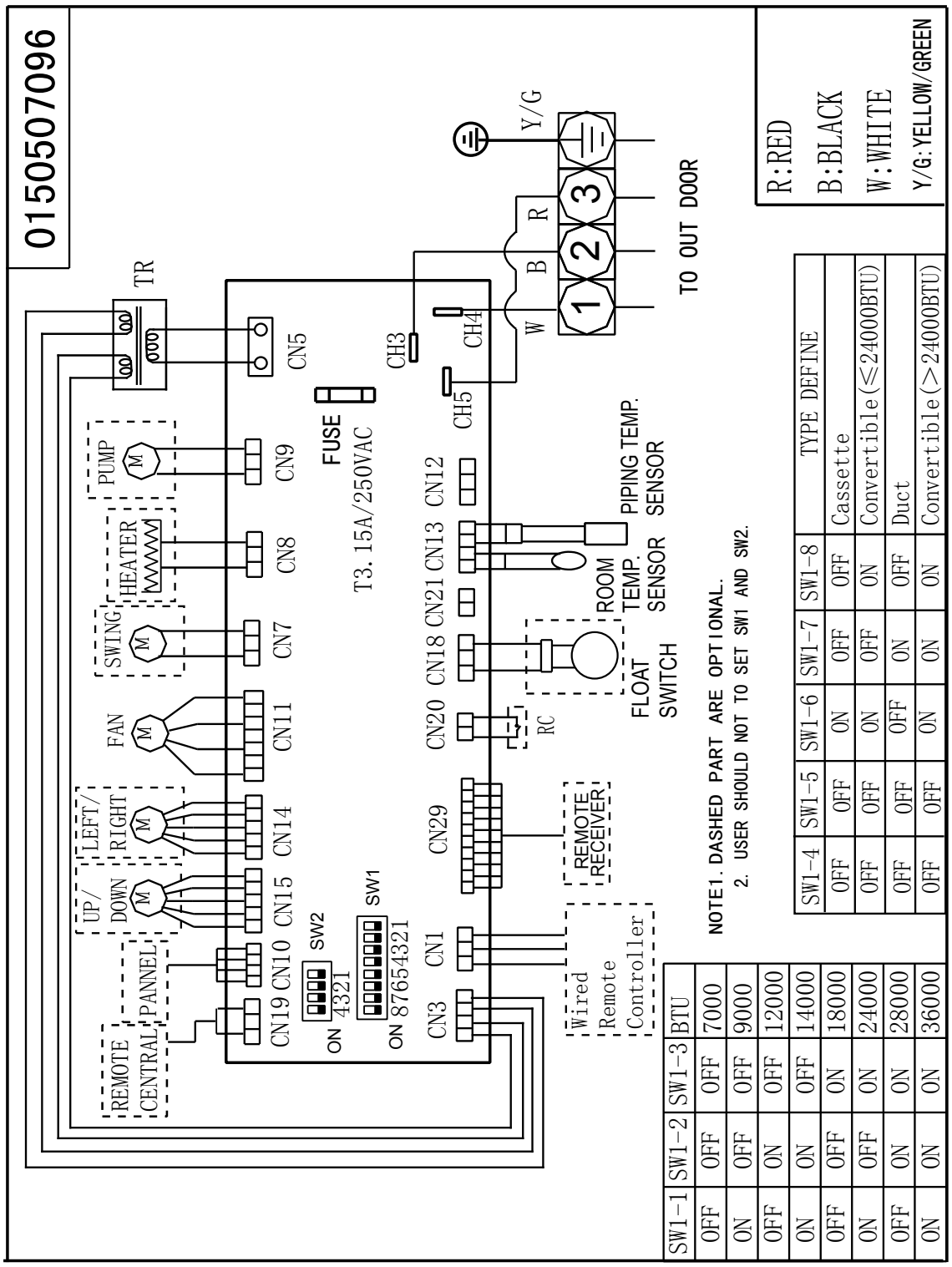
Indoor unit	Panel
AB09CS1ERA AB12CS1ERA(S) AB18CS1ERA(S)	PB-700IB
AB24CS1ERA(S) AB28CS1ERA(S) AB36CS1ERA(S) AB48CS1ERA(S) AB60CS2ERA(S)	PB950JB
AB60CS1ERA(S)	PB-1340IB

1.4 Piping diagram



1.5 Wiring diagram

AB09CS1ERA AB12CS1ERA(S) AB18CS1ERA(S AB24ES1ERA(S)

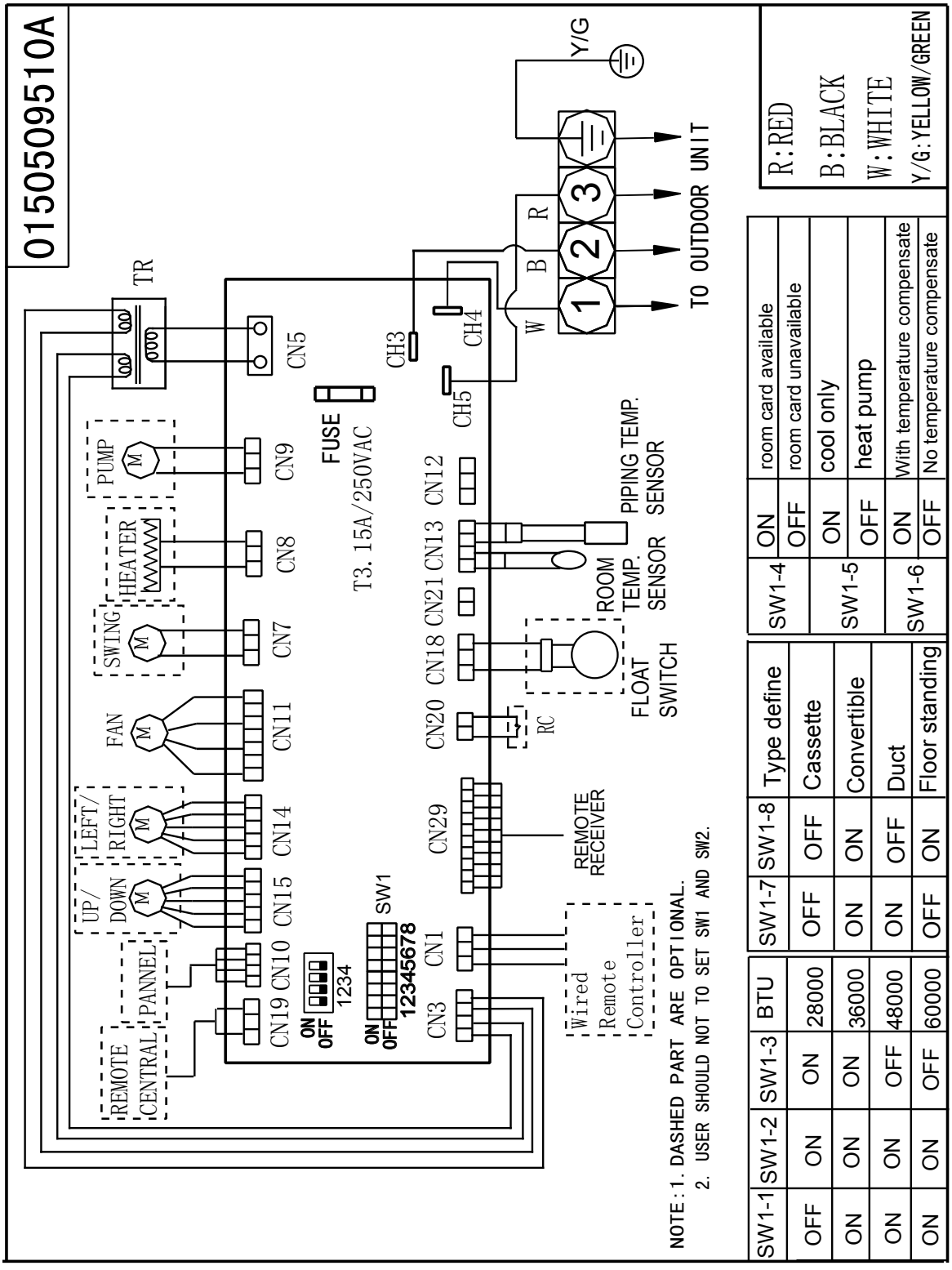


NOTE1. DASHED PART ARE OPTIONAL.
2. USER SHOULD NOT TO SET SW1 AND SW2.

SW1-1	SW1-2	SW1-3	BTU
OFF	OFF	OFF	7000
ON	OFF	OFF	9000
OFF	ON	OFF	12000
ON	ON	OFF	14000
OFF	OFF	ON	18000
ON	OFF	ON	24000
OFF	ON	ON	28000
ON	ON	ON	36000

SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	TYPE DEFINE
OFF	OFF	ON	OFF	OFF	Cassette
OFF	OFF	ON	OFF	ON	Convertible(≤24000BTU)
OFF	OFF	OFF	ON	OFF	Duct
OFF	OFF	ON	ON	ON	Convertible(>24000BTU)

AB28ES1ERA (S) AB36ES1ERA(S) AB48ES1ERA(S) AB60CS1ERA(S) AB60ES2ERA(S)



NOTE: 1. DASHED PART ARE OPTIONAL.
2. USER SHOULD NOT TO SET SW1 AND SW2.

SW1-1	SW1-2	SW1-3	BTU
OFF	ON	ON	28000
ON	ON	ON	36000
ON	ON	OFF	48000
ON	ON	OFF	60000

SW1-7	SW1-8	Type define
OFF	OFF	Cassette
ON	ON	Convertible
ON	OFF	Duct
OFF	ON	Floor standing

SW1-4	ON	room card available
	OFF	room card unavailable
SW1-5	ON	cool only
	OFF	heat pump
SW1-6	ON	With temperature compensate
	OFF	No temperature compensate

1.6 Air velocity and temperature distribution

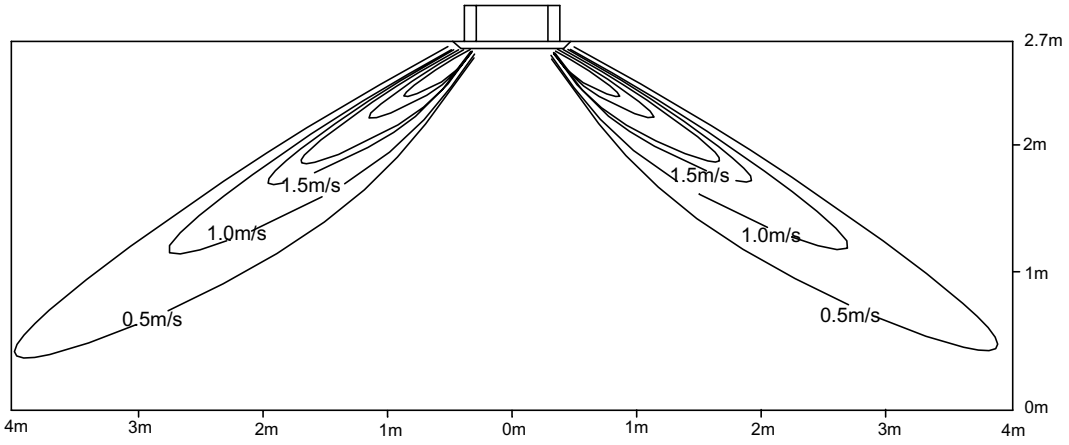
AB09/12CS1ERA:

a. Cooling / Air Velocity Distribution

Cooling

Blowy angle:40

Air Velocity Distribution

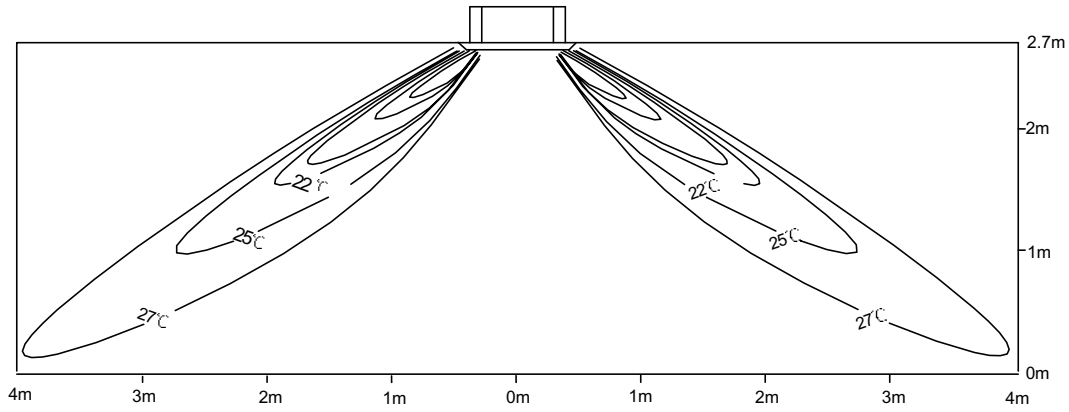


b. Cooling / Temperature Distribution

Cooling

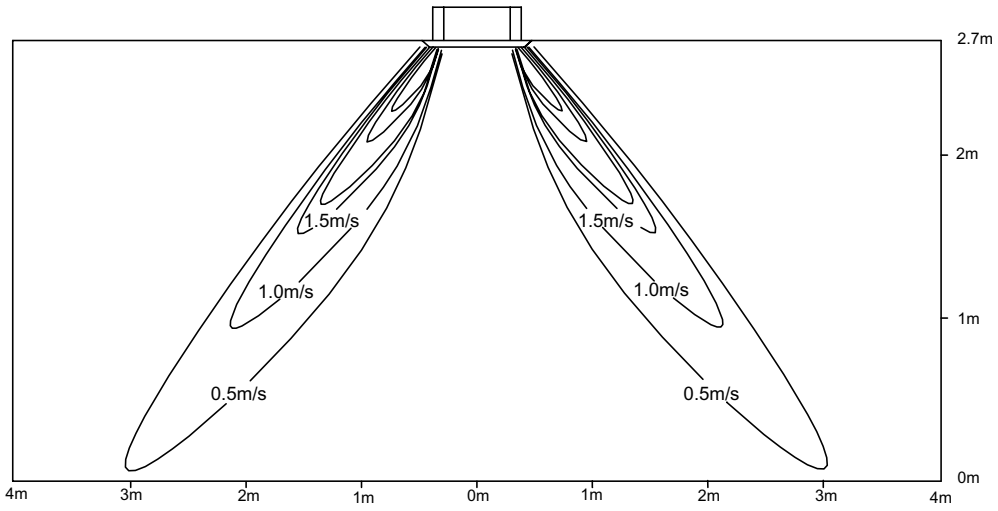
Blowy angle:40

Temperature Distribution



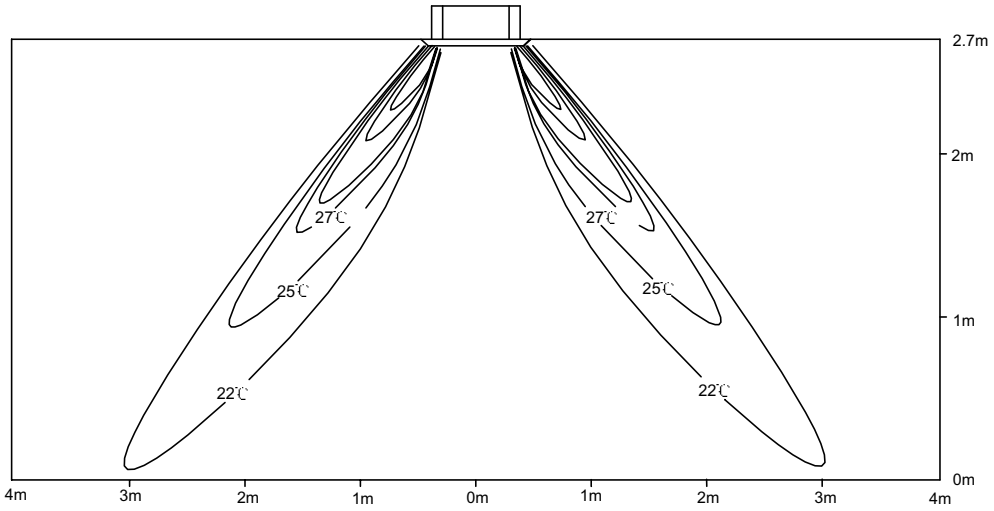
c. Heating / Air Velocity Distribution

Heating
Blowy angle:70
Air velocity Distribution



d. Heating / Temperature Distribution

Heating
Blowy angle:70
Temperature Distribution



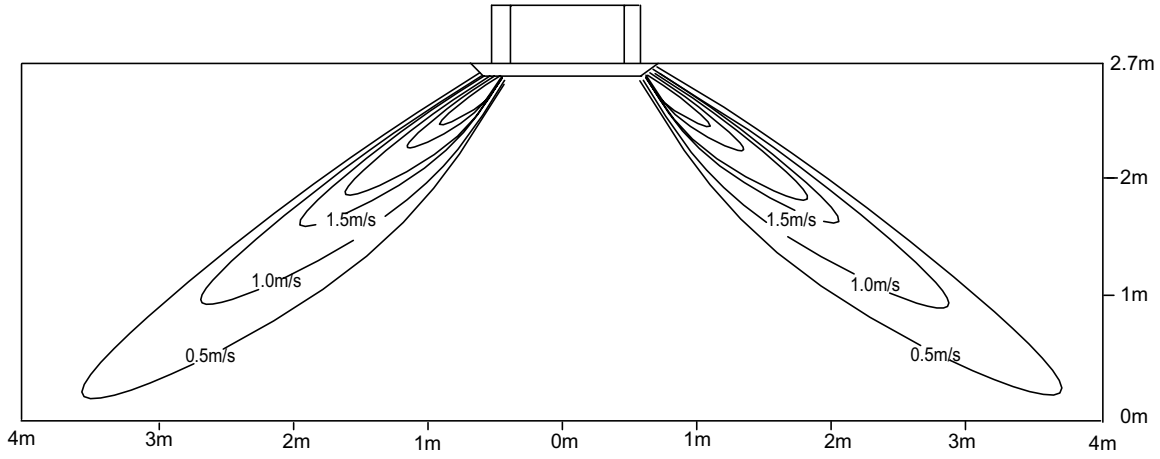
AB18-48

a. Cooling / Air Velocity Distribution

Cooling

Blowy angle:40

Air Velocity Distribution

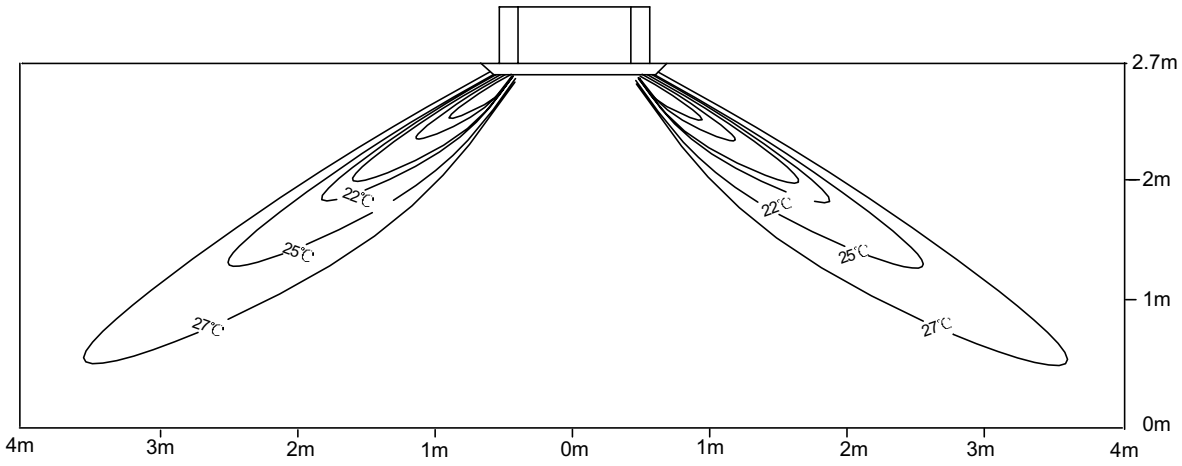


b. Cooling / Temperature Distribution

Cooling

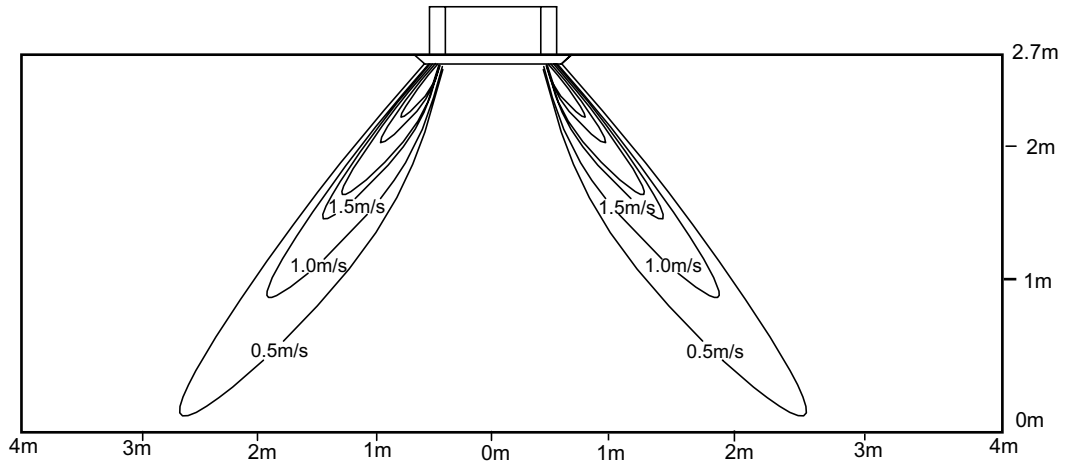
Blowy angle:40

Temperature Distribution



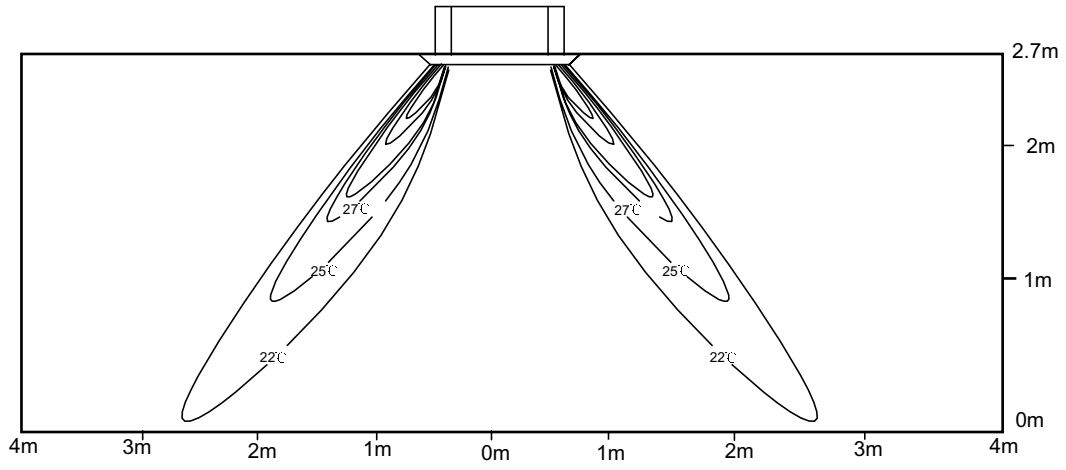
c. Heating / Air Velocity Distribution

Heating
Blowy angle:70
Air velocity Distribution

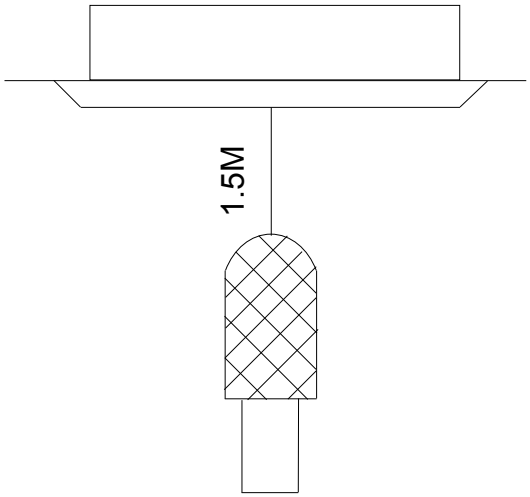


d. Heating / Temperature Distribution

Heating
Blowy angle:70
Temperature Distribution



1.7 Sound Pressure Level



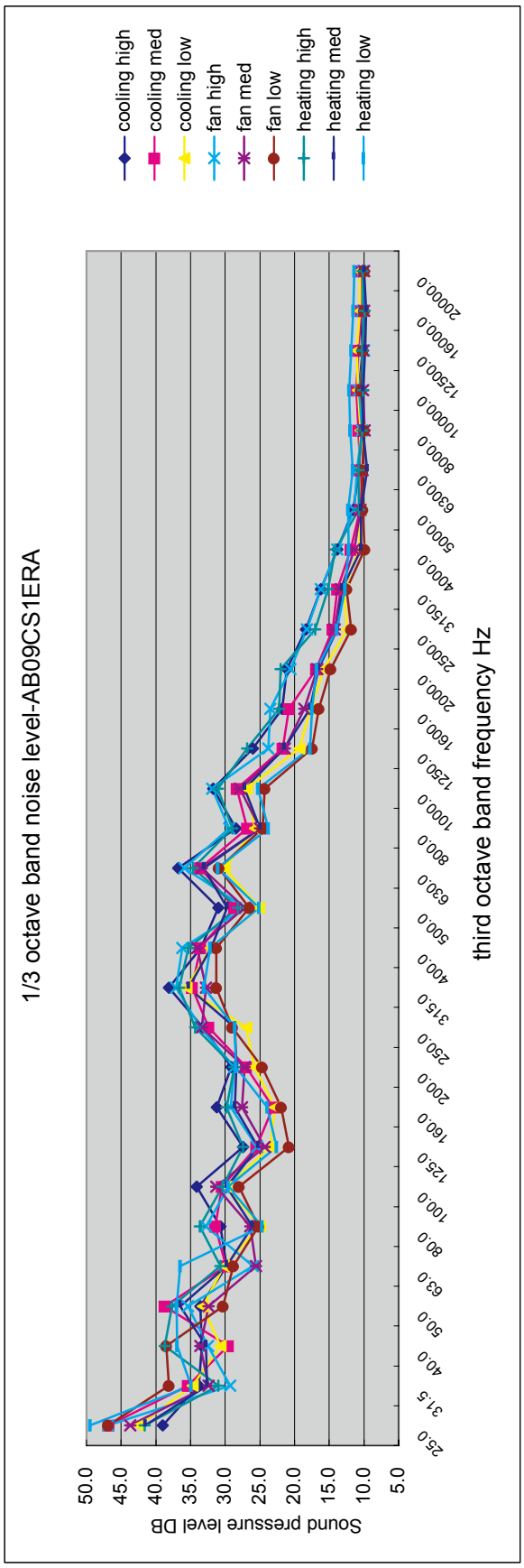
1) Testing illustrate:

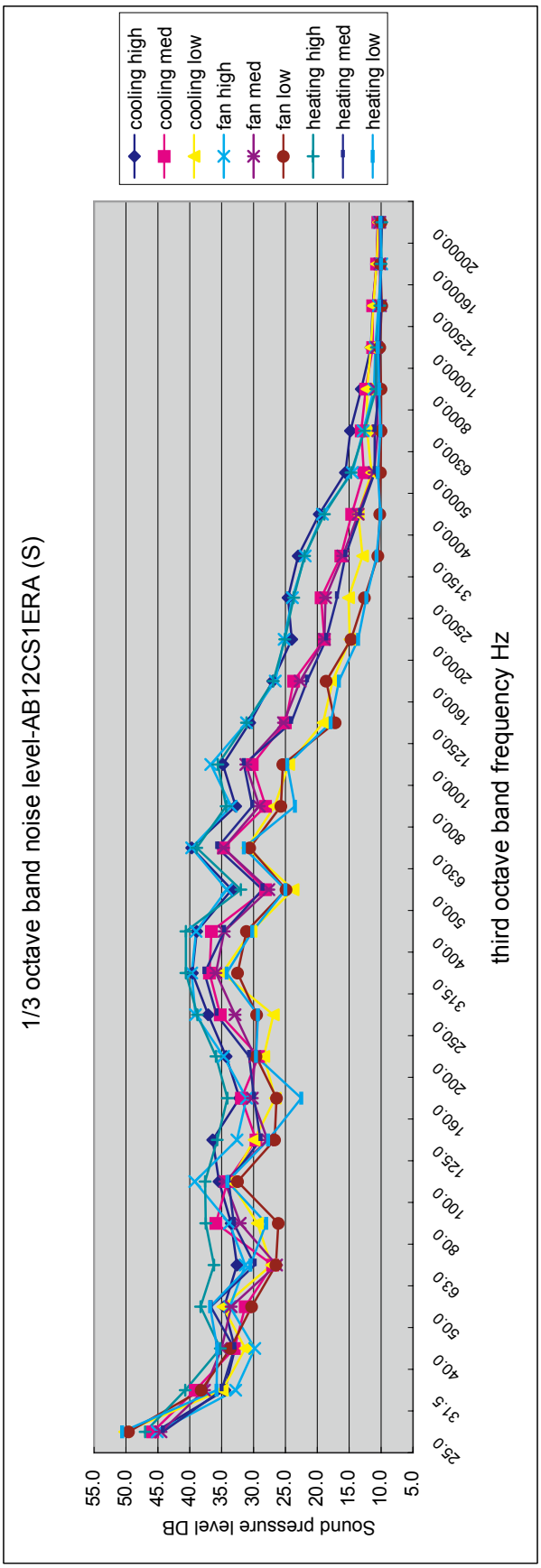
2) Testing condition:

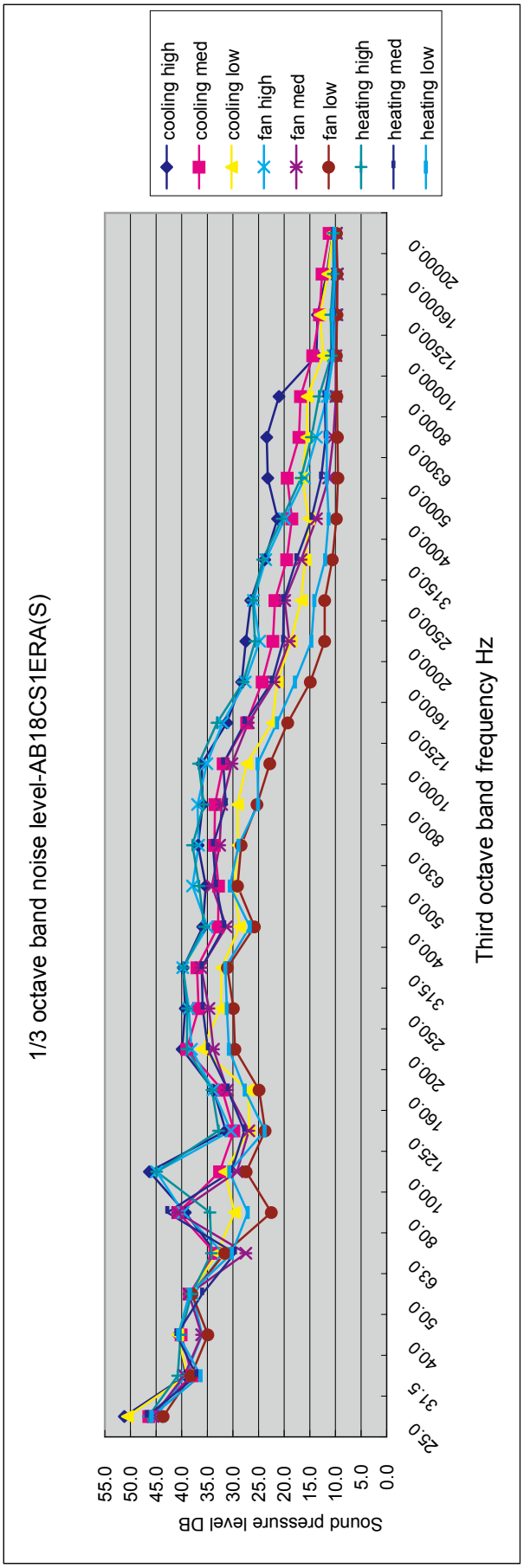
a: Unit running in the normal condition

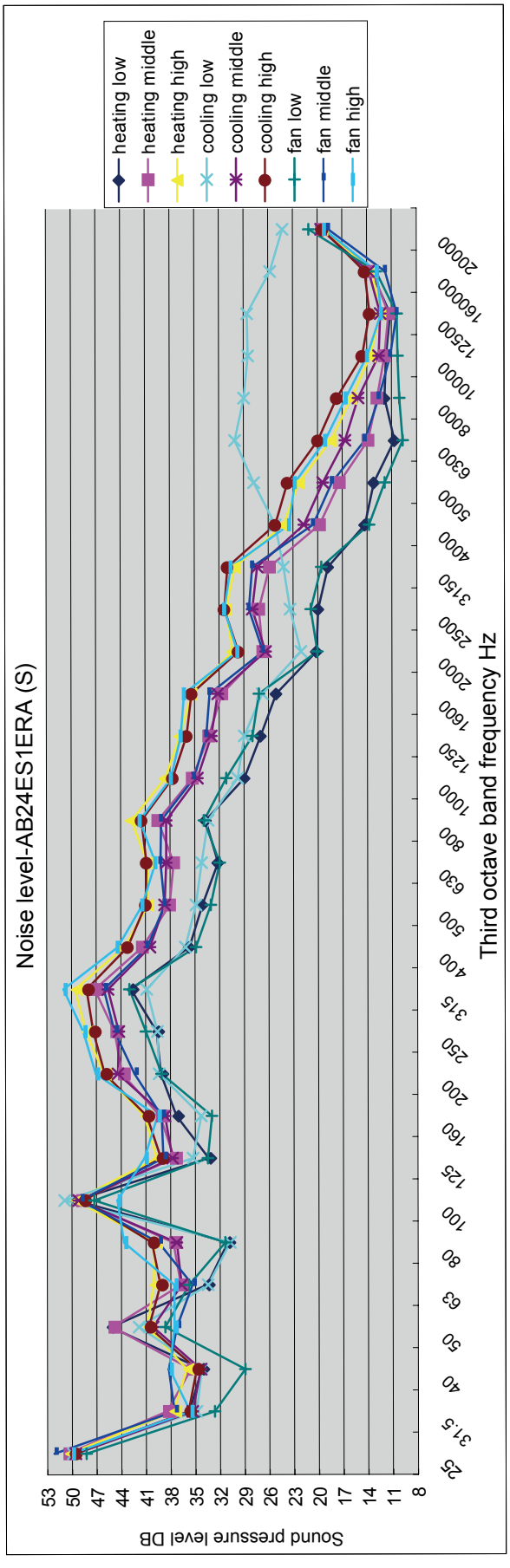
b: Test in the semi-anechoic chamber

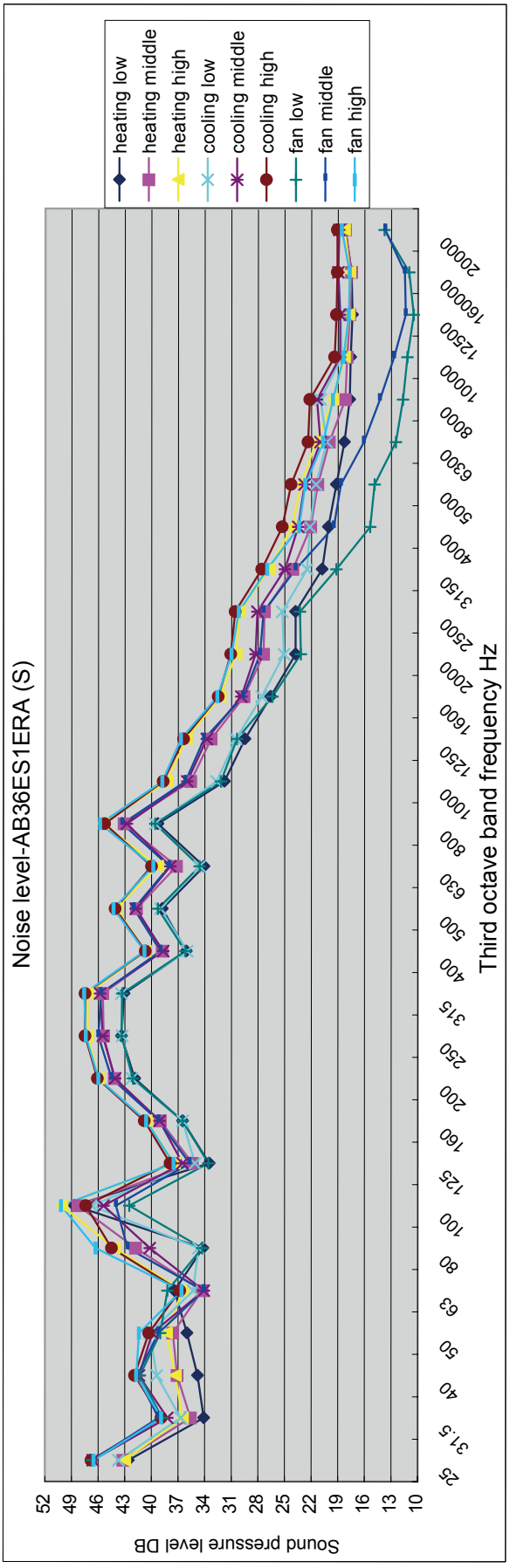
c: Noise level varies from the actual factors such as room structure, etc.

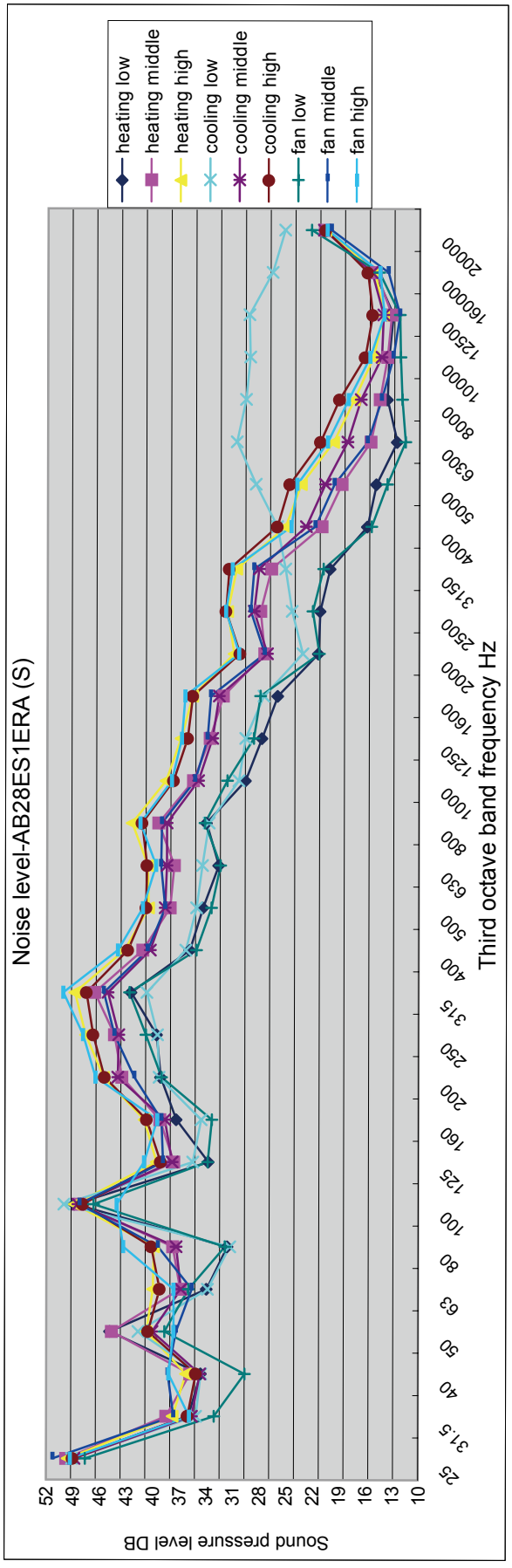

1/3 octave band noise level-AB09CS1ERA
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
Sound pressure level DB
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0

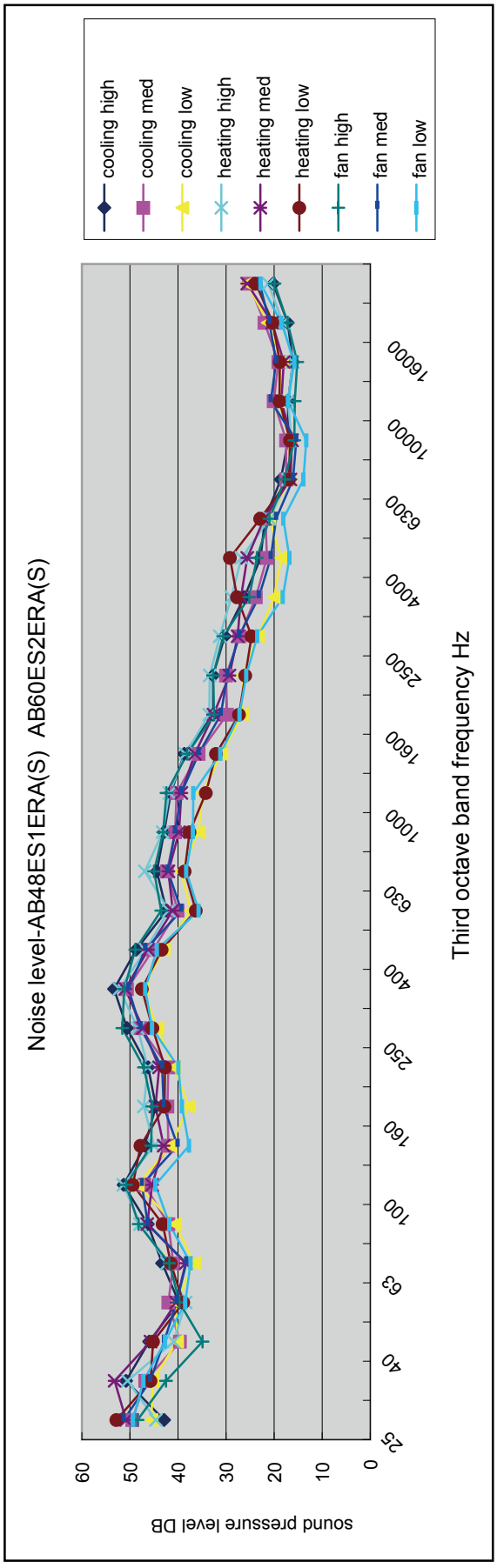

1/3 octave band noise level-AB12CS1ERA (S)
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
Sound pressure level DB
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0

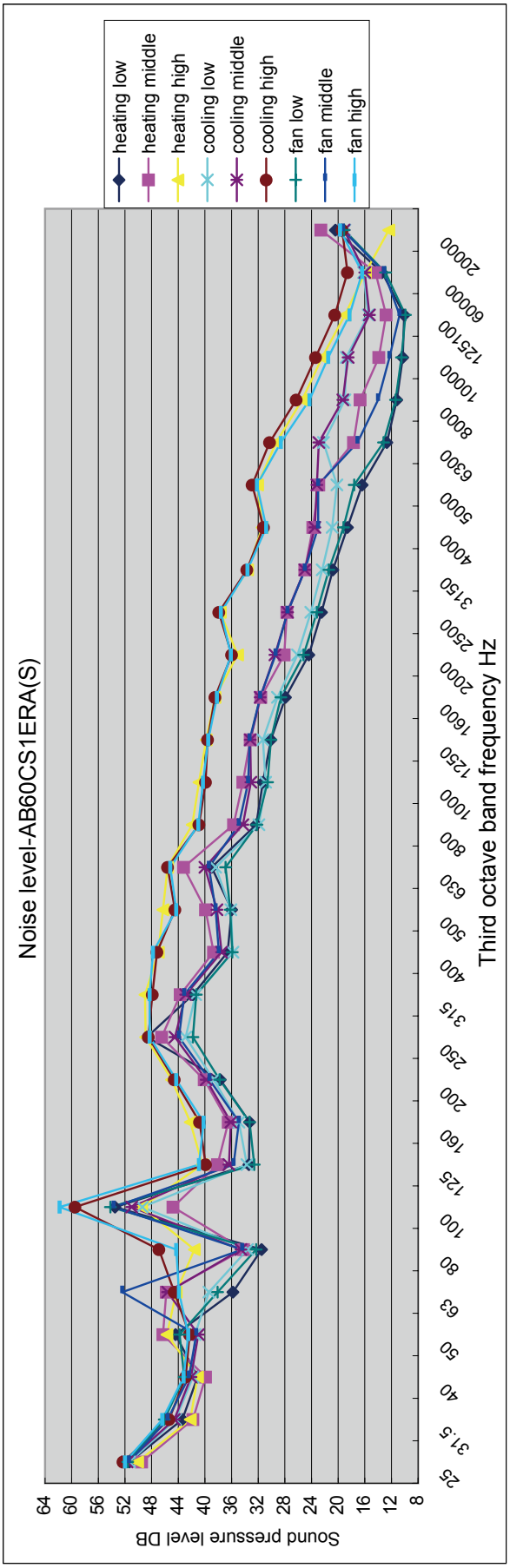

1/3 octave band noise level-AB18CS1ERA(S)
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
Sound pressure level DB
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0


Noise level-AB24ES1ERA (S)
heating low
heating middle
heating high
cooling low
cooling middle
cooling high
fan low
fan middle
fan high
Sound pressure level DB
53
50
47
44
41
38
35
32
29
26
23
20
17
14
11
8
Third octave band frequency Hz
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500
16000
20000


Noise level-AB36ES1ERA (S)
heating low
heating middle
heating high
cooling low
cooling middle
cooling high
fan low
fan middle
fan high
Sound pressure level DB
52 49 46 43 40 37 34 31 28 25 22 19 16 13 10
Third octave band frequency Hz
25 31.5 40 50 63 80 100 125 160 200 250 315 400 500 630 800 1000 1250 1600 2000 2500 3150 4000 5000 6300 8000 10000 12500 16000 20000


Noise level-AB28ES1ERA (S)
heating low
heating middle
heating high
cooling low
cooling middle
cooling high
fan low
fan middle
fan high
Sound pressure level DB
52 49 46 43 40 37 34 31 28 25 22 19 16 13 10
Third octave band frequency Hz
25 31.5 40 50 63 80 100 125 160 200 250 315 400 500 630 800 1000 1250 1600 2000 2500 3150 4000 5000 6300 8000 10000 12500 16000 20000


Noise level-AB48ES1ERA(S) AB60ES2ERA(S)
cooling high
cooling med
cooling low
heating high
heating med
heating low
fan high
fan med
fan low
sound pressure level DB
0
10
20
30
40
50
60
25
40
63
100
160
250
400
630
1000
1600
2500
4000
6300
10000
16000
Third octave band frequency Hz


Noise level-AB60CS1ERA(S)
heating low
heating middle
heating high
cooling low
cooling middle
cooling high
fan low
fan middle
fan high
Sound pressure level DB
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500
16000
20000
Third octave band frequency Hz

1.8 Installation

1. BEFORE INSTALLATION <Don't discard any accessories until comp>

- Determine the way to carry unit to installation place.
- Don't remove packing until unit reaches installation place.
- If unpacking is unavoidable, protect unit properly.

2. SELECTION OF INSTALLATION PLACE

(1) Installation place shall meet the following and agreed by customers:

- Place where proper air flow can be ensured.
- No block to air flow.
- Water drainage is smooth.
- Place strong enough to support unit weight.
- Place where inclination is not evident on ceiling. Enough space for maintenance.
- Indoor and outdoor unit piping length is within limit. (Refer to Installation Manual for outdoor unit.)
- Indoor and outdoor unit, power cable, inter unit cable are at least 1 m away from T.V. radio. This is helpful to avoid picture disturbance and noise. (Even if 1 miss kept, noise can still appear if radio wave is strong)

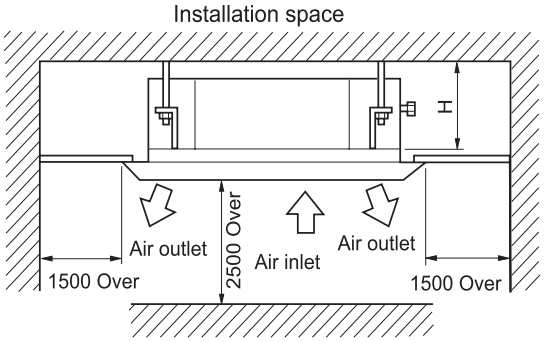
(2) Ceiling height

Indoor unit can be installed on ceiling of 2.5-3m in height. (Refer to Foeld setting and Installation Manual of ornament panel.)

(3) Install suspending bolt.

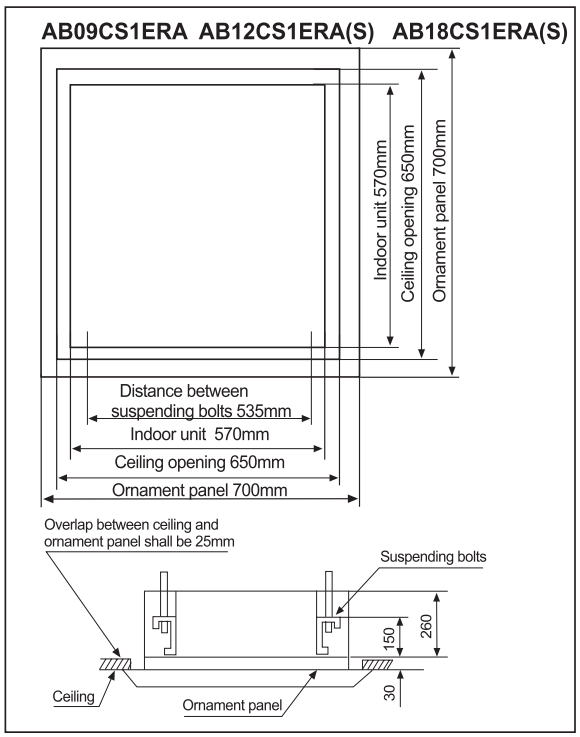
Check if the installation place is strong enough to hold weight. Take necessary measures in case it is not safe. (Distance between holes are marked on paper pattern. Refer to paper pattern for place need be reinforced)

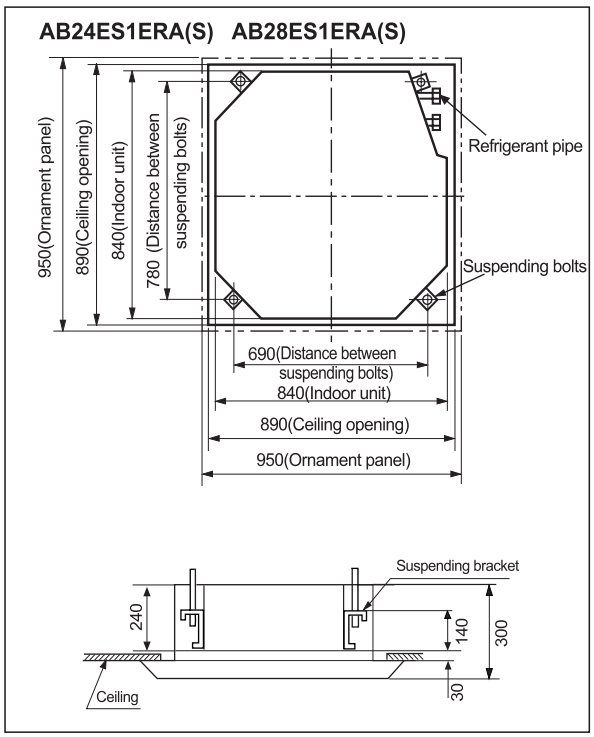
Model	H
AB09CS1ERA AB12CS1ERA(S) AB18CS1ERA(S)	320
AB24ES1ERA(S) AB28ES1ERA(S)	300
AB36ES1ERA(S) AB48ES1ERA(S) AB60CS1ERA(S) AB60ES2ERA(S)	335

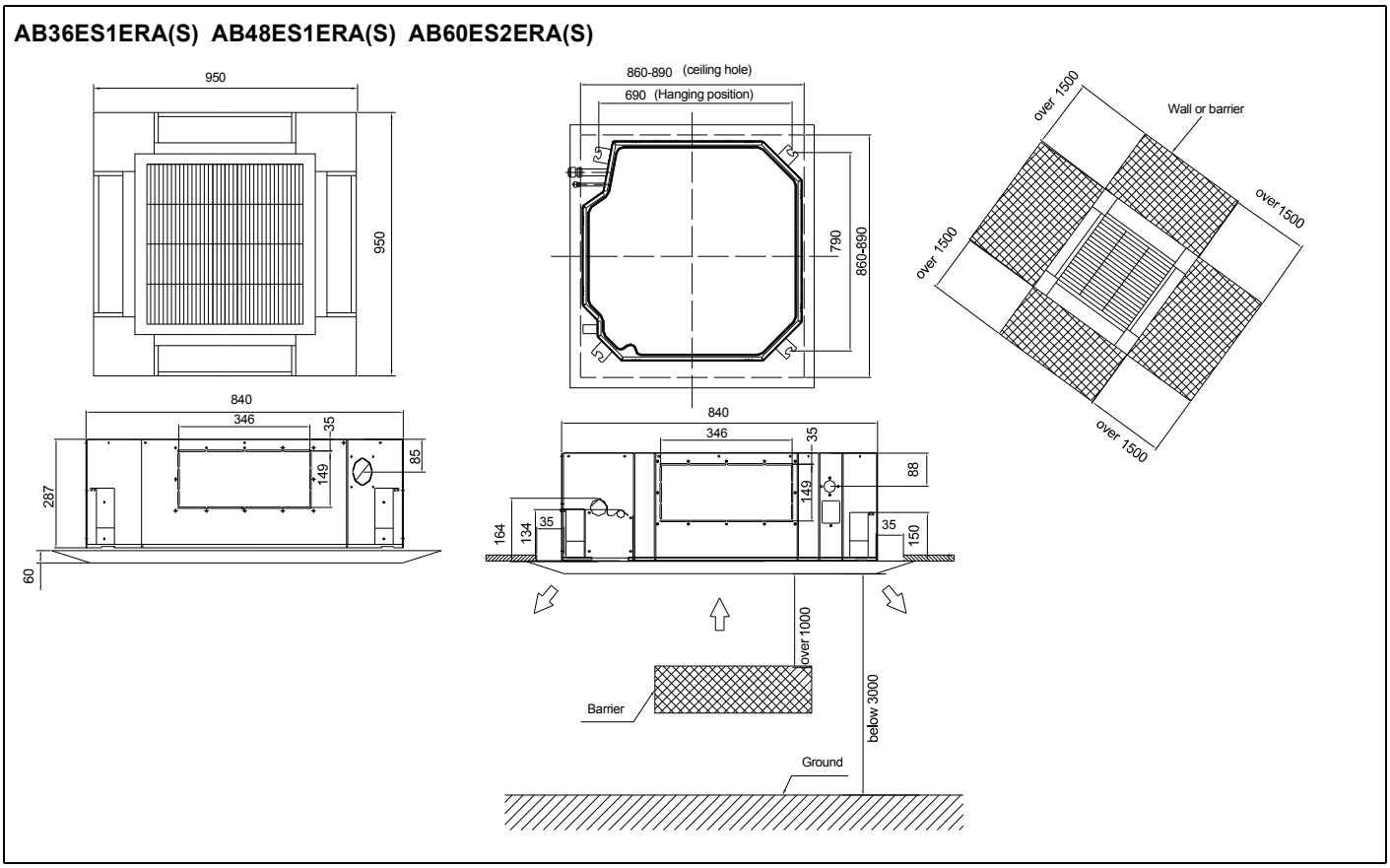


3. PREPARATION FOR THE INSTALLATION

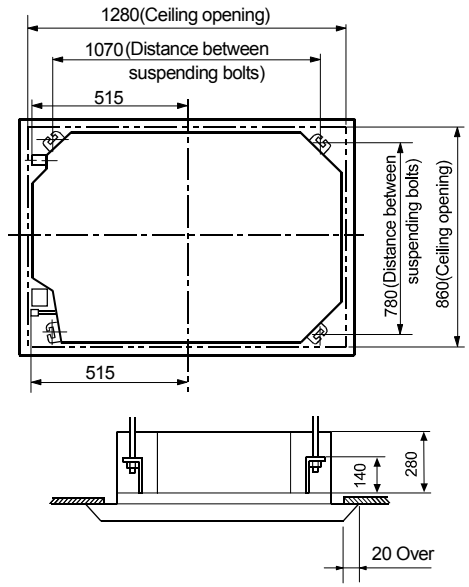
(1) Position of ceiling opening between unit and suspending bolt.







AB60CS1ERA(S)



Indoor unit	Panel
AB09CS1ERA AB12CS1ERA(S) AB18CS1ERA(S)	PB-700IB
AB24ES1ERA(S) AB28ES1ERA(S) AB36ES1ERA(S) AB48ES1ERA(S) AB60ES2ERA(S)	PB-950JB
AB60CS1ERA(S)	PB-1340IB

(2) Cut an opening in ceiling for installation if necessary. (when ceiling already exists.)

- Refer to paper pattern for dimension of ceiling hole.
- Connect all pipings (refrigerant, water drainage), wirings (inter unit cable) to indoor unit, before installation.
- Cut a hole in ceiling, may be a frame should be used to ensure a smooth surface and to prevent vibration.
- Contact your real estate dealer

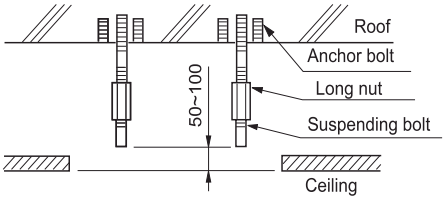
(3) Install a suspending bolt. (Use a M10 bolt)

- To support the unit weight, anchor bolt shall be used in the case of already exists ceiling. For new ceiling, use built in type bolt or parts prepared in the field.
- Before going on installing adjust space between ceiling.

Note:

All the above mentioned parts shall be prepared in field.

Installation example



4. INSTALLATION OF INDOOR UNIT

In the case of new ceiling

(1) Install unit temporally
Put suspending bracket on the suspending bolt. Be sure to use nut and washer at both ends of the bracket.

(2) As for the dimensions of ceiling hole, see paper pattern.
Ask your real estate dealer for details.
Center of the hole is marked on the paper pattern.
Center of the unit is marked on the card in the unit and on the paper pattern.
Mount paper pattern **5** onto unit using **3** screws **6**. Fix the corner of the drain pan at piping outlet.

<After installation on the ceiling>

(3) Adjust unit to its right position. (Refer to preparation for the installation-(1))

(4) Check unit's horizontal level.
Water pump and floating switch is installed inside indoor unit, check four corners of the unit for its level using horizontal compartor or PVC tube with water. (If unit is tilting against the direction of water drainage, problem may occur on floating switch, causing water leakage.)

(5) Remove the washer mounlting **2** and tighten the nut above.

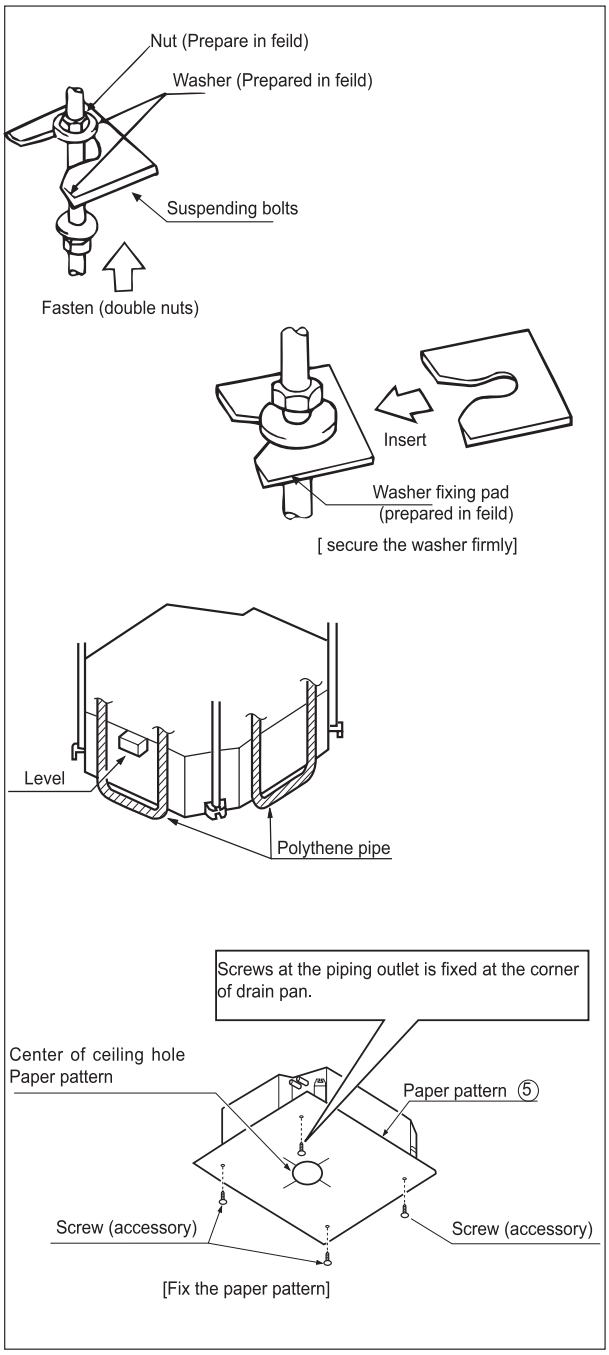
(6) Remove the paper pattern

In the case of ceiling already exists

(1) Install unit temporally
Put suspending bracket on the suspending bolt. Be sure to use nut and washer at both ends of the bracket. Fix the bracket firmly.

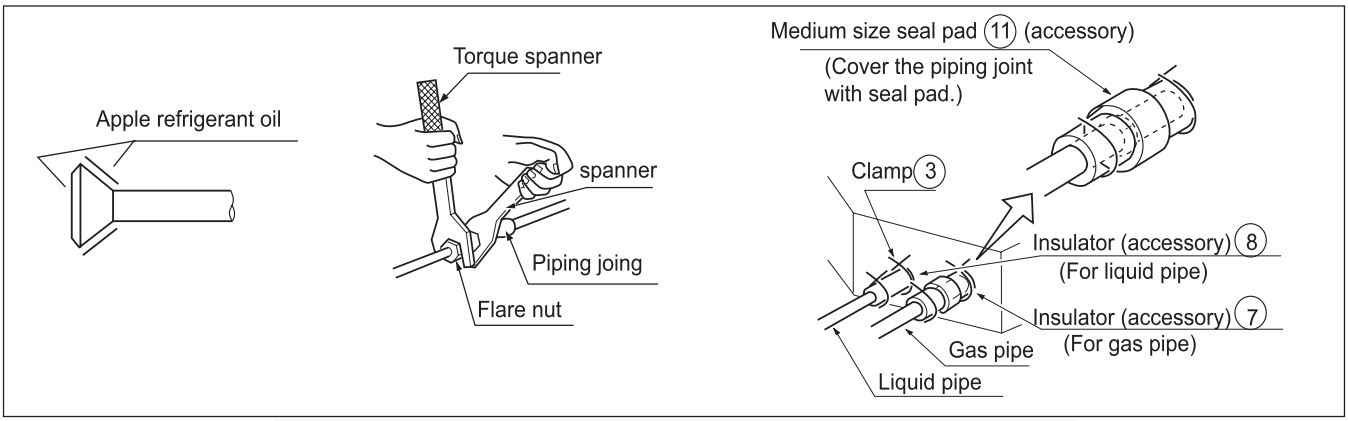
(2) Adjust the height and position of the unit. (Refer to preparation for the installation (1)).

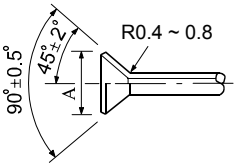
(3) Proceed **3** with **4** and of "In the case of new ceiling"



5. REFRIGERANT PIPING (As for outdoor piping, please refer to installation Manual of outdoor unit.)

- Outdoor is precharged with refrigerant.
- Be sure to see the Fig.1, when connecting and removing piping from unit.
- For the size of the flare nut, please refer to Table 1.
- Apply refrigerant oil at both inside and outside of flare nut.
- Tighten it band tight 3-4 turns then tighten it.
- Use torque specified in Table 1. (Too much force may damage flare nut, causing gas leakage).
- Check piping joints for gas leakage. Insulate piping as shown in Fig. below.
- Cover joint of gas piping and insulator **7** with seal.

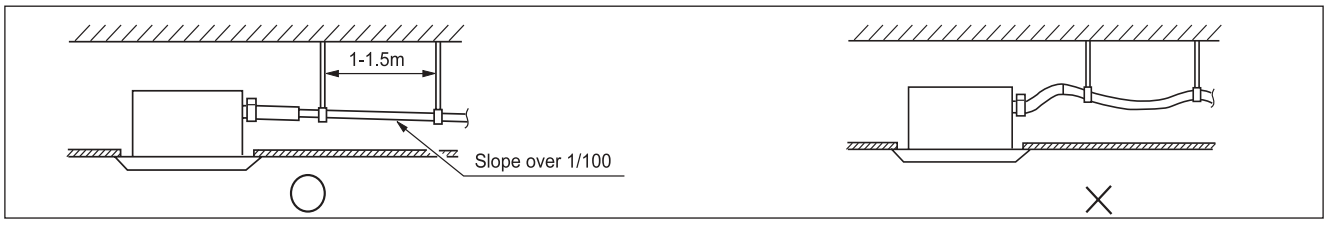


Pipe size	Tighten torque	A(mm)	Flare shape
6.35	1420~1720N.cm (144~176kgf.cm)	8.3~8.7	
9.52	3270~3990N.cm (333~407kgf.cm)	12.0~12.4	
12.7	4950~6030N.cm (490~500kgf.cm)	12.4~16.6	
15.88	6180~7540N.cm (630~770kgf.cm)	18.6~19.0	
19.05	9720~11860 N.cm (990~1210 kgf.cm)	22.9~23.3	

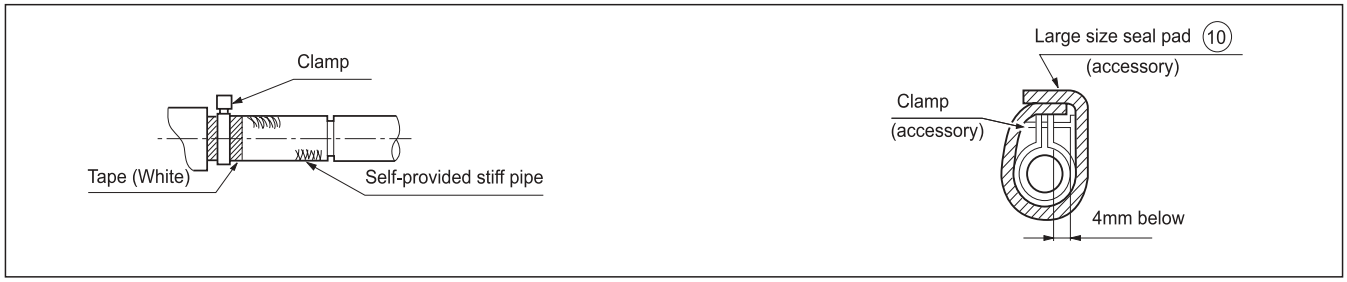
6. INSTALLATION OF WATER DRAINAGE PIPE

(1) Install water drainage pipe

- Pipe dia, shall be equal or larger than that of unit piping.(pipe of polyethylent; size: 25mm; O.D:32mm).
- Drain pipe should be short, with a downward slope at least 1/100 to prevent air bag from happening.
- If downward slope can't be made, take other measures to lift it up.
- Keep a distance of 1-1.5m between suspending brackets, to make water hose straight.



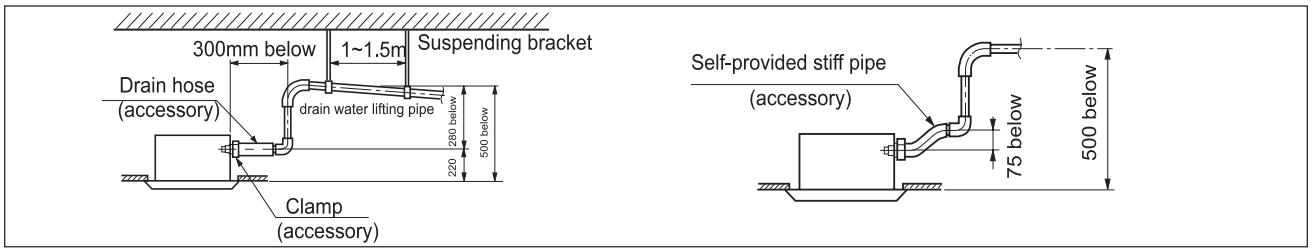
- Use the self-provided stiff pipe and clamp **1** with unit. Insert water pipe into water plug until it reaches the white tape. Tighten the clip until head of the screw is less than 4mm from hose.
- Wind the drain hose to the clip using seal pad **9**.
- Insulate drain hose in the room.



<Cautions for the drain water lifting pipe >

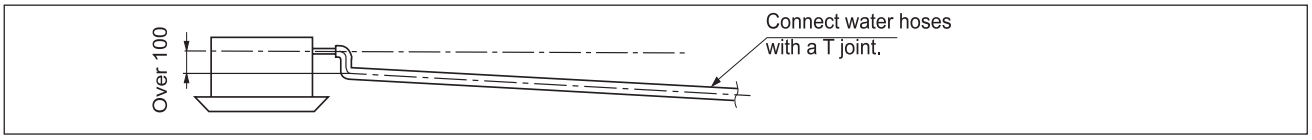
Installation height shall be less than 280mm.

There should be a right angle with unit, 300mm from unit.



Note:

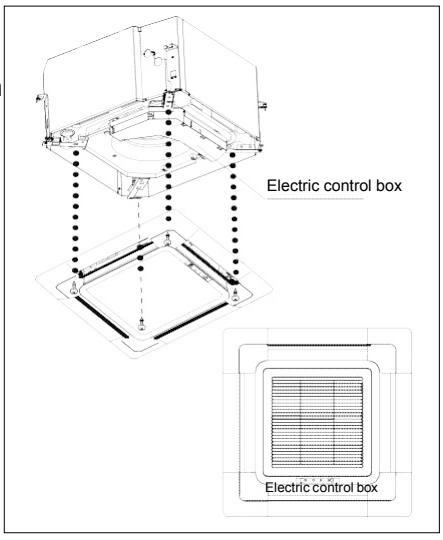
The slope of water drain hose (1) shall be within 75mm, don't apply too much force on it. If several water hoses join together, do as per following procedures.



Specifications of the water hoses shall meet the requirements for the unit running.

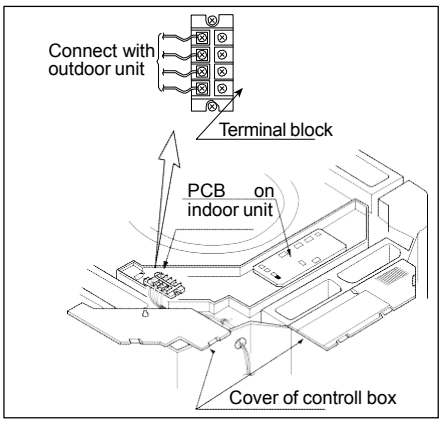
(2) Check if water drainage is smooth after installation.

- Check whether indoor unit is horizontal with leveler or polythene pipe filled with water , and check that the dimension of the ceiling opening is correct. Take off the lever gauge before install the ornament panel.
- Fasten the screws to make the height difference between the two sides of indoor unit less than 5mm.
- First fix it with screws temporally.
- Fasten the two temporally fixing screws and other two, and tighten the four screws.
- Connect the wires of synchronous-motor.
-]Connect the wire of signal.
- If no response of remote controller, check whether the wiring is correct, restart remote controller 10 seconds after shut off power supply.



<Limits of panel board installation>

- Install the panel board in the direction shown in the figure. The incorrect direction will result in water leakage, meanwhile swing and signal receiving are displayed that cannot be connected.
- Charge, through air outlet or inspecting hole, 1200ccd water to see water drainage.

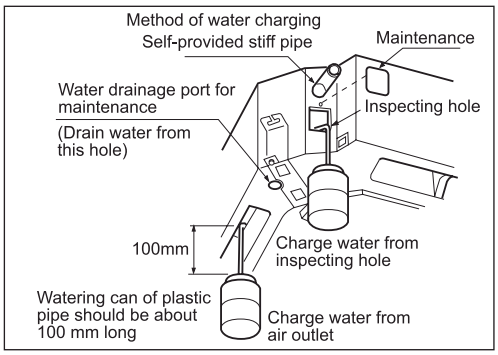


After wiring

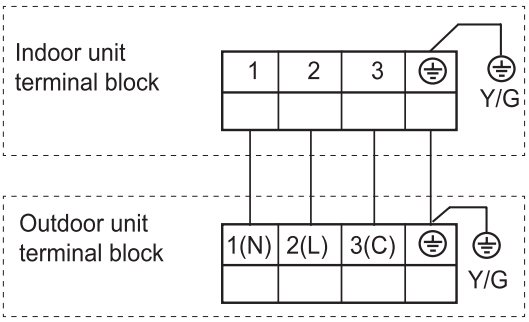
- Check water drainage in cooling operation.

When wiring is not complete

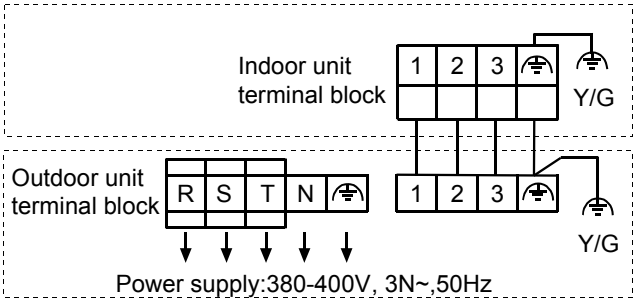
- Remove cover of control box, connect 1PH power to terminal 1 and 2 on terminal block.,use remote controller to operate the unit.
- Note, in this operation, fan will be running.
- Upon confirmation of a smooth water drainage, be sure to cut off power supply.

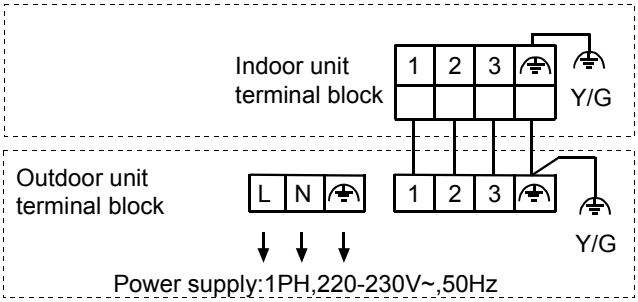


AB09CS1ERA
AB12CS1ERA(S)
AB18CS1ERA(S)
AB24ES1ERA(S)



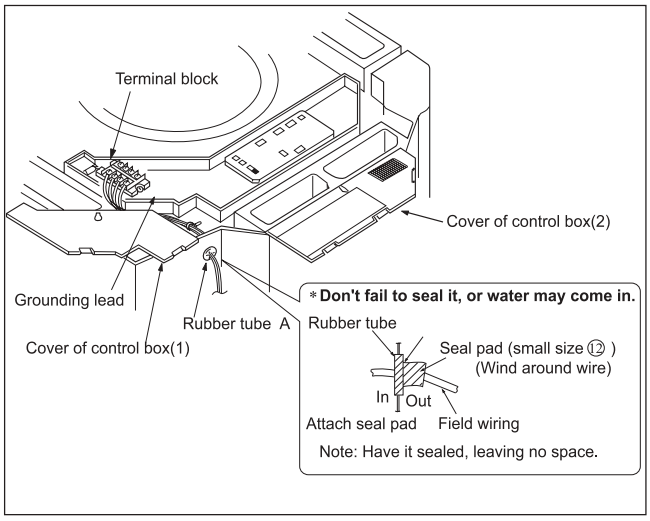
AB28ES1ERA(S) AB36ES1ERA(S) AB48ES1ERA(S) AB60CS1ERA(S) AB60ES2ERA(S)





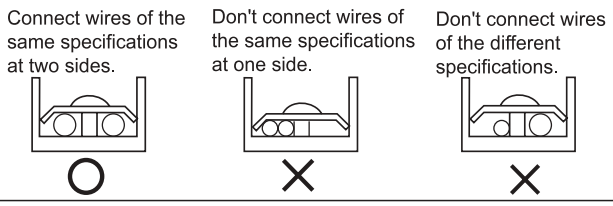
7. WIRING

- All supplied parts. materials and wiring operation must in appliance with local code and regulations.
- Use copper wire only.
- When make wiring, please refer to wiring diagram also.
- All wiring work must be done by qualified electricians.
- A circuit breaker must be installed, which can cut power supply to all system.
- See Installation Manual of outdoor unit for specifications of wires, circuit breaker, switches and wiring etc.
- Connecting of unit
  Remove cover of switch box (1) , drag wires into rubber tube A, then, after proper wiring with other wires, tighten clamp A. Connect wires of correct pole to the terminal block inside.
  Wind seal 12 around wires. (Be sure to do that, or, dew may occur).
- Upon connecting, replace control box cover (1) and (2).



⚠ WARNING:

Obscrve the following when connecting power supply terminal block:
Don't connect wires of different specifications to the same terminal block.
(Loose wire may cause overheating of circuit)
Connect wires of same specifications as shown in right Fig.



8. WIRING EXAMPLE

As for outdoor unit circuit, please see Installation Manual of outdoor unit.

Note:

All electric wires have their own poles, poles must match that on terminal block.

Pay special care to the following and check after installation

Item to the checked	Improper installation may cause
Is indoor unit firmly installed?	Unit might fall down, make vibration or noise.
Is gas leakage check performed?	This may lead to gas shortage.
Is unit properly insulated?	Dew or water drop may occur.
Is water drainage smooth?	Dew or water drop may occur.
Is power voltage meet that stipulated on the nameplate?	Problem may occur or parts got burned.
Is wiring and piping correctly arranged?	Problem may occur or parts got burned.
Is unit safely grounded?	There might be a danger of electric shock.
Is wire size correct?	Problem may occur or parts got burned.
Are there any obstacles on air inlet and outlet grill of indoor and outdoor unit?	This may cause poor cooling.
Is record made for piping length and refrigerant charging amount?	It is hard to control refrigerant charging amount.

Attention: after finishing installation,confirm no refrigerant leakage.

2. Convertible type

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2.1 Features



AC12CS1ERA(S)
AC18CS1ERA(S)
AC24CS1ERA(S)



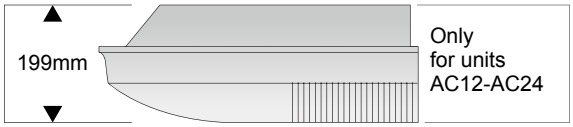
AC28ES1ERA(S)
AC36ES1ERA(S)



AC48FS1ERA(S)
AC60FS1ERA(S)

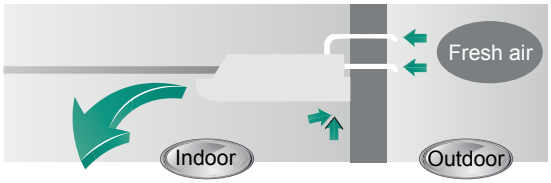
Ultra thin unit, only thick 199mm (Only for AC12~24CS1ERA(S))

The convertible unit adopts a double drain pan design. The unit body is only thin, only 199mm. It is beautiful, elegant and and space saving.



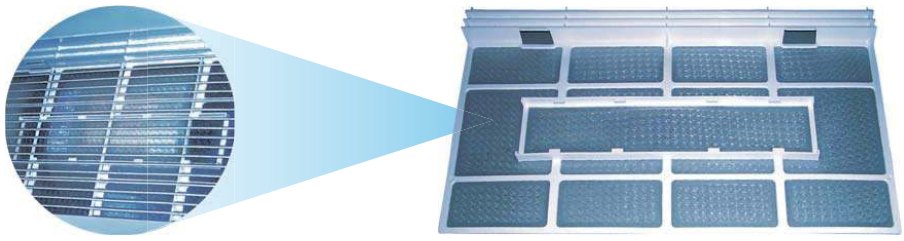
Fresh-air intake (28~60)

There are fresh air intake holes in the unit, which can make the air more comfortable.



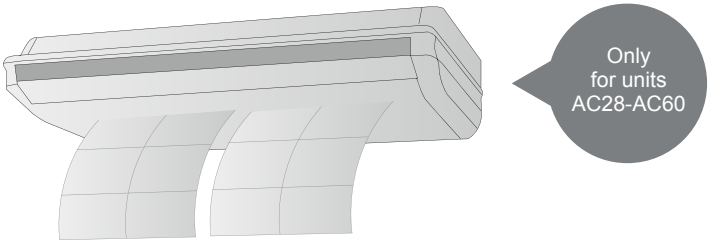
Long-life & High efficiency air purify filter

The units adopts high efficiency air purify filter, greatly improves the room air quality.



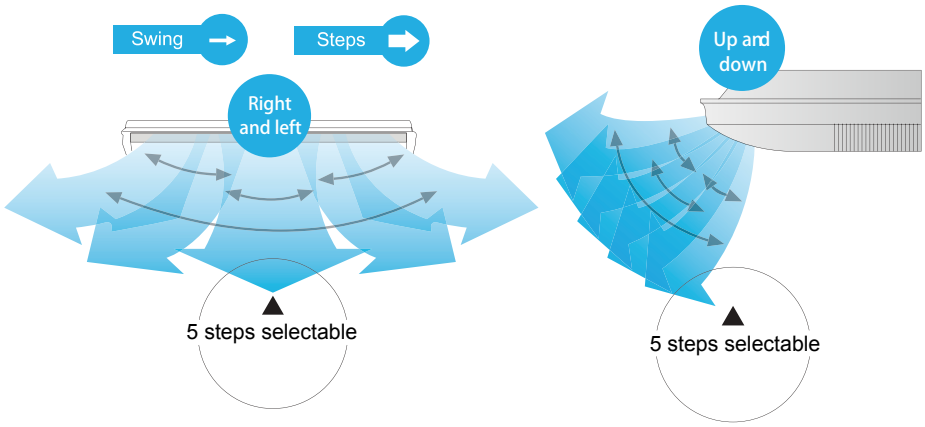
Easy taken out filter

The filter can be easily taken out, you need not take down the unit or open the air inlet grill, and realize convenient cleaning working



Automatic Control of Airflow Direction

The airflow direction can be controlled in 5 steps from up to down and from left to right automactically, more selectable, more flexible.



2.2 Specification

Item			Model	AC12CS1ERA(S)/1U12BS3ERA	
Function				cooling	heating
Capacity			KW	3.5(0.9~4.5)	3.9(1~4.8)
Sensible heat ratio				0.71	/
Total power input			KW	1.03(0.28~1.8)	1.02(0.28~1.8)
Max. power input			W	1800	1800
EER or COP			W/W	3.39	3.81
Dehumidifying capacity			10 - ³×m³/h	1.6	
Power cable				H05RN-F 4G 4.0mm2	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	5.0(1.2-8.0)/8.0	4.9(1.2-8.0)/8.0
Start Current			A	3	
Indoor unit	Unit model (color)			AC12CS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1100/1025/825	
		Fan motor output/ input power	W	30/79	
		Air-flow(H-M-L)	m³/h	650/550/450	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total Area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	990/655/199	
		Package（L×W×H）	mm×mm×mm	1150/750/300	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 18/20	
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(O)	
			Infrared	YR-HD01(S)	
	Fresh air hole dimension		mm	NONE	
	Electricity Heater		kW	NONE	
	Sound power Noise level (H-M-L)		dB(A)	58	
	Sound pressure Noise level (H-M-L)		dB(A)	45/41/36	
	Pipe	Liquid Pipe(mm)		6.35	
		Gas Pipe(mm)		9.52	
		Connecting Method		flared	
	Weight	(Net / Shipping)	kg / kg	26.3/32.3	

cooling		Pdesignc(kW)：	3.5kW	SEER/CLASS	6.1/A++	QCE(Annual electricity consumption for cooling) kWh：	222
heating	Average	Pdesignh(-10℃)	3.4kW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating) kWh：	1427
	Warmer	Pdesignh(2℃)	3.7kW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating) kWh：	1307
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating) kWh：	/
Tdesignh：-10℃		Tbivalent：-8℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AC18CS1ERA(S)	
Function					cooling	heating
Capacity				KW	5(1.8~5.8)	5.5(2~6.5)
Sensible heat ratio					0.71	/
Total power input				KW	1.53(0.55~2)	1.48(0.6~2)
Max. power input				W	2000	2000
EER or COP				W/W	3.26	3.72
Dehumidifying capacity				10 - ³×m³/h	1.8	
Power cable					H05RN-F 4G 4.0mm2	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	6.8(2.3-9.5)/9.5	6.5(2.3-9.5)/9.5
Start Current				A	3	
Indoor unit	Unit model (color)				AC18CS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX2	
		Speed(H-M-L)		r/min	1220/1190/1050	
		Fan motor output/ input power		W	145/55	
		Air-flow(H-M-L)		m³/h	800/720/650	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			3	
		Total Area		m²	/	
	Dimension	External（L×W×H）		mm×mm×mm	990/655/199	
		Package（L×W×H）		mm×mm×mm	1150/750/300	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 18/20	
	Controller (O-Optional,S-Standard)			Wired	YR-E14	
				Infrared	YR-HD01	
	Fresh air hole dimension			mm	NONE	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	61/59/57	
	Sound pressure Noise level (H-M-L)			dB(A)	48/46/44	
	Weight (Net / Shipping)			kg / kg	28.3/34.3	
Piping	Refrigerant	Type / Charge		g	R410A/1300	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant		m	5	
	Pipe	Liquid		mm	6.35	
		Gas		mm	12.7	
	Between I.D &O.D	MAX.Drop		m	15	
		MAX.Piping length		m	25	
	Connection Method				flared	

cooling		Pdesignc(kW)：	5.0kW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh：	315
heating	Average	Pdesignh(-10℃)	4.7kW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh：	1868
	Warmer	Pdesignh(2℃)	5.3kW	SCOP/CLASS	4.1/A+	QHE(Annual electricity consumption for heating)kWh：	1814
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh：	/
Tdesignh：-10℃		Tbivalent：-8℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AC24CS1ERA(S)/1U24GS1ERA	
Function					cooling	heating
Capacity				KW	6.5（2~7.3）	7.1（2.5~8.0）
Sensible heat ratio					0.72	/
Total power input				KW	2.16（0.5~2.6）	2.08（0.5~2.6）
Max. power input				W	2600	2600
EER or COP				W/W	3.01	3.41
Dehumidifying capacity				10 - ³×m³/h	2.0	
Power cable					H05RN-F 4G 6.0mm2	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	9.5（2.3-12)/12	9.5(2.3-12)/12
Start Current				A	3	
Indoor unit	Unit model (color)				AC24CS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX2	
		Speed(H-M-L)		r/min	1220/1190/1050	
		Fan motor output/ input power		W	55/145	
		Air-flow(H-M-L)		m³/h	800/720/650	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			3	
		Total Area		m²	/	
	Dimension	External（L×W×H）		mm×mm×mm	990/655/199	
		Package（L×W×H）		mm×mm×mm	1150/750/300	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 18/20	
	Controller (O-Optional,S-Standard)			Wired	YR-E16(O)/YR-E17(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	NONE	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	61	
	Sound pressure Noise level (H-M-L)			dB(A)	48/46/44	
	Weight (Net / Shipping)			kg / kg	28.3/34.3	
Piping	Refrigerant	Type / Charge		g	R410A/1600	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant		m	7	
	Pipe	Liquid		mm	9.52	
		Gas		mm	15.88	
	Between I.D &O.D	MAX.Drop		m	15	
		MAX.Piping length		m	25	
	Connection Method				flared	

cooling		Pdesignc(kW)：	6.5kW	SEER/CLASS	5.1/A	QCE(Annual electricity consumption for cooling)kWh：	489
heating	Average	Pdesignh(-10℃)	5.0kW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh：	2127
	Warmer	Pdesignh(2℃)	5.9kW	SCOP/CLASS	4.8/A++	QHE(Annual electricity consumption for heating)kWh：	1722
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh：	/
Tdesignh：-10℃		Tbivalent:-8℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature: 32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature: 46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AC28ES1ERA(S)/1U28HS1ERA(S)	
Function				cooling	heating
Capacity			kW	8.5（2.1-10.0)	9.5(2.2-10.5)
Sensible heat ratio				/	/
Total power input			kW	2.355(0.5-4.2)	2.632(0.5-4.2)
Max. power input			W	4200	4200
EER or COP			W/W	3.61	3.61
Dehumidifying capacity			10 - ³×m³/h	3.0	
Power cable				/	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	10.2(2.2-18.5)/18.5	11.4(2.2-18.5)/18.5
Start Current			A	5	
Indoor unit	Unit model (color)			AC28ES1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX3	
		Speed(H-M-L)	r/min	1145/1092/956(50Hz,5UF capacity)	
		Fan motor output/ input power	W	60/145	
		Air-flow(H-M-L)	m³/h	1630/1537/1375	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total Area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	1298/700/244	
		Package（L×W×H）	mm×mm×mm	1500/790/315	
	Drainage pipe (material , I.D./O.D.)		mm	PP 20/25	
	Controller (O-Optional,S-Standard)		Wired(S)	YR-E17(O)/YR-E16A(O)	
			Infrared(O)	YR-HD01(S)	
	Fresh air hole dimension		mm	200	
	Electricity Heater		kW	none	
	Sound power Noise level (H-M-L)		dB(A)	64	
	Sound pressure Noise level (H-M-L)		dB(A)	49/45/43	
	Weight (Net / Shipping)		kg / kg	37/47	
Piping	Refrigerant	Type / Charge	g	R410A/2000	
		Recharge quantity	g/m	45	
		Max. pipe length without charge refriigerant	m	20	
	Pipe	Liquid	mm	9.52	
		Gas	mm	15.88	
	Between I.D &O.D	MAX.Drop	m	15	
		MAX.Piping length	m	25	
	Connection Method			flared	

Cooling		Pdesignc(kW)：	8.5KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh：	543
Heating	Average	Pdesignh(-10℃)	7.2KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh：	2970
	Warmer	Pdesignh(2℃)	8.3	SCOP/CLASS	5.0/A++	QHE(Annual electricity consumption for heating)kWh：	2509
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh：	/
Tdesignh：-10℃		Tbivalent：-10℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AC28ES1ERA(S)/1U28GS2ERA(S)	
Function				cooling	heating
Capacity			kW	8.3(2.1-10.0)	9.0(2.2-10.5)
Sensible heat ratio				0.74	
Total power input			kW	2.57(0.5~4.2)	2.43(0.5~4.2)
Max. power input			W	4200	4200
EER or COP			W/W	3.23	3.71
Dehumidifying capacity			10 - ³×m³/h	5.0	
Power cable				/	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	10.8(2.3-14.3)/14.3	10.5(2.3-14.3)/14.3
Start Current			A	/	
Indoor unit	Unit model (color)			AC28ES1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX3	
		Speed(H-M-L)	r/min	1145/1092/956(50Hz,5UF capacity)	
		Fan motor output/ input power	W	145/60	
		Air-flow(H-M-L)	m³/h	1630/1537/1375	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total Area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	1298/700/244	
		Package（L×W×H）	mm×mm×mm	1500/790/315	
	Drainage pipe (material , I.D./O.D.)		mm	PP 20/25	
	Controller (O-Optional,S-Standard)		Wired(S)	YR-E14(O)	
			Infrared(O)	YR-HD(S)	
	Fresh air hole dimension		mm	200	
	Electricity Heater		kW	none	
	Sound power Noise level (H-M-L)		dB(A)	64/61/59	
	Sound pressure Noise level (H-M-L)		dB(A)	51/48/46	
	Weight (Net / Shipping)		kg / kg	37/47	
PIPING	Refrigerant	Type / Charge	g	R410A/2000	
		Recharge quantity	g/m	45	
		Max. pipe length without charge refriigerant		20	
	Pipe	Liquid	mm	9.52	
		Gas	mm	15.88	
	Between I.D &O.D	MAX.Drop	m	15	
		MAX.Piping length	m	25	

Cooling		Pdesignc(kW)：	8.3KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling) kWh：	534
Heating	Average	Pdesignh(-10℃)	7.5KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating) kWh：	2773
	Warmer	Pdesignh(2℃)	8.3	SCOP/CLASS	5.0/A++	QHE(Annual electricity consumption for heating) kWh：	2509
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating) kWh：	/
Tdesignh：-10℃		Tbivalent：-10℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AC36ES1ERA(S)/1U36HS1ERA(S)	
Function				cooling	heating
Capacity			kW	10(2.2-11)	10.6(2.2-11.8)
Sensible heat ratio				/	/
Total power input			kW	2.77(0.5-4.3)	2.94(0.5-4.3)
Max. power input			W	4300	4300
EER or COP			W/W	3.61	3.61
Dehumidifying capacity			10 - ³×m³/h	3.6	
Power cable				/	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	10.9（2.2-19.3）/19.3	12.8（2.2-19.3）/19.3
Start Current			A	5	
Indoor unit	Unit model (color)			AC36ES1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX3	
		Speed(H-M-L)	r/min	1145/1092/956 (50Hz,5UF capacity)	
		Fan motor output/ input power	W	60/145	
		Air-flow(H-M-L)	m³/h	1630/1537/1375	
	Heat xchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total Area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	1298/700/240	
		Package（L×W×H）	mm×mm×mm	1500/790/315	
	Drainage pipe (material , I.D./O.D.)		mm	PP 20/25	
	Controller (O-Optional,S-Standard)		Wired(S)	YR-E17(O)/YR-E16A(O)	
			Infrared(O)	YR-HD01(S)	
	Fresh air hole dimension		mm	200	
	Electricity Heater		kW	none	
	Sound power Noise level (H-M-L)		dB(A)	64	
	Sound pressure Noise level (H-M-L)		dB(A)	49/45/43	
	Weight (Net / Shipping)		kg / kg	37/47	
Piping	Refrigerant	Type / Charge	g	R410A/2500	
		Recharge quantity	g/m	45	
		Max. pipe length without charge refriigerant	m	20	
	Pipe	Liquid	mm	9.52	
		Gas	mm	15.88	
	Between I.D &O.D	MAX.Drop	m	20	
		MAX.Piping length	m	30	
	Connection Method			flared	

Cooling		Pdesignc(kW)：	10.0KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh：	655
Heating	Average	Pdesignh(-10℃)	8.1KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh：	3129
	Warmer	Pdesignh(2℃)	9.1kw	SCOP/CLASS	4.9/++	QHE(Annual electricity consumption for heating)kWh：	2702
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh：	/
Tdesignh：-10℃		Tbivalent：-10℃		TOL：-15℃		Elbu:0.86	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AC48FS1ERA(S)/1U48IS1EAB(S)	
Function					cooling	heating
Capacity				kW	14.5	15.5
Sensible heat ratio					0.74	
Total power input				kW	4.51	4.28
Max. power input				W	6500	6500
EER or COP				W/W	3.22(A)	3.62(A)
Dehumidifying capacity				10 - ³×m³/h	5.1	
Power cable					/	
Power source				N, V, Hz	1, 220~230, 50/60	
Running /Max.Running current				A / A	8.3/10.5	8.4/10.5
Start Current				A	/	
Indoor unit	Unit model (color)				AC48FS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX4	
		Speed(H-M-L)		r/min	(1250/1150/1100)r/min	
		Fan motor input power		kW	0.18	
		Fan motor output power		kW	0.105	
		Air-flow(H-M-L)		m³/h	2000/1800/1400	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Total area		m²	0.312	
	Dimension	External（L×W×H）		mm×mm×mm	1580/700/240	
		Package（L×W×H）		mm×mm×mm	1710/790/315	
	Drainage pipe (material , I.D./O.D.)			mm	PP 20/25	
	Controller (O-Optional,S-Standard)			Wired	YR-E14(O)	
				Infrared	YR-HD(S)	
	Fresh air hole dimension			mm	200	
	Electricity heater			kW	0	
	Noise level (H-M-L)			dB(A)	53/51/49	
	Weight (Net / Shipping)			kg / kg	54/61	
Piping	Refrigerant	Type / Charge		g	R410A/2850	
		Recharge quantity		g/m	45	
	Pipe	Liquid		mm	9.52	
		Gas		mm	19.05	
	Between I.D &O.D	MAX.Drop		m	30	
		MAX.Piping length		m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AC48FS1ERA(S)/1U48IS1ERB(S)	
Function				cooling	heating
Capacity			kW	14(6.0-15)	15(6.0~17)
Sensible heat ratio				0.74	
Total power input			kW	4.34(2.0---6.0)	4.14(2.0---6.0)
Max. power input			W	6000	6000
EER or COP			W/W	3.23(A)	3.62(A)
Dehumidifying capacity			10 - ³×m³/h	5.0	
Power cable				/	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	6.7(2.9-10.0)/10.0	6.5(2.9-10.0)/10.0
Start Current			A	/	
Indoor unit	Unit model (color)			AC48FS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX4	
		Speed(H-M-L)	r/min	(1250/1150/1100)r/min	
		Fan motor input power	kW	0.18	
		Fan motor output power	kW	0.105	
		Air-flow(H-M-L)	m³/h	2000/1800/1400	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total area	m²	0.312	
	Dimension	External（L×W×H）	mm×mm×mm	1580/700/240	
		Package（L×W×H）	mm×mm×mm	1710/790/315	
	Drainage pipe (material , I.D./O.D.)		mm	PP 20/25	
	Controller (O-Optional,S-Standard)		Wired	YR-E14(O)	
			Infrared	YR-HD01(S)	
	Fresh air hole dimension		mm	200	
	Electricity heater		kW	0	
	Noise level (H-M-L)		dB(A)	53/51/49	
	Weight (Net / Shipping)		kg / kg	54/61	
Piping	Refrigerant	Type / Charge	g	R410A/3300	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AC48FS1ERA(S)/1U48LS1EAB(S)	
Function			cooling	heating
Capacity		kW	14.1	15.2
Sensible heat ratio			0.74	
Total power input		kW	4.67	4.7
Max. power input		W	6500	6500
EER or COP		W/W	3.02(B)	3.23(C)
Dehumidifying capacity		10 - ³×m³/h	5.0	
Power cable			/	
Power source		N, V, Hz	1N~,220~230, 50/60	
Running /Max.Running current		A / A	7.8/10.5	8.0/10.5
Start Current		A	/	
Indoor unit	Unit model (color)		AC48FS1ERA(S)(WHITE)	
	Fan	Type × Number	CENTRIFUGALX4	
		Speed(H-M-L)	r/min	(1250/1150/1100)r/min
		Fan motor input power	kW	0.18
		Fan motor output power	kW	0.105
		Air-flow(H-M-L)	m³/h	2000/1800/1400
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total area	m²	0.312
	Dimension	External（L×W×H）	mm×mm×mm	1580/700/240
		Package（L×W×H）	mm×mm×mm	1710/790/315
	Drainage pipe (material , I.D./O.D.)		mm	PP 20/25
	Controller (O-Optional,S-Standard)		Wired	YR-E14(O)
			Infrared	YR-HD(S)
	Fresh air hole dimension		mm	200
	Electricity heater		kW	0
	Noise level (H-M-L)		dB(A)	53/51/49
	Weight (Net / Shipping)		kg / kg	54/61
Piping	Refrigerant	Type / Charge	g	R410A/2600
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AC48FS1ERA(S)/1U48LS1ERA(S)	
Function					cooling	heating
Capacity				kW	12.5(6.0-14.5)	14.1(6.0~16.5)
Sensible heat ratio					0.74	
Total power input				kW	3.89（2.0---6.0)	4.10（2.0---6.0)
Max. power input				W	5600	5600
EER or COP				W/W	3.21(A)	3.44(B)
Dehumidifying capacity				10 - ³×m³/h	5.0	
Power cable					/	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	18.5(2.7-26)/26	19.2(2.7-26)/26
Start Current				A	/	
Indoor unit	Unit model (color)				AC48FS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX4	
		Speed(H-M-L)		r/min	(1250/1150/1100)r/min	
		Fan motor input power		kW	0.18	
		Fan motor output power		kW	0.105	
		Air-flow(H-M-L)		m³/h	2000/1800/1400	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Total area		m²	0.312	
	Dimension	External（L×W×H）		mm×mm×mm	1580/700/240	
		Package（L×W×H）		mm×mm×mm	1710/790/315	
	Drainage pipe (material , I.D./O.D.)			mm	PP 20/25	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(O) YR-E16A(O)	
				Infrared	YR-HD(S)	
	Fresh air hole dimension			mm	200	
	Electricity heater			kW	0	
	Sound power Noise level (H-M-L)			dB(A)	66	
	Sound pressure Noise level (H-M-L)			dB(A)	53/51/49	
	Weight (Net / Shipping)			kg / kg	54/61	
Piping	Refrigerant	Type / Charge		g	R410A/2850	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant		m	20	
	Pipe	Liquid		mm	9.52	
		Gas		mm	19.05	
	Between I.D &O.D	MAX.Drop		m	30	
		MAX.Piping length		m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AC48FS1ERA(S)/1U48LS1ERB(S)	
Function			cooling	heating
Capacity		kW	12.5(6.0-14.5)	14.1(6.0~16.5)
Sensible heat ratio			0.74	
Total power input		kW	3.89(2.0---6.0)	4.10(2.0---6.0)
Max. power input		W	6000	6000
EER or COP		W/W	3.21(A)	3.44(B)
Dehumidifying capacity		10 - ³×m³/h	5.0	
Power cable			/	
Power source		N, V, Hz	3, 380~400, 50	
Running /Max.Running current		A / A	6.5（2.9-10.0）/10.0	6.7(2.9-10.0）/10.0
Start Current		A	5	
Indoor unit	Unit model (color)			AC48FS1ERA(S)
	Fan	Type × Number		CENTRIFUGALX4
		Speed(H-M-L)	r/min	(1250/1150/1100)r/min
		Fan motor input power	kW	0.18
		Fan motor output power	kW	0.105
		Air-flow(H-M-L)	m³/h	2000/1800/1400
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total area	m²	0.312
	Dimension	External（L×W×H）	mm×mm×mm	1580/700/240
		Package（L×W×H）	mm×mm×mm	1710/790/315
	Drainage pipe (material , I.D./O.D.)		mm	PP 20/25
	Controller (O-Optional,S-Standard)		Wired	YR-E17(O) YR-E16A(O)
			Infrared	YR-HD01(S)
	Fresh air hole dimension		mm	200
	Electricity heater		kW	0
	Sound pressure Noise level (H-M-L)		dB(A)	66
	Sound pressure Noise level (H-M-L)			53/51/49
	Weight (Net / Shipping)		kg / kg	54/61
Piping	Refrigerant	Type / Charge	g	R410A/2850
		Recharge quantity	g/m	45
		Max. pipe length without charge refriigerant	m	20
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model			AC60FS1ERA(S)/1U60IS1EAB(S)	
Function				cooling	heating
Capacity			kW	15.5	16.8
Sensible heat ratio				0.74	
Total power input			kW	5.13	5.23
Max. power input			W	6500	6500
EER or COP			W/W	3.02（B）	3.21（C）
Dehumidifying capacity			10 - ³×m³/h	5.6	
Power cable				/	
Power source			N, V, Hz	1, 220~230, 50/60	
Running /Max.Running current			A / A	8.6/10.5	8.8/10.5
Start Current			A	/	
Indoor unit	Unit model (color)			AC60FS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX4	
		Speed(H-M-L)	r/min	(1250/1150/1100)r/min	
		Fan motor input power	kW	0.18	
		Fan motor output power	kW	0.105	
		Air-flow(H-M-L)	m³/h	2000/1800/1400	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Area		3	
		Total area	m²	0.312	
	Dimension	External（L×W×H）	mm×mm×mm	1580/700/240	
		Package（L×W×H）	mm×mm×mm	1710/790/315	
	Drainage pipe (material , I.D./O.D.)		mm	PP 20/25	
	Controller (O-Optional,S-Standard)		Wired	YR-E14(O)	
			Infrared	YR-HD(S)	
	Fresh air hole dimension		mm	200	
	Electricity heater		kW	0	
	Noise level (H-M-L)		dB(A)	53/51/49	
	Weight (Net / Shipping)		kg / kg	54/61	
Piping	Refrigerant	Type / Charge	g	R410A/3300	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AC60FS1ERA(S)/1U60IS1ERB(S)	
Function			cooling	heating
Capacity		kW	15.5(4.0~16.0)	16.5(4.0~18.0)
Sensible heat ratio			0.74	
Total power input		kW	5.13(2.0---6.5)	4.83（2.0----6.5)
Max. power input		W	6500	6500
EER or COP		W/W	3.02(B)	3.42（B）
Dehumidifying capacity		10 - ³×m³/h	5.1	
Power cable			/	
Power source		N, V, Hz	1, 220 ～ 230, 50/60	
Running /Max.Running current		A / A	8.5（2.9-10.5）/10.5	8.1（2.9-10.5）/10.5
Start Current		A	/	
Indoor unit	Unit model (color)		AC60FS1ERA(S)	
	Fan — Type × Number		CENTRIFUGALX4	
	Fan — Speed(H-M-L)	r/min	(1250/1150/1100)r/min	
	Fan — Fan motor input power	kW	0.18	
	Fan — Fan motor output power	kW	0.105	
	Fan — Air-flow(H-M-L)	m³/h	2000/1800/1400	
	Heat exchanger — Type / Diameter	mm	inner grooved pipe/φ7.0	
	Heat exchanger — Row		3	
	Heat exchanger — Total area	m²	0.312	
	Dimension — External（L×W×H）	mm×mm×mm	1580/700/240	
	Dimension — Package（L×W×H）	mm×mm×mm	1710/790/315	
	Drainage pipe (material , I.D./O.D.)	mm	PP 20/25	
	Controller (O-Optional,S-Standard)	Wired	YR-E14(O)	
		Infrared	YR-HD(S)	
	Fresh air hole dimension	mm	200	
	Electricity heater	kW	0	
	Noise level (H-M-L)	dB(A)	53/51/49	
	Weight (Net / Shipping)	kg / kg	54/61	
Piping	Refrigerant — Type / Charge	g	R410A/3300	
	Refrigerant — Recharge quantity	g/m	45	
	Pipe — Liquid	mm	9.52	
	Pipe — Gas	mm	19.05	
	Between I.D &O.D — MAX.Drop	m	30	
	Between I.D &O.D — MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

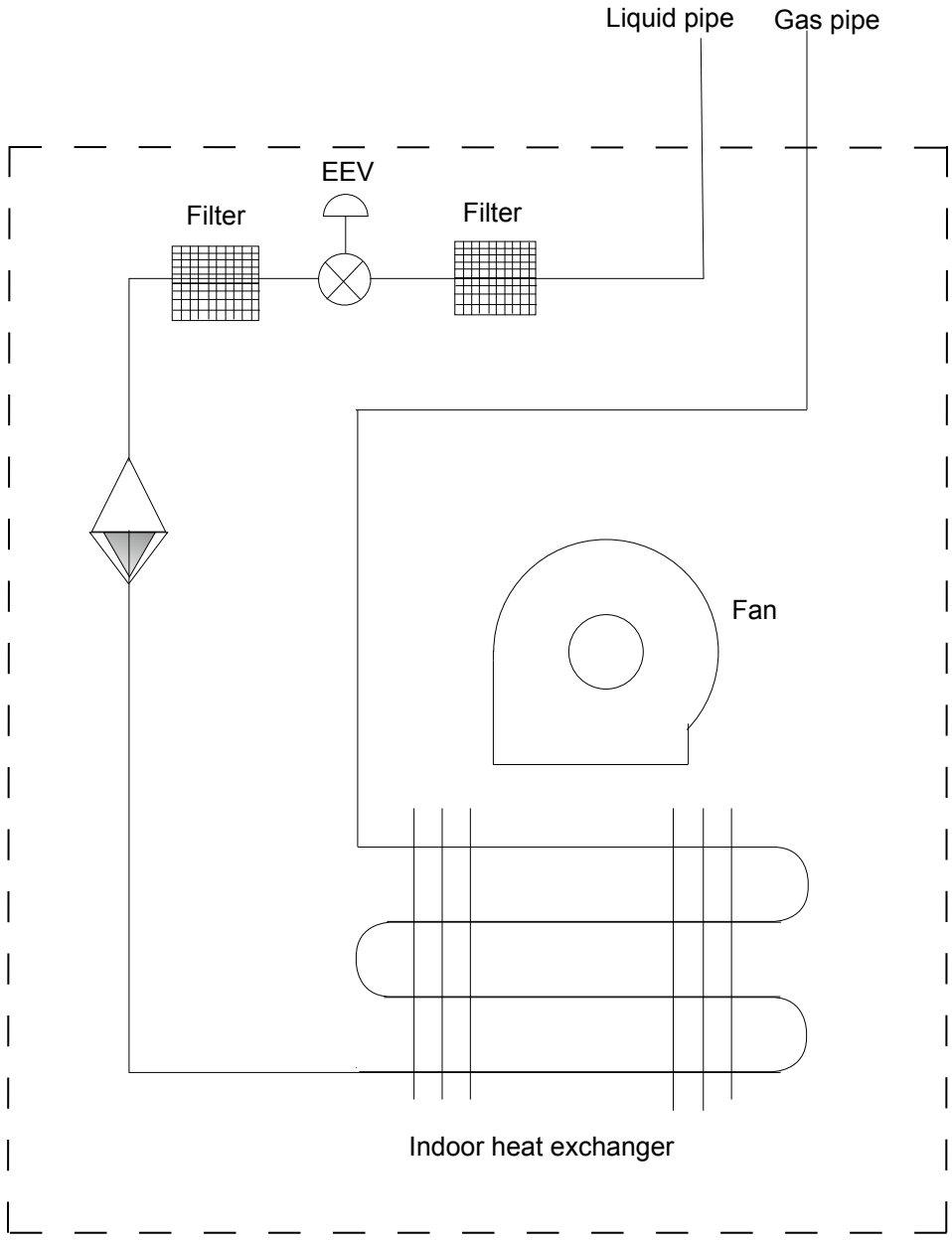
Item		Model		AC60FS1ERA(S)/1U60IS2ERB(S)	
Function				cooling	heating
Capacity			kW	14(6.0-15)	15(6.0~17)
Sensible heat ratio				0.74	
Total power input			kW	4.34(2.0---6.0)	4.14(2.0---6.0)
Max. power input			W	6000	6000
EER or COP			W/W	3.23(A)	3.62(A)
Dehumidifying capacity			10 - ³×m³/h	5.0	
Power cable				/	
Power source			N, V, Hz	1, 220~230, 50/60	
Running /Max.Running current			A / A	6.7(2.9-10.0)/10.0	6.5(2.9-10.0)/10.0
Start Current			A	/	
Indoor unit	Unit model (color)			AC60FS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX4	
		Speed(H-M-L)	r/min	1250/1150/1100	
		Fan motor input power	kW	0.18	
		Fan motor output power	kW	0.105	
		Air-flow(H-M-L)	m³/h	2000/1800/1400	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Area		3	
		Total area	m²	0.312	
	Dimension	External（L×W×H）	mm×mm×mm	1580/700/240	
		Package（L×W×H）	mm×mm×mm	1710/790/315	
	Drainage pipe (material , I.D./O.D.)		mm	PP 20/25	
	Controller (O-Optional,S-Standard)		Wired	YR-E14(O)/YR-E16(O)	
			Infrared	YR-HD01(S)	
	Fresh air hole dimension		mm	200	
	Electricity heater		kW	0	
	Sound pressure Noise level (H-M-L)		dB(A)	66	
	Sound pressure Noise level (H-M-L)		dB(A)	53/51/49	
	Weight (Net / Shipping)		kg / kg	54/61	
Piping	Refrigerant	Type / Charge	g	R410A/3300	
		Recharge quantity	g/m	45	
		Max. pipe length without charge refriigerant	m	20	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model			AC60FS1ERA(S)/1U60IS2EAB(S)	
Function				cooling	heating
Capacity			kW	14.5	15.5
Sensible heat ratio				0.74	
Total power input			kW	4.51	4.28
Max. power input			W	6500	6500
EER or COP			W/W	3.22(A)	3.62(A)
Dehumidifying capacity			10 - ³×m³/h	5.1	
Power cable				/	
Power source			N, V, Hz	1, 220~230, 50/60	
Running /Max.Running current			A / A	8.3/10.5	8.4/10.5
Start Current			A	/	
Indoor unit	Unit model (color)			AC60FS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX4	
		Speed(H-M-L)	r/min	(1250/1150/1100)r/min	
		Fan motor input power	kW	0.18	
		Fan motor output power	kW	0.105	
		Air-flow(H-M-L)	m³/h	2000/1800/1400	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Total area	m²	0.312	
	Dimension	External（L×W×H）	mm×mm×mm	1580/700/240	
		Package（L×W×H）	mm×mm×mm	1710/790/315	
	Drainage pipe (material , I.D./O.D.)		mm	PP 20/25	
	Controller (O-Optional,S-Standard)		Wired	YR-E14(O)	
			Infrared	YR-HD(S)	
	Fresh air hole dimension		mm	200	
	Electricity heater		kW	0	
	Sound pressure Noise level (H-M-L)		dB(A)	58	
	Weight (Net / Shipping)		kg / kg	54/61	
Piping	Refrigerant	Type / Charge	g	R410A/3300	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

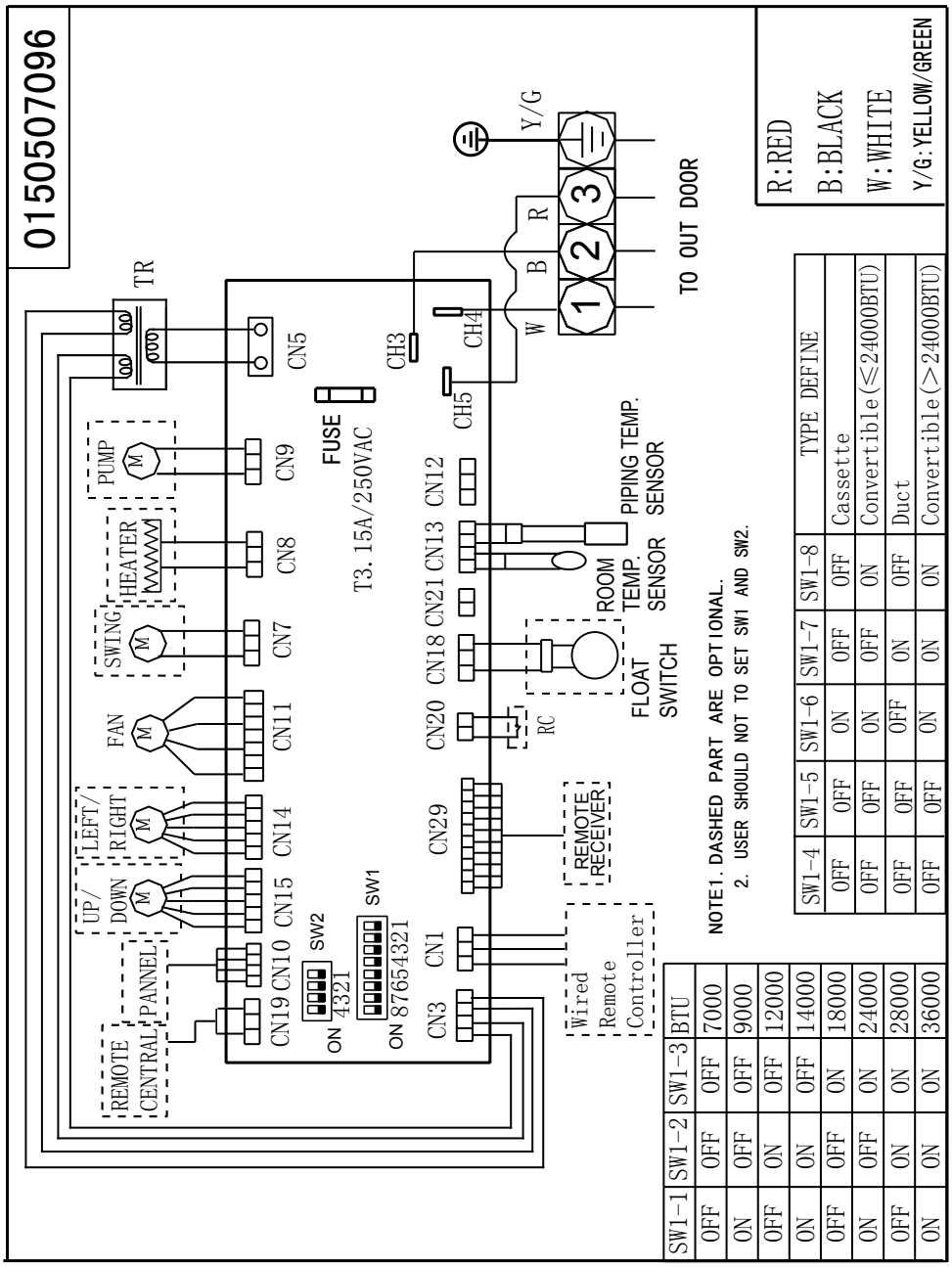
Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

2.3 Piping diagram



2.4 Wiring diagram

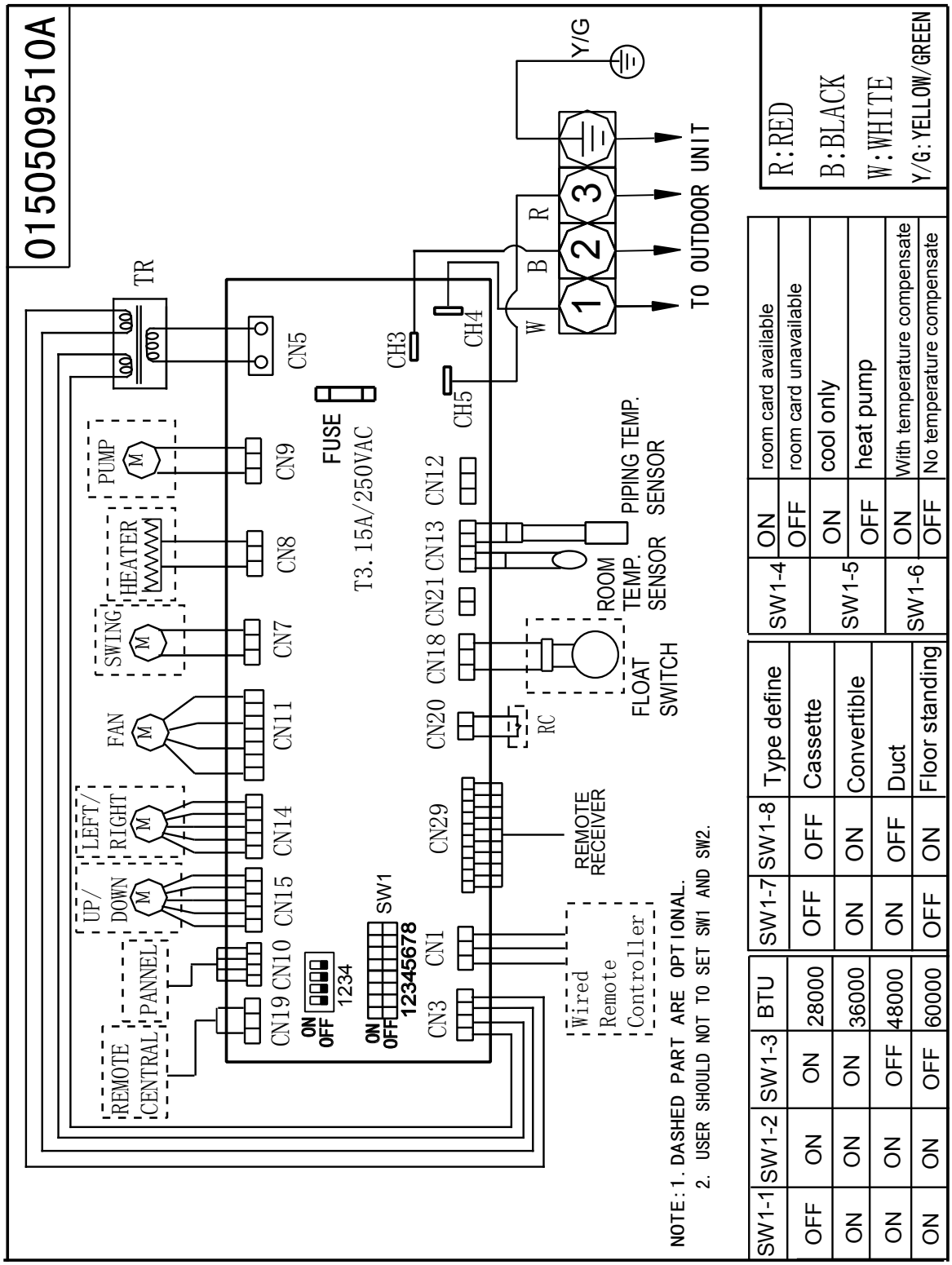
AC12CS1ERA(S) AC18CS1ERA(S) AC24CS1ERA(S)



SW1-1	SW1-2	SW1-3	BTU
OFF	OFF	OFF	7000
ON	OFF	OFF	9000
OFF	ON	OFF	12000
ON	ON	OFF	14000
OFF	OFF	ON	18000
ON	OFF	ON	24000
OFF	ON	ON	28000
ON	ON	ON	36000

SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	TYPE DEFINE
OFF	OFF	ON	OFF	OFF	Cassette
OFF	OFF	ON	OFF	ON	Convertible(≤24000BTU)
OFF	OFF	OFF	ON	OFF	Duct
OFF	OFF	ON	ON	ON	Convertible(>24000BTU)

AC28ES1ERA(S) AC36ES1ERA(S) AC48FS1ERA(S) AC60FS1ERA(S)



NOTE: 1. DASHED PART ARE OPTIONAL.
2. USER SHOULD NOT TO SET SW1 AND SW2.

SW1-1	SW1-2	SW1-3	BTU
OFF	ON	ON	28000
ON	ON	ON	36000
ON	ON	OFF	48000
ON	ON	OFF	60000

SW1-7	SW1-8	Type define
OFF	OFF	Cassette
ON	ON	Convertible
ON	OFF	Duct
OFF	ON	Floor standing

SW1-4	ON	room card available
	OFF	room card unavailable
SW1-5	ON	cool only
	OFF	heat pump
SW1-6	ON	With temperature compensate
	OFF	No temperature compensate

2.5 Air velocity and temperature distribution

AC12CS1ERA(S) AC18CS1ERA(S) AC24CS1ERA(S) AC28ES1ERA(S) AC36ES1ERA(S)

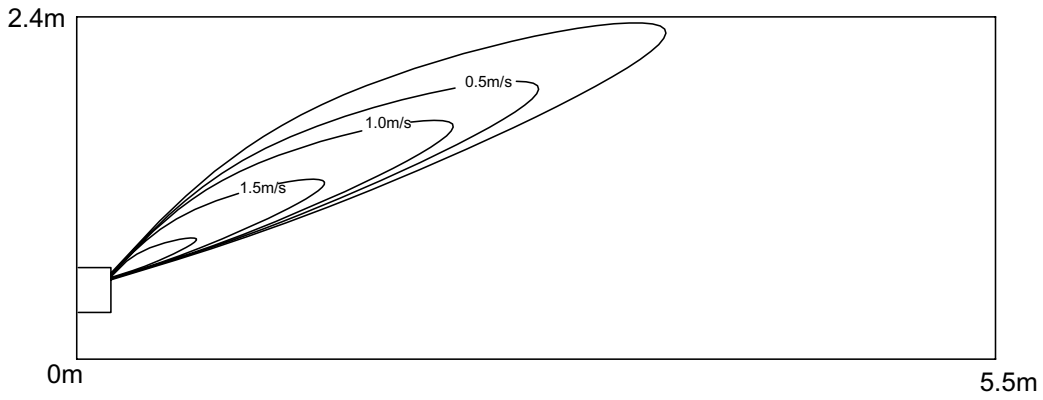
A) On the floor

a. Cooling / Air Velocity Distribution

Cooling

Blowy angle:25

Air Velocity Distribution

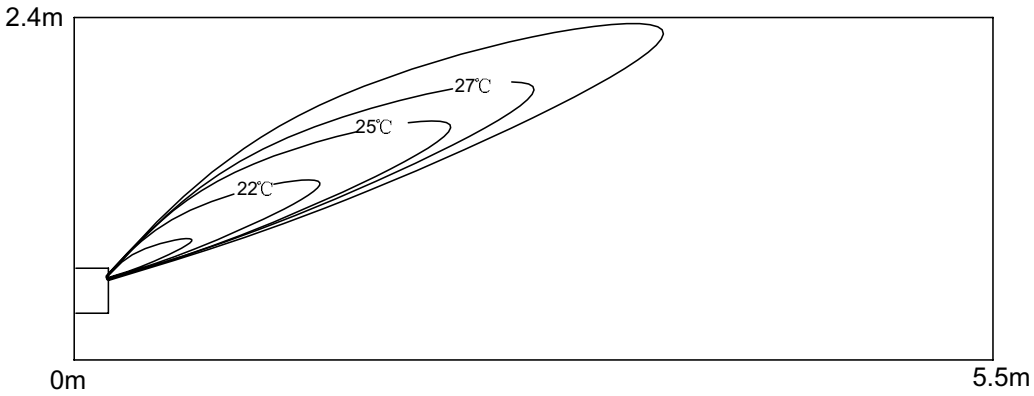


b. Cooling / Temperature Distribution

Cooling

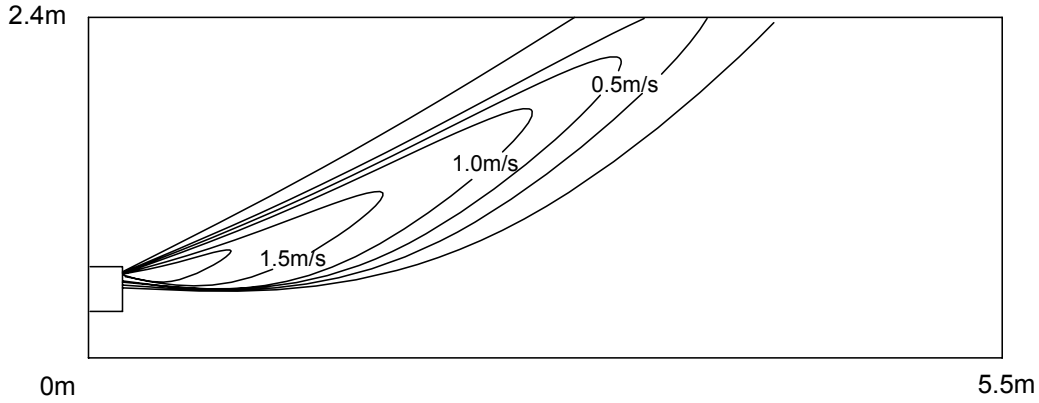
Blowy angle:25

Temperature Distribution



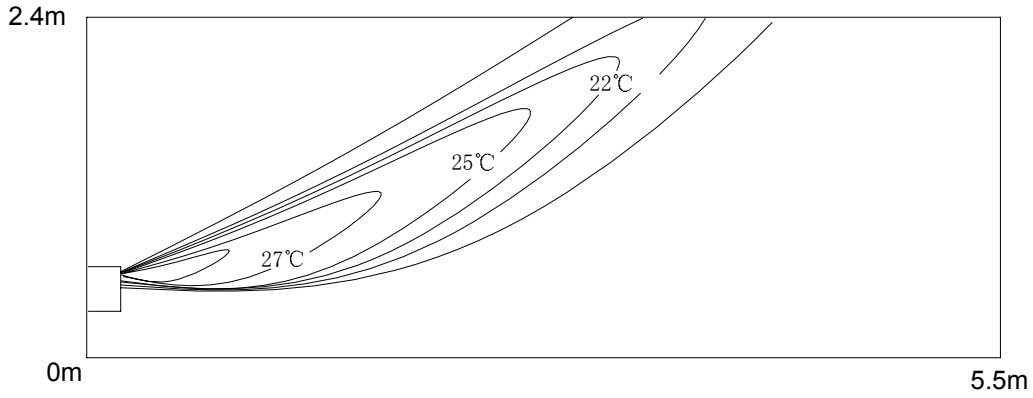
c. Heating / Air Velocity Distribution

Heating
Blowy angle:5
Air velocity Distribution



d. Heating / Temperature Distribution

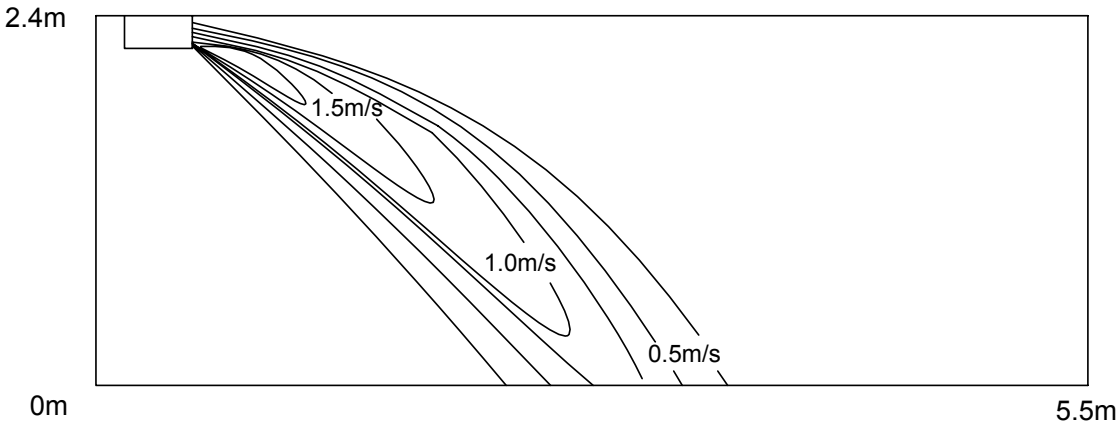
Heating
Blowy angle:5
Temperature Distribution



B) Ceiling

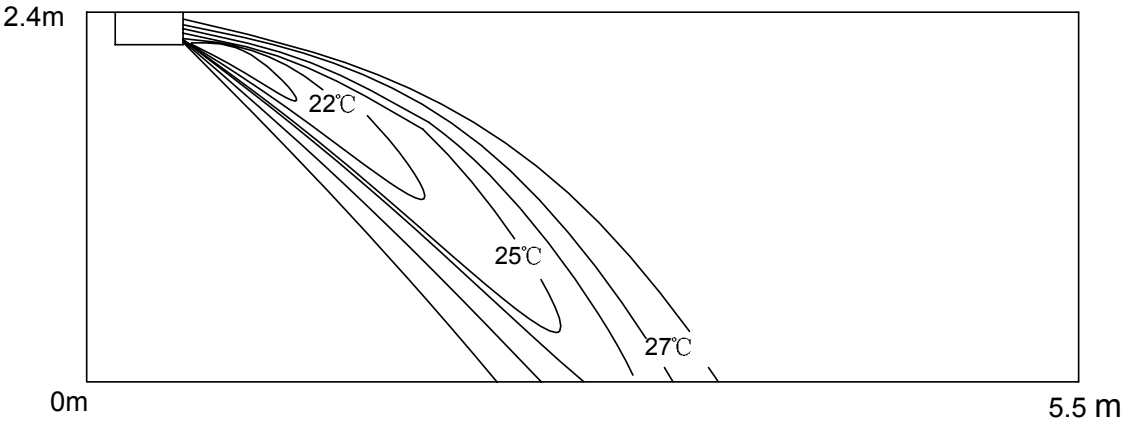
a. Cooling / Air Velocity Distribution

Cooling
Blowy angle:25
Air Velocity Distribution



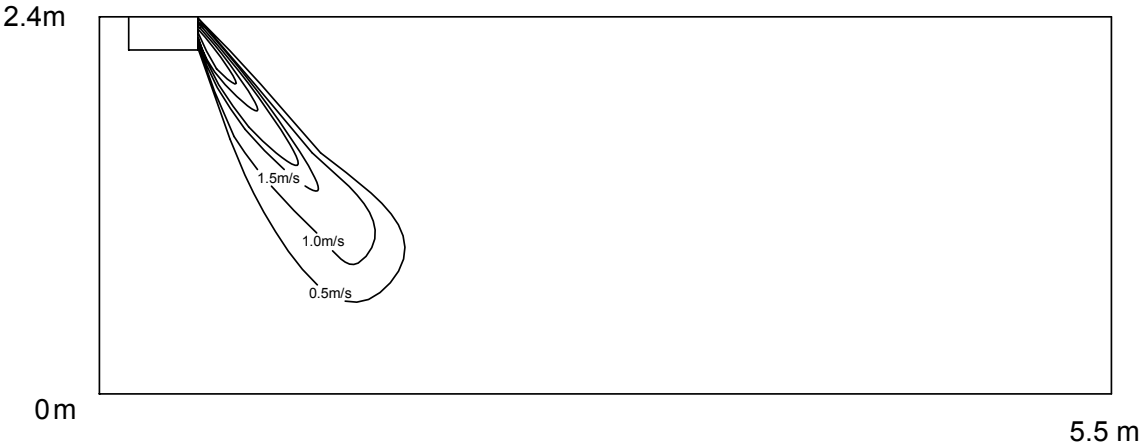
b. Cooling / Temperature Distribution

Cooling
Blowy angle:25
Temperature Distribution



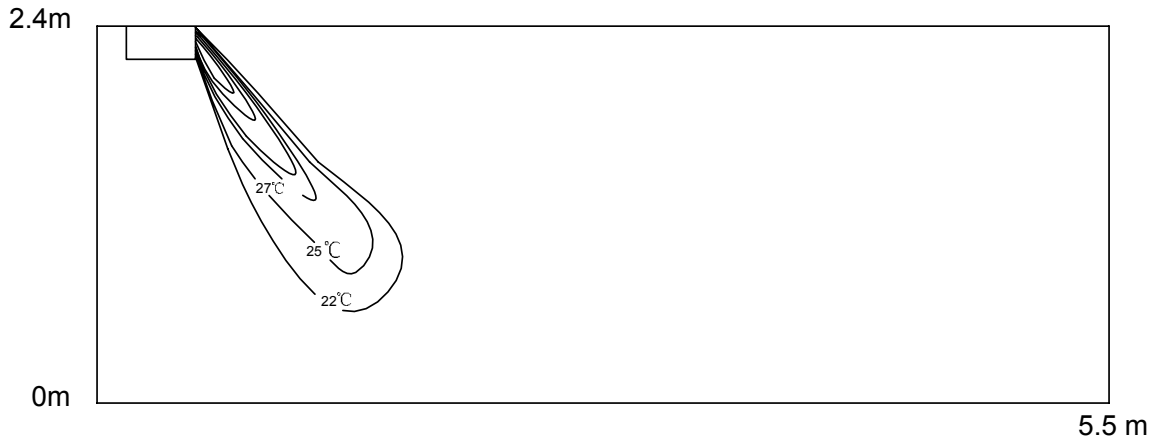
c. Heating / Air Velocity Distribution

Heating
Blowy angle:65
Air velocity Distribution



d. Heating / Temperature Distribution

Heating
Blowy angle:65
Temperature Distribution



AC48FS1ERA(S) AC60FS1ERA(S)

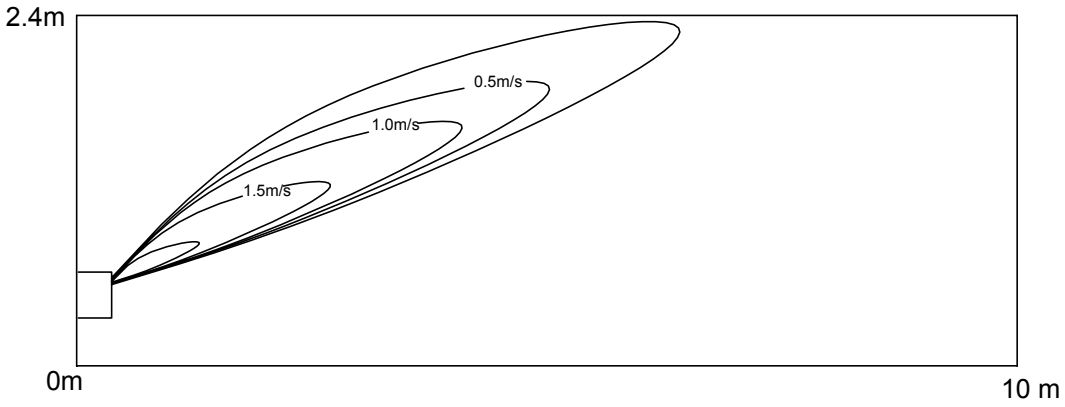
A) On the floor

a. Cooling / Air Velocity Distribution

Cooling

Blowy angle:25

Air Velocity Distribution

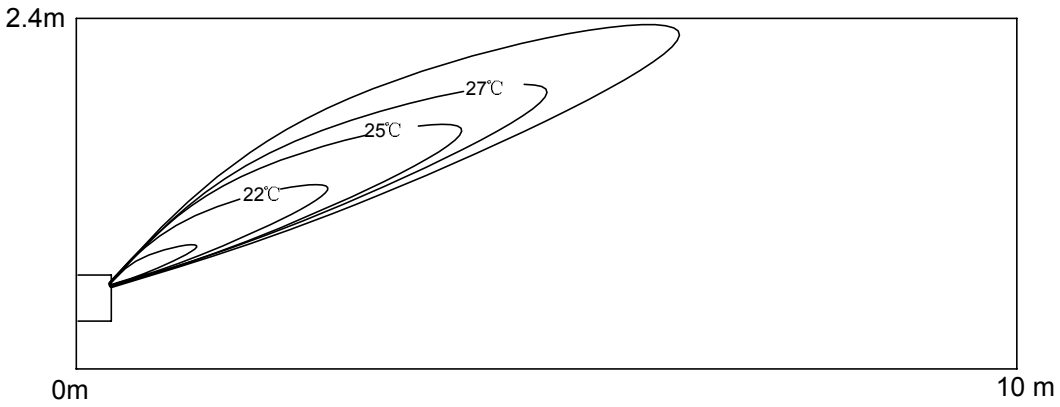


b. Cooling / Temperature Distribution

Cooling

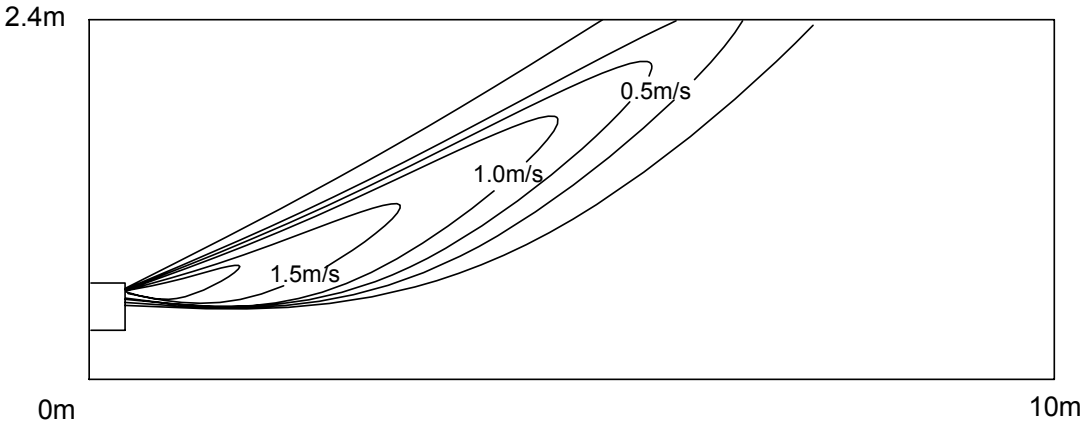
Blowy angle:25

Temperature Distribution



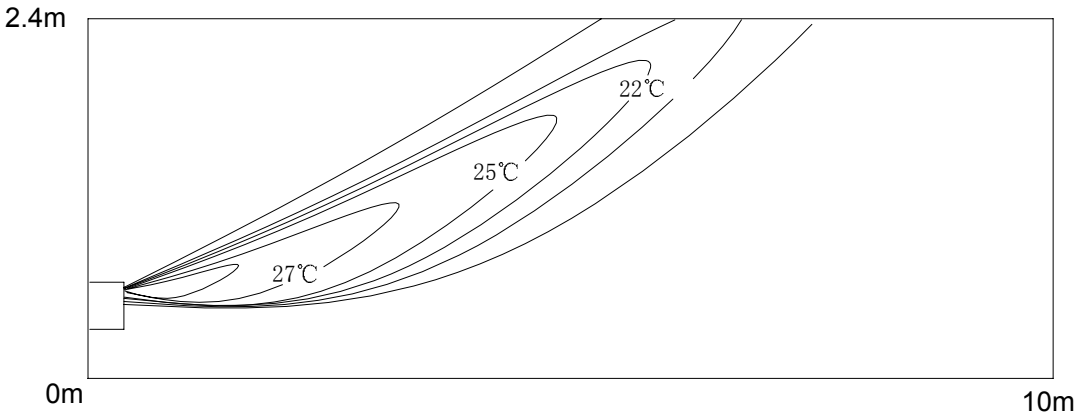
c. Heating / Air Velocity Distribution

Heating
Blowy angle:5
Air velocity Distribution



d. Heating / Temperature Distribution

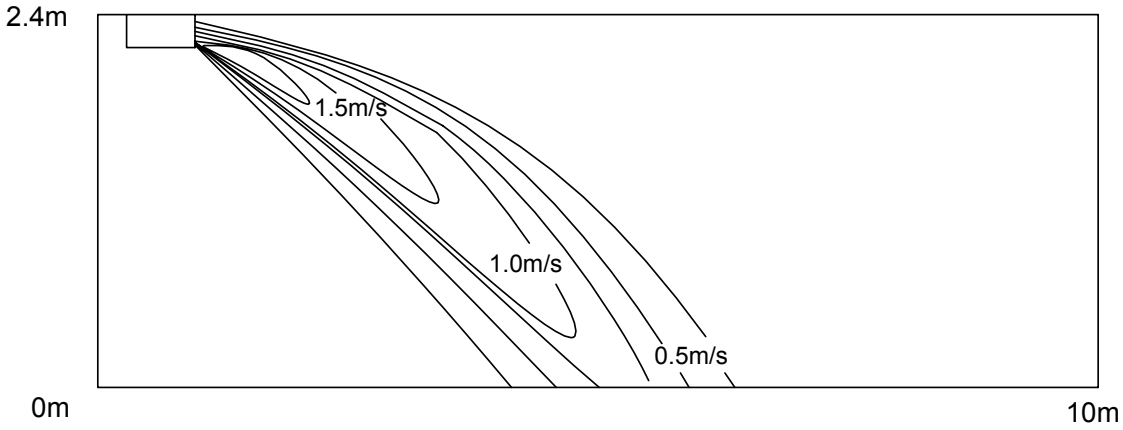
Heating
Blowy angle:5
Temperature Distribution



B) Ceiling

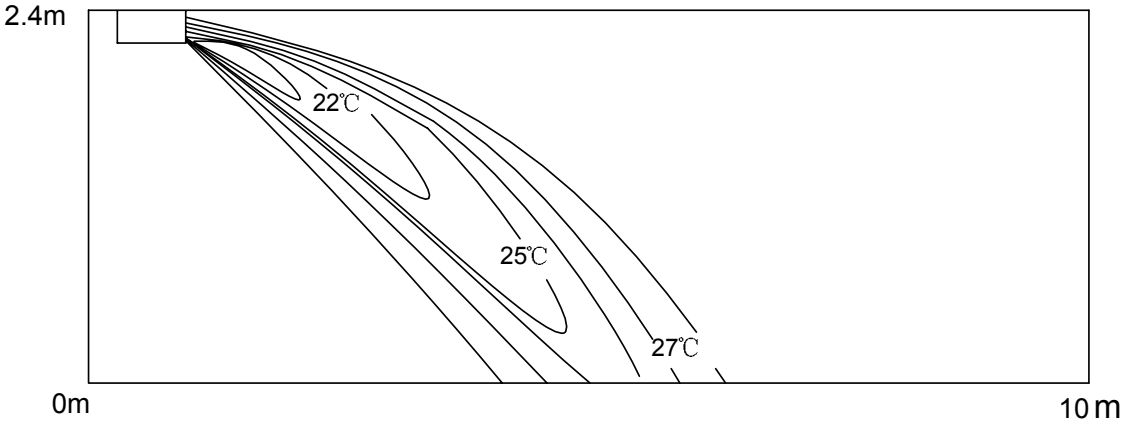
a. Cooling / Air Velocity Distribution

Cooling
Blowy angle:25
Air Velocity Distribution



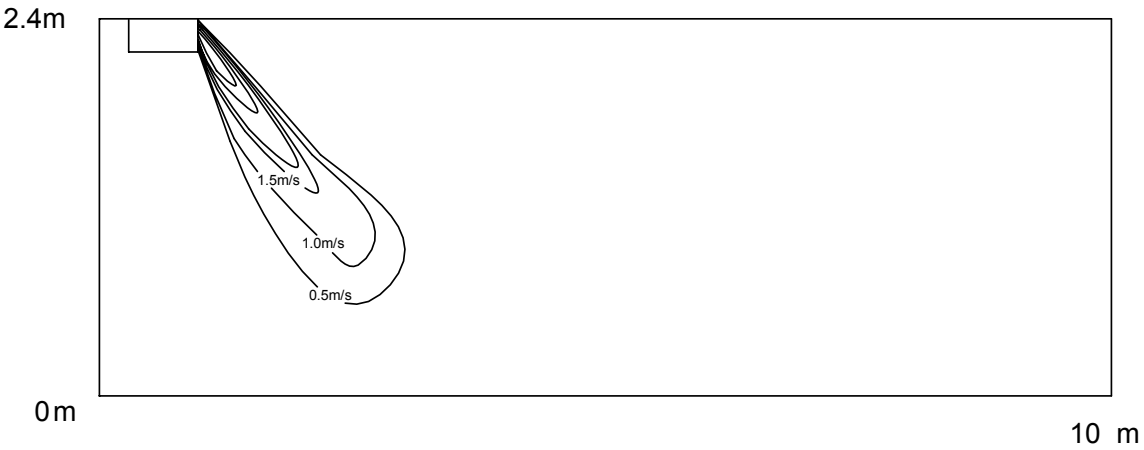
b. Cooling / Temperature Distribution

Cooling
Blowy angle:25
Temperature Distribution



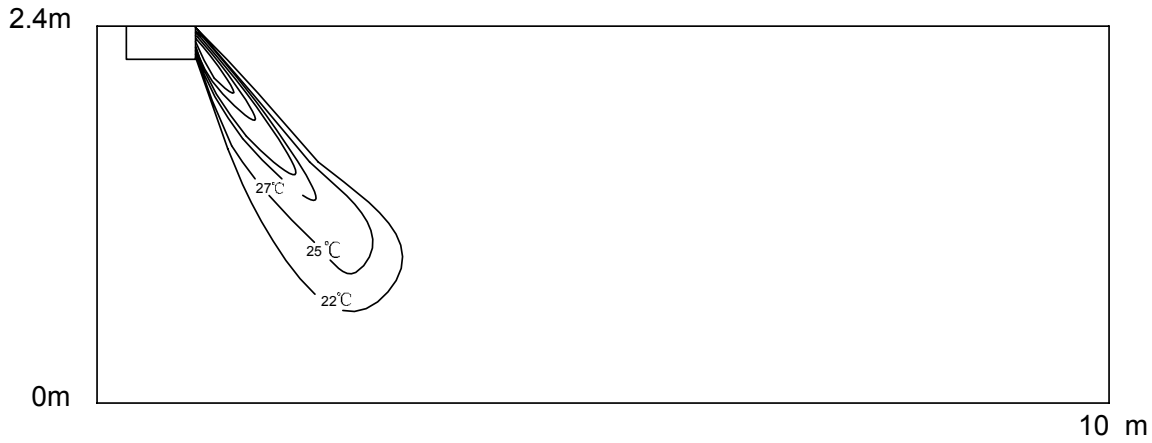
c. Heating / Air Velocity Distribution

Heating
Blowy angle:65
Air velocity Distribution



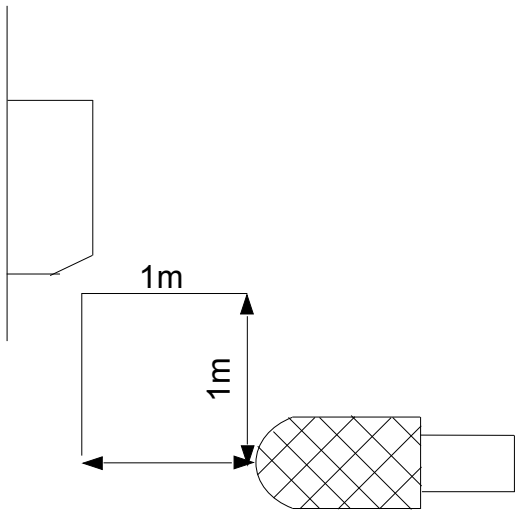
d. Heating / Temperature Distribution

Heating
Blowy angle:65
Temperature Distribution



2.6 Sound Pressure Level

(1)Testing illustrate:



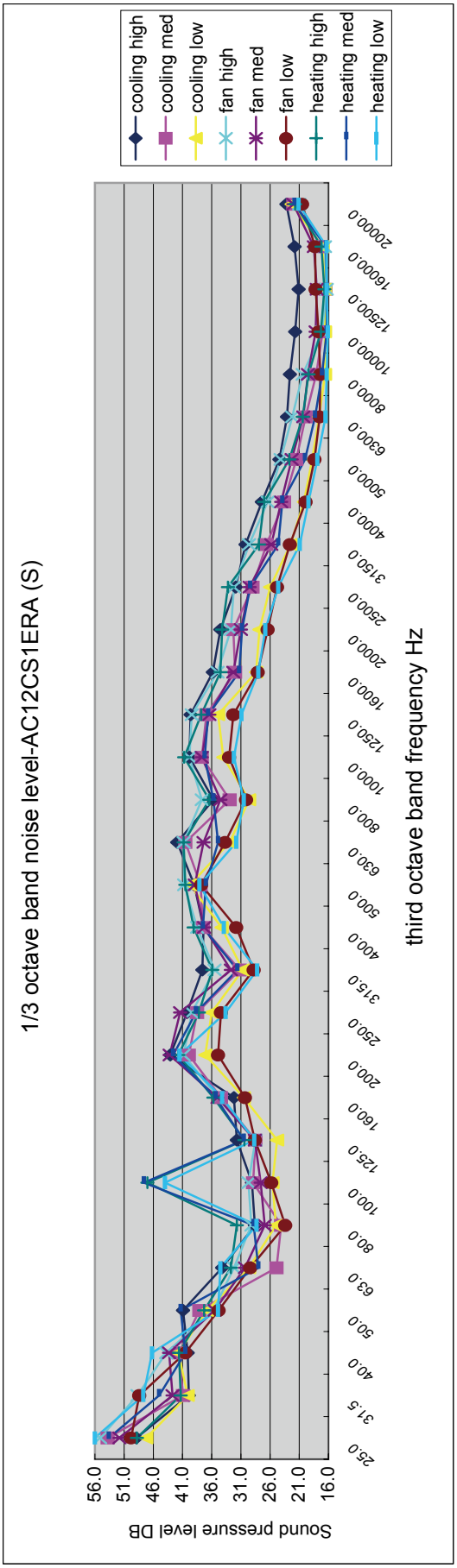
(2)Testing condition:

a. Unit running in the nominal condition

b. Test in the semi-anechoic chamber

c. Noise level varies from the actual factors such as room structure， etc.

(3) Octave band level


1/3 octave band noise level-AC12CS1ERA (S)
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
Sound pressure level DB
56.0
51.0
46.0
41.0
36.0
31.0
26.0
21.0
16.0
third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
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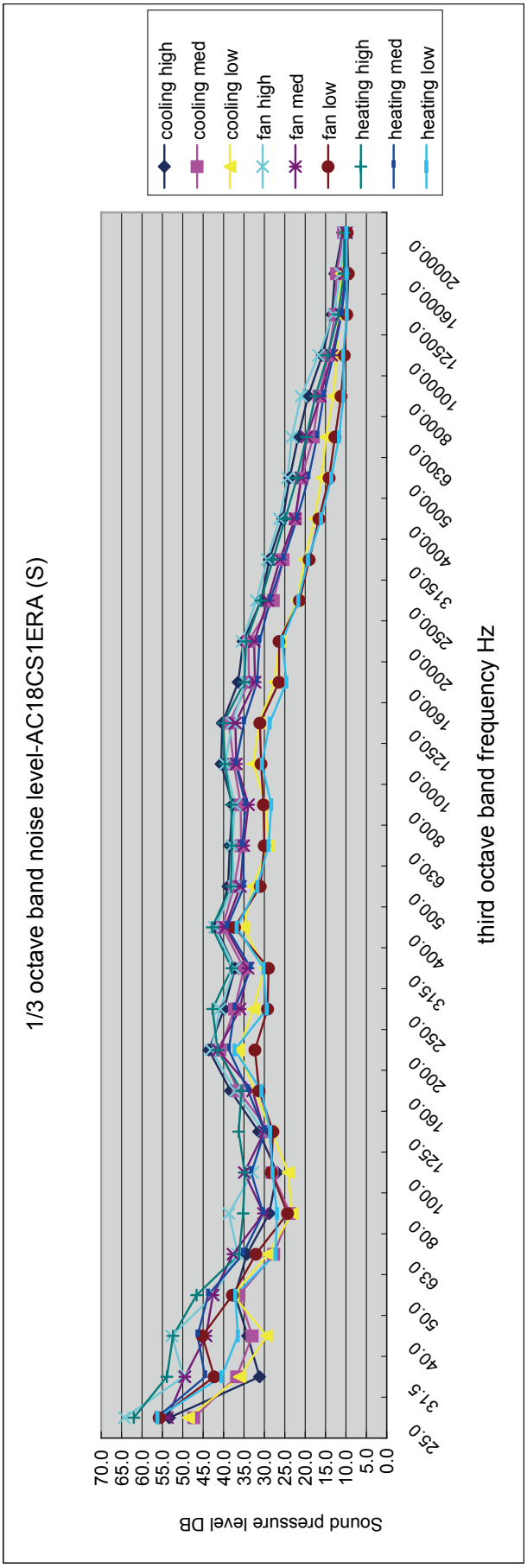
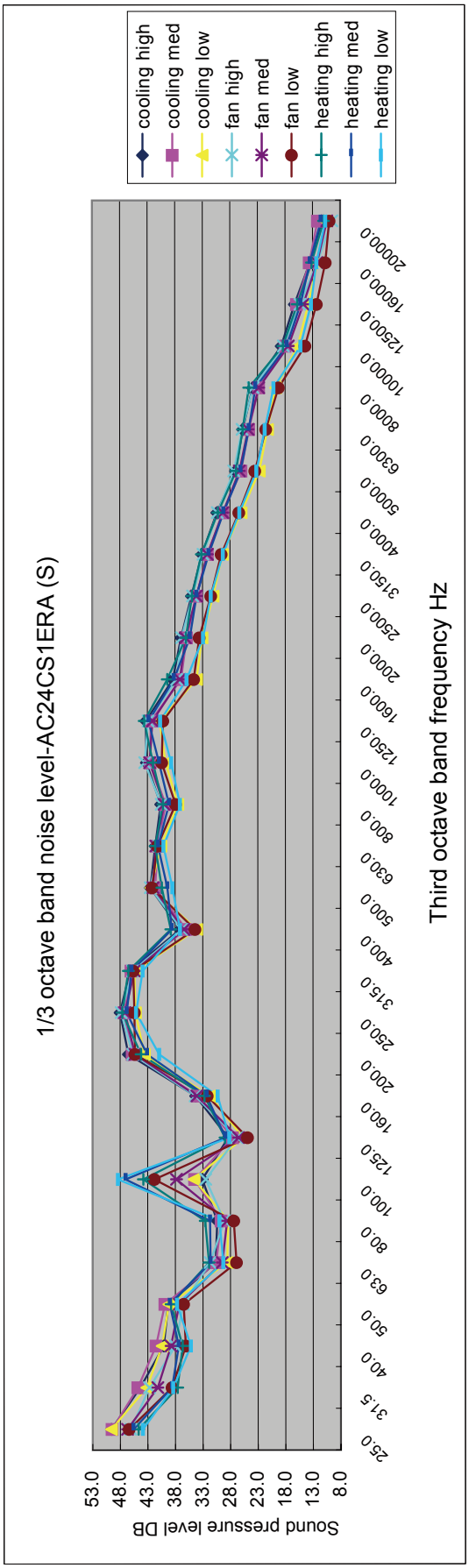
12500.0
16000.0
20000.0


1/3 octave band noise level-AC18CS1ERA (S)
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
Sound pressure level DB
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0


1/3 octave band noise level-AC24CS1ERA (S)
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
Sound pressure level DB
53.0
48.0
43.0
38.0
33.0
28.0
23.0
18.0
13.0
8.0
Third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
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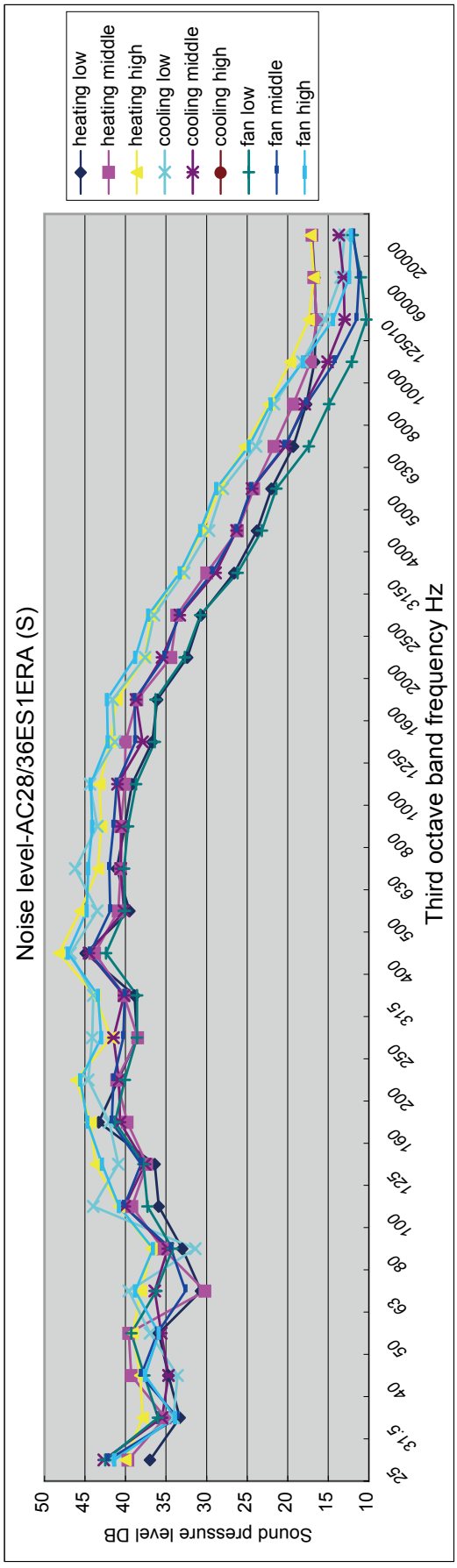
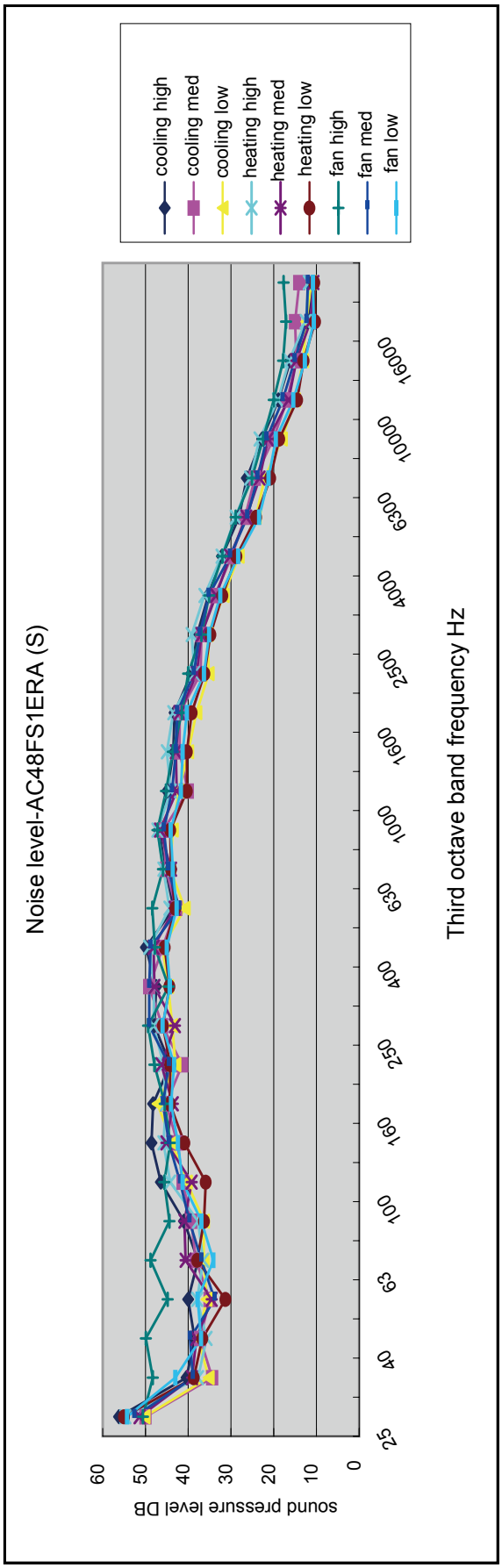
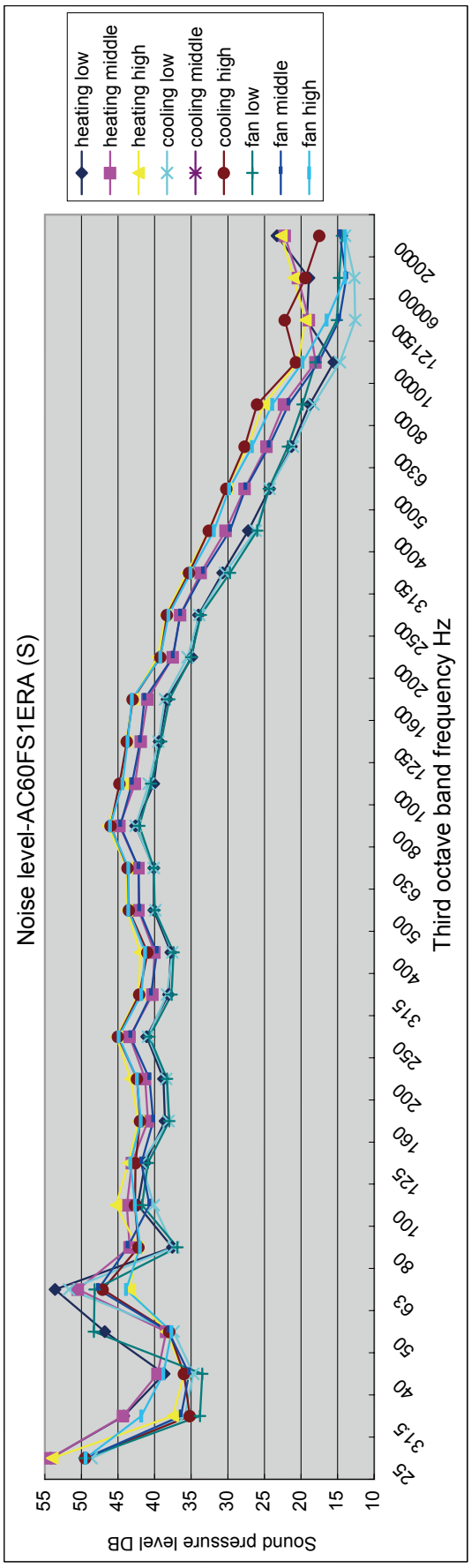
10000.0
12500.0
16000.0
20000.0


Noise level-AC28/36ES1ERA (S)
heating low
heating middle
heating high
cooling low
cooling middle
cooling high
fan low
fan middle
fan high
Sound pressure level DB
50
45
40
35
30
25
20
15
10
Third octave band frequency Hz
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500/10
16000
20000


Noise level-AC48FS1ERA (S)
cooling high
cooling med
cooling low
heating high
heating med
heating low
fan high
fan med
fan low
sound pressure level DB
60
50
40
30
20
10
0
25
40
63
100
160
250
400
630
1000
1600
2500
4000
6300
10000
16000
Third octave band frequency Hz


Noise level-AC60FS1ERA (S)
heating low
heating middle
heating high
cooling low
cooling middle
cooling high
fan low
fan middle
fan high
Sound pressure level DB
55
50
45
40
35
30
25
20
15
10
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500
16000
20000
Third octave band frequency Hz

2.7 Installation

For AC12~24CS1ERA(S)

Please ask the dealer or specialist to install, never try by the users themselves. After the installation please be sure of the following conditions.

⚠ WARNING

- Please call dealer to install the air-conditioner. Incorrect installation may cause water leaking, shock and fire hazard.

⚠ CAUTION

- Air-conditioner can't be installed in the environment with inflammable gases because the inflammable gases near air-conditioner may cause fire hazard.
- Installed electrical-leaking circuit breaker.
  It easily cause electrical shock without circuit breaker.
- Connect earthing wire.
  Earthing wire should not be connected to the gas pipe, water pipe, lightning rod or phone line, incorrect earthing may cause shock.
- Use discharge pipe correctly to ensure efficient discharge.
  Incorrect pipe use may cause water leaking.
- Wiring
  Air-conditioner should be equipped with special power supply wire.
- Location
- Air-conditioner should be located in well-vented and easily accessible place.
- Air-conditioner should not be located in the following places:
  (1) Places with machine oils or other oil vapours.
  (2) Seaside with high salt content in the air.
  (3) Near hot spring with high content of sulfide gases.
  (4) Area with frequent fluctuation of voltage e.g. factory, etc.
  (5) In vehicles or ships.
  (6) Kitchen with heavy oil vapour or humidity.
  (7) Near the machine emitting electric-magnetic waves.
  (8) Places with acid, alkali vapour.
- Choose the following locations:
  (1) Capable of supporting air conditioner weight, don't increase operating noise and vibration.
  (2) Hot vapour from outdoor unit outlet and operating noise don't disturb neighbour.
  (3) No obstacles around the outdoor unit outlet.
- TV, radio, acoustic appliances etc. are at least 1 m far away from the indoor unit, outdoor unit, power supply wire, connecting wire, pipes, otherwise images may be disturbed or noises be created.
- As required, take measures against heavy snow.

INSTALLATION PARTS

The following installation parts are optional parts. Use them as required.

Optional parts

Adhesive tape	Drain hose
Saddle (L.S) with screws	Piping hole cover
Heat insulation material	Plastic clamp
Putty	

SELECTING THE MOUNTING POSITION

Decide the mounting position with the customer as follows:

(1) Install the indoor unit level on a strong wall, floor, ceiling which is not subject to vibration.

(2) The inlet and outlet ports should not be obstructed.The air should be able to blow all over the room.

(3) Install the unit near an electric outlet or special branch circuit.

(4) Do not install the unit where it will be exposed to direct sunlight.

(5) Install the unit where connection to the outdoor unit is easy.

(6) Install the unit where the drain pipe can be easily installed.

(7) Take servicing etc. into consideration and leave the spaces shown in the figure below. Also install the unit where the filter can be removed.

⚠ WARNING

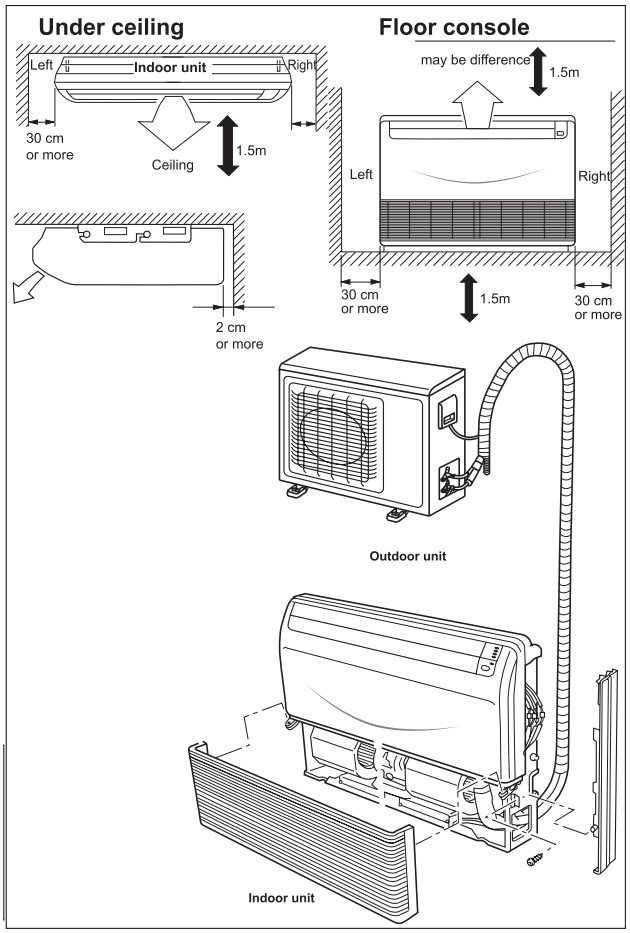
Install at a place that can withstand the weight of the indoor and outdoor units and install positively so that the units will not topple or fall.

⚠ CAUTION

(1) Do not install where there is the danger of combustible gas leakage.

(2) Do not install near heat sources.

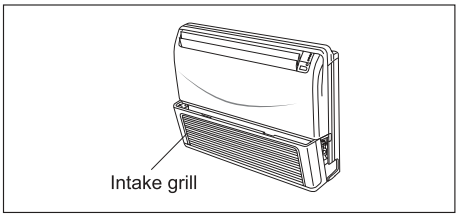
(3) If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.



PREPARING INDOOR UNIT INSTALLATION

Remove the intake grill

Open the intake grill and remove the three or four or six screws.



Note:

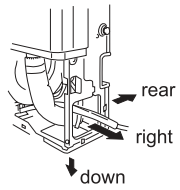
The main unit can be wired before the indoor unit is installed. Select the most appropriate installation order.

A.FLOOR CONSOLE TYPE

1. Drilling for piping

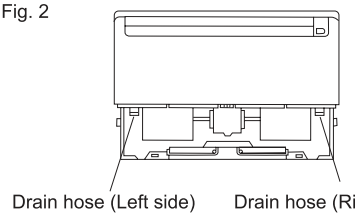
Select piping and drain directions. The piping and drain can be made in three directions as shown in the Fig.1.

Fig. 1



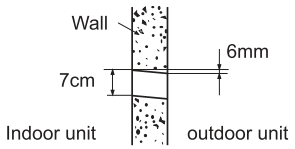
The drain hose can be connected to either the left or right side. (Fig.2)

Fig. 2



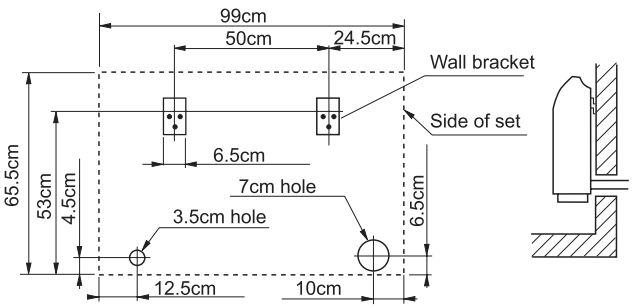
When the directions are selected, drill a 7 cm dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow. When the pipe is led out from the rear, make a hole at the position shown in Fig.3.

Fig. 3



When installing set to wall, install the accessory wall bracket at the position shown in Fig. 4, and mount the set to it.

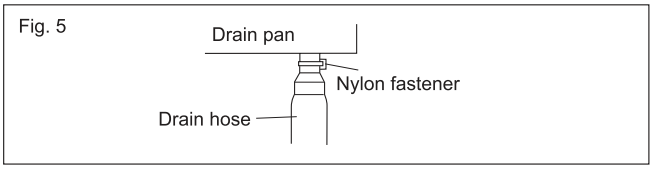
Fig. 4



2. Installing drain hose

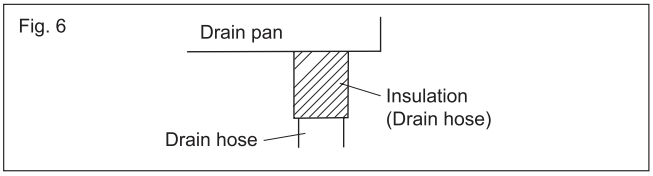
Select whether the drain hose will be connected to the left or right side (Fig.2). Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener (Fig.5).

Fig. 5



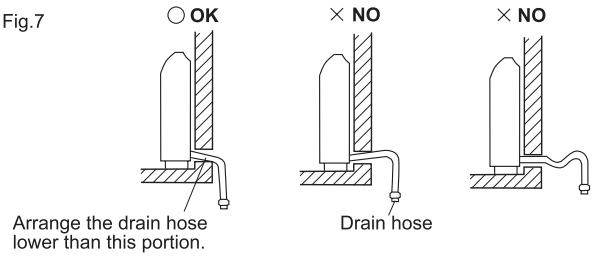
Wrap the insulation (drain hose) around the drain hose connection. (Fig.6)

Fig. 6



Be sure to arrange the drain hose correctly so that it is leveled lower than the drain hose connecting port of the indoor unit. (Fig.7)

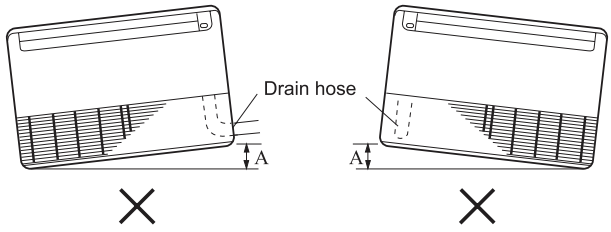
Fig.7



⚠ CAUTION

Do not install the unit drain hose side is too high. Height A should be less than 5 mm.(Fig.8)

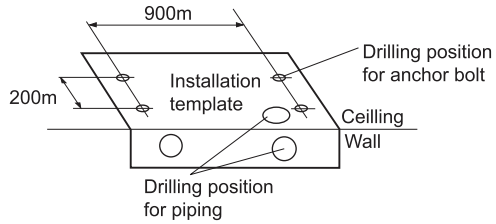
Fig.8



B. UNDER CEILING TYPE

Using the installation template, drill holes for piping and anchor bolts(for holes).(Fig.9)

Fig.9



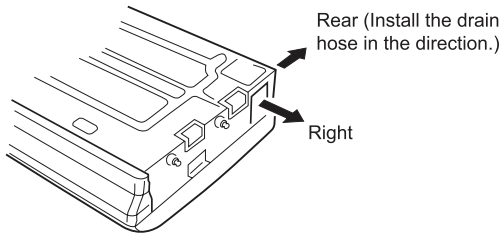
1. Drilling for piping

Select piping and drain directions. (Fig.10)

⚠ CAUTION

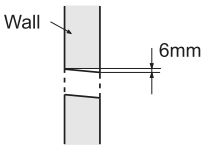
Install the drain hose at the rear. It should not be installed on the top or right side.

Fig. 10



When the directions are selected, drill 80mm and 50mm or 150mm dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow. (Fig.11)

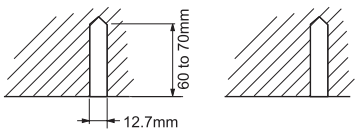
Fig.11



2. Drilling holes for anchor bolts and installing the anchor bolts.

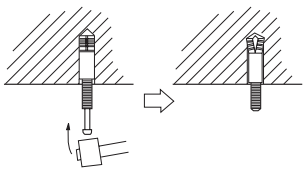
With a concrete drill, drill four 12.7 mm dia. Holes. (Fig.12)

Fig.12



Insert the anchor bolts into the drilled holes, and drive the pins completely into the anchor bolts with a hammer. (Fig.13)

Fig.13



3. Installing brackets
Install the brackets with nuts, washers and spring washers. (Fig.14)

Fig.14A

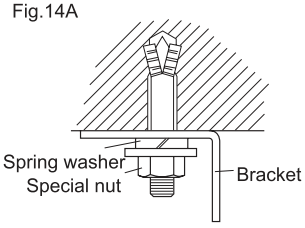
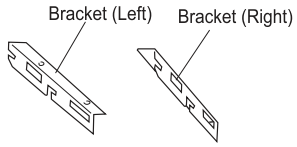
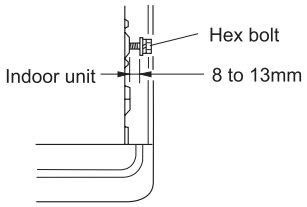


Fig.14B



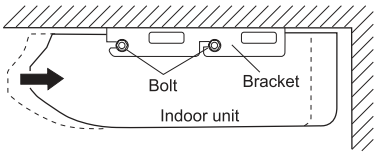
Reset the hex bolts as shown in Fig.15.

Fig.15



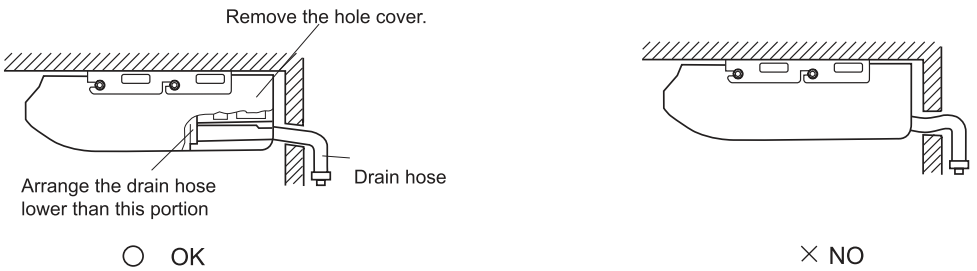
Apply the indoor unit to the brackets. (Fig.16) Now, securely tighten the hex bolts in both sides.

Fig.16



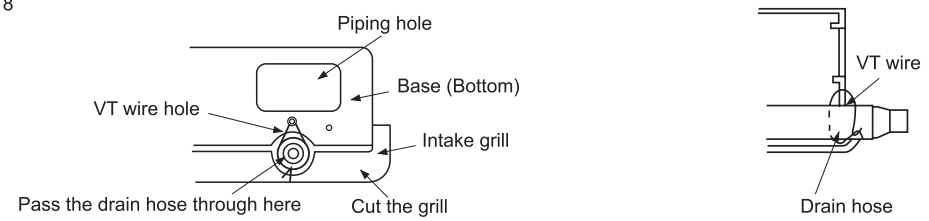
5. Installing the drain hose
Select whether the drain hose will be connected to the left or right side.(Fig.2)
Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener.(Fig.5) Wrap the insulation (drain hose) around the drain hose connection. (Fig.6)
Be sure to arrange the drain hose correctly so that it is leveled lower than the drain hose connecting port of the indoor unit. (Fig.17)

Fig.17



When drain hose is arranged backward. Secure the drain hose with the VT wire. (Fig.18)

Fig.18



CONNECTING THE PIPING

1. Flare processing

(1) Cut the connection pipe with pipe cutters so that the pipe is not deformed.

(2) Holding the pipe downward so that cuttings cannot enter the pipe, remove the burrs.

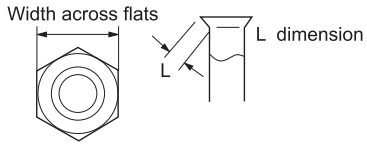
(3) Remove the flare nut from the indoor unit pipe and outdoor unit and assemble as shown in Table1 and insert the flare nut onto the pipe, and flare with a flaring tool.

(4) Check if the flared part "L" (Fig.1) is spread uniformly and that there are no cracks.

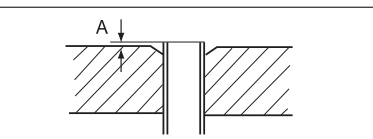
Table 1

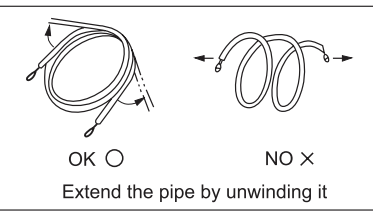
Pipe	Flare nut
Small pipe	Small (width across flats 22mm)
Large pipe	Large (width across flats 24mm)

Fig.1



Model	Pipe	Diameter of pipe	Dimension A (mm)
AC12CS1ERA(S)	Liquid pipe	Ø6.35mm (1/4")	1.0~1.2
	Gas pipe	Ø9.52mm (3/8")	
AC18CS1ERA(S)	Liquid pipe	Ø6.35mm (1/4")	1.0~1.2
	Gas pipe	Ø12.7mm (1/2")	
AC24CS1ERA(S)	Liquid pipe	Ø9.52mm (3/8")	1.4~2.2
	Gas pipe	Ø15.88mm (5/8")	





2. Bending pipes

The pipes are shaped by your hands. Be careful not to collapse them.

ELECTRICAL WIRING

Connect wiring to the terminal blocks

A. For solid core wiring (or F-cable) (Fig.A)

(1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 25mm of the exposed solid wire.

(2) Using a screwdriver, remove the terminal screw(s) on the terminal board.

(3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.

(4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screw driver.

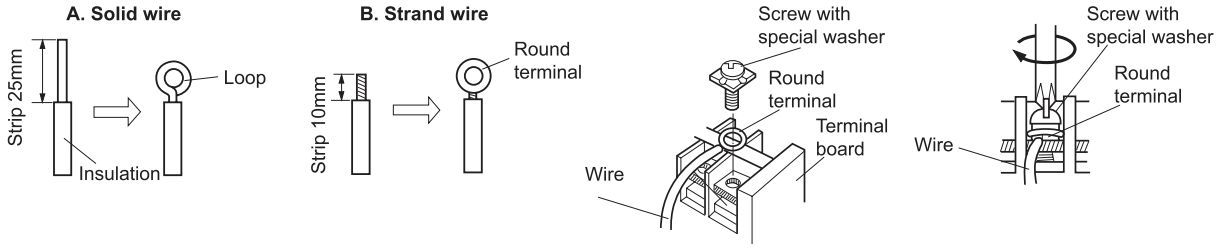
B. For strand wiring (Fig.B)

(1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 10mm of the exposed strand wiring.

(2) Using a screwdriver, remove the terminal screw(s) on the terminal board.

(3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.

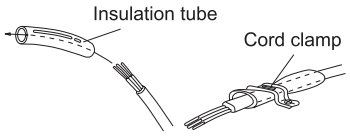
(4) Position the round terminal wire, and replace and tighten the terminal screw using a screw driver.



Fix connection cord and power cable at the cord clamp

After passing the connection cord and power cable through the insulation tube, fasten it with the cord clamp, as shown right.

Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.

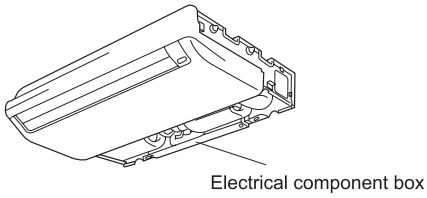


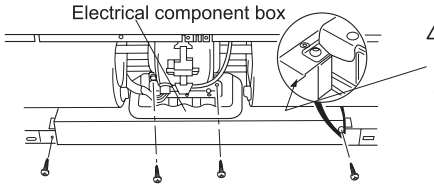
⚠ CAUTION

- Match the terminal block numbers and connection cord colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.
- Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.
- Always fasten the outside covering of the connection cord with the cord clamp.(If the insulator is chafed, electric leakage may occur.)
- Always connect the ground wire.

Wiring of indoor unit

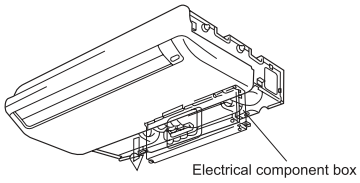
(1) Remove the electrical component box.



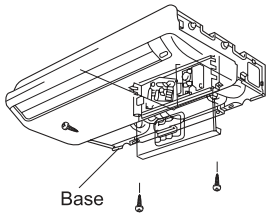


⚠ **CAUTION:**
Do not remove the screws. If the screws are removed, the electrical component box will fall.

(2) Pull out the electrical component box.



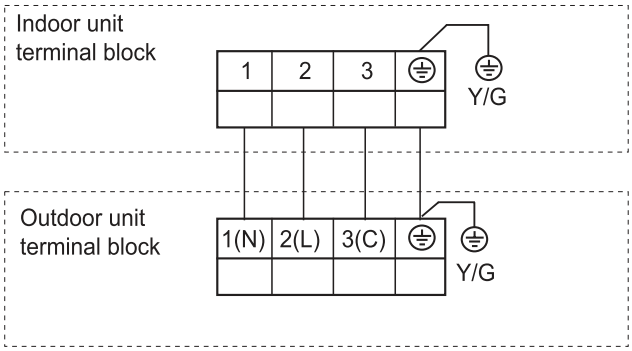
(3) Remove the electrical component box cover.



⚠ **CAUTION:**
Be careful not to pinch the lead wires between the electrical component box and base.

(4) Wiring

1. Remove the cord clamp.
2. Process the end of the connection cords to the dimensions shown in the right figure.
3. Connect the end of the connection cord fully into the terminal block.
4. Fasten the connection cord with a cord clamp. 5.Fasten the end of the connection cord with the screw.



⚠ WARNING

(1) Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.
(2) Use a circuit breaker and receptacle matched to the capacity of the room air conditioner.
(3) The circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3mm between the contacts of each pole.
(4) Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively.
(5) Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

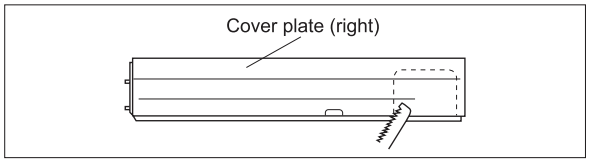
⚠ CAUTION

(1) The power source capacity must be the sum of the room air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
(2) When the voltage is too low and the air conditioner is difficult to start, contact the power company the voltage raised.
(3) The unit has default temperature compensation setting, pls. cancel it when floor standing installation

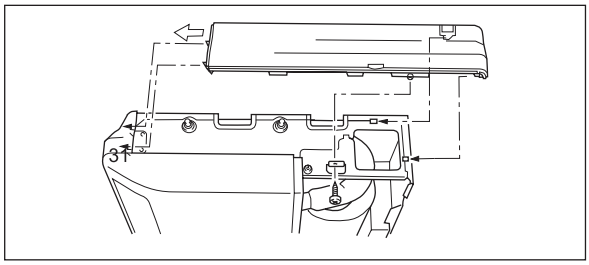
MOUNT THE COVER PLATE AND THE INTAKE GRILL

1. Mount the cover plate (right)

(1) Cut a pipe exit hole in the right plate. This is only when the pipe exits from the right side. This operation is not required when the protrusion is on the top or rear.

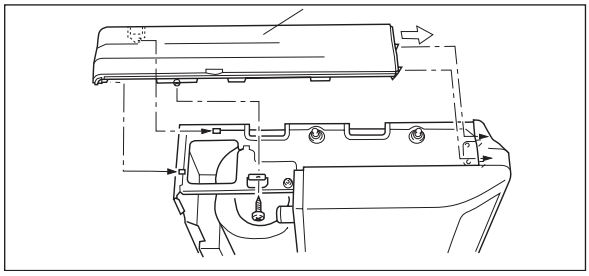


(2) Join the cover plate (right) and mount with screws.

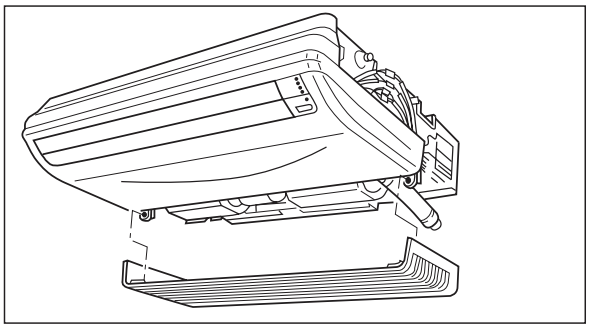


2. Mount the cover plate (left)

(1) Join the cover plate (left) and mount with screws.

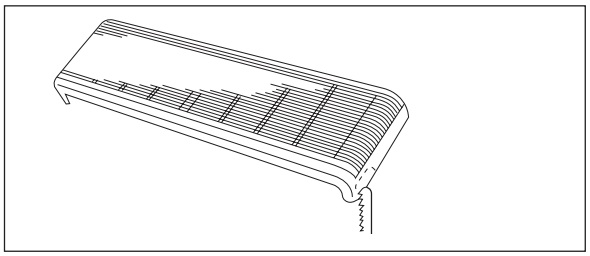


(2) Insert the hinges on the bottom of the intake grill into the holes in the base assembly. Then mount the arms to the three areas on the top of the intake grill.



3. Mount the intake grill.

(1) Cut the right side of the intake grill. This is only when the pipe exits from the right side.



For AC28~AC60

SELECTING THE MOUNTING POSITION

⚠ WARNING

- Install at a place that can withstand the weight of the indoor unit and install it positively so that the unit will not topple or fall.

⚠ CAUTION

- Do not install the unit where there is the danger of combustible gas leakage.
- Do not install near heat sources.
- If children under 1O years old may approach the unit, take preventive measures so that they cannot reach the unit.

Decide the mounting position with the customer as follows.

(1) Install the indoor unit level on a strong wall which is not subject to vibration.
(2) The inlet and outlet ports should not be obstructed, and the air should be able to blow all over the room.
(3) Do not install the unit where it will be exposed to direct sunlight
(4) Install the unit where connection to the outdoor unit is easy.
(5) Install the unit where the drain pipe can be easily installed.
(6) Take servicing, etc. into consideration and leave the spaces shown in ”Maintenance space dimension” .
(7) Install the unit where the filter can be removed

ACCESSORIES FOR INSTALLATION

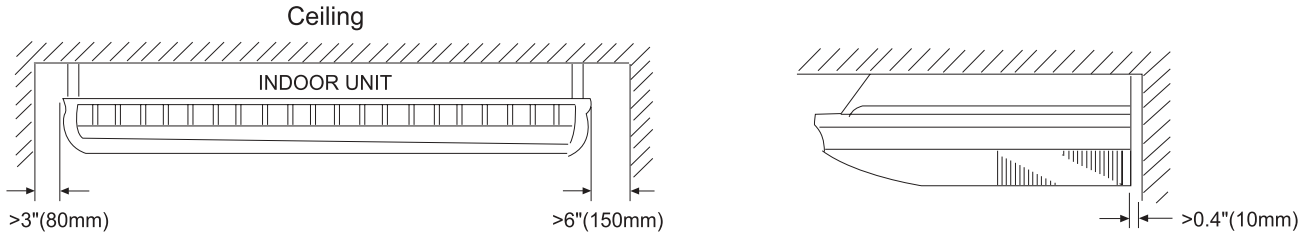
The following installation parts are optional parts. Use them as required.

Optional parts

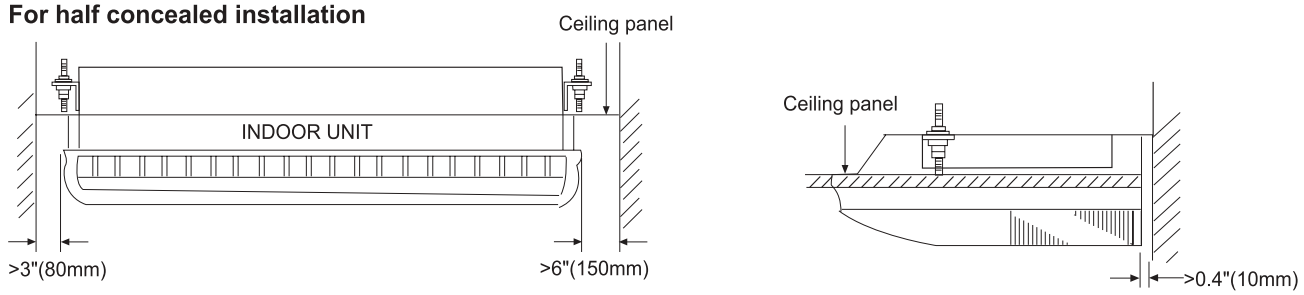
Adhesive tape
Saddle (L.S) with screws
Drain hose
Heat insulation material
Piping hole cover
Putty
Plastic clamp

MAINTENANCE SPACE DIMENSION

For ceiling installation



For half concealed installation



INSTALLING THE INDOOR UNIT

Connection pipe requirement

Model	Diameter		Maximum length	Maximum height (between indoor and outdoor)
	Liquid side	Gas side		
AC28ES1ERA(S) AC36ES1ERA(S)	9.52mm	15.88mm	30m	20m
AC48FS1ERA(S) AC60FS1ERA(S)	9.52mm	19.05mm	50m	30m

Install the room air conditioner as follows

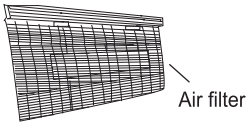
1. Remove the intake grill and side cover

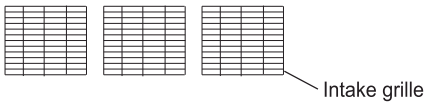
(1) Remove the Air filters

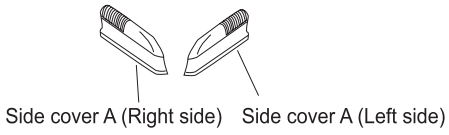
(2) Remove the intake grilles

(3) Remove the Side cover (Right and left side)

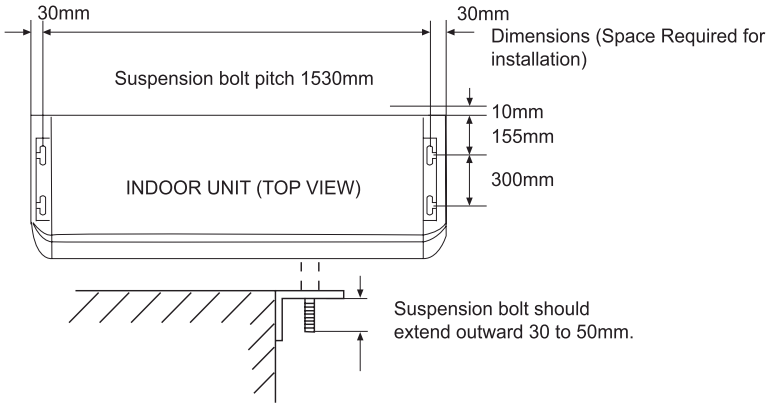
(4) This air conditioner can be set up to intake fresh air. The information about how to install for fresh-air intake, refer to ”Fresh air intake”.





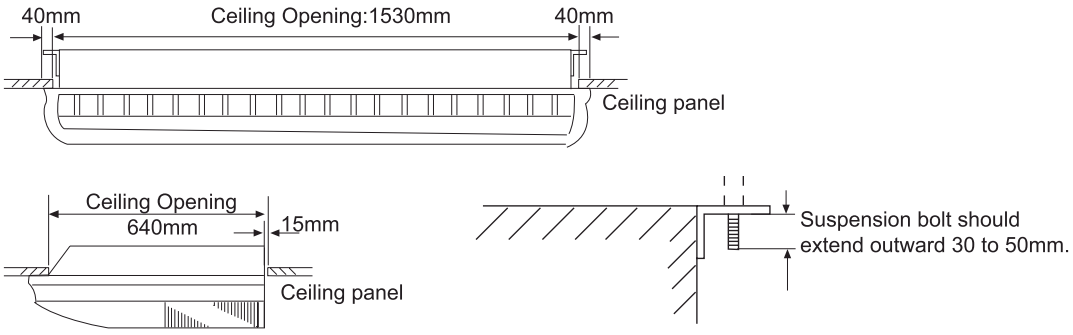


2. Location of ceiling suspension bolts

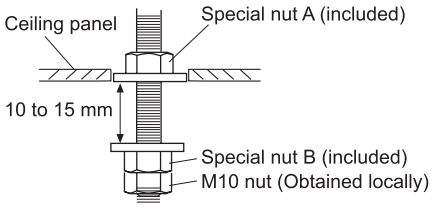


For half-concealed installation

Suspension-bolt pitch should be as shown below



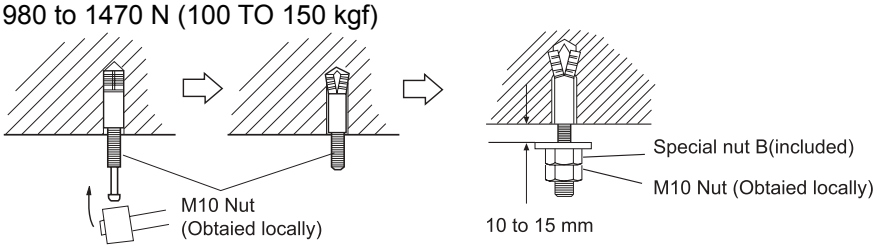
3. Drilling the holes and attaching the suspension bolts



(1) Drill 25mm holes at the suspension-bolt locations. The two special nuts are provided with the unit. The M1O nut must be obtained locally.
(2) Install the bolts, then temporarily attach Special nuts A and B and a normal M1O nut to each bolt.
Bo/t strength: 980 to 1470 N (100 TO 150 kgf)

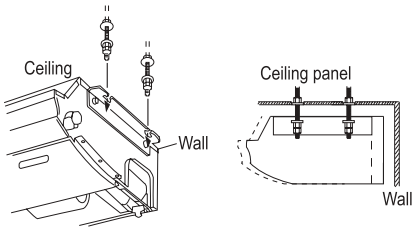
If using anchor bolts

(1) Drill holes for anchor bolts at the locations at which you will set the suspension bolts. Note that anchor bolts must be obtained locally.
(2) Install the anchor bolts, then temporarily attach special nut ”B” (included) and a locally-procured M1O nut to each of the bolts.
Anchor-bolt strength: 980 to 1470 N (100 TO 150 kgf)



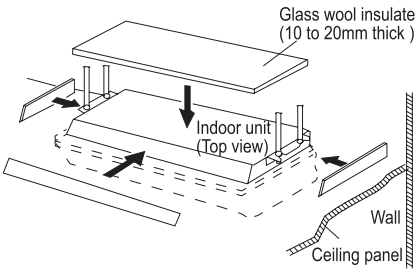
4. Installing the indoor unit

(1) Lift unit so that suspension bolts pass through suspension fittings at the sides (four places),and slide the unit back.
(2) Fasten the indoor unit into place by tightening-up the special ”B” bolts and the M10 nuts. Make sure that unit is secure and will not shift back and forth.



For half-concealed installation

When installing the indoor unit in a semi-concealed orientation, make sure to reinforce the insulation of the unit on all sides. Drops of water may fall from the unit if it is not thoroughly insulated.

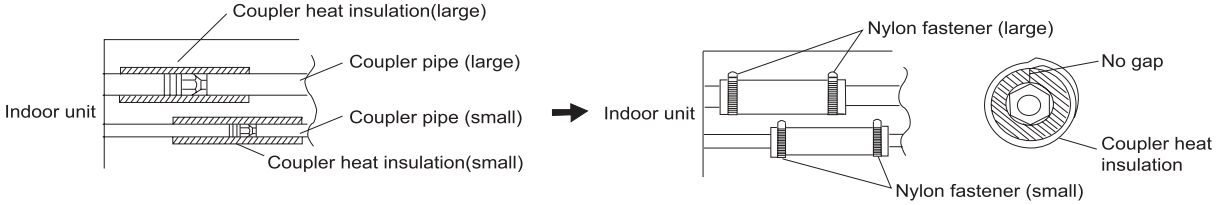


⚠ CAUTION

In order to check the drainage, be sure to use a level during installation of the indoor unit. If the installation site of the indoor unit is not level, water leakage may occur.

5. Installing the coupler heat insulation

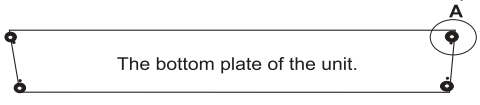
After checking for gas leaks, insulate by wrapping insulation around the two parts (large and small) of the indoor unit coupling, using the coupler heat insulation. After installing, the coupler heat insulation, wrap both ends with vinyl tape so that there is no gap. Secure both ends of the heat insulation material using nylon fasteners.

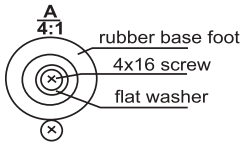


When using an auxiliary pipe, make sure that the fastener used is insulated in the same way.

Note:

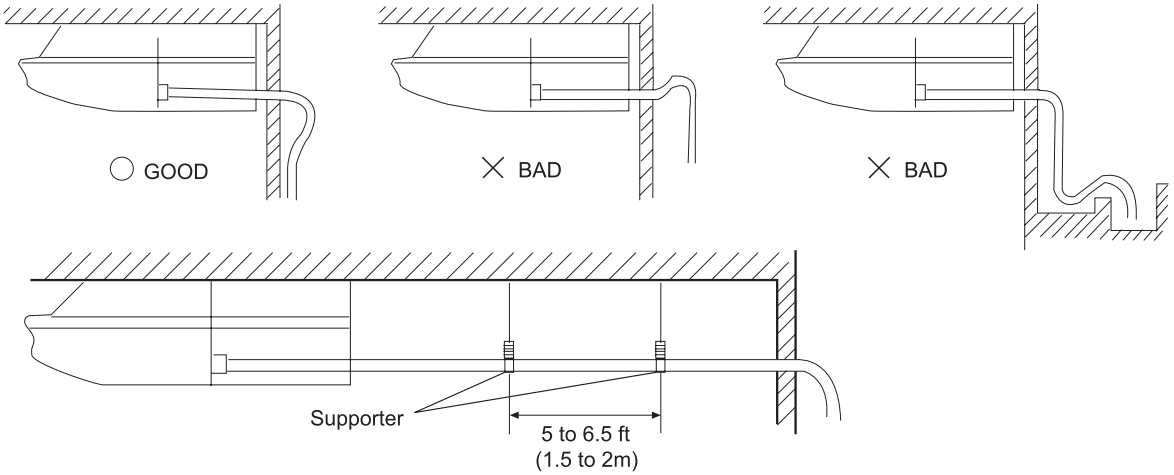
When installing the unit on the floor, fix the four rubber base feet in the accessories on the bottom plate of the unit with four 4x16 screws and 4 flat washers, as the position in the figure.





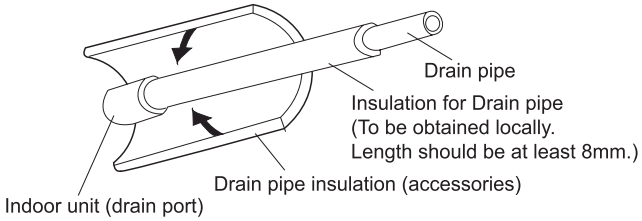
INSTALLING THE DRAIN HOSE

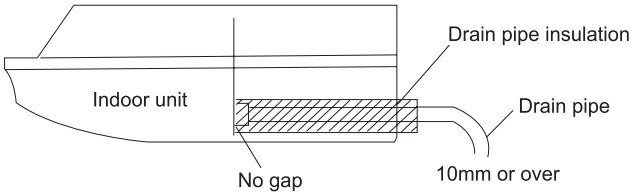
- Install the drain pipe with downward gradient (1/50 to 1/100) and so there are no rises or traps in the pipe.
- Use general hard polyvinyl chloride pipe (VP25) (outside diameter 38 mm)
- During installation of the drain pipe, be careful to avoid applying pressure to the drain point of the unit.
- When the pipe is long, install supporters.
- Do not perform air bleeding.
- Always heat insulate (8mm or over thick) the indoor side of the drain pipe.



(1) Install insulation for the drain pipe

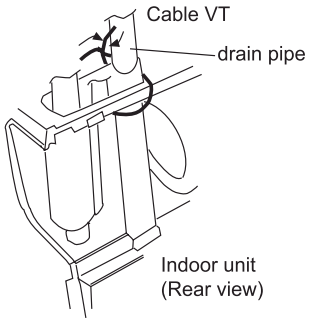
Cut the included insulation material to an appropriate size and adhere it to the pipe.





(2) When drain pipe is put in the right rear position

Fasten the drain pipe with cable VT so that there is a proper slope for drain pipe to exit from the indoor unit.



ELECTRICAL WIRING

Connect wiring to the terminals

A.For solid core wiring (or F-cable)

(1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 15/16”(25mm) to expose the solid wire.

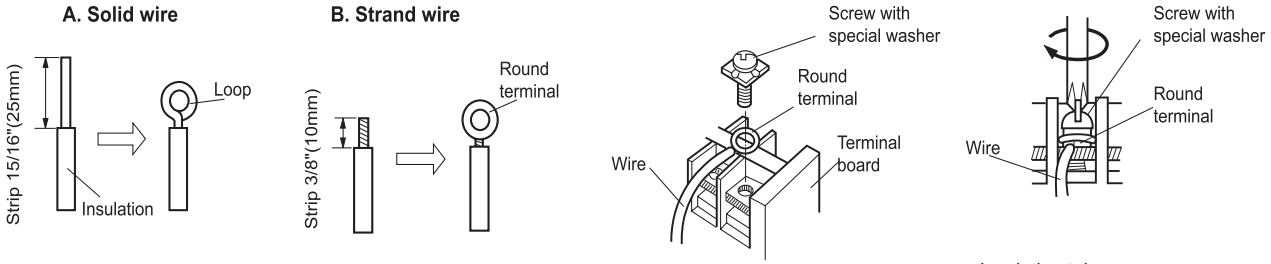
(2) Using a screwdriver, remove the terminal screw(s) on the terminal board.

(3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.

(4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

B.For strand wiring

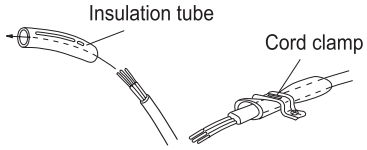
(1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 3/8”(1Omm) to expose the solid wire.
(2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
(3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
(4) Position the round terminal wire, and replace and tighten the terminal screw using a screwdriver.



Fix connection cord and power cable at the cord clamp.

After passing the connection cord and power cable through the insulation tube, fasten it with the cord clamp.

Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.



Electrical requirement

Select wire sizes and circuit protection from table below. (This table shows 2Om length wires with less than 2% voltage drop).

Item / Model	Phase	Circuit breaker		Power source wire size (minimum) (mm^2)	Earth leakage breaker	
		Switch breaker (A)	Over-current protector rated capacity (A)		Switch breaker (A)	Leak current (mA)
AC28ES1ERA(S) AC36ES1ERA(S)	1	40	30	6.0	40	30
AC48FS1ERA(S) AC60FS1ERA(S)	1	30	20	4.0	10	30

⚠ CAUTION

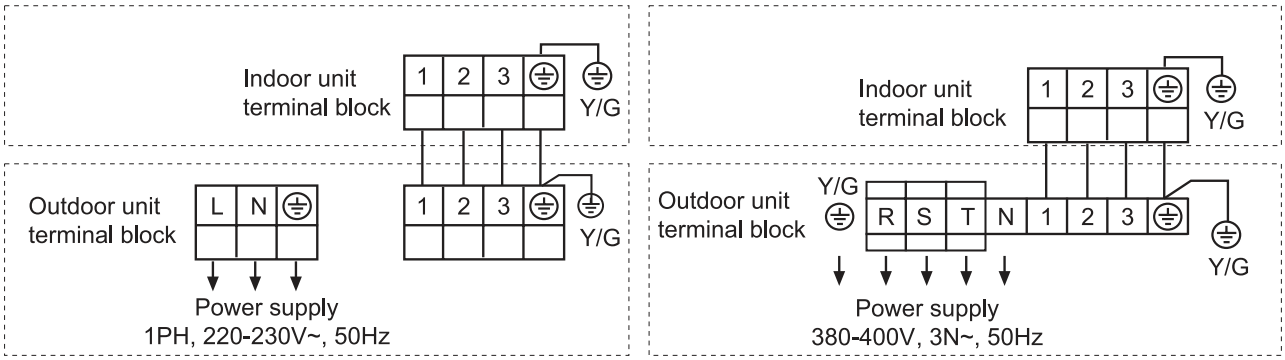
- Match the terminal block numbers and connection cord colors with those of the outdoor unit. Erroneous wiring may cause burning the electric parts.
- Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.
- Always fasten the outside covering of the connection cord with the cord clamp. If the insulator is chafed, electric leakage may occur.
- Always connect the ground wire.
- The unit has default temperature compensation setting, please cancel it when floor standing installation

Connect indoor unit and outdoor unit

(1) Remove the cord clamp.
(2) Process the end of the connection cords to the dimensions shown in wiring diagram.
(3) Connect the end of the connection cord fully into the terminal block.
(4) Fasten the connection cord with a cord clamp.
(5) Fasten the end of the connection cord with the screw.

Wiring diagram

AC28ES1ERA(S) AC36ES1ERA(S) AC48FS1ERA(S) AC60FS1ERA(S)



⚠ WARNING

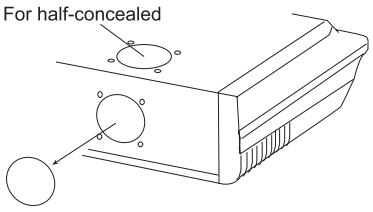
- The power cable and connecting cable are self-provided.
- Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.
- Use a circuit breaker and receptacle matched to the capacity of the room air conditioner.
- The circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3mm between the contacts of each pole.
- Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively.
- Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

⚠ CAUTION

- The power source capacity must be the sum of the room air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
- When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.

FRESH AIR INTAKE

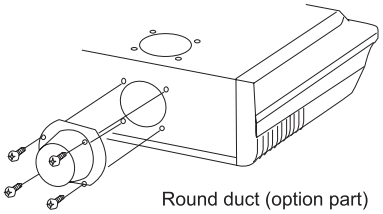
1. Open up the knockout hole for the fresh air intake. If using half-concealed installation, open up the top knockout hole instead.



⚠ CAUTION

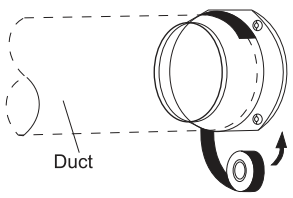
- When removing the cabinet (iron plate), be careful not to damage the indoor unit internal parts and surrounding area (outer case).
- When processing the cabinet (iron plate), be careful not to injury yourself with burrs,etc.

2. Fasten the round flange (optional) to the fresh air intake. If using half- concealed installation, attach to the top.



3. Connect the duct to the round flange.

4. Seal with a band and vinyl tape,etc. so that air does not leak from the connection.



3. Duct indoor type

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3.1 Features



AD09~12SS1ERA(N)(P)
AD09~12SS1ERA(N)
AD09~12SS1ERA



AD18~24SS1ERA(N)(P)
AD18~24SS1ERA(N)
AD18~24SS1ERA



AD12~18MS1ERA
AD12~18MS1ERA(D)
AD24~28MS2ERA
AD24~28MS2ERA(S)
AD28MS2ERA(S)(D)



AD24MS1ERA
AD24MS1ERA(D)



AD09LS1ERA
AD12LS1ERA



AD18LS1ERA
AD24LS1ERA



AD28NS1ERA(S)
AD36NS1ERA(S)
AD48NS1ERA(S)



AD48HS1ERA(S)
AD60HS1ERA(S)



Super thin design

Super thin design make all the models only 185mm height, which is super slim and most advanced in the industry, this feature will bring slimest ceiling drop.



Super Slient

New fan design, the shape and large diameter is designed for silent, optimize the air path, with DC fan motor, brings minimum 21dB(A) super quiet performance.



Adjuster ESP Easy Way

ESP can be adjusted by wired controller YR-E16, so installer don't need to climb the ladders to adjust the ESP.



Multiple Control

The indoor unit can use one wired remote controller, also it can use a remote controller.

A

Standard control method.



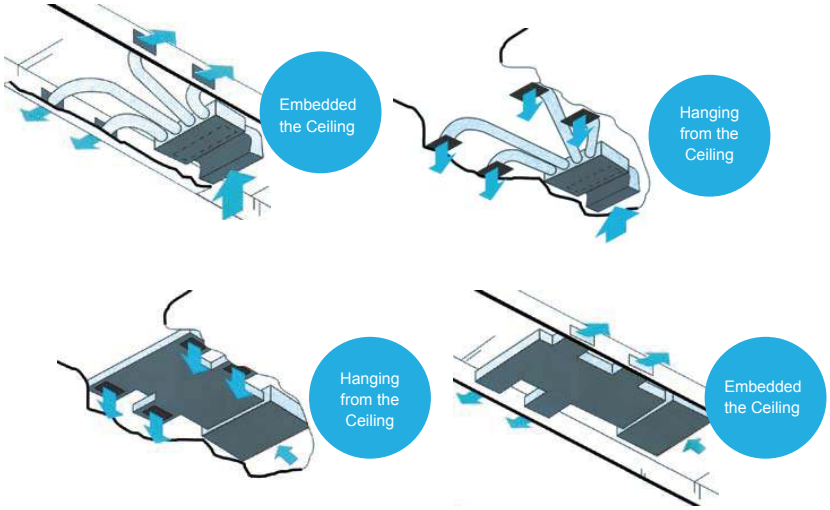
B

Infrared control method. A standard signal receiver is available to connect with the indoor unit



Multi-mode for installation

The indoor unit can be installed with an air return duct or without an air return duct according to the installation need



Different ESP Choice

There are low/medium/high static pressure duct models fit for different design application.

Slim Low ESP duct: 0/10/20/30Pa selectable.



Medium ESP duct: 10/30/50/70Pa selectable(12k~24k)



Medium ESP duct: 50/100Pa selectable(28K~48K)



High ESP duct:50Pa~150Pa adjustable steplessly(48K~60K)



3.2 Specification

Item	Model		AD09SS1ERA	
Function		——	Cooling	Heating
Capacity		W	2700	2800
Sensible heat ratio		W	0.71	/
Dehumidifying capacity		10-³xm³/h	1.0	
Indoor unit	Power supply		1PH, 220-230V~, 50/60Hz	
	Fan	Type × Number	——	centrifugal*1
		Speed(H-M-L)	r/min	850/750/650
		Fan motor output/input power	W	11/15
		Air-flows (H/M/L)	m³/h	530/460/390
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/¢ 7.0
		Row	——	2
		Total area	m²	0.11
		Temp. scope	℃	2.0-7.0
	Dimension (LxWxH)	External	mmxmmxmm	850x420x185
		Package	mmxmmxmm	1045x540x270
	Drainage pipe (material,I.D/O.D)		mm	PVC 27/31
	Control type(Remote/Wired)			Remote or Wired
	Fresh air hole dimension		mm	none
	Electricity heater		kW	none
	Noise level(H-M-L)	Sound power level	dB(A)	43/39/36
		Sound pressure level	dB(A)	33/29/26
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S)/YR-E16A(O)
			Infared	YR-HD01(O)
	Weight(Net/Shipping)		kg/kg	15.9/20.6(with water pump:16.7/21.4)
Piping	Refrigerant	Type		R410A
	Pipe	Liquid	mm	Φ6.35(1/4)
		Gas	mm	Φ9.52(3/8)
	Connecting method			Flared

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model			AD09SS1ERA(N)	
Function			——	Cooling	Heating
capacity			W	2700	2800
sensible heat ratio			W	0.71	/
Dehumidifying capacity			10-³xm³/h	1.0	
indoor unit	power supply			1PH, 220-230V~, 50Hz	
	Fan	Type × Number	——	centrifugal*1	
		Speed(H-M-L)	r/min	850/750/650	
		Fan motor output/input power	W	11/15	
		Air-flows (H/M/L)	m³/h	530/460/390	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/¢ 7.0	
		Row	——	2	
		Total area	m²	0.11	
		Temp.scope	℃	2.0-7.0	
	Dimension (LxWxH)	External	mmxmmxmm	850x420x185	
		Package	mmxmmxmm	1045x540x270	
	Drainage pipe (material,I.D/O.D) /		mm	PVC 27/31	
	control type(Remote/Wired)			Remote or Wired	
	Fresh air hole dimension /		mm	none	
	Electricity Heater		kW	none	
	Noise level(H-M-L)	Sound power level	dB(A)	43/39/36	
		Sound pressure level	dB(A)	33/29/26	
	weight(Net/Shipping)		kg/kg	17.5/22.5	
Piping	Refrigerant	Type		R410A	
	Pipe	Liquid	mm	Φ6.35(1/4)	
		Gas	mm	Φ9.52(3/8)	
	Connecting method			Flared	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model			AD09SS1ERA(N)(P)	
Function			——	Cooling	Heating
capacity			W	2700	2800
sensible heat ratio			W	0.71	/
Dehumidifying capacity			10-³xm³/h	1.0	
indoor unit	power supply			1PH, 220-230V~, 50Hz	
	Fan	Type × Number	——	centrifugal*1	
		Speed(H-M-L)	r/min	850/750/650	
		Fan motor output/input power	W	11/15	
		Air-flows (H/M/L)	m³/h	530/460/390	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/¢ 7.0	
		Row	——	2	
		Total area	m²	0.11	
		Temp.scope	℃	2.0-7.0	
	Dimension (LxWxH)	External	mmxmmxmm	850x420x185	
		Package	mmxmmxmm	1045x540x270	
	Drainage pipe (material,I.D/O.D)		mm	PVC 27/31	
	control type(Remote/Wired)			Remote or Wired	
	Fresh air hole dimension		mm	none	
	Electricity Heater		kW	none	
	Noise level(H-M-L)	Sound power level	dB(A)	43/39/36	
		Sound pressure level	dB(A)	33/29/26	
	weight(Net/Shipping)		kg/kg	18.3/23.3	
Piping	Refrigerant	Type		R410A	
	Pipe	Liquid	mm	Φ6.35(1/4)	
		Gas	mm	Φ9.52(3/8)	
	Connecting method			Flared	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model			AD09LS1ERA	
Function			——	Cooling	Heating
Capacity			W	2500	2900
Sensible heat ratio			W	0.71	/
Dehumidifying capacity			10-³xm³/h	1.0/1.5	
Indoor unit	Power supply			1PH, 220-230V~, 50/60Hz	
	Fan	Type × Number	——	centrifugal*1	
		Speed(H-M-L)	r/min	1230/1120/1030/900±40	
		Fan motor output/input power	W	27/64	
		Air-flows (H/M/L)	m³/h	550/450/400	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/¢ 7.0	
		Row	——	3	
		Total area	m²	0.11	
		Temp. scope	℃	2.0-7.0	
	Dimension (LxWxH)	External	mmxmmxmm	610×484×220	
		Package	mmxmmxmm	695×536×265	
	Drainage pipe (material,I.D/O.D)		mm	PVC 20/18	
	Control type(Remote/Wired)			Remote or Wired	
	Fresh air hole dimension		mm	none	
	Electricity heater		kW	none	
	Noise level(H-M-L)	Sound power level	dB(A)	47/44/41	
		Sound pressure level	dB(A)	37/34/31	
	Weight(Net/Shipping)		kg/kg	14/19	
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S)/YR-E16(O)	
			Infared	YR-HD01(O)	
Piping	Refrigerant	Type		R410A	
	Pipe	Liquid	mm	Φ6.35(1/4)	
		Gas	mm	Φ9.52(3/8)	
	Connecting method			Flared	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AD12SS1ERA	
Function					Cooling	Heating
Capacity				KW	3.50（0.9 ～ 4.5）	4.00（1 ～ 4.8）
Sensible heat ratio					0.71	/
Total power input				KW	1.03(0.28 ～ 1.8）	1.07(0.28 ～ 1.8）
Max. power input				W	1800	1800
EER or COP				W/W	3.39	3.73
Dehumidifying capacity				10^{-3}×m³/h	1.6	
Power cable					H05RN-F 4G 4.0mm²	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	5.0(1.2-8.0)/8.0	5.1(1.2-8.0)/8.0
Start Current				A	3	
Indoor unit	Unit model (color)				AD12SS1ERA	
	Fan	Type × Number			CENTRIFUGALX2	
		Speed(H-M-L)		r/min	950/800/700	
		Fan motor output/ input power		W	70/105	
		Air-flow(H-M-L)		m³/h	600/480/420	
		External static pressure		Pa	0/10/20/30	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			2	
		Total Area		m²	/	
	Dimension	External(L×W×H)		mm×mm×mm	850/420/185	
		Package(L×W×H)		mm×mm×mm	1025/525/260	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 25/29	
	Controller (O-Optional,S-Standard)			Wired	YR-E16(O)/YR-E17(S)	
				Infrared	YR-HD01(O)	
	Fresh air hole dimension			mm	NONE	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	52	
	Sound pressure Noise level (H-M-L)			dB(A)	35/30/22	
	Weight (Net / Shipping)			kg / kg	16/21	
Piping	Refrigerant	Type / Charge		g	R410A/1200	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant		m	5	
	Pipe	Liquid		mm	6.35	
		Gas		mm	9.52	
	Between I.D &O.D	MAX.Drop		m	10	
		MAX.Piping length		m	15	

cooling		Pdesignc(kW):	3.5KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh:	241
heating	Average	Pdesignh(-10°C)	3.0KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh:	1427
	Warmer	Pdesignh(2°C)	3.4KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	1191
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃ Outdoor temperature：46℃ /-℃		Max. heating condition		Indoor temperature:27°C/-°C Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AD12SS1ERA(N)/1U12BS3ERA	
Function					cooling	heating
Capacity				KW	3.50（0.9 ～ 4.5）	4.00（1 ～ 4.8）
Sensible heat ratio					0.71	/
Total power input				KW	1.03(0.28 ～ 1.8）	1.07(0.28 ～ 1.8）
Max. power input				W	1800	1800
EER or COP				W/W	3.39	3.73
Dehumidifying capacity				10-³×m³/h	1.6	
Power cable					H05RN-F 4G 4.0mm²	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	5.0(1.2-8.0)/8.0	5.1(1.2-8.0)/8.0
Start Current				A	3	
Indoor unit	Unit model (color)				AD12SS1ERA(N)	
	Fan	Type × Number			CENTRIFUGALX2	
		Speed(H-M-L)		r/min	950/800/700	
		Fan motor output/ input power		W	105/70	
		Air-flow(H-M-L)		m³/h	600/480/420	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			2	
		Total Area		m²	/	
	Dimension	External(L×W×H)		mm×mm×mm	850/420/185	
		Package(L×W×H)		mm×mm×mm	1045x540x270	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 25/29	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(S)/YR-E16(O)	
				Infrared	YR-HD01(O)	
	Fresh air hole dimension			mm	NONE	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	52	
	Sound pressure Noise level (H-M-L)			dB(A)	35/30/22	
	Weight (Net / Shipping)			kg / kg	17.5/22.5	
Piping	Refrigerant	Type / Charge		g	R410A/1200	
		Recharge quantity		g/m	45	
		Max. pipe length without charge refriigerant		m	5	
	Pipe	Liquid		mm	6.35	
		Gas		mm	9.52	
	Between I.D &O.D	MAX.Drop		m	10	
		MAX.Piping length		m	15	

cooling		Pdesignc(kW):	3.5KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh:	241
heating	Average	Pdesignh(-10°C)	3.0KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh:	1427
	Warmer	Pdesignh(2°C)	3.4KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	1191
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD12SS1ERA(N)(P)/1U12BS3ERA	
Function			cooling	heating
Capacity		KW	3.50（0.9～4.5）	4.00（1～4.8）
Sensible heat ratio			0.71	/
Total power input		KW	1.03(0.28～1.8）	1.07(0.28～1.8）
Max. power input		W	1800	1800
EER or COP		W/W	3.39	3.73
Dehumidifying capacity		10^{-3}×m³/h	1.6	
Power cable			H05RN-F 4G 4.0mm2	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	5.0(1.2-8.0)/8.0	5.1(1.2-8.0)/8.0
Start Current		A	3	
Indoor unit	Unit model (color)		AD12SS1ERA(N)	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed(H-M-L)	r/min	950/800/700
		Fan motor output/ input power	W	105/70
		Air-flow(H-M-L)	m³/h	600/480/420
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		2
		Total Area	m²	/
	Dimension	External(L×W×H)	mm×mm×mm	850/420/185
		Package(L×W×H)	mm×mm×mm	1045x540x270
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S)/YR-E16(O)
			Infrared	YR-HD(O)
	Fresh air hole dimension		mm	NONE
	Electricity Heater		kW	NONE
	Sound power Noise level (H-M-L)		dB(A)	52
	Sound pressure Noise level (H-M-L)		dB(A)	35/30/22
	Weight (Net / Shipping)		kg / kg	18.3/23.3
Piping	Refrigerant	Type / Charge	g	R410A/1200
		Recharge quantity	g/m	45
		Max. pipe length without charge refriigerant	m	5
	Pipe	Liquid	mm	6.35
		Gas	mm	9.52
	Between I.D &O.D	MAX.Drop	m	10
		MAX.Piping length	m	15

cooling		Pdesignc(kW):	3.5KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh:	241
heating	Average	Pdesignh(-10oC)	3.0KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh:	1427
	Warmer	Pdesignh(2oC)	3.4KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	1191
	Colder	Pdesignh(-22oC)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15oC		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27oC/-oC	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24oC/18oC	

Norminal condition: indoor temperature (cooling): 27oCDB/19oCWB, indoor temperature (heating): 20oCDB
Outdoor temperature(cooling): 35oCDB/24oCWB, outdoor temperature(heating): 7oCDB/6oCWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AD12MS1ERA/1U12BS3ERA	
Function				cooling	heating
Capacity			KW	3.50(0.9~4.5)	4.00(1~4.8)
Sensible heat ratio				/	/
Total power input			KW	1.08(0.28~1.8)	1.08(0.28~1.8)
Max. power input			W	1800	1800
EER or COP			W/W	3.23	3.71
Dehumidifying capacity			10^{-3}×m³/h	1.6	
Power cable				H05RN-F 4G 4.0mm2	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	4.8(1.2-8.0)/8.0	5.6(1.2-8.0)/8.0
Start Current			A	3	
Indoor unit	Unit model (color)			AD12MS1ERA	
	Fan	Type × Number		CENTRIFUGALX1	
		Speed(H-M-L)	r/min	700/630/570	
		Fan motor output/ input power	W	140/105	
		Air-flow(H-M-L)	m³/h	550/460/400	
		ESP	pa	10/30/50/70	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		2	
		Total Area	m²	/	
	Dimension	External(L×W×H)	mm×mm×mm	750/720/250	
		Package(L×W×H)	mm×mm×mm	920/820/340	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29	
	Controller (O-Optional,S-Standard)		Wired	YR-E14（S)/YR-E16(O)	
			Infrared	YR-HD01(O)	
	Fresh air hole dimension		mm	145	
	Electricity Heater		kW	NONE	
	Sound power Noise level (H-M-L)		dB(A)	46/43/39	
	Sound pressure Noise level (H-M-L)		dB(A)	36/33/29	
	Pipe	Liquid Pipe(mm)		6.35	
		Gas Pipe(mm)		9.52	
		Connecting Method		flared	
	Weight (Net / Shipping)		kg / kg	22.8/27	

cooling		Pdesignc (kW):	3.5KW	SEER/CLASS	6.1/A++	QCE(Annual electricity consumption for cooling)kWh:	215
heating	Average	Pdesignh (-10°C)	2.7KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	1020
	Warmer	Pdesignh(2°C)	3.1KW	SCOP/CLASS	4.3/A++	QHE(Annual electricity consumption for heating)kWh:	1003
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD12MS1ERA（D）/1U12BS3ERA	
Function			cooling	heating
Capacity		KW	3.50(0.9~4.5)	4.00(1~4.8)
Sensible heat ratio			/	/
Total power input		KW	1.08(0.28~1.8)	1.08(0.28~1.8)
Max. power input		W	1800	1800
EER or COP		W/W	3.23	3.71
Dehumidifying capacity		10^{-3}×m³/h	1.6	
Power cable			H05RN-F 4G 4.0mm²	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	4.8(1.2-8.0)/8.0	5.6(1.2-8.0)/8.0
Start Current		A	3	
Indoor unit	Unit model (color)		AD12MS1ERA(D)	
	Fan	Type × Number	CENTRIFUGALX1	
		Speed(H-M-L)	r/min	700/630/570
		Fan motor output/ input power	W	140/105
		Air-flow(H-M-L)	m³/h	550/460/400
		ESP	pa	10/30/50/70
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		2
		Total Area	m²	/
	Dimension	External(L×W×H)	mm×mm×mm	750/720/250
		Package(L×W×H)	mm×mm×mm	920/820/340
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29
	Controller (O-Optional,S-Standard)		Wired	YR-E14（S)/YR-E16(O)
			Infrared	YR-HD01(O)
	Fresh air hole dimension		mm	145
	Electricity Heater		kW	NONE
	Sound power Noise level (H-M-L)		dB(A)	46/43/39
	Sound pressure Noise level (H-M-L)		dB(A)	36/33/29
	Pipe	Liquid Pipe(mm)		6.35
		Gas Pipe(mm)		9.52
		Connecting Method		flared
	Weight (Net / Shipping)		kg / kg	21.8/26

cooling		Pdesignc(kW):	3.5KW	SEER/CLASS	6.1/A++	QCE(Annual electricity consumption for cooling)kWh:	215
heating	Average	Pdesignh(-10°C)	2.7KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	1020
	Warmer	Pdesignh(2°C)	3.1KW	SCOP/CLASS	4.3/A++	QHE(Annual electricity consumption for heating)kWh:	1003
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD18SS1ERA	
Function			cooling	heating
Capacity		KW	5.0(1.8~6)	5.5(2~6.2)
Sensible heat ratio			0.73	/
Total power input		KW	1.53(0.55~2.1)	1.47(0.6~2.1)
Max. power input		W	2100	2100
EER or COP		W/W	3.26	3.73
Dehumidifying capacity		10^{-3}×m³/h	1.9	
Power cable			H05RN-F 4G 4.0mm^2	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	6.8(2.3-9.5)/9.5	6.5(2.3-9.5)/9.5
Start Current		A	3	
Indoor unit	Unit model (color)		AD18SS1ERA	
	Fan — Type × Number		CENTRIFUGALX3	
	Fan — Speed(H-M-L)	r/min	950/850/750	
	Fan — Fan motor output/ input power	W	74/124	
	Fan — ESP	Pa	0/10/20/30	
	Fan — Air-flow(H-M-L)	m³/h	900/750/600	
	Heat exchanger — Type / Diameter	mm	inner grooved pipe/φ7.0	
	Heat exchanger — Row		3	
	Heat exchanger — Total Area	m²	/	
	Dimension — External(L×W×H)	mm×mm×mm	1170/420/185	
	Dimension — Package(L×W×H)	mm×mm×mm	1365/540/270	
	Drainage pipe (material , I.D./O.D.)	mm	PVC 25/29	
	Controller (O-Optional,S-Standard)	Wired	YR-E16(O)/YR-E17(S)	
	Fresh air hole dimension	mm	NONE	
	Electricity Heater	kW	NONE	
	Sound power Noise level (H-M-L)	dB(A)	54	
	Sound pressure Noise level (H-M-L)	dB(A)	36/30/26	
	Pipe — Liquid Pipe(mm)		6.35	
	Pipe — Gas Pipe(mm)		12.7	
	Pipe — Connecting Method		flared	
	Weight (Net / Shipping)	kg / kg	22/28	

cooling		Pdesignc(kW):	5.0KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh:	315
heating	Average	Pdesignh(-10°C)	5.5KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	1961
	Warmer	Pdesignh(2°C)	6.0KW	SCOP/CLASS	4.3/A++	QHE(Annual electricity consumption for heating)kWh:	1944
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃ Outdoor temperature：46℃ /-℃		Max. heating condition		Indoor temperature:27°C/-°C Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AD18SS1ERA(N)/1U18FS2ERA(S)	
Function					cooling	heating
Capacity				KW	5.0(1.8~6)	5.5(2~6.2)
Sensible heat ratio					0.73	/
Total power input				KW	1.53(0.55~2.1)	1.47(0.6~2.1)
Max. power input				W	2100	2100
EER or COP				W/W	3.26	3.73
Dehumidifying capacity				$10^{-3}\times m^3/h$	1.9	
Power cable					H05RN-F 4G 4.0mm^2	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	6.8(2.3-9.5)/9.5	6.5(2.39.5)/9.5
Start Current				A	3	
Indoor unit	Unit model (color)				AD18SS1ERA(N)	
	Fan	Type × Number			CENTRIFUGALX3	
		Speed(H-M-L)		r/min	950/850/750	
		Fan motor output/ input power		W	74/124	
		Air-flow(H-M-L)		m^3/h	900/750/600	
		ESP		Pa	0/10/20/30	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			3	
		Total Area		m^2	/	
	Dimension	External(L×W×H)		mm×mm×mm	1170/420/185	
		Package(L×W×H)		mm×mm×mm	1365/540/270	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 25/29	
	Controller (O-Optional,S-Standard)			Wired	YR-E16(O)/YR-E17(S)	
	Fresh air hole dimension			mm	NONE	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	54	
	Sound pressure Noise level (H-M-L)			dB(A)	36/30/26	
	Pipe	Liquid Pipe(mm)			6.35	
		Gas Pipe(mm)			12.7	
		Connecting Method			flared	
	Weight (Net / Shipping)			kg / kg	22/27.7	

cooling		Pdesignc(kW):	5.0KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh:	315
heating	Average	Pdesignh(-10°C)	5.5KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	1961
	Warmer	Pdesignh(2°C)	6.0KW	SCOP/CLASS	4.3/A++	QHE(Annual electricity consumption for heating)kWh:	1944
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃ Outdoor temperature：46℃ /-℃		Max. heating condition		Indoor temperature:27°C/-°C Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AD18SS1ERA(N)(P)/1U18FS2ERA(S)	
Function					cooling	heating
Capacity				KW	5.0(1.8~6)	5.5(2~6.2)
Sensible heat ratio					0.73	/
Total power input				KW	1.53(0.55~2.1)	1.47(0.6~2.1)
Max. power input				W	2100	2100
EER or COP				W/W	3.26	3.73
Dehumidifying capacity				$10^{-3}\times m^3/h$	1.9	
Power cable					H05RN-F 4G 4.0mm^2	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	6.8(2.3-9.5)/9.5	6.5(2.39.5)/9.5
Start Current				A	3	
Indoor unit	Unit model (color)				AD18SS1ERA(N)(P)	
	Fan	Type × Number			CENTRIFUGALX3	
		Speed(H-M-L)		r/min	950/850/750	
		Fan motor output/ input power		W	74/124	
		Air-flow(H-M-L)		m^3/h	900/750/600	
		ESP		Pa	0/10/20/30	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			3	
		Total Area		m^2	/	
	Dimension	External(L×W×H)		mm×mm×mm	1170/420/185	
		Package(L×W×H)		mm×mm×mm	1365/540/270	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 25/29	
	Controller (O-Optional,S-Standard)			Wired	YR-E16(O)/YR-E17(S)	
	Fresh air hole dimension			mm	NONE	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	54	
	Sound pressure Noise level (H-M-L)			dB(A)	36/30/26	
	Pipe	Liquid Pipe(mm)			6.35	
		Gas Pipe(mm)			12.7	
		Connecting Method			flared	
	Weight (Net / Shipping)			kg / kg	22.8/28.5	

cooling		Pdesignc(kW):	5.0KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh:	315
heating	Average	Pdesignh(-10°C)	5.5KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	1961
	Warmer	Pdesignh(2°C)	6.0KW	SCOP/CLASS	4.3/A++	QHE(Annual electricity consumption for heating)kWh:	1944
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃ Outdoor temperature：46℃ /-℃		Max. heating condition		Indoor temperature:27°C/-°C Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD18LS1ERA	
Function			cooling	heating
Capacity		KW	5.0(1.8~6)	5.5(2~6.2)
Sensible heat ratio			0.73	/
Total power input		KW	1.53(0.55~2.1)	1.47(0.6~2.1)
Max. power input		W	2100	2100
EER or COP		W/W	3.26	3.73
Dehumidifying capacity		10^{-3}×m³/h	2.1	
Power cable			H05RN-F 4G 4.0mm^2	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	6.6（2.3-9.5)/9.5	6.6(2.3-9.5)/9.5
Start Current		A	3	
Indoor unit	Unit model (color)		AD18LS1ERA	
	Fan — Type × Number		CENTRIFUGALX2	
	Fan — Speed(H-M-L)	r/min	700/540/400	
	Fan — Fan motor output/ input power	W	28/79	
	Fan — Air-flow(H-M-L)	m³/h	850/780/600	
	Fan — ESP	pa	0/25	
	Heat exchanger — Type / Diameter	mm	inner grooved pipe/φ7.0	
	Heat exchanger — Row		2	
	Heat exchanger — Total Area	m²	/	
	Dimension — External(L×W×H)	mm×mm×mm	1090/484/220	
	Dimension — Package(L×W×H)	mm×mm×mm	1174/545/280	
	Drainage pipe (material , I.D./O.D.)	mm	PVC 20/24	
	Controller (O-Optional,S-Standard)	Wired	YR-E16(O)/YR-E17(S)	
	Fresh air hole dimension	mm	NONE	
	Electricity Heater	kW	NONE	
	Sound power Noise level (H-M-L)	dB(A)	60	
	Sound pressure Noise level (H-M-L)	dB(A)	43/41/35	
	Pipe — Liquid Pipe(mm)		6.35	
	Pipe — Gas Pipe(mm)		12.7	
	Pipe — Connecting Method		flared	
	Weight (Net / Shipping)	kg / kg	23/26.5	

cooling		Pdesignc(kW):	5.0KW	SEER/CLASS	5.1/A	QCE(Annual electricity consumption for cooling)kWh:	343
heating	Average	Pdesignh(-10°C)	4.7KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh:	1702
	Warmer	Pdesignh(2°C)	6.0KW	SCOP/CLASS	4.3/A++	QHE(Annual electricity consumption for heating)kWh:	1944
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD18MS1ERA/1U18FS2ERA(S)	
Function			cooling	heating
Capacity		KW	5.0(1.8~6)	5.5(2~6.2)
Sensible heat ratio			0.73	/
Total power input		KW	1.55(0.55~2.0)	1.48(0.6~2.0)
Max. power input		W	2000	2000
EER or COP		W/W	3.23	3.71
Dehumidifying capacity		10^{-3}×m³/h	1.8	
Power cable			H05RN-F 4G 4.0mm^2	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	6.6(2.3-9.5)/9.5	7.0(2.39.5)/9.5
Start Current		A	3	
Indoor unit	Unit model (color)		AD18MS1ERA	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed(H-M-L)	r/min	700/610/520
		Fan motor output/ input power	W	70/105
		Air-flow(H-M-L)	m³/h	920/750/580
		ESP	Pa	10/30(default)/50/70
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		2
		Total Area	m²	/
	Dimension	External(L×W×H)	mm×mm×mm	957/655/250
		Package(L×W×H)	mm×mm×mm	1170/860/340
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(S)
	Fresh air hole dimension		mm	145
	Electricity Heater		kW	NONE
	Sound power Noise level (H-M-L)		dB(A)	57
	Sound pressure Noise level (H-M-L)		dB(A)	36/33/29
	Pipe	Liquid Pipe(mm)		6.35
		Gas Pipe(mm)		12.7
		Connecting Method		flared
	Weight (Net / Shipping)		kg / kg	26.5/34

cooling		Pdesignc(kW):	5.0KW	SEER/CLASS	6.1/A++	QCE(Annual electricity consumption for cooling)kWh:	291
heating	Average	Pdesignh(-10°C)	4.5KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	1782
	Warmer	Pdesignh(2°C)	5.0KW	SCOP/CLASS	4.4/A++	QHE(Annual electricity consumption for heating)kWh:	1596
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD18MS1ERA(D)/1U18FS2ERA（S）	
Function			cooling	heating
Capacity		KW	5.0(1.8~6)	5.5(2~6.2)
Sensible heat ratio			0.73	/
Total power input		KW	1.55(0.55~2.0)	1.48(0.6~2.0)
Max. power input		W	2000	2000
EER or COP		W/W	3.23	3.71
Dehumidifying capacity		10^{-3}×m³/h	1.8	
Power cable			H05RN-F 4G 4.0mm^2	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	6.6(2.3-9.5)/9.5	7.0(2.39.5)/9.5
Start Current		A	3	
Indoor unit	Unit model (color)		AD18MS1ERA(D)	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed(H-M-L)	r/min	700/610/520
		Fan motor output/ input power	W	70/105
		Air-flow(H-M-L)	m³/h	920/750/580
		ESP	Pa	10/30(default)/50/70
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		2
		Total Area	m²	/
	Dimension	External(L×W×H)	mm×mm×mm	957/655/250
		Package(L×W×H)	mm×mm×mm	1170/860/340
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29
	Controller (O-Optional,S-Standard)		Wired	YR-E14(S)/YR-E16(O)
			Infrared	YR-HD01(O)
	Fresh air hole dimension		mm	145
	Electricity Heater		kW	NONE
	Sound power Noise level (H-M-L)		dB(A)	57
	Sound pressure Noise level (H-M-L)		dB(A)	36/33/29
	Pipe	Liquid Pipe(mm)		6.35
		Gas Pipe(mm)		12.7
		Connecting Method		flared
	Weight (Net / Shipping)		kg / kg	25.5/33

cooling		Pdesignc(kW):	5.0KW	SEER/CLASS	6.1/A++	QCE(Annual electricity consumption for cooling)kWh:	291
heating	Average	Pdesignh(-10°C)	4.5KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	1782
	Warmer	Pdesignh(2°C)	5.0KW	SCOP/CLASS	4.4/A++	QHE(Annual electricity consumption for heating)kWh:	1596
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AD24SS1ERA/1U24GS1ERA	
Function					cooling	heating
Capacity				KW	7.1（2~7.6）	7.1（3~8.3）
Sensible heat ratio					0.74	/
Total power input				KW	2.19（0.6~2.6）	1.91（0.6~2.6）
Max. power input				W	2600	2600
EER or COP				W/W	3.24	3.72
Dehumidifying capacity				10^{-3}×m³/h	2.5	
Power cable					H05RN-F 4G 6.0mm^2	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	9.8（2.3-12)/12	9.2(2.3-12)/12
Start Current				A	3	
Indoor unit	Unit model (color)				AD24SS1ERA	
	Fan	Type × Number			CENTRIFUGALX3	
		Speed(H-M-L)		r/min	1140/1000/900	
		Fan motor output/ input power		W	74/104	
		Air-flow(H-M-L)		m³/h	1000/850/750	
		ESP		pa	0/10/20/30	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			3	
		Total Area		m²	/	
	Dimension	External(L×W×H)		mm×mm×mm	1170/420/185	
		Package(L×W×H)		mm×mm×mm	1365/540/270	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 25/29	
	Controller (O-Optional,S-Standard)			Wired	YR-E16(O)/YR-E17(S)	
	Fresh air hole dimension			mm	NONE	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	57	
	Sound pressure Noise level (H-M-L)			dB(A)	39/32/29	
	Pipe	Liquid Pipe(mm)			9.52	
		Gas Pipe(mm)			15.88	
		Connecting Method			flared	
	Weight (Net / Shipping)			kg / kg	24/30	

cooling		Pdesignc(kW):	7.1KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh:	446
heating	Average	Pdesignh(-10°C)	5.6KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	2089
	Warmer	Pdesignh(2°C)	6.0KW	SCOP/CLASS	4.8/A++	QHE(Annual electricity consumption for heating)kWh:	1782
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AD24SS1ERA(N)/1U24GS1ERA	
Function				cooling	heating
Capacity			KW	7.1（2~7.6）	7.1（3~8.3）
Sensible heat ratio				0.74	/
Total power input			KW	2.19（0.6~2.6）	1.91（0.6~2.6）
Max. power input			W	2600	2600
EER or COP			W/W	3.24	3.72
Dehumidifying capacity			10^{-3}×m³/h	2.5	
Power cable				H05RN-F 4G 6.0mm^2	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	9.8（2.3-12)/12	9.2(2.3-12)/12
Start Current			A	3	
Indoor unit	Unit model (color)			AD24SS1ERA(N)	
	Fan	Type × Number		CENTRIFUGALX3	
		Speed(H-M-L)	r/min	1140/1000/900	
		Fan motor output/ input power	W	104/74	
		Air-flow(H-M-L)	m³/h	1000/850/750	
		ESP	pa	0/10/20/30	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total Area	m²	/	
	Dimension	External(L×W×H)	mm×mm×mm	1170/420/185	
		Package(L×W×H)	mm×mm×mm	1365/540/270	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29	
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(S)	
	Fresh air hole dimension		mm	NONE	
	Electricity Heater		kW	NONE	
	Sound power Noise level (H-M-L)		dB(A)	57	
	Sound pressure Noise level (H-M-L)		dB(A)	39/32/29	
	Pipe	Liquid Pipe(mm)		9.52	
		Gas Pipe(mm)		15.88	
		Connecting Method		flared	
	Weight (Net / Shipping)		kg / kg	23.8/29.5	

cooling		Pdesignc(kW):	7.1KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh:	446
heating	Average	Pdesignh(-10°C)	5.6KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	2089
	Warmer	Pdesignh(2°C)	6.0KW	SCOP/CLASS	4.8/A++	QHE(Annual electricity consumption for heating)kWh:	1782
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃ Outdoor temperature：46℃ /-℃		Max. heating condition		Indoor temperature:27°C/-°C Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AD24SS1ERA(N)(P)/1U24GS1ERA	
Function					cooling	heating
Capacity				KW	7.1（2~7.6）	7.1（3~8.3）
Sensible heat ratio					0.74	/
Total power input				KW	2.19（0.6~2.6）	1.91（0.6~2.6）
Max. power input				W	2600	2600
EER or COP				W/W	3.24	3.72
Dehumidifying capacity				10^{-3}×m³/h	2.5	
Power cable					H05RN-F 4G 6.0mm^2	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	9.8（2.3-12)/12	9.2(2.3-12)/12
Start Current				A	3	
Indoor unit	Unit model (color)				AD24SS1ERA(N)(P)	
	Fan	Type × Number			CENTRIFUGALX3	
		Speed(H-M-L)		r/min	1140/1000/900	
		Fan motor output/ input power		W	104/74	
		Air-flow(H-M-L)		m³/h	1000/850/750	
		ESP		pa	0/10/20/30	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			3	
		Total Area		m²	/	
	Dimension	External(L×W×H)		mm×mm×mm	1170/420/185	
		Package(L×W×H)		mm×mm×mm	1365/540/270	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 25/29	
	Controller (O-Optional,S-Standard)			Wired	YR-E16(O)/YR-E17(S)	
	Fresh air hole dimension			mm	NONE	
	Electricity Heater			kW	NONE	
	Sound power Noise level (H-M-L)			dB(A)	57	
	Sound pressure Noise level (H-M-L)			dB(A)	39/32/29	
	Pipe	Liquid Pipe(mm)			9.52	
		Gas Pipe(mm)			15.88	
		Connecting Method			flared	
	Weight (Net / Shipping)			kg / kg	24.6/30.3	

cooling		Pdesignc(kW):	7.1KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh:	446
heating	Average	Pdesignh(-10°C)	5.6KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	2089
	Warmer	Pdesignh(2°C)	6.0KW	SCOP/CLASS	4.8/A++	QHE(Annual electricity consumption for heating)kWh:	1782
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD24LS1ERA/1U24GS1ERA	
Function			cooling	heating
Capacity		KW	6.8（2~7.6）	7.1(3~8.3)
Sensible heat ratio			0.72	/
Total power input		KW	2.10(0.6~2.6)	1.91(0.6~2.6)
Max. power input		W	2600	2600
EER or COP		W/W	3.24	3.72
Dehumidifying capacity		10^{-3}×m³/h	2.2	
Power cable			H05RN-F 4G 6.0mm2	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	9.1（2.3-12)/12	8.5(2.3-12)/12
Start Current		A	3	
Indoor unit	Unit model (color)		AD24LS1ERA	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed (H-M-L)	r/min	1130/1000/850
		Fan motor output/ input power	W	74/190
		Air-flow (H-M-L)	m³/h	1200/1050/850
		ESP	pa	0/25
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		3
		Total Area	m²	/
	Dimension	External (L×W×H)	mm×mm×mm	1090/484/220
		Package (L×W×H)	mm×mm×mm	1174/545/280
	Drainage pipe (material , I.D./O.D.)		mm	PVC 20/24
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(S)
	Fresh air hole dimension		mm	NONE
	Electricity Heater		kW	NONE
	Sound power Noise level (H-M-L)		dB(A)	65
	Sound pressure Noise level (H-M-L)		dB(A)	48/46/42
	Pipe	Liquid Pipe	mm	9.52
		Gas Pipe	mm	15.88
		Connecting Method		flared
	Weight (Net / Shipping)		kg / kg	25.2/28.4

cooling		Pdesignc(kW):	6.8KW	SEER/CLASS	5.1/A	QCE(Annual electricity consumption for cooling)kWh:	451
heating	Average	Pdesignh(-10°C)	5.2KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh:	1989
	Warmer	Pdesignh(2°C)	6.0KW	SCOP/CLASS	4.8/A++	QHE(Annual electricity consumption for heating)kWh:	1782
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AD24MS1ERA/1U24GS1ERA	
Function				cooling	heating
Capacity			KW	7.1(2.0~8.2)	7.5(2.5~8.5)
Sensible heat ratio				0.74	/
Total power input			KW	2.19(0.6~2.6)	2.02(0.6~2.6)
Max. power input			W	2600	2600
EER or COP			W/W	3.23	3.71
Dehumidifying capacity			10^{-3}×m³/h	2.5	
Power cable				H05RN-F 4G 6.0mm^2	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	9.8（2.3-12)/12	9.2(2.3-12)/12
Start Current			A	3	
Indoor unit	Unit model (color)			AD24MS1ERA	
	Fan	Type × Number		CENTRIFUGALX2	
		Speed(H-M-L)	r/min	940/860/780	
		Fan motor output/ input power	W	95/254	
		Air-flow(H-M-L)	m³/h	1050/1000/950	
		ESP	pa	0/50	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total Area	m²	/	
	Dimension	External(L×W×H)	mm×mm×mm	950×650×270	
		Package(L×W×H)	mm×mm×mm	1170×860×340	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32	
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(S)	
	Fresh air hole dimension		mm	145	
	Electricity Heater		kW	NONE	
	Sound power Noise level (H-M-L)		dB(A)	59	
	Sound pressure Noise level (H-M-L)		dB(A)	44/42/39	
	Pipe	Liquid Pipe(mm)		9.52	
		Gas Pipe(mm)		15.88	
		Connecting Method		flared	
	Weight (Net / Shipping)		kg / kg	37/39	

cooling		Pdesignc(kW):	7.1KW	SEER/CLASS	5.1/A	QCE(Annual electricity consumption for cooling)kWh:	513
heating	Average	Pdesignh(-10°C)	5.2KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh:	2122
	Warmer	Pdesignh(2°C)	6.0KW	SCOP/CLASS	4.8/A++	QHE(Annual electricity consumption for heating)kWh:	1799
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃ Outdoor temperature：46℃ /-℃		Max. heating condition		Indoor temperature:27°C/-°C Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD24MS2ERA/1U24GS1ERA	
Function			cooling	heating
Capacity		KW	7.1(2.0~8.2)	8.0(2.5~8.5)
Sensible heat ratio			0.74	/
Total power input		KW	2.19(0.6~2.6)	2.16(0.6~2.6)
Max. power input		W	2600	2600
EER or COP		W/W	3.23	3.71
Dehumidifying capacity		10^{-3}×m³/h	2.5	
Power cable			H05RN-F 4G 6.0mm^2	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	10.5(2.3-12)/12	9.2(2.3-12)/12
Start Current		A	3	
Indoor unit	Unit model (color)		AD24MS2ERA	
	Fan — Type × Number		CENTRIFUGALX2	
	Fan — Speed(H-M-L)	r/min	950/860/760	
	Fan — Fan motor output/ input power	W	85/111	
	Fan — Air-flow(H-M-L)	m³/h	1050/840/630	
	Fan — External static pressure	Pa	10/30(default)/50/70	
	Heat exchanger — Type / Diameter	mm	inner grooved pipe/φ7.0	
	Heat exchanger — Row		3	
	Heat exchanger — Total Area	m²	7.668	
	Dimension — External(L×W×H)	mm×mm×mm	957/655/250	
	Dimension — Package(L×W×H)	mm×mm×mm	1170/860/340	
	Drainage pipe (material , I.D./O.D.)	mm	PVC 25/29	
	Controller (O-Optional,S-Standard)	Wired	YR-E16(O)/YR-E17(S)	
	Fresh air hole dimension	mm	NONE	
	Electricity Heater	kW	NONE	
	Sound power Noise level (H-M-L)	dB(A)	58	
	Sound pressure Noise level (H-M-L)	dB(A)	42/38/35	
	Pipe — Liquid Pipe(mm)		9.52	
	Pipe — Gas Pipe(mm)		15.88	
	Pipe — Connecting Method		flared	
	Weight (Net / Shipping)	kg / kg	31.2/36.8	

cooling		Pdesignc(kW):	7.1KW	SEER/CLASS	6.1/A	QCE(Annual electricity consumption for cooling)kWh:	415
heating	Average	Pdesignh(-10°C)	6.0KW	SCOP/CLASS	4.0/A	QHE(Annual electricity consumption for heating)kWh:	2103
	Warmer	Pdesignh(2°C)	6.5KW	SCOP/CLASS	4.8/A++	QHE(Annual electricity consumption for heating)kWh:	1895
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD24MS2ERA(D)/1U24GS1ERA	
Function			cooling	heating
Capacity		KW	7.1(2.0~8.2)	8.0(2.5~8.5)
Sensible heat ratio			0.74	/
Total power input		KW	2.19(0.6~2.6)	2.16(0.6~2.6)
Max. power input		W	2600	2600
EER or COP		W/W	3.23	3.71
Dehumidifying capacity		10^{-3}×m³/h	2.5	
Power cable			H05RN-F 4G 6.0mm^2	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	10.5(2.3-12)/12	9.2(2.3-12)/12
Start Current		A	3	
Indoor unit	Unit model (color)		AD24MS2ERA(D)	
	Fan — Type × Number		CENTRIFUGALX2	
	Fan — Speed(H-M-L)	r/min	950/860/760	
	Fan — Fan motor output/ input power	W	85/111	
	Fan — Air-flow(H-M-L)	m³/h	1050/840/630	
	Heat exchanger — Type / Diameter	mm	inner grooved pipe/φ7.0	
	Heat exchanger — Row		3	
	Heat exchanger — Total Area	m²	7.668	
	Dimension — External(L×W×H)	mm×mm×mm	1050/720/250	
	Dimension — Package(L×W×H)	mm×mm×mm	1170/860/340	
	Drainage pipe (material , I.D./O.D.)	mm	PVC 25/29	
	Controller (O-Optional,S-Standard)	Wired	YR-E16(O)/YR-E17(S)	
	Fresh air hole dimension	mm	145	
	Electricity Heater	kW	NONE	
	Sound power Noise level (H-M-L)	dB(A)	58	
	Sound pressure Noise level (H-M-L)	dB(A)	42/38/35	
	Pipe — Liquid Pipe(mm)		9.52	
	Pipe — Gas Pipe(mm)		15.88	
	Pipe — Connecting Method		flared	
	Weight (Net / Shipping)	kg / kg	30.2/35.8	

cooling		Pdesignc(kW):	7.1KW	SEER/CLASS	6.1/A	QCE(Annual electricity consumption for cooling)kWh:	415
heating	Average	Pdesignh(-10°C)	6.0KW	SCOP/CLASS	4.0/A	QHE(Annual electricity consumption for heating)kWh:	2103
	Warmer	Pdesignh(2°C)	6.5KW	SCOP/CLASS	4.8/A++	QHE(Annual electricity consumption for heating)kWh:	1895
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD28MS2ERA(S)/1U28GS2ERA(S)	
Function			cooling	heating
Capacity		KW	8(2.5~8.0)	9.0(3.0~9.5)
Sensible heat ratio			0.74	/
Total power input		KW	2.48(0.6~3.1)	2.42(0.6~3.1)
Max. power input		W	3100	3100
EER or COP		W/W	3.23	3.71
Dehumidifying capacity		10^{-3}×m³/h	2.5	
Power cable			H05RN-F 4G 6.0mm²	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	10.8(2.3-14.3)/14.3	10.5(2.3-14.3)/14.3
Start Current		A	3	
Indoor unit	Unit model (color)		AD28MS2ERA(S)	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1020/920/820
		Fan motor output/ input power	W	112/147
		Air-flow(H-M-L)	m³/h	1300/900/700
		External static pressure		10/30(default)/50/70
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		3
		Total Area	m²	7.668
	Dimension	External(L×W×H)	mm×mm×mm	957/655/250
		Package(L×W×H)	mm×mm×mm	1170/860/340
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(S)
	Fresh air hole dimension		mm	145
	Electricity Heater		kW	NONE
	Sound power level (H-M-L)		dB(A)	60
	Sound pressure level (H-M-L)		dB(A)	44/41/39
Piping	Type / Charge		g	R410A/2000
	Recharge quantity		g/m	45
	Pipe	Liquid Pipe(mm)	mm	9.52
		Gas Pipe(mm)	mm	15.88
	Between I.D &O.D	MAX.Drop	m	15
		MAX.Piping length	m	25

cooling		Pdesignc(kW):	8.0KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh:	504
heating	Average	Pdesignh(-10°C)	7.2KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	2551
	Warmer	Pdesignh(2°C)	8.0KW	SCOP/CLASS	4.8/A++	QHE(Annual electricity consumption for heating)kWh:	2208
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD28MS2ERA(S)(D)/1U28GS2ERA(S)	
Function			cooling	heating
Capacity		KW	8(2.5~8.0)	9.0(3.0~9.5)
Sensible heat ratio			0.74	/
Total power input		KW	2.48(0.6~3.1)	2.42(0.6~3.1)
Max. power input		W	3100	3100
EER or COP		W/W	3.23	3.71
Dehumidifying capacity		10^{-3}×m³/h	2.5	
Power cable			H05RN-F 4G 6.0mm²	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	10.8(2.3-14.3)/14.3	10.5(2.3-14.3)/14.3
Start Current		A	3	
Indoor unit	Unit model (color)		AD28MS2ERA(S)(D)	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1020/920/820
		Fan motor output/ input power	W	85/111
		Air-flow(H-M-L)	m³/h	1300/900/700
		External static pressure	Pa	10/30(default)/50/70
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		3
		Total Area	m²	7.668
	Dimension	External(L×W×H)	mm×mm×mm	957/655/250
		Package(L×W×H)	mm×mm×mm	1170/860/340
	Drainage pipe (material , I.D./O.D.)		mm	PVC 25/29
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(S)
	Fresh air hole dimension		mm	145
	Electricity Heater		kW	NONE
	Sound power level (H-M-L)		dB(A)	60
	Sound pressure level (H-M-L)		dB(A)	44/41/39
Piping	Type / Charge		g	R410A/2000
	Recharge quantity		g/m	45
	Pipe	Liquid Pipe(mm)	mm	9.52
		Gas Pipe(mm)	mm	15.88
	Between I.D &O.D	MAX.Drop	m	15
		MAX.Piping length	m	25
	Weight (Net / Shipping)		kg / kg	30.2/35.8

cooling		Pdesignc(kW):	8.0KW	SEER/CLASS	5.6/A+	QCE(Annual electricity consumption for cooling)kWh:	504
heating	Average	Pdesignh(-10°C)	7.2KW	SCOP/CLASS	4.0/A+	QHE(Annual electricity consumption for heating)kWh:	2551
	Warmer	Pdesignh(2°C)	8.0KW	SCOP/CLASS	4.8/A++	QHE(Annual electricity consumption for heating)kWh:	2208
	Colder	Pdesignh(-22°C)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃			Tbivalent:-8°C	TOL:-15°C		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature:27°C/-°C	
		Outdoor temperature：46℃ /-℃				Outdoor temperature:24°C/18°C	

Norminal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AD28NS1ERA(S)/1U28HS1ERA(S)	
Function					Cooling	Heating
Capacity				kW	8.5(2.1-9.8)	9.5(2.2-10.5)
Sensible heat ratio					/	/
Total power input				kW	2.648(0.5-4.2)	2.631(0.5-4.2)
Max. power input				W	4200	4200
EER or COP				W/W	3.21	3.61
Dehumidifying capacity				10 - ³×m³/h	2.9	
Power cable					H05RN-F 4G 6.0mm²	
Power source				N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current				A / A	11.5(2.2-18.5)/18.5	11.4(2.2-18.5)/18.5
Start Current				A	5	
Indoor unit	Unit model (color)				AD28NS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX2	
		Speed(H-M-L)		r/min	1103/1014/978	
		Fan motor output/ input power		W	185/320	
		Air-flow(H-M-L)		m³/h	1630/1488/1421	
		ESP		pa	50(default)/100	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Row			3	
		Total Area		m²	/	
	Dimension	External（L×W×H）		mm×mm×mm	1135/742/270	
		Package（L×W×H）		mm×mm×mm	1357/856/373	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 35/39	
	Controller (O-Optional,S-Standard)			Wired(S)	YR-E17(S) or YR-E16A(O)	
	Fresh air hole dimension			mm	200	
	Electricity Heater			kW	none	
	Sound power Noise level (H-M-L)			dB(A)	60	
	Sound pressure Noise level (H-M-L)			dB(A)	48/46/42	
	Pipe	Liquid Pipe		mm	9.52	
		Gas Pipe		mm	15.88	
		Connecting Method			flared	
	Weight (Net / Shipping)			kg / kg	45.4/51.3	

Cooling		Pdesignc(kW)：	8.5KW	SEER/CLASS	5.4/A	QCE(Annual electricity consumption for cooling)kWh：	585
Heating	Average	Pdesignh(-10℃)	7.2KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh：	3000
	Warmer	Pdesignh(2℃)	8.3	SCOP/CLASS	5.0/A++	QHE(Annual electricity consumption for heating)kWh：	2509
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh：	/
Tdesignh：-10℃		Tbivalent：-10℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AD28NS1ERA(S)/1U28GS2ERA(S)	
Function				cooling	heating
Capacity			KW	8.0(2.1-9.8)	9.0(2.2-10)
Sensible heat ratio				0.74	/
Total power input			KW	2.648(0.5-4.2)	2.631(0.5-4.2)
Max. power input			W	4200	4200
EER or COP			W/W	3.21	3.61
Dehumidifying capacity			10^{-3}×m³/h	2.9	
Power cable				H05RN-F 4G 6.0mm^2	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	10.8(2.3-14.3)/14.3	10.5(2.3-14.3)/14.3
Start Current			A	3	
Indoor unit	Unit model (color)			AD28MS2ERA(S)(D)	
	Fan	Type × Number		CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1103/1014/978	
		Fan motor output/ input power	W	185/320	
		Air-flow(H-M-L)	m³/h	1630/1488/1421	
		External static pressure	Pa	50/100	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total Area	m²	/	
	Dimension	External(L×W×H)	mm×mm×mm	1135/742/270	
		Package(L×W×H)	mm×mm×mm	1300/850/380	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 35/39	
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S) OR YR-E16A(O)	
	Fresh air hole dimension		mm	200	
	Electricity Heater		kW	NONE	
	Sound power level (H-M-L)		dB(A)		
	Sound pressure level (H-M-L)		dB(A)	48/46/42	
Piping	Type / Charge		g	R410A/2000	
	Recharge quantity		g/m	45	
	Pipe	Liquid Pipe(mm)	mm	9.52	
		Gas Pipe(mm)	mm	15.88	
	Between I.D &O.D	MAX.Drop	m	15	
		MAX.Piping length	m	25	
	Weight (Net / Shipping)		kg / kg	45.4/51.3	

Cooling		Pdesignc(kW):	8KW	SEER/CLASS	5.1/A	QCE(Annual electricity consumption for cooling)kWh:	555
Heating	Average	Pdesignh(-10℃)	7.4KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh:	2745
	Warmer	Pdesignh(2℃)	8.3	SCOP/CLASS	5.0/A++	QHE(Annual electricity consumption for heating)kWh:	2509
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh:	/
Tdesignh：-10℃		Tbivalent：-10℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature: 32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature: 46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AD36NS1ERA(S)/1U36HS1ERA(S)	
Function				cooling	heating
Capacity			kW	10（2.2-11）	11(2.2-12)
Sensible heat ratio				/	/
Total power input			kW	3.29(0.5-4.3)	3.05（0.5-4.3）
Max. power input			W	4300	4300
EER or COP			W/W	3.01	3.61
Dehumidifying capacity			10 - ³×m³/h	3.6	
Power cable				H05RN-F 4G 6.0mm^2	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	14.3（2.2-19.3）/19.3	13.2（2.2-19.3）/19.3
Start Current			A	/	
Indoor unit	Unit model (color)			AD36NS1ERA(S) (grey)	
	Fan	Type × Number		CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1269/1197/1126	
		Fan motor output/ input power	W	185/320	
		ESP	pa	50(default)/100	
		Air-flow(H-M-L)	m³/h	1630/1488/1421	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total Area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	1135/742/270	
		Package（L×W×H）	mm×mm×mm	1357/856/373	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 35/39	
	Controller (O-Optional,S-Standard)		Wired(S)	YR-E17(S) OR YR-E16A(O)	
	Fresh air hole dimension		mm	200	
	Electricity Heater		kW	none	
	Sound power Noise level (H-M-L)		dB(A)	64	
	Sound pressure Noise level (H-M-L)		dB(A)	48/46/42	
	Pipe	Liquid Pipe	mm	9.52	
		Gas Pipe	mm	15.88	
		Connecting Method		flared	
	Weight (Net / Shipping)		kg / kg	45.4/51.3	

Cooling		Pdesignc(kW)：	10KW	SEER/CLASS	5.2/A	QCE(Annual electricity consumption for cooling)kWh：	666
Heating	Average	Pdesignh(-10℃)	8.1KW	SCOP/CLASS	3.8/A	QHE(Annual electricity consumption for heating)kWh：	3012
	Warmer	Pdesignh(2℃)	9.1	SCOP/CLASS	4.9	QHE(Annual electricity consumption for heating)kWh：	3244
	Colder	Pdesignh(-22℃)	/	SCOP/CLASS	/	QHE(Annual electricity consumption for heating)kWh：	/
Tdesignh：-10℃		Tbivalent：-10℃		TOL：-15℃		Elbu:0	
Max. cooling condition		Indoor temperature：32℃ /23℃		Max. heating condition		Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AD48HS1ERA(S)/1U48IS1EAB(S)	
Function				cooling	heating
Capacity			kW	14.1	15.5
Sensible heat ratio				0.74	
Total power input			kW	4.62	4.27
Max. power input			W	6500	6500
EER or COP			W/W	3.05(B)	3.63(A)
Dehumidifying capacity			10 - ³×m³/h	5.0	
Power cable				/	
Power source			N, V, Hz	1, 220~230, 50/60	
Running /Max.Running current			A / A	8.3/10.5	8.4/10.5
Start Current			A	/	
Indoor unit	Unit model (color)			AD48HS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1090±30/860±50/690±50	
		Fan motor input power	kW	0.47	
		Fan motor output power	kW	0.27	
		Air-flow(H-M-L)	m³/h	2580/2070/1560	
		ESP	pa	50/100	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		ROW		3	
		Total area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	1197×830×360	
		Package（L×W×H）	mm×mm×mm	1430×940×420	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32	
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S) OR YR-E16A(O)	
	Fresh air hole dimension		mm	/	
	Electricity heater		kW	0	
	Noise level (H-M-L)		dB(A)	50/46/42	
	Weight (Net / Shipping)		kg / kg	57/70	
Piping	Refrigerant	Type / Charge	g	R410A/2850	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD48NS1ERA(S)/1U48IS1EAB(S)	
Function			cooling	heating
Capacity		kW	14.1	15.2
Sensible heat ratio			0.74	
Total power input		kW	4.66	4.45
Max. power input		W	6500	6500
EER or COP		W/W	3.03(B)	3.42(B)
Dehumidifying capacity		10 - ³×m³/h	5.0	
Power cable			/	
Power source		N, V, Hz	1, 220~230, 50/60	
Running /Max.Running current		A / A	8.4/10.5	8.5/10.5
Start Current		A	/	
Indoor unit	Unit model (color)		AD48NS1ERA(S)	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1260/1190/1110
		Fan motor input power	kW	0.32
		Fan motor output power	kW	0.25
		Air-flow(H-M-L)	m³/h	2090/1970/1792
		ESP	pa	50/100
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total area	m²	0.371
	Dimension	External（L×W×H）	mm×mm×mm	1135×742×270
		Package（L×W×H）	mm×mm×mm	1300×850×380
	Drainage pipe (material , I.D./O.D.)		mm	PVC 35/39
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S) OR YR-E16A(O)
	Fresh air hole dimension		mm	200
	Electricity heater		kW	0
	Noise level (H-M-L)		dB(A)	49/47/43
	Weight (Net / Shipping)		kg / kg	52/55
Piping	Refrigerant	Type / Charge	g	R410A/2850
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

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Item	Model			AD48NS1ERA(S)/1U48IS1ERB(S)	
Function				cooling	heating
Capacity			kW	13.6(6.0-15)	15(6.0~17)
Sensible heat ratio				0.74	
Total power input			kW	4.22(2.0---6.0)	4.08(2.0---6.0)
Max. power input			W	6000	6000
EER or COP			W/W	3.22(A)	3.68(A)
Dehumidifying capacity			10 - ³×m³/h	5.0	
Power cable				/	
Power source			N, V, Hz	1PH, 220-230V~, 50Hz	
Running /Max.Running current			A / A	6.5(2.9-10.0)/10.0	6.4(2.9-10.0)/10.0
Start Current			A	/	
Indoor unit	Unit model (color)			AD48NS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1230/1130/1030	
		Fan motor input power	kW	0.35	
		Fan motor output power	kW	0.25	
		Air-flow(H-M-L)	m³/h	2090/1970/1792	
		External static pressure	Pa	50/100	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Total area	m²	0.371	
		Row		3	
	Dimension	External（L×W×H）	mm×mm×mm	1135×742×270	
		Package（L×W×H）	mm×mm×mm	1300×850×380	
	Drainage pipe （material , I.D./O.D.）		mm	PVC 35/39	
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S) OR YR-E16A(O)	
	Fresh air hole dimension		mm	200	
	Electricity heater		kW	0	
	Noise level (H-M-L)		dB(A)	49/47/43	
	Weight (Net / Shipping)		kg / kg	52/55	
Piping	Refrigerant	Type / Charge	g	R410A/3300	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD48HS1ERA(S)/1U48IS1ERB(S)	
Function			cooling	heating
Capacity		kW	13.6(6.0-15)	15.5(6.0~17.5)
Sensible heat ratio			0.74	
Total power input		kW	4.22(2.0---6.0)	4.21(2.0---6.0)
Max. power input		W	6000	6000
EER or COP		W/W	3.22(A)	3.68(A)
Dehumidifying capacity		10 - ³×m³/h	5.0	
Power cable			/	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	6.5(2.9-10.0)/10.0	6.6(2.9-10.0)/10.0
Start Current		A	/	
Indoor unit	Unit model (color)		AD48HS1ERA(S)	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1090±30/860±50/690±50
		Fan motor input power	kW	0.47
		Fan motor output power	kW	0.27
		Air-flow(H-M-L)	m³/h	2580/2070/1560
		External static pressure	Pa	50~150
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		3
		Total area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	1197×830×350
		Package（L×W×H）	mm×mm×mm	1430×940×420
	Drainage pipe （material , I.D./O.D.）		mm	PVC 26/32
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S) OR YR-E16A(O)
	Fresh air hole dimension		mm	/
	Electricity heater		kW	0
	Noise level (H-M-L)		dB(A)	50/46/42
	Weight (Net / Shipping)		kg / kg	70/77
Piping	Refrigerant	Type / Charge	g	R410A/3300
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AD48HS1ERA(S)/1U48LS1EAB(S)	
Function					cooling	heating
Capacity				kW	13.5	15
Sensible heat ratio					0.72	
Total power input				kW	4.8	4.4
Max. power input				W	6500	6500
EER or COP				W/W	2.84(C)	3.41(B)
Dehumidifying capacity				10 - ³×m³/h	4.6	
Power cable					/	
Power source				N, V, Hz	1N~,220~230, 50/60	
Running /Max.Running current				A / A	7.7/10.5	7.4/10.5
Start Current				A	/	/
Indoor unit	Unit model (color)				AD48HS1ERA(S)(GREY)	
	Fan	Type × Number			CENTRIFUGALX2	
		Speed(H-M-L)		r/min	1090±30/860±50/690±50	
		Fan motor input power		kW	0.4	
		Fan motor output power		kW	0.27	
		Air-flow(H-M-L)		m³/h	2580/2070/1560	
		ESP		pa	50-150	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Total area		m²	/	
	Dimension	External（L×W×H）		mm×mm×mm	1197×830×360	
		Package(L×W×H)		mm×mm×mm	1430×940×420	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 26/32	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(S) OR YR-E16A(O)	
	Fresh air hole dimension			mm	/	
	Electricity heater			kW	0	
	Noise level (H-M-L)			dB(A)	50/46/42	
	Weight (Net / Shipping)			kg / kg	57/70	
Piping	Refrigerant	Type / Charge		g	R410A/2600	
		Recharge quantity		g/m	45	
	Pipe	Liquid		mm	9.52	
		Gas		mm	19.05	
	Between I.D &O.D	MAX.Drop		m	30	
		MAX.Piping length		m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model			AD48NS1ERA(S)/1U48LS1ERA(S)	
Function				cooling	heating
Capacity			kW	12.1(6.0-14.5)	14.1(6.0~16.5)
Sensible heat ratio				0.74	
Total power input			kW	4.3（2.0---6.0)	4.39（2.0---6.0)
Max. power input			W	5600	5600
EER or COP			W/W	2.81(C)	3.21(C)
Dehumidifying capacity			10 - ³×m³/h	5.0	
Power cable				/	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current			A / A	19(2.7-26)/26	19.5(2.7-26)/26
Start Current			A	/	
Indoor unit	Unit model (color)			AD48NS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1260/1190/1110	
		Fan motor input power	kW	0.32	
		Fan motor output power	kW	0.25	
		Air-flow(H-M-L)	m³/h	2090/1970/1792m³/h	
		ESP	pa	50Pa(default)/100	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Total area	m²	0.371	
	Dimension	External（L×W×H）	mm×mm×mm	1135×742×270	
		Package（L×W×H）	mm×mm×mm	1300×850×380	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 35/39	
	Controller (O-Optional,S-Standard)		Wired	YR-E14(S)	
			Infrared	YR-HD(O)	
	Fresh air hole dimension		mm	200	
	Electricity heater		kW	0	
	Noise level (H-M-L)		dB(A)	49/47/43	
	Weight (Net / Shipping)		kg / kg	52/55	
Piping	Refrigerant	Type / Charge	g	R410A/2850	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD48HS1ERA(S)/1U48LS1ERA(S)	
Function			cooling	heating
Capacity		kW	12.5(6.0-14.5)	14.1(6.0~16.5)
Sensible heat ratio			0.74	
Total power input		kW	4.4（2.0---6.0)	3.9（2.0---6.0)
Max. power input		W	5600	5600
EER or COP		W/W	2.84(C)	3.62(A)
Dehumidifying capacity		10 - ³×m³/h	5.0	
Power cable			/	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	19(2.7-26)/26	19.5(2.7-26)/26
Start Current		A	/	
Indoor unit	Unit model (color)		AD48HS1ERA(S)	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1090±30/860±50/690±50
		Fan motor input power	kW	0.47
		Fan motor output power	kW	0.27
		Air-flow(H-M-L)	m³/h	2580/2070/1560
		ESP	pa	50-150
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	1197×830×360
		Package（L×W×H）	mm×mm×mm	1378×938×405
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S) OR YR-E16A(O)
	Fresh air hole dimension		mm	/
	Electricity heater		kW	0
	Sound power Noise level (H-M-L)		dB(A)	65
	Sound pressure Noise level (H-M-L)		dB(A)	50/46/42
	Weight (Net / Shipping)		kg / kg	68/75
Piping	Refrigerant	Type / Charge	g	R410A/2850
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD48NS1ERA(S)/1U48LS1ERB(S)	
Function			cooling	heating
Capacity		kW	12.1(6.0-14.5)	14.1(6.0~16.5)
Sensible heat ratio			0.74	
Total power input		kW	4.3(2.0---5.8)	4.39(2.0---5.8)
Max. power input		W	6000	6000
EER or COP		W/W	2.81(C)	3.21(C)
Dehumidifying capacity		10 - ³×m³/h	5.0	
Power cable			/	
Power source		N, V, Hz	3, 380~400, 50	
Running /Max.Running current		A / A	7.0（2.9-9.5）/9.5	7.0（2.9-9.5）/9.5
Start Current		A	5	
Indoor unit	Unit model (color)		AD48NS1ERA(S)	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1260/1190/1110
		Fan motor input power	kW	0.35
		Fan motor output power	kW	0.25
		Air-flow(H-M-L)	m³/h	2090/1970/1792
		ESP	pa	50/100
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total area	m²	0.371
	Dimension	External（L×W×H）	mm×mm×mm	1135×742×270
		Package（L×W×H）	mm×mm×mm	1357/856/373
	Drainage pipe (material , I.D./O.D.)		mm	PVC 35/39
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S) YR-E16A(O)
	Fresh air hole dimension		mm	200
	Electricity heater		kW	0
	Sound power Noise level (H-M-L)		dB(A)	66
	Sound pressure Noise level (H-M-L)			50/48/46
	Weight (Net / Shipping)		kg / kg	52/55
Piping	Refrigerant	Type / Charge	g	R410A/2850
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AD48HS1ERA(S)/1U48LS1ERB(S)	
Function					cooling	heating
Capacity				kW	12.5(6.0-14.5)	14.1(6.0~16.5)
Sensible heat ratio					0.74	
Total power input				kW	4.4(2.0---6.0)	3.9(2.0---6.0)
Max. power input				W	6000	6000
EER or COP				W/W	2.84(C)	3.62(A)
Dehumidifying capacity				10 - ³×m³/h	5.0	
Power cable					/	
Power source				N, V, Hz	3N~, 380-400V, 50Hz	
Running /Max.Running current				A / A	7.0（2.9-10.0）/10.0	6.8（2.9-10.0）/10.0
Start Current				A	5	
Indoor unit	Unit model (color)				AD48HS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX2	
		Speed(H-M-L)		r/min	1090±30/860±50/690±50	
		Fan motor input power		kW	0.47	
		Fan motor output power		kW	0.27	
		Air-flow(H-M-L)		m³/h	2580/2070/1560(100Pa)	
		ESP		pa	50-150	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Total area		m²	/	
	Dimension	External（L×W×H）		mm×mm×mm	1197×830×360	
		Package（L×W×H）		mm×mm×mm	1378×938×405	
	Drainage pipe (material , I.D./O.D.)			mm	PVC 26/32	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(S) OR YR-E16A(O)	
	Fresh air hole dimension			mm	/	
	Electricity heater			kW	0	
	Sound power Noise level (H-M-L)			dB(A)	66	
	Sound pressure Noise level (H-M-L)				50/46/42	
	Weight (Net / Shipping)			kg / kg	68/75	
Piping	Refrigerant	Type / Charge		g	R410A/2850	
		Recharge quantity		g/m	45	
	Pipe	Liquid		mm	9.52	
		Gas		mm	19.05	
	Between I.D &O.D	MAX.Drop		m	30	
		MAX.Piping length		m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model			AD60HS1ERA(S)/1U60IS1EAB(S)	
Function				cooling	heating
Capacity			kW	16.0	17.2
Sensible heat ratio				0.76	
Total power input			kW	5.29	4.76
Max. power input			W	6500	6500
EER or COP			W/W	3.02(C)	3.61(A)
Dehumidifying capacity			10 - ³×m³/h	5.3	
Power cable				H05RN-F 4G 4.0mm2	
Power source			N, V, Hz	1, 220~230, 50/60	
Running /Max.Running current			A / A	8.8/10.5	8.5/10.5
Start Current			A	/	
Indoor unit	Unit model (color)			AD60HS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1090±30/860±50/690±50	
		Fan motor input power	kW	0.47	
		Fan motor output power	kW	0.27	
		Air-flow(H-M-L)	m³/h	2580/2070/1560	
		ESP	pa	50~150	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Total area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	1197×830×350	
		Package（L×W×H）	mm×mm×mm	1430×940×420	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32	
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S) OR YR-E16A(O)	
	Fresh air hole dimension		mm	/	
	Electricity heater		kW	0	
	Noise level (H-M-L)		dB(A)	50/46/42	
	Weight (Net / Shipping)		kg / kg	57/70	
Piping	Refrigerant	Type / Charge	g	R410A/3300	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model			AD60HS1ERA(S)/1U60IS1ERB(S)	
Function				cooling	heating
Capacity			kW	15.5(4.0~16.0)	16.5(4.0~18.0)
Sensible heat ratio				0.76	
Total power input			kW	5.13(2.0---6.5)	4.57(2.0----6.5)
Max. power input			W	6500	6500
EER or COP			W/W	3.02(C)	3.61(A)
Dehumidifying capacity			10 - ³×m³/h	4.9	
Power cable				H05RN-F 4G 4.0mm2	
Power source			N, V, Hz	1, 220 ～ 230, 50/60	
Running /Max.Running current			A / A	8.5（2.9-10.5）/10.5	7.5（2.9-10.5）/10.5
Start Current			A	/	
Indoor unit	Unit model (color)			AD60HS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1090±30/860±50/690±50	
		Fan motor input power	kW	0.47	
		Fan motor output power	kW	0.27	
		Air-flow(H-M-L)	m³/h	2580/2070/1560	
		ESP	pa	50-150	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Total area	m²	/	
		Row		3	
	Dimension	External（L×W×H）	mm×mm×mm	1197×830×360	
		Package（L×W×H）	mm×mm×mm	1430×940×420	
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32	
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S) OR YR-E16A(O)	
	Fresh air hole dimension		mm	/	
	Electricity heater		kW	0	
	Sound power Noise level (H-M-L)		dB(A)	66	
	Sound pressure Noise level (H-M-L)		dB(A)	50/46/42	
	Weight (Net / Shipping)		kg / kg	70/77	
Piping	Refrigerant	Type / Charge	g	R410A/3300	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD60HS1ERA(S)/1U60IS2ERB(S)	
Function			cooling	heating
Capacity		kW	13.6(6.0-15)	15.5(6.0~17.5)
Sensible heat ratio			0.74	
Total power input		kW	4.22(2.0---6.0)	4.21(2.0---6.0)
Max. power input		W	6000	6000
EER or COP		W/W	3.22(A)	3.68(A)
Dehumidifying capacity		10 - ³×m³/h	5.0	
Power cable			/	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	6.5(2.9-10.0)/10.0	6.5(2.9-10.0)/10.0
Start Current		A	/	
Indoor unit	Unit model (color)		AD60HS1ERA(S)	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1090±30/860±50/690±50
		Fan motor input power	kW	0.47
		Fan motor output power	kW	0.27
		Air-flow(H-M-L)	m³/h	2580/2070/1560(100Pa)
		External static pressure	Pa	50~150
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		3
		Total area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	1197×830×350
		Package（L×W×H）	mm×mm×mm	1378×938×405
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S) OR YR-E16A(O)
	Fresh air hole dimension		mm	/
	Electricity heater		kW	0
	Sound power Noise level (H-M-L)		dB(A)	66
	Sound pressure Noise level (H-M-L)		dB(A)	50/46/42
	Weight (Net / Shipping)		kg / kg	70/77
Piping	Refrigerant	Type / Charge	g	R410A/3300
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

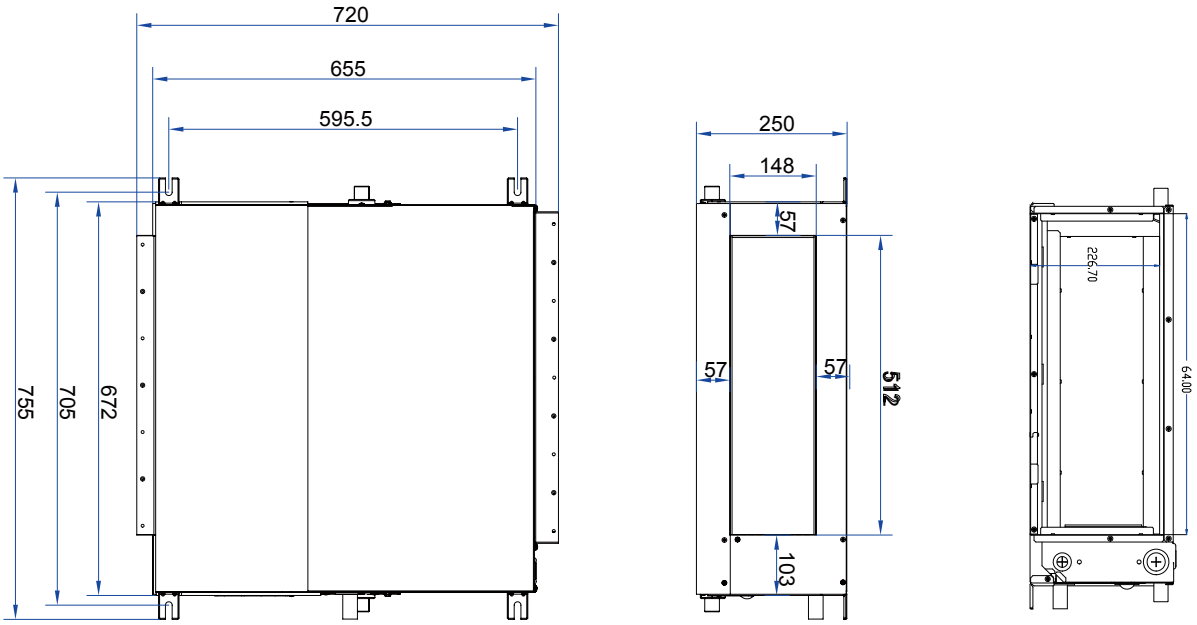
Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AD60HS1ERA(S)/1U60IS2EAB(S)	
Function			cooling	heating
Capacity		kW	15	16
Sensible heat ratio			0.74	
Total power input		kW	4.92	4.41
Max. power input		W	6500	6500
EER or COP		W/W	3.05(B)	3.63(A)
Dehumidifying capacity		10 - ³×m³/h	5.0	
Power cable			/	
Power source		N, V, Hz	1PH, 220-230V~, 50/60Hz	
Running /Max.Running current		A / A	8.6/10.5	8.2/10.5
Start Current		A	/	
Indoor unit	Unit model (color)		AD60HS1ERA(S)	
	Fan	Type × Number	CENTRIFUGALX2	
		Speed(H-M-L)	r/min	1090±30/860±50/690±50
		Fan motor input power	kW	0.47
		Fan motor output power	kW	0.27
		Air-flow(H-M-L)	m³/h	2580/2070/1560
		External static pressure	Pa	50~150
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		3
		Total area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	1197×830×350
		Package（L×W×H）	mm×mm×mm	1430×940×420
	Drainage pipe (material , I.D./O.D.)		mm	PVC 26/32
	Controller (O-Optional,S-Standard)		Wired	YR-E17(S) OR YR-E16A(O)
	Fresh air hole dimension		mm	/
	Electricity heater		kW	0
	Noise level (H-M-L)		dB(A)	50/46/42
	Weight (Net / Shipping)		kg / kg	70/77
Piping	Refrigerant	Type / Charge	g	R410A/3300
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

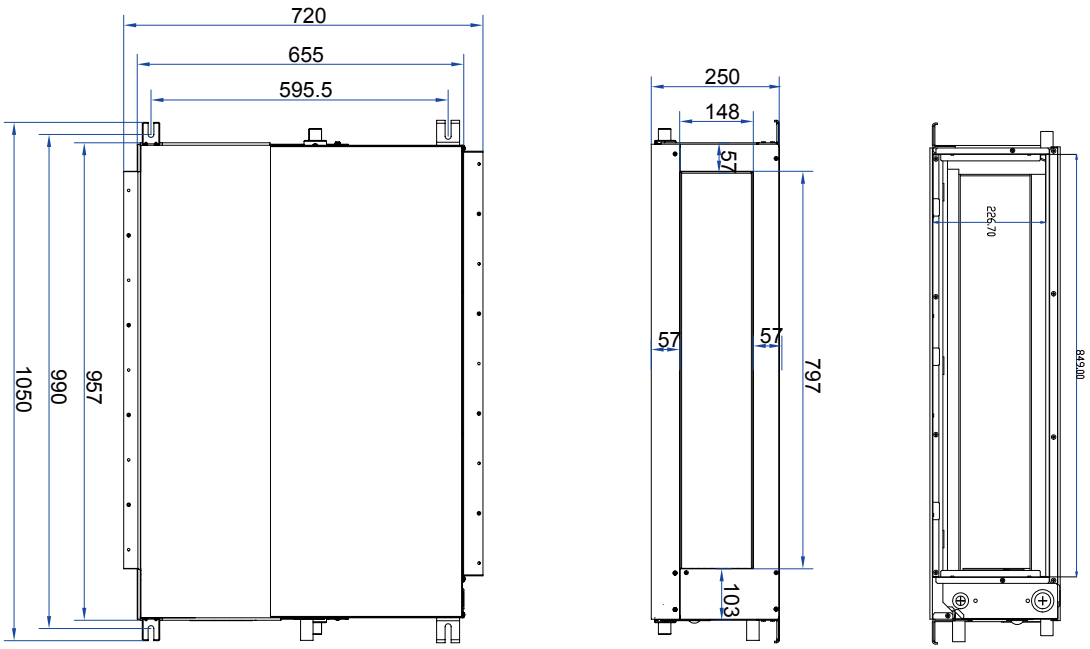
3.3 Dimension

AD12MS1ERA AD12MS1ERA(D)



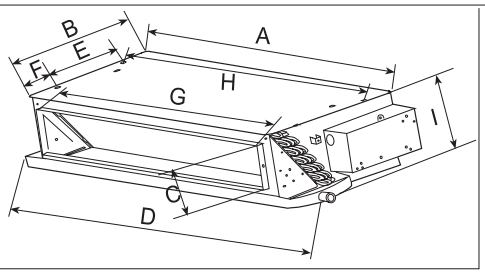
Note: The cushion pasted in the bottom plate isn't included in the thickness data.

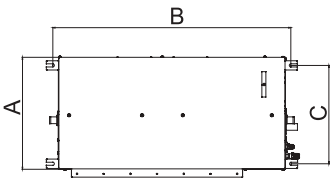
AD18MS1ERA AD18MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) AD28MS2ERA(S) AD28MS2ERA(S)(D)



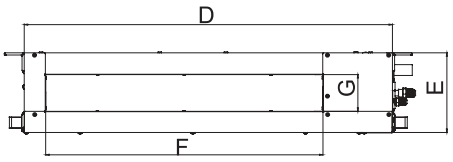
Note: The cushion pasted in the bottom plate isn't included in the thickness data.

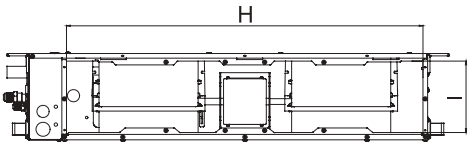
AD09LS1ERA
AD12LS1ERA
AD18LS1ERA
AD24LS1ERA





AD09SS1ERA(N) AD09SS1ERA(N)(P)
AD12SS1ERA(N) AD12SS1ERA(N)(P)
AD18SS1ERA(N) AD18SS1ERA(N)(P)
AD24SS1ERA(N) AD24SS1ERA(N)(P)

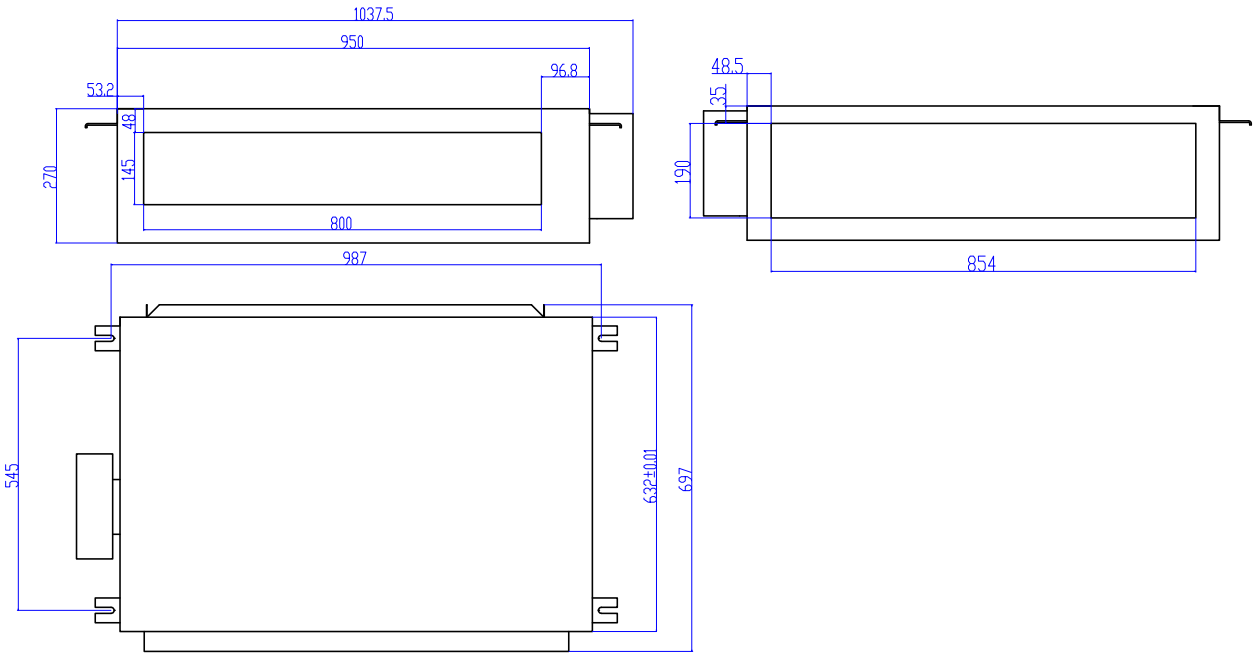




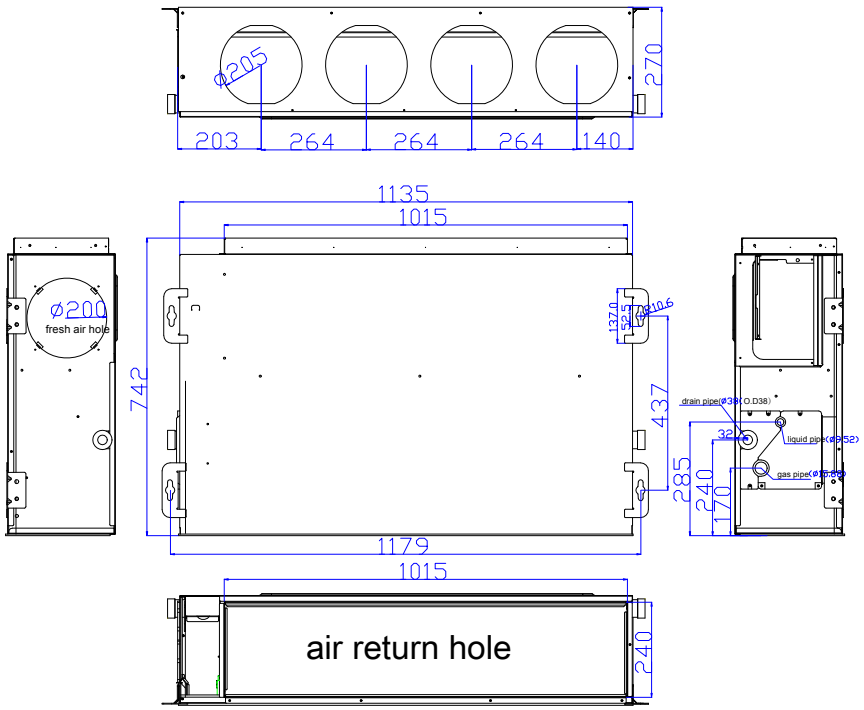
Indoor unit dimensions(unit:mm)

Unit model	A	B	C	D	E	F	G	H	I
AD09LS1ERA AD12LS1ERA	538	483.5	131	610	255	105	418	508	220
AD18LS1ERA AD24LS1ERA	1002	483.5	131	1105	255	105	880	970	220
AD09SS1ERA(N) AD09SS1ERA(N)(P) AD12SS1ERA(N) AD12SS1ERA(N)(P)	420	892	370	850	185	640	90	760	152
AD18SS1ERA(N) AD18SS1ERA(N)(P) AD24SS1ERA(N) AD24SS1ERA(N)(P)	420	1212	370	1170	185	960	90	1080	152

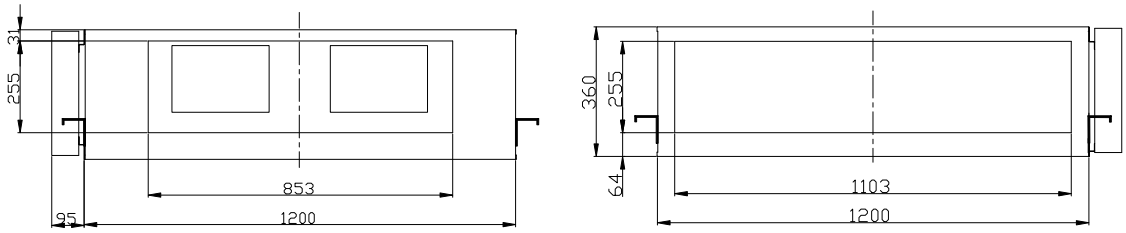
AD24MS1ERA AD24MS1ERA(D)

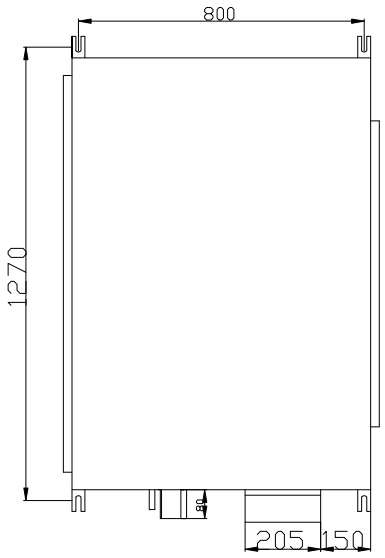


AD28NS1ERA(S) AD36NS1ERA(S) AD48NS1ERA(S)

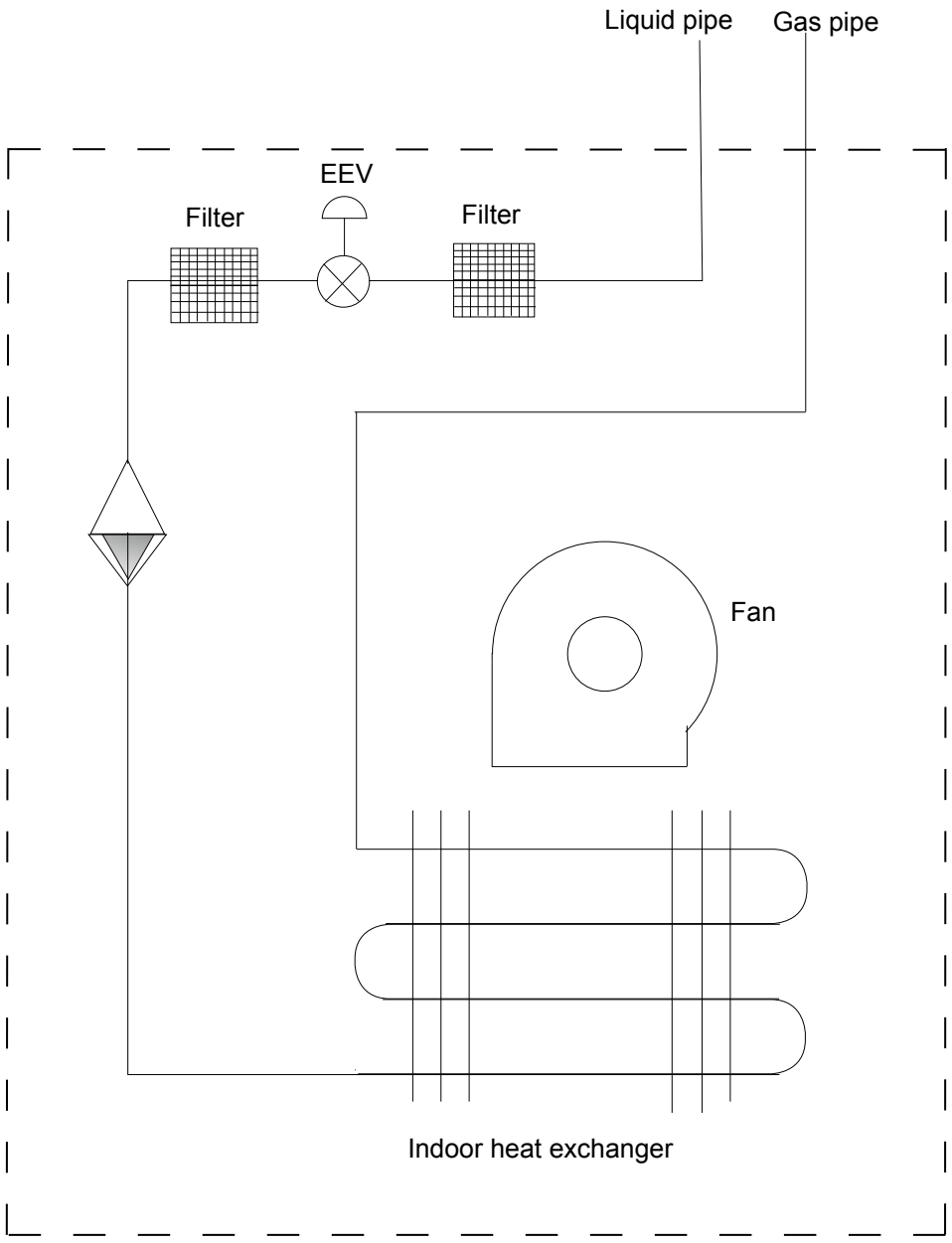


AD48HS1ERA(S) AD60HS1ERA(S)



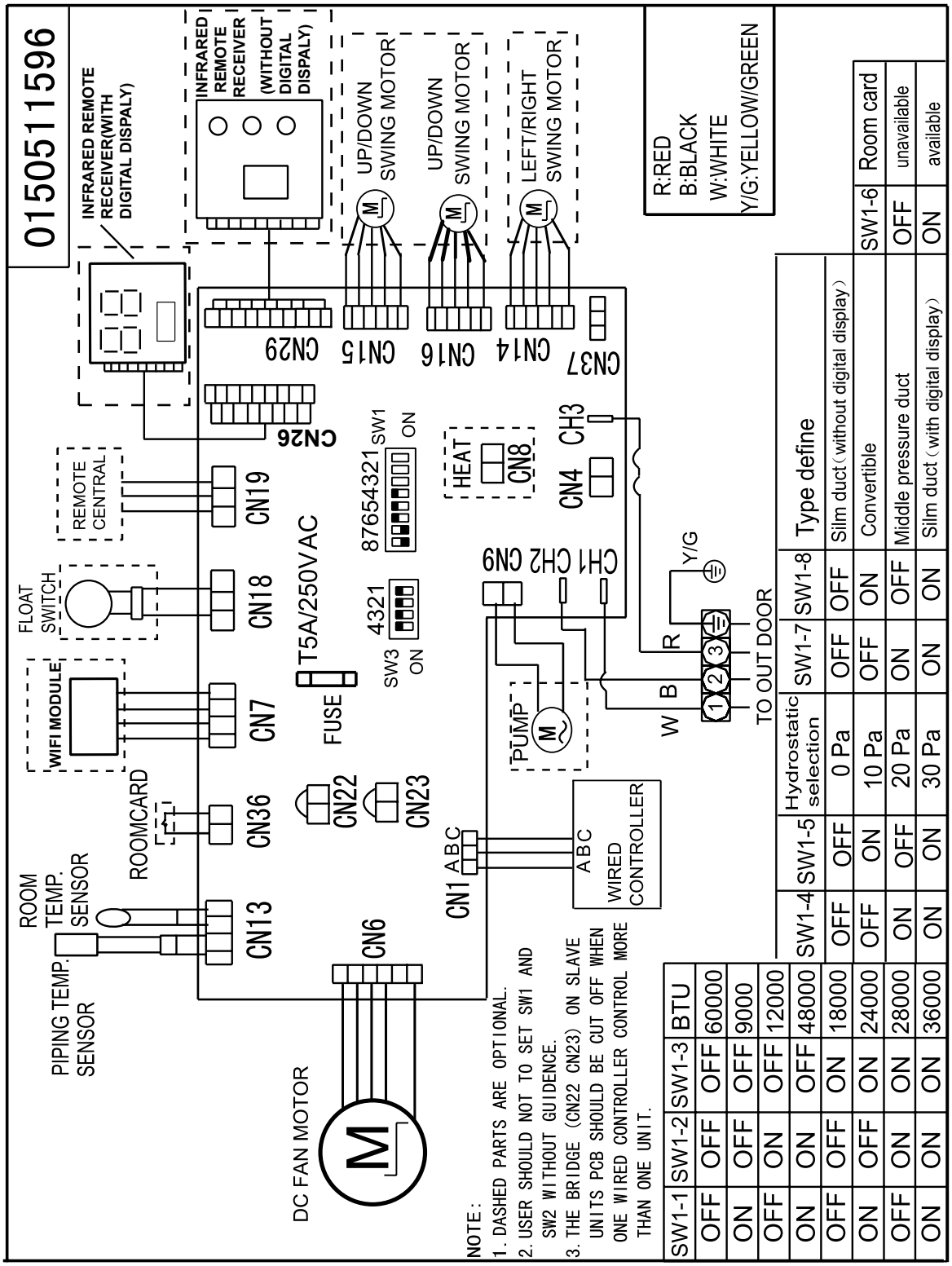


3.4 Piping diagram

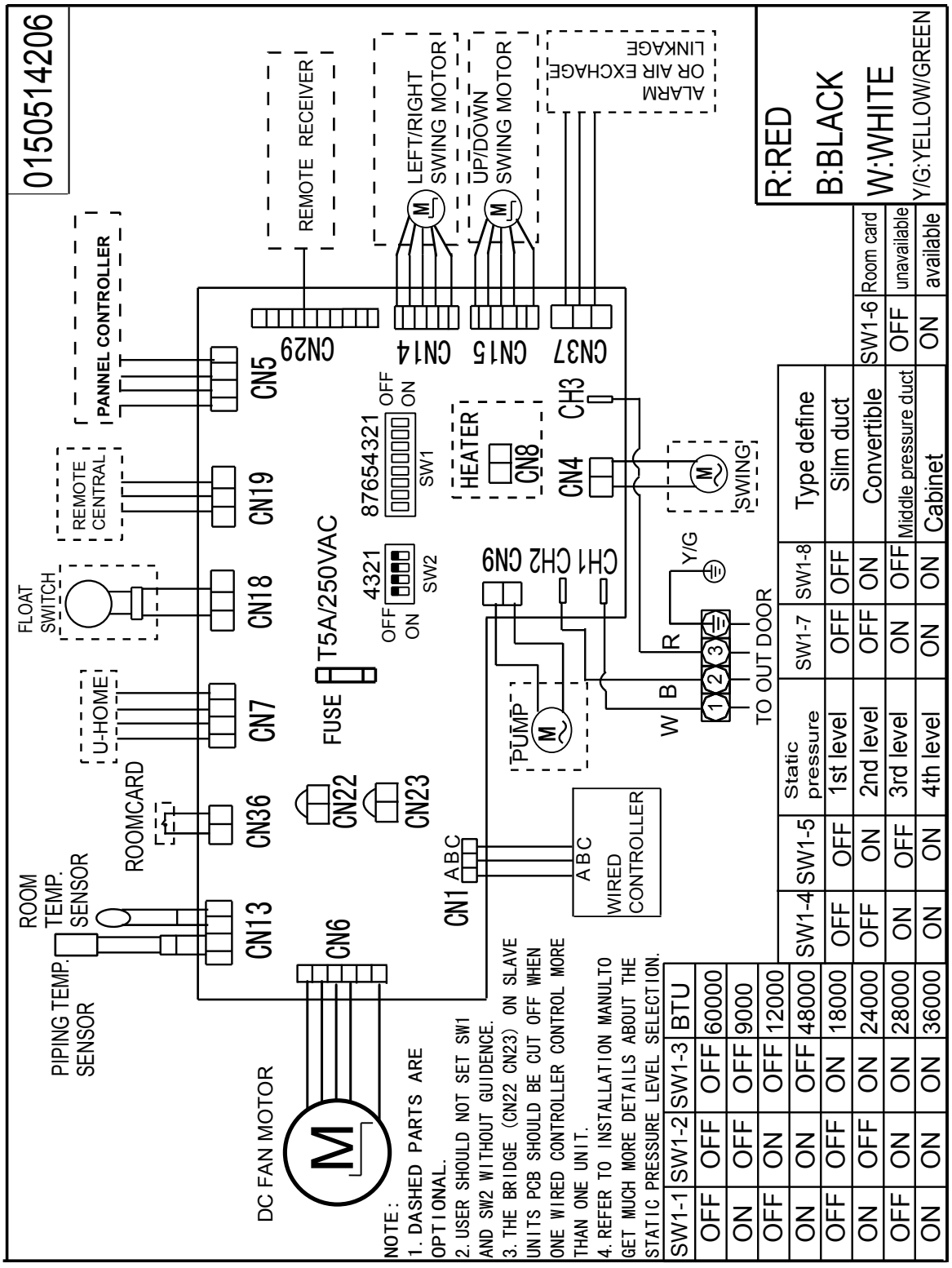


3.5 Wiring diagram

AD09~24SS1ERA AD09~24SS1ERA(N) AD09~24SS1ERA(N)(P)

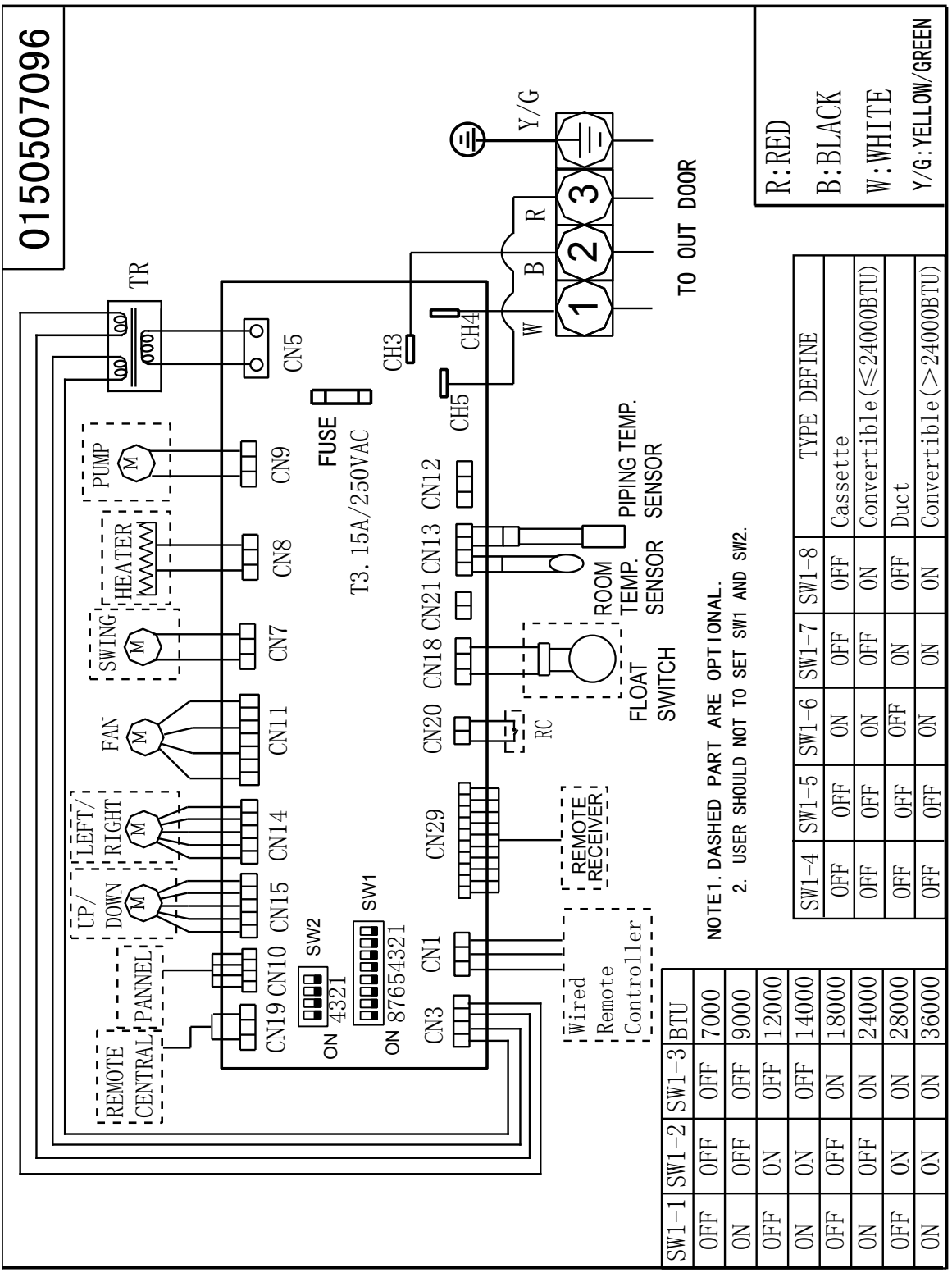


AD12MS1ERA AD18MS1ERA AD12MS1ERA(D) AD18MS1ERA(D) AD24MS2ERA AD24MS2ERA(D)
AD28MS2ERA(S) AD28MS2ERA(S)(D)



SW1-1	SW1-2	SW1-3	BTU	SW1-4	SW1-5	Static pressure	SW1-7	SW1-8	Type define	SW1-6	Room card
OFF	OFF	OFF	60000	OFF	OFF	1st level	OFF	OFF	Silm duct	OFF	unavailable
ON	OFF	OFF	9000	OFF	ON	2nd level	OFF	ON	Convertible	ON	available
OFF	ON	OFF	12000	OFF	OFF	3rd level	ON	OFF	Middle pressure duct		
ON	ON	OFF	48000	OFF	ON	4th level	ON	ON	Cabinet		
OFF	OFF	ON	18000	ON	OFF						
ON	OFF	ON	24000	ON	ON						
OFF	ON	ON	28000								
ON	ON	ON	36000								

AD09LS1ERA AD12LS1ERA AD18LS1ERA AD24LS1ERA AD24MS1ERA AD24MS1ERA(D)

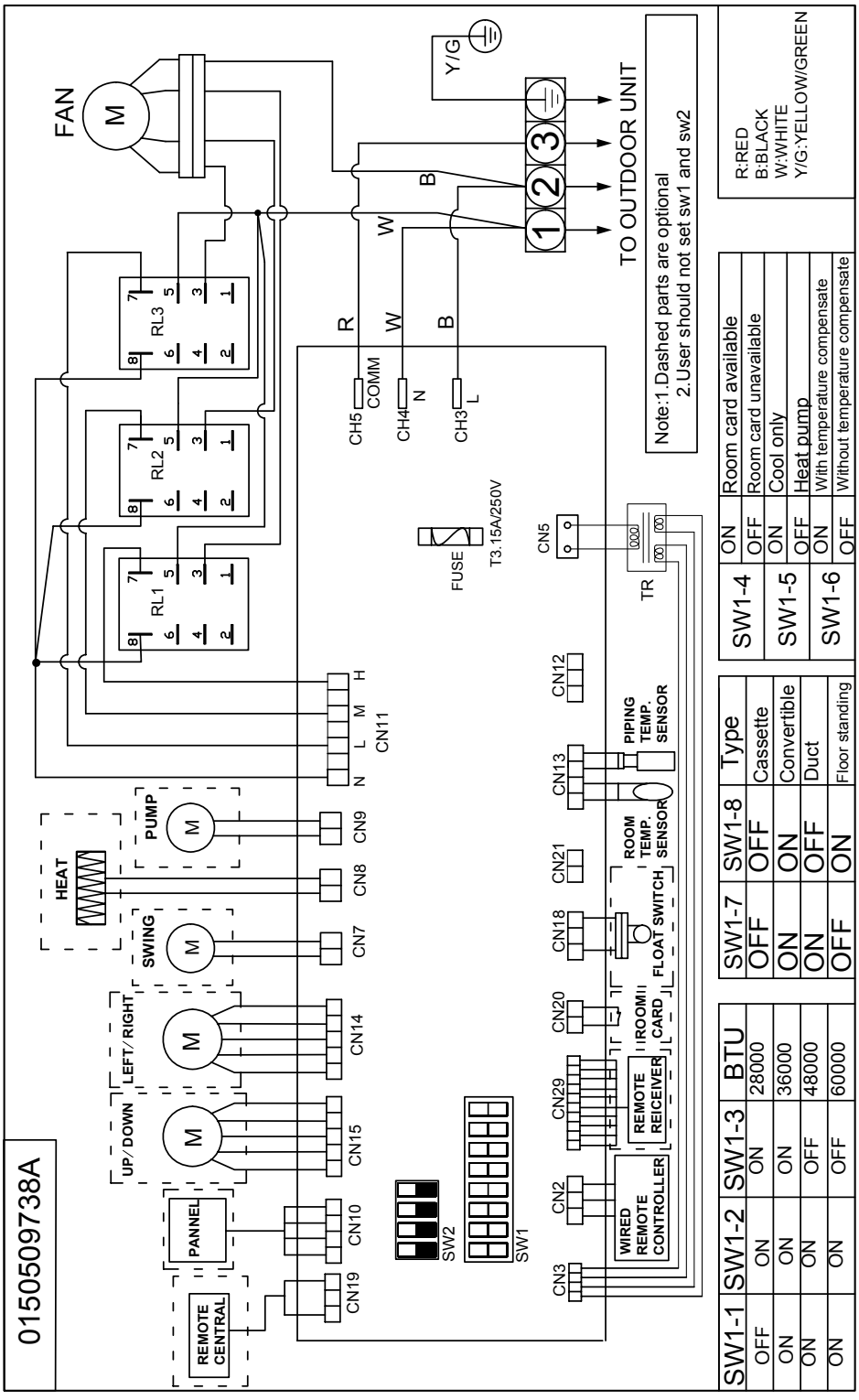


NOTE1. DASHED PART ARE OPTIONAL.
2. USER SHOULD NOT TO SET SW1 AND SW2.

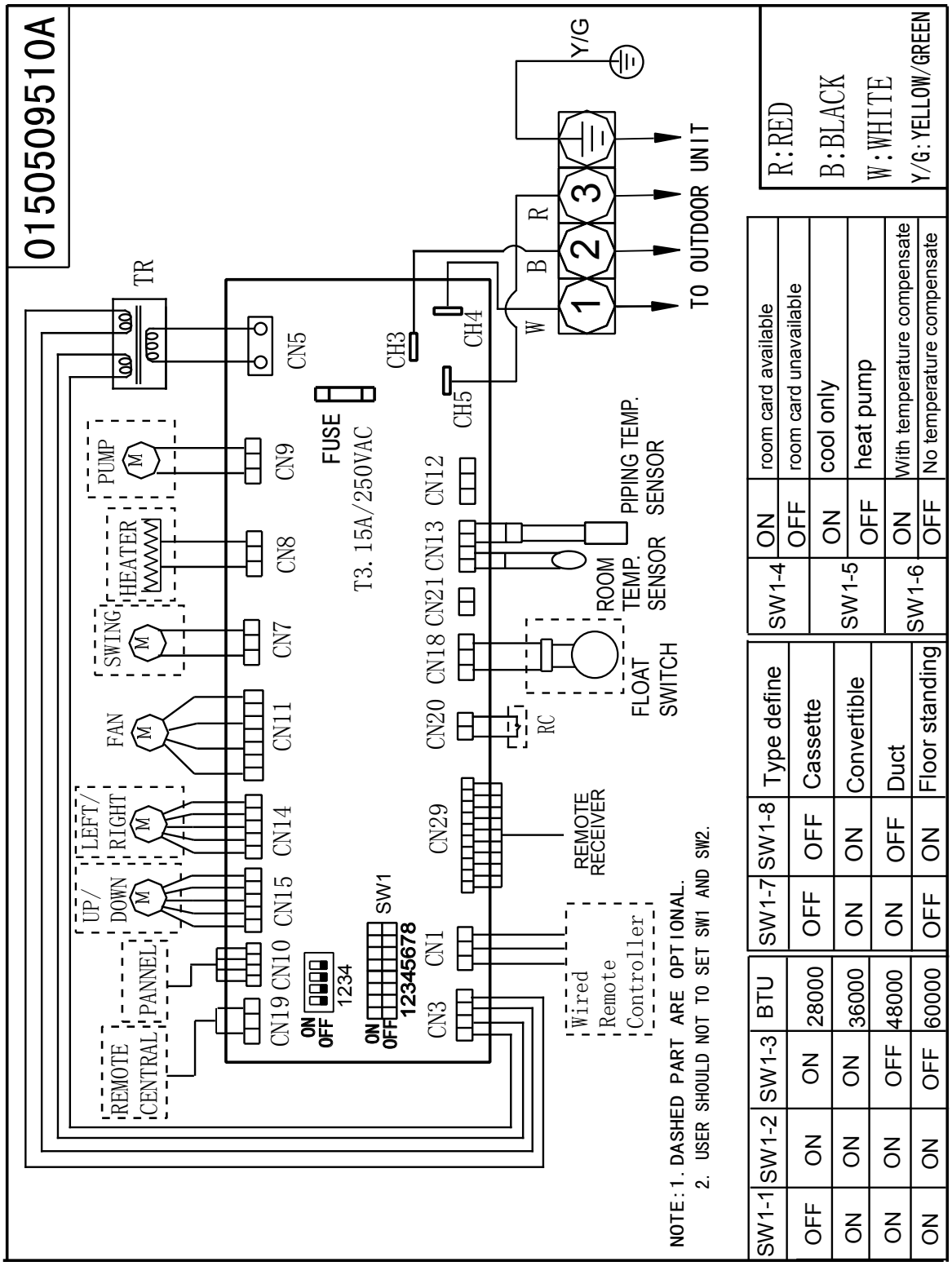
SW1-1	SW1-2	SW1-3	BTU
OFF	OFF	OFF	7000
ON	OFF	OFF	9000
OFF	ON	OFF	12000
ON	ON	OFF	14000
OFF	OFF	ON	18000
ON	OFF	ON	24000
OFF	ON	ON	28000
ON	ON	ON	36000

SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	TYPE DEFINE
OFF	OFF	ON	OFF	OFF	Cassette
OFF	OFF	ON	OFF	ON	Convertible(≤24000BTU)
OFF	OFF	OFF	ON	OFF	Duct
OFF	OFF	ON	ON	ON	Convertible(>24000BTU)

AD28NS1ERA(S) AD36NS1ERA(S) AD48NS1ERA(S)



AD48HS1ERA (S) AD60HS1ERA(S)



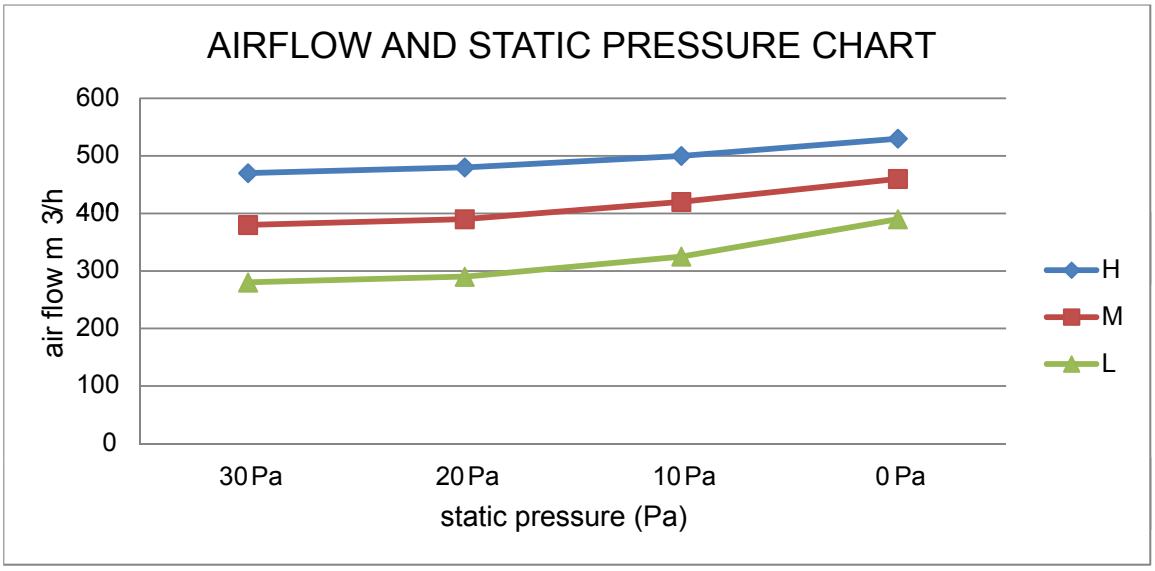
SW1-1	SW1-2	SW1-3	BTU
OFF	ON	ON	28000
ON	ON	ON	36000
ON	ON	OFF	48000
ON	ON	OFF	60000

SW1-7	SW1-8	Type define
OFF	OFF	Cassette
ON	ON	Convertible
ON	OFF	Duct
OFF	ON	Floor standing

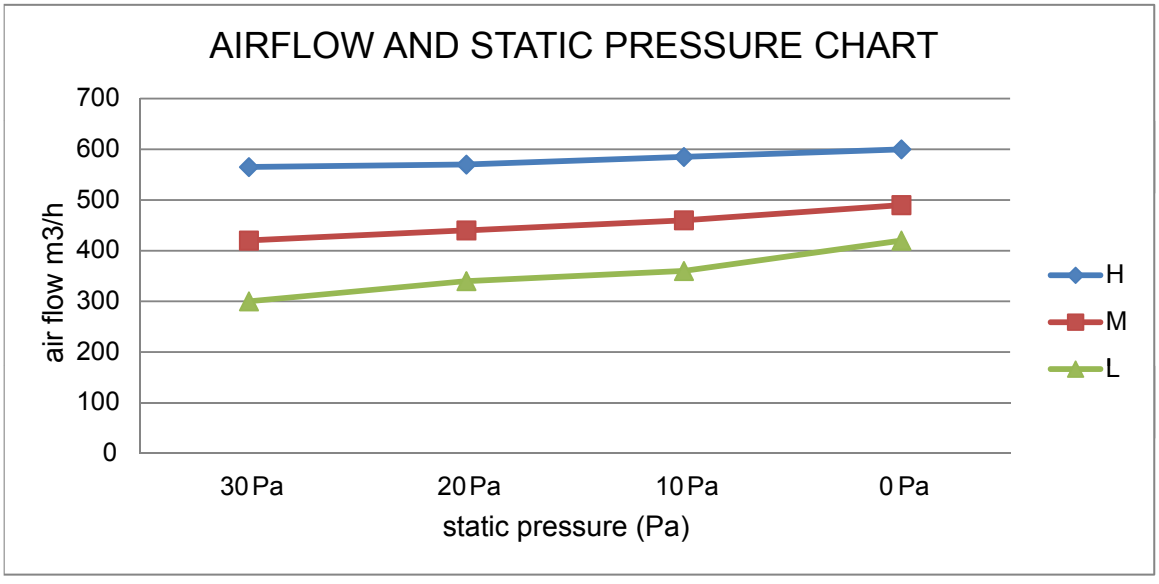
SW1-4	ON	room card available
	OFF	room card unavailable
SW1-5	ON	cool only
	OFF	heat pump
SW1-6	ON	With temperature compensate
	OFF	No temperature compensate

3.6 Air velocity and temperature distribution

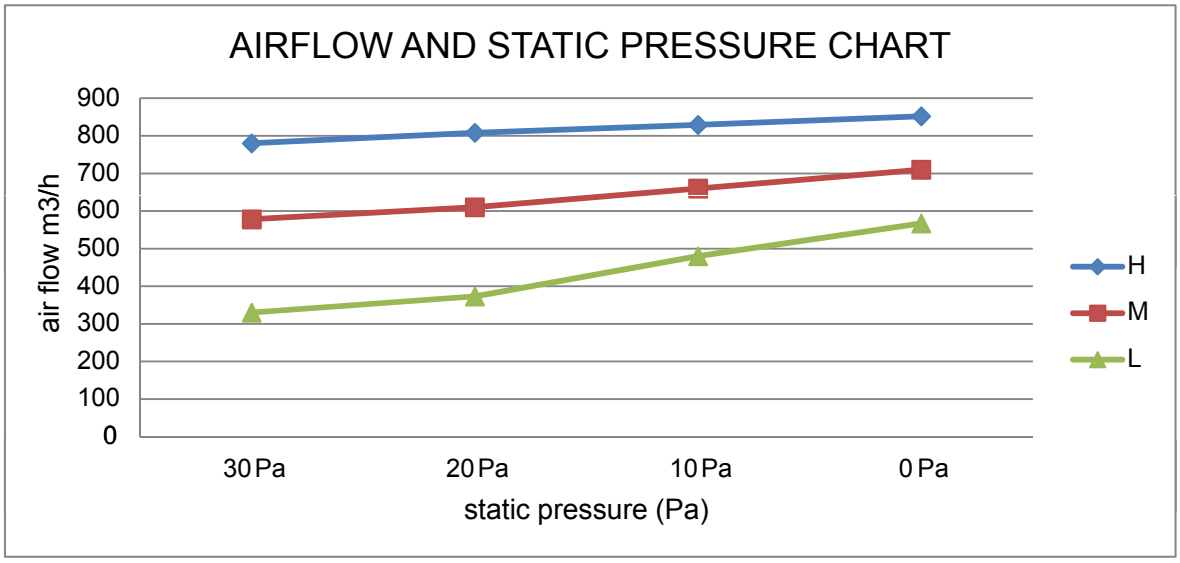
AD09SS1ERA AD09SS1ERA(N) AD09SS1ERA(N)(P)



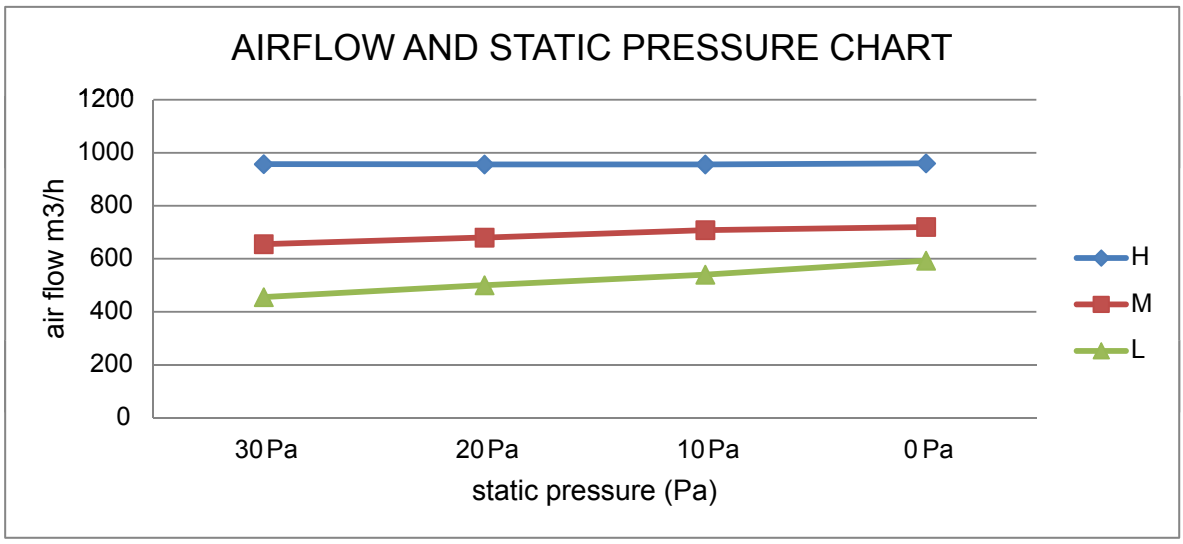
AD12SS1ERA AD12SS1ERA(N) AD12SS1ERA(N)(P)



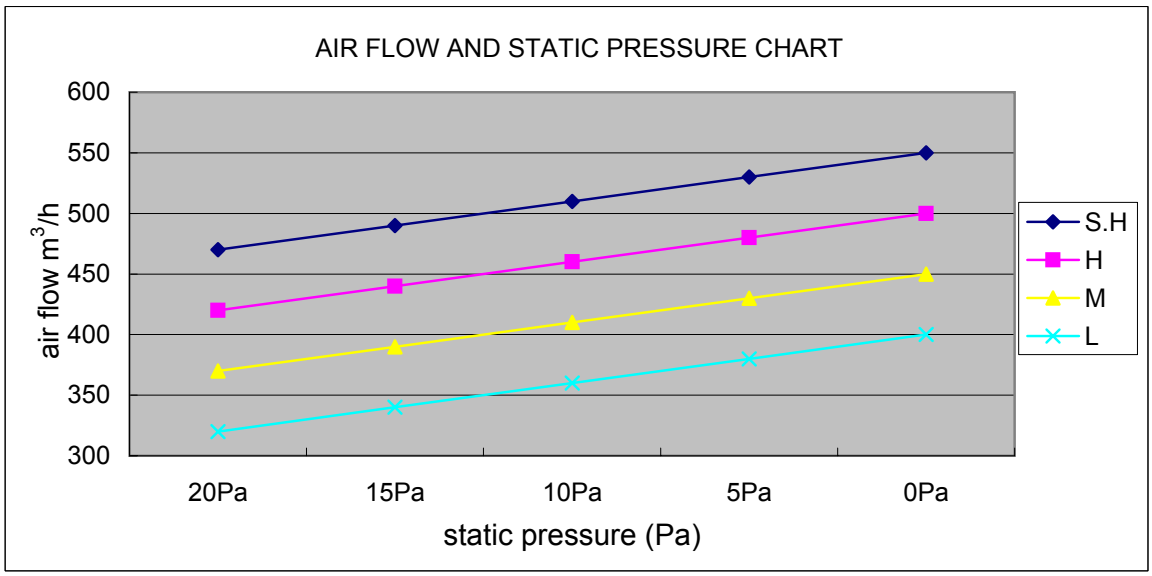
AD18SS1ERA AD18SS1ERA(N) AD18SS1ERA(N)(P)



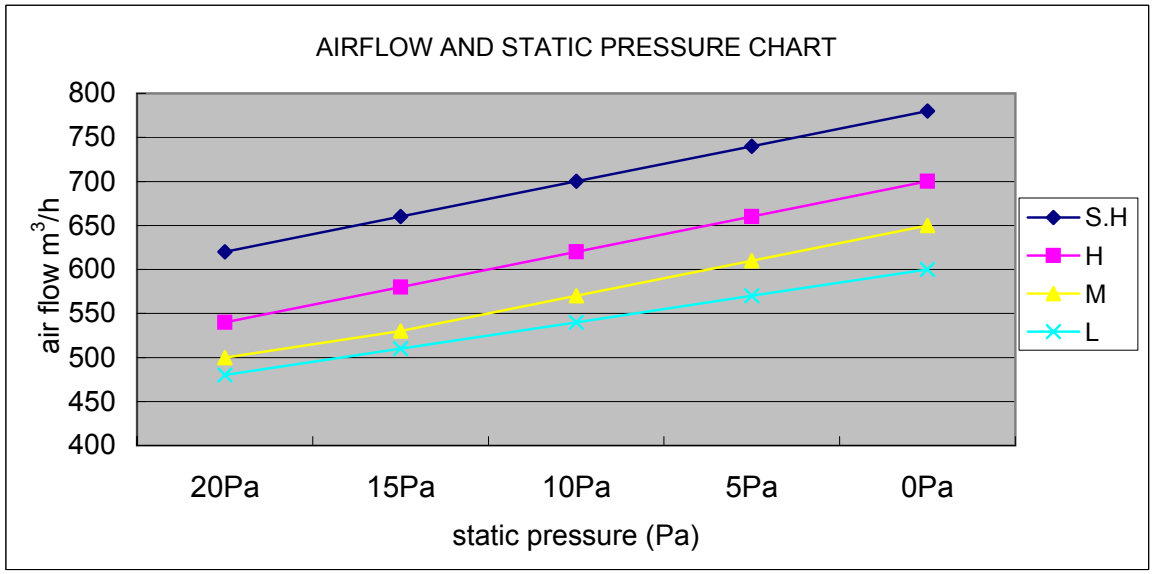
AD24SS1ERA AD24SS1ERA(N) AD24SS1ERA(N)(P)



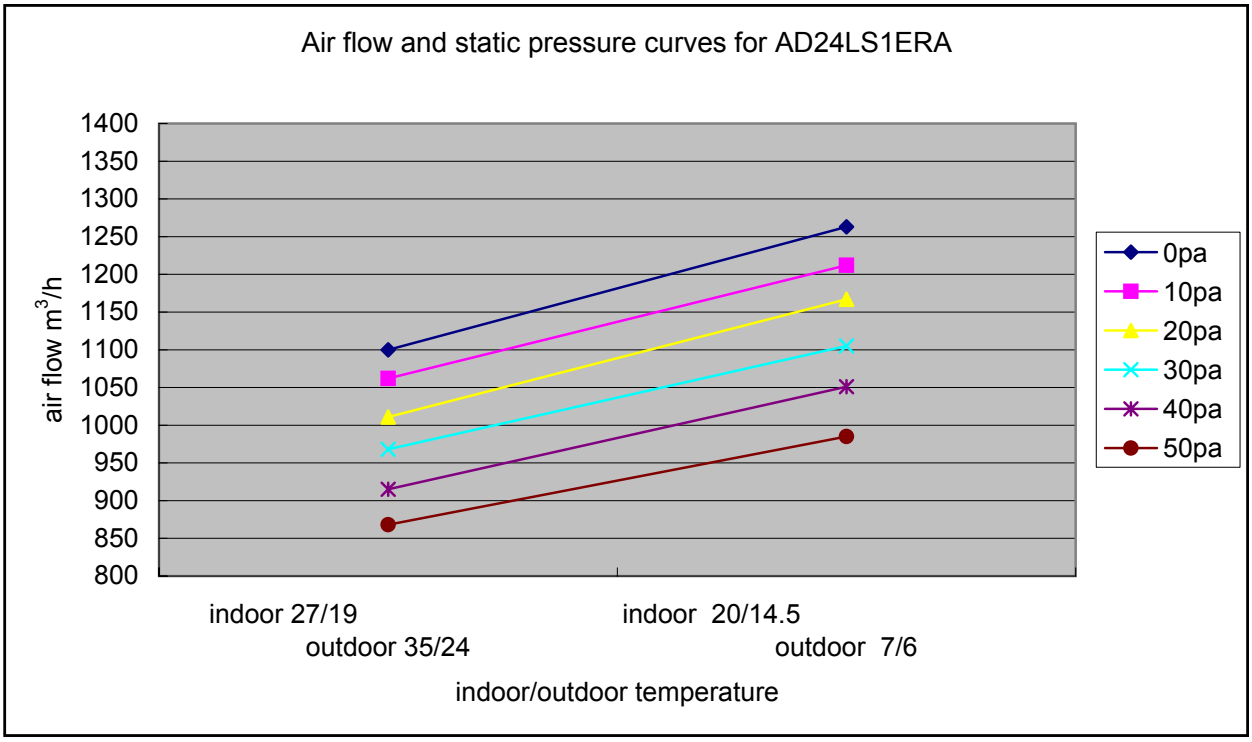
AD09LS1ERA/AD12LS1ERA

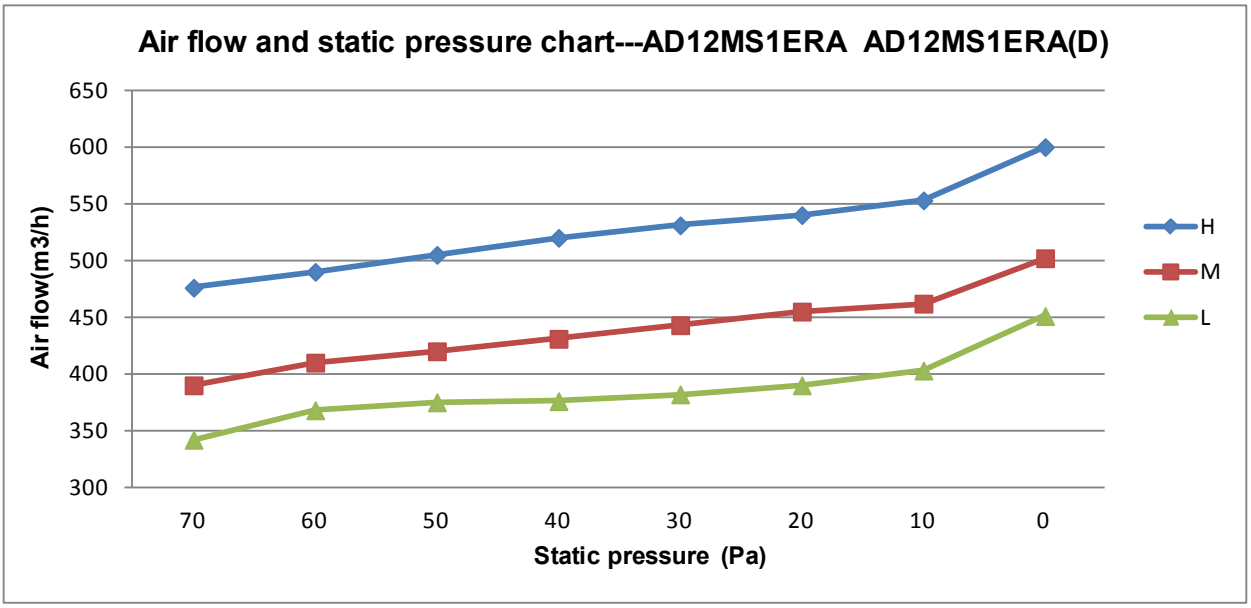


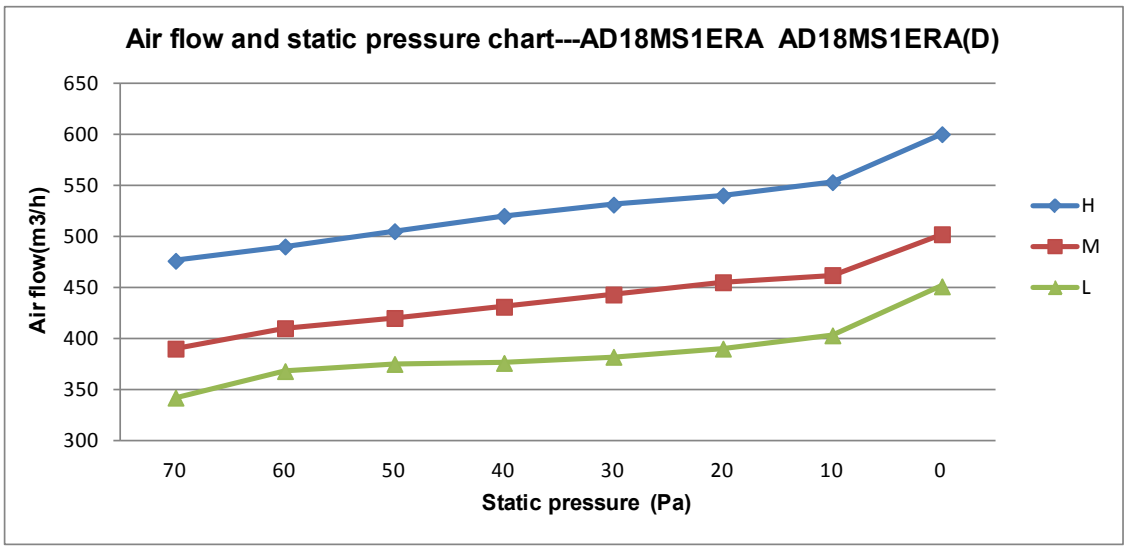
AD18LS1ERA

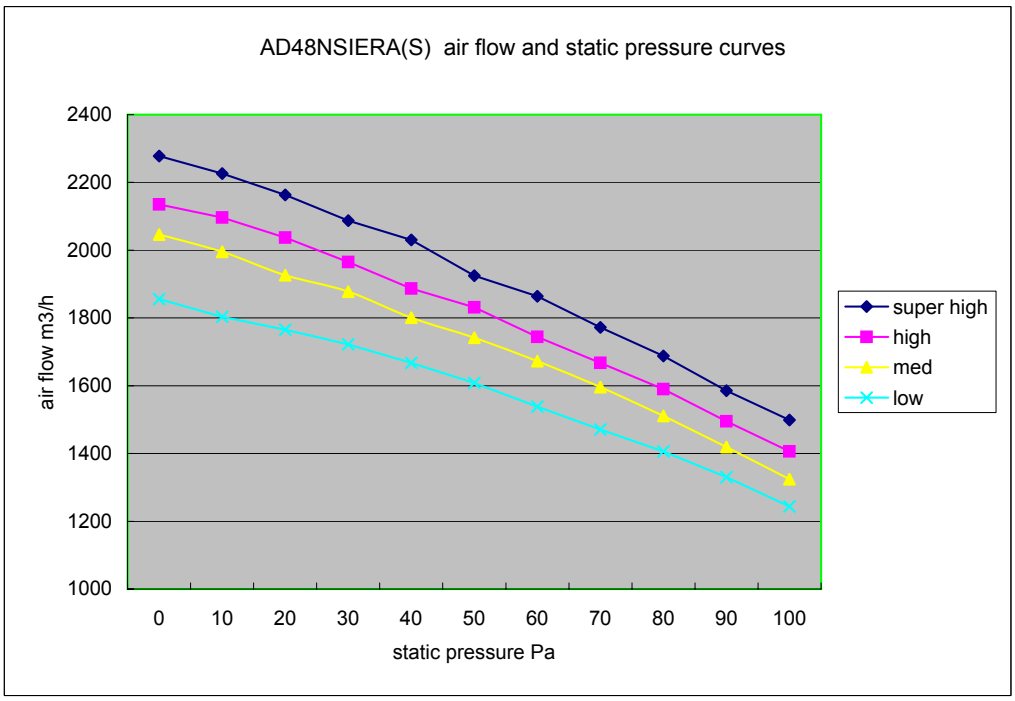


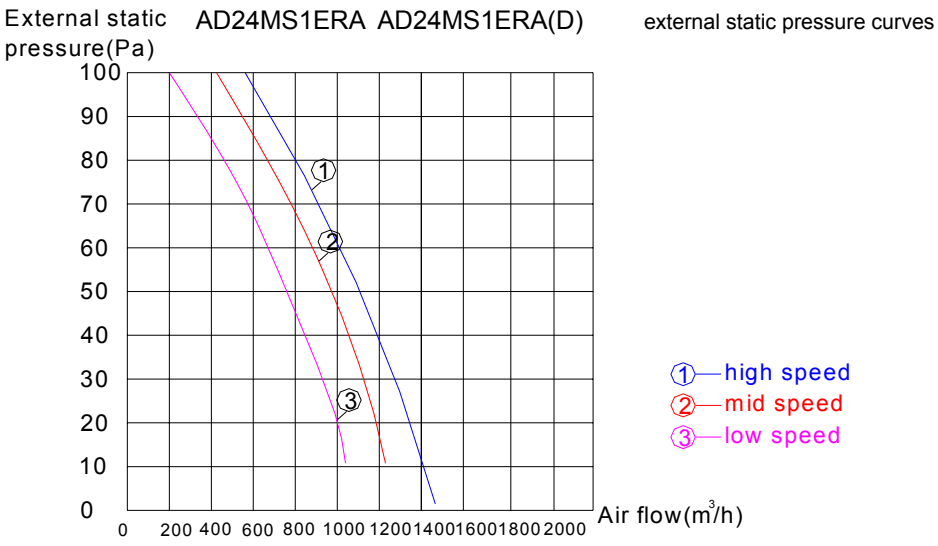
AD24LS1ERA

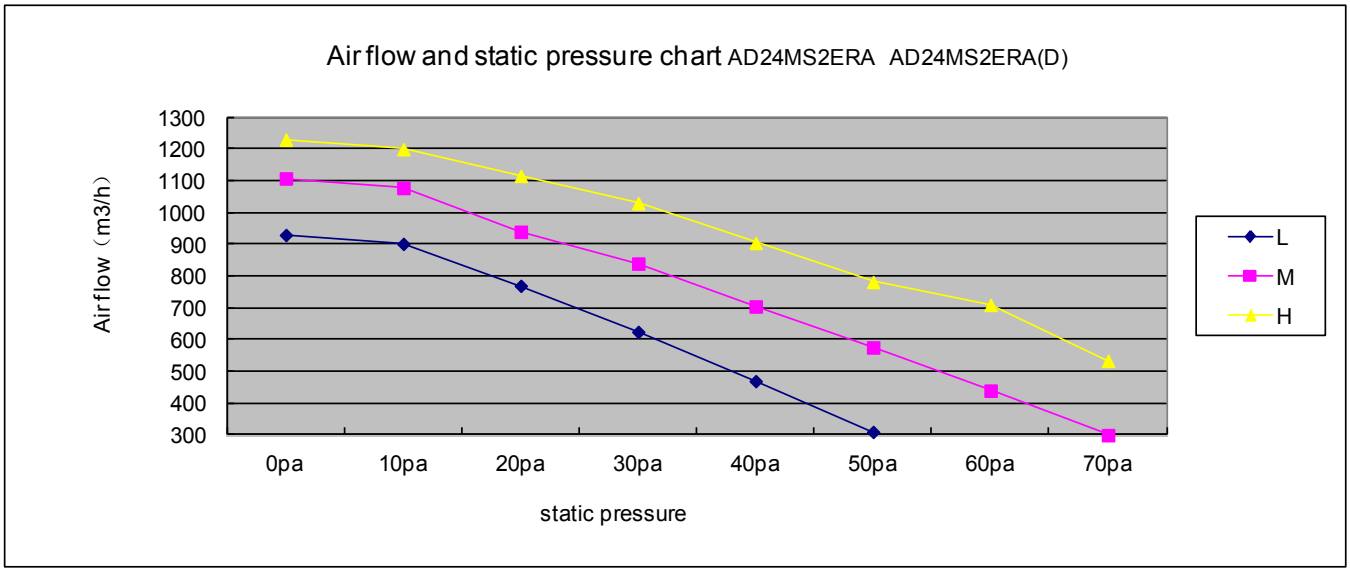

Air flow and static pressure curves for AD24LS1ERA
air flow m3/h
1400
1350
1300
1250
1200
1150
1100
1050
1000
950
900
850
800
0pa
10pa
20pa
30pa
40pa
50pa
indoor 27/19
outdoor 35/24
indoor 20/14.5
outdoor 7/6
indoor/outdoor temperature

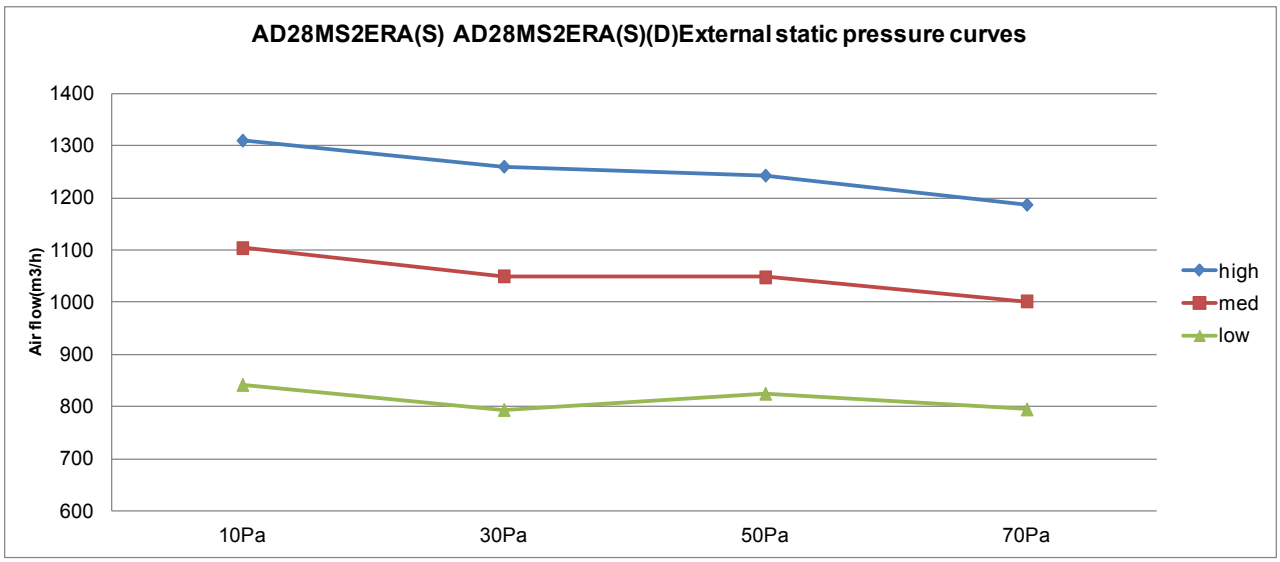

Air flow and static pressure chart---AD12MS1ERA AD12MS1ERA(D)
Air flow(m3/h)
650
600
550
500
450
400
350
300
70
60
50
40
30
20
10
0
Static pressure (Pa)
H
M
L

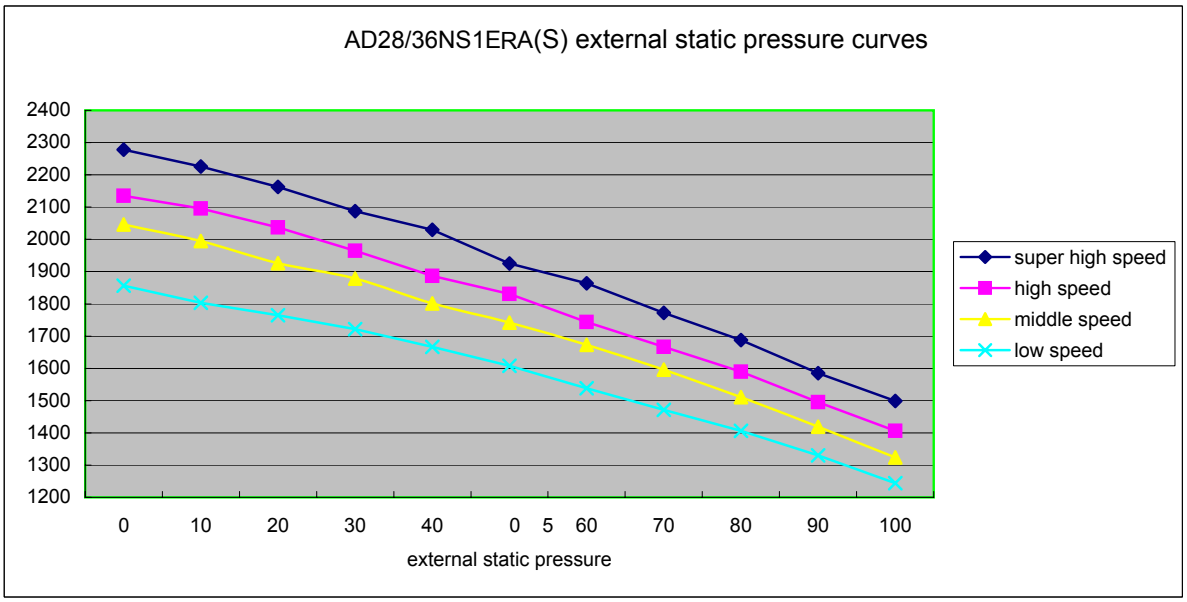

Air flow and static pressure chart---AD18MS1ERA AD18MS1ERA(D)
Air flow(m3/h)
650
600
550
500
450
400
350
300
70
60
50
40
30
20
10
0
Static pressure (Pa)
H
M
L

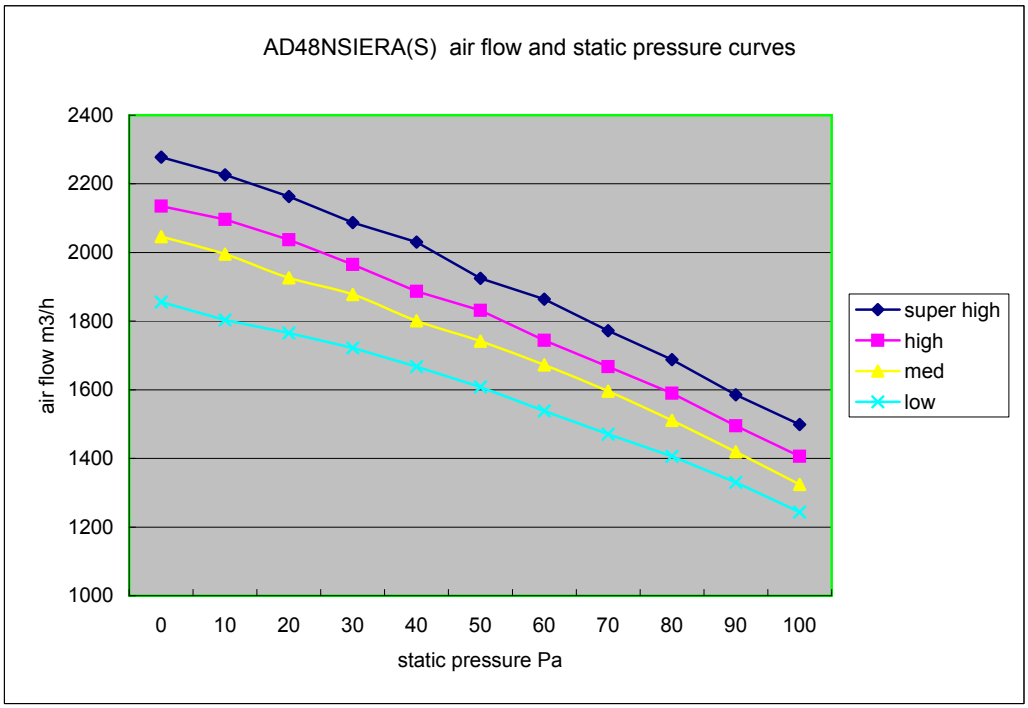

AD48NSIERA(S) air flow and static pressure curves
air flow m3/h
2400
2200
2000
1800
1600
1400
1200
1000
0
10
20
30
40
50
60
70
80
90
100
static pressure Pa
super high
high
med
low


External static pressure(Pa)
AD24MS1ERA AD24MS1ERA(D)
external static pressure curves
100
90
80
70
60
50
40
30
20
10
0
0
200 400 600 800 1000 1200 1400 1600 1800 2000
Air flow(m3/h)
①
②
③
①—high speed
②—mid speed
③—low speed


Air flow and static pressure chart AD24MS2ERA AD24MS2ERA(D)
Airflow（m3/h）
1300
1200
1100
1000
900
800
700
600
500
400
300
0pa
10pa
20pa
30pa
40pa
50pa
60pa
70pa
static pressure
L
M
H

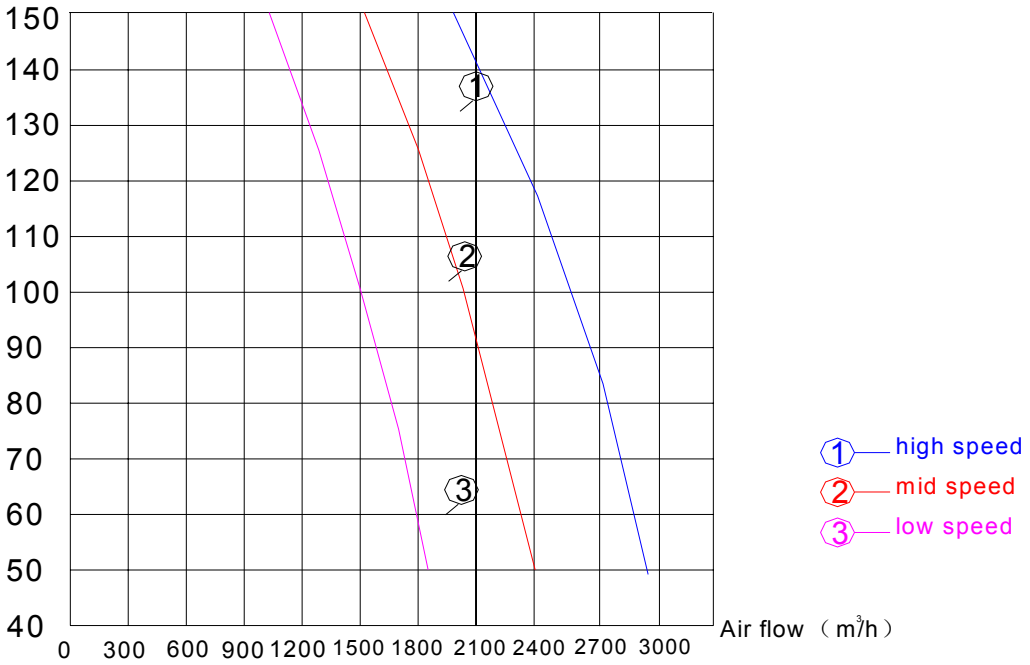

AD28MS2ERA(S) AD28MS2ERA(S)(D)External static pressure curves
Air flow(m3/h)
1400
1300
1200
1100
1000
900
800
700
600
10Pa
30Pa
50Pa
70Pa
high
med
low


AD28/36NS1ERA(S) external static pressure curves
2400
2300
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
0
10
20
30
40
0
5
60
70
80
90
100
external static pressure
super high speed
high speed
middle speed
low speed



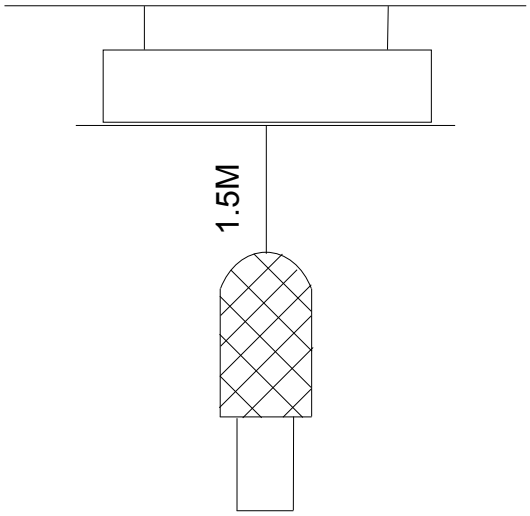
External static pressure (Pa)

AD48/60HS1ERA(S) external static pressure curves



3.7 Sound pressure level

(1)Testing illustrate:



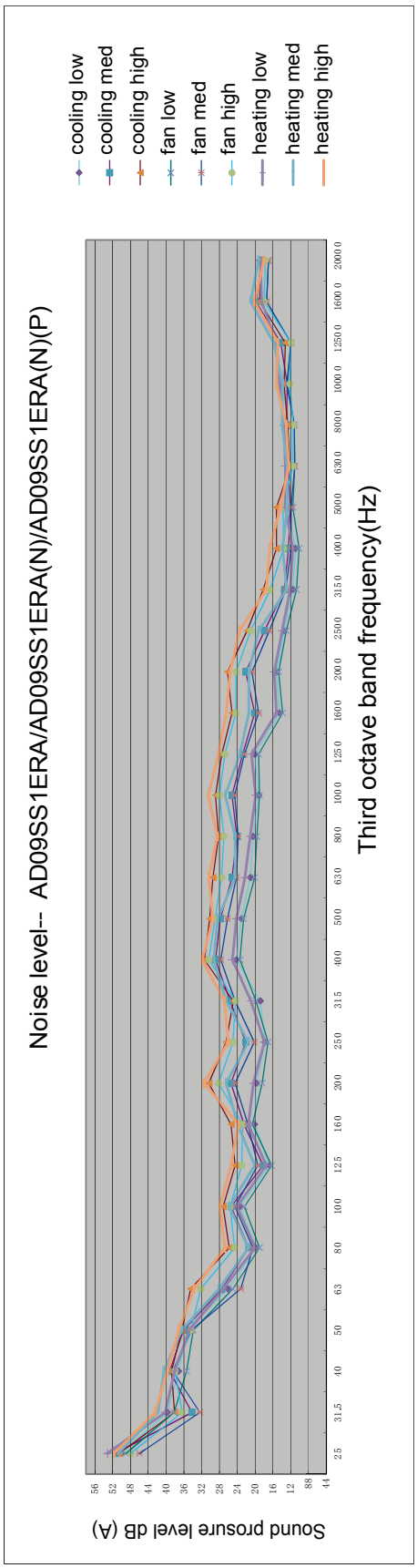
(2) Testing condition:

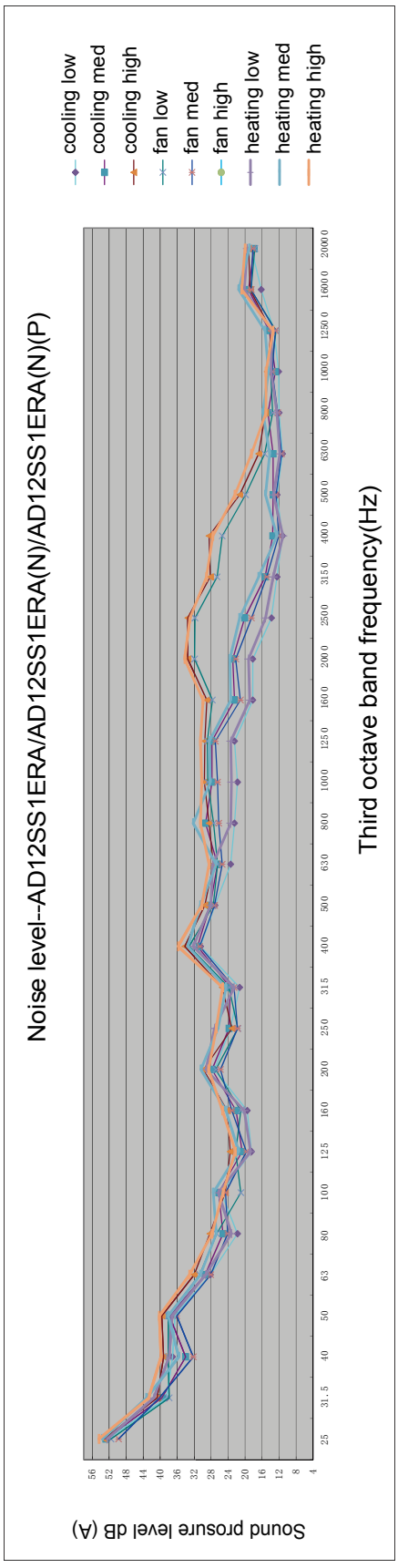
a: Unit running in the normal condition

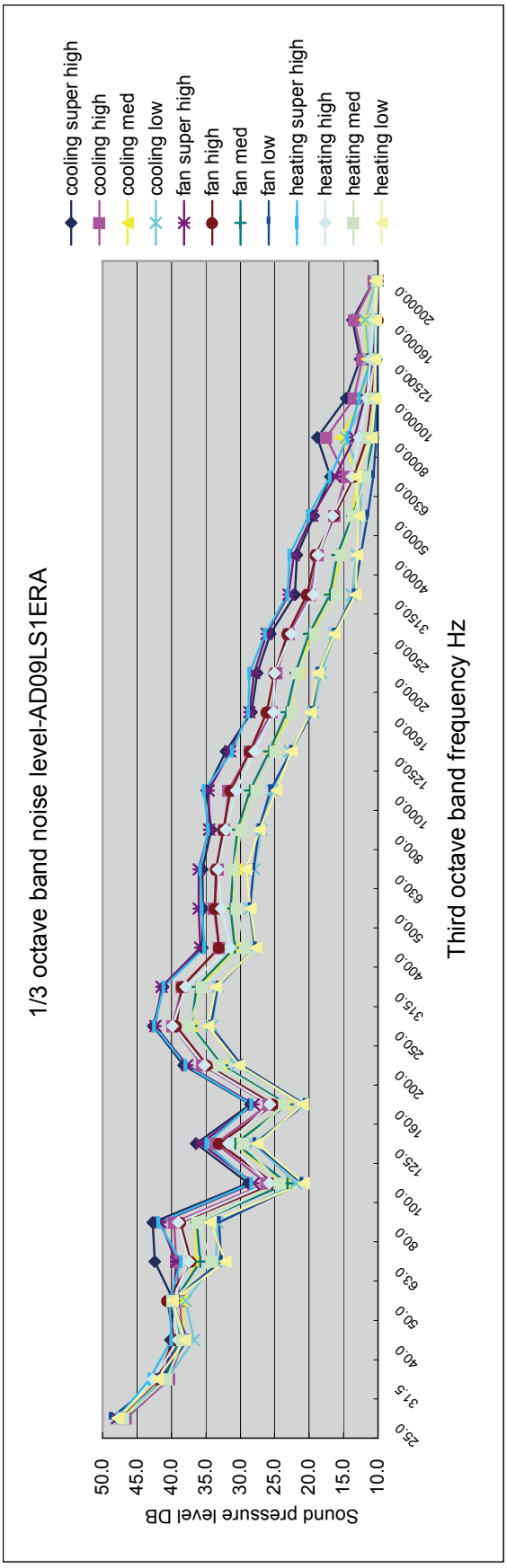
b: Test in the semi-anechoic chamber

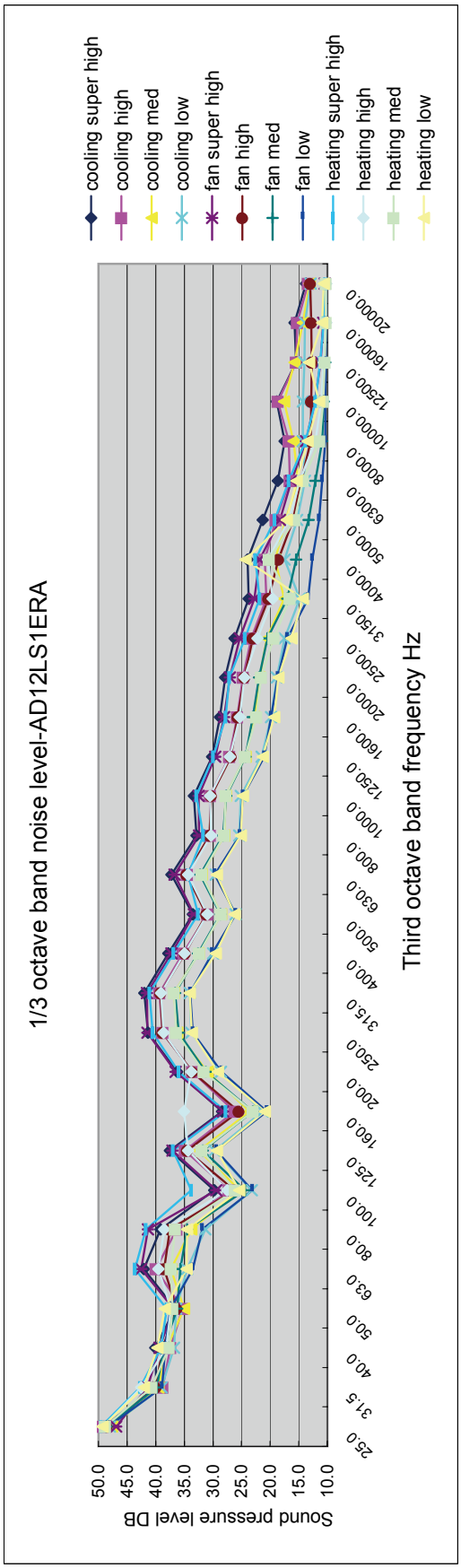
c: Noise level varies from the actual factors such as room structure, etc.

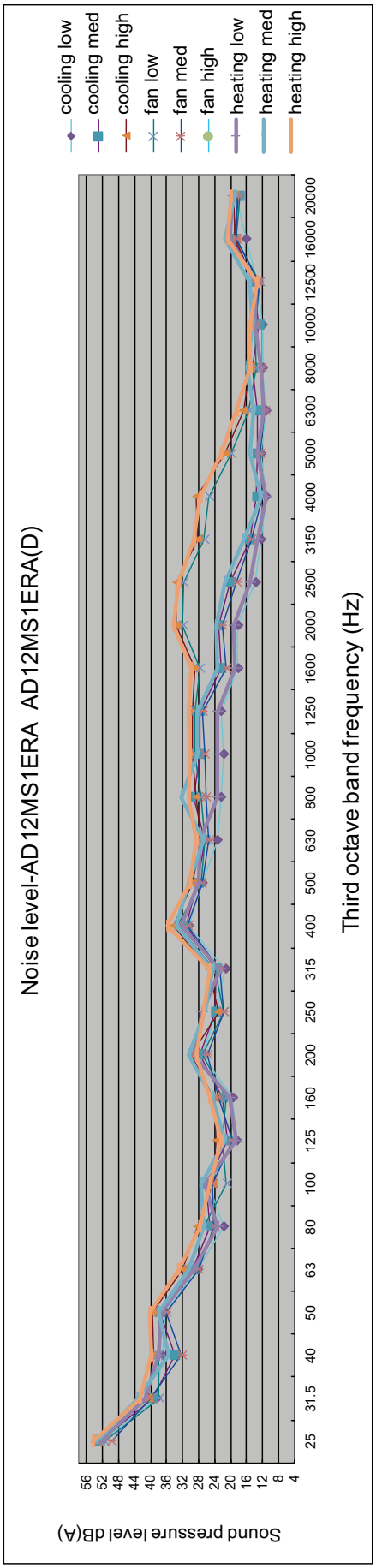
(3)Octave band level:

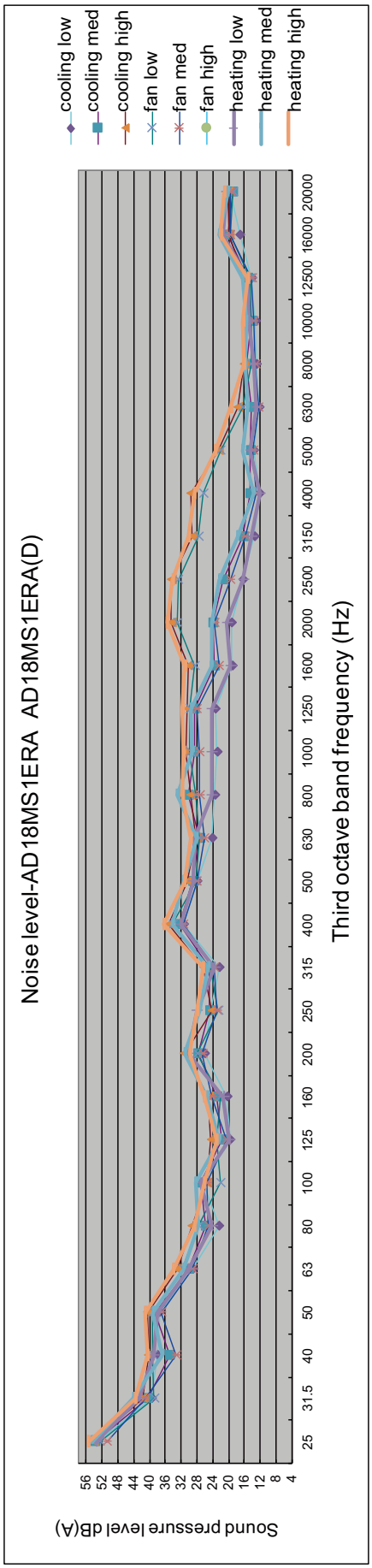

Noise level-- AD09SS1ERA/AD09SS1ERA(N)/AD09SS1ERA(N)(P)
cooling low
cooling med
cooling high
fan low
fan med
fan high
heating low
heating med
heating high
Sound prosure level dB (A)
Third octave band frequency(Hz)

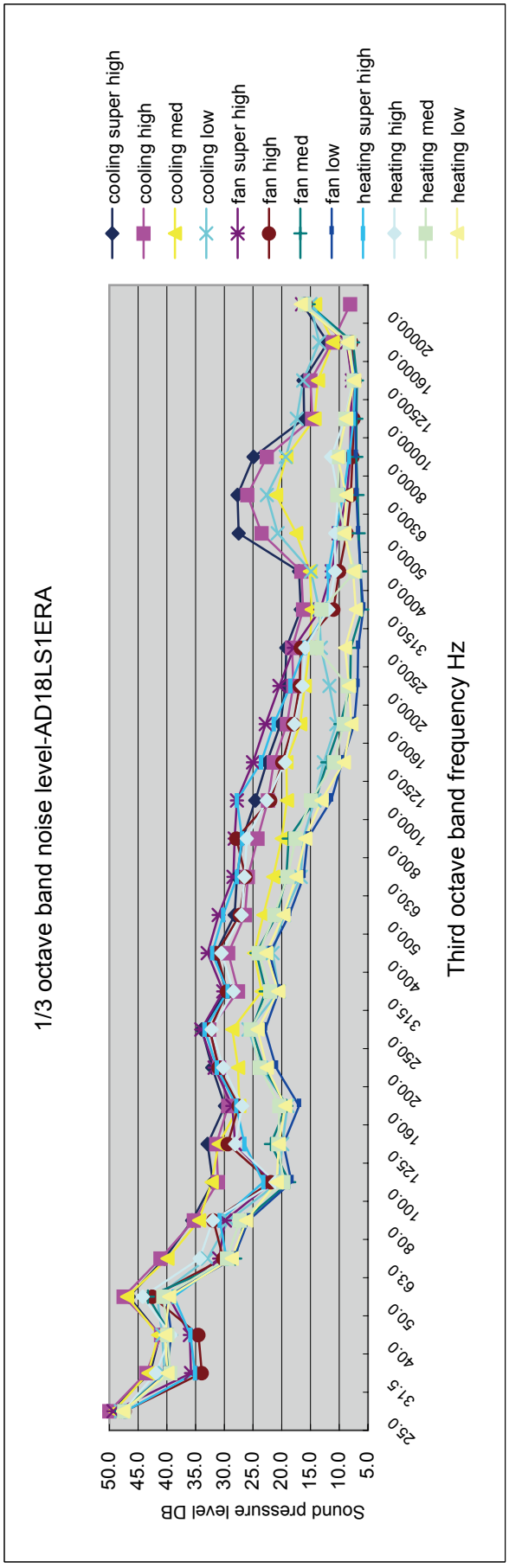

Noise level--AD12SS1ERA/AD12SS1ERA(N)/AD12SS1ERA(N)(P)
cooling low
cooling med
cooling high
fan low
fan med
fan high
heating low
heating med
heating high
Sound prosure level dB (A)
Third octave band frequency(Hz)

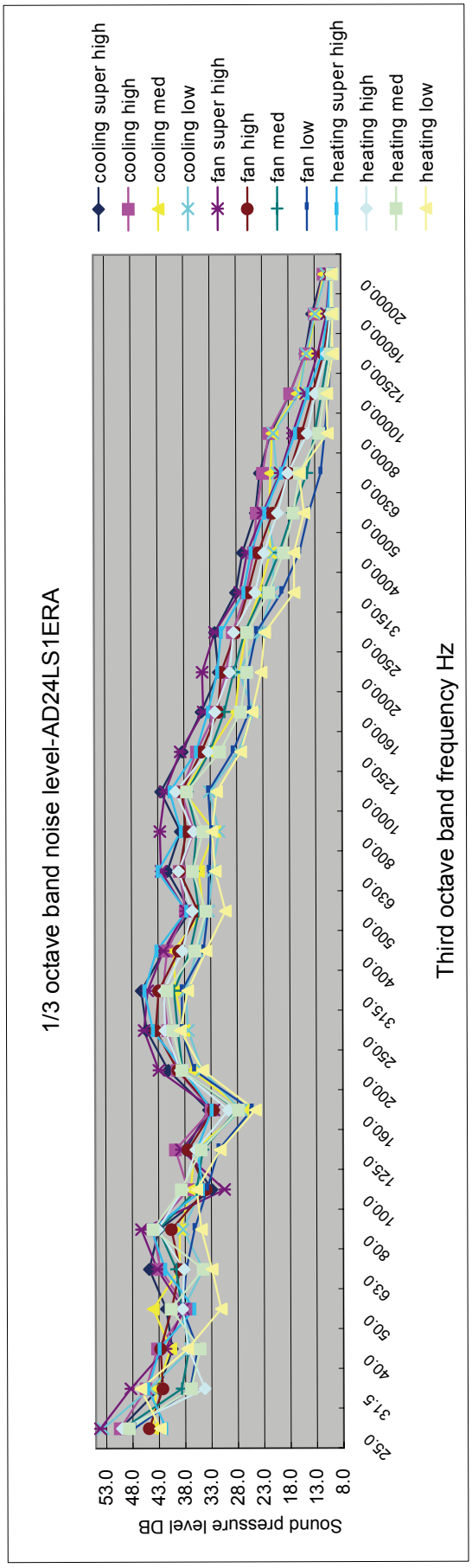

1/3 octave band noise level-AD09LS1ERA
cooling super high
cooling high
cooling med
cooling low
fan super high
fan high
fan med
fan low
heating super high
heating high
heating med
heating low
Sound pressure level DB
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
Third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0

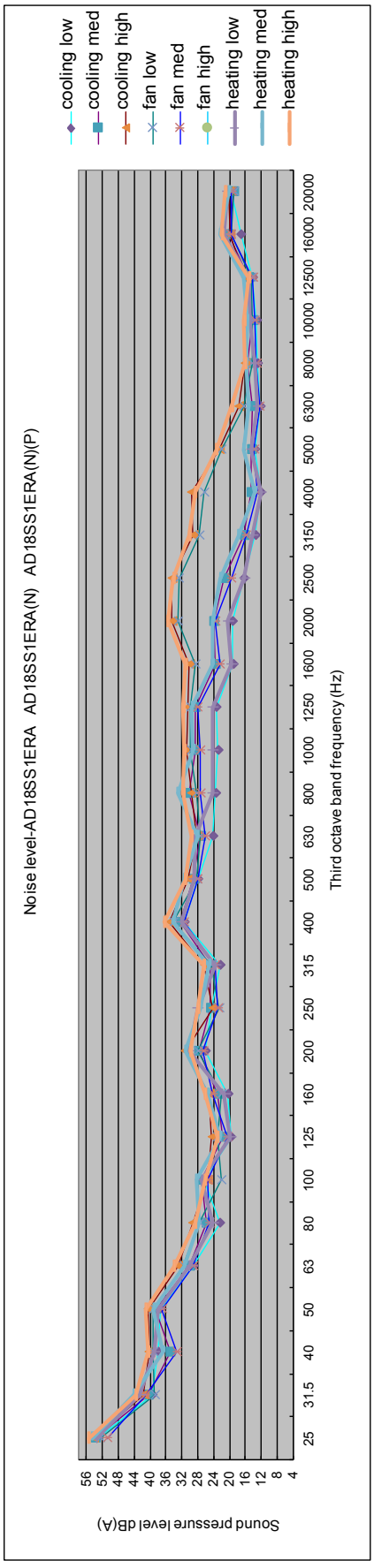

1/3 octave band noise level-AD12LS1ERA
cooling super high
cooling high
cooling med
cooling low
fan super high
fan high
fan med
fan low
heating super high
heating high
heating med
heating low
Sound pressure level DB
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
Third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0

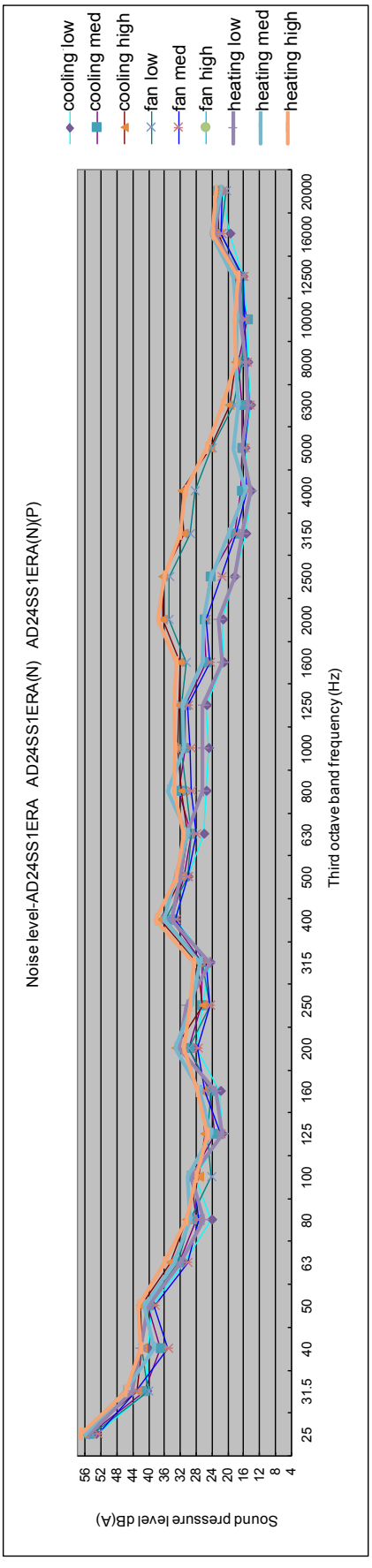

Noise level-AD12MS1ERA AD12MS1ERA(D)
cooling low
cooling med
cooling high
fan low
fan med
fan high
heating low
heating med
heating high
Sound pressure level dB(A)
56 52 48 44 40 36 32 28 24 20 16 12 8 4
25 31.5 40 50 63 80 100 125 160 200 250 315 400 500 630 800 1000 1250 1600 2000 2500 3150 4000 5000 6300 8000 10000 12500 16000 20000
Third octave band frequency (Hz)

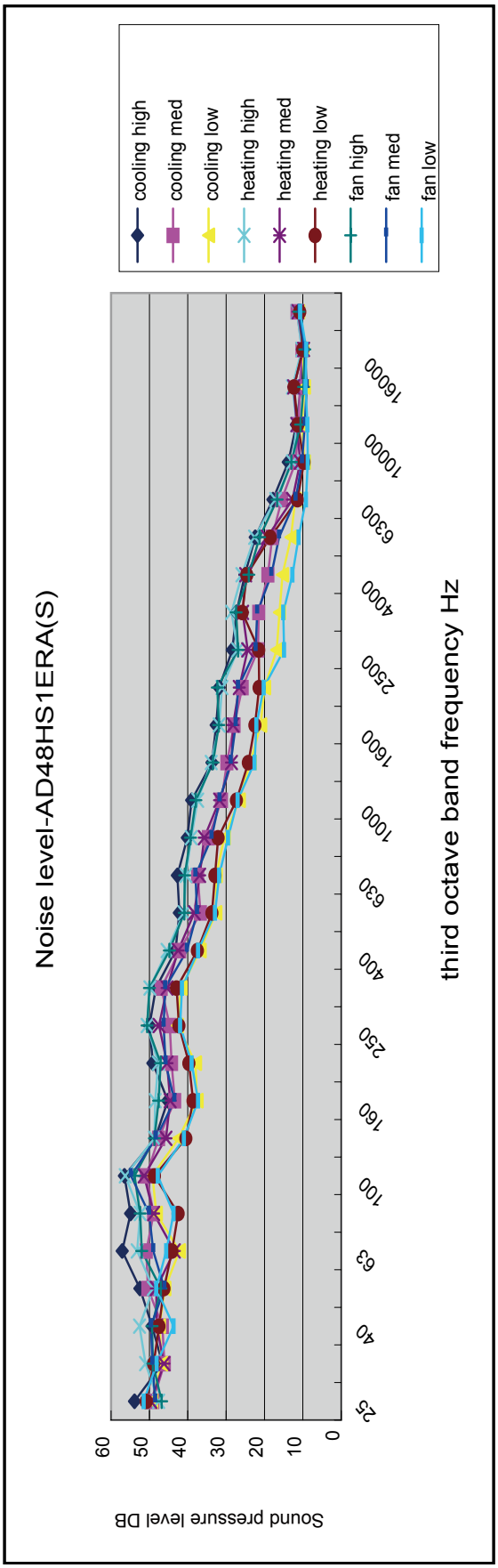

Noise level-AD18MS1ERA AD18MS1ERA(D)
cooling low
cooling med
cooling high
fan low
fan med
fan high
heating low
heating med
heating high
Sound pressure level dB(A)
56 52 48 44 40 36 32 28 24 20 16 12 8 4
25 31.5 40 50 63 80 100 125 160 200 250 315 400 500 630 800 1000 1250 1600 2000 2500 3150 4000 5000 6300 8000 10000 12500 16000 20000
Third octave band frequency (Hz)

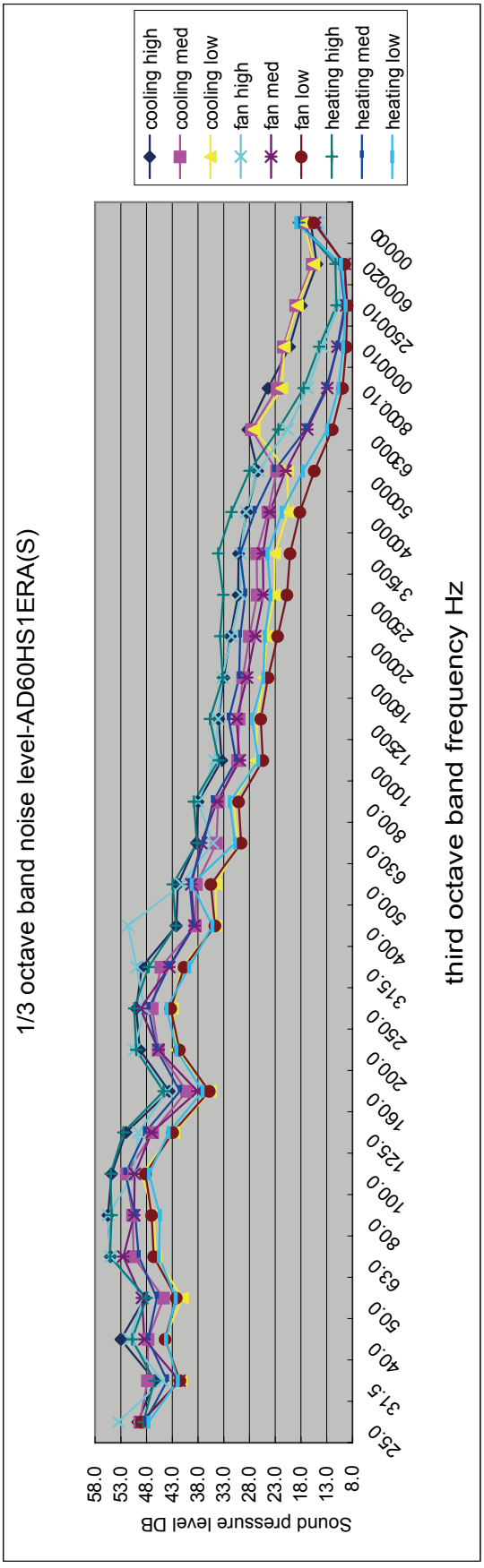

1/3 octave band noise level-AD18LS1ERA
cooling super high
cooling high
cooling med
cooling low
fan super high
fan high
fan med
fan low
heating super high
heating high
heating med
heating low
Sound pressure level DB
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
Third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0

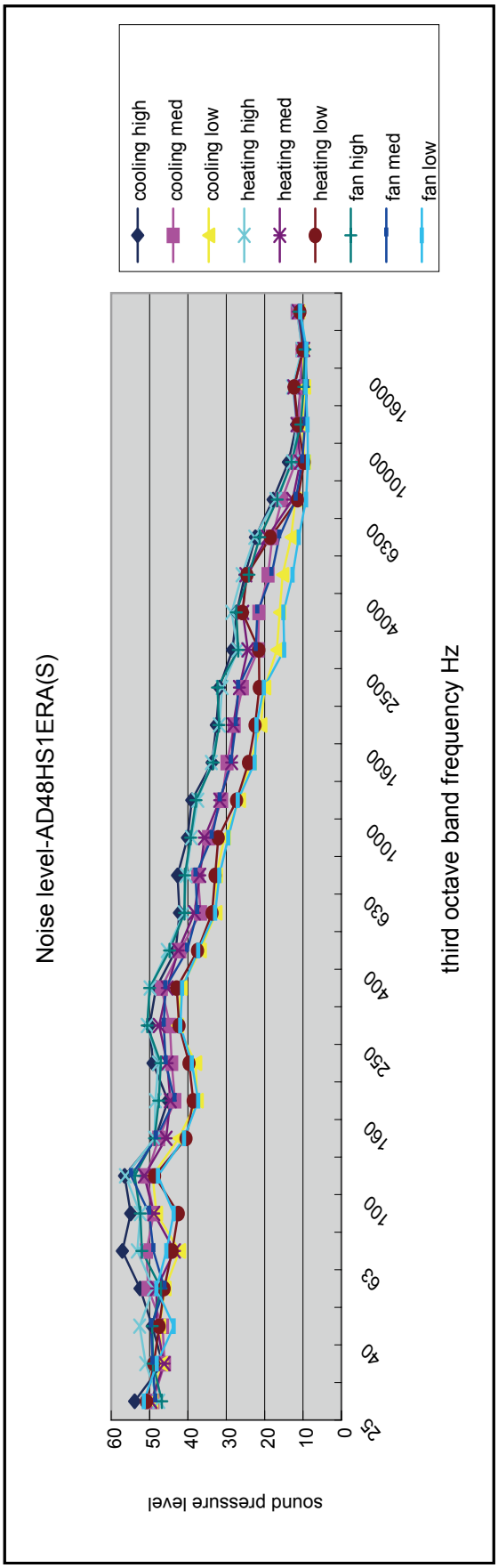

1/3 octave band noise level-AD24LS1ERA
cooling super high
cooling high
cooling med
cooling low
fan super high
fan high
fan med
fan low
heating super high
heating high
heating med
heating low
Sound pressure level DB
53.0
48.0
43.0
38.0
33.0
28.0
23.0
18.0
13.0
8.0
Third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0

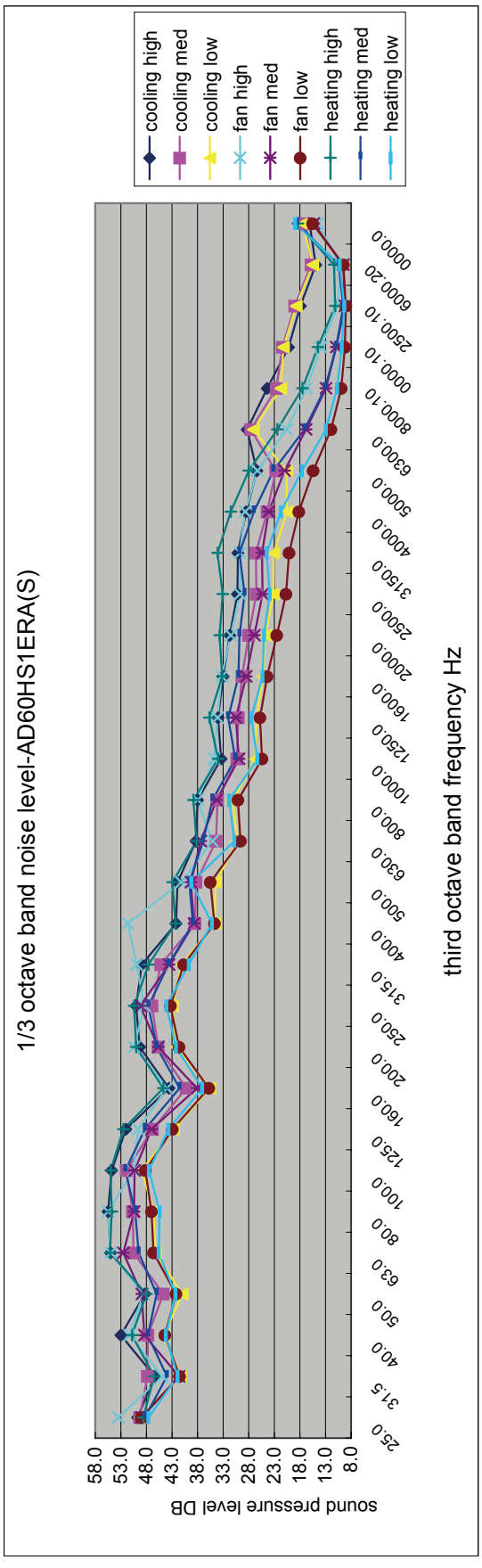

Noise level-AD18SS1ERA AD18SS1ERA(N) AD18SS1ERA(N)(P)
cooling low
cooling med
cooling high
fan low
fan med
fan high
heating low
heating med
heating high
Sound pressure level dB(A)
Third octave band frequency (Hz)


Noise level-AD24SS1ERA AD24SS1ERA(N) AD24SS1ERA(N)(P)
cooling low
cooling med
cooling high
fan low
fan med
fan high
heating low
heating med
heating high
Sound pressure level dB(A)
Third octave band frequency (Hz)


Noise level-AD48HS1ERA(S)
cooling high
cooling med
cooling low
heating high
heating med
heating low
fan high
fan med
fan low
Sound pressure level DB
60
50
40
30
20
10
0
25
40
63
100
160
250
400
630
1000
1600
2500
4000
6300
10000
16000
third octave band frequency Hz


1/3 octave band noise level-AD60HS1ERA(S)
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
Sound pressure level DB
58.0
53.0
48.0
43.0
38.0
33.0
28.0
23.0
18.0
13.0
8.0
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000
1250
1600
2000
2300
3150
4000
5000
6300
8000.10
10000
25000
60000
80000
third octave band frequency Hz


Noise level-AD48HS1ERA(S)
cooling high
cooling med
cooling low
heating high
heating med
heating low
fan high
fan med
fan low
sound pressure level
60
50
40
30
20
10
0
25
40
63
100
160
250
400
630
1000
1600
2500
4000
6300
10000
16000
third octave band frequency Hz


1/3 octave band noise level-AD60HS1ERA(S)
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
sound pressure level DB
58.0
53.0
48.0
43.0
38.0
33.0
28.0
23.0
18.0
13.0
8.0
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.10
0000.10
2500.10
6000.20
0000.0
third octave band frequency Hz

3.8 Installation

For AD09~24LS1ERA AD09~24SS1ERA AD09~24SS1ERA(N) AD09~24SS1ERA(N)(P)

The machine is adaptive in following situation

1. Applicable ambient temperature range:

Cooling	Indoor temperature	Max.	DB/WB	32/23°C
		Min.	DB/WB	18/14°C
	Outdoor temperature	Max.	DB/WB	46/24°C
		Min.	DB/WB	18°C
Heating	Indoor temperature	Max.	DB/WB	27°C
		Min.	DB/WB	15°C
	Outdoor temperature	Max.	DB/WB	24/18°C
		Min.	DB/WB	-15°C

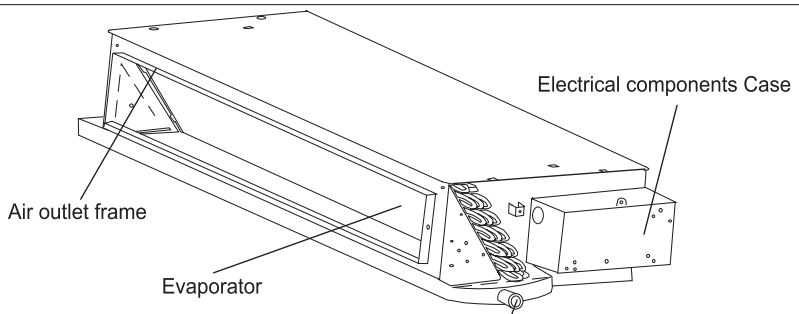
2. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
3. If the fuse on PC board is broken please change it with the type of T 3.15A /250VAc.
4. The wiring method should be in line with the local wiring standard.
5. The breaker of the air conditioner should be all pole switch, and the distance between its two contacts should be no less than 3mm. Such means for disconnection must be incorporation in the fixed wiring.
6. The installation height of the indoor unit is recommended from 2.5m to 2.7m.
7. The distance between its two terminal blocks of indoor unit and outdoor unit should not be over 5m. If exceeded, the diameter of the wire should be enlarged according to the local wiring standard.
8. The waste battery shall be disposed properly.
9. For AD**SS1ERA,AD**SS1ERA(N),AD**SS1ERA(N)(P),we can get the 4 different ESP through adjust the indoor unit PCB SW1 4 and SW1 5, please refer below:

SW01								Static pressure
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	
-	-	-	0	0	-	-	-	0Pa
-	-	-	0	1	-	-	-	10Pa
-	-	-	1	0	-	-	-	20Pa
-	-	-	1	1	-	-	-	30Pa

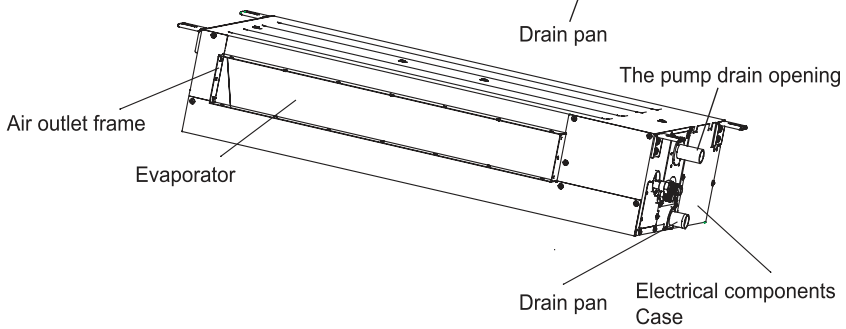
Attention: cut off the power supply to adjust the SW1 4, and SW1 5, or else the operation is invalid.

Parts abd functions

AD09LS1ERA
AD12LS1ERA
AD18LS1ERA
AD24LS1ERA



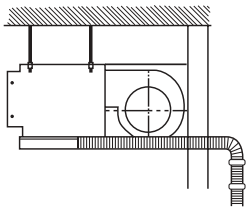
AD09SS1ERA
AD09SS1ERA(N)
AD09SS1ERA(N)(P)
AD12SS1ERA
AD12SS1ERA(N)
AD12SS1ERA(N)(P)
AD18SS1ERA
AD18SS1ERA(N)
AD18SS1ERA(N)(P)
AD24SS1ERA
AD24SS1ERA(N)
AD24SS1ERA(N)(P)



Attention:
The panel for AD*SS1ERA(N)and AD*SS1ERA(N)(P) is optional, for AD*SS1ERA(N)(P), it's with water pump, and AD*SS1ERA(N) without pump .

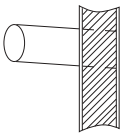
Installation Procedure

Selecting the mounting position to install the indoor units



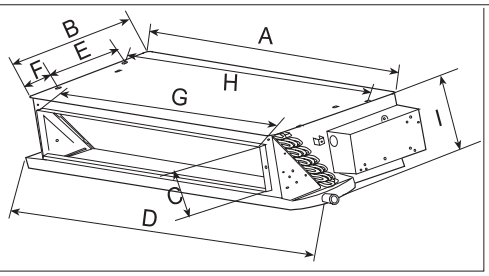
- Select suitable places where the outlet air can be sent to the entire room, and convenient to lay out the connection pipe, connection wire and the drainage pipe to outdoor.
- The ceiling structure must be strong enough to support the unit weight.
- The connecting pipe, drain pipe and connection wire shall be able to go though the building wall to connect between the indoor and outdoor units.
- The connecting pipe between the indoor and outdoor units as well as the drain pipe shall be as short as possible.
- If it is necessary to adjust the filling amount of the refrigerant, please refer to the installation manual attached with the outdoor unit.
- The connecting flange should be provided by the user himself.
- The indoor unit has two water outlets one of which is obstructed at the factory (with a rubber cap). Only the outlet not obstructed (liquid inlet and outlet side) will be generally used during installation. If applicable, both the outlets should be used together.
- An access port must be provided during installation of indoor unit for maintenance.

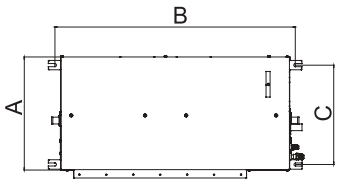
After selecting the unit installation location, proceed the following steps:



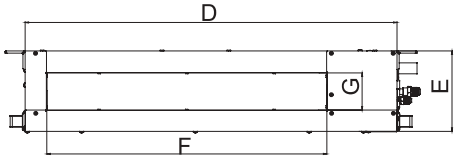
1. Drill a hole in the wall and insert the connecting pipe and wire through a PVC wall-through tube purchased locally. The wall hole shall be with a outward down slope of at least 1/100.
2. Before drilling check that there is no pipe or reinforcing bar just behind the drilling position. Drilling shall avoid at positions with electric wire or pipe.
3. Mount the unit on a strong and horizontal building roof. If the base is not firm, it will cause noise, vibration or leakage.
4. Support the unit firmly.
5. Change the form of the connection pipe, connection wire and drain pipe so that they can go through the wall hole easily.

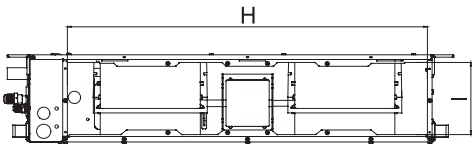
AD09LS1ERA
AD12LS1ERA
AD18LS1ERA
AD24LS1ERA





AD09SS1ERA
AD09SS1ERA(N) AD09SS1ERA(N)(P)
AD12SS1ERA
AD12SS1ERA(N) AD12SS1ERA(N)(P)
AD18SS1ERA
AD18SS1ERA(N) AD18SS1ERA(N)(P)
AD24SS1ERA
AD24SS1ERA(N) AD24SS1ERA(N)(P)

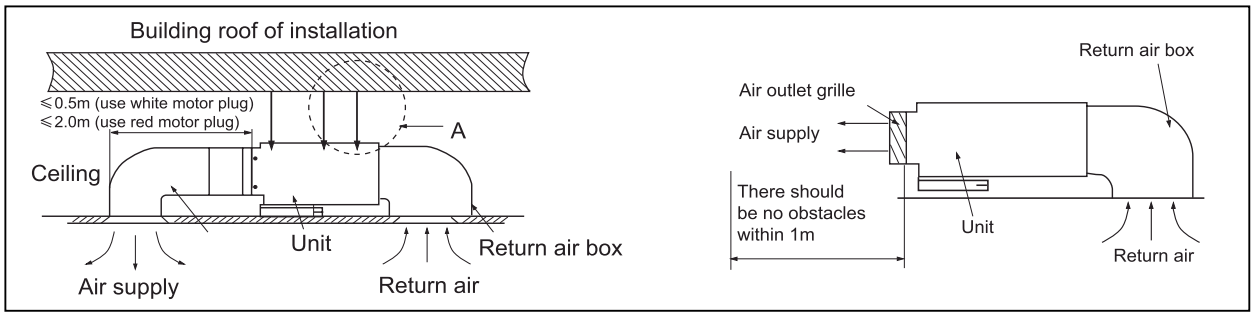




Indoor unit dimensions(unit:mm)

Unit model	A	B	c	D	E	F	G	H	I
AD09LS1ERA AD12LS1ERA	538	483.5	131	610	255	105	418	508	220
AD18LS1ERA AD24LS1ERA	1002	483.5	131	1105	255	105	880	970	220
AD09SS1ERA AD09SS1ERA(N) AD09SS1ERA(N)(P) AD12SS1ERA AD12SS1ERA(N) AD12SS1ERA(N)(P)	420	892	370	850	185	640	90	760	152
AD18SS1ERA AD18SS1ERA(N) AD18SS1ERA(N)(P) AD24SS1ERA AD24SS1ERA(N) AD24SS1ERA(N)(P)	420	1212	370	1170	185	960	90	1080	152

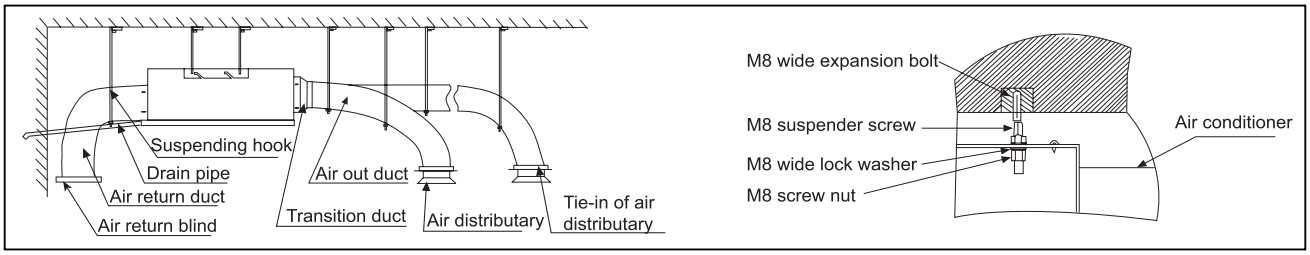
- Each of the air sending duct and air return duct shall be fixed on the prefabricated panel of the floor by the iron bracket. The recommended distance between the edge of the air return duct and the wall is over 150mm.
- The gradient of the condensate water pipe shall keep over 1%.
- The condensate water pipe shall be thermal insulated.
- When installing the ceiling Conceal indoor unit, the air return duct must be designed and installed as figure shown.



Note:

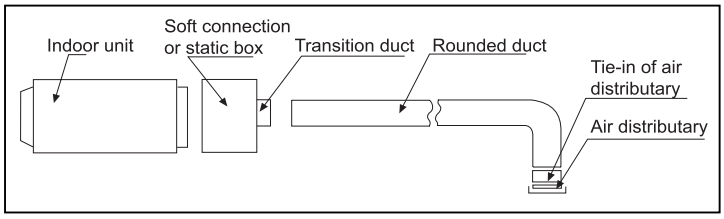
- *When connecting the short ducts, use the low static terminals, which color is white. The distance L from the air outlet of the duct to the air outlet of the air conditioner shall be no more than 0.5 m.*
- *When connecting the long ducts, use the middle static terminals, which color is red. The distance L from the air outlet of the duct to the air outlet of the air conditioner shall be no more than 2.0 m.*

The sketch map of long duct



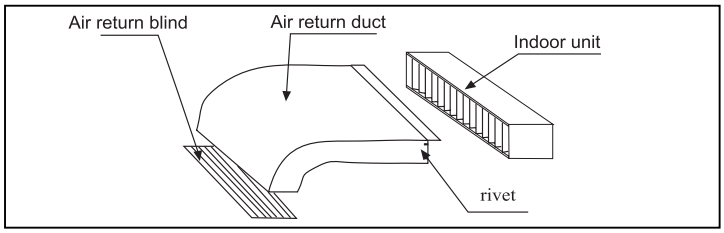
1. Installation of air sending duct

- This unit uses rounded duct, the diameter of the duct is 180mm.
- The rounded duct needs to add a transition duct to connect with the air-sending duct of indoor unit, then connect with respective separator. As Figure shown, all the fan speed of any of the separator's air outlet shall be adjusted approximately the same to meet the requirement for the room air conditioner.



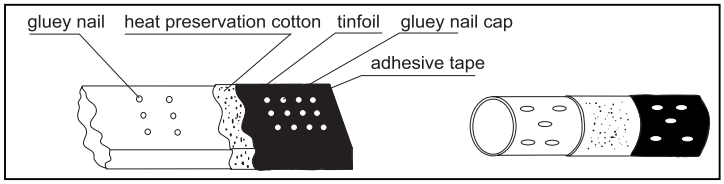
2. Installation of air return duct

- Use rivet to connect the air return duct on the air return inlet of the indoor unit, then connect the other end with the air return blind as Figure shown.



3. Thermal insulation of duct

- Air-sending duct and air return duct shall be thermally insulated. First stick the gluey nail on the duct, then attach the heat preservation cotton with a layer of tinfoil paper and use the gluey nail cap to fix. Finally use the tinfoil adhesive tape to seal the connected part. As Figure shown.

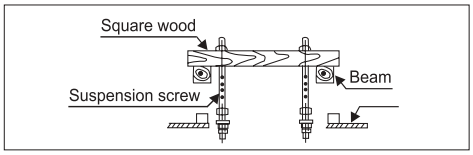


Installing the suspension screw

Use M8 or M10 suspension screws (4, prepared in the field) (when the suspension screw height exceeds 0.9m, M10 size is the only choice). These screws shall be installed as follows with space adapting to air conditioner overall dimensions according to the original building structures.

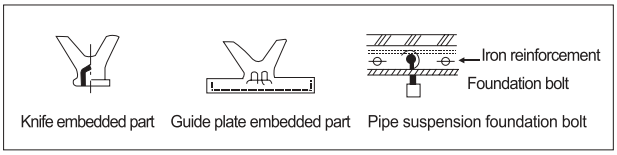
Wooden structure

A square wood shall be supported by the beams and then set the suspension screws.



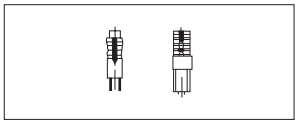
New concrete slab

To set with embedded parts, foundation bolts etc.



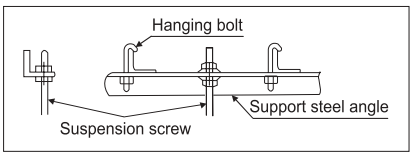
Original concrete slad

Use hole hinge, hole plunger or hole bolt.



Steel rein for cement structure

Use steel angle or new support steel angle directly.



Hanging of the indoor unit

- Fasten the nut on the suspension screw and then hang the suspension screw in the T slot of the suspension part of the unit.
- Aided with a level meter, adjust level of the unit within 5mm

⚠ CAUTION

- In installation, if there is refrigerant gas leakage, please take ventilation measures immediately. The refrigerant gas will generate poisonous gas upon contacting fire.
- After installation, please verify that there is no refrigerant leakage. The leaked refrigerant gas will produce poisonous gas when meeting fire source such as heater and furnace etc.

Model	Gas side	Liquid side
AD09LS1ERA AD12LS1ERA AD09SS1ERA AD12SS1ERA AD09SS1ERA(N) AD09SS1ERA(N)(P) AD12SS1ERA(N) AD12SS1ERA(N)(P)	Ø9.52	Ø6.35
AD18LS1ERA AD18SS1ERA AD18SS1ERA(N) AD18SS1ERA(N)(P)	Ø12.7	Ø6.35
AD24LS1ERA AD24SS1ERA AD24SS1ERA(N) AD24SS1ERA(N)(P)	Ø15.88	Ø9.52

Pipe material

Phosphorus deoxidized copper seamless pipe (TP2M) for air conditioner.

Allowable pipe length and drop

These parameters differ according to the outdoor unit. See the instruction manual attached with the outdoor unit for details.

Supplementary refrigerant

The refrigerant supplementation shall be as specified in the installation instructions attached with the outdoor unit. The adding procedure shall be aided with a measuring meter for a specified amount of supplemented refrigerant.

Note:

Overfilling or under-filling of refrigerant will cause compressor fault. The amount of the added refrigerant shall be as specified in the instructions.

Connection of refrigerant pipe

Conduct flared connection work to connect all refrigerant pipes.

- The connection of indoor unit pipes must use double spanners.
- The installing torque shall be as given in the following table.
- Wall thickness of connection pipe 0.8mm

Connecting pipe O.D.(mm)	Installing torque (N-m)
Ø6.35	11.8 (1.2kgf·m)
Ø9.52	24.5 (2.5 kgf·m)
Ø12.7	49.0 (5.0 kgf·m)
Ø15.88	78.4 (8.0 kgf·m)



Double-spanner operation

Creating vacuum

With a vacuum pump, create vacuum from the stop valve of the outdoor unit. Emptying with refrigerant sealed in the outdoor unit is absolutely forbidden.

Open all valves

Open all the valves on the outdoor unit.

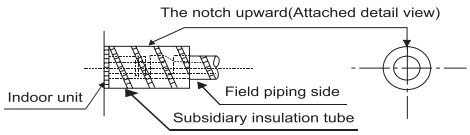
Gas leakage detection

Check with a leakage detector or soap water if there is gas leakage at the pipe connections and bonnets.

Insulation treatment

Conduct insulation treatment on both the gas side and liquid side of pipes respectively. During cooling operation, both the liquid and gas sides are cold and thus shall be insulated so as to avoid dew generation.

- The insulating material at gas side shall be resistant to a temperature above 120°C
- The indoor unit pipe connection part shall be insulated.

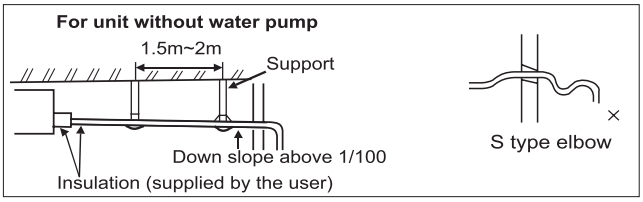


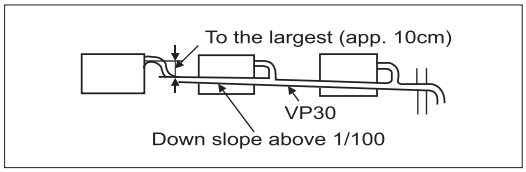
⚠ CAUTION

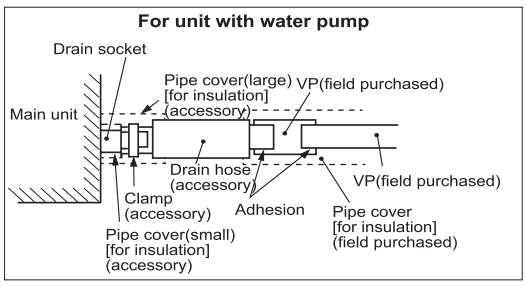
In order to drain water normally, the drain pipe shall be processed as specified in the installation manual and shall be thermal insulated to avoid dew generation. Improper hose connection may cause indoor water leakage.

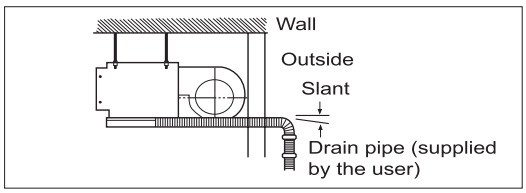
Requirements

- The indoor drain pipe shall be thermal insulated.
- The connection part between the drain pipe and the indoor unit shall be insulated so as to prevent dew generation.
- The drain pipe shall be slant downwards (greater than 1/100). The middle part shall not be of S type elbow, otherwise abnormal sound will be produced.
- The horizontal length of the drain pipe shall be less than 20. In case of long pipe, supports shall be provided every 1.5 _ 2m to prevent wavy form.
- Central piping shall be laid out according to the right figure.
- Take care not to apply external force onto the drain pipe connection part.
- For unit with water pump drain pipe use hard PVC general purpose pipe VP which can be purchased locally. When connecting, insert a PVC pipe end securely into the drain socket before tightening securely using the attached drain hose and clamp. Adhesive must not be used for connection of the drain socket and drain hose (accessory).









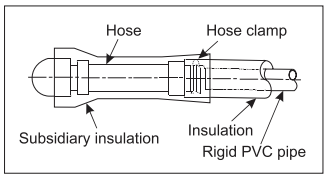
Pipe and insulation material

Pipe	Rigid PVC pipe VP20 mm (internal diameter)
Insulation	Foamed PE with thickness above 7 mm

Hose

Drain pipe size: (3/4”) PVC pipe

The hose is used for adjusting the off-center and angle of the rigid PVC pipe.



- Directly stretch the hose to install without making any deformation.
- The soft end of the hose must be fastened with a hose clamp.
- Please apply the hose on horizontal part Insulation treatment.
- Wrap the hose and its clamp up to the indoor unit without any clearance with insulating material, as shown in the figure.

Drain confirmation

During trial run, check that there is no leakage at the pipe connection part during water draining even in winter.

⚠ WARNING

Danger of bodily injury or death

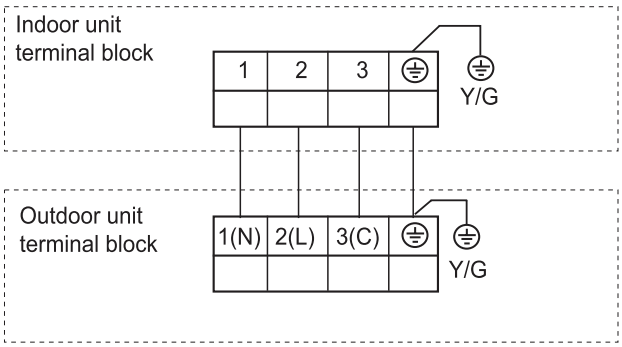
- Turn off electric power at circuit breaker or power source before making any electric connections.
- Ground connections must be completed before making line voltage connection.

Precautions for Electrical wiring

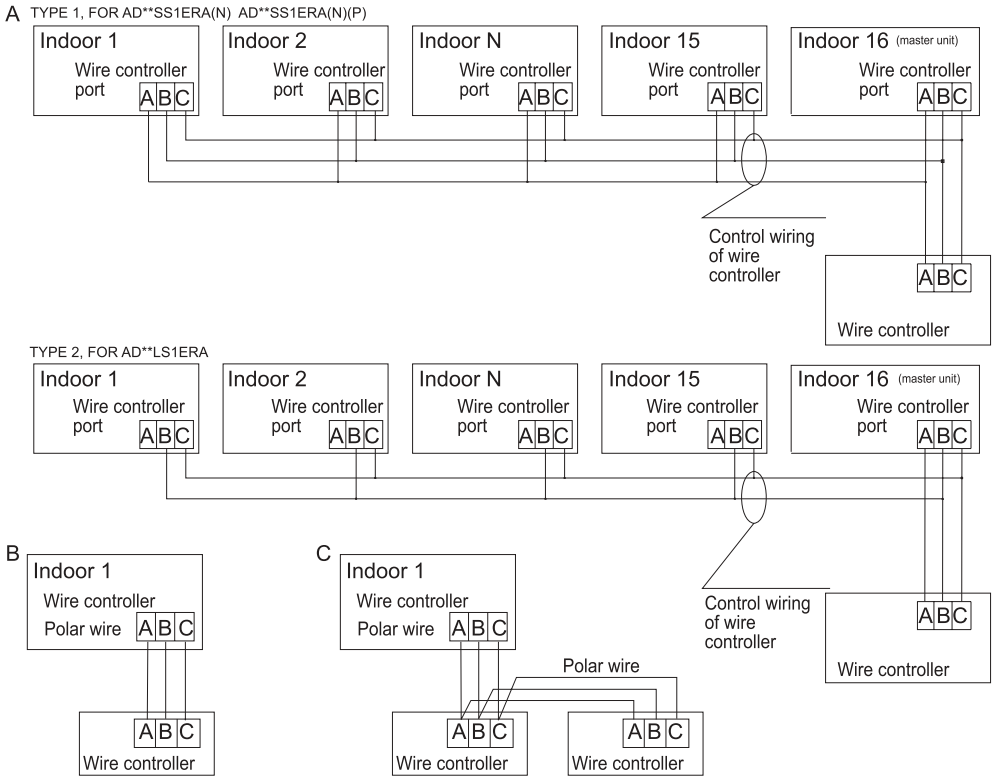
- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

Wiring connection

Make wiring to supply power to the outdoor unit, so that the power for the indoor unit is supplied by terminals.



Wiring connections of wire controller:



There are three methods to connection wire controller and the indoor units:

A. One wired controller can control max. up to 16 sets of indoor units, and 3 pieces of polar wire must connect the wire controller and the master unit (the indoor unit connected with wire controller directly), the others connect with the master unit through 2 pieces of polar wire(3 pieces for model AD**SS1ERA, AD**SS1ERA(N), AD**SS1ERA(N)(P), and the bridge CN22 CN23 on slave units PCB should be cut off).

B. One wire controller controls one indoor unit, and the indoor unit connects with the wire controller through 3 pieces of polar wire.

C. Two wired controllers control one indoor unit. The wire controller connected with indoor unit is called master one, the other is called slave one. Master wire controller and indoor unit; master and slave wire controllers are all connected

Communication wiring:

The wire controller is equipped with special communication wiring in the accessories. 3-core terminal (1-white 2-yellow 3-red) is connected with the terminal A, B, C of wire controller respectively.

The communication wiring is 5 meter long; if the actual length is more than it, please distribute wiring according to below table:

Communication wiring length(m)	Dimensions of wiring
<100	0.3mm^{2}x3-core shielded wire
≥100 and <200	0.5mm^{2}x3-core shielded wire
≥200 and <300	0.75mm^{2}x3-core shielded wire
≥300 and <400	1.25mm^{2}x3-core shielded wire
≥400 and <600	2mm^{2}x3-core shielded wire

One side of the shielded sheet of communication wire must be earthed.

Safety Precautions

AD12MS1ERA AD12MS1ERA(D) AD18MS1ERA AD18MS1ERA(D) AD24MS1ERA AD24MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) AD28MS2ERA(S) AD28MS2ERA(S)(D) AD28NS1ERA(S) AD36NS1ERA(S) AD48NS1ERA(S)

The machine is adaptive in following situation

1. Applicable ambient temperature range:

Cooling	Indoor temperature	Max.	DB/WB	32/23°C
		Min.	DB/WB	18/14°C
	Outdoor temperature	Max.	DB/WB	46/24°C
		Min.	DB/WB	10/6°C
Heating	Indoor temperature	Max.	DB/WB	27°C
		Min.	DB/WB	15°C
	Outdoor temperature	Max.	DB/WB	24/18°C
		Min.	DB/WB	-15°C

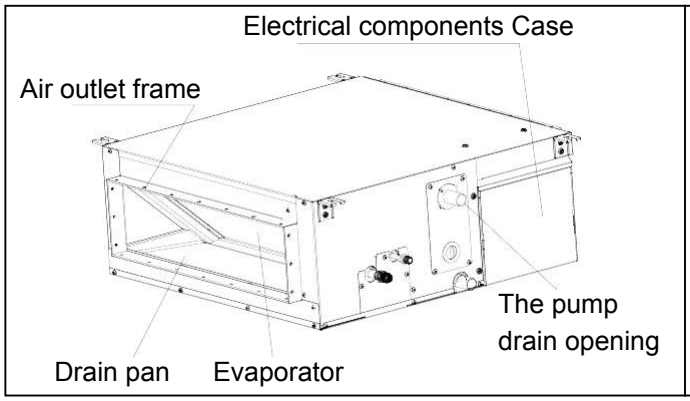
2. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
3. If the fuse on the indoor PC board is broken please change it with the type of T 6.3A /250VAC(For series 24,28,36,48).
4. The wiring method should be in line with the local wiring standard.
5. The power cable should be:
   H05RN-F 3G 4.0mm2 (For series 12,18,24);
   The connecting cable should be:
   H05RN-F 4G 1.3mm2 (For series 12,18,24,28,36,48)
   All the cables shall have got the European authentication certificate. During installation, when the connecting cables break off, it must be assured that the grouding wire is the last one to be broken off.
6. The power cable and connect cable should be self-provided.
7. The breaker of the air conditioner should be all-pole switch, and the distance between its two contacts should be no less than 3mm.
8. The indoor unit installation height is at least 2.5m.
9. A leakage breaker must be installed.
10. For AD12MS1ERA and AD12MS1ERA(D),AD18MS1ERA,AD18MS1ERA(D), AD24MS2ERA,AD24MS2ERA(D), AD28MS2ERA(S),AD28MS2ERA(S)(D),we can get the 4 different ESP through adjust the indoor unit PCB SW1-4 and SW1-5, please refer below:

SW1								Static pressure
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
-	-	-	OFF	OFF	-	-	-	10 Pa
-	-	-	OFF	ON	-	-	-	30 Pa
-	-	-	ON	OFF	-	-	-	50 Pa
-	-	-	ON	ON	-	-	-	70 Pa

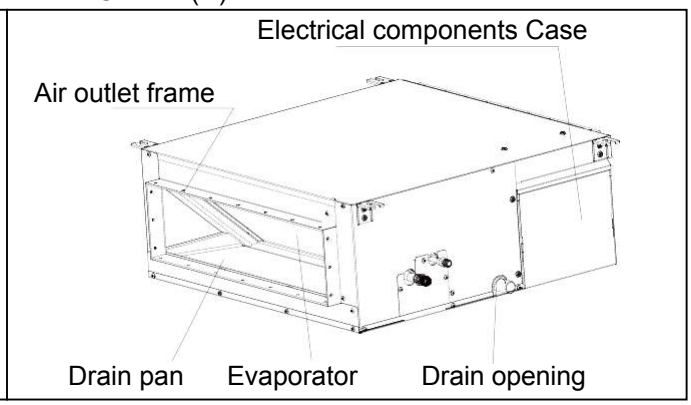
Attention: cut off the power supply to adjust the SW1-4, and SW1-5, or else the operation is invalid.

Parts and Functions

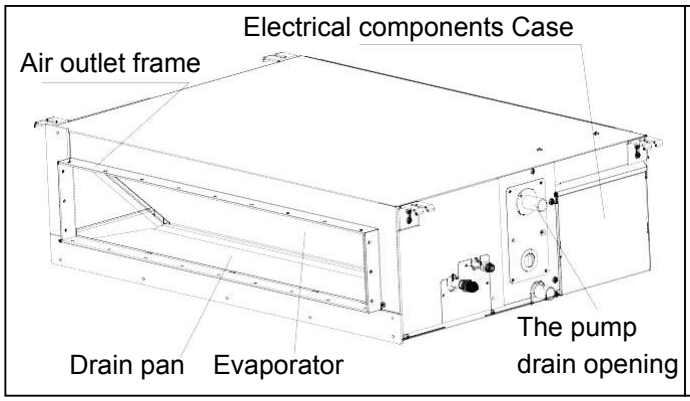
AD12MS1ERA



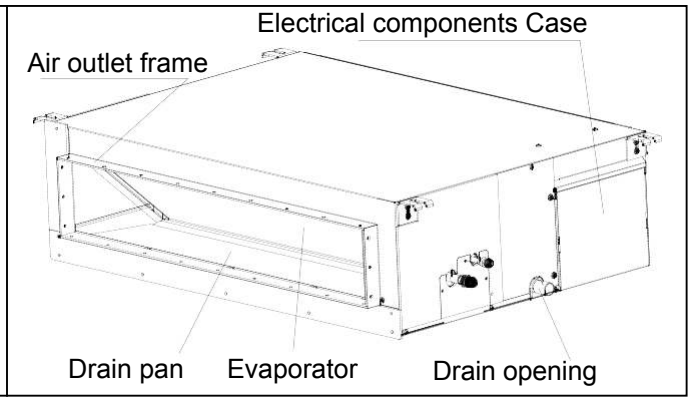
AD12MS1ERA (D)



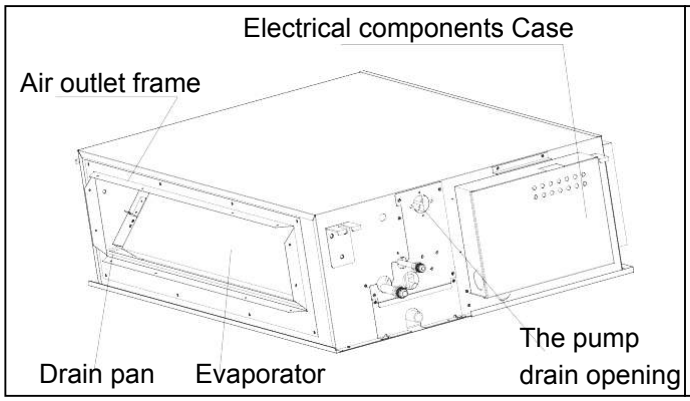
AD18MS1ERA AD24MS2ERA AD28MS2ERA(S)



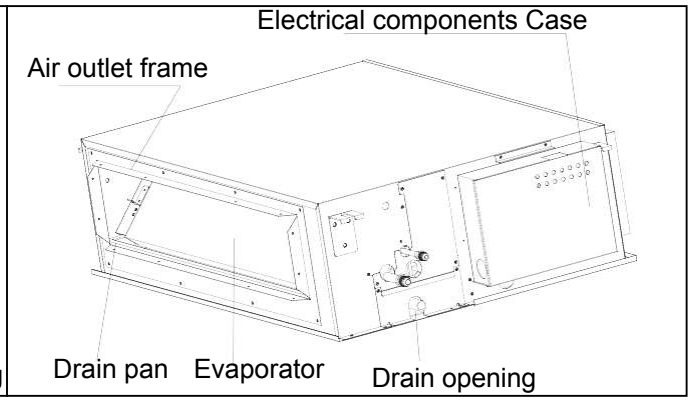
AD18MS1ERA(D) AD24MS2ERA(D) AD28MS2ERA(S)(D)



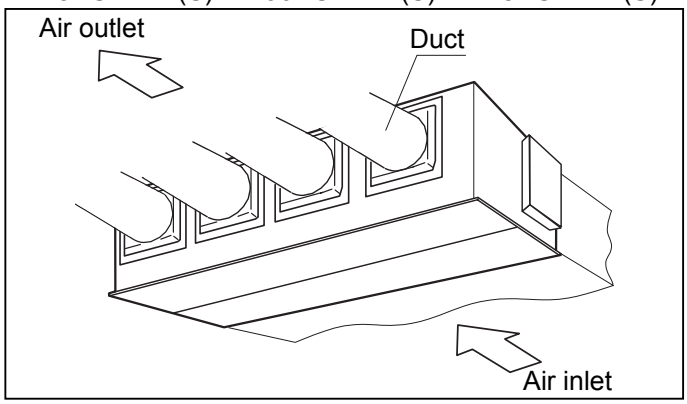
AD24MS1ERA



AD24MS1ERA (D)



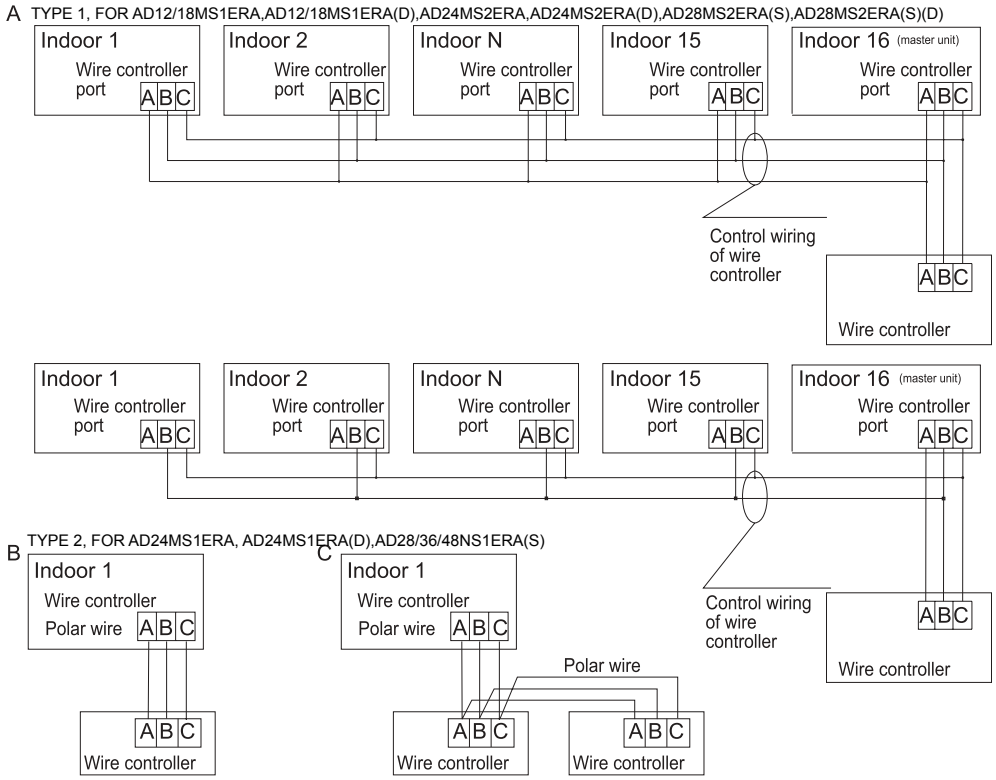
AD28NS1ERA(S) AD36NS1ERA(S) AD48NS1ERA(S)



Attention:
Unit model with the letter D is the machine without water pump. Unit model without the letter D is the machine with water pump.

Installation manual for wire controller

Wiring connections of wire controller:



There are three methods to connection wire controller and the indoor units:

A. One wired controller can control max. up to 16 sets of indoor units, and 3 pieces of polar wire must connect the wire controller and the master unit (the indoor unit connected with wire controller directly), the others connect with the master unit through 2 pieces of polar wire(3 pieces for model AD12/18MS1ERA, AD12/18MS1ERA(D), AD24MS2ERA, AD24MS2ERA(D), AD28MS2ERA(S), AD28MS2ERA(S)(D) and the bridge CN22 CN23 on slave units PCB should be cut off).

B. One wire controller controls one indoor unit, and the indoor unit connects with the wire controller through 3 pieces of polar wire.

C. Two wired controllers control one indoor unit. The wire controller connected with indoor unit is called master one, the other is called slave one. Master wire controller and indoor unit; master and slave wire controllers are all connected through 3 pieces of polar wire.

Communication wiring:

The wire controller is equipped with special communication wiring in the accessories. 3-core terminal (1-white 2-yellow 3- red) is connected with the terminal A, B, C of wire controller respectively.

The communication wiring is 5 meter long; if the actual length is more than it, please distribute wiring according to below table:

Communication wiring length(m)	Dimensions of wiring
<100	0.3mm^2×3-core shielded wire
≥100and<200	0.5mm^2×3-core shielded wire
≥200and<300	0.75mm^2×3-core shielded wire
≥300and<400	1.25mm^2×3-core shielded wire
≥400and<600	2mm^2×3-core shielded wire

One side of the shielded sheet of communication wire must be earthed.

Installation Procedure

Note

All wiring of this installation must comply with NATIONAL, STATE AND LOCAL REGULATIONS. These instructions do not cover all variations for every kind of installation circumstance. Should further information be desired or should particular problems occur, the matter should be referred to your local distributor.

⚠ WARNING

Be sure to read these instructions carefully before beginning installation. Failure to follow these instructions could serious injury or death, equipment malfunction and/or property damage

Preparation of indoor unit

Before or during the installation of the unit, assemble necessary optional panel etc. depending on the specific type.

Select places for installation satisfying following conditions and at the same time obtain the consent on the part of your client user.

a. Places where chilled or heated air circulates freely. When the installation height exceeds 3m warmed air stays close to the ceiling. In such cases, suggest your client users to install air circulates.

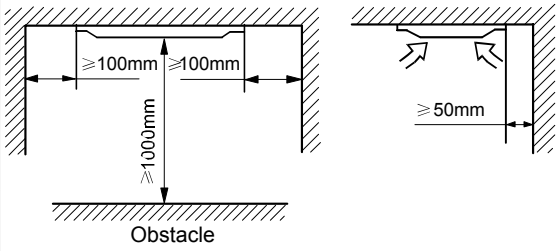
b. Places where perfect drainage can be prepared and sufficient drainage.

c. Places free from air disturbances to the suction port and blowout hole of the indoor unit, places where the fire alarm may not malfunction or short-circuit.

d. Places with the environmental dew-point temperature is lower than 28 C and the relative humidity is less than 80 %. (When installing at a place under a high humidity environment, pay sufficient attention to the prevention of dewing such as thermal insulation of the unit.)

e. Ceiling height shall have the following height.

	AD12MS1ERA AD12MS1ERA(D) AD18MS1ERA AD18MS1ERA(D) AD24MS1ERA AD24MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) AD28MS2ERA(S) AD28MS2ERA(S)(D)	AD28NS1ERA(S) AD36NS1ERA(S) AD48NS1ERA(S)
Combination with silent panel	366mm	416mm



Avoid installation and use at those places listed below.

a. Places exposed to oil splashes or steam (e.g. kitchens and machine plants).
Installation and use at such places incur deterioration in the performance or corrosion with the heat exchanger or damage in molded synthetic resin parts.

b. Places where corrosive gas (such as sulfurous acid gas) or inflammable gas (thinner, gasoline etc.) in generated or remains. Installation and use at such places cause corrosion in the heat exchanger and damage in molded synthetic resin parts.

c. Places adjacent to equipment generating electromagnetic waves or high-frequency waves such as in hospitals. Generated noise may cause malfunctioning of the controller.

Pipe size

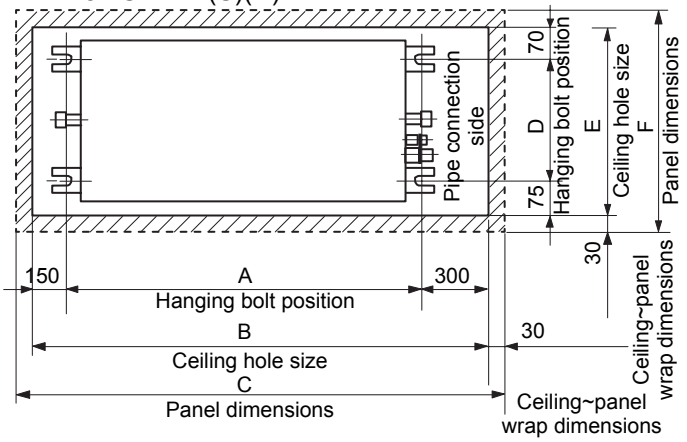
Model	Liquid side	Gas side
AD12MS1ERA AD12MS1ERA(D)	6.35mm	9.52mm
AD18MS1ERA AD18MS1ERA(D)	6.35mm	12.7mm
AD24MS1ERA AD24MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) AD28NS1ERA(S) AD28MS2ERA(S) AD28MS2ERA(S)(D) AD36NS1ERA(S)	9.52mm	15.88mm
AD48NS1ERA(S)	9.52mm	19.05mm

1. Preparation for suspending the unit

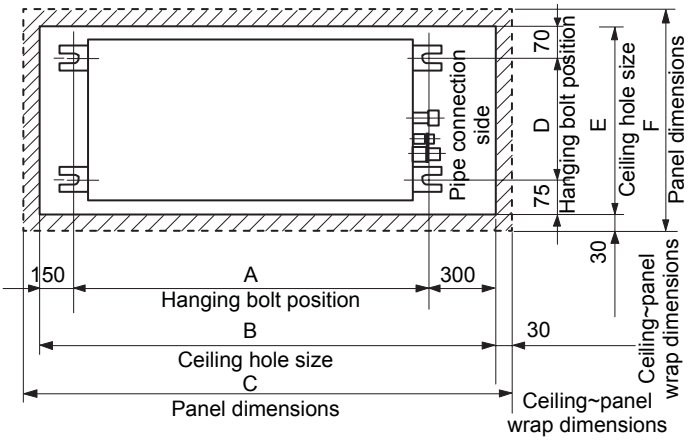
a. Size of hole at ceiling and position of hanging bolts

<Combination with silent panel>

AD12MS1ERA AD12MS1ERA(D)
AD18MS1ERA AD18MS1ERA(D)
AD24MS2ERA AD24MS2ERA(D)
AD28MS2ERA(S)(D)



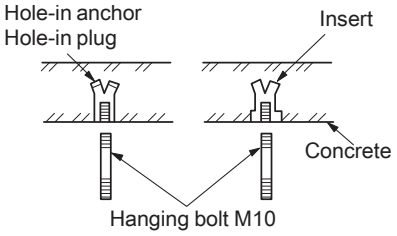
AD24MS1ERA AD24MS1ERA(D)
AD28NS1ERA(S) AD36NS1ERA(S)
AD48NS1ERA(S) AD28MS2ERA(S)



Model \ Dimensions	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)
AD12MS1ERA AD12MS1ERA(D)	705	1155	1215	595	740	800
AD18MS1ERA AD18MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) AD28MS2ERA(S) AD28MS2ERA(S)(D)	983	1433	1493	595	740	800
AD24MS1ERA AD24MS1ERA(D)	987	1437	1497	545	690	750
AD28NS1ERA(S) AD36NS1ERA(S) AD48NS1ERA(S)	1172	1622	1682	480	625	685

b. Hanger bolts installation

Use care of the piping direction when the unit is installed.

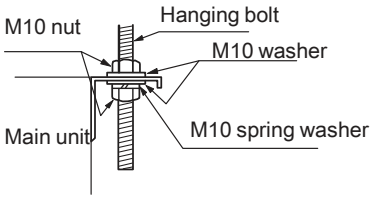


2. Installation of indoor unit

Fix the indoor unit to the hanger bolts.

If required, it is possible to suspend the unit to the beam, etc.

Directly by use of the bolts without using the hanger bolts.



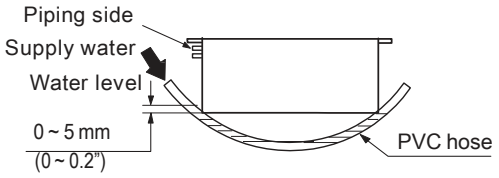
Note

When the dimensions of main unit and ceiling holes does not match, it can be adjusted with the slot holes of hanging bracket.

Adjusting to the levelness

(a) Adjust the out-of levelness using a level or by the following method. Make adjustment so that the relation between the lower surface of the unit proper and water level in the hose becomes as given below.

(b) Unless the adjustment to the levelness is made properly, malfunctioning or failure of the float switch may occur.

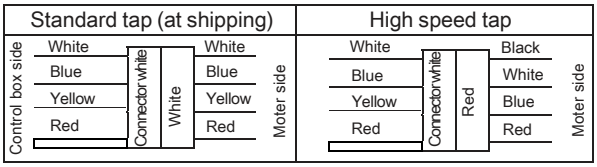


Bring the piping side slightly lower.

Tap selection on blower unit

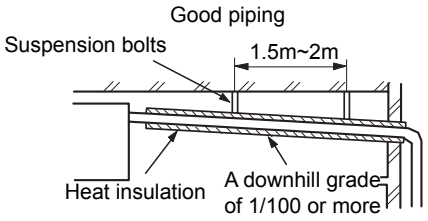
(When the high performance filter is used.)

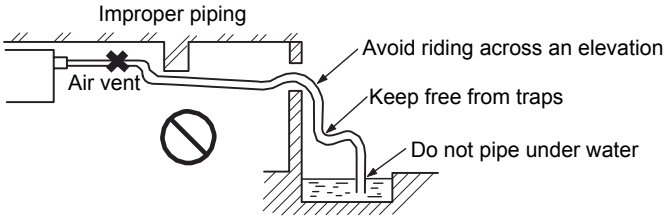
Taps of blower unit are set at the standard selection at the shipping from factory. Where the static pressure is raised by employing such option as the high performance filter, etc., change the connection of connectors provided at the flank of control box as shown below.



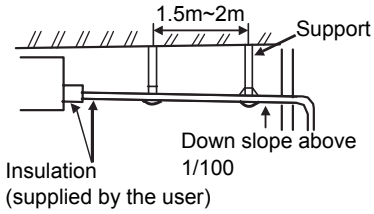
Drain Piping

(a) Drain piping should always be in a downhill grade (1/50~1/100) and avoid riding across an elevation or making traps.





For unit without water pump



Unit model	The size of drain opening
AD12MS1ERA AD12MS1ERA(D) AD18MS1ERA AD18MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) AD28MS2ERA(S) AD28MS2ERA(S)(D)	21mm
AD24MS1ERA AD24MS1ERA(D)	15.5mm
AD28NS1ERA(S) AD36NS1ERA(S) AD48NS1ERA(S)	33mm

(b) When connecting the drain pipe to unit, pay sufficient attention not to apply excess force to the piping on the unit side. Also, fix the piping at a point as close as possible to the unit.

(c) For unit without water pump,please refer to the diagram and select drain pipe size according to drain opening inner diameter size. The drain pipe shall be slant downwards (greater than 1/100). The horizontal length of the drain pipe shall be less than 20 m. In case of long pipe, supports shall be provided every 1.5~2m to prevent wavy form.
Central piping shall be laid out according to the right figure.
Take care not to apply external force onto the drain pipe connection part.

(d) For unit with water pump drain pipe use hard PVC general purpose pipe VP which can be purchased locally. When connecting, insert a PVC pipe end securely into the drain socket before tightening securely using the attached drain hose and clamp. Adhesive must not be used for connection of the drain socket and drain hose (accessory).

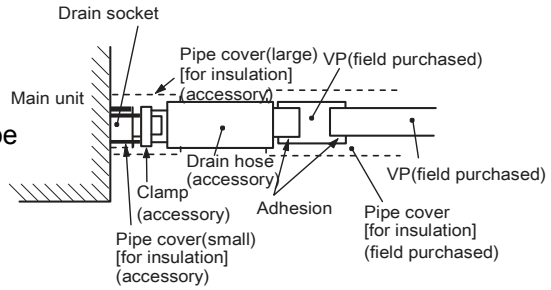
(e) When constructing drain piping for several units, position the common pipe about 100 mm below the drain outlet of each unit as shown in the sketch. Use VP-30(11/4") or thicker pipe for this purpose.

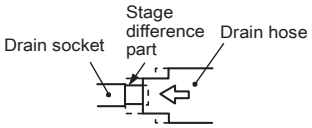
(f) The hard PVC pipe put indoor side should be heat insulated. Do not ever provide an air vent.

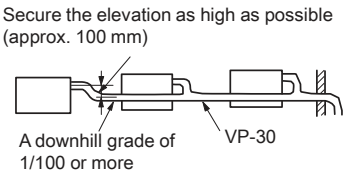
(g) The height of the drain head can be elevated up to a point 500 mm above the ceiling, and when an obstacle exists in the ceiling space, elevate the piping to avoid the obstacle using an elbow or corresponding gadget. When doing this, if the stretch for the needed height is higher than 500 mm, the back-flow quantity of drain at the event of interruption of the operation gets too much and it may cause overflow at the drain pan. Therefore, make the height of the drain pipe within the distance given in the sketch below.

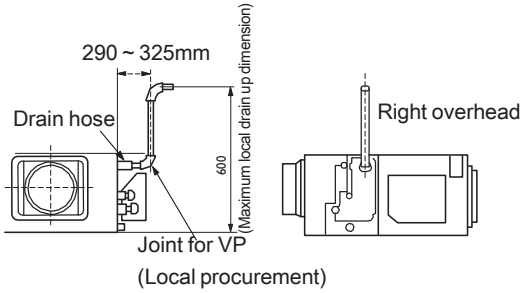
(h) Avoid positioning the drain piping outlet at a place where generation of odor may be stimulated. Do not lead the drain piping direct into a sewer from where sulfur gas may generate.

For unit with water pump



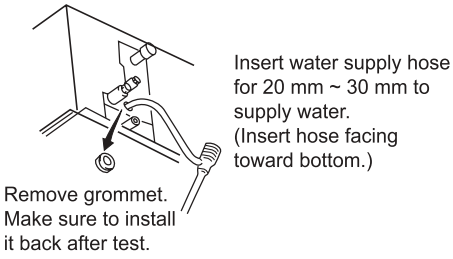






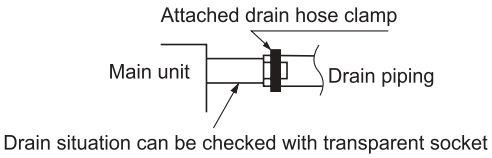
Drainage Test

(1) Conduct a drainage test after completion of the electrical work.
(2) During the trial, make sure that drain flows properly through the piping and that no water leaks from connections.
(3) In case of a new building, conduct the test before it is furnished with the ceiling.
(4) Be sure to conduct this test even when the unit is installed in the heating season.

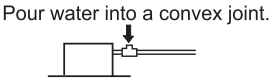


Procedures

(a) Supply about 1000 cc of water to the unit through the air outlet using a feed water pump.
(b) Check the drain while cooling operation.



Before the electrical work has not been completed, connect a convex joint in the drain pipe connection to provide a water inlet. Then, check if water leaks from the piping system and that drain flows through the drain pipe normally.

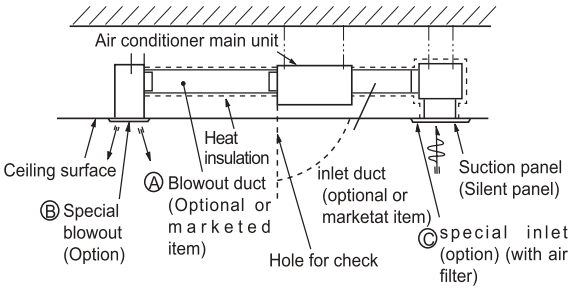


Installation work for air outlet ducts

Calculate the draft and external static pressure and select the length, shape and blowout.

A. Blowout duct

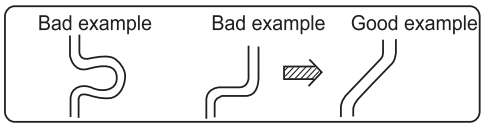
- 2-spot, 3-spot and 4-spot with Ø200 type duct are the standard specifications.



Note

(1) Shield the central blowout hole for 2-spot.
(2) Shield the blowout hole around the center for 3-spot.

- Limit the difference in length between spots at less than 2:1. Reduce the length of duct as much as possible.
- Reduce the number of bends as much as possible. (Corner R should be as larger as possible.)
- Use a band. etc. to connect the main unit and the blowout duct flange.
- Conduct the duct installation work before finishing the ceiling.



Connection of suction, exhaust ducts

a.Fresh air inlet

- Inlet can be selected from the side or rear faces depending on the working conditions.
- Use the rear fresh air inlet when the simultaneous intake and exhaust is conducted. (Side inlet cannot be used.)

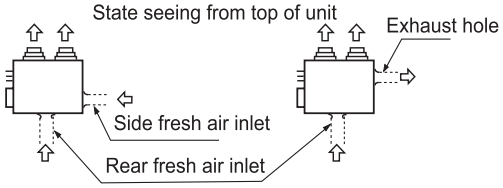


Fig.1 Fig.2

b.Exhaust (Make sure to use also the suction.)

- Use the side exhaust port.

⚠ WARNING

Danger of bodily injury or death

- Turn off electric power at circuit breaker or power source before making any electric connections.
- Ground connections must be completed before making line voltage connection.

Precautions for electrical wiring

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

Selection of size of power supply and interconnecting wires

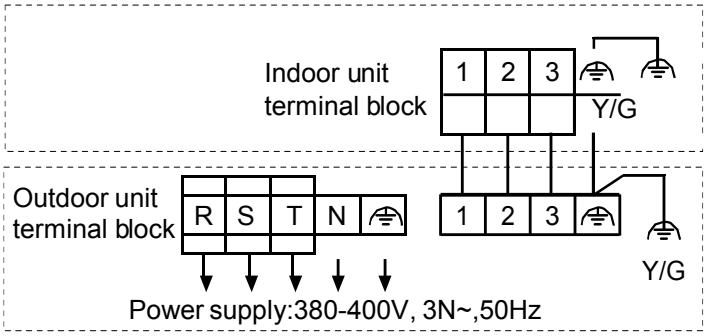
Select wire sizes and circuit protection from table below. (This table shows 20 m length wires with less than 2% voltage drop.)

Item / Model	Phase	Circuit breaker		Power source wire size (minimum) (mm^2)	Earth leakage breaker	
		Switch breaker (A)	Over-current protector rated capacity (A)		Switch breaker (A)	Leak current (mA)
AD12MS1ERA AD12MS1ERA(D) AD18MS1ERA AD18MS1ERA(D) AD24MS1ERA AD24MS1ERA(D) AD24MS2ERA AD24MS2ERA(D)	1	40	26	4.0	40	30
AD28MS2ERA(S) AD28MS2ERA(S)(D) AD28NS1ERA(S) AD36NS1ERA(S) AD48NS1ERA(S)	1	40	30	6.0	40	30

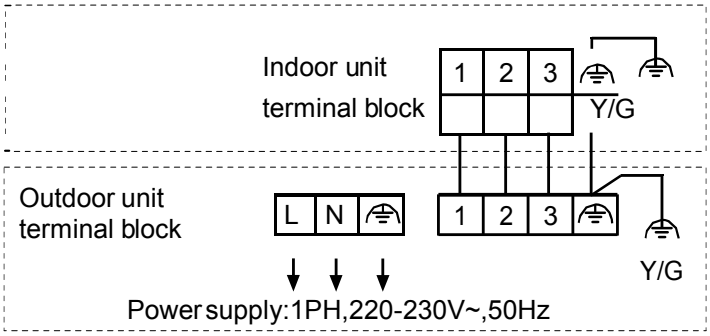
Wiring connection

Make wiring to supply power to the outdoor unit, so that the power for the indoor unit is supplied by terminals.

AD48NS1ERA(S)(Outdoor 3 phase type)



AD12MS1ERA AD12MS1ERA(D)
AD18MS1ERA AD18MS1ERA(D)
AD24MS1ERA AD24MS1ERA(D)
AD24MS2ERA AD24MS2ERA(D)
AD28MS2ERA(S) AD28MS2ERA(S)(D)
AD28NS1ERA(S) AD36NS1ERA(S)
AD48NS1ERA(S) (Outdoor single phase type)



For AD48HS1ERA(S) AD60HS1ERA(S)

Safety precautions

The machine is adaptive in following situation

1. Applicable ambient temperature range:

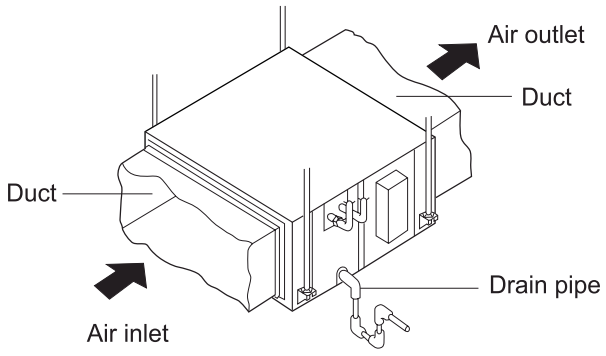
Cooling	Indoor temperature	Max.	DB/WB	32/23°C
		Min.	DB/WB	18/14°C
	Outdoor temperature	Max.	DB/WB	46/24°C
		Min.	DB/WB	10/6°C
Heating	Indoor temperature	Max.	DB/WB	27°C
		Min.	DB/WB	15°C
	Outdoor temperature	Max.	DB/WB	24/18°C
		Min.	DB/WB	-15°C

2. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
3. If the fuse on Pc board is broken, please change it with the type of T 3.15A /250VAc.
4. The wiring method should be in line with the local wiring standard.
5. The power cable and connecting cable are self-provided. The connecting cable should be H05RN-F 4G 0.75mm2. All the cables shall have got the European authentication certificate. During installation, when the connecting cables break off, it must be assured that the grouding wire is the last one to be broken off.
6. The breaker of the air conditioner should be all-pole switch, and the distance between its two contacts should be no less than 3mm.
7. The indoor unit installation height is at least 2.5m.
8. In order to obtain the Unit's best performances, the fan speed is recommended according to the following conditions.

Outdoor ambient temp.	Operation mode	Recommended fan speed
>40°C	cooling	low
<20°C	cooling	high
<-5°C	heating	low
>18°C	heating	high

Parts and Functions

Indoor unit



Note

All wiring of this installation must comply with NATIONAL, STATE AND LOCAL REGULATIONS. These instructions do not cover all variations for every kind of installation circumstance. Should further information be desired or should particular problems occur, the matter should be referred to your local distributor.

⚠ WARNING

BE SURE TO READ THESE INSTRUCTIONS CAREFULLY BEFORE BEGINNING INSTALLATION. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD CAUSE SERIOUS INJURY OR DEATH, EQUIPMENT MALFUNCTION AND/OR PROPERTY DAMAGE.

Before installation (Before finishing installation, do not throw the attached parts installation needs)

- Confirm the way to move the unit to the installation place.
- Before moving the unit to the installation place, do not remove their packages. When having to remove the package, use a soft material or protection board with rope to lift the unit assembly to avoid unit damage or bumping a scrape.

Choose installation place

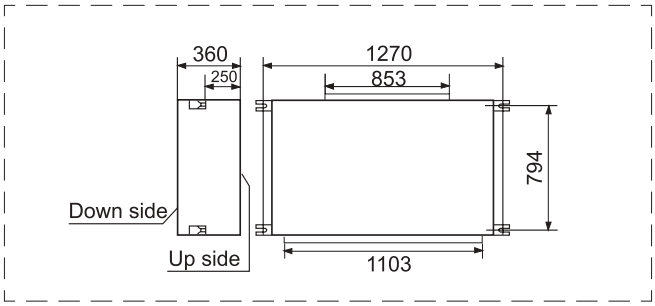
The chosen installation place should meet the following requirements and get the user's consent.

- Place ensures ideal airflow distribution.
- The passage of airflow has no obstacles.
- When importing outside air, it should be imported directly from outdoors. (If the pipe can not be extended, it also can not be imported from top)
- Place ensures enough space for maintenance.
- The pipe length between indoor and outdoor unit is in the permitted limit (referring to outdoor unit installation part).
- The indoor unit, outdoor unit, electric wire and connection wire is at least 1m away from television and radio. This is to avoid the image disturbance and noise caused by the above mentioned home appliance. (Even if 1m away, if the electromagnetic wave is too strong, it can also cause noise.)
- The indoor unit can install on the ceiling, which height is no more than 3m.
- Install and use the hoisting screw. check if the installation place can bear the weight of unit assembly. If not certain, strengthen it before install the unit.



Installation for indoor unit

1. The position relation among hoisting screw (unit: mm)

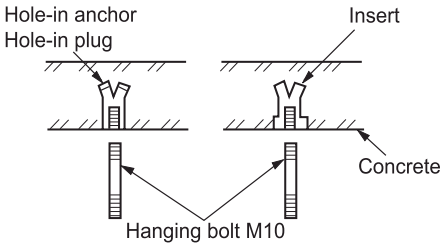


2. If necessary, cut the opening installation and checking needed on the ceiling. (If having ceiling)

- Before installation, finish the preparation work of all the pipes (refrigerant, drainage) and wire (wire controller connection wire, indoor and outdoor unit connection wire) of indoor unit, so that after installation, they can be immediately connected with outdoor unit.
- Cut the opening on the ceiling. Maybe it needs to strengthen the ceiling to keep the ceiling even and flat and prevent the ceiling from vibration. For details, please consult to the builder.

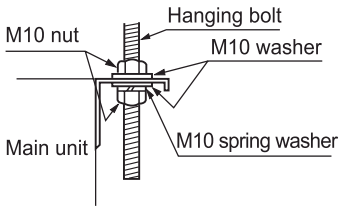
3. Hanger bolts installation

Use care of the piping direction when the unit is installed.(Use M10 screw bolt)
In order to bear the weight of the unit, for existed ceiling, using foundation screw bolt, and for new ceiling, using burying embedded screw bolt, burying screw bolt or spot supplied other parts.
Before going on installation, adjust the gaps with ceiling.



4. Installation of indoor unit

Fix the indoor unit to the hanger bolts.
If required, it is possible to suspend the unit to the beam, etc. Directly by use of the bolts without using the hanger bolts.



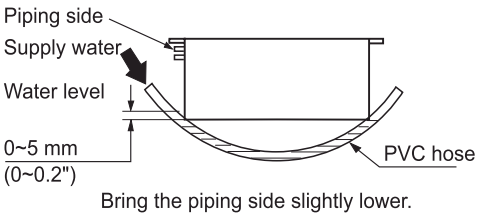
Note

When the dimensions of main unit and ceiling holes does not match, it can be adjusted with the slot holes of hanging bracket.

5. Adjusting to the levelness

(a) Adjust the out-of levelness using a level or by the following method.
- Make adjustment so that the relation between the lower surface of the unit proper and water level in the hose becomes as given below.

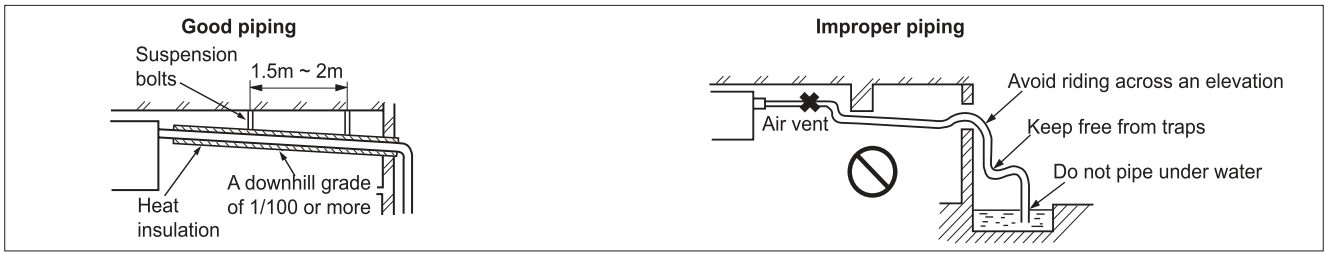
(b) Unless the adjustment to the levelness is made properly,



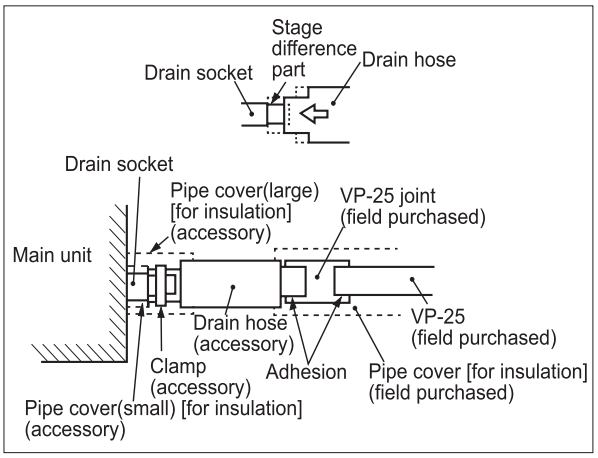
Bring the piping side slightly lower.

Installation Procedure

(a) Drain piping should always be in a downhill grade (1/50~1/100) and avoid riding across an elevation or making traps.

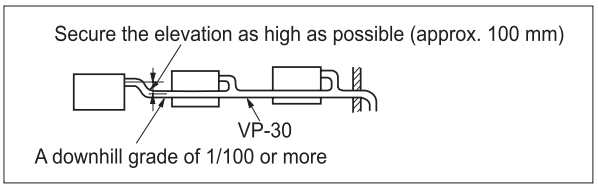


(b) When connecting the drain pipe to unit, pay sufficient attention not to apply excess force to the piping on the unit side. Also, fix the piping at a point as close as possible to the unit.



(c) For drain pipe, use hard PVC general purpose pipe VP-25(I.D.1") which can be purchased locally. When connecting, insert a PVC pipe end securely into the drain socket before tightening securely using the attached drain hose and clamp. Adhesive must not be used connection of the drain socket and drain hose (accessory).

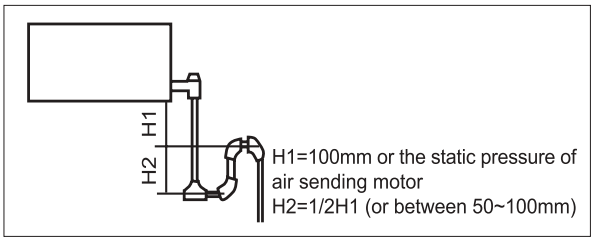
(d) When constructing drain piping for several units, position the common pipe about 100 mm below the drain outlet of each unit as shown in the sketch. Use VP-30(11/4") or thicker pipe for this purpose.



(e) The stiff PVC pipe put indoor side should be heat insulated

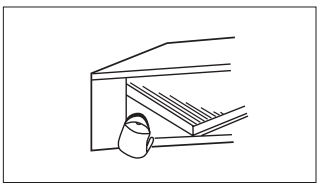
(f) Avoid putting the outlet of drain hose in the places with irritant gas generated. Do not insert the drain hose directly into drainage, where the gas with sulfur may be generated.

(g) Because the drain spout is at the position, which negative pressure may occur. So with the rise of water level in the drain pan, water leakage may occur. In order to prevent water leakage, we designed a backwater bend. The structure of backwater bend should be able to be cleaned. As the right figure shown, use T type joint. The backwater bend is set near the air conditioner.
As figure shown, set a backwater bend in the middle of drain hose.



Drainage Test

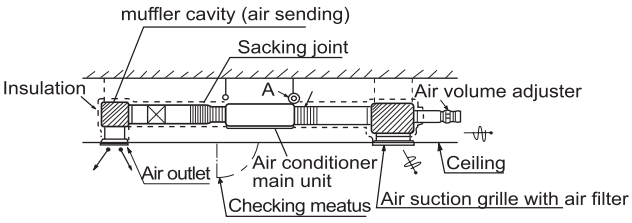
(1) conduct a drainage test after completion of the electrical work.
(2) During the trial, make sure that drain flows properly through the piping and that no water leaks from connections.
(3) In case of a new building, conduct the test before it is furnished with the ceiling.
(4) Be sure to conduct this test even when the unit is installed in the heating season.

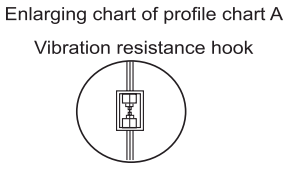


Procedures

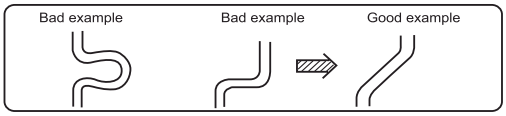
(a) Supply about 1000 cc of water to the unit through the air outlet using a feed water pump.
(b) check the drain while cooling operation

Please consult the after-sales service personnel for the choosing and installation of suction inlet, suction duct, discharging outlet and discharging duct. calculating the design drawing and outer static pressure, and choose the discharging duct with proper length and shape.



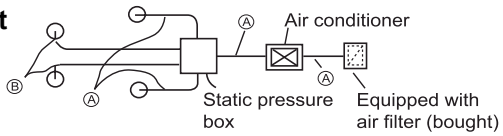


- The length difference among every duct is limited below 2:1.
- Reduce the length of duct as possible as can.
- Reduce the amount of bend as possible as can.
- Use heat insulation material to bind and seal the part connecting main unit and the flare part of air discharging duct. Perform duct installation work, before the fitment of ceiling.



Calculation method of the dimension of the simple quad-rate air duct

Presuming the unit length friction impedance of the duct is 1Pa/m, when the dimension of one side of the air duct is fixed as 250mm, as shown below:



	AD48HS1ERA(S) AD60HS1ERA(S)	
	Air volume	Duct
A	2400m3/h(40m3/min)	250x560(mmxmm)
B	600m3/h(10m3/min)	250x190(mmxmm)

The calculation of duct resistance (the simple calculation is as follow table)

Straight part	Calculate as per 1m length 1Pa, 1Pa/m
Bend part	Each bend takes as a 3~4m long straight duct
Air out part	Calculate as 25Pa
Static pressure box	Calculate as 50Pa/each
Air inlet grille (with air filter)	Calculate as 40Pa/each

The chosen chart of simple duct

Note:1Pa/m=0.1mmAg/m

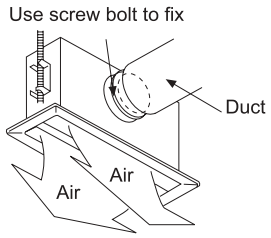
Shape / Item / Air volume m^3/h (m^3/n)	Square duct Dimension (mmxmm)
100	250 x 60
200	250 x 90
300	250 x 120
400	250 x 140
500	250 x 170
600(10)	250 x 190
800	250 x 230
1,000	250 x 270
1,200(20)	250 x 310
1,400	250 x 350
1,600	250 x 390

Shape / Item / Air volume m^3/h (m^3/n)	Square duct Dimension (mmxmm)
1,800(30)	250 x 430
2000	250 x 470
2400	250 x 560
3,000(50)	250 x 650
3,500	250 x 740
4,000	250 x 830
4,500	250 x 920
5,000	250 x 1000
5,500	250 x 1090
6,000(100)	250 x 1180

The attentive matters in installation of air suction and discharging duct

- Recommend to use anti-frost and sound-absorbing duct. (locally bought)
- The duct installation work should be finished before the fitment of ceiling.
- The duct must be heat insulated.
- The specific air-discharging outlet should be installed at the place where the airflow can be reasonably distributed.

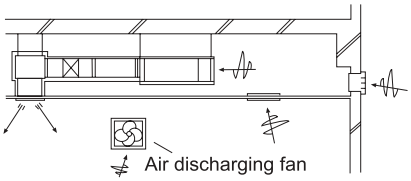
Special air discharging outlet



The examples of improper installation

- Do not use air inlet duct and take the ceiling inner side as duct instead. The result is because of the irregular outer air mass, strong wind and sunshine, the humidity is increased.
- There may be water drop on the outside of duct. For cement and other new constructions, even if not taking ceiling inner side as duct, the humidity will also be so high. At this time, use glass fiber to perform heat preservation to the whole. (use iron net to bind the glass fiber) Maybe exceeding the unit operation limit (for example: when indoor dry bulb temperature is 35 c, wet bulb temperature 24 c), it may lead to overload of compressor.
- Affected by the capacity of air discharging fan, the strong wind in the outer duct and wind direction, when unit air sending volume exceeds the limit, the discharged water of heat exchanger will overflow, leading to water leakage.

Improper example



The gas side pipe, liquid side pipe must be faithfully heat insulated, if no heat insulation, it may cause water leakage.

- The outdoor unit has been charged with refrigerant.
- When connect the pipe to the unit or dismantling the pipe from the unit, please follow the figure shown, use spanner and torque spanner together.
- When connect cone nut, the inner side and outside of cone nut should paste with refrigerant oil. Use hand to twist 3-4 rings, then fasten with spanner.
- Referring to Table I to confirm the fasten torque. Too tight may damage nut leading to leakage.
- Check if the connection pipe leaks, then do heat insulation treatment, as below figure shown.
- Only use seal cushion to bind the joint part of air pipe and heat insulation parts.

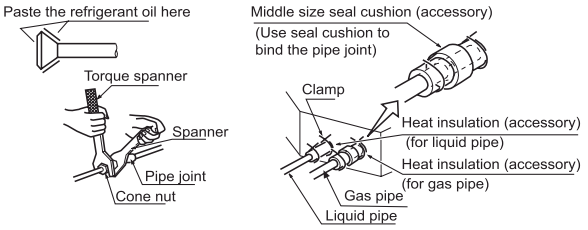
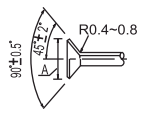
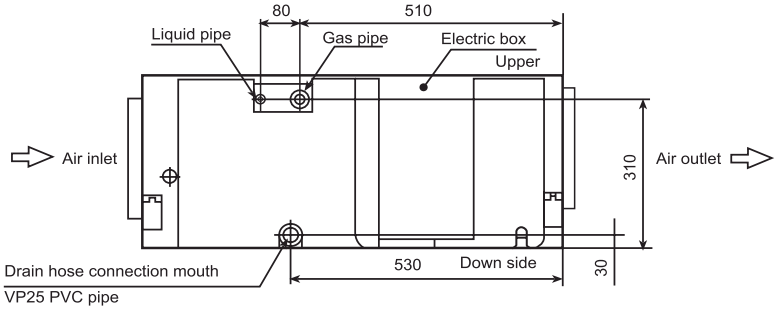


Table I

Specification of pipe	Tighten torque	Cone dimension A (mm)	Cone
Φ9.52mm	3270~3990 N.cm (333~407 kgf.cm)	12.0~12.4	
Φ15.88mm	6180~7540 N.cm (630~770 kgf.cm)	18.6~19.0	
Φ19.05mm	9720~11860 N.cm (990~1210 kgf.cm)	22.9~23.3	



⚠ WARNING

Danger of bodily injury or death

- Turn off electric power at circuit breaker or power source before making any electric connections.
- Ground connections must be completed before making line voltage connection.

Precautions for Electrical wiring

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

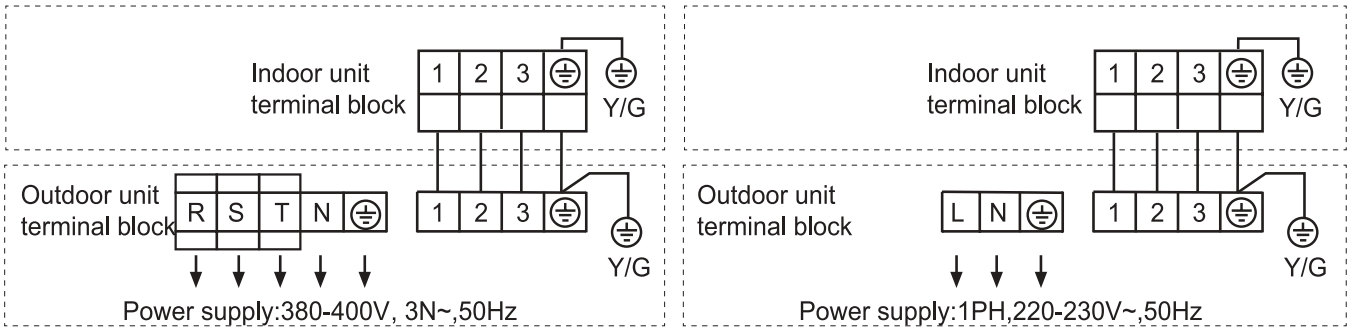
Selection of size of power supply and interconnecting wires

Select wire sizes and circuit protection from table below. (This table shows 20 m length wires with less than 2% voltage drop.)

Item / Model	Phase	Circuit breaker		Power source wire size (minimum) (mm^2)	Earth leakage breaker	
		Switch breaker (A)	Over-current protector rated capacity (A)		Switch breaker (A)	Leak current (mA)
AD48HS1ERA(S) AD60HS1ERA(S)	3	30	20	4.0	30	30

Wiring connection

Make wiring to supply power to the outdoor unit, so that the power for the indoor unit is supplied by terminals.



4. Cabinet indoor type

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4.1 Features



AP48KS1ERA(S)
AP60KS1ERA(S)



AP48DS1ERA(S)



Side Aire Inlet (for AP48DS1ERA(S))

Different from downside air inlet, the downside panel is new flat screen appearance with side air inlet grill. make the grill easy clean and low sound level.



Touch LED screen (for AP48DS1ERA(S))

Touch LED screen make the cabinet unit appearance fashionable, end user only to have a glance to read the data.

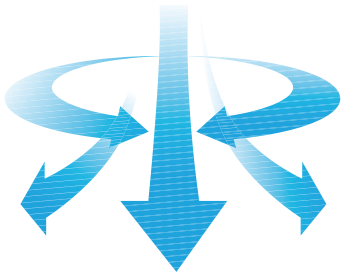


Quiet Operation

Adopting optimum designed blower & new designed insulation material, realizing indoor low noise running, outdoor unit with well-known brand compressor, reducing the operation noise.

Rounding Natural Air, Keeping Away From "Air Conditioner Symptom"

Apply innovative natural rounding air technology, simulating natural frequency spectrum, adjusting fan speed at random, three dimensions air scanning and natural air delivering, not blowing to human body, more convenient and comfort.



4.2 Specification

Item	Model		AP48KS1ERA(S)/1U48IS1EAB(S)	
Function			cooling	heating
Capacity		kW	14.5	15.6
Sensible heat ratio			0.74	
Total power input		kW	4.51	4.57
Max. power input		W	6500	6500
EER or COP		W/W	3.22(A)	3.41(B)
Dehumidifying capacity		10 - ³×m³/h	5.1	
Power cable			/	
Power source		N, V, Hz	1, 220~230, 50	
Running /Max.Running current		A / A	8.3/10.5	8.4/10.5
Start Current		A	/	
Indoor unit	Unit model (color)		AP48KS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX1
		Speed(H-M-L)	r/min	460/430/400±40
		Fan motor input power	kW	0.20
		Fan motor output power	kW	0.09
		Air-flow(H-M-L)	m³/h	1750/1500/1350
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	1850×600×350
		Package（L×W×H）	mm×mm×mm	1980×660×420
	Drainage pipe (material , I.D./O.D.)		mm	/
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(O)
			Infrared	YR-HD01(S)
	Fresh air hole dimension		mm	/
	Electricity heater		kW	0
	Sound power Noise level (H-M-L)		dB(A)	69
	Sound pressure Noise level (H-M-L)		dB(A)	51/48/44
	Weight (Net / Shipping)		kg / kg	57/65
Piping	Refrigerant	Type / Charge	g	R410A/2850
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AP48DS1ERA(S)/1U48IS1EAB(S)	
Function				cooling	heating
Capacity			kW	14.1	15.5
Sensible heat ratio				0.74	
Total power input			kW	4.68	4.69
Max. power input			W	6500	6500
EER or COP			W/W	3.01(B)	3.31(C)
Dehumidifying capacity			10 - ³×m³/h	5.0	
Power cable				/	
Power source			N, V, Hz	1, 220~230, 50	
Running /Max.Running current			A / A	8.3/10.5	8.4/10.5
Start Current			A	/	
Indoor unit	Unit model (color)			AP48DS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX1	
		Speed(H-M-L)	r/min	460/430/400±40	
		Fan motor input power	kW	0.20	
		Fan motor output power	kW	0.09	
		Air-flow(H-M-L)	m³/h	1750/1500/1350	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Total area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	1824*529*380	
		Package（L×W×H）	mm×mm×mm	1965*625*465	
	Drainage pipe (material , I.D./O.D.)		mm	/	
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(O)	
			Infrared	YR-HD01(S)	
	Fresh air hole dimension		mm	/	
	Electricity heater		kW	0	
	Sound power Noise level (H-M-L)		dB(A)	68	
	Sound pressure Noise level (H-M-L)		dB(A)	51/48/44	
	Weight (Net / Shipping)		kg / kg	55/62	
Piping	Refrigerant	Type / Charge	g	R410A/2850	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AP48DS1ERA(S)/1U48IS1ERB(S)	
Function				cooling	heating
Capacity			kW	14.0(6.0-14.5)	15.5(6.0~16.5)
Sensible heat ratio				0.74	
Total power input			kW	4.36（2.0---6.5)	4.55（2.0----6.5)
Max. power input			W	6000	6000
EER or COP			W/W	3.21(A)	3.41(B)
Dehumidifying capacity			10 - ³×m³/h	5.1	
Power cable				/	
Power source			N, V, Hz	1PH, 220-230V~, 50Hz	
Running /Max.Running current			A / A	6.8(2.9-10.0)/10.0	7.1(2.9-10.0)/10.0
Start Current			A	3.15A	
Indoor unit	Unit model (color)			AP48DS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX1	
		Speed(H-M-L)	r/min	460/430/400±40	
		Fan motor input power	kW	0.20	
		Fan motor output power	kW	0.09	
		Air-flow(H-M-L)	m³/h	1750/1500/1350	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Total area	m²	/	
		Row		3	
	Dimension	External（L×W×H）	mm×mm×mm	1824*530*380	
		Package（L×W×H）	mm×mm×mm	1965*625*465	
	Drainage pipe (material , I.D./O.D.)		mm	/	
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(O)	
			Infrared	YR-HD01(S)	
	Fresh air hole dimension		mm	/	
	Electricity heater		kW	0	
	Sound power Noise level (H-M-L)		dB(A)	68	
	Sound pressure Noise level (H-M-L)		dB(A)	51/48/44	
	Weight (Net / Shipping)		kg / kg	55/62	
Piping	Refrigerant	Type / Charge	g	R410A/3300	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AP48KS1ERA(S)/1U48IS1ERB(S)	
Function			cooling	heating
Capacity		kW	13.6(6.0~14.5)	15.5(6.0~16.5)
Sensible heat ratio			0.74	
Total power input		kW	4.5（2.0---6.5)	4.55（2.0----6.5)
Max. power input		W	6000	6000
EER or COP		W/W	3.02（B）	3.41（B）
Dehumidifying capacity		10 - ³×m³/h	5.1	
Power cable			/	
Power source		N, V, Hz	1PH, 220-230V~, 50Hz	
Running /Max.Running current		A / A	7.0(2.9-10.0)/10.0	7.1(2.9-10.0)/10.0
Start Current		A	/	
Indoor unit	Unit model (color)		AP48KS1ERA(S)	
	Fan — Type × Number		CENTRIFUGALX1	
	Fan — Speed(H-M-L)	r/min	460/430/400±40	
	Fan — Fan motor input power	kW	0.20	
	Fan — Fan motor output power	kW	0.09	
	Fan — Air-flow(H-M-L)	m³/h	1750/1500/1350	
	Heat exchanger — Type / Diameter	mm	inner grooved pipe/φ7.0	
	Heat exchanger — ROW		2	
	Heat exchanger — Total area	m²	/	
	Dimension — External（L×W×H）	mm×mm×mm	1850×600×350	
	Dimension — Package（L×W×H）	mm×mm×mm	1980×660×420	
	Drainage pipe (material , I.D./O.D.)	mm	/	
	Controller (O-Optional,S-Standard)	Wired	YR-E16(O)/YR-E17(O)	
		Infrared	YR-HD01(S)	
	Fresh air hole dimension	mm	/	
	Electricity heater	kW	0	
	Sound power Noise level (H-M-L)	dB(A)	69	
	Sound pressure Noise level (H-M-L)	dB(A)	51/48/44	
	Weight (Net / Shipping)	kg / kg	57/65	
Piping	Refrigerant — Type / Charge	g	R410A/3300	
	Refrigerant — Recharge quantity	g/m	45	
	Pipe — Liquid	mm	9.52	
	Pipe — Gas	mm	19.05	
	Between I.D &O.D — MAX.Drop	m	30	
	Between I.D &O.D — MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item		Model		AP48DS1ERA(S)/1U48LS1EAB(S)	
Function				cooling	heating
Capacity			kW	14.1	15.1
Sensible heat ratio				0.81	
Total power input			kW	4.8	5.0
Max. power input			W	6500	6500
EER or COP			W/W	2.94(C)	3.02(D)
Dehumidifying capacity			10 - ³×m³/h	5.1	
Power cable				/	
Power source			N, V, Hz	1PH, 220-230V~, 50Hz	
Running /Max.Running current			A / A	8.0/10.5	8.3/10.5
Start Current			A	3.15A	
Indoor unit	Unit model (color)			AP48DS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX1	
		Speed(H-M-L)	r/min	460/430/400±40	
		Fan motor input power	kW	0.20	
		Fan motor output power	kW	0.09	
		Air-flow(H-M-L)	m³/h	1750/1500/1350	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Row		3	
		Total area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	1824*529*380	
		Package（L×W×H）	mm×mm×mm	1965*625*465	
	Drainage pipe (material , I.D./O.D.)		mm	/	
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(O)	
			Infrared	YR-HD01(S)	
	Fresh air hole dimension		mm	/	
	Electricity heater		kW	0	
	Sound power Noise level (H-M-L)		dB(A)	68	
	Sound pressure Noise level (H-M-L)		dB(A)	51/48/44	
	Weight (Net / Shipping)		kg / kg	55/62	
Piping	Refrigerant	Type / Charge	g	R410A/2850	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	AP48KS1ERA(S)/1U48LS1EAB(S)	
Function				cooling	heating
Capacity			kW	14.1	15.1
Sensible heat ratio				0.81	
Total power input			kW	4.8	5.0
Max. power input			W	6500	6500
EER or COP			W/W	2.94(C)	3.02(D)
Dehumidifying capacity			10 - ³×m³/h	5.0	
Power cable				/	
Power source			N, V, Hz	1N~,220~230, 50	
Running /Max.Running current			A / A	8.0/10.5	8.3/10.5
Start Current			A	/	
Indoor unit	Unit model (color)			AP48KS1ERA(S)(WHITE)	
	Fan	Type × Number		CENTRIFUGALX1	
		Speed(H-M-L)	r/min	460/430/400±40	
		Fan motor input power	kW	0.22	
		Fan motor output power	kW	0.09	
		Air-flow(H-M-L)	m³/h	1750/1500/1350	
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0	
		Total area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	1850×600×350	
		Package（L×W×H）	mm×mm×mm	1980×660×420	
	Drainage pipe (material , I.D./O.D.)		mm	/	
	Controller (O-Optional,S-Standard)		Wired	YR-E16(O)/YR-E17(O)	
			Infrared	YR-HD(S)	
	Fresh air hole dimension		mm	/	
	Electricity heater		kW	0	
	Sound power Noise level (H-M-L)		dB(A)	69	
	Sound pressure Noise level (H-M-L)		dB(A)	51/48/44	
	Weight (Net / Shipping)		kg / kg	57/65	
Piping	Refrigerant	Type / Charge	g	R410A/2600	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AP48DS1ERA(S)/1U48LS1ERA(S)	
Function			cooling	heating
Capacity		kW	12.1(6.0-14.5)	13.5(6.0~16.5)
Sensible heat ratio			0.74	
Total power input		kW	4.02（2.0---6.0)	4.2（2.0----6.0)
Max. power input		W	6000	6000
EER or COP		W/W	3.01(B)	3.21(C)
Dehumidifying capacity		10 - ³×m³/h	5.1	
Power cable			/	
Power source		N, V, Hz	1PH, 220-230V~, 50Hz	
Running /Max.Running current		A / A	17.5(2.7-26)/26	18.5(2.7-26)/26
Start Current		A	/	
Indoor unit	Unit model (color)		AP48DS1ERA(S)	
	Fan — Type × Number		CENTRIFUGALX1	
	Fan — Speed(H-M-L)	r/min	460/430/400±40	
	Fan — Fan motor input power	kW	0.20	
	Fan — Fan motor output power	kW	0.09	
	Fan — Air-flow(H-M-L)	m³/h	1750/1500/1350	
	Heat exchanger — Type / Diameter	mm	inner grooved pipe/φ7.0	
	Heat exchanger — Row		3	
	Heat exchanger — Total area	m²	/	
	Dimension — External（L×W×H）	mm×mm×mm	1824*529*380	
	Dimension — Package（L×W×H）	mm×mm×mm	1965*625*465	
	Drainage pipe (material , I.D./O.D.)	mm	/	
	Controller (O-Optional,S-Standard)	Wired	YR-E17(O) OR YR-E16A(O)	
		Infrared	YR-HD01(S)	
	Fresh air hole dimension	mm	/	
	Electricity heater	kW	0	
	Sound power Noise level (H-M-L)	dB(A)	68	
	Sound pressure Noise level (H-M-L)	dB(A)	51/48/44	
	Weight (Net / Shipping)	kg / kg	55/62	
Piping	Refrigerant — Type / Charge	g	R410A/2850	
	Refrigerant — Recharge quantity	g/m	45	
	Pipe — Liquid	mm	9.52	
	Pipe — Gas	mm	19.05	
	Between I.D &O.D — MAX.Drop	m	30	
	Between I.D &O.D — MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AP48KS1ERA(S)/1U48LS1ERA(S)	
Function			cooling	heating
Capacity		kW	12.5(6.0-14.5)	13.0(6.0~16.5)
Sensible heat ratio			0.74	
Total power input		kW	3.9（2.0---6.0)	4.05（2.0---6.0)
Max. power input		W	5600	5600
EER or COP		W/W	3.21(A)	3.21(C)
Dehumidifying capacity		10 - ³×m³/h	5.1	
Power cable			/	
Power source		N, V, Hz	1PH, 220-230V~, 50Hz	
Running /Max.Running current		A / A	18.8(2.7-26)/26	19.3(2.7-26)/26
Start Current		A	/	
Indoor unit	Unit model (color)		AP48KS1ERA(S)	
	Fan	Type × Number		CENTRIFUGALX1
		Speed(H-M-L)	r/min	460/430/400±40
		Fan motor input power	kW	0.20
		Fan motor output power	kW	0.09
		Air-flow(H-M-L)	m³/h	1750/1500/1350
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	1850×600×350
		Package（L×W×H）	mm×mm×mm	1986×691×415
	Drainage pipe (material , I.D./O.D.)		mm	/
	Controller (O-Optional,S-Standard)		Wired	YR-E17(O) OR YR-E16A(O)
			Infrared	YR-HD01(S)
	Fresh air hole dimension		mm	/
	Electricity heater		kW	0
	Sound power Noise level (H-M-L)		dB(A)	69
	Sound pressure Noise level (H-M-L)		dB(A)	51/48/44
	Weight (Net / Shipping)		kg / kg	57/65
Piping	Refrigerant	Type / Charge	g	R410A/2850
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AP48DS1ERA(S)/1U48LS1ERB(S)	
Function			cooling	heating
Capacity		kW	12.5(6.0-14.5)	13.0(6.0~16.5)
Sensible heat ratio			0.74	
Total power input		kW	3.89（2.0---6.0)	4.05（2.0----6.0)
Max. power input		W	6000	6000
EER or COP		W/W	3.21(A)	3.21(C)
Dehumidifying capacity		10 - ³×m³/h	5.1	
Power cable			/	
Power source		N, V, Hz	1PH, 220-230V~, 50Hz	
Running /Max.Running current		A / A	6.7（2.9-10.0）/10.0	6.8（2.9-10.0）/10.0
Start Current		A	3.15A	
Indoor unit	Unit model (color)		AP48DS1ERA(S)	
	Fan	Type × Number	CENTRIFUGALX1	
		Speed(H-M-L)	r/min	460/430/400±40
		Fan motor input power	kW	0.20
		Fan motor output power	kW	0.09
		Air-flow(H-M-L)	m³/h	1750/1500/1350
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Row		3
		Total area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	1824*529*380
		Package（L×W×H）	mm×mm×mm	1965*625*465
	Drainage pipe (material , I.D./O.D.)		mm	/
	Controller (O-Optional,S-Standard)		Wired	YR-E17(O) OR YR-E16A(O)
			Infrared	YR-HD01(S)
	Fresh air hole dimension		mm	/
	Electricity heater		kW	0
	Sound power Noise level (H-M-L)		dB(A)	68
	Sound pressure Noise level (H-M-L)		dB(A)	51/48/44
	Weight (Net / Shipping)		kg / kg	55/62
Piping	Refrigerant	Type / Charge	g	R410A/2850
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AP48KS1ERA(S)/1U48LS1ERB(S)	
Function			cooling	heating
Capacity		kW	12.5(6.0-14.5)	13.0(6.0~16.5)
Sensible heat ratio			0.74	
Total power input		kW	3.89(2.0---6.0)	4.05(2.0---6.0)
Max. power input		W	6000	6000
EER or COP		W/W	3.21(A)	3.21(C)
Dehumidifying capacity		10 - ³×m³/h	5.1	
Power cable			/	
Power source		N, V, Hz	1PH, 220-230V~, 50Hz	
Running /Max.Running current		A / A	6.7（2.9-10.0）/10.0	6.8（2.9-10.0）/10.0
Start Current		A	5	
Indoor unit	Unit model (color)		AP48KS1ERA(S)	
	Fan	Type × Number	CENTRIFUGALX1	
		Speed(H-M-L)	r/min	460/430/400±40
		Fan motor input power	kW	0.20
		Fan motor output power	kW	0.09
		Air-flow(H-M-L)	m³/h	1750/1500/1350
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	1850×600×350
		Package（L×W×H）	mm×mm×mm	1986×691×415
	Drainage pipe (material , I.D./O.D.)		mm	/
	Controller (O-Optional,S-Standard)		Wired	YR-E17(O) OR YR-E16A(O)
			Infrared	YR-HD01(S)
	Fresh air hole dimension		mm	/
	Electricity heater		kW	0
	Sound power Noise level (H-M-L)		dB(A)	69
	Sound pressure Noise level (H-M-L)		dB(A)	51/48/44
	Weight (Net / Shipping)		kg / kg	57/65
Piping	Refrigerant	Type / Charge	g	R410A/2850
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AP60KS1ERA(S)/1U60IS1EAB(S)	
Function					cooling	heating
Capacity				kW	15.5	16.3
Sensible heat ratio					0.73	
Total power input				kW	5.14	5.07
Max. power input				W	6500	6500
EER or COP				W/W	3.01(B)	3.21(C)
Dehumidifying capacity				10 - ³×m³/h	5.5	
Power cable					/	
Power source				N, V, Hz	1, 220~230, 50	
Running /Max.Running current				A / A	8.6/10.5	8.6/10.5
Start Current				A	/	
Indoor unit	Unit model (color)				AP60KS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX1	
		Speed(H-M-L)		r/min	460/430/400±40	
		Fan motor input power		kW	0.20	
		Fan motor output power		kW	0.09	
		Air-flow(H-M-L)		m³/h	1750/1500/1350	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Total area		m²	/	
		Row			3	
	Dimension	External（L×W×H）		mm×mm×mm	1850×600×350	
		Package（L×W×H）		mm×mm×mm	1980×660×420	
	Drainage pipe (material , I.D./O.D.)			mm	/	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(O) OR YR-E16A(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	/	
	Electricity heater			kW	0	
	Sound power Noise level (H-M-L)			dB(A)	68	
	Sound pressure Noise level (H-M-L)			dB(A)	51/48/44	
	Weight (Net / Shipping)			kg / kg	57/65	
Piping	Refrigerant	Type / Charge		g	R410A/3700	
		Recharge quantity		g/m	45	
	Pipe	Liquid		mm	9.52	
		Gas		mm	19.05	
	Between I.D &O.D	MAX.Drop		m	30	
		MAX.Piping length		m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AP60KS1ERA(S)/1U60IS1ERB(S)	
Function					cooling	heating
Capacity				kW	15.5(4.0~16.0)	16.5(4.0~18.0)
Sensible heat ratio					0.74	
Total power input				kW	5.13(2.0---6.5)	5.14(2.0----6.5)
Max. power input				W	6500	6500
EER or COP				W/W	3.02(B)	3.21(C)
Dehumidifying capacity				10 - ³×m³/h	5.2	
Power cable					/	
Power source				N, V, Hz	1, 220~230, 50	
Running /Max.Running current				A / A	8.5(2.9-10.5)/10.5	8.5(2.9-10.5)/10.5
Start Current				A	/	
Indoor unit	Unit model (color)				AP60KS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX1	
		Speed(H-M-L)		r/min	460/430/400±40	
		Fan motor input power		kW	0.20	
		Fan motor output power		kW	0.09	
		Air-flow(H-M-L)		m³/h	1750/1500/1350	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Total area		m²	/	
		Row			3	
	Dimension	External（L×W×H）		mm×mm×mm	1850×600×350	
		Package（L×W×H）		mm×mm×mm	1986×691×415	
	Drainage pipe (material , I.D./O.D.)			mm	/	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(O) OR YR-E16A(O)	
				Infrared	YR-HD01S)	
	Fresh air hole dimension			mm	/	
	Electricity heater			kW	0	
	Sound power Noise level (H-M-L)			dB(A)	69	
	Sound power Noise level (H-M-L)			dB(A)	51/48/44	
	Weight (Net / Shipping)			kg / kg	57/65	
Piping	Refrigerant	Type / Charge		g	R410A/3300	
		Recharge quantity		g/m	45	
	Pipe	Liquid		mm	9.52	
		Gas		mm	19.05	
	Between I.D &O.D	MAX.Drop		m	30	
		MAX.Piping length		m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		AP60KS1ERA(S)/1U60IS2ERB(S)	
Function					cooling	heating
Capacity				kW	13.6(6.0~14.5)	15.5(6.0~16.5)
Sensible heat ratio					0.74	
Total power input				kW	4.24(2.0---6.0)	4.29(2.0----6.0)
Max. power input				W	6000	6000
EER or COP				W/W	3.21(A)	3.61(A)
Dehumidifying capacity				10 - ³×m³/h	5.1	
Power cable					/	
Power source				N, V, Hz	1, 220~230, 50	
Running /Max.Running current				A / A	6.6(2.9-10.0)/10.0	6.7(2.9-10.0)/10.0
Start Current				A	/	
Indoor unit	Unit model (color)				AP60KS1ERA(S)	
	Fan	Type × Number			CENTRIFUGALX1	
		Speed(H-M-L)		r/min	460/430/400±40	
		Fan motor input power		kW	0.20	
		Fan motor output power		kW	0.09	
		Air-flow(H-M-L)		m³/h	1750/1500/1350	
	Heat exchanger	Type / Diameter		mm	inner grooved pipe/φ7.0	
		Total area		m²	/	
		Row			3	
	Dimension	External（L×W×H）		mm×mm×mm	1850×600×350	
		Package（L×W×H）		mm×mm×mm	1986×691×415	
	Drainage pipe (material , I.D./O.D.)			mm	/	
	Controller (O-Optional,S-Standard)			Wired	YR-E17(O) OR YR-E16A(O)	
				Infrared	YR-HD01(S)	
	Fresh air hole dimension			mm	/	
	Electricity heater			kW	0	
	Sound power Noise level (H-M-L)			dB(A)	69	
	Sound power Noise level (H-M-L)			dB(A)	51/48/44	
	Weight (Net / Shipping)			kg / kg	57/65	
Piping	Refrigerant	Type / Charge		g	R410A/3300	
		Recharge quantity		g/m	45	
	Pipe	Liquid		mm	9.52	
		Gas		mm	19.05	
	Between I.D &O.D	MAX.Drop		m	30	
		MAX.Piping length		m	50	

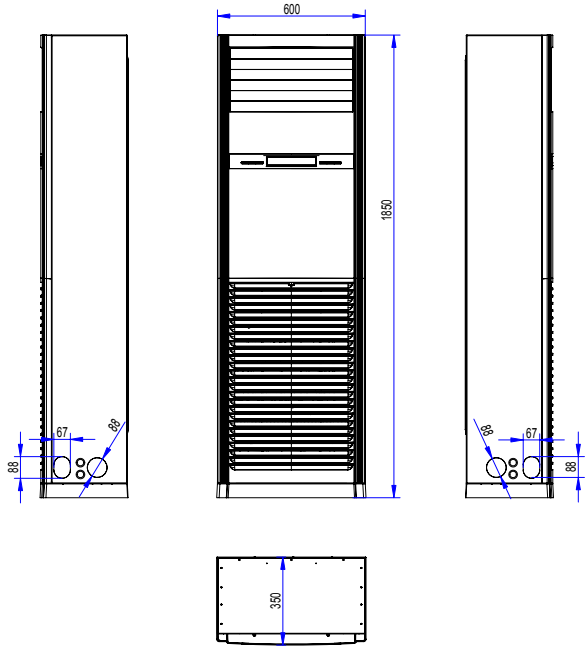
Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		AP60KS1ERA(S)/1U60IS2EAB(S)	
Function			cooling	heating
Capacity		kW	15	16
Sensible heat ratio			0.74	
Total power input		kW	4.66	4.69
Max. power input		W	6500	6500
EER or COP		W/W	3.22(A)	3.41(B)
Dehumidifying capacity		10 - ³×m³/h	5.1	
Power cable			/	
Power source		N, V, Hz	1, 220~230, 50	
Running /Max.Running current		A / A	8.4/10.5	8.4/10.5
Start Current		A	/	
Indoor unit	Unit model (color)		AP60KS1ERA(S)	
	Fan	Type × Number	CENTRIFUGALX1	
		Speed(H-M-L)	r/min	460/430/400±40
		Fan motor input power	kW	0.20
		Fan motor output power	kW	0.09
		Air-flow(H-M-L)	m³/h	1750/1500/1350
	Heat exchanger	Type / Diameter	mm	inner grooved pipe/φ7.0
		Total area	m²	/
		Row		3
	Dimension	External（L×W×H）	mm×mm×mm	1850×600×350
		Package（L×W×H）	mm×mm×mm	1980×660×420
	Drainage pipe (material , I.D./O.D.)		mm	/
	Controller (O-Optional,S-Standard)		Wired	YR-E17(O) OR YR-E16A(O)
			Infrared	YR-HD01(S)
	Fresh air hole dimension		mm	/
	Electricity heater		kW	0
	Sound power Noise level (H-M-L)		dB(A)	69
	Sound power Noise level (H-M-L)		dB(A)	51/48/44
	Weight (Net / Shipping)		kg / kg	57/65
Piping	Refrigerant	Type / Charge	g	R410A/3600
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

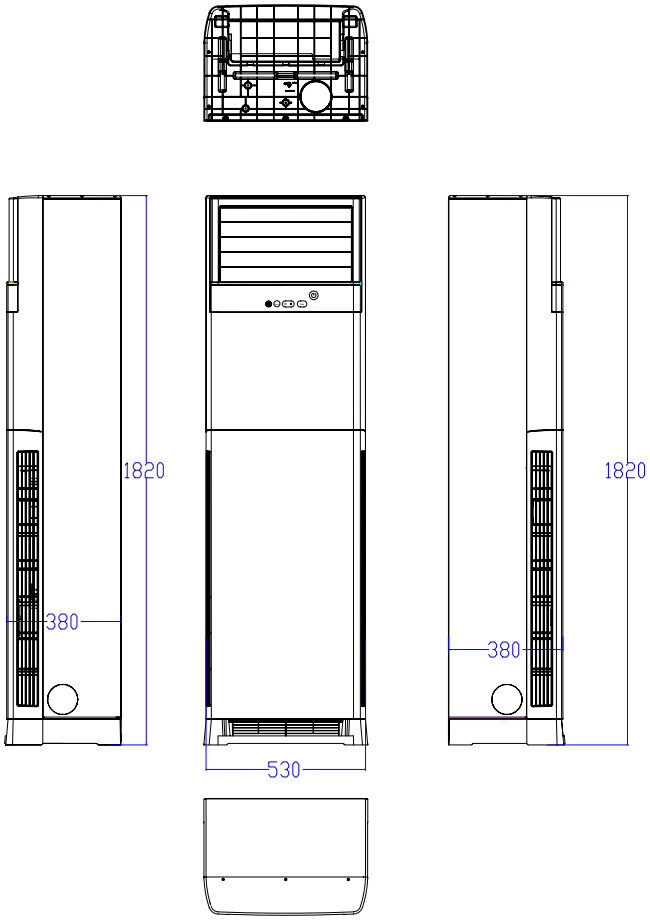
Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

4.3 Dimension

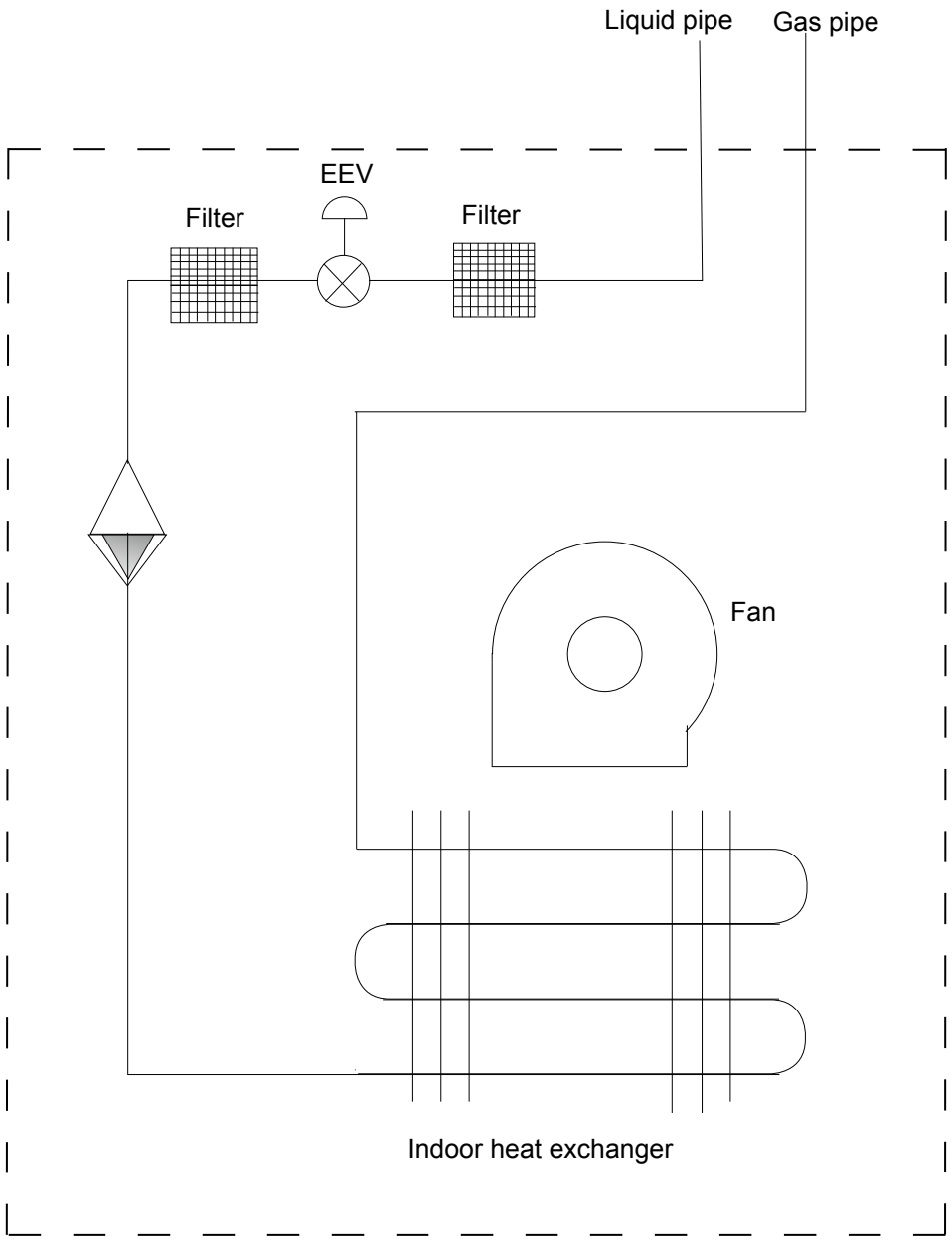
AP48KS1ERA(S)
AP60KS1ERA(S)



AP48DS1ERA(S)

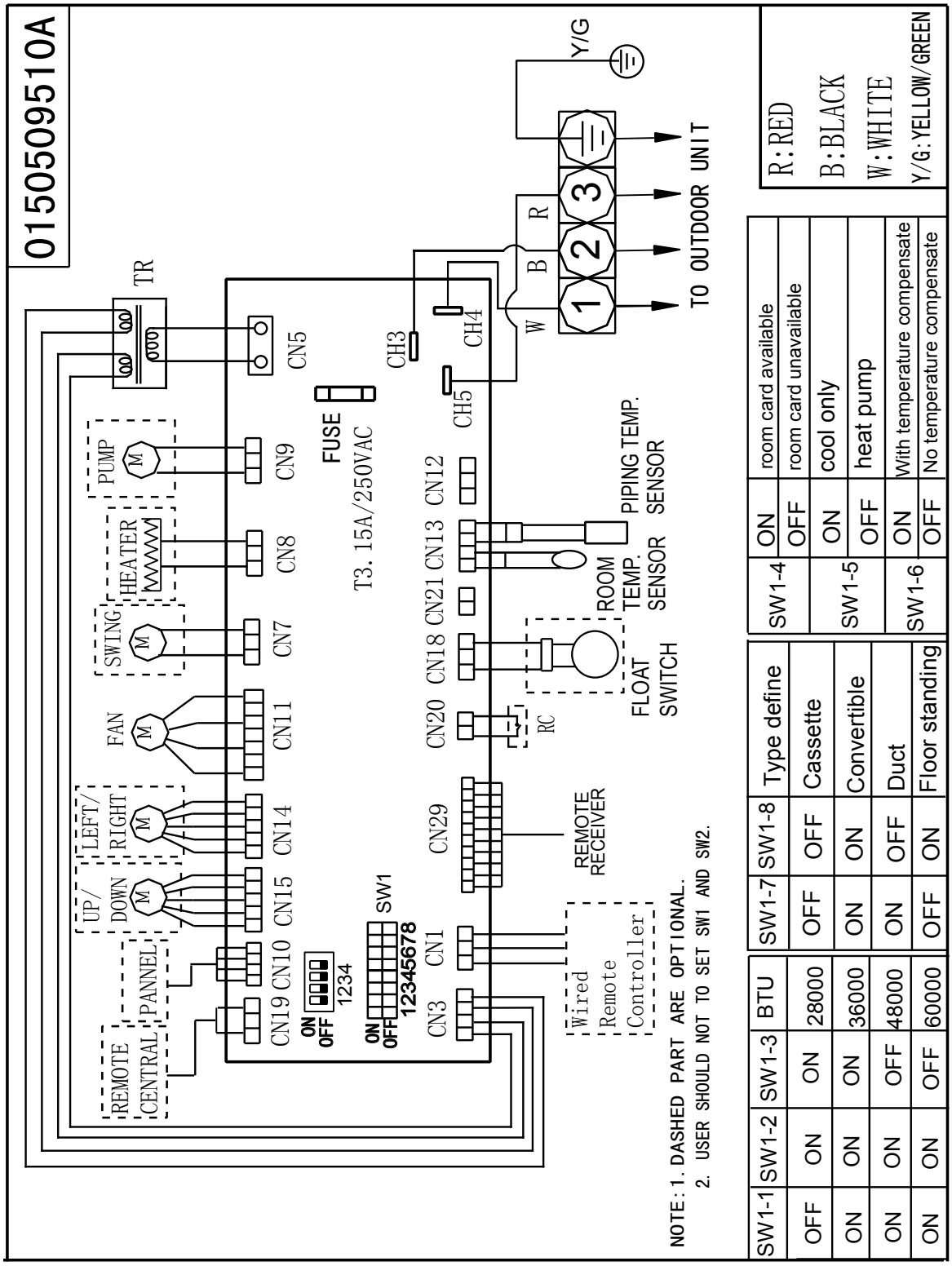


4.4 Piping diagram



4.5 Wiring diagram

AP48KS1ERA(S) AP60KS1ERA(S)

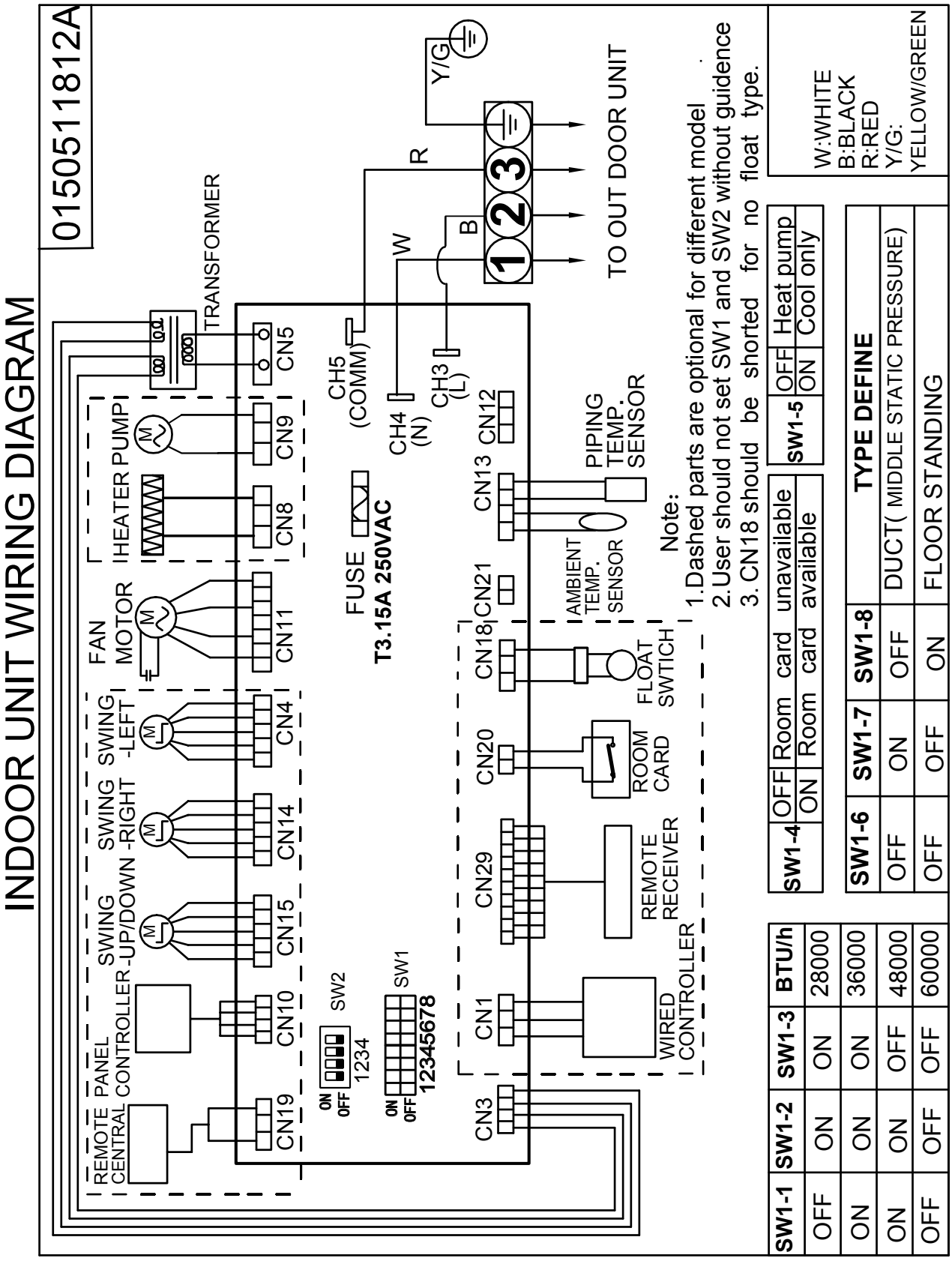


SW1-1	SW1-2	SW1-3	BTU
OFF	ON	ON	28000
ON	ON	ON	36000
ON	ON	OFF	48000
ON	ON	OFF	60000

SW1-7	SW1-8	Type define
OFF	OFF	Cassette
ON	ON	Convertible
ON	OFF	Duct
OFF	ON	Floor standing

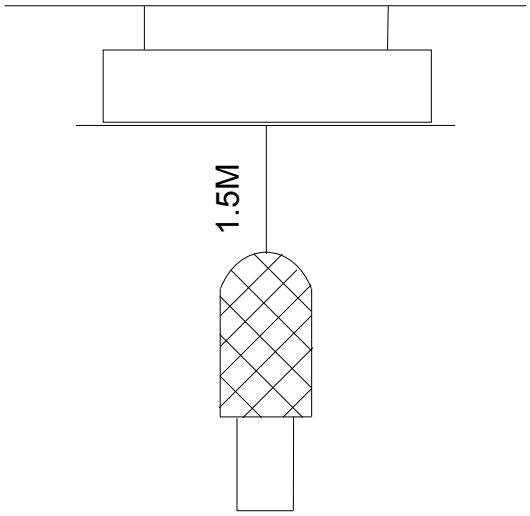
SW1-4	ON	room card available
	OFF	room card unavailable
SW1-5	ON	cool only
	OFF	heat pump
SW1-6	ON	With temperature compensate
	OFF	No temperature compensate

AP48DS1ERA(S)



4.6 Sound Pressure Level

(1)Testing illustrate:



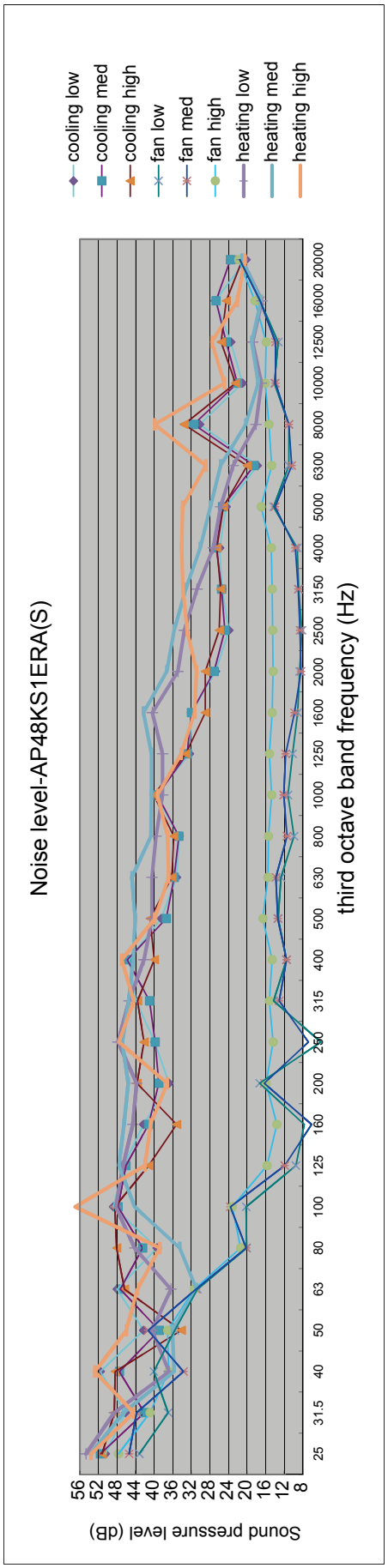
(2) Testing condition:

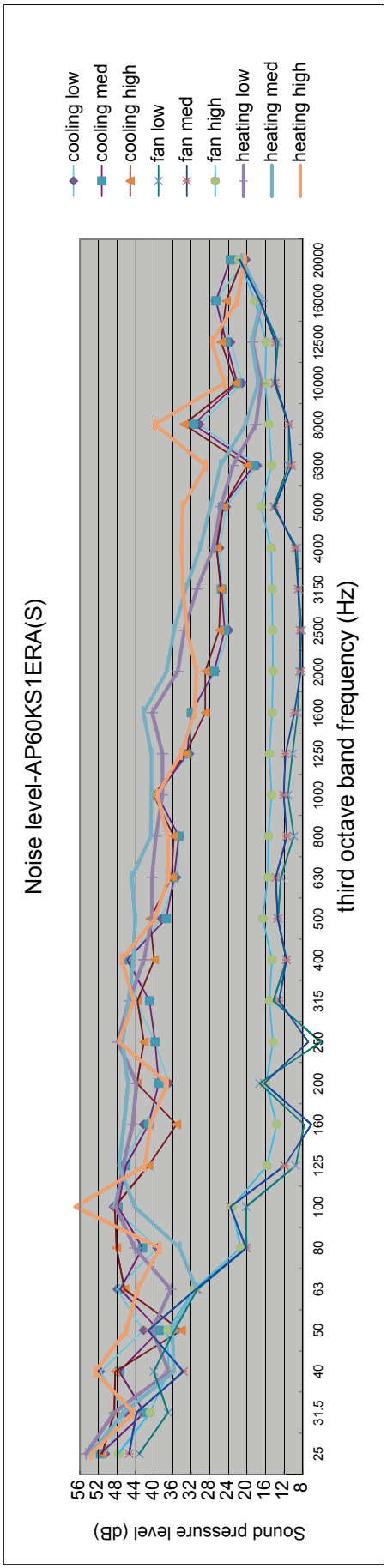
a: Unit running in the normal condition

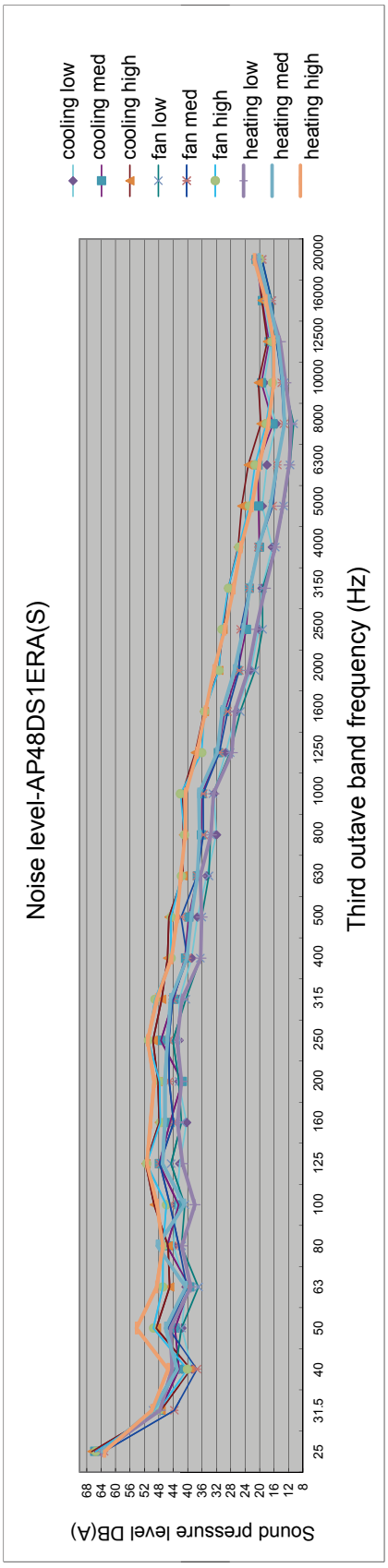
b: Test in the semi-anechoic chamber

c: Noise level varies from the actual factors such as room structure, etc.

(3)Octave band level:


Noise level-AP48KS1ERA(S)
cooling low
cooling med
cooling high
fan low
fan med
fan high
heating low
heating med
heating high
Sound pressure level (dB)
56 52 48 44 40 36 32 28 24 20 16 12 8
third octave band frequency (Hz)
25 31.5 40 50 63 80 100 125 160 200 250 315 400 500 630 800 1000 1250 1600 2000 2500 3150 4000 5000 6300 8000 10000 12500 16000 20000


Noise level-AP60KS1ERA(S)
cooling low
cooling med
cooling high
fan low
fan med
fan high
heating low
heating med
heating high
Sound pressure level (dB)
56 52 48 44 40 36 32 28 24 20 16 12 8
third octave band frequency (Hz)
25 31.5 40 50 63 80 100 125 160 200 250 315 400 500 630 800 1000 1250 1600 2000 2500 3150 4000 5000 6300 8000 10000 12500 16000 20000

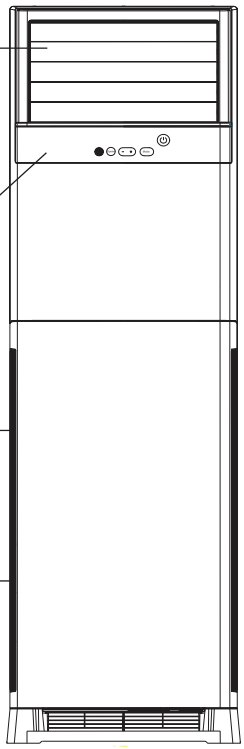

Noise level-AP48DS1ERA(S)
cooling low
cooling med
cooling high
fan low
fan med
fan high
heating low
heating med
heating high
Sound pressure level DB(A)
68 64 60 56 52 48 44 40 36 32 28 24 20 16 12 8
Third outave band frequency (Hz)
25 31.5 40 50 63 80 100 125 160 200 250 315 400 500 630 800 1000 1250 1600 2000 2500 3150 4000 5000 6300 8000 10000 12500 16000 20000

4.7 Installation

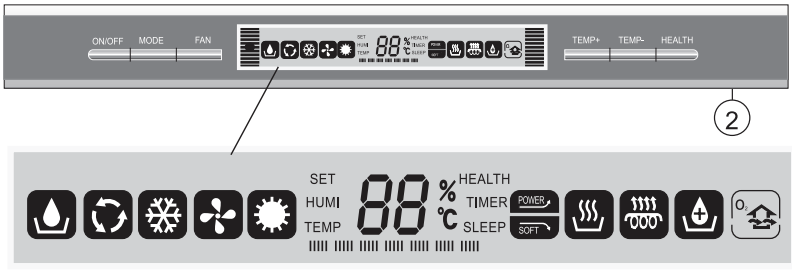
AP48KS1ERA(S)
AP60KS1ERA(S)



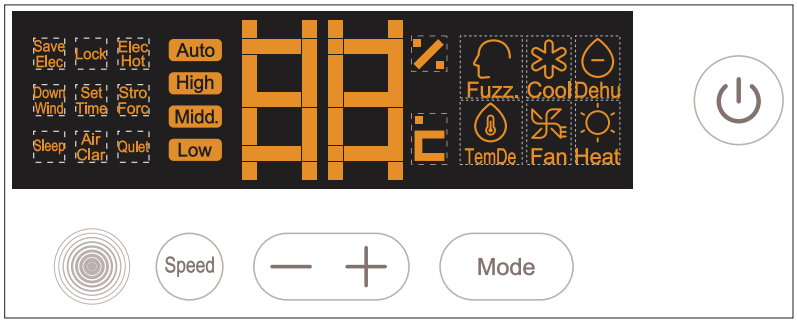
AP48DS1ERA(S)



AP48KS1ERA(S) , AP60KS1ERA(S)



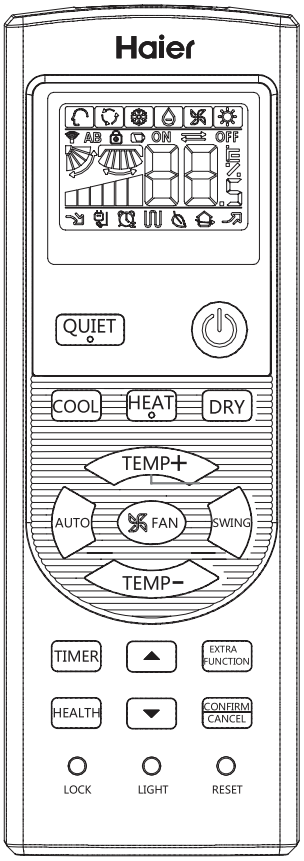
AP48DS1ERA(S)



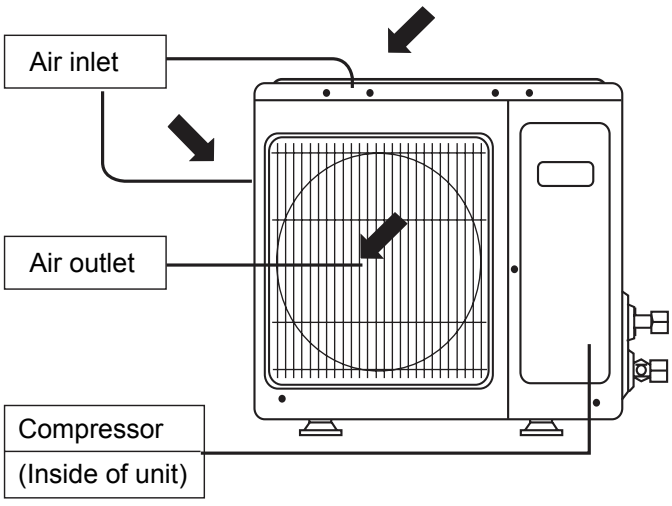
Indoor unit

1. Outlet grill
2. Operation panel
3. Intel grill
4. Air filter (inside the unit)

Remote controller

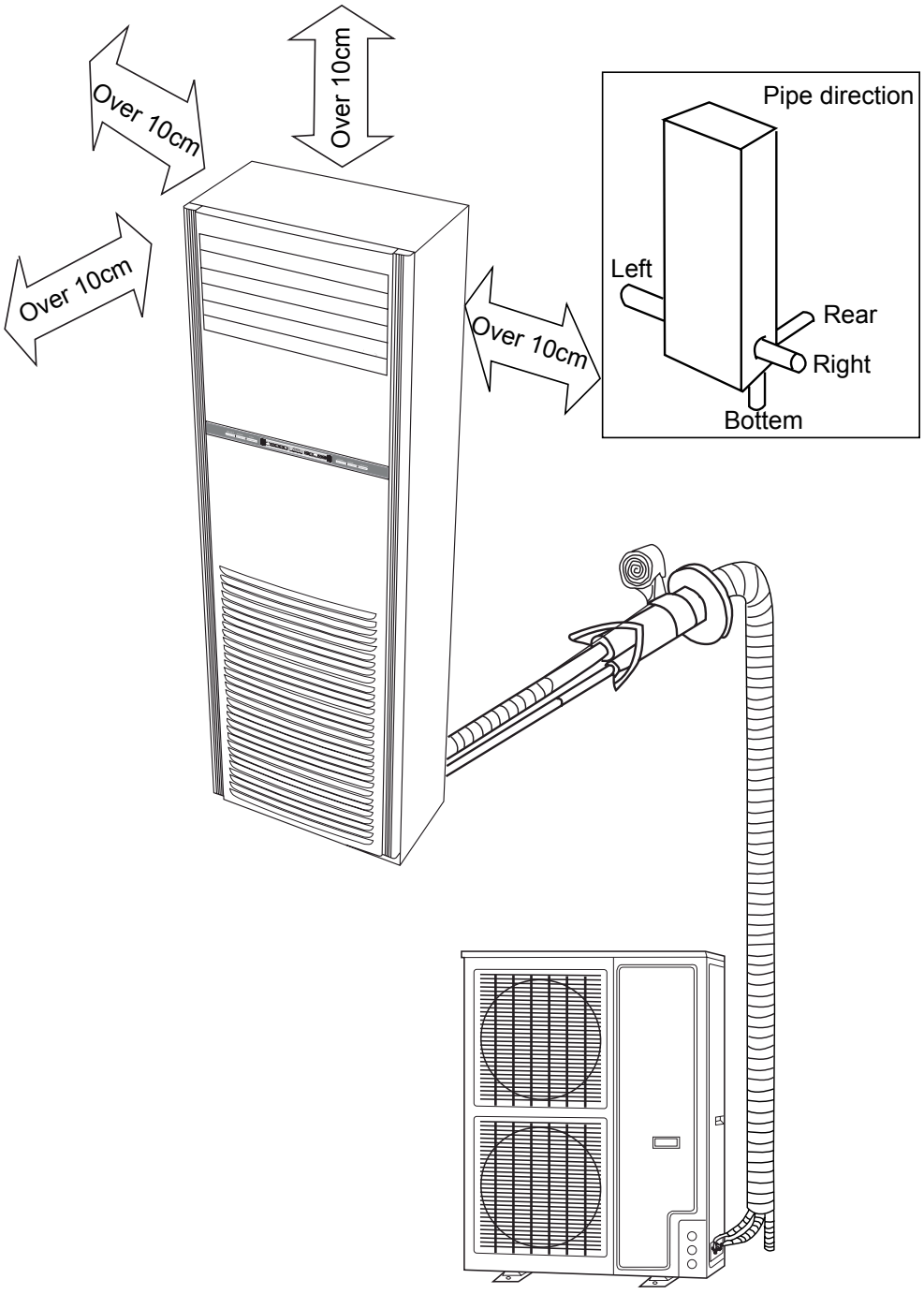


Outdoor unit



Indoor & outdoor unit connection

Installation figure please refers to AP60KS1ERA(S)

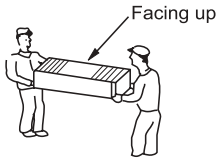


Installation Procedure

Before installation

- Try to bring the packed unit to the installation place.
- When it is inevitable to unpack the unit, be careful not to damage the unit. Wrap it with nylon etc.
- After unpacking, be sure to put it with the front side of the unit facing up.
- When delivering, don't hold plastic parts like inlet and outlet grill etc.

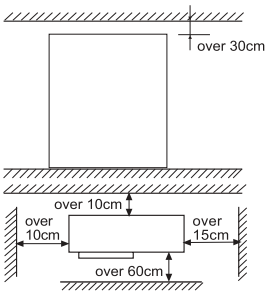
Delivery



Installation o outdoor unit

Selection of outdoor unit installation place

- Place strong enough to support the unit and will not cause vibration and noise.
- Place where discharged wind and noise doesn't cause a nuisance to the neighbors.
- Place where is less affected by rain or direct sunlight and is sufficiently ventilated, or to install a shield.
- Place with enough space for smooth air flow.



Fixing of the outdoor unit

- Fix outdoor unit using M10 bolt to concrete floor horizontally.
- If installed on the wall or on top of a roof, bracket should be fixed securely to resist earthquake or storms.
- Use rubber pad during installation against unit vibration.

Selection of indoor unit installation place

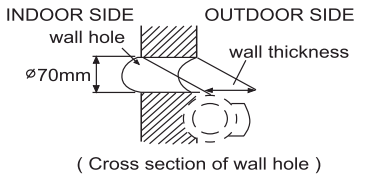
- Place where it is easy to route drainage pipe and outdoor piping.
- Place away from heat source and with less direct sunlight.
- Place where cool and warm air could be delivered evenly to every corner of the room.
- Place near power supply socket. Leave enough space around the unit (refer to installation drawings).

Installation of indoor unit

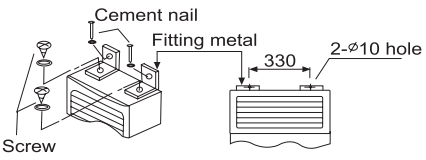
1. Position of the wall hole
   Wall hole should be decided according to installation place and piping direction. (refer to installation drawings)

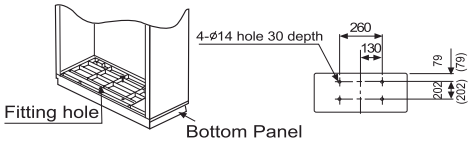
2. Making a wall hole
   Drill a hole of 70mm dia. with a little slope towards outside.
   Install piping hole cover and seal it with putty after installation.

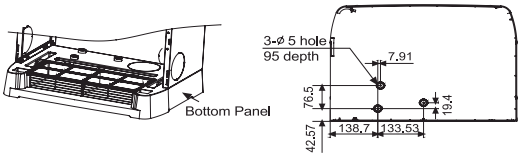
3. Fixing of indoor unit
   With the unit set up vertically, fix the fitting metal to the unit with screws, then fix the fitting metal to the wall with cement nail and washer, as shown right:
   Moreover, if wanting to fix the unit more firmly, you should fix the bottom panel to the ground with concrete bolts, as shown right:



(Cross section of wall hole)







Connecting method

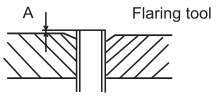
- Apply refrigerant oil at half union and flare nut.
- To bend a pipe, give the roundness as large as possible not to crash the pipe.
- When connecting pipe, hold the pipe center to center then screw nut on by hand, refer to Fig.
- Be careful not to let sundries, such as sands enter the pipe.

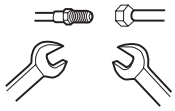
Pipe cutting and flaring

- Be sure to carry out deburring after pipe cutting with a pipe cutter.
- Insert flaring tool to make a flare.

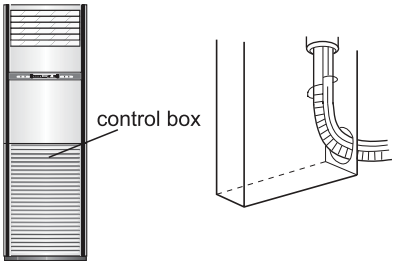
Forced fastening without centering may damage the threads and cause a gas leakage.

	Pipe dia.	Dimension A	Fastening torque
Liquid pipe	Ø9.52mm (3/8")	1.0~1.8(mm)	32.7-39.9N.m
Gas pipe	Ø19.05mm (3/4")	1.4~2.2(mm)	97.2-118.6N.m





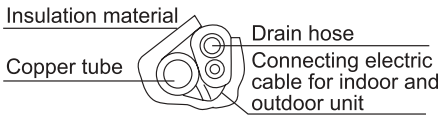
Correct	Incorrect				
	Lean	Damaged flare	Crack	Partial	Too outside



Piping connection of indoor unit

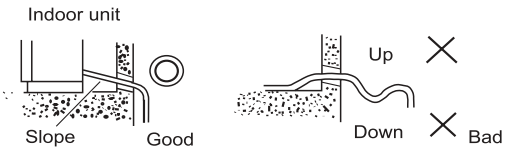
1. Arrangement of piping and drainage pipe

- After opening inlet grill, you will see a control box as shown in the Fig. Remove the cover before wiring work.
- Cut away, with a hammer or a saw, the lid for piping according to piping direction.
- According to the piping method, connect the piping on indoor unit with union of connecting pipe.
  Arrange the piping as per the wall hole and bind drain hose, connecting electric cable and piping together with polyethylene tape. Insert the bound piping, connecting electric cable and drain hose through wall hole to connect with outdoor unit.



2. Arrangement of drain hose

- Drain hose shall be placed in under place.
- There should be a slope when arrange drain hose. Avoid up and down waves in drain hose.
- If humidity is high, drain pipe(especially in room and indoor unit) must be covered with insulation material.



Piping connection of outdoor unit.

Connect the connecting pipe and inlet / outlet liquid pipe according to the piping method.

Vacuumizing

Discharge the air out of the indoor unit and the refrigerant pipe by vacuumizing.

(1) Fasten all the nuts of the indoor and outdoor pipes to make these parts out of leakage.

(2) Under the condition of the complete close of the indoor and outdoor valve center (both liquid and gas side), dismount the service valve cap. Vacuumizing through the charge mouth of the service valve.

(3) After vacuumizing, fasten the service valve and dismount the cap of the big and small stop valve, then loosen the stop valve center completely and fasten the big and small stop valve.

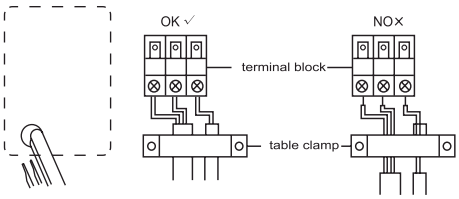
Note:

- *Electrical wiring must be done by qualified person.*
- *The power supply connects from the outdoor unit.*
- *The connecting cable and power cable are self-provided.*
- *Use copper wire only.*
- *Air conditioner must use an exclusive line (over 30A)*
- *When installing air conditioner in a wet place, try to use a circuit breaker against current leakage.*
- *When installing in other places, use circuit breaker as far as possible.*
- *The breaker of the air conditioner should be all-pole switch; and the distance between its two contacts should be no less than 3 mm.*
- *Such means for disconnection must be incorporation in the fixed wiring*

The parameter of connecting cable is H05RN-F 4G 2.5mm2.
The parameter of the power cable should be over H07RN-F 5G 4.0mm2

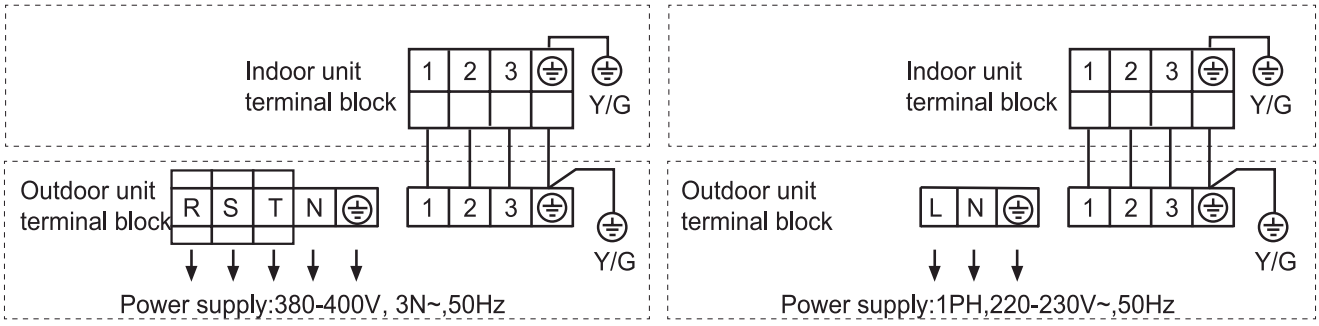
Wiring of indoor unit

- Insert the cable from outside the wall hole where piping already exist.
- Pull it out from front.
- Loosen terminal screws and insert cable end fully into terminal block, then tighten it.
- Pull the cable gently to make sure it is tight.
- Replace cover after wiring.



Wiring of outdoor unit

- Insert the cable from inside the wall hole where piping already exists.
- Pull it out from front.
- Loose terminal screw and insert cable end fully into terminal block, then tighten it.
- Pull the cable gently to make sure it is tight.
- Replace cover after wiring.



Note:

When connecting indoor and outdoor wire, check the number on indoor and outdoor terminal blocks. Incorrect wiring may damage air conditioner's controller or cause operation failure.

Part 3 Outdoor Units

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1. Specification

Item			Model	1U24GS1ERA	
Power cable				H05RN-F 4G 6.0mm2	
Communication cable/Connecting cable				H05RN-F 4G 2.5mm2	
Power source			N, V, Hz	1PH,220-230VAC,50/60HZ	
Start Current			A	3	3
Outdoor unit	Unit model (color)			1U24GS1ERA(WHITE)	
	Compressor	Model / Manufacture		SNB130FGYM2/SNB130FGYMC-L1（MGC）	
		Oil model		FV50S	
		Oil type		PVE	
		Oil charging		500CC	
		Type		Rotary	
	Fan	Type × Number		axial×1	
		Speed	r/min	950/830/750/700/500420/300	
		Fan motor output/input power pow	W	97/70	
		Air-flow(H-M-L)	m^3/h	3000	
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.9	
		Row / Fin pitch		2/1.65	
	Dimension	External（L×W×H）	mm×mm×mm	860/308/730	
		Package（L×W×H）	mm×mm×mm	995x420x815	
	Drainage pipe (material , I.D./O.D.)		mm	/	
	Refrigerant control method		mm/mm	1.8mmEEV+Φ3.0*Φ1.8*200mmCapillary	
	Defrosting			AUTO	
	Volume of Accumulator		L	NONE	
	Sound power Noise level (H-M-L)		dB(A)	70	
	Sound pressure Noise level (H-M-L)		dB(A)	57	
	Type of Four way valve			SHF-4-10A	
	material of reduce noise			felt	
	crankcase heater power		W	/	
	Weight (Net / Shipping)		kg / kg	49/52	
PIPING	Refrigerant	Type / Charge	g	R410A/1600	
		Maximum pipe length without recharge refrigerant	m	7	
		GWP		2088	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	15.88	
	Connecting Method			Flared	
	Between I.D &O.D	MAX.Drop	m	15	
		MAX.Piping length	m	25	
Working temp.	Cooling(Min-Max)		^{O}C	-10~46	
	Heating(Min-Max)		^{O}C	-15~24	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	1U28HS1ERA(S)	
Power cable				H05RN-F 3G 6.0mm2	
Communication cable/Connecting cable				H05RN-F 4G 2.5mm2	
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz	
Start current			A	4	
Outdoor unit	Unit model (color)			1U28HS1ERA(S)（WHITE）	
	Compressor	Model / Manufacture/Place		TNB220FLHMC-L / MELCOM	
		OIL model		FV50S	
		Oil charging		870CC	
		Type		Twin Rotary	
	Fan	Type × Number		axial×1	
		Speed	r/min	High 860	
		Fan motor output /input power	W	100/130	
		Air-flow(H-M-L)	m³/h	3500	
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.0	
		Row/ Fin pitch		2	1.4
		Total area	m²	/	
	Dimension	External（L×W×H）	mm×mm×mm	948/340/840	
		Package（L×W×H）	mm×mm×mm	1040/1000/430	
	Drainage pipe (material , I.D./O.D.)		mm	none	
	Refrigerant control method		mm/mm	EEV 2.2mm	
	Defrosting			auto	
	Volume of accumulator		L	none	
	Sound power noise level (H-M-L)		dB(A)	70	
	Sound pressure noise level (H-M-L)		dB(A)	58	
	Type of four way valve			SHF-9H-35U	
	material of reduce noise			felt	
	crankcase heater power		W	/	
	Weight(Net / Shipping)		kg / kg	64/73	
Piping	Refrigerant	Type / Charge	g	R410A/2450	
		Maximum pipe length without recharge refrigerant	m	20	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	15.88	
		Connecting Method		Flared	
	Between I.D &O.D	MAX.Drop	m	20	
		MAX.Piping length	m	30	
Working temp.	Cooling(Min-Max)		℃	-10 ～ 46	
	Heating(Min-Max)		℃	-15 ～ 24	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	1U28GS2ERA(S)
Power cable				H05RN-F 4G 6.0mm2
Communication cable/Connecting cable				H05RN-F 4G 2.5mm2
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz
Start current			A	3
Outdoor unit	Unit model (color)			1U28GS2ERA(S)(WHITE)
	Compressor	Model / Manufacture/Place		SNB172FJGMC-L(MITSUBISHI ELECTRIC COMPRESSOR CO.,LTD)
		OIL model		FV50S
		Oil charging		600CC
		Type		Rotary
	Fan	Type × Number		axial×1
		Speed	r/min	950/860/750/700/500/420/300
		Fan motor output /input power	W	70/97
		Air-flow(H-M-L)	m³/h	3000
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.9
		Row/ Fin pitch		2 | 1.65
		Total area	m²	0.59
	Dimension	External（L×W×H）	mm×mm×mm	860/308/730
		Package（L×W×H）	mm×mm×mm	995/420/815
	Drainage pipe (material , I.D./O.D.)		mm	/
	Refrigerant control method		mm/mm	1.8mm electronic expansion valve+Φ3.0*Φ1.8*200 capillary
	Defrosting			auto
	Volume of accumulator		L	NONE
	Sound power noise level (H-M-L)		dB(A)	70
	Sound pressure noise level (H-M-L)		dB(A)	58
	Type of four way valve			SHF-4-10A
	Material of reduce noise			XPE
	Crankcase heater power		W	/
	Weight(Net / Shipping)		kg / kg	50.2/54.4
Piping	Refrigerant	Type / Charge	g	R410A/2000
		Maximum pipe length without recharge refrigerant	m	7
		GWP		2088
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	15.88
		Connecting Method		Flared
	Between I.D &O.D	MAX.Drop	m	15
		MAX.Piping length	m	25
Working temp.	Cooling(Min-Max)		℃	-10 ～ 46
	Heating(Min-Max)		℃	-15 ～ 24

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	1U36HS1ERA（S）
Power cable				H05RN-F 4G 6.0mm2
Communication cable/Connecting cable				H05RN-F 6G 2.5mm2
Power source			N, V, Hz	1PH, 220-230V~, 50/60Hz
Start current			A	4
Outdoor unit	Unit model (color)			1U36HS1ERA(S)（WHITE）
	Compressor	Model / Manufacture/Place		TNB220FLHMC-L / MELCOM
		OIL model		FV50S
		Oil charging		870CC
		Type		Twin Rotary
	Fan	Type × Number		axial×1
		Speed	r/min	900
		Fan motor output /input power	W	100/130
		Air-flow(H-M-L)	m³/h	4000
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7
		Row/ Fin pitch		2 | 1.4
		Total area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	948/340/840
		Package（L×W×H）	mm×mm×mm	1040/1000/430
	Drainage pipe (material , I.D./O.D.)		mm	/
	Refrigerant control method		mm/mm	EEV 2.2mm
	Defrosting			auto
	Volume of accumulator		L	none
	Sound power noise level (H-M-L)		dB(A)	70
	Sound pressure noise level (H-M-L)		dB(A)	58
	Type of four way valve			SHF-9H-35U
	material of reduce noise			felt
	crankcase heater power		W	/
	Weight(Net / Shipping)		kg / kg	64/73
Piping	Refrigerant	Type / Charge	g	R410A/2500
		Maximum pipe length without recharge refrigerant	m	20
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	15.88
		Connecting Method		Flared
	Between I.D &O.D	MAX.Drop	m	20
		MAX.Piping length	m	30
Working temp.	Cooling(Min-Max)		℃	-10 ～ 46
	Heating(Min-Max)		℃	-15 ～ 24

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	1U48IS1EAB(S)	
Power cable				H05RN-F 4G 4.0mm2	
Connecting cable(including communication cable)				H05RN-F 4G 2.5mm2	
Power source			N, V, Hz	3N~,380 ～ 400, 50Hz	
Start Current			A	62.5	
Outdoor unit	Unit model (color)			1U48IS1EAB(S)（WHITE）	
	Compressor	Model / Manufacture/ place		JT160G-P8Y1/XIAN DAIKIN CORPORATION	
		Oil model		PVE(FV50S or the same)	
		Oil charging		1600CM3	
		Type		SCROOL	1
	Fan	Type × Number		axial×2	
		Speed	r/min	850±40	
		Fan motor input power	kW	0.70×2	
		Fan motor output power	kW	0.130×2	
		Air-flow(H-M-L)	m³/h	6500	
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.94	
		Row/Fin pitch		2	1.5
		Total area	m²	1.17	
	Dimension	External（L×W×H）	mm×mm×mm	960×340×1250	
		Package（L×W×H）	mm×mm×mm	1095×410×1400	
	Drainage pipe (material , I.D./O.D.)		mm	none	
	Refrigerant control method		mm/mm	electronic valve 3.0mm	
	Defrosting			auto	
	Volume of Accumulator		L	4.0	
	Noise level		dB(A)	60	
	Type of four way valve			SHF-20A-46	
	material of reduce noise			XPE	
	crankcase heater power		W	38	
	Weight(Net / Shipping)		kg / kg	108/118	
Piping	Refrigerant	Type / Charge	g	R410A/3600	
		Maximum pipe length without recharge refrigerant	m	5	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Connecting Method			flared	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	1U48IS1ERB(S)
Power cable				H07RN-F 5G 4.0mm2
Connecting cable (including communication table)				H05RN-F 4G 2.5mm2
Power source			N, V, Hz	3N~,380 ～ 400V, 50Hz
Start Current			A	5
Outdoor unit	Unit model (color)			1U48IS1ERB(S)（WHITE）
	Compressor	Model / Manufacture/place		TNB306FPNMC(MITSUBISHI ELECTRIC COMPRESSOR CO.,LTD）
		Oil model		FV50S
		Oil charging		870CM3
		Type		Twin Rotary/1
	Fan	Type × Number		axial×2
		Speed	r/min	860±30/750±40/620±40
		Fan motor input power	kW	0.145×2
		Fan motor output power	kW	0.075×2
		Air-flow(H-M-L)	m³/h	6000
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.94
		Row/Fin pitch		2 | 1.5
		Total area	m²	1.17
	Dimension	External（L×W×H）	mm×mm×mm	948×340×1250
		Package（L×W×H）	mm×mm×mm	1095×410×1400
	Drainage pipe (material , I.D./O.D.)		mm	/
	Refrigerant control method		mm/mm	Electronic Expansion Valve 2.4MM
	Defrosting			auto
	Volume of Accumulator		L	4.0
	Noise level		dB(A)	60
	Type of four way valve			SHF-20A-46
	material of reduce noise			XPE
	crankcase heater power		W	38
	Weight(Net / Shipping)		kg / kg	93/103
Piping	Refrigerant	Type / Charge	g	R410A/3300
		Maximum pipe length without recharge refrigerant	m	20
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Connecting Method			flared
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50
Working temp.	Cooling(Min-Max)		℃	10 ～ 46
	Heating(Min-Max)		℃	-15 ～ 24

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model		1U48LS1EAB(S)	
Power cable					H05RN-F 5G 4.0mm2	
Connecting cable(including communication table)					H05RN-F 4G 2.5mm2	
Power source				N, V, Hz	3N~,380 ～ 400, 50	
Start Current				A	62.5	
Outdoor unit	Unit model (color)				1U48LS1EAB(S)（WHITE）	
	Compressor	Model / Manufacture/place			JT160G-P8Y1/XIAN DAIKIN CORPORATION	
		Oil model			PVE (FV50S or the same)	
		Oil charging			1600CM3	
		Type			Scroll	
	Fan	Type × Number			axial×1	
		Speed		r/min	850±50/650±50/500±50	
		Fan motor input power		kW	0.145×1	
		Fan motor output power		kW	0.225×1	
		Air-flow(H-M-L)		m³/h	4200/3500/2500	
	Heat exchanger	Type / Diameter		mm	TP2M/Φ7.94	
		Row/Fin pitch			2	1.4
		Total area		m²		
	Dimension	External（L×W×H）		mm×mm×mm	1008×447×830	
		Package（L×W×H）		mm×mm×mm	1130×490×930	
	Drainage pipe (material , I.D./O.D.)			mm	none	
	Refrigerant control method			mm/mm	Electronic Expansion Valve 2.4MM	
	Defrosting				auto	
	Volume of Accumulator			L	3.4	
	Noise level			dB(A)	60	
	Type of four way valve				SHF-20A-46	
	material of reduce noise				XPE	
	crankcase heater power			W	38	
	Weight(Net / Shipping)			kg / kg	95/105	
Piping	Refrigerant	Type / Charge		g	R410A/2600	
		Maximum pipe length without recharge refrigerant		m	5	
		Recharge quantity		g/m	45	
	Pipe	Liquid		mm	9.52	
		Gas		mm	19.05	
	Connecting Method				flared	
	Between I.D &O.D	MAX.Drop		m	30	
		MAX.Piping length		m	50	
Working temp	Cooling (Min-Max)			°C	10~46	
	Heatling (Min-Max)			°C	-7~24	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	1U48LS1ERA(S)	
Power cable				H05RN-F 3G 6.0mm2	
connecting cable(including communication cable)				H05RN-F 4G 2.5mm2	
Power source			N, V, Hz	1PH, 220-230V~, 50Hz	
Start Current			A	_	
Outdoor unit	Unit model (color)			1U48LS1ERA(S)（WHITE）	
	Compressor	Model / Manufacture/place		TNB306FPGMC/MITSUBISHI ELECTRIC CORPORATION	
		Oil model		PVE（FV50S）	
		Oil charging		870CM3	
		Type		Rotary	1
	Fan	Type × Number		axial×1	
		Speed	r/min	High 840	
		Fan motor input power	kW	/	
		Fan motor output power	kW	0.151	
		Air-flow(H-M-L)	m^3/h	4200	
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.94	
		Row/Fin pitch		2	1.4
		Total area	m^2		
	Dimension	External（L×W×H）	mm×mm×mm	1008×447×830	
		Package（L×W×H）	mm×mm×mm	1130×490×930	
	Drainage pipe (material , I.D./O.D.)		mm	none	
	Refrigerant control method		mm/mm	ELECTRONIC VAVE 2.4MM	
	Defrosting			auto	
	Volume of Accumulator		L	3.4	
	Sound power Noise level(H-M-L)		dB(A)	73	
	Sound pressure Noise level (H-M-L)		dB(A)	59	
	Type of four way valve			SHF-20A-46	
	material of reduce noise			XPE	
	crankcase heater power		W	38	
	Weight(Net / Shipping)		kg / kg	82/93	
Piping	Refrigerant	Type / Charge	g	R410A/2850	
		Maximum pipe length without recharge refrigerant	m	20	
		Recharge quantity	g/m	45	
	Pipe	Liquid	mm	9.52	
		Gas	mm	19.05	
	Connecting Method			flared	
	Between I.D &O.D	MAX.Drop	m	30	
		MAX.Piping length	m	50	
Working temp	Cooling (Min-Max)		^{O}C	-10~46	
	Heatling (Min-Max)		^{O}C	-15~24	

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	1U48LS1ERB(S)
Power cable				H05RN-F 4G 4.0mm^2
Connecting cable (including communication table)				H05RN-F 4G 2.5mm^2
Power source			N, V, Hz	3N~,380 ～ 400, 50
Start Current			A	5
Outdoor unit	Unit model (color)			1IU48LS1ERB(S)（WHITE）
	Compressor	Model / Manufacture/ place		TNB306FPNMC/MITSUBISHI ELECTRIC CORPORATION
		Oil model		PVE（FV50S）
		Oil charging		870CC
		Type		Twin Rotary
	Fan	Type × Number		axial×1
		Speed	r/min	850±50/650±50/500±50
		Fan motor input power	kW	0.225×1
		Fan motor output power	kW	0.145×1
		Air-flow(H-M-L)	m³/h	4200/3500/2500
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.94
		Row/Fin pitch		2 | 1.4
		Total area	m²	/
	Dimension	External（L×W×H）	mm×mm×mm	1008×447×830
		Package（L×W×H）	mm×mm×mm	1142×498×1000
	Drainage pipe (material , I.D./O.D.)		mm	none
	Refrigerant control method		mm/mm	ELECTRONIC VAVE 2.4MM
	Defrosting			auto
	Volume of Accumulator		L	3.4
	Sound power Noise level (H-M-L)		dB(A)	73
	Sound pressure Noise level (H-M-L)			59
	Type of four way valve			SHF-20D-46
	material of reduce noise			XPE
	crankcase heater power		W	38
	Weight(Net / Shipping)		kg / kg	82/93
Piping	Refrigerant	Type / Charge	g	R410A/2850
		Maximum pipe length without recharge refrigerant	m	20
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Connecting Method			flared
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50
Working temp		Cooling (Min-Max)	°C	10~46
		Heatling (Min-Max)	°C	-15~24

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	1U60IS1EAB(S)
Power cable				H07RN-F 5G 4.0mm2
Connecting cable(including communication table				H05RN-F 4G 2.5mm2
Power source			N, V, Hz	3N~,380 ～ 400, 50Hz
Start Current			A	62.5
Outdoor unit	Unit model (color)			1U60IS1EAB(S)（WHITE）
	Compressor	Model / Manufacture/place		JT170G-P8Y1(XI AN Daikin ）
		Oil model		FV50S
		Oil charging		1500CM3
		Type		SCROLL
	Fan	Type × Number		axial×2
		Speed	r/min	850±40
		Fan motor input power	kW	0.130×2
		Fan motor output power	kW	0.070×2
		Air-flow(H-M-L)	m³/h	6500
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.94
		Row/Fin pitch		2 | 1.5
		Total area	m²	1.17
	Dimension	External（L×W×H）	mm×mm×mm	948×340×1250
		Package（L×W×H）	mm×mm×mm	1095×410×1400
	Drainage pipe (material , I.D./O.D.)		mm	/
	Refrigerant control method		mm/mm	Electronic Expansion Valve 3.0MM
	Defrosting			auto
	Volume of Accumulator		L	4.0
	Noise level		dB(A)	60
	Type of four way valve			SHF-20A-46
	material of reduce noise			XPE
	crankcase heater power		W	38
	Weight(Net / Shipping)		kg / kg	108/118
Piping	Refrigerant	Type / Charge	g	R410A/3700
		Maximum pipe length without recharge refrigerant	m	5
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Connecting Method			flared
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	1U60IS1ERB(S)
Power cable				H05RN-F 5G 2.5mm2
Connecting cable(including communication cable)				H05RN-F 4G 2.5mm^2
Power source			N, V, Hz	3N~,380 ～ 400, 50/60Hz
Start Current			A	5
Outdoor unit	Unit model (color)			1U60IS1ERB(S)（WHITE）
	Compressor	Model / Manufacture/place		LNB42FUAMC(MITSUBISHI ELECTRIC COMPRESSOR CO.,LTD）
		Oil model		FV50S
		Oil charging		1400CC
		Type		Twin Rotary
	Fan	Type × Number		axial×2
		Speed	r/min	930±40
		Fan motor input power	kW	0.125×2
		Fan motor output power	kW	0.10×2
		Air-flow(H-M-L)	m³/h	6500
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.94
		Row/Fin pitch		2 | 1.5
		Total area	m²	1.17
	Dimension	External（L×W×H）	mm×mm×mm	948×340×1250
		Package（L×W×H）	mm×mm×mm	1095×410×1400
	Drainage pipe (material , I.D./O.D.)		mm	/
	Refrigerant control method		mm/mm	Electronic Expansion Valve 3.0mm
	Defrosting			auto
	Volume of Accumulator		L	4.0
	Noise level		dB(A)	60
	Type of four way valve			SHF-20D-46
	material of reduce noise			XPE
	crankcase heater power		W	38
	Weight(Net / Shipping)		kg / kg	96/106
Piping	Refrigerant	Type / Charge	g	R410A/3300
		Maximum pipe length without recharge refrigerant	m	20
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Connecting Method			flared
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50
Working temp		Cooling (Min-Max)	°C	-10~46
		Heatling (Min-Max)	°C	-15~24

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	1U60IS2EAB（S）
Power cable				H05RN-F 4G 4.0mm2
Communication cable				H05RN-F 4G 2.5mm2
Connecting cable				H05RN-F 4G 0.75mm2
Power source			N, V, Hz	3N~,380~400, 50Hz
Start Current			A	62.5
Outdoor unit	Unit model (color)			1U60IS2EAB（S）（WHITE）
	Compressor	Model / Manufacture/place		JT160G-P8Y1/XIAN DAIKIN CORPORATION
		OIL model		PVE（FV50S）
		Oil charging		1600CM3
		Type		SCROOL 1
	Fan	Type × Number		axial×2
		Speed	r/min	850±40
		Fan motor input power	kW	0.70×2
		Fan motor output power	kW	0.130×2
		Air-flow(H-M-L)	m³/h	6500
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.94
		Row/Fin pitch		2 1.5
		Total area	m²	1.17
	Dimension	External（L×W×H）	mm×mm×mm	948×340×1250
		Package（L×W×H）	mm×mm×mm	1095×410×1400
	Drainage pipe (material , I.D./O.D.)		mm	none
	Refrigerant control method		mm/mm	ELECTRONIC VAVE 3.0MM
	Defrosting			auto
	Volume of Accumulator		L	4.0
	Noise level		dB(A)	60
	Type of Four way valve			SHF-20A-46
	material of reduce noise			XPE
	crankcase heater power		W	38
	Weight(Net / Shipping)		kg / kg	108/118
PIPING	Refrigerant	Type / Charge	g	R410A/3600
		Maximum pipe length without recharge refrigerant	m	5
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
	Connecting Method			flared
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item			Model	1U60IS2ERB(S)
Power cable				H07RN-F 5G 4.0mm2
Communication cable				/
Connecting cable				H05RN-F 4G 1.5mm2
Power source(outdoor unit)			N, V, Hz	3N~,380~400V, 50Hz
Start Current			A	5
Outdoor unit	Unit model (color)			1U60IS2ERB(S)(WHITE)
	Compressor	Model / Manufacture/place		TNB306FPNMC(MITSUBISHI ELECTRIC COMPRESSOR CO.,LTD)
		OIL model		FV50S
		Oil charging		870CM3
		Type		Twin Rotary/1
	Fan	Type × Number		axial×2
		Speed	r/min	860±30/750±40/620±40
		Fan motor input power	kW	0.145×2
		Fan motor output power	kW	0.075×2
		Air-flow(H-M-L)	m³/h	6000
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.94
		Row/Fin pitch		2 | 1.5
		Total area	m²	1.17
	Dimension	External（L×W×H）	mm×mm×mm	948×340×1250
		Package（L×W×H）	mm×mm×mm	1095×410×1400
	Drainage pipe (material , I.D./O.D.)		mm	/
	Refrigerant control method		mm/mm	Electronic Expansion Valve 2.4MM
	Defrosting			auto
	Volume of Accumulator		L	4.0
	Sound power Noise level (H-M-L)		dB(A)	73
	Sound pressure Noise level (H-M-L)		dB(A)	60
	Type of Four way valve			SHF-20D-46
	material of reduce noise			XPE
	crankcase heater power		W	38
	Weight(Net / Shipping)		kg / kg	93/103
PIPING	Refrigerant	Type / Charge	g	R410A/3300
		Maximum pipe length without recharge refrigerant	m	20
		Recharge quantity	g/m	45
	Pipe	Liquid	mm	9.52
		Gas	mm	19.05
		Connecting Method		flared
	Between I.D &O.D	MAX.Drop	m	30
		MAX.Piping length	m	50
Working temp		`	ºC	10 ～ 46
		Heatling (Min-Max)	ºC	-15 ～ 24

Norminal condition: indoor temperature (cooling): 27℃ DB/19℃ WB, indoor temperature (heating): 20℃ DB
Outdoor temperature(cooling): 35℃ DB/24℃ WB, outdoor temperature(heating): 7℃ DB/6℃ WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

Item	Model		3U19FS1ERA 3U19FS1ERA(N)	
Function		——	Cooling	Heating
Rating capacity		W	5400	6500
Cooling Pdesign		W	5400	
Heating Pdesign(-10°C)			4500	
Rated power input (indoor + outdoor)		W	1317	1457
Rated current input (indoor + outdoor)		A	5.7	6.3
EER / COP		W/W	4.1	4.46
SEER / SCOP		W/W	7.0	4.0
Minimum capacity		W	1500	1800
Minimum power input		W	500	500
Maximum capacity		W	7000	8100
Maximum power input (indoor + outdoor)		W	2600	2600
Power source		——	1PH, 220-230V~, 50/60Hz	
Max. running current (indoor + outdoor)		A / A	11.3	11.3
Power facor(under rating power input)		——	99%	99%
Starting current			3	
Fuse size (recommended size)		A	25	
Outdoor unit	Compressor	Model / Manufacture	——	SNB130FGYMC-L1 / MELCOM
		Oil charge and type	——	500CC, FV 50S
		Type	——	Twin Rotary (DC inverter)
		Number	——	1
	Fan	Type × Number	——	Axial × 1
		Speed	r/min	High 860
		Motor output/input power	W	55/69
		Air-flows (H/M/L)	m³/h	about 2000
	Heat exchanger	Type / Diameter	mm	TP2M / 7.94
		row	——	2
		Face area	m²	about 0.52
	Dimension (WxDxH)	External	mm	810/288/680
		Package	mm	992/408/760
	Refrigerant control method		——	PMVs
	Defrosting method		——	Automatic by reversible cycle
	Crankcase heater power		W	none
	Noise level	Sound power level	dB(A)	65
		Sound pressure level	dB(A)	52
	Weight	Net / Shipping	kg / kg	51/53
Piping	Refrigerant	Type / Charge	kg	R410A / 2.0
		No need to recharge	m	30
		GWP		2088
		Recharge	g/m	20
	Pipe	Liquid	mm	3* Φ6.35
		Gas	mm	3* Φ9.52
	Connecting method		——	Flared
	Between I.D &O.D	Drop between IU & OU	m	≤7.5
		Piping length between IU & OU	m	≤10
		Total liquid piping length	m	≤30
		Drop between indoor units	m	≤1
		Max. drop between IU &OU	m	15(indoor unit lower than outdoor unit)
		Max. drop between IU &OU	m	15 (indoor unit higher than outdoor unit)
		Max. drop between indoor units	m	5
		Max. piping length between IU & OU	m	25
		Max. total length	m	50

Working temperature		Cooling	℃	-10~46			
		Heating	℃	-15~24			
Tdisignh：-10℃			Tbivalent：-7℃			TOL：-15℃	
Pto：13W		Psb：13W		Pck：0W		Poff：0W	
Cooling	A（Cap/EER）	5611W/4.3	Heating	A（Cap/COP）	3650W/2.65	Tol（Cap/COP）	3510W/2.6
	B（Cap/EER）	3743W/7.1		B（Cap/COP）	2339W/3.87	Tb （Cap/COP）	3650W/2.65
	C（Cap/EER）	2828W/9.3		C（Cap/COP）	1467W/5.18	Cd（cooling）	0.25
	D（Cap/EER）	2584W/10.3		D（Cap/COP）	1208W/5.41	Cd（heating）	0.25
Max. cooling condition		Indoor temperature：32℃ /23℃	Max. heating condition			Indoor temperature：27℃ /-℃	
		Outdoor temperature：46℃ /-℃				Outdoor temperature：24℃ /18℃	
kWh/annum		270	kWh/annum-average		1600	kWh/annum-warm	
1. The above performance data are from the combination of 3U19FS1ERA+3*AS09ZS2ERA.							
2. Large drop and long piping installation will obviously reduce the total capacity.							

Item	Model			3U24GS1ERA 3U24GS1ERA(N)	
Function			——	Cooling	Heating
Rating capacity			W	6700	8000
Cooling Pdesign			W	6700	
Heating pdesign(-10℃)			W	5300	
Rated power input (indoor + outdoor)			W	1675	1826
Rated current input (indoor + outdoor)			A	7.28	7.9
EER / COP			W/W	4.0	4.38
SEER / SCOP			W/W	7.0	4.0
Minimum capacity			W	1500	1800
Minimum power input			W	550	550
Maximum capacity			W	8200	9000
Maximum power input (indoor + outdoor)			W	3100	3100
Power source			——	1PH, 220-230V~, 50/60Hz	
Max. running current (indoor + outdoor)			A / A	13.5	13.5
Power facor(under rating power input)			——	99%	99%
Starting current				3	
Fuse size (recommended size)			A	25	
Outdoor unit	Compressor	Model / Manufacture	——	SNB172FJGMC/ MELCOM	
		Oil charge and type	——	600CC, FV 50S	
		Type	——	Twin Rotary (DC inverter)	
		Number	——	1	
	Fan	Type × Number	——	Axial × 1	
		Speed	r/min	High 860	
		Motor output/input power	W	80/100	
		Air-flows (H/M/L)	m³/h	about 2500	
	Heat exchanger	Type / Diameter	mm	TP2M / 7.94	
		row	——	2	
		Face area	m²	about 0.52	
	Dimension (WxDxH)	External	mm	860/308/730	
		Package	mm	1005/423/815	
	Refrigerant control method		——	PMVs	
	Defrosting method		——	Automatic by reversible cycle	
	Crankcase heater power		W	none	
	Noise level	Sound power level	dB(A)	67	
		Sound pressure level	dB(A)	54	
	Weight	Net / Shipping	kg / kg	53/56	
Piping	Refrigerant	Type / Charge	kg	R410A / 1.9	
		No need to recharge	m	30	
		GWP		2088	
		Recharge	g/m	20	
	Pipe	Liquid	mm	3* Φ6.35	
		Gas	mm	3* Φ9.52	
	Connecting method		——	Flared	
	Between I.D &O.D	Drop between IU & OU	m	≤7.5	
		Piping length between IU & OU	m	≤10	
		Total liquid piping length	m	≤30	
		Drop between indoor units	m	≤1	
		Max. drop between IU &OU	m	15(indoor unit lower than outdoor unit)	
		Max. drop between IU &OU	m	15 (indoor unit higher than outdoor unit)	
		Max. drop between indoor units	m	5	
		Max. piping length between IU & OU	m	25	
		Max. total length	m	60	

Working temperature		Cooling	℃	-10~46			
		Heating	℃	-15~24			
Tdisignh：-10℃			Tbivalent：-7℃			TOL：-15℃	
Pto：13W		Psb：13W		Pck：0W		Poff：0W	
Cooling	A（Cap/EER）	6249W/3.9	Heating	A（Cap/COP）	4315W/2.61	Tol（Cap/COP）	5106W/2.75
	B（Cap/EER）	4810W/7.17		B（Cap/COP）	2896W/3.93	Tb （Cap/COP）	4315W/2.61
	C（Cap/EER）	3266W/8.9		C（Cap/COP）	1789W/4.47	Cd（cooling）	0.25
	D（Cap/EER）	3614W/10.5		D（Cap/COP）	1990W/6.03	Cd（heating）	0.25
Max. cooling condition		Indoor temperature：32℃ /23℃	Max. heating condition		Indoor temperature：27℃ /-℃		
		Outdoor temperature：46℃ /-℃			Outdoor temperature：24℃ /18℃		
kWh/annum		340	kWh/annum-average		1923	kWh/annum-warm	

1. The above performance data are from the combination of 3U24GS1ERA+3*AS09ZS2ERA.
2. Large drop and long piping installation will obviously reduce the total capacity.

Item	Model			4U26HS1ERA	
Function			——	Cooling	Heating
Rating capacity			W	7600	8600
Cooling Pdesign			W	8800	
Heating pdesign(-10℃)			W	6200	
Rated power input (indoor + outdoor)			W	2000	2177
Rated current input (indoor + outdoor)			A	8.70	9.47
EER / COP			W/W	3.8	3.95
SEER / SCOP			W/W	7.0	4.0
Minimum capacity			W	1500	1800
Minimum power input			W	550	550
Maximum capacity			W	9000	9500
Maximum power input (indoor + outdoor)			W	3500	3500
Power source			——	1PH, 220-230V~, 50/60Hz	
Max. running current (indoor + outdoor)			A / A	15.2	15.2
Power facor(under rating power input)			——	99%	99%
Starting current				5	
Fuse size (recommended size)			A	25	
Outdoor unit	Compressor	Model / Manufacture	——	TNB220FLHMC-L / MELCOM	
		Oil charge and type	——	870CC/ FV50S	
		Type	——	Twin Rotary (DC inverter)	
		Number	——	1	
	Fan	Type × Number	——	Axial × 1	
		Speed	r/min	High 860	
		Motor output/input power	W	100/125	
		Air-flows (H/M/L)	m³/h	about 3500	
	Heat exchanger	Type / Diameter	mm	TP2M / 7.94	
		row	——	2	
		Face area	m²	about 0.75	
	Dimension (WxDxH)	External	mm	948/340/840	
		Package	mm	1040/430/1000	
	Refrigerant control method		——	PMVs	
	Defrosting method		——	Automatic by reversible cycle	
	Crankcase heater power		W	none	
	Noise level	Sound power level	dB(A)	66	
		Sound pressure level	dB(A)	56	
	Weight	Net / Shipping	kg / kg	74/85	
Piping	Refrigerant	Type / Charge	kg	R410A / 3.1	
		No need to recharge	m	40	
		Recharge	g/m	20	
	Pipe	Liquid	mm	4* Φ6.35	
		Gas	mm	3* Φ9.52+1*Φ12.7	
	Connecting method		——	Flared	
	Between I.D &O.D	Drop between IU & OU	m	≤7.5	
		Piping length between IU & OU	m	≤10	
		Total liquid piping length	m	≤40	
		Drop between indoor units	m	≤1	
		Max. drop between IU &OU	m	15(indoor unit lower than outdoor unit)	
		Max. drop between indoor units	m	5	
		Max. piping length between IU & OU	m	25	
		Max. total length	m	70	

Working temperature		Cooling	℃	-10~46			
		Heating	℃	-15~24			
Tdisignh：-10℃			Tbivalent：-7℃			TOL：-15℃	
Pto：13W		Psb：13W		Pck：0W		Poff：0W	
Cooling	A（Cap/EER）	7642W/3.67	Heating	A（Cap/COP）	5398W/2.34	Tol（Cap/COP）	6972W/2.55
	B（Cap/EER）	5386W/5.92		B（Cap/COP）	3594W/3.7	Tb （Cap/COP）	5398W/2.34
	C（Cap/EER）	3394W/8.93		C（Cap/COP）	2387W/5.1	Cd（cooling）	0.25
	D（Cap/EER）	3663W/12.3		D（Cap/COP）	2947W/6.7	Cd（heating）	0.25
Max. cooling condition		Indoor temperature：32℃ /23℃	Max. heating condition		Indoor temperature：27℃ /-℃		
		Outdoor temperature：46℃ /-℃			Outdoor temperature：24℃ /18℃		
kWh/annum		380	kWh/annum-average		2308	kWh/annum-warm	

1. The above performance data are from the combination of 4U26HS1ERA+3*AS09ZS2ERA.
2. Large drop and long piping installation will obviously reduce the total capacity.

Item	Model			4U30HS1ERA	
Function			——	Cooling	Heating
Rating capacity			W	8800	9800
Cooling Pdesign			W	8800	
Heating pdesign(-10℃)			W	7100	
Rated power input (indoor + outdoor)			W	2316	2390
Rated current input (indoor + outdoor)			A	10.1	10.4
EER / COP			W/W	3.8	4.1
SEER / SCOP			W/W	7.0	4.0
Minimum capacity			W	1500	1800
Minimum power input			W	550	550
Maximum capacity			W	9800	10500
Maximum power input (indoor + outdoor)			W	3800	3800
Power source			——	1PH, 220-230V~, 50/60Hz	
Max. running current (indoor + outdoor)			A / A	16.5	16.5
Power facor(under rating power input)			——	99%	99%
Starting current				5	
Fuse size (recommended size)			A	25	
Outdoor unit	Compressor	Model / Manufacture	——	TNB220FLHMC-L / MELCOM	
		Oil charge and type	——	870CC/ FV50S	
		Type	——	Twin Rotary (DC inverter)	
		Number	——	1	
	Fan	Type × Number	——	Axial × 1	
		Speed	r/min	High 860	
		Motor output/input power	W	100/125	
		Air-flows (H/M/L)	m³/h	about 3500	
	Heat exchanger	Type / Diameter	mm	TP2M / 7.0	
		row	——	2	
		Face area	m²	about 0.75	
	Dimension (WxDxH)	External	mm	948/340/840	
		Package	mm	1040/430/1000	
	Refrigerant control method		——	PMVs	
	Defrosting method		——	Automatic by reversible cycle	
	Crankcase heater power		W	none	
	Noise level	Sound power level	dB(A)	70	
		Sound pressure level	dB(A)	56	
	Weight	Net / Shipping	kg / kg	76/87	
Piping	Refrigerant	Type / Charge	kg	R410A / 3.2	
		No need to recharge	m	40	
		Recharge	g/m	20	
	Pipe	Liquid	mm	4* Φ6.35	
		Gas	mm	3* Φ9.52+1*Φ12.7	
	Connecting method		——	Flared	
	Between I.D &O.D	Drop between IU & OU	m	≤7.5	
		Piping length between IU & OU	m	≤10	
		Total liquid piping length	m	≤40	
		Drop between indoor units	m	≤1	
		Max. drop between IU &OU	m	15	
		Max. drop between indoor units	m	5	
		Max. piping length between IU & OU	m	25	
		Max. total length	m	70	

Working temperature		Cooling	℃	-10~46			
		Heating	℃	-15~24			
Tdisignh：-10℃			Tbivalent：-7℃			TOL：-15℃	
Pto：16W		Psb：16W		Pck：0W		Poff：0W	
Cooling	A（Cap/EER）	8245W/4.5	Heating	A（Cap/COP）	5875W/2.6	Tol（Cap/COP）	6787W/2.4
	B（Cap/EER）	6472W/6.7		B（Cap/COP）	4050W/4.0	Tb (Cap/COP）	5875W/2.6
	C（Cap/EER）	4233W/8.5		C（Cap/COP）	2421W/5.25	Cd（cooling）	0.25
	D（Cap/EER）	4382W/10.6		D（Cap/COP）	2456W/6.4	Cd（heating）	0.25
Max. cooling condition		Indoor temperature：32℃ /23℃	Max. heating condition		Indoor temperature：27℃ /-℃		
		Outdoor temperature：46℃ /-℃			Outdoor temperature：24℃ /18℃		
kWh/annum		440	kWh/annum-average		2487	kWh/annum-warm	

1. The above performance data are from the combination of 4U30HS1ERA+4*AS09ZS2ERA.
2. Large drop and long piping installation will obviously reduce the total capacity.

Item	Model			5U34HS1ERA	
Function			——	Cooling	Heating
Rating capacity			W	10000	10700
Cooling Pdesign			W	10000	
Heating pdesign(-10℃)			W	8100	
Rated power input (indoor + outdoor)			W	2770	2675
Rated current input (indoor + outdoor)			A	12.1	11.6
EER / COP			W/W	3.6	4.00
SEER / SCOP			W/W	7.0	4.0
Minimum capacity			W	1500	1800
Minimum power input			W	550	550
Maximum capacity			W	11000	11500
Maximum power input (indoor + outdoor)			W	4000	4000
Power source			——	1PH, 220-230V~, 50/60Hz	
Max. running current (indoor + outdoor)			A / A	17.4	17.4
Power facor(under rating power input)			——	99%	99%
Starting current				5	
Fuse size (recommended size)			A	25	
Outdoor unit	Compressor	Model / Manufacture	——	TNB220FLHMC-L / MELCOM	
		Oil charge and type	——	870CC/ FV50S	
		Type	——	Twin Rotary (DC inverter)	
		Number	——	1	
	Fan	Type × Number	——	Axial × 1	
		Speed	r/min	High 900	
		Motor output/input power	W	100/125	
		Air-flows (H/M/L)	m³/h	about 4000	
	Heat exchanger	Type / Diameter	mm	TP2M / 7.0	
		row	——	2	
		Face area	m²	about 0.75	
	Dimension (WxDxH)	External	mm	948/340/840	
		Package	mm	1040/430/1000	
	Refrigerant control method		——	PMVs	
	Defrosting method		——	Automatic by reversible cycle	
	Crankcase heater power		W	none	
	Noise level	Sound power level	dB(A)	70	
		Sound pressure level	dB(A)	58	
	Weight	Net / Shipping	kg / kg	77/88	
Piping	Refrigerant	Type / Charge	kg	R410A / 3.4	
		No need to recharge	m	40	
		Recharge	g/m	20	
	Pipe	Liquid	mm	5* Φ6.35	
		Gas	mm	4* Φ9.52+1*Φ12.7	
	Connecting method		——	Flared	
	Between I.D &O.D	Drop between IU & OU	m	≤7.5	
		Piping length between IU & OU	m	≤10	
		Total liquid piping length	m	≤40	
		Drop between indoor units	m	≤1	
		Max. drop between IU &OU	m	15	
		Max. drop between indoor units	m	5	
		Max. piping length between IU & OU	m	25	
		Max. total length	m	80	

Working temperature		Cooling	℃	-10~46			
		Heating	℃	-15~24			
Tdisignh：-10℃			Tbivalent：-7℃			TOL：-15℃	
Pto：16W		Psb：16W		Pck：0W		Poff：0W	
Cooling	A（Cap/EER）	9825W/4.4	Heating	A（Cap/COP）	7149W/2.8	Tol（Cap/COP）	6875W/2.7
	B（Cap/EER）	6908W/6.7		B（Cap/COP）	4065W/3.81	Tb （Cap/COP）	7149W/2.8
	C（Cap/EER）	5643W/8.9		C（Cap/COP）	2890W/5.3	Cd（cooling）	0.25
	D（Cap/EER）	4642W/10.0		D（Cap/COP）	2590W/6.0	Cd（heating）	0.25
Max. cooling condition		Indoor temperature：32℃ /23℃	Max. heating condition		Indoor temperature：27℃ /-℃		
		Outdoor temperature：46℃ /-℃			Outdoor temperature：24℃ /18℃		
kWh/annum		500	kWh/annum-average		2836	kWh/annum-warm	

1. The above performance data are from the combination of 5U34HS1ERA+4*AS09ZS2ERA.
2. Large drop and long piping installation will obviously reduce the total capacity.

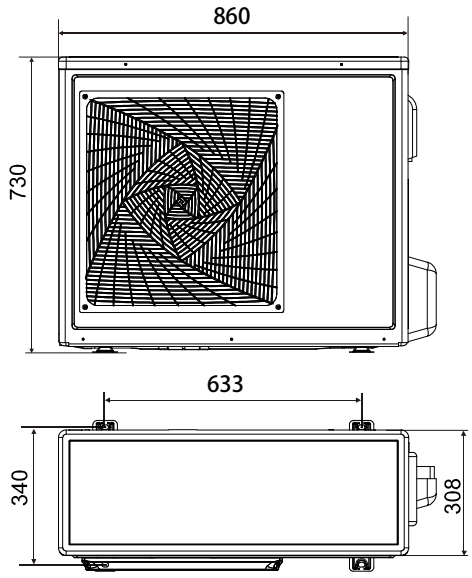
Item	Model			5U45LS1ERA	
Function			——	Cooling	Heating
Rating capacity			W	12200	12680
Cooling Pdesign			W	12200	
Heating pdesign(-10℃)			W	9000	
Rated power input (indoor + outdoor)			W	3631	3251
Rated current input (indoor + outdoor)			A	15.8	14.1
EER / COP			W/W	3.36	3.9
SEER / SCOP			W/W	7.0	3.8
Minimum capacity			W	1500	1800
Minimum power input			W	550	550
Maximum capacity			W	13400	14000
Maximum power input (indoor + outdoor)			W	5500	5500
Power source			——	1PH, 220-230V~, 50/60Hz	
Max. running current (indoor + outdoor)			A / A	23.9	23.9
Power facor(under rating power input)			——	99%	99%
Starting current			A	5	
Fuse size (recommended size)			A	None	
Outdoor unit	Compressor	Model / Manufacture	——	TNB306FPGMC/MITSUBISHI	
		Oil charge and type	——	870CC/ FV50S	
		Type	——	Twin Rotary (DC inverter)	
		Number	——	1	
	Fan	Type × Number	——	Axial × 1	
		Speed	r/min	High 820	
		Motor output/input power	W	126/158	
		Air-flows (H/M/L)	m³/h	about 4200	
	Heat exchanger	Type / Diameter	mm	TP2M/Φ7.94	
		row	——	2	
		Face area	m²	about 0.78	
	Dimension (WxDxH)	External	mm	1008×447×830	
		Package	mm	1130×490×1000	
	Refrigerant control method		——	PMVs	
	Defrosting method		——	Automatic by reversible cycle	
	Crankcase heater power		W	none	
	Noise level	Sound power level	dB(A)	71	
		Sound pressure level	dB(A)	60	
	Weight	Net / Shipping	kg / kg	90/101	
Piping	Refrigerant	Type / Charge	kg	R410A / 3.2	
		No need to recharge	m	40	
		Recharge	g/m	28	
	Pipe	Liquid	mm	5* Φ6.35	
		Gas	mm	3* Φ9.52+2*Φ12.7	
	Connecting method		——	Flared	
	Between I.D &O.D	Drop between IU & OU	m	≤7.5	
		Piping length between IU & OU	m	≤10	
		Total liquid piping length	m	≤40	
		Drop between indoor units	m	≤1	
		Max. drop between IU &OU	m	15	
		Max. drop between indoor units	m	5	
		Max. piping length between IU & OU	m	25	
		Max. total length	m	100	

Working temperature	Cooling	℃	-10~46				
	Heating	℃	-15~24				
Tdisignh：-10℃		Tbivalent：-7℃		TOL：-15℃			
Pto：16W	Psb：16W		Pck：0W		Poff：0W		
Cooling	A（Cap/EER）	12666W/3.62	Heating	A（Cap/COP）	7556W/2.35	Tol（Cap/COP）	6010W/2.45
	B（Cap/EER）	9708W/6.07		B（Cap/COP）	5809W/3.66	Tb（Cap/COP）	7556W/2.35
	C（Cap/EER）	5793W/9.2		C（Cap/COP）	3388W/4.62	Cd（cooling）	0.25
	D（Cap/EER）	5884W/11.77		D（Cap/COP）	3898W/6.29	Cd（heating）	0.25
Max. cooling condition	Indoor temperature：32℃ /23℃		Max. heating condition	Indoor temperature：27℃ /-℃			
	Outdoor temperature：46℃ /-℃			Outdoor temperature：24℃ /18℃			
kWh/annum	500		kWh/annum-average	2836		kWh/annum-warm	

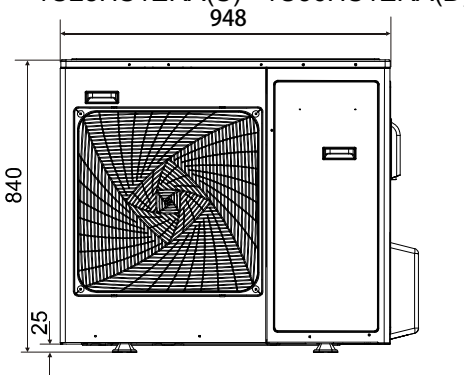
1. The above performance data are from the combination of 5U45HS1ERA+2*AD09SS1ERA+AD12SS1ERA+AD18SS1ERA.
2. Large drop and long piping installation will obviously reduce the total capacity.

2. Dimension

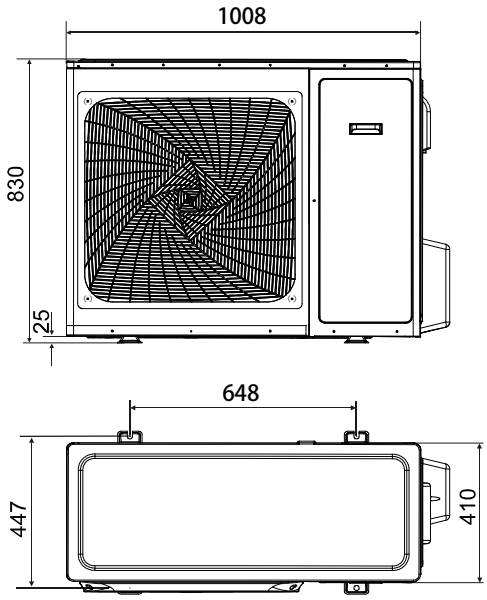
1U24GS1ERA(S)



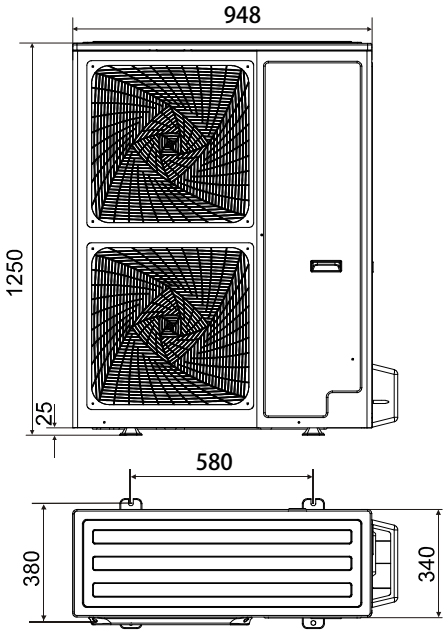
1U28HS1ERA(S) 1U36HS1ERA(D)



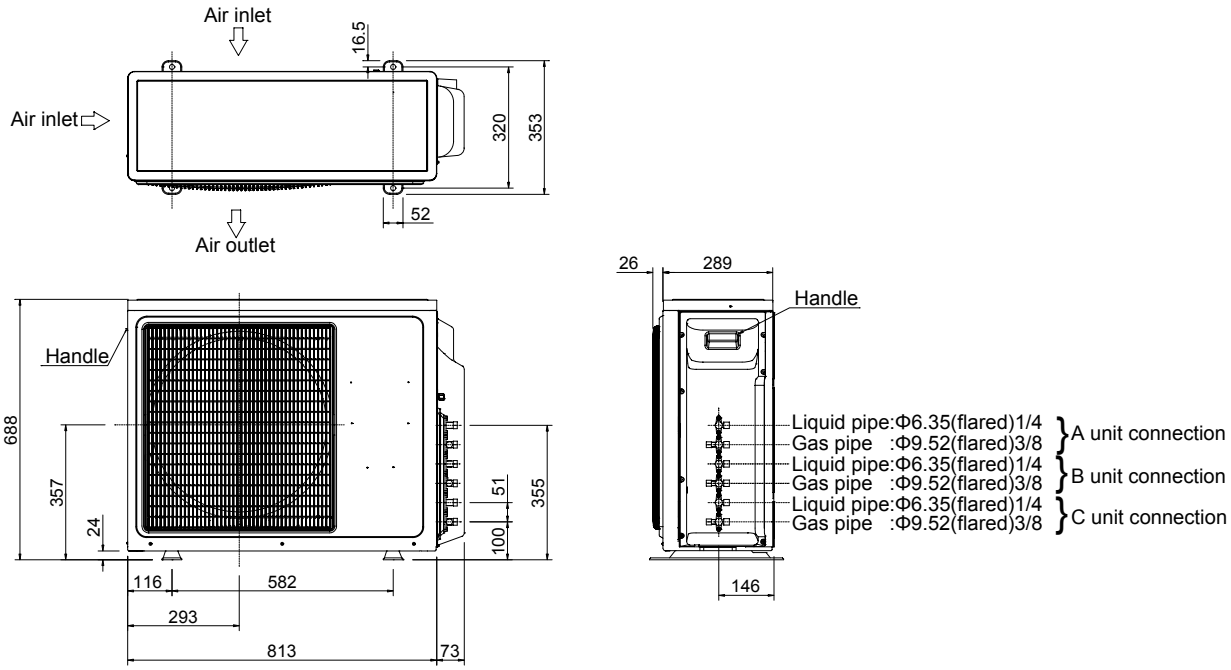
1U48LS1ERA(S) 1U48LS1ERB(S) 1U48LS1EAB(S)



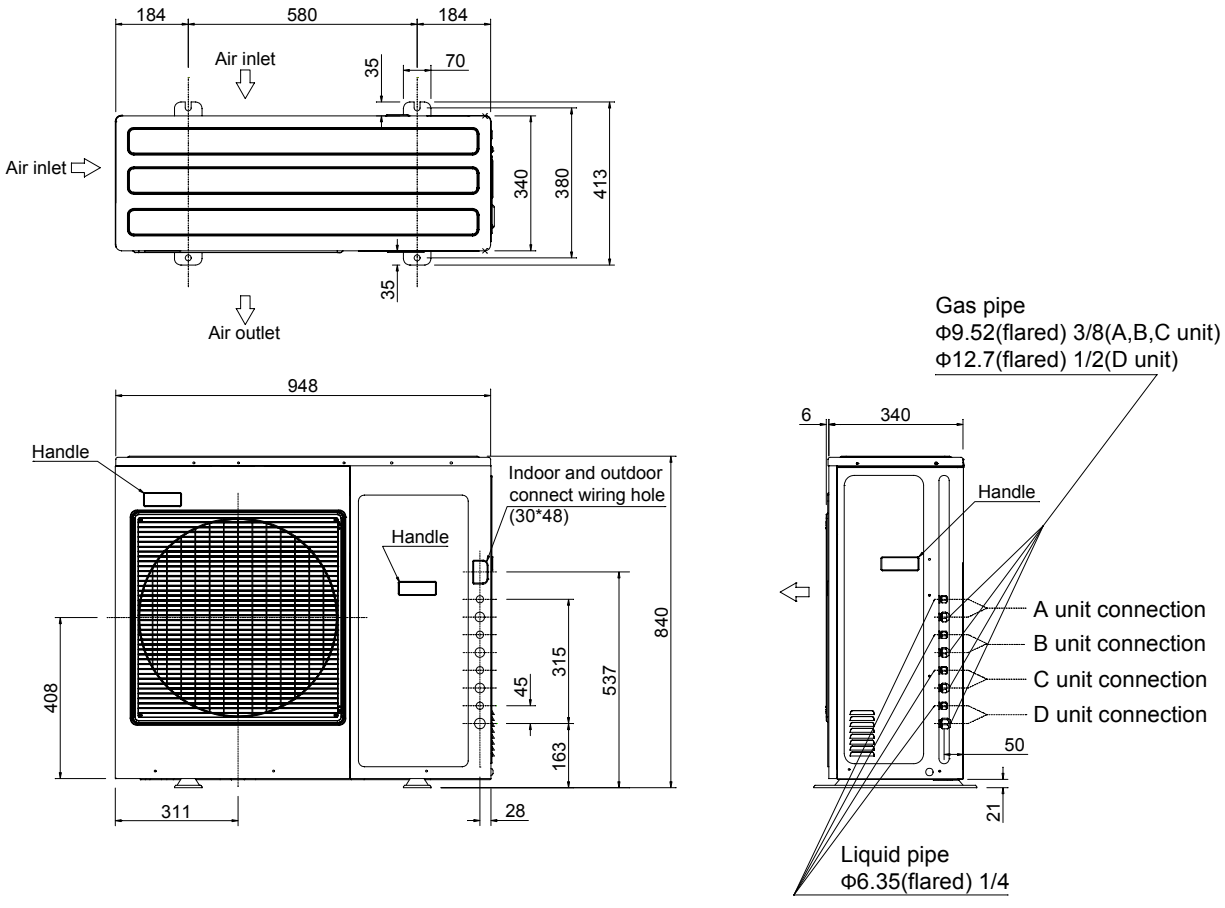
1U48IS1EAB(S) 1U48IS1ERB(S) 1U60IS1ERA(S) 1U60IS1ERB(S) 1U60IS1EAB(S) 1U60IS2EAB(S) 1U60IS2ERB(S)



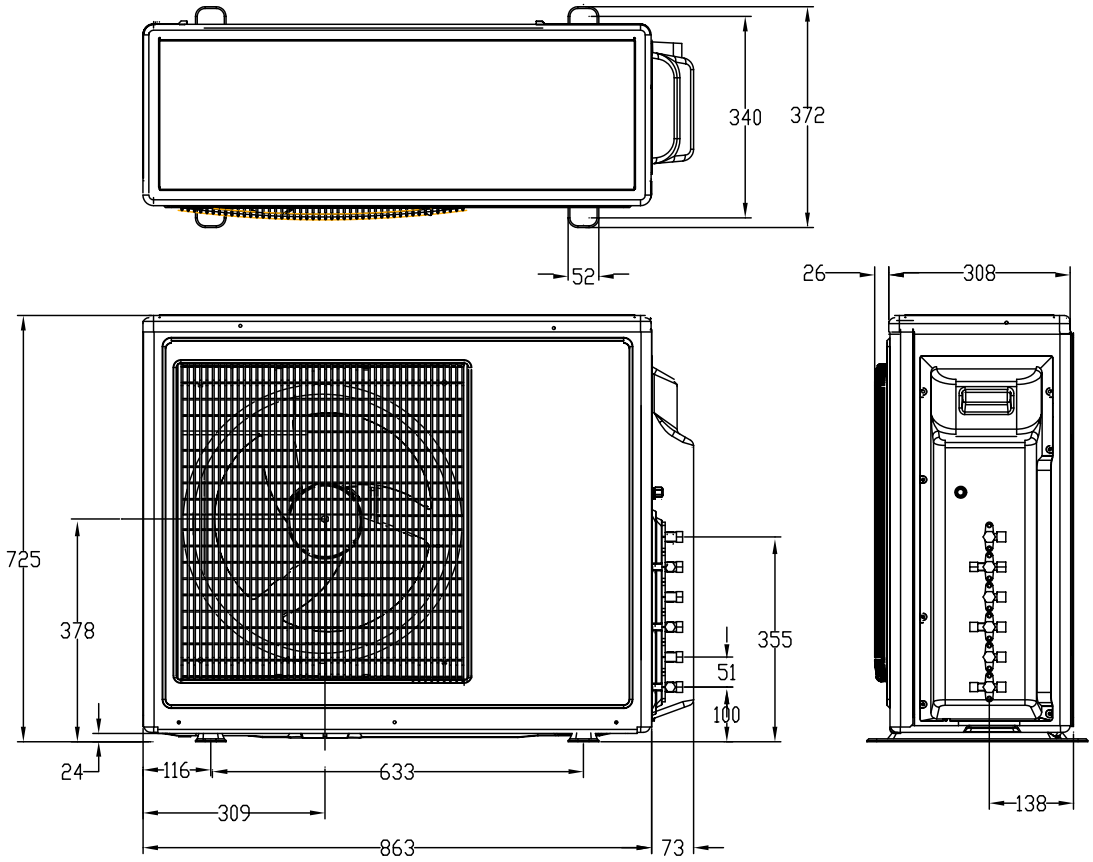
3U19FS1ERA 3U19FS1ERA(N):



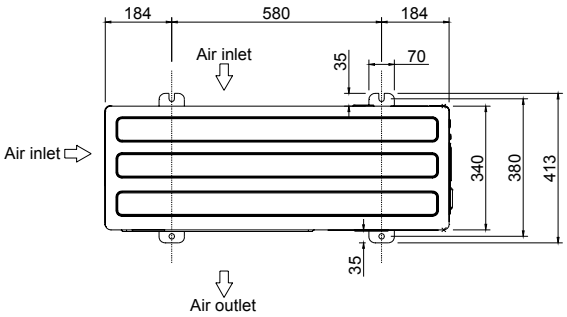
4U26HS1ERA, 4U30HS1ERA:

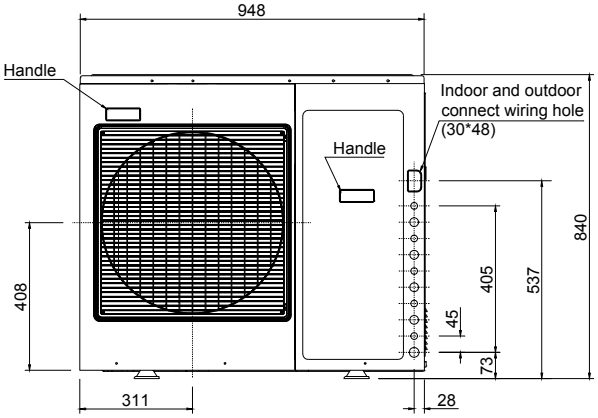


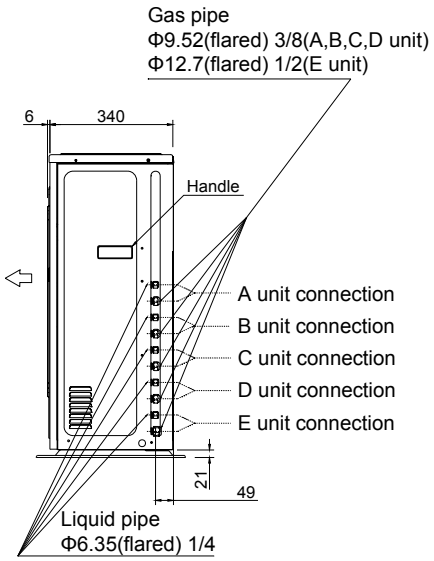
3U24GS1ERA 3U24GS1ERA(N)



5U34HS1ERA:







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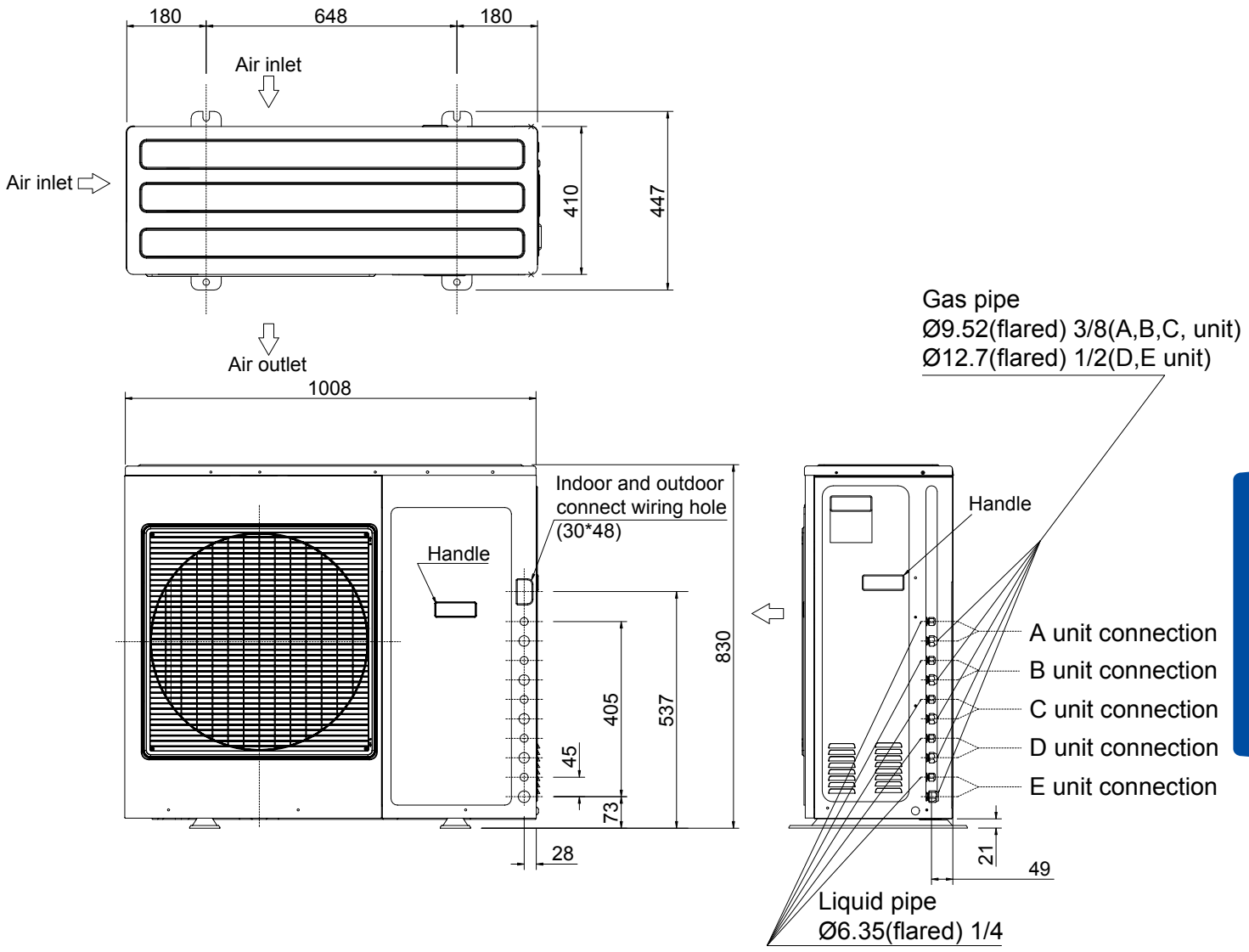
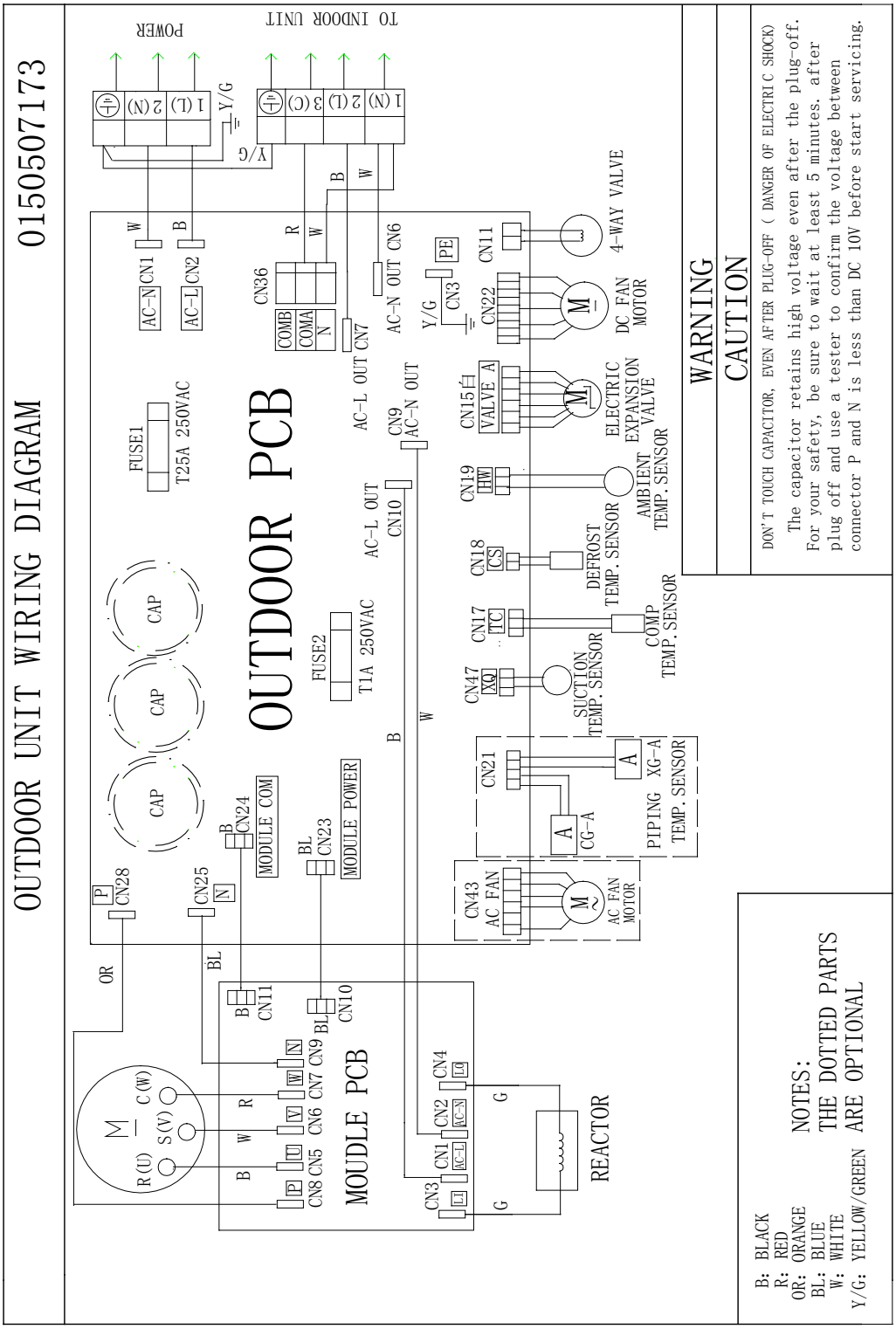
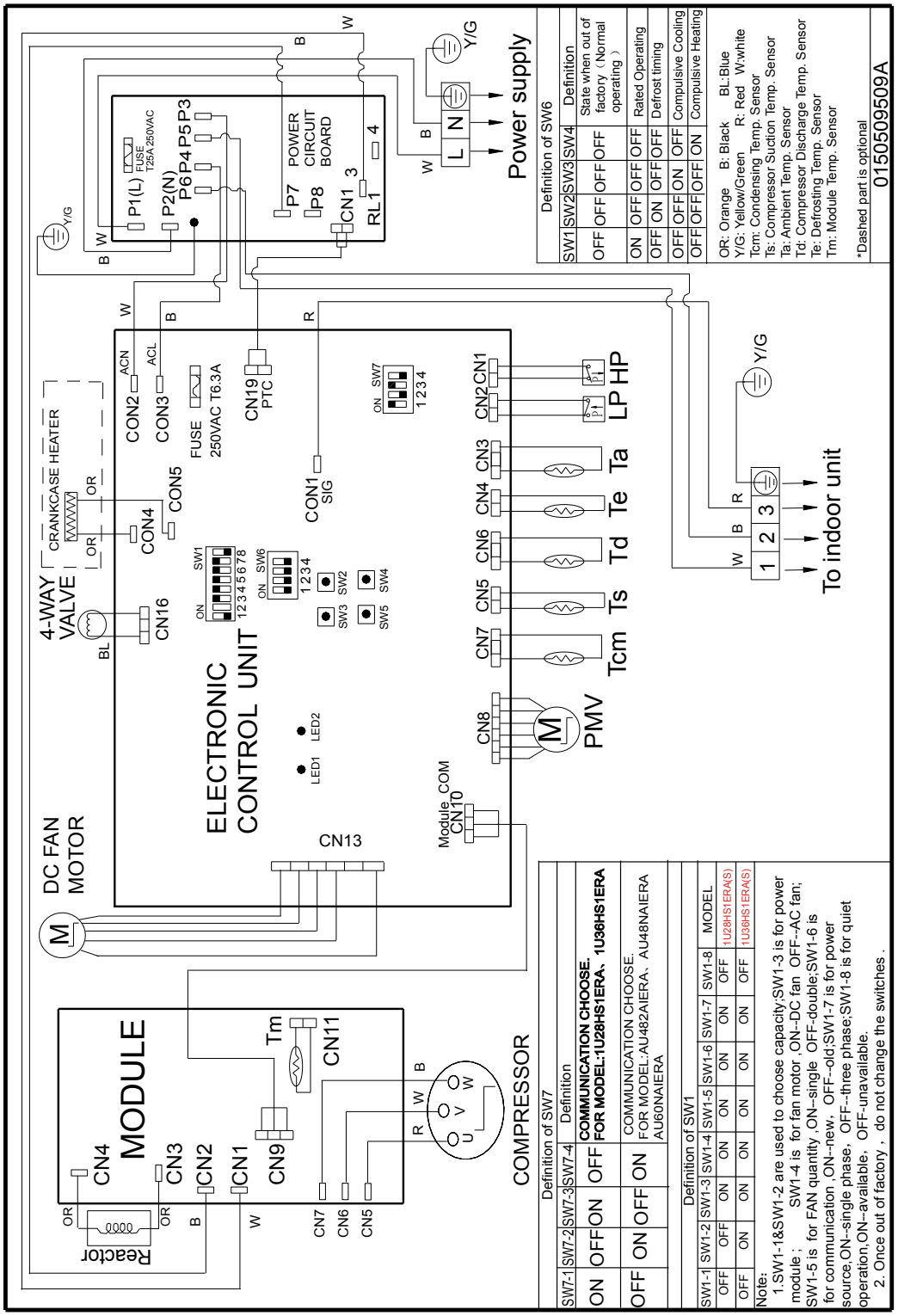

180
648
180
Air inlet
Air inlet
410
447
Air outlet
1008
Handle
Indoor and outdoor
connect wiring hole
(30*48)
830
405
537
45
73
28
Gas pipe
Ø9.52(flared) 3/8(A,B,C, unit)
Ø12.7(flared) 1/2(D,E unit)
Handle
A unit connection
B unit connection
C unit connection
D unit connection
E unit connection
21
49
Liquid pipe
Ø6.35(flared) 1/4

3. Wiring diagram

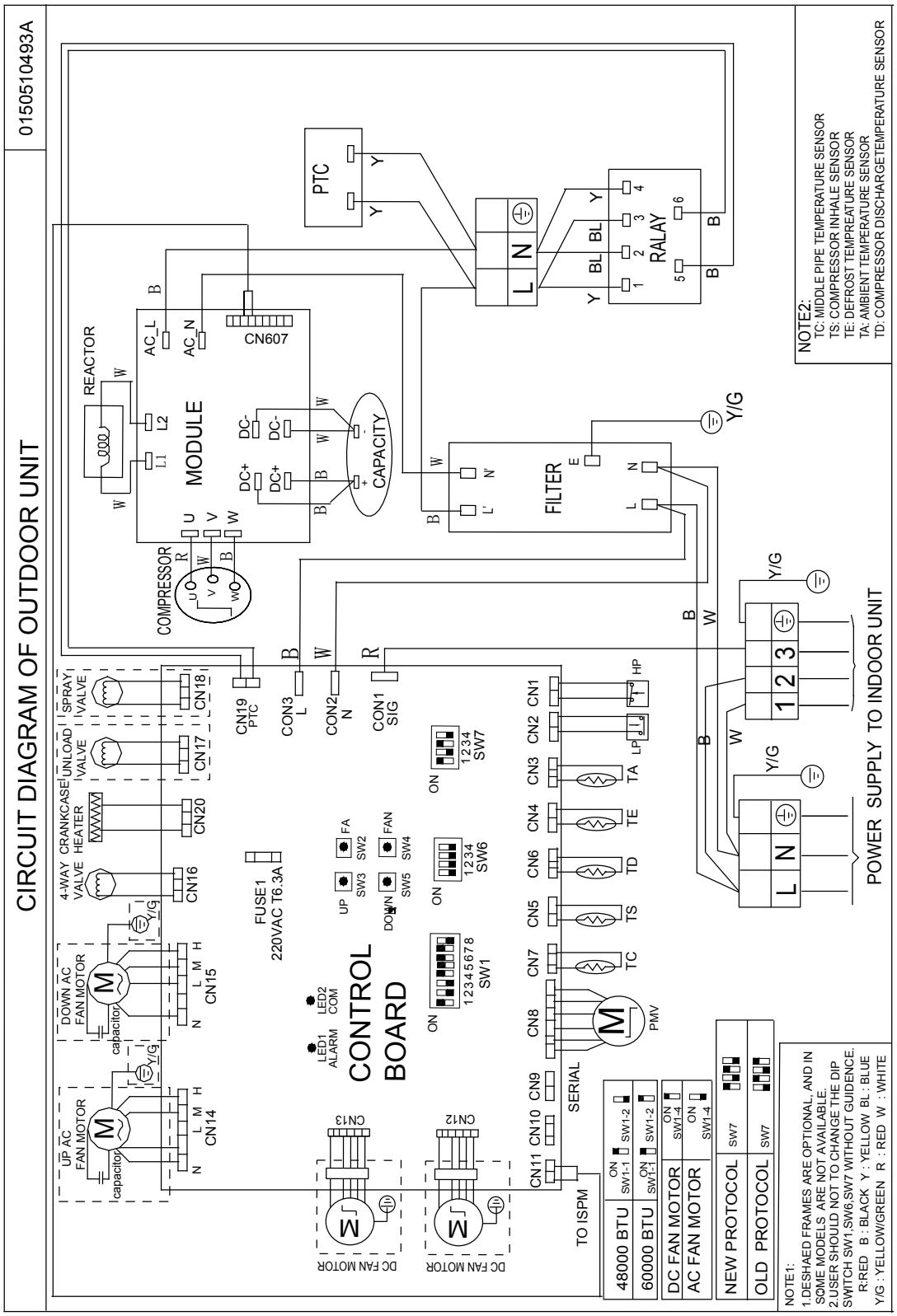
1U24GS1ERA 1U28GS2ERA(S)



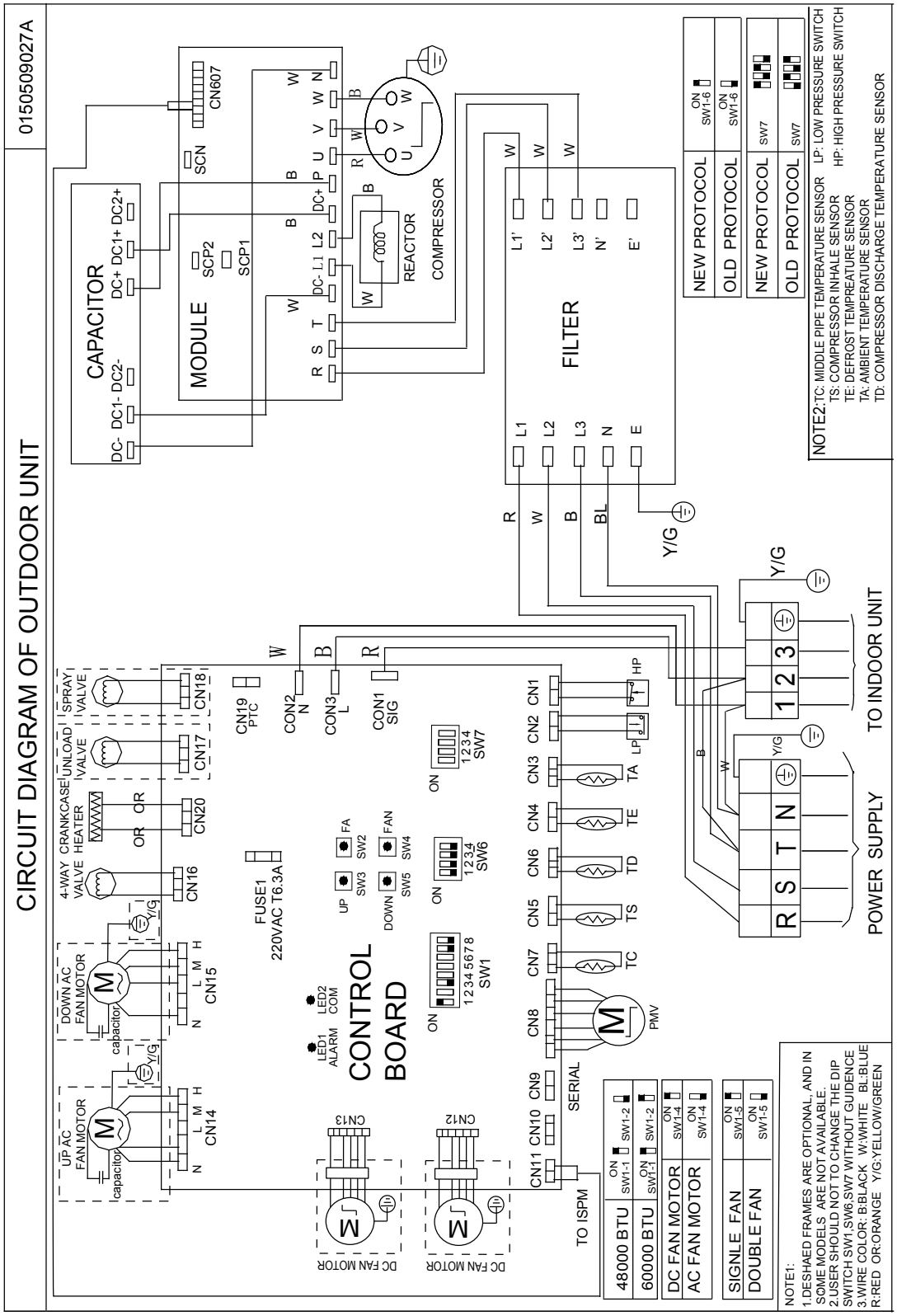
1U28HS1ERA(S) 1U36HS1ERA(S)



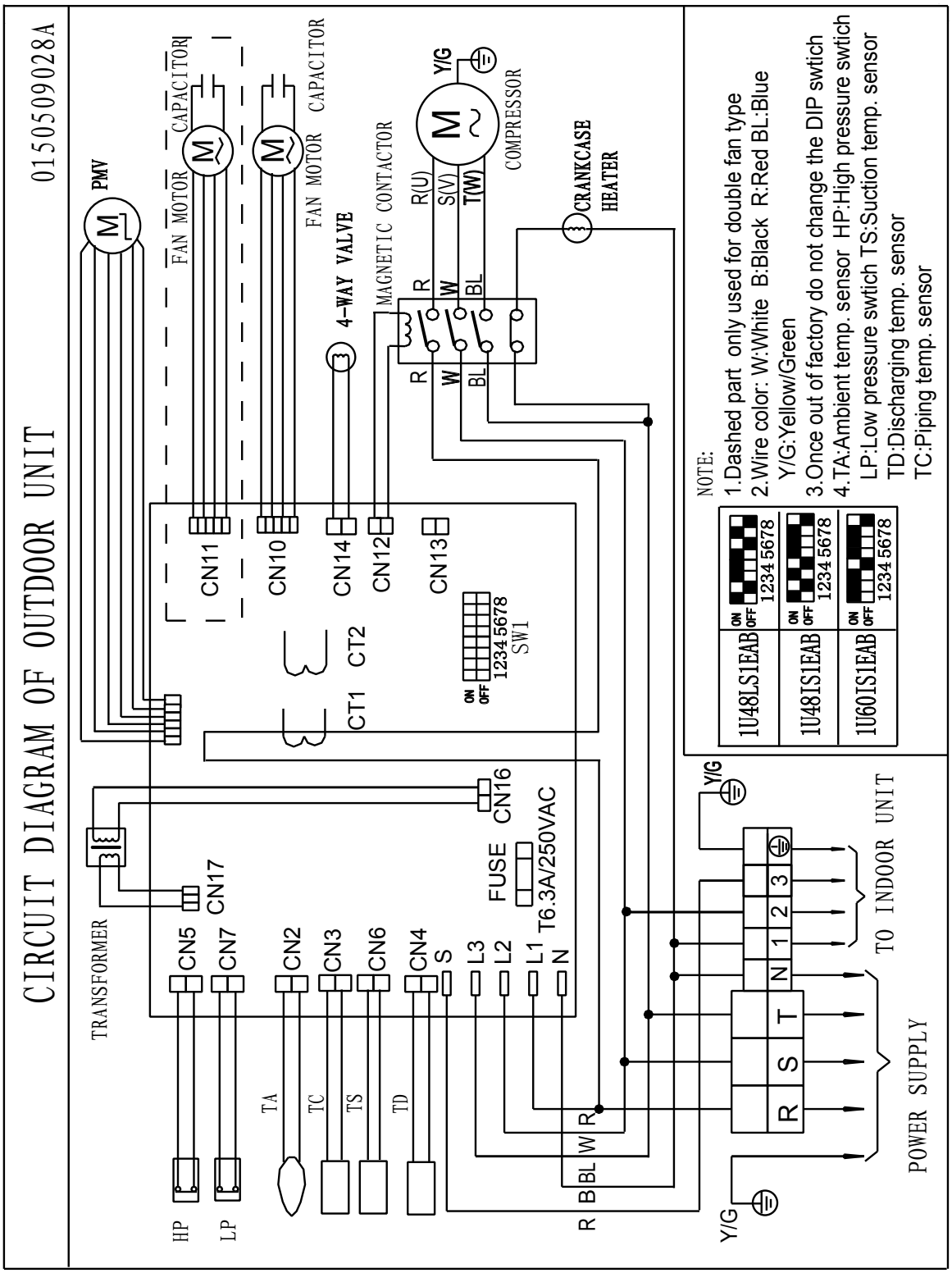
1U48LS1ERA(S)



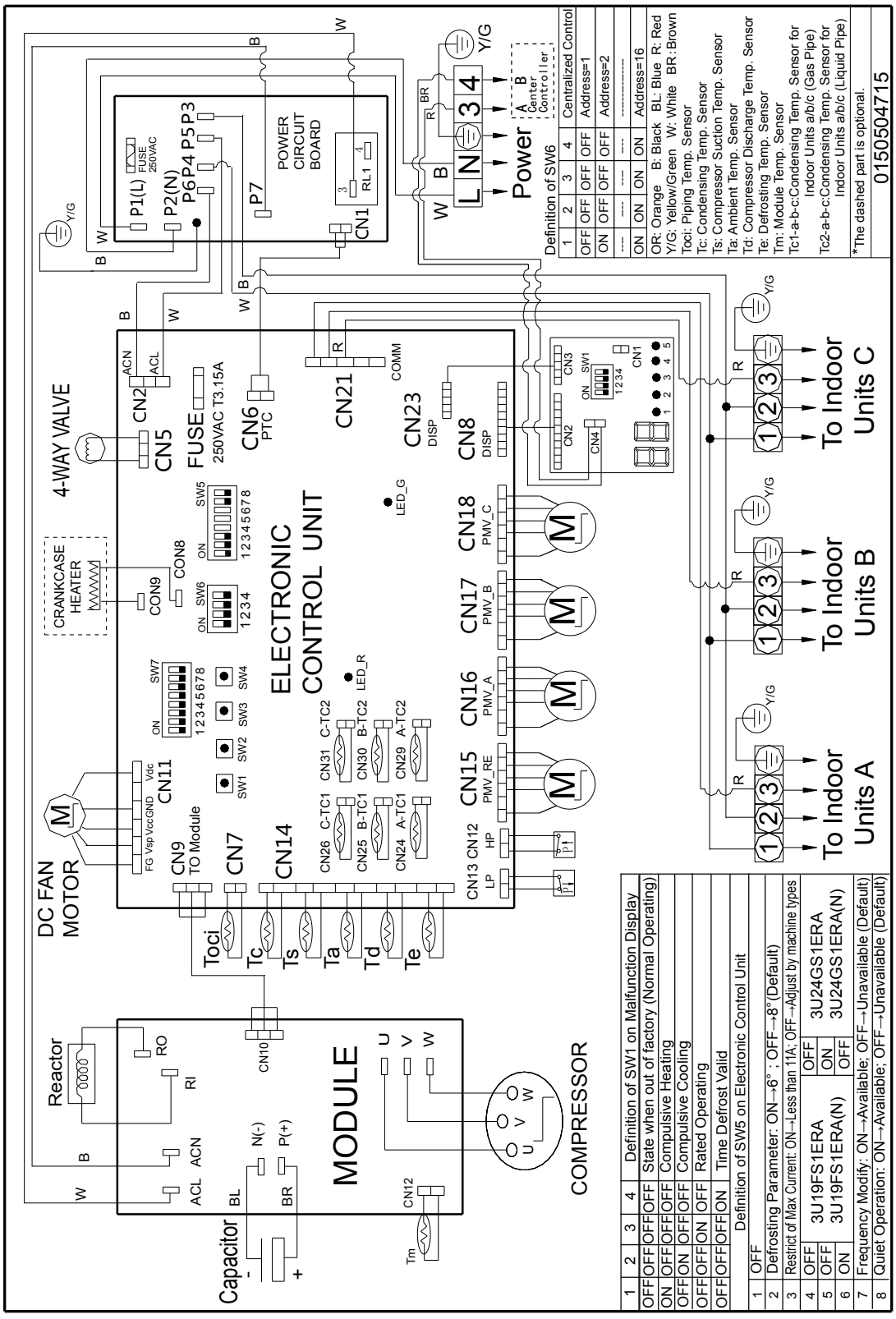
1U48LS1ERB(S) 1U48IS1ERB(S) 1U60IS1ERB(S)



1U48IS1EAB(S) 1U48LS1EAB(S) 1U60IS1EAB(S) 1U60IS2EAB(S)



3U19FS1ERA 3U24GS1ERA 3U19FS1ERA(N) 3U24GS1ERA(N)

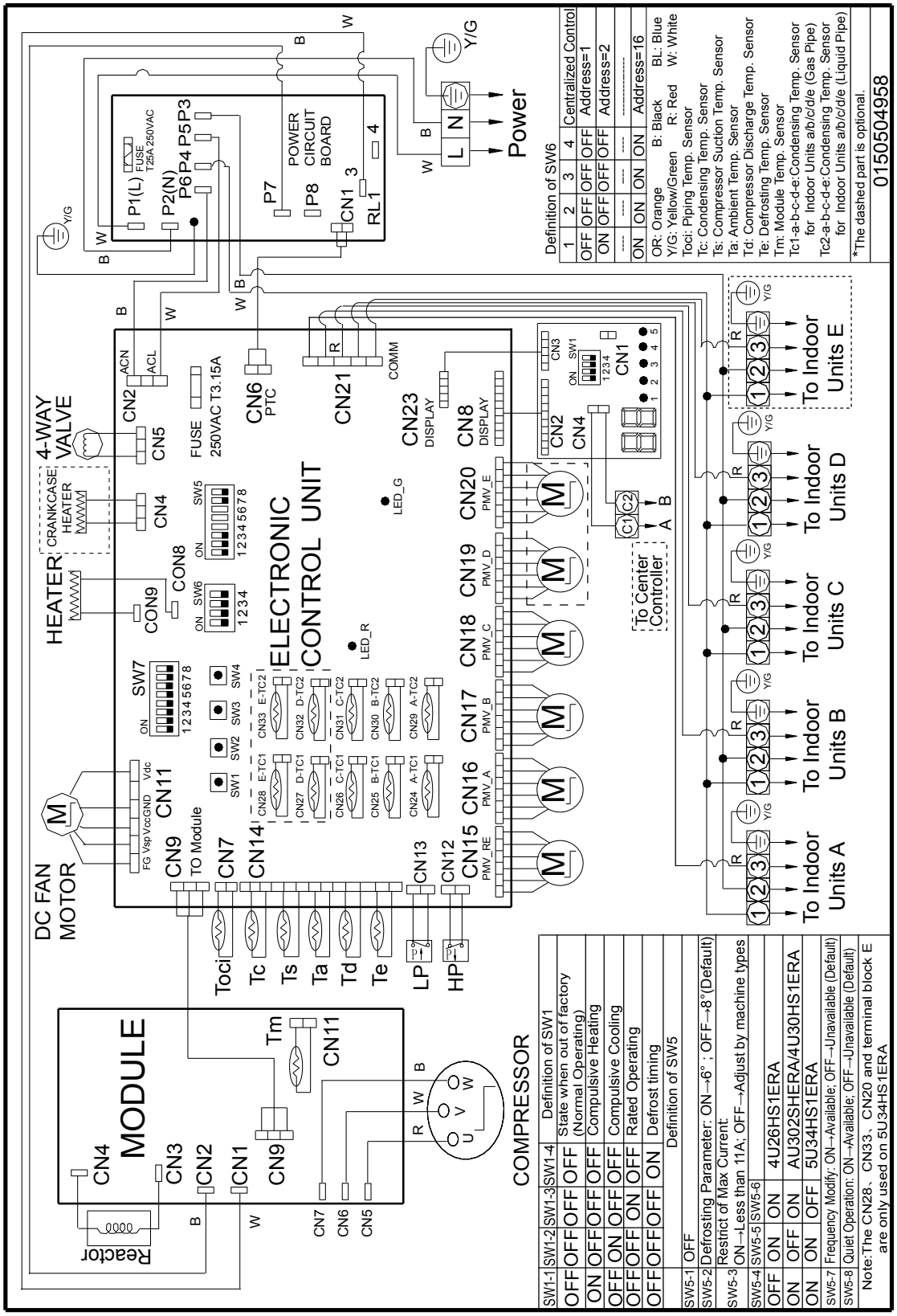


1	2	3	4	Definition of SW1 on Malfunction Display
OFF	OFF	OFF	OFF	State when out of factory (Normal Operating)
ON	OFF	OFF	OFF	Compulsive Heating
OFF	ON	OFF	OFF	Compulsive Cooling
OFF	OFF	ON	OFF	Rated Operating
OFF	OFF	OFF	ON	Time Defrost Valid

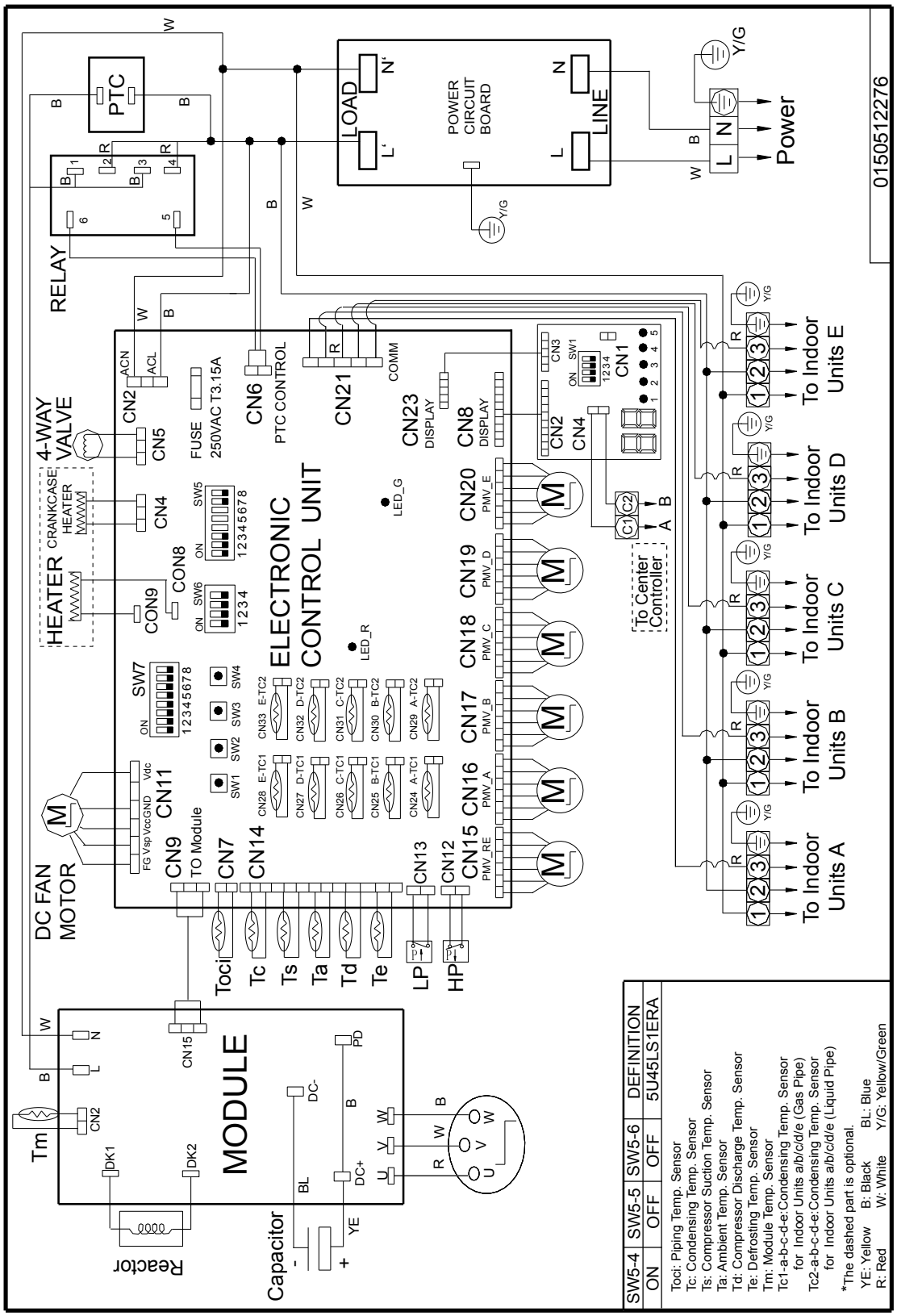
Definition of SW5 on Electronic Control Unit

1	OFF		
2	Defrosting Parameter: ON→6° ; OFF→8°(Default)		
3	Restrict of Max Current: ON→Less than 11A; OFF→Adjust by machine types		
4	OFF	3U19FS1ERA	OFF 3U24GS1ERA
5	OFF	3U19FS1ERA(N)	ON 3U24GS1ERA(N)
6	ON		OFF
7	Frequency Modify: ON→Available; OFF→Unavailable (Default)		
8	Quiet Operation: ON→Available; OFF→Unavailable (Default)		

4U26HS1ERA 4U30HS1ERA 5U34HS1ERA

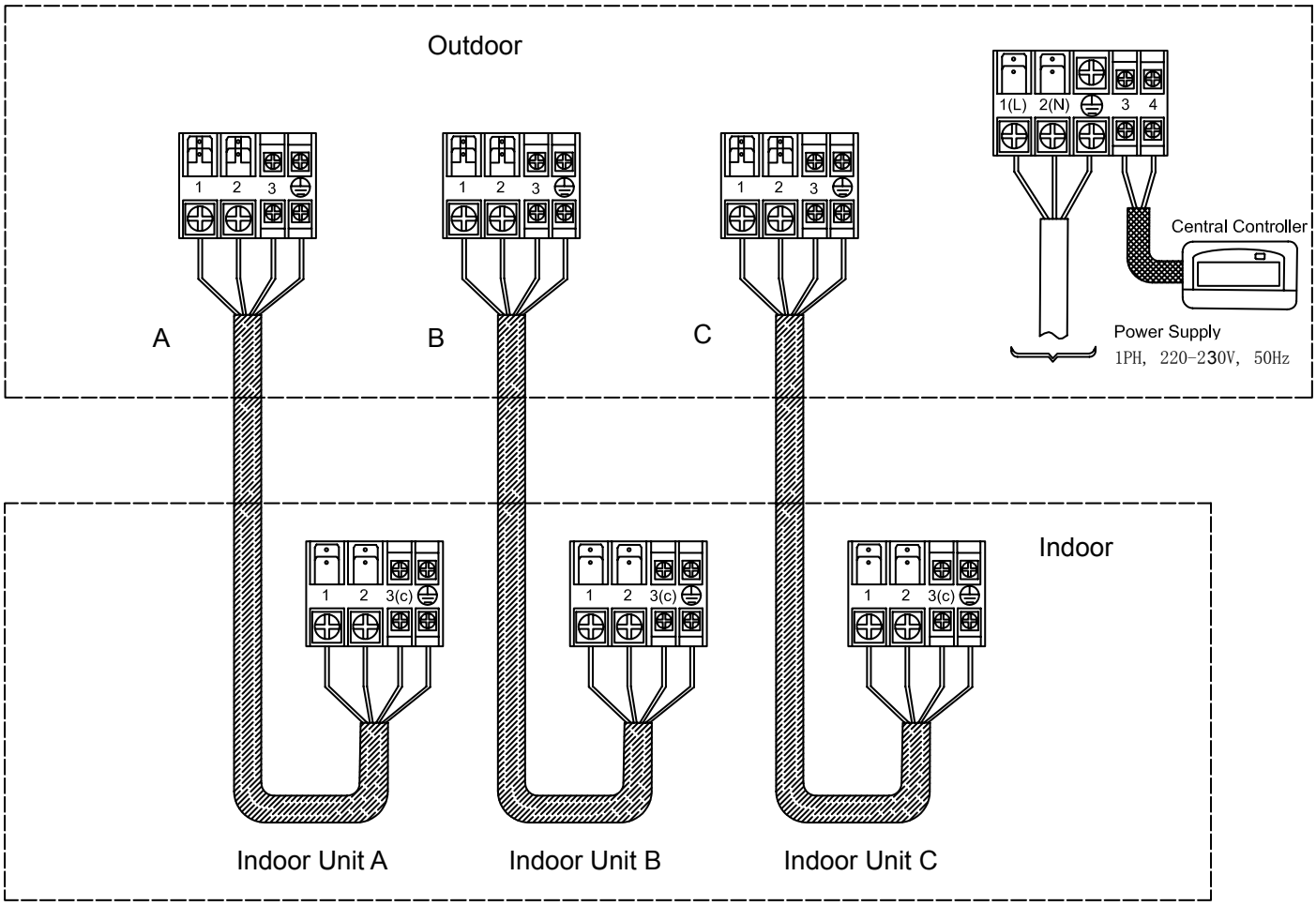


5U45LS1ERA


0150512276
ELECTRONIC CONTROL UNIT
MODULE
RELAY
PTC
LOAD
POWER CIRCUIT BOARD
LINE
Power
4-WAY VALVE
HEATER
CRANKCASE HEATER
FUSE 250VAC T3.15A
PTC CONTROL
DISPLAY
COMM
DC FAN MOTOR
Reactor
Capacitor
To Center Controller
To Indoor Units A
To Indoor Units B
To Indoor Units C
To Indoor Units D
To Indoor Units E
Toci
Tc
Ts
Ta
Td
Te
Tm
LP
HP
SW5-4 ON
SW5-5 OFF
SW5-6 OFF
DEFINITION 5U45LS1ERA
Toci: Piping Temp. Sensor
Tc: Condensing Temp. Sensor
Ts: Compressor Suction Temp. Sensor
Ta: Ambient Temp. Sensor
Td: Compressor Discharge Temp. Sensor
Te: Defrosting Temp. Sensor
Tm: Module Temp. Sensor
Tc1-a-b-c-d-e:Condensing Temp. Sensor for Indoor Units a/b/c/d/e (Gas Pipe)
Tc2-a-b-c-d-e:Condensing Temp. Sensor for Indoor Units a/b/c/d/e (Liquid Pipe)
*The dashed part is optional.
YE: Yellow B: Black BL: Blue
R: Red W: White Y/G: Yellow/Green

4. Wiring connection

3U19FS1ERA 3U19FS1ERA(N) 3U24GS1ERA 3U24GS1ERA(N)



Power Supply Cable:
H05RN-F3G 4.0mm²

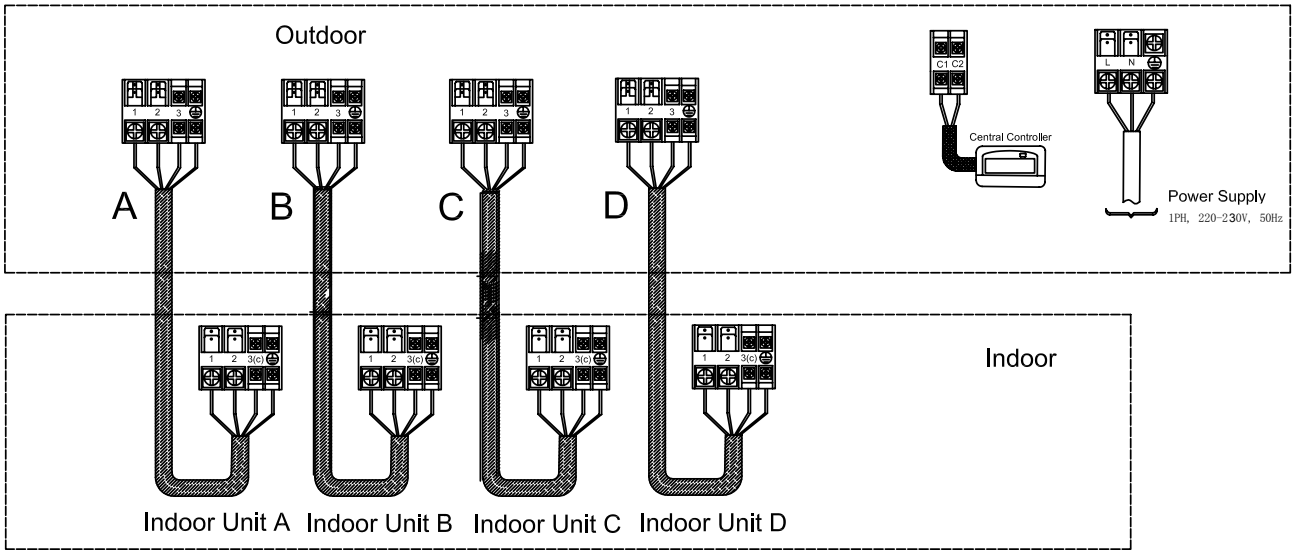
Connecting Cable:
H05RN-F4G 2.5mm²

Connecting Cable:
H05RN-F2G 2.5mm²

If this outdoor unit connects with AS*S1ERA, the connecting cable is 1.5mm²

Connect the connecting wires between indoor and outdoor units and ensure the sequence numbers on terminals match with each other.

4U26HS1ERA 4U30HS1ERA



Power Supply Cable:
H05RN-F3G 4.0mm²

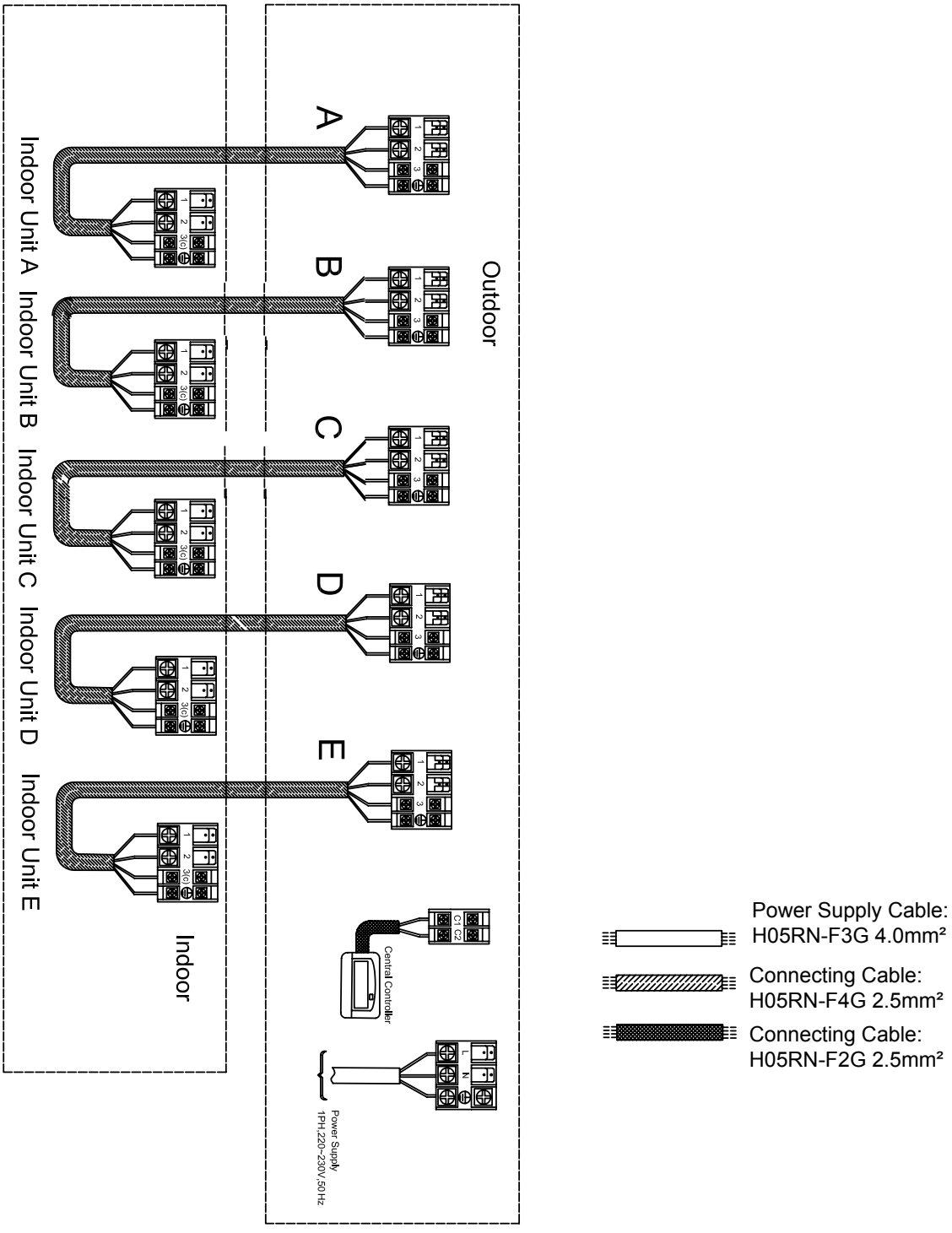
Connecting Cable:
H05RN-F4G 2.5mm²

Connecting Cable:
H05RN-F2G 2.5mm²

If this outdoor unit connects with AS*S1ERA, the connecting cable is 1.5mm²

Connect the connecting wires between indoor and outdoor units and ensure the sequence numbers on terminals match with each other.

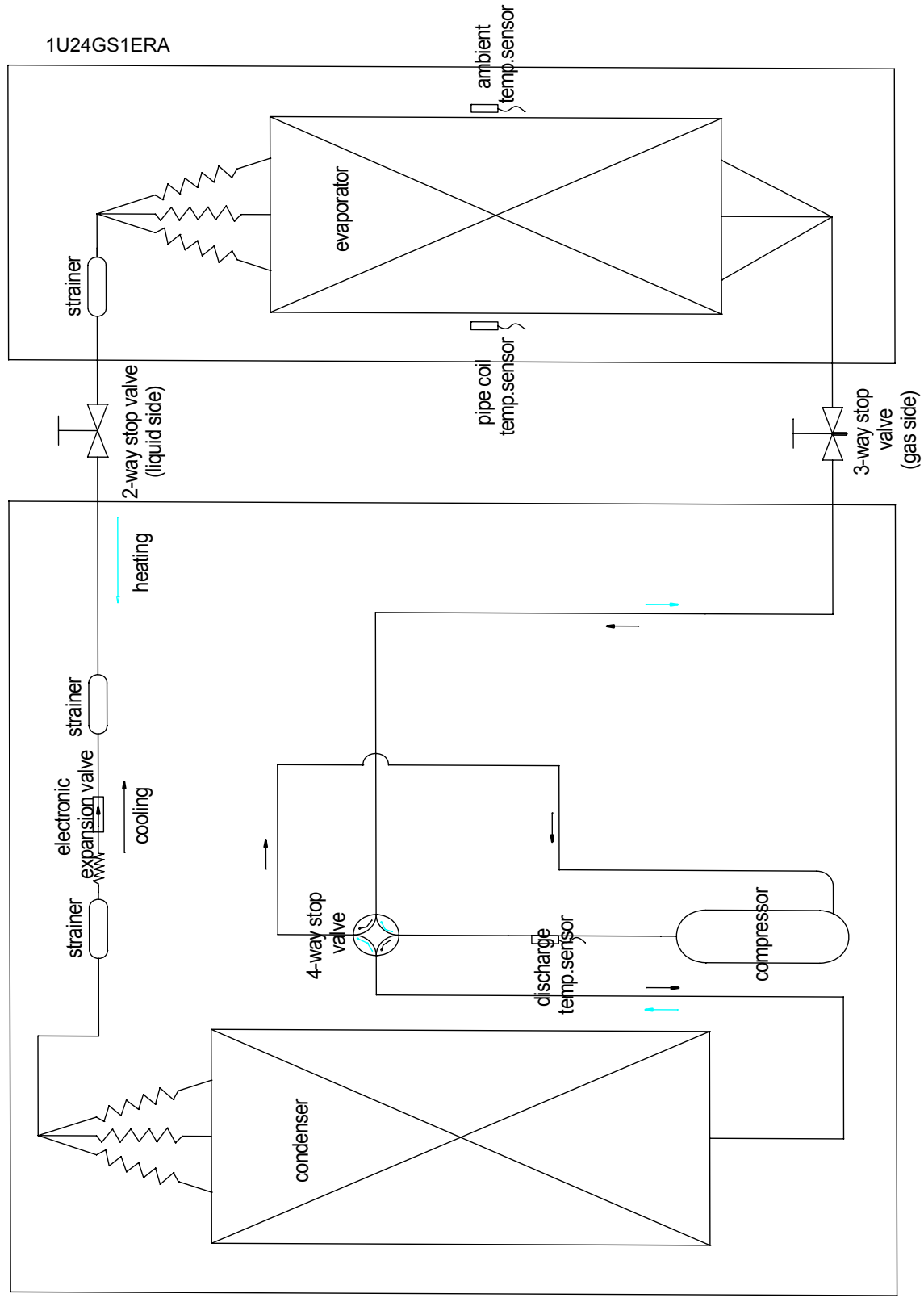
5U34HS1ERA 5U45LS1ERA:



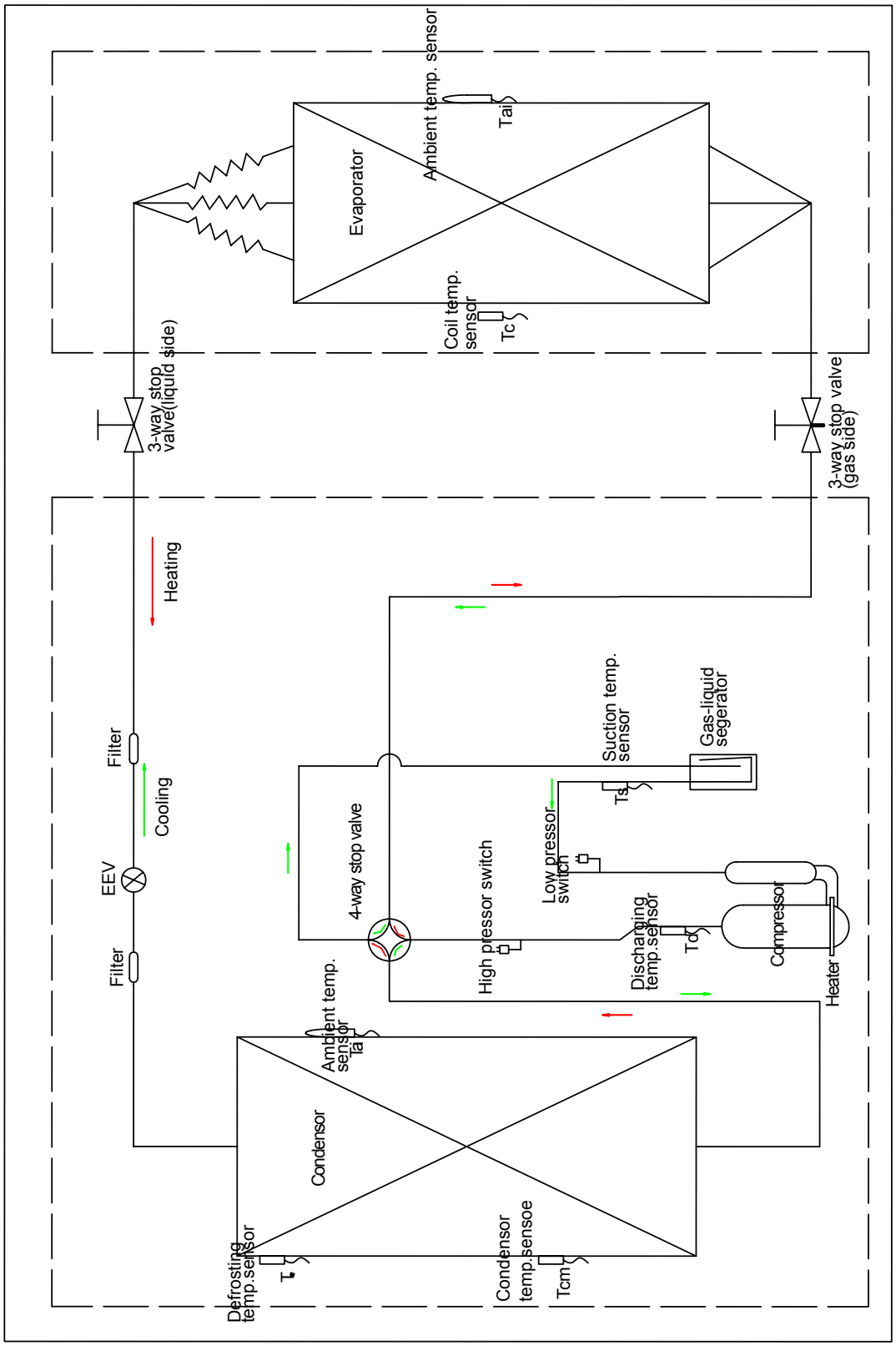
If this outdoor unit connects with AS*S1ERA, the connecting cable is 1.5mm²

Connect the connecting wires between indoor and outdoor units and ensure the sequence numbers on terminals match with each other.

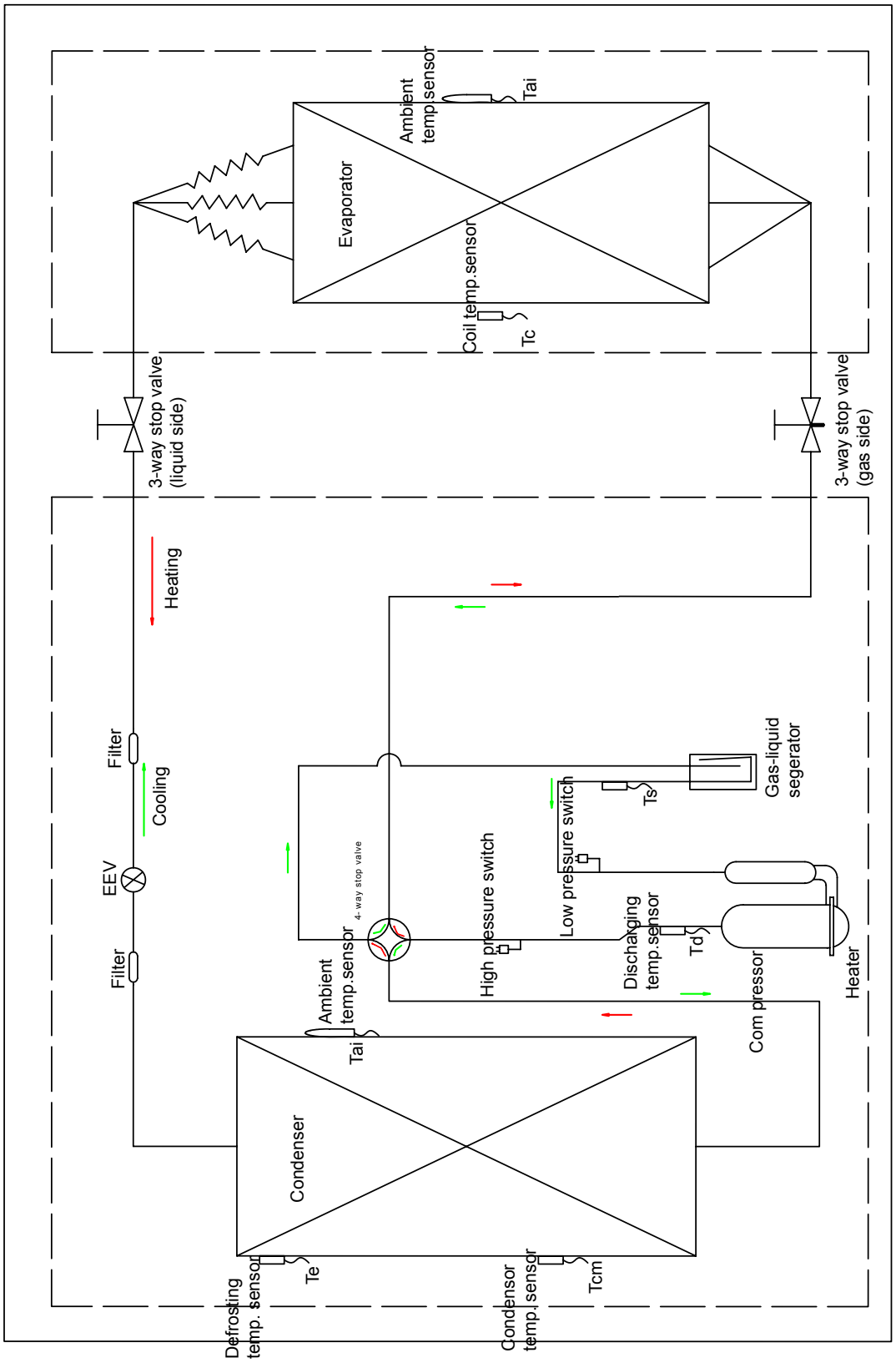
5. Refrigerant diagram



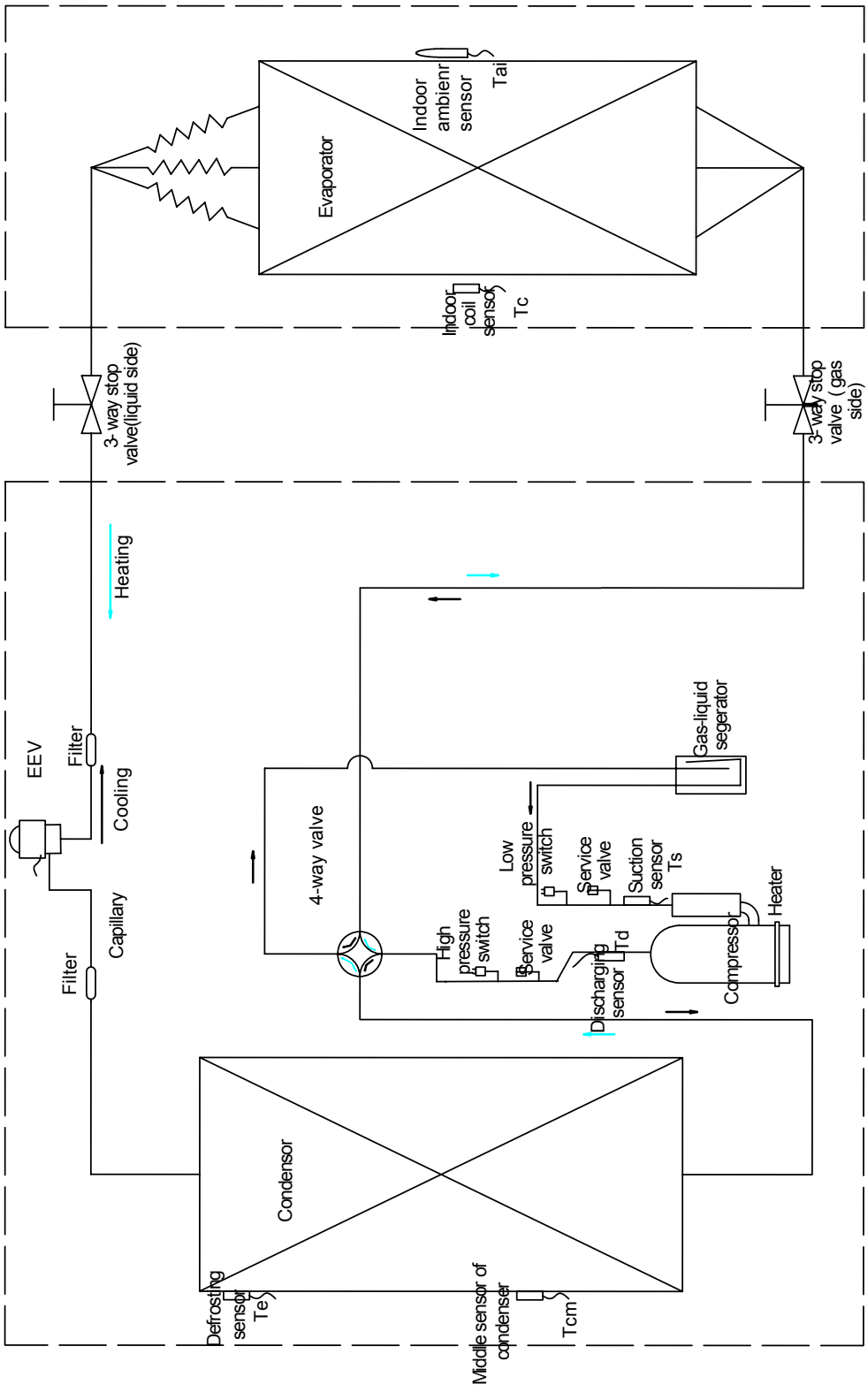
1U28GS2ERA(S) 1U28GS2ERA(S)(D)



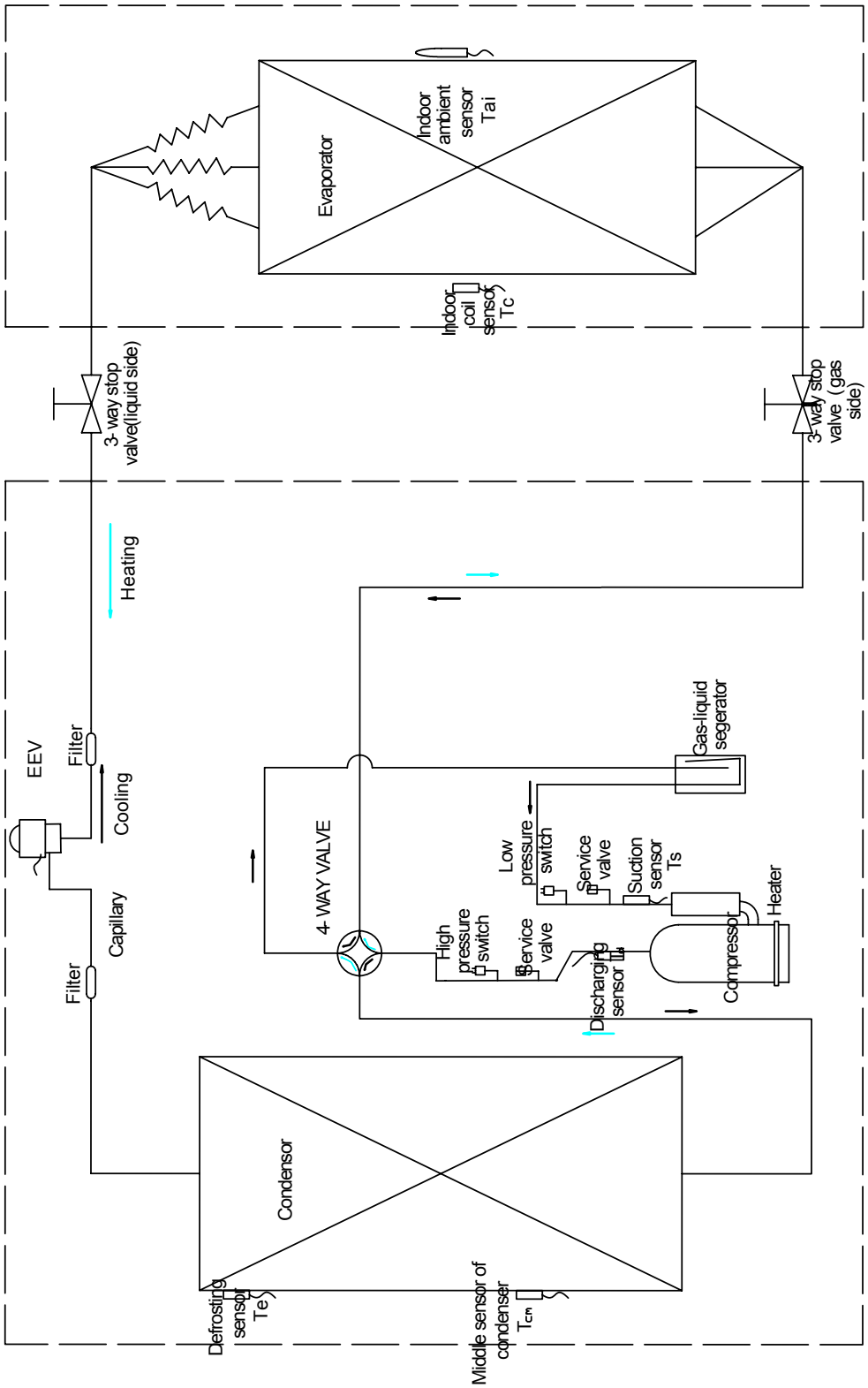
1U28HS1ERA (S) 1U36HS1ERA (S)



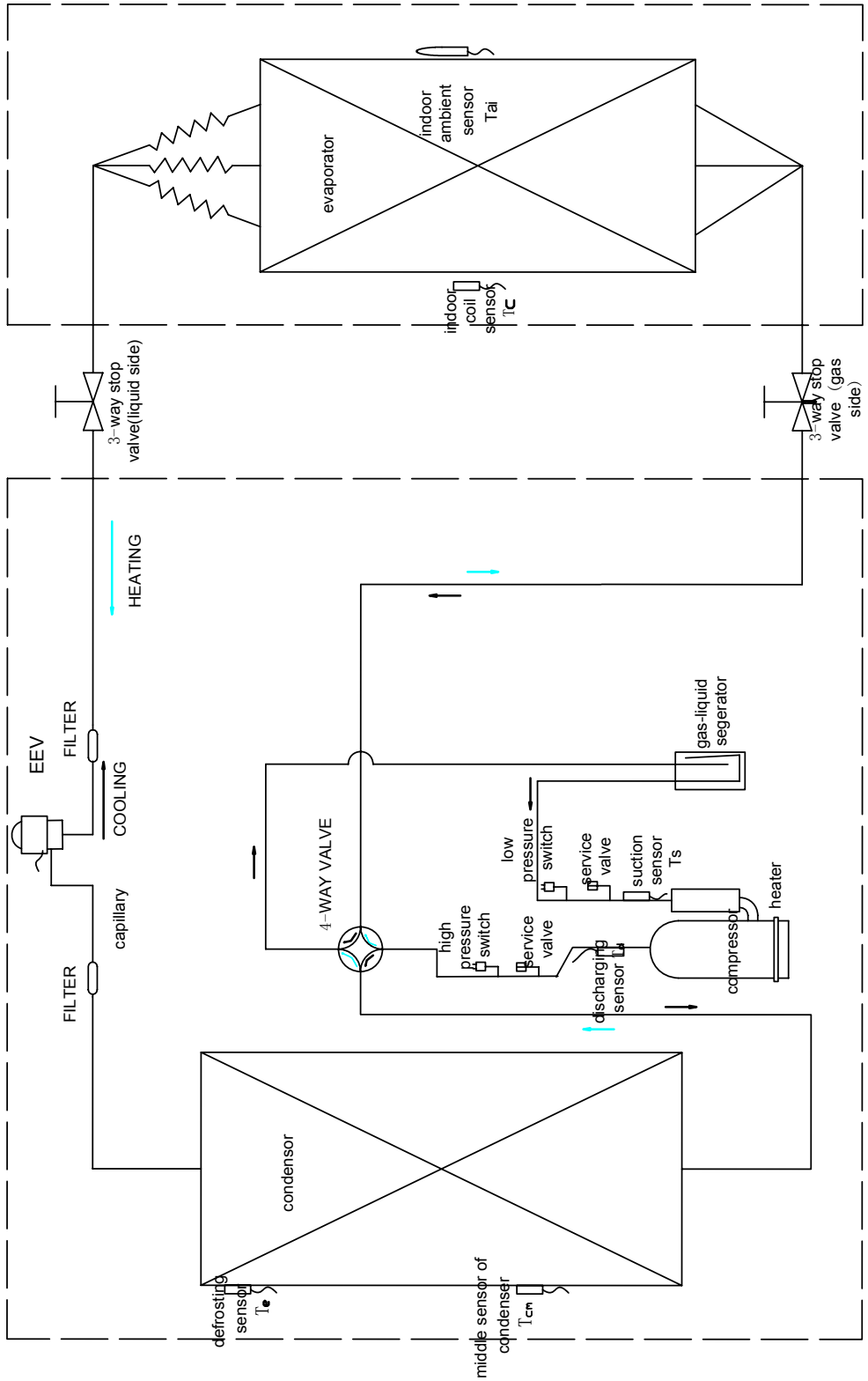
1U49LS1EAB (S) 1U48LS1ERB (S) 1U48LS1ERA (S) 1U60LS2EAB (S)



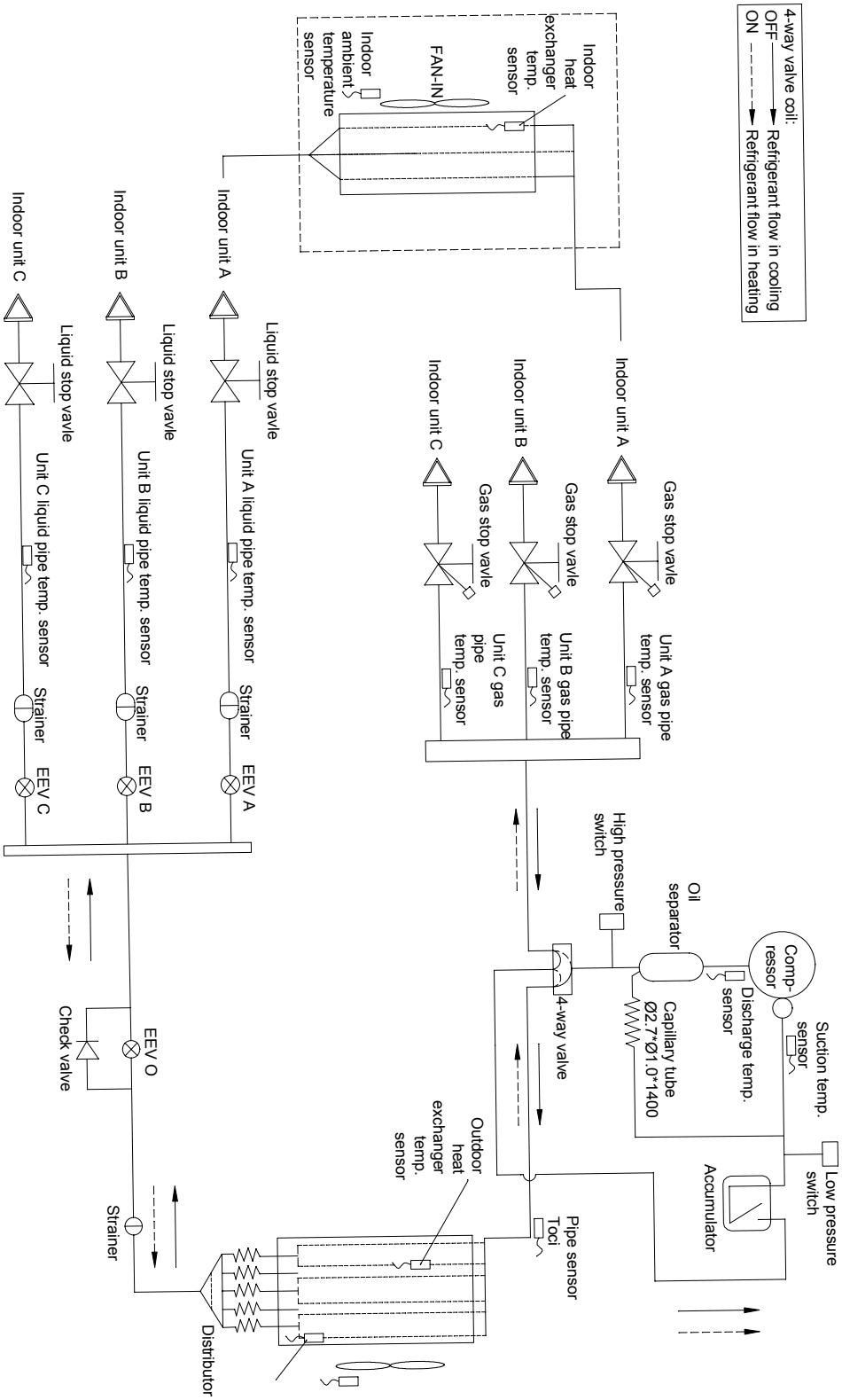
1U60LS1EAB (S) 1U60LS1ERB (S) 1U60LS1ERA (S)



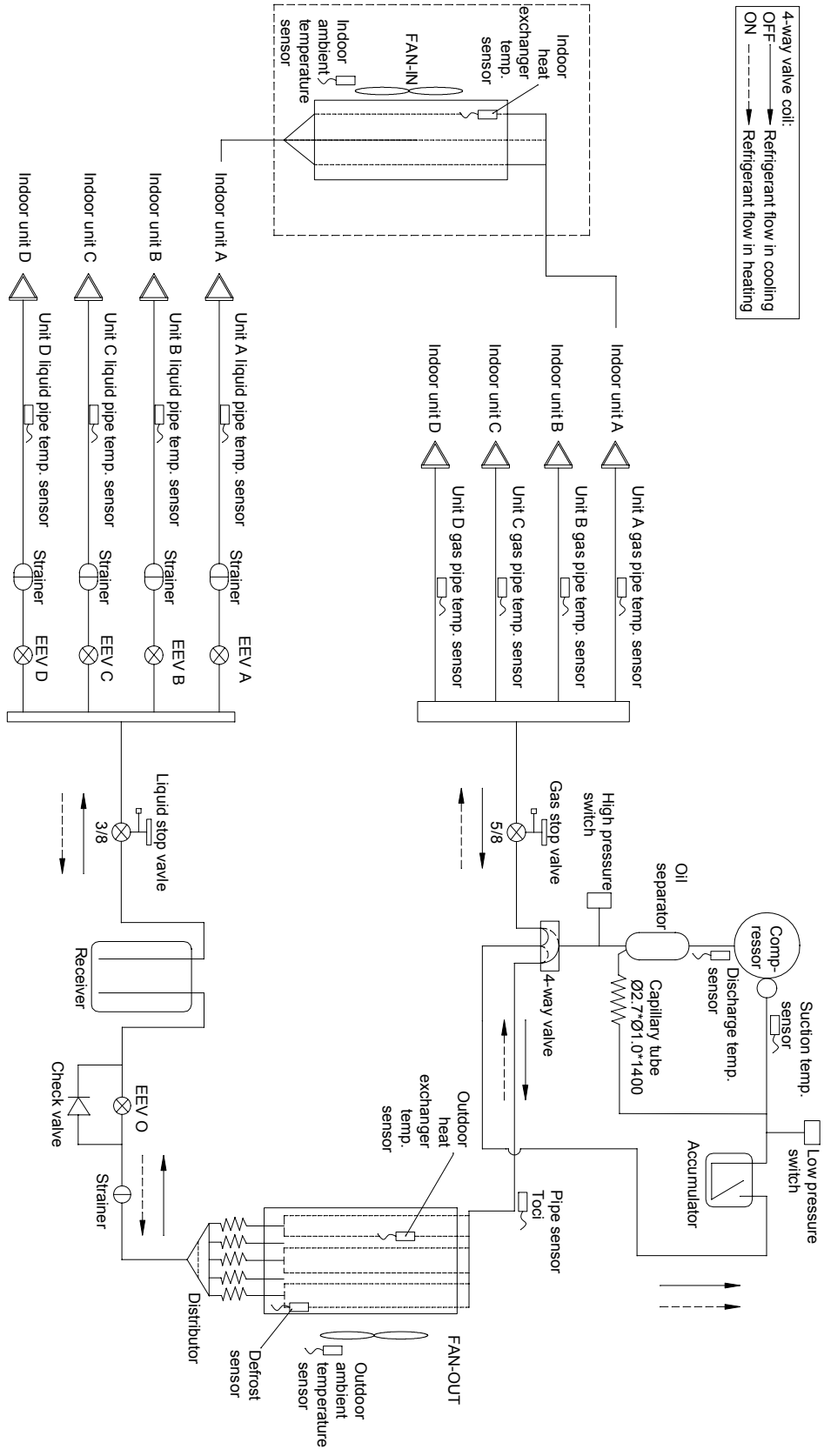
1U48IS1ERB (S) 1U60IS1ERB (S) 1U60IS2ERB (S)



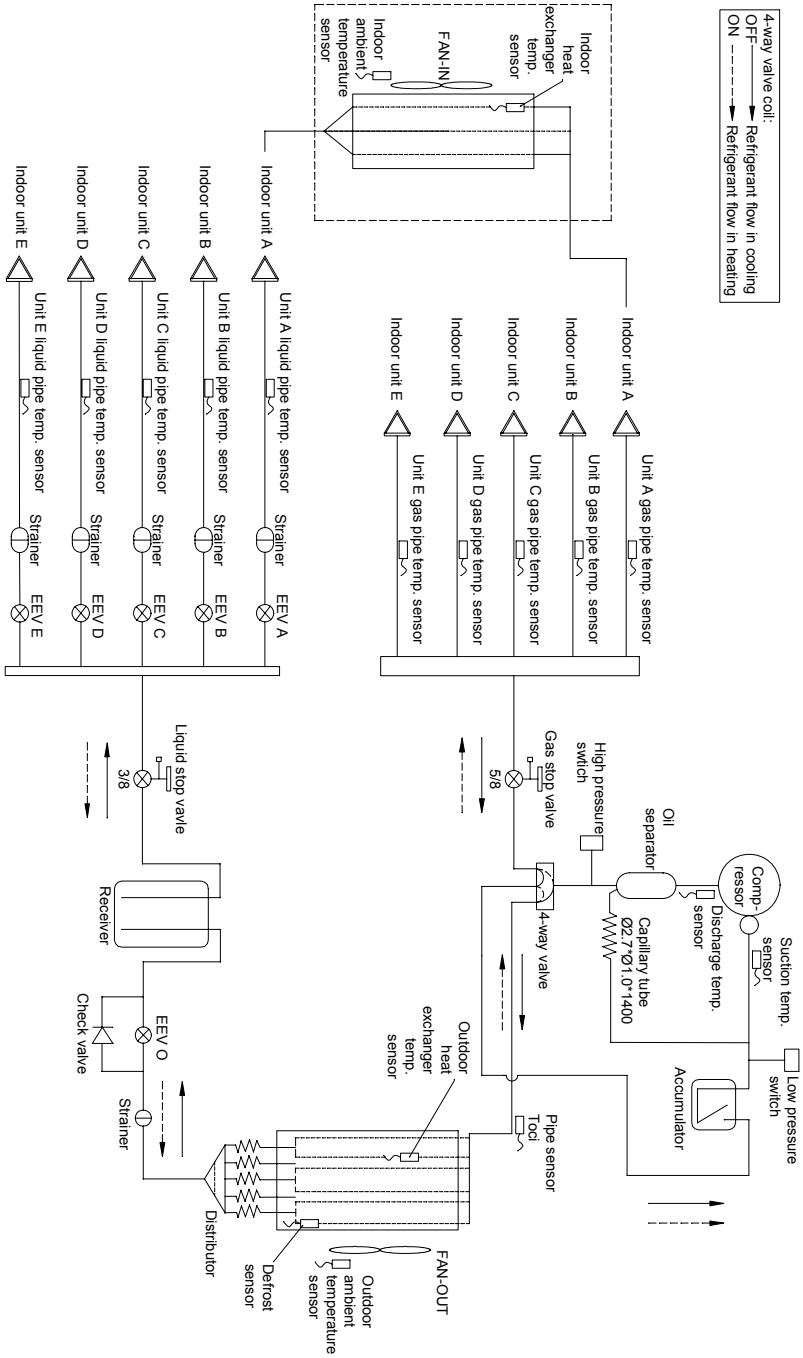
3U19FS1ERA 3U19FS1ERA (N) 3U24GS1ERA 3U24GS1ERA (N)



4U26HS1ERA 4U30HS1ERA

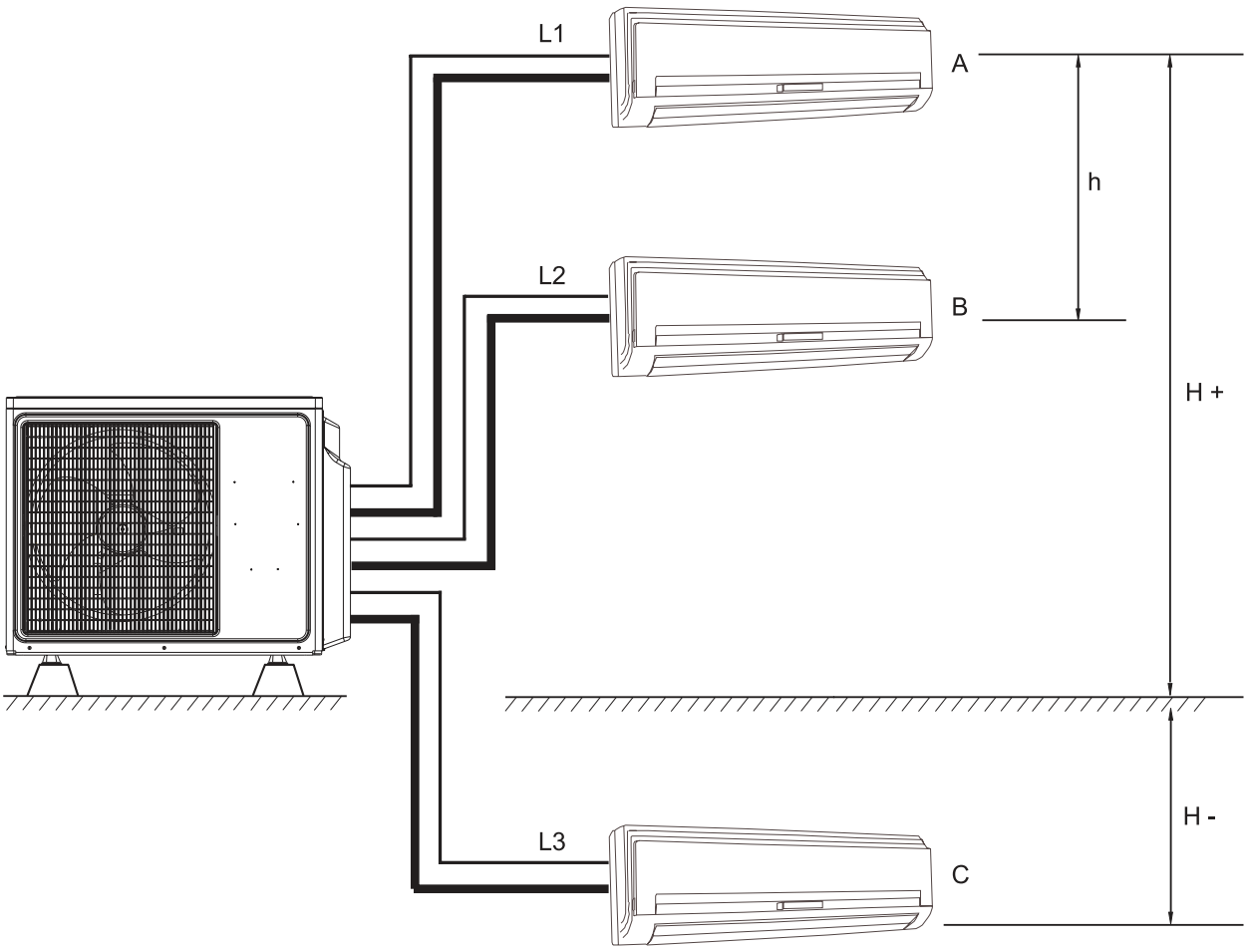


5U34HS1ERA 5U45LS1ERA



6. Limitation values on pipe installation

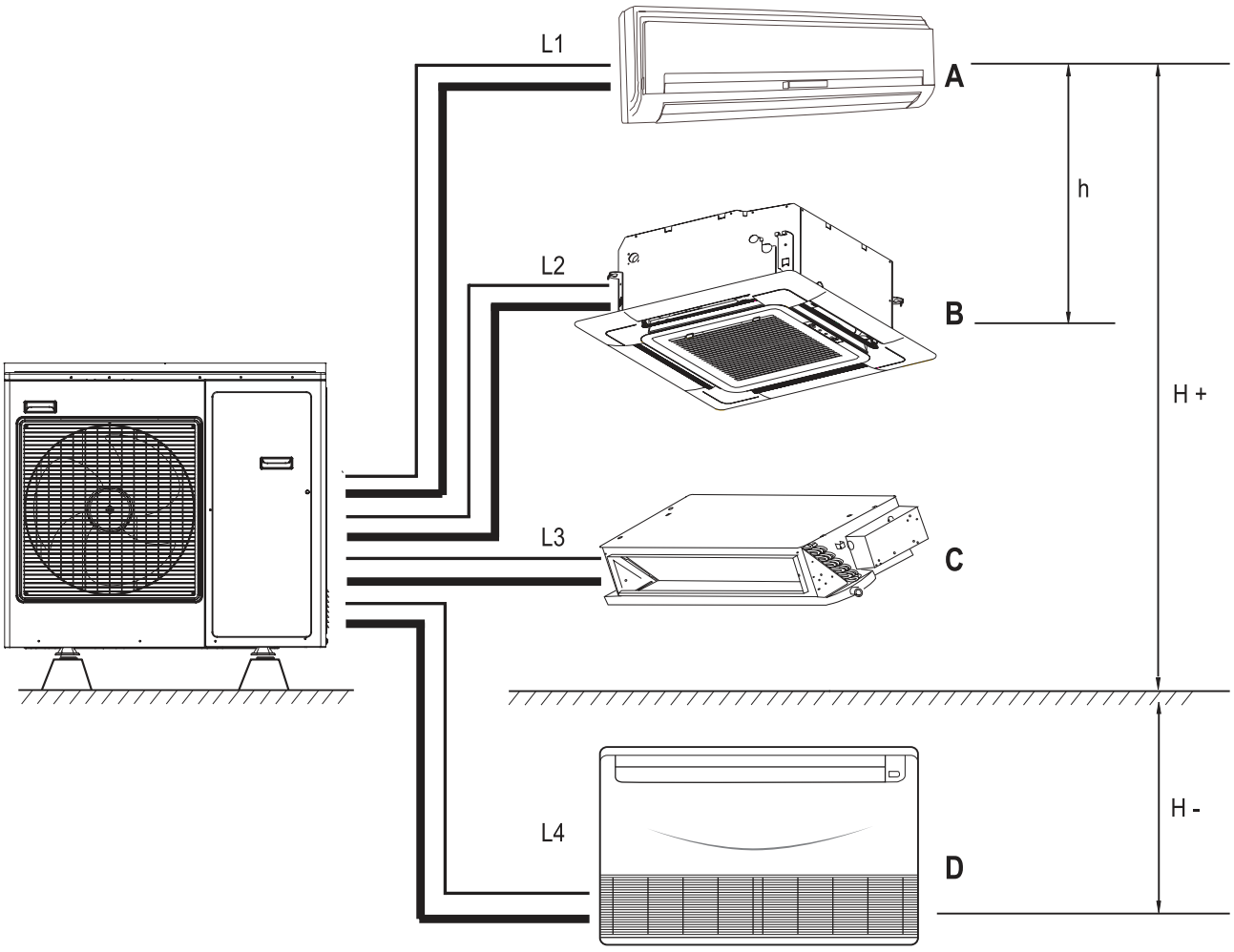
3U19FS1ERA 3U19FS1ERA(N) 3U24GS1ERA 3U24GS1ERA(N)



The piping length information, please refer the following table.

Item	Unit	Description	Standard	Maximum
A,B,C liquid pipe	mm	Size of the liquid side connection pipe	φ6.35	/
A,B,C Gas pipe	mm	Size of the gas side connection pipe	φ9.52	/
L1 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L2 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L3 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L1+L2+L3	m	Total liquid piping length	≤ 30	3U19:≤ 50 3U24:≤ 60
h	m	Drop between every two indoor units when the location of the outdoor unit is among indoor units	≤ 1	≤ 15
	m	Drop between every two indoor units when the location of the outdoor unit is at one side of indoor units	≤ 1	≤ 7.5
H+	m	Drop between the outdoor unit and the indoor unit	≤ 5	≤ 15
H-	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is among the indoor units	≤ 5	≤ 7.5
	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is at one side of indoor units	≤ 5	≤ 15

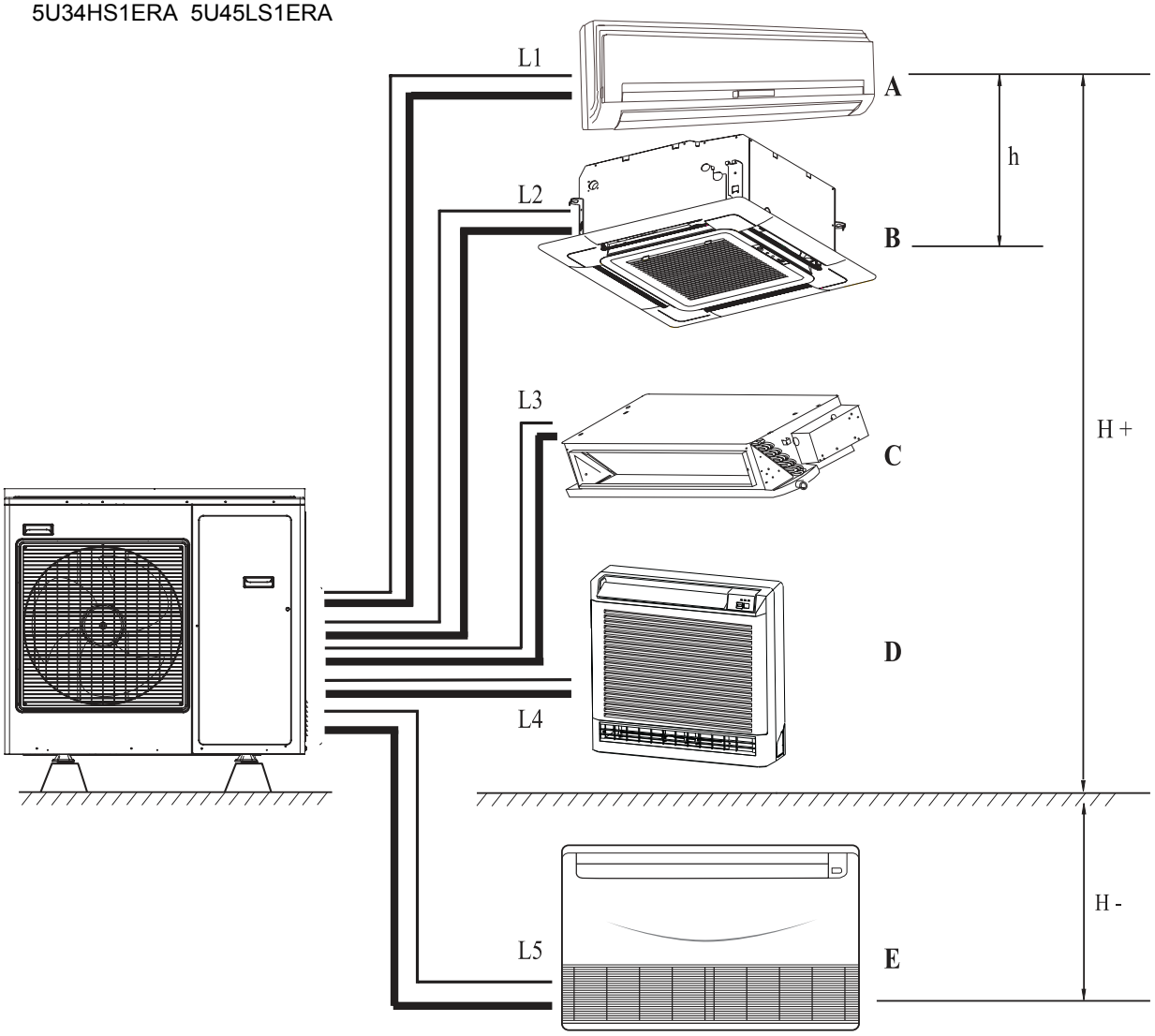
4U26HSIERA 4U30HS1ERA



The piping length information, please refer the following table.

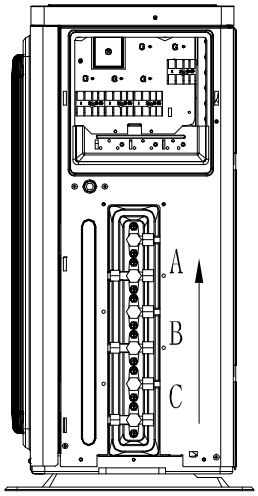
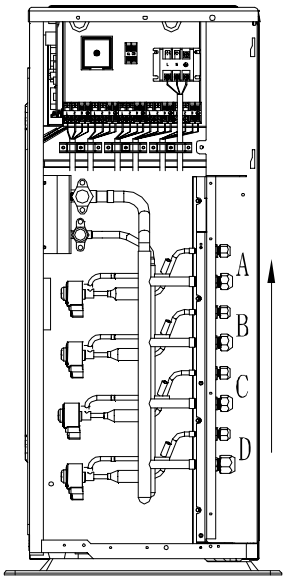
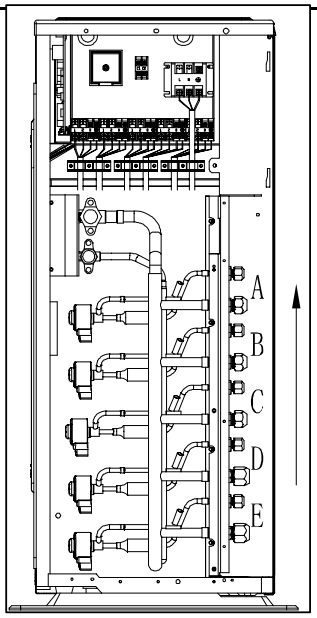
Item	Unit	Description	Standard	Maximum
A,B,C, Dliquid pipe	mm	Size of the liquid side connection pipe	φ6.35	/
A,B,C Gas pipe	mm	Size of the gas side connection pipe	φ9.52	/
D Gas pi[pe	mm	Size of the gas side connection pipe	φ12.7	/
L1 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L2 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L3 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L4 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L1+L2+L3+L4	m	Total liquid piping length	≤40	≤70
h	m	Drop between every two indoor units when the location of the outdoor unit is among indoor units	≤ 1	≤ 15
	m	Drop between every two indoor units when the location of the outdoor unit is at one side of indoor units	≤ 1	≤ 7.5
H+	m	Drop between the outdoor unit and the indoor unit	≤ 5	≤ 15
H-	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is among the indoor units	≤ 5	≤ 7.5
	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is at one side of indoor units	≤ 5	≤ 15

5U34HS1ERA 5U45LS1ERA



The piping length information, please refer the following table.

Item	Unit	Description	Standard	Maximum
A,B,C,D,E liquid pipe	mm	Size of the liquid side connection pipe	φ6.35	/
A,B,C,D Gas pipe	mm	Size of the gas side connection pipe	φ9.52	/
E Gas pi[pe	mm	Size of the gas side connection pipe	φ12.7	/
L1 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L2 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L3 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L4 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L5 (one way)	m	Max.piping length between IU and OU of the way	≤ 10	≤ 25
L1+L2+L3+L4+L5	m	Total liquid piping length	≤40	≤80
h	m	Drop between every two indoor units when the location of the outdoor unit is among indoor units	≤ 1	≤ 15
	m	Drop between every two indoor units when the location of the outdoor unit is at one side of indoor units	≤ 1	≤ 7.5
H+	m	Drop between the outdoor unit and the indoor unit	≤ 5	≤ 15
H-	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is among the indoor units	≤ 5	≤ 7.5
	m	Drop between the outdoor unit and the indoor unit when the location of outdoor unit is at one side of indoor units	≤ 5	≤ 15

Connection cautions			
model	3U19FS1ERA 3U24GS1ERA	4U26HS1ERA,4U30HS1ERA	5U34HS1ERA
connection priority between indoor and stop valve higher from down to up			
when there is 1 indoor,the prior stop valve is	C	D	E
when there are 2 indoors,the prior stop valves are	C、B	D、C	E、D
when there are 3 indoors,the prior stop valves are	C、B、A	D、C、B	E、D、C
when there are 4 indoors,the prior stop valves are		D、C、B、A	E、D、C、B
when there are 5 indoors,the prior stop valves are			E、D、C、B、A
Note: For better oil return and more reliable system, please execute as the above when connecting indoor unit.			

7. Combination and the data

3U19FS1ERA 3U19FS1ERA(N) combination and the data

COOLING

Comb.	Combinations			Rated capacity(Kw) (Nom. cooling)			total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit A	Unit B	Unit C	min. data	rated data	max. data	min. data	rated data	max. data	min. data	rated data	max. Data	rated capacity			
1x1	7	—	—	2.0	—	—	1.00	2.00	2.80	0.50	0.55	1.30	2.22	2.44	5.77	3.64	A	6.20	A++
	9	—	—	2.5	—	—	1.00	2.50	3.10	0.50	0.70	1.34	2.22	3.11	5.93	3.57	A	6.20	A++
	12	—	—	3.5	—	—	1.00	3.50	4.10	0.50	1.00	1.50	2.22	4.44	6.65	3.50	A	6.20	A++
	15	—	—	4.4	—	—	1.30	4.40	5.00	0.50	1.30	1.90	2.22	5.77	8.43	3.38	A	6.20	A++
	18	—	—	5.0	—	—	1.50	5.00	5.40	0.50	1.50	1.90	2.22	6.65	8.43	3.33	A	6.20	A++
	24	—	—	5.4	—	—	1.50	5.40	7.00	0.50	1.60	2.00	2.22	7.10	8.87	3.38	A	6.20	A++
BI (1x2)	7	7	—	2.00	2.00	—	1.00	4.00	5.60	0.50	1.20	2.55	2.22	5.32	11.30	3.33	A	6.40	A++
	7	9	—	2.00	2.50	—	1.00	4.50	5.90	0.50	1.40	2.55	2.22	6.21	11.30	3.21	A	6.40	A++
	7	12	—	1.96	3.44	—	1.00	5.40	6.90	0.50	1.66	2.55	2.22	7.36	11.30	3.25	A	6.40	A++
	7	15		1.69	3.71		1.30	5.40	7.00	0.50	1.66	2.55	2.22	7.36	11.30	3.25	A	6.40	A++
	7	18	—	1.54	3.86	—	1.50	5.40	7.00	0.50	1.66	2.55	2.22	7.36	11.30	3.25	A	6.40	A++
	9	9	—	2.50	2.50	—	1.00	5.00	7.00	0.50	1.32	2.55	2.22	5.83	11.30	3.80	A	6.20	A++
	9	12	—	2.25	3.15	—	1.50	5.40	7.00	0.50	1.61	2.55	2.22	7.14	11.30	3.35	A	6.40	A++
	9	15	—	1.96	3.44	—	1.50	5.40	7.00	0.50	1.61	2.55	2.22	7.14	11.30	3.35	A	6.40	A++
	9	18	—	1.80	3.60	—	1.50	5.40	7.00	0.50	1.61	2.55	2.22	7.14	11.30	3.35	A	6.40	A++
	12	12	—	2.70	2.70	—	1.50	5.40	7.00	0.50	1.61	2.55	2.22	7.14	11.30	3.35	A	6.40	A++
	12	15	—	2.39	3.01	—	1.50	5.40	7.00	0.50	1.61	2.55	2.22	7.14	11.30	3.35	A	6.40	A++
	12	18	—	2.22	3.18	—	1.50	5.40	7.00	0.50	1.61	2.55	2.22	7.14	11.30	3.35	A	6.40	A++
TRI (1x3)	7	7	7	1.80	1.80	1.80	1.50	5.40	7.00	0.50	1.50	2.55	2.22	6.65	11.30	3.60	A	7.00	A++
	7	7	9	1.66	1.66	2.08	1.50	5.40	7.00	0.50	1.50	2.55	2.22	6.65	11.30	3.60	A	7.00	A++
	7	7	12	1.44	1.44	2.52	1.50	5.40	7.00	0.50	1.50	2.55	2.22	6.65	11.30	3.60	A	7.00	A++
	7	7	15	1.29	1.29	2.83	1.50	5.40	7.00	0.50	1.50	2.55	2.22	6.65	11.30	3.60	A	7.00	A++
	7	7	18	1.20	1.20	3.00	1.50	5.40	7.00	0.50	1.50	2.55	2.22	6.65	11.30	3.60	A	7.00	A++
	7	9	9	1.54	1.93	1.93	1.50	5.40	7.00	0.50	1.40	2.55	2.22	6.21	11.30	3.85	A	7.00	A++
	7	9	12	1.35	1.69	2.36	1.50	5.40	7.00	0.50	1.40	2.55	2.22	6.21	11.30	3.86	A	7.00	A++
	7	12	12	1.20	2.10	2.10	1.50	5.40	7.00	0.50	1.40	2.55	2.22	6.21	11.30	3.86	A	7.00	A++
	9	9	9	1.80	1.80	1.80	1.50	5.40	7.00	0.50	1.32	2.55	2.22	5.84	11.30	4.10	A	7.00	A++
	9	9	12	1.59	1.59	2.22	1.50	5.40	7.00	0.50	1.31	2.55	2.22	5.81	11.30	4.12	A	7.20	A++
	9	12	12	1.42	1.99	1.99	1.50	5.40	7.00	0.50	1.30	2.55	2.22	5.77	11.30	4.15	A	7.20	A++

HEATING

Comb.	Combinations			Rated capacity(kW) (Nom. heating)			total heating capacity(KW)			total power input (W)			total current (A)@230V			COP (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit A	Unit B	Unit C	min. data	rated data	max. data	min. data	rated data	max. data	min. data	rated data	max. Data	rated capacity			
1x1	7	—	—	2.3	—	—	1.00	2.30	4.00	0.47	0.60	1.50	2.09	2.66	6.65	3.83	A	3.60	A
	9	—	—	2.9	—	—	1.00	2.90	4.10	0.47	0.80	1.40	2.09	3.55	6.21	3.63	A	3.60	A
	12	—	—	3.8	—	—	1.00	3.80	4.10	0.47	1.05	1.50	2.09	4.66	6.65	3.62	A	3.60	A
	15	—	—	5.4	—	—	1.50	5.40	6.00	0.47	1.45	1.90	2.09	6.43	8.43	3.72	A	3.60	A
	18	—	—	5.5	—	—	1.50	5.50	6.00	0.47	1.49	2.55	2.09	6.61	11.30	3.69	A	3.60	A
	24	—	—	6.5	—	—	1.50	6.50	8.10	0.47	1.80	2.55	2.09	7.99	11.30	3.61	A	3.60	A
BI (1x2)	7	7	—	2.30	2.30	—	1.20	4.60	8.00	0.47	1.25	2.30	2.09	5.55	10.20	3.68	A	3.70	A
	7	9	—	2.30	2.90	—	1.20	5.20	8.10	0.47	1.44	2.30	2.09	6.39	10.20	3.61	A	3.70	A
	7	12	—	2.30	3.80	—	1.20	6.10	8.10	0.47	1.67	2.30	2.09	7.41	10.20	3.65	A	3.80	A
	7	15	—	1.94	4.56		1.80	6.50	8.10	0.50	1.80	2.55	2.22	7.99	11.30	3.61	A	3.80	A
	7	18	—	1.92	4.58	—	1.80	6.50	8.10	0.50	1.80	2.55	2.22	7.99	11.30	3.61	A	3.80	A
	9	9	—	3.00	3.00	—	1.80	6.00	8.10	0.50	1.46	2.55	2.22	6.49	11.30	4.10	A	3.80	A
	9	12	—	2.81	3.69	—	1.80	6.50	8.10	0.50	1.76	2.55	2.22	7.81	11.30	3.69	A	3.80	A
	9	15	—	2.27	4.23	—	1.80	6.50	8.10	0.50	1.77	2.55	2.22	7.85	11.30	3.67	A	3.80	A
	9	18	—	2.24	4.26	—	1.80	6.50	8.10	0.50	1.77	2.55	2.22	7.85	11.30	3.67	A	3.80	A
	12	12	—	3.25	3.25	—	1.80	6.50	8.10	0.50	1.77	2.55	2.22	7.85	11.30	3.67	A	3.80	A
	12	15	—	2.68	3.82	—	1.80	6.50	8.10	0.50	1.77	2.55	2.22	7.85	11.30	3.67	A	3.80	A
	12	18	—	2.66	3.84	—	1.80	6.50	8.10	0.50	1.77	2.55	2.22	7.85	11.30	3.67	A	3.80	A
TRI (1x3)	7	7	7	2.17	2.17	2.17	1.80	6.50	8.10	0.50	1.55	2.55	2.22	6.88	11.30	4.19	A	3.95	A
	7	7	9	1.99	1.99	2.51	1.80	6.50	8.10	0.50	1.60	2.55	2.22	7.10	11.30	4.06	A	3.95	A
	7	7	12	1.78	1.78	2.94	1.80	6.50	8.10	0.50	1.60	2.55	2.22	7.10	11.30	4.06	A	3.95	A
	7	7	15	1.50	1.50	3.51	1.80	6.50	8.10	0.50	1.65	2.55	2.22	7.32	11.30	3.94	A	3.95	A
	7	7	18	1.48	1.48	3.54	1.80	6.50	8.10	0.50	1.65	2.55	2.22	7.32	11.30	3.94	A	3.95	A
	7	9	9	1.85	2.33	2.33	1.80	6.50	8.10	0.50	1.60	2.55	2.22	7.10	11.30	4.06	A	4.00	A+
	7	9	12	1.66	2.09	2.74	1.80	6.50	8.10	0.50	1.55	2.55	2.22	6.88	11.30	4.19	A	4.00	A+
	7	12	12	1.51	2.49	2.49	1.80	6.50	8.10	0.50	1.55	2.55	2.22	6.88	11.30	4.19	A	4.00	A+
	9	9	9	2.17	2.17	2.17	1.80	6.50	8.10	0.50	1.46	2.55	2.22	6.46	11.30	4.46	A	4.00	A+
	9	9	12	1.96	1.96	2.57	1.80	6.50	8.10	0.50	1.45	2.55	2.22	6.43	11.30	4.48	A	4.00	A+
	9	12	12	1.80	2.35	2.35	1.80	6.50	8.10	0.50	1.45	2.55	2.22	6.43	11.30	4.48	A	4.00	A+

3U24GS1ERA 3U24GS1ERA(N) combination and the data

COOLING

Comb.	Combinations			Rated capacity(Kw) (Nom. cooling)			total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit A	Unit B	Unit C	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
1x1	7	—	—	2.0	—	—	1.00	2.00	2.80	0.50	0.55	1.30	2.22	2.44	5.8	3.64	A	6.20	A++
	9	—	—	2.5	—	—	1.00	2.50	3.10	0.50	0.70	1.34	2.22	3.11	5.9	3.57	A	6.20	A++
	12	—	—	3.5	—	—	1.00	3.50	4.10	0.50	1.00	1.65	2.22	4.44	7.3	3.50	A	6.20	A++
	15	—	—	4.4	—	—	1.30	4.40	5.20	0.50	1.23	1.90	2.22	5.46	8.43	3.58	A	6.20	A++
	18	—	—	5.0	—	—	1.50	5.00	5.40	0.50	1.45	2.00	2.22	6.43	8.9	3.45	A	6.20	A++
	24	—	—	6.5	—	—	1.50	6.50	7.40	0.50	1.90	2.60	2.22	8.43	11.5	3.42	A	6.20	A++
BI (1x2)	7	7	—	2.00	2.00	—	1.00	4.00	5.60	0.50	1.20	2.60	2.22	5.32	11.5	3.33	A	6.40	A++
	7	9	—	2.00	2.50	—	1.00	4.50	5.90	0.50	1.40	2.64	2.22	6.21	11.7	3.21	A	6.40	A++
	7	12	—	2.00	3.50	—	1.00	5.50	6.90	0.50	1.70	2.95	2.22	7.54	13.1	3.24	A	6.40	A++
	7	15	—	2.00	4.40	—	1.00	6.40	8.20	0.50	1.95	3.00	2.22	8.65	13.3	3.28	A	6.40	A++
	7	18	—	1.91	4.79	—	1.50	6.70	8.20	0.50	2.07	3.00	2.22	9.18	13.3	3.24	A	6.40	A++
	9	9	—	2.50	2.50	—	1.00	5.00	6.20	0.50	1.55	2.68	2.22	6.88	11.9	3.23	A	6.40	A++
	9	12	—	2.50	3.50	—	1.00	6.00	7.20	0.50	1.80	2.99	2.22	7.99	13.3	3.33	A	6.40	A++
	9	15	—	2.43	4.27	—	1.50	6.70	8.20	0.50	2.00	3.00	2.22	8.87	13.3	3.35	A	6.40	A++
	9	18	—	2.23	4.47	—	1.50	6.70	8.20	0.50	2.00	3.00	2.22	8.87	13.3	3.35	A	6.40	A++
	12	12	—	3.35	3.35	—	1.00	6.70	8.20	0.50	2.00	3.00	2.22	8.87	13.3	3.35	A	6.40	A++
	12	15	—	2.97	3.73	—	1.50	6.70	8.20	0.50	2.00	3.00	2.22	8.87	13.3	3.35	A	6.40	A++
	12	18	—	2.76	3.94	—	1.50	6.70	8.20	0.50	2.00	3.00	2.22	8.87	13.3	3.35	A	6.40	A++
TRI (1x3)	7	7	7	2.00	2.00	2.00	1.00	6.00	8.20	0.50	1.70	3.00	2.22	7.54	13.3	3.53	A	6.90	A++
	7	7	9	2.00	2.00	2.50	1.00	6.50	8.20	0.50	1.79	3.00	2.22	7.94	13.3	3.63	A	6.90	A++
	7	7	12	1.79	1.79	3.13	1.00	6.70	8.20	0.50	1.79	3.00	2.22	7.94	13.3	3.74	A	6.90	A++
	7	7	15	1.60	1.60	3.51	1.50	6.70	8.20	0.50	1.79	3.00	2.22	7.94	13.3	3.74	A	6.90	A++
	7	7	18	1.49	1.49	3.72	1.50	6.70	8.20	0.50	1.79	3.00	2.22	7.94	13.3	3.74	A	6.90	A++
	7	9	9	1.91	2.39	2.39	1.00	6.70	8.20	0.50	1.76	3.00	2.22	7.81	13.3	3.81	A	6.90	A++
	7	9	12	1.68	2.09	2.93	1.00	6.70	8.20	0.50	1.76	3.00	2.22	7.81	13.3	3.81	A	7.00	A++
	7	12	12	1.49	2.61	2.61	1.00	6.70	8.20	0.50	1.76	3.00	2.22	7.81	13.3	3.81	A	7.00	A++
	9	9	9	2.23	2.23	2.23	1.00	6.70	8.20	0.50	1.68	3.00	2.22	7.43	13.3	4.00	A	7.00	A++
	9	9	12	1.97	1.97	2.76	1.00	6.70	8.20	0.50	1.67	3.00	2.22	7.41	13.3	4.01	A	7.00	A++
	9	12	12	1.76	2.47	2.47	1.00	6.70	8.20	0.50	1.67	3.00	2.22	7.41	13.3	4.01	A	7.00	A++

HEATING

Comb.	Combinations			Rated capacity(kW) (Nom. heating)			total heating capacity(KW)			total power input (W)			total current (A)@230V			COP (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit A	Unit B	Unit C	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
1x1	7	—	—	2.3	—	—	1.00	2.30	4.00	0.47	0.60	1.40	2.09	2.66	6.21	3.83	A	3.62	A
	9	—	—	2.9	—	—	1.00	2.90	4.10	0.47	0.80	1.50	2.09	3.55	6.65	3.63	A	3.62	A
	12	—	—	3.8	—	—	1.00	3.80	4.10	0.47	1.05	1.65	2.09	4.66	7.32	3.62	A	3.62	A
	15	—	—	5.4	—	—	1.30	5.40	6.00	0.47	1.43	1.90	2.09	6.34	8.43	3.78	A	3.60	A
	18	—	—	5.5	—	—	1.50	5.50	6.00	0.47	1.50	2.00	2.09	6.65	8.87	3.67	A	3.62	A
	24	—	—	7.1	—	—	1.50	7.00	8.60	0.47	1.80	2.60	2.09	7.99	11.54	3.89	A	3.62	A
BI (1x2)	7	7	—	2.30	2.30	—	1.20	4.60	8.00	0.47	1.25	3.00	2.50	5.55	13.31	3.68	A	3.71	A
	7	9	—	2.30	2.90	—	1.20	5.20	8.10	0.47	1.43	2.90	2.50	6.34	12.87	3.64	A	3.71	A
	7	12	—	2.30	3.80	—	1.20	6.10	8.10	0.47	1.67	3.00	2.50	7.41	13.31	3.65	A	3.71	A
	7	15	—	2.30	5.40	—	1.80	7.70	9.00	0.50	2.10	3.00	2.65	9.32	13.31	3.67	A	3.77	A
	7	18	—	2.30	5.50	—	1.80	7.80	9.00	0.50	2.14	3.00	2.65	9.49	13.31	3.64	A	3.77	A
	9	9	—	2.90	2.90	—	1.80	5.80	8.20	0.50	1.60	3.00	2.65	7.10	13.31	3.63	A	3.77	A
	9	12	—	2.90	3.80	—	1.80	6.70	8.20	0.50	1.85	3.00	2.50	8.21	13.31	3.62	A	3.77	A
	9	15	—	2.80	5.20	—	1.80	8.00	9.00	0.50	2.20	3.00	2.50	9.76	13.31	3.64	A	3.82	A
	9	18	—	2.76	5.24	—	1.80	8.00	9.00	0.50	2.20	3.00	2.50	9.76	13.31	3.64	A	3.82	A
	12	12	—	3.80	3.80	—	1.80	7.60	8.20	0.50	2.10	3.00	2.65	9.32	13.31	3.62	A	3.82	A
	12	15	—	3.30	4.70	—	1.80	8.00	9.00	0.50	2.20	3.00	2.65	9.76	13.31	3.64	A	3.82	A
	12	18	—	3.27	4.73	—	1.80	8.00	9.00	0.50	2.20	3.00	2.65	9.76	13.31	3.64	A	3.82	A
TRI (1x3)	7	7	7	2.30	2.30	2.30	1.80	6.90	9.00	0.50	1.85	3.00	2.50	8.21	13.31	3.73	A	3.90	A
	7	7	9	2.30	2.30	2.90	1.80	7.50	9.00	0.50	1.90	3.00	2.65	8.43	13.31	3.95	A	3.90	A
	7	7	12	2.19	2.19	3.62	1.80	8.00	9.00	0.50	1.90	3.00	2.65	8.43	13.31	4.21	A	3.90	A
	7	7	15	1.84	1.84	4.32	1.80	8.00	9.00	0.50	1.95	3.00	2.50	8.65	13.31	4.10	A	3.90	A
	7	7	18	1.82	1.82	4.36	1.80	8.00	9.00	0.50	1.95	3.00	2.50	8.65	13.31	4.10	A	3.90	A
	7	9	9	2.27	2.86	2.86	1.80	8.00	9.00	0.50	1.90	3.00	2.50	8.43	13.31	4.21	A	4.00	A+
	7	9	12	2.04	2.58	3.38	1.80	8.00	9.00	0.50	1.85	3.00	2.50	8.21	13.31	4.32	A	4.00	A+
	7	12	12	1.86	3.07	3.07	1.80	8.00	9.00	0.50	1.88	3.00	2.50	8.34	13.31	4.25	A	4.00	A+
	9	9	9	2.67	2.67	2.67	1.80	8.00	9.00	0.50	1.83	3.00	2.50	8.10	13.31	4.38	A	4.00	A+
	9	9	12	2.42	2.42	3.17	1.80	8.00	9.00	0.50	1.82	3.00	2.50	8.07	13.31	4.39	A	4.00	A+
	9	12	12	2.21	2.90	2.90	1.80	8.00	9.00	0.50	1.82	3.00	2.50	8.07	13.31	4.40	A	4.00	A+

4U26HS1ERA combination and the data

COOLING

Comb.	Combinations				Rated capacity Output/kW (Nom. cooling)				total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit D	Unit A	Unit B	Unit C	Unit D	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
1x1	7	—	—	—	2.0	—	—	—	1.00	2.00	2.80	0.50	0.56	1.30	2.22	2.48	5.77	3.57	A	6.20	A++
	9	—	—	—	2.5	—	—	—	1.00	2.50	3.10	0.50	0.70	1.34	2.22	3.11	5.93	3.57	A	6.20	A++
	12	—	—	—	3.5	—	—	—	1.00	3.50	4.10	0.50	1.00	1.50	2.22	4.44	6.65	3.50	A	6.20	A++
	15	—	—	—	4.4	—	—	—	1.30	4.40	5.20	0.50	1.27	1.90	2.22	5.63	8.43	3.46	A	6.20	A++
	18	—	—	—	5.0	—	—	—	1.50	5.00	5.40	0.50	1.50	1.90	2.22	6.65	8.43	3.33	A	6.20	A++
BI (1x2)	7	15	—	—	2.00	4.40	—	—	1.00	6.40	7.80	0.50	1.95	3.43	2.15	9.42	15.20	3.28	A	6.40	A++
	7	18	—	—	2.00	5.00	—	—	1.00	7.00	8.20	0.50	2.16	3.43	2.15	10.43	15.20	3.24	A	6.40	A++
	7	24	—	—	1.79	5.81	—	—	1.00	7.60	9.00	0.55	2.30	3.43	2.50	11.11	15.20	3.30	A	6.40	A++
	9	15	—	—	2.50	4.40	—	—	1.00	6.90	8.50	0.50	1.95	3.43	2.15	9.42	15.20	3.54	A	6.20	A++
	9	18	—	—	2.33	4.67	—	—	1.00	7.00	8.50	0.50	2.00	3.43	2.15	9.66	15.20	3.50	A	6.20	A++
	9	24	—	—	2.11	5.49	—	—	1.00	7.60	9.00	0.55	2.35	3.43	2.50	11.35	15.20	3.23	A	6.40	A++
	12	12	—	—	3.50	3.50	—	—	1.00	7.00	8.20	0.50	2.10	3.43	2.15	10.14	15.20	3.33	A	6.40	A++
	12	15	—	—	3.37	4.23	—	—	1.00	7.60	9.00	0.50	2.32	3.43	2.15	11.21	15.20	3.28	A	6.40	A++
	12	18	—	—	3.13	4.47	—	—	1.00	7.60	9.00	0.50	2.32	3.43	2.15	11.21	15.20	3.28	A	6.40	A++
	12	24	—	—	2.66	4.94	—	—	1.00	7.60	9.00	0.55	2.32	3.43	2.50	11.21	15.20	3.28	A	6.40	A++
	18	18	—	—	3.80	3.80	—	—	1.00	7.60	9.00	0.55	2.32	3.43	2.50	11.21	15.20	3.28	A	6.40	A++
	18	24	—	—	3.30	4.30	—	—	1.00	7.60	9.00	0.55	2.32	3.43	2.50	11.21	15.20	3.28	A	6.40	A++
TRI (1x3)	7	7	9	—	2.00	2.00	2.50	—	1.20	6.50	8.70	0.55	2.00	3.43	2.50	9.66	15.20	3.25	A	6.60	A++
	7	7	12	—	2.00	2.00	3.50	—	1.20	7.50	9.00	0.55	2.12	3.43	2.50	10.24	15.20	3.54	A	6.60	A++
	7	7	15	—	1.81	1.81	3.98	—	1.20	7.60	9.00	0.55	2.12	3.43	2.50	10.24	15.20	3.58	A	6.60	A++
	7	7	18	—	1.69	1.69	4.22	—	1.20	7.60	9.00	0.55	2.12	3.43	2.50	10.24	15.20	3.58	A	6.60	A++
	7	7	24	—	1.45	1.45	4.70	—	1.20	7.60	9.00	0.55	2.12	3.43	3.50	10.24	15.20	3.58	A	6.80	A++
	7	9	9	—	2.00	2.50	2.50	—	1.20	7.00	9.00	0.55	2.12	3.43	2.50	10.24	15.20	3.30	A	6.80	A++
	7	9	12	—	1.90	2.38	3.33	—	1.20	7.60	9.00	0.55	2.12	3.43	2.50	10.24	15.20	3.58	A	6.80	A++
	7	9	15	—	1.71	2.13	3.76	—	1.20	7.60	9.00	0.55	2.12	3.43	2.50	10.24	15.20	3.58	A	7.00	A++
	7	9	18	—	1.60	2.00	4.00	—	1.20	7.60	9.00	0.55	2.12	3.43	2.50	10.24	15.20	3.58	A	7.00	A++
	7	12	12	—	1.69	2.96	2.96	—	1.20	7.60	9.00	0.55	2.12	3.43	2.50	10.24	15.20	3.58	A	7.00	A++
	7	12	15	—	1.54	2.69	3.38	—	1.20	7.60	9.00	0.55	2.12	3.43	2.50	10.24	15.20	3.58	A	7.00	A++
	7	12	18	—	1.45	2.53	3.62	—	1.20	7.60	9.00	0.55	2.12	3.43	2.50	10.24	15.20	3.58	A	7.00	A++
	9	9	9	—	2.50	2.50	2.50	—	1.20	7.60	9.00	0.55	2.00	3.43	2.50	9.66	15.20	3.80	A	7.00	A++
	9	9	12	—	2.24	2.24	3.13	—	1.20	7.60	9.00	0.55	2.00	3.43	2.50	9.66	15.20	3.80	A	7.00	A++
	9	9	15	—	2.02	2.02	3.56	—	1.20	7.60	9.00	0.55	2.00	3.43	2.50	9.66	15.20	3.80	A	7.00	A++
	9	9	18	—	1.90	1.90	3.80	—	1.20	7.60	9.00	0.55	2.00	3.43	2.50	9.66	15.20	3.80	A	7.00	A++
	9	12	12	—	2.00	2.80	2.80	—	1.20	7.60	9.00	0.55	2.00	3.43	2.50	9.66	15.20	3.80	A	7.00	A++
	12	12	12	—	2.53	2.53	2.53	—	1.20	7.60	9.00	0.55	2.00	3.43	2.50	9.66	15.20	3.80	A	7.00	A++
	12	12	15	—	2.33	2.33	2.93	—	1.20	7.60	9.00	0.55	2.00	3.43	2.50	9.66	15.20	3.80	A	7.00	A++
	12	12	18	—	2.22	2.22	3.17	—	1.20	7.60	9.00	0.55	2.00	3.43	2.50	9.66	15.20	3.80	A	7.00	A++
	7	7	7	7	1.90	1.90	1.90	1.90	1.50	7.60	9.00	0.55	1.98	3.43	2.85	9.57	15.20	3.84	A	7.00	A++
QUADRI(1x4)	7	7	7	9	1.79	1.79	1.79	2.24	1.50	7.60	9.00	0.55	1.98	3.43	2.85	9.57	15.20	3.84	A	7.00	A++
	7	7	7	12	1.60	1.60	1.60	2.80	1.50	7.60	9.00	0.55	1.98	3.43	2.85	9.57	15.20	3.84	A	7.00	A++
	7	7	7	15	1.46	1.46	1.46	3.22	1.50	7.60	9.00	0.55	1.98	3.43	2.85	9.57	15.20	3.84	A	7.00	A++
	7	7	7	18	1.38	1.38	1.38	3.45	1.50	7.60	9.00	0.55	1.98	3.43	2.85	9.57	15.20	3.84	A	7.00	A++
	7	7	9	9	1.69	1.69	2.11	2.11	1.50	7.60	9.00	0.55	1.98	3.43	2.85	9.57	15.20	3.84	A	7.00	A++
	7	7	9	12	1.52	1.52	1.90	2.66	1.50	7.60	9.00	0.55	1.98	3.43	2.85	9.57	15.20	3.84	A	7.00	A++
	7	9	9	9	1.60	2.00	2.00	2.00	1.50	7.60	9.00	0.55	1.98	3.43	2.85	9.57	15.20	3.84	A	7.00	A++
	7	9	9	12	1.45	1.81	1.81	2.53	1.50	7.60	9.00	0.55	1.98	3.43	2.85	9.57	15.20	3.84	A	7.00	A++
	9	9	9	9	1.90	1.90	1.90	1.90	1.50	7.60	9.00	0.55	1.98	3.43	2.85	9.57	15.20	3.84	A	7.00	A++
	9	9	9	12	1.73	1.73	1.73	2.42	1.50	7.60	9.00	0.55	1.98	3.43	2.85	9.57	15.20	3.84	A	7.00	A++

HEATING

Comb.	Combinations				Rated capacity Output/kW (Nom. cooling)				total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit D	Unit A	Unit B	Unit C	Unit D	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
1x1	7	—	—	—	2.3	—	—	—	1.00	2.30	4.00	0.55	0.60	1.50	2.44	2.66	6.65	3.83	A	3.65	A
	9	—	—	—	2.9	—	—	—	1.00	2.90	4.10	0.55	0.80	1.40	2.44	3.55	6.21	3.63	A	3.65	A
	12	—	—	—	3.8	—	—	—	1.00	3.80	4.10	0.55	1.04	1.50	2.44	4.61	6.65	3.65	A	3.65	A
	15	—	—	—	5.4	—	—	—	1.30	5.40	6.00	0.47	1.47	1.90	2.09	6.52	8.43	3.67	A	3.65	A
	18	—	—	—	5.5	—	—	—	1.50	5.50	6.00	0.55	1.50	2.60	2.44	6.65	11.54	3.67	A	3.65	A
	24	—	—	—	7.0	—	—	—	1.50	7.00	8.60	0.55	1.91	2.60	2.44	8.47	11.54	3.67	A	3.65	A
BI (1x2)	7	15	—	—	2.30	5.40	—	—	1.20	7.70	9.50	0.50	2.10	3.43	2.15	9.32	15.20	3.67	A	3.75	A
	7	18	—	—	2.30	5.50	—	—	1.20	7.80	9.50	0.50	2.13	3.43	2.15	9.45	15.20	3.66	A	3.75	A
	7	24	—	—	2.13	6.47	—	—	1.20	8.60	9.50	0.55	2.33	3.43	2.50	10.34	15.20	3.69	A	3.80	A
	9	15	—	—	2.90	5.40	—	—	1.20	8.30	9.50	0.50	2.28	3.43	2.15	10.12	15.20	3.64	A	3.80	A
	9	18	—	—	2.90	5.50	—	—	1.20	8.40	9.50	0.50	2.30	3.43	2.15	10.20	15.20	3.65	A	3.80	A
	9	24	—	—	2.52	6.08	—	—	1.20	8.60	9.50	0.55	2.35	3.43	2.50	10.43	15.20	3.66	A	3.80	A
	12	12	—	—	3.80	3.80	—	—	1.20	7.60	8.20	0.50	2.10	3.43	2.15	9.32	15.20	3.62	A	3.75	A
	12	15	—	—	3.55	5.05	—	—	1.20	8.60	9.50	0.50	2.36	3.43	2.15	10.47	15.20	3.64	A	3.80	A
	12	18	—	—	3.51	5.09	—	—	1.20	8.60	9.50	0.50	2.36	3.43	2.15	10.47	15.20	3.64	A	3.80	A
	12	24	—	—	3.03	5.57	—	—	1.20	8.60	9.50	0.55	2.34	3.43	2.50	10.38	15.20	3.67	A	3.80	A
	18	18	—	—	4.30	4.30	—	—	1.20	8.60	9.50	0.55	2.35	3.43	2.50	10.43	15.20	3.66	A	3.80	A
	18	24	—	—	3.78	4.82	—	—	1.50	8.60	9.50	0.55	2.35	3.43	2.50	10.43	15.20	3.66	A	3.80	A
TRI (1x3)	7	7	9	—	2.30	2.30	2.90	—	1.50	7.50	9.50	0.55	2.07	3.43	2.50	9.18	15.20	3.62	A	3.90	A
	7	7	12	—	2.30	2.30	3.80	—	1.50	8.40	9.50	0.55	2.16	3.43	2.50	9.58	15.20	3.89	A	3.90	A
	7	7	15	—	1.98	1.98	4.64	—	1.50	8.60	9.50	0.55	2.26	3.43	2.50	10.02	15.20	3.81	A	3.90	A
	7	7	18	—	1.96	1.96	4.68	—	1.50	8.60	9.50	0.55	2.26	3.43	2.50	10.02	15.20	3.81	A	3.90	A
	7	7	24	—	1.71	1.71	5.19	—	1.80	8.60	9.50	0.55	2.31	3.43	2.50	10.24	15.20	3.72	A	3.80	A
	7	9	9	—	2.30	2.90	2.90	—	1.50	8.10	9.50	0.55	2.21	3.43	2.50	9.80	15.20	3.67	A	3.90	A
	7	9	12	—	2.20	2.77	3.63	—	1.50	8.60	9.50	0.55	2.21	3.43	2.50	9.80	15.20	3.89	A	3.90	A
	7	9	15	—	1.87	2.35	4.38	—	1.50	8.60	9.50	0.55	2.26	3.43	2.50	10.02	15.20	3.81	A	3.90	A
	7	9	18	—	1.85	2.33	4.42	—	1.50	8.60	9.50	0.55	2.26	3.43	2.50	10.02	15.20	3.81	A	3.90	A
	7	12	12	—	2.00	3.30	3.30	—	1.50	8.60	9.50	0.55	2.21	3.43	2.50	9.80	15.20	3.89	A	3.90	A
	7	12	15	—	1.72	2.84	4.04	—	1.50	8.60	9.50	0.55	2.26	3.43	2.50	10.02	15.20	3.81	A	3.90	A
	7	12	18	—	1.71	2.82	4.08	—	1.50	8.60	9.50	0.55	2.26	3.43	2.50	10.02	15.20	3.81	A	3.90	A
	9	9	9	—	2.87	2.87	2.87	—	1.50	8.60	9.50	0.55	2.18	3.43	2.50	9.66	15.20	3.95	A	4.00	A+
	9	9	12	—	2.60	2.60	3.40	—	1.50	8.60	9.50	0.55	2.18	3.43	2.50	9.66	15.20	3.95	A	4.00	A+
	9	9	15	—	2.23	2.23	4.15	—	1.50	8.60	9.50	0.55	2.18	3.43	2.50	9.66	15.20	3.95	A	4.00	A+
	9	9	18	—	2.21	2.21	4.19	—	1.50	8.60	9.50	0.55	2.18	3.43	2.50	9.66	15.20	3.95	A	4.00	A+
	9	12	12	—	2.38	3.11	3.11	—	1.50	8.60	9.50	0.55	2.18	3.43	2.50	9.66	15.20	3.95	A	4.00	A+
	12	12	12	—	2.87	2.87	2.87	—	1.50	8.60	9.50	0.55	2.18	3.43	2.50	9.66	15.20	3.95	A	4.00	A+
	12	12	15	—	2.51	2.51	3.57	—	1.50	8.60	9.50	0.55	2.18	3.43	2.50	9.66	15.20	3.95	A	4.00	A+
	12	12	18	—	2.49	2.49	3.61	—	1.50	8.60	9.50	0.55	2.18	3.43	2.50	9.66	15.20	3.95	A	4.00	A+
QUADRI(1x4)	7	7	7	7	2.15	2.15	2.15	2.15	1.80	8.60	9.50	0.55	2.15	3.43	2.85	9.54	15.20	4.00	A	4.00	A+
	7	7	7	9	2.02	2.02	2.02	2.54	1.80	8.60	9.50	0.55	2.15	3.43	2.85	9.54	15.20	4.00	A	4.00	A+
	7	7	7	12	1.85	1.85	1.85	3.05	1.80	8.60	9.50	0.55	2.15	3.43	2.85	9.54	15.20	4.00	A	4.00	A+
	7	7	7	15	1.61	1.61	1.61	3.78	1.80	8.60	9.50	0.55	2.15	3.43	2.85	9.54	15.20	4.00	A	4.00	A+
	7	7	7	18	1.60	1.60	1.60	3.81	1.80	8.60	9.50	0.55	2.15	3.43	2.85	9.54	15.20	4.00	A	4.00	A+
	7	7	9	9	1.90	1.90	2.40	2.40	1.80	8.60	9.50	0.55	2.15	3.43	2.85	9.54	15.20	4.00	A	4.00	A+
	7	7	9	12	1.75	1.75	2.21	2.89	1.80	8.60	9.50	0.55	2.15	3.43	2.85	9.54	15.20	4.00	A	4.00	A+
	7	9	9	9	1.80	2.27	2.27	2.27	1.80	8.60	9.50	0.55	2.15	3.43	2.85	9.54	15.20	4.00	A	4.00	A+
	7	9	9	12	1.66	2.10	2.10	2.75	1.80	8.60	9.50	0.55	2.15	3.43	2.85	9.54	15.20	4.00	A	4.00	A+
	9	9	9	9	2.15	2.15	2.15	2.15	1.80	8.60	9.50	0.55	2.15	3.43	2.85	9.54	15.20	4.00	A	4.00	A+
	9	9	9	12	2.00	2.00	2.00	2.61	1.80	8.60	9.50	0.55	2.15	3.43	2.85	9.54	15.20	4.00	A	4.00	A+

4U30HS1ERA combination and the data

COOLING

Comb.	Combinations				Rated capacity Output/kW (Nom. cooling)				total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit D	Unit A	Unit B	Unit C	Unit D	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
1x1	7	—	—	—	2.0	—	—	—	1.00	2.00	2.80	0.50	0.56	1.30	2.22	2.48	5.77	3.57	A	6.20	A++
	9	—	—	—	2.5	—	—	—	1.00	2.50	3.10	0.50	0.70	1.34	2.22	3.11	5.93	3.57	A	6.20	A++
	12	—	—	—	3.5	—	—	—	1.00	3.50	4.10	0.50	1.00	1.50	2.22	4.44	6.65	3.50	A	6.20	A++
	15	—	—	—	4.4	—	—	—	1.30	4.40	5.20	0.50	1.30	1.90	2.22	5.77	8.43	3.38	A	6.20	A++
	18	—	—	—	5.0	—	—	—	1.50	5.00	5.40	0.50	1.50	1.90	2.22	6.65	8.43	3.33	A	6.20	A++
	24	—	—	—	6.5	—	—	—	1.50	6.50	7.40	0.50	2.00	3.00	2.22	8.87	13.31	3.25	A	6.20	A++
BI (1x2)	7	24	—	—	2.00	6.50	—	—	1.00	8.50	9.80	0.55	2.62	3.72	2.15	11.62	16.50	3.24	A	6.20	A++
	9	18	—	—	2.50	5.00	—	—	1.00	7.50	8.50	0.55	2.30	3.72	2.15	10.20	16.50	3.26	A	6.20	A++
	9	24	—	—	2.44	6.36	—	—	1.00	8.80	9.80	0.55	2.74	3.72	2.15	12.16	16.50	3.21	A	6.20	A++
	12	15	—	—	3.50	4.40	—	—	1.00	7.90	9.50	0.55	2.31	3.72	2.15	10.27	16.50	3.41	A	6.20	A++
	12	18	—	—	3.34	4.76	—	—	1.00	8.10	9.50	0.55	2.31	3.72	2.15	10.27	16.50	3.50	A	6.20	A++
	12	24	—	—	3.08	5.72	—	—	1.00	8.80	9.80	0.55	2.72	3.72	2.15	12.07	16.50	3.24	A	6.20	A++
	18	18	—	—	4.40	4.40	—	—	1.00	8.80	9.80	0.55	2.70	3.72	2.15	11.98	16.50	3.26	A	6.20	A++
	18	24	—	—	3.83	4.97	—	—	1.00	8.80	9.80	0.55	2.70	3.72	2.15	11.98	16.50	3.26	A	6.20	A++
	24	24	—	—	4.40	4.40	—	—	1.00	8.80	9.80	0.55	2.70	3.72	2.15	11.98	16.50	3.26	A	6.20	A++
TRI (1x3)	7	7	18	—	1.96	1.96	4.89	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.70	A++
	7	7	24	—	1.68	1.68	5.45	—	1.50	8.80	9.80	0.55	2.50	3.72	2.50	11.09	16.50	3.52	A	6.70	A++
	7	9	12	—	2.00	2.50	3.50	—	1.50	8.00	9.80	0.55	2.30	3.72	2.50	10.20	16.50	3.48	A	6.70	A++
	7	9	15	—	1.98	2.47	4.35	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.70	A++
	7	9	18	—	1.85	2.32	4.63	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.70	A++
	7	9	24	—	1.60	2.00	5.20	—	1.50	8.80	9.80	0.55	2.50	3.72	2.50	11.09	16.50	3.52	A	6.70	A++
	7	12	12	—	1.96	3.42	3.42	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.70	A++
	7	12	15	—	1.78	3.11	3.91	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.70	A++
	7	12	18	—	1.68	2.93	4.19	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.70	A++
	7	12	24	—	1.47	2.57	4.77	—	1.50	8.80	9.80	0.55	2.50	3.72	2.50	11.09	16.50	3.52	A	6.70	A++
	9	9	9	—	2.50	2.50	2.50	—	1.50	7.50	9.30	0.55	2.30	3.72	2.50	10.20	16.50	3.26	A	6.72	A++
	9	9	12	—	2.50	2.50	3.50	—	1.50	8.50	9.80	0.55	2.35	3.72	2.50	10.43	16.50	3.62	A	6.72	A++
	9	9	15	—	2.34	2.34	4.12	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.74	A++
	9	9	18	—	2.20	2.20	4.40	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.74	A++
	9	9	24	—	1.91	1.91	4.97	—	1.50	8.80	9.80	0.55	2.50	3.72	2.50	11.09	16.50	3.52	A	6.70	A++
	9	12	12	—	2.32	3.24	3.24	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.73	A++
	9	12	15	—	2.12	2.96	3.72	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.70	A++
	9	12	18	—	2.00	2.80	4.00	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.70	A++
	9	12	24	—	1.76	2.46	4.58	—	1.50	8.80	9.80	0.55	2.50	3.72	2.50	11.09	16.50	3.52	A	6.70	A++
	12	12	12	—	2.93	2.93	2.93	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.75	A++
	12	12	15	—	2.70	2.70	3.40	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.70	A++
	12	12	18	—	2.57	2.57	3.67	—	1.50	8.80	9.80	0.55	2.40	3.72	2.50	10.65	16.50	3.67	A	6.70	A++
	12	12	24	—	2.28	2.28	4.24	—	1.50	8.80	9.80	0.55	2.45	3.72	2.50	10.87	16.50	3.59	A	6.70	A++
	12	18	18	—	2.28	3.26	3.26	—	1.50	8.80	9.80	0.55	2.50	3.72	2.50	11.09	16.50	3.52	A	6.70	A++

Comb.	Combinations				Rated capacity Output/kW (Nom. cooling)				total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit D	Unit A	Unit B	Unit C	Unit D	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
QUADRI(1x4)	7	7	7	7	2.00	2.00	2.00	2.00	1.50	8.00	9.80	0.55	2.44	3.72	2.85	10.83	16.50	3.28	A	6.80	A++
	7	7	7	9	2.00	2.00	2.00	2.50	1.50	8.50	9.80	0.55	2.46	3.72	2.85	10.91	16.50	3.46	A	6.80	A++
	7	7	7	12	1.85	1.85	1.85	3.24	1.50	8.80	9.80	0.55	2.46	3.72	2.85	10.91	16.50	3.58	A	6.80	A++
	7	7	7	15	1.69	1.69	1.69	3.72	1.50	8.80	9.80	0.55	2.47	3.72	2.85	10.96	16.50	3.56	A	6.80	A++
	7	7	7	18	1.60	1.60	1.60	4.00	1.50	8.80	9.80	0.55	2.47	3.72	2.85	10.96	16.50	3.56	A	6.80	A++
	7	7	7	24	1.41	1.41	1.41	4.58	1.50	8.80	9.80	0.55	2.46	3.72	2.85	10.91	16.50	3.58	A	6.70	A++
	7	7	9	9	1.96	1.96	2.44	2.44	1.50	8.80	9.80	0.55	2.46	3.72	2.85	10.91	16.50	3.58	A	6.80	A++
	7	7	9	12	1.76	1.76	2.20	3.08	1.50	8.80	9.80	0.55	2.46	3.72	2.85	10.91	16.50	3.58	A	6.80	A++
	7	7	9	15	1.61	1.61	2.02	3.55	1.50	8.80	9.80	0.55	2.44	3.72	2.85	10.83	16.50	3.61	A	6.80	A++
	7	7	9	18	1.53	1.53	1.91	3.83	1.50	8.80	9.80	0.55	2.44	3.72	2.85	10.83	16.50	3.61	A	6.80	A++
	7	7	9	24	1.35	1.35	1.69	4.40	1.50	8.80	9.80	0.55	2.45	3.72	2.85	10.87	16.50	3.59	A	6.70	A++
	7	7	12	12	1.60	1.60	2.80	2.80	1.50	8.80	9.80	0.55	2.42	3.72	2.85	10.74	16.50	3.64	A	6.80	A++
	7	7	12	15	1.48	1.48	2.59	3.25	1.50	8.80	9.80	0.55	2.43	3.72	2.85	10.78	16.50	3.62	A	6.70	A++
	7	7	12	18	1.53	1.53	1.91	3.83	1.50	8.80	9.80	0.55	2.43	3.72	2.85	10.78	16.50	3.62	A	6.70	A++
	7	9	9	9	1.85	2.32	2.32	2.32	1.50	8.80	9.80	0.55	2.43	3.72	2.85	10.78	16.50	3.62	A	7.00	A++
	7	9	9	12	1.68	2.10	2.10	2.93	1.50	8.80	9.80	0.55	2.43	3.72	2.85	10.78	16.50	3.62	A	7.00	A++
	7	9	9	15	1.54	1.93	1.93	3.40	1.50	8.80	9.80	0.55	2.43	3.72	2.85	10.78	16.50	3.62	A	7.00	A++
	7	9	9	18	1.47	1.83	1.83	3.67	1.50	8.80	9.80	0.55	2.43	3.72	2.85	10.78	16.50	3.62	A	7.00	A++
	7	9	12	12	1.53	1.91	2.68	2.68	1.50	8.80	9.80	0.55	2.31	3.72	2.85	10.25	16.50	3.81	A	7.00	A++
	7	12	12	12	1.41	2.46	2.46	2.46	1.50	8.80	9.80	0.55	2.31	3.72	2.85	10.25	16.50	3.81	A	7.00	A++
	9	9	9	9	2.20	2.20	2.20	2.20	1.50	8.80	9.80	0.55	2.32	3.72	2.85	10.28	16.50	3.80	A	7.00	A++
	9	9	9	12	2.00	2.00	2.00	2.80	1.50	8.80	9.80	0.55	2.32	3.72	2.85	10.28	16.50	3.80	A	7.00	A++
	9	9	12	12	1.83	1.83	2.57	2.57	1.50	8.80	9.80	0.55	2.32	3.72	2.85	10.28	16.50	3.80	A	7.00	A++
	9	9	12	15	1.71	1.71	2.39	3.00	1.50	8.80	9.80	0.55	2.31	3.72	2.85	10.25	16.50	3.81	A	7.00	A++
	9	9	12	18	1.63	1.63	2.28	3.26	1.50	8.80	9.80	0.55	2.31	3.72	2.85	10.25	16.50	3.81	A	7.00	A++
	9	12	12	12	1.69	2.37	2.37	2.37	1.50	8.80	9.80	0.55	2.31	3.72	2.85	10.25	16.50	3.81	A	7.00	A++
	12	12	12	12	2.20	2.20	2.20	2.20	1.50	8.80	9.80	0.55	2.31	3.72	2.85	10.25	16.50	3.81	A	7.00	A++

5U34HS1ERA combination and the data

COOLING

Comb.	Combinations					Rated capacity Output/kW (Nom. cooling)					total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
1x1	7	—	—	—	—	2.0	—	—	—	—	1.00	2.00	2.80	0.50	0.62	1.30	2.20	2.77	5.77	3.21	A	5.90	A+
	9	—	—	—	—	2.5	—	—	—	—	1.00	2.50	3.10	0.50	0.78	1.34	2.20	3.46	5.93	3.21	A	5.90	A+
	12	—	—	—	—	3.5	—	—	—	—	1.00	3.50	4.10	0.50	1.09	1.50	2.20	4.84	6.65	3.21	A	5.90	A+
	15	—	—	—		4.4	—	—	—		1.30	4.40	5.20	0.50	1.35	1.90	2.22	5.99	8.43	3.26	A	5.90	A+
	18	—	—	—	—	5.0	—	—	—	—	1.50	5.00	5.40	0.50	1.56	1.90	2.20	6.92	8.43	3.21	A	5.90	A+
	24	—	—	—	—	6.5	—	—	—	—	1.50	6.50	7.40	0.50	2.02	3.00	2.20	8.96	13.31	3.22	A	5.90	A+
BI (1x2)	7	18	—	—	—	2.00	5.00	—	—	—	1.00	7.00	8.20	0.50	2.18	3.92	2.15	9.67	17.40	3.21	A	6.15	A++
	7	24	—	—	—	2.00	6.50	—	—	—	1.00	8.50	10.20	0.50	2.65	3.92	2.15	11.76	17.40	3.21	A	6.15	A++
	9	15	—	—	—	2.00	4.40	—	—	—	1.00	6.40	8.50	0.50	1.95	3.92	2.15	8.65	17.40	3.28	A	6.15	A++
	9	18	—	—	—	2.50	5.00	—	—	—	1.00	7.50	8.50	0.50	2.34	3.92	2.15	10.38	17.40	3.21	A	6.15	A++
	9	24	—	—	—	2.50	6.50	—	—	—	1.00	9.00	10.50	0.50	2.80	3.92	2.15	12.42	17.40	3.21	A	6.15	A++
	12	15	—	—	—	3.50	4.40	—	—	—	1.00	7.90	9.50	0.50	2.42	3.92	2.15	10.74	17.40	3.26	A	6.20	A++
	12	18	—	—	—	3.50	5.00	—	—	—	1.00	8.50	9.50	0.50	2.65	3.92	2.15	11.76	17.40	3.21	A	6.20	A++
	12	24	—	—	—	3.50	6.50	—	—	—	1.00	10.00	11.00	0.50	3.10	3.92	2.15	13.75	17.40	3.23	A	6.15	A++
	15	18	—	—	—	4.40	5.00	—	—	—	1.00	9.40	10.80	0.50	2.83	3.92	2.15	12.56	17.40	3.32	A	6.20	A++
	18	18	—	—	—	4.60	4.60	—	—	—	1.00	9.20	10.80	0.50	2.79	3.92	2.15	12.36	17.40	3.30	A	6.20	A++
	18	24	—	—	—	4.35	5.65	—	—	—	1.00	10.00	11.00	0.50	3.10	3.92	2.15	13.75	17.40	3.22	A	6.20	A++
	24	24	—	—	—	5.00	5.00	—	—	—	1.00	10.00	11.00	0.50	3.10	3.92	2.15	13.75	17.40	3.23	A	6.15	A++
TRI (1x3)	7	7	12	—	—	2.00	2.00	3.50	—	—	1.50	7.50	9.70	0.55	2.34	3.92	2.50	10.38	17.40	3.21	A	6.40	A++
	7	7	15	—	—	2.00	2.00	4.40	—	—	1.50	8.40	11.00	0.55	2.61	3.92	2.50	11.58	17.40	3.22	A	6.42	A++
	7	7	18	—	—	2.00	2.00	5.00	—	—	1.50	9.00	11.00	0.55	2.80	3.92	2.50	12.42	17.40	3.21	A	6.42	A++
	7	7	24	—	—	1.90	1.90	6.19	—	—	1.50	10.00	11.00	0.55	3.10	3.92	2.50	13.75	17.40	3.23	A	6.40	A++
	7	9	9	—	—	2.00	2.50	2.50	—	—	1.50	7.00	9.00	0.55	2.15	3.92	2.50	9.54	17.40	3.26	A	6.43	A++
	7	9	12	—	—	2.00	2.50	3.50	—	—	1.50	8.00	10.00	0.55	2.47	3.92	2.50	10.96	17.40	3.24	A	6.40	A++
	7	9	15	—	—	2.00	2.50	4.40	—	—	1.50	8.90	11.00	0.55	2.77	3.92	2.50	12.29	17.40	3.21	A	6.40	A++
	7	9	18	—	—	2.00	2.50	5.00	—	—	1.50	9.50	11.00	0.55	2.96	3.92	2.50	13.13	17.40	3.21	A	6.40	A++
	7	9	24	—	—	1.82	2.27	5.91	—	—	1.50	10.00	11.00	0.55	3.10	3.92	2.50	13.75	17.40	3.23	A	6.40	A++
	7	12	12	—	—	2.00	3.50	3.50	—	—	1.50	9.00	11.00	0.55	2.80	3.92	2.50	12.42	17.40	3.21	A	6.43	A++
	7	12	15	—	—	2.00	3.50	4.40	—	—	1.50	9.90	11.00	0.55	3.08	3.92	2.50	13.66	17.40	3.21	A	6.42	A++
	7	12	18	—	—	1.90	3.33	4.76	—	—	1.50	10.00	11.00	0.55	3.10	3.92	2.50	13.75	17.40	3.22	A	6.42	A++
	7	12	24	—	—	1.67	2.92	5.42	—	—	1.50	10.00	11.00	0.55	3.10	3.92	2.50	13.75	17.40	3.23	A	6.40	A++
	9	9	9	—	—	2.50	2.50	2.50	—	—	1.50	7.50	9.30	0.55	2.30	3.92	2.50	10.20	17.40	3.26	A	6.45	A++
	9	9	12	—	—	2.50	2.50	3.50	—	—	1.50	8.50	10.30	0.55	2.60	3.92	2.50	11.54	17.40	3.27	A	6.45	A++
	9	9	15	—	—	2.50	2.50	4.40	—	—	1.50	9.40	11.00	0.55	2.92	3.92	2.50	12.95	17.40	3.22	A	6.43	A++
	9	9	18	—	—	2.50	2.50	5.00	—	—	1.50	10.00	11.00	0.55	3.10	3.92	2.50	13.75	17.40	3.23	A	6.43	A++
	9	9	24	—	—	2.17	2.17	5.65	—	—	1.50	10.00	11.00	0.55	3.10	3.92	2.50	13.75	17.40	3.23	A	6.40	A++
	9	12	12	—	—	2.50	3.50	3.50	—	—	1.50	9.50	11.00	0.55	2.90	3.92	2.50	12.87	17.40	3.28	A	6.40	A++
	9	12	15	—	—	2.40	3.37	4.23	—	—	1.50	10.00	11.00	0.55	3.06	3.92	2.50	13.58	17.40	3.27	A	6.40	A++
	9	12	18	—	—	2.27	3.18	4.55	—	—	1.50	10.00	11.00	0.55	3.05	3.92	2.50	13.53	17.40	3.28	A	6.40	A++
	9	12	24	—	—	2.00	2.80	5.20	—	—	1.50	10.00	11.00	0.55	3.05	3.92	2.50	13.53	17.40	3.28	A	6.30	A++
	12	12	12	—	—	3.33	3.33	3.33	—	—	1.50	10.00	11.00	0.55	3.05	3.92	2.50	13.53	17.40	3.28	A	6.40	A++
	12	12	15	—	—	3.07	3.07	3.86	—	—	1.50	10.00	11.00	0.55	3.05	3.92	2.50	13.53	17.40	3.28	A	6.40	A++
	12	12	18	—	—	2.92	2.92	4.17	—	—	1.50	10.00	11.00	0.55	3.05	3.92	2.50	13.53	17.40	3.28	A	6.40	A++
	12	12	24	—	—	2.59	2.59	4.81	—	—	1.50	10.00	11.00	0.55	3.05	3.92	2.50	13.53	17.40	3.28	A	6.40	A++
	12	18	18	—	—	2.59	3.70	3.70	—	—	1.50	10.00	11.00	0.55	3.05	3.92	2.50	13.53	17.40	3.28	A	6.40	A++
	18	18	18	—	—	3.33	3.33	3.33	—	—	1.80	10.00	11.00	0.55	3.05	3.92	2.50	13.53	17.40	3.28	A	6.40	A++

Comb.	Combinations					Rated capacity Output/kW (Nom. cooling)					total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
QUADRI (1x4)	7	7	7	7	—	2.00	2.00	2.00	2.00	—	1.80	8.00	11.00	0.55	2.32	3.92	2.50	10.29	17.40	3.45	A	6.60	A++
	7	7	7	9	—	2.00	2.00	2.00	2.50	—	1.80	8.50	11.00	0.55	2.50	3.92	2.50	11.09	17.40	3.40	A	6.60	A++
	7	7	7	12	—	2.00	2.00	2.00	3.50	—	1.80	9.50	11.00	0.55	2.87	3.92	2.50	12.73	17.40	3.31	A	6.60	A++
	7	7	7	15	—	1.92	1.92	1.92	4.23	—	1.80	10.00	11.00	0.55	2.87	3.92	2.50	12.73	17.40	3.48	A	6.60	A++
	7	7	7	18	—	1.82	1.82	1.82	4.55	—	1.80	10.00	11.00	0.55	2.87	3.92	2.50	12.73	17.40	3.48	A	6.60	A++
	7	7	7	24	—	1.60	1.60	1.60	5.20	—	1.80	10.00	11.00	0.55	2.87	3.92	2.50	12.73	17.40	3.48	A	6.60	A++
	7	7	9	9	—	2.00	2.00	2.50	2.50	—	1.80	9.00	11.00	0.55	2.70	3.92	2.50	11.98	17.40	3.33	A	6.60	A++
	7	7	9	12	—	2.00	2.00	2.50	3.50	—	1.80	10.00	11.00	0.55	2.87	3.92	2.50	12.73	17.40	3.48	A	6.60	A++
	7	7	9	15	—	1.83	1.83	2.29	4.04	—	1.80	10.00	11.00	0.55	2.87	3.92	2.50	12.73	17.40	3.48	A	6.60	A++
	7	7	9	18	—	1.74	1.74	2.17	4.35	—	1.80	10.00	11.00	0.55	2.87	3.92	2.50	12.73	17.40	3.48	A	6.60	A++
	7	7	9	24	—	1.54	1.54	1.92	5.00	—	1.80	10.00	11.00	0.55	2.87	3.92	2.50	12.73	17.40	3.48	A	6.60	A++
	7	7	12	12	—	1.82	1.82	3.18	3.18	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	6.80	A++
	7	7	12	15	—	1.68	1.68	2.94	3.70	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	6.80	A++
	7	7	12	18	—	1.60	1.60	2.80	4.00	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	6.80	A++
	7	9	9	9	—	2.00	2.50	2.50	2.50	—	1.80	9.50	11.00	0.55	2.64	3.92	2.50	11.69	17.40	3.60	A	6.80	A++
	7	9	9	12	—	1.90	2.38	2.38	3.33	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	6.80	A++
	7	9	9	15	—	1.75	2.19	2.19	3.86	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	6.80	A++
	7	9	9	18	—	1.67	2.08	2.08	4.17	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	6.80	A++
	7	9	12	12	—	1.74	2.17	3.04	3.04	—	1.80	10.00	10.80	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	7.00	A++
	7	12	12	12	—	1.60	2.80	2.80	2.80	—	1.80	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.00	A++
	9	9	9	9	—	2.50	2.50	2.50	2.50	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	7.00	A++
	9	9	9	12	—	2.27	2.27	2.27	3.18	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	7.00	A++
	9	9	9	15	—	2.10	2.10	2.10	3.70	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	7.00	A++
	9	9	9	18	—	2.00	2.00	2.00	4.00	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	7.00	A++
	9	9	12	12	—	2.08	2.08	2.92	2.92	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	7.00	A++
	9	12	12	12	—	1.92	2.69	2.69	2.69	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	7.00	A++
	12	12	12	12	—	2.50	2.50	2.50	2.50	—	1.80	10.00	11.00	0.55	2.78	3.92	2.50	12.32	17.40	3.60	A	7.00	A++
(1×5)	7	7	7	7	7	2.00	2.00	2.00	2.00	2.00	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++
	7	7	7	7	9	1.90	1.90	1.90	1.90	2.38	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++
	7	7	7	7	12	1.74	1.74	1.74	1.74	3.04	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++
	7	7	7	9	9	1.82	1.82	1.82	2.27	2.27	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++
	7	7	7	9	12	1.67	1.67	1.67	2.08	2.92	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++
	7	7	7	12	12	1.54	1.54	1.54	2.69	2.69	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++
	7	7	9	9	9	1.74	1.74	2.17	2.17	2.17	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++
	7	7	9	9	12	1.60	1.60	2.00	2.00	2.80	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++
	7	9	9	9	9	1.67	2.08	2.08	2.08	2.08	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++
	9	9	9	9	9	2.00	2.00	2.00	2.00	2.00	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++
	9	9	9	9	12	1.85	1.85	1.85	1.85	2.59	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++
	9	9	9	12	12	1.72	1.72	1.72	2.41	2.41	2.00	10.00	11.00	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	7.10	A++

5U34HS1ERA combination and the data

HEATING

Comb.	Combinations					Rated capacity Output/ kW (Nom. cooling)					total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
1x1	7	—	—	—	—	2.3	—	—	—	—	1.00	2.30	4.00	0.50	0.63	1.50	2.22	2.80	6.65	3.65	A	3.61	A
	9	—	—	—	—	2.9	—	—	—	—	1.00	2.90	4.10	0.50	0.80	1.40	2.22	3.55	6.21	3.63	A	3.61	A
	12	—	—	—	—	3.8	—	—	—	—	1.00	3.80	4.10	0.50	1.05	1.50	2.22	4.66	6.65	3.62	A	3.61	A
	15	—	—	—	—	5.4	—	—	—	—	1.30	5.40	6.00	0.47	1.48	1.90	2.09	6.57	8.43	3.65	A	3.61	A
	18	—	—	—	—	5.5	—	—	—	—	1.50	5.50	6.00	0.55	1.50	2.60	2.44	6.65	11.54	3.67	A	3.61	A
	24	—	—	—	—	7.0	—	—	—	—	1.50	7.00	8.60	0.55	1.90	2.60	2.44	8.43	11.54	3.68	A	3.61	A
BI (1x2)	7	18	—	—	—	2.30	5.50	—	—	—	1.20	7.80	10.00	0.50	2.16	3.92	2.15	9.58	17.40	3.61	A	3.70	A
	7	24	—	—	—	2.30	7.00	—	—	—	1.20	9.30	11.50	0.50	2.58	3.92	2.15	11.45	17.40	3.60	A	3.70	A
	9	15	—	—	—	2.90	5.40	—	—	—	1.20	8.30	10.10	0.50	2.25	3.92	2.15	9.98	17.40	3.69	A	3.70	A
	9	18	—	—	—	2.90	5.50	—	—	—	1.20	8.40	10.10	0.50	2.33	3.92	2.15	10.34	17.40	3.61	A	3.70	A
	9	24	—	—	—	2.90	7.00	—	—	—	1.20	9.90	11.50	0.50	2.74	3.92	2.15	12.16	17.40	3.61	A	3.71	A
	12	15	—	—	—	3.80	5.40	—	—	—	1.20	9.20	10.10	0.50	2.52	3.92	2.15	11.18	17.40	3.65	A	3.71	A
	12	18	—	—	—	4.37	6.33	—	—	—	1.20	10.70	10.10	0.50	2.95	3.92	2.15	13.09	17.40	3.63	A	3.71	A
	12	24	—	—	—	3.76	6.94	—	—	—	1.20	10.70	11.50	0.50	2.95	3.92	2.15	13.09	17.40	3.63	A	3.72	A
	15	18	—	—	—	5.30	5.40	—	—	—	1.20	10.70	11.50	0.50	2.90	3.92	2.15	12.87	17.40	3.69	A	3.80	A
	18	18	—	—	—	4.90	4.90	—	—	—	1.20	9.80	11.50	0.50	2.65	3.92	2.15	11.75	17.40	3.70	A	3.80	A
	18	24	—	—	—	4.71	5.99	—	—	—	1.20	10.70	11.50	0.50	2.95	3.92	2.15	13.09	17.40	3.63	A	3.72	A
	24	24	—	—	—	5.35	5.35	—	—	—	1.20	10.70	11.50	0.50	2.95	3.92	2.44	13.09	17.40	3.63	A	3.89	A
TRI (1x3)	7	7	12	—	—	2.30	2.30	3.80	—	—	1.50	8.40	11.50	0.55	2.33	3.92	2.50	10.34	17.40	3.61	A	3.88	A
	7	7	15	—	—	2.30	2.30	5.40	—	—	1.50	10.00	11.50	0.55	2.76	3.92	2.50	12.24	17.40	3.62	A	3.90	A
	7	7	18	—	—	2.30	2.30	5.50	—	—	1.50	10.10	11.50	0.55	2.79	3.92	2.50	12.36	17.40	3.63	A	3.90	A
	7	7	24	—	—	2.12	2.12	6.46	—	—	1.50	10.70	11.50	0.55	2.93	3.92	2.50	13.00	17.40	3.65	A	3.91	A
	7	9	9	—	—	2.30	2.90	2.90	—	—	1.50	8.10	11.50	0.55	2.24	3.92	2.50	9.94	17.40	3.62	A	3.91	A
	7	9	12	—	—	2.30	2.90	3.80	—	—	1.50	9.00	11.50	0.55	2.47	3.92	2.50	10.96	17.40	3.64	A	3.93	A
	7	9	15	—	—	2.30	2.90	5.40	—	—	1.50	10.60	11.50	0.55	2.93	3.92	2.50	13.00	17.40	3.62	A	3.92	A
	7	9	18	—	—	2.30	2.90	5.50	—	—	1.50	10.70	11.50	0.55	2.93	3.92	2.50	13.00	17.40	3.65	A	3.92	A
	7	9	24	—	—	2.02	2.54	6.14	—	—	1.50	10.70	11.50	0.55	2.93	3.92	2.50	13.00	17.40	3.65	A	3.90	A
	7	12	12	—	—	2.30	3.80	3.80	—	—	1.50	9.90	11.50	0.55	2.72	3.92	2.50	12.07	17.40	3.64	A	3.95	A
	7	12	15	—	—	2.12	3.60	4.98	—	—	1.50	10.70	11.50	0.55	2.94	3.92	2.50	13.04	17.40	3.64	A	3.90	A
	7	12	18	—	—	2.12	3.51	5.07	—	—	1.50	10.70	11.50	0.55	2.93	3.92	2.50	13.00	17.40	3.65	A	3.90	A
	7	12	24	—	—	1.88	3.10	5.72	—	—	1.50	10.70	11.50	0.55	2.93	3.92	2.50	13.00	17.40	3.65	A	3.92	A
	9	9	9	—	—	2.90	2.90	2.90	—	—	1.50	8.70	11.50	0.55	2.37	3.92	2.50	10.51	17.40	3.67	A	3.90	A
	9	9	12	—	—	2.90	2.90	3.80	—	—	1.50	9.60	11.50	0.55	2.60	3.92	2.50	11.54	17.40	3.69	A	3.93	A
	9	9	15	—	—	2.77	2.77	5.16	—	—	1.50	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.92	A
	9	9	18	—	—	2.75	2.75	5.21	—	—	1.50	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.92	A
	9	9	24	—	—	2.42	2.42	5.85	—	—	1.50	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.90	A
	9	12	12	—	—	2.90	3.80	3.80	—	—	1.50	10.50	11.50	0.55	2.85	3.92	2.50	12.64	17.40	3.68	A	3.95	A
	9	12	15	—	—	2.56	3.36	4.78	—	—	1.50	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.70	A
	9	12	18	—	—	2.54	3.33	4.82	—	—	1.50	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.70	A
	9	12	24	—	—	2.26	2.97	5.47	—	—	1.50	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.85	A
	12	12	12	—	—	3.57	3.57	3.57	—	—	1.50	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.90	A
	12	12	15	—	—	3.13	3.13	4.44	—	—	1.50	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.95	A
	12	12	18	—	—	3.10	3.10	4.49	—	—	1.50	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.95	A
	12	12	24	—	—	2.78	2.78	5.13	—	—	1.80	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.95	A
	12	18	18	—	—	2.75	3.98	3.98	—	—	1.80	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.95	A
	18	18	18	—	—	3.57	3.57	3.57	—	—	1.80	10.70	11.50	0.55	2.90	3.92	2.50	12.87	17.40	3.69	A	3.98	A

Comb.	Combinations					Rated capacity Output/ kW (Nom. cooling)					total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy label	SEER (W/W)	Energy label
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
QUADRI (1x4)"	7	7	7	7	—	2.30	2.30	2.30	2.30	—	1.80	9.20	11.50	0.55	2.47	3.92	2.50	10.96	17.40	3.72	A	3.90	A
	7	7	7	9	—	2.30	2.30	2.30	2.90	—	1.80	9.80	11.50	0.55	2.63	3.92	2.50	11.67	17.40	3.73	A	3.92	A
	7	7	7	12	—	2.30	2.30	2.30	3.80	—	1.80	10.70	11.50	0.55	2.87	3.92	2.50	12.73	17.40	3.73	A	3.94	A
	7	7	7	15	—	2.00	2.00	2.00	4.70	—	1.80	10.70	11.50	0.55	2.87	3.92	2.50	12.73	17.40	3.73	A	3.95	A
	7	7	7	18	—	1.98	1.98	1.98	4.75	—	1.80	10.70	11.50	0.55	2.87	3.92	2.50	12.73	17.40	3.73	A	3.95	A
	7	7	7	24	—	1.77	1.77	1.77	5.39	—	1.80	10.70	11.50	0.55	2.87	3.92	2.50	12.73	17.40	3.73	A	3.95	A
	7	7	9	9	—	2.30	2.30	2.90	2.90	—	1.80	10.40	11.50	0.55	2.80	3.92	2.50	12.42	17.40	3.71	A	3.97	A
	7	7	9	12	—	2.18	2.18	2.75	3.60	—	1.80	10.70	11.50	0.55	2.87	3.92	2.50	12.73	17.40	3.73	A	3.96	A
	7	7	9	15	—	1.91	1.91	2.41	4.48	—	1.80	10.70	11.50	0.55	2.87	3.92	2.50	12.73	17.40	3.73	A	4.00	A+
	7	7	9	18	—	1.89	1.89	2.39	4.53	—	1.80	10.70	11.50	0.55	2.87	3.92	2.50	12.73	17.40	3.73	A	4.00	A+
	7	7	9	24	—	1.70	1.70	2.14	5.17	—	1.80	10.70	11.50	0.55	2.87	3.92	2.50	12.73	17.40	3.73	A	4.00	A+
	7	7	12	12	—	2.02	2.02	3.33	3.33	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	7	7	12	15	—	1.80	1.80	3.15	3.96	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	7	7	12	18	—	1.77	1.77	2.93	4.23	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	7	9	9	9	—	2.24	2.82	2.82	2.82	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	7	9	9	12	—	2.07	2.61	2.61	3.42	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	7	9	9	15	—	1.75	2.54	2.54	3.86	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A		
	7	9	9	18	—	1.81	2.28	2.28	4.33	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	7	9	12	12	—	1.92	2.42	3.18	3.18	—	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	7	12	12	12	—	1.80	2.97	2.97	2.97	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	9	9	9	9	—	2.68	2.68	2.68	2.68	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	9	9	9	12	—	2.48	2.48	2.48	3.25	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	9	9	9	15	—	2.20	2.20	2.20	4.10	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	9	9	9	18	—	2.19	2.19	2.19	4.14	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	9	9	12	12	—	2.32	2.32	3.03	3.03	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	9	12	12	12	—	2.17	2.84	2.84	2.84	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
	12	12	12	12	—	2.68	2.68	2.68	2.68	—	1.80	10.70	11.50	0.55	2.68	3.92	2.50	11.87	17.40	4.00	A	4.00	A+
(1×5)	7	7	7	7	7	2.14	2.14	2.14	2.14	2.14	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	7	7	7	7	9	2.03	2.03	2.03	2.03	2.56	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	7	7	7	7	12	1.89	1.89	1.89	1.89	3.13	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	7	7	7	9	9	1.94	1.94	1.94	2.44	2.44	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	7	7	7	9	12	1.81	1.81	1.81	2.28	2.99	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	7	7	7	12	12	1.70	1.70	1.70	2.80	2.80	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	7	7	9	9	9	1.85	1.85	2.33	2.33	2.33	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	7	7	9	9	12	1.73	1.73	2.19	2.19	2.86	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	7	9	9	9	9	1.77	2.23	2.23	2.23	2.23	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	9	9	9	9	9	2.14	2.14	2.14	2.14	2.14	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	9	9	9	9	12	2.01	2.01	2.01	2.01	2.64	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+
	9	9	9	12	12	1.90	1.90	1.90	2.49	2.49	1.80	10.70	11.50	0.55	2.67	3.92	2.50	11.85	17.40	4.01	A	4.00	A+

5U45LS1ERA combination and the data

COOLING

Comb.	Combinations					Rated capacity Output/ kW (Nom. cooling)					total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy Label	SEER (W/W)	Energy Label
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
1x1	7	—	—	—	—	2.0	—	—	—	—	1.00	2.00	2.80	0.50	0.62	1.30	2.20	2.77	5.77	3.21	A	5.90	A+
	9	—	—	—	—	2.5	—	—	—	—	1.00	2.50	3.10	0.50	0.78	1.34	2.20	3.46	5.93	3.21	A	5.90	A+
	12	—	—	—	—	3.5	—	—	—	—	1.00	3.50	4.10	0.50	1.09	1.50	2.20	4.84	6.65	3.21	A	5.90	A+
	15	—	—	—		4.4	—	—	—		1.30	4.40	5.20	0.50	1.36	1.90	2.22	6.03	8.43	3.24	A	5.90	A+
	18	—	—	—	—	5.0	—	—	—	—	1.50	5.00	5.40	0.50	1.56	1.90	2.20	6.92	8.43	3.21	A	5.90	A+
	24	—	—	—	—	6.5	—	—	—	—	1.50	6.50	7.40	0.50	2.02	3.00	2.20	8.96	13.31	3.22	A	5.90	A+
BI (1x2)	7	18	—	—	—	2.00	5.00	—	—	—	1.00	7.00	8.20	0.50	2.18	3.61	2.15	9.67	16.02	3.21	A	6.20	A++
	7	24	—	—	—	2.00	6.50	—	—	—	1.00	8.50	10.20	0.50	2.65	4.21	2.15	11.76	18.69	3.21	A	6.20	A++
	9	15	—	—	—	2.00	4.40	—	—	—	1.00	6.40	8.50	0.50	1.95	3.50	2.15	8.65	15.53	3.28	A	6.20	A++
	9	18	—	—	—	2.50	5.00	—	—	—	1.00	7.50	8.50	0.50	2.32	3.65	2.15	10.29	16.19	3.23	A	6.20	A++
	9	24	—	—	—	2.50	6.50	—	—	—	1.00	9.00	10.50	0.50	2.70	4.25	2.15	11.98	18.86	3.33	A	6.20	A++
	12	15	—	—	—	3.50	4.40	—	—	—	1.00	7.90	9.50	0.50	2.43	3.50	2.15	10.78	15.53	3.25	A	6.20	A++
	12	18	—	—	—	3.50	5.00	—	—	—	1.00	8.50	9.50	0.50	2.65	3.65	2.15	11.76	16.19	3.21	A	6.20	A++
	12	24	—	—	—	3.50	6.50	—	—	—	1.00	10.00	11.50	0.50	3.10	4.25	2.15	13.75	18.86	3.23	A	6.20	A++
	18	18	—	—	—	5.00	5.00	—	—	—	1.00	10.00	10.80	0.50	3.10	4.00	2.15	13.75	17.75	3.23	A	6.20	A++
	18	24	—	—	—	5.00	6.50	—	—	—	1.00	11.50	12.80	0.50	3.57	4.60	2.15	15.84	20.41	3.22	A	6.20	A++
	24	24	—	—	—	6.10	6.10	—	—	—	1.00	12.20	13.50	0.50	3.80	5.20	2.15	16.86	23.07	3.21	A	6.20	A++
TRI (1x3)	7	7	9	—	—	2.00	2.00	2.50	—	—	1.50	6.50	8.70	0.55	2.00	4.70	2.50	8.87	20.85	3.25	A	6.90	A++
	7	7	12	—	—	2.00	2.00	3.50	—	—	1.50	7.50	9.70	0.55	2.30	4.87	2.50	10.20	21.61	3.26	A	6.90	A++
	7	7	15	—	—	2.00	2.00	4.40			1.50	8.40	11.00	0.55	2.51	5.10	2.50	11.14	22.63	3.35	A	6.90	A++
	7	7	18	—	—	2.00	2.00	5.00	—	—	1.50	9.00	11.00	0.55	2.70	5.22	2.50	11.98	23.16	3.33	A	6.90	A++
	7	7	24	—	—	2.00	2.00	6.50	—	—	1.50	10.50	13.00	0.55	3.20	5.39	2.50	14.20	23.90	3.28	A	6.90	A++
	7	9	9	—	—	2.00	2.50	2.50	—	—	1.50	7.00	9.00	0.55	2.15	4.90	2.50	9.54	21.74	3.26	A	6.90	A++
	7	9	12	—	—	2.00	2.50	3.50	—	—	1.50	8.00	10.00	0.55	2.45	4.90	2.50	10.87	21.74	3.27	A	6.90	A++
	7	9	15	—	—	2.00	2.50	4.40	—	—	1.50	8.90	11.00	0.55	2.75	5.10	2.50	12.20	22.63	3.24	A	6.90	A++
	7	9	18	—	—	2.00	2.50	5.00	—	—	1.50	9.50	11.30	0.55	2.90	5.26	2.50	12.87	23.34	3.28	A	6.90	A++
	7	9	24	—	—	2.00	2.50	6.50	—	—	1.50	11.00	13.30	0.55	3.30	5.39	2.50	14.64	23.90	3.33	A	6.90	A++
	7	12	12	—	—	2.00	3.50	3.50	—	—	1.50	9.00	11.00	0.55	2.80	3.92	2.50	12.42	17.40	3.21	A	6.90	A++
	7	12	15	—	—	2.00	3.50	4.40	—	—	1.50	9.90	12.00	0.55	3.04	5.10	2.50	13.49	22.63	3.26	A	6.90	A++
	7	12	18	—	—	2.00	3.50	5.00	—	—	1.50	10.50	12.30	0.55	3.20	5.26	2.50	14.20	23.34	3.28	A	6.90	A++
	7	12	24	—	—	2.00	3.50	6.50	—	—	1.50	12.00	11.00	0.55	3.70	5.39	2.50	16.42	23.90	3.24	A	6.90	A++
	9	9	9	—	—	2.50	2.50	2.50	—	—	1.50	7.50	9.30	0.55	2.30	4.95	2.50	10.20	21.96	3.26	A	6.90	A++
	9	9	12	—	—	2.50	2.50	3.50	—	—	1.50	8.50	10.30	0.55	2.60	4.95	2.50	11.54	21.96	3.27	A	6.90	A++
	9	9	15	—	—	2.50	2.50	4.40	—	—	1.50	9.40	11.00	0.55	2.93	5.30	2.50	13.00	23.51	3.21	A	6.90	A++
	9	9	18	—	—	2.50	2.50	5.00	—	—	1.50	10.00	11.60	0.55	3.10	5.30	2.50	13.75	23.51	3.23	A	6.90	A++
	9	9	24	—	—	2.50	2.50	6.50	—	—	1.50	11.50	13.50	0.55	3.50	5.39	2.50	15.53	23.90	3.29	A	6.90	A++
	9	12	12	—	—	2.50	3.50	3.50	—	—	1.50	9.50	11.30	0.55	2.90	4.90	2.50	12.87	21.74	3.28	A	6.90	A++
	9	12	15	—	—	2.50	3.50	4.40	—	—	1.50	10.40	12.60	0.55	3.16	4.95	2.50	14.02	21.96	3.29	A	6.90	A++
	9	12	18	—	—	2.50	3.50	5.00	—	—	1.50	11.00	12.60	0.55	3.30	4.95	2.50	14.64	21.96	3.33	A	6.90	A++
	9	12	24	—	—	2.44	3.42	6.34	—	—	1.50	12.20	13.50	0.55	3.70	5.39	2.50	16.42	23.90	3.30	A	6.90	A++
	12	12	12	—	—	3.50	3.50	3.50	—	—	1.50	10.50	12.30	0.55	3.25	4.95	2.50	14.42	21.96	3.23	A	6.90	A++
	12	12	15	—	—	3.50	3.50	4.40	—	—	1.50	11.40	13.50	0.55	3.53	5.30	2.50	15.66	23.51	3.23	A	6.90	A++
	12	12	18	—	—	3.50	3.50	5.00	—	—	1.50	12.00	13.50	0.55	3.70	5.30	2.50	16.42	23.51	3.24	A	6.90	A++
	12	12	24	—	—	3.16	3.16	5.87	—	—	1.50	12.20	13.50	0.55	3.77	5.39	2.50	16.73	23.90	3.24	A	6.90	A++
	12	15	18	—	—	3.28	4.22	4.69	—	—	1.50	12.20	13.50	0.55	3.77	5.39	2.50	16.73	23.90	3.24	A	6.90	A++
	12	18	18	—	—	3.16	4.52	4.52	—	—	1.50	12.20	13.50	0.55	3.77	5.39	2.50	16.73	23.90	3.24	A	6.90	A++
	12	18	24	—	—	2.85	4.07	5.29	—	—	1.50	12.20	13.50	0.55	3.77	5.39	2.50	16.73	23.90	3.24	A	6.90	A++
	18	18	18	—	—	4.07	4.07	4.07	—	—	1.50	12.20	13.50	0.55	3.77	5.39	2.50	16.73	23.90	3.24	A	6.90	A++

Comb.	Combinations					Rated capacity Output/ kW (Nom. cooling)					total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy Label	SEER (W/W)	Energy Label
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
QUADRI (1x4)	7	7	7	7	—	2.00	2.00	2.00	2.00	—	1.80	8.00	11.20	0.55	2.45	5.39	2.50	10.87	23.90	3.27	A	6.92	A++
	7	7	7	9	—	2.00	2.00	2.00	2.50	—	1.80	8.50	11.50	0.55	2.60	5.39	2.50	11.54	23.90	3.27	A	6.92	A++
	7	7	7	12	—	2.00	2.00	2.00	3.50	—	1.80	9.50	12.50	0.55	2.90	5.39	2.50	12.87	23.90	3.28	A	6.92	A++
	7	7	7	15	—	2.00	2.00	2.00	4.40	—	1.80	10.40	13.50	0.55	3.15	5.39	2.50	13.98	23.90	3.30	A	6.92	A++
	7	7	7	18	—	2.00	2.00	2.00	5.00	—	1.80	11.00	13.50	0.55	3.30	5.39	2.50	14.64	23.90	3.33	A	6.92	A++
	7	7	7	24	—	1.95	1.95	1.95	6.34	—	1.80	12.20	13.50	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	6.92	A++
	7	7	9	9	—	2.00	2.00	2.50	2.50	—	1.80	9.00	11.80	0.55	2.70	5.39	2.50	11.98	23.90	3.33	A	6.92	A++
	7	7	9	12	—	2.00	2.00	2.50	3.50	—	1.80	10.00	12.80	0.55	3.01	5.39	2.50	13.35	23.90	3.32	A	6.92	A++
	7	7	9	15	—	2.00	2.00	2.50	4.40	—	1.80	10.90	13.50	0.55	3.30	5.39	2.50	14.64	23.90	3.30	A	6.92	A++
	7	7	9	18	—	2.00	2.00	2.50	5.00	—	1.80	11.50	13.50	0.55	3.45	5.39	2.50	15.31	23.90	3.33	A	6.92	A++
	7	7	9	24	—	1.88	1.88	2.35	6.10	—	1.80	12.20	13.50	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	6.92	A++
	7	7	12	12	—	2.00	2.00	3.50	3.50	—	1.80	11.00	13.50	0.55	3.30	5.39	2.50	14.64	23.90	3.33	A	6.92	A++
	7	7	12	15	—	2.05	2.05	3.59	4.51	—	1.80	12.20	13.50	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	7.00	A++
	7	7	12	18	—	1.95	1.95	3.42	4.88	—	1.80	12.20	13.50	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	7.00	A++
	7	7	12	24	—	1.74	1.74	3.05	5.66	—	1.80	12.20	13.50	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	7.00	A++
	7	9	9	12	—	2.32	2.90	2.90	4.07	—	1.80	12.20	13.10	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	7.00	A++
	7	9	9	15	—	2.14	2.68	2.68	4.71	—	1.80	12.20	13.50	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	7.00	A++
	7	9	9	18	—	2.03	2.54	2.54	5.08	—	1.80	12.20	13.50	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	7.00	A++
	7	9	9	24	—	1.81	2.26	2.26	5.87	—	1.80	12.20	13.50	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	7.00	A++
	7	9	12	12	—	2.00	2.50	3.50	3.50	—	1.80	11.50	13.50	0.55	3.50	5.39	2.50	15.53	23.90	3.29	A	7.00	A++
	7	12	12	12	—	1.95	3.42	3.42	3.42	—	1.80	12.20	13.50	0.55	3.60	5.39	2.50	15.97	23.90	3.39	A	7.00	A++
	9	9	9	9	—	2.50	2.50	2.50	2.50	—	1.80	10.00	12.40	0.55	3.01	5.39	2.50	13.35	23.90	3.32	A	7.00	A++
	9	9	9	12	—	2.50	2.50	2.50	3.50	—	1.80	11.00	13.40	0.55	3.30	5.39	2.50	14.64	23.90	3.33	A	7.00	A++
	9	9	9	15	—	2.56	2.56	2.56	4.51	—	1.80	12.20	13.50	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	7.00	A++
	9	9	9	18	—	2.44	2.44	2.44	4.88	—	1.80	12.20	13.50	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	7.00	A++
	9	9	9	24	—	2.18	2.18	2.18	5.66	—	1.80	12.20	13.50	0.55	3.65	5.39	2.50	16.19	23.90	3.34	A	7.00	A++
	9	9	12	12	—	2.54	2.54	3.56	3.56	—	1.80	12.20	13.50	0.55	3.64	5.39	2.50	16.15	23.90	3.35	A	7.00	A++
	9	9	12	15	—	2.36	2.36	3.31	4.16	—	1.80	12.20	13.50	0.55	3.63	5.39	2.50	16.11	23.90	3.36	A	7.00	A++
	9	9	12	18	—	2.26	2.26	3.16	4.52	—	1.80	12.20	13.50	0.55	3.63	5.39	2.50	16.11	23.90	3.36	A	7.00	A++
	9	12	12	12	—	2.35	3.28	3.28	3.28	—	1.80	12.20	13.50	0.55	3.63	5.39	2.50	16.11	23.90	3.36	A	7.00	A++
	12	12	12	12	—	3.05	3.05	3.05	3.05	—	1.80	12.20	13.50	0.55	3.63	5.39	2.50	16.11	23.90	3.36	A	7.00	A++
	9	12	12	15	—	2.19	3.07	3.07	3.86	—	1.80	12.20	13.50	0.55	3.63	5.39	2.50	16.11	23.90	3.36	A	7.00	A++
	9	12	12	18	—	2.10	2.94	2.94	4.21	—	1.80	12.20	13.50	0.55	3.63	5.39	2.50	16.11	23.90	3.36	A	7.00	A++
	9	12	12	24	—	1.91	2.67	2.67	4.96	—	1.80	12.20	13.50	0.55	3.63	5.39	2.50	16.11	23.90	3.36	A	7.00	A++
(1×5)	7	7	7	7	7	2.12	2.12	2.12	2.12	3.71	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	7	7	9	2.00	2.00	2.00	2.00	2.50	2.00	10.50	13.50	0.55	3.20	5.39	2.50	14.20	23.90	3.28	A	7.10	A++
	7	7	7	7	12	2.00	2.00	2.00	2.00	3.50	2.00	11.50	13.50	0.55	3.45	5.39	2.50	15.31	23.90	3.33	A	7.10	A++
	7	7	7	7	15	1.97	1.97	1.97	1.97	4.33	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	7	7	18	1.88	1.88	1.88	1.88	4.69	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	7	7	24	1.68	1.68	1.68	1.68	5.47	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	7	9	9	2.00	2.00	2.00	2.50	2.50	2.00	11.00	13.50	0.55	3.40	5.39	2.50	15.08	23.90	3.24	A	7.10	A++
	7	7	7	9	12	2.03	2.03	2.03	2.54	3.56	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	7	9	15	1.89	1.89	1.89	2.36	4.16	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	7	9	18	1.81	1.81	1.81	2.26	4.52	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	7	9	24	1.63	1.63	1.63	2.03	5.29	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	7	12	12	1.88	1.88	1.88	3.28	3.28	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	7	12	15	1.76	1.76	1.76	3.07	3.86	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	7	12	18	1.68	1.68	1.68	2.94	4.21	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	7	12	24	1.53	1.53	1.53	2.67	4.96	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	9	9	9	2.12	2.12	2.65	2.65	2.65	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	9	9	12	1.95	1.95	2.44	2.44	3.42	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	9	9	15	1.82	1.82	2.28	2.28	4.01	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	9	9	18	1.74	1.74	2.18	2.18	4.36	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	7	7	9	9	24	1.57	1.57	1.97	1.97	5.12	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	9	9	9	9	9	2.44	2.44	2.44	2.44	2.44	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	9	9	9	9	12	2.26	2.26	2.26	2.26	3.16	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	9	9	9	9	15	2.12	2.12	2.12	2.12	3.73	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	9	9	9	9	18	2.03	2.03	2.03	2.03	4.07	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	9	9	9	12	12	2.10	2.10	2.10	2.94	2.94	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	9	9	9	12	15	1.98	1.98	1.98	2.77	3.49	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++
	9	9	9	12	18	1.91	1.91	1.91	2.67	3.81	2.00	12.20	13.50	0.55	3.61	5.39	2.50	16.02	23.90	3.38	A	7.10	A++

5U45LS1ERA combination and the data

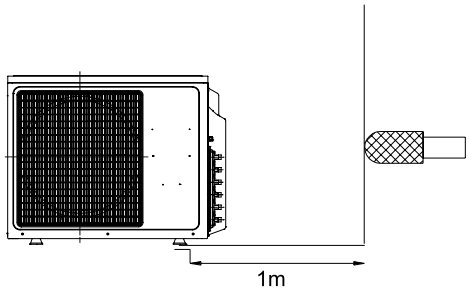
HEATING

Comb.	Combinations					Rated capacity Output/ kW (Nom. cooling)					total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy Label	SEER (W/W)	Energy Label
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
1x1	7	—	—	—	—	2.3	—	—	—	—	1.00	2.30	4.00	0.50	0.64	1.50	2.22	2.82	6.65	3.62	A	3.60	A
	9	—	—	—	—	2.9	—	—	—	—	1.00	2.90	4.10	0.50	0.80	1.40	2.22	3.55	6.21	3.63	A	3.60	A
	12	—	—	—	—	3.8	—	—	—	—	1.00	3.80	4.10	0.50	1.05	1.50	2.22	4.66	6.65	3.62	A	3.60	A
	15	—	—	—	—	5.4	—	—	—	—	1.30	5.40	6.00	0.47	1.48	1.90	2.09	6.57	8.43	3.65	A	3.60	A
	18	—	—	—	—	5.5	—	—	—	—	1.50	5.50	6.00	0.55	1.50	2.60	2.44	6.65	11.54	3.67	A	3.60	A
	24	—	—	—	—	7.0	—	—	—	—	1.50	7.00	8.60	0.55	1.90	2.60	2.44	8.43	11.54	3.68	A	3.60	A
BI (1x2)	7	18	—	—	—	2.30	5.50	—	—	—	1.20	7.80	10.00	0.55	2.16	3.55	2.15	9.58	15.75	3.61	A	3.60	A
	7	24	—	—	—	2.30	7.00	—	—	—	1.20	9.30	12.60	0.55	2.57	4.20	2.15	11.40	18.63	3.62	A	3.60	A
	9	15	—	—	—	2.90	5.40	—	—	—	1.20	8.30	10.10	0.50	2.27	3.50	2.15	10.07	15.53	3.66	A	3.60	A
	9	18	—	—	—	2.90	5.50	—	—	—	1.20	8.40	10.10	0.55	2.33	3.60	2.15	10.34	15.97	3.61	A	3.60	A
	9	24	—	—	—	2.90	7.00	—	—	—	1.20	9.90	12.70	0.55	2.74	4.20	2.15	12.16	18.63	3.61	A	3.60	A
	12	15	—	—	—	3.80	5.40	—	—	—	1.20	9.20	10.10	0.50	2.52	3.50	2.15	11.18	15.53	3.65	A	3.60	A
	12	18	—	—	—	3.80	5.50	—	—	—	1.20	9.30	10.10	0.55	2.57	3.60	2.15	11.40	15.97	3.62	A	3.60	A
	12	24	—	—	—	3.80	7.00	—	—	—	1.20	10.80	12.70	0.55	2.97	4.20	2.15	13.18	18.63	3.64	A	3.60	A
	18	18	—	—	—	5.50	5.50	—	—	—	1.20	11.00	12.00	0.55	3.04	4.00	2.15	13.49	17.75	3.62	A	3.60	A
	18	24	—	—	—	5.50	7.00	—	—	—	1.20	12.50	14.00	0.55	3.45	4.50	2.15	15.31	19.96	3.62	A	3.60	A
	24	24	—	—	—	6.34	6.34	—	—	—	1.20	12.68	14.00	0.55	3.50	5.10	2.15	15.53	22.63	3.62	A	3.60	A
	7	7	9	—	—	2.30	2.30	2.90	—	—	1.50	7.50	12.10	0.55	2.08	4.80	2.50	9.23	21.30	3.61	A	3.70	A
	7	7	12	—	—	2.30	2.30	3.80	—	—	1.50	8.40	12.10	0.55	2.33	4.80	2.50	10.34	21.30	3.61	A	3.70	A
	7	7	15	—	—	2.30	2.30	5.40	—	—	1.50	10.00	11.50	0.55	2.77	5.10	2.50	12.29	22.63	3.61	A	3.70	A
	7	7	18	—	—	2.30	2.30	5.50	—	—	1.50	10.10	14.00	0.55	2.80	5.20	2.50	12.42	23.07	3.61	A	3.70	A
	7	7	24	—	—	2.30	2.30	7.00	—	—	1.50	11.60	14.00	0.55	3.20	5.39	2.50	14.20	23.90	3.63	A	3.70	A
	7	9	9	—	—	2.30	2.90	2.90	—	—	1.50	8.10	12.20	0.55	2.23	4.80	2.50	9.89	21.30	3.63	A	3.70	A
	7	9	12	—	—	2.30	2.90	3.80	—	—	1.50	9.00	12.20	0.55	2.48	4.80	2.50	11.00	21.30	3.63	A	3.70	A
	7	9	15	—	—	2.30	2.90	5.40	—	—	1.50	10.60	11.50	0.55	2.93	5.10	2.50	13.00	22.63	3.62	A	3.92	A
	7	9	18	—	—	2.30	2.90	5.50	—	—	1.50	10.70	14.00	0.55	2.94	5.23	2.50	13.04	23.20	3.64	A	3.70	A
	7	9	24	—	—	2.30	2.90	7.00	—	—	1.50	12.20	14.00	0.55	3.35	5.39	2.50	14.86	23.90	3.64	A	3.70	A
	7	12	12	—	—	2.30	3.80	3.80	—	—	1.50	9.90	11.50	0.55	2.74	5.30	2.50	12.16	23.51	3.61	A	3.70	A
	7	12	15	—	—	2.30	3.80	5.40	—	—	1.50	11.50	14.00	0.55	3.18	5.20	2.50	14.11	23.07	3.62	A	3.70	A
	7	12	18	—	—	2.30	3.80	5.50	—	—	1.50	11.60	14.00	0.55	3.20	5.20	2.50	14.20	23.07	3.63	A	3.70	A
	7	12	24	—	—	2.23	3.68	6.78	—	—	1.50	12.68	14.00	0.55	3.40	5.39	2.50	15.08	23.90	3.73	A	3.70	A
TRI (1x3)	9	9	9	—	—	2.90	2.90	2.90	—	—	1.50	8.70	12.30	0.55	2.40	4.90	2.50	10.65	21.74	3.63	A	3.70	A
	9	9	12	—	—	2.90	2.90	3.80	—	—	1.50	9.60	12.30	0.55	2.66	4.90	2.50	11.80	21.74	3.61	A	3.70	A
	9	9	15	—	—	2.90	2.90	5.40	—	—	1.50	11.20	14.00	0.55	3.10	5.20	2.50	13.75	23.07	3.61	A	3.70	A
	9	9	18	—	—	2.90	2.90	5.50	—	—	1.50	11.30	14.00	0.55	3.10	5.20	2.50	13.75	23.07	3.65	A	3.70	A
	9	9	24	—	—	2.90	2.90	7.00	—	—	1.50	12.80	14.00	0.55	3.45	5.39	2.50	15.31	23.90	3.71	A	3.70	A
	9	12	12	—	—	2.90	3.80	3.80	—	—	1.50	10.50	12.30	0.55	2.90	4.80	2.50	12.87	21.30	3.62	A	3.70	A
	9	12	15	—	—	2.90	3.80	5.40	—	—	1.50	12.10	14.00	0.55	3.33	4.90	2.50	14.77	21.74	3.63	A	3.70	A
	9	12	18	—	—	2.90	3.80	5.50	—	—	1.50	12.20	14.00	0.55	3.35	4.90	2.50	14.86	21.74	3.64	A	3.70	A
	9	12	24	—	—	2.68	3.52	6.48	—	—	1.50	12.68	14.00	0.55	3.40	5.39	2.50	15.08	23.90	3.73	A	3.70	A
	12	12	12	—	—	3.80	3.80	3.80	—	—	1.50	11.40	12.30	0.55	3.10	4.90	2.50	13.75	21.74	3.68	A	3.70	A
	12	12	15	—	—	3.71	3.71	5.27	—	—	1.50	12.68	14.00	0.55	3.43	5.20	2.50	15.22	23.07	3.70	A	3.70	A
	12	12	18	—	—	3.68	3.68	5.32	—	—	1.50	12.68	14.00	0.55	3.40	5.20	2.50	15.08	23.07	3.73	A	3.70	A
	12	12	24	—	—	3.30	3.30	6.08	—	—	1.50	12.68	14.00	0.55	3.40	5.39	2.50	15.08	23.90	3.73	A	3.70	A
	12	15	18	—	—	3.28	4.66	4.74	—	—	1.50	12.68	14.00	0.55	3.40	5.39	2.50	15.08	23.90	3.73	A	3.70	A
	12	18	18	—	—	3.26	4.71	4.71	—	—	1.50	12.68	14.00	0.55	3.40	5.39	2.50	15.08	23.90	3.73	A	3.70	A
	12	18	24	—	—	2.96	4.28	5.45	—	—	1.50	12.68	14.00	0.55	3.40	5.39	2.50	15.08	23.90	3.73	A	3.70	A
	18	18	18	—	—	4.23	4.23	4.23	—	—	1.50	12.68	14.00	0.55	3.40	5.39	2.50	15.08	23.90	3.73	A	3.70	A

Comb.	Combinations					Rated capacity Output/ kW (Nom. cooling)					total cooling capacity(kW)			total power input (kW)			total current (A)@230V			EER (W/W)	Energy Label	SEER (W/W)	Energy Label
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	min. data	rated data	max. data	min. data	rated data	max. Data	min. data	rated data	max. Data	rated capacity			
"QUADRI (1x4)"	7	7	7	7	—	2.30	2.30	2.30	2.30	—	1.80	9.20	14.00	0.55	2.50	5.39	2.50	11.09	23.90	3.68	A	3.80	A
	7	7	7	9	—	2.30	2.30	2.30	2.90	—	1.80	9.80	14.00	0.55	2.70	5.39	2.50	11.98	23.90	3.63	A	3.80	A
	7	7	7	12	—	2.30	2.30	2.30	3.80	—	1.80	10.70	14.00	0.55	2.90	5.39	2.50	12.87	23.90	3.69	A	3.80	A
	7	7	7	15	—	2.30	2.30	2.30	5.40	—	1.80	12.30	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.73	A	3.80	A
	7	7	7	18	—	2.30	2.30	2.30	5.50	—	1.80	12.40	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.76	A	3.80	A
	7	7	7	24	—	2.10	2.10	2.10	6.39	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	7	7	9	9	—	2.30	2.30	2.90	2.90	—	1.80	10.40	14.00	0.55	2.85	5.39	2.50	12.64	23.90	3.65	A	3.80	A
	7	7	9	12	—	2.30	2.30	2.90	3.80	—	1.80	11.30	14.00	0.55	3.10	5.39	2.50	13.75	23.90	3.65	A	3.80	A
	7	7	9	15	—	2.26	2.26	2.85	5.31	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	7	7	9	18	—	2.24	2.24	2.83	5.36	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	7	7	9	24	—	2.01	2.01	2.54	6.12	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	7	7	12	12	—	2.30	2.30	3.80	3.80	—	1.80	12.20	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.70	A	3.80	A
	7	7	12	15	—	2.11	2.11	3.49	4.96	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	7	7	12	18	—	2.10	2.10	3.47	5.02	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	7	7	12	24	—	1.89	1.89	3.13	5.76	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	7	9	9	12	—	2.30	2.9	2.9	3.80	—	1.80	11.90	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.61	A	3.80	A
	7	9	9	15	—	2.16	2.72	2.72	5.07	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	7	9	9	18	—	2.14	2.70	2.70	5.13	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	7	9	9	24	—	1.93	2.44	2.44	5.88	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	7	9	12	12	—	2.28	2.87	3.76	3.76	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	7	12	12	12	—	2.13	3.52	3.52	3.52	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	9	9	9	9	—	2.90	2.90	2.90	2.90	—	1.80	11.60	14.00	0.55	3.10	5.39	2.50	13.75	23.90	3.74	A	3.80	A
	9	9	9	12	—	2.90	2.90	2.90	3.80	—	1.80	12.50	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.79	A	3.80	A
	9	9	9	15	—	2.61	2.61	2.61	4.86	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	9	9	9	18	—	2.59	2.59	2.59	4.91	—	1.80	12.68	14.00	0.55	3.30	5.39	2.50	14.64	23.90	3.84	A	3.80	A
	9	9	9	24	—	2.34	2.34	2.34	5.65	—	1.80	12.68	14.00	0.55	3.25	5.39	2.50	14.42	23.90	3.90	A	3.80	A
	9	9	12	12	—	2.74	2.74	3.60	3.60	—	1.80	12.68	14.00	0.55	3.25	5.39	2.50	14.42	23.90	3.90	A	3.80	A
	9	9	12	15	—	2.45	2.45	3.21	4.56	—	1.80	12.68	14.00	0.55	3.25	5.39	2.50	14.42	23.90	3.90	A	3.80	A
	9	9	12	18	—	2.44	2.44	3.19	4.62	—	1.80	12.68	14.00	0.55	3.25	5.39	2.50	14.42	23.90	3.90	A	3.80	A
	9	12	12	12	—	2.57	3.37	3.37	3.37	—	1.80	12.68	14.00	0.55	3.25	5.39	2.50	14.42	23.90	3.90	A	3.80	A
	12	12	12	12	—	3.17	3.17	3.17	3.17	—	1.80	12.68	14.00	0.55	3.25	5.39	2.50	14.42	23.90	3.90	A	3.80	A
	9	12	12	15	—	2.31	3.03	3.03	4.31	—	1.80	12.68	14.00	0.55	3.25	5.39	2.50	14.42	23.90	3.90	A	3.80	A
	9	12	12	18	—	2.30	3.01	3.01	4.36	—	1.80	12.68	14.00	0.55	3.25	5.39	2.50	14.42	23.90	3.90	A	3.80	A
	9	12	12	24	—	2.10	2.75	2.75	5.07	—	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.80	A
(1×5)	7	7	7	7	7	2.30	2.30	2.30	2.30	2.30	1.80	11.50	14.00	0.55	3.10	5.39	2.50	13.75	23.90	3.71	A	3.85	A
	7	7	7	7	9	2.30	2.30	2.30	2.30	2.90	1.80	12.10	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.73	A	3.85	A
	7	7	7	7	12	2.24	2.24	2.24	2.24	3.71	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	7	15	2.00	2.00	2.00	2.00	4.69	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	7	18	1.98	1.98	1.98	1.98	4.74	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	7	24	1.80	1.80	1.80	1.80	5.48	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	9	9	2.30	2.30	2.30	2.90	2.90	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	9	12	2.14	2.14	2.14	2.70	3.54	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	9	15	1.92	1.92	1.92	2.42	4.50	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	9	18	1.91	1.91	1.91	2.40	4.56	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	9	24	1.74	1.74	1.74	2.19	5.28	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	12	12	2.01	2.01	2.01	3.32	3.32	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	12	15	1.81	1.81	1.81	2.99	4.25	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	12	18	1.80	1.80	1.80	2.97	4.30	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	7	12	24	1.65	1.65	1.65	2.72	5.01	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	9	9	9	2.19	2.19	2.76	2.76	2.76	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	9	9	12	2.05	2.05	2.59	2.59	3.39	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	9	9	15	1.85	1.85	2.33	2.33	4.33	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	9	9	18	1.83	1.83	2.31	2.31	4.39	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	7	7	9	9	24	1.68	1.68	2.11	2.11	5.10	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	9	9	9	9	9	2.54	2.54	2.54	2.54	2.54	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	9	9	9	9	12	2.39	2.39	2.39	2.39	3.13	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	9	9	9	9	15	2.16	2.16	2.16	2.16	4.03	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	9	9	9	9	18	2.15	2.15	2.15	2.15	4.08	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	9	9	9	12	12	2.26	2.26	2.26	2.96	2.96	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	9	9	9	12	15	2.05	2.05	2.05	2.69	3.83	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A
	9	9	9	12	18	2.04	2.04	2.04	2.68	3.87	1.80	12.68	14.00	0.55	3.24	5.39	2.50	14.37	23.90	3.91	A	3.85	A

8. Sound pressure level

(1) Testing illustration:

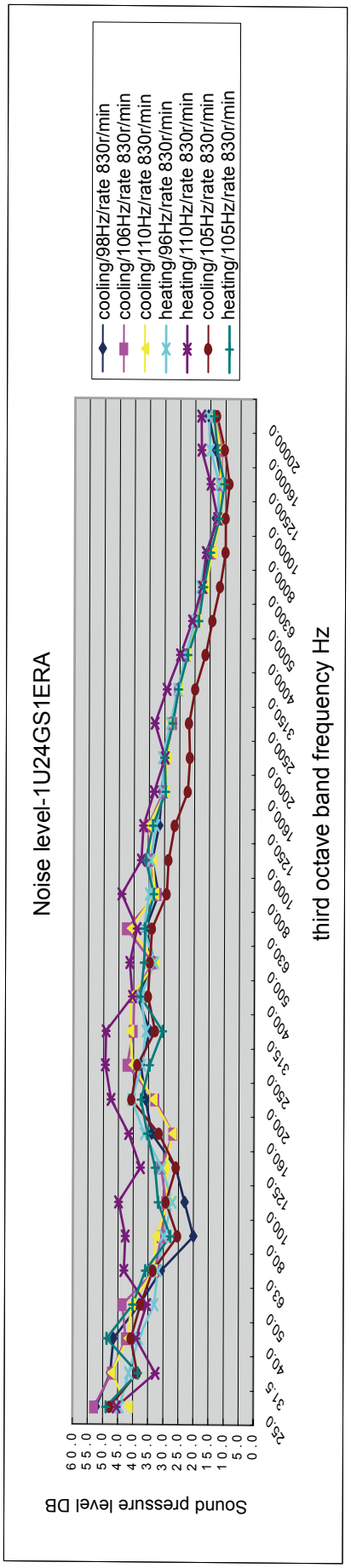


(2) Testing condition:

a. Unit running in the nominal condition
b. Test in the semi-anechoic chamber
c. Noise level varies from the actual factors such as room structure, etc.

(3) Test method

1. Set the unit: 1) the unit is placed on the rubber whose thickness is 5mm; 2) if the height between the air outlet and ground is less than 1m, block the unit up to 1m.far from ground
2. Test position: After setting the unit ,the test position for the noise is 1m far from the front panel


Noise level-1U24GS1ERA
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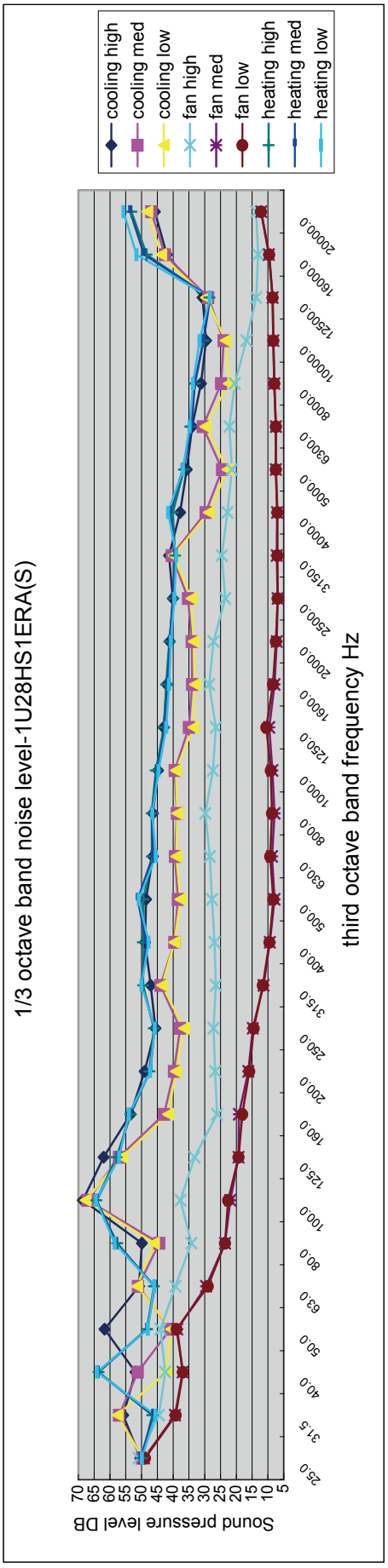
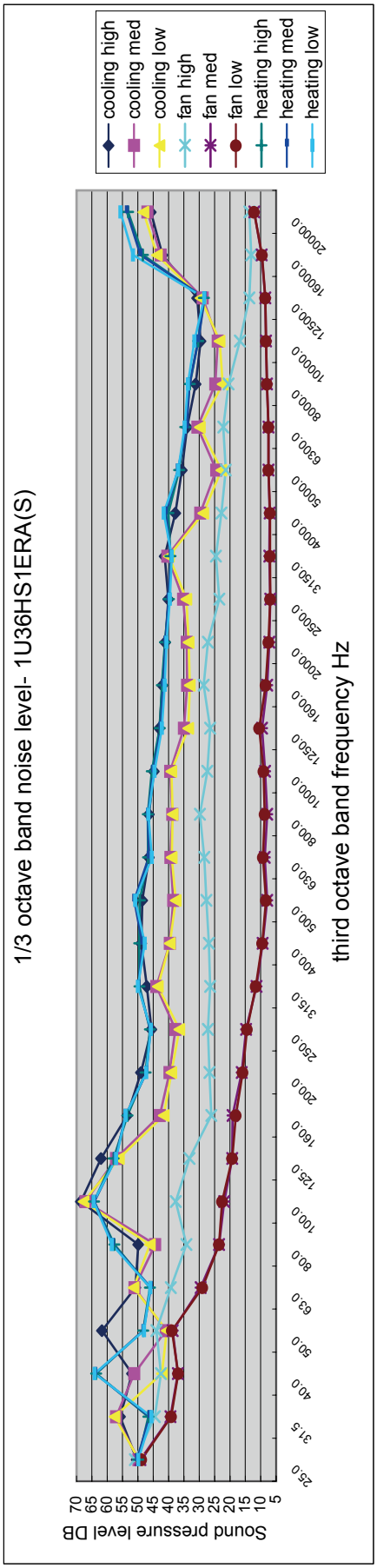
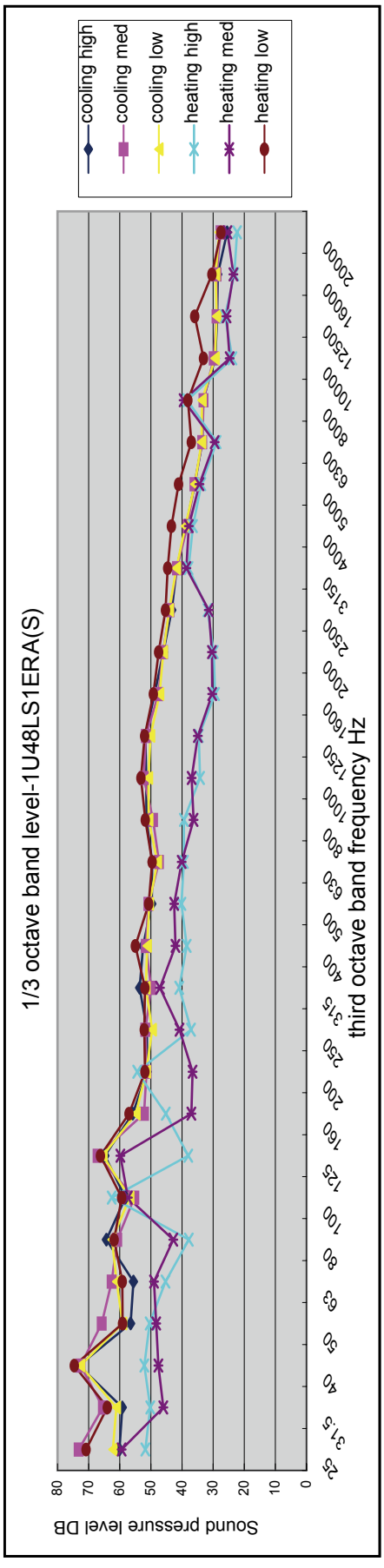
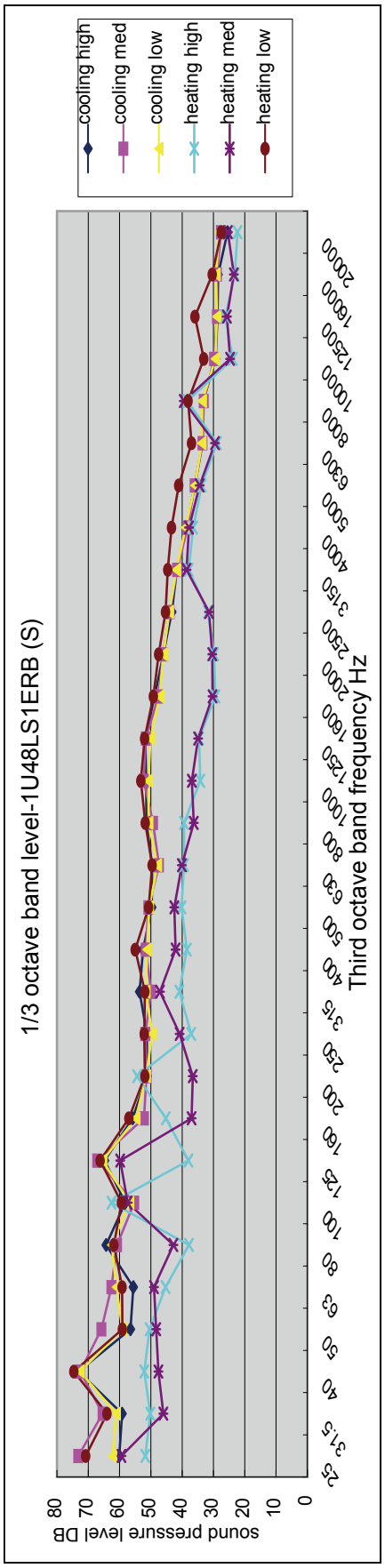
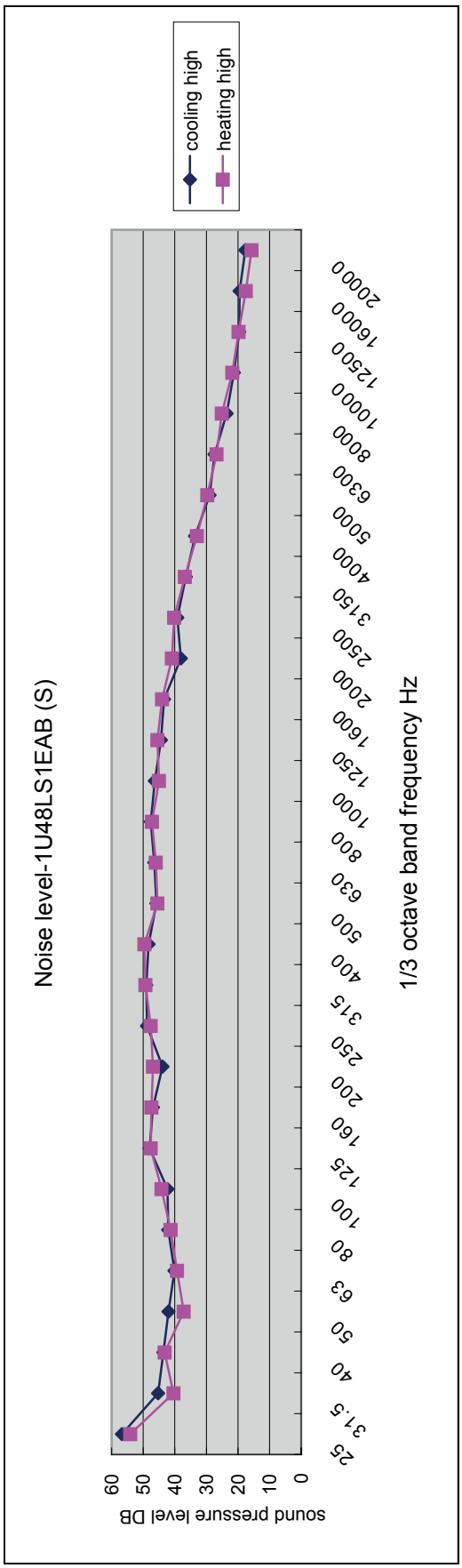
cooling/106Hz/rate 830r/min
cooling/110Hz/rate 830r/min
heating/96Hz/rate 830r/min
heating/110Hz/rate 830r/min
cooling/105Hz/rate 830r/min
heating/105Hz/rate 830r/min
Sound pressure level DB
third octave band frequency Hz

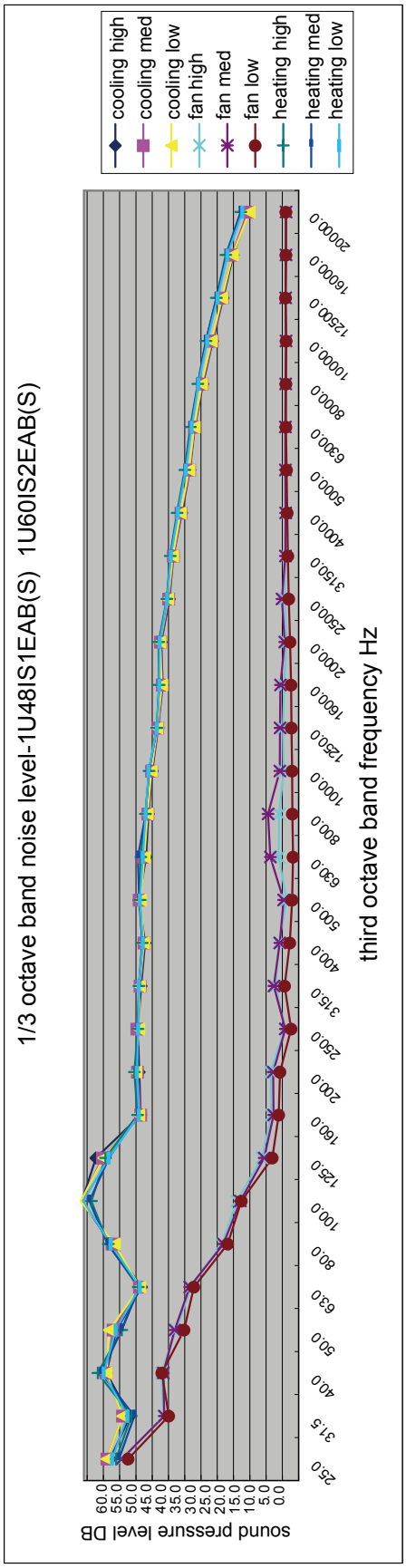

1/3 octave band noise level-1U28HS1ERA(S)
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
Sound pressure level DB
third octave band frequency Hz

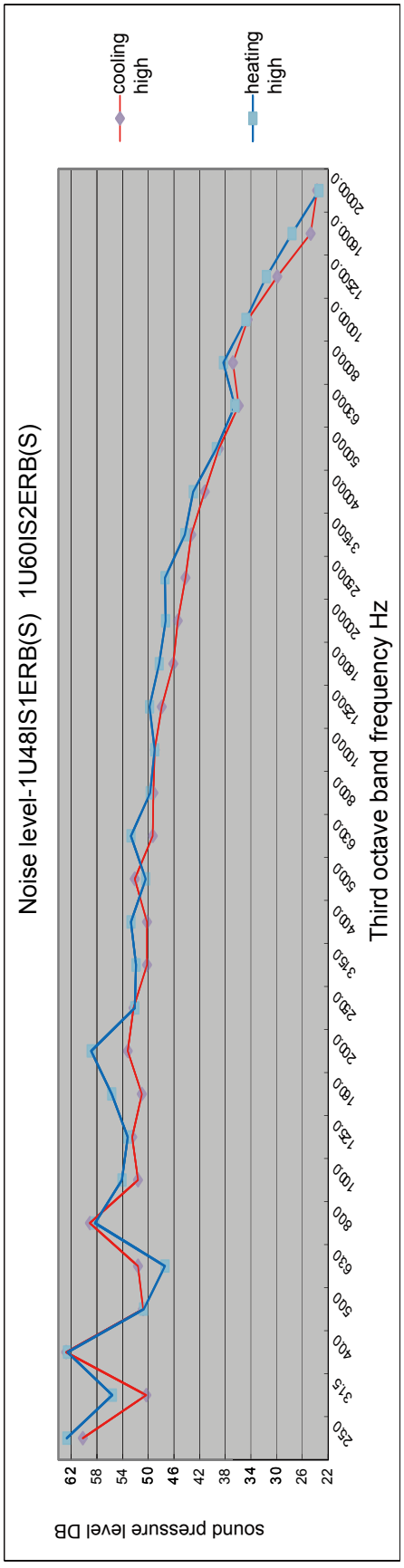

1/3 octave band noise level- 1U36HS1ERA(S)
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
Sound pressure level DB
70 65 60 55 50 45 40 35 30 25 20 15 10 5
third octave band frequency Hz
25.0 31.5 40.0 50.0 63.0 80.0 100.0 125.0 160.0 200.0 250.0 315.0 400.0 500.0 630.0 800.0 1000.0 1250.0 1600.0 2000.0 2500.0 3150.0 4000.0 5000.0 6300.0 8000.0 10000.0 12500.0 16000.0 20000.0

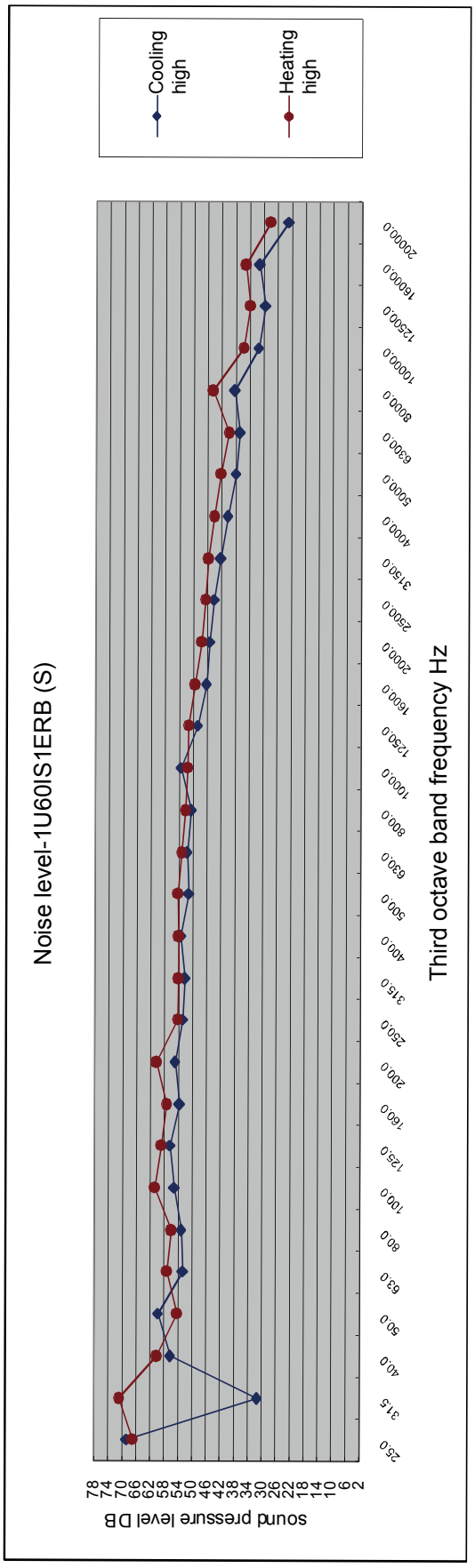

1/3 octave band level-1U48LS1ERA(S)
cooling high
cooling med
cooling low
heating high
heating med
heating low
Sound pressure level DB
80 70 60 50 40 30 20 10 0
third octave band frequency Hz
25 31.5 40 50 63 80 100 125 160 200 250 315 400 500 630 800 1000 1250 1600 2000 2500 3150 4000 5000 6300 8000 10000 12500 16000 20000

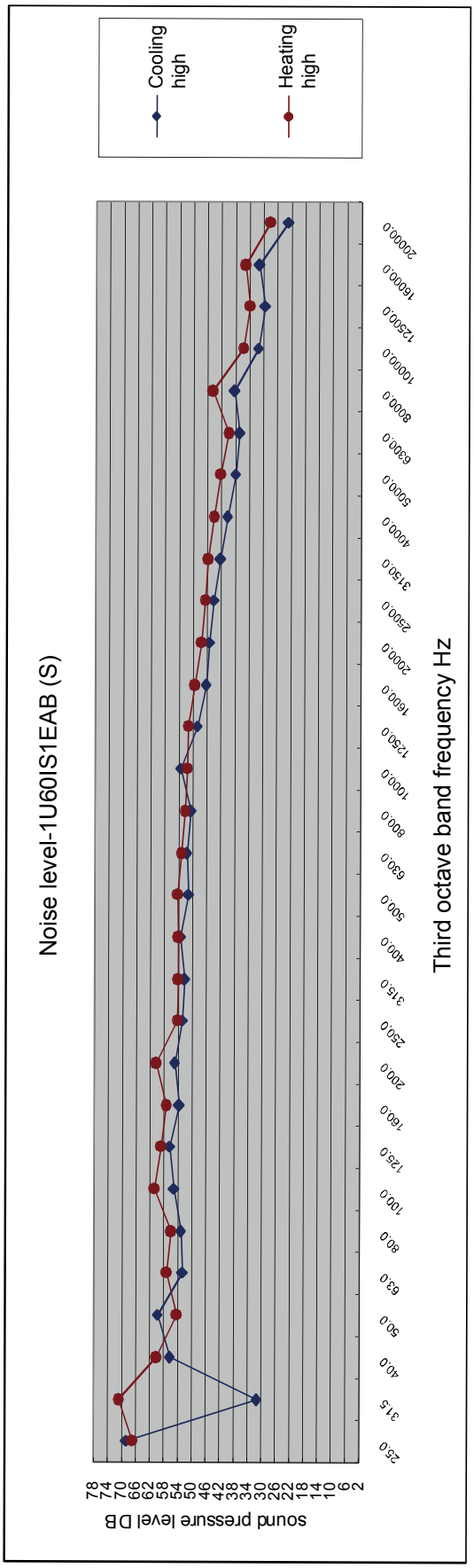

1/3 octave band level-1U48LS1ERB (S)
cooling high
cooling med
cooling low
heating high
heating med
heating low
sound pressure level DB
0
10
20
30
40
50
60
70
80
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500
16000
20000
Third octave band frequency Hz

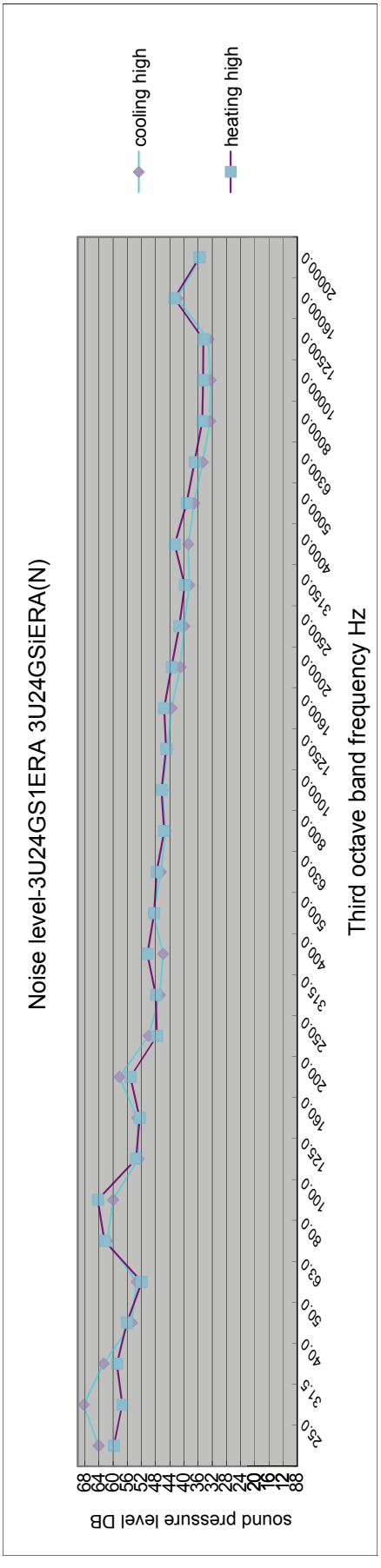

Noise level-1U48LS1EAB (S)
cooling high
heating high
sound pressure level DB
0
10
20
30
40
50
60
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500
16000
20000
1/3 octave band frequency Hz

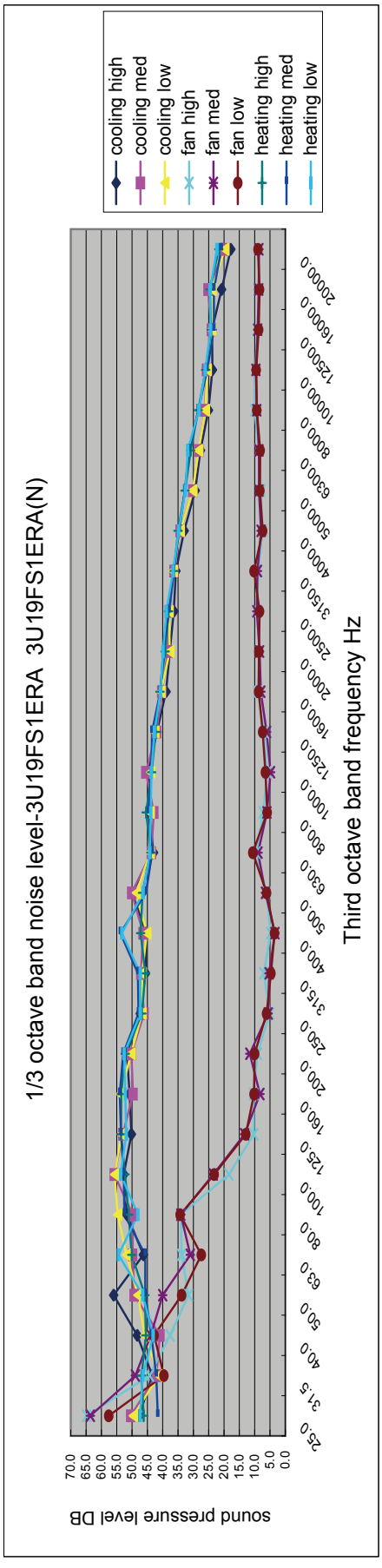

1/3 octave band noise level-1U48IS1EAB(S) 1U60IS2EAB(S)
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
sound pressure level DB
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0
third octave band frequency Hz

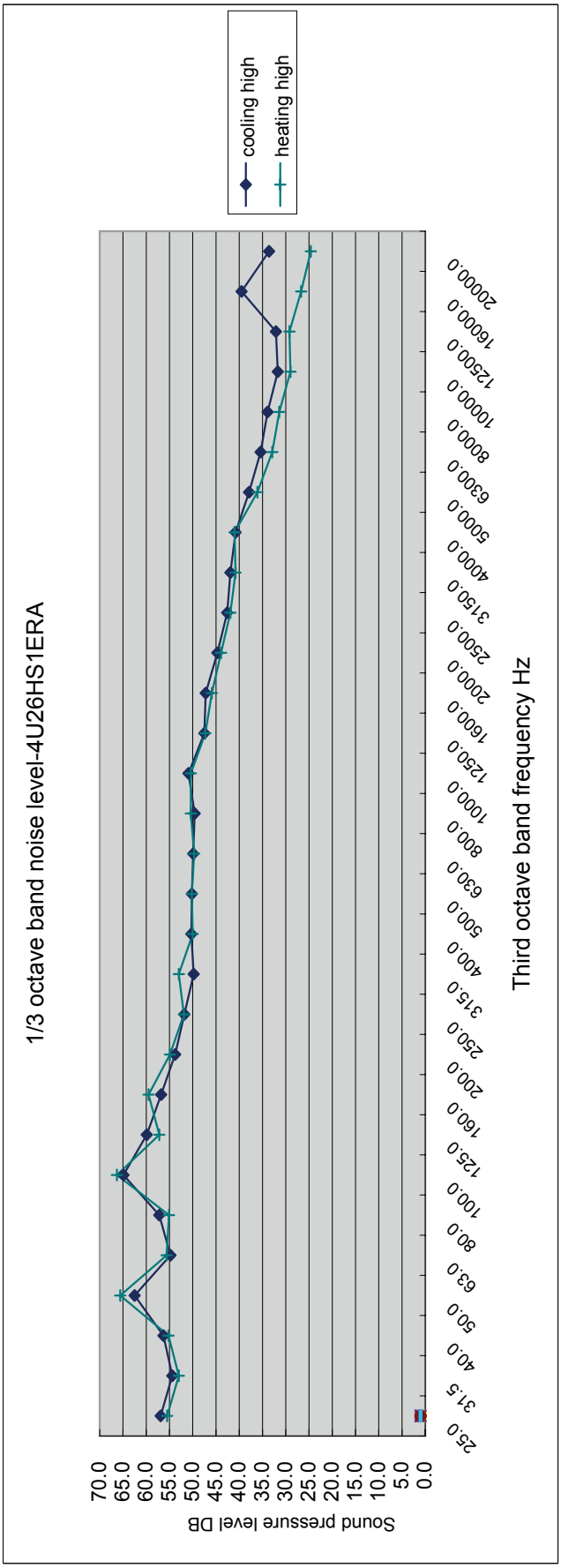

Noise level-1U48IS1ERB(S) 1U60IS2ERB(S)
cooling
high
heating
high
sound pressure level DB
62
58
54
50
46
42
38
34
30
26
22
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0
Third octave band frequency Hz

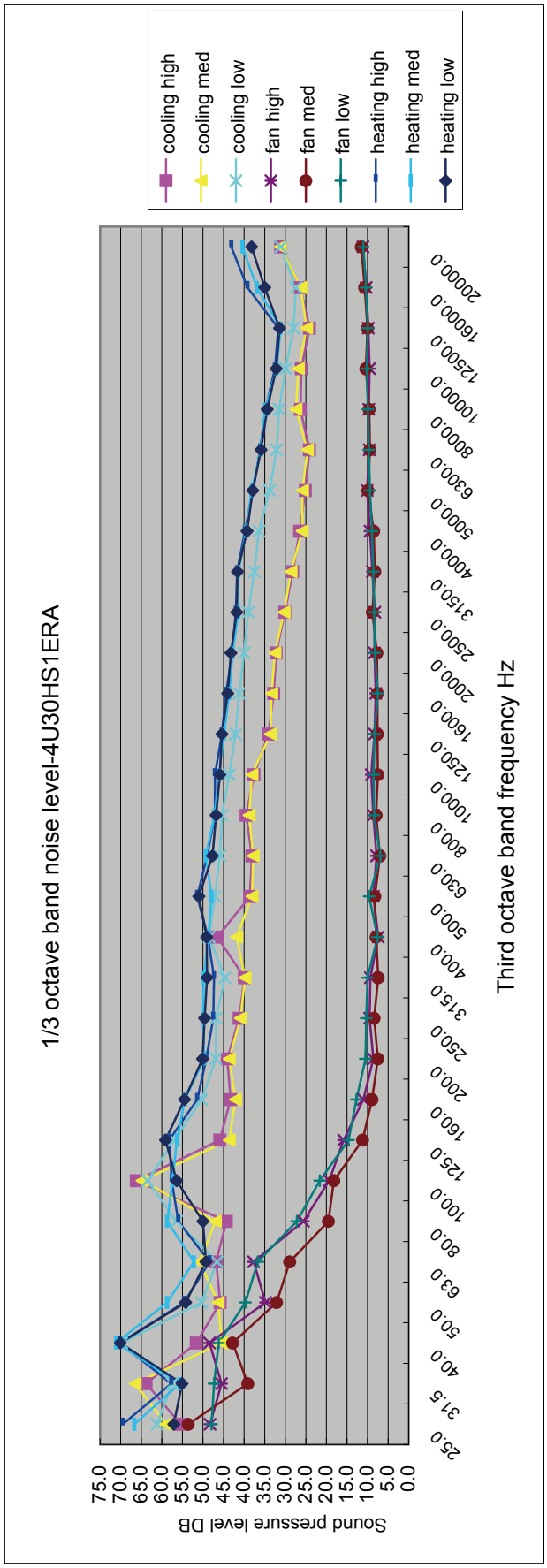

Noise level-1U60IS1ERB (S)
Cooling high
Heating high
sound pressure level DB
78 74 70 66 62 58 54 50 46 42 38 34 30 26 22 18 14 10 6 2
25.0 31.5 40.0 50.0 63.0 80.0 100.0 125.0 160.0 200.0 250.0 315.0 400.0 500.0 630.0 800.0 1000.0 1250.0 1600.0 2000.0 2500.0 3150.0 4000.0 5000.0 6300.0 8000.0 10000.0 12500.0 16000.0 20000.0
Third octave band frequency Hz

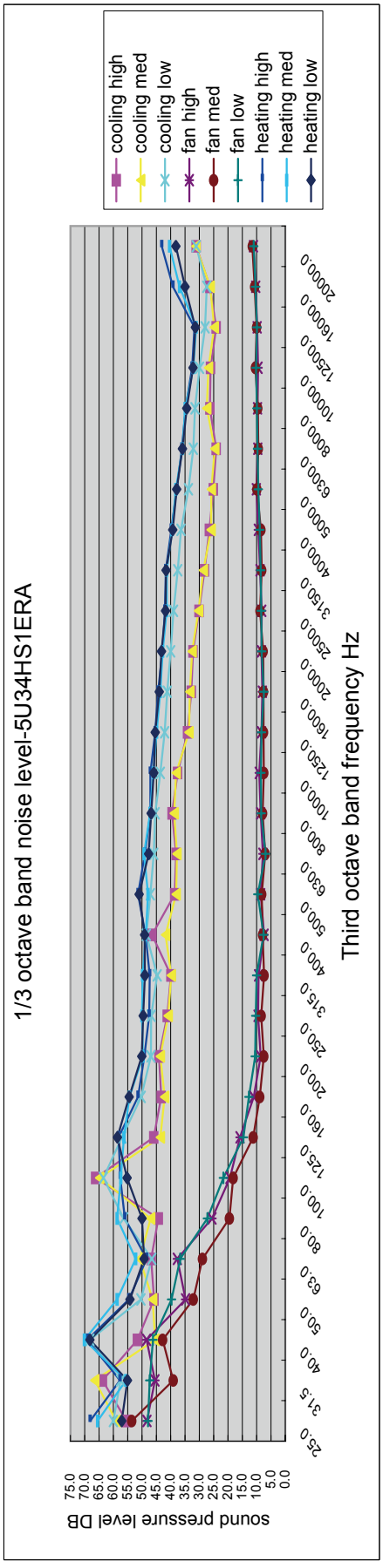

Noise level-1U60IS1EAB (S)
Cooling high
Heating high
sound pressure level DB
78 74 70 66 62 58 54 50 46 42 38 34 30 26 22 18 14 10 6 2
25.0 31.5 40.0 50.0 63.0 80.0 100.0 125.0 160.0 200.0 250.0 315.0 400.0 500.0 630.0 800.0 1000.0 1250.0 1600.0 2000.0 2500.0 3150.0 4000.0 5000.0 6300.0 8000.0 10000.0 12500.0 16000.0 20000.0
Third octave band frequency Hz

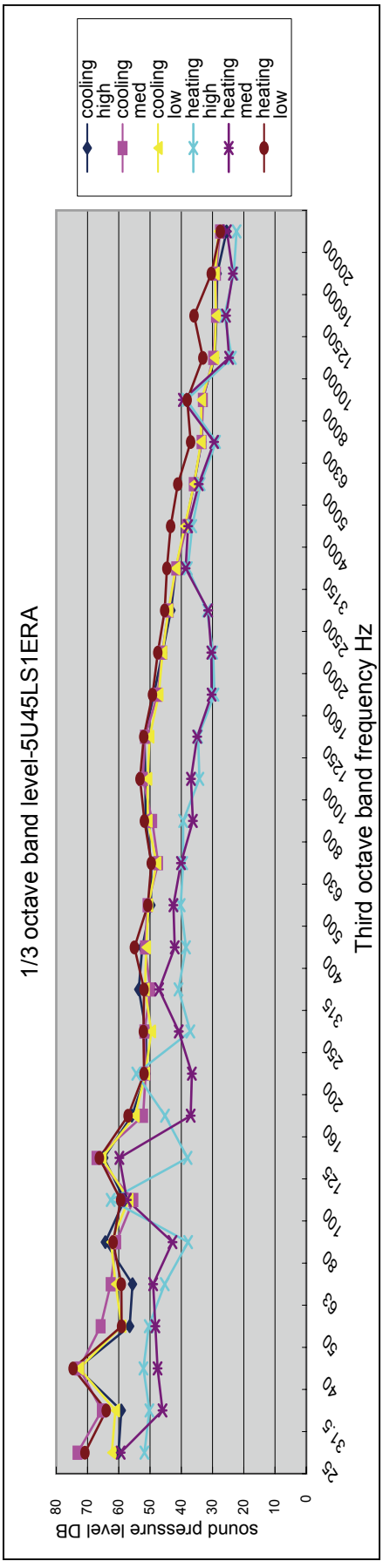

Noise level-3U24GS1ERA 3U24GSiERA(N)
cooling high
heating high
sound pressure level DB
Third octave band frequency Hz


1/3 octave band noise level-3U19FS1ERA 3U19FS1ERA(N)
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
sound pressure level DB
Third octave band frequency Hz

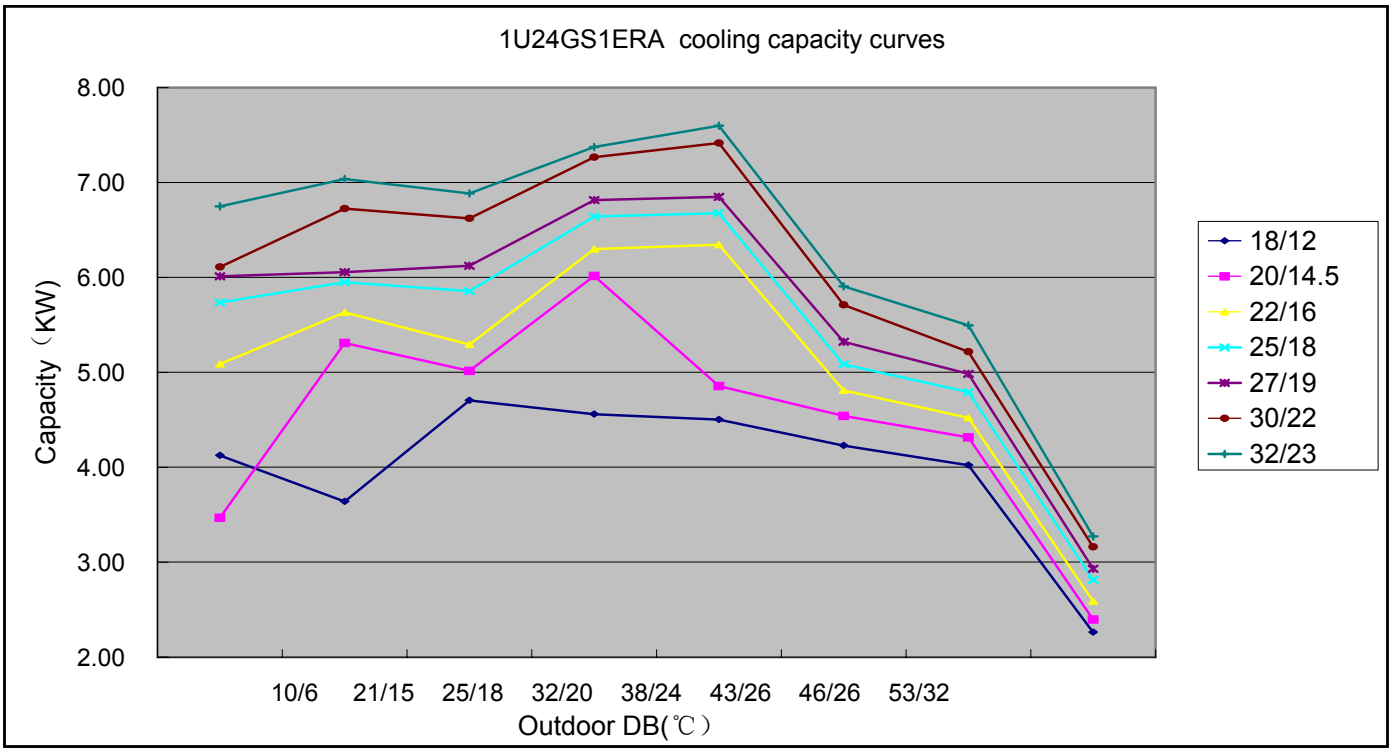

1/3 octave band noise level-4U26HS1ERA
cooling high
heating high
Sound pressure level DB
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0
Third octave band frequency Hz

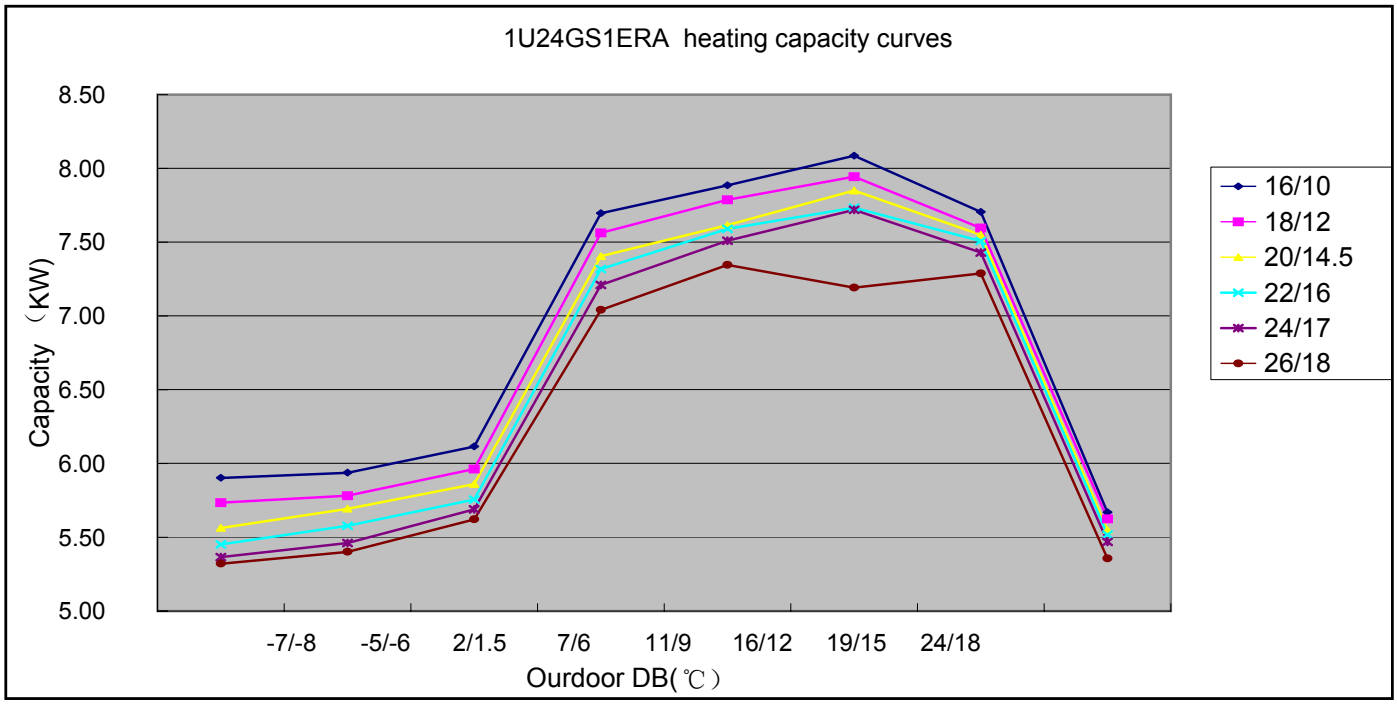

1/3 octave band noise level-4U30HS1ERA
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
Sound pressure level DB
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0
Third octave band frequency Hz


1/3 octave band noise level-5U34HS1ERA
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating high
heating med
heating low
sound pressure level DB
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Third octave band frequency Hz
25.0
31.5
40.0
50.0
63.0
80.0
100.0
125.0
160.0
200.0
250.0
315.0
400.0
500.0
630.0
800.0
1000.0
1250.0
1600.0
2000.0
2500.0
3150.0
4000.0
5000.0
6300.0
8000.0
10000.0
12500.0
16000.0
20000.0

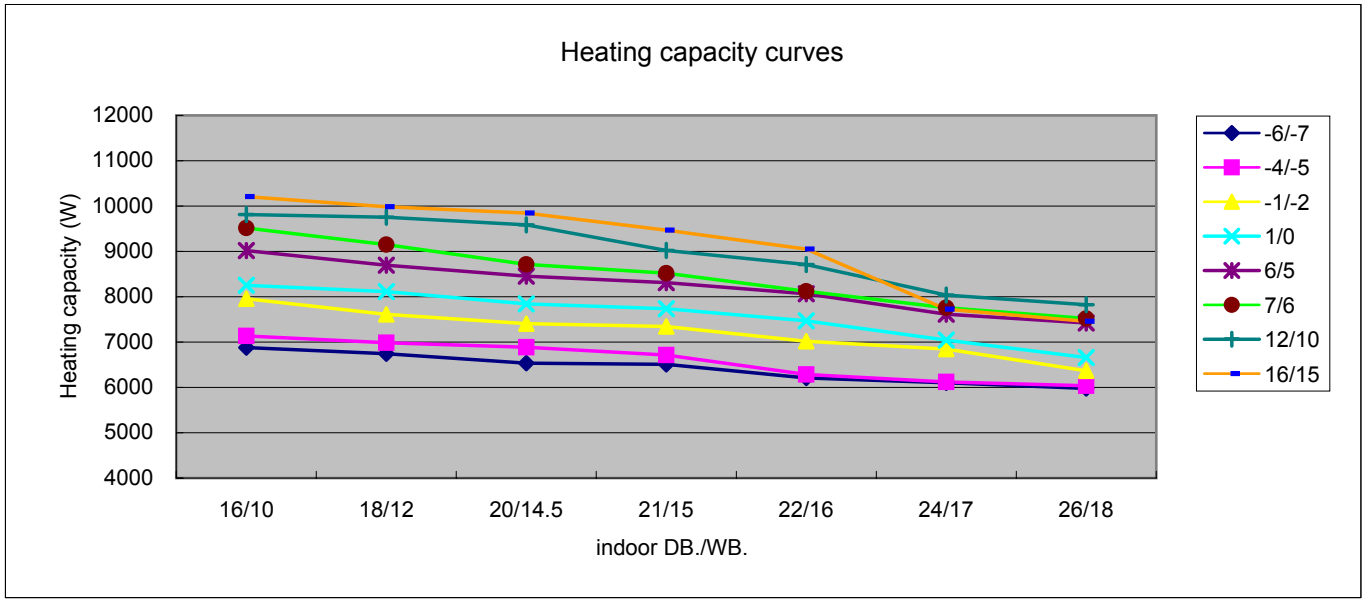

1/3 octave band level-5U45LS1ERA
cooling high
cooling med
cooling low
heating high
heating med
heating low
sound pressure level DB
80
70
60
50
40
30
20
10
0
Third octave band frequency Hz
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500
16000
20000

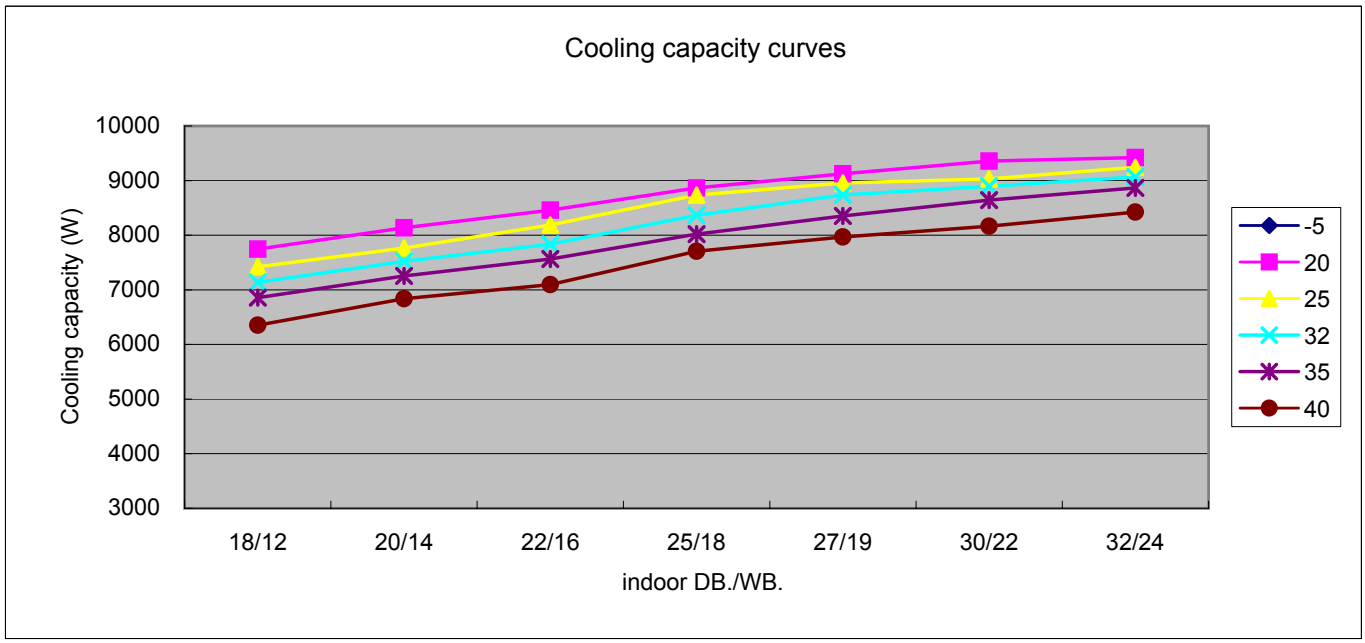
9. Outdoor performance curves



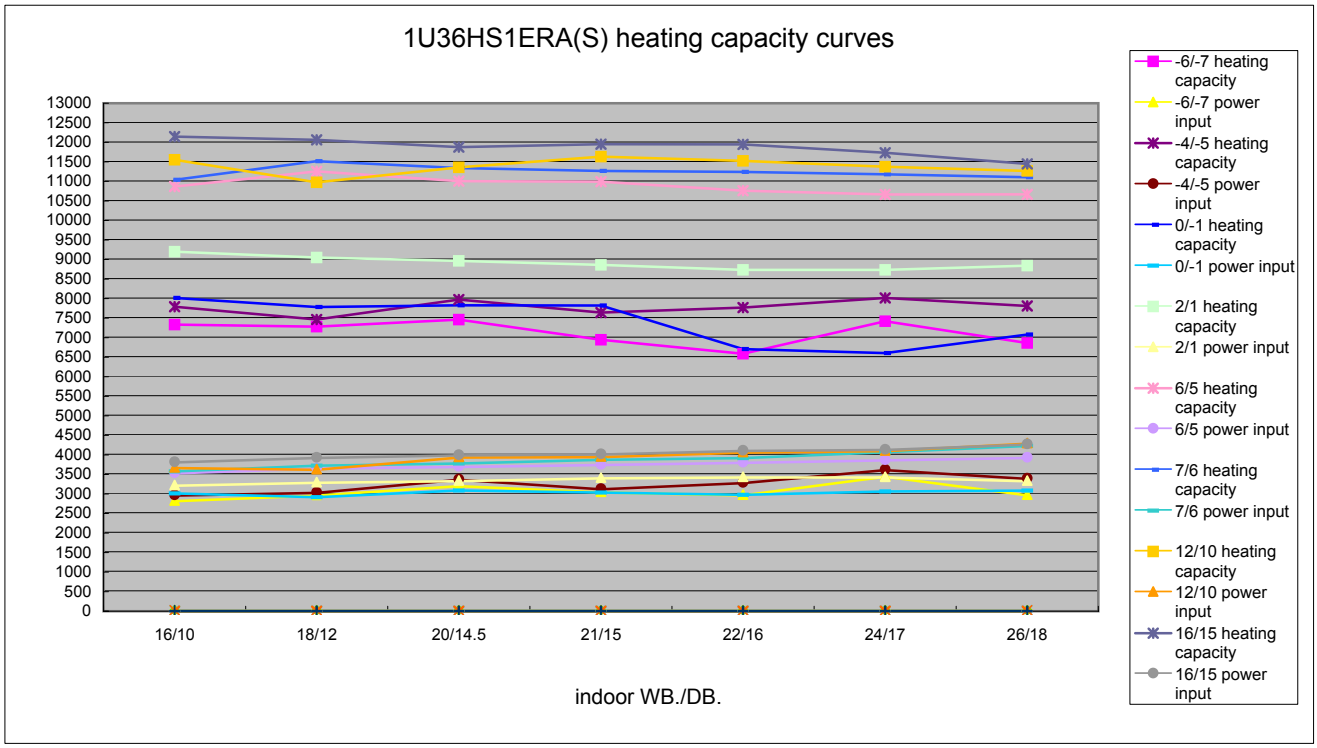


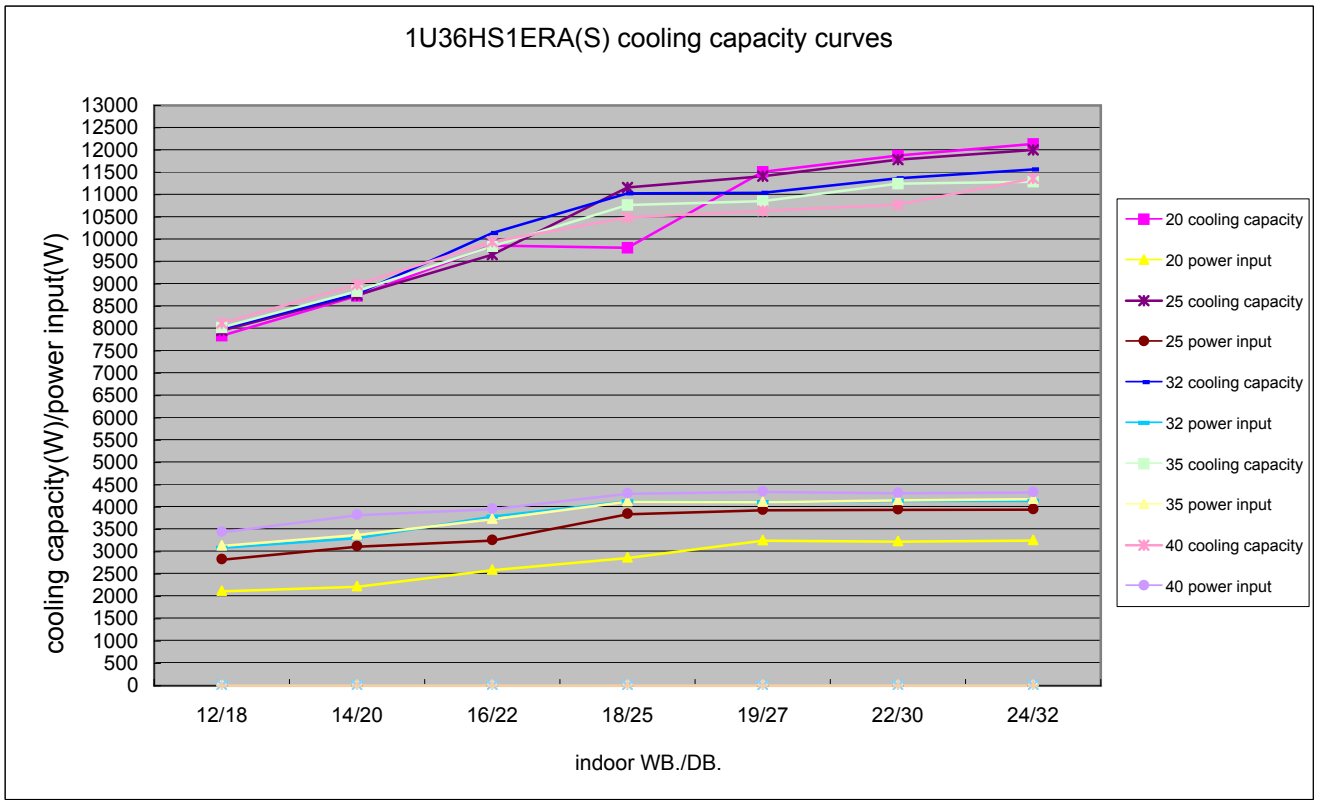
1U28HS1ERA (S)

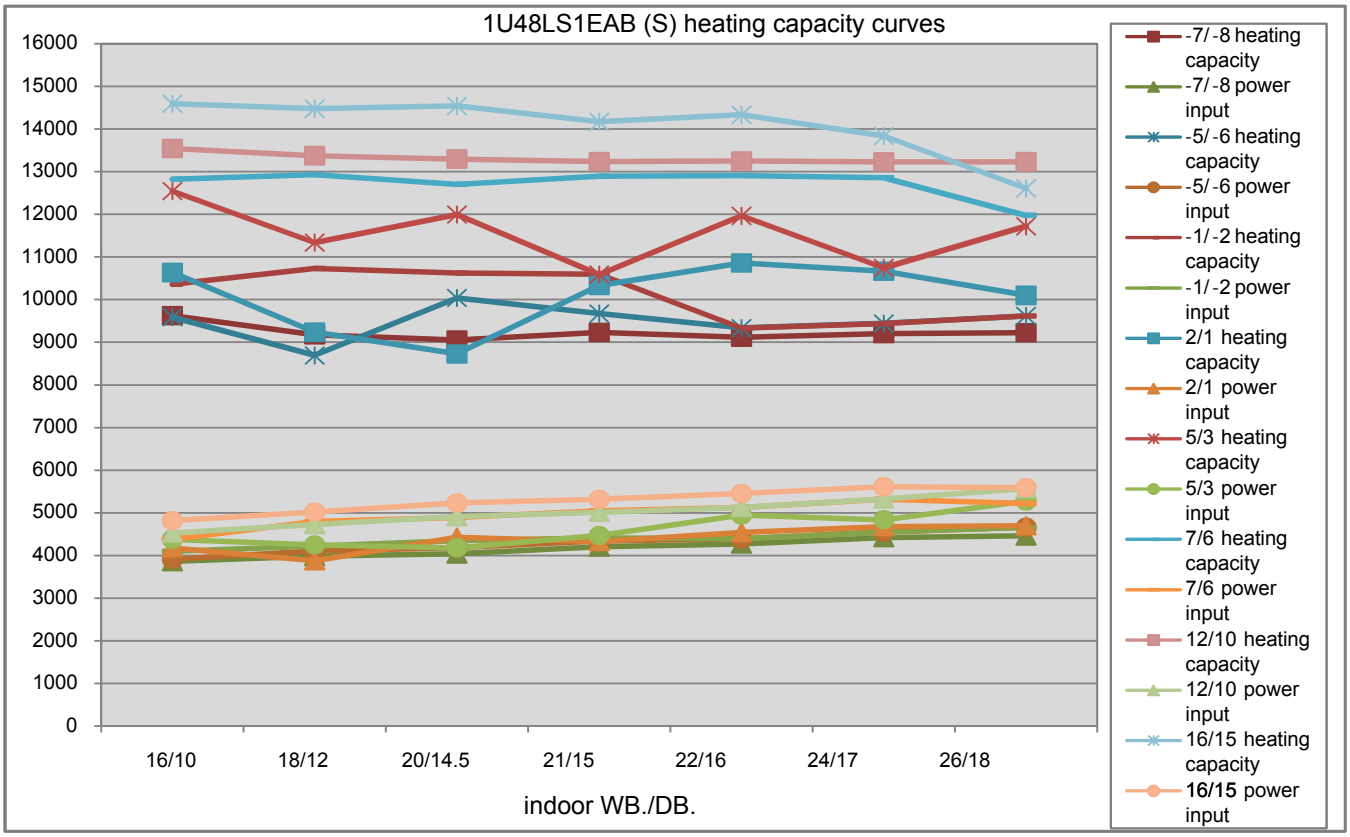


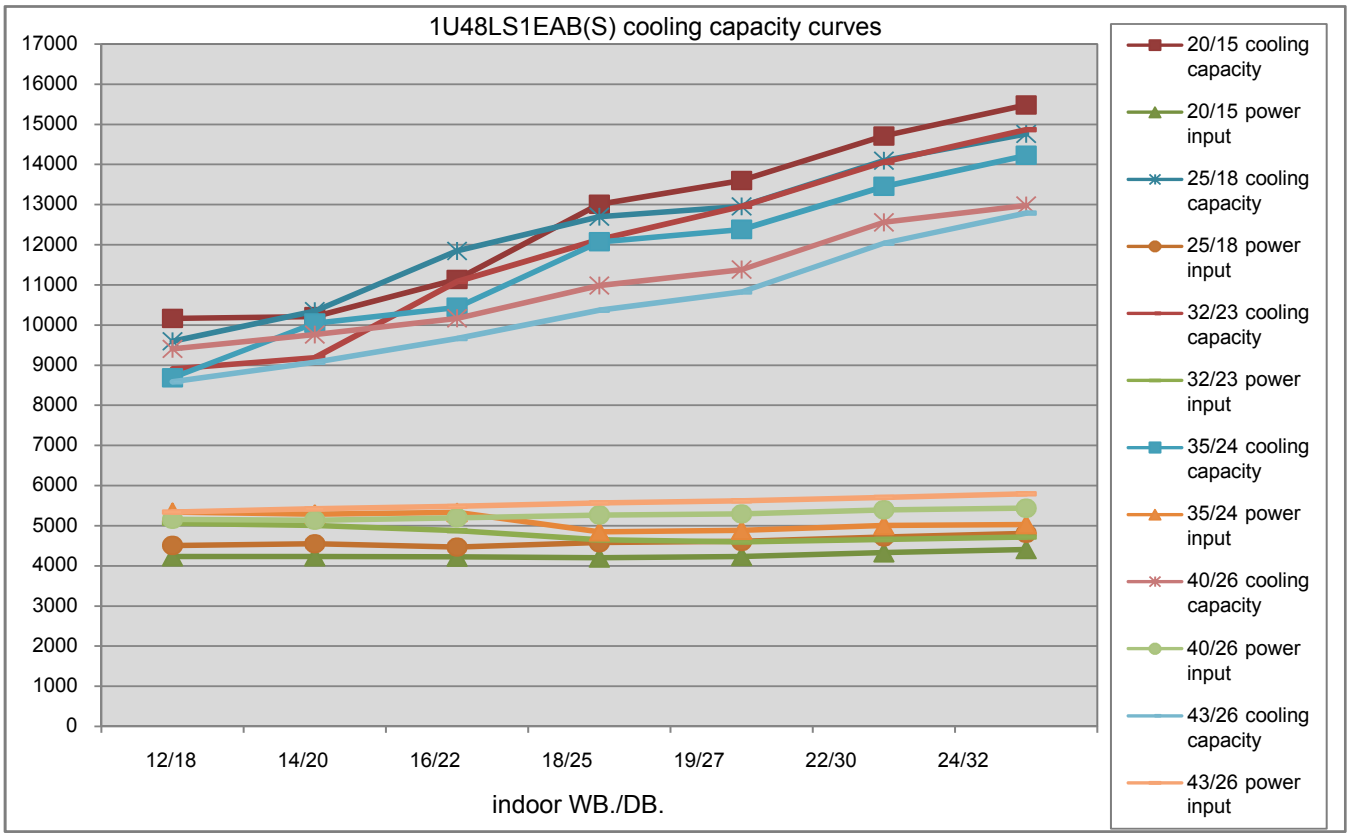


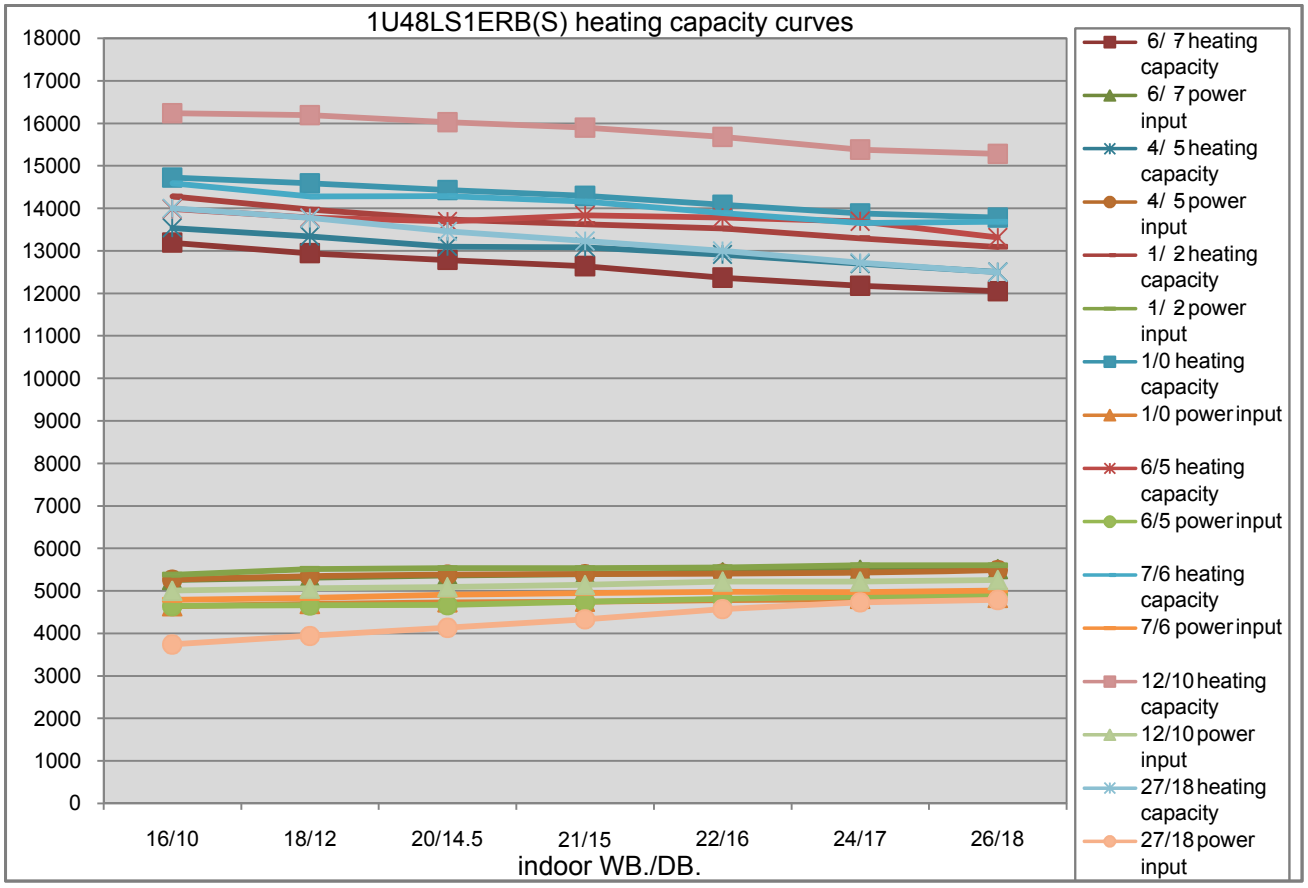
1U36HS1ERA0(S)

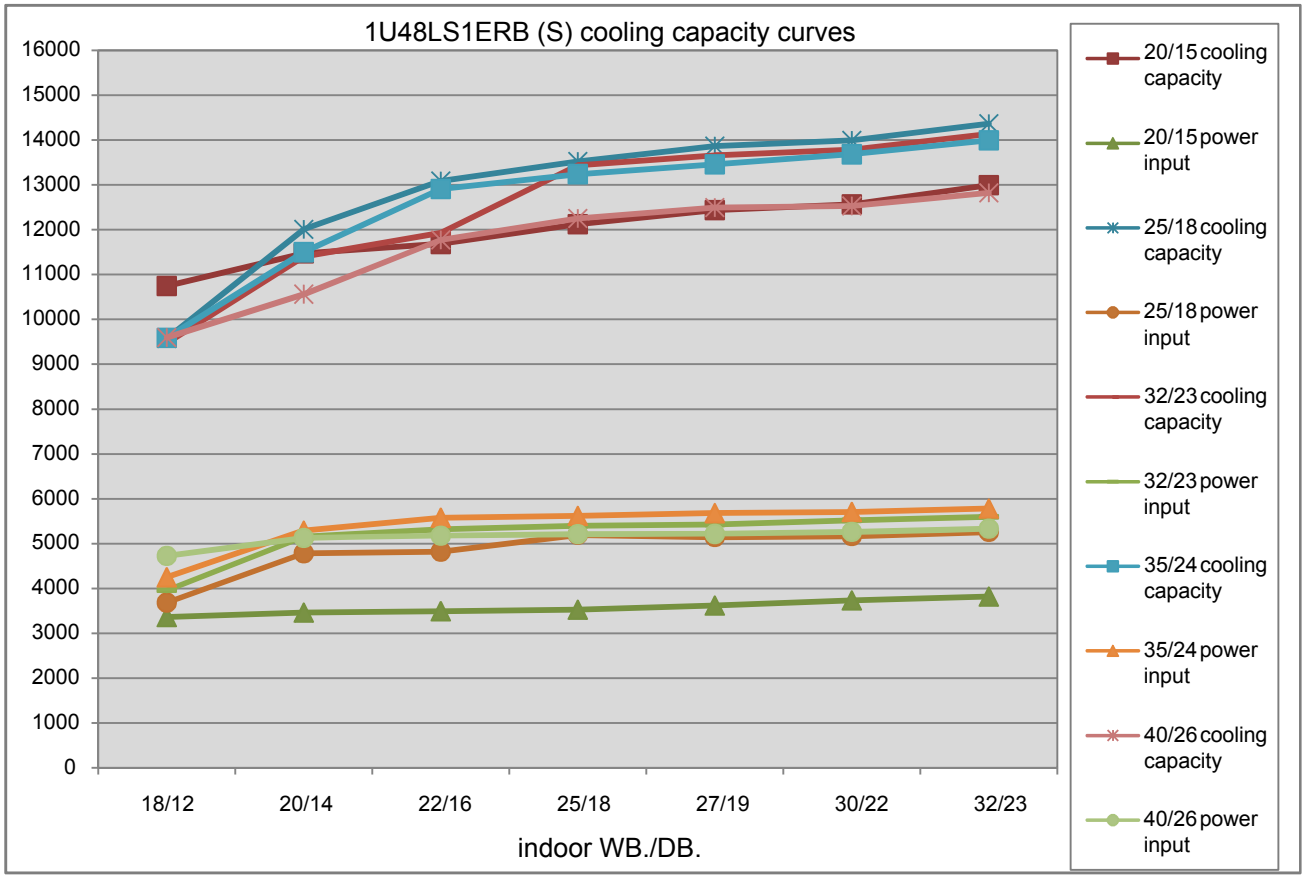


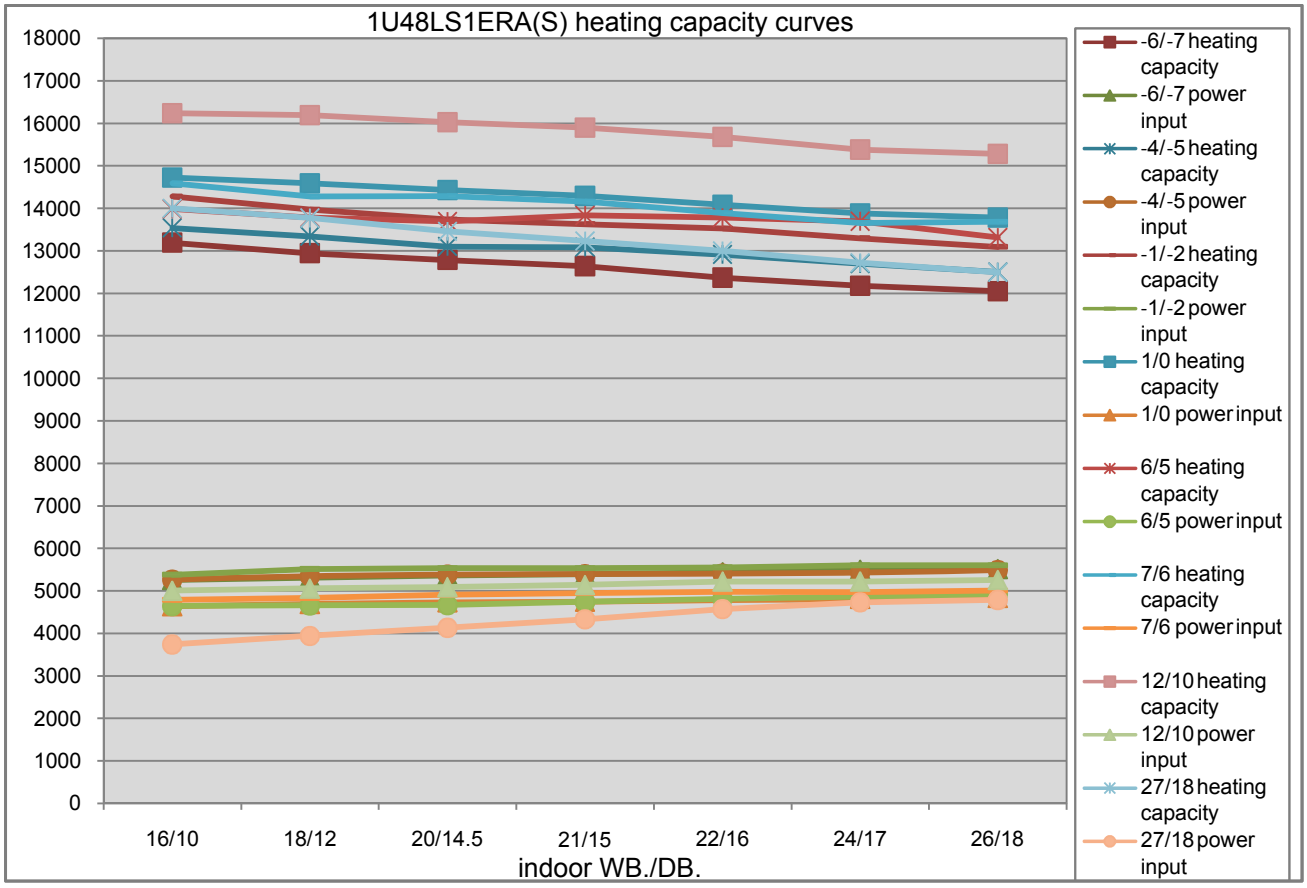


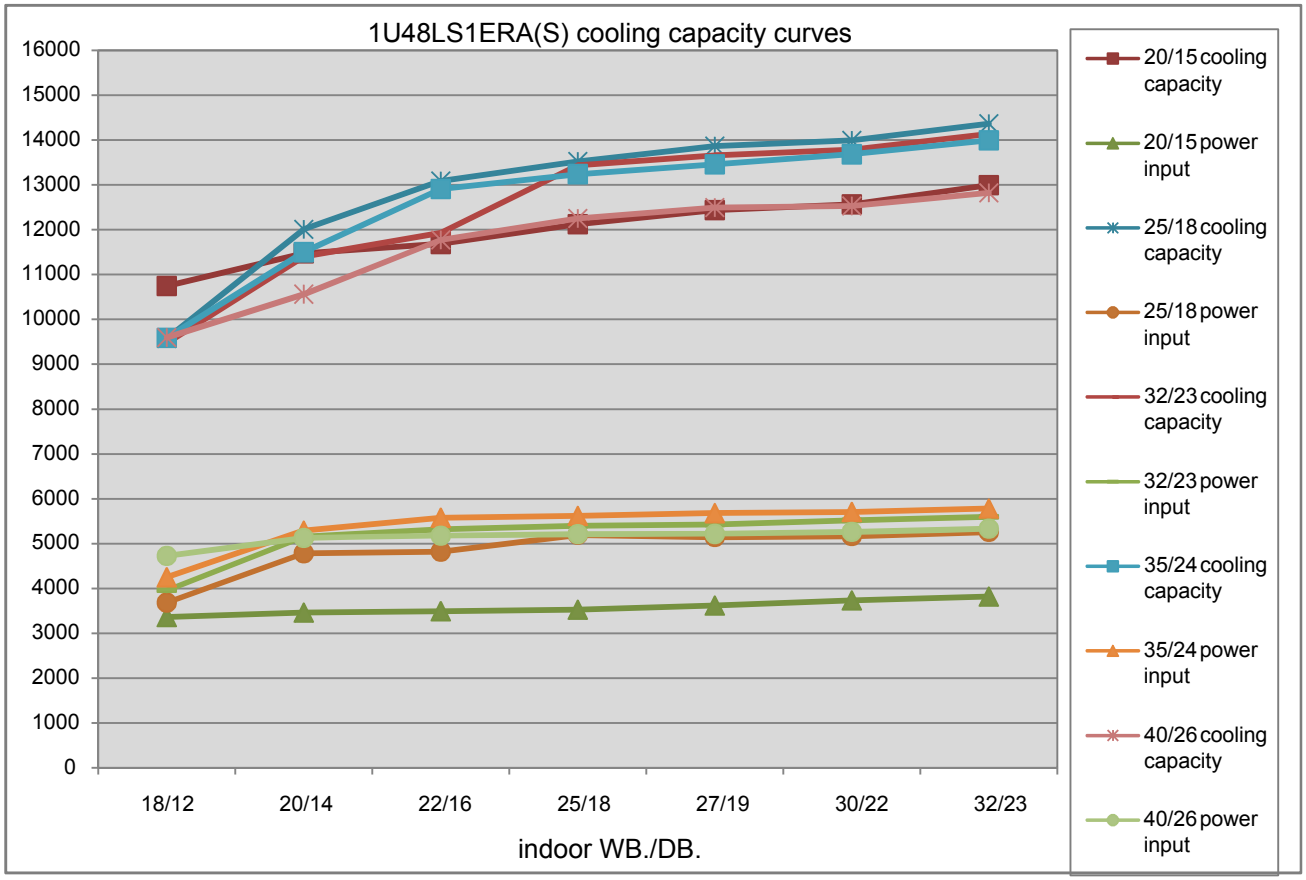

1U48LS1EAB (S) heating capacity curves
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
16/10
18/12
20/14.5
21/15
22/16
24/17
26/18
indoor WB./DB.
-7/-8 heating capacity
-7/-8 power input
-5/-6 heating capacity
-5/-6 power input
-1/-2 heating capacity
-1/-2 power input
2/1 heating capacity
2/1 power input
5/3 heating capacity
5/3 power input
7/6 heating capacity
7/6 power input
12/10 heating capacity
12/10 power input
16/15 heating capacity
16/15 power input

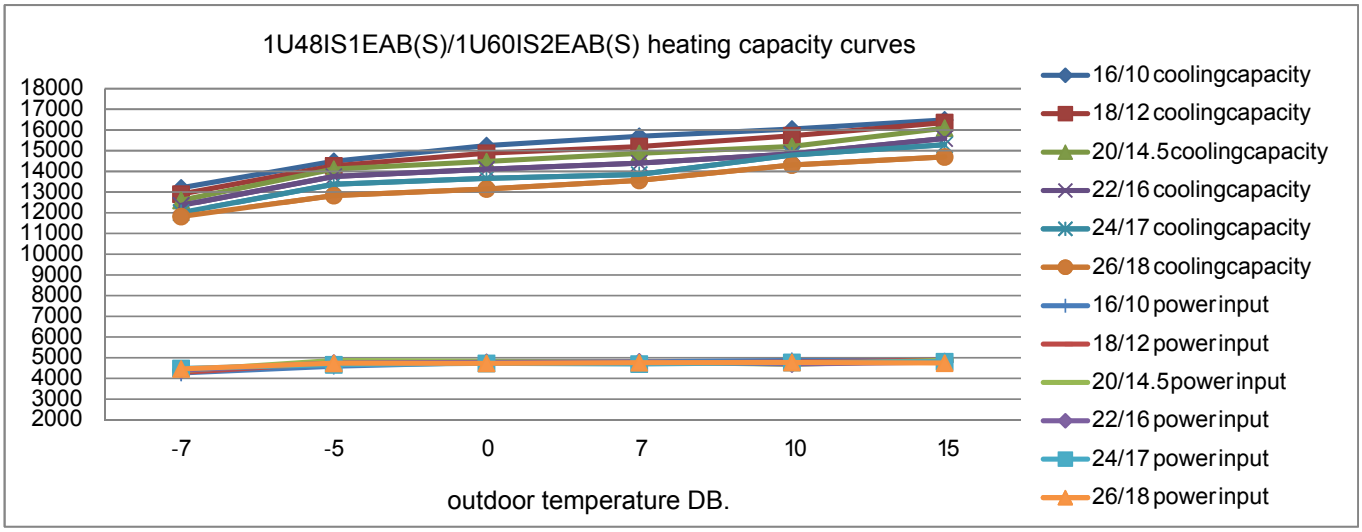

1U48LS1EAB(S) cooling capacity curves
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
12/18
14/20
16/22
18/25
19/27
22/30
24/32
indoor WB./DB.
20/15 cooling capacity
20/15 power input
25/18 cooling capacity
25/18 power input
32/23 cooling capacity
32/23 power input
35/24 cooling capacity
35/24 power input
40/26 cooling capacity
40/26 power input
43/26 cooling capacity
43/26 power input

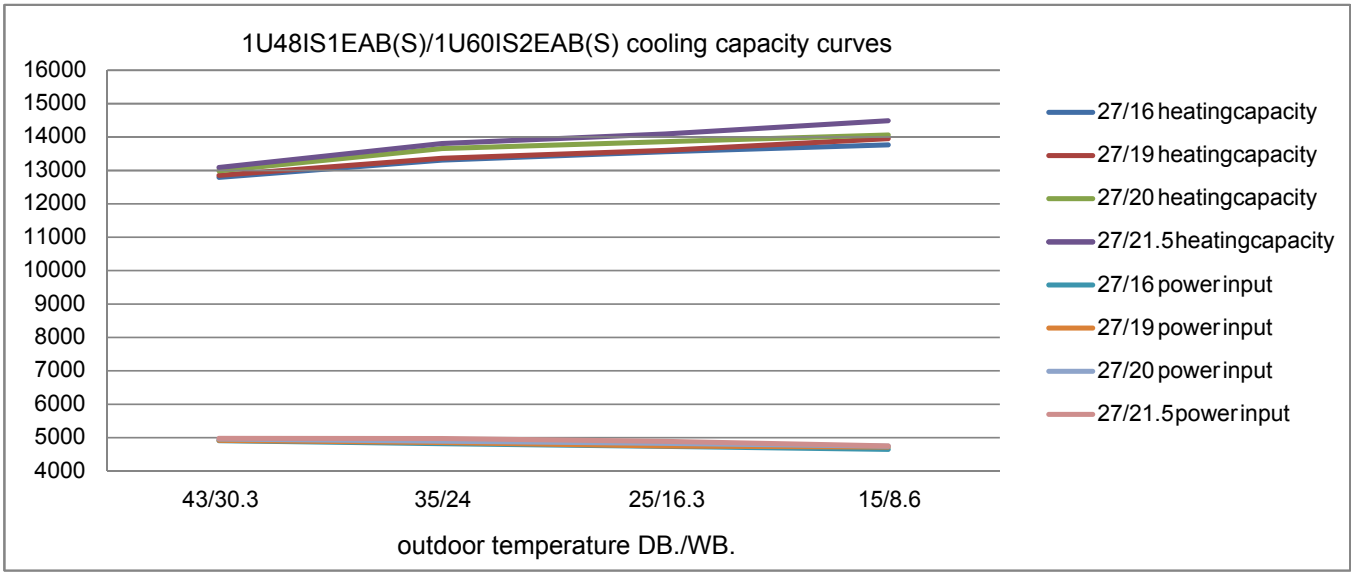

1U48LS1ERB(S) heating capacity curves
18000
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
16/10
18/12
20/14.5
21/15
22/16
24/17
26/18
indoor WB./DB.
6/ 7 heating capacity
6/ 7 power input
4/ 5 heating capacity
4/ 5 power input
1/ 2 heating capacity
1/ 2 power input
1/0 heating capacity
1/0 power input
6/5 heating capacity
6/5 power input
7/6 heating capacity
7/6 power input
12/10 heating capacity
12/10 power input
27/18 heating capacity
27/18 power input

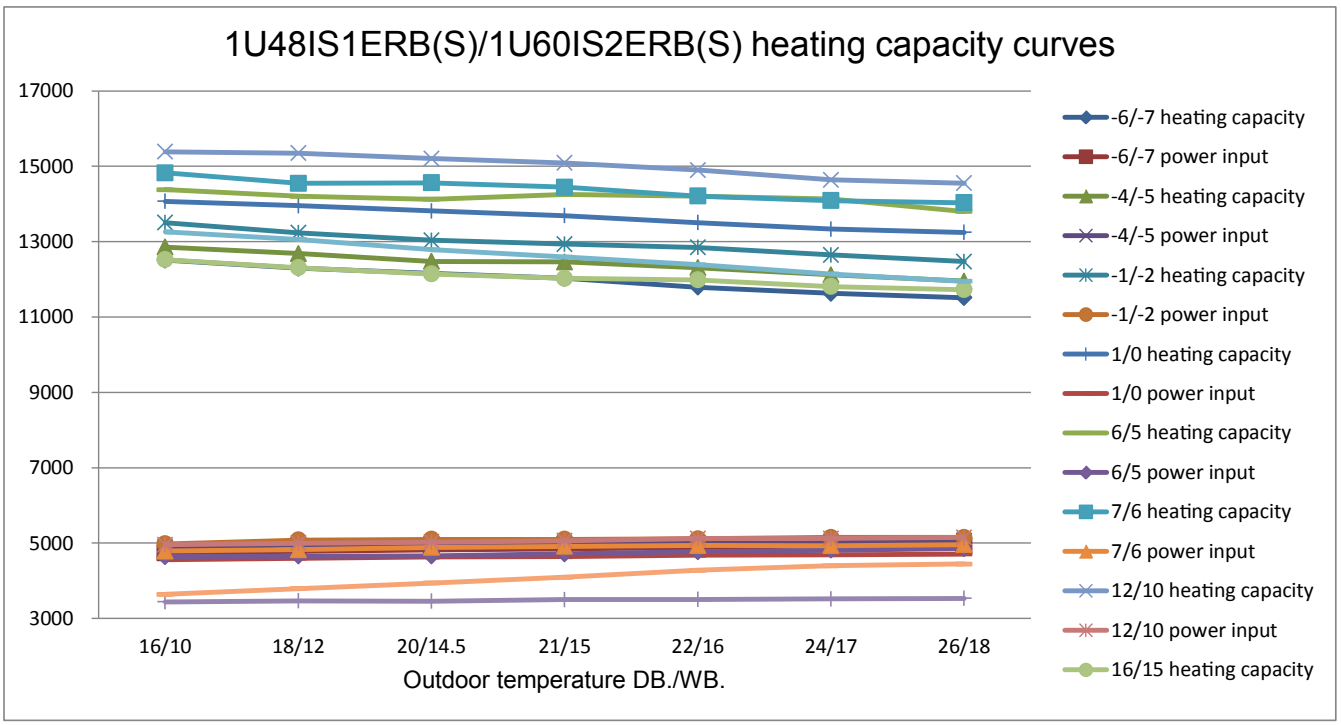

1U48LS1ERB (S) cooling capacity curves
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
18/12
20/14
22/16
25/18
27/19
30/22
32/23
indoor WB./DB.
20/15 cooling capacity
20/15 power input
25/18 cooling capacity
25/18 power input
32/23 cooling capacity
32/23 power input
35/24 cooling capacity
35/24 power input
40/26 cooling capacity
40/26 power input

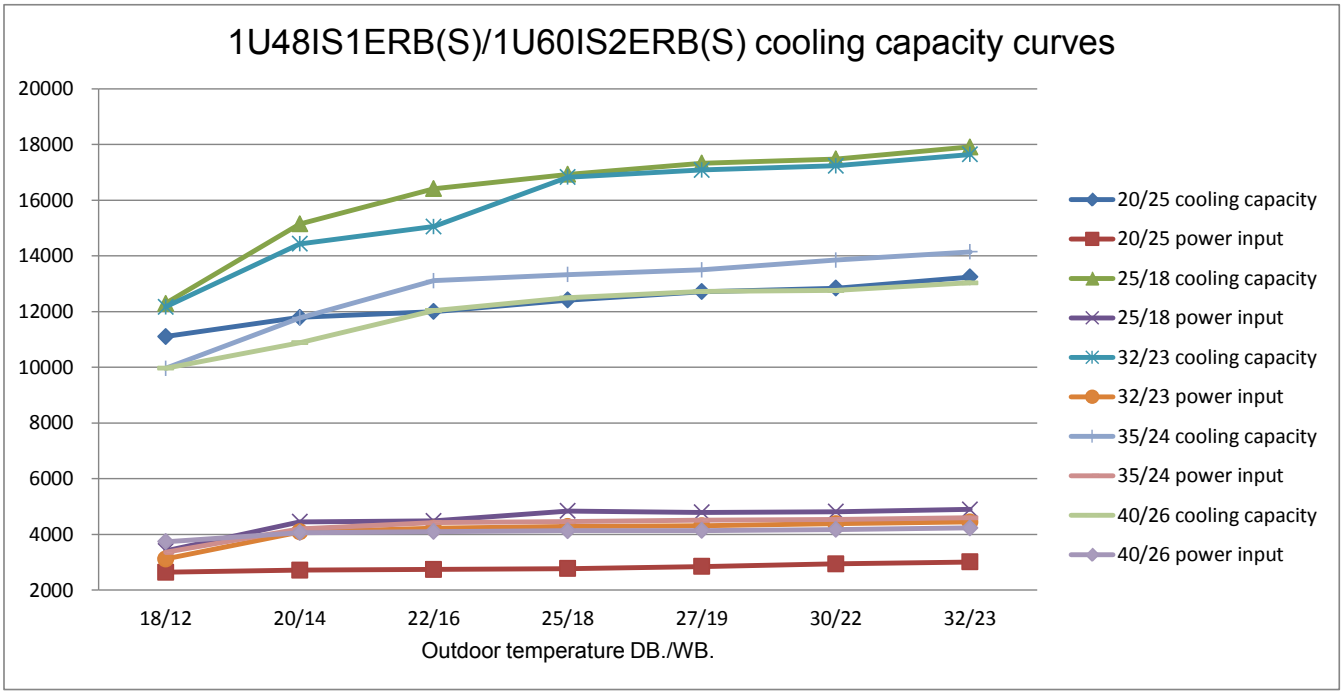

1U48LS1ERA(S) heating capacity curves
18000
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
16/10
18/12
20/14.5
21/15
22/16
24/17
26/18
indoor WB./DB.
-6/-7 heating capacity
-6/-7 power input
-4/-5 heating capacity
-4/-5 power input
-1/-2 heating capacity
-1/-2 power input
1/0 heating capacity
1/0 power input
6/5 heating capacity
6/5 power input
7/6 heating capacity
7/6 power input
12/10 heating capacity
12/10 power input
27/18 heating capacity
27/18 power input

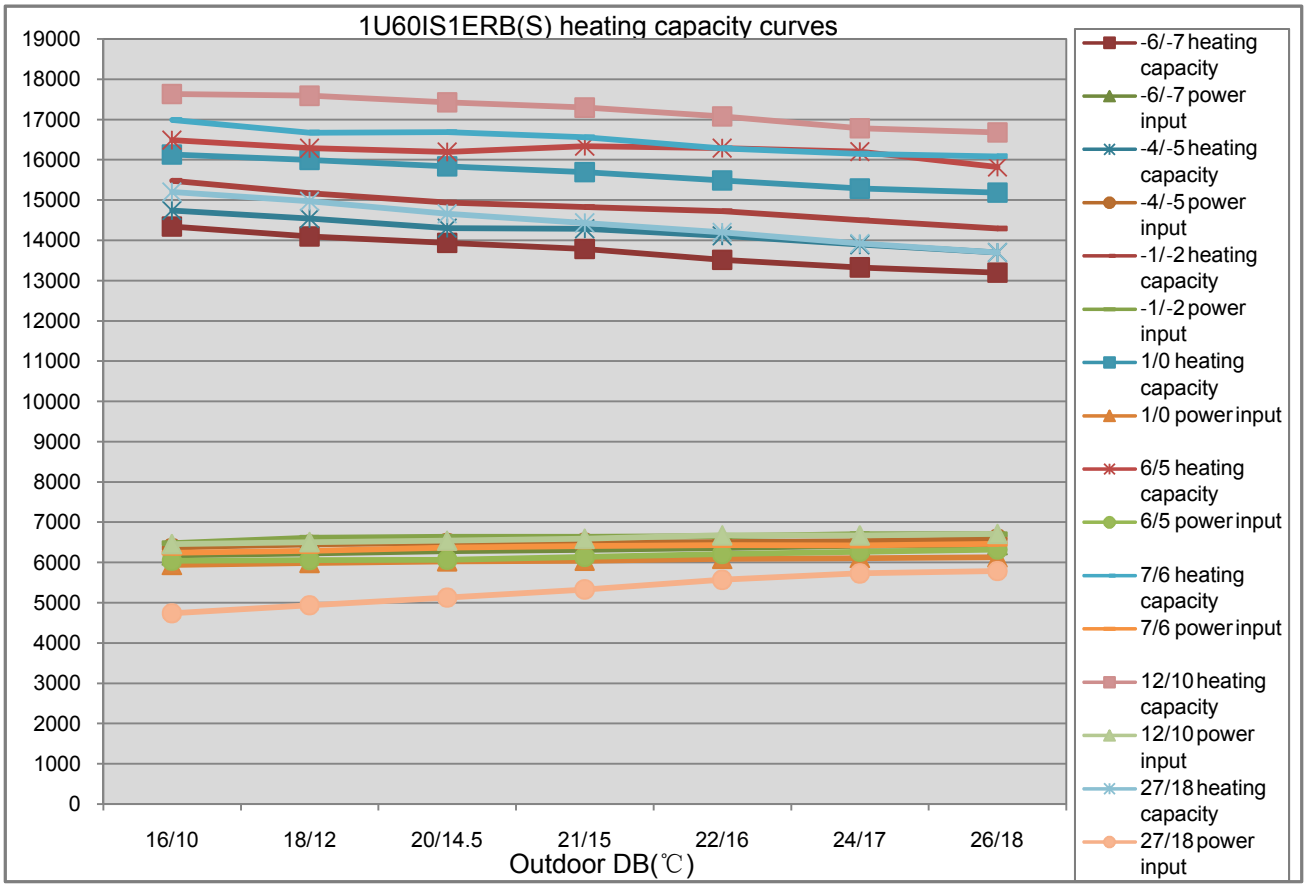

1U48LS1ERA(S) cooling capacity curves
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
18/12
20/14
22/16
25/18
27/19
30/22
32/23
indoor WB./DB.
20/15 cooling capacity
20/15 power input
25/18 cooling capacity
25/18 power input
32/23 cooling capacity
32/23 power input
35/24 cooling capacity
35/24 power input
40/26 cooling capacity
40/26 power input

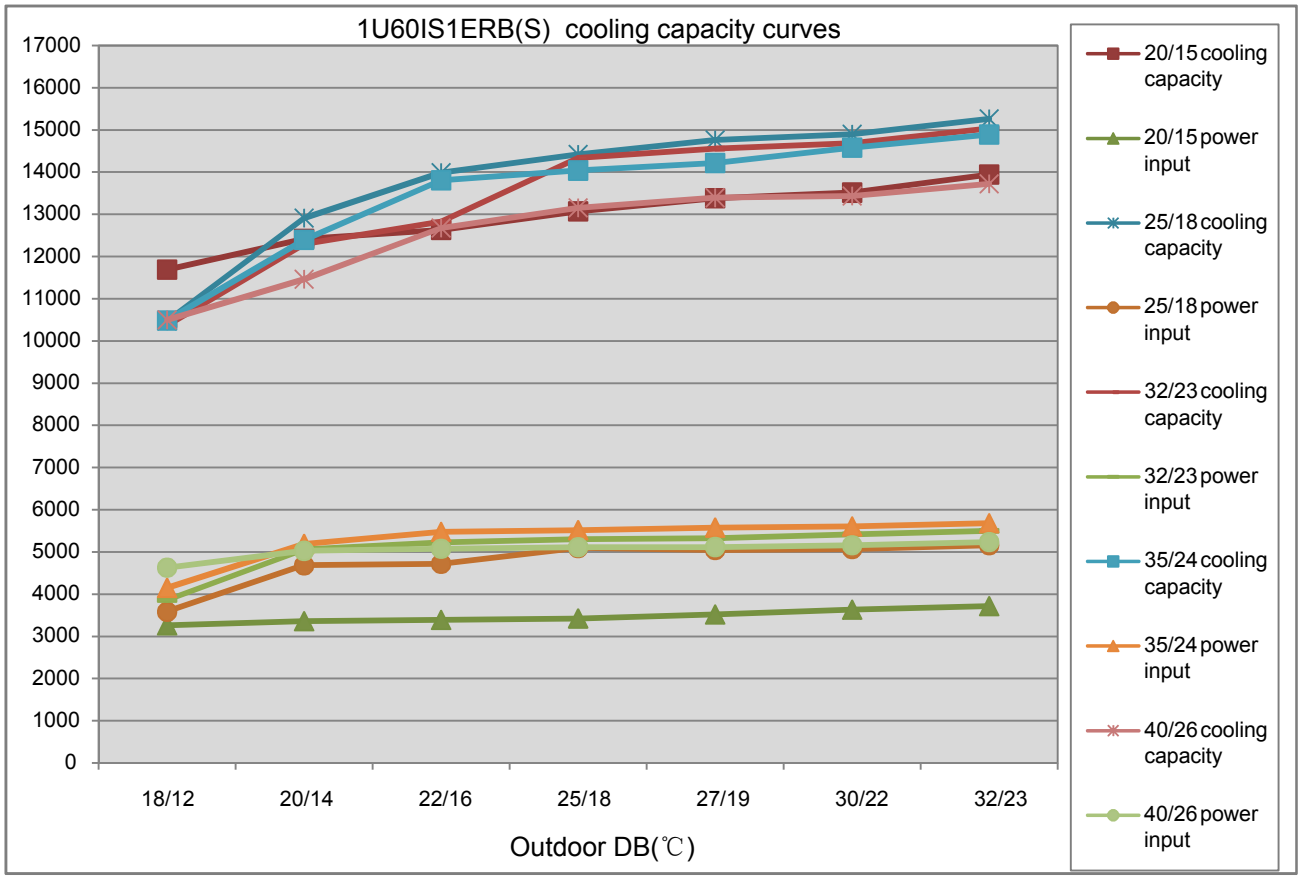

1U48IS1EAB(S)/1U60IS2EAB(S) heating capacity curves
18000
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
-7
-5
0
7
10
15
outdoor temperature DB.
16/10 coolingcapacity
18/12 coolingcapacity
20/14.5coolingcapacity
22/16 coolingcapacity
24/17 coolingcapacity
26/18 coolingcapacity
16/10 power input
18/12 power input
20/14.5power input
22/16 power input
24/17 power input
26/18 power input

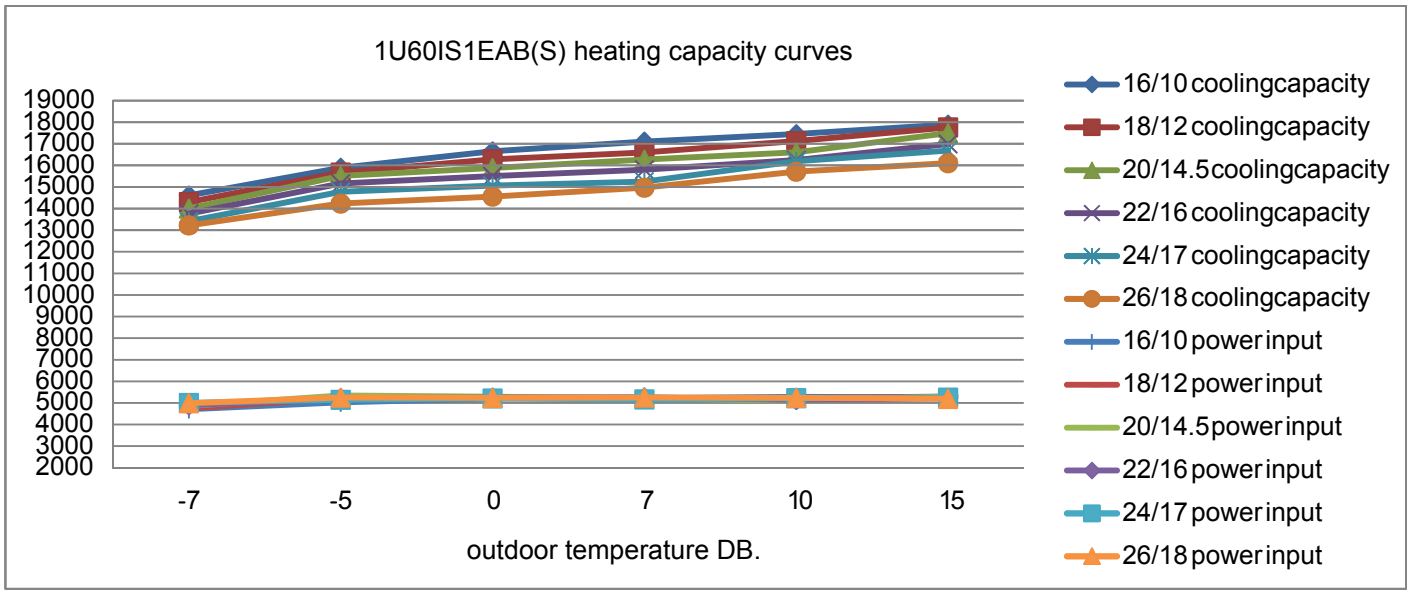

1U48IS1EAB(S)/1U60IS2EAB(S) cooling capacity curves
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
43/30.3
35/24
25/16.3
15/8.6
outdoor temperature DB./WB.
27/16 heatingcapacity
27/19 heatingcapacity
27/20 heatingcapacity
27/21.5heatingcapacity
27/16 power input
27/19 power input
27/20 power input
27/21.5power input

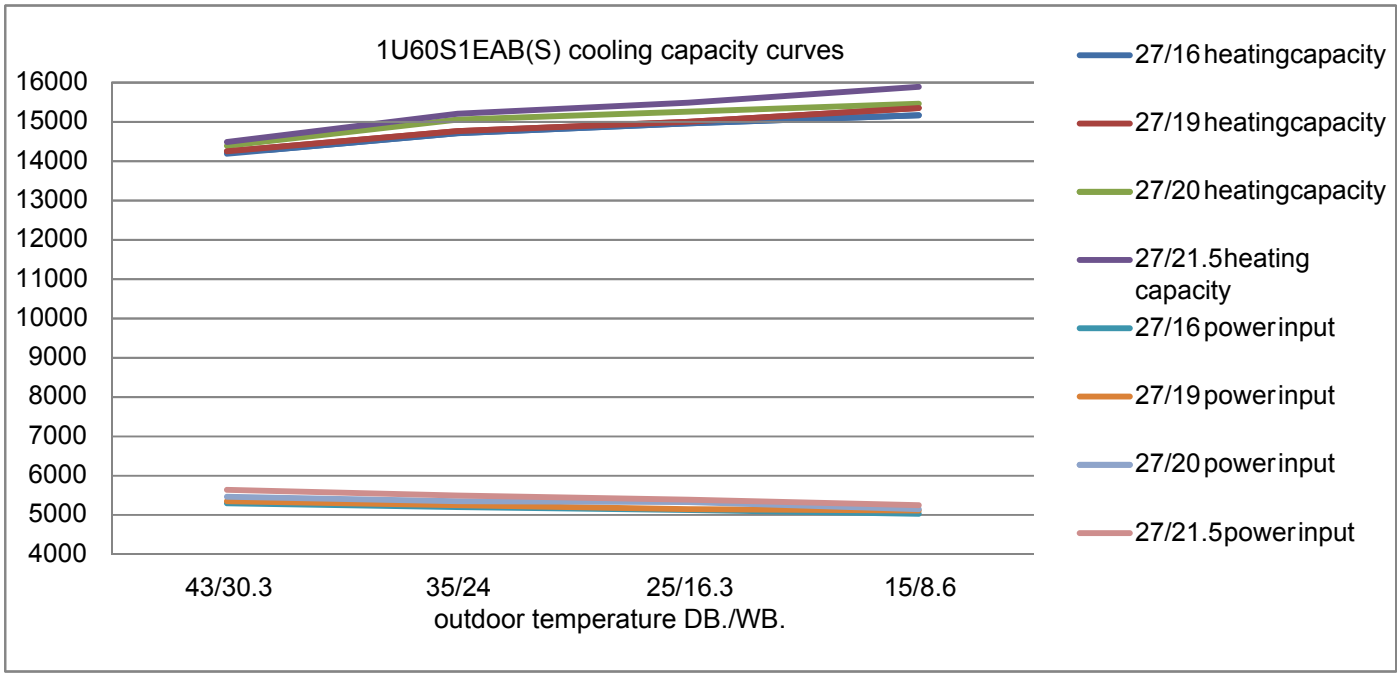

1U48IS1ERB(S)/1U60IS2ERB(S) heating capacity curves
17000
15000
13000
11000
9000
7000
5000
3000
16/10
18/12
20/14.5
21/15
22/16
24/17
26/18
Outdoor temperature DB./WB.
-6/-7 heating capacity
-6/-7 power input
-4/-5 heating capacity
-4/-5 power input
-1/-2 heating capacity
-1/-2 power input
1/0 heating capacity
1/0 power input
6/5 heating capacity
6/5 power input
7/6 heating capacity
7/6 power input
12/10 heating capacity
12/10 power input
16/15 heating capacity

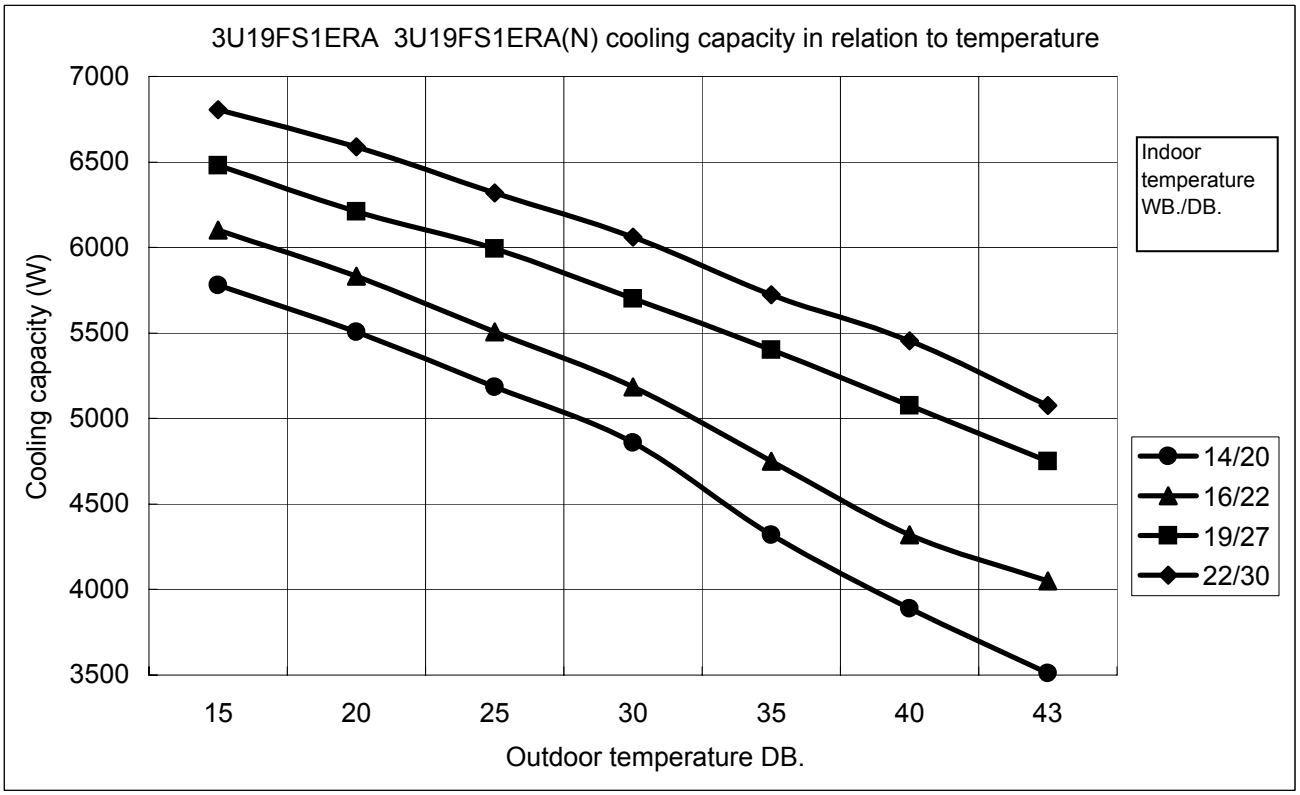

1U48IS1ERB(S)/1U60IS2ERB(S) cooling capacity curves
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
18/12
20/14
22/16
25/18
27/19
30/22
32/23
Outdoor temperature DB./WB.
20/25 cooling capacity
20/25 power input
25/18 cooling capacity
25/18 power input
32/23 cooling capacity
32/23 power input
35/24 cooling capacity
35/24 power input
40/26 cooling capacity
40/26 power input

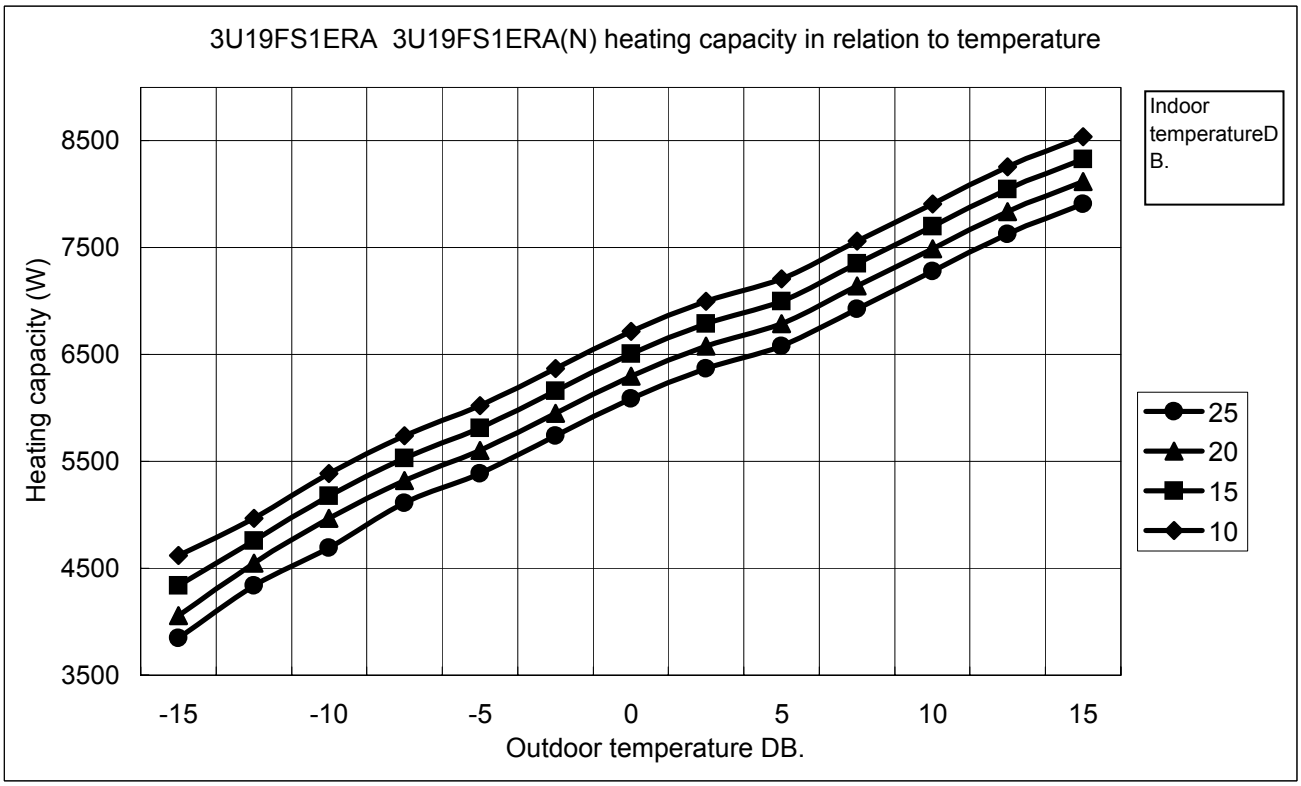

1U60IS1ERB(S) heating capacity curves
19000
18000
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
16/10
18/12
20/14.5
21/15
22/16
24/17
26/18
Outdoor DB(℃)
-6/-7 heating capacity
-6/-7 power input
-4/-5 heating capacity
-4/-5 power input
-1/-2 heating capacity
-1/-2 power input
1/0 heating capacity
1/0 power input
6/5 heating capacity
6/5 power input
7/6 heating capacity
7/6 power input
12/10 heating capacity
12/10 power input
27/18 heating capacity
27/18 power input

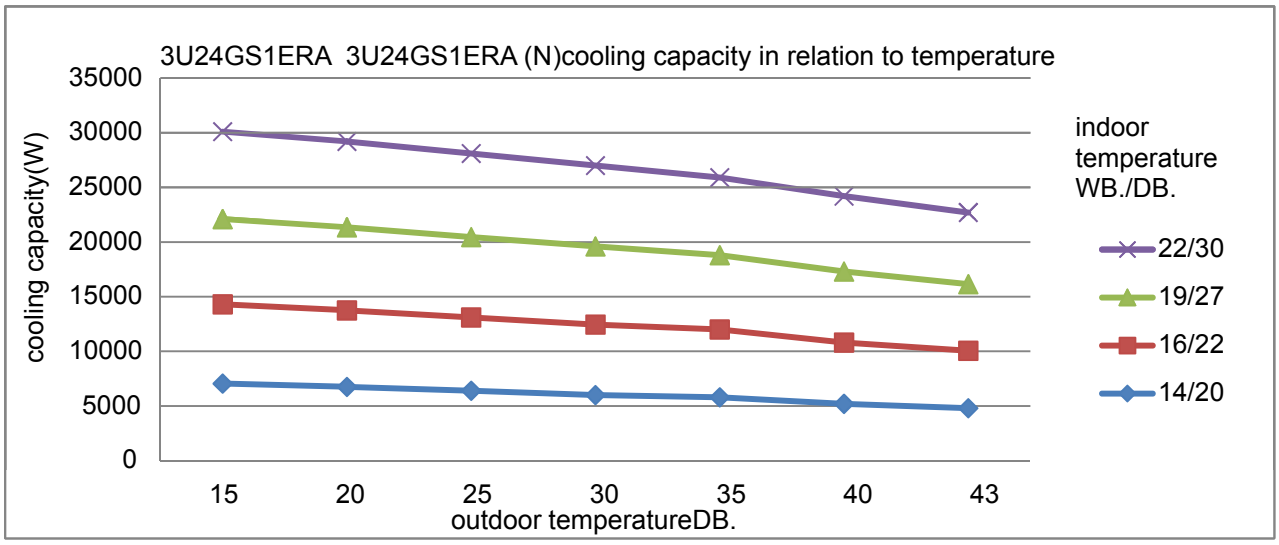

1U60IS1ERB(S) cooling capacity curves
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
18/12
20/14
22/16
25/18
27/19
30/22
32/23
Outdoor DB(℃)
20/15 cooling capacity
20/15 power input
25/18 cooling capacity
25/18 power input
32/23 cooling capacity
32/23 power input
35/24 cooling capacity
35/24 power input
40/26 cooling capacity
40/26 power input

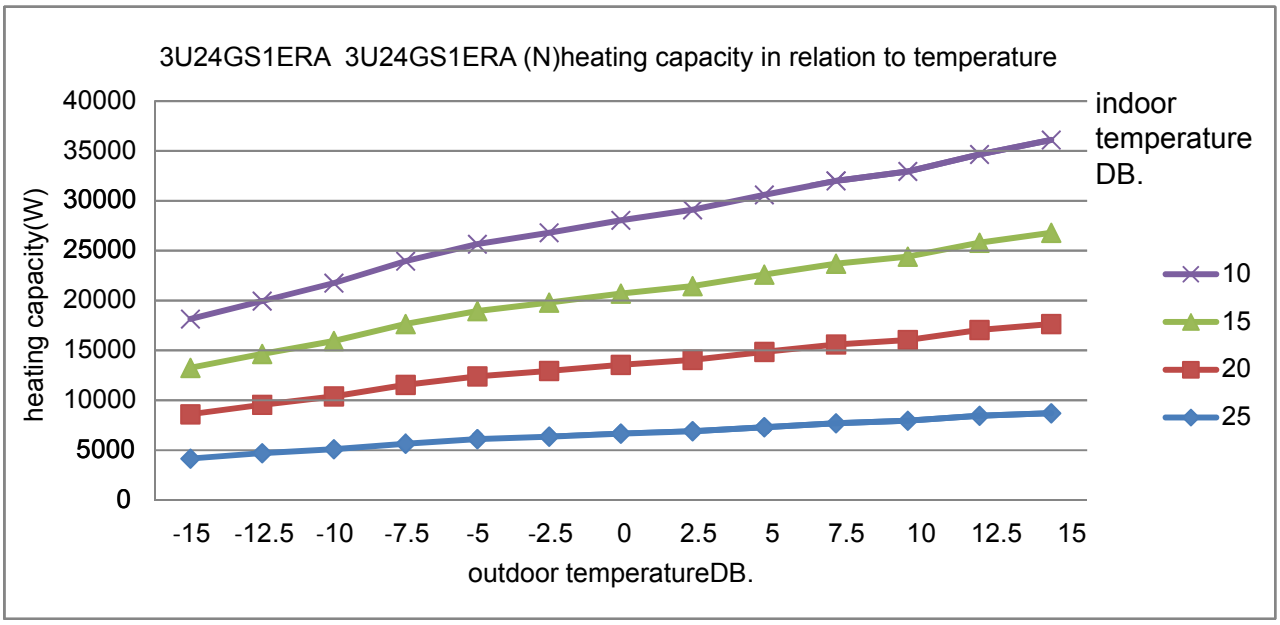

1U60IS1EAB(S) heating capacity curves
19000
18000
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
-7
-5
0
7
10
15
outdoor temperature DB.
16/10 coolingcapacity
18/12 coolingcapacity
20/14.5coolingcapacity
22/16 coolingcapacity
24/17 coolingcapacity
26/18 coolingcapacity
16/10 power input
18/12 power input
20/14.5power input
22/16 power input
24/17 power input
26/18 power input

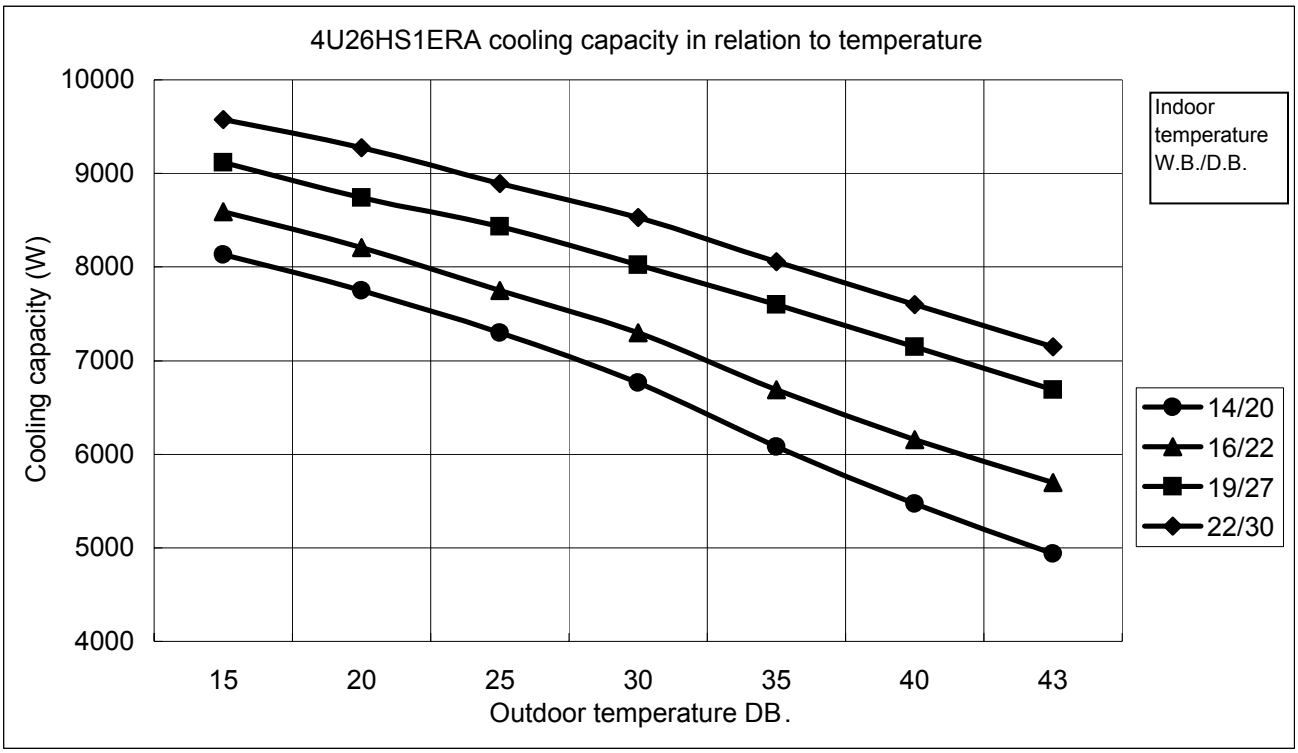

1U60S1EAB(S) cooling capacity curves
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
43/30.3
35/24
25/16.3
15/8.6
outdoor temperature DB./WB.
27/16 heatingcapacity
27/19 heatingcapacity
27/20 heatingcapacity
27/21.5heating capacity
27/16 power input
27/19 power input
27/20 power input
27/21.5power input

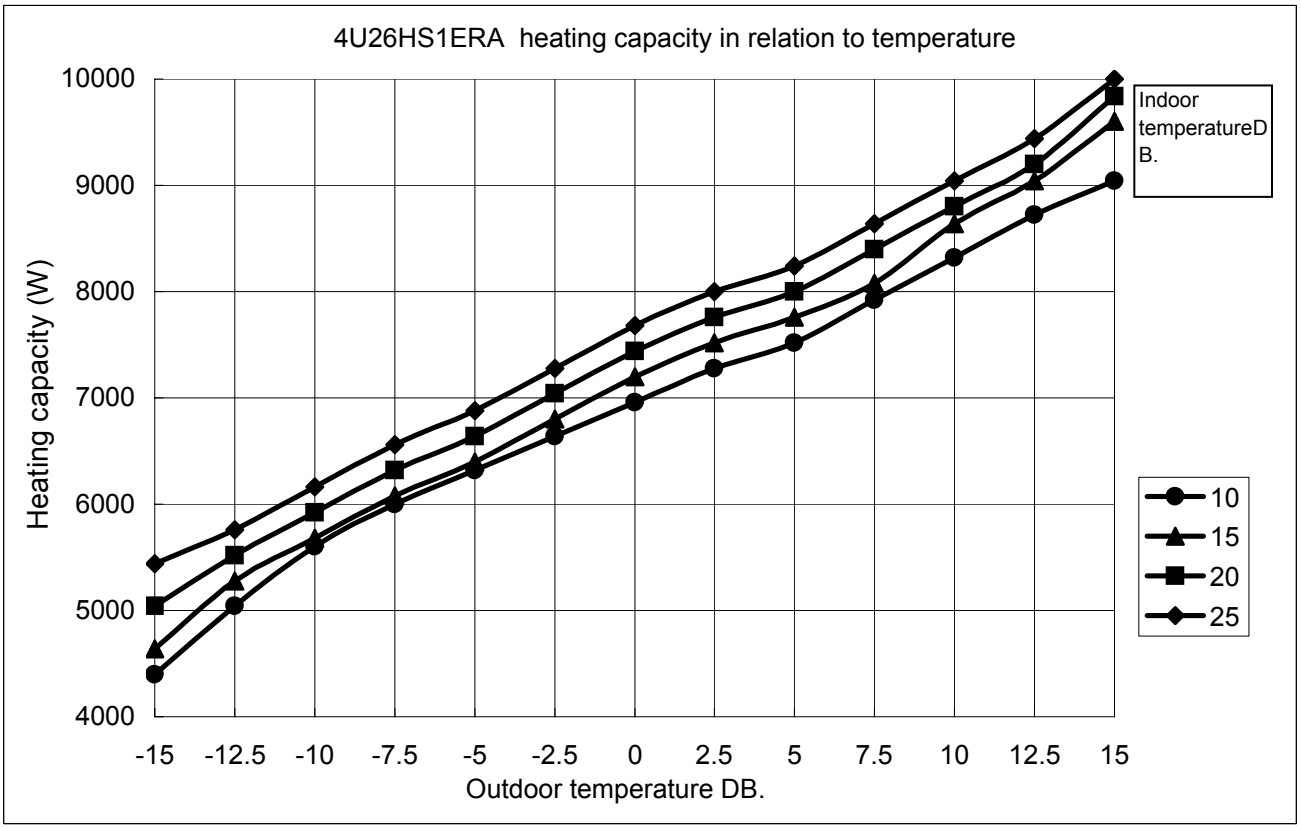

3U19FS1ERA 3U19FS1ERA(N) cooling capacity in relation to temperature
Cooling capacity (W)
7000
6500
6000
5500
5000
4500
4000
3500
15
20
25
30
35
40
43
Outdoor temperature DB.
Indoor temperature WB./DB.
14/20
16/22
19/27
22/30

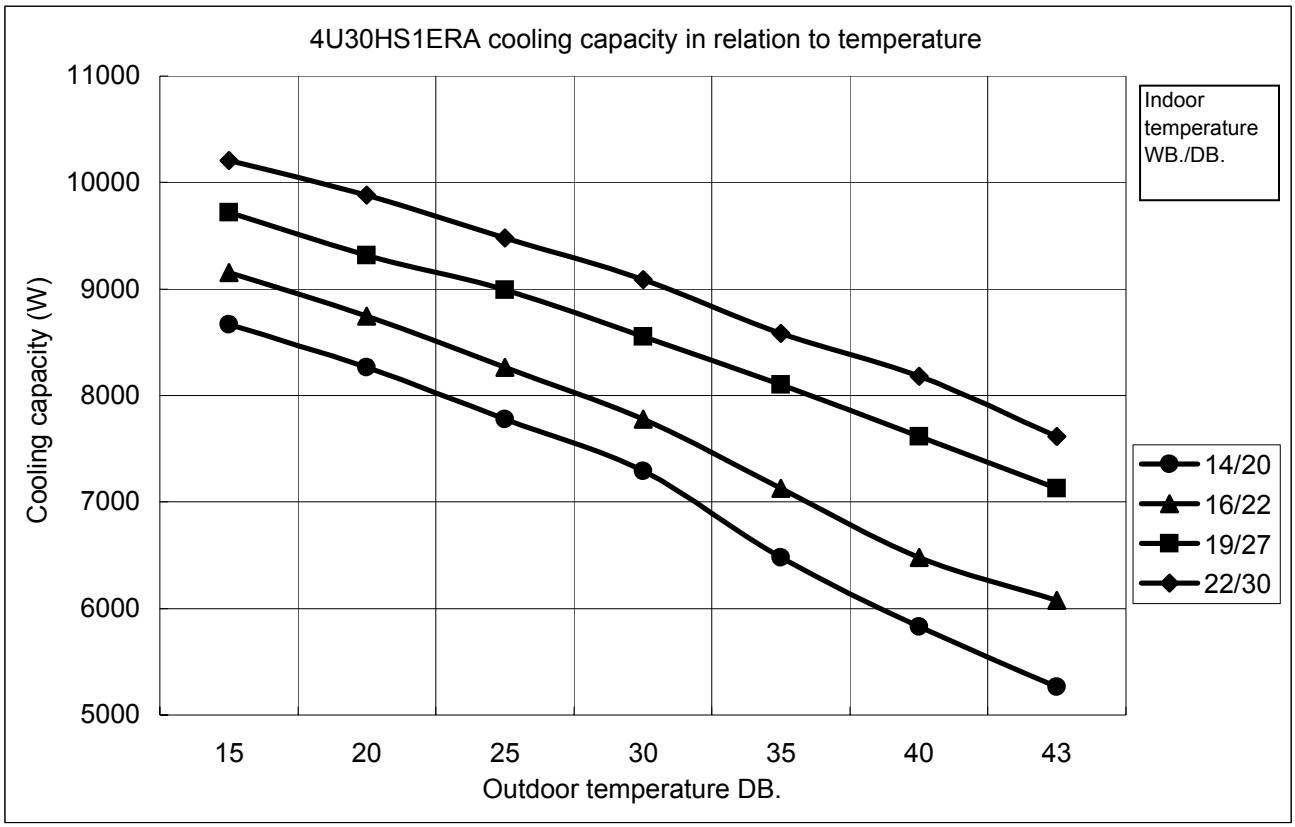

3U19FS1ERA 3U19FS1ERA(N) heating capacity in relation to temperature
Heating capacity (W)
8500
7500
6500
5500
4500
3500
-15
-10
-5
0
5
10
15
Outdoor temperature DB.
Indoor temperatureDB.
25
20
15
10

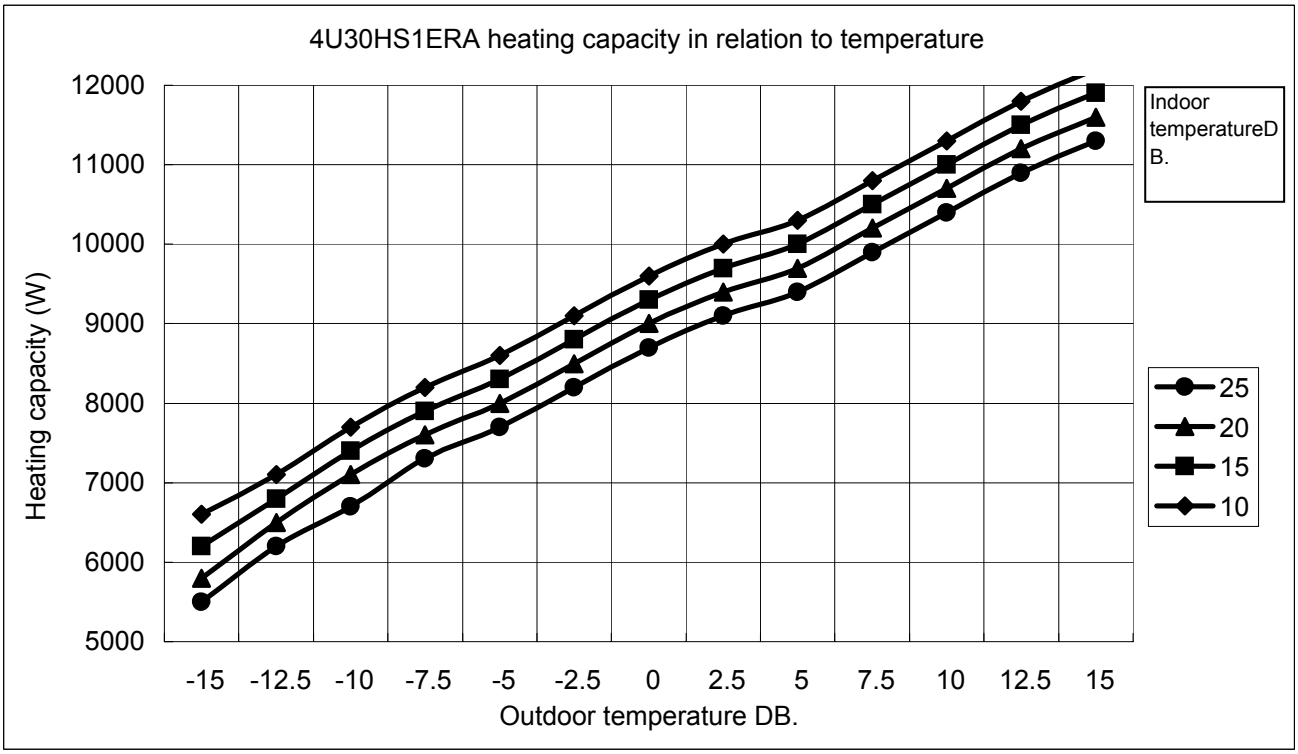

3U24GS1ERA 3U24GS1ERA (N)cooling capacity in relation to temperature
cooling capacity(W)
35000
30000
25000
20000
15000
10000
5000
0
15
20
25
30
35
40
43
outdoor temperatureDB.
indoor temperature WB./DB.
22/30
19/27
16/22
14/20

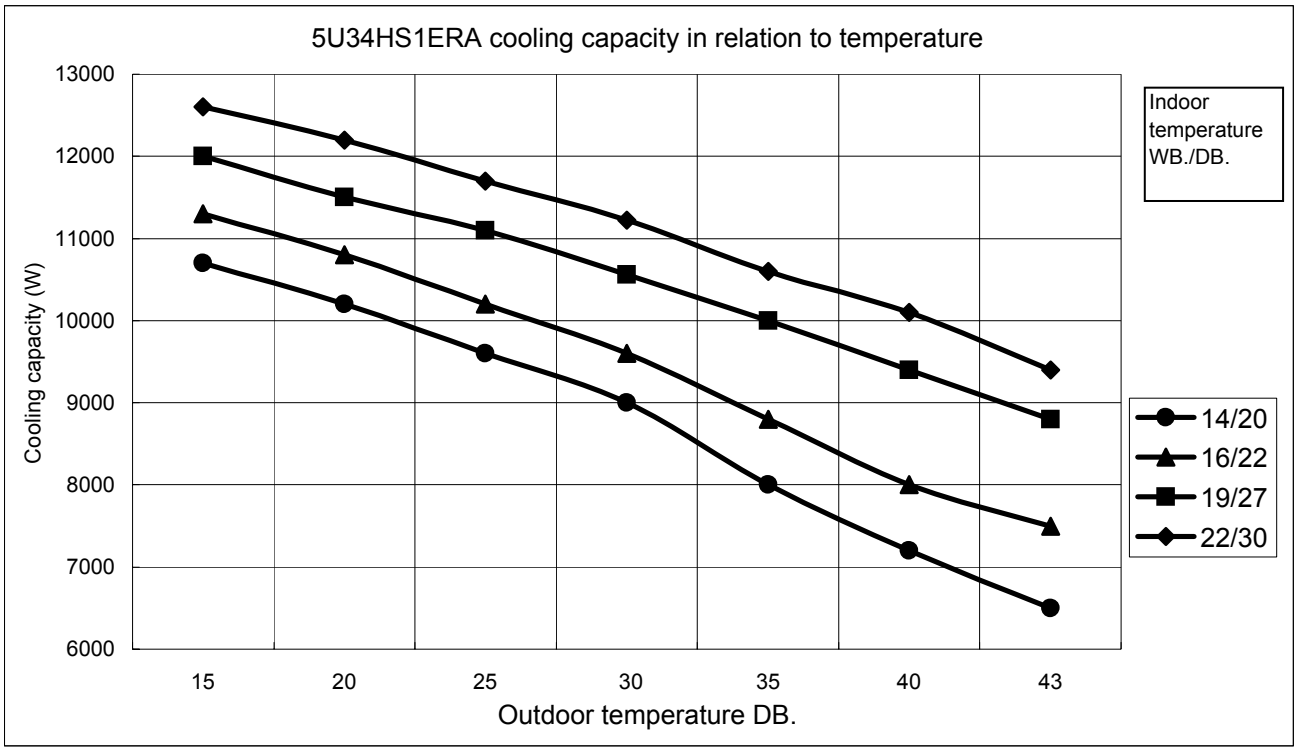

3U24GS1ERA 3U24GS1ERA (N)heating capacity in relation to temperature
heating capacity(W)
40000
35000
30000
25000
20000
15000
10000
5000
0
-15
-12.5
-10
-7.5
-5
-2.5
0
2.5
5
7.5
10
12.5
15
outdoor temperatureDB.
indoor temperature DB.
10
15
20
25

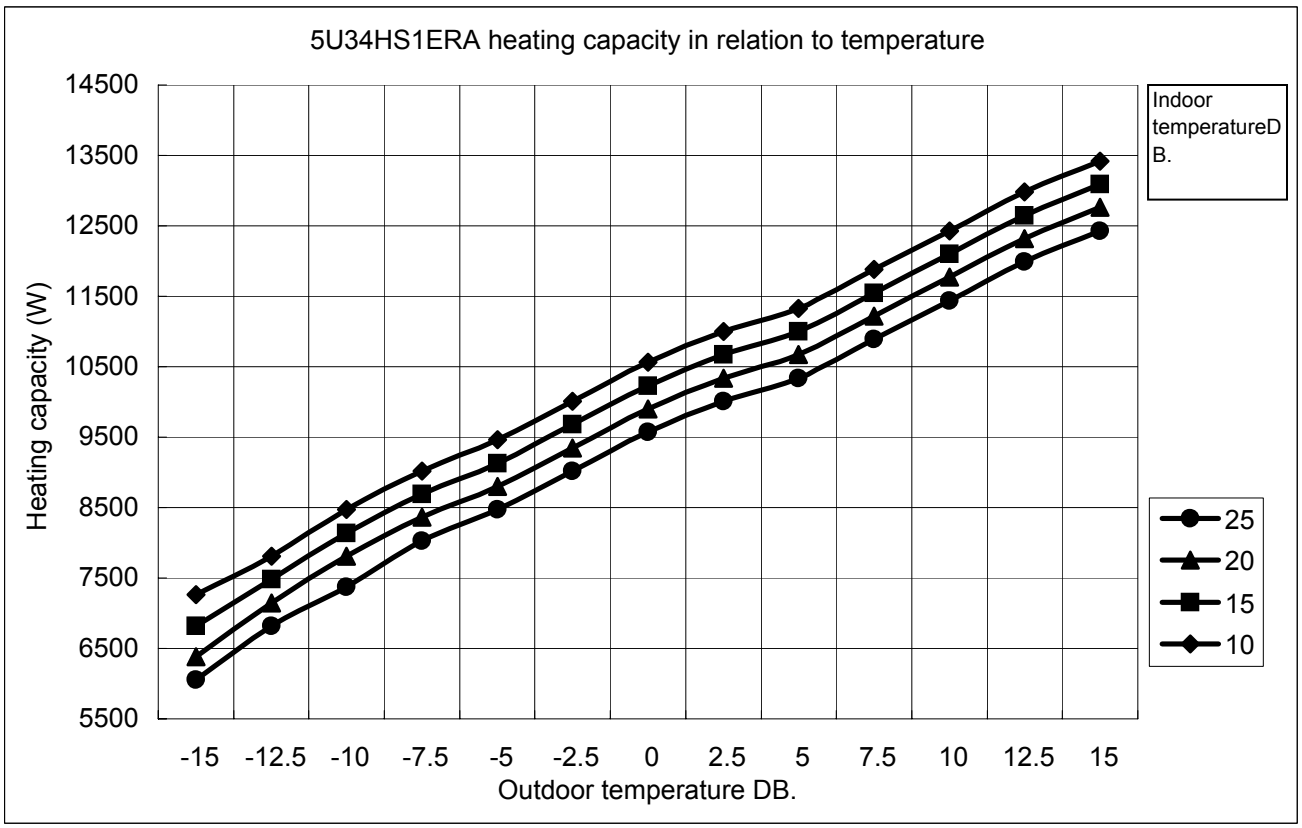

4U26HS1ERA cooling capacity in relation to temperature
Cooling capacity (W)
10000
9000
8000
7000
6000
5000
4000
15
20
25
30
35
40
43
Outdoor temperature DB.
Indoor temperature W.B./D.B.
14/20
16/22
19/27
22/30

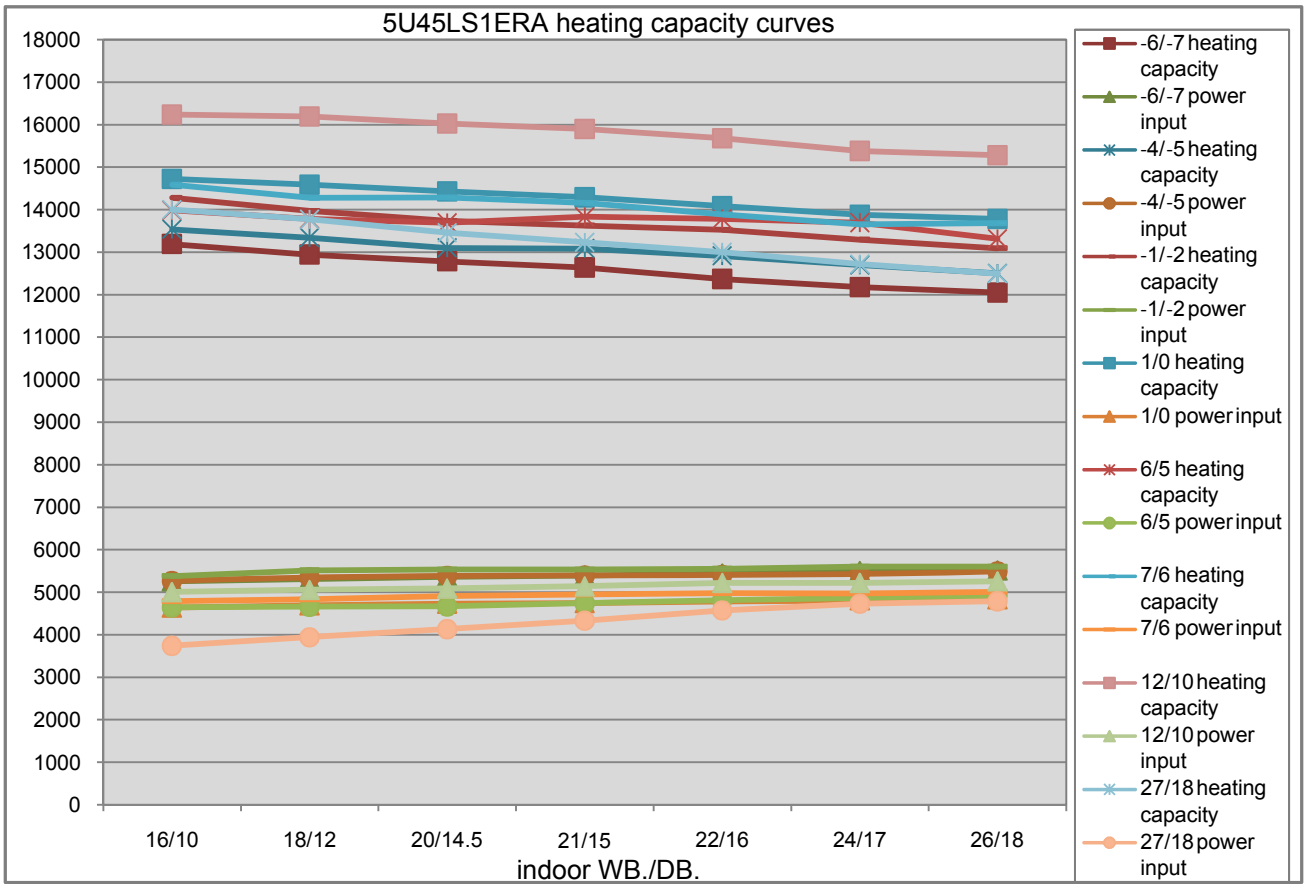

4U26HS1ERA heating capacity in relation to temperature
Heating capacity (W)
10000
9000
8000
7000
6000
5000
4000
-15
-12.5
-10
-7.5
-5
-2.5
0
2.5
5
7.5
10
12.5
15
Outdoor temperature DB.
Indoor temperatureDB.
10
15
20
25

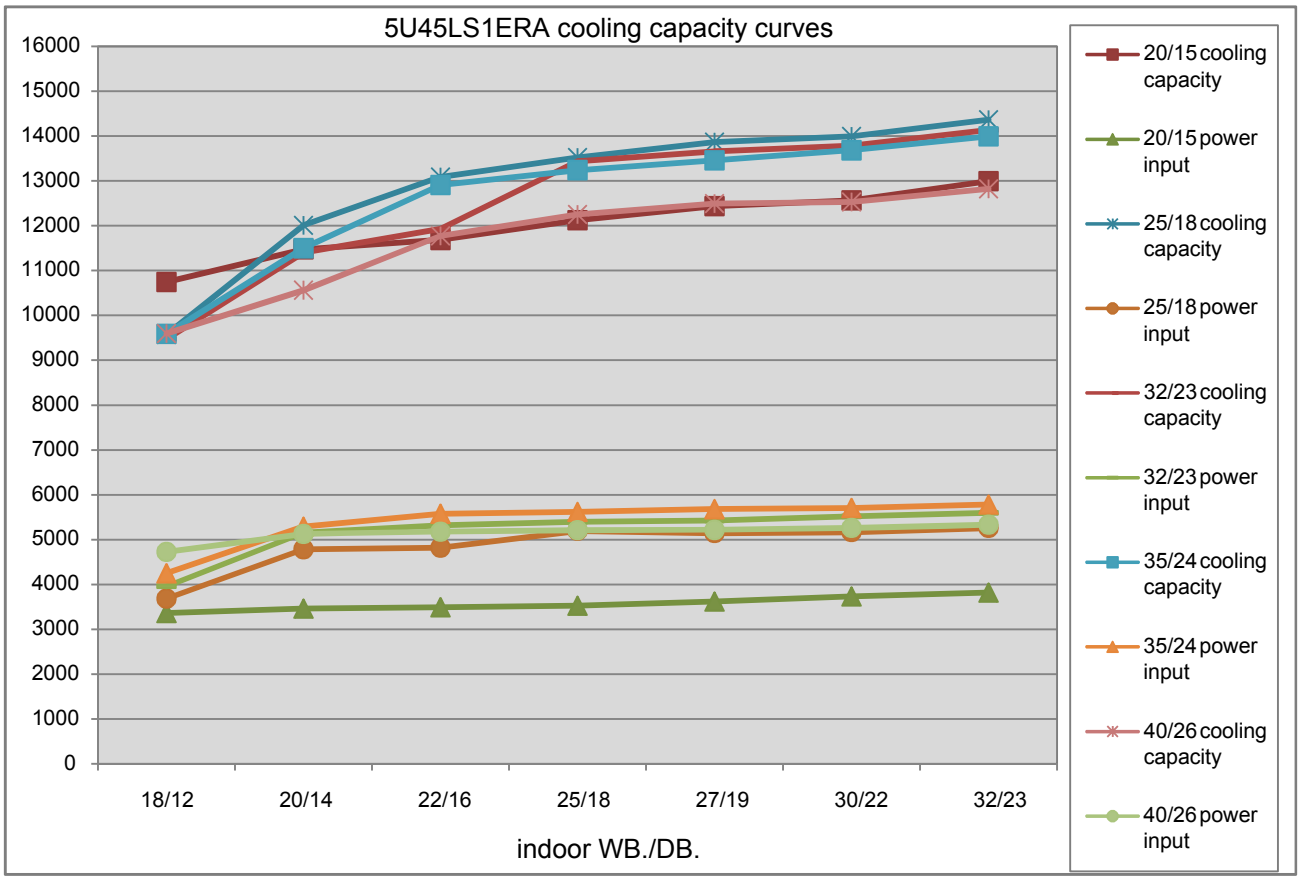

4U30HS1ERA cooling capacity in relation to temperature
Cooling capacity (W)
11000
10000
9000
8000
7000
6000
5000
15
20
25
30
35
40
43
Outdoor temperature DB.
Indoor temperature WB./DB.
14/20
16/22
19/27
22/30


4U30HS1ERA heating capacity in relation to temperature
Heating capacity (W)
12000
11000
10000
9000
8000
7000
6000
5000
-15
-12.5
-10
-7.5
-5
-2.5
0
2.5
5
7.5
10
12.5
15
Outdoor temperature DB.
Indoor temperatureDB.
25
20
15
10


5U34HS1ERA cooling capacity in relation to temperature
Cooling capacity (W)
13000
12000
11000
10000
9000
8000
7000
6000
15
20
25
30
35
40
43
Outdoor temperature DB.
Indoor temperature WB./DB.
14/20
16/22
19/27
22/30


5U34HS1ERA heating capacity in relation to temperature
Heating capacity (W)
14500
13500
12500
11500
10500
9500
8500
7500
6500
5500
-15
-12.5
-10
-7.5
-5
-2.5
0
2.5
5
7.5
10
12.5
15
Outdoor temperature DB.
Indoor temperatureDB.
25
20
15
10


5U45LS1ERA heating capacity curves
18000
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
16/10
18/12
20/14.5
21/15
22/16
24/17
26/18
indoor WB./DB.
-6/-7 heating capacity
-6/-7 power input
-4/-5 heating capacity
-4/-5 power input
-1/-2 heating capacity
-1/-2 power input
1/0 heating capacity
1/0 power input
6/5 heating capacity
6/5 power input
7/6 heating capacity
7/6 power input
12/10 heating capacity
12/10 power input
27/18 heating capacity
27/18 power input


5U45LS1ERA cooling capacity curves
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
18/12
20/14
22/16
25/18
27/19
30/22
32/23
indoor WB./DB.
20/15 cooling capacity
20/15 power input
25/18 cooling capacity
25/18 power input
32/23 cooling capacity
32/23 power input
35/24 cooling capacity
35/24 power input
40/26 cooling capacity
40/26 power input

10. Installation

Carefully read the following information in order to operate the air conditioner correctly.

Below are listed three kinds of Safety Precautions and Suggestions.

⚠ **WARNING** Incorrect operations may result in severe consequences of death or serious injuries.

⚠ **CAUTION** Incorrect operations may result in injuries or machine damages; in some cases may cause serious consequences.

INSTRUCTIONS: These information can ensure the correct operation of the machine.

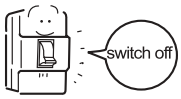
Symbols used in the illustrations

⃠ :Indicates an action that must be avoided.
:Indicates that important instructions must be followed.
:Indicates a part which must be grounded.
:Beware of electric shock (This symbol is displayed on the main unit label.)

After reading this handbook, hand it over to those who will be using the unit.
The user of the unit should keep this mamual at hand and make it available to those who will be performing repairs or relocating the unit. Also, make it available to the new user when the user changes hands.
Be sure to conform with the following important Safety Precautions.

⚠ WARNING

- If any abnormal phenomena is found (e. g.smell of firing), please cut off the power supply immediately, and contact the dealer to find out the handling method.
  In such case, to continue using the conditioner will damage the conditioner, and may cause electrical shock or fire hazard.



- After a long time use of air-conditioner the base should be checked for any damages.
  If the damaged base is not repaired, the unit may fall down and cause accidents.



- Don't dismantle the outlet of the outdoor unit.
  The exposure of fan is very dangerous which may harm human beings.



- When need maintenance and repairment, call dealer to handle it.
  Incorrect maintenance and repairment may cause water leak, electrical shock and fire hazard.



⚠ WARNING

- No goods or nobody is permitted to placed on or stand on outdoor unit.The falling of goods and people may cause accidents.



- Don't operate the air-conditioner with damp hands.Otherwise it will be shocked.



- Only use correctly-typed fuse.
  May not use wire or any other materials replacing fuse, otherwise it may cause faults or fire accidents.



- Use discharge pipe correctly to ensure efficient discharge.
  Incorrect pipe use may cause water leaking.

- Installed electrical-leaking circuit breaker.
  It easily cause electrical shock without circuit breaker.

- Air-conditioner can't be installed in the environment with inflammable gases because the inflammable gases near air-conditioner may cause fire hazard.
  Please let the dealer be responsible for installing the conditioner. Incorrect installation may cause water leak, electrical shock and fire hazard.

- Call the dealer to take measures to prevent the refrigerant from leaking.
  If conditioner is installed in a small room, be sure to take every measure in order to prevent suffocation accident even in case of refrigerant leakage.

- When conditioner is installed or reinstalled, the dealer should be responsible for them.
  Incorrect installation may cause water leaking, electrical shock and fire hazard.

- Connect earthing wire.
  Earthing wire should not be connected to the gas pipe, water pipe, lightning rod or phone line, incorrect earthing may cause shock.

Earthing

⚠ WARNING	
Have the unit professionally installed. Improper installation by an unqualified person may result in water leak, electric shock, or fire. Place the unit on a stable, level surface that withstands the weight of the unit to prevent the unit from tipping over or falling causing injury as a result. Only use specified cables for wiring. Securely connect each cable, and make sure that the cables are not straining the terminals. Cables not connected securely and properly may generate heat and cause fire. Take necessary safety measures against typhoons and earthquakes to prevent the unit from falling over. Do not make any changes or modifications to the unit. In case of problems, consult the dealer. If repairs are not made properly, the unit may leak water and present a risk of electric shock, or it may produce smoke or cause fire.	• Be sure to carefully follow each step in this handbook when installing the unit. Improper installation may result in water leak, electric shock, smoke or fire. • Have all electrical work performed by a licensed electrician according to the local regulations and the instructions given in this manual. Secure a circuit designated exclusively to the unit. Improper installation or a lack of circuit capacity may cause the unit to malfunction or present a risk of electric shock, smoke,and fire. • Securely attach the terminal cover(panel) on the unit. If installed improperly, dust and/or water may enter the unit and present a risk of electric shock, smoke or fire. • Only use refrigerant R410A as indicated on the unit when installing or relocating the unit. The use of any other refrigerant or an introduction of air into the unit circuit may cause the unit to run an abnormal cycle and abnormal cycle and cause the unit to burst.

⚠ WARNING	
Do not touch the fins on the heat exchanger with bare hands, for they are sharp and dangerous. In the event of a refrigerant gas leak, provide adequate ventilation to the room. If leaked refrigerant gas is exposed to a heat source, noxious gases may form. With All-Fresh type air conditioners, outdoor air may be directly blown into the room upon thermo off. Take this into consideration when installing the unit. Direct exposure to outdoor air may present a health hazard, and it may also cause food items to deteriorate. Do not try to defeat the safety features of the devices, and do not change the settings. Defeating the safety features on the unit such as the pressure switch and temperature switch or using parts other than the dealer or specialist may result in fire or explosion.	• When installing the unit in a small room, safeguard against hypoxia that results from leaked refrigerant reaching the threshold level. Consult the dealer for necessary measures to take. • When relocating the air conditioner, consult the dealer or a specialist. Improper installation may result in water leak, electric shock, or fire. • After completing the service work, check for a refrigerant gas leak. If leaked gas refrigerant is exposed to a heat source such as fan heater,stove,and electric grill, noxious gases may form. • Only use specified parts. Have the unit professionally installed. Improper installation may cause water leak, electric shock,smoke, or fire.

Precautions for Handling Units for Use with R410A

⚠ Caution	
Do not use the existing refrigerant piping • The old refrigerant and refrigerator oil in the existing piping contain a large amount of chlorine, which will cause the refrigerator oil in the new unit to deteriorate. • R410A is a high-pressure refrigerant, and the use of the existing piping may result in bursting. Keep the inner and outer surfaces of the pipes clean and free of contaminants such as sulfur, oxides, dust/dirt shaving particles,oils,and moisture. • Contaminants inside the refrigerant piping will cause the refrigerant oil to deteriorate.	Use a vacuum pump with a reverse-flow check valve. • If other types of valves are used, the vacuum pump oil will flow back into the refrigerant cycle and cause the refrigerator oil to deteriorate. Do not use the following tools that have been used with the conventional refrigerants. Prepare tools that are for exclusive use with R410A. (Gauge manifold, charging hose, gas leak detector, reverse-flow check valve, refrigerant charge base,vacuum gauge, and refrigerant recovery equipment.) • If refrigerant and/or refrigerant oil left on these tools are mixed in with R410, or if water is mixed with R410A, it will cause the refrigerant to deteriorate. • Since R410A does not contain chlorine, gas-leak detectors for conventional refrigerators will not work.

⚠ Caution	
Store the piping to be used during installation indoors, and keep both ends of the piping sealed until immediately before brazing.(keep elbows and other joints wrapped in plastic.) • If dust, dirt, or water enters the refrigerant cycle, it may cause the oil in the unit to deteriorate or may cause the compressor to malfunction. Use a small amount of ester oil, ether oil, or alkylbenzene to coat flares and flange connections. • A large amount of mineral oil will cause the refrigerating machine oil to deteriorate. Use liquid refrigerant to charge the system. • Charge the unit with gas refrigerant will cause the refrigerant in the cylinder to change its composition and will lead to a drop in performance	Do not use a charging cylinder. • The use of charging cylinder will change the composition of the refrigerant and lead to power loss. Exercise special care when handling the tools. • An introduction of foreign objects such as dust, dirt or water into the refrigerant cycle will cause the refrigerating machine oil to deteriorate. Only use R410A refrigerant. • The use of refrigerants containing chlorine(i.e. R22) will cause the refrigerant to deteriorate.

Before Installing the Unit

⚠ Caution	
Do not install the unit in a place where there is a possibility of flammable gas leak. • Leaked gas accumulated around the unit may start a fire. Do not use the unit to preserve food, animals, plants, artifacts, or for other special purposes. • The unit is not designed to provide adepuate conditions to preserve the quality of these items. Do not use the unit in an unusual environment • The use of the unit in the presence of a large amount of oil, steam, acid, alkaline solvents or special types of sprays may lead to a remarkable drop in performance and/or malfunction and presents a risk of electric shock, smoke, or fire. • The presence of organic solvents, corroded gas (such as ammonia,sulfur compounds,and acid may cause gas or water leak.)	When installing the unit in a hospital, take necessary measures against noise. • High-frequency medical equipment may interfere with the normal operation of the air conditioning unit or the air conditioning unit may interfere with the normal operation of the medical equipment Do not place the unit on or over things that may not get wet. • When humidity level exceeds 80% or when the drainage system is clogged, indoor units may drip water. • Installation of a centralized drainage system for the outdoor unit may also need to be considered to prevent water drips from the outdoor units.

Before Installing (Relocating) the Unit or Performing Electric Work

⚠ Caution	
Ground the unit. • Do not connect the grounding on the unit to gas pipes,water pipes, lightning rods, or the grounding terminals of telephones. Improper grounding presents a risk of electric shock, smoke, fire, or the noise caused by improper grounding may cause the unit to malfunction. Make sure the wires are not subject to tension. • If the wires are too taut, they may break or generate heat and/or smoke and cause fire. Install a breaker for current leakage at the power source to avoid the risk of electric shock. • Without a breaker for current leakage, there is a risk of electric shock, smoke or fire. Use breakers and fuses (electrical current breaker, remote switch<switch+Type-B fuse>,molded case circuit breaker) with a proper current capacity. • The use of large-capacity fuses, steel wire, or copper wire may damage the unit or cause smoke or fire.	Do not spray water on the air conditioners or immerse the air conditioners in water. • Water on the unit presents a risk of electric shock. Periodically check the platform on which is placed for damage to prevent the unit from falling. • If the unit is left on a damaged plarform, it may topple over, causing injury. When installing draining pipes, follow the instructions in the manual, and make sure that they properly drain water so as to avoid dew condensation. • If not installed properly, they may cause water leaks and damage the furnishings. Properly dispose of the packing materials. • Things such as nails may be included in the package. Dispose of them properly to prevent injury. • Plastic bags present a choking hazard to children. Tear up the plastic bags before disposing of them to prevent accidents.

Before the Test Run

⚠ Caution	
Do not operate switches with wet hands to avoid electric. Do not touch the refrigerant pipes with bare hands during and immediately after operation. • Depending on the state of the refrigerant in the system, certain parts of the unit such as the pipes and compressor may become very cold or hot and may subject the person to frost bites or burning. Do not operated the unit without panels and safety guards in their proper places. • They are there to keep the users from injury from accidentally touching rotating, high-tempreture or high-voltage parts.	Do not turn off the power immediately after stopping the unit. • Allow for at least five minutes before turning off the unit, otherwise the unit may leak water or experience other problems. Do not operate the unit without air filters. • Dust particles in the air may clog the system and cause malfunction.

Items to Be Checked

(1). Verify the type of refrigerant used by the unit to be serviced. Refrigerant Type: R410A

(2). Check the symptom exhibited by the unit to be serviced. Look in this service handbook for symptoms relating to the refrigerant cycle.

(3). Be sure to carefully read the safety precautions at the beginning of this document.

(4). If there is a gas leak or if the remaining refrigerant is exposed to an open flame, a noxious gas hydrofluoric acid may form. Keep workplace well ventilated.

CAUTION

- Install new pipes immediately after removing old ones to keep moisture out of the refrigerant circuit.
- Chloride in some types of refrigerants such as R22 will cause the refrigerating machine oil to deteriorate.

Necessary Tools and Materials

Prepare the following tools and materials necessary for installing and servicing the unit.
Necessary tools for use with R410A(Adaptability of tools that are for use with R22 and R407C).

1. To be used exclusively with R410A (Not to be used if used with R22 or R407C)

Tools/Materials	Use	Notes
Gauge Manifold	Evacuating,refrigerant charging	5.09MPa on the High-pressure side.
Charging Hose	Evacuating, refrigerant charging	Hose diameter larger than the concentional ones.
Refrigerant Recovery Equipment	Refrigerant recovery	
Refrigerant Cylinder	Refrigerant charging	Write down the refrigerant type. Pink in color at the top of the cylinder.
Refrigerant Cylinder Charging Port	Refrigerant charging	Hose diameter larger than the conventional ones.
Flare Nut	Connecting the unit to piping	Use Type-2 Flare nuts.

2. Tools and materials that may be used with R410 with some restrictions

Tools/Materials	Use	Notes
Gas leak detector	Detection of gas leaks	The ones for HFC type refrigerant may be used.
Vacuum Pump	Vacuum drying	May be used if a reverse flow check adaptor is attached.
Flare Tool	Flare machining of piping	Chages have been made in the flare machining dimension.Refer to the next page.
Refrigerant Recovery Equipment	Recovery of refrigerant	May be used if designed for use with R410A.

3. Tools and materials that are used with R22 or R407C that can also be used with R410A

Tools/Materials	Use	Notes
Vacuum Pump with a Check Valve	Vacuum drying	
Bender	Bending pipes	
Torque Wrench	Tightening flare nuts	Only Φ12.70 (1/2") and Φ15.88(5/8") have a larger flare machining dimension.
Pipe Cutter	Cutting pipes	
Welder and Nitrogen Cylinder	Welding pipes	
Refrigerant Charging Meter	Refrigerant charging	
Vacuum Gauze	Checking vacuum degree	

4. Tool and materials that must not used with R410A

Tools/Materials	Use	Notes
Charging Cylinder	Refrigerant Charging	Must not be used with R410-type units.

Tools for R410A must be handled with special care, and keep moisture and dust from entering the cycle.

Piping Materials

Types of Copper Pipes (Reference)

Maximum Operation Pressure	Applicable Refrigerants
3.4MPa	R22, R407C
4.15MPa	R410A

- Use pipes that meet the local standards.

Piping Materials/Radial Thickness

Use pipes made of phosphorus deoxidized copper.
Since the operation pressure of the units that use R410A is higher than that of the units for use with R22, use pipes with at least the radial thickness specified in the chart below. (Pipes with a radial thickness of 0.7mm or less may not be used.)

Size(mm)	Size(inch)	Radial Thickness(mm)	Type
Φ 6.35	1/4"	0.8t	Type-O pipes
Φ 9.52	3/8"	0.8t	
Φ 12.7	1/2"	0.8t	
Φ 15.88	5/8"	1.0t	
Φ 19.05	3/4"	1.0t	Type-1/2H or Hpipes

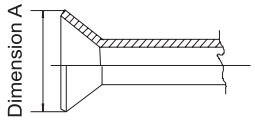
- Although it was possible to use type-O for pipes with a size of up to Φ 19.05(3/4") with conventional refrigerants, use type-1/2H pipes for units that use R410A.(Type-O pipes may be used if the pipe size is Φ19.05 and the radial thickness is 1.2t.)
- The table shows the standards in Japan. Using this table as a reference, choose pipes that meet the local standards.

Flare Machining (type-O and OL only)

The flare machining dimensions for units that use R410A is larger than those for units that use R22 in order to increase air tightness.

Flare Machining Dimension(mm)

External dimension of pipes	Size	Dimension A	
		R410A	R22
Φ6.35	1/4"	9.1	9.0
Φ9.52	3/8"	13.2	13.0
Φ12.7	1/2"	16.6	16.2
Φ15.88	5/8"	19.7	19.4
Φ19.05	3/4"	24.0	23.3



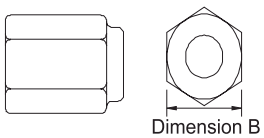
If a clutch type flare tool is used to machine flares on units that use R410A, make the protruding part of the pipe between 1.0 and 1.5mm. Copper pipe gauge for adjusting the length of pipe protrusion is useful.

Flare Nut

Type-2 flare nuts instead of type-1 nuts are used to increase the strength. The size of some of the flare nuts have also been changed.

Flare nut dimension(mm)

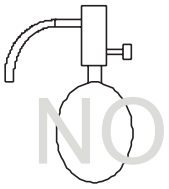
External dimension of pipes	Size	Dimension B	
		R410A(Type2)	R22(Type1)
Φ6.35	1/4"	17.0	17.0
Φ9.52	3/8"	22.0	22.0
Φ12.7	1/2"	26.0	24.0
Φ15.88	5/8"	29.0	27.0
Φ19.05	3/4"	36.0	36.0



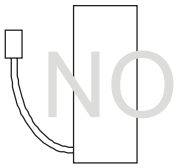
- The table shows the standards in Japan. Using this table as a reference, choose pipes that meet the local standards.

Air Tightness Test

No changes from the conventional method. Note that a refrigerant leakage detector for R22 or R407C cannot detect R410A leakage.



Halide torch



R22 or R407C leakage detector

Items to be strictly observed :

1. Pressurize the equipment with nitrogen up to the design pressure and then judge the equipment's air tightness, taking temperature variations into account.
2. When investigating leakage locations using a refrigerant, be sure to use R410A.
3. Ensure that R410A is in a liquid state when charging.

Reasons:

Use of oxygen as the pressurized gas may cause an explosion.
Charging with R410A gas will lead the composition of the remaining refrigerant in the cylinder to change and then this refrigerant can not be used.

Vacuuming

1. Vacuum pump with check valve

A vacuum pump with a check valve is required to prevent the vacuum pump oil from flowing back into the refrigerant circuit when the vacuum pump power is turned off (power failure). It is also possible to attach a check valve to the actual vacuum pump afterwards.

2. Standard degree of vacuum for the vacuum pump

Use a pump which reaches 65Pa or below after 5 minutes of operation.
In addition, be sure to use a vacuum pump that has been properly maintained and oiled using the specified oil. If the vacuum pump is not properly maintained, the degree of vacuum may be too low.

3. Required accuracy of the vacuum gauge

Use a vacuum gauge that can measure up to 650Pa. Do not use a general gauge manifold since it cannot measure a vacuum of 650Pa.

4. Evacuating time

Evacuate the equipment for 1 hour after 650Pa has been reached.
After envacuating, leave the equipment for 1 hour and make sure the that vacuum is not lost.

5. Operating procedure when the vacuum pump is stopped

In order to prevent a backflow of the vacuum pump oil, open the relief valve on the vacuum pump side or loosen the charge hose to drawn in air before stopping operation.The same operating procedure should be used when using a vacuum pump with a check valve.

Charging Refrigerant

R410A must be in a liquid state when charging.

Reasons:

R410A is a pseudo-azeotropic refrigerant (boiling point R32= -52℃, R125= -49℃) and can roughly be handled in the same way as R22; however, be sure to fill the refrigerant from the liquid side, for doing so from the gas side will somewhat change the composition of the refrigerant in the cylinder.

Note

- In the case of a cylinder with a syphon, liquid R410A is charged without turning the cylinder up side down. Check the type of cylinder before charging.

Remedies to be taken in case of a refrigerant leak

When refrigerant leaks, additional refrigerant may be charged. (Add the refrigerant from the liquid side)

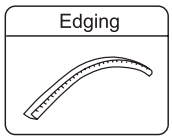
Characteristics of the Conventional and the New Refrigerants

- Because R410A is a simulated azeotropic refrigerant, it can be handled in almost the same mammer as a single refrigerant such as R22. Howerver, if the refrigerant is removed in the vapor phase, the composition of the refrigerant in the cylinder will somewhat change.
- Remove the refrigerant in the liquid phase. Additional refrigerant may be added in case of a refrigerant leak.

For 1U24GS1ERA

1. Accessories

"Edging" for protection of electrical wires from an opening edge.

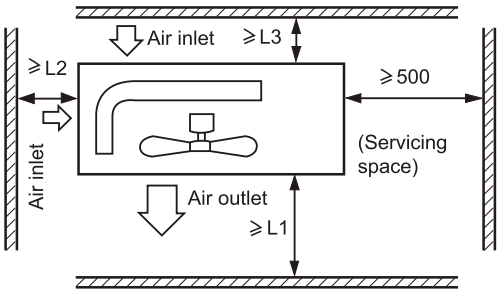


2. Selection of the place of installation

Select the place of installation satisfying the following conditions and, at the same time, obtain a consent from the client or user.

- Place where air circulates.
- Place free from heat radiation from other heat sources.
- Place where drain water may be discharged.
- Place where noise and hot air may not disturb the neighborhood.
- Place where there is not heavy snowfall in the winter time.
- Place where obstacles do not exist near the air inlet and air outlet .
- Place where the air outlet may not be exposed to a strong wind.
- Place surrounded at four sides are not suitable for installation. A 1m or more of overhead space is needed for the unit.
- Avoid mounting guide-louvers to the place where short-circuit is a possibility.
- When installing several units, secure sufficient suction space to avoid short circuiting.

Open space requirement around the unit

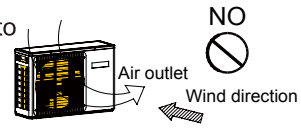


Distance	Case I	Case II	Case III
L1	open	open	500 mm
L2	300 mm	300 mm	open
L3	150 mm	300 mm	150 mm

Note :

(1) Fix the parts with screws.

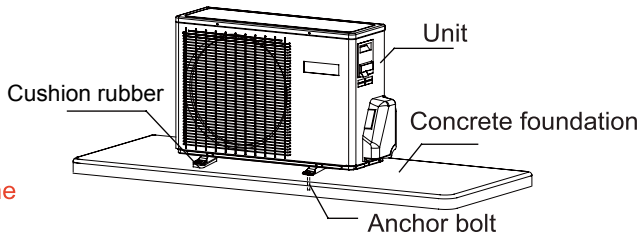
(2) Don't intake the strong wind directly to the outlet air-flow hole.



(3) A one meter distance should be kept from the unit top.

(4) Don't block the surroundings of the unit with sundries.

(5) If the outdoor unit is installed in a place that is exposed to the wind, install the unit so that the outlet grid is NOT pointing in the direction of the wind.



3. Installation of outdoor unit

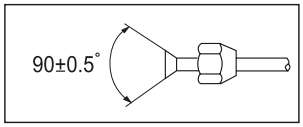
Fix the unit on the foundation in a proper way according to the condition of the installation place, referring to the following information.

- Give enough room for the concrete foundation to fix by anchor bolts.
- Place the concrete foundation deep enough.
- Install the unit so that the angle of inclination must be less than 3 degrees.
- Forbidden to place the unit on the ground directly.Please confirm there is enough room near the drainage hole on bottom plate, which will ensure the water be drained smoothly.

5.Refrigerant piping

1. Piping size

1U24GS1ERA	Liquid Pipe	φ9.52 X 0.8mm
	Gas Pip	φ15.88 X 1.0mm

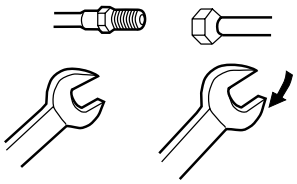


2. Connection of pipes

- To bend a pipe, give the roundness as large as possible not to crush the pipe , and the bending radius should be 30 to 40 mm or longer.
- Connecting the pipe of gas side first makes working easier.
- The connection pipe is specialized for R410A.

Half union Flare nut

Forced fastening without careful centering may damage the threads and cause a leakage of gas.



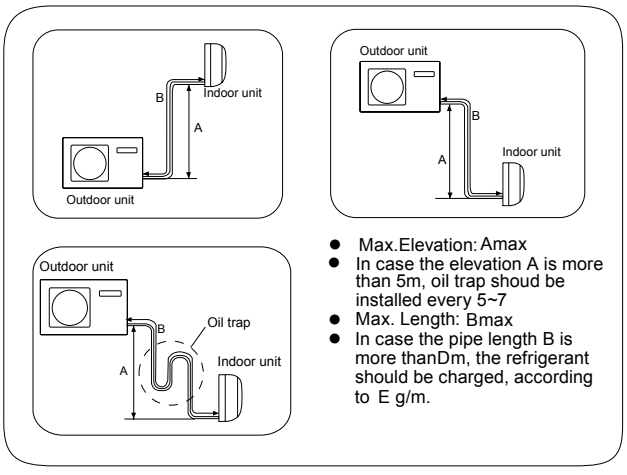
Spanner Torque wrench

Pipe Diameter(ø)	Fastening torque
Liquid side6.35mm(1/4")	18N.m
Liquid/Gas side9.52mm(3/8")	42 N.m
Gas side 12.7mm(1/2")	55N.m
Gas side 15.88mm(5/8")	60 N.m

Be careful that matters, such as wastes of sands,water, etc. shall not enter the pipe.

CAUTION

The standard pipe length is C m. If it is over D m, the function of the unit will be affected. If the pipe has to be lengthened, the refrigerant should be charged, according to E g/m. But the charge of refrigerant must be conducted by professional air conditioner engineer. Before adding additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump,then charge additional refrigerant.



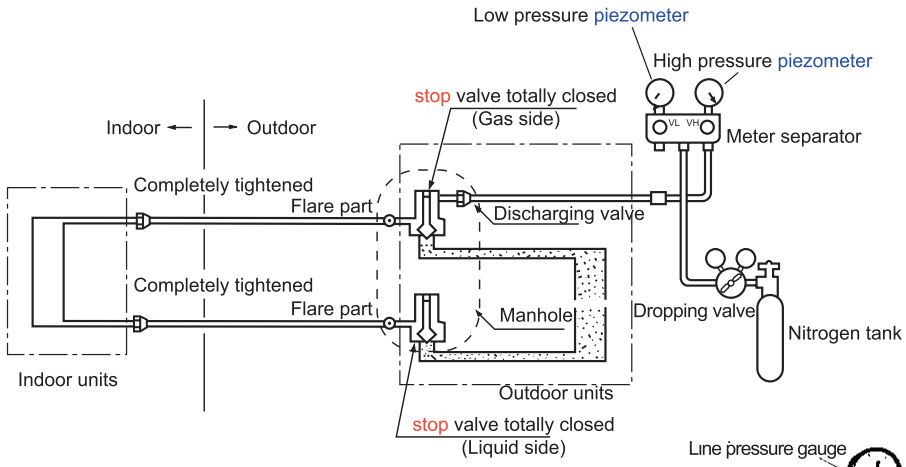
- Max.Elevation: Amax
- In case the elevation A is more than 5m, oil trap shoud be installed every 5~7
- Max. Length: Bmax
- In case the pipe length B is more thanDm, the refrigerant should be charged, according to E g/m.

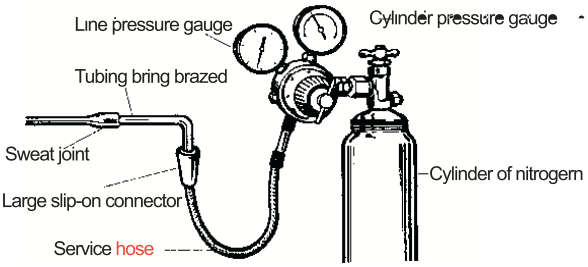
Outdoor Unit	Amax	Bmax	C	D	E
1U24GS1ERA	15	25	5	7	45

3 Air discharging method

After finishing connection of refrigerant pipe, it shall perform air tightness test.

- The air tightness test adopts nitrogen tank to give pressure according to the pipe connection mode as the following figure shown.
- The gas and liquid valve are all in close state. In order to prevent the nitrogen entering the circulation system of outdoor unit, tighten the valve rod before giving pressure (both gas and liquid valve rods).





1) Pressurize for over 3 minutes at 0.3MPa (3.0 kg/cm^{2}g).

2) Pressurize for over 3 minutes at 1.5MPa (15 kg/cm^{2}g). A large leakage will be found.

3) Pressurize for about 24 hours at 3.0MPa (30 kg/cm^{2}g). A small leakage will be found.

- Check if the pressure drops

  If the pressure does not drop, then pass.

  If the pressure drops, then please check the leaking point.

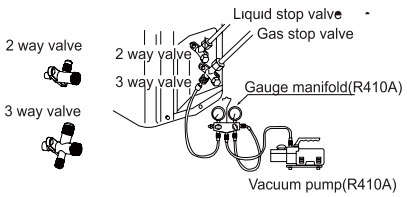
  When pressurizing for 24 hours, a variation of 1°C in the ambient temperature will cause a variation of 0.01MPa(0.1kg/cm in pressure. It shall be corrected during test.

- Checking the leaking point

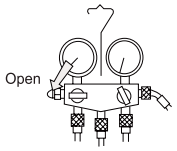
  In 1) to 3) steps, if the pressure drops, check the leakage in each joint by listening, touching and using soap water etc. to identify the leaking point. After confirming the leaking point, welding it again or tighten the nut tightly again.

Piping vavuum method: to use vacuum pump

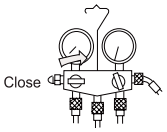
1. Detach the service port's cap of 3-way valve, the valve rod's cap for 2-way valve and 3-way valves, and connect the service port into the projection of charge hose (low) for gaugemanifold. Then connect the projection of charge hose (center) for gaugemanifold into vacuum pump.



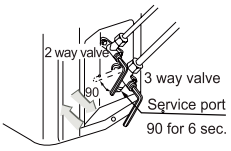
2. Open the handle at low in gaugemanifold, and operate vacuum pump. If the scale-moves of gause (low) reach vacuum condition in a moment, check the step 1 again.



3. Vacuumize for over 15min. And check the level gauge which should read -0.1MPa (-76 cm Hg) at low pressure side. After the completion of vacuumizing, close the handle 'Lo' in the vacuum pump. Check the condition of the scale and hold it for 1-2min. If the scale-moves back in spite of tightening, make flaring work again, then return to the beginning of the step 3.

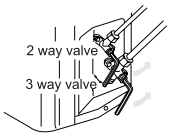


4. Open the valve rod for the 2-way valve to an angle of anticlockwise 90 degree. After 6 seconds, close the 2-way valve and make the inspection of gas leakge.

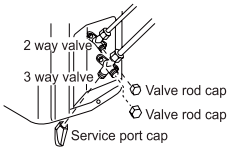


5. No gas leakage? In case of gas leakage, tighten parts of pipe connection. If leakage stops, then proceed the step 6. If it does not stop gas leakage, discharge whole refrigerants from the service port. After flaring work again and vacuumize, fill up prescribed refrigerant from the gas cylinder.

6. Detach the charge hose from the service port, open 2-way valve and 3-way. Turn the valve rod anticlockwise until hitting lightly.



7. To prevent the gas leakage, turn the service ports cap, the valve rodis cap for 2-way valve and 3-way's a little more than the point where the torque increases suddenly.



CAUTION:

If the refrigerant of the air conditioner leaks, it is necessary to make all the refrigerant out. Vacuumize first, then charge the liquid refrigerant into air conditioner according to the amount marked on the nameplate.

6. Wiring Connection

WARNING!
DANGER OF BODILY INJURY OR DEATH • TURN OFF ELECTRIC POWER AT CIRCUIT BREAKER OR POWER SOURCE BEFORE MAKING ANY ELECTRIC CONNECTIONS. • GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

Precautions for Electrical wiring

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

Selection of size of power supply and interconnecting wires

Select wire sizes and circuit protection from table below. (This table shows 20 m length wires with less than 2% voltage drop.)

Item / Model	phase	Circuit breaker			Earth leakage breaker	
		Switch breaker	Overcurrent protector capacity	Power source wire size(min)(mm^2)	Switch breaker(A)	Leak Current(mA)
1U24GS1ERA	1	40	26	4	40	30

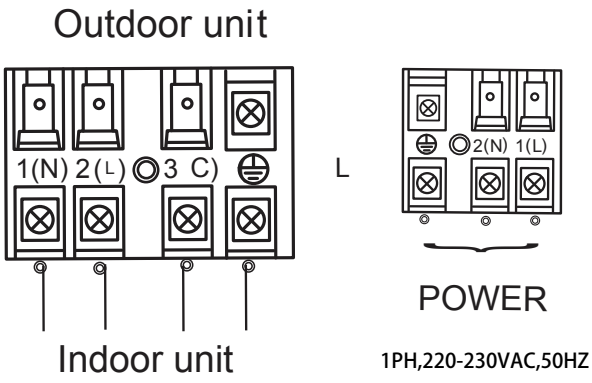
- If the supply cord is damaged, it must be replaced by the manufacturer or itsservice agent or a similar qualified person.
- If the fuse of control box is broken, please change it with the type of T 25A/250V.
- The wiring method should be in line with the local wiring standard.
- The power cable and connecting cable should be self-provided.
- All the cables shall have got the European authentication certificate. During installation, when the connecting cables break off, it must be assured that the grouding wire is the last one to be broken off.
- The breaker of the air conditioner should be all-pole switch; and the distance between its two contacts should not be no less than 3mm. Such means for disconnection must be incorporation in the fixed wiring.
- The distance between its two terminal blocks of indoor unit and outdoor unit should not be over 5m. If exceeded, the diameter of the wire should be enlarged according to the local wiring standard.
- A leakage breaker must be installed.

Wiring procedure

1) Remove set screws on the side before taking off the front panel toward the direction.
2) Connect wires to the terminal block correctly and fix the wires with a wire clamp equipped nearby the terminal block.
3) Route the wires in a proper way and penetrate the wires through the opening for electrical wiring on the side panel.

WARNING:

INTERCONNECTING WIRES MUST BE WIRED ACCORDING TO FIGURE BELOW. INCORRECT WIRING MAY CAUSE EQUIPMENT DAMAGE.



Model	1U24GS1ERA
Connecting wiring	⩾4G0.75mm2
Power cable	⩾3G4.0mm2

CAUTION!

- THIS UNIT WILL BE STARTED INSTANTLY WITHOUT "ON" OPERATION WHEN ELECTRIC POWER IS SUPPLIED. BE SURE TO EXECUTE "OFF" OPERATION BEFORE ELECTRIC POWER IS DISCONNECTED FOR SERVICING.
- This unit has a function of automatic restart system after recovering power stoppage.

1. Before starting test run (for all Heat pump models)

Confirm whether the power source breaker (main switch) of the unit has been turned on for over 12 hrs to energize the crankcase heater in advance of operation.

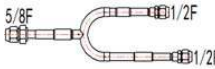
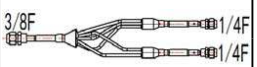
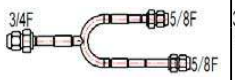
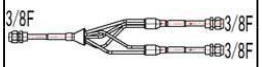
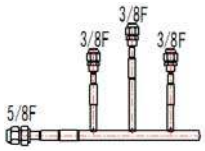
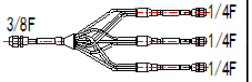
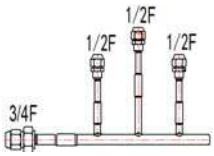
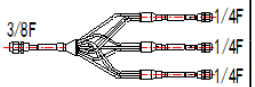
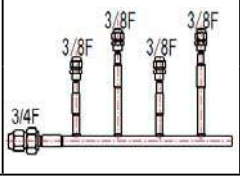
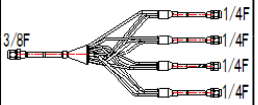
2.Test run

Run the unit continuously for about 30 minutes, and check the following.

- Suction pressure at check joint of service valve for gas pipe.
- Discharge pressure at check joint on the compressor discharge pipe.
- Temperature difference between return air and supply air for indoor unit.

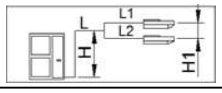
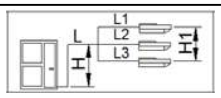
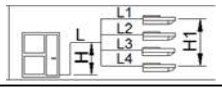
1U28HS1ERA(S) 1U28GS2ERA(S) 1U36HS1ERA(S) 1U48LS1ERA(S) 1U48LS1ERB(S) 1U48LS1EAB(S) 1U48IS1EAB(S) 1U48IS1ERB(S) 1U60IS1ERA(S) 1U60IS1ERB(S) 1U60IS1EAB(S) 1U60IS2EAB(S) 1U60IS2ERB(S)

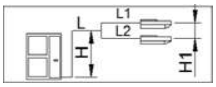
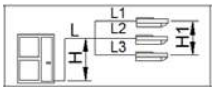
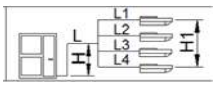
The MAXI SPLIT system is an ideal option for open spaces in medium sized premises such as shops and offices, where two, three or four units are requied. These can be Cassettes type (AB Series) or Convertible type(AC Series) models and can be connected to a single outdoor unit using twin, triple, quadruple branch pipes. Please refer to the table below to choose suitabel branch pipe according the outdoor unit model,the indoor unit model and quantities.

Outdoor unit model	Indoor unit model	Number of indoor unit	Wire controller	Gas side manifold	Liquid side manifold	Manifold model
1U36HS1ERA(S)	AB18CS1ERA(S)	2	YR-E14 or YR-E16			FQG-2Y100A
	AC18CS1ERA(S)	2				
1U48LS1ERB(S) 1U48LS1ERA(S) 1U48IS1ERB(S)	AB24ES1ERA(S)	2	YR-E14 or YR-E16			FQG-2Y200A
	AC24CS1ERA(S)	2				
1UI60S1ERB(S) 1UI60S2REB(S)	AB28ES1ERA(S)	2	YR-E14 or YR-E16			
	AC28ES1ERA(S)	2				
1U36HS1ERA(S)	AB12CS1ERA(S)	3	YR-E14 or YR-E16			FQG-3Y100A
	AC12CS1ERA(S)	3				
1U48LS1ERB(S) 1U48LS1ERA(S) 1U48IS1ERB(S) 1U60IS1ERB(S) 1U60IS2ERB(S)	AB18CS1ERA(S)	3	YR-E14 or YR-E16			FQG-3Y200A
	AC18CS1ERA(S)	3				
1U48LS1ERB(S) 1U48LS1ERA(S) 1U48IS1ERB(S) 1U60IS1ERB(S)	AB12CS1ERA(S)	4	YR-E14 or YR-E16			FQG-4Y200A
	AC12CS1ERA(S)	4				

Note:For MAXI series models, please choose suitable manifold according to combinations of indoor and outdoor unit; detailed installation methods and precautions, please refer to the installation instructions of the manifold; the manifold an optional component,please purchase separately according to the actual installation requirements.

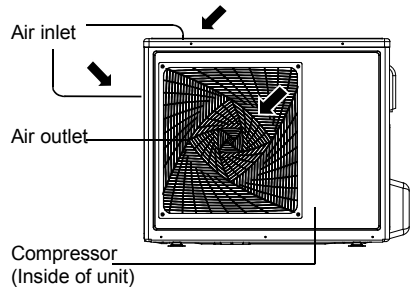
When installing MAXI SPLIT Series(1U36HS1ERA(S)/1U48LS1ERA(S)/1U48LS1ERB(S)/1U48IS1ERB(S)/1U60IS 1ERB(S)),Please refer to the table below concerning the pipe lengths , heights and sizes.

Max model	Piping daigram	Total one-way piping length			Height between outdoor unit and indoor unit			Branch piping length			Height between indoors		
Twin	Size remark	L+L1+L2			H			L1 or L2			H1		
		1U36	1U48	1U60	1U36	1U48	1U60	1U36	1U48	1U60	1U36	1U48	1U60
		≤50	≤60	≤75	≤20	≤30	≤30	≤20			≤0.5		
Triple	Size remark	L+L1+L2			H			L1 or L2 or L3			H1		
		1U36	1U48	1U60	1U36	1U48	1U60	1U36	1U48	1U60	1U36	1U48	1U60
		≤50	≤60	≤75	≤20	≤30	≤30	≤20			≤0.5		
Quadruple	Size remark	L+L1+L2+L3+L4			H			L1 or L2 or L3 or L4			H1		
		1U36	1U48	1U60	1U36	1U48	1U60	1U36	1U48	1U60	1U36	1U48	1U60
		/	≤60	≤75	/	≤30	≤30	/	≤20	≤20	/	≤0.5	≤0.5

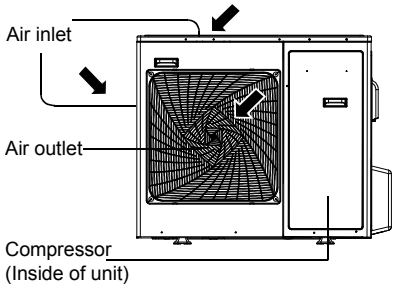
Max model	Piping daigram	Differrence between branch length			Main piping size			Branch piping size		
Twin	Size remark	[L1-L2]			Liquid side/Gas side			Liquid side/Gas side		
		1U36	1U48	1U60	1U36	1U48	1U60	1U36	1U48	1U60
		≤10			φ9.52 φ15.88	φ9.52 φ19.05	φ9.52 φ19.05	φ6.35 φ12.7	φ9.52 φ15.88	φ9.52 φ15.88
Triple	Size remark	[Lx-Ly] x, y=1,2,3 x≠y			Liquid side/Gas side			Liquid side/Gas side		
		1U36	1U48	1U60	1U36	1U48	1U60	1U36	1U48	1U60
		≤10			φ9.52 φ15.88	φ9.52 φ19.05	φ9.52 φ19.05	φ6.35 φ9.52	φ6.35 φ12.7	φ6.35 φ12.7
Quadruple	Size remark	[Lx-Ly] x, y=1,2,3,4 x≠y			Liquid side/Gas side			Liquid side/Gas side		
		1U36	1U48	1U60	1U36	1U48	1U60	1U36	1U48	1U60
		/	≤10	≤10	/	φ9.52 φ19.05	φ9.52 φ19.05	/	φ6.35 φ9.52	φ6.35 φ9.52

Name of parts

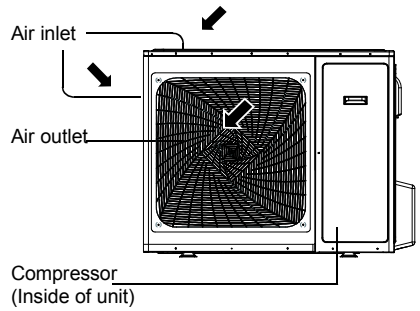
1U24GS1ERA 1U28GS2ERA(S)



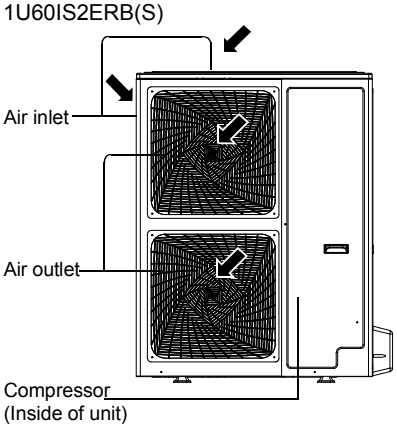
1U28HS1ERA(S) 1U36HS1ERA(S)



1U48LS1ERA(S) 1U48LS1ERB(S) 1U48LS1EAB(S)



1U48IS1EAB(S) 1U48IS1ERB(S) 1U60IS1ERA(S)
1U60IS1ERB(S) 1U60IS1EAB(S) 1U60IS2EAB(S)
1U60IS2ERB(S)



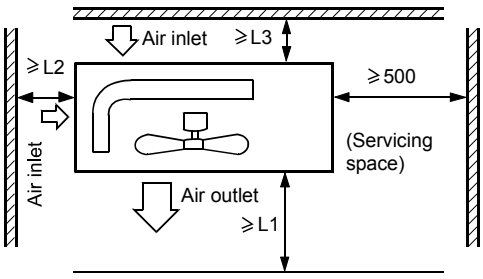
Installation procedure

1. Selection of the place of installation

Select the place of installation satisfying the following conditions and, at the same time, obtain a consent from the client or user.

- Place where air circulates.
- Place free from heat radiation from other heat sources.
- Place where drain water may be discharged.
- Place where noise and hot air may not disturb the neighborhood.
- Place where there is not heavy snowfall in the winter time.
- Place where obstacles do not exist near the air inlet and air outlet .
- Place where the air outlet may not be exposed to a strong wind.
- Place surrounded at four sides are not suitable for installation. A 1m or more of overhead space is needed for the unit.
- Avoid mounting guide-louvers to the place where short-circuit is a possibility.
- When installing several units, secure sufficient suction space to avoid short circuiting.

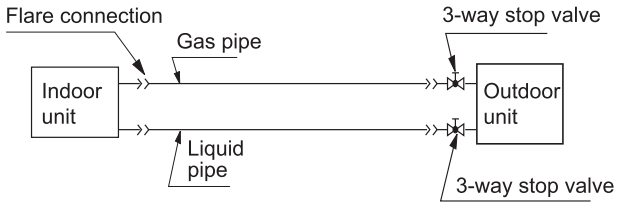
Open space requirement around the unit



Distance	Case I	Case II	Case III
L1	open	open	500 mm
L2	300 mm	300 mm	open
L3	150 mm	300 mm	150 mm

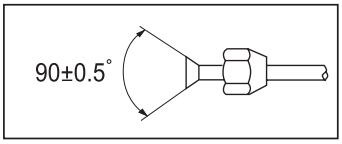
1. Piping diagram for single split

1U24GS1ERA 1U28GS2ERA(S) 1U28HS1ERA(S)
1U36HS1ERA(S) 1U48LS1ERA(S) 1U48LS1ERB(S)
1U48LS1EAB(S)
1U48IS1EAB(S) 1U48IS1ERB(S) 1U60IS1ERA(S)
1U60IS1ERB(S) 1U60IS1EAB(S) 1U60IS2EAB(S)
1U60IS2ERB(S)



2. Piping size for single split

1U24GS1ERA 1U28GS2ERA(S)	Liquid pipe	Φ9.52×0.8mm
1U28HS1ERA(S) 1U36HS1ERA(S)	Gas pipe	Φ15.88×1.0mm
1U48LS1ERA(S) 1U48LS1ERB(S)	Liquid pipe	Φ9.52×0.8mm
1U48LS1EAB(S) 1U48IS1EAB(S) 1U48IS1ERB(S) 1U60IS1ERA(S) 1U60IS1ERB(S) 1U60IS1EAB(S) 1U60IS2EAB(S) 1U60IS2ERB(S)	Gas pipe	Φ19.05×1.0mm



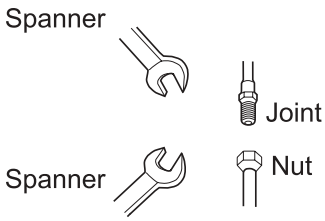
- Install the removed flare nuts to the pipes to be connected, then flare the pipes.

3. Limitations for one way piping length and vertical height difference for single split

Model	One way piping length	Vertical height difference (between indoor and outdoor)
1U24GS1ERA 1U28GS2ERA(S) 1U28HS1ERA(S) 1U36HS1ERA(S)	less than 30 m	less than 20 m
1U48LS1ERA(S) 1U48LS1ERB(S) 1U48LS1EAB(S) 1U48IS1EAB(S) 1U48IS1ERB(S) 1U60IS1ERA(S) 1U60IS1ERB(S) 1U60IS1EAB(S) 1U60IS2EAB(S) 1U60IS2ERB(S)	less than 50 m	less than 30 m

Precautions for refrigerant piping

- Do not twist or crush piping.
- Be sure that no dust is mixed in piping.
- Bend piping with as wide angle as possible.
- Keep insulating both gas and liquid piping.
- Check flare-connected area for gas leakage.



4 Piping connection method

- Apply refrigerant oil to the joint and the flange.
- To bend a pipe, give the roundness as possible not to crush the pipe.
- When connecting pipe, hold the pipe centre to centre and then screw nut on by hand, refer to Fig.
- Be careful not to let foreign matters, such as sands enter the pipe.

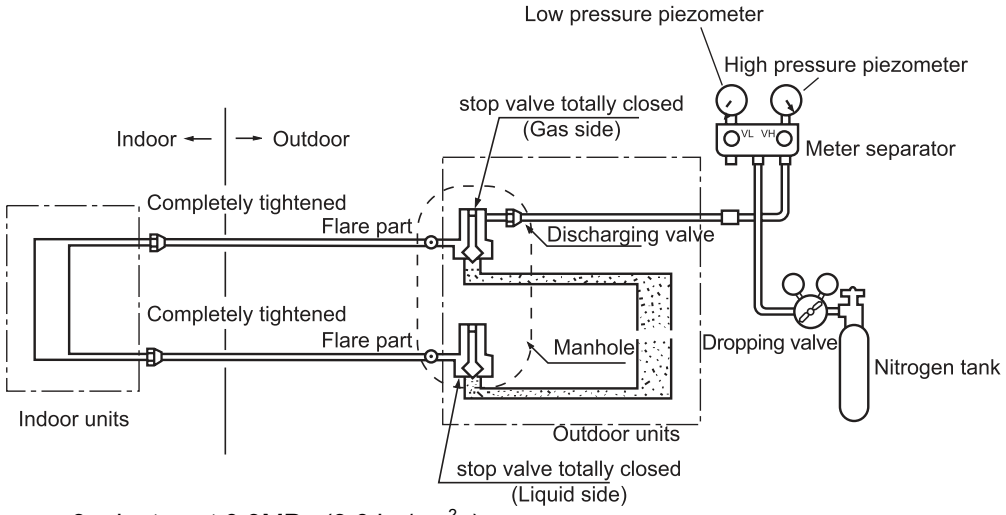
Pipe diameter	Fastening torque (N.m)
Liquid pipe Φ6.35mm	14.2-17.2
Liquid pipe Φ9.52mm	32.7-39.9
Gas pipe Φ12.7mm	49.5-60.3
Gas pipe Φ15.88mm	61.8-75.4
Gas pipe Φ19.05mm	97.2-118.6

Forced fastening without centering may damage the threads and cause a gas leakage.

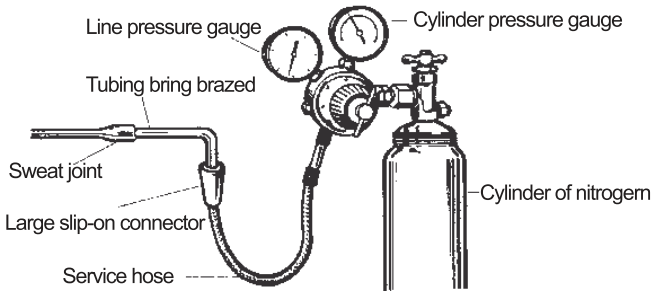
5. For the allowable pipe length and height difference for maxi split system, please see the table in the page 2 of this manual.

After finishing connection of refrigerant pipe, it shall perform air tightness test.

- The air tightness test adopts nitrogen tank to give pressure according to the pipe connection mode as the following figure shown.
- The gas and liquid valve are all in close state. In order to prevent the nitrogen entering the circulation system of outdoor unit, tighten the valve rod before giving pressure (both gas and liquid valve rods).



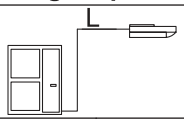
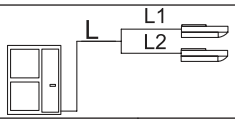
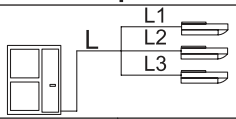
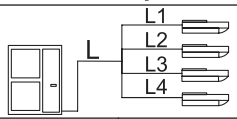
1) Pressurize for over 3 minutes at 0.3MPa (3.0 kg/cm^{2}g).
2) Pressurize for over 3 minutes at 1.5MPa (15 kg/cm^{2}g).
A large leakage will be found.
3) Pressurize for about 24 hours at 3.0MPa (30 kg/cm^{2}g).
A small leakage will be found.



- Check if the pressure drops
  If the pressure does not drop, then pass.
  If the pressure drops, then please check the leaking point.
  When pressurizing for 24 hours, a variation of 1°C in the ambient temperature will cause a variation of 0.01MPa (0.1kg/cm^{2}g) in pressure. It shall be corrected during test.
- Checking the leaking point
  In 1) to 3) steps, if the pressure drops, check the leakage in each joint by listening, touching and using soap water etc. to identify the leaking point. After confirming the leaking point, welding it again or tighten the nut tightly again.

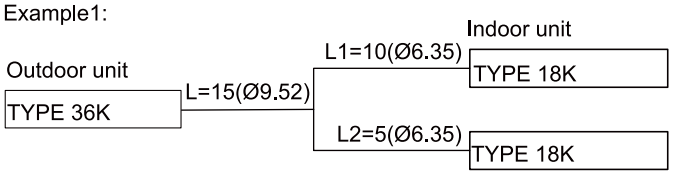
Specification of refrigerant charge for single split and maxi split.

1. It is not neccesary to charge additionally when the piping length L+P 20m.
2. Please charge refrigerant additionally according to the following table when the piping length L+P 20m or need to complete recharge .

Single Split		Twin		Triple		Quadruple	
							
Charge(g)	L>20	L≤20,L+P>20	L>20	L≤20,L+P> 20	L>20	L≤20,L+P>20	L>20
1U36	(L-20)*45	(L+P-20)*30	(L-20)*45+P*30	(L-20)*45+P*30	(L-20)*45+P*30	—	—
1U48	(L-20)*45	(L+P-20)*45	(L+P-20)*45	(L+P-20)*30	(L-20)*45+P*30	(L+P-20)*30	(L-20)*45+P*30
1U60	(L-20)*45	(L+P-20)*45	(P-20)*45	(L+P-20)*30	(L-20)*45+P*30	(L+P-20)*30	(L-20)*45+P*30
P(m)	P=0	P=L1+L2		P=L1+L2+L3		P=L1+L2+L3+L4	

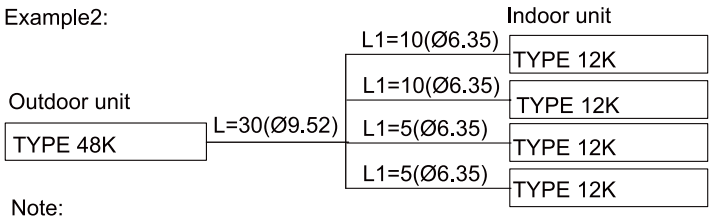
Remark:
a.L is the main pipe length of liquid pipe;P is the sum length of branch liquid pipes.
b.The piping length L+P means the sum of the main pipe and branch pipes.
For MAXI system (Twin,Triple,Quadruple),piping length=L+P L.
For single split system,L+P=L,because P=0.

Example1:



Note:
(1)L=15<20;L+P=L+L1+L2=15+10+5=30>20
(2)Refrigerant charging amount=(L+P-20)*30=300g
(3)TYPE 18K means capacity 18000Btu/h type

Example2:

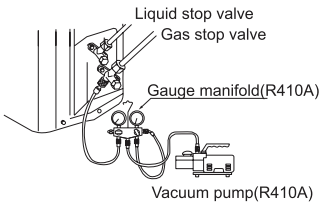


Note:
(1)L=30>20;P=L1+L2+L3+L4=10+10+5+5=30
(2)Refrigerant charging amount=(L-20)*45+P*30=1350g
(3)TYPE 12K means capacity 12000Btu/h type

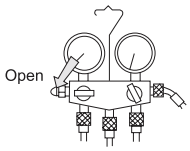
- Only in COOLING operation can charge the additional refrigerant.
- When charging, the refrigerant shall be charged from the charging nozzle of low pressure valve.
- Be carefull when charging refrigerant, do not let the air mix into the system, and must charge the additional refrigerant in liquid state.

Piping vavuum method: to use vacuum pump

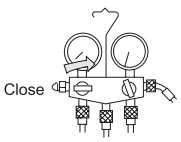
1. Detach the service port's cap of gas stop valve, the valve rod's cap for liquid stop valve and gas stop valve, and connect the service port into the projection of charge hose (low) for gaugemanifold. Then connect the projection of charge hose (center) for gaugemanifold into vacuum pump.



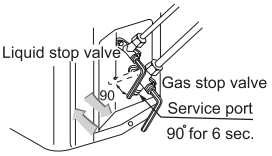
2. Open the handle at low in gaugemanifold, and operate vacuum pump. If the scale-moves of gause (low) reach vacuum condition in a moment, check the step 1 again.



3. Vacuumize for over 15min. And check the level gauge which should read - 0.1MPa (-76 cm Hg) at low pressure side. After the completion of vacuumizing, close the handle 'Lo' in the vacuum pump. Check the condition of the scale and hold it for 1-2min. If the scale-moves back in spite of tightening, make flaring work again, then return to the beginning of the step 3.

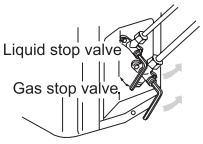


4. Open the valve rod for the liquid stop valve to an angle of anticlockwise 90 degree. After 6 seconds, close the liquid stop valve and make the inspection of gas leakge.

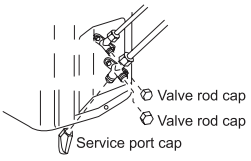


5. No gas leakage? In case of gas leakage, tighten parts of pipe connection. If leakage stops, then proceed the step 6. If it does not stop gas leakage, discharge whole refrigerants from the service port. After flaring work again and vacuumize, fill up prescribed refrigerant from the gas cylinder.

6. Detach the charge hose from the service port, open liquid stop valve and gas stop valve. Turn the valve rod anticlockwise until hitting lightly.



7. To prevent the gas leakage, turn the service ports cap, the valve rodis cap for liquid stop valve and gas stop valve a little more than the point where the torque increases suddenly.



CAUTION

If the refrigerant of the air conditioner leaks, it is necessary to make all the refrigerant out. Vacuumize first, then charge the liquid refrigerant into air conditioner according to the amount marked on the nameplate.

⚠ WARNING

DANGER OF BODILY INJURY OR DEATH

TURN OFF ELECTRIC POWER AT CIRCUIT BREAKER OR POWER SOURCE BEFORE MAKING ANY ELECTRIC CONNECTIONS.
GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

Precautions for Electrical wiring

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

Selection of size of power supply and interconnecting wires

Select wire sizes and circuit protection from table below. (This table shows 20 m length wires with less than 2% voltage drop.)

Item / Model	Phase	Circuit breaker		Power source wire size (minimum) (mm^2)	Earth leakage breaker	
		Switch breaker (A)	Overcurrent protector rated capacity (A)		Switch breaker(A)	Leak current (mA)
1U24GS1ERA 1U28GS2ERA(S) 1U28HS1ERA(S) 1U36HS1ERA(S) 1U48LS1ERA(S) 1U60IS1ERA(S)	1	40	30	6.0	40	30
1U48LS1EAB(S) 1U48LS1ERB(S) 1U48IS1EAB(S) 1U48IS1ERB(S) 1U60IS1EAB(S) 1U60IS1ERB(S) 1U60IS2EAB(S) 1U60IS2ERB(S)	3	30	20	4.0	30	30

- If the supply cord is damaged, it must be replaced by the manufacturer or itsservice agent or a similar qualified person.
- If the fuse of control box is broken, please change it with the type of T25A/450VAC;
- If the fuse of control PC board is broken, please change it with the type of T3.15A/250VAC. But for 1U24GS1ERA, 1U28GS2ERA(S),1U28HS1ERA(S),1U36HS1ERA(S),1U48LS1ERA(S),1U48LS1ERB(S),1U48IS1ERB(S),1U60IS1ERA (S),1U60IS1ERB(S), the type is T6.3A/250VAC.
- The wiring method should be in line with the local wiring standard.
- The power cable and connecting cable should be self-provided.
- All the cables shall have got the European authentication certificate. During installation, when the connecting cables break off, it must be assured that the grouding wire is the last one to be broken off.
- The breaker of the air conditioner should be all-pole switch; and the distance between its two contacts should not be no less than 3mm. Such means for disconnection must be incorporation in the fixed wiring.
- The distance between its two terminal blocks of indoor unit and outdoor unit should not be over 5m. If exceeded, the diameter of the wire should be enlarged according to the local wiring standard.
- A leakage breaker must be installed.

The specification of power cable

For models 1U24GS1ERA,1U28GS2ERA(S),1U28HS1ERA(S), 1U36HS1ERA(S), 1U48LS1ERA(S), 1U60IS1ERA(S), 1U60IS2ERB(S) the power cable should be H05RN-F 3G 6.0mm^2.

For models 1U48LS1EAB(S), 1U48IS1EAB(S), 1U60IS1EAB(S), 1U48LS1ERB(S), 1U48IS1ERB(S), 1U60IS1ERB(S), 1U60IS2EAB(S) the power cable should be H07RN-F 5G 4.0mm^2.

Wiring procedure

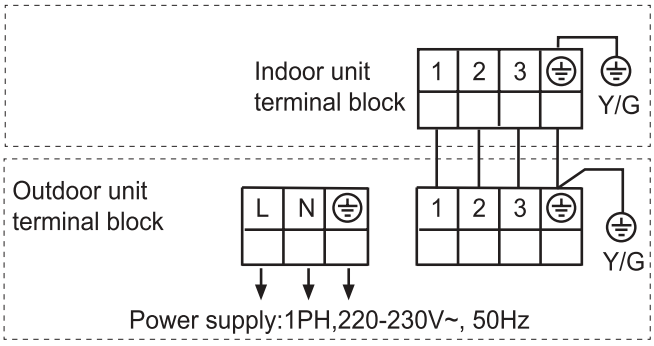
1) Remove set screws on the side before taking off the front panel toward the direction.
2) Connect wires to the terminal block correctly and fix the wires with a wire clamp equipped nearby the terminal block.
3) Route the wires in a proper way and penetrate the wires through the opening for electrical wiring on the side panel.

⚠ WARNING

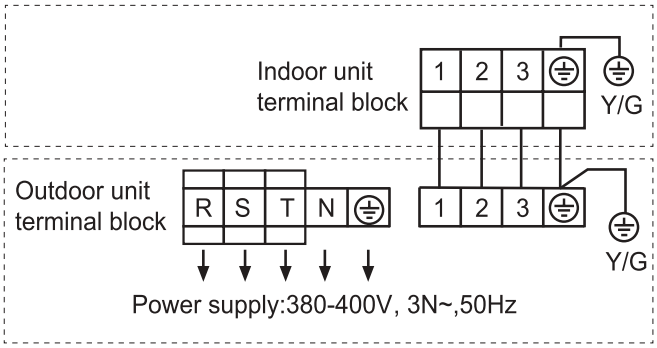
INTERCONNECTING WIRES MUST BE WIRED ACCORDING TO FIGURE BELOW. INCORRECT WIRING MAY CAUSE EQUIPMENT DAMAGE.

SINGLE SPLIT SYSTEM UNITS WIRING DIGRAM

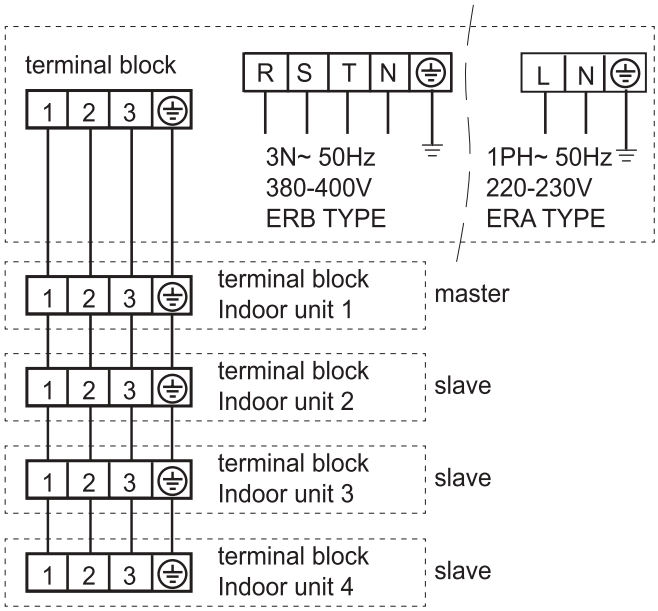
1U28HS1ERA(S) 1U36HS1ERA(S) 1U48LS1ERA(S) 1U60IS1ERA(S)



1U48LS1ERB(S) 1U48LS1EAB (S) 1U48IS1EAB(S) 1U48IS1ERB(S) 1U60IS1ERB(S) 1U60IS1EAB(S)



MAXI SPLIT SYSTEM UNITS WIRING DIGRAM



Note:

1. *The master is the indoor unit which connect to a wired controller,others are slaves,please purchase wired controller separately for MAXI system.*
2. *For one MAXI split system there is only one master.*
3. *For the MAXI system with 2 or 3 indoor units, the wiring method is the same with the diagram on the left except for the indoor units quantity.*
4. *Make sure that the wire connection for all units in MAXI system OK before running.*

Accessories

Accessories supplied with the outdoor unit:

No.	Drawing	Name of parts	Quantity	Note
1		Drainage elbow	1	3U19FS1ERA(N) 3U24GS1ERA(N)
			3	4U26HS1ERA 4U30HS1ERA 5U34HS1ERA 5U45LS1ERA
2		Rubber cushion	4	3U19FS1ERA(N) 4U30HS1ERA 3U24GS1ERA(N) 5U34HS1ERA 4U26HS1ERA 5U45LS1ERA
3		Clap	1	3U19FS1ERA(N) 3U24GS1ERA(N)
			3	4U26HS1ERA 4U30HS1ERA 5U34HS1ERA 5U45LS1ERA
4		Adaptor(3/8→1/2)	1	3U19FS1ERA(N) 4U30HS1ERA 3U24GS1ERA(N) 5U34HS1ERA 4U26HS1ERA 5U45LS1ERA
5		Adaptor(1/2→3/8)	1	4U26HS1ERA 4U30HS1ERA 5U34HS1ERA
			2	5U45LS1ERA
6		Adaptor(1/2→5/8)	1	5U45LS1ERA

Procedure for Selecting the Location

1) Choose a place solid enough to bear the weight and vibration of the unit, where the operation noise will not be amplified.
2) Choose a location where the hot air discharged from the unit or the operation noise, will not cause a nuisance to the neighbors of the user.
3) Avoid places near a bedroom and the like, so that the operation noise will cause no trouble.
4) There must be sufficient space for carrying the unit into and out of the site.
5) There must be sufficient space for air passage and no obstructions around the air inlet and the air outlet.
6) The site must be free from the possibility of flammable gas leakage in a nearby place. Locate the unit so that the noise and the discharged hot air will not annoy the neighbors.
7) Install units, power cords and inter-unit cables at least 10ft away from television and radio sets. This is to prevent interference to images and sounds. (Noises may be heard even if they are more than 10ft away depending on radio wave conditions.)
8) In coastal areas or other places with salty atmosphere of sulfate gas, corrosion may shorten the life of the air conditioner.
9) Since drain flows out of the outdoor unit, do not place under the unit anything which must be kept away from moisture.
10) On a flat surface that does not collect rain water.
11) Away from strong wind.
12) Away from direct exposure to rain or snow.
13) Away from sea breeze.
14) Away from inflammable materials.

Note:

1) Cannot be installed hanging from ceiling or stacked.

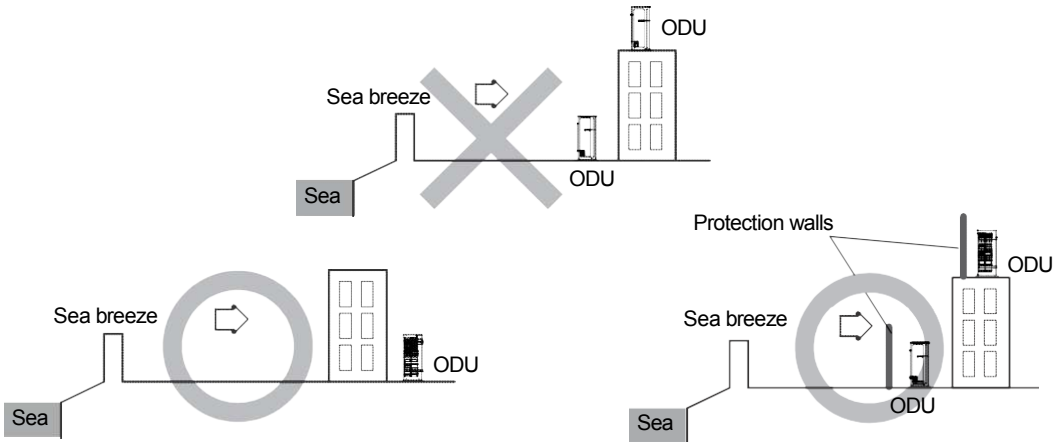
2) If installing on a high place such as a roof, with a fence or guard rail around it.

3) If there is a potential for accumulated snow to block the air inlet or heat exchanger, install the unit on a higher base.

4) R-410A refrigerant is a safe, nontoxic and nonflammable refrigerant. However, if there is a concern about a dangerous level of refrigerant concentration in the case of refrigerant leakage, add extra ventilation.

5) Avoid installing the outdoor unit where corrosive gases, such as sulfur oxides, ammonia, and sulfurous gas, are produced. If unavoidable, consult with an installation specialist about using a corrosion-proof or anti-rust additive to protect the unit coils.

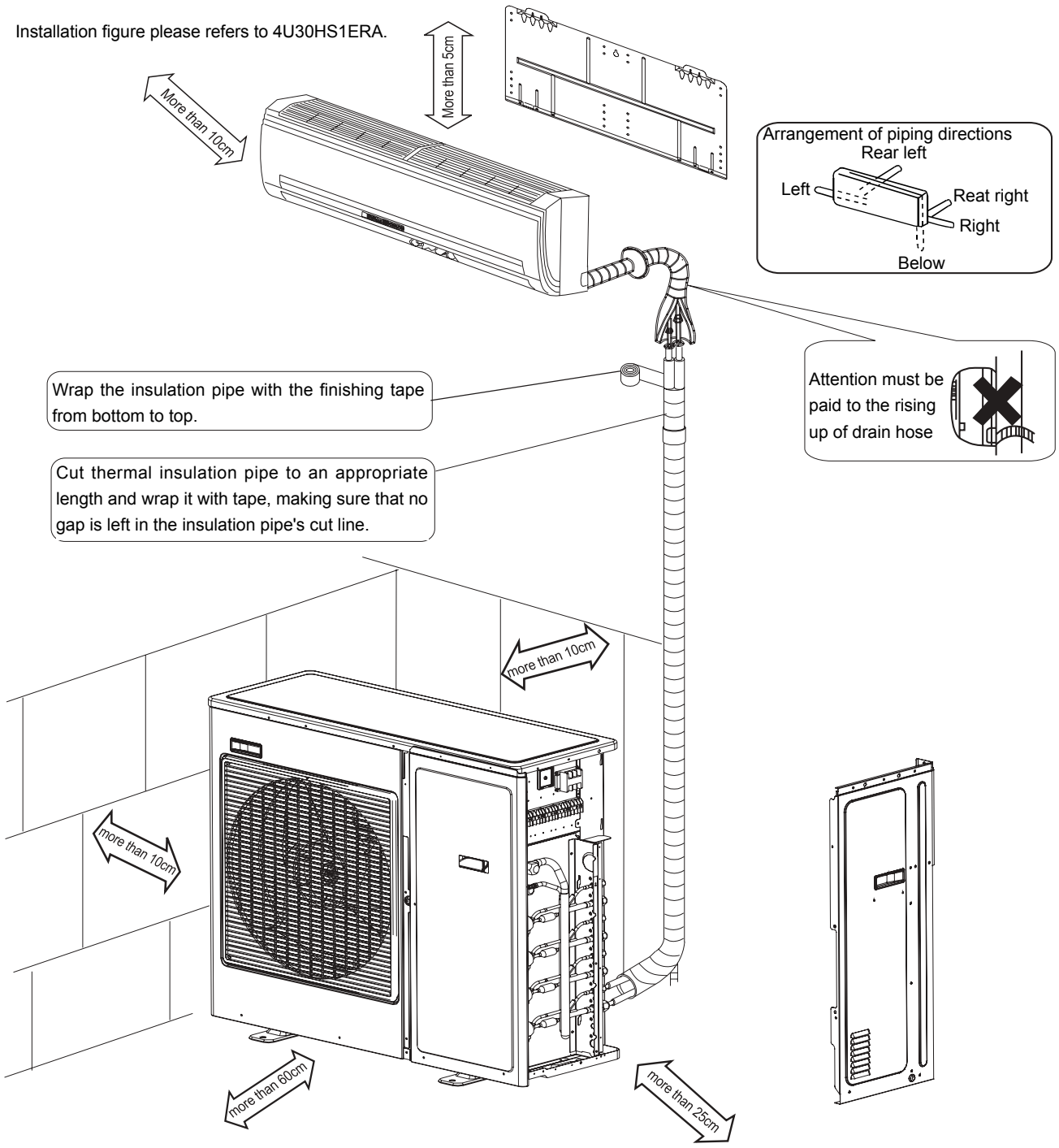
6) For seacoast applications, block the unit from direct exposure to sea breeze by installing the unit behind a structure (such as a building) or a protective wall that is 1.5 times higher than the unit, leaving 28 in. (700 mm) of space between the wall and unit for air circulation. Consult an installation expert about taking anti-corrosion measures, such as removing salinity on the heat exchanger and applying a rust inhibitor more frequently than once a year.



Installation drawings of indoor and outdoor units

1 Do not connected the embedded branch piping and the outdoor unit when only carrying out piping work without connecting the indoor unit in order to add another indoor unit later. Make sure no dirt or moisture gets into either side of the embedded branch piping.

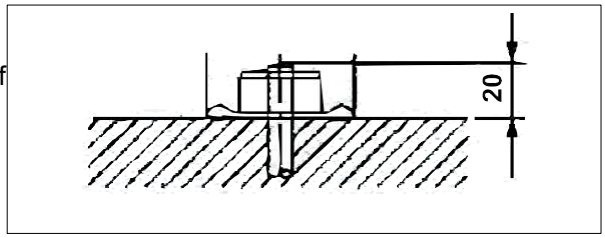
2. It is impossible to connect the indoor unit for one room only.



If there is the danger of the unit falling or overturning, fix the unit with foundation bolts, or with wire or other means.
If the location does not have good drainage, place the unit on a level mounting base(or a plastic pedestal).
Install the outdoor unit in a level position. Failure to do so may result in water leakage or accumulation.

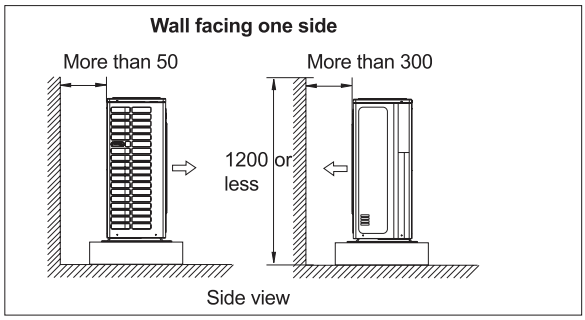
Precautions on Installation

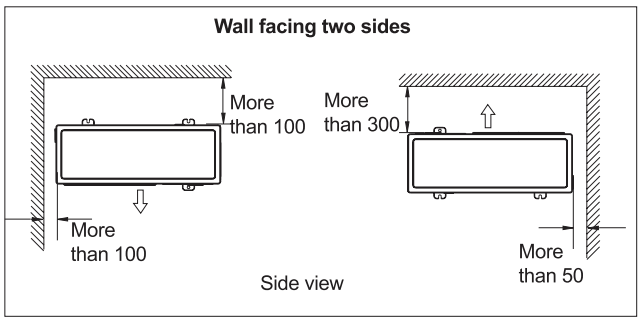
- Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise after installed.
- In accordance with the foundation drawing in fix the unit securely by means of the foundation bolts.(Prepare four sets of M8 or M10 foundation bolts, nuts and washers each which are available on the market.)
- It is best to screw in the foundation bolts until their length are 20mm from the foundation surface.

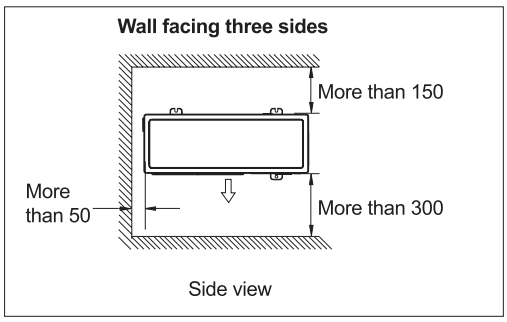


Outdoor Unit Installation Guideline

- Where a wall or other obstacle is in the path of outdoor unit's intake or exhaust airflow, follow the installation guidelines below.
- For any of the below installation patters, the wall height on the exhaust side should be 1200mm or less.







Limitations on the installation

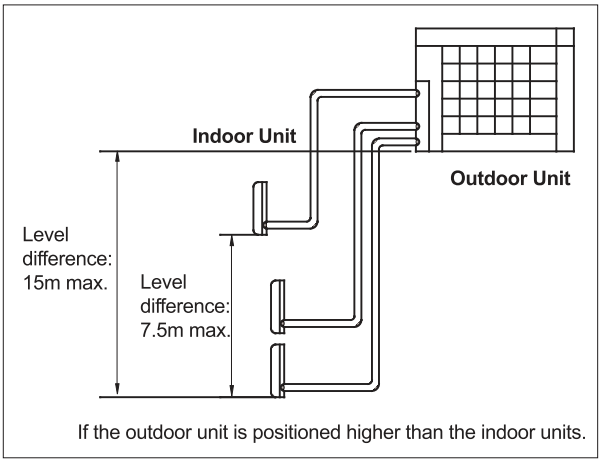
1. Precautions on installation

- Check the strength and level of the installation ground so that unit will not cause any operating vibration or noise after installation. In accordance with the foundation drawing in fix the unit securely by means of the foundation bolts.
- It is best to screw in the foundation bolts unit their length are 20 mm from the foundation surface.

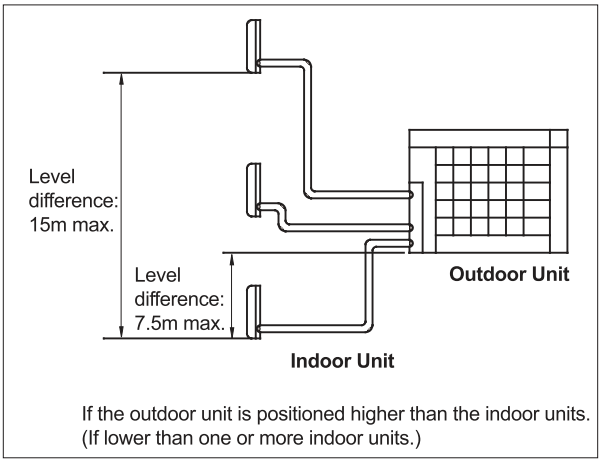
2. Selecting a location for installation of the indoor units

- The maximum allowable length of refrigerant piping, and the maximum allowable height difference between the outdoor and indoor units, are listed below. (The shorter the refrigerant piping, the better the performance. Connect so that the piping is as short as possible. Shortest allowable length per room is 3m)

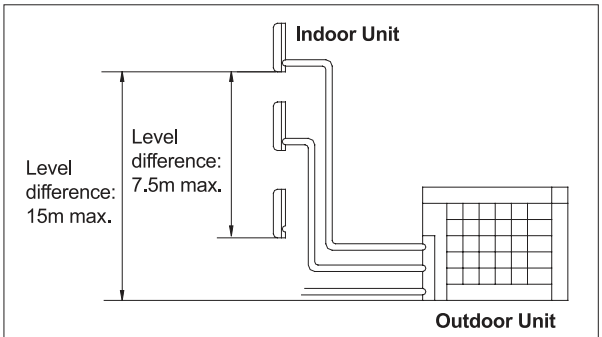
Outdoor unit capacity class	3U19FS1ERA(N)	3U24GS1ERA(N)	4U26HS1ERA 4U30HS1ERA	5U34HS1ERA	5U45LS1ERA
Piping to each indoor unit	25m max.	25m max.	25m max.	25m max.	25m max.
Total length of piping between all units	50m max.	60m max.	70m max.	80m max.	100m max.



If the outdoor unit is positioned higher than the indoor units.



If the outdoor unit is positioned higher than the indoor units.
(If lower than one or more indoor units.)



If the Indoor unit is positioned higher than the outdoor units.

Refrigerant piping work

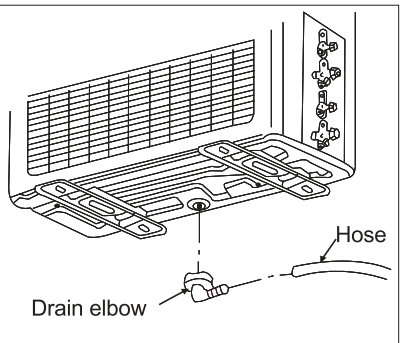
1. Installing outdoor unit

1) When installing the outdoor unit, refer to "Precautions for Selecting the Location" and the "Indoor/Outdoor Unit Installation Drawings".
2) If drain work is necessary, follow the procedures below.

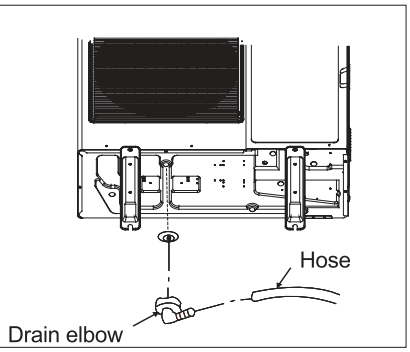
2. Drain work

1) Use drain plug for drainage.
2) If the drain port is covered by a mounting base or floor surface, place additional foot bases of at least 30mm in height under the outdoor unit's feet.
3) In cold areas, do not use a drain hose with the outdoor unit.(Otherwise, drain water may freeze, impairing heating performance.)

3U19FS1ERA
3U24GS1ERA



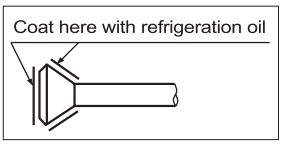
4U26HS1ERA
4U30HS1ERA
5U34HS1ERA
5U45LS1ERA

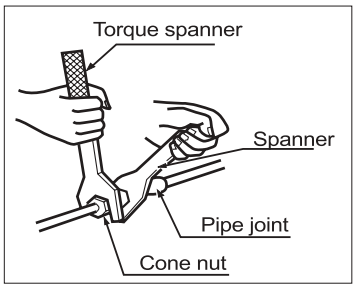


3. Refrigerant piping work

1). Align the centers of both flares and tighten the flare nuts 3 or 4 turns by hand. Then tighten them fully with the tor wrenches. Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and escaping gas.

Flare nut fightening torque	
Flare nut for Ø6.35	14.2-17.2N.m (144-175kgf.cm)
Flare nut for Ø9.52	32.7-39.9N.m (333-407kgf.cm)
Flare nut for Ø12.7	49.5-60.3N.m (505-615kgf.cm)
Flare nut for Ø15.88	61.8-75.4N.m (630-769kgf.cm)





Valve cap tightening torque
Liquid pipe 26.5-32.3N.m(270-330kgf.cm)
Gas pipe 48.1-59.7N.m(490-610kgf.cm)

Service port cap tightening torque
10.8-14.7N.m(110-150kgf.cm)

2) To prevent gas leakage, apply refrigeration oil on both inner and outer surfaces of the flare. (Use refrigeration oil for R410A)

4. Purging air and checking gas leakage

When piping work is completed, it is necessary to purge the air and check for gas leakage.

⚠ WARNING

1) Do not mix any substance other than the specified refrigerant (R410A) into the refrigeration cycle.
2) When refrigerant gas leaks occur, ventilate the room as soon and as much as possible.
3) R410A, as well as other refrigerants, should always be recovered and never be released directly into the environment.
4) Use a vacuum pump for R410A exclusively. Using the same vacuum pump for different refrigerents may damage the vacuun pump or the unit.

- If using additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump, then charge additional refrigerant.
- Use a hexagonal wrench (4mm) to operate the stop valve rod.
- All refrigerant pipe joints should be tightened with a torque wrench at the specified tightening torque.

Connect projection side of charging hose(Which comes from gauge manifold) to gas stop valve's service port.

⇩

Fully open gauge manifold's low-pressure valve(Lo) and completely close its high-pressure valve(Hi).
(High-pressure valve subsequently requires no operation.)

⇩

Apply vacuum pumping. Check that the compound pressure gauge reads-0.1MPa(-76cmHg).
Evacuation for at lease 1 hour is recommended.

⇩

Close gauge manifold's low-pressure valve(Lo) and stop vacuum pump.
(Leave as is for 4-5 minutes and make sure the coupling meter needie does not go back.
If it does go back, this may indicate the presence of moisture or leaking from connecting parts. After inspecting all the connection and loosening then retightening thenuts, reqeat steps 2-4.)

⇩

Remove covers from liquid stop valve and gas stop valve.

⇩

Turn the liquid stop valve's rod 90 degrees counterclockwise with a hexagonal wrench to open valve.
Close it after 5 seconds, and check for gas leakage.
Using soapy water, check for gas leakage from indoor unit's flare and outdoor unit's flare and valve rods.
After the check is complete, wipe all soapy water off.

⇩

Disconnect charging hose from gas stop valve's service port, then fully open liquid and gas stop valves.
(Do not attempt to turn valve rodj beyond its stop.)

⇩

Tighten valve caps and service port caps for the liquid and gas stop valves with a torque wrench at the specified torques. See "3 Refrigerant piping " on page 6 for details.

5. Refilling the refrigerant

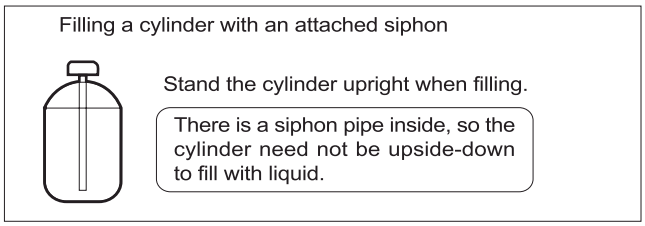
Check the type of refrigerant to be used on the machine nameplate.

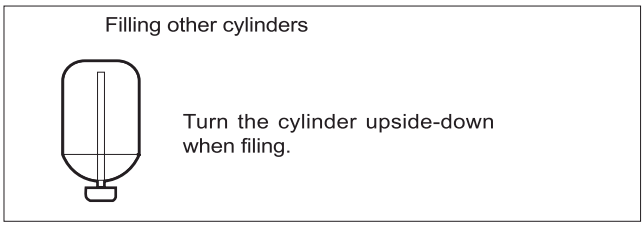
Precautions when adding R410A

Fill from the liquid pipe in liquid form.

It is a mixed refrigerant, so adding it in gas form may cause the refrigerant composition to change, preventing normal operation.

1) Before filling, check whether the cylinder has a siphon attached or not.(It should have something like "liquid filling siphon attached" displayed on it.)





2) Be sure to use the R410A tools to ensure pressure and to prevent foreign objects entering.

6. Charging with refrigerant

1) This system must use refrigerant R410A.
2) Add refrigerant 20g per meter when the total piping length exceeds the standard value, but make sure that the total liquid piping length should be less than the max. value. 5U45LS1ERA charge 28g/m refrigerant for extra pipe length

Outdoor unit	Standard total liquid piping length	Max. total liquid piping lenght
3U19FS1ERA(N)	30m	50m
3U24GS1ERA(N)	30m	60m
4U26HS1ERA 4U30HS1ERA	40m	70m
5U34HS1ERA	40m	80m
5U45LS1ERA	40m	100m

Notes:

1) When using this product, you need not to set the address. But the L/N wires between indoor & outdoor units must be corresponded, or there will be communication failure.

2) Quiet operation setting. Set the DIP "8" to ON position of SW5, the system will run with lower noise, but the max. capacity will also reduce slightly.

3) Do not change the settings of other switches, wrong settings can make the system damage or other malfunctions.

7. Precautions for Laying Refrigerant

■ **Piping cautions on pipe handling**

1) Protect the open end of the pipe against dust and moisture.
2) All pipe bends should be as gentle as possible. Use a pipe bender for bending.(Bending radius should be 30 to 40mm or larger.)

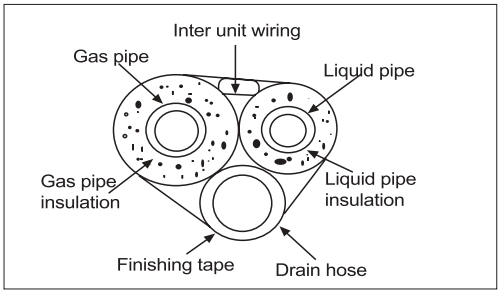
■ Selection of copper and heat insulation materials

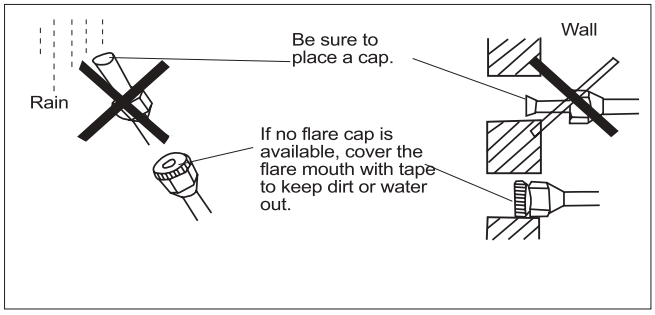
When using commercial copper pipes and fittings, observe the following :

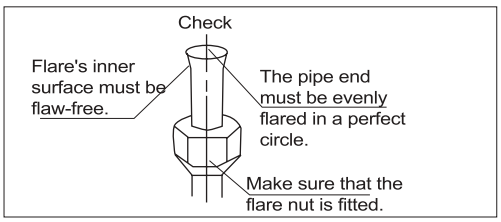
1) Insulation material: Polyethylene foam
Heat transfer rate: 0.041 to 0.052W/mK(0.035to 0.045kcal/mhoC) Refrigerant gas pipe's surface temperature reaches 110oC max. Choose heat insulation materials that will withstand this temperature.
2) Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

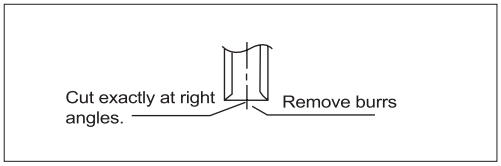
Gas pipe	Gas pipe insulation
O.D.:9.52mm,12.7mm Thickness:0.8mm	I.D.:12-15mm,12.7mm Thickness:13mm min.
Liquid pipe	Liquid pipe insulation
O.D.:6.35mm Thickness:0.8mm	I.D.:18-10mm Thickness:10mm min.

3) Use separate thermal insulation pipes for gas and liquid refrigerant pipe

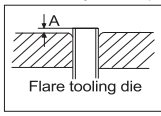








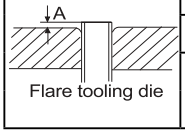
Set exactly at the position shown below.



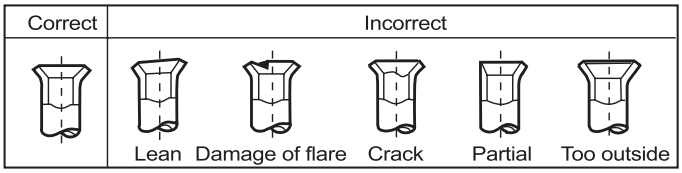
	Flare tool for R410A	Conventional flare tool	
	Clutch-type	Clutch-type(Rigid-type)	Wing-nuttype(Imperial-type)
	0-0.5mm	1.0-1.5mm	1.5-2.0mm

8. Cutting and Flaring work of piping

- Pipe cutting is carried out with a pipe cutter and burs must be removed.
- After inserting the flare nut, flaring work is carried out.

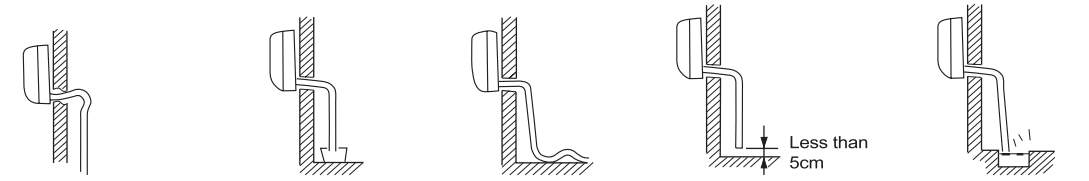


Pipe	Pipe diameter	Size A (mm)
Liquid side	6.35mm(1/4")	0.8~1.5
Gas side	9.52mm(3/8")	1.0~1.5
	12.7mm(1/2")	1.0~1.5



9. On drainage

- Please install the drain hose so as to be downward slope without fail. Please don't do the drainage as shown below.



- Please pour water in the drain pan of the indoor unit, and confirm that drainage is carried out serely to outdoor.
- In case that the attached drain hose is in a room, please apply heat insulation to it without fail.

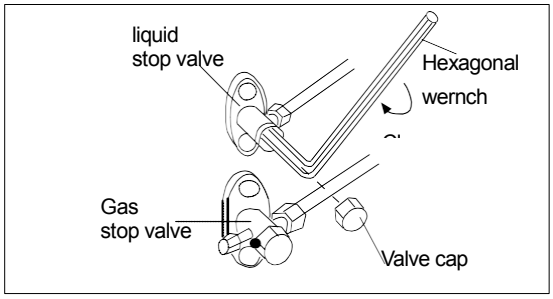
⚠ WARNING

1) Do not use mineral oil on flared part.
2) Prevent mineral oil from getting into the system as this would educe the lifetime of the units.
3) Never use piping which has been used for previous installations. Only use parts which are delivered with the unit.
4) Do never install a drier to this R410A unit in order to guarantee its lifetime.
5) The drying material may dissolve and damage the system.
6) Incom;ete flaring may cause refrigerant gas leakage.

Pump Down Operation

In order to protect the environment, be sure to pump down when relocating or disposing of the unit.

1) Remove the valve caps from liquid stop valve and gas stop valve.
2) Carry out forced cooling operation.
3) After five to ten minutes, close the liquid stop valve with a hexagonal wrench.
4) After two to three minutes, close the gas stop valve and stop forced cooling operation.



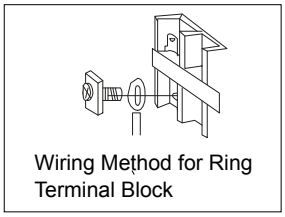
Wiring work

1. Electric wiring

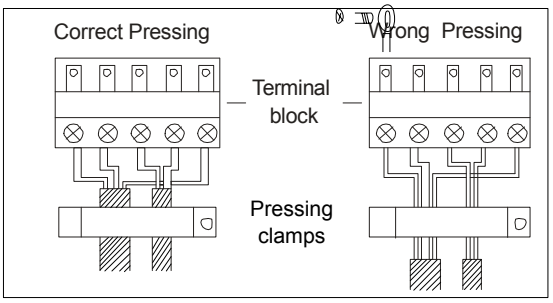
- The air conditioner must use special circuit , and wiring by the qualified electrician according to the wiring rules specified in national standard.
- The grounding wire and the neutral wire shall be strictly separated. Connect the neutral wire with grounding wire is incorrect. The electric leakage breaker must be installed.
- All the electric wire must be copper wire.Power supply: 1PH, 220-230V~, 50Hz.
- The wiring method of power line is Y connection. If the power line is damaged, in order to avoid risk of electric shock, it must be replaced by the manufacturer or its repair center or other similar qualified person.The connecting cable must be shielded.
  Fuse: T3.15A 250VAC(Electronic control unit) T25A 250VAC(Power circuit board). Please check the circuit diagram about the fuse replaced.

2. Wiring method

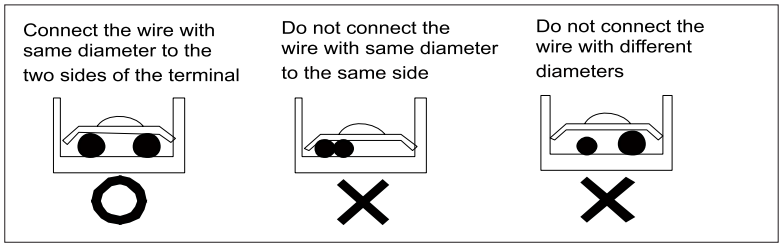
- Wiring method of orbicular terminals
  For the connection wire with orbicular terminals, its wiring method is as shown in the right figure: remove the connecting screw, put the screw through the ring on the end of the wire, then connect to the terminal block and fasten screw.
  Wiring method of straight terminals.



- For the connection wire without orbicular terminals, its wiring method is: loosen the connection screw, and insert the end of the connection wire completely into the Terminal block, then fasten the screw.
  Slightly pull the wire outwards to confirm it is firmly held.



- Crimp connection method for wires without terminals



- Crimp connection method for connection wire
  After connection,the wire must be fastened by wire cover. The wire cover shall press on the protection coat of the connection wire,as shown in right top figure.

Note:

When connecting the wiring,confirm the terminal number of indoor and outdoor units carefully. Incorrect wiring will damage the controller of air conditioner or the unit can not operate.

3. Wiring method of outdoor unit:

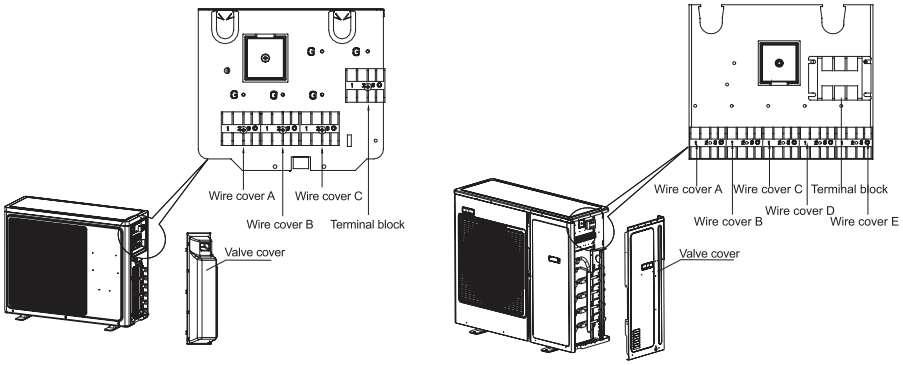
- Power line

  Remove the repair board of the outdoor unit and loosen the wire cover A,then put the live wire, neutral wire and grounding wire through the wire cover ,and connect them to terminal block correspondingly. After connection, fasten wire cover to its previous state.
- Communication wire of indoor unit.

  Loosen wire cover , put the communication wire through the wire cover B, and connect them to terminal block correspondingly. After connection, fasten wire cover B to its previous state.

Note:

Power line and communication wire are provided by consumers themselves.



4. Wiring method of indoor unit

Loosen wire cover and connect the power line and communication wire of indoor unit to the terminal correspondingly.

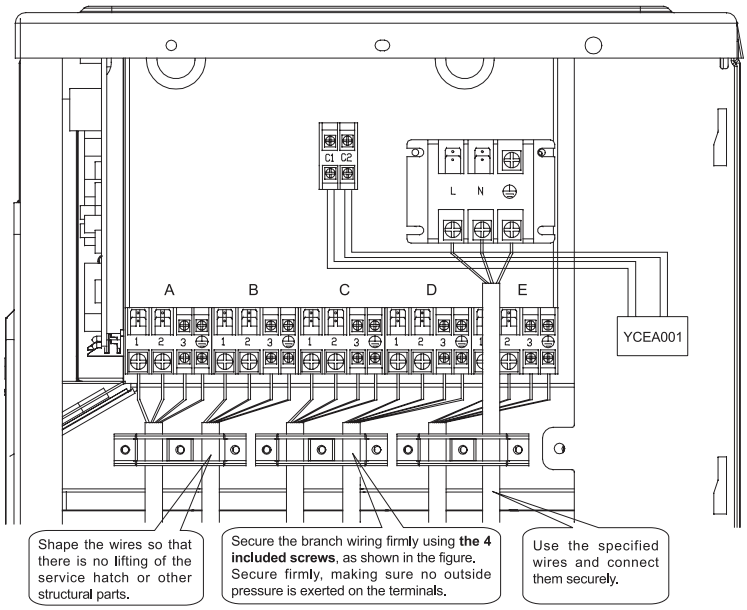
Note:

When connecting power line to power supply terminal, please pay attention to the following items:

- Do not connect the power line with different dimensions to the same connection wire end. Improper contact will cause heat generation.
- Do not connect the power line with different dimensions to the same grounding wire end. Improper contact will affect protection.
- Do not connect the power line to the connecting end of communication wire. Incorrect connection will cause damage to the connected unit.

5. Example wiring diagram.

Wiring diagram please refers to 5U34HS1ERA



Test running

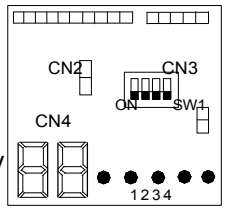
■ Before starting the test running, please confirm the following works have been done successfully.
1) Correct piping work;
2) Correct wiring work;
3) Correct match of indoor and outdoor unit;
4) Proper recharge of refrigerant if needed. Make sure that all the stop valves are fully open.

■ Check the voltage supplied to the outdoor and indoor units, please cinfirm that is 230V.

■ Wiring Error Check

This product is capable of automatic checking of wiring error.

Switch on all the 4 dip-switches on the outdoor unit small service PC-board as shown on the right. Then power off the unit and power on again, the system will enter the operation of "Wiring Error Check". After 3 minutes stand-by, the unit starts for automatic wiring checking.



Approximately 30 ~ 50minutes (depends on how many units installed in the system) after the unit starts, the Errors of the wiring will be shown by the LEDs (1 to 5).

During this operation, the digital-number will alternately show the compressor working frequency (e.g. 50 stands for the current running frequency) and letter "CH"(means checking).

After this operation, if all the wiring is correct, the digital-number will show "0", if there has wrong wiring, the digital-number will show "EC"(error connection) and also it will flashing.

The service monitor LEDs indicate the error of wiring, as shown in the table below. For details about how to read the LED display, refer to the service manual.

If self-checking is not possible, check the indoor unit wiring and piping in the usual manner.

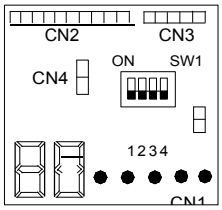
LED	1	2	3	4	5	Message
Status	OFF					Unit not connected
	All flashing					Automatlc checking impossible all unit connect wrong
	All on					All units connect correctly
	On	Flashing	Flashing	On	Flashing	ON: unit connect correctly Flashing: unit connect wrong need to change the wiring manually between 2,3 and 5
	On	Flashing	Flashing	On	On	ON: unit connect correctly Flashing: unit connect wrong need to change the wiring manually between 2,3
	Only one LED flashing					Abnormal

■ Test running.

1) If the temperature is lower than 16 OC, it is impossible to test cooling with remote controller, and also when the temperature is higher than 30 OC, it is impossible to test heating.
2) To test cooling, set the lowest temperature at 16 OC. To test heating,set the highest temperature, at 30 OC.
3) Please check both cooling and heating operation of each unit individually and then also check the simultaneous operation of all indoor units.
4) After ruuning the unit for about 20 minutes, check the indoor unit outlet temperature.
5) After the unit is stopped, or working mode changed, the system will not start again for about 3 minutes.
6) During cooling operation, frost may ocur on the indoor unit or pipes, this is normal.
7) Operate the unit according to the operation manual. Please kindly explain to our customers how to operate through the instruction manual.

■ Seven-segment numeric display

1) When unit is running, this seven-segment numeric will display the frequency of compressor. For example,"40" means compressor running frequency is 40 Hz, "108" means compressor running frequency is 108Hz.
2) When faulty happens, seven-segment numeric will flash and display some numbers, this number is failure code. For example, a flashing "32" means No.32 failure, that is indoor and outdoor communiaction error.



■ Communication LED

5 green LED means 5 indoor units. If one LED keep lighting that means the corresponding indoor unit has good communication with outdoor unit. If one LED is not lighting, that means there is no communication between indoor and outdoor.

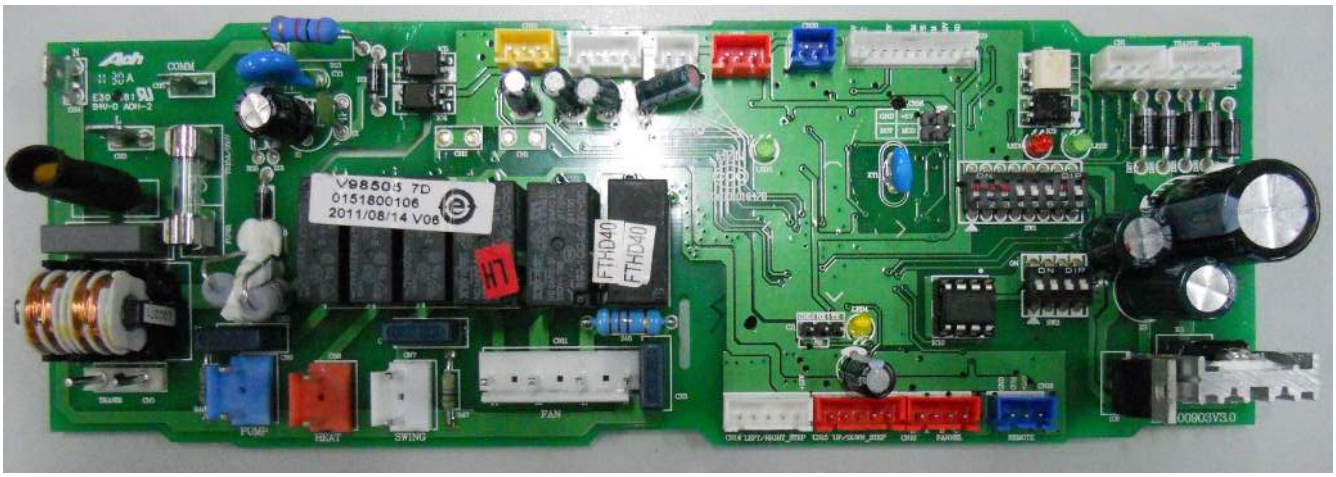
Part 4 Electric Control and Debugging

1. Indoor unit PCB 340
2. Indoor unit dip switch setting and function.....342
3. Outdoor unit PCB photo, dip switch setting and function 349
4. Diagnostic code 375
5. Trouble shooting 392
6. Controller function 410

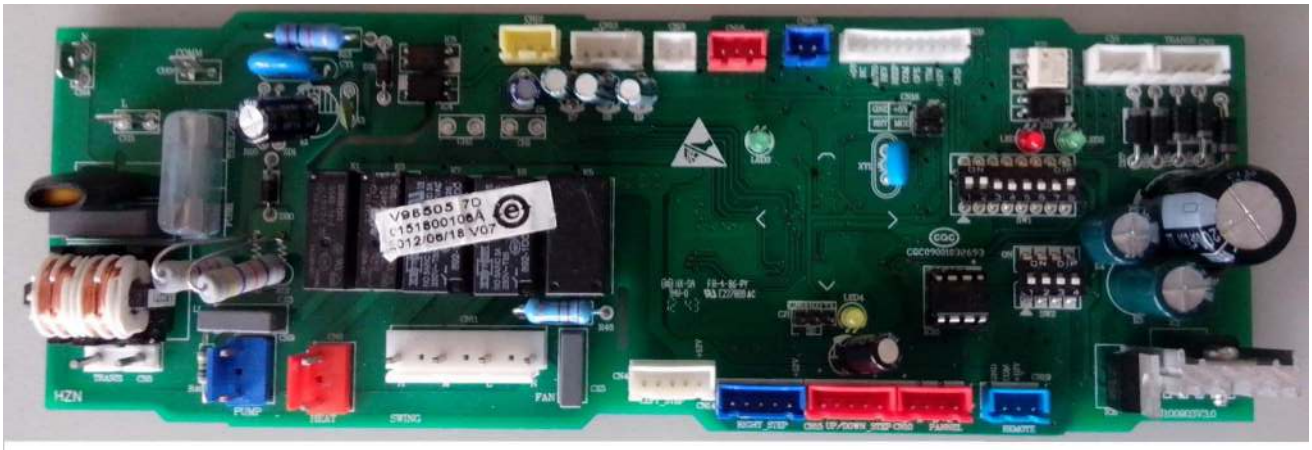
1. Indoor unit PCB

PCB(0151800106)

AD09/12/18/24LS1ERA AD24MS1ERA AD24MS1ERA(D) AD28/36/48NS1ERA(S)
AD48/60HS1ERA(S)
AB09CS1ERA AB12/18CS1ERA(S) AB24/28/36/48ES1ERA(S) AB60CS1ERA(S) AB60ES2ERA(S)
AC12/18/24CS1ERA(S) AC28/36ES1ERA(S) AC48/60FS1ERA(S) AC60FS1ERA(S)
AP48KS1ERA(S) AP60KS1ERA(S)

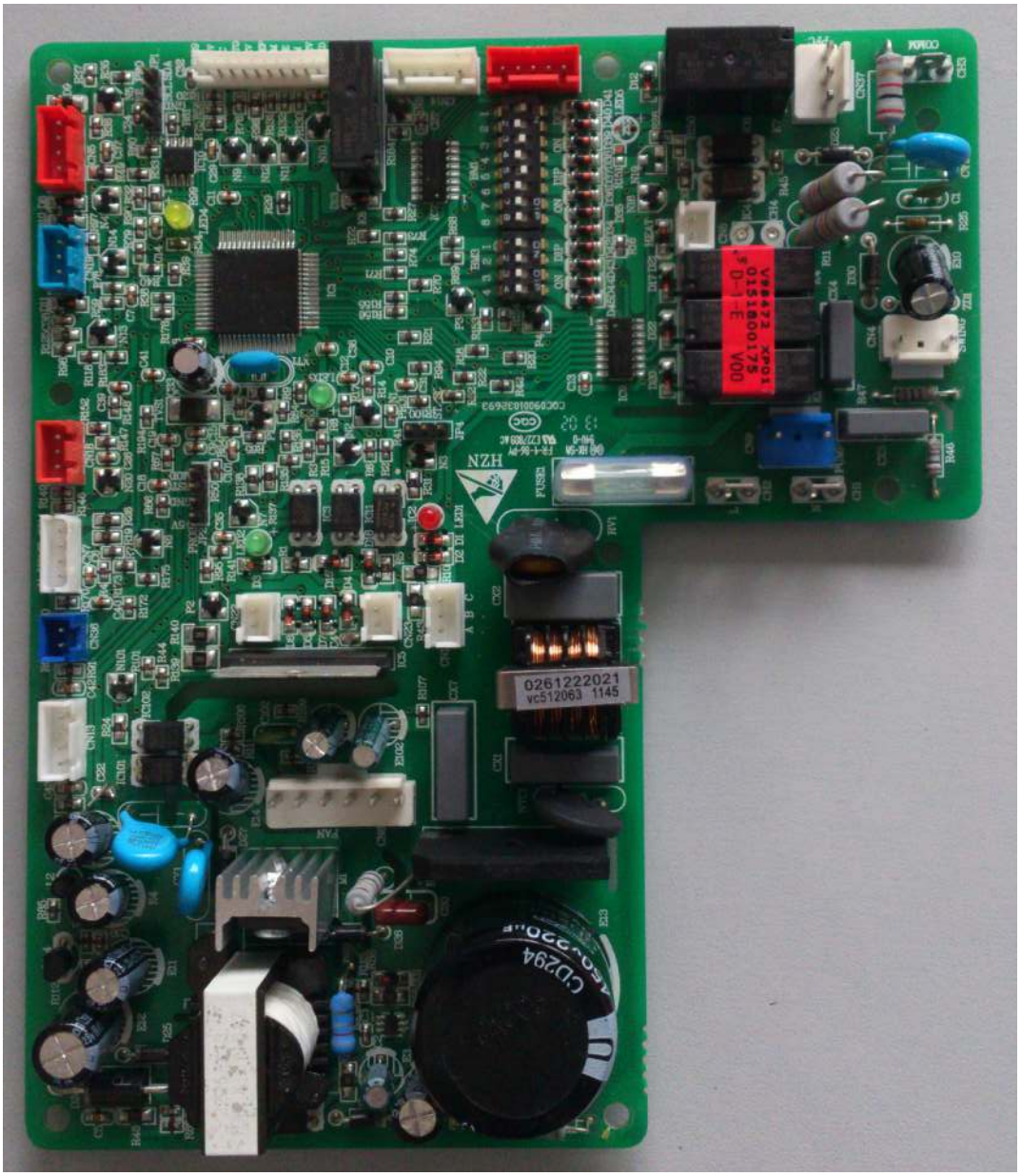


PCB(0151800106A)
AP48DS1ERA(S)



PCB(0151800175B)

AD09~24SS1ERA AD09~24SS1ERA(N)(P) AD09~24SS1ERA(N) AD12MS1ERA AD18MS1ERA AD12MS1ERA(D) AD18MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) AD28MS2ERA(S) AD28MS2ERA(S)(D)



2. Indoor unit dip switch setting and function

2.1 Indoor unit dip switch setting

AD24MS1ERA AD28/36/48NS1ERA(S) AD48/60HS1ERA(S) AB09/12/18CS1ERA(S) AB24/28/36/48ES1ERA(S) AB60CS1ERA(S) AB60ES2ERA(S) AP48/60KS1ERA(S) AC12/18/24CS1ERA(S) AC28/36ES1ERA(S) AC48/60FS1ERA(S) AD09LS1ERA AD12LS1ERA AD18LS1ERA AD24LS1ERA AD24MS1ERA(D)
(1: ON 0: OFF)

SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	Description
1	0	0	---	---	---	---	---	09K indoor unit
0	1	0	---	---	---	---	---	12K indoor unit
0	0	1	---	---	---	---	---	18K indoor unit
1	0	1	---	---	---	---	---	24K indoor unit
0	1	1	---	---	---	---	---	28K indoor unit
1	1	1	---	---	---	---	---	36K indoor unit
1	1	0	---	---	---	---	---	48K indoor unit
1	1	0	---	---	---	---	---	60K indoor unit
---	---	---	0	---	---	---	---	Room card unavailable(default)
---	---	---	1	---	---	---	---	Room card available
---	---	---	---	0	---	---	---	heat pump(default)
---	---	---	---	1	---	---	---	cooling only
---	---	---	---	---	0	---	---	Tempetature compensation unavailable (Duct/Cabient type are default)
---	---	---	---	---	1	---	---	Tempetature compensation available(Cassette/Convertible type are default)
---	---	---	---	---	---	0	0	Cassette
---	---	---	---	---	---	0	1	Cabinet
---	---	---	---	---	---	1	0	Duct
---	---	---	---	---	---	1	1	Convertible

AD09~24SS1ERA AD09~24SS1ERA(N)(P) AD09~24SS1ERA(N) AD12MS1ERA AD18MS1ERA AD12MS1ERA(D) AD18MS1ERA(D) AD24MS2ERA AD24MS2ERA(D)

SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	Description
1	0	0	---	---	---	---	---	09K indoor unit
0	1	0	---	---	---	---	---	12K indoor unit
0	0	1	---	---	---	---	---	18K indoor unit
1	0	1	---	---	---	---	---	24K indoor unit
0	1	1	---	---	---	---	---	28K indoor unit
---	---	---	0	0	---	---	---	Static pressure: 1st
---	---	---	0	1	---	---	---	Static pressure: 2nd
---	---	---	1	0	---	---	---	Static pressure: 3rd
---	---	---	1	1	---	---	---	Static pressure: 4th
---	---	---	---	---	1	---	---	Room card available
---	---	---	---	---	0	---	---	Room card unavailable(default)
---	---	---	---	---	---	1	1	Slim duct（AD**SS1ERA)
---	---	---	---	---	---	1	0	Med ESP duct(AD*NS orAD*MS)

Note:

Static pressure value for AD09~24SS1ERA,AD09~24SS1ERA(N),AD09~24SS1ERA(N)(P), AD12/18/MS1ERA and AD12/18/MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) (selection by SW1-4 SW1-5)

Static pressure(Pa)	1st	2nd	3rd	4th
AD**SS1ERA	0	10	20	30
AD**SS1ERA(N)	0	10	20	30
AD**SS1ERA(N)(P)	0	10	20	30
AD12MS1ERA AD18MS1ERA AD12MS1ERA(D) AD18MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) AD28MS2ERA(S) AD28MS2ERA(S)	10	30	50	70
	10	30	50	70
	10	30	50	70
	10	30	50	70
	10	30	50	70
	10	30	50	70

AD48NS1ERA(S) AP48DS1ERA(S)

SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	Description
1	1	0	---	---	---	---	---	48K indoor unit
1	1	0	---	---	---	---	---	48K indoor unit
---	---	---	0	---	---	---	---	Room card unavailable(default)
---	---	---	1	---	---	---	---	Room card available
---	---	---	---	0	---	---	---	heating pump（default）
---	---	---	---	1	---	---	---	cooling only
---	---	---	---	---	0	1	0	AD48NS1ERA
---	---	---	---	---	0	0	1	AP48DS1ERA

Wiring controller communication address: for PCB 0151800106 and 0151800106A,the dip switch is SW2,; for 0151800175B , the dip switch is SW3.:

Wiring controller address	SW2-1	SW2-2	SW2-3	SW2--4
Master unit	0	0	0	0
Slave unit 1	1	0	0	0
Slave unit 2	0	1	0	0
Slave unit 3	1	1	0	0
-----	-----	-----	-----	-----
Slave unit 15	1	1	1	1

In single split system, when the wired controller control more than 1 units, please set the indoor unit address by adjusting the PCB DIP switch SW2 as above.In MAXI split system, no need to set the indoor unit address, just keep the factory setting（SW2 :OFF/OFF/OFF/OF).

2.2 Indoor unit function

2.2.1 Sign definition

Indoor					outdoor				
Tai	Tc1	Tc2	Tm	Tao	Toci	Tc	Te	Ts	Td
Ambient temp	Outlet pipe temp.	Inlet pipe temp	Mid coil temp	Ambient temp	Thick pipe of heat exchanger	Mid condenser temp.	Defrost temp	Compressor suction temp.	Compressor discharging temp.
Tcomp1,2			Tset						
Temp. compensation			Set temp.						

2.2.2 Dry operation

Tai $<$ 16°C, indoor unit stops running and sends stop-unit signal to outdoor.

Tai≤Tset, indoor motor runs at low speed and sends stop-unit signal to outdoor

2.2.3 Fan operation

Indoor fan motor will run as the fan speed set on the remote controller or the wired controller and indoor unit will send the stop-unit signal to outdoor.

2.2.4 Auto operation

A: If the unit enters Auto mode for the first time, the system will adjust the operation mode according to the room temp. and the set temp.

When Tai≥Tset, entering auto cooling mode;

When Tai $<$ Tset, entering auto heating mode.

B: Auto cooling mode is as the same as the cooling mode. After the thermostat is OFF for 15 minutes, if Tai+ 1+Tcomp2 $<$ Tset, the unit will enter auto heating mode, or the unit will still stay at auto cooling mode and stop when it reaches the set temperature; while the indoor motor will be at low speed.

C: Auto heating mode is as the same as the heating mode. After the thermostat is OFF for 15 minutes, if Tai≥Tset+1 +Tcomp1, the unit will enter auto cooling mode, or the unit will still stay at auto heating mode;

D: In this mode, the Sleep function is available, run as cooling sleep in cooling mode and as heating sleep in heating mode. Once sleep mode is set, the mode will not change after the unit stops for 15 minutes when it arrives Tset.

E: Mode conversion will be confirmed after compressor has stopped for 10 minutes.

2.2.5 Abnormal operation

A: When outdoor modes from the request of indoor unit conflict, the one entering firstly will take priority.

B: After indoor receives the ON command from wired controller, it will firstly confirm the outdoor current operation mode. If they are the same modes, indoor unit will run as the request of remote controller. If they are different modes, the system will forbid to operate, and indoor will keep the OFF mode and send the “standby” signal to wired controller until outdoor stops or outdoor mode the requested mode of wired controller are the same, the unit will run as the requested mode of wired controller.

C: After indoor receives the ON command from remote controller, it will firstly confirm the outdoor current operation mode. If they are the same mode, indoor unit will run as the request of remote controller. If they are different modes, the system will forbid to operate, and indoor will keep the OFF mode. After setting on remote controller, if the buzzer sounds two times, that shows abnormal operation. Indoor will run until the outdoor mode and the requested mode of remote controller are the same.

D: In AUTO mode, when the indoor unit occurs abnormal operation, the indoor unit will keep OFF state, and the buzzer will not sound until the outdoor mode and the requested mode of indoor unit are the same.

F: COOL (included AUTO COOL), DRY, FAN are not abnormal mode.

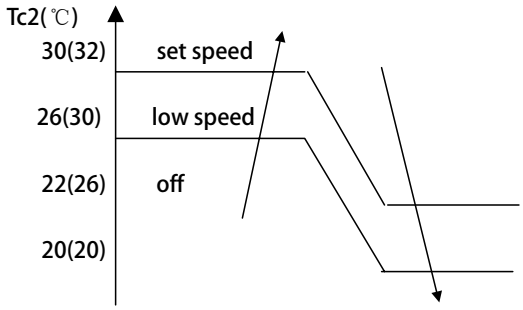
G: HEAT and FAN are not abnormal mode.

2.2.6 Control for discontinuous operation

After the unit starts up in cooling/heating mode, in 5 minutes, the compressor run/stop will not be controlled by the room temp., but after changing the set temp., if compressor stop condition can be met, the system will stop compressor immediately.

2.2.7 Anti-cold air control

In heating mode, after compressor startup, the system will control indoor fan motor according to indoor coil temperature. Detailed operation is as below:



Note:

1) The data in the parentheses is the control point when Tao>10oC;

2) Indoor unit will send “pre-heat” signal to wired controller in anti-cold air period.

2.2.8. Fan motor control in defrosting

A. On receiving outdoor defrosting signal, indoor unit will stop after blowing remaining heat at slow speed for 20 seconds.

B. In defrosting period, indoor fan motor stops running.

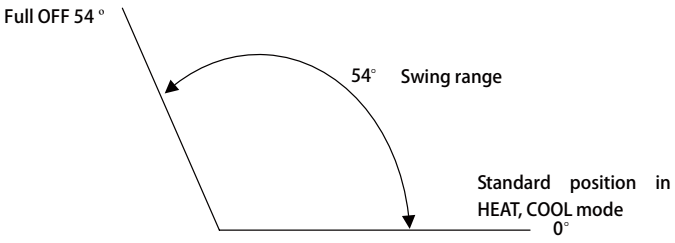
C. Defrosting is over, and indoor motor will run as anti-cold air state.

2.2.9 Blowing remaining heat operation

When the unit shuts off in heating mode or the thermostat is OFF, indoor motor will stop running after running at low speed for 30 seconds.

2.2.10 Swing motor control

Indoor unit will control the swing motor according to the swing signal from the wired controller.



2.2.11 Water pump control

A: Water pump will be electrified when indoor unit enters non-heating mode until indoor unit stops. 5 minutes later after indoor unit stops, water pump will stop.

B: When indoor unit is in heating mode, water pump will not operate.

C: In OFF state and in any mode, once float switch signal is measured, indoor unit will send OFF signal to outdoor and send the failure code of drainage system to the wired controller, then the water pump will work until the float switch signal is cancelled. After water pump is forced to run for 5 minutes, indoor unit will be back to normal state.

2.2.12 Compulsory defrosting operation

A: After indoor receives the compulsory defrosting signal, it will send continously the signal to outdoor for 10 times, in this period, indoor unit will work normally and it will enter defrosting operation until it receives the enter-defrost signal from outdoor unit.

B: Wired control type: In heating mode, make a jumper for D2 to enter compulsory defrosting.

C: Remote control type: In heating mode, high speed, 30°C, press SLEEP button 6 times, and the buzzer will sound 3 times, then enter the manual defrosting.

2.2.13 Trial operation

A: Enter condition

a: Wired control type: In OFF state of COOL or HEAT mode, press ON/OFF button for over 5 seconds to enter the cooling or heating trial operation;

b: Remote control type: In OFF state, keep pressing ON/OFF button until 5 seconds later, the buzzer sounds twice, then enter the cooling or heating trial operation;

B: Response in trial operation

a: Cooling trial operation: indoor sends S-CODE=SD to outdoor, indoor: at high speed, set temp: 16°C;

b: Heating trial operation: indoor sends S-CODE=SF to outdoor, indoor: at high speed, set temp: 30°C;

c: In this period, anti-freezed and overheat functions are invalid.

C: Quit condition

a: Receiving the signal of cancelling trial operation from wired controller or remote controller;

b: After trial operation has run for 20 minutes, it will quit trial operation automatically and enter the normal mode with the set temp.: 24°C.

2.2.14 Timer operation

A: Wired control type: wired controller will control the unit ON/OFF;

B: Remote control type: indoor unit will confirm the unit ON or OFF according to the current clock and the timer clock set by remote controller. When setting timer function, the timer LED will be ON.

2.2.15 SLEEP function

A: Wired control type unit is without sleep function;

B: Remote control type unit consists of cooling sleep and heating sleep, after the sleep is set, the unit will change mode; the sleep will begin to count.

a: In cooling/dry mode, after running for 1 hour, the set temp. will increase 1°C, another 1 hour later, the set temp. will increase 1°C again, then 6 hours (or set time-2) later , it will stop.

b: In heating mode, after running for 1 hour, the set temp. will reduce 2°C, another 1 hour later, the set temp. will reduce 2°C again, then 3 hours later, the set temp. will increase 1°C, and another 3 hours(or set time-5), it will stop.

c: When setting sleep function, indoor motor is forced at low speed.

2.2.16 Healthy negative ion function

When receiving the healthy signal from the wired controller or remote controller, if fan motor is running, the negative ion will work;

If the fan motor stops, the negative ion generator will stop.

2.2.17 Auto-restart function

A: Wired control type:

YR-E14: pls refer to the dip switch setting SW1-6: ON means auto-restart unavailable; OFF(default means available.

YR-E16:if this function is on, the state before power failure will be in the memory; after restoration of power failure, the unit will continue operating in the state as before the power failure. If this function is off, the state will not be memorized; if the unit is energized after power failure, it is in shutdown state; after startup, the default mode is in automatic mode as automatic air 24*. If the auto recovery is set to be on and the sleep function is also set, in case of accidental power failure, the unit is in shutdown state when the power supply is resumed.(please refer to the user manual about the operation method)

B: Remote control type:

YR-HD:

Enter: Send the sleep signal 10 times by the remoter controller in 5 seconds,(the way to send sleep signal :keep pressing the EXTRA FUNCTION button until the clock icon flashing, then press CONFIRM button, then the sleep signal will send out one time.) ,the buzzer will beep 4 times. Then the unit enter in AUTO-RESTART .

Quit: Send the sleep signal 10 times by the remoter controller in 5 seconds , the buzzer will beep 2 times.the way to send sleep signal :keep pressing the EXTRA FUNCTION button until the clock icon flashing, then press CONFIRM button, then the sleep signal will send out one time.

For other model : In 5 seconds, press SLEEP button 10 times continuously, the buzzer will beep 4 times and enter auto-restart function. In 5 seconds, press SLEEP 10 times continuously, the buzzer will beep twice and quit auto-restart functiohC: Memory information: ON/OFF state, mode, fan speed, set temp., health, swing position;

D: If the memory includes timer or sleep function, when being electrified again, timer and sleep will be cancelled;

E: If the memory includes auto mode, when the jumper shows cooling only type, auto mode will change to cooling mode.

2.2.18 Room card function

The unit adopts room card function(220VAC input), which only make ON/OFF control. When it is connected, the unit is ON; when it is disconnected, the unit is OFF, and the other parameters will be as default or the data in memory.

A: When room card function is available

The central control, remote control/wired control and the room card are “AND” logical relationship. On the condition that the room card is connected, the unit can be controlled by remote controller or wired controller; indoor unit will run at the set state by the central controller, remote controller or wired controller; otherwise, if room card is not connected, the unit can not be controlled.

B: When room card function is not available

The unit will be controlled by the remote controller, the wired controller or the central controller.

2.2.19 Setting method of temperature compensation Tcomp

A. Wired control type unit: this function is not available

B. Remote control type unit:

In cooling or heating mode, there is always with the temp. compensation.

In heating mode: In 24°C heating mode, press SLEEP(or SWING) button 7 times continuously within 5 seconds, indoor buzzer sounds twice, that shows temp. compensation works. Switch on the unit in heating mode by the remote controller, press TEMP button to set the set temp., so temperature compensation=the current set temp. - 24°C. For example, if the set temp. is 24°C, the temp. compensation is 0°C; if the set temp. is 25°C, the temp. compensation is 1°C. The max. compensation temp. is 6°C (the set temp. is 30°C). If you want to cancel it, set the temp. as 24°C.

In cooling mode: In 24°C cooling mode, press SLEEP(or SWING) button 7 times continuously within 5 seconds, indoor buzzer sounds twice, that shows temp. compensation works. Switch on the unit in heating mode by the remote controller, press TEMP button to set the set temp., so temperature compensation=24°C-the current set temp. . For example, if the set temp. is 24°C, the temp. compensation is 0°C; if the set temp. is 23°C, the temp. compensation is -1°C. The max. compensation temp. is -8°C (the set temp. is 16°C). If you want to cancel it, set the temp. as 24°C.
So the temp. compensation range is +8°C~-6°C.

2.2.20 Anti-freezed protection

When compressor has run for over 5 minutes, to prevent indoor evaporator freezing (in cooling/dry mode), if indoor mid-coil temp. is below -1 degree for over 5 minutes, indoor EEV will close, and compressor will stop. When indoor mid-coil temp. is over about 10 degree, the unit will be normal.

2.2.21 Overload protection in heating mode

It is valid only in heating mode, if indoor mid-coil temp. is over about 65 degree continuously for 10 seconds, indoor will stop; while when indoor mid-coil temp. is below 52 degree for 3 seconds, indoor will resume.

3. Outdoor unit PCB photo, dip switch setting and function

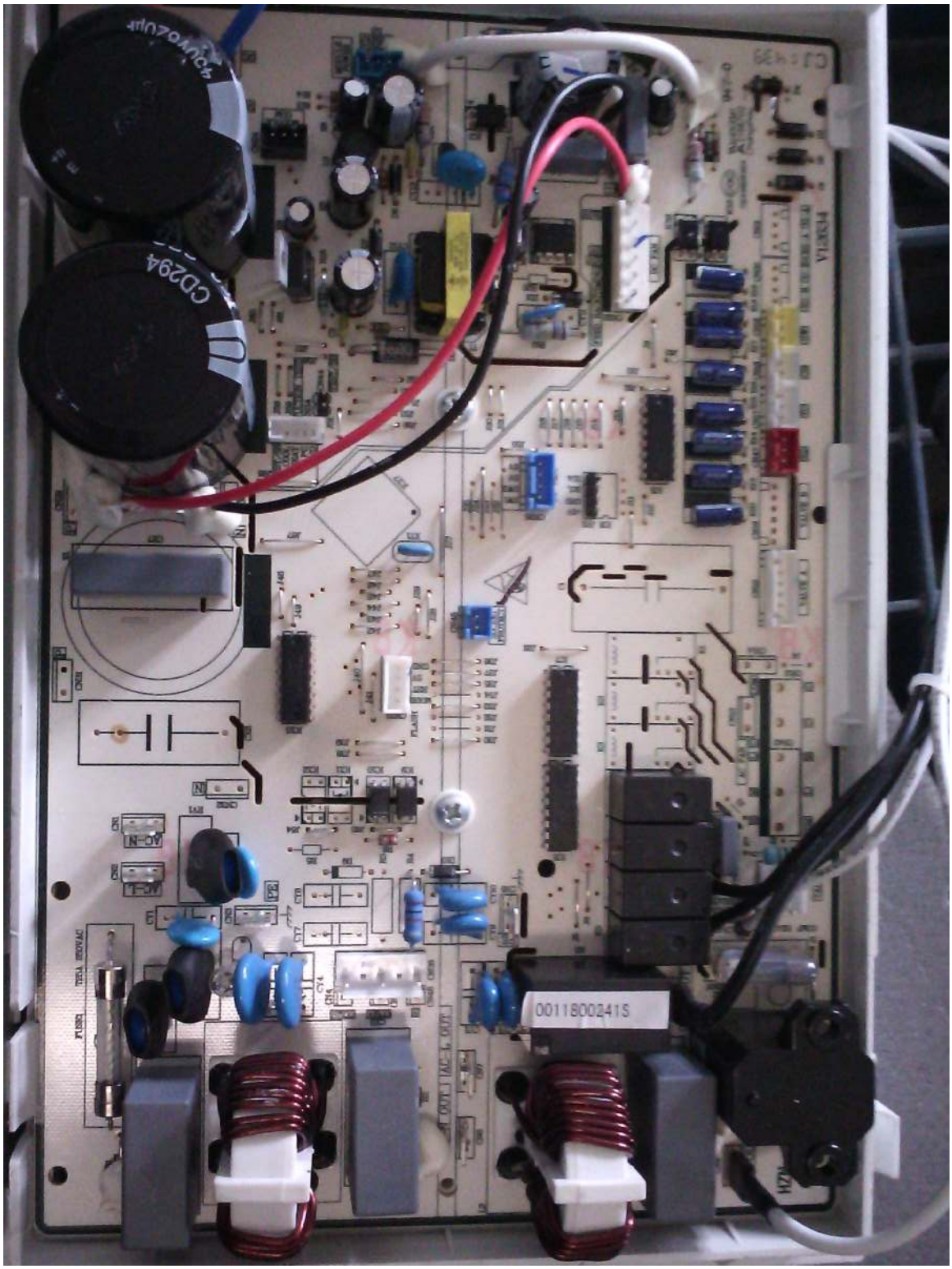
3.1 Outdoor unit PCB photo and dip swith setting

Model	PCB	Power module	Filter board
1U24GS1ERA	0011800241C	0011800258G	/
1U28HS1ERA(S)	0151800054A	0150400908	0150400699
1U28GS2ERA(S)	0011800241S	0011800258H	/
1U36HS1ERA(S)	0151800054A	0150400908	0150400699
1U48LS1ERA(S)	0151800054A	0150400644A	0150400567
1U48LS1ERB(S)	0151800054A	0150400939	0010452726
1U48IS1ERB(S) 1U60IS2ERB(S)	0151800054A	0150400939	0010452726
1U60IS1ERB(S)	0151800054A	0150400939	0010452726
1U48LS1EAB(S)	0151800129A	/	/
1U48IS1EAB(S) 1U60IS2EAB(S)	0151800129A	/	/
1U60IS1EAB(S)	0151800129A	/	/
3U19FS1ERA	0151800075 0151800076	0150400643	0150400660
3U24GS1ERA	0151800075 0151800076	0150400643	0150400699
4U26HS1ERA	0151800075 0151800076	0150400908	0150400699
4U30HS1ERA	0151800075 0151800076	0150400908	0150400699
5U34HS1ERA	0151800075 0151800076	0150400908	0150400699
5U45LS1ERA	0151800075 0151800076	0151800105	0150400567
3U19FS1ERA(N)	0151800075 0151800076	0150400643B	0150400699
3U24GS1ERA(N)	0151800075 0151800076	0150400643A	0150400699

PCB(0011800241C) 1U24GS1ERA

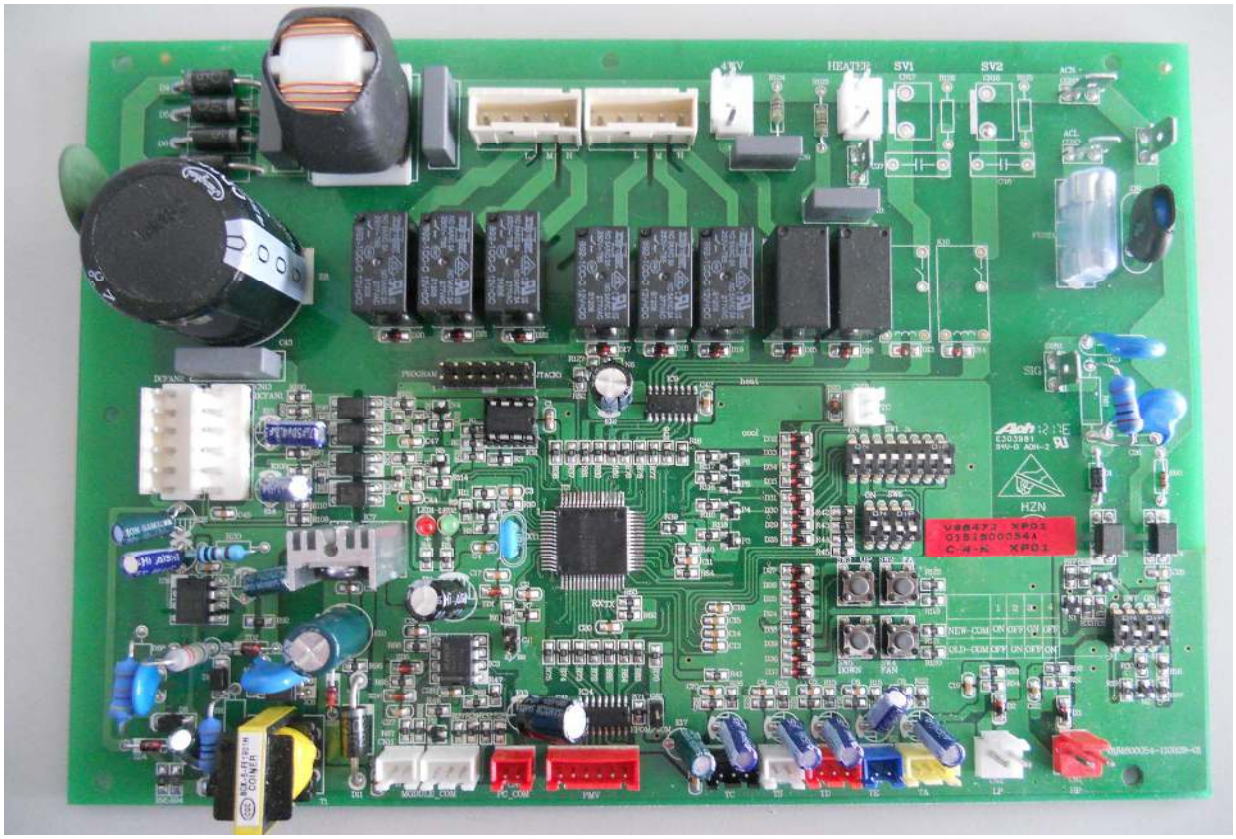


PCB(0011800241S) 1U28GS2ERA(S) 1U28GS2ERA(S)(D)

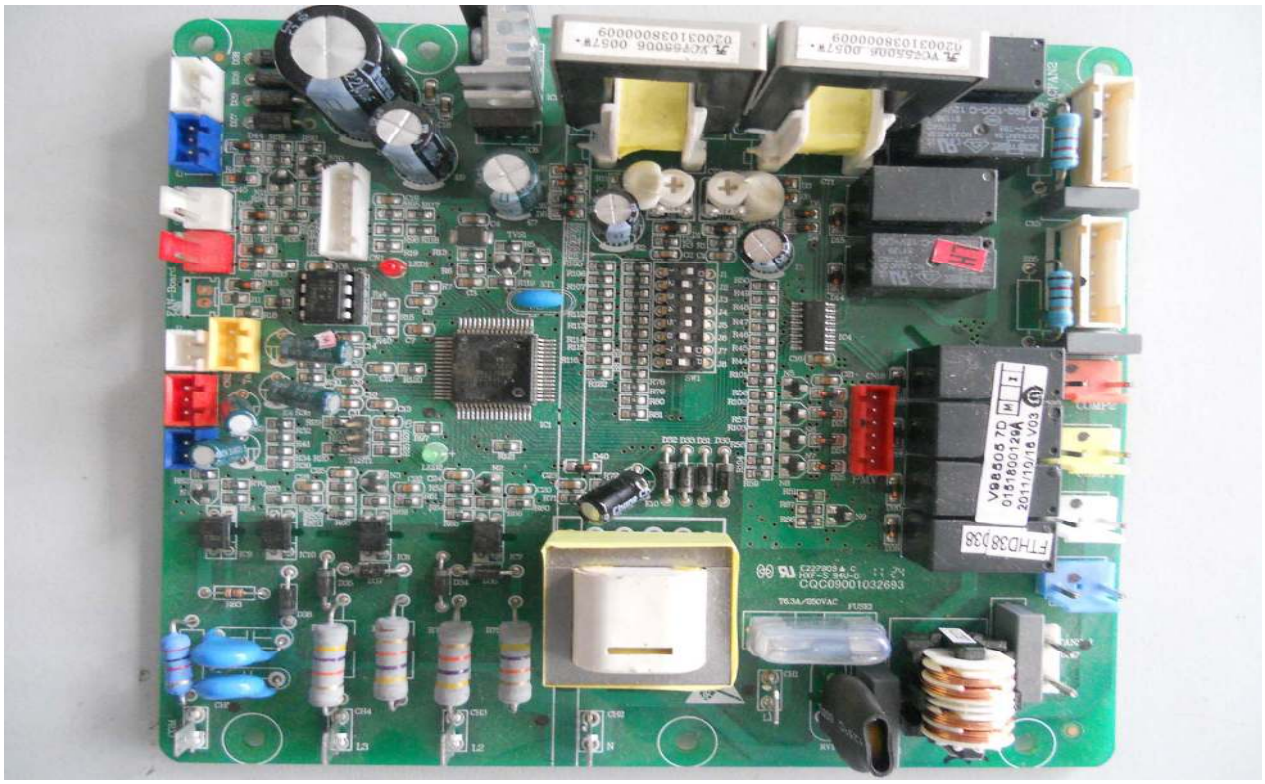


PCB(0151800054A)

1U28HS1ERA(S) 1U36HS1ERA(S) 1U48LS1ERA(S) 1U48LS1ERB(S) 1U48IS1ERB(S) 1U60IS1ERB(S) 1U60IS2ERB(S)

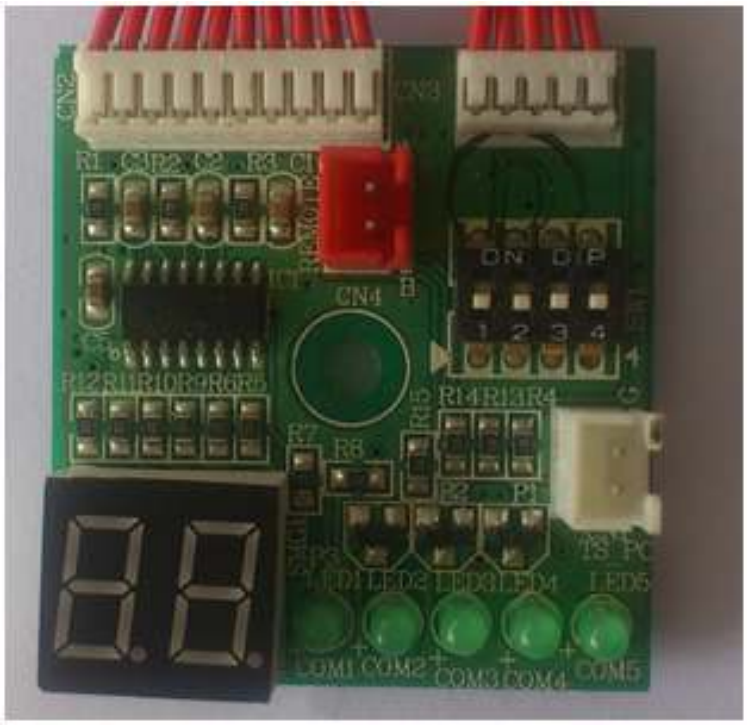


PCB(0151800129A) 1U48LS1EAB(S) 1U48IS1EAB(S) 1U60IS1EAB(S) 1U60IS2EAB(S)



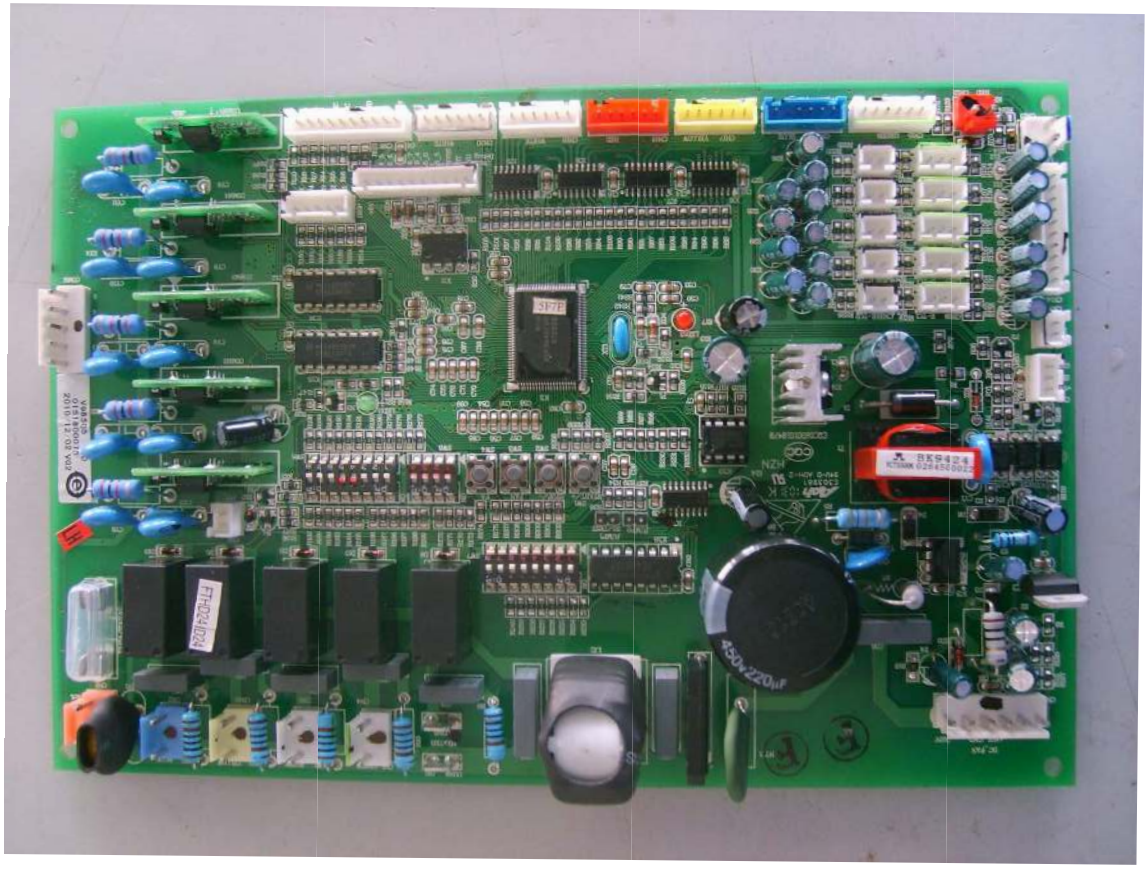
PCB(0151800076)

3U19FS1ERA 3U24GS1ERA 4U26HS1ERA 4U30HS1ERA 5U34HS1ERA 5U45LS1ERA
3U19FS1ERA(N) 3U24GS1ERA(N)

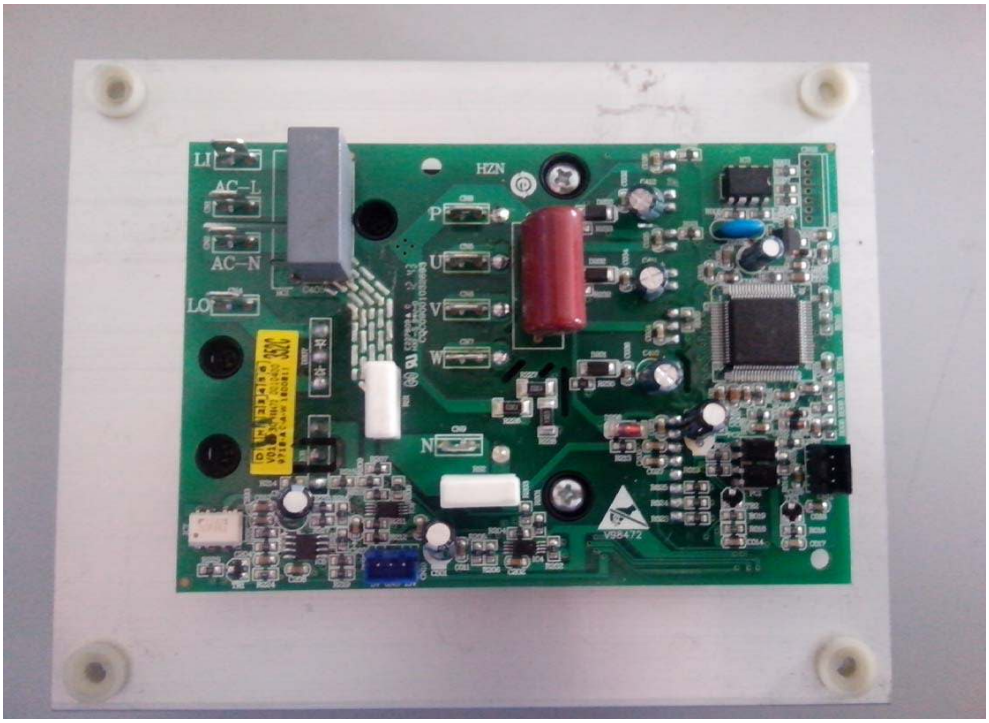


PCB (0151800075)

3U19FS1ERA 3U24GS1ERA 4U26HS1ERA 4U30HS1ERA 5U34HS1ERA 5U45LS1ERA
3U19FS1ERA(N) 3U24GS1ERA(N)

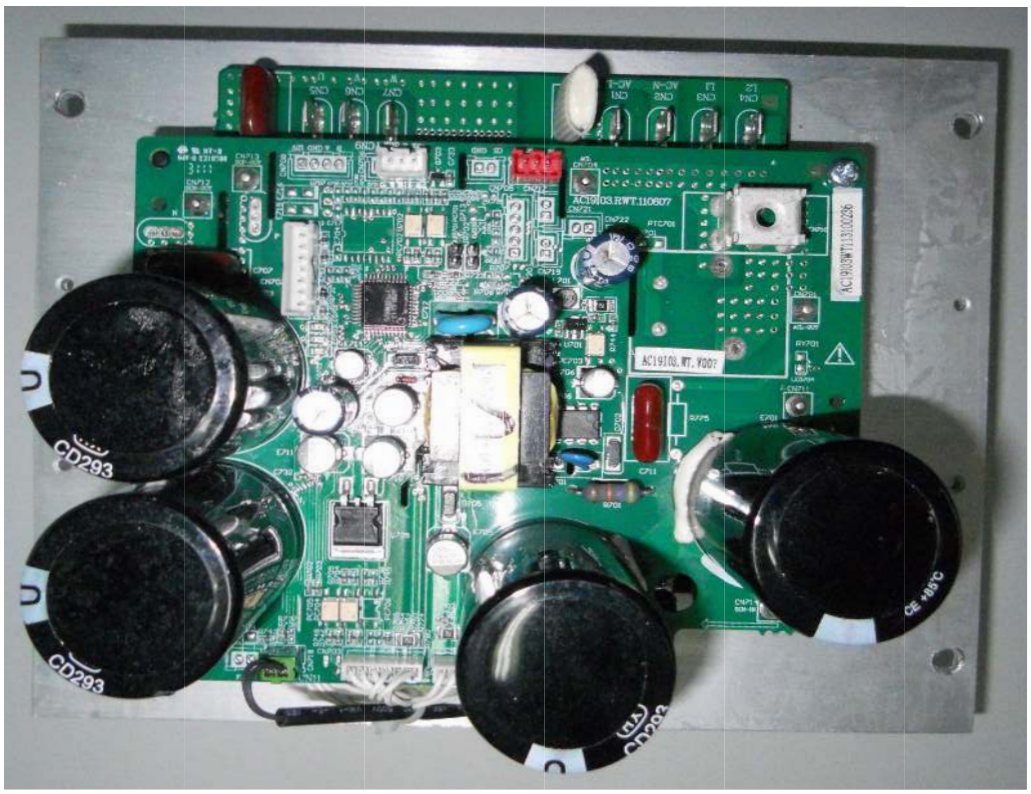


Power module(0010400352C) 1U24GS1ERA

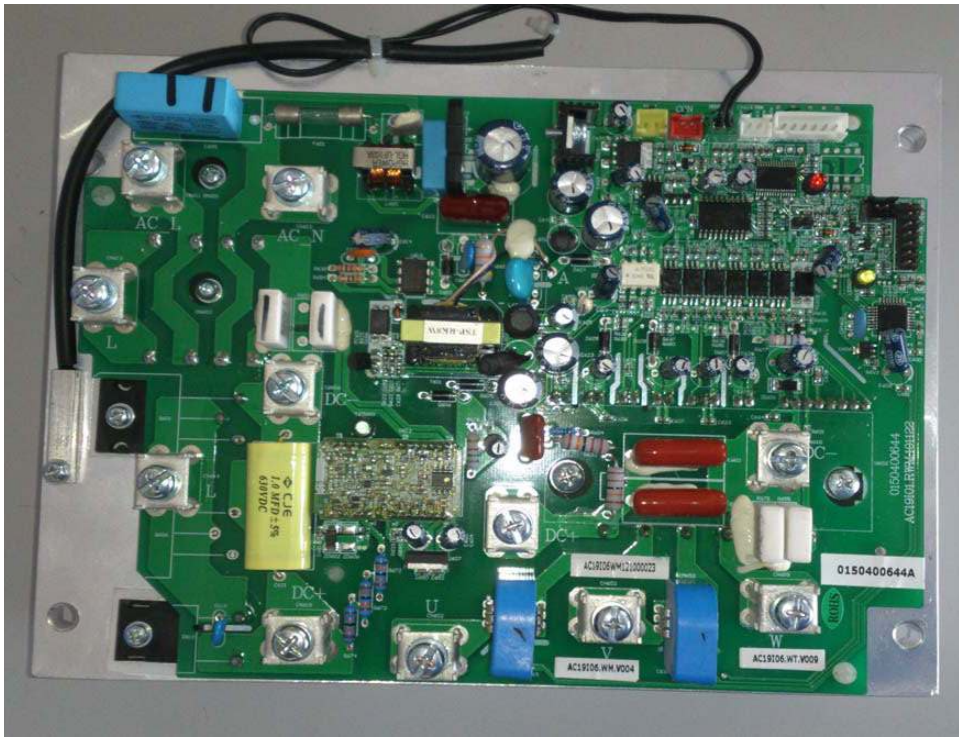


Power module(0150400908)

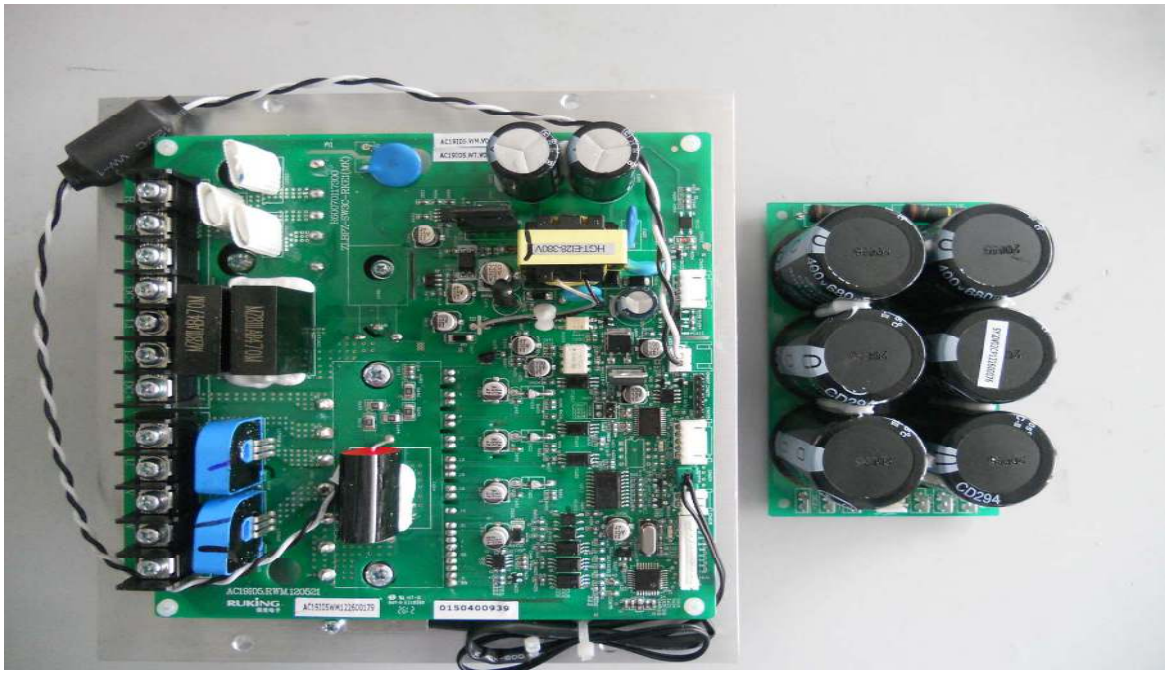
1U28HS1ERA(S) 1U36HS1ERA(S) 4U26HS1ERA 4U30HS1ERA 5U34HS1ERA



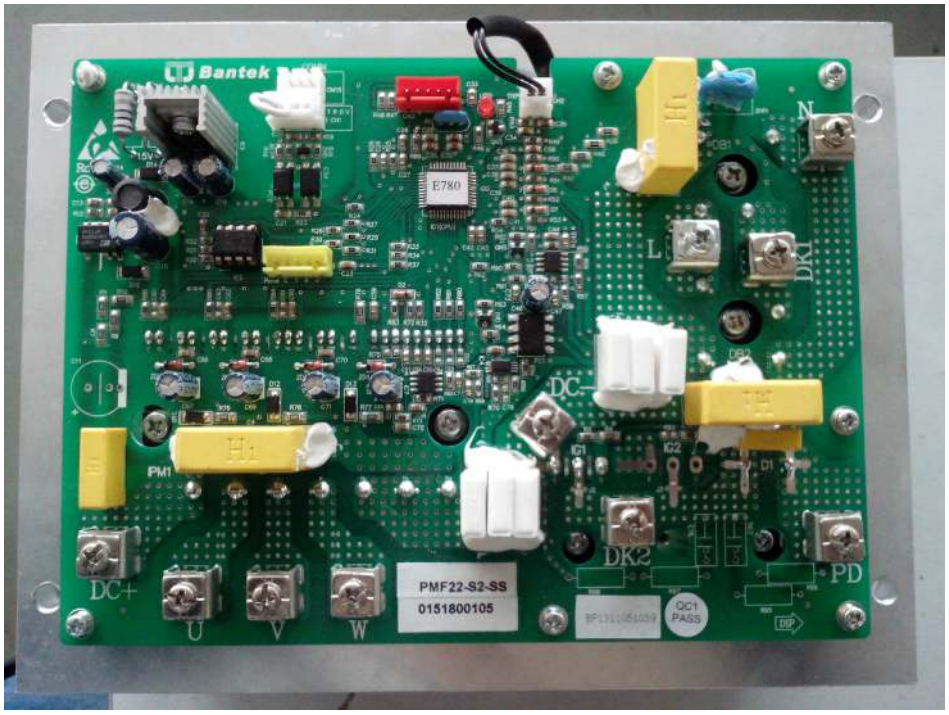
Power module(0150400644A) 1U48LS1ERA(S)



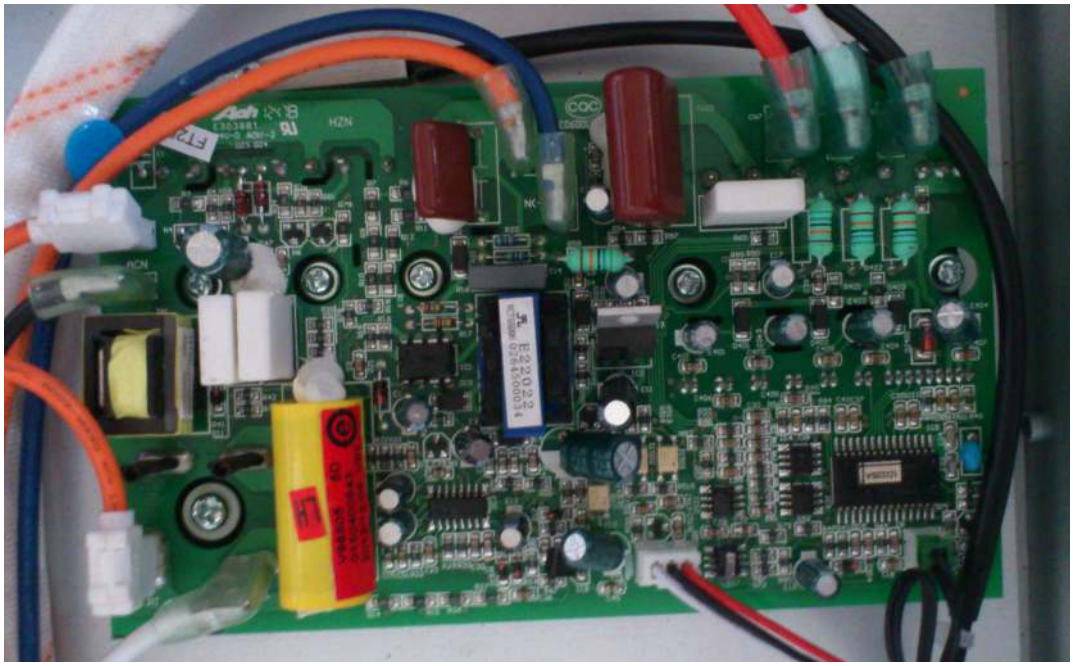
Power module(0150400939)
1U48LS1ERB(S) 1U48IS1ERB(S) 1U60IS1ERB(S) 1U60IS2ERB(S)



Power module(0151800105) **5U45LS1ERA**



Power module(0150400643) 3U19FS1ERA 3U24GS1ERA



Power module(0150400643A) 3U24GS1ERA (N)

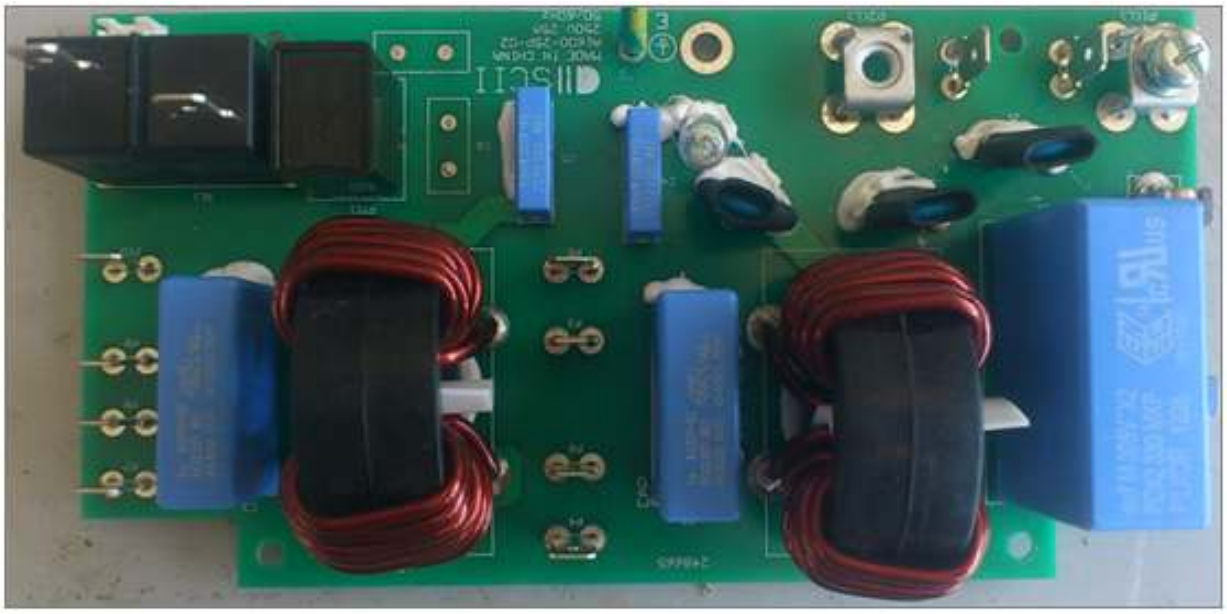


Power module(0150400643B) 3U19FS1ERA (N)



Filter board(0150400699)

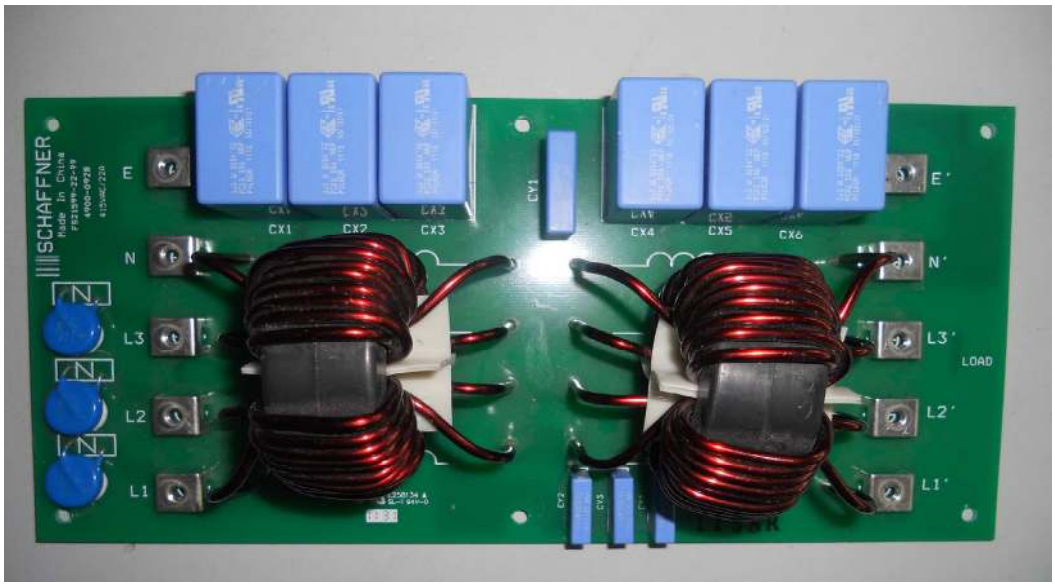
1U28HS1ERA(S) 1U36HS1ERA(S) 3U24GS1ERA 4U26HS1ERA 4U30HS1ERA 5U34HS1ERA 3U24GS1ERA(N) 3U19FS1ERA(N)



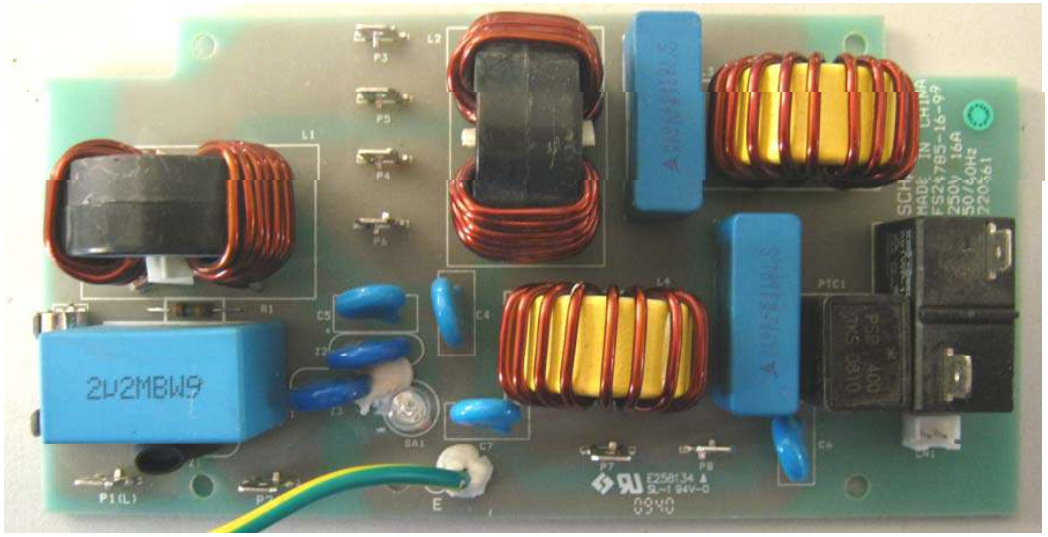
Filter board(0150400567) 1U48LS1ERA(S) 5U45LS1ERA



Filter board(0010452726)
1U48LS1ERB(S) 1U48IS1ERB(S) 1U60IS1ERB(S)



Filter board(0150400660) 3U19FS1ERA



Dip switch setting

PCB 0151800054A dip switch setting

SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	Description
OFF	OFF	---	---	---	---	---	---	28K outdoor unit
OFF	ON	---	---	---	---	---	---	36K outdoor unit
ON	OFF	---	---	---	---	---	---	48K outdoor unit+1U60IS2ERB(S)
ON	ON	---	---	---	---	---	---	60K outdoor unit(except 1U60IS2ERB(S))
---	---	OFF	---	---	---	---	---	Power module choose 1
---	---	ON	---	---	---	---	---	Power module choose 2
---	---	---	OFF	---	---	---	---	DC fan motor
---	---	---	ON	---	---	---	---	AC fan motor
---	---	---	---	OFF	---	---	---	Double fan
---	---	---	---	ON	---	---	---	Single fan
---	---	---	---	---	OFF	---	---	Old comunication protocol
---	---	---	---	---	ON	---	---	New communication protocol
---	---	---	---	---	---	OFF	---	3 phase
---	---	---	---	---	---	ON	---	1 phase
---	---	---	---	---	---	---	OFF	Without quiet mode(default)
---	---	---	---	---	---	---	ON	With quiet mode

SW6-1	SW6-2	SW6-3	SW6-4	Discription
OFF	---	---	---	Non-rated operation(default)
ON	---	---	---	Rated operation
---	OFF	---	---	Normal defrosting(default)
---	ON	---	---	Compulsory defrosting
---	---	OFF	---	Normal cooling(default)
---	---	ON	---	Compulsory cooling
---	---	---	OFF	Normal heating(default)
---	---	---	ON	Compulsory heating

PCB 0151800129A dip switch setting

1	2	3	4	5	6	7	8	Decription
ON	OFF	---	---	---	---	---	---	48K outdoor unit
ON	ON	---	---	---	---	---	---	60K outdoor unit
---	---	OFF		---	---	---	---	without sunction sensor
---	---	ON		---	---	---	---	With sunction sensor(default)
---	---	---	OFF	---	---	---	---	Double fan
---	---	---	ON	---	---	---	---	Sinlge fan
---	---	---	---	OFF	---	---	---	1 phase
---	---	---	---	ON	---	---	---	3 phase(default)
---	---	---	---	---	OFF	---	---	Without high pressure detecting
---	---	---	---	---	ON	---	---	With high pressure detecting
---	---	---	---	---	---	OFF	---	With low current detecting
---	---	---	---	---	---	ON	---	Without low current detecting(default)
---	---	---	---	---	---	---	OFF	inquiry failure (outdoor ambient 10K)
---	---	---	---	---	---	---	ON	inquiry failure (outdoor ambient 23K)

Outdoor main PCB 0151800075 dip switch setting

1	2	3	4	5	6	7	8	Decription
ON	---	---	---	---	---	---	---	Cooling only
OFF	---	---	---	---	---	---	---	Heating pump(default)
---	ON	---	---	---	---	---	---	set ON if frost easily
---	OFF	---	---	---	---	---	---	set OFF if hard to frost(default)
---	---	ON	---	---	---	---	---	Max.running current is 15A
---	---	OFF	---	---	---	---	---	Normal control(default)
---	---	---	OFF	OFF	ON	---	---	3U19
---	---	---	OFF	ON	OFF	---	---	3U24
---	---	---	OFF	ON	ON	---	---	4U26
---	---	---	ON	OFF	ON	---	---	4U30
---	---	---	ON	ON	OFF	---	---	5U34
---	---	---	ON	OFF	OFF	---	---	5U45
---	---	---	---	---	---	ON	---	temperature correction valid
---	---	---	---	---	---	OFF	---	temperature correction null(default)
---	---	---	---	---	---	---	ON	Quiet operation valid
---	---	---	---	---	---	---	OFF	Quiet opoperationeration vaild(default)

SW6: outdoor central control address setting

4	3	2	1	Outdoor central control address
OFF	OFF	OFF	OFF	1
OFF	OFF	OFF	ON	2
OFF	OFF	ON	OFF	3
OFF	OFF	ON	ON	4
OFF	ON	OFF	OFF	5
OFF	ON	OFF	ON	6
OFF	ON	ON	OFF	7
OFF	ON	ON	ON	8
ON	OFF	OFF	OFF	9
ON	OFF	OFF	ON	10
ON	OFF	ON	OFF	11
ON	OFF	ON	ON	12
ON	ON	OFF	OFF	13
ON	ON	OFF	ON	14
ON	ON	ON	OFF	15
ON	ON	ON	ON	16

SW7: pre-set dip switch (default : all OFF)

Small service PCB:0151800076 dip switch setting

SW1 definition:

1	2	3	4	Definition
OFF	OFF	OFF	OFF	State when out of factory
ON	OFF	OFF	OFF	Compulsory heating: 50Hz, outdoor motor 5-class, standard open angle 200, the others are normal
OFF	ON	OFF	OFF	Compulsory cooling: 60Hz, outdoor motor 7-class, standard open angle 200, the others are normal
OFF	OFF	ON	OFF	Rated operation
OFF	OFF	OFF	ON	Time defrost valid
ON	ON	ON	ON	Detection for wrong wiring

Outdoor main PCB 0151800075 dip switch setting

Outdoor central control address					Indoor unit terminal				
3U***					A	B	C		
4U***					A	B	C	D	
5U***					A	B	C	D	E
	4	3	2	1	Indoor unit centrol control address				
SW06	OFF	OFF	OFF	OFF	1	2	3	4	5
	OFF	OFF	OFF	ON	6	7	8	9	10
	OFF	OFF	ON	OFF	11	12	13	14	15
	OFF	OFF	ON	ON	16	17	18	19	20
	OFF	ON	OFF	OFF	21	22	23	24	25
	OFF	ON	OFF	ON	26	27	28	29	30
	OFF	ON	ON	OFF	31	32	33	34	35
	OFF	ON	ON	ON	36	37	38	39	40
	ON	OFF	OFF	OFF	41	42	43	44	45
	ON	OFF	OFF	ON	46	47	48	49	50
	ON	OFF	ON	OFF	51	52	53	54	55
	ON	OFF	ON	ON	56	57	58	59	60
	ON	ON	OFF	OFF	61	62	63	64	65
	ON	ON	OFF	ON	66	67	68	69	70
	ON	ON	ON	OFF	71	72	73	74	75
	ON	ON	ON	ON	76	77	78	79	80

3.2 Outdoor unit control

3.2.1 Outdoor frequency control

A. Compressor running frequency range: 1U: 30-91RPS 3U19:20-100RPS 3U24:20-94RPS, the others are 20~95RPS

B. defination of high-efficiency operation and its frequency control

In order to meet the cooling request at a high ambient temperature and the heating request at low ambient temperature, we set the high-efficiency operation.

Entering condition: cooling mode, Tao≥33°C(E), heating mode, Tao≤5°C(E)

3.2.2 Electronic expansion valve (EEV) control

A: Electronic characteristic

Max. open angle	500 pulse
Driving speed	PPS

B: Initialization of EEV

EEV driving speed: open direction: 32MS; close direction: 32MS

C: Open angle limitation of EEV

Unitary	Unit stop	Adjustable upper limit
Cool/dry	250(E)	480(E)
heat	250(E)	480(E)

	Unit stop	Adjustable upper limit	Thermostat ON	Thermostat OFF	Adjustable lower limitation
Cool/ dry	5(E)	450(E)	Standard open angle+tolerance	5(E)	80(E)
Heat	60(E)	450(E)	Standard open angle+tolerance	60(E)	80(E)

D: Standard open angle control

Unitary: In Cool/Dry mode, standard open angle: outdoor ambient temp.≥22°C, 260pulse (E);Outdoor ambient temp.≤22°C, 210pulse (E);
In heat mode, standard open angle: outdoor ambient temp.≥6°C, 240pulses (E) ;Outdoor ambient temp. ≤6°C, 160pulse (E)

Multi: In Cool/Dry mode, standard open angle: outdoor ambient temp.≥20°C, 250 pulse(E);Outdoor ambient temp.<20°C, 210 pulse(E);
In Heat mode, standard open angle: outdoor ambient temp.≥10°C, pulse (E);outdoor ambient temp.<10°C, 210 pulse (E).

F: When discharging temp. Td is too high or too low, modify the EEV angle Unitary

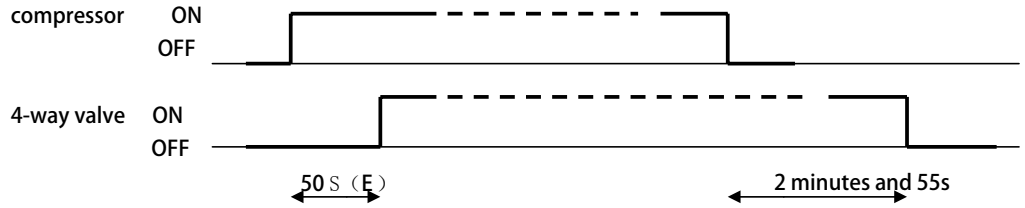
Mode	Modification process	Max. modification
Cooling	If TD>106 degree and -1 degree /2 minutes, open angle keeps between 106-50.	-3
Cooling	If TD<50 degree and +1 degree /2 minutes, open angle keeps between 50-106.	+3
Heating	If TD>100 degree and -1 degree /2 minutes, open angle keeps between 100-50.	-3
Heating	If TD<50 degree and +1 degree /2 minutes, open angle keeps between 50-100.	+3

Multi: In order to cooperate the compressor discharging temp. over high protection, the system will enlarge the EEV open angle. Within 5 minutes after compressor starts up, it will not modify. The detecting period is 30 seconds.

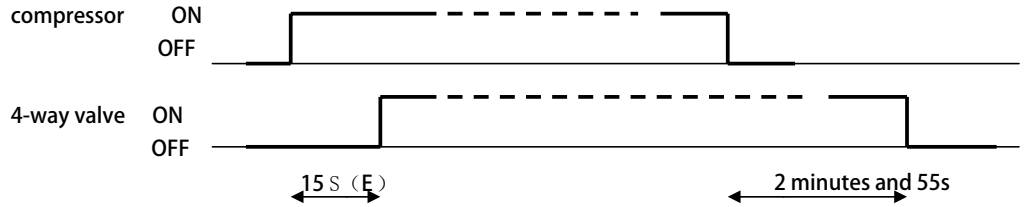
Cooling mode	Indoor modification angle
100°C<discharging temp.	+50degree/30seconds, it will stop until up to the max. permitted opening angle
90°C< discharging temp.<=100°C	Keep the angle
<=90°C	-5degree/30seconds, and reduce to 0 degree gradually
Heating mode	Indoor modification angle
100°C<discharging temp.	+50degree/30seconds, it will stop until up to the max. permitted opening angle
90°C< discharging temp.<=100°C	Keep the angle
<=90°C	-5degree/30seconds, and reduce to 0 degree gradually

3.2.3 4-way valve control in heating

Unitary: 50s later after compressor start up, the 4-way valve start to operate. When compressor stops or unit is not in heating mode, the 4-way valve is closed after compressor stop for 2 minutes and 55s.



Multi: Protection when 4-way valve can not reverse in heating: 10 minutes later after compressor startup, if indoor coil average temp. is below 15degree and keeps for 1 minute, the unit will stop and occur the 4-way valve protection.

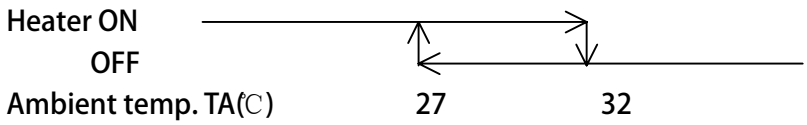


3.2.4 Electric heater control

If compressor has not run for a long time, the refrigerant will deposit on the bottom of compressor and mix with the refrigeranr oil. When re-startup, because low pressure reduces, refrigerant will be segregated from the refrigerant oil and cause soam in the oil, which will make compressor exhaust a lot of oil. Therefore please stop heating the compressor bottom to ensure the low pressure in startup period should not go down greatly.

• Ambient temp. TA≤27degree, when compressor stops, the electric heater will be electrified.

• When TA≥32degree, or compressor running, the electric heater will be off.



3.2.5 Control of defrosting in heating

In heating mode, defrosting temp. sensor will check the frosting condition of outdoor heat exchanger and make defrosting control.

A: Enter condition:

Unitary: After the unit is in heating for 10 minutes and compressor run for 45 minutes in all , according to check

the defrosting temp. sensor Te and outdoor ambient temp. sensor Tao, if they can meet the following condition, entering in defrosting operation.

1. 5°C<(E)<Tao,Te<=-6°C<(E);

2. -6°C<(E)<=Tao<=5°C,Te≤C×Tao-α;

Herein :α=8(E) ;C:Tao<0°C;C=0.8; Tao≥0°C,C=0.6;

3.Tao<-6°C,Te≤-15°C<(E)and defrosting compressor run for 48 minutes in all.

Multi:

a. In heating mode, if the compressor has run for 10 minutes continously and run for 45 minutes in all, the system will measure the defrosting temperature sensor Te and outdoor ambient temp. sensor TA, if the below condition can be met for continous 5 minutes, the unit will enter defrosting operation:

Te≤C×TA-α

Herein: C: TA<0°, C=0.8 TA≥0°C, C=0.6

According to SW5-2, the setting is as follow: in the place easy to frost, it is H; when out of factory, it is M.

Jumper selection	M (out of factory)	H
α (°C)	8 (E)	6 (E)

b. Defrosting entering condition: -15°C≤C×TA-α≤-2°C;

c. Stop and Pause condition of compressor running accumulative time in heating mode:

Checking Stop: running operation changes from heating to cooling.

Checking Pause: thermostat OFF, or the unit stops.

Cancel condition:

It will take the max. 10 minutes from beginning defrosting to quit it. Te sensor will measure the condition of outdoor heat exchanger, if the temp. is over 7°C for 60 seconds in all or is up to 12°C for 30 seconds in all, the defrosting will be over.

3.2.5Compulsory defrosting control

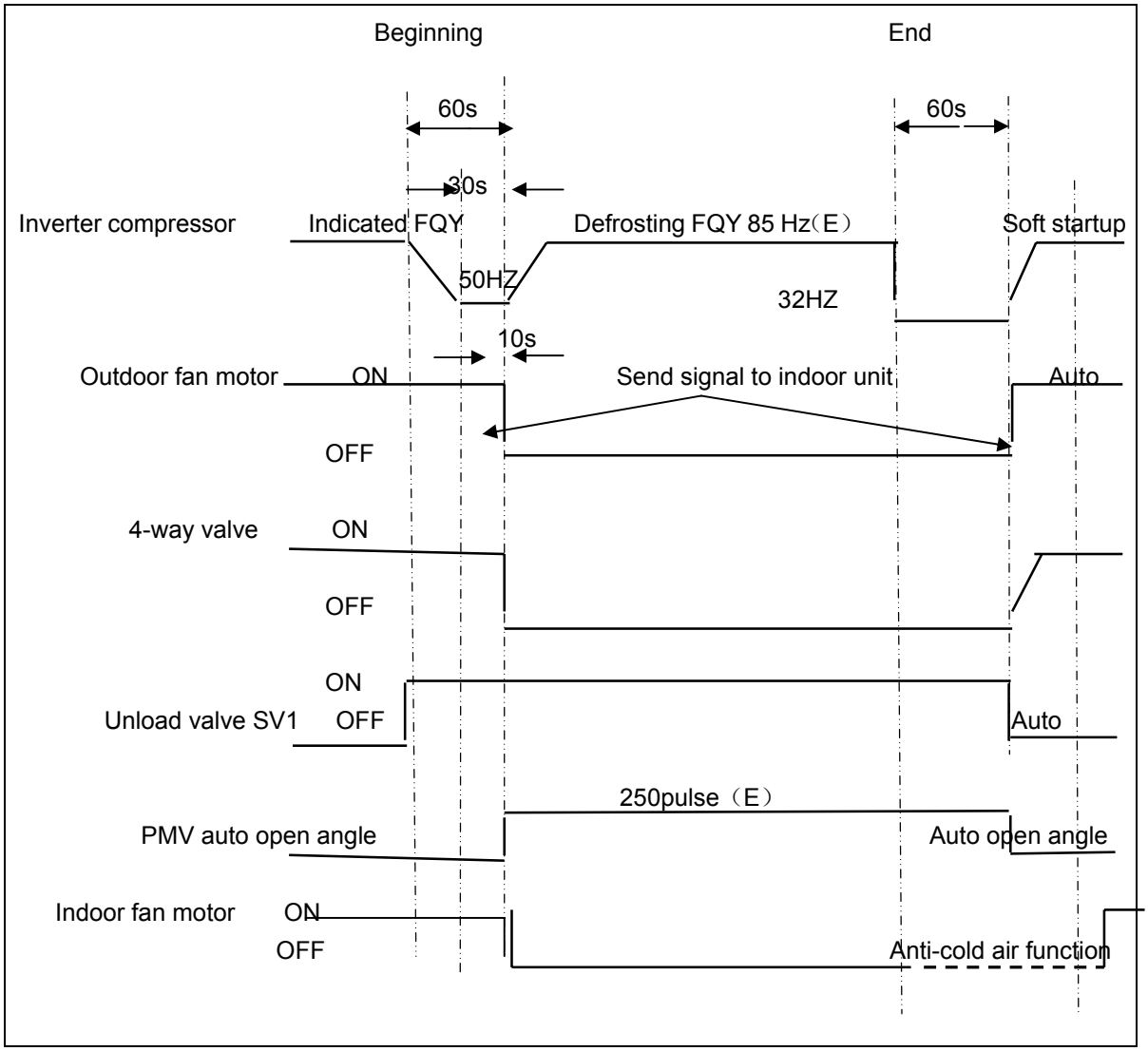
Enter condition: in heating mode, after receiving the compulsory defrosting signal from indoor unit, the unit will perform the compulsory defrosting operation.

Cancel condition: Te≥12°C and keep for 1 minute or the defrosting time is over 10 minutes. The manual defrosting signal of indoor unit will remain until the outdoor enters defrosting mode.

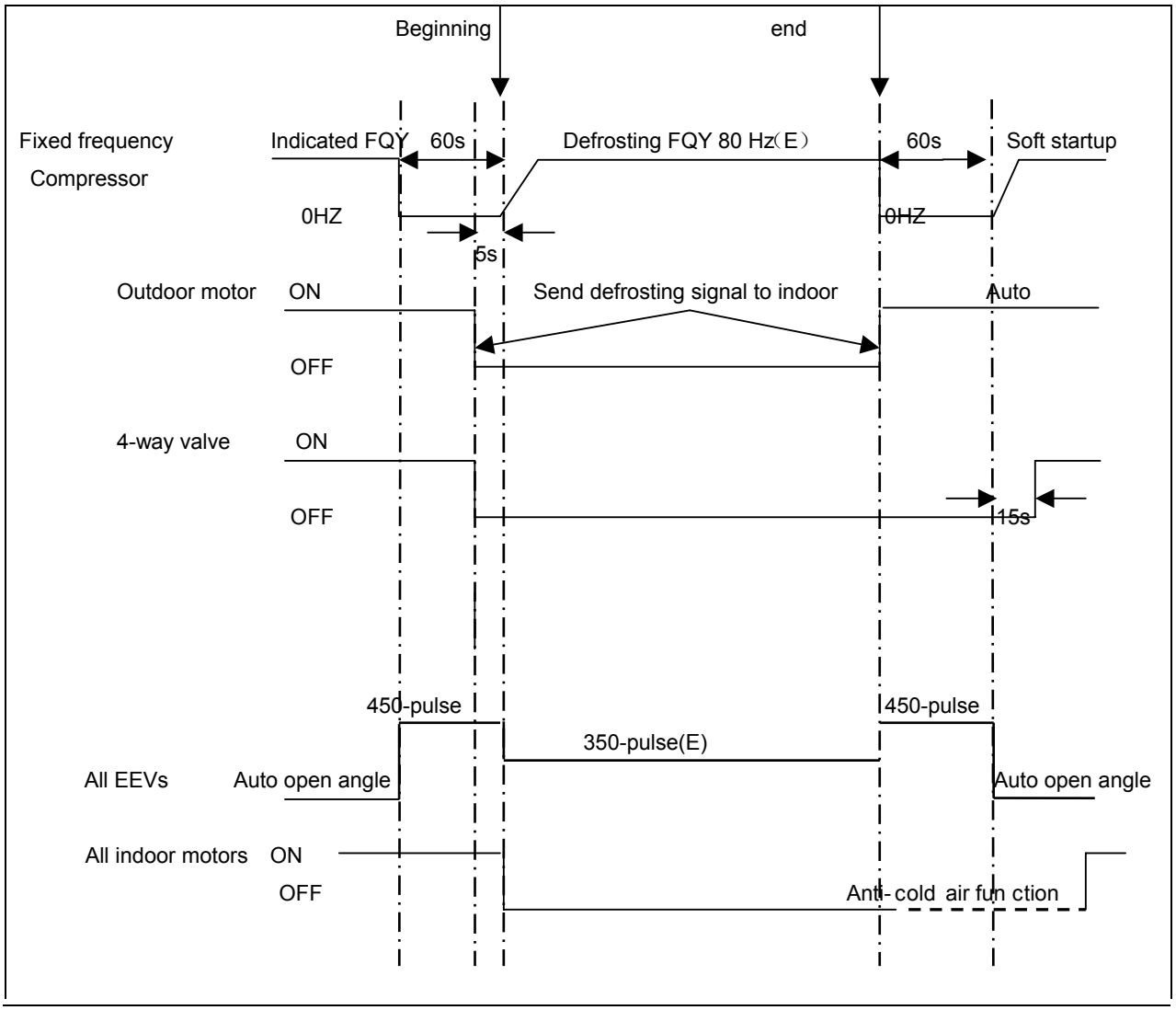
Note: When outdoor compressor not running, the unti still can enter manual defrosting, but it will comply with the 3-minute protection of compressor.

3.2.6 Defrosting operation flow chart:

Unitary



Multi:

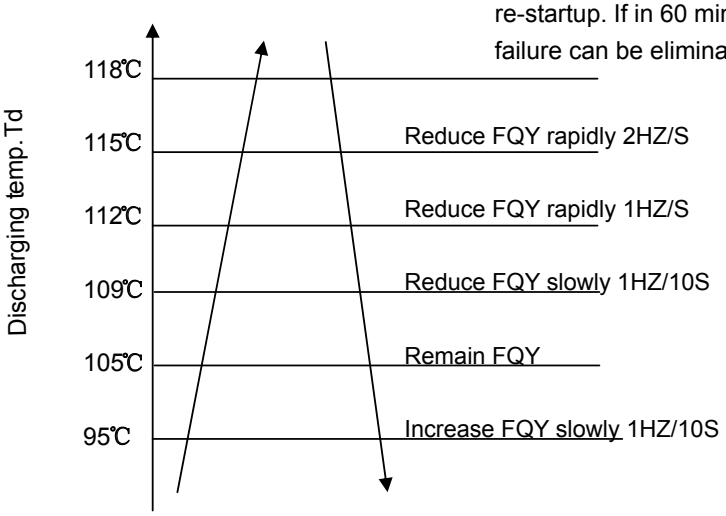

Beginning
end
Fixed frequency Compressor
Indicated FQY
60s
Defrosting FQY 80 Hz(E)
60s
Soft startup
0HZ
0HZ
5s
Outdoor motor
ON
Send defrosting signal to indoor
Auto
OFF
4-way valve
ON
OFF
15s
450-pulse
450-pulse
350-pulse(E)
All EEVs
Auto open angle
Auto open angle
All indoor motors
ON
OFF
Anti-cold air fun ction

3.2.7 Frequency control when Td is too high

Purpose: make compressor frequency control if the discharging temp. is too high, to lower the discharging temp. efficiently and ensure the system can run normally.

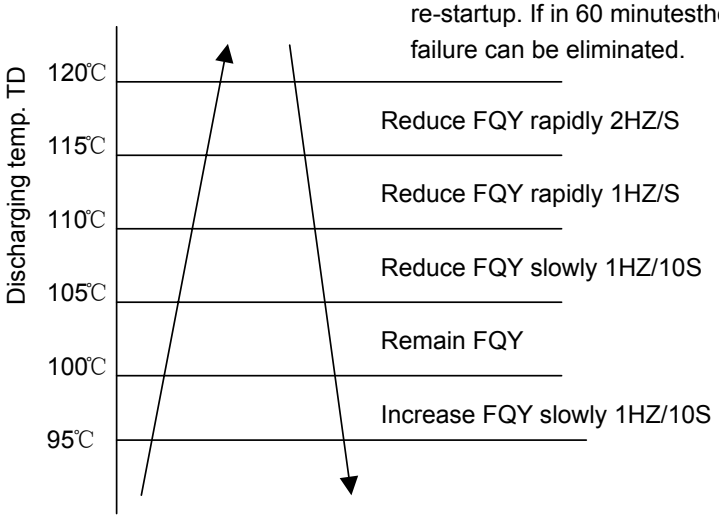
Unitary:

If keeping for 10s, the unit stops, 3 minutes later, the unit can re-startup. If in 60 minutesthe unit occurs alarm for 3 times, the failure can be eliminated.

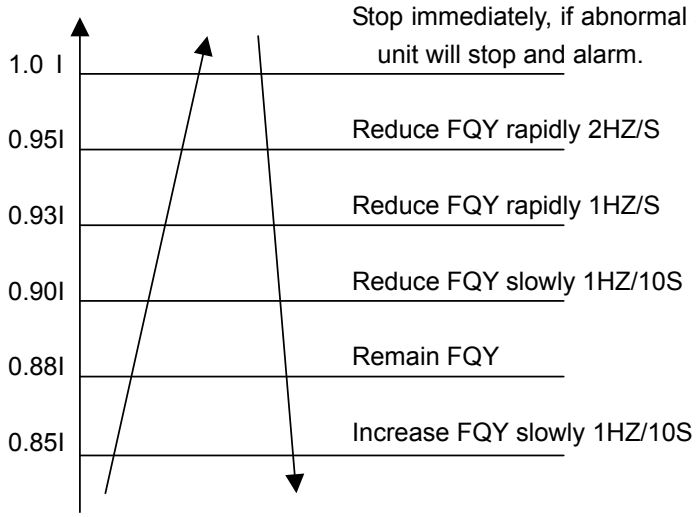


Multi:

If keeping for 10s, the unit stops, 3 minutes later, the unit can re-startup. If in 60 minutesthe unit occurs alarm for 3 times, the failure can be eliminated.

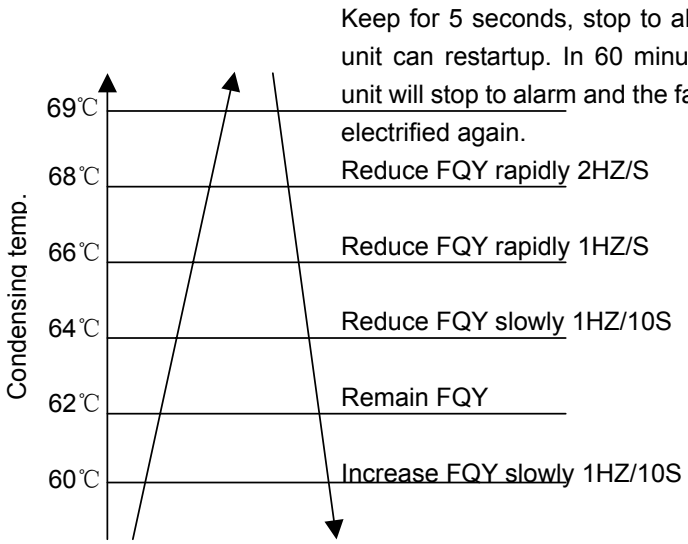


3.2.8. Frequency control when there is CT over current protection



3.2.9. High pressure protection (Multi)

When the input signal of pressure switch is high level:1, that shows there is no protection.
When the input signal of pressure switch is low level: 0 for 1 minute, that shows high pressure protection works. At this time, compressor stops, outdoor will send the alarm signal. The alarm can be resumable. If in 60 minutes, the failure occurs 3 times, the failure can be confirmed and send failure code to indoor. Meanwhile, by controling the max. condensate temp. Tc (cooling) or TmAVE (heating), please confirm as follow:
In nominal cooling/dry/heating mode, high pressure can be controlled by limiting the max. frequency.



3.2.10. Low pressure protection (Multi)

(1) When compressor is running, if output signal of low pressure switch is low level: 0 for 1 minute continously, compressor will stop,outdoor alarms. The alarm can be resumable. If in 60 minutes, the failure occurs 3 times, the failure can be confirmed and send failure code to indoor.
(2) When compressor no running, if output signal of low pressure switch is low level: 0 for 30 seconds continously, alarm will occur.

· When unit stops, the reason that system still checks the low pressure : in a long time stop, make protection for the compressor on the condi tion of great refrigerant leakage.

· The reason that low pressure switch action time is 30 seconds: when compressor stops, low pressure does not change, so it will be shorter than the set time in operation.

(3) When compressor starts up, in 8 minutes, low pressure switch signal will be shielded.

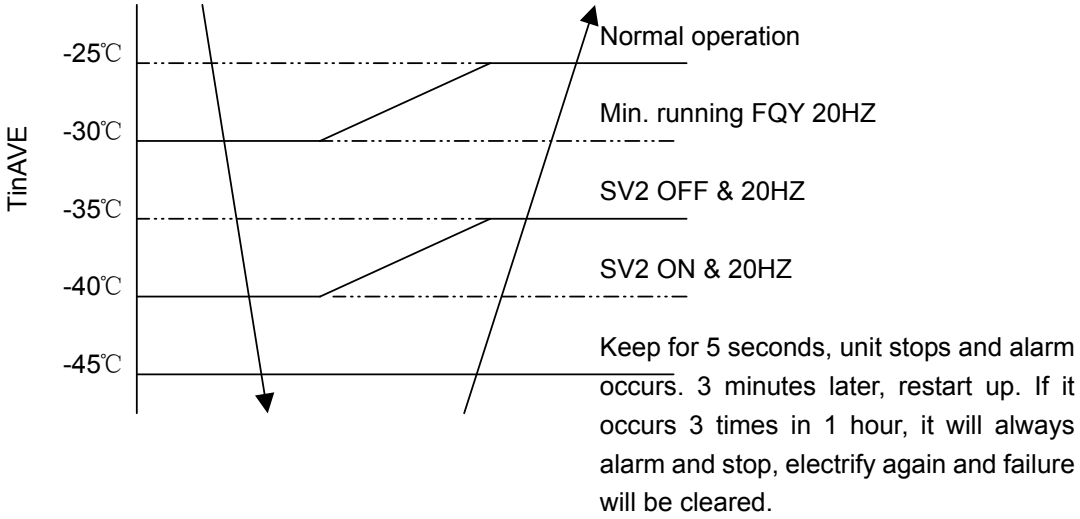
(4) In defrosting, low pressure switch will be shielded.

(5) In oil return procedure, low pr essure switch will be shielded.

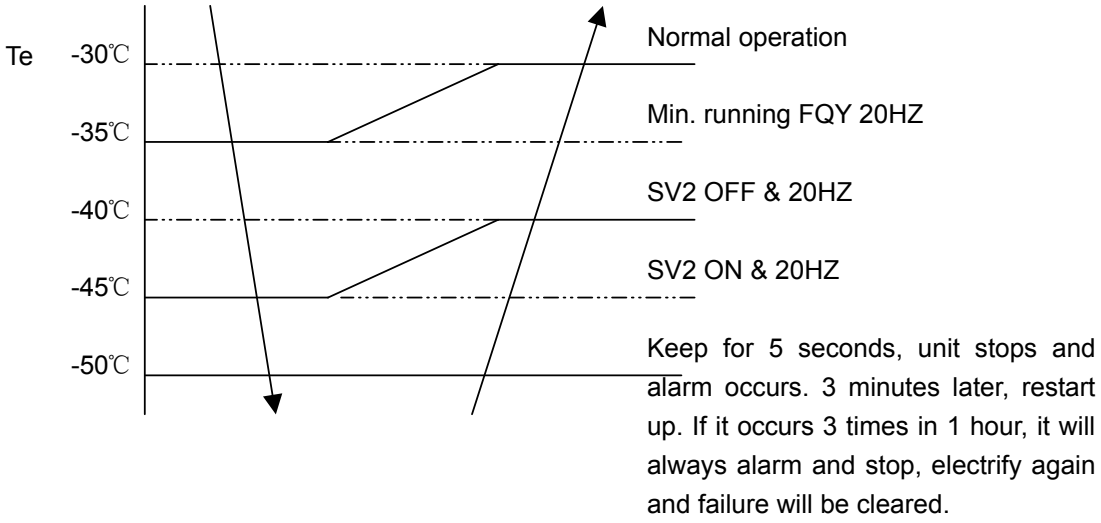
(6) In the refrigerant discharging procedure after the oil return in cooling is over, low pressure switch will be shielded.

In addition, the system will control low pressure through the evaporator temp. TE to realize the low pressure protection function.

In cooling, confirm through Tc2AVE:



In heating, confirm through defrosting temp. Te:



If the failure is not confirmed as the permanent protection, outdoor will not send failure code to indoor, and indoor will not alarm.

3.2.11 Oil return operation control

Unitary:

A Entering condition

When the compressor running frequency is lower than 58Hz continuously in all and outdoor unit Tcm is lower than 50 degree for 5 hours, the system will enter oil return operation. In the course of mode changeover, manual unit stop or protective unit stop, the time will be accumulative. After compressor restarts up, the time will counted continuously. In counting time for 5 hour, if the compressor running frequency is over 80Hz for 10 minutes continuously, the time will be cleared. Also after the heating defrosting , the time will be cleared.

B Procedure

Cooling mode: refer to “the oil return procedure in cooling mode”

Heating mode: refer to “the oil return procedure in heating mode”

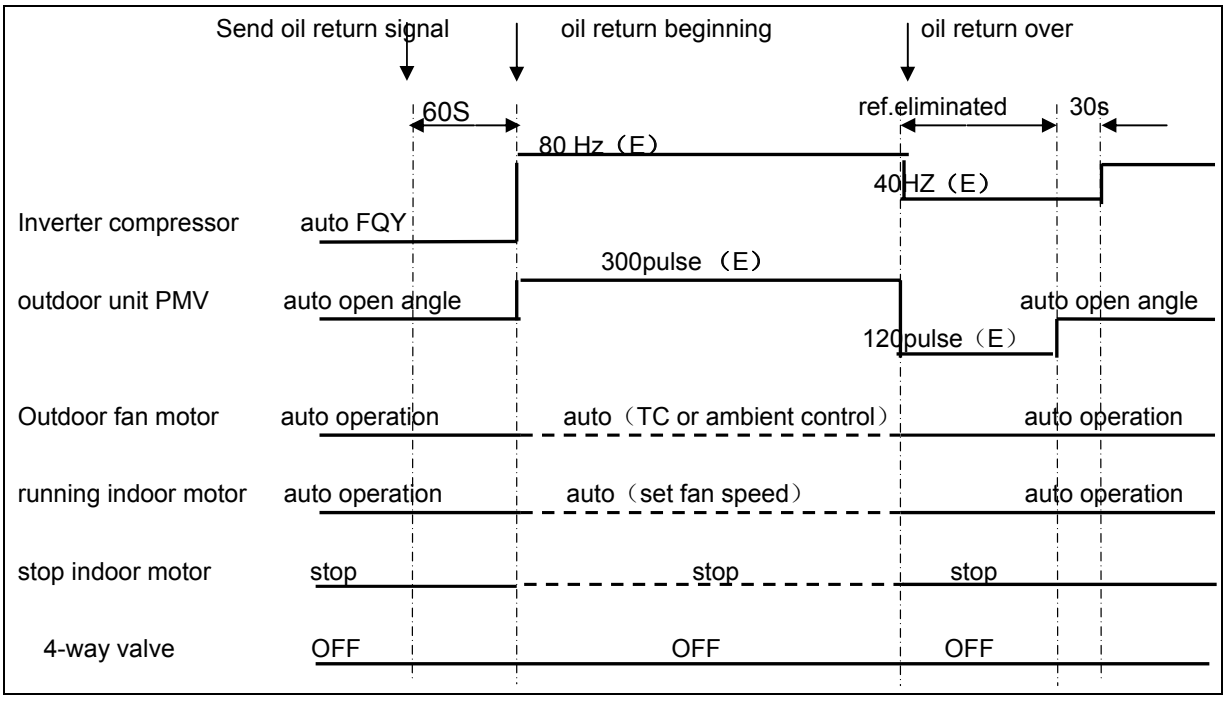
C The protection treatment in oil return operation:

In the course of cooling oil return, because of all kinds of protection or abnormal unit stop, after the unit restart, the time will not be cleared, the system need another oil return operation.

In the refrigerant flow course in oil return of cooling mode or after oil return, and within 5 minutes after the refrigerant being eliminated is over, the anti-freeze protection and low pressure protection are invalid, other protection is valid.

In the course of heating oil return ,because of all kinds of protection or abnormal unit stop, the system need not another oil return operation after the unit stop for 3 minutes and enter in heating mode directly. In the course of changing to cooling oil return, the anti-freeze protection and low pressure protection are invalid, other protection is valid.

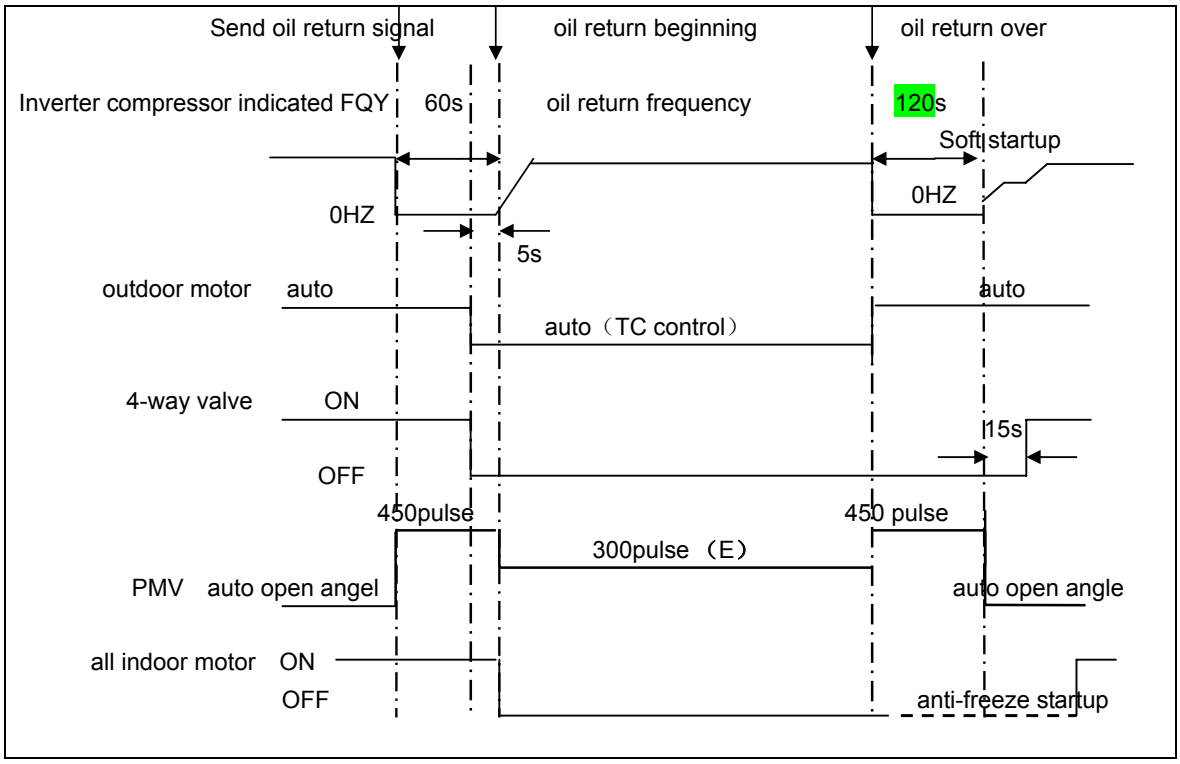
Oil return procedure in cooling mode:



Quit condition of oil return:

OR
- &
  - 1 minute later after oil return is over
  - OR
    - Td - Tcm＞30℃
    - Ts - Tc＞30℃
    - Tc＜ - 35℃
- Max. 10 minutes

Oil return procedure in heating mode:



Quit condition of oil return

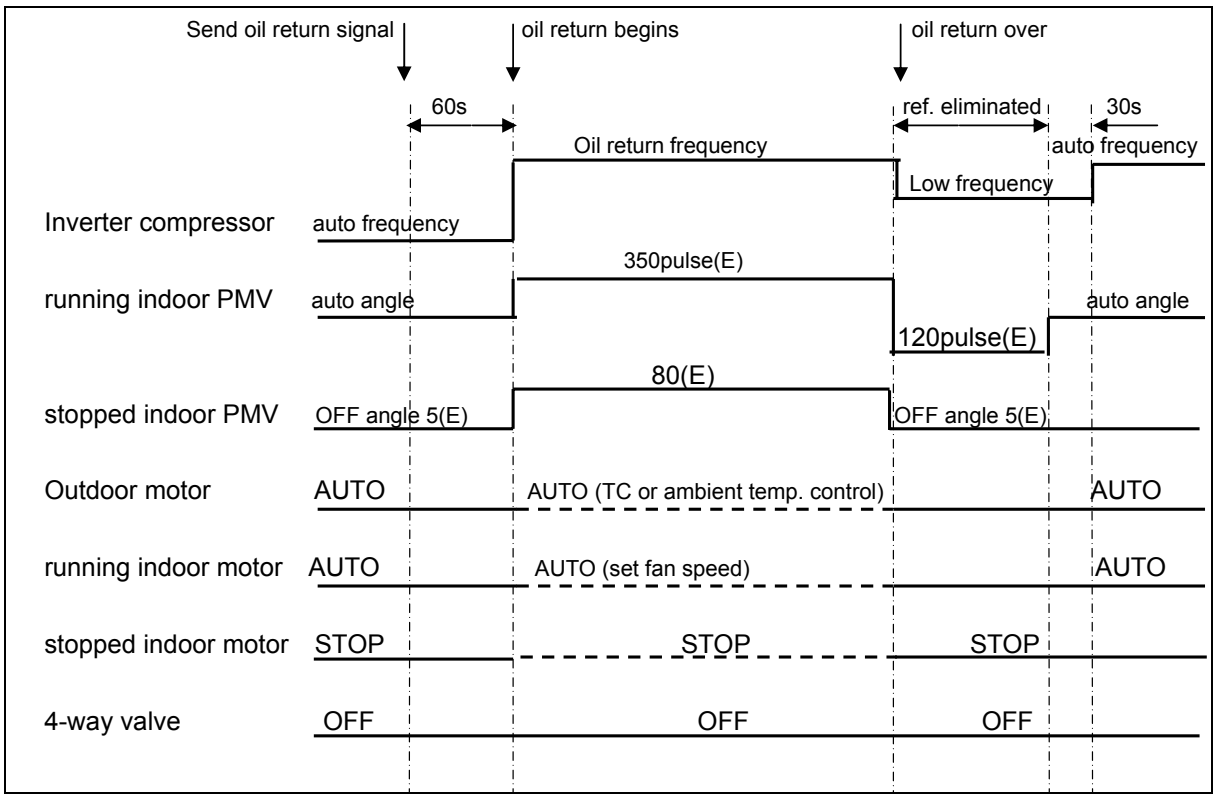
OR
- Max. 9 minutes（E）
- &
  - OR
    - Td - Tcm＜20℃ for 30s（5 minutes later, begin to count）
    - T s - Tc＜15℃ for 30 S（5 minutes later, begin to count）
  - Running for min. 5 minutes（E）

MULTI:

D: Entering condition
When the compressor running frequency is lower than 58Hz (E) continuously for 8 hrs, the system will enter oil return operation. In the course of mode changeover, manual unit stop or protective unit stop, the time will be accumulative. After the compressor restarts up, the time will be counted continuously. In a continuous 8 hrs, if the compressor running frequency is not less than 72Hz for over 10 minutes continuously, the accumulative time will be cleared. Also after the heating defrosting, the time will be cleared.

E: Procedure
Cooling mode: refer to “the oil return procedure in cooling mode”
Heating mode: refer to “the oil return procedure in heating mode”

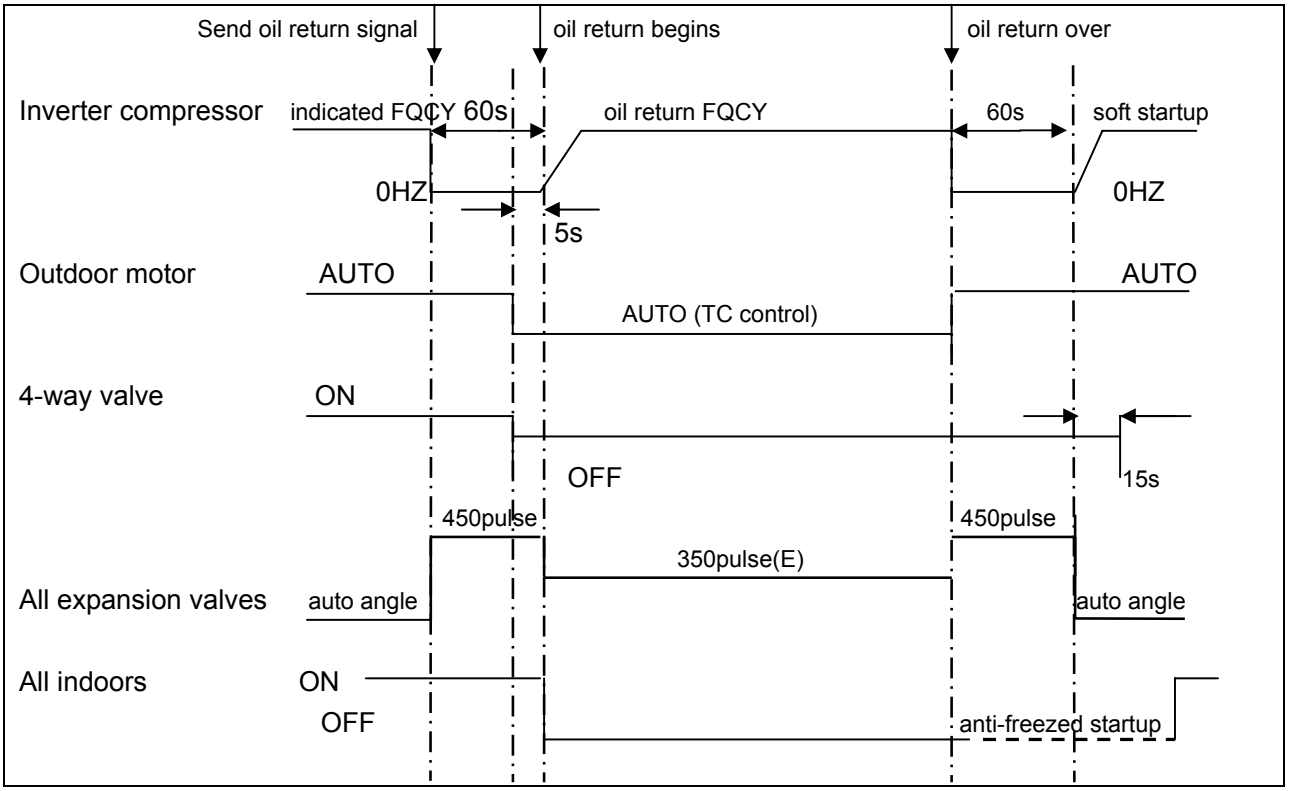
F: The protection treatment in oil return operation
In the course of oil return, because of protection or abnormal unit stop, after the unit restarts up, the time will not be cleared, the system will need another oil return operation. In the refrigerant flow course in the oil return of cooling mode or after the oil return, and within 5 minutes after the refrigerant being eliminated is over, the anti-freezed protection is invalid, and also the low voltage protection is invalid. But the other protection is valid.
In the course of oil return from heating mode to cooling mode, if abnormal condition occurs or the unit stops for protection, then the system needs not another oil return within 3 minutes after the unit stops and it will start up directly, then to heating mode.
In the course of oil return from heating mode to cooling mode, the anti-freezed protection is null and void, and the low voltage protection is null either. The other protection is valid.
Oil return procedure in cooling mode:



After oil return in cooling mode, the quit condition of refrigerant eliminated:

OR
- &
  - 1 minute later after oil return is over
  - OR
    - Td - Tc＞30℃
    - Ts - Tc2AVE＞30℃
    - Tc2AVE＜ - 35℃
- Max. 10 minutes

Oil return procedure in heating mode:



Quit condition of oil return:

OR
- Max. 9 minutes (E)
- &
  - OR
    - Td - Tc＜20℃ for 30s continuously(5 minutes later, begin to count)
    - Ts - Tc2AVE＜15℃for 30s continuously(5 minutes later, begin to count)
  - Running for min. 5 minutes(E)

4. Diagnostic code

1U24GS1ERA 1U28GS2ERA(S)

Flash times of LED on mainboard	Trouble description	Analyze and diagnose
1	Eeprom failure	Outdoor main board eeprom fail
2	IPM failure	IPM failure
4	Communication error between main board and spdu module SPDU Communicition error	Communication fail over 4 min
5	High pressure protection	System high pressure over 4.15 Mpa
6	Module over-voltage protection(only for Spdu) Module lack-voltage protection(only for Spdu)	Send from Spdu module
8	Compressor discharging temperature protection	Compressor discharging temperature over 110 centigrade
9	Abnomal of DC motor	Jam of DC motor or motor failure
10	Abnomal of pipe sensor	Piping sensor short-circuit or open-circuit
12	Abnomal of outdoor ambient sensor	Outdoor ambient sensor short-circuit or open-circuit
13	Abnormal of compressor discharge sensor	Compressor discharge sensor short-circuit or open-circuit
14	Suction temperature too high	Suction temperature too high (over 40℃ after compressor running 10 minutes)
15	Communication error between indoorand outdoor unit	Communication fail over 4 min
16	Lack of refrigerant	check if there is leakage in the unit
17	4-way valve reverse failure	Alarm and stop if detect Td-Tci<=15 last for 1min after compressor has started for 10min in heating mode, confirm the failure if it appears 3 times in one hour.
18	Compressor jam (ony for spdu)	Inner compressor is abnormal jamed
19	Module EEV select circuit error	Module EEV select wrong circuit
22	protection of prevent indoor unit freeze	Indoor piping temperature too low Air outlet or inlet blocked of indoor unit
25	Compressor U-phase over-current	The current of compressor U-phase is too high
25	Compressor V-phase over-current	The current of compressor V-phase is too high
25	Compressor W-phase over-current	The current of compressor W-phase is too high
45	Low pressure protection	System over pressure under 0.05Mpa

1U28HS1ERA(S) 1U36HS1ERA(S) 1U48LS1ERA(S) 1U48LS1ERB(S) 1U48IS1ERB(S) 1U60IS1ERB(S) 1U60IS2ERB(S)

Malfunction code	Trouble description	Analyze and diagnose	Remark
1	EEPROM faulty		Non-resumable
2	Over current protection in course of compressor frequency going down detected by software	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Resumable
3	Protection of over current in course of compressor fixed speed operation	Module abnormal, if it occurs 3 times in 1 hour, confirm the failure	Non-resumable
4	Communication abnormal between connecting board and module	It can not get the feedback from module after communicating for 4 minutes	Resumable
5	Compressor overcurrent	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
7	Compressor blocked or abnormal operation	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
8	Protection of discharging temp. too high	After compressor starts up, if TD is over 115°C 10 seconds later compressor stops, if it occurs 3 times in 1 hour, confirm failure	Non-resumable
9	DC fan motor faulty	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
10	Outdoor defrosting temp. sensor abnormal	Sensor is detected below 20 or over 1000 for 60 seconds, but in cooling mode,this sensor failure will not be dealt with,and in defrosting or within 6 minutes after defrosting,it will not alarm.	Resumable
11	Suction temp.sensor abnormal	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Resumable
12	Ambient temp. sensor abnormal	Sensor is detected below 20 or over 1000 for 60 seconds, but in frosting or within 6 minutes after defrosting, it will not alarm	Resumable
13	Discharging temp. sensor abnormal	After compressor running for 3 minutes, Sensor is detected below 20 or over 1000 for 60 seconds	Resumable
15	Communication between indoor and outdoor abnormal	Indoor unit can not be inspected for 4 minutes continuously or indoor slave unit malfunction in MAXI split system	Resumable
16	Lack of refrigerant or diacharging pipe blocked	If it occurs 3 times in 1 hour, confirm the failure.	Non-resumable
17	4-way valve converse abnormal	If it occurs 3 times in 1 hour, confirm the failure.	Non-resumable
18	Over current in course of compressor frequency going down	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable

Malfunction code	Trouble description	Analyze and diagnose	Remark
19	Over current protection in course of compressor fixed speed operation detected by software	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
23	Module temp. too high or module temp. sensor abnormal	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
24	Over current protection in course of compressor frequency going up down detected by software	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
27	Without connection to compressor	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
28	High voltage protection for module	From moudle board	Resumable
29	Low voltage protection for module	From moudle board	Resumable
31	Module start mode switch failure	Module start failure for 5 times	Non-resumable
32	Module input over current software	Input over current been detected by module software	Non-resumable
33	Input current detection circuit error	Input current detection circuit of the power module harware abnormal	Non-resumable
34	Module input over current hardware	Input over current been detected by module hardware	Non-resumable
38	Communication abnormal among modules	It can not detect the input signal for 2 minutes	Resumable
39	Mid-condenser temp. sensor abnormal	Sensor is detected below 20 or over 1000 for 60 seconds, but in defrosting or within 6 minutes after defrosting, it will not alarm	Resumable
43	Low pressure switch abnormal	After compressor running for 3 minutes, if switch is detected unconnected for 30seconds, it alarms, if it occurs 3 times in 1 hour, confirm this failure, if it occurs 3 times in 1 hour, confirm the failure, but in defrosting or within 6 minutes after defrosting, it will not alarm	Non-resumable
44	High pressure switch abnormal	After compressor running for 3 minutes, if switch is detected unconnected for 30seconds, it alarms, if it occurs 3 times in 1 hour, confirm this failure, or if Tcm is over 68 degree for 10 secionds for 3 times	Non-resumable
Note: The flash times of outdoor mainboard(ECU) LED1 indicates the malfuction code. for example, LED1 flash 3 times, the malfunction code is 3. The flash times or malfuction code of indoor unit can also indictes the malfuction code too.the method to confirm please refer to indoor unit manul.			

1U48LS1EAB(S) 1U48IS1EAB(S) 1U60IS1EAB(S) 1U60IS2EAB(S)

Flash times of LED1	Trouble description	Analyze and diagnose	Remark
1	EEPROM faulty	Wrong EEPROM used	Non-resumable
3	Compressor overcurrent/ phase sequence wrong	Overcurrent after compressor running or power supply phase sequence wrong before compressor running.If ir occurs 3 timesin 1 hour,confim the failure, the former twice will not alarm.	Non-resumable
6	High/Low voltage protection	Phase voltage too high or too low(over 270V last 2 seconds; below 187V last 2 senconds).If it occurs 3 times in 30 minutes, confirm the falure.	Non-resumable
8	Proctection of diacharging temp. too high	After compressor starts up, if TD is over 120degree, 10 seconds later compressor stops, if it occurs 3 times in 1 hour, confirm the failure.	Non-resumable
9	DC fan motor faulty	If it occurs times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
10	Defrost temp. sensor abnormal	Sensor is dectected below 20 or over 1000 for 60 seconds; temperature detected too high(0ver 68degree last 3 senconds or over 63degree last 20 senconds)	Resumable
11	Suction temp.sensor abnormal	Sensor is detected below 20 or over 1000 for 60s, but in defrosting or within 6min after defrosting, it will not alarm.	Resumable
12	Ambient temp. sensor abnormal	Sensor is detected below 20 or over 1000 for 60s, but in defrosting or within 6min after defrosting, it will not alarm.	Resumable
13	Discharging temp. sensor abnormal	After compressor running for 3min, sensor is detected below 20 or over 1000 for 60s.	Resumable
15	Comminication between indoor and outdoor abnormal	Indoor unit cannot be inspected for 4min continuously.	Resumable
16	Lack of refrigerant or diacharging pipe blocked	If it occurs 3 times in 1 hour, confirm the failure	Non-resumable
17	4-way valve converse abnormal	If it occurs 3 times in 1 hours, confirm the failure.	Non-resumable
25	Compressor low current/ current imbalance between two phase	Low current after compressor running or current imbalance between two phase after compressor running. If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm.	Non-resumable
42	High pressure switch abnormal	After compressor running for 3min, if switch is detected unconnected for 30s, it alarms.If it occurs 3 times in 1 hours, confirm this failure, or if TCM is over 68degree for 10s for 3 times.	Non-resumable
43	Low pressure switch abnormal	After compressor running for 3min, if switch is detected unconnected for 30s, it alarms.If it occurs 3 times in 1 hour, confirm this failure. If it occurs 3 times in 1 hour,confirm the failure,but in defrosting or within 6min after defrosting, it will not alarm.	Non-resumable

Note:
1.The flash times of outdoor mainboard(ECU) LED1(red color) indicates the malfuction code. for example, LED1 flash 3times , the malfuction code is 3.
2.The flash times or malfuction code of indoor unit can also indicates the malfuction code too,the method to confirm please refer to the indoor unit manul.

150510198

Haier

Super Match

3U19FS1ERA 3U24GS1ERA 4U26HS1ERA 4U30HS1ERA 5U34HS1ERA 5U45LS1ERA
3U19FS1ERA(N) 3U24GS1ERA(N)

PRODUCT DIAGNOSIS PROCEDURE

Diagnosis using the Numeral Light Indicator

Malfunction Code	Diagnosis
1	Faulty of outdoor unit EEPROM
2	IPM overcurrent or short circuit
4	Communication failure between Module and ECU
5	Module operated overload
6	Module low or high voltage
8	Discharging temperature overheating.Lack of refrigerant, ambient temperature too high or PMVs blocked.
9	Malfunction of the DC fan motor
10	Malfunction of defrosting temp. sensor
11	Malfunction of compressor suction temp. sensor
12	Malfunction of ambient temp. sensor
13	Malfunction of compressor discharge temp. sensor
15	Communication failure between indoor&outdoor unit
16	Lack of refrigerant or discharging
17	4-way valve switching failure
18	Loss of synchronism detection
20	Indoor thermal overload
21	Indoor frosted
23	Module thermal overload
24	Compressor start failure
25	Module input overcurrent
26	MCU reset
27	Module current detect circuit malfunction
28	Malfunction of liquid pipe temp. sensor for indoor unit A
29	Malfunction of liquid pipe temp. sensor for indoor unit B
30	Malfunction of liquid pipe temp. sensor for indoor unit C
31	Malfunction of liquid pipe temp. sensor for indoor unit D
32	Malfunction of gas pipe temp. sensor for indoor unit A

Malfunction Code	Diagnosis
33	Malfunction of gas pipe temp. sensor for indoor unit B
34	Malfunction of gas pipe temp. sensor for indoor unit C
35	Malfunction of gas pipe temp. sensor for indoor unit D
36	Malfunction of gas pipe temp. sensor for indoor unit E
38	Malfunction of module temp.sensor Momentary power failure detection
39	Malfunction of condensing temp. sensor
40	Malfunction of liquid pipe temp. sensor for indoor unit E
41	Malfunction of 'Toci' temp. sensor
42	System high pressure switch off
43	System low pressure switch off
44	System high pressure protection.Refrigerant overabundance,High condensing temp. or malfunction of fan motor.
45	System low pressure protection.Refrigerant shortage, Low defrosting temp., or malfunction of fan motor.

Definition of SW1 on Malfunction Display

1	2	3	4	Definition
OFF	OFF	OFF	OFF	State when out of factory (Normal Operating)
ON	OFF	OFF	OFF	Compulsive Heating:Frequency 50HZ; PMV 200 pulse;Class 5 of outdoor fan motor.
OFF	ON	OFF	OFF	Compulsive Cooling:Frequency 60HZ; PMV 200 pulse;Class 7 of outdoor fan motor.
OFF	OFF	ON	OFF	Rated Operating
OFF	OFF	OFF	ON	Time Defrost Valid

Precautions For Adding Refrigerant

1.This system must use refrigerant R410A.
2.Add refrigerant 28g/meter in 5U45LS1E-RA，add refrigerant 20g/meter in other outdoor units when the total piping length exceeds the standard value，but make sure that the total liquid piping length should be less than the max value.

Outdoor Unit	Std. Value	Max. Value
3U19FS1ERA	30m	50m
3U24GS1ERA	30m	60m
4U26HS1ERA	40m	70m
4U30HS1ERA	40m	70m
5U34HS1ERA	40m	80m
5U45LS1ERA	40m	100m
3U19FS1ERA(N)	30m	50m
3U24GS1ERA(N)	30m	60m

Notes:

1.When using this product,you need not to set the address.But the L/N wires between indoor & outdoor units must be corresponded,or there will be communication failure.
2.Quiet Operation Setting.Set the DIP "8" to ON position of SW5,the system will run with lower noise,but the max capacity will also reduce slightly.
3.Do NOT change the settings of other switchs,wrong settings can make the system damage or other malfunctions.
4.For some malfunctions, this system can make back up running.

* ECU:Electronic Control Unit
* MCU:Micro Control Unit
* PMV:Pulse Modulated Valve

0150504996

Wired controller and pannel error code display when Outdoor unit(3U 4U 5U) conneting indoor units

Outdoor LED display	Error code discription	Wired controller display(Hex-YR-E17)---for duct/ cassette	Wired controller display(Decimal-YR-E16/YR-E16A)---for duct/cassette	Panel display(Hex)---for round way cassette
1	Faulty of outdoor unit EEPROM	15	21	15
2	IPM overcurrent or short circuit	16	22	16
4	Communication failure between Module and ECU	18	24	18
5	Module operated overload	19	25	19
6	Module low or high voltage	1A	26	1A
8	Discharging temperature overheating. Lack of refrigerant, ambient temperature too high or PMVs blocked.	1C	28	1C
9	Malfunction of the DC fan motor	1D	29	1D
10	Malfunction of defrosting temp. sensor	1E	30	1E
11	Malfunction of compressor suction temp. sensor	1F	31	1F
12	Malfunction of ambient temp. sensor	20	32	20
13	Malfunction of compressor discharge temp. sensor	21	33	21
15	Communication failure between indoor&outdoor unit	23	35	23
16	Lack of refrigerant or discharging	24	36	24
17	4-way valve switching failure	25	37	25
18	Loss of synchronism detection	26	38	26
20	Indoor thermal overload	28	40	28
21	Indoor frosted	29	41	29
23	Module thermal overload	2B	43	2B
24	Compressor start failure	2C	44	2C
25	Module input overcurrent	2D	45	2D
26	MCU reset	2E	46	2E
27	Module current detect circuit malfunction	2F	47	2F
28	Malfunction of liquid pipe temp. sensor for indoor unit A	30	48	30
29	Malfunction of liquid pipe temp. sensor for indoor unit B	31	49	31
30	Malfunction of liquid pipe temp. sensor for indoor unit C	32	50	32
31	Malfunction of liquid pipe temp. sensor for indoor unit D	33	51	33
32	Malfunction of gas pipe temp. sensor for indoor unit A	34	52	34
33	Malfunction of gas pipe temp. sensor for indoor unit B	35	53	35

Outdoor LED display	Error code discription	Wired controller display(Hex-YR-E17)---for duct/ cassette	Wired controller display(Decimal-YR-E16/YR-E16A)---for duct/cassette	Panel display(Hex)---for round way cassette
34	Malfunction of gas pipe temp. sensor for indoor unit C	36	54	36
35	Malfunction of gas pipe temp. sensor for indoor unit D	37	55	37
36	Malfunction of gas pipe temp. sensor for indoor unit E	38	56	38
38	Malfunction of module temp.sensor Momentary power failure detection	3A	58	3A
39	Malfunction of condensing temp. sensor	3B	59	3B
40	Malfunction of liquid pipe temp. sensor for indoor unit E	3C	60	3C
41	Malfunction of 'Toci'temp. sensor	3D	61	3D
42	System high pressure switch off	3E	62	3E
43	System low pressure switch off	3F	63	3F
44	System high pressure protection. Refrigerant overabundance,high condensing temp. or malfunction of fan motor.	40	64	40
45	System low pressure protection. Refrigerant shortage,low defrosting temp., or malfunction of fan motor.	41	65	41

Error code for Outdoor unit(3U 4U 5U) conneting 4-way cassette------- ------ AB09CS2ERA AB12/18CS2ERA(S)

Outdoor LED display	Error code discription	Round way cassette--- indoor display outdoor error code use the timer and running lamp OR I.D. PCB LED	
		Timer lamp flash time(I.D. PCB LED5)	Running lamp flash time(I.D. PCB LED1)
1	Faulty of outdoor unit EEPROM	2	1
2	IPM overcurrent or short circuit	2	2
4	Communication failure between Module and ECU	2	4
5	Module operated overload	2	5
6	Module low or high voltage	2	6
8	Discharging temperature overheating. Lack of refrigerant, ambient temperature too high or PMVs blocked.	2	8
9	Malfunction of the DC fan motor	2	9
10	Malfunction of defrosting temp. sensor	3	0
11	Malfunction of compressor suction temp. sensor	3	1
12	Malfunction of ambient temp. sensor	3	2
13	Malfunction of compressor discharge temp. sensor	3	3
15	Communication failure between indoor&outdoor unit	3	5
16	Lack of refrigerant or discharging	3	6
17	4-way valve switching failure	3	7
18	Loss of synchronism detection	3	8
20	Indoor thermal overload	4	0
21	Indoor frosted	4	1
23	Module thermal overload	4	3
24	Compressor start failure	4	4
25	Module input overcurrent	4	5
26	MCU reset	4	6
27	Module current detect circuit malfunction	4	7
28	Malfunction of liquid pipe temp. sensor for indoor unit A	4	8
29	Malfunction of liquid pipe temp. sensor for indoor unit B	4	9
30	Malfunction of liquid pipe temp. sensor for indoor unit C	5	0
31	Malfunction of liquid pipe temp. sensor for indoor unit D	5	1

Outdoor LED display	Error code discription	Round way cassette--- indoor display outdoor error code use the timer and running lamp OR I.D. PCB LED	
		Timer lamp flash time(I.D. PCB LED5)	Running lamp flash time(I.D. PCB LED1)
32	Malfunction of gas pipe temp. sensor for indoor unit A	5	2
33	Malfunction of gas pipe temp. sensor for indoor unit B	5	3
34	Malfunction of gas pipe temp. sensor for indoor unit C	5	4
35	Malfunction of gas pipe temp. sensor for indoor unit D	5	5
36	Malfunction of gas pipe temp. sensor for indoor unit E	5	6
38	Malfunction of module temp.sensor Momentary power failure detection	5	8
39	Malfunction of condensing temp. sensor	5	9
40	Malfunction of liquid pipe temp. sensor for indoor unit E	6	0
41	Malfunction of 'Toci'temp. sensor	6	1
42	System high pressure switch off	6	2
43	System low pressure switch off	6	3
44	System high pressure protection. Refrigerant overabundance,high condensing temp. or malfunction of fan motor.	6	4
45	System low pressure protection. Refrigerant shortage,low defrosting temp., or malfunction of fan motor.	6	5

Error code for Outdoor unit(3U 4U 5U) conneting the other compact design 4-way cassette(AB*CS1ERA ,AB*ES1ERA) /Convertible unit/Duct unit

Outdoor LED display	Error code discription	Compact design 4-way cassette/Convertible unit/Duct unit--- indoor display outdoor error code use the timer and running lamp OR I.D. PCB LED	
		Timer lamp flash time(I.D. PCB LED4)	Running lamp flash time(I.D. PCB LED3)
1	Faulty of outdoor unit EEPROM	2	1
2	IPM overcurrent or short circuit	2	2
4	Communication failure between Module and ECU	2	4
5	Module operated overload	2	5
6	Module low or high voltage	2	6
8	Discharging temperature overheating. Lack of refrigerant, ambient temperature too high or PMVs blocked.	2	8
9	Malfunction of the DC fan motor	2	9
10	Malfunction of defrosting temp. sensor	3	0
11	Malfunction of compressor suction temp. sensor	3	1
12	Malfunction of ambient temp. sensor	3	2
13	Malfunction of compressor discharge temp. sensor	3	3
15	Communication failure between indoor&outdoor unit	3	5
16	Lack of refrigerant or discharging	3	6
17	4-way valve switching failure	3	7
18	Loss of synchronism detection	3	8
20	Indoor thermal overload	4	0
21	Indoor frosted	4	1
23	Module thermal overload	4	3
24	Compressor start failure	4	4
25	Module input overcurrent	4	5
26	MCU reset	4	6
27	Module current detect circuit malfunction	4	7
28	Malfunction of liquid pipe temp. sensor for indoor unit A	4	8
29	Malfunction of liquid pipe temp. sensor for indoor unit B	4	9
30	Malfunction of liquid pipe temp. sensor for indoor unit C	5	0
31	Malfunction of liquid pipe temp. sensor for indoor unit D	5	1

Outdoor LED display	Error code discription	Compact design 4-way cassette/Convertible unit/Duct unit--- indoor display outdoor error code use the timer and running lamp OR I.D. PCB LED	
		Timer lamp flash time(I.D. PCB LED4)	Running lamp flash time(I.D. PCB LED3)
32	Malfunction of gas pipe temp. sensor for indoor unit A	5	2
33	Malfunction of gas pipe temp. sensor for indoor unit B	5	3
34	Malfunction of gas pipe temp. sensor for indoor unit C	5	4
35	Malfunction of gas pipe temp. sensor for indoor unit D	5	5
36	Malfunction of gas pipe temp. sensor for indoor unit E	5	6
38	Malfunction of module temp.sensor Momentary power failure detection	5	8
39	Malfunction of condensing temp. sensor	5	9
40	Malfunction of liquid pipe temp. sensor for indoor unit E	6	0
41	Malfunction of 'Toci'temp. sensor	6	1
42	System high pressure switch off	6	2
43	System low pressure switch off	6	3
44	System high pressure protection.Refrigerant overabundance,high condensing temp. or malfunction of fan motor.	6	4
45	System low pressure protection.Refrigerant shortage,low defrosting temp., or malfunction of fan motor.	6	5

Error code for Outdoor unit(3U 4U 5U) conneting RAC Wall mounted indoor unit

Outdoor LED display	Error code discription	Wall mounted indoor display
1	Faulty of outdoor unit EEPROM	F12
2	IPM overcurrent or short circuit	F1
4	Communication failure between Module and ECU	F3
5	Module operated overload	F20
6	Module low or high voltage	F19
8	Discharging temperature overheating.Lack of refrigerant, ambient temperature too high or PMVs blocked.	F4
9	Malfunction of the DC fan motor	F8
10	Malfunction of defrosting temp. sensor	F21
11	Malfunction of compressor suction temp. sensor	F7
12	Malfunction of ambient temp. sensor	F6
13	Malfunction of compressor discharge temp. sensor	F25
15	Communication failure between indoor&outdoor unit	E7
16	Lack of refrigerant or discharging	F13
17	4-way valve switching failure	F14
18	Loss of synchronism detection	F11
20	Indoor thermal overload	E9
21	Indoor frosted	E5
23	Module thermal overload	F5
24	Compressor start failure	F2
25	Module input overcurrent	F23
26	MCU reset	F9
27	Module current detect circuit malfunction	F24
28	Malfunction of liquid pipe temp. sensor for indoor unit A	F10
29	Malfunction of liquid pipe temp. sensor for indoor unit B	F16
30	Malfunction of liquid pipe temp. sensor for indoor unit C	F17
31	Malfunction of liquid pipe temp. sensor for indoor unit D	F18

Outdoor LED display	Error code discription	Wall mounted indoor display
32	Malfunction of gas pipe temp. sensor for indoor unit A	F29
33	Malfunction of gas pipe temp. sensor for indoor unit B	F30
34	Malfunction of gas pipe temp. sensor for indoor unit C	F31
35	Malfunction of gas pipe temp. sensor for indoor unit D	F32
36	Malfunction of gas pipe temp. sensor for indoor unit E	F26
38	Malfunction of module temp.sensor Momentary power failure detection	F35
39	Malfunction of condensing temp. sensor	F36
40	Malfunction of liquid pipe temp. sensor for indoor unit E	F33
41	Malfunction of 'Toci'temp. sensor	F38
42	System high pressure switch off	F39
43	System low pressure switch off	F40
44	System high pressure protection.Refrigerant overabundance,high condensing temp. or malfunction of fan motor.	F41
45	System low pressure protection.Refrigerant shortage,low defrosting temp., or malfunction of fan motor.	F42

AD09~24SS1ERA AD09~24SS1ERA(N)(P) AD09~24SS1ERA(N) AD12MS1ERA AD18MS1ERA AD12MS1ERA(D) AD18MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) AD28MS2ERA(S) AD28MS2ERA(S)(D)

LED flash times of indoor PCB		Wired controller display	Contents of Malfunction	Possible reasons
LED4	LED3			
0	1	01	Malfunction of indoor unit ambient temperature sensor	Sensor disconected,or broken,or at wrong position,or short circuit
0	2	02	Malfunction of indoor unit piping temperature sensor	Sensor disconected,or brok- en,or at wrong position,or short circuit
0	4	04	EEPROM wrong of indoor PCB	EEPROM chip disconected or broken or wrong programmed,or PCB broken
0	7	07	Abnormal communication between indoor and outdoor units	Wrong connection,or the wires be disconected or wrong adress setting of indoor unit or faulty power supply or faulty PCB or slave unit malfunction in MAXI system
0	8	/	Abnormal communication between wired controller and indoor unit	Wrong connection or wired controller broken,or PCB faulty
0	12	0C	Malfunction of drain system	Pump motor disconnected or at wrong position,or the float switch,disconnected, or at wrong position,or the short circuit bridge disconneted
0	13	0D	Zero cross sigal wrong	Zero cross sigal detected wrong
0	14	0E	Indoor unit DC fan mode operation	DC fan motor disconected, or DC fan broken or circuit borken

Note:

1. The outdoor failure can also be indicated by the indoor unit,the checking method as follo- ws: LED4 flash times stands for tens digit,and LED3 flash times stands for units digit, use this bidigitate figure minus 20,then will get the outdoor error code.For example,if the outdoor error code is 15,LED4 will flash 3 times firstly,two seconds later,LED3 will flash 5 times , and four seconds later the process will repeat again.
2. LED4 is a yellow one on the indoor PCB,LED3 is a green one.
3. To get much more details about the out door unit failure,please refer to the outdoor unit trouble shooting list.

AD24MS1ERA AD28~48NS1ERA(S) AD48~60HS1ERA(S) AB09~18CS1ERA(S) AB24~48ES1ERA(S) AB60CS1ERA(S) AB60ES2ERA(S) AC12~24CS1ERA(S) AC28~48ES1ERA(S) AC60FS1ERA(S) AD24MS1ERA(D)

LED flash times of indoor PCB		Wired controller display	Contents of Malfunction	Possible reasons
LED4	LED3			
0	1	01	Malfunction of indoor unit ambient temperature sensor	Sensor disconected,or broken,or at wrong position,or short circuit
0	2	02	Malfunction of indoor unit piping temperature sensor	Sensor disconected,or brok- en,or at wrong position,or short circuit
0	4	04	EEPROM wrong of indoor PCB	EEPROM chip disconected or broken or wrong programmed,or PCB broken
0	7	07	Abnormal communication between indoor and outdoor units	Wrong connection,or the wires be disconected or wrong adress setting of indoor unit or faulty power supply or faulty PCB or slave unit malfunction in MAXI system
0	8	/	Abnormal communication between wired controller and indoor unit	Wrong connection or wired controller broken,or PCB faulty
0	12	0C	Malfunction of drain system	Pump motor disconnected or at wrong position,or the float switch,disconnected,or at wrong position,or the short circuit bridge disconneted
0	13	0D	Zero cross sigal wrong	Zero cross sigal detected wrong
0	16	10	Indoor abnormal mode operation	Different from outdoor unit mode
2	1	15	Outdoor unit abnormal	Refer to the outdoor unit troubleshooting list
2	2	16	Outdoor unit abnormal	
2	4	18	Outdoor unit abnormal	
2	5	19	Outdoor unit abnormal	
2	7	1B	Outdoor unit abnormal	
2	8	1C	Outdoor unit abnormal	
2	9	1D	Outdoor unit abnormal	
3	0	1E	Outdoor unit abnormal	
3	1	1F	Outdoor unit abnormal	
3	2	20	Outdoor unit abnormal	
3	3	21	Outdoor unit abnormal	
3	5	23	Outdoor unit abnormal	
3	6	24	Outdoor unit abnormal	
3	7	25	Outdoor unit abnormal	
3	8	26	Outdoor unit abnormal	
3	9	27	Outdoor unit abnormal	
4	3	2B	Outdoor unit abnormal	
4	4	2C	Outdoor unit abnormal	
4	7	2F	Outdoor unit abnormal	
4	8	30	Outdoor unit abnormal	
4	9	31	Outdoor unit abnormal	
5	8	3A	Outdoor unit abnormal	
5	9	3B	Outdoor unit abnormal	
6	3	3F	Outdoor unit abnormal	
6	4	40	Outdoor unit abnormal	

Note:

1.The outdoor failure can also be indicated by the indoor unit,the checking method as follo- ws: LED4 flash times stands for tens digit,and LED3 flash times stands for units digit, use this bidigitate figure minus 20,then will get the outdoor error code.For example,if the outdoor error code is 15,LED4 will flash 3 times firstly,two seconds later,LED3 will flash 5 times , and four seconds later the process will repeat again.

2.LED4 is a yellow one on the indoor PCB,LED3 is a green one.

3.To get much more details about the out door unit failure,please refer to the outdoor unit trouble shooting list.

AP48~60KS1ERA(S)

LED flash times of indoor PCB		Remote receiver display	Contents of Malfunction
LED4	LED3		
0	1	E1	Malfunction of indoor unit ambient temperature sensor
0	2	E2	Malfunction of indoor unit piping temperature sensor
0	4	F8	EEPROM wrong of indoor PCB
0	5	F5	Indoor anti-freezed protection
0	7	E9	Abnormal communication between indo- or and outdoor units
0	8	E8	Abnormal communication between wired controller and indoor unit
0	9	F4	Protection of overload of heat mode
0	12	E0	Malfunction of drain system
0	13	EF	Zero cross sigal wrong
0	14	E10	Be lack of phase failure
0	15	ED	Failure of aided coil sensor
0	16	F3	Indoor abnormal mode operation
3	0	E3	Faulty temperature Te
3	2	E3	Faulty temperature Ta
3	1	E3	Faulty temperature Ts
3	3	E3	Faulty temperature Td
6	2	E6	High pressure switch abnormal
6	3	E6	Low pressure switch abnormal
3	6	E6	Low pressure protection(lack of R410A)
2	1	EE	Outdoor EEPROM failure
3	2	E9	Communication abnormal between indoor and outdoor
2	3	E5	Protection of over current of compressor among phases/wrong phases
4	5	E5	Protection of low current of compressor
2	9	F6	Outdoor DCmotor abnormal
2	8	E4	Outdoor discharging temp. sensor abnormal
3	7	F2	4-way valve reverse abnormal in heating mode
2	8	E7	Power source too high/low voltage protection
		F7	Other frequency conversion outdoor failures

Note:
1.The outdoor failure can also be indicated by the indoor unit,the checking method as follo- ws: LED4 flash times stands for tens digit,and LED3 flash times stands for units digit, use this bidigitate figure minus 20,then will get the outdoor error code.For example,if the outdoor error code is 15,LED4 will flash 3 times firstly,two seconds later,LED3 will flash 5 times , and four seconds later the process will repeat again.
2.LED4 is a yellow one on the indoor PCB,LED3 is a green one.
3.To get much more details about the out door unit failure,please refer to the outdoor unit trouble shooting list.

AP48DS1ERA(S)

LED flash times of indoor PCB		Pannel controller display	Contents of Malfunction	Possible reasons
LED4	LED3			
0	1	E1	Malfunction of indoor unit ambient temperature sensor	Sensor disconected,or broken,or at wrong position,or short circuit
0	2	E2	Malfunction of indoor unit piping temperature sensor	Sensor disconected,or broken,or at wrong position,or short circuit
0	4	E4	EEPROM wrong of indoor PCB	EEPROM chip disconected or broken or wrong programmed,or PCB broken
0	7	E9	Abnormal communication between indoor and outdoor units	Wrong connection,or the wires be disconected or wrong adress setting of indoor unit or faulty power supply or faulty PCB
0	8	E8	Abnormal communication between indoor pannel controller and indoor unit	Wrong connection or pannel controller broken,or PCB faulty
0	12	E0	Malfunction of drain system	Pump motor disconnected or at wrong position,or the float switch disconnected，or at wrong position,or the short circuit bridge disconnected
0	13	E3	Zero cross sigal wrong	Zero cross sigal detected wrong
0	16	E5	Indoor mode abnormal	indoor mode is not corresponding to the out door running mode
Refer to note		E6	Malfunction of the outdoor unit	Malfunction of the outdoor unit

Note:

①The outdoor failure can also be indicated by the indoor unit,the checking method as follows: LED4 flash times stands for ten's place,and LED3 flash times stands for one's place, use this ten-digit number minus 20,then will get the outdoor error code.For example,if the outdoor error code is 15,LED4 will flash 3 times firstly,two seconds later,LED3 will flash 5 times , and four seconds later the process will repeat again.

②LED4 is a yellow one on the indoor PCB,LED3 is a green one.

③To get much more details about the out door unit failure,please refer to the outdoor unit trouble shooting list.

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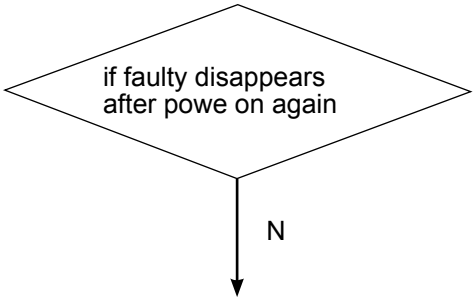
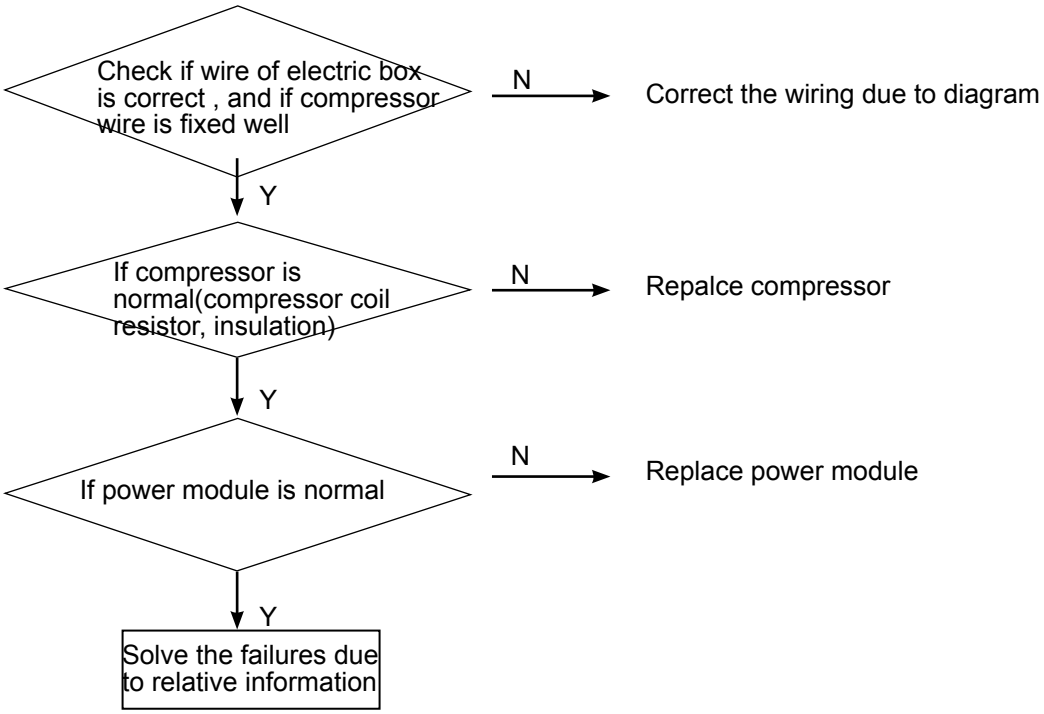
5. Trouble shooting

Outdoor EEPROM failure

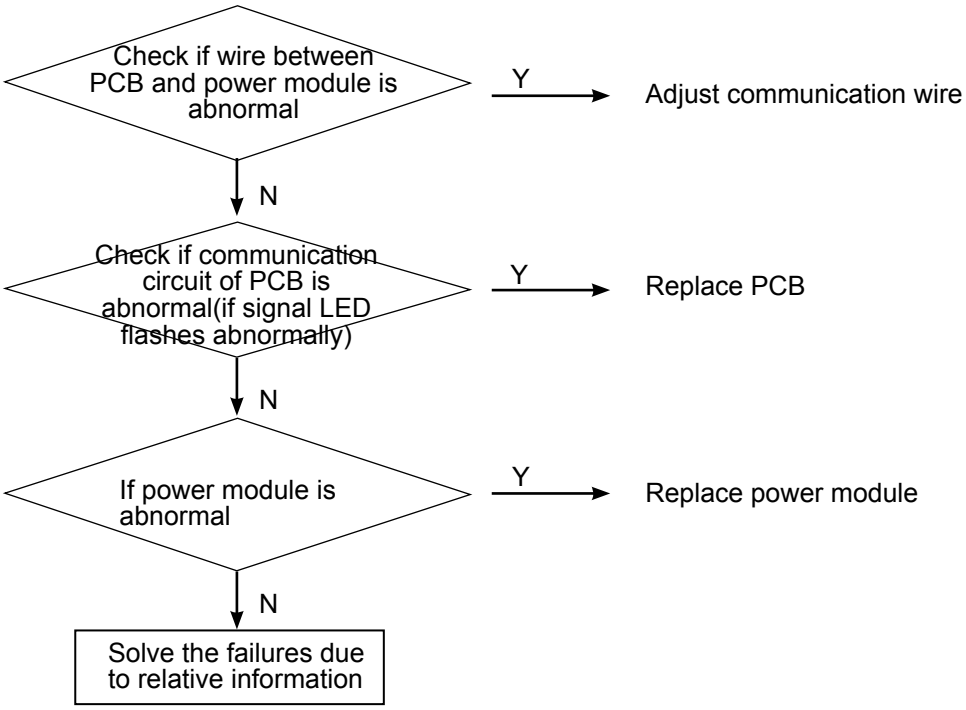


Ckeck outdoor PCB,
If faulty ,replace it.

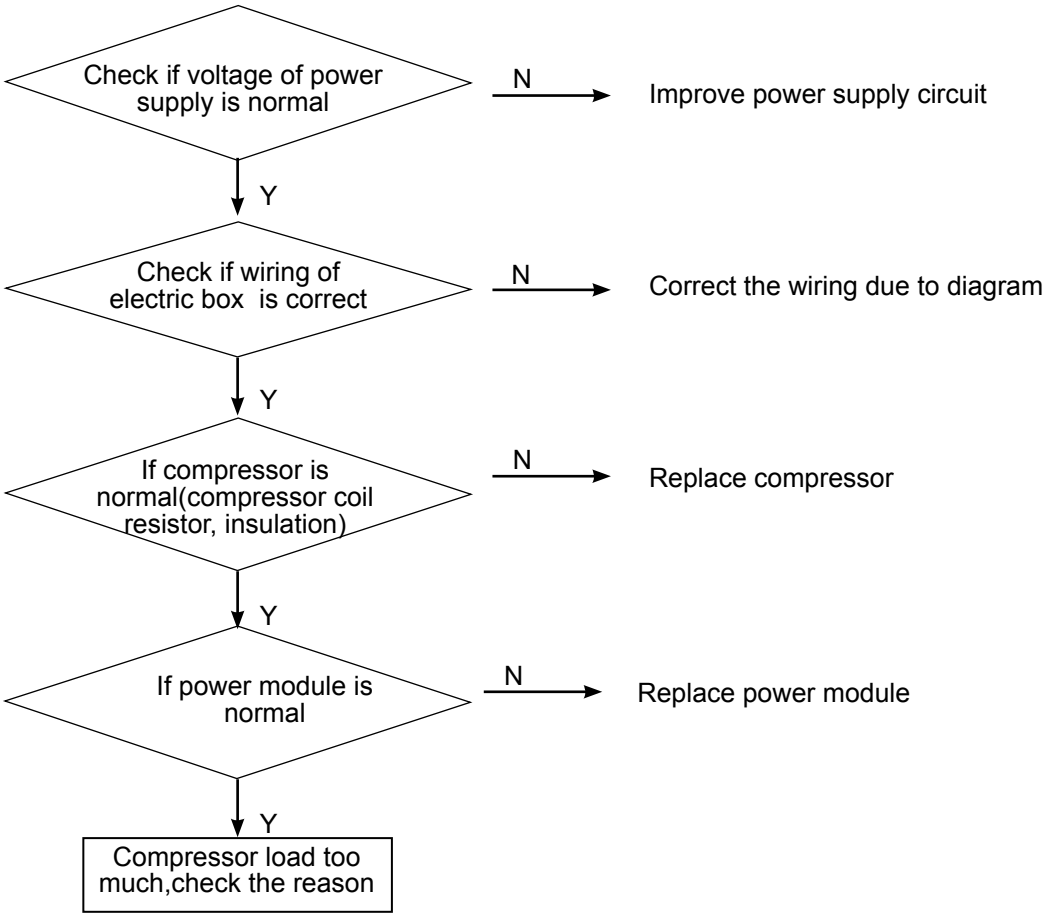
IPM over current or short circuit



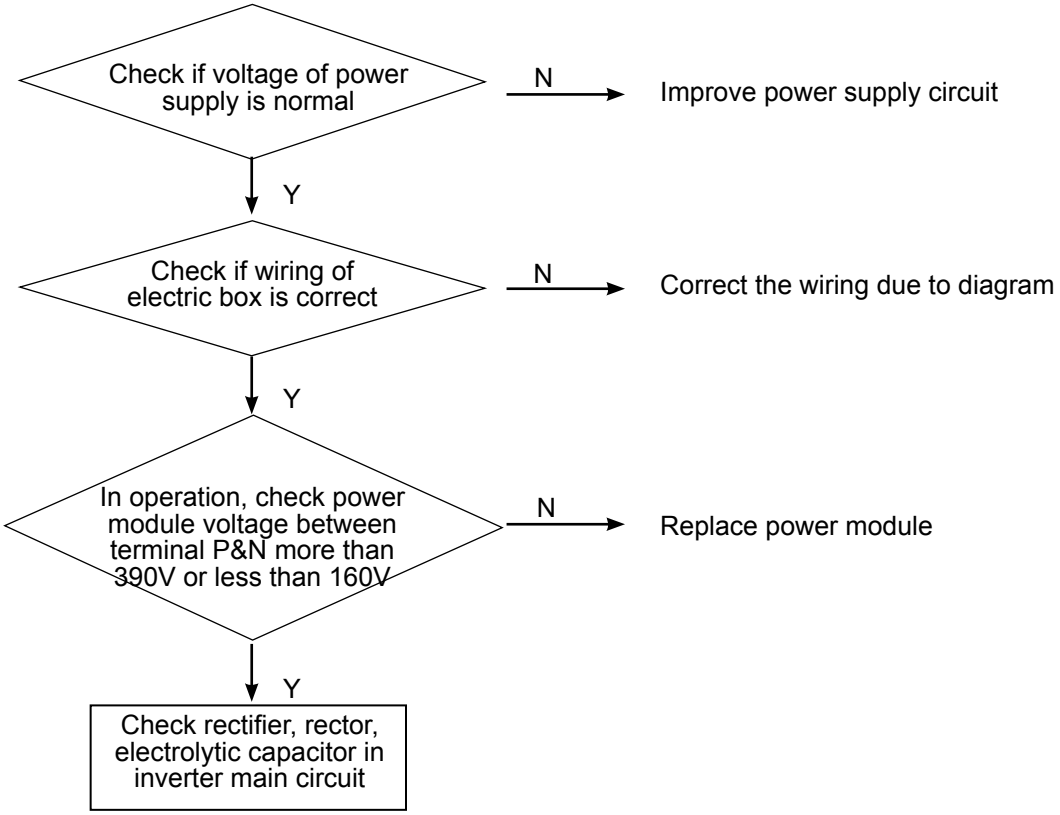
Communication failure between module ans ECU



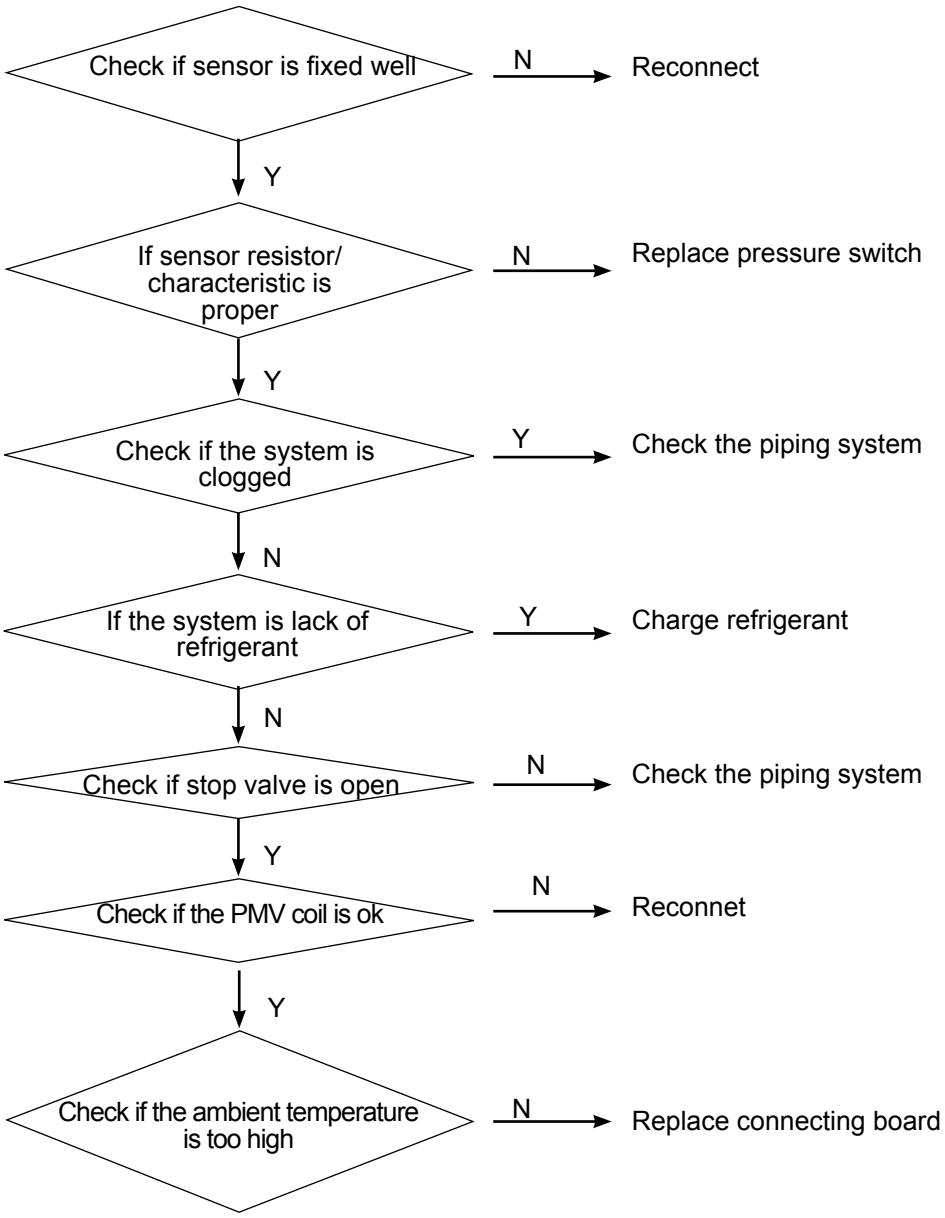
Module operated overload



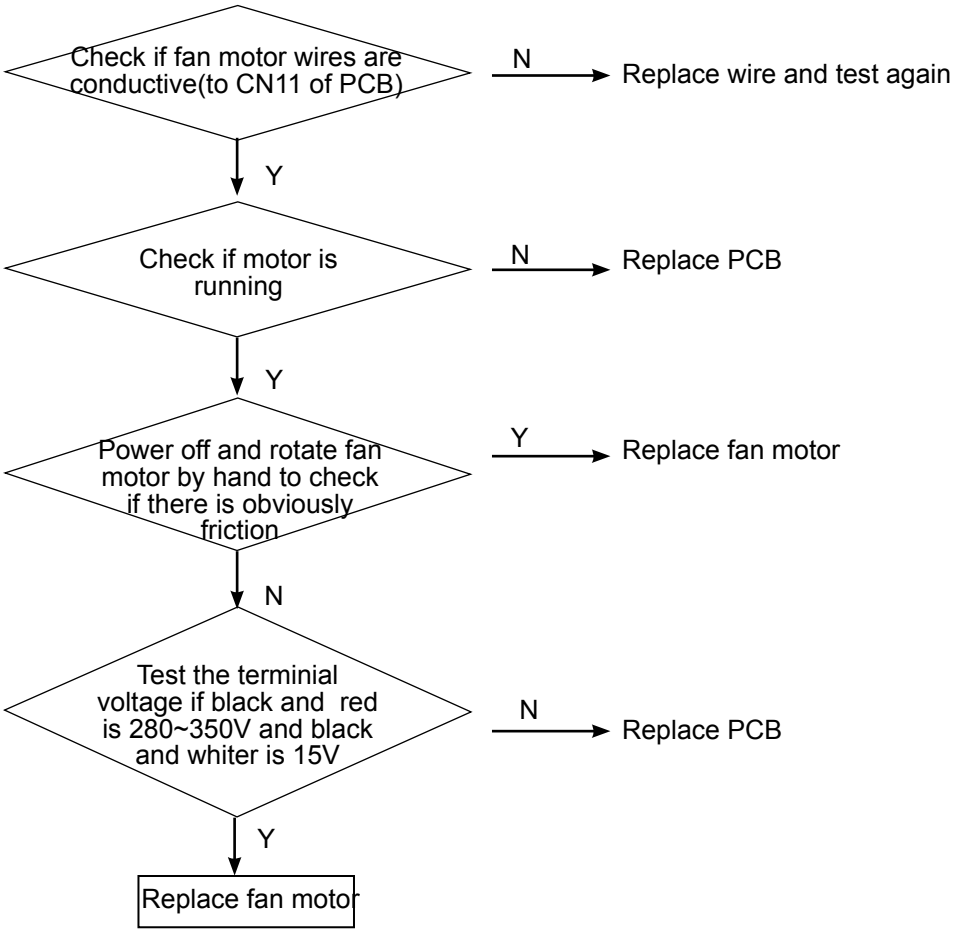
Voltage too high or low



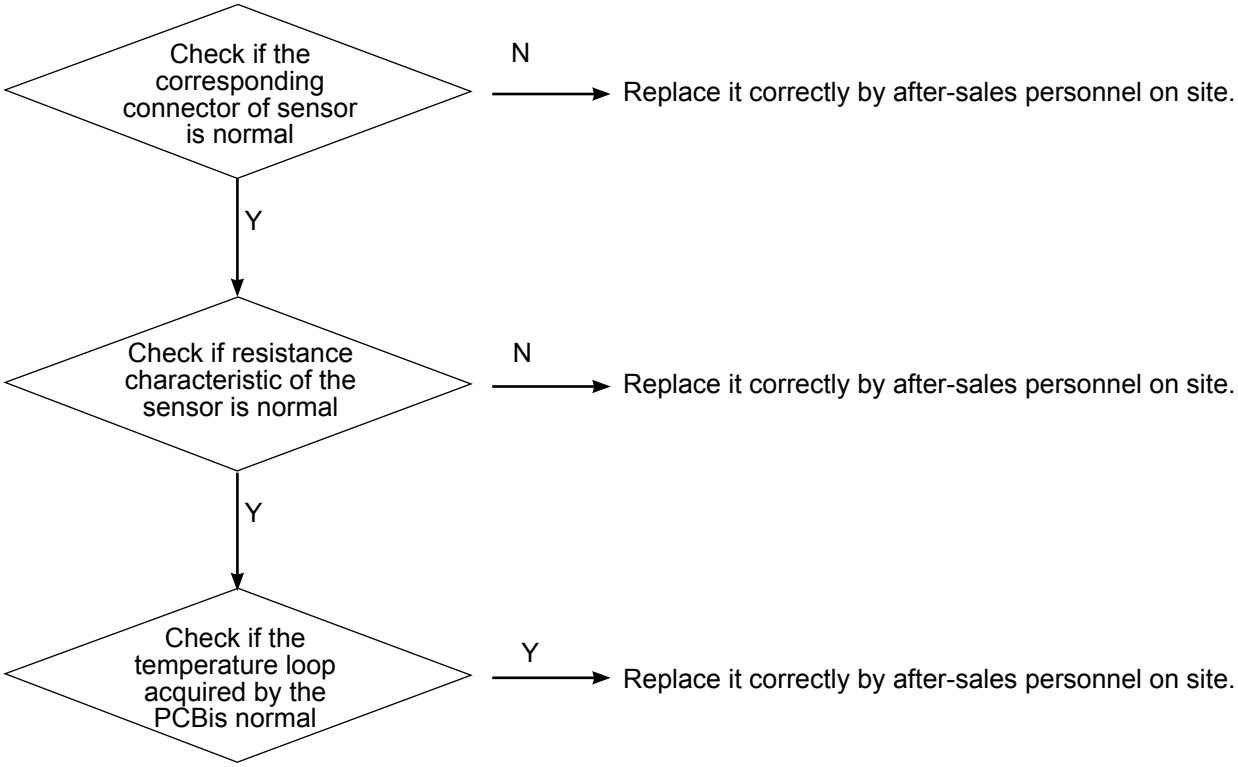
Discharging temperature overheating



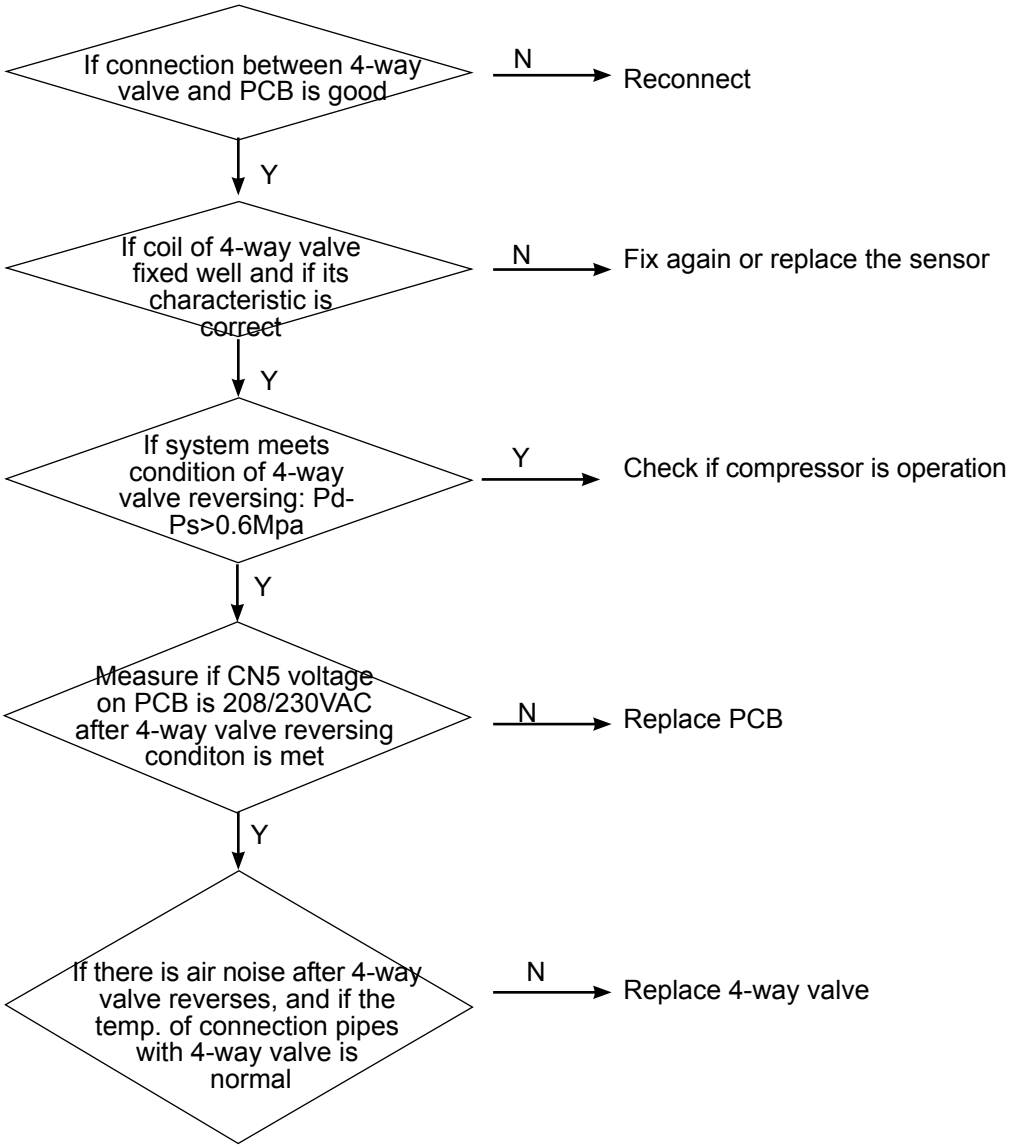
DC fan motor failure



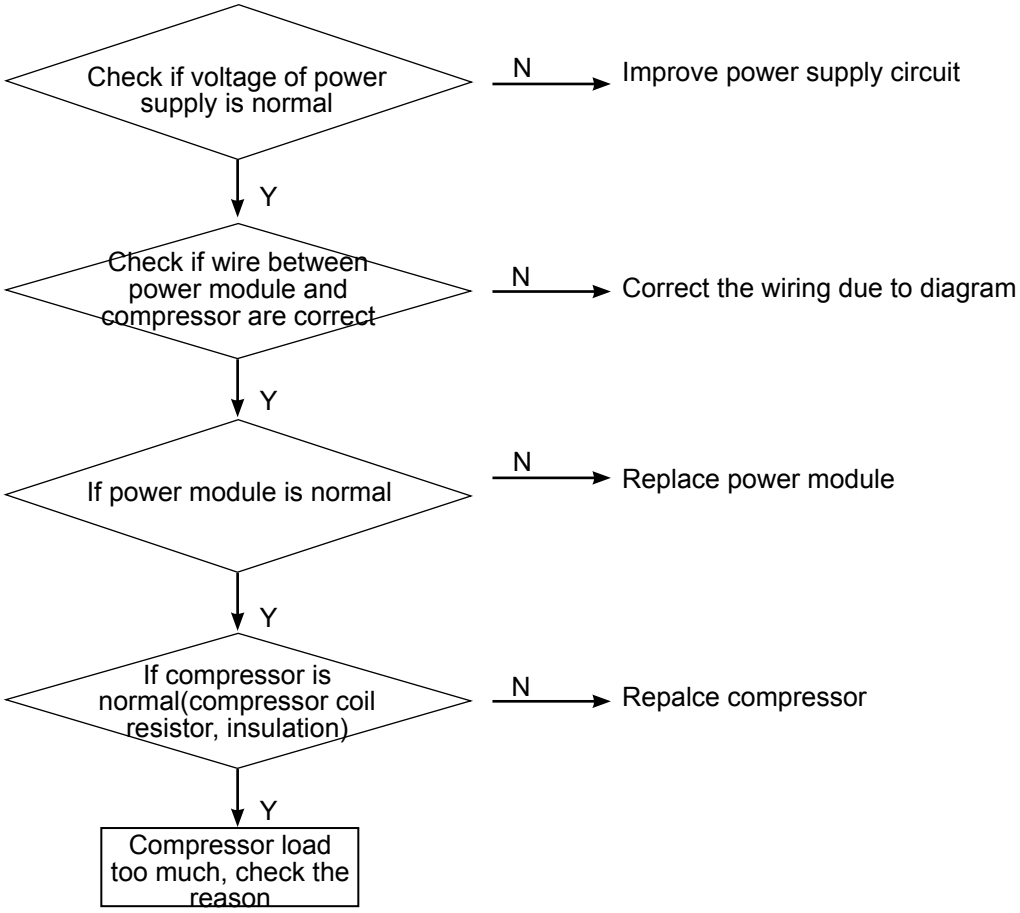
temperature sensor failure



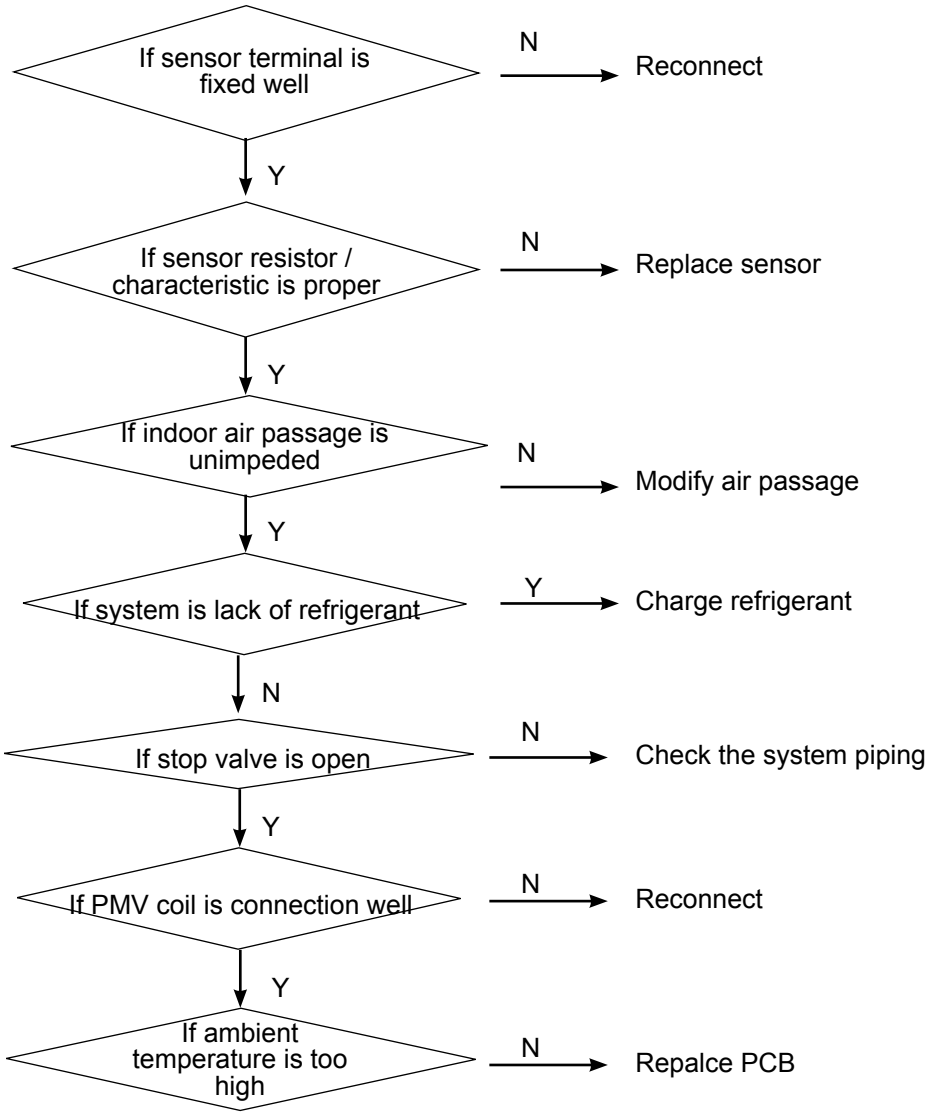
4-way valve reversing failure



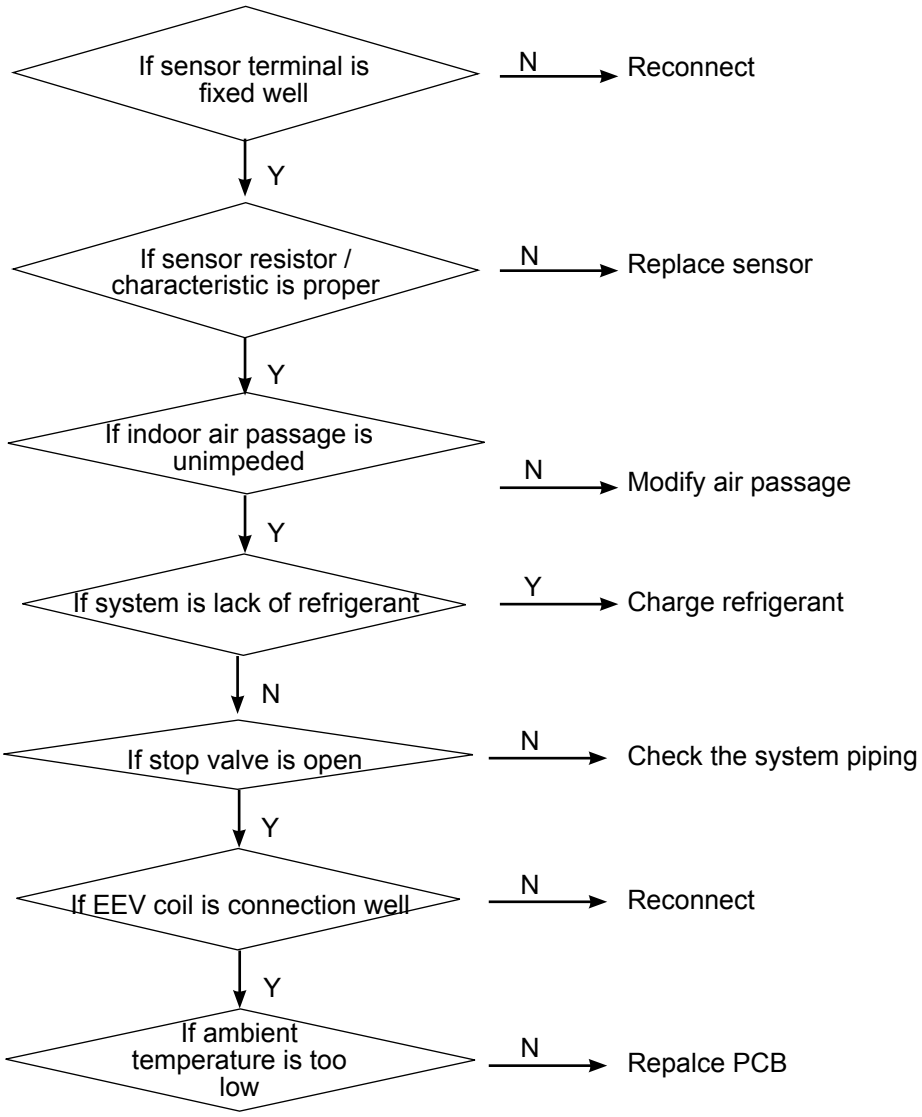
Compressor out of control circuit



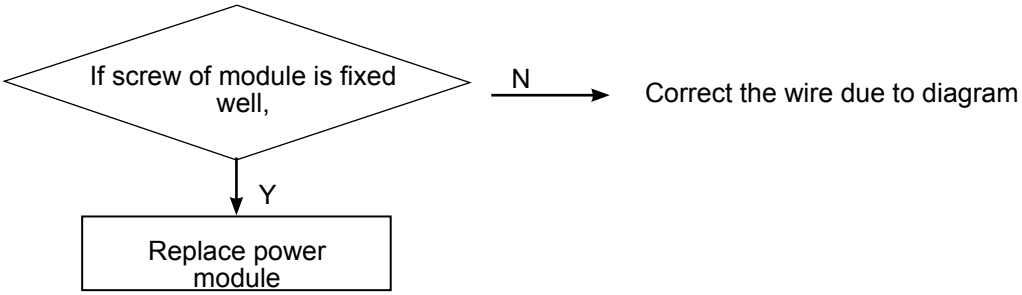
Indoor thermal overload



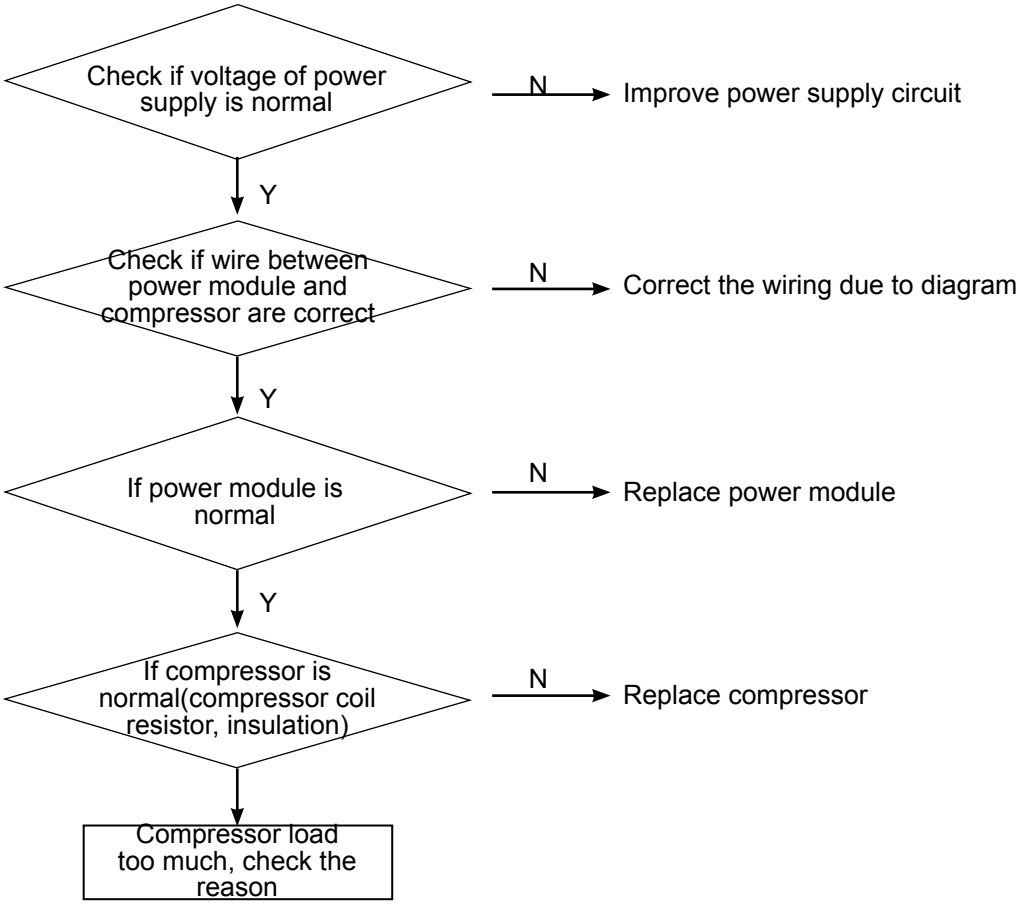
Indoor frosted



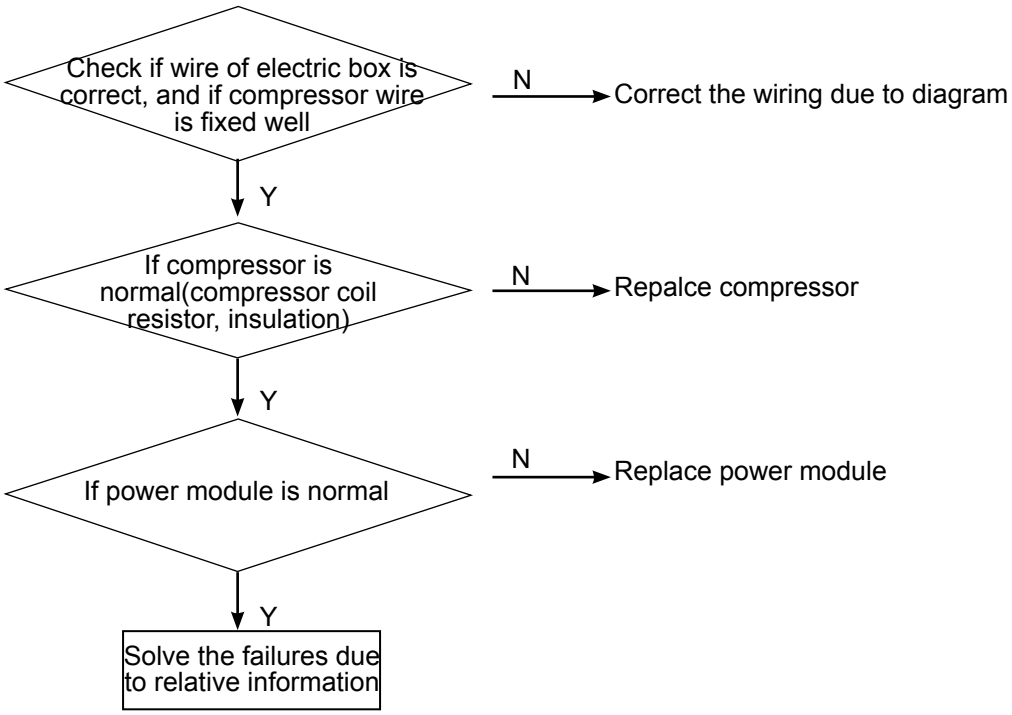
Module thermal overload



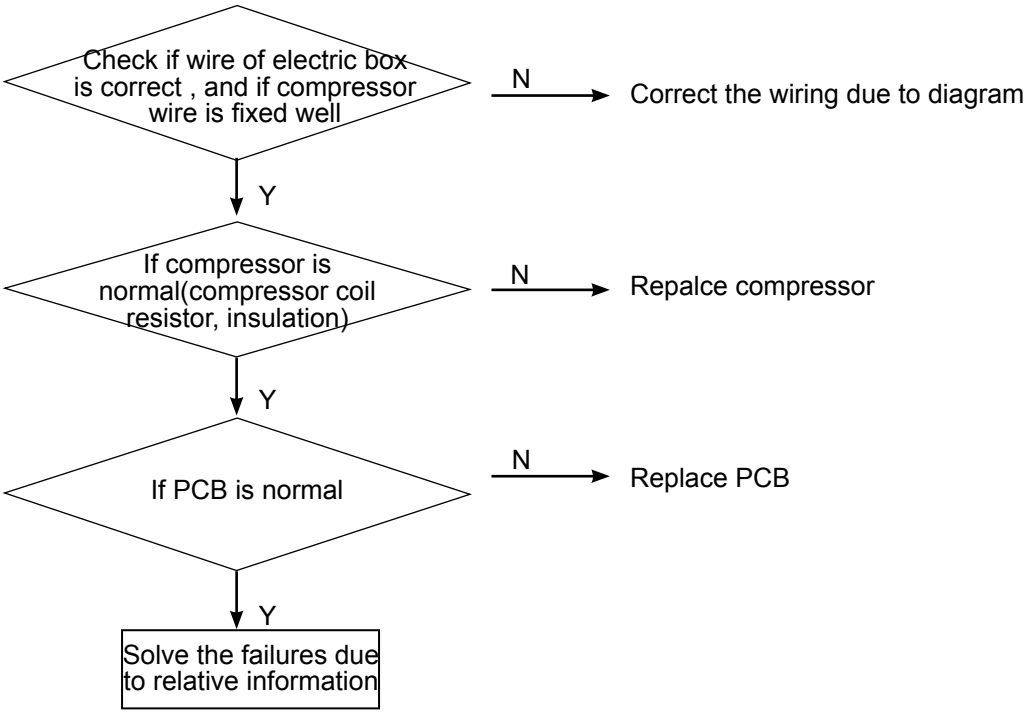
Compressor startup failure



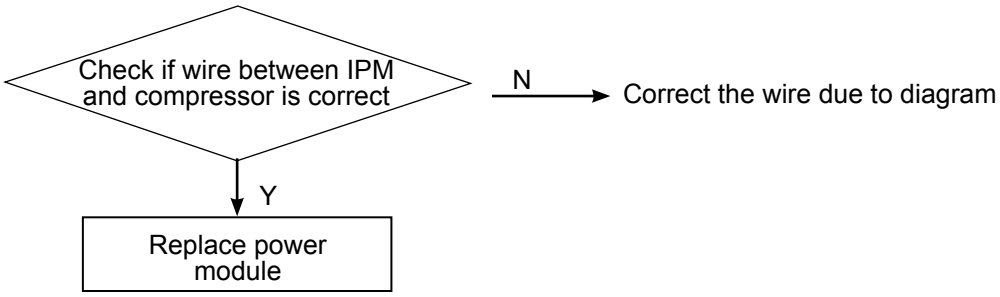
Module input over-current



MCU reset

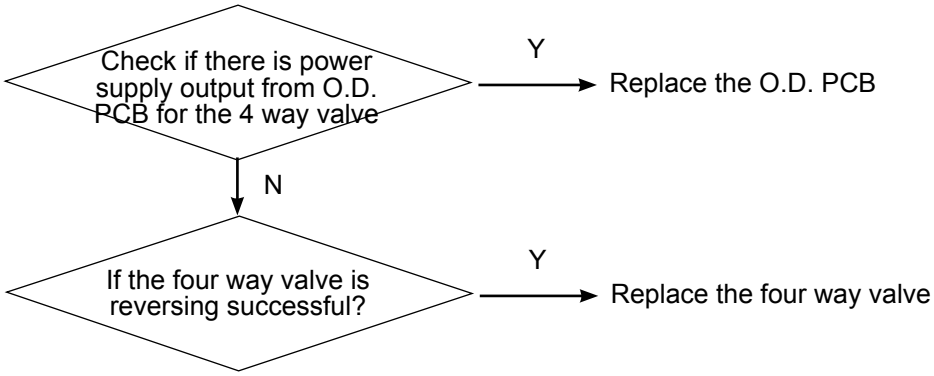


Module current detect circuit failure

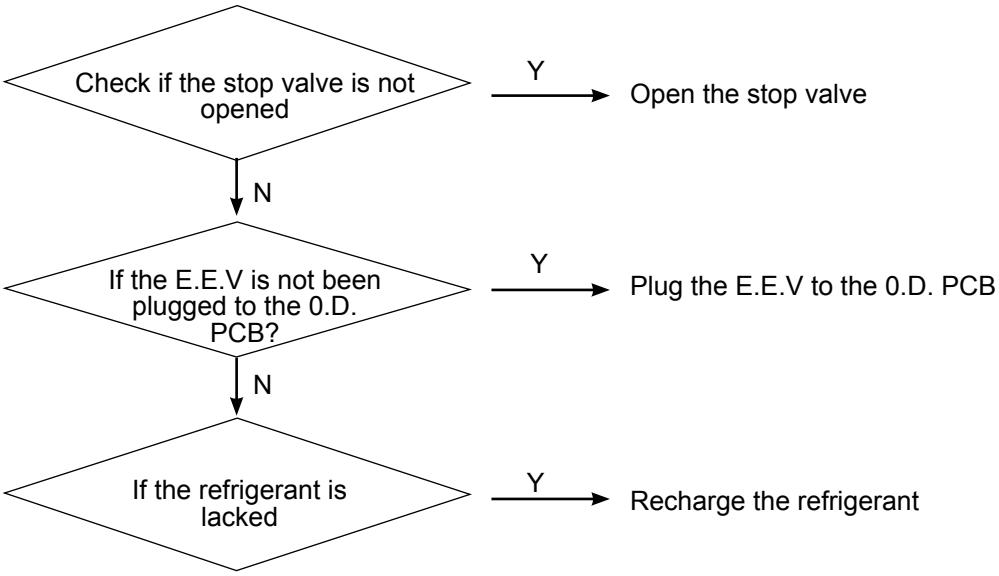


Suction temperature too high

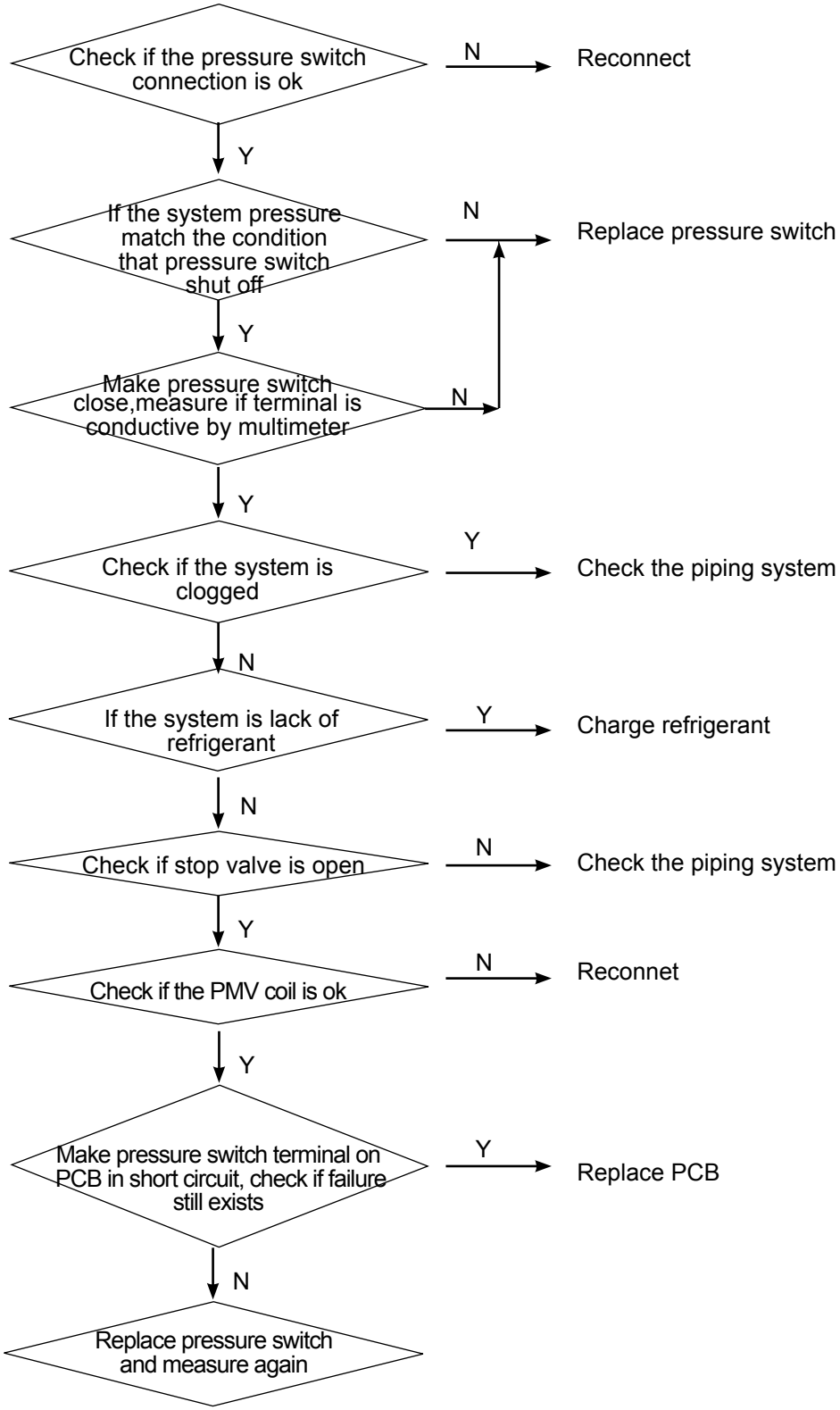
In heating mode:



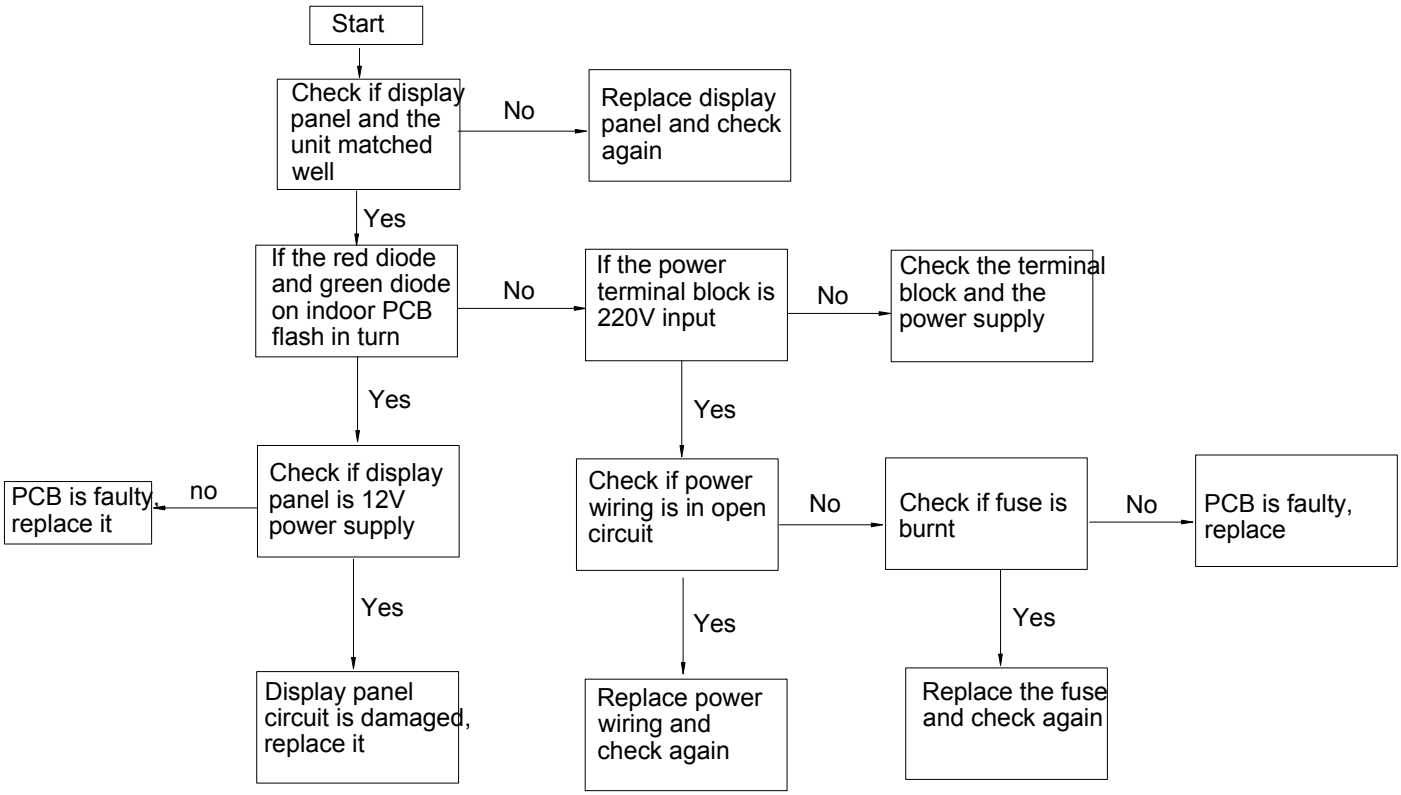
In cooling mode:



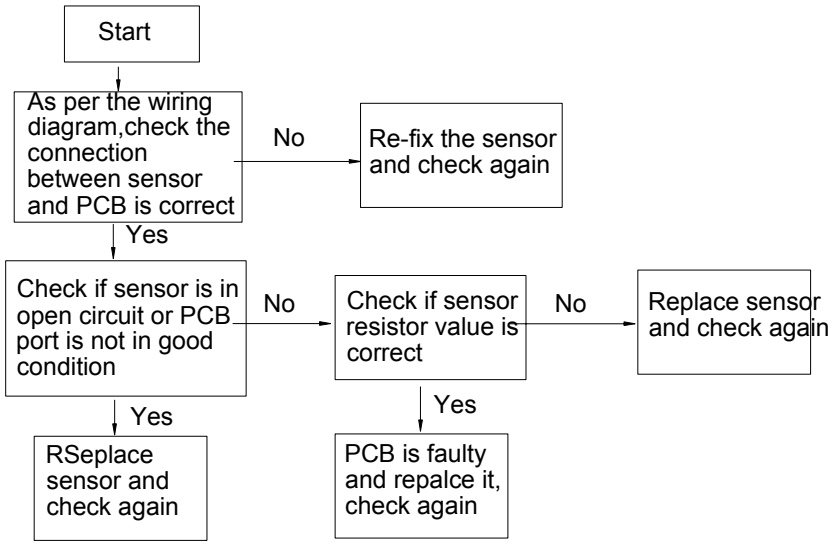
High or low pressure switch shut off failure



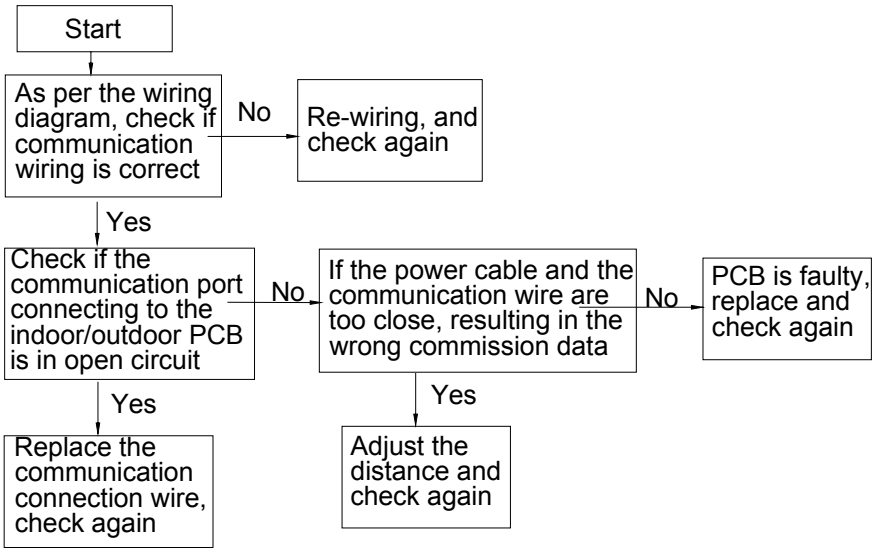
Trouble 1: No display on the operation panel



Trouble 2: Sensor failure



Trouble 3: Communication failure between indoor and outdoor



Trouble 4: Indoor PCB EEPROM data is wrong

1.If the failure occurs when being electrified for the first time, that shows (EEPROM 8-bit pin) not fixed firmly or damaged.

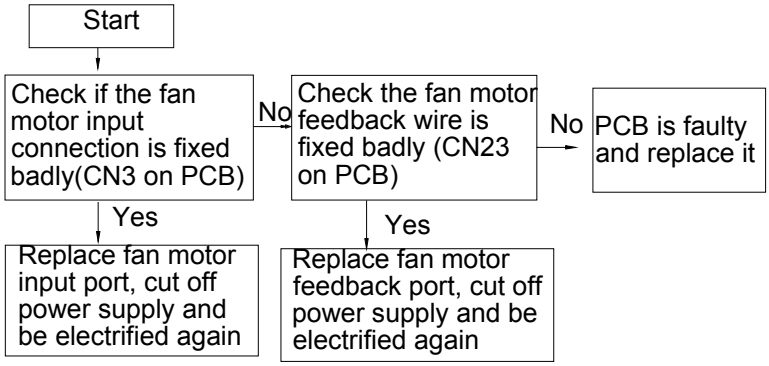
2.If the failure occurs when running, that shows EEPROM is faulty and need to be replaced.

Trouble 5: Indoor repeated unit number

1.Firstly query the unit number: switch off the unit, press SLEEP for about 15 seconds until the buzzer sounds 5 times, on the display panel there will be digit, which is indoor number. By this method,you can check if there is repeated unit number, if yes, please re-set the number as per the unit number setting procedure.

2.Re-set the unit number directly, the unit with outdoor pipe A is No. 1; the unit with outdoor pipe B is No. 2; the unit with pipe C is No.3

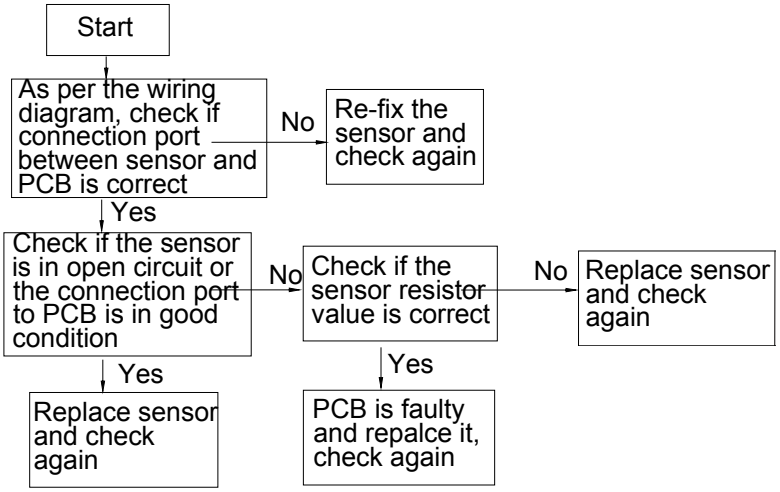
Trouble 6: Indoor fan motor failure, AC fan motor has not 50Hz zero-crossing detection



Trouble 7: Outdoor unit failure

Check the failure code on outdoor indicator board (5-lamp)

Trouble 8: Outdoor unit alarms sensor failure



Trouble 9: AC current over current protection or current transducer damaged, or compressor blocked rotor, compressor great vibration, compressor abnormal startup, state detecting curcuit abnormal or compressor damaged.

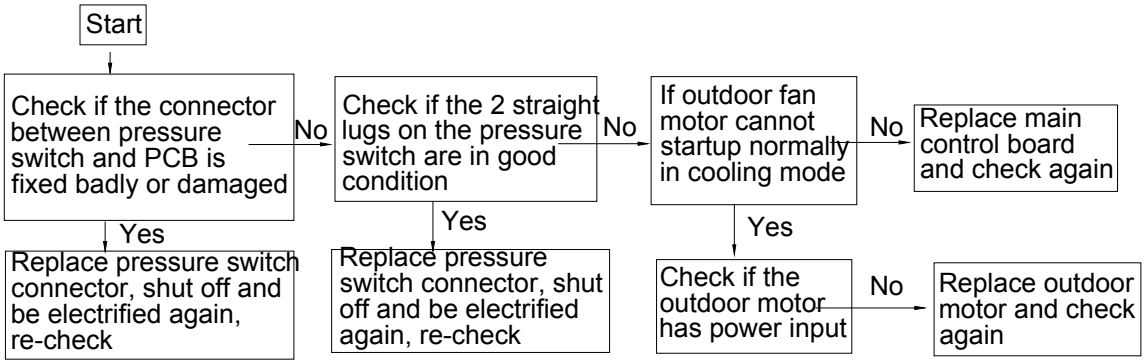
The former twice failure can be resumed automatically, if outdoor board occurs this failure always, and can not be resumed for a long time, that shows:

1. Power module (SPDU) damaged, please replace the power module, then re-wiring as per the wiring diagram (70% possibility)
2. Short circuit in power board results in the power module damaged (15％ possibility)
3. Damaged compressor results in this failure (10％ possibility)
4. Main control board is faulty, replace it (5％ possibility)

Trouble 10: High pressure failure

Reasons:

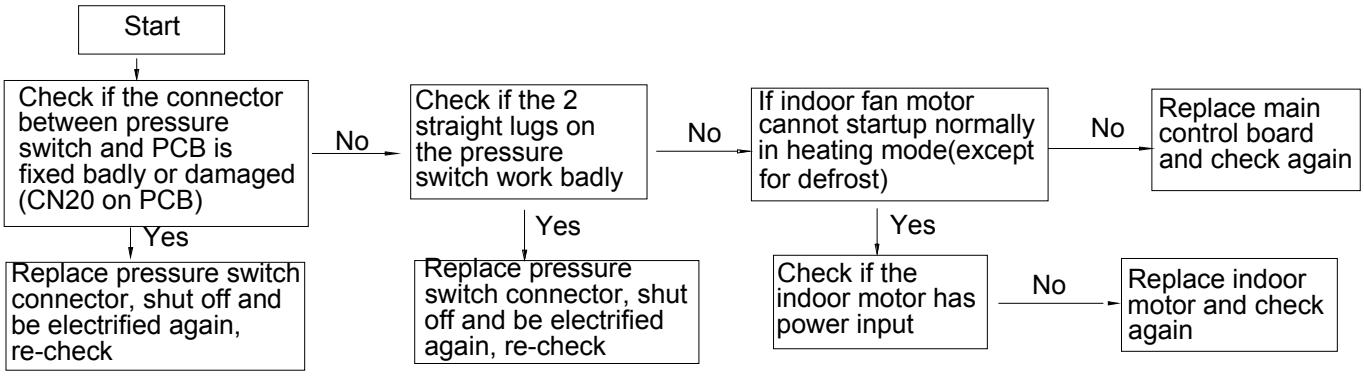
1. Over high system pressure results that the unit stop, and the compressor protection will work. The failure can be resumed.
2. Pressure switch wire is not fixed well or in open circuit.



Failure 11: Low pressure switch failure

Reason: 1. Too low system pressure causes that the unit stops and the compressor protection works, the failure can be resumed.

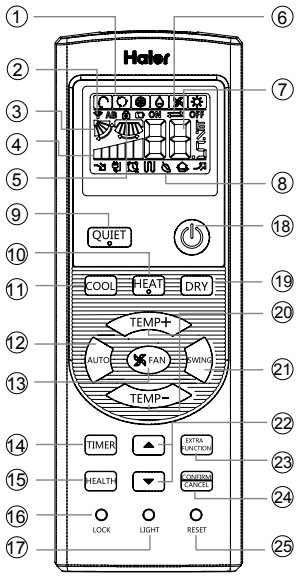
2. Pressure switch wire is not fixed well or in open circuit.



6. Controller function

YR-HD

Remote controller



1. Mode displ

Operation mode	AUTO	COOL	DRY	HEAT	FAN
Remote controller					

2. Signal sending displ
3. SWING display
4. FAN SPEED display



5. LOCK displ
6. TIMER OFF display
   TIMER ON display

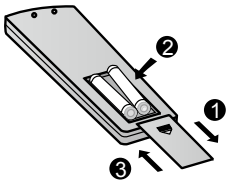
7.TEMP display
8.Additional functions display

Operation mode	QUITE	SLEEP	Supplemented electrical heating	HEALTH	POWER
Remote controller					

9. QUIET but
10. HEAT but
11. COOL but
12. AUTO but
13. FAN but
14. TIMER but
15. HEALTH but
16. LOCK but
Used to lock buttons and LCD display.
17. LIGHT but
Control the lightening and extinguishing of the indoor LED display board.
18. POWER ON/OFF but
19. DRY but
20. TEMP but
21. SWING but
22. HOUR but
23. EXTRA FUNCTION but
Function: Auto, health airflow upwards and downwards sending function,sleep function, air-refresh(reserved function) Fahrenheit Celsius conversion Power setting function
24.CANCEL/CONFIRM button
Function: Setting and cancel to the timer and other additional functions.
25. RESET but
When the remote controller appears abnormal, use a sharp pointed article to press this button to reset the remote

On the remote control do not have the functions of HEALTH.

Loading of the battery



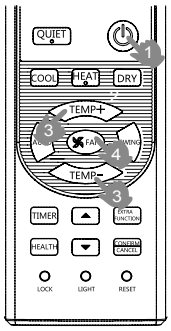
1 Remove the battery cover;
2 Load the batteries as illustrated. 2 R-03 batteries, resetting key (cylinder);
3 Be sure that the loading is in line with the" + "/"-";
4 Load the battery,then put on the cover again.

Note:
- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.
- Full display or unclear display during operation indicates the batteries have been used up.Please change batteries.
- If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

Hint:
Remove the batteries in case won't be in use for a long period. If there is any display after taking-out, just press reset key.

Base Operation

Remote controller

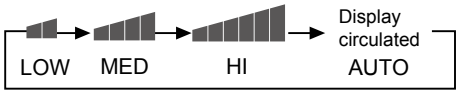


1. Unit start
Press ON/OFF on the remote controller, unit starts.

2. Select operation mode
COOL button:Cooling mode
HEAT button: Heating mode
DRY button: Dehumidify mode

3.Select temp.setting
Press TEMP+ / TEMP− button
TEMP+ Every time the button is pressed, temp.setting increase 1℃,if kept depressed, it will increase rapidly
TEMP− Every time the button is pressed, temp.setting decrease 1℃,if kept depressed, it will decrease rapidly
Select a desired temperature.

4.Fan speed selection
Press FAN button. For each press, fan speed changes as follows:
Remote controller:



Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

Operation Mode	Remote Controller	Note
AUTO		Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature When FAN is set to AUTO the air conditioner automatically adjusts the fan speed according to room temperature.
COOL		
DRY		In DRY mode , when room temperature becomes lower than temp.setting+2° C, unit will run intermittently at LOW speed regardless of FAN setting.
HEAT		In HEAT mode, warm air will blow out after a short period of the time due to cold-draft prevention function. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.
FAN		In FAN operation mode , the unit will not operate in COOL or HEAT mode but only in FAN mode , AUTO is not available in FAN mode. And temp. setting is disabled. In FAN mode, sleep operation is not available.

Sleep Operation

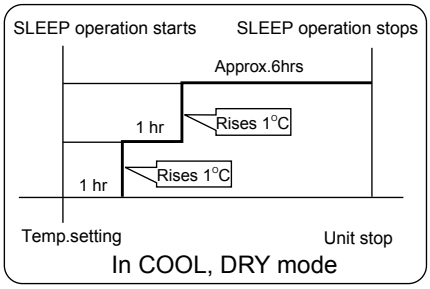
Press EXTRA FUNCTION button to enter additional options, when cycle display to , will flash. And then press CONFIRM CANCEL enter to sleep function.



Operation Mode

1. In COOL,DRY mode

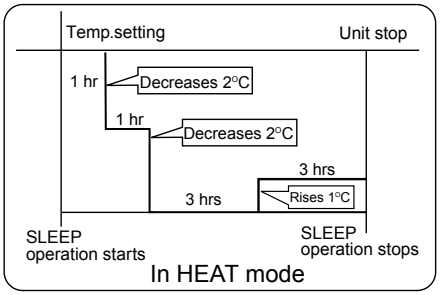
1 hours after SLEEP mode starts,temp.will become 1°C higher than temp.setting.After another 1 hours,temp.rises by 1°C futher.The unit will run for further 6 hours then stops Temp. is higher than temp.setting so that room temperature won't be too low for your sleep.



In COOL, DRY mode

2. In HEAT mode

1 hours after SLEEP mode starts,temp will become 2°C lower than temp.setting.After another 1 hours,temp decrease by 2°C futher.After more another 3 hours,temp. rises by 1°C futher.The unit will run for further 3 hours then stops.Temp.is lower than temp. setting so that room temperature won't be too high for your sleep.



In HEAT mode

3. In AUTO mode

The unit operaters in corresponding sleep mode adapted to the automatically selected operation mode.

4. In FAN mode

It has no SLEEP function.

5.Set the wind speed change when sleeping

If the wind speed is high or middle before setting for the sleep, set for lowing the wind speed after sleeping.
If it is low wind, no change.

Note

When TIMER function is set, the sleeping function can't be set up .After the sleeping function is set up, if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.

POWER/QUIET Operation

(1) POWER Operation

When you need rapid heating or cooling, you can use this function.

Press EXTRA FUNCTION button to enter additional options, when cycle display to , will flash, and then press CONFIRM CANCEL ,enter to power function. When cancel the function, please enter additional options again and to cancel power function.

(2) QUIET Operation

You can use this function when silence is needed for rest or readin

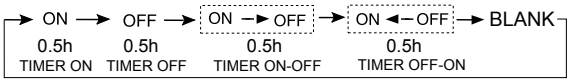
Press QUIET button, the remote controller will show , and then achieve to the quiet function. Press again this QUIET button , the quiet function will be cancelled.

Note：

During POWER operation, in rapid HEAT or COOL mode , the room will show inhomogeneous temperature distribution. Long period QUIET operation will cause effect of not too cool or not too warm.

Timer On/Off On-Off Operation

1.After unit starts, select your desired operation mode.
2.Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:
Remote controller:



Then select your desired TIMER mode (TIMER ON or TIMER OFF or TIMER ON-OFF). " ON "or " OFF "will flash.

3.Press ▼ ▲ button to set time.

▲ Press the button for each time, setting time in the first 12 hours increased by 0.5 hour every time, after 12 hours,increased by 1 hour every time.

▼ Press the button for each time, settiing time in the first 12 hours decreased by 0.5 hour every time, after 12 hours,decreased by 1 hour every time.
It can be adjusted within 24 hours.

4.Confirm timer setting
After adjust the time,press CONFIRM CANCEL button and confirm the time ON or OFF button will not flash any more.

5.Cancel timer setting
Press the timer button by times until the time display eliminated.

Hints:
After replacing batteries or a power failure happens, time setting should be reset.
According to the Time setting sequence of TIMER ON or TIMER OFF, either Start-Stop or Stop-Start can be achieved.

Healthy airflow Operation

1.Press ⏻ to s
Setting the comfort work conditions.
2.The setting of healthy airflow function
Press EXTRA FUNCTION button to enter additional options,Press this button continuously, the louvers location will cycle between in the following three locations, to choose the swing location what you needed,and then press CONFIRM CANCEL button to confirm.



3.The cancel of the healthy airflow function
Press EXTRA FUNCTION button to enter additional options,Press this button continuously, the louvers location will cycle between in the following three locations again,and then press CONFIRM CANCEL button to cancel.

Notice: Do not direct the flap by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.

Note:
1.After setting the healthy airflow function, the positi grill is fixed.
2.In heating, it is better to select the mode.
3.In cooling, it is better to select t mode.
4.In cooling and dry, using the air conditioner for a long

All the products are in conformity with the following European provision:
- Low Voltage Directive 73/23/EEC
- Low Voltage Directive 2006/95/EC
-Electomagnetic CompatibilitY 89/336/EEC
-Electomagnetic CompatibilitY 2004/108/EC

ROHS

The products are fulfilled with the requirements in the directive 2002/95/EEC of the European parliament and of council on the Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment (EU RoHS Directive)

WEEE

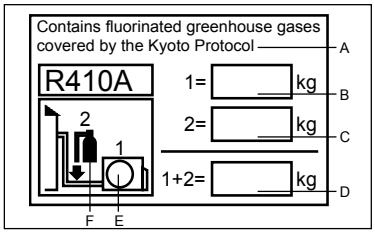
In accordance with the directive 2002/96/CE of the European parliament, herewith we inform the consumer about the disposal requirements of the electrical and electronic products.

DISPOSAL REQUIREMENTS:



Your air conditioning product is marked with this symbol.This means that electrical and electronic products shall not be mixed with unsorted household waste. Do not try to dismantle the system yourself : the dismantling of the air conditioning system,treatment of the refrigerant, of oil and of other part must be done by a qualified installer in accordance with relevant local and national legislation. Air conditioners must be treated at a specialized treatment facility for reuse, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and humen health. Please contact the installer or local authority for more information. Battery must be removed from the remote controller and disposed of separately in accordance with relevant local and nationl legislation.

IMPORTANT INFORMATION REGARDING THE REFRIGERANT USED

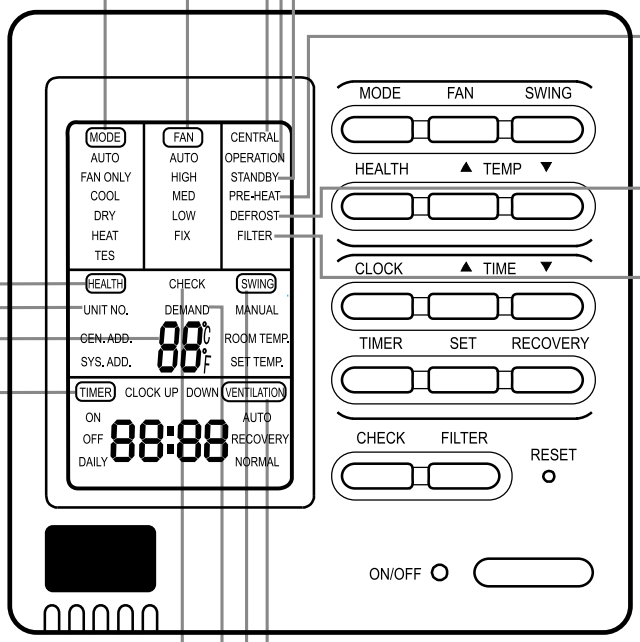


This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent into the atmosphere.
Refrigerant type:R410A
GWP* value:1975
GWP=global warming potential
Please fill in with indelible ink,
• 1 the factory refrigerant charge of the produc
• 2 the additional refrigerant amount charged in the fiel and
• 1+2 the total refrigerant charg
on the refrigerant charge label supplied with the product.
The filled out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the stop value cover).
A contains fluorinated greenhouse gases covered by the Kyoto Protocol
B factory refrigerant charge of the product: see unit name plate
C additional refrigerant amount charged in the field
D total refrigerant charge
E outdoor unit
F refrigerant cylinder and manifold for charging

YR-E14

Parts and Functions

Display of the wire controller



Centralized display
When controlled by centralized controller, and chosen by "centralize or lock" mode, this information is shown.

Air volume display
Display the setting speed

Running display
When the compressor runs, it displays.

Running mode display
Show the selected mode

Standby display
When the unit is on power and in "abnormity mode", or outdoor unit malfunction show alarm , "standby" is shown to reflect no need to unit.

When in preheating status, "preheating" is shown.

Health function display

"Defrost" is shown when defrosting.

Unit number display
Centralized address display
System address display

Filter screen warning sign
When the sign is shown, please clean the filter screen

Temperature display
Display the room temperature, setting temperature, and unit number

Timing operation display
Show timing operation content

Air change display

Inspection status display

Wind swing display

Demand display
When forced to run,"DEMAND" will be displayed , or show HH/LL in the temperature zone.

Remarks

- The models in the manual don't have health, filter reset and Air change function.

Buttons of the wire controller

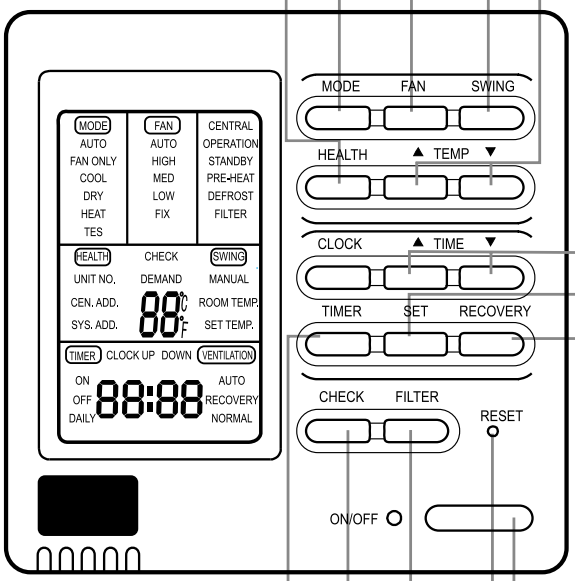
Mode switch
Choose running mode

Health switch
Used to control oxygen function and negative ion

Timing switch
It is used for choosing timing running

Self-inspection switch
It is used for inspection service

Filter reset
After cleaning air inlet and filter, press this switch. The unit begins to run



Fan speed switch
Change wind speed

Swing switch
Open and close air flap

TEMP switch
Used for changing set temperature

Time switch
It is used to regulate setting time.

Clock, timing and address setting

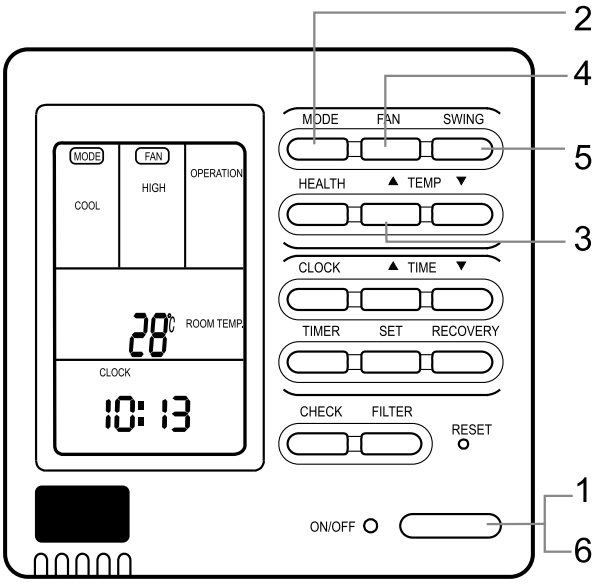
Air change switch
It is used to open and close air change function. The mode is as follows:
No display-air change (automatic)-air change (RECOVERY)-air change (NORMAL)

ON/OFF switch
Do on and off function. The unit is on when pressing it; and is off when pressing it again.

Reset key
When in abnormal state, push the reset key with a spike, which may return the unit to normal

Operation

ON/OFF operation



Press ON/OFF switch on line controller directly
The line controller displays the running state in the latest time (timing and swing state may not be displayed).

1. Press "ON/OFF" switch.
The air conditioner starts operating, and the light on the wired controller is on.

2.Choose operation mode.
Press "mode"switch to change to "AUTO"---"FAN ONLY"---"COOL"---"DRY"---"HEAT".

3.Press "TEMP" switch
Change set temperature:press TEMP ▲or TEMP ▼ every time, [SET] will display,and set temperature will increase/reduce 1℃

4.Press "FAN SPEED" switch
FAN ONLY Operation:
Press "FAN SPEED" switch to change to "HIGH"--"MED"--"LOW"--"HIGH"

In AUTO,COOL,DRY,HEAT Operation:
Press "FAN SPEED" switch to change to "AUTO"--"HIGH"--"MED"--"LOW"--"AUTO"

5.Press "SWING" switch on the line controller to swing the wind screen.

6.Press "ON/OFF"switch, off.
The light on the line controller is off.

Note

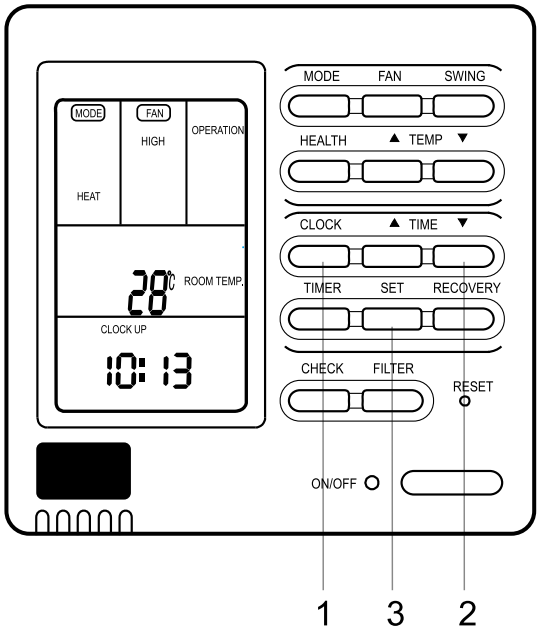
Several seconds after the operation of the line controller, the setting of the unit will change.

Remarks

- Avoid pressing "ON/OFF" switch frequently.
- Do not press line controller or switches by sharp objects.
- The temperature is on the basis of the setting value. The wind temperature may not reach the setting value because of the outer air conditioner and system protection.
- When the wired controller is power on, the screen fully displays it for two seconds. and clock zone "8888"-"888"-"88"-"8" flicker for 30 seconds. All the switches are invalid at the time.

Present time setting

- The timing is based on the real time. Thus, the real time should be regulated in advance.
- The clock regulation steps are as follows:



1.Press "CLOCK" switch

"CLOCK" flickers, and the time displayed is the real time.

2.Press "▲" and "▼" to regulate the time.

The time increases a minute each time you press "▲" switch.
The time decreases a minute each time you press "▼" switch.

3.Press "SET" switch. The setting is achieved.

Notes

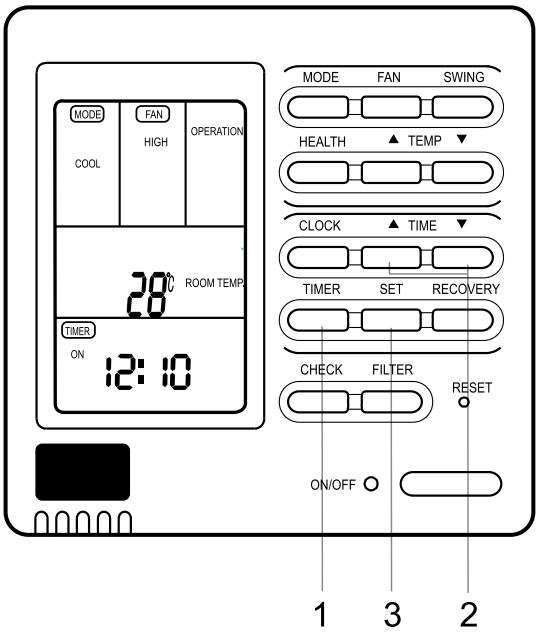
- If not in timing, the screen displays the real time.
- If in timing, the screen displays the timing time.
- If you want to know the real time, go to the first step.

Setting of power failure compensation function

When SW1-6 on PCB of wire controller is OFF, it will be in power failure compensation. If the SW1-6 is ON, it has no compensation function.
When the power is on after blackout, the unit will return to the former state if compensation function is set. Otherwise, it will stop. When restarting the unit, press "ON/OFF" switch on wired controller.

Timing setting

- OFF timing: when a set time has elapsed, the unit stops running.
- ON timing: when a set time has elapsed, the unit starts.



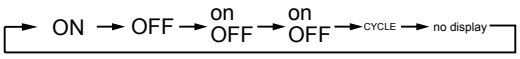


Press "ON/OFF" switch firstly, and set up operation mode. Please regulate the clock in advance before using the timing function.

1.Press "TIMER" switch.

1.Press "TIMER" switch.

The display changes with the following sequence:



2.Set up "TIMER"

When timing ON or timing OFF flickers, press "▲ " or "▼ " to regulate the time

Press" ▲ "or " ▼ "set up ON/OFF time.

The setting time increases ten minutes each time you press "▲" switch.

The setting time decreases ten minutes each time you press"▼" switch.

When setting timing ON and timing OFF at the same time, press "timing" switch to change the setting item.

3.Time setting is achieved. Press"setting"switch.

Cancel timing

If you want to change the timing mode to normal operation, press "timing" until there is no timing display. When the timing is invalid, the mode is in normal operation.

parts of wired controller explanation :

1.The unit starts or stops at the setting time. Meanwhile, it displays the timing time.

2."ON Timing, OFF timing and circulation"means that the unit is on and off at the setting time everyday.

Note

- The shorter setting time will be carried out firstly.
- If the ON timing and OFF timing are the same, the setting is invalid.
- Even in timing condition, you may start or close the unit through pressing "ON/OFF" switch.

Query indoor malfunction history:

In the state of power on or power off, press [CHECK] button, enter the malfunction-querying mode of all indoor units in the group. Then [CHECK] and [UNIT NO.] will display, and the actual indoor numbers will be displayed in some sequence (unit number is in decimals). At the same time, in the time region, there will be the current malfunction and the latest time malfunction, the displaying format is [XX:YY], in which XX stands for the current malfunction, if normal, it will display "--"; YY stands for the latest time malfunction. The failure code of every unit will display for 3 seconds. After the failure codes of all indoor units in the whole group are displayed, the mode will quit automatically.

How to change the function switches?

No.	Type	State of switch	Function description
SW1-1	Select the master or the slave controller	ON	Set as the slave controller
		OFF	Set as the master controller
SW1-2	Select the controller mode	ON	Standard controller
		OFF	Air handler controller
SW1-3	Room temperature display option	ON	Visible room temperature
		OFF	Invisible room temperature
SW1-4	26° lock	ON	Unavailable 26° lock
		OFF	Available 26° lock
SW1-5	Temperature sensor position option	ON	Sensor of the controller
		OFF	Sensor in the unit
SW1-6	Auto restart	ON	Unavailable
		OFF	Available
SW1-7	Factory Setting	ON	Default setting
SW1-8	Factory Setting	OFF	Default setting

Note

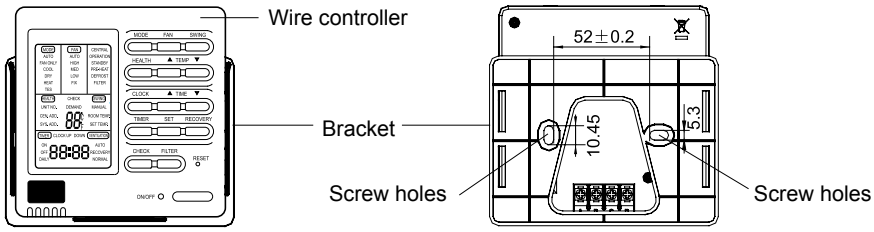
1. Switches or jumper wire must be adjusted when the wire controller is powered off. If the wire controller is powered on, the above operations will be invalid.

2. Function difference between master wire controller and slave one:

Contrastive items	Master wire controller	Slave wire controller
Function	All of functions	Only with below functions: ON/OFF, MODE, FAN SPEED, SET TEMP., SWING

Installation Manual For Wire Controller

1. Take down wire controller from the holder



2. Install the controller holder

According to the position of 2 screw holes on the holder, drill 2 holes on the wall, and strike the wood stopper to the holes respectively.

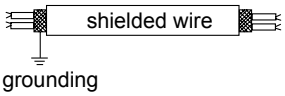
Then align the 2 screw holes of wired controller holder to the wood stopper, fix the holder on the wall with wood screw.

Note:

Try a wall as flat as possible for installation. Don't use excessive force to tighten screws, otherwise, the holder will be damaged.

3.Wiring instruction

Use shielded wire between indoor and wire controller. And be earthed on one side, or the unit will not work normally because of interference.



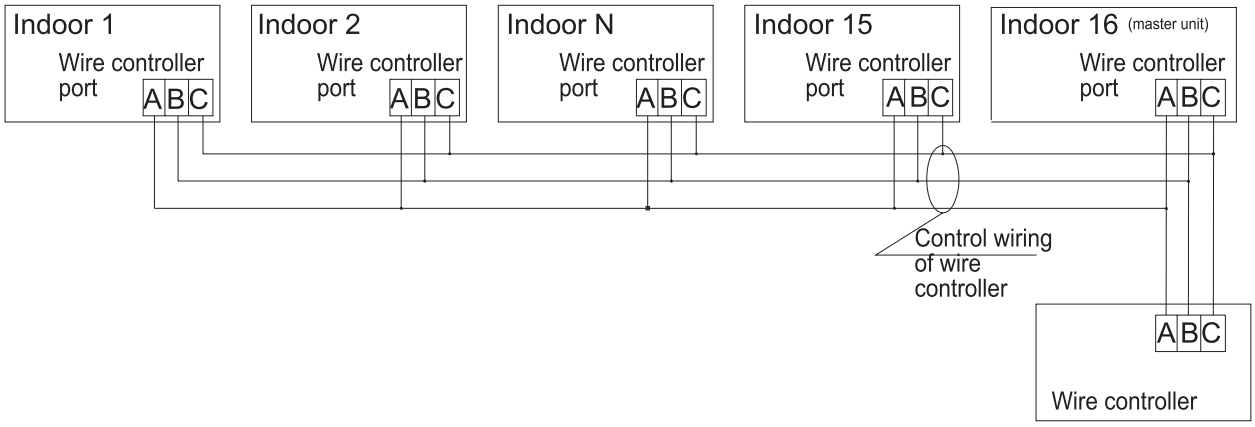
Note:

Confirm the terminal connection firmly, and do not get in tough with shielded wire.
Don't touch the PC panel with your hands.

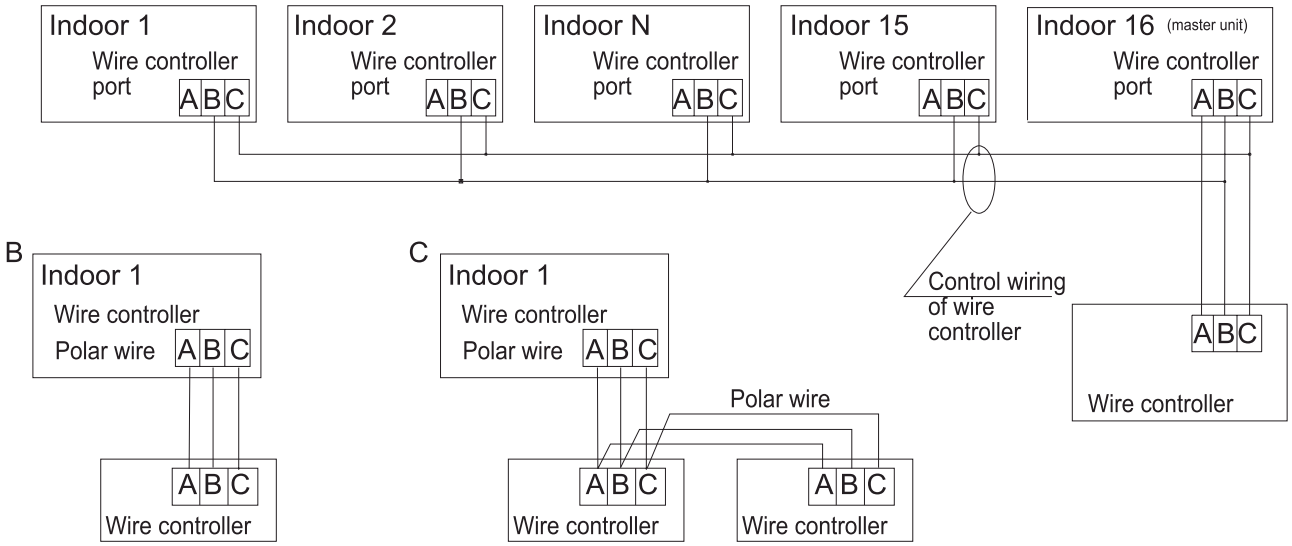
4.Place wire controller on the holder, and pay attention not to pressing any wires.

5. Wiring connections of wire controller:

A TYPE1: For AD09~24SS1ERA(N)(P) AD09~24SS1ERA(N) AD12/18MS1ERA AD12/18MS1ERA(D) AD24MS2ERA AD24MS2ERA(D)



TYPE 2: For other indoor units.



Installation Manual For Wire Controller

There are three methods to connection wire controller and the indoor units:
A.One wired controller can control max. up to 16 sets of indoor units, and 3 pieces of polar wire must connect the wire controller and the master unit (the indoor unit connected with wire controller directly), the others connect with the master unit through 2 pieces of polar wire.
B. One wire controller controls one indoor unit, and the indoor unit connects with the wire controller through 3 pieces of polar wire.
C. Two wired controllers control one indoor unit. The wire controller connected with indoor unit is called master one, the other is called slave one. Master wire controller and indoor unit; master and slave wire controllers are all connected through 3 pieces of polar wire.

6. Communication wiring:

The wire controller is equipped with special communication wiring in the accessories. 3-core terminal (1-white 2-yellow 3-red) is connected with the terminal A, B, C of wire controller respectively.

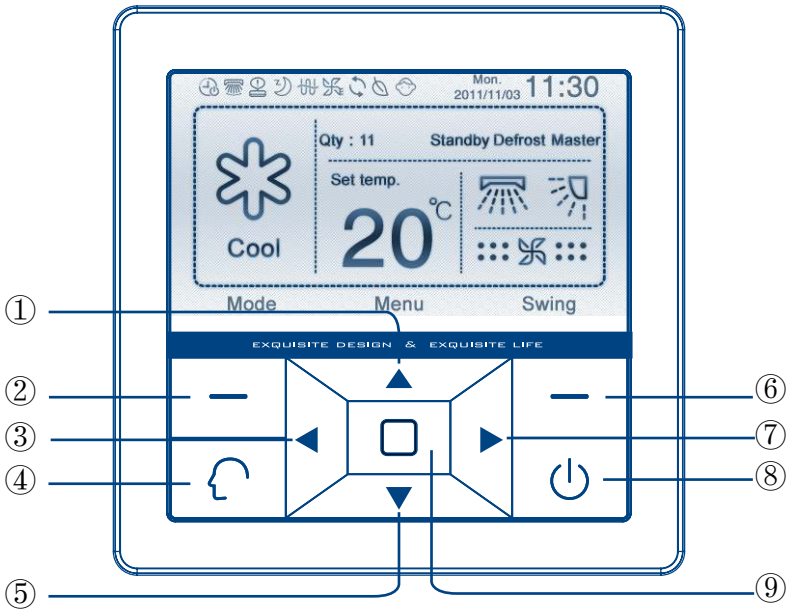
The communication wiring is 5 meter long; if the actual length is more than it, please distribute wiring according to below table:

Communication wiring length(m)	Dimensions of wiring
⩽ 100	0.3mm^{2}x3-core shielded wire
⩾ 100 and <200	0.5mm^{2}x3-core shielded wire
⩾ 200 and <300	0.75mm^{2}x3-core shielded wire
⩾ 300 and <400	1.25mm^{2}x3-core shielded wire
⩾ 400 and <600	2mm^{2}x3-core shielded wire

*One side of the shielded sheet of communication wire must be earthed.

Parts and Functions

Key instructions for the wired controller



① **Up direction key:**
It provides temperature rise function in the mode switching interface; if this key is pressed in the menu interface, the cursor moves upward; It raises the numerical value when adjusting value.

② **Left function key:**
According to the function prompt above the key, it provides mode switching function in the mode interface and return function in the menu interface.

③ **Left direction key:**
It provides air speed switching function (when the right key is the swing key); it provides cursor leftward movement function in other interfaces.

④ **Intelligent key:**
In the main menu interface, press this key to initiate the intelligent work mode. (excluding single cold mode and single heat mode and when there is no intelligent mode for indoor DIP switch setting.)

⑤ **Down direction key:**
It provides temperature drop function in the mode switching interface; if this key is pressed in the menu interface, the cursor moves downward; It reduces the numerical value when adjusting value.

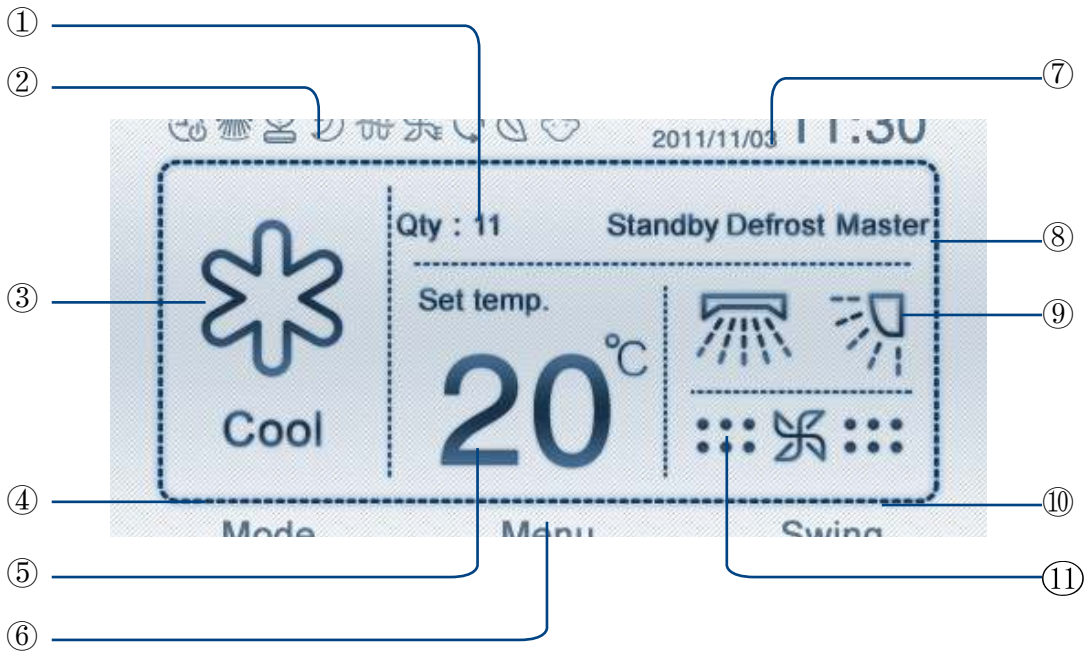
⑥ **Right function key:**
According to the function prompt above the key, it provides swing on/off function or air speed (when both the left-right and up-down options are not selected in the air direction setting interface) switching in the mode interface; it provides the confirmation function in the menu interface and it provides the "Next step" function in the interface of "Service Set - Password-Original password".

⑦ **Right direction key:**
It provides air speed switching function (when the right key is the swing key); it provides cursor rightward movement function in other interfaces.

⑧ **Startup & Shutdown key:**
It provides startup and shutdown function. When in shutdown state, press this key to start it up; press the key again to shut it down.

⑨ **Menu/main interface/input key:**
It provides menu function in the mode interface; in the menu interface, it will enter the main interface; in the password interface, it functions as the characters input key referring to the prompting character above the key.

Main interface display



① **Online units display area:**
it displays the number of the units controlled by one wired controller

② **Special function/fault icon display area:**
such as weekly timer, Swing, sleep, children lock, force, air exchange and energy conservation; each icon corresponds to a function; if a fault appears, the fault icon is displayed.

③ **Mode display area:**
intelligent, heating, cooling, dehumidification and fan modes (the single cold mode has only cooling, dehumidification and fan modes; the single heat mode has only heating and fan modes;except when DIP switch of indoor unit has mode limit.)

④ **Left function key function prompt area**

⑤ **Set temperature display area:**
The range of adjustment is 16°C to 30°C (except when in the setting of energy conservation function).

⑥ **"Menu/main interface/input" key function prompt area:**
if any function is prompted here, press the menu/main interface/input to execute the prompted function

⑦ **Date and time display area**

⑧ **Status indication area:**
Indication of the master/slave unit of the wired controller, filter screen cleaning prompt/defrosting status indication/ forced defrosting issuance prompt, operation/standby status indication.

⑨ **Swing:**
Dynamic display during setting of swing (single swing, or both swings or no swing, depending on the set air direction)

⑩ **Right function key function prompt area**

⑪ **Air speed display area:**
Automatic, weak air, moderate air, strong air; the fan mode has no automatic air

•Explanation of the icons of the wired controller

	Intelligent mode		Time setting
	Heating mode		Weekly timer
	Cooling mode		Sleep
	Dehumidification mode		Left-right swing
	Fan only mode		Up-down swing
	Energy conservation function		Swing function
	Fault		Air change
	Force		Children lock
	Mute		Health

•Display and adjustment of air speed

1. Default air speed upon initial energization

Mode	Cooling	Heating	Intelligent	Dehumidification	Fan
Air speed	Strong air	Weak air	Automatic air	Automatic air	Weak air

2. Press the "left-right"key to set air speed

Strong air: ::: ※ ::: Moderate air: :: ※ :: Weak air: : ※ :

Automatic: : ※ : → :: ※ :: → ::: ※ ::: → : ※ : i.e. automatic cyclic display in weak→moderate→strong→weak air.

3. In the fan mode, automatic air is unavailable. The other displays are the same with the above.

4. For some models, the right function key is the "air speed?key (i.e. the bottom right corner of the interface displays "speed", so air speed is adjusted using the right function key, instead of left-right direction key.

Operation

Weekly timer setting:

1. Proceed with main interface→Menu→Weekly timer→"Enter" to enter, which is shown in Figure 1; When the cursors is at "⊕", press "Enter" key to add a group of timing information; non-initial setting may be displayed as shown in Figure 2; maximally 7 groups of timing information can be set.

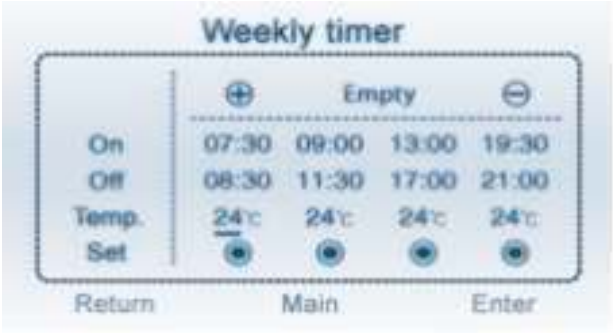


Figure 1



Figure 2

2. Setting of weekly timer
Press the "Enter" key, a window as shown in Figure 3 will pop out. The location where the cursor stays is flickering, ○ indicates unselected and ◉ indicates selected ; press the "Input" key to select it so that it changes to ◉ or ○ ; weekly timer can be set as you wish. After the selection has been done, press the "Enter" key to exit the setting of weekly timer; return to the main interface for weekly timer. If "from Sunday to Saturday" are selected, after pressing "Enter", the timing item should be "Daily";If "from Monday to Friday" are selected, after pressing "Enter", the timing item should be "Weekday", as shown in Figure 2.

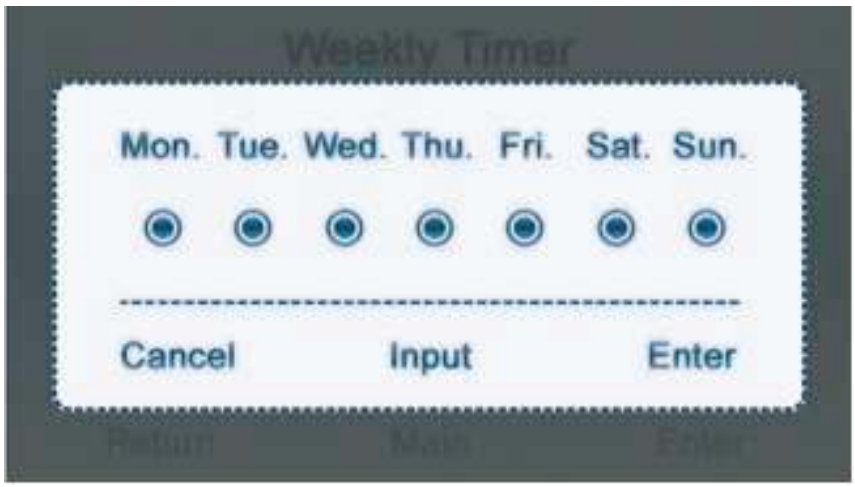


Figure 3

3.Time setting of timing switch

A. After the timing items for week have been set, each group of set timing information displays 5 seconds cyclically; when it is displayed in the timing information group, press the "Downward" key to initiate the time setting of the timing switch of the current group;

B. The cursor is flickering where it stays; when the right function key, as an "Enter" key, is pressed, the cursor becomes static, which indicates that it is in the adjustment state; press the upward-downward key to adjust the time and temperature. After adjustment of time and temperature, move the cursor leftward and rightward to confirm the time and temperature.

C. For adjustment of time, keep the "upward" key or "downward" pressed down for 5s, the clock change will accelerate, with acceleration frequency of 10times/s.

D. During flicker of the cursor, move upward, downward, leftward or rightward to select the circle below; use the right function key, as an "Enter" key, to confirm or cancel the setting; ◉ represents setting valid and ○ represents setting invalid.

E. If ◉ is present in a timing item containing week, this means the corresponding timing information is valid.

4. Deletion of timing information

If, in a "weekly timer" interface, the cursor is at "⊕" press the leftward-rightward key to select ⊖; then press "Enter" key to pop out the window as shown in Figure 4. Then press the left key or right key to delete or retain the timing information.



Figure 4

5. Timing switch on/off conflict prompt: if the timing has been set in such a way that timing on/off setting conflicts occur at the same time on the same day, those shown in Figure 5 will pop out.

Note:

In the time setting state of week timing(cursor still), if no order input for 1 minute, screen saver will be activated and it will automatically return to main interface; In which state, non-conflicting orders are effective and otherwise no interface popping out; Latter input conflicting orders are ineffective with NON-SET state displaying

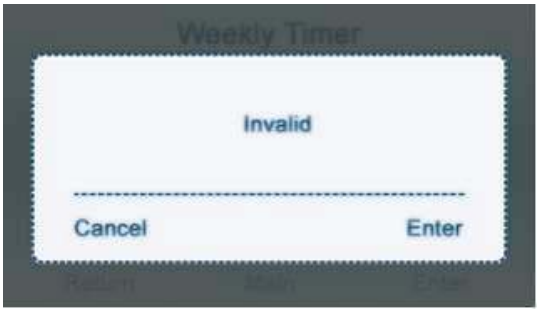


Figure 5

6. Prior to setting of weekly timer, please make time setting through main interface→ Menu→ Time interface.

7. The slave unit of the wired controller has no setting of weekly timer.

8. Weekly timer setting done, it needs to exit the weekly timer interface to execute the order.

Current clock setting

1. Proceed through main interface→Menu→Time→"Enter" key to enter, which is shown in Figure 6.

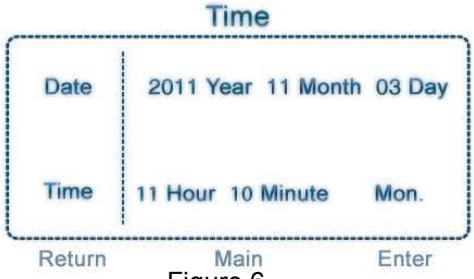


Figure 6

2. Default setting starts with the "Year" value, press the "rightward key" to select "Year"→"Month"→"Day"→"Hour"→"Minute"→"Week"; or press the "leftward key" to select "Week"→"Minute"→"Hour"→"Day"→"Month"→"Year".

3. When the time to be changed has been selected, press the "Upward key" or "Downward key" to adjust the time.

4. After all the times have been adjusted, press "Enter" key to complete the setting.

Service setting

1. Proceed through main interface→Menu→Other→enter password→press "Enter" key→Service Set→press "Enter" key to initiate the setting, which is shown in Figure 7.

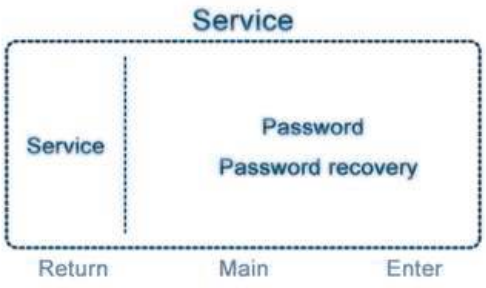


Figure 7

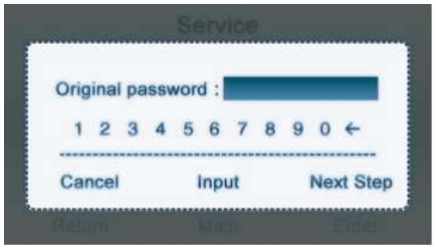


Figure 8

2. Password setting

A. Common users are provided with a four-digit password which is initially 1234; high-class users are provided with a six-digit password 841226 which can be operated by the technical personnel only.

B. Press the "upward" key or "downward" key to select "password" and press "Enter" key to initiate password setting, which is shown in Figure8. Password setting is intended for changing only the password of a common user.

C. Press the "leftward" key and "rightward" key to select in the line of numbers; press the "input" key to fix the selected numbers in the password box. When password entry is completed, press the right key to proceed with "next step". If the original password is input incorrectly, a window prompting "Wrong password" will pop out as shown in Figure 9. Press "Enter" or "Cancel" in this window to return to the figure 8.



Figure 9

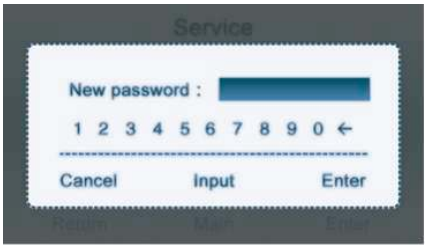


Figure 10

D. If the "original password" is entered successfully, a window will pop out as shown in Figure 10 prompting "New password"; enter the password in the same way as described above and then press "Enter" key again to confirm successful setting of new password or press "Cancel" key to cancel the password setting.

E. If the new password has been set successfully, a window prompting "New password set Successfully!" as shown in Figure 11 will appear; press "Enter" or "Cancel" to return to the previous menu.



Figure 11



Figure 12

3.Restore the initial password

A. Select "Password recovery" as shown in Figure 7 and then press "Enter" key to enter the interface as shown in Figure 12; press the left key "Cancel" or the right key "Enter" to cancel this operation or confirm restoration of the initial password.

B. This operation here is used for restoring only the password of a common user.

Fault code query:

Proceed through main interface→Menu→Other→enter password→press "Enter" key→Error code→enter 14. The password entry interface is shown in Figure 13 and the entry method is the same as password setting.

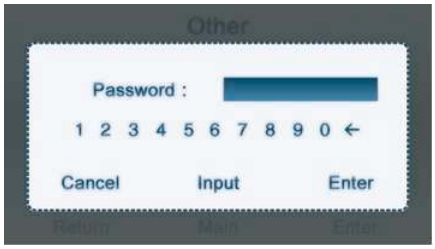


Figure 13

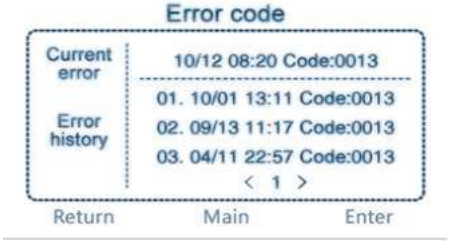


Figure 14

1. Use the "leftward" key and "rightward" key to check the fault codes inside the unit; where <1> can be 1 to 16, which is the address code within the wired controller group.

2. In the current interface, keep both the "left" key and "right" key pressed down for 5 seconds to clear the historic faults record.

3. A common user can view the current faults and historic faults; a high-class user can view 10 historic faults, using the "downward" key and "upward" key. If a common user presses the "downward" key, a window as shown in Figure 15; a high-class user can enter his/her password to view ten historic faults.



Figure 15

Air direction setting

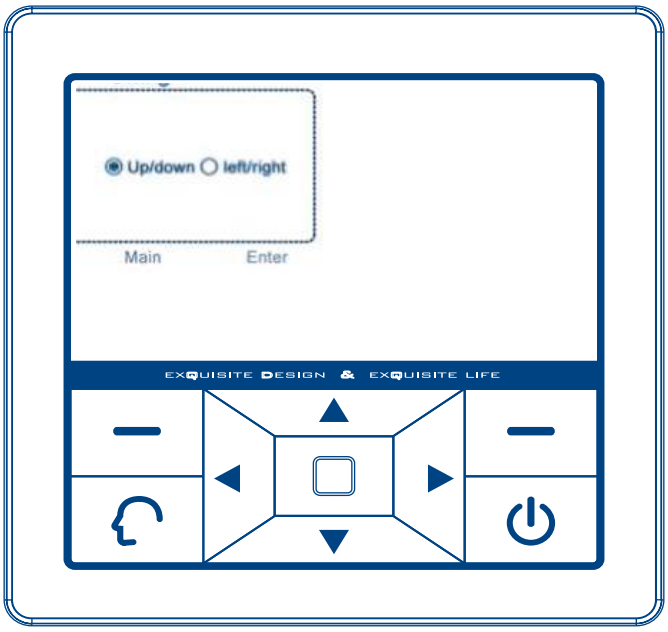


Figure 16

1. Proceed through main interface→Menu→Swing→press "Enter" key; the default air direction is up/down. If a left/right air deflector is being controlled, the "left/right" option can be selected.

2. If only the left/right direction is selected when setting the swing function, only the left/right air deflector will swing; if only the up/down direction is selected when setting the swing function, only the up/down air deflector will swing; if both the left/right direction and up/down direction are selected, both the left/right air deflector and up/down air deflector will swing (for different models, some units have only the left/right air deflector or up/down air deflector; the setting needs to be made consistent with the specific model).

3. ◉ Indicates "selected", ○ indicates "unselected"

4. If both the up/down direction and left/right direction are not selected, the bottom right corner of the main interface will display the air speed; Use the right key to switch the air speeds.

Sleep setting

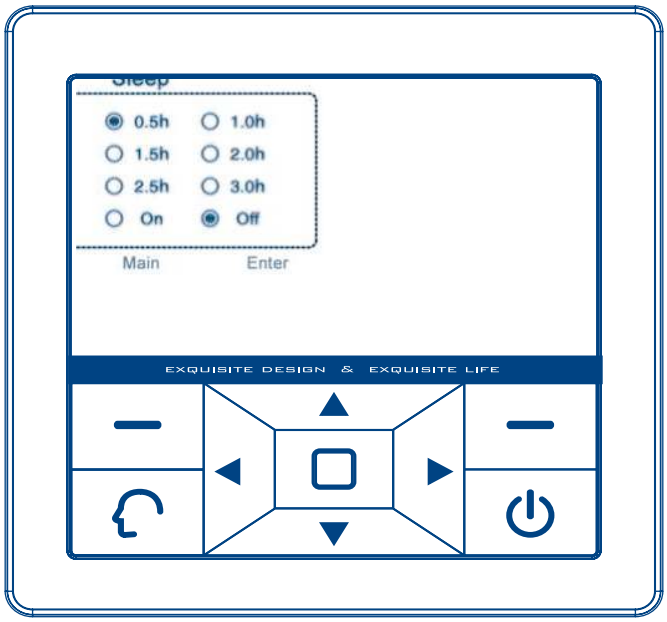


Figure 17

1. Proceed through main interface→Menu→Sleep→press "Enter" key to initiate this mode; The default state is shutdown.

2. Use the up ,down, left and right keys to adjust the cursor; The location where the cursor stays has the circle flickering; press the "Enter" key to select the time and switch between on/off.

3. The selected time 0.5, 1, 1.5, 2, 2.5 and 3 mean that the wired controller will shut down in 0.5/1/1.5/2/2.5/3 hours from time setting.

4. If the sleep mode has been set, the main interface will have the sleep icon.

5. Prior to setting of sleep mode, please make the time setting, so that the time can be consistent with the current actual time.

6. The slave unit of the wired controller has no setting of sleep setting.

7. If wired controller is powered off, sleeping function is "OFF"; Reset the function if needed.

Unit number setting

(This function is intended for debugging by technical personnel. The wired controller No. with no permission of address setting by indoor DIP switch setting displays grey, with access to checking and no access to changing the communication No.)

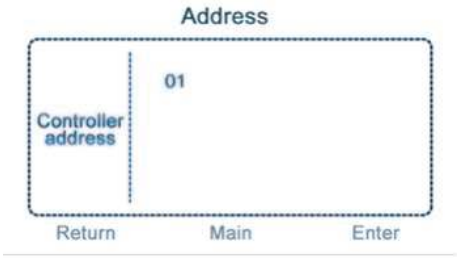


Figure 18



Figure 19

1. Proceed through main interface→Menu→Other →enter the password of the technical personnel→press "Enter" key→Addressing→press "Enter" to enter the interface as shown in Figure 18.

2. Wired controller number, as shown in Figure 18, is set by DIP switch of indoor unit. If one wired controller controls one unit, there is only 01; it displays the unit numbers corresponding to the indoor units in operation.

3. When in the interface as shown in Figure 18, if there are more than one wired controller numbers, use the "upward", "downward", "leftward" and "rightward" keys to select a unit number and press "Enter" key; Then the POP window as shown in Figure 19 will appear.

4. When the window in Figure 19 has popped out, the communication unit number of this controller can be set (communication addresses between the outdoor unit and indoor unit) 1-64; use the leftward and rightward keys to adjust the unit digits and tens digits and use the upward and downward keys to adjust the values on the corresponding digits; then press "Enter" or "Cancel" to return to the interface as shown in Figure 18.

5. The controller address equals the corresponding value of indoor unit's group address dial code plus 1.

Mode lock setting

1. Proceed through main interface→Menu→Other →enter password→Mode→press "Enter" key. The default state is "Normal".

2. In single cold mode, only cooling, dehumidification and fan modes can be executed and the intelligent key is ineffective. In single heating mode, only heat and fan modes can be executed and the intelligent key is ineffective. In normal mode, the heating, cooling, dehumidification, fan and intelligent modes can be executed.

3.The location where the cursor stays has the circle flickering; use the leftward and rightward keys to adjust the cursor; press the cursor where it stays to select ◉; ◉ indicates "selected" and ○ indicates "unselected".

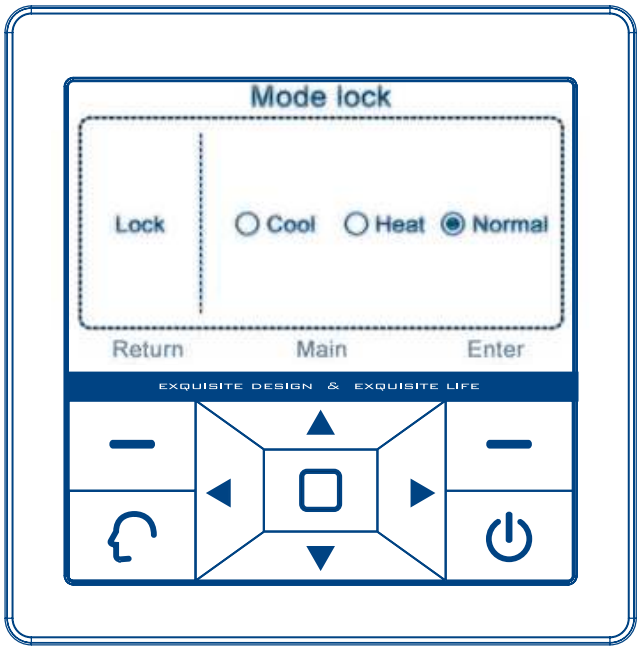


Figure 20

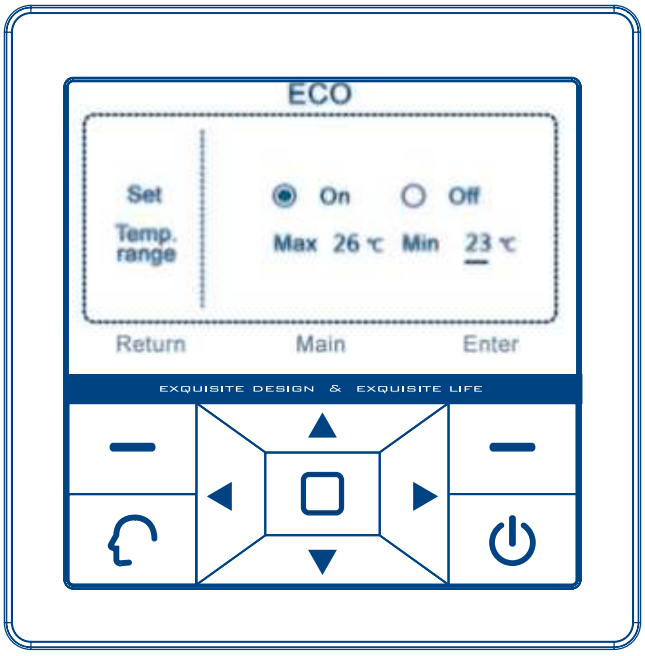


Figure 21

ECO setting

1. Proceed through main interface→Menu→ECO→press the "Enter" key to initiate. The default state is shutdown.

2. Upper temperature limit---the maximum temperature value that can be set for heating mode;

Lower temperature limit ---the minimum temperature value that can be set for cooling/dehumidification mode.

3. Use the leftward and rightward keys to adjust the cursor;the circle flickers where the cursor stays; ○ indicates "unselected"; press "Enter" and it will change to ◉ which indicates "selected".

4. When "off" is selected, temperature setting is not constrained by energy conservation setting; The range of temperature adjustment is 16°C to 30°C; if "on" is selected, temperature setting is constrained with energy conservation setting.

5. When it has been adjusted to the values corresponding to "upper limit" or "lower limit" using leftward and rightward keys, an underline will appear below the temperature value and now the "upward" and "downward" keys can be used to adjust the temperature; the maximum and minimum temperature values are 16°C and 30°C.

6. If energy conservation is on, the main interface will display the icon for energy conservation.

Additional functions

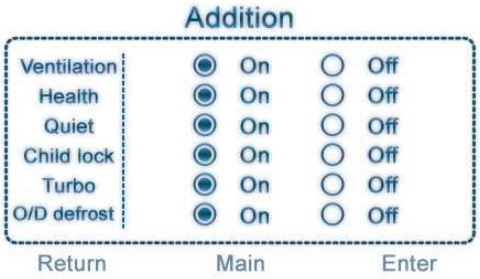


Figure 22

1. Proceed through main interface→Menu→Addition→press "Enter" key to initiate. The default state is shutdown.

2. Ventilation: Some models have the air ventilation and some models do not. For those models that do not have this function, the ventilation setting will not be usable.

3. Health: Some models have the health function and some models do not. For those models that do not have this function, the health setting will not be usable.

4. Quiet: Some models have the quiet function and some models do not. For those models that do not have this function, the quiet setting will not be usable.

5. Turbo: Some models have the turbo function and some models do not. For those models that do not have this function, the turbo setting will not be usable.

6. When the children lock is on, it automatically returns to the main interface and all the keys are unusable. The main interface displays the icon for children lock; keep both the leftward and rightward keys pressed down for 5 seconds and the children lock icon will disappear, and now the children lock is disengaged and all the keys are usable.

7. O/D defrost is effective in the heating mode; The O/D defrost command is sent to indoor unit.

Note: for some models, the turbo and quiet functions are reserved functions and are in grey color.

Special parameters

This function is a reserved function and is temporarily in color grey

Filter screen cleaning

1. If the state indication area of the main interface displays "filter", filter cleaning shall be performed.

2. When "filter" is being displayed, keep both the upward and downward keys pressed down for 5 seconds to cancel the "filter" icon.

Temperature compensation

(This function is intended for debugging by technical personnel and can only be entered by high-class users)

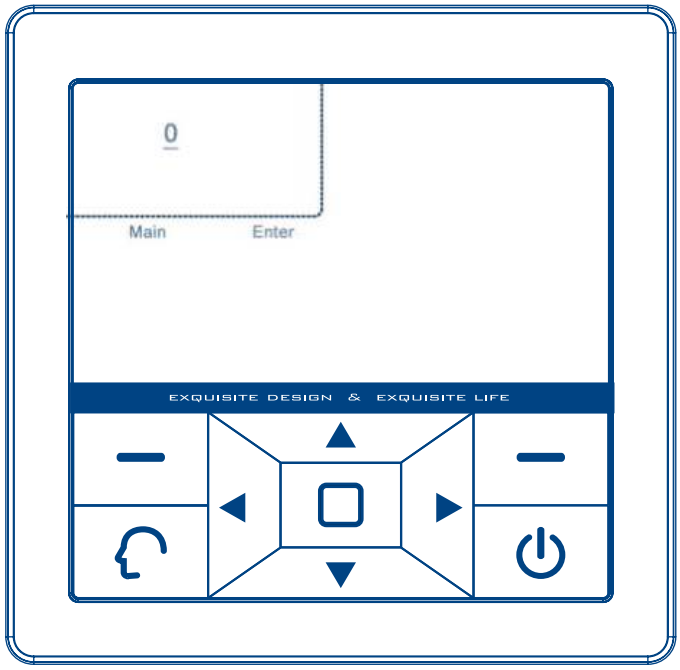


Figure 23

1. Proceed through main interface→Menu→Other→enter the high-class user password→Temp. Compensation→press "Enter" to initiate.

2. When in this interface, use the upward and downward keys to set the temperature value; the range of Celsius degrees is -4°C to 4°C; the default value is 0; The range of Fahrenheit degrees is -7 to +7.Pressing "Enter", value change is done; If pressing "Return",original value is retained.

Special set

This function is a reserved function and is temporarily in color grey

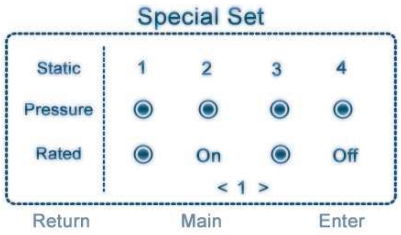


Figure 24

1.Special set is only effective to some types, with order ineffective if no such function equipped in the corresponding indoor units.

2.When powered on, the default static pressure grade is 1 and no rated value displayed; when communication stabilized (about 3 minutes later), static pressure and rated state can be checked.

3.Press up/down key to switch among Static pressure, rated value, wired controller group No.; press left/right key to move the cursor in every line and then press OK key to confirm the setting.

4.The circle flashes where the cursor locates when choosing static pressure and rated value; if the cursor moves to wired controller group No. location, the No. will be underlined and the range of No. is 1-16.

Detailed information

(The common user password is required for access)

1. Proceed through main interface→Menu→other→enter the password→Details→press "Enter" to initiate.
2. 063 is the address of the wired controller inside the group; if one unit is controlled by one wired controller, the default address is 01; the range of this value is 01 to 16; the Indoor address is the communication address of both indoor unit and outdoor unit, ranging from 1 to 64.
3. The wired controller address equals the corresponding value of indoor unit's group address dial code plus 1.

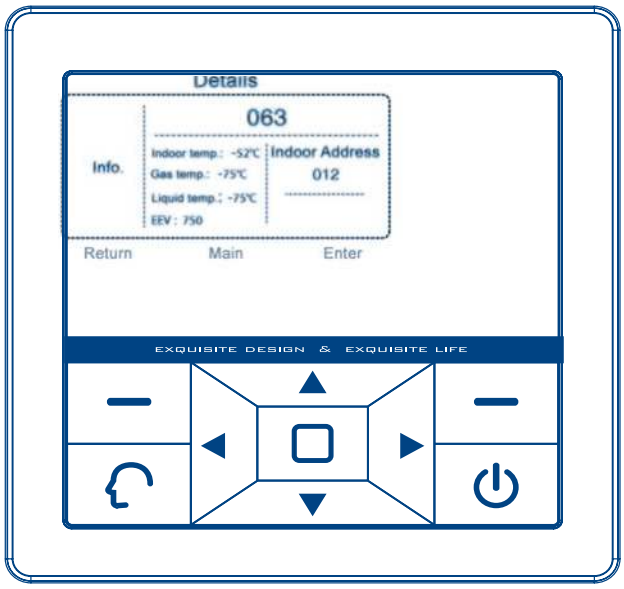


Figure 25

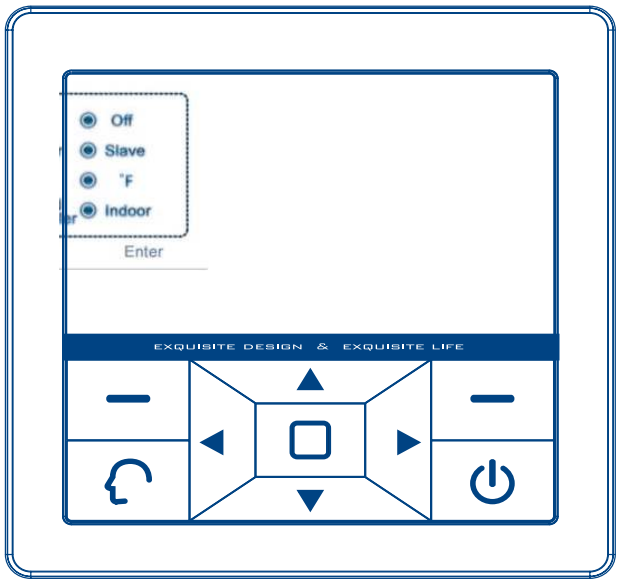


Figure 26

State setting

(This function is intended for debugging by technical personnel and can be entered by high-class users only)

1. Proceed through main interface→Menu→Other→enter the high-class user password→Status set→press "Enter" to initiate.

2. Use the upward, downward, leftward and rightward keys to adjust the cursor; the location where the cursor stays has the circle flickering; press "Enter" key to change it to ◉, and the setting is completed. ◉ indicates "selected" and ○ indicates "unselected".

3. Auto recovery: if this function is on, the state before power failure will be in the memory; after restoration of power failure, the unit will continue operating in the state as before the power failure. If this function is off, the state will not be memorized; if the unit is energized after power failure, it is in shutdown state; after startup, the default mode is in automatic mode as automatic air 24°C. If the auto recovery is set to be on and the sleep function is also set, in case of accidental power failure, the unit is in shutdown state when the power supply is resumed.

4. Master/slave setting: This setting is used for master/slave control of the wired controller and the master controller and slave controller are set separately.

5. Unit of temperature: Temperature is set in the units of Celsius degree and Fahrenheit degree.

6. Indoor sensor: Set the temperature source collection for ambient temperature sensor.

Differences between the function of the master wired controller and slave wired controller:

Comparison item	Master wired controller	Slave wired controller
Function	All functions	1.Air direction setting,time setting,mode lock,indoor sensor,auto recovery and ECO shall be consistent with the master wired controller. 2.Weekly timer, sleep setting, addressing, special set and temp.compensation are in grey color and are not operable.

Screen saver:
If there is no operation for one continuous minute, the luminance of the wired controller will be reduced to protect the screen and save energy. Press any key to terminate the function of screen saver and recover the pre-existing luminance.

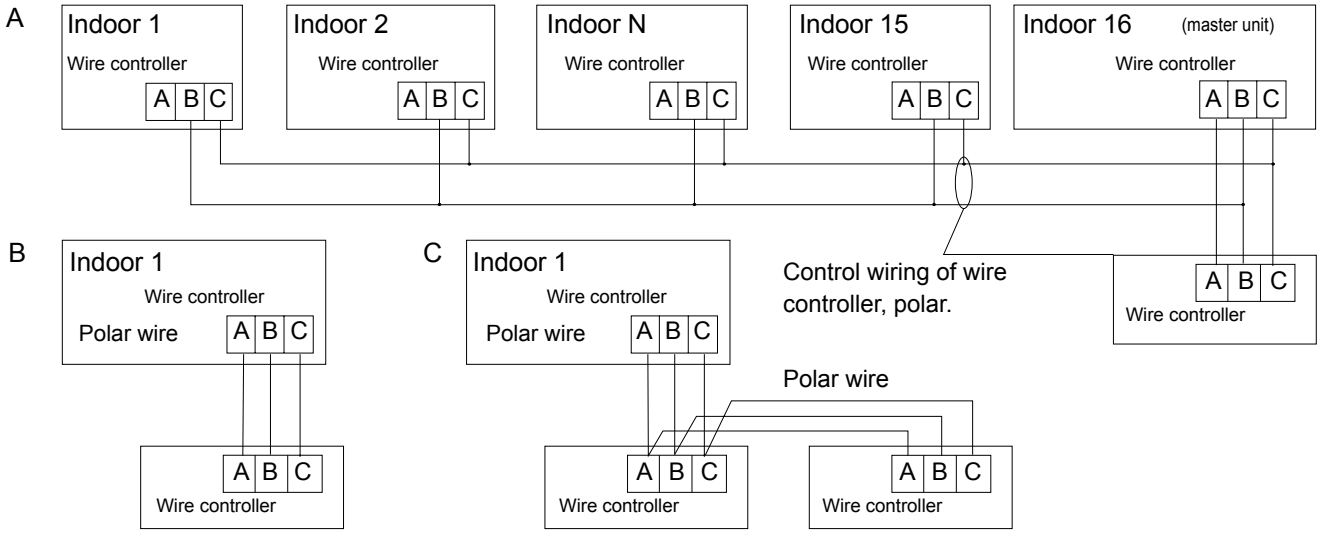
The handling of Centralization/Lock mode:
If central controller is connected in the AC system,

1. If there displays the icon of in the main interface, the centralization mode is activated in the central controller in which only startup/shutdown keys can be operated and other keys are inoperable. If there is no operation for one continuous minute, the screen saver function will be initiated with the luminance of the wired controller reduced. Press any key to recover the pre-existing luminance.

2. If there displays the icon of in the main interface, the lock mode is set in the central controller with no keys operable. If there is no operation for one continuous minute, the screen saver function will be initiated with the luminance of the wired controller reduced. Press any key to recover the pre-existing luminance.

3. If or , weekly timer and sleep setting is invalid.

Wiring connections of wire controller:



There are three methods to connection wire controller and the indoor units:

A.One wired controller can control max. up to 16 sets of indoor units, and 3 pieces of polar wire must connect the wire controller and the master unit (the indoor unit connected with wire controller directly), the others connect with the master unit through 2 pieces of polar wire.

B. One wire controller controls one indoor unit, and the indoor unit connects with the wire controller through 3 pieces of polar wire.

C. Two wired controllers control one indoor unit. The wire controller connected with indoor unit is called master one, the other is called slave one. Master wire controller and indoor unit; master and slave wire controllers are all connected through 3 pieces of polar wire.

Note: For some slim duct type and middle ESP duct type (The PCB spare part number of which is 0151800175B or 0151800173), there will be a different wiring method, please refer to the service manul to get the wiring details.

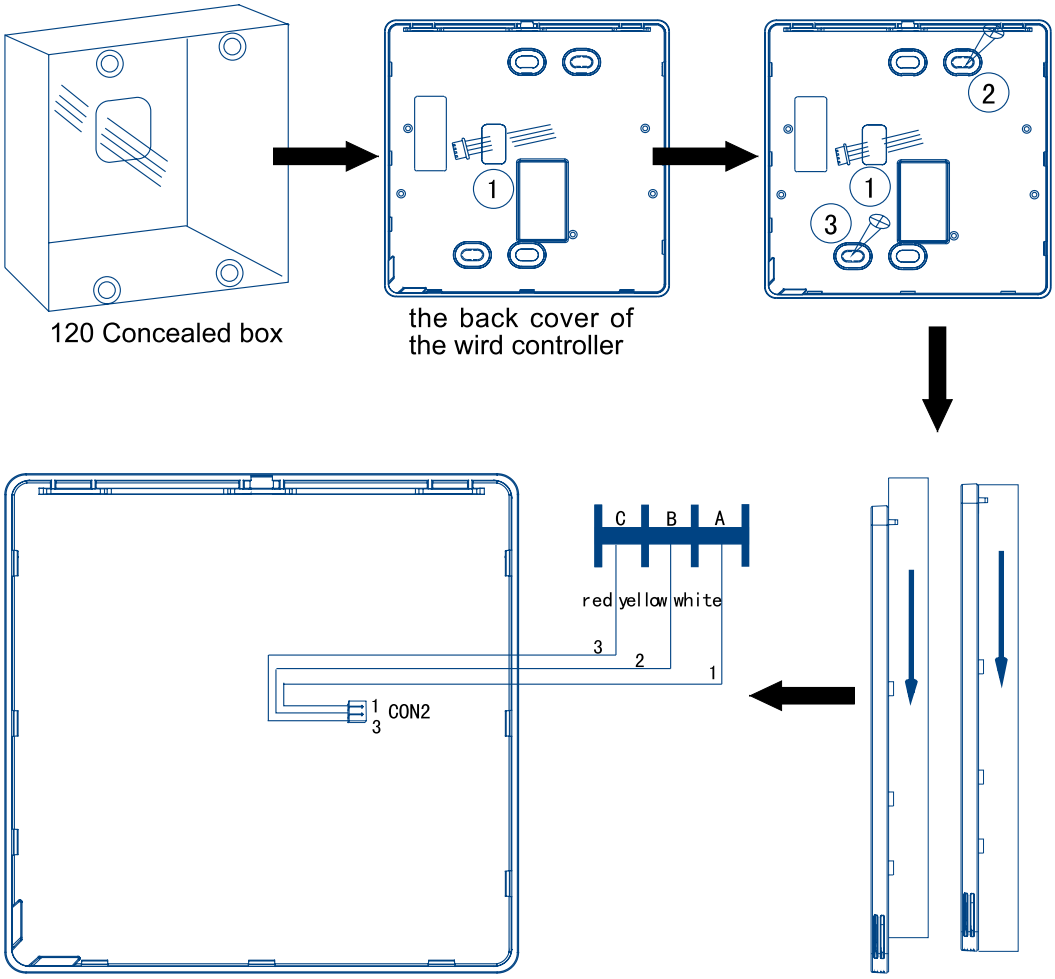
Communication wiring:

Communication wiring length(m)	Dimensions of wiring
< 100	0.3mm^{2}x3-core shielded wire
≥100 and <200	0.5mm^{2}x3-core shielded wire
≥200 and <300	0.75mm^{2}x3-core shielded wire
≥300 and <400	1.25mm^{2}x3-core shielded wire
≥400 and <500	2mm^{2}x3-core shielded wire

One side of the shielded sheet of communication wire must be earthed.

• Installation of wire controller:

1. Pass the communication cable through the hole of the concealed box.
2. Pass the cable through the back cover of the wired controller at the place No.1.
3. Mounted the back cover on the concealed box by screws.
4. Plug the terminals of the communication cables on the corresponding connectors, and slide the front cover of the wirde controller from up to down,then fixed。
5. White wire, connected to indoor A, Yellow wire,connected to indoor B,
   Red wire,connected to indoor C



Appendix Sensor characteristic

Model	Function	Part code	Characteristic
1U28HS1ERA(S) 1U36HS1ERA(S) 1U48LS1ERA(S) 1U48IS1ERB(S) 1U48LS1ERB(S) 1U60IS1ERA(S) 1U60IS1ERB(S) 1U60IS2ERB(S)	Defrost temperature sensor	0010450194	R25=10KΩ±3% B25/50=3700K±3%
	Outdoor ambient temperature sensor	0010450192	R25=10KΩ±3% B25/50=3700K±3%
	Discharge temperature sensor	0010451303	R80=50KΩ±3% B25/50=4450K±3%
	Coil temperature sensor	0010451329	R25=10KΩ±3% B25/50=3700K±3%
	Suction temperature sensor	0010451307	R25=10KΩ±3% B25/50=3700K±3%
1U24GS1ERA	Defrost temperature sensor	0010450194	R25=10KΩ±3% B25/50=3700K±3%
	Outdoor ambient temperature sensor	001A3800082E	R25=10KΩ±3% B25/50=3700K±3%
	Discharge temperature sensor	001A3900056	R80=50KΩ±3% B25/50=4450K±3%
	Suction temperature sensor	001A3900062E	R25=10KΩ±3% B25/50=3700K±3%
1U48LS1EAB(S) 1U48IS1EAB(S) 1U60IS1EAB(S) 1U60IS2EAB(S)	Outdoor ambient temperature sensor	0010450192	R25=10KΩ±3% B25/50=3700K±3%
	Discharge temperature sensor	0010451303	R80=50KΩ±3% B25/50=4450K±3%
	Coil temperature sensor	0010450949	R25=10KΩ±3% B25/50=3700K±3%
	Suction temperature sensor	0010451307	R25=10KΩ±3% B25/50=3700K±3%
3U19FS1ERA 3U24GS1ERA 4U26HS1ERA 4U30HS1ERA 5U34HS1ERA 3U19FS1ERA(N) 3U24GS1ERA(N)	gas liquid sensot	10452099	R25=10KΩ±3% B25/50=3700K±3%
	Oil temp.sensor	10451305	R25=10KΩ±3% B25/50=3700K±3%
	Defrost temperature sensor	10450194	R25=10KΩ±3% B25/50=3700K±3%
	power module temp.sensor	10452082	R50=17K±2% B25/50=4170K±3%

Model	Function	Part code	Characteristic
AB09CS1ERA AB12CS1ERA (S) AB18CS1ERA (S) AB24ES1ERA (S) AB28ES1ERA (S) AB36ES1ERA (S) AB48ES1ERA (S) AB60CS1ERA (S) AB60ES2ERA(S) AC28ES1ERA (S) AC36ES1ERA (S) AP48DS1ERA (S) AP48KS1ERA (S) AP60KS1ERA (S) AD09~24SS1ERA(N)(P) AD09~24SS1ERA(N) AD12MS1ERA AD18MS1ERA AD12MS1ERA(D) AD18MS1ERA(D) AD24MS1ERA AD24MS1ERA(D) AD24MS2ERA AD24MS2ERA(D) AD28MS2ERA(S) AD28MS2ERA(S)(D)	Indoor ambient temperature sensor	001A3900159	R25=23KΩ±3% B25/50=4200K±3%
	Indoor coil temperature sensor	001A3900006	R25=10KΩ±3% B25/50=3700K±3%
AD28NS1ERA(S) AD36NS1ERA(S) AD48NS1ERA(S)	Indoor ambient temperature sensor	001A3900159	R25=23KΩ±3% B25/50=4200K±3%
	Indoor coil temperature sensor	0010401922	R25=10KΩ±3% B25/50=3700K±3%"
AD09LS1ERA AD12LS1ERA AD18LS1ERA AD24LS1ERA AD60HS1ERA (S) AC12CS1ERA (S) AC18CS1ERA (S) AC24CS1ERA (S) AC24CS1ERA (S) AC48FS1ERA (S) AC60FS1ERA (S)	Indoor ambient temperature sensor	0010451323	R25=23KΩ±3% B25/50=4200K±3%
	Indoor coil temperature sensor	001A3900006	R25=10KΩ±3% B25/50=3700K±3%
AD48HS1ERA(S)	Indoor ambient temperature sensor	0010451323	R25=10KΩ±3% B25/50=3700K±3%
	Indoor coil temperature sensor	0010401922	R25=10KΩ±3% B25/50=3700K±3%

R80=50KΦ±3% B25/80=4450K±3%		R80=50KΦ±3% B25/80=4450K±3%	
T（℃）	Rnom (KΦ)	T（℃）	Rnom (KΦ)
-30	11600	17	760.8
-29	10860	18	722.8
-28	10170	19	687.3
-27	9529	20	653.8
-26	8932	21	622
-25	8375	22	592
-24	7856	23	553.6
-23	7372	24	536.6
-22	6920	25	511.1
-21	6498	26	486.9
-20	6104	27	464
-19	5736	28	442.3
-18	5392	29	421.7
-17	5071	30	402.1
-16	4770	31	383.6
-15	4488	32	366
-14	4225	33	349.3
-13	3978	34	333.5
-12	3747	35	318.4
-11	3531	36	304.1
-10	3328	37	290.5
-9	3138	38	277.6
-8	2960	39	265.3
-7	2793	40	253.6
-6	2636	41	242.5
-5	2489	42	232
-4	2351	43	221.9
-3	2221	44	212.3
-2	2099	45	203.2
-1	1984	46	194.5
0	1877	47	186.3
1	1775	48	178.4
2	1680	49	170.9
3	1590	50	163.7
4	1506	51	155.9
5	1426	52	150.4
6	1351	53	144.2
7	1280	54	138.3
8	1214	55	132.7
9	1151	56	127.3
10	1092	57	122.1
11	1036	58	117.2
12	983.2	59	112.5
13	933.4	60	108
14	886.4	61	103.8
15	841.9	62	99.68
16	800		

R25=10KΦ±3% B25/50=3700K±3%		R25=10KΦ±3% B25/50=3700K±3%	
T (℃)	Rnom (KΦ)	T (℃)	Rnom (KΦ)
-20℃	90.79	31	7.83
-19	85.72	32	7.52
-18	80.96	33	7.23
-17	76.51	34	6.95
-16	72.33	35	6.68
-15	68.41	36	5.43
-14	64.73	37	5.6
-13	61.27	38	5.59
-12	58.02	39	5.73
-11	54.97	40	5.52
-10	52.1	41	5.32
-9	49.4	42	5.12
-8	46.86	43	4.93
-7	44.46	44	4.9
-6	42.21	45	4.58
-5	40.08	46	4.42
-4	38.08	47	4.26
-3	36.19	48	4.11
-2	34.41	49	3.97
-1	32.73	50	3.83
0	31.14	51	3.7
1	29.64	52	3.57
2	28.22	53	3.45
3	26.4	54	3.33
4	25.61	55	3.22
5	24.41	56	3.11
6	23.27	57	3.11
7	22.2	58	2.9
8	21.18	59	2.81
9	20.21	60	2.72
10	19.3	61	2.63
11	18.43	62	2.54
12	17.61	63	2.49
13	16.83	64	2.38
14	16.09	65	2.3
15	15.38	66	2.23
16	14.71	67	2.16
17	14.08	68	2.09
18	13.48	69	2.03
19	12.9	70	1.96
20	12.36	71	1.9
21	11.84	72	1.85
22	11.34	73	1.79
23	10.87	74	1.73
24	10.43	75	1.68
25	10	76	1.63
26	9.59	77	1.58
27	9.21	78	1.54
28	8.84	79	1.49
29	8.48	80	1.45
30	8.15		

R25=23KΩ±3%B25/50=4200K±3%							
T(℃)	Rnom(KΩ)	T(℃)	Rnom(KΩ)	T(℃)	Rnom(KΩ)	T(℃)	Rnom(KΩ)
-10	149.07	27	20.94	64	4.52	101	1.32
-9	140.35	28	20.00	65	4.36	102	1.28
-8	132.20	29	19.10	66	4.21	103	1.25
-7	124.59	30	18.24	67	4.05	104	1.21
-6	117.46	31	17.43	68	3.91	105	1.18
-5	110.79	32	16.66	69	3.77	106	1.14
-4	104.54	33	15.93	70	3.64	107	1.11
-3	98.69	34	15.24	71	3.51	108	1.08
-2	93.20	35	14.58	72	3.39	109	1.05
-1	88.06	36	13.95	73	3.28	110	1.02
0	83.23	37	13.35	74	3.16	111	0.99
1	78.70	38	12.79	75	3.06	112	0.96
2	74.45	39	12.25	76	2.95	113	0.93
3	70.46	40	11.73	77	2.85	114	0.91
4	66.70	41	11.24	78	2.76	115	0.88
5	63.18	42	10.78	79	2.66	116	0.86
6	59.86	43	10.33	80	2.58	117	0.84
7	56.74	44	9.91	81	2.49	118	0.81
8	53.80	45	9.51	82	2.41	119	0.79
9	51.03	46	9.12	83	2.33	120	0.77
10	48.42	47	8.76	84	2.26	121	0.75
11	45.97	48	8.41	85	2.18	122	0.73
12	43.65	49	8.07	86	2.11	123	0.71
13	41.46	50	7.75	87	2.05	124	0.69
14	39.40	51	7.45	88	1.98	125	0.67
15	37.46	52	7.16	89	1.92	126	0.66
16	35.62	53	6.88	90	1.86	127	0.64
17	33.89	54	6.62	91	1.80	128	0.62
18	32.25	55	6.36	92	1.74	129	0.61
19	30.70	56	6.12	93	1.69	130	0.59
20	29.23	57	5.89	94	1.64	131	0.58
21	27.84	58	5.67	95	1.59	132	0.56
22	26.53	59	5.46	96	1.54	133	0.55
23	25.29	60	5.25	97	1.49	134	0.53
24	24.11	61	5.06	98	1.45		
25	23.00	62	4.87	99	1.41		
26	21.94	63	4.70	100	1.36		

R50=17K±2%B25/50=4170K±3%							
T(℃)	Rnom(KΩ)	T(℃)	Rnom(KΩ)	T(℃)	Rnom(KΩ)	T(℃)	Rnom(KΩ)
-10	320.02	27	45.60	64	9.96	101	2.94
-9	301.43	28	43.55	65	9.60	102	2.85
-8	284.05	29	41.60	66	9.26	103	2.77
-7	267.80	30	39.75	67	8.93	104	2.69
-6	252.58	31	38.00	68	8.62	105	2.61
-5	238.33	32	36.33	69	8.32	106	2.54
-4	224.99	33	34.75	70	8.03	107	2.47
-3	212.48	34	33.25	71	7.75	108	2.40
-2	200.75	35	31.82	72	7.48	109	2.33
-1	189.75	36	30.46	73	7.23	110	2.26
0	179.42	37	29.16	74	6.98	111	2.20
1	169.73	38	27.93	75	6.74	112	2.14
2	160.62	39	26.76	76	6.52	113	2.08
3	152.07	40	25.65	77	6.30	114	2.02
4	144.02	41	24.58	78	6.09	115	1.97
5	136.46	42	23.57	79	5.89	116	1.91
6	129.34	43	22.61	80	5.69	117	1.86
7	122.64	44	21.69	81	5.51	118	1.81
8	116.33	45	20.81	82	5.33	119	1.76
9	110.39	46	19.98	83	5.16	120	1.72
10	104.79	47	19.18	84	4.99	121	1.67
11	99.51	48	18.42	85	4.83	122	1.63
12	94.53	49	17.69	86	4.68	123	1.58
13	89.83	50	17.00	87	4.53	124	1.54
14	85.40	51	16.34	88	4.39	125	1.50
15	81.21	52	15.71	89	4.25	126	1.46
16	77.25	53	15.10	90	4.12	127	1.43
17	73.52	54	14.52	91	3.99	128	1.39
18	69.98	55	13.97	92	3.87	129	1.35
19	66.64	56	13.44	93	3.75	130	1.32
20	63.48	57	12.94	94	3.63	131	1.29
21	60.49	58	12.46	95	3.52	132	1.25
22	57.66	59	11.99	96	3.42	133	1.22
23	54.98	60	11.55	97	3.31	134	1.19
24	52.44	61	11.13	98	3.21		
25	50.04	62	10.72	99	3.12		
26	47.76	63	10.33	100	3.03		



Haier Commercial Air Condition

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