Order No: RAC1001001C8

Service Manual

Air Conditioner

Model No.

Indoor Unit

(KA1E5 Series)

S-22KA1E5S	S-22KA1E5
S-28KA1E5S	S-28KA1E5
S-36KA1E5S	S-36KA1E5
S-45KA1E5S	S-45KA1E5
	S-56KA1E5
	S-63KA1E5
	S-71KA1E5

(YA1E5 Series)

S-22YA1E5	S-36YA1E5
S-28YA1E5	S-45YA1E5
	S-56YA1E5

(UA1E5 Series)

S-63UA1E5	S-90UA1E5
S-71UA1E5	S-100UA1E5
	S-125UA1E5

(NA1E5 Series)

S-22NA1E5	S-36NA1E5
S-28NA1E5	S-40NA1E5
S-32NA1E5	S-45NA1E5
	S-56NA1E5

(MA1E5 Series)

S-45MA1E5	S-71MA1E5
S-56MA1E5	S-90MA1E5
S-63MA1E5	S-100MA1E5
	S-125MA1E5

Outdoor Unit

U-8EA1E8	U-10EA1E8

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the products dealt with in this service information by anyone else could result in serious injury or death.

⚠ PRECAUTION OF LOW TEMPERATURE

In order to avoid frostbite, be assured of no refrigerant leakage during the installation or repairing of refrigerant circuit.

Panasonic®

TABLE OF CONTENTS

1. Safety Precautions

- Read the following “SAFETY PRECAUTIONS” carefully before perform any servicing.
- Electrical work must be installed or serviced by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model installed.
- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation or servicing due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

⚠ **WARNING**	This indication shows the possibility of causing death or serious injury
⚠ **CAUTION**	This indication shows the possibility of causing injury or damage to properties.

- The items to be followed are classified by the symbols:

⃠	This symbol denotes item that is PROHIBITED from doing.

- Carry out test run to confirm that no abnormality occurs after the servicing. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.

⚠ **WARNING**	
1. Switch off all supplies before accessing any electrical parts.	
2. Do not modify the machine, part, material during repairing service.	
3. If wiring unit is supplied as repairing part, do not repair or connect the wire even only partial wire break. Exchange the whole wiring unit.	
4. Do not wrench the fasten terminal. Pull it out or insert it straightly.	
5. Engage dealer or specialist with ISO5149 or equivalent requirement for installation and servicing. If installation of servicing done by the user is defective, it will cause water leakage, electrical shock or fire.	
6. Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electric shock or fire.	
7. Use the attached accessories parts and specified parts for installation and servicing. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock.	
8. Install at a strong and firm location which is able to withstand the set’s weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.	
9. Carry out predetermined installation work in preparation for strong wind such as typhoon, earthquake. Imperfection in installation work may lead to accidents arisen from overturn, etc.	
10. For electrical work, follow the local national wiring standard, regulation and the installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire.	
11. This equipment is strongly recommended to install with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD). Otherwise, it may cause electrical shock and fire in case equipment breakdown or insulation breakdown.	
12. Do not use joint cable for indoor / outdoor connection cable. Use the specified indoor / outdoor connection cable, refer to installation instruction CONNECT THE WIRES TO THE CONTROL BOX and connect tightly for indoor / outdoor connection. Clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, if will cause heat up or fire at the connection.	
13. Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause heat-up or fire at the connection point of terminal, fire or electrical shock.	
14. When install inside a small room, measures should be taken to prevent refrigerant levels from building up to critical concentrations in the event of a refrigerant leak occurring. Please discuss dealer or specialist for advice on the countermeasure to prevent critical concentration being exceeded. During refrigerant leaks and reaches critical concentration levels, there is possibility of causing death due to suffocation.	
15. When install or relocate air conditioner, do not let any substance other than the specified refrigerant, eg. air etc. mix into refrigeration cycle (piping). (Mixing of air etc. will cause abnormal high pressure in refrigeration cycle and result in explosion, injury etc.).	
16. Do not install outdoor unit near handrail of veranda. When installing air-conditioner unit at veranda of high rise building, child may climb up to outdoor unit and cross over the handrail and causing accident.	
17. This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, earth of lightning rod and telephone. Otherwise, it may cause electrical shock in case equipment breakdown or insulation breakdown.	⃠
18. Keep away from small children, the thin film may cling to nose and mouth and prevent breathing.	⃠
19. Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor installation or over current will cause electrical shock or fire.	⃠

⚠ WARNING
20. Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.
21. During installation, before run the compressor, confirm the refrigerant pipes are fixed. Operation of compressor without fixing the piping, setting the valves at open condition, a burst may occur and cause injury.
22. After completion of installation or service, confirm there is no leakage or refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire or spark.
23. Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when refrigerant contacts with fire.
24. Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.
25. Must not use other parts except original parts described in catalog and manual.
26. Improper fixing of screw may cause current leakage and electrical shock,.

⚠ CAUTION
1. Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
2. Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
3. Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.
4. Do not touch outdoor unit air inlet and aluminium fin. It may cause injury.
5. Select an installation location which is easy for maintenance.
6. Pb free solder has a higher melting point than standard solder; typically the melting point is 50°F – 70°F (30°C – 40°C) higher. Please use a high temperature solder iron. In case of the soldering iron with temperature control, please set it to 700 ± 20°F (370 ± 10°C). Pb free solder will tend to splash when heated too high (about 1100°F / 600°C).
7. Power supply connection to the air conditioner. Connect the power supply cord of the air conditioner to the mains using one of the following methods. Power supply point shall be the place where there is ease for access for the power disconnection in case of emergency. In some countries, permanent connection of this room air conditioner to the power supply is prohibited. i. Power supply connection to the receptacle using a power plug. Use an approved power plug with earth pin for the connection to the socket. ii. Power supply connection to a circuit breaker for the permanent component. Use an approved circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.5 mm contact gap.
8. Do not release refrigerant during piping work for installation, servicing, reinstallation and during repairing a refrigerant parts. Take care of the liquid refrigerant, it may cause frostbite.
9. Installation work: It may need two people to carry out the installation work.
10. Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.
11. Do not sit or step on the unit, you may fall down accidentally.
12. Do not touch the sharp aluminum fins or edges of metal parts. If you are required to handle sharp parts during installation or servicing, please wear hand glove. Sharp parts may cause injury.
13. Position the indoor unit and outdoor unit, power cords and indoor / outdoor connection cables in a way so that they are at least 1 meter away from televisions and radios. This is to avoid problems such as interference with picture and / or sound. (However, depending on the electromagnetic wave conditions, inteference may still occur even if the separation distance is more than 1 meter.)
14. When fixing the product with an overturn prevention wire, ensure to choose a place where no one trips over the fixing wire.

2. Features

- **VRF Air Conditioning**
  - The FS Multi is a variable refrigerant flow (VRF) system that uses a single outdoor unit to independently control multiple indoor units. By communicating with the indoor units, the outdoor unit controls the flow of refrigerant to each of them to match their cooling or heating loads. This enables independent operation of each of the indoor units, with inverter control providing optimum energy-saving operation.

- **Highly Efficient Inverter Technology**
  - Uses Panasonic advanced inverter technology, intelligent and flexible control ability to achieve energy saving; Meanwhile, the outdoor unit is capable to drive multiple indoor units.

- **More Variety of Indoor Unit Types**
  - There are 6 different Indoor unit types available

kW	2.2kW	2.8kW	3.2kW	3.6kW	4.0kW	4.5kW	5.6kW	6.3kW	7.1kW	9.0kW	10.0kW	12.5kW
BTU/h	7500	9600	10900	12300	13700	15400	19100	21500	24200	30700	24200	30700
Wall Mounted - White KA1E5 SERIES	O	O		O		O	O	O	O			
Wall Mounted - Silver KA1E5S SERIES	O	O		O		O						
60 x 60 Cassette YA1E5 SERIES	O	O		O		O	O					
95 x 95 Cassette UA1E5 SERIES								O	O	O	O	O
Slim Hide-away NA1E5 SERIES	O	O	O	O	O	O	O					
Low Static Pressure Hide-away MA1E5 SERIES						O	O	O	O	O	O	O

Total freedom of choice. Up to 35 different indoor unit models. Allows you to choose the best option depending on architectural needs and interior design.

- **Wall-mounted Type Indoor Unit (KA1E5, KA1E5S Series)**
  - Delicate design.
  - Easy installation.
  - Refrigerant distributor.
  - Easy Servicing with 7 segment Error Code Display at panel.

- **60 x 60 Cassette Type Indoor Unit (YA1E5 Series)**
  - Light and thin design with thickness of 24cm, allowing easy installation.
  - Easy Servicing with 7 segment Error Code Display at panel.

- **95 x 95 Cassette Type Indoor Unit (UA1E5 Series)**
  - Flexible and convenient Drain-Up mechanism.
  - Light and thin design with thickness of 24cm, allowing easy installation.
  - Easy Servicing with 7 segment Error Code Display at panel.

- **Slim Hide-away Type Indoor Unit (NA1E5 Series)**
  - Light body with a thickness of 20cm only.
  - Flexible installation options.
  - Selectable air inlet.
  - Adjustable static pressure 0mmAq or 3mmAq.
  - Easy Servicing with 7 segment Error Code Display at panel.

- **Low Static Pressure Hide-away Type Indoor Unit (MA1E5 Series)**
  - Flexible and convenient Drain-Up mechanism.
  - Light and thin design with thickness of 25cm, allowing easy installation.
  - Selectable air inlet.
  - Adjustable static pressure 5mmAq or 7mmAq.
  - Easy filter maintenance.
  - Easy Servicing with 7 segment Error Code Display at panel.

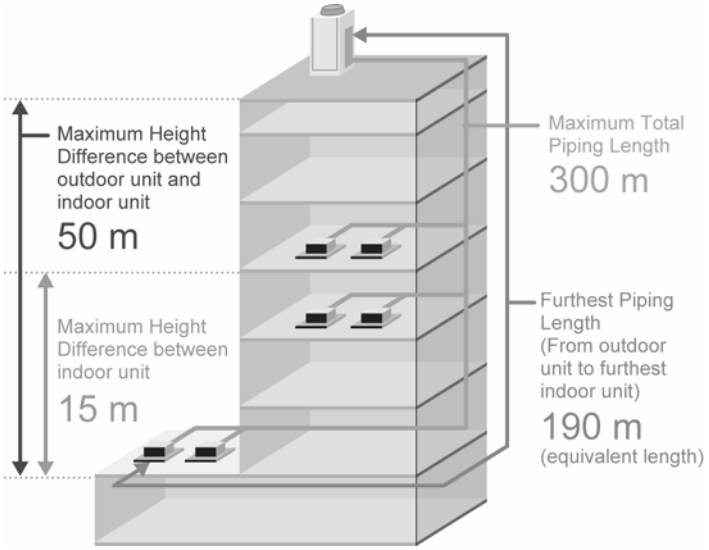
Wired Remote Control
CZ-RT1

1. Includes an easily-visible red pilot indicator. The power can be turned on and off at a single touch, without opening the cover.
2. The build-in thermistor allows indoor temperature detection in accordance with indoor conditions by switching with indoor unit thermistor.
3. Twin non-polar wires make installation work easy. (10m cable supplied as accessory).

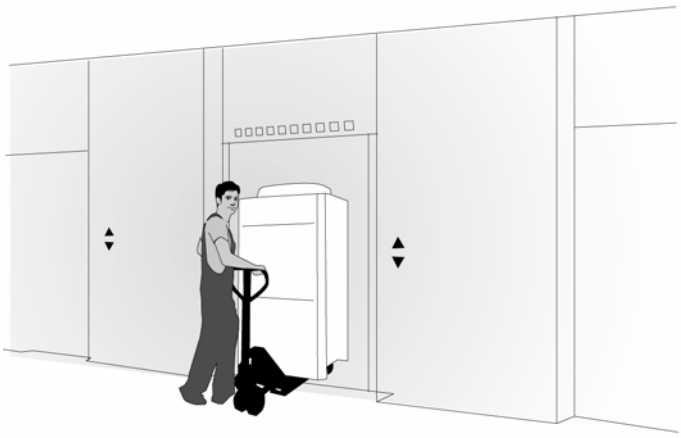
Wireless Remote Control
CZ-RWS1 – Heat pump models / CZ-RWC1 – Cooling models

1. New ergonomic design.
2. Built-in 24 hours OFF/ON timer.

- **Piping Length Up to 300 m**
  - The total piping length between a system's outdoor and indoor units can be extended up to 300 meters, with a height difference of up to 50 meters.



- **Easy transportation**
  - The outdoor unit features a compact design. Hence, you can easily transport it to upper floors using a regular service elevator.



- **High External Static Pressure Mode**
  - Outdoor unit can select high external static pressure mode (up to 60Pa) by outdoor unit local setting mode.

Combination table

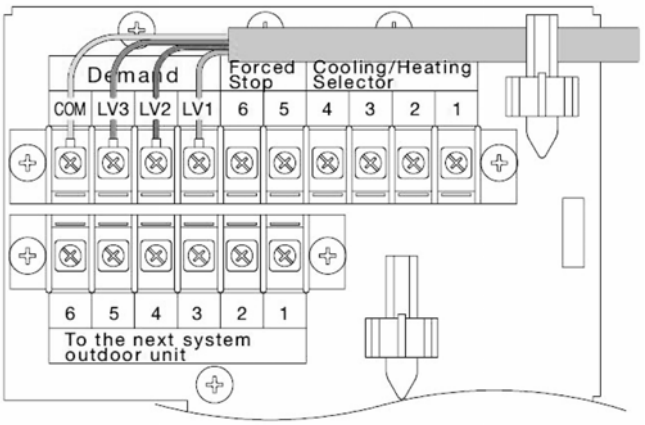
The system attains maximum indoor unit connection capacity of up to 130% in the unit' s connection range, depending on the outdoor and indoor unit models selected.

Outdoor Unit	Cooling Capacity		Maximum indoor unit	Standard combination capacity	Maximum combination capacity	Minimum combination capacity
	kW	Btu/h		100 %	130 %	50 %
U-8LA1E8	22.4	76500	13	22.4 kW	29.1 kW	11.2 kW
U-10LA1E8	28.0	95600	16	28.0 kW	36.4 kW	14.0 kW

Standard combination capacity is the system's maximum cooling capacity.

Interface Module for External Control / Integration
CZ-CAP1

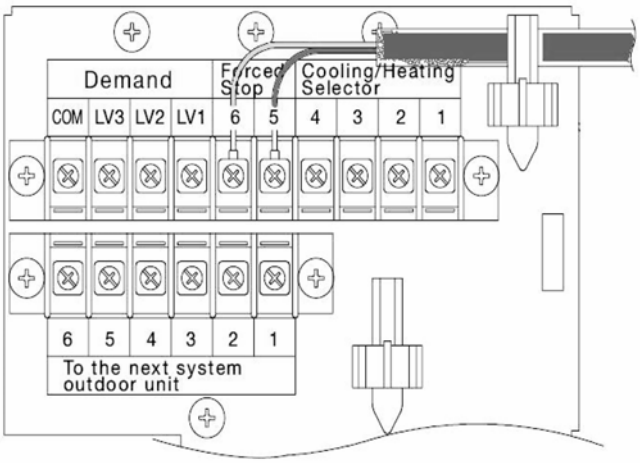
- Demand Control
  - With Demand Control, it is possible to limit maximum electrical current to air conditioner. This usually used to integrate with central control system, building automation system or etc.



From external device, it is required to use a volt free contact (relay) for integration.
(DC24V 2mA, wire length max 150m)

COM shorted with	Max rated current
LV1	70%
LV2	40%
LV3	0%

- Forced Stop
  - With the Forced Stop input, it is possible to override the air conditioning operation to force stop if signal is received from a fire alarm system, BAS or etc.

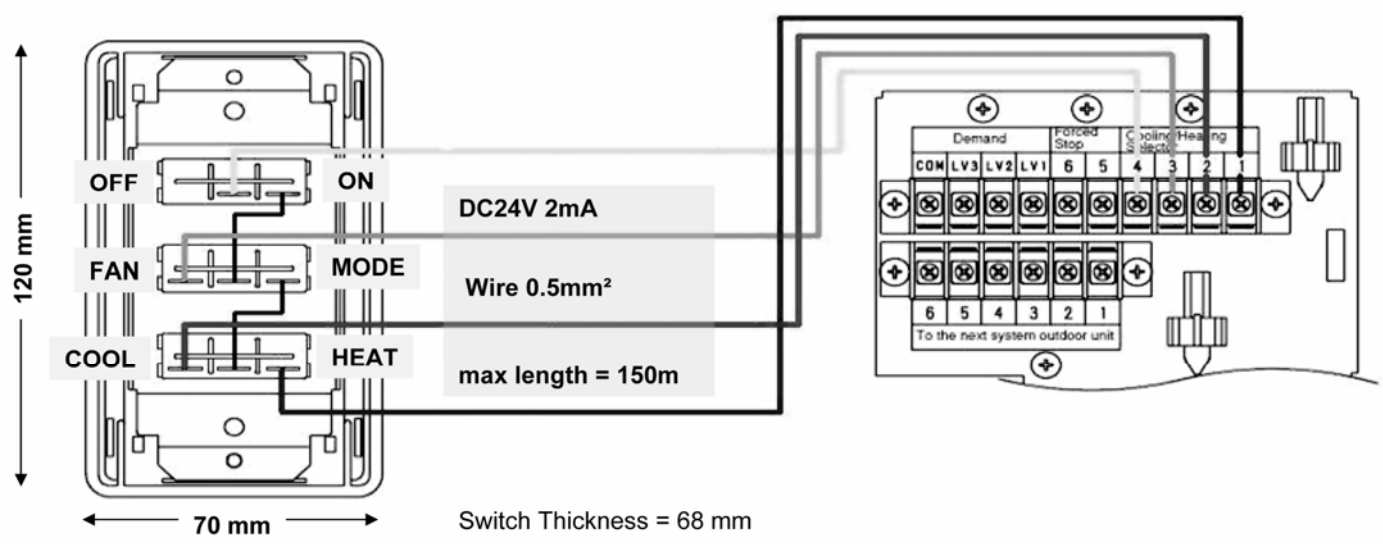


From external device, it is required to use a volt free contact (relay) for integration.
(DC24V 2mA, wire length max 150m)

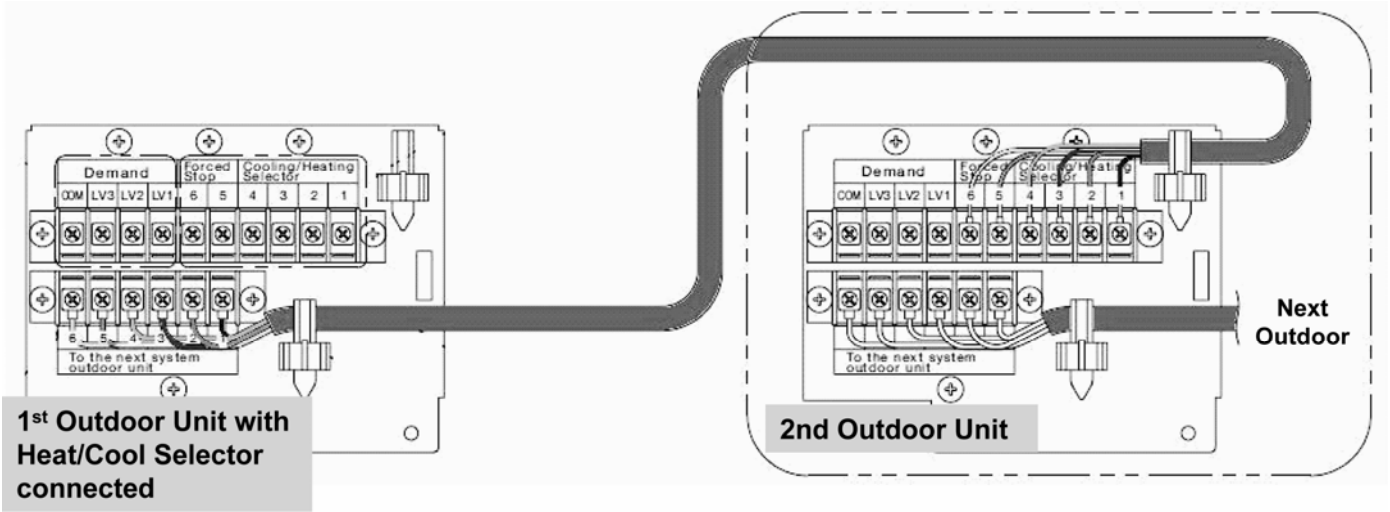
When contact closed, AC will forced and continue stop operation.

When contact opened, AC will switch to standby condition.

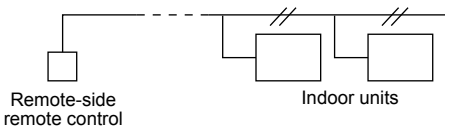
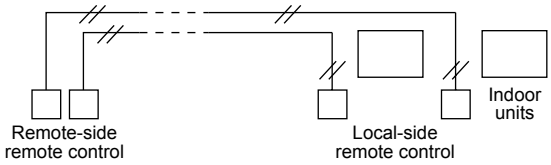
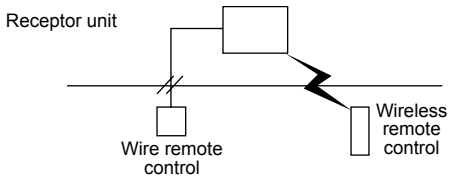
- Heat / Cool Mode selection
  - Must use together with Cooling / Heating Selector Switch (CZ-RD1)
  - With the heat cool selector switch, operation mode (Heat / Cool / Fan) can be set & fixed by higher authority user.
  - If OFF selected, Unit will operate freely base on remote setting.
  - If ON & FAN selected, Unit will in priority to operate fan mode only.
  - If ON & MODE & HEAT selected, unit will in priority to operate heat mode only.
  - Priority mode is indicated in wired remote. If remote setting is not same mode with Priority Mode, indoor unit will standby until priority mode canceled. (power led blinks ON 2.5sec; OFF 0.5sec)



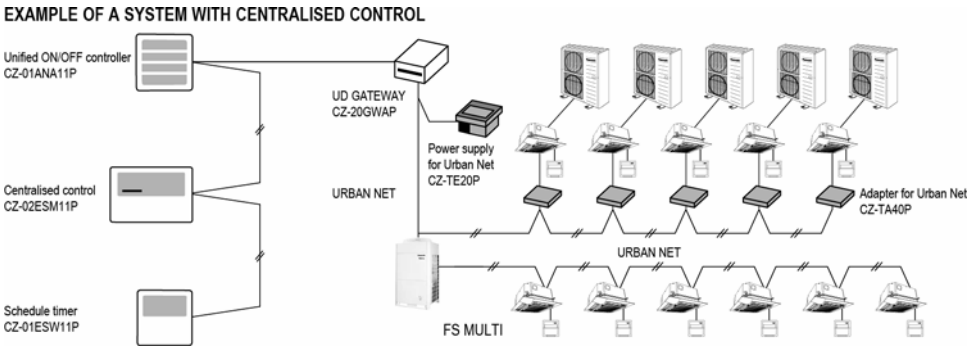
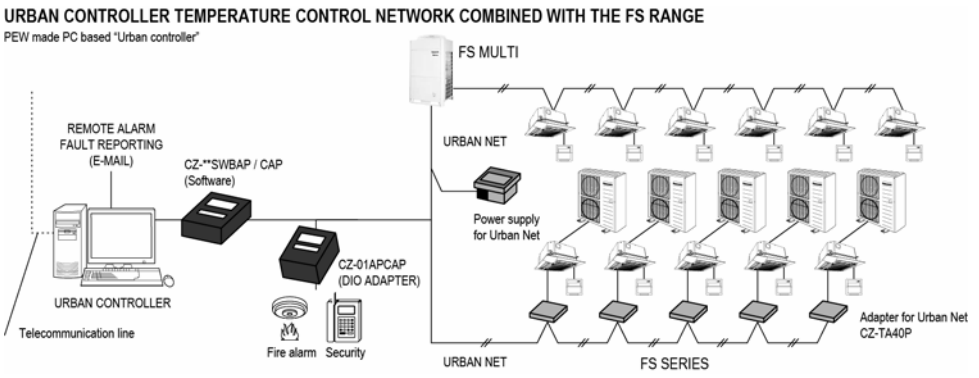
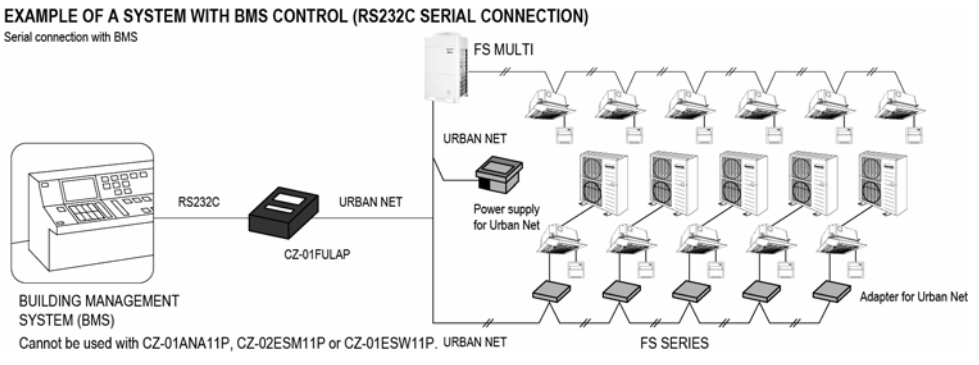
- Share External Signals to Next Outdoor Unit
  - The Cooling / Heating Selector and Forced Stop input signals can be share with next outdoor systems.
  - Maximum 30 outdoor units can share these signals.
  - Wire requirement: 0.5mm^2 diameter and maximum length is 100m.
  - Demand control signal cannot be shared to the next system.



Group control equipment

Wired Remote Control	**Group Control by one remote control** • All air conditioner units are controlled as a whole by the remote control. • All indoor units operate in the same mode.		**Remote side** • Optional wired remote control. **Local Side** • Not required.
	Twin remote control separate control • Each indoor unit can be operated by either one of the two remote controls. • Apart from timer setting time, displays for two remote controls are identical. • Last pressed button has priority (main or slave is set at remote control).		**Remote side** • Optional wired remote control **Local side** • Optional wired remote control
Common control	**Common control / group** • Operation is possible using either wired or wireless remote control unit. • Last pressed button has priority.		• Optional wired remote control and wireless remote control.

Centralized control system possibility (for Europe market only)

Centralized Control (UM NET)	
Urban Controller	
BMS RS232C Serial Connection	

3. Product Specification

3.1 Wall Mounted Type Indoor Unit – KA1E5 / KA1E5S Series

Indoor Unit					S-22KA1E5 S-22KA1E5S	S-28KA1E5 S-28KA1E5S	S-36KA1E5 S-36KA1E5S
Panel					-		
Remote Control				Wired	CZ-RT1		
				Wireless	CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)		
Performance Test Condition					ISO 5151		
Power Supply				Phase	1	1	1
				V	220/230/240	220/230/240	220/230/240
				Hz	50	50	50
Cooling	Capacity			kW	2.20	2.80	3.60
				BTU/h	7500	9600	12300
	Running Current			A	0.25	0.30	0.35
	Input Power			W	25	27	30
	Noise level			dB-A (H / L)	38 / 33	39 / 33	42 / 34
				Power level dB (H / L)	53 / 48	54 / 48	57 / 49
Heating	Capacity			kW	2.50	3.20	4.20
				BTU/h	8500	10900	14300
	Running Current			A	0.25	0.30	0.35
	Input Power			W	25	27	30
	Noise level			dB-A (H / L)	38 / 33	39 / 33	42 / 34
				Power level dB (H / L)	53 / 48	54 / 48	57 / 49
External Static Pressure				Pa	-	-	-
Max Current				A	0.30	0.35	0.40
Max Input Power				W	35	37	40
Indoor Fan	Type				Cross-Flow Fan	Cross-Flow Fan	Cross-Flow Fan
	Material				ASG30K1	ASG30K1	ASG30K1
	Motor type				DC (8-Poles)	DC (8-Poles)	DC (8-Poles)
	Input power			W	-	-	-
	Output power			W	30	30	30
	Speed	Lo	Cool	r.p.m.	810	840	940
			Heat	r.p.m.	940	980	1020
		Me	Cool	r.p.m.	920	970	1070
			Heat	r.p.m.	1020	1070	1140
		Hi	Cool	r.p.m.	1030	1100	1200
			Heat	r.p.m.	1100	1170	1260
Moisture Removal				L/h (Pt/h)	1.3 (2.7)	1.6 (3.4)	2.1 (4.4)
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)	6.9 (245)	6.8 (240)	7.9 (279)
			Heat	m^3/min (ft^3/min)	8.4 (295)	8.4 (296)	8.8 (310)
	Me		Cool	m^3/min (ft^3/min)	8.2 (290)	8.3 (293)	9.4 (332)
			Heat	m^3/min (ft^3/min)	9.4 (330)	9.5 (335)	10.2 (360)
	Hi		Cool	m^3/min (ft^3/min)	9.5 (335)	9.7 (342)	10.9 (385)
			Heat	m^3/min (ft^3/min)	10.3 (364)	10.9 (385)	11.6 (409)
Refrigeration Cycle				Control Device	Expansion Valve	Expansion Valve	Expansion Valve
Dimension		Height		mm (inch)	290 (11-7/16)	290 (11-7/16)	290 (11-7/16)
		Width		mm (inch)	870 (34-9/32)	870 (34-9/32)	870 (34-9/32)
		Depth		mm (inch)	204 (8-1/16)	204 (8-1/16)	204 (8-1/16)
Net weight				kg (lbs)	9 (20)	9 (20)	9 (20)

Piping	Diameter	Gas side		mm (inch)	12.70 (1/2)	12.70 (1/2)	12.70 (1/2)
		Liquid side		mm (inch)	6.35 (1/4)	6.35 (1/4)	6.35 (1/4)
	Max Length			m (ft)	15.0 (49.20)	15.0 (49.20)	15.0 (49.20)
Drain hose		External diameter		mm	16	16	16
		Length		mm	650	650	650
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)	Aluminium (Pre Coat)
		Fin Type			Slit Fin	Slit Fin	Slit Fin
		Row x Stage x FPI			2 x 15 x 21	2 x 15 x 21	2 x 15 x 21
		Size (W x H x L)		mm	610.0 x 315.0 x 25.4	610.0 x 315.0 x 25.4	610.0 x 315.0 x 25.4
Air Filter		Material			Polypropylene	Polypropylene	Polypropylene
		Type			One-Touch	One-Touch	One-Touch
Power Supply					Indoor Power Supply	Indoor Power Supply	Indoor Power Supply
Power cord		Length		m (ft)	-	-	-
		Core x Diameter		mm^2	-	-	-
Thermostat					Electronic Control	Electronic Control	Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32	32	32
			Minimum	°C	21	21	21
		Heat	Maximum	°C	27	27	27
			Minimum	°C	16	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

Indoor Unit					S-45KA1E5 S-45KA1E5S	S-56KA1E5
Panel					-	
Remote Control				Wired	CZ-RT1	
				Wireless	CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)	
Performance Test Condition					ISO5151	
Power Supply				Phase	1	1
				V	220/230/240	220/230/240
				Hz	50	50
Cooling	Capacity			kW	4.50	5.60
				BTU/h	15400	19100
	Running Current			A	0.40	0.40
	Input Power			W	35	45
	Noise level			dB-A (H / L)	43 / 35	44 / 38
				Power level dB (H / L)	58 / 50	59 / 53
Heating	Capacity			kW	5.10	6.40
				BTU/h	17400	21800
	Running Current			A	0.40	0.40
	Input Power			W	35	45
	Noise level			dB-A (H / L)	43 / 35	44 / 38
				Power level dB (H / L)	58 / 50	59 / 53
External Static Pressure				Pa	-	-
Max Current				A	0.45	0.45
Max Input Power				W	45	55
Indoor Fan	Type				Cross-Flow Fan	Cross-Flow Fan
	Material				ASG30K1	ASG30K1
	Motor type				DC (8-Poles)	DC (8-Poles)
	Input power			W	-	-
	Output power			W	30	30
	Speed	Lo	Cool	r.p.m.	960	980
			Heat	r.p.m.	1040	1130
		Me	Cool	r.p.m.	1090	1120
			Heat	r.p.m.	1170	1240
		Hi	Cool	r.p.m.	1230	1260
			Heat	r.p.m.	1300	1350
Moisture Removal				L/h (Pt/h)	2.5 (5.3)	3.2 (6.7)
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)	8.2 (289)	11.1 (392)
			Heat	m^3/min (ft^3/min)	9.1 (321)	13.4 (473)
	Me		Cool	m^3/min (ft^3/min)	9.7 (342)	13.2 (466)
			Heat	m^3/min (ft^3/min)	10.6 (374)	15.0 (529)
	Hi		Cool	m^3/min (ft^3/min)	11.3 (399)	15.3 (540)
			Heat	m^3/min (ft^3/min)	12.1 (427)	16.7 (590)
Refrigeration Cycle				Control Device	Expansion Valve	Expansion Valve
Dimension			Height	mm (inch)	290 (11-7/16)	290 (11-7/16)
			Width	mm (inch)	870 (34-9/32)	1070 (42-5/32)
			Depth	mm (inch)	204 (8-1/16)	235 (9-9/32)
Net weight				kg (lbs)	9 (20)	11 (24)
Piping	Diameter		Gas side	mm (inch)	12.70 (1/2)	12.70 (1/2)
			Liquid side	mm (inch)	6.35 (1/4)	6.35 (1/4)
	Max Length			m (ft)	15.0 (49.20)	15.0 (49.20)

Drain hose	External diameter		mm		
	Length		mm	650	650
Indoor Heat Exchanger	Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)
	Fin Type			Slit Fin	Slit Fin
	Row x Stage x FPI			2 x 15 x 21	2 x 15 x 19
	Size (W x H x L)		mm	610.0 x 315.0 x 25.4	810.0 x 315.0 x 25.4
Air Filter	Material			Polypropylene	Polypropylene
	Type			One-Touch	One-Touch
Power Supply				Indoor Power Supply	Indoor Power Supply
Power cord	Length		m (ft)	-	-
	Core x Diameter		mm^2	-	-
Thermostat				Electronic Control	Electronic Control
Indoor Operation Range	Cool	Maximum	°C	32	32
		Minimum	°C	21	21
	Heat	Maximum	°C	27	27
		Minimum	°C	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

Indoor Unit					S-63KA1E5	S-71KA1E5
Panel					-	
Remote Control				Wired	CZ-RT1	
				Wireless	CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)	
Performance Test Condition					ISO5151	
Power Supply				Phase	1	1
				V	220/230/240	220/230/240
				Hz	50	50
Cooling	Capacity			kW	6.30	7.10
				BTU/h	21500	24200
	Running Current			A	0.45	0.50
	Input Power			W	50	55
	Noise level			dB-A (H / L)	46 / 39	48 / 40
				Power level dB (H / L)	51 / 54	53 / 55
Heating	Capacity			kW	7.10	8.00
				BTU/h	24200	27300
	Running Current			A	0.45	0.50
	Input Power			W	50	55
	Noise level			dB-A (H / L)	46 / 39	48 / 40
				Power level dB (H / L)	51 / 54	53 / 55
External Static Pressure				Pa	-	-
Max Current				A	0.50	0.55
Max Input Power				W	60	65
Indoor Fan	Type				Cross-Flow Fan	Cross-Flow Fan
	Material				ASG30K1	ASG30K1
	Motor type				DC (8-Poles)	DC (8-Poles)
	Input power			W	-	-
	Output power			W	30	30
	Speed	Lo	Cool	r.p.m.	1040	1080
			Heat	r.p.m.	1160	1200
		Me	Cool	r.p.m.	1200	1270
			Heat	r.p.m.	1300	1360
		Hi	Cool	r.p.m.	1360	1460
			Heat	r.p.m.	1440	1520
Moisture Removal				L/h (Pt/h)	3.6 (7.6)	4.2 (8.8)
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)	11.4 (402)	12.0 (423)
			Heat	m^3/min (ft^3/min)	13.1 (462)	13.7 (484)
	Me		Cool	m^3/min (ft^3/min)	13.7 (484)	14.7 (519)
			Heat	m^3/min (ft^3/min)	15.1 (533)	16.0 (565)
	Hi		Cool	m^3/min (ft^3/min)	16.0 (565)	17.4 (614)
			Heat	m^3/min (ft^3/min)	17.1 (604)	18.3 (646)
Refrigeration Cycle				Control Device	Expansion Valve	Expansion Valve
Dimension			Height	mm (inch)	290 (11-7/16)	290 (11-7/16)
			Width	mm (inch)	1070 (42-5/32)	1070 (42-5/32)
			Depth	mm (inch)	235 (9-9/32)	235 (9-9/32)
Net weight				kg (lbs)	12 (26)	12 (26)
Piping	Diameter		Gas side	mm (inch)	12.70 (1/2)	15.88 (5/8)
			Liquid side	mm (inch)	6.35 (1/4)	9.52 (3/8)
	Max Length			m (ft)	15.0 (49.20)	15.0 (49.20)

Drain hose	External diameter		mm		
	Length		mm	650	650
Indoor Heat Exchanger	Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)
	Fin Type			Slit Fin	Slit Fin
	Row x Stage x FPI			2 x 15 x 21	2 x 15 x 21
	Size (W x H x L)			810.0 x 315.0 x 25.4	810.0 x 315.0 x 25.4
Sub Heat Exchanger	Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)
	Fin Type			Slit Fin	Slit Fin
	Row x Stage x FPI			1 x 4 x 21	1 x 4 x 21
	Size (W x H x L)			810.0 x 84.5 x 12.7	810.0 x 84.5 x 12.7
Air Filter	Material			Polypropylene	Polypropylene
	Type			One-Touch	One-Touch
Power Supply				Indoor Power Supply	Indoor Power Supply
Power cord	Length		m (ft)	-	-
	Core x Diameter		mm^2	-	-
Thermostat				Electronic Control	Electronic Control
Indoor Operation Range	Cool	Maximum	°C	32	32
		Minimum	°C	21	21
	Heat	Maximum	°C	27	27
		Minimum	°C	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

3.2 60 x 60 Cassette Type Indoor Unit – YA1E5 Series

Indoor Unit					S-22YA1E5	S-28YA1E5	S-36YA1E5
Panel					CZ-KPY1		
Remote Control				Wired	CZ-RT1		
				Wireless	CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)		
Performance Test Condition					ISO 5151		
Power Supply				Phase	1	1	1
				V	220/230/240	220/230/240	220/230/240
				Hz	50	50	50
Cooling	Capacity			kW	2.20	2.80	3.60
				BTU/h	7500	9600	12300
	Running Current			A	0.30	0.30	0.35
	Input Power			W	35	35	40
	Noise level			dB-A (H / L)	36 / 33	37 / 33	38 / 34
				Power level dB (H / L)	51 / 48	52 / 48	53 / 49
Heating	Capacity			kW	2.50	3.20	4.20
				BTU/h	8500	10900	14300
	Running Current			A	0.30	0.30	0.35
	Input Power			W	35	35	50
	Noise level			dB-A (H / L)	36 / 33	37 / 33	38 / 34
				Power level dB (H / L)	51 / 48	52 / 48	53 / 49
External Static Pressure				Pa	-	-	-
Max Current				A	0.35	0.35	0.40
Max Input Power				W	45	45	40
Indoor Fan	Type				Turbo Fan	Turbo Fan	Turbo Fan
	Material				ABS + GF 10%	ABS + GF 10%	ABS + GF 10%
	Motor type				DC (8-Poles)	DC (8-Poles)	DC (8-Poles)
	Input power			W	-	-	-
	Output power			W	40	40	40
	Speed	Lo	Cool	r.p.m.	430	430	440
			Heat	r.p.m.	500	520	540
		Me	Cool	r.p.m.	490	500	520
			Heat	r.p.m.	545	565	585
		Hi	Cool	r.p.m.	560	580	600
			Heat	r.p.m.	590	610	630
Moisture Removal				L/h (Pt/h)	1.3 (2.7)	1.6 (3.4)	2.1 (4.4)
Indoor Airflow	Lo	Cool		m^3/min (ft^3/min)	6.2 (219)	6.2 (219)	6.4 (226)
		Heat		m^3/min (ft^3/min)	7.4 (261)	7.7 (272)	8.0 (282)
	Me	Cool		m^3/min (ft^3/min)	7.3 (258)	7.4 (261)	7.7 (272)
		Heat		m^3/min (ft^3/min)	8.1 (286)	8.4 (296)	8.7 (307)
	Hi	Cool		m^3/min (ft^3/min)	8.3 (293)	8.6 (304)	9.0 (318)
		Heat		m^3/min (ft^3/min)	9.3 (328)	9.6 (339)	9.9 (349)
Refrigeration Cycle				Control Device	Expansion Valve	Expansion Valve	Expansion Valve
Dimension	Height			mm (inch)	260 (10-1/4)	260 (10-1/4)	260 (10-1/4)
	Width			mm (inch)	575 (22-21/32)	575 (22-21/32)	575 (22-21/32)
	Depth			mm (inch)	575 (22-21/32)	575 (22-21/32)	575 (22-21/32)
Net weight				kg (lbs)	18 (40)	18 (40)	18 (40)

Piping	Diameter	Gas side		mm (inch)	12.70 (1/2)	12.70 (1/2)	12.70 (1/2)
		Liquid side		mm (inch)	6.35 (1/4)	6.35 (1/4)	6.35 (1/4)
	Max Length			m (ft)	15.0 (49.20)	15.0 (49.20)	15.0 (49.20)
Drain hose		External diameter		mm	36	36	36
		Length		mm	193	193	193
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)	Aluminium (Pre Coat)
		Fin Type			Slit Fin	Slit Fin	Slit Fin
		Row x Stage x FPI					
		Size (W x H x L)		mm	1285 x 210 x 12.7 1225 x 210 x 12.7	1285 x 210 x 12.7 1225 x 210 x 12.7	1285 x 210 x 12.7 1225 x 210 x 12.7
Air Filter		Material			PP		
		Type					
Power Supply					Indoor Power Supply	Indoor Power Supply	Indoor Power Supply
Power cord		Length		m (ft)	-	-	-
		Core x Diameter		mm^2	-	-	-
Thermostat					Electronic Control	Electronic Control	Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32	32	32
			Minimum	°C	21	21	21
		Heat	Maximum	°C	27	27	27
			Minimum	°C	16	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

Indoor Unit					S-45YA1E5	S-56YA1E5
Panel					CZ-KPY1	
Remote Control				Wired	CZ-RT1	
				Wireless	CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)	
Performance Test Condition					ISO5151	
Power Supply				Phase	1	1
				V	220/230/240	220/230/240
				Hz	50	50
Cooling	Capacity			kW	4.50	5.60
				BTU/h	15400	19100
	Running Current			A	0.35	0.35
	Input Power			W	40	45
	Noise level			dB-A (H / L)	39 / 35	40 / 36
				Power level dB (H / L)	54 / 50	55 / 51
Heating	Capacity			kW	5.10	6.40
				BTU/h	17400	21800
	Running Current			A	0.35	0.35
	Input Power			W	40	45
	Noise level			dB-A (H / L)	39 / 35	40 / 36
				Power level dB (H / L)	54 / 50	55 / 51
External Static Pressure				Pa	-	-
Max Current				A	0.40	0.40
Max Input Power				W	50	55
Indoor Fan	Type				Turbo Fan	Turbo Fan
	Material				ABS + GF 10%	ABS + GF 10%
	Motor type				DC (8-Poles)	DC (8-Poles)
	Input power			W	-	-
	Output power			W	40	40
	Speed	Lo	Cool	r.p.m.	450	490
			Heat	r.p.m.	560	580
		Me	Cool	r.p.m.	540	580
			Heat	r.p.m.	605	625
		Hi	Cool	r.p.m.	620	660
			Heat	r.p.m.	650	670
Moisture Removal				L/h (Pt/h)	2.5 (5.3)	3.2 (6.7)
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)	6.5 (229)	7.2 (254)
			Heat	m^3/min (ft^3/min)	8.3 (293)	8.6 (303)
	Me		Cool	m^3/min (ft^3/min)	7.9 (279)	8.6 (303)
			Heat	m^3/min (ft^3/min)	9.0 (318)	9.4 (331)
	Hi		Cool	m^3/min (ft^3/min)	9.3 (326)	9.9 (349)
			Heat	m^3/min (ft^3/min)	10.3 (364)	10.6 (374)
Refrigeration Cycle				Control Device	Expansion Valve	Expansion Valve
Dimension			Height	mm (inch)	260 (10-1/4)	260 (10-1/4)
			Width	mm (inch)	575 (22-21/32)	575 (22-21/32)
			Depth	mm (inch)	575 (22-21/32)	575 (22-21/32)
Net weight				kg (lbs)	18 (40)	18 (40)
Piping	Diameter		Gas side	mm (inch)	12.70 (1/2)	12.70 (1/2)
			Liquid side	mm (inch)	6.35 (1/4)	6.35 (1/4)
	Max Length			m (ft)	15.0 (49.20)	15.0 (49.20)

Drain hose	External diameter		mm	36	36
	Length		mm	193	193
Indoor Heat Exchanger	Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)
	Fin Type			Slit Fin	Slit Fin
	Row x Stage x FPI				
	Size (W x H x L)		mm	1285 x 210 x 12.7 1225 x 210 x 12.7	1285 x 210 x 12.7 1225 x 210 x 12.7
Air Filter	Material				
	Type				
Power Supply				Indoor Power Supply	Indoor Power Supply
Power cord	Length		m (ft)	-	-
	Core x Diameter		mm^2	-	-
Thermostat				Electronic Control	Electronic Control
Indoor Operation Range	Cool	Maximum	°C	32	32
		Minimum	°C	21	21
	Heat	Maximum	°C	27	27
		Minimum	°C	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

3.3 95 x 95 Cassette Type Indoor Unit – UA1E5 Series

Indoor Unit					S-63UA1E5			S-71UA1E5			S-90UA1E5		
Panel					CZ-BT03P								
Remote Control				Wired	CZ-RT1								
				Wireless	CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)								
Performance Test Condition					ISO 5151								
Power Supply				Phase	1			1			1		
				V	220	230	240	220	230	240	220	230	240
				Hz	50			50			50		
Cooling	Capacity			kW	6.30			7.10			9.00		
				BTU/h	21500			24200			30700		
	Running Current			A	0.45	0.50	0.55	0.50	0.55	0.60	0.50	0.55	0.60
	Input Power			W	105	110	115	110	115	120	110	115	120
	Noise level			dB-A (H / L)	41 / 35		41 / 36	42 / 36		42/37	42 / 36		42/37
				Power level dB (H / L)	56 / 50		56 / 51	57 / 51		57/52	57 / 51		57/52
Heating	Capacity			kW	7.10			8.00			10.00		
				BTU/h	24200			27300			34100		
	Running Current			A	0.45	0.50	0.55	0.50	0.55	0.60	0.50	0.55	0.60
	Input Power			W	105	110	115	110	115	120	110	115	120
	Noise level			dB-A (H / L)	41 / 35		41 / 36	42 / 36		42/37	42 / 36		42/37
				Power level dB (H / L)	56 / 50		56 / 51	57 / 51		57/52	57 / 51		57/52
External Static Pressure				Pa	-			-			-		
Max Current				A	0.55	0.60	0.65	0.61	0.66	0.71	0.61	0.66	0.71
Max Input Power				W	110	120	130	121	131	141	121	131	141
Indoor Fan	Type				Turbo Fan			Turbo Fan			Turbo Fan		
	Material				ABS + GF 10%			ABS + GF 10%			ABS + GF 10%		
	Motor type				AC (3 Speeds, 6 Poles)			AC (3 Speeds, 6 Poles)			AC (3 Speeds, 6 Poles)		
	Input power			W	-			-			-		
	Output power			W	35			35			35		
	Speed	Lo	Cool	r.p.m.	370	390	410	400	420	430	400	420	430
			Heat	r.p.m.	370	390	410	400	420	430	400	420	430
		Me	Cool	r.p.m.	430	450	470	460	480	490	460	480	490
			Heat	r.p.m.	430	450	470	460	480	490	460	480	490
		Hi	Cool	r.p.m.	470	490	510	500	520	530	500	520	530
			Heat	r.p.m.	470	490	510	500	520	530	500	520	530
Moisture Removal				L/h (Pt/h)	3.6 (7.6)			4.6 (8.8)			5.4 (11.3)		
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)	17 (600)			18 (635)			18 (635)		
			Heat	m^3/min (ft^3/min)	17 (600)			18 (635)			18 (635)		
	Me		Cool	m^3/min (ft^3/min)	19 (671)			20 (706)			20 (706)		
			Heat	m^3/min (ft^3/min)	19 (671)			20 (706)			20 (706)		
	Hi		Cool	m^3/min (ft^3/min)	21 (741)			22 (777)			22 (777)		
			Heat	m^3/min (ft^3/min)	21 (741)			22 (777)			22 (777)		
Refrigeration Cycle				Control Device	Expansion Valve			Expansion Valve			Expansion Valve		
Dimension		Height		mm (inch)	246 (9-11/16)			246 (9-11/16)			246 (9-11/16)		
		Width		mm (inch)	840 (33-1/16)			840 (33-1/16)			840 (33-1/16)		
		Depth		mm (inch)	840 (33-1/16)			840 (33-1/16)			840 (33-1/16)		
Net weight				kg (lbs)	26 (57)			26 (57)			26 (57)		

Piping	Diameter	Gas side		mm (inch)	12.70 (1/2)	15.88 (5/8)	15.88 (5/8)
		Liquid side		mm (inch)	6.35 (1/4)	9.52 (3/8)	9.52 (3/8)
	Max Length			m (ft)	15.0 (49.20)	15.0 (49.20)	15.0 (49.20)
Drain hose		External diameter		mm	36	36	36
		Length		mm	193	193	193
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)	Aluminium (Pre Coat)
		Fin Type			Slit Fin	Slit Fin	Slit Fin
		Row x Stage x FPI			2 x 10 x 19	2 x 10 x 21	2 x 10 x 21
		Size (W x H x L)		mm	2100 x 210 x 12.7 2040 x 210 x 12.7	2100 x 210 x 12.7 2040 x 210 x 12.7	2100 x 210 x 12.7 2040 x 210 x 12.7
Air Filter		Material			PP	PP	PP
		Type					
Power Supply					Indoor Power Supply	Indoor Power Supply	Indoor Power Supply
Power cord		Length		m (ft)	-	-	-
		Core x Diameter		mm^2	-	-	-
Thermostat					Electronic Control	Electronic Control	Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32	32	32
			Minimum	°C	21	21	21
		Heat	Maximum	°C	27	27	27
			Minimum	°C	16	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

Indoor Unit					S-100UA1E5			S-125UA1E5		
Panel					CZ-BT03P					
Remote Control				Wired	CZ-RT1					
				Wireless	CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)					
Performance Test Condition					EN 14511					
Power Supply				Phase	1			1		
				V	220	230	240	220	230	240
				Hz	50			50		
Cooling	Capacity			kW	10.00			12.50		
				BTU/h	34100			42700		
	Running Current			A	1.00	1.05	1.10	1.00	1.05	1.10
	Input Power			W	200	205	210	200	205	210
	Noise level			dB-A (H / L)	48	43		48	43	
				Power level dB (H / L)	63	58		63	58	
Heating	Capacity			kW	11.20			14.00		
				BTU/h	38200			47800		
	Running Current			A	1.00	1.05	1.10	1.00	1.05	1.10
	Input Power			W	200	205	210	200	205	210
	Noise level			dB-A (H / L)	48	43		48	43	
				Power level dB (H / L)	63	58		63	58	
External Static Pressure				Pa						
Max Current				A	1.10	1.16	1.21	1.10	1.16	1.21
Max Input Power				W	220	226	231	220	226	231
Indoor Fan	Type				Turbo Fan			Turbo Fan		
	Material				ABS + GF 10%			ABS + GF 10%		
	Motor type				AC (3 Speeds, 6 Poles)			AC (3 Speeds, 6 Poles)		
	Input power			W	-			-		
	Output power			W	65			65		
	Speed	Lo	Cool	r.p.m.	625	645	665	625	645	665
			Heat	r.p.m.	625	645	665	625	645	665
		Me	Cool	r.p.m.	550	575	600	550	575	600
			Heat	r.p.m.	550	575	600	550	575	600
		Hi	Cool	r.p.m.	625	645	665	625	645	665
			Heat	r.p.m.	625	645	665	625	645	665
Moisture Removal				L/h (Pt/h)	6.0 (12.6)			7.9 (16.6)		
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)						
			Heat	m^3/min (ft^3/min)						
	Me		Cool	m^3/min (ft^3/min)						
			Heat	m^3/min (ft^3/min)						
	Hi		Cool	m^3/min (ft^3/min)	30 (1059)			30 (1059)		
			Heat	m^3/min (ft^3/min)	30 (1059)			30 (1059)		
Refrigeration Cycle				Control Device	Expansion Valve			Expansion Valve		
Dimension			Height	mm (inch)	288 (11-11/32)			288 (11-11/32)		
			Width	mm (inch)	840 (33-1/16)			840 (33-1/16)		
			Depth	mm (inch)	840 (33-1/16)			840 (33-1/16)		
Net weight				kg (lbs)	30 (66)			30 (66)		

Piping	Diameter	Gas side		mm (inch)	15.88 (5/8)	15.88 (5/8)
		Liquid side		mm (inch)	9.52 (3/8)	9.52 (3/8)
	Sub Pipe Max Length			m (ft)	30.0 (98.4)	30.0 (98.4)
Drain hose		External diameter		mm	36	36
		Length		mm	193	193
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)
		Fin Type			Slit Fin	Slit Fin
		Row x Stage x FPI			2 x 12 x 21	2 x 12 x 21
		Size (W x H x L)		mm	2100 x 252 x 12.7 2040 x 252 x 12.7	2100 x 252 x 12.7 2040 x 252 x 12.7
Air Filter		Material			PP	PP
		Type				
Power Supply					Indoor Power Supply	Indoor Power Supply
Power cord		Length		m (ft)	-	-
		Core x Diameter		mm^2	-	-
Thermostat					Electronic Control	Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32	32
			Minimum	°C	21	21
		Heat	Maximum	°C	27	27
			Minimum	°C	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

3.4 Slim Hide-Away Type Indoor Unit – NA1E5 Series

Indoor Unit					S-22NA1E5			S-28NA1E5		
Panel					-					
Remote Control				Wired	CZ-RT1					
				Wireless	CZ-RWC1 (Cooling models)					
Performance Test Condition					ISO 5151					
Power Supply				Phase	1			1		
				V	220	230	240	220	230	240
				Hz	50			50		
Cooling	Capacity			kW	2.20	2.20	2.20	2.80	2.80	2.80
				BTU/h	7500	7500	7500	9600	9600	9600
	Running Current			A	0.35	0.40	0.45	0.40	0.45	0.50
	Input Power			W	70	75	80	75	80	85
	Noise level			dB-A (H / L)	36 / 30		36 / 31	37 / 30		37 / 31
				Power level dB (H / L)	51 / 45		51 / 46	52 / 45		52 / 46
Heating	Capacity			kW	2.50	2.50	2.50	3.20	3.20	3.20
				BTU/h	8500	8500	8500	10900	10900	10900
	Running Current			A	0.35	0.40	0.45	0.40	0.45	0.50
	Input Power			W	70	75	80	75	80	85
	Noise level			dB-A (H / L)	36 / 30		36 / 31	37 / 30		37 / 31
				Power level dB (H / L)	51 / 45		51 / 46	52 / 45		52 / 46
External Static Pressure				Pa (mmAq)	0 (0) / 29 (3)			0 (0) / 29 (3)		
Max Current				A	0.39	0.44	0.49	0.44	0.49	0.54
Max Input Power				W	77	82	87	83	88	93
Indoor Fan	Type				Sirocco			Sirocco		
	Material				PP			PP		
	Motor type				AC (4 Speeds, 4 Poles)			AC (4 Speeds, 4 Poles)		
	Input power			W	-			-		
	Output power			W	25			25		
	Speed	Lo	Cool	r.p.m.	640	660	690	700	730	750
			Heat	r.p.m.	640	660	690	700	730	750
		Me	Cool	r.p.m.	720	740	780	780	810	840
			Heat	r.p.m.	720	740	780	780	810	840
		Hi	Cool	r.p.m.	800	830	860	880	900	930
			Heat	r.p.m.	800	830	860	880	900	930
Moisture Removal				L/h (Pt/h)	1.3 (2.7)			1.6 (3.4)		
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)	7.0 (247)			8.0 (282)		
			Heat	m^3/min (ft^3/min)	7.0 (247)			8.0 (282)		
	Me		Cool	m^3/min (ft^3/min)	9.0 (318)			10.0 (353)		
			Heat	m^3/min (ft^3/min)	9.0 (318)			10.0 (353)		
	Hi		Cool	m^3/min (ft^3/min)	10.0 (353)			11.0 (388)		
			Heat	m^3/min (ft^3/min)	10.0 (353)			11.0 (388)		
Refrigeration Cycle				Control Device	Expansion Valve			Expansion Valve		
Dimension			Height	mm (inch)	200 (7-7/8)			200 (7-7/8)		
			Width	mm (inch)	900 (35-7/16)			900 (35-7/16)		
			Depth	mm (inch)	550 (21-21/32)			550 (21-21/32)		
Net weight				kg (lbs)	21 (46)			21 (46)		

Piping	Diameter	Gas side		mm (inch)	12.70 (1/2)	12.70 (1/2)
		Liquid side		mm (inch)	6.35 (1/4)	6.35 (1/4)
	Max Length			m (ft)	15.0 (49.20)	15.0 (49.20)
Drain hose		External diameter		mm	21	21
		Length		mm		
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)
		Fin Type			Slit Fin	Slit Fin
		Row x Stage x FPI			2 x 10 x 18	2 x 10 x 18
		Size (W x H x L)		mm	770 x 210 x 25.4	770 x 210 x 25.4
Air Filter		Material			-	-
		Type			-	-
Power Supply					Indoor Power Supply	Indoor Power Supply
Power cord		Length		m (ft)	-	-
		Core x Diameter		mm^2	-	-
Thermostat					Electronic Control	Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32	32
			Minimum	°C	21	21
		Heat	Maximum	°C	27	27
			Minimum	°C	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

Indoor Unit					S-32NA1E5			S-36NA1E5		
Panel					-			-		
Remote Control			Wired		CZ-RT1					
			Wireless		CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)					
Performance Test Condition					ISO 5151					
Power Supply			Phase		1			1		
			V		220	230	240	220	230	240
			Hz		50			50		
Cooling	Capacity		kW		3.20	3.20	3.20	3.60	3.60	3.60
			BTU/h		10900	10900	10900	12300	12300	12300
	Running Current		A		0.40	0.45	0.50	0.40	0.45	0.50
	Input Power		W		80	85	90	80	85	90
	Noise level		dB-A (H / L)		38 / 31		38 / 32	38 / 31		38 / 32
			Power level dB (H / L)		53 / 46		53 / 47	53 / 46		53 / 47
Heating	Capacity		kW		3.60	3.60	3.60	4.20	4.20	4.20
			BTU/h		12300	12300	12300	14300	14300	14300
	Running Current		A		0.40	0.45	050	0.40	0.45	0.50
	Input Power		W		80	85	90	80	85	90
	Noise level		dB-A (H / L)		38 / 31		38 / 32	38 / 31		38 / 32
			Power level dB (H / L)		53 / 46		53 / 47	53 / 46		53 / 47
External Static Pressure			Pa (mmAq)		0 (0) / 29 (3)			0 (0) / 29 (3)		
Max Current			A		0.44	0.49	0.54	0.44	0.49	0.54
Max Input Power			W		88	93	98	88	93	98
Indoor Fan	Type				Sirocco			Sirocco		
	Material				PP			PP		
	Motor type				AC (4 Speeds, 4 Poles)			AC (4 Speeds, 4 Poles)		
	Input power			W	-			-		
	Output power			W	40			40		
	Speed	Lo	Cool	r.p.m.	730	760	790	730	760	790
			Heat	r.p.m.	730	760	790	730	760	790
		Me	Cool	r.p.m.	840	870	900	840	870	900
			Heat	r.p.m.	840	870	900	840	870	900
		Hi	Cool	r.p.m.	940	970	1000	940	970	1000
			Heat	r.p.m.	940	970	1000	940	970	1000
Moisture Removal				L/h (Pt/h)	1.8 (3.8)			2.1 (4.4)		
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)	7.0 (247)			7.0 (247)		
			Heat	m^3/min (ft^3/min)	7.0 (247)			7.0 (247)		
	Me		Cool	m^3/min (ft^3/min)	9.0 (318)			9.0 (318)		
			Heat	m^3/min (ft^3/min)	9.0 (318)			9.0 (318)		
	Hi		Cool	m^3/min (ft^3/min)	11.0 (388)			11.0 (388)		
			Heat	m^3/min (ft^3/min)	11.0 (388)			11.0 (388)		
Refrigeration Cycle				Control Device	Expansion Valve			Expansion Valve		
Dimension			Height	mm (inch)	200 (7-7/8)			200 (7-7/8)		
			Width	mm (inch)	900 (35-7/16)			900 (35-7/16)		
			Depth	mm (inch)	550 (21-21/32)			550 (21-21/32)		
Net weight				kg (lbs)	22 (48)			22 (48)		

Piping	Diameter	Gas side		mm (inch)	12.70 (1/2)	12.70 (1/2)
		Liquid side		mm (inch)	6.35 (1/4)	6.35 (1/4)
	Max Length			m (ft)	15.0 (49.20)	15.0 (49.20)
Drain hose		External diameter		mm	21	21
		Length		mm		
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)
		Fin Type			Slit Fin	Slit Fin
		Row x Stage x FPI			2 x 10 x 18	2 x 10 x 18
		Size (W x H x L)		mm	770 x 210 x 38.1	770 x 210 x 38.1
Air Filter		Material			-	-
		Type			-	-
Power Supply					Indoor Power Supply	Indoor Power Supply
Power cord		Length		m (ft)	-	-
		Core x Diameter		mm^2	-	-
Thermostat					Electronic Control	Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32	32
			Minimum	°C	21	21
		Heat	Maximum	°C	27	27
			Minimum	°C	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

Indoor Unit				S-40NA1E5		
Panel				-		
Remote Control			Wired	CZ-RT1		
			Wireless	CZ-RWS1 (Heat-pump models)		
Performance Test Condition				EN14511		
Power Supply			Phase	1		
			V	220	230	240
			Hz	50		
Cooling	Capacity		kW	4.00	4.00	4.00
			BTU/h	13700	13700	13700
	Running Current		A	0.45	0.50	0.55
	Input Power		W	90	95	100
	Noise level		dB-A (H / L)	39 / 32		39 / 33
			Power level dB (H / L)	54 / 47		54 / 48
Heating	Capacity		kW	4.50	4.50	4.50
			BTU/h	15400	15400	15400
	Running Current		A	0.45	0.50	0.55
	Input Power		W	90	95	100
	Noise level		dB-A (H / L)	39 / 32		39 / 33
			Power level dB (H / L)	54 / 47		54 / 48
External Static Pressure			Pa (mmAq)	0 (0) / 29 (3)		
Max Current			A	0.50	0.55	0.61
Max Input Power			W	99	105	110
Indoor Fan	Type			Sirocco		
	Material			PP		
	Motor type			AC (4 Speeds, 4 Poles)		
	Input power		W	-		
	Output power		W	40		
	Speed	Lo	Cool	r.p.m.	770	800	830
			Heat	r.p.m.	770	800	830
		Me	Cool	r.p.m.	880	910	940
			Heat	r.p.m.	880	910	940
		Hi	Cool	r.p.m.	970	1000	1040
			Heat	r.p.m.	970	1000	1040
Moisture Removal				L/h (Pt/h)	2.3 (4.8)		
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)			
			Heat	m^3/min (ft^3/min)			
	Me		Cool	m^3/min (ft^3/min)			
			Heat	m^3/min (ft^3/min)			
	Hi		Cool	m^3/min (ft^3/min)	12.0 (424)		
			Heat	m^3/min (ft^3/min)	12.0 (424)		
Refrigeration Cycle				Control Device	Expansion Valve		
Dimension			Height	mm (inch)	200 (7-7/8)		
			Width	mm (inch)	900 (35-7/16)		
			Depth	mm (inch)	550 (21-21/32)		
Net weight				kg (lbs)	22 (48)		

Piping	Diameter	Gas side		mm (inch)	12.70 (1/2)
		Liquid side		mm (inch)	6.35 (1/4)
	Sub Pipe Max Length			m (ft)	15.0 (49.20)
Drain hose		External diameter		mm	21
		Length		mm	
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)
		Fin Type			Slit Fin
		Row x Stage x FPI			3 x 10 x 18
		Size (W x H x L)		mm	770 x 210 x 38.1
Air Filter		Material			-
		Type			-
Power Supply					Indoor Power Supply
Power cord		Length		m (ft)	-
		Core x Diameter		mm^2	-
Thermostat					Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32
			Minimum	°C	21
		Heat	Maximum	°C	27
			Minimum	°C	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

Indoor Unit					S-45NA1E5			S-56NA1E5		
Panel					-			-		
Remote Control			Wired		CZ-RT1					
			Wireless		CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)					
Performance Test Condition					ISO 5151					
Power Supply			Phase		1			1		
			V		220	230	240	220	230	240
			Hz		50			50		
Cooling	Capacity		kW		4.50	4.50	4.50	5.60	5.60	5.60
			BTU/h		15400	15400	15400	19100	19100	19100
	Running Current		A		0.45	0.50	0.55	0.45	0.50	0.55
	Input Power		W		90	95	100	100	105	110
	Noise level		dB-A (H / L)		39 / 32		39 / 33	39 / 32		39 / 33
			Power level dB (H / L)		54 / 47		54 / 48	54 / 47		54 / 48
Heating	Capacity		kW		5.10	5.10	5.10	6.40	6.40	6.40
			BTU/h		17400	17400	17400	21800	21800	21800
	Running Current		A		0.45	0.50	0.55	0.45	0.50	0.55
	Input Power		W		90	95	100	100	105	110
	Noise level		dB-A (H / L)		39 / 32		39 / 33	39 / 32		39 / 33
			Power level dB (H / L)		54 / 47		54 / 48	54 / 47		54 / 48
External Static Pressure			Pa (mmAq)		0 (0) / 29 (3)			0 (0) / 29 (3)		
Max Current			A		0.55	0.60	0.65	0.50	0.55	0.60
Max Input Power			W		99	104	109	110	115	120
Indoor Fan	Type				Sirocco			Sirocco		
	Material				PP			PP		
	Motor type				AC (4 Speeds, 4 Poles)			AC (4 Speeds, 4 Poles)		
	Input power			W	-			-		
	Output power			W	40			50		
	Speed	Lo	Cool	r.p.m.	770	800	830	730	770	800
			Heat	r.p.m.	770	800	830	730	770	800
		Me	Cool	r.p.m.	880	910	940	850	890	920
			Heat	r.p.m.	880	910	940	850	890	920
		Hi	Cool	r.p.m.	970	1000	1040	970	1010	1040
			Heat	r.p.m.	970	1000	1040	970	1010	1040
Moisture Removal				L/h (Pt/h)	2.5 (5.3)			3.2 (6.7)		
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)	8.0 (282)			8.5 (300)		
			Heat	m^3/min (ft^3/min)	8.0 (282)			8.5 (300)		
	Me		Cool	m^3/min (ft^3/min)	10.0 (353)			10.5 (371)		
			Heat	m^3/min (ft^3/min)	10.0 (353)			10.5 (371)		
	Hi		Cool	m^3/min (ft^3/min)	12.0 (424)			12.5 (441)		
			Heat	m^3/min (ft^3/min)	12.0 (424)			12.5 (441)		
Refrigeration Cycle				Control Device	Expansion Valve			Expansion Valve		
Dimension			Height	mm (inch)	200 (7-7/8)			200 (7-7/8)		
			Width	mm (inch)	900 (35-7/16)			900 (35-7/16)		
			Depth	mm (inch)	550 (21-21/32)			550 (21-21/32)		
Net weight				kg (lbs)	22 (48)			22 (48)		

Piping	Diameter	Gas side		mm (inch)	12.70 (1/2)	12.70 (1/2)
		Liquid side		mm (inch)	6.35 (1/4)	6.35 (1/4)
	Max Length			m (ft)	15.0 (49.20)	15.0 (49.20)
Drain hose		External diameter		mm	21	21
		Length		mm		
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)
		Fin Type			Slit Fin	Slit Fin
		Row x Stage x FPI			3 x 10 x 18	3 x 10 x 18
		Size (W x H x L)		mm	770 x 210 x 38.1	770 x 210 x 38.1
Air Filter		Material			-	-
		Type			-	-
Power Supply					Indoor Power Supply	Indoor Power Supply
Power cord		Length		m (ft)	-	-
		Core x Diameter		mm^2	-	-
Thermostat					Electronic Control	Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32	32
			Minimum	°C	21	21
		Heat	Maximum	°C	27	27
			Minimum	°C	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

3.5 Low Static Pressure Hide-Away Type Indoor Unit – MA1E5 Series

Indoor Unit					S-45MA1E5			S-56MA1E5		
Panel					-					
Remote Control				Wired	CZ-RT1					
				Wireless	CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)					
Performance Test Condition					ISO 5151					
Power Supply				Phase	1			1		
				V	220	230	240	220	230	240
				Hz	50			50		
Cooling	Capacity			kW	4.50	4.50	4.50	5.60	5.60	5.60
				BTU/h	15400	15400	15400	19100	19100	19100
	Running Current			A	0.55	0.60	0.75	0.55	0.60	0.75
	Input Power			W	125	135	145	125	135	145
	Noise level			dB-A (H / L)	42 / 35		42 / 36	42 / 35		42 / 36
				Power level dB (H / L)	57 / 50		57 / 51	57 / 50		57 / 51
Heating	Capacity			kW	5.10	5.10	5.10	6.40	6.40	6.40
				BTU/h	17400	17400	17400	21800	21800	21800
	Running Current			A	0.55	0.60	0.65	0.55	0.60	0.65
	Input Power			W	125	135	145	125	135	145
	Noise level			dB-A (H / L)	42 / 35		42 / 36	42 / 35		42 / 36
				Power level dB (H / L)	57 / 50		57 / 51	57 / 50		57 / 51
External Static Pressure				Pa (mmAq)	49 (5) / 69 (7)			49 (5) / 69 (7)		
Max Current				A	0.80	0.85	0.90	0.80	0.85	0.90
Max Input Power				W	180	190	200	180	190	200
Indoor Fan	Type				Sirocco			Sirocco		
	Material				ABS			ABS		
	Motor type				AC (4 Speeds, 4 Poles)			AC (4 Speeds, 4 Poles)		
	Input power			W	-			-		
	Output power			W	94			94		
	Speed	Lo	Cool	r.p.m.	690	715	740	690	715	740
			Heat	r.p.m.	690	715	740	690	715	740
		Me	Cool	r.p.m.	790	825	855	790	825	855
			Heat	r.p.m.	790	825	855	790	825	855
		Hi	Cool	r.p.m.	925	955	985	925	955	985
			Heat	r.p.m.	925	955	985	925	955	985
Moisture Removal				L/h (Pt/h)	2.5 (5.3)			3.2 (6.7)		
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)	11.0 (388)			11.0 (388)		
			Heat	m^3/min (ft^3/min)	11.0 (388)			11.0 (388)		
	Me		Cool	m^3/min (ft^3/min)	13.0 (459)			13.0 (459)		
			Heat	m^3/min (ft^3/min)	13.0 (459)			13.0 (459)		
	Hi		Cool	m^3/min (ft^3/min)	15.0 (530)			15.0 (530)		
			Heat	m^3/min (ft^3/min)	15.0 (530)			15.0 (530)		
Refrigeration Cycle				Control Device	Expansion Valve			Expansion Valve		
Dimension			Height	mm (inch)	250 (9-27/32)			250 (9-27/32)		
			Width	mm (inch)	780 +100 (30-23/32 + 3-15/16)			780 +100 (30-23/32 + 3-15/16)		
			Depth	mm (inch)	650 (25-19/32)			650 (25-19/32)		
Net weight				kg (lbs)	28 (62)			28 (62)		

Piping	Diameter	Gas side		mm (inch)	12.70 (1/2)	12.70 (1/2)
		Liquid side		mm (inch)	6.35 (1/4)	6.35 (1/4)
	Max Length			m (ft)	15.0 (49.20)	15.0 (49.20)
Drain hose		External diameter		mm	32	32
		Length		mm	180	180
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)
		Fin Type			Slit Fin	Slit Fin
		Row x Stage x FPI			3 x 12 x 15	3 x 12 x 15
		Size (W x H x L)		mm	640 x 252 x 38.1	640 x 252 x 38.1
Air Filter		Material			PP	PP
		Type			-	-
Power Supply					Indoor Power Supply	Indoor Power Supply
Power cord		Length		m (ft)	-	-
		Core x Diameter		mm^2	-	-
Thermostat					Electronic Control	Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32	32
			Minimum	°C	21	21
		Heat	Maximum	°C	27	27
			Minimum	°C	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

Indoor Unit					S-63MA1E5			S-71MA1E5		
Panel					-			-		
Remote Control				Wired	CZ-RT1					
				Wireless	CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)					
Performance Test Condition					ISO 5151					
Power Supply				Phase	1			1		
				V	220	230	240	220	230	240
				Hz	50			50		
Cooling	Capacity			kW	6.30	5.60	5.60	7.10	7.10	7.10
				BTU/h	21500	19100	19100	24200	24200	24200
	Running Current			A	0.55	0.60	0.75	0.55	0.60	0.75
	Input Power			W	125	135	145	125	135	145
	Noise level			dB-A (H / L)	43 / 36		43 / 37	43 / 36		43 / 37
				Power level dB (H / L)	58 / 51		58 / 52	58 / 51		58 / 52
Heating	Capacity			kW	7.10	6.40	6.40	8.00	8.00	8.00
				BTU/h	24200	21800	21800	27300	27300	27300
	Running Current			A	0.55	0.60	0.65	0.55	0.60	0.65
	Input Power			W	125	135	145	125	135	145
	Noise level			dB-A (H / L)	43 / 36		43 / 37	43 / 36		43 / 37
				Power level dB (H / L)	58 / 51		58 / 52	58 / 51		58 / 52
External Static Pressure				Pa (mmAq)	49 (5) / 69 (7)			49 (5) / 69 (7)		
Max Current				A	0.80	0.85	0.90	0.80	0.85	0.90
Max Input Power				W	180	190	200	180	190	200
Indoor Fan	Type				Sirocco			Sirocco		
	Material				ABS			ABS		
	Motor type				AC (4 Speeds, 4 Poles)			AC (4 Speeds, 4 Poles)		
	Input power			W	-			-		
	Output power			W	94			94		
	Speed	Lo	Cool	r.p.m.	600			625		
			Heat	r.p.m.	600			625		
		Me	Cool	r.p.m.	700			725		
			Heat	r.p.m.	700			725		
		Hi	Cool	r.p.m.	815			840		
			Heat	r.p.m.	815			840		
Moisture Removal				L/h (Pt/h)	3.6 (7.6)			4.2 (8.8)		
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)	12.0 (424)			12.0 (424)		
			Heat	m^3/min (ft^3/min)	12.0 (424)			12.0 (424)		
	Me		Cool	m^3/min (ft^3/min)	14.0 (494)			14.0 (494)		
			Heat	m^3/min (ft^3/min)	14.0 (494)			14.0 (494)		
	Hi		Cool	m^3/min (ft^3/min)	17.0 (600)			17.0 (600)		
			Heat	m^3/min (ft^3/min)	17.0 (600)			17.0 (600)		
Refrigeration Cycle				Control Device	Expansion Valve			Expansion Valve		
Dimension		Height		mm (inch)	250 (9-27/32)			250 (9-27/32)		
		Width		mm (inch)	1000 +100 (30-23/32 + 3-15/16)			1000 +100 (30-23/32 + 3-15/16)		
		Depth		mm (inch)	650 (25-19/32)			650 (25-19/32)		
Net weight				kg (lbs)	32 (71)			32 (71)		

Piping	Diameter	Gas side		mm (inch)	12.70 (1/2)	15.88 (5/8)
		Liquid side		mm (inch)	6.35 (1/4)	9.52 (3/8)
	Max Length			m (ft)	15.0 (49.20)	15.0 (49.20)
Drain hose		External diameter		mm	32	32
		Length		mm	180	180
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)
		Fin Type			Slit Fin	Slit Fin
		Row x Stage x FPI			3 x 12 x 18	3 x 12 x 18
		Size (W x H x L)		mm	860 x 252 x 38.1	860 x 252 x 38.1
Air Filter		Material			PP	PP
		Type			-	-
Power Supply					Indoor Power Supply	Indoor Power Supply
Power cord		Length		m (ft)	-	-
		Core x Diameter		mm^2	-	-
Thermostat					Electronic Control	Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32	32
			Minimum	°C	21	21
		Heat	Maximum	°C	27	27
			Minimum	°C	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

Indoor Unit					S-90MA1E5		
Panel					-		
Remote Control			Wired		CZ-RT1		
			Wireless		CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)		
Performance Test Condition					ISO 5151		
Power Supply			Phase		1		
			V		220	230	240
			Hz		50		
Cooling	Capacity		kW		9.00	9.00	9.00
			BTU/h		30700	30700	30700
	Running Current		A		0.75	0.80	0.85
	Input Power		W		165	175	185
	Noise level		dB-A (H / L)		44 / 37		44 / 38
			Power level dB (H / L)		59 / 52		59 / 53
Heating	Capacity		kW		10.00	10.00	10.00
			BTU/h		34100	34100	34100
	Running Current		A		0.75	0.80	0.85
	Input Power		W		165	175	185
	Noise level		dB-A (H / L)		44 / 37		44 / 38
			Power level dB (H / L)		59 / 52		59 / 53
External Static Pressure			Pa (mmAq)		49 (5) / 69 (7)		
Max Current			A		1.10	1.15	1.20
Max Input Power			W		245	260	275
Indoor Fan	Type				Sirocco		
	Material				ABS		
	Motor type				AC (4 Speeds, 4 Poles)		
	Input power			W	-		
	Output power			W	154		
	Speed	Lo	Cool	r.p.m.	700	730	770
			Heat	r.p.m.	700	730	770
		Me	Cool	r.p.m.	820	850	890
			Heat	r.p.m.	820	850	890
		Hi	Cool	r.p.m.	980	1010	1050
			Heat	r.p.m.	980	1010	1050
Moisture Removal				L/h (Pt/h)	5.4 (11.3)		
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)	14.0 (494)		
			Heat	m^3/min (ft^3/min)	14.0 (494)		
	Me		Cool	m^3/min (ft^3/min)	17.0 (600)		
			Heat	m^3/min (ft^3/min)	17.0 (600)		
	Hi		Cool	m^3/min (ft^3/min)	19.0 (671)		
			Heat	m^3/min (ft^3/min)	19.0 (671)		
Refrigeration Cycle				Control Device	Expansion Valve		
Dimension			Height	mm (inch)	250 (9-27/32)		
			Width	mm (inch)	1000 +100 (30-23/32 + 3-15/16)		
			Depth	mm (inch)	650 (25-19/32)		
Net weight				kg (lbs)	32 (71)		

Piping	Diameter	Gas side		mm (inch)	15.88 (5/8)
		Liquid side		mm (inch)	9.52 (3/8)
	Max Length			m (ft)	15.0 (49.20)
Drain hose		External diameter		mm	32
		Length		mm	180
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)
		Fin Type			Slit Fin
		Row x Stage x FPI			3 x 12 x 18
		Size (W x H x L)		mm	860 x 252 x 38.1
Air Filter		Material			PP
		Type			-
Power Supply					Indoor Power Supply
Power cord		Length		m (ft)	-
		Core x Diameter		mm^2	-
Thermostat					Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32
			Minimum	°C	21
		Heat	Maximum	°C	27
			Minimum	°C	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

Indoor Unit					**S-100MA1E5**			**S-125MA1E5**		
Panel					-					
Remote Control			Wired		CZ-RT1					
			Wireless		CZ-RWS1 (Heat-pump models) CZ-RWC1 (Cooling models)					
Performance Test Condition					EN14511					
Power Supply			Phase		1			1		
			V		220	230	240	220	230	240
			Hz		50			50		
Cooling	Capacity		kW		10.00	10.00	10.00	12.50	12.50	12.50
			BTU/h		34100	34100	34100	42700	42700	42700
	Running Current		A		1.34	1.35	1.36	1.34	1.35	1.36
	Input Power		W		290	300	310	290	300	310
	Noise level		dB-A (H / L)		47 / 43		47 / 44	47 / 43		47 / 44
			Power level dB (H / L)		62 / 58		62 / 59	62 / 58		62 / 59
Heating	Capacity		kW		11.20	11.20	11.20	14.00	14.00	14.00
			BTU/h		38200	38200	38200	47800	47800	47800
	Running Current		A		1.34	1.35	1.36	1.34	1.35	1.36
	Input Power		W		290	300	310	290	300	310
	Noise level		dB-A (H / L)		47 / 43		47 / 44	47 / 43		47 / 44
			Power level dB (H / L)		62 / 58		62 / 59	62 / 58		62 / 59
External Static Pressure			Pa (mmAq)		49 (5) / 69 (7)			49 (5) / 69 (7)		
Max Current			A		1.91	1.94	1.97	1.91	1.94	1.97
Max Input Power			W		412	430	455	412	430	455
Indoor Fan	Type				Sirocco			Sirocco		
	Material				ABS			ABS		
	Motor type				AC (4 Speeds, 4 Poles)			AC (4 Speeds, 4 Poles)		
	Input power			W	-			-		
	Output power			W	260			260		
	Speed	Lo	Cool	r.p.m.	690	715	740	690	715	740
			Heat	r.p.m.	690	715	740	690	715	740
		Me	Cool	r.p.m.	790	825	855	790	825	855
			Heat	r.p.m.	790	825	855	790	825	855
		Hi	Cool	r.p.m.	925	955	985	925	955	985
			Heat	r.p.m.	925	955	985	925	955	985
Moisture Removal				L/h (Pt/h)	6.0 (12.6)			7.9 (16.6)		
Indoor Airflow	Lo		Cool	m^3/min (ft^3/min)						
			Heat	m^3/min (ft^3/min)						
	Me		Cool	m^3/min (ft^3/min)						
			Heat	m^3/min (ft^3/min)						
	Hi		Cool	m^3/min (ft^3/min)	34.0 (1201)			34.0 (1201)		
			Heat	m^3/min (ft^3/min)	34.0 (1201)			34.0 (1201)		
Refrigeration Cycle				Control Device	Expansion Valve			Expansion Valve		
Dimension			Height	mm (inch)	250 (9-27/32)			250 (9-27/32)		
			Width	mm (inch)	1200 +100 (47-1/4 + 3-15/16)			1200 +100 (47-1/4 + 3-15/16)		
			Depth	mm (inch)	650 (25-19/32)			650 (25-19/32)		
Net weight				kg (lbs)	41 (90)			41 (90)		

Piping	Diameter	Gas side		mm (inch)	15.88 (5/8)	15.88 (5/8)
		Liquid side		mm (inch)	9.52 (3/8)	9.52 (3/8)
	Sub Pipe Max Length			m (ft)	30 (98.4)	30 (98.4)
Drain hose		External diameter		mm	32	32
		Length		mm	180	180
Indoor Heat Exchanger		Fin material			Aluminium (Pre Coat)	Aluminium (Pre Coat)
		Fin Type			Slit Fin	Slit Fin
		Row x Stage x FPI			3 x 12 x 15	3 x 12 x 15
		Size (W x H x L)		mm	640 x 252 x 38.1	640 x 252 x 38.1
Air Filter		Material			PP	PP
		Type			-	-
Power Supply					Indoor Power Supply	Indoor Power Supply
Power cord		Length		m (ft)	-	-
		Core x Diameter		mm^2	-	-
Thermostat					Electronic Control	Electronic Control
Indoor Operation Range		Cool	Maximum	°C	32	32
			Minimum	°C	21	21
		Heat	Maximum	°C	27	27
			Minimum	°C	16	16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

3.6 Outdoor Unit – EA1E8 Series

Outdoor Unit				U-8EA1E8			U-10EA1E8		
Performance Test Condition				EN 14511					
Indoor Unit Combination				S-32NA1E5 + S-36NA1E5 + S-56NA1E5 + S-100NA1E5			2 X S-40NA1E5 + 2 x S-100NA1E5		
Power Supply			Phase	3			3		
			V	380	400	415	380	400	415
			Hz	50			50		
Cooling	Capacity		kW	22.40	22.40	22.40	28.00	28.00	28.00
			BTU/h	76500	76500	76500	95600	95600	95600
	Running Current		A	9.00	9.40	9.10	13.40	12.80	12.40
	Input Power		W	6.05k	6.05k	6.05k	8.31k	8.31k	8.31k
	Annual Consumption		W	-			-		
	EER / EER Class		(W/W) / (“A”~”G”)	3.70	3.70 / -	3.70	3.37	3.37 / -	3.37
	Power Factor		%	93	93	92	94	94	93
	Noise		dB-A (H / L)	58 / -			59 / -		
			Power level dB (H / L)	78 / -			79 / -		
Heating	Capacity		kW	25.00	25.00	25.00	31.50	31.50	31.50
			BTU/h	85300	85300	85300	107500	107500	107500
	Running Current		A	9.90	9.40	9.10	12.70	12.10	11.70
	Input Power		W	6.10k	6.10k	6.10k	7.86k	7.86k	7.86k
	COP / COP Class		(W/W) / (“A” ~ ”G”)	4.10	4.10 / -	4.10	4.01	4.01 / -	4.01
	Power Factor		%	94	94	93	93	94	93
	Noise level		dB-A (H / L)	59 / -			60 / -		
			Power level dB (H / L)	79 / -			80 / -		
Max Current		Cool	A	15.0	14.8	14.3	17.5	17.3	16.6
		Heat	A	14.5	14.3	13.8	17.0	16.8	16.2
Max Input Power		Cool	W	9.2k	9.5k	9.5k	10.9k	11.2k	11.1k
		Heat	W	8.9k	9.3k	9.3k	10.5k	10.9k	10.9k
Starting Current			A	10	10	9	14	13	13
Compressor		Type		Hermatic Motor			Hermatic Motor		
		Motor Type		Brushless Motor (4-pole)			Brushless Motor (4-pole)		
		Output	W	4.6k			4.6k		
Outdoor Fan	Type			Propeller Fan			Propeller Fan		
	Material			AES (GF16)			AES (GF16)		
	Motor type			DC (8-pole)			DC (8-pole)		
	Input power		W	-			-		
	Output power		W	750			750		
	Speed	Hi	Cool	r.p.m.	650		700		
			Heat	r.p.m.	650		700		
External Static Pressure			Pa (mm Aq)	0~60 (0.00~6.12)			0~60 (0.00~6.12)		
Outdoor Airflow		Hi	Cool	m^3/min (ft^3/min)	150 (5297)		154 (5438)		
			Heat	m^3/min (ft^3/min)	150 (5297)		154 (5438)		
Refrigeration Cycle			Control Device	Expansion Valve			Expansion Valve		
Refrigerant Oil			cm^3	FV50S (2050)			FV50S (2050)		
Refrigerant Type, Amount (Base/Max)			g (oz)	R410A, 8.5k/32.5k (300/1146)			R410A, 11.0k/36.0k (388/1270)		
Dimension		Height	mm (inch)	1745 (68-11/16)			1745 (68-11/16)		
		Width	mm (inch)	920 (63-7/32)			920 (36-7/32)		
		Depth	mm (inch)	760 (29-29/32)			760 (29-29/32)		
Net weight			kg (lbs)	195 (430)			210 (463)		

Piping	Diameter	Gas side		mm (inch)	19.05 (6/8)	22.22 (7/8)
		Liquid side		mm (inch)	9.52 (3/8)	9.52 (3/8)
	Over 90m for Furthest Indoor Unit	Gas side		mm (inch)	22.22 (7/8)*	25.40 (1)*
		Liquid side		mm (inch)	12.70 (4/8)	12.70 (4/8)
	Standard Length			m (ft)	23 (75.5)	23 (75.5)
	Length Range (min – max)			m (ft)	15 (49.2) – 300 (984.2)	15 (49.2) – 300 (984.2)
	Height Different (Outdoor above/ Outdoor below)			m (ft)	50/40 (164.0/131.2)	50/40 (164.0/131.2)
	Additional Gas Amount (3/8”/4/8”)			g/m (oz/ft)	56/128 (0.60/1.38)	56/128 (0.60/1.38)
	Length for Additional Gas			m (ft)	0~ (0~)	0~ (0~)
Outdoor Heat Exchanger		Fin material			Aluminium (Pre Coat)	Aluminium (Pre coat)
		Fin Type			Louvre & Corrugated Fin	Louvre & Corrugated Fin
		Row x Stage x FPI			2 x 48 x 17	3 x 48 x 17
		Size (W x H x L)		mm	1808.9 x 1219.2 x 44	1808.9 x 1219.2 x 66
Power Supply					Outdoor	Outdoor
Power cord		Length		m (ft)	-	-
		Core x Diameter		mm^2	-	-
Thermostat					Electronic Control	Electronic Control
Protection Device					Electronic Control	Electronic Control
Outdoor Operation Range		Cool	Maximum	°C	43	43
			Minimum	°C	-5	-5
		Heat	Maximum	°C	24	24
			Minimum	°C	-20	-20

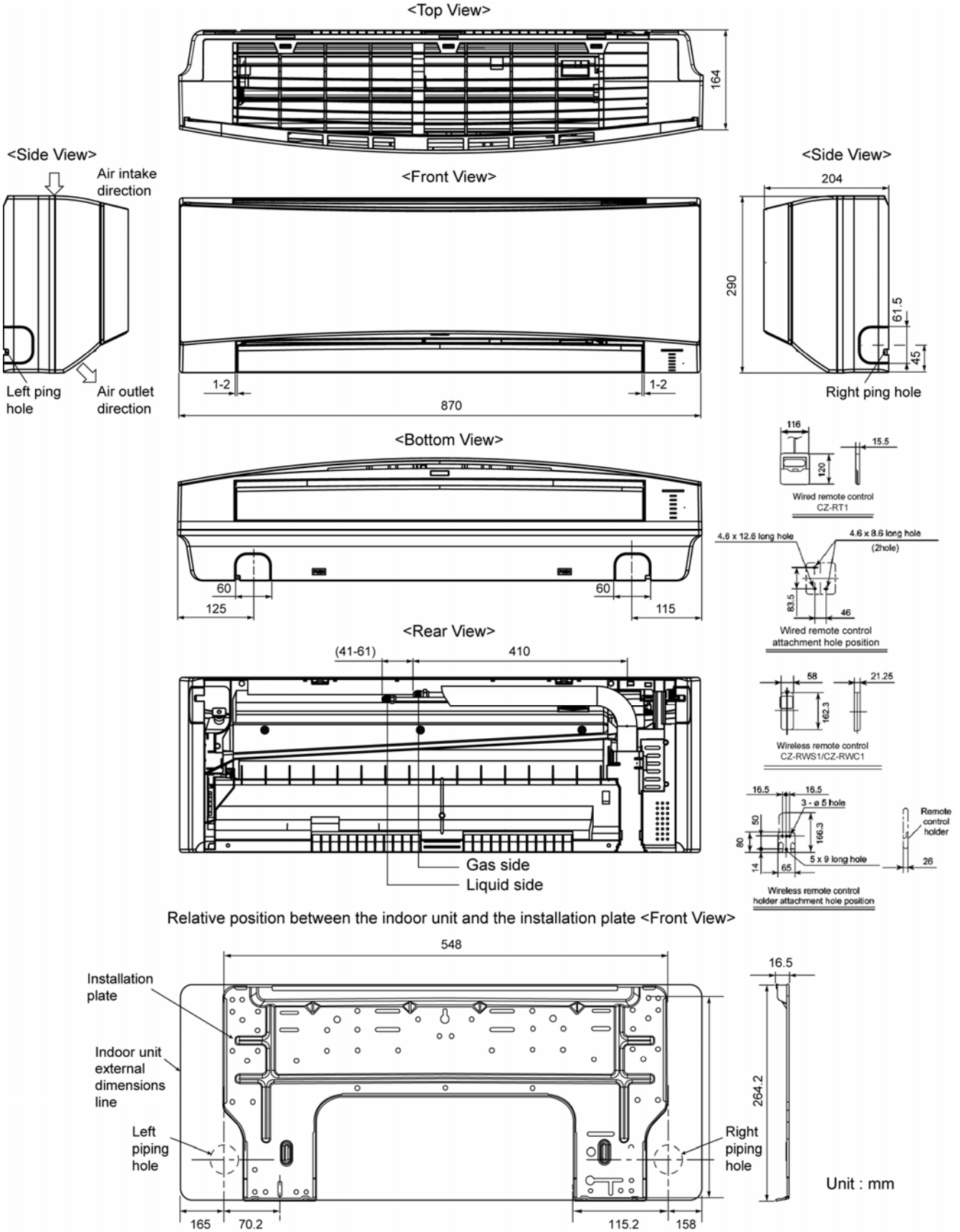
1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C Dry Bulb (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb).
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68.0°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb).
3. Heating low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor 2/1°C.
4. Heating extreme low temperature capacity, input power and COP measured at 230V, indoor temperature 20°C, outdoor -7/-8°C.
5. Specifications are subjected to change without prior notice for future improvement.

* Main pipe diameter size increment applicable at outdoor unit to first branch pipe.

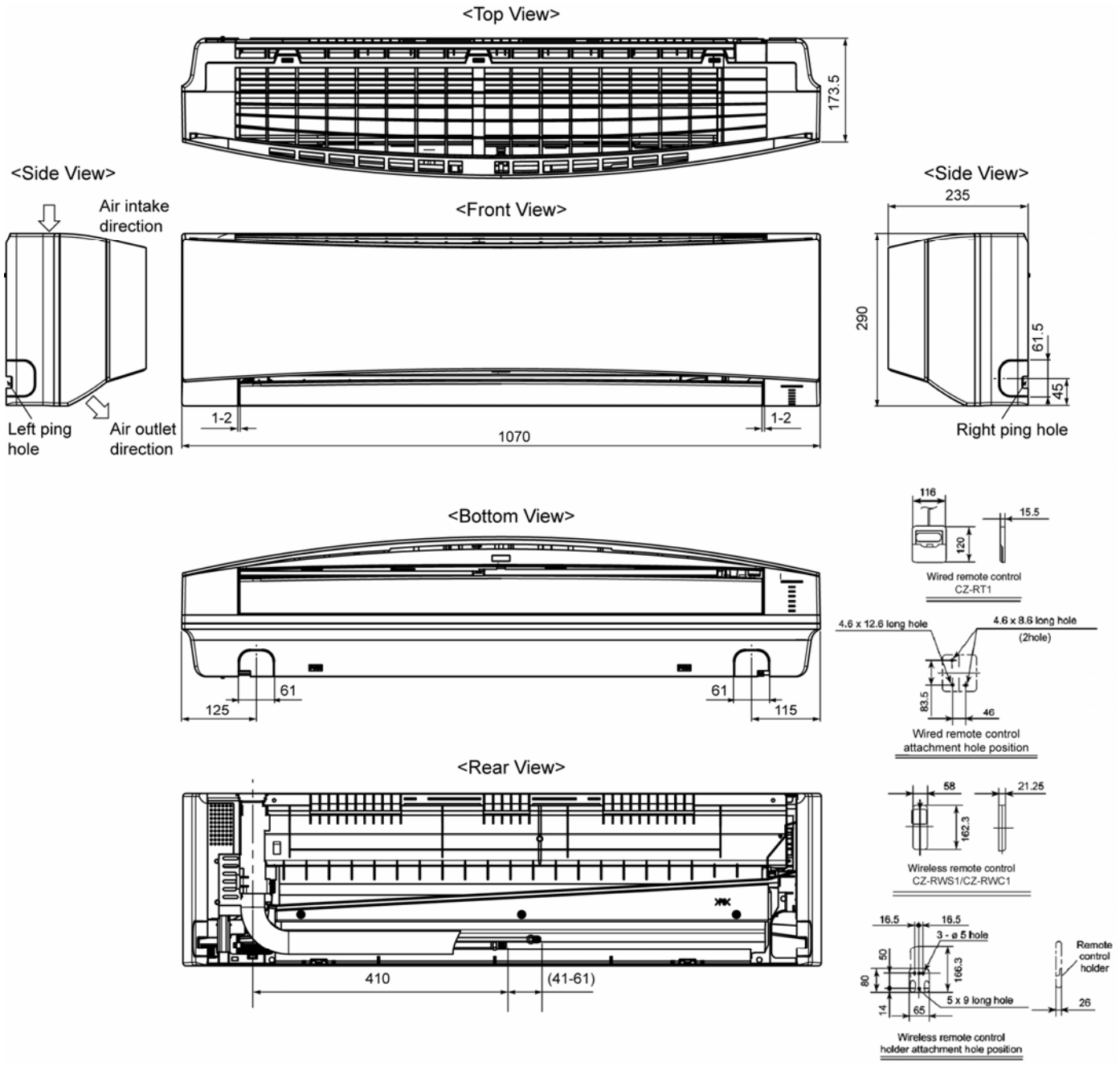
4. Dimensions

4.1 Wall Mounted Type Indoor Unit

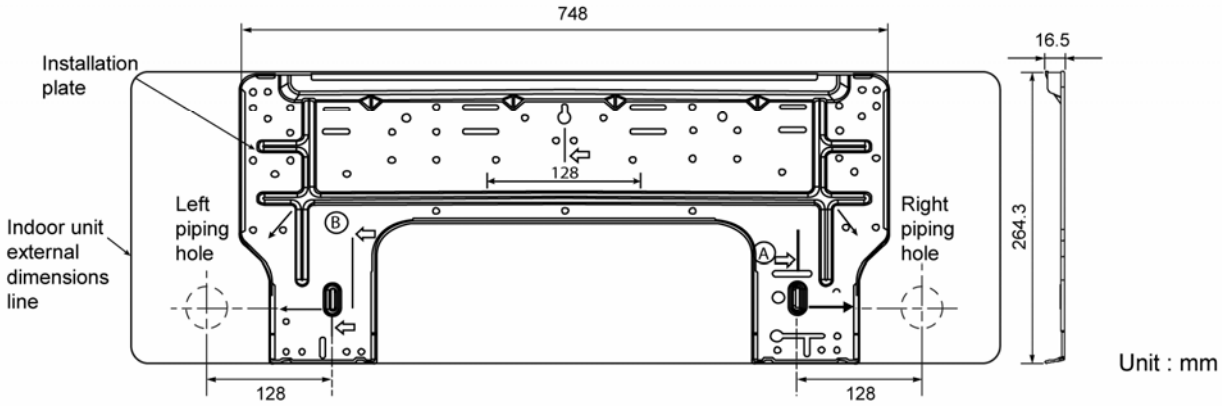
4.1.1 S-22KA1E5, S-28KA1E5, S-36KA1E5, S-45KA1E5, S-22KA1E5S, S-28KA1E5S, S-36KA1E5S, S-45KA1E5S



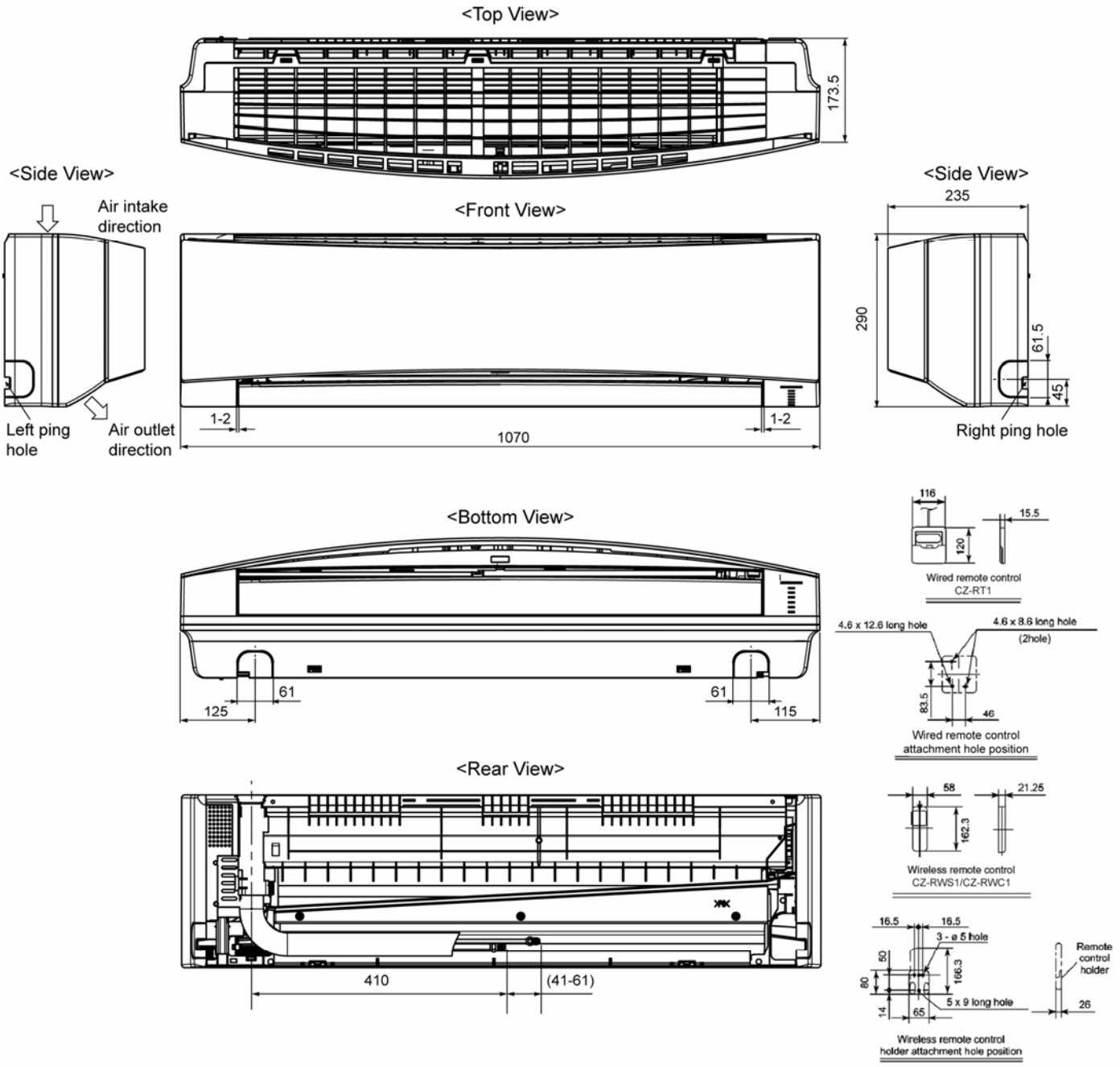
4.1.2 S-56KA1E5, S-63KA1E5, S-71KA1E5



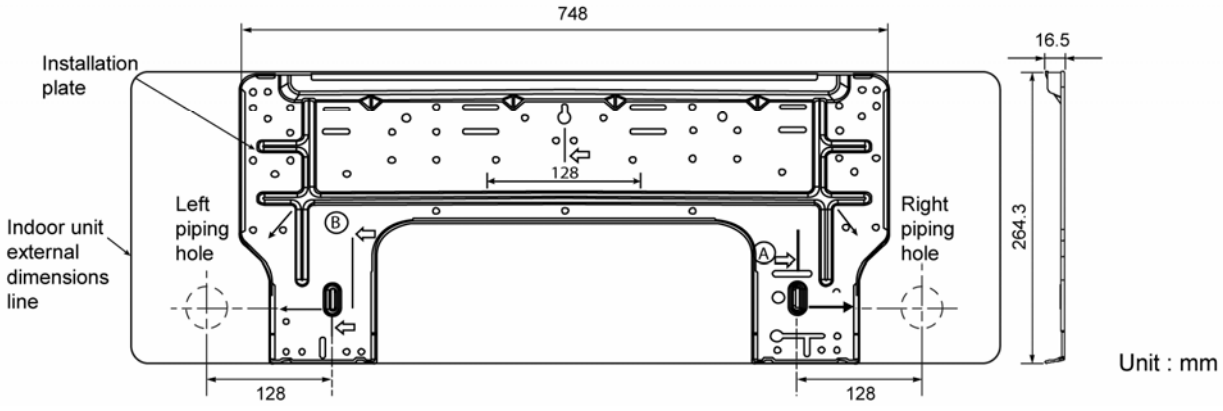
Relative position between the indoor unit and the installation plate <Front View>



4.1.2 S-56KA1E5, S-63KA1E5, S-71KA1E5

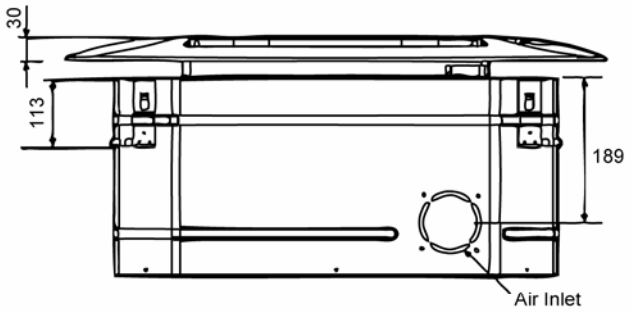


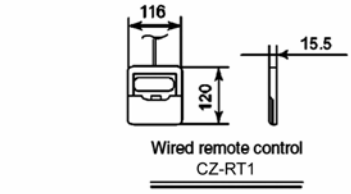
Relative position between the indoor unit and the installation plate <Front View>

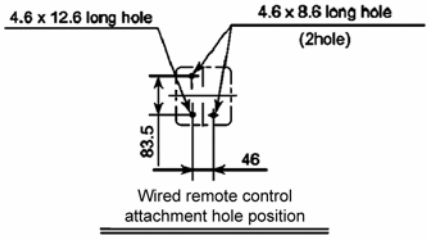


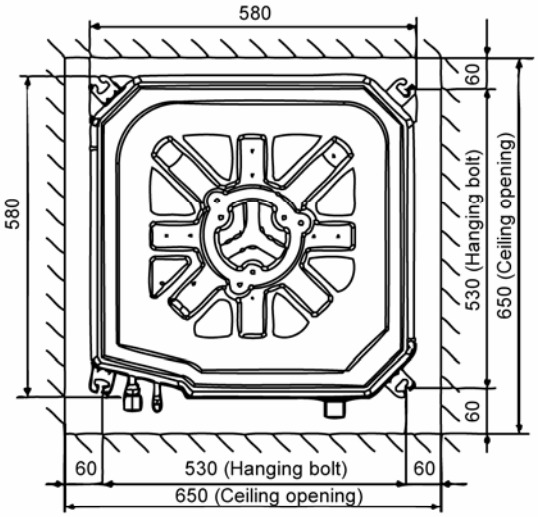
4.2 60 x 60 Cassette Type Indoor Unit

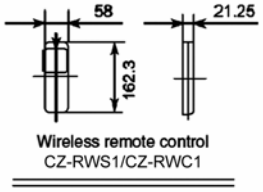
4.2.1 S-22YA1E5, S-28YA1E5, S-36YA1E5, S-45YA1E5, S-56YA1E5

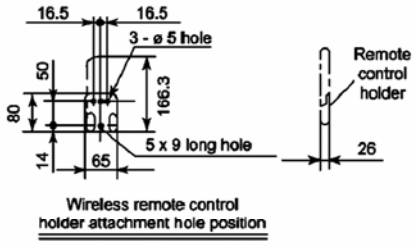


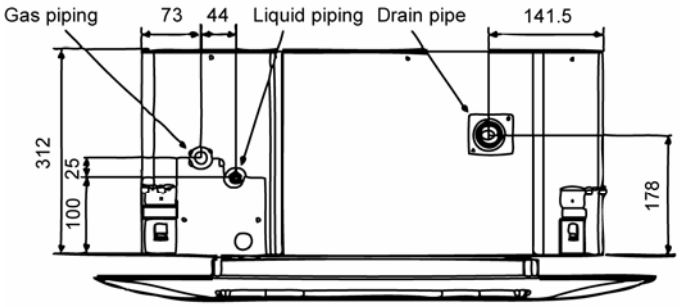


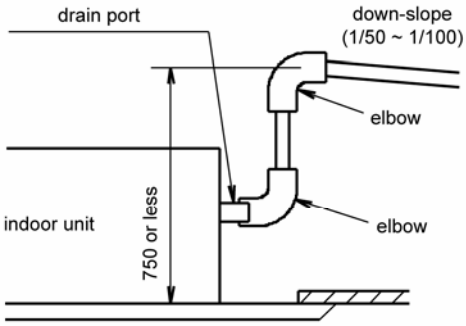


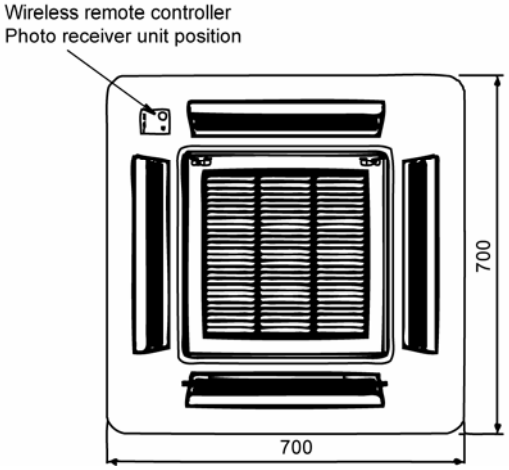


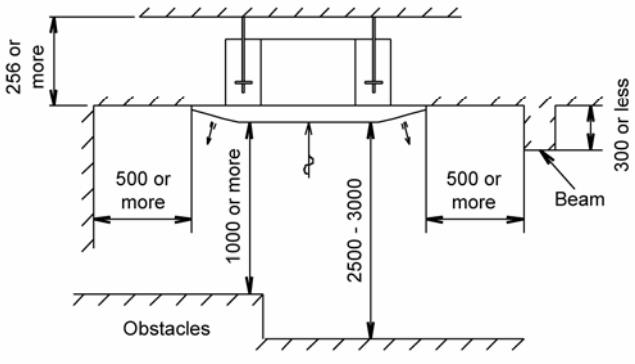








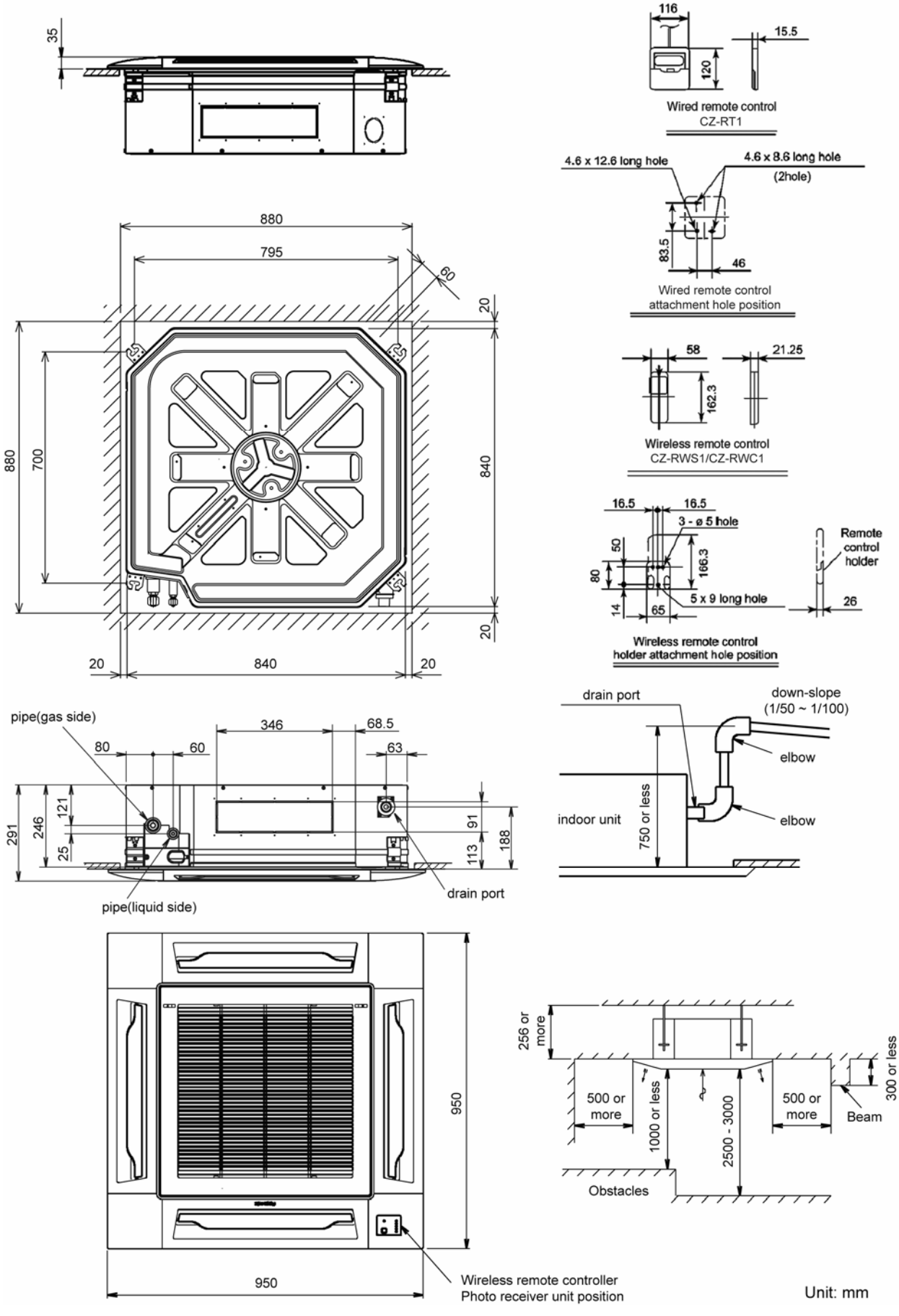




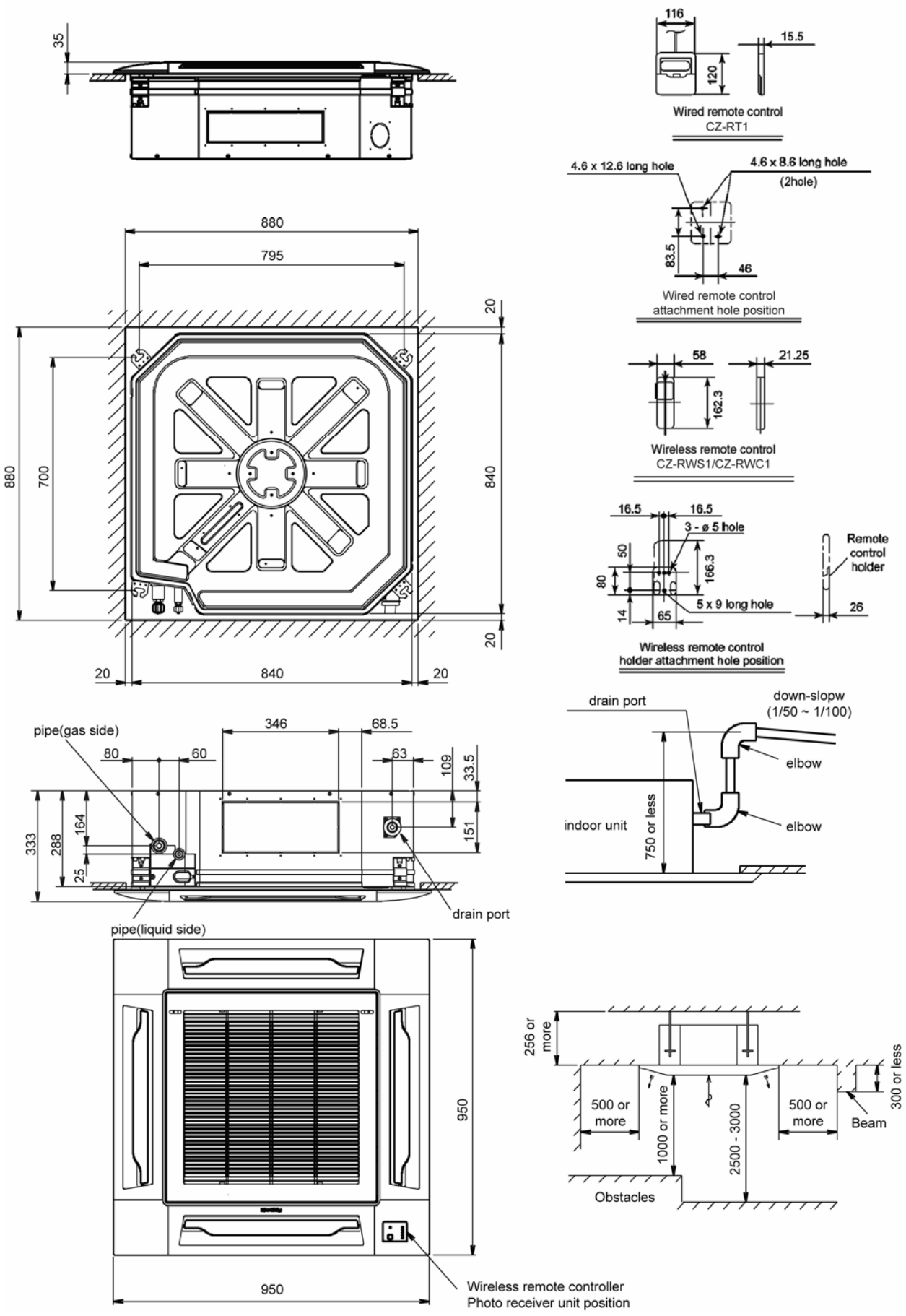
Unit: mm

4.3 95 x 95 Cassette Type Indoor Unit

4.3.1 S-63UA1E5, S-71UA1E5, S-90UA1E5

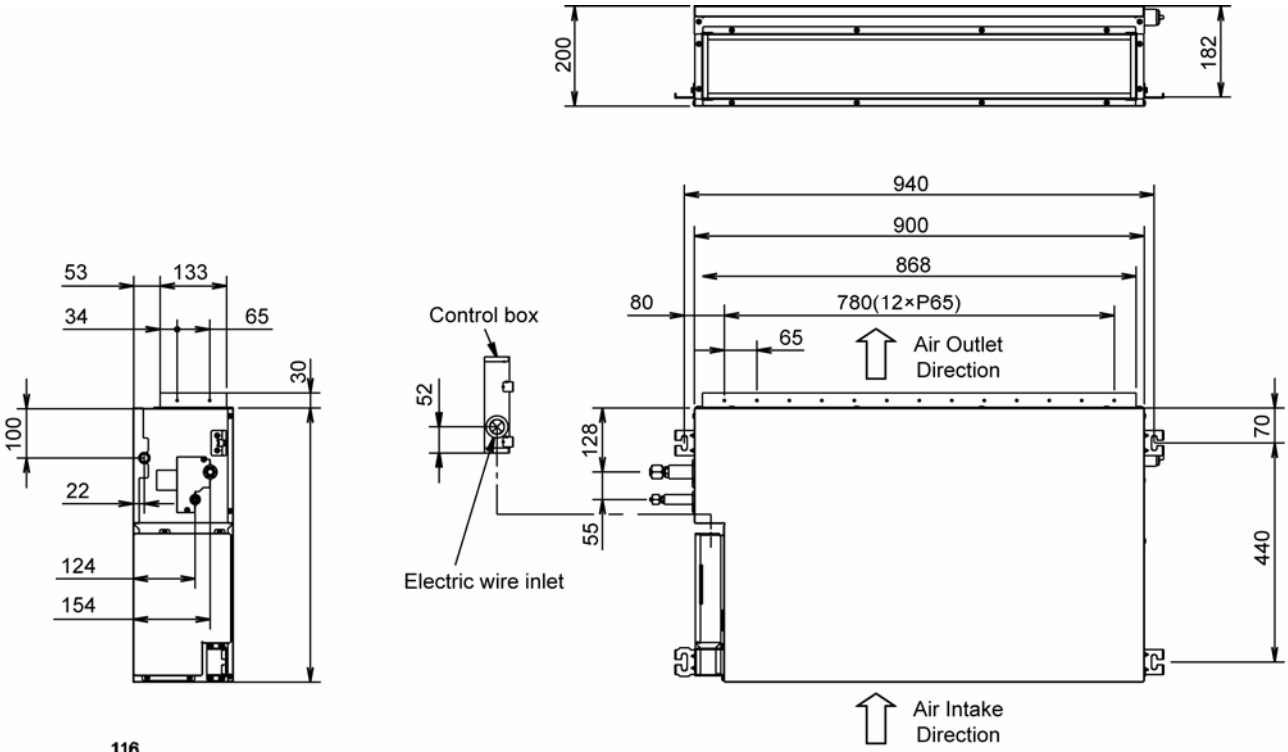


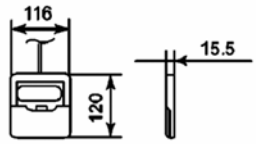
4.3.2 S-100UA1E5, S-125UA1E5



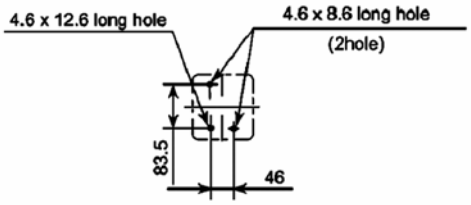
4.4 Slim Hide-Away Type Indoor Unit

4.4.1 S-22NA1E5, S-28NA1E5, S-32NA1E5, S-36NA1E5, S-45NA1E5, S-56NA1E5

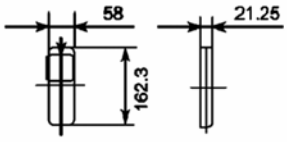




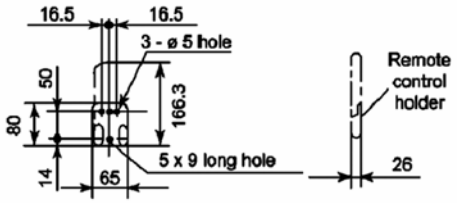
Wired remote control
CZ-RT1



Wired remote control
attachment hole position

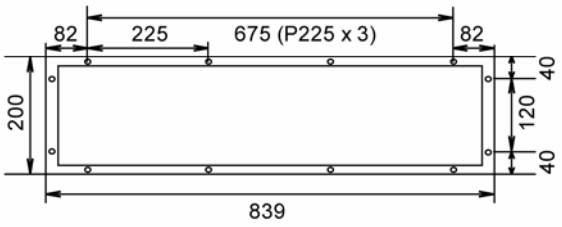


Wireless remote control
CZ-RWS1/CZ-RWC1



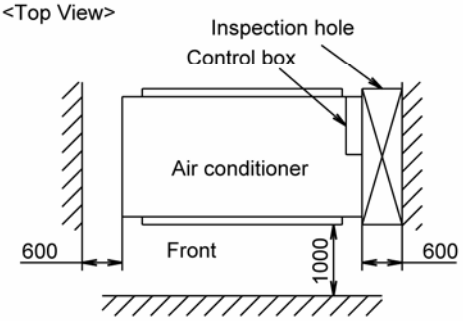
Wireless remote control
holder attachment hole position

Flange space for installation

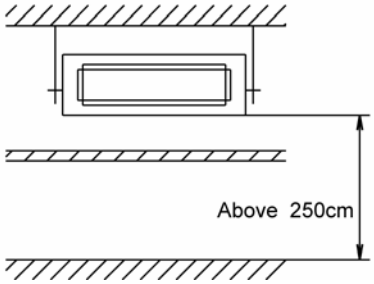


Required space for installation

<Top View>

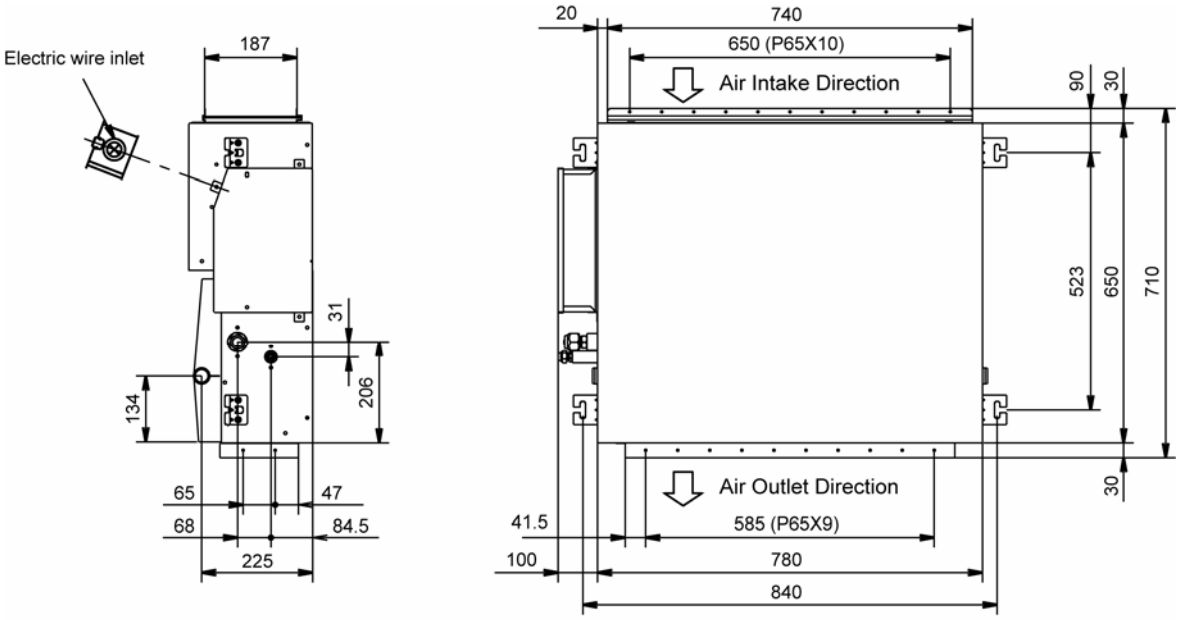


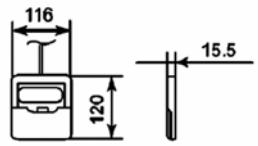
<Front view>



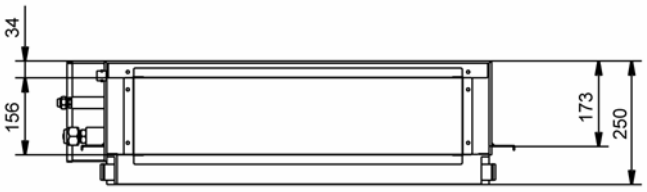
4.5 Low Static Pressure Hide-Away Type Indoor Unit

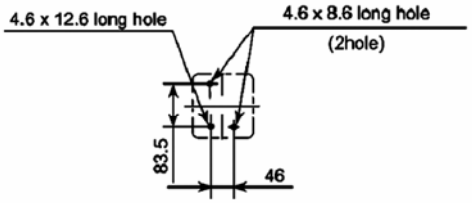
4.5.1 S-45MA1E5, S-56MA1E5



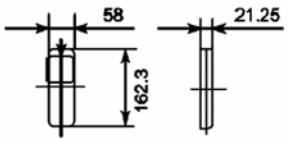


Wired remote control
CZ-RT1

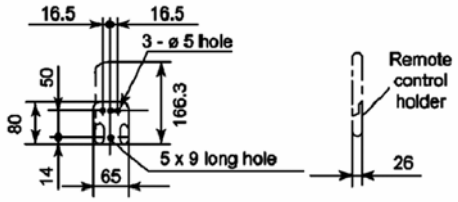




Wired remote control
attachment hole position



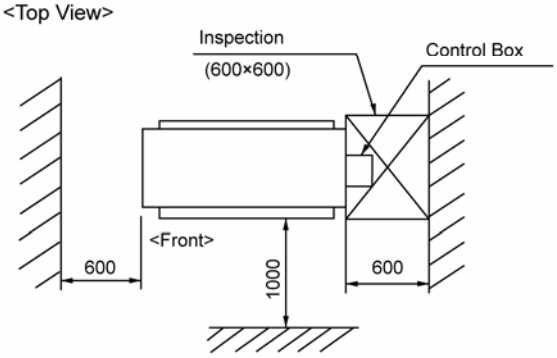
Wireless remote control
CZ-RWS1/CZ-RWC1



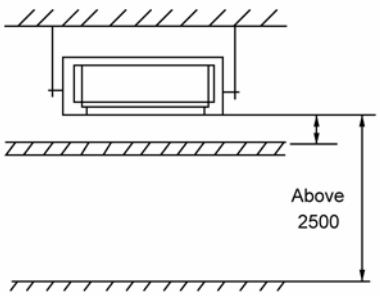
Wireless remote control
holder attachment hole position

Required space for installation

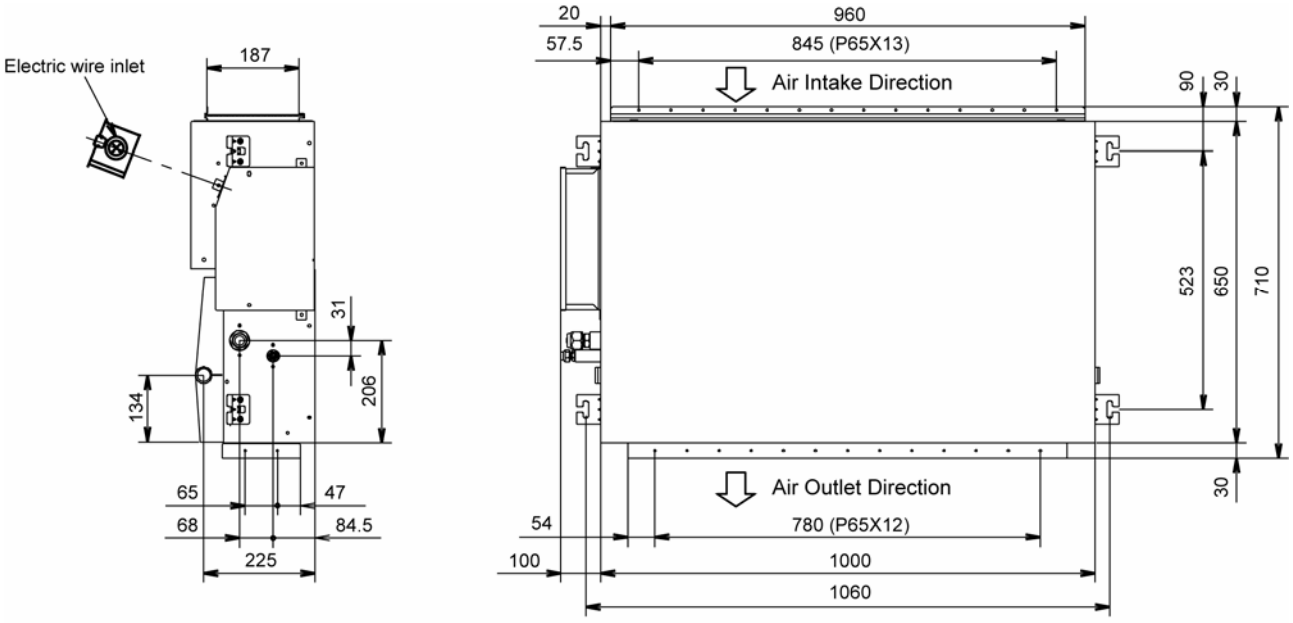
<Top View>

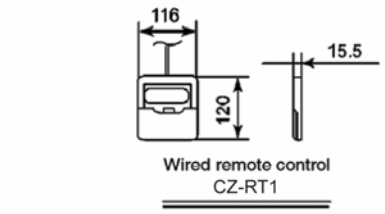


<Front view>

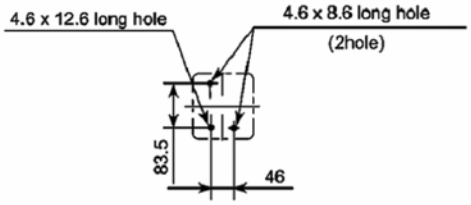


4.5.2 S-63MA1E5, S-71MA1E5, S-90MA1E5

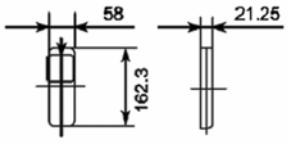




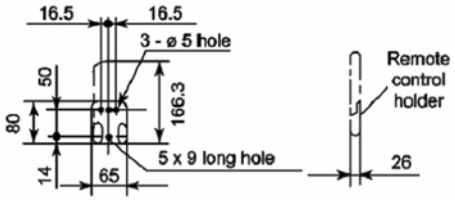
Wired remote control
CZ-RT1



Wired remote control
attachment hole position



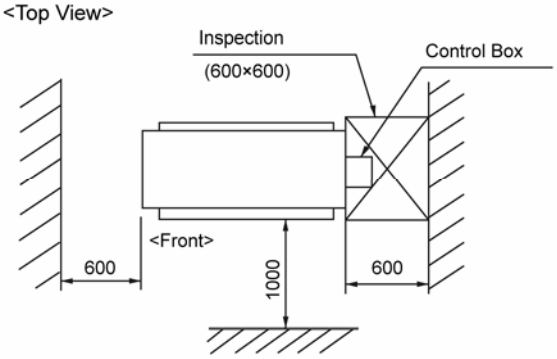
Wireless remote control
CZ-RWS1/CZ-RWC1



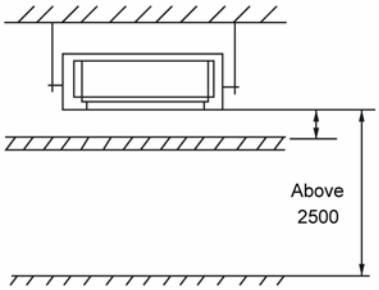
Wireless remote control
holder attachment hole position

Required space for installation

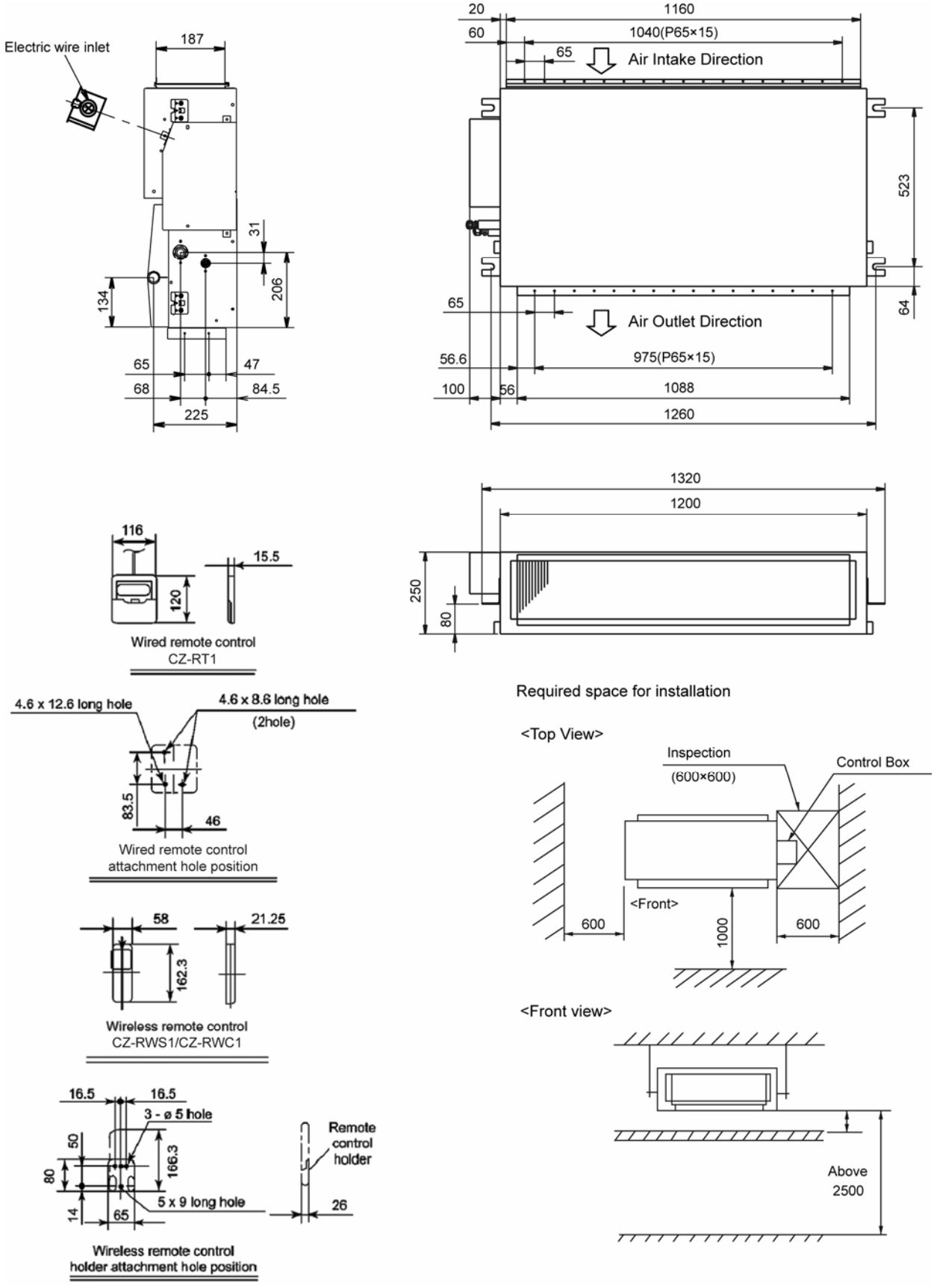
<Top View>



<Front view>

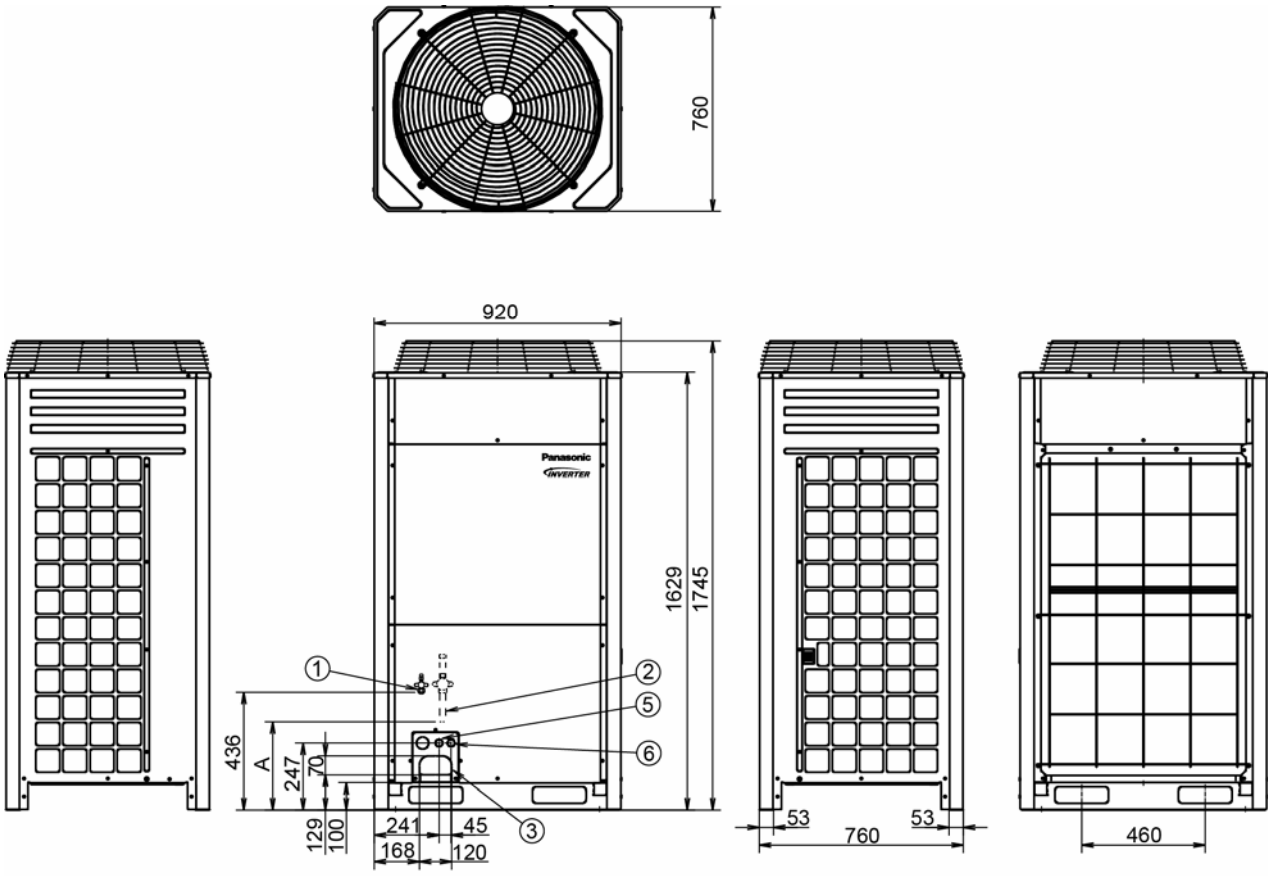


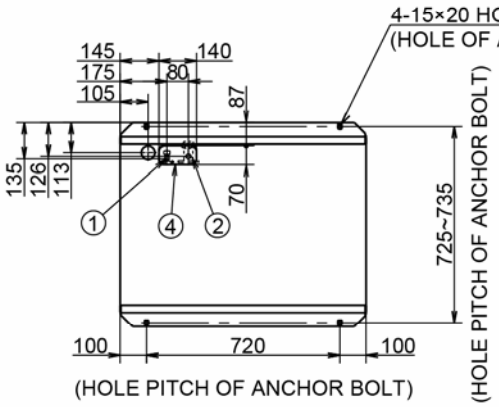
4.5.3 S-100MA1E5, S-125MA1E5



4.6 Outdoor Unit

4.6.1 U-8EA1E8, U-10EA1E5





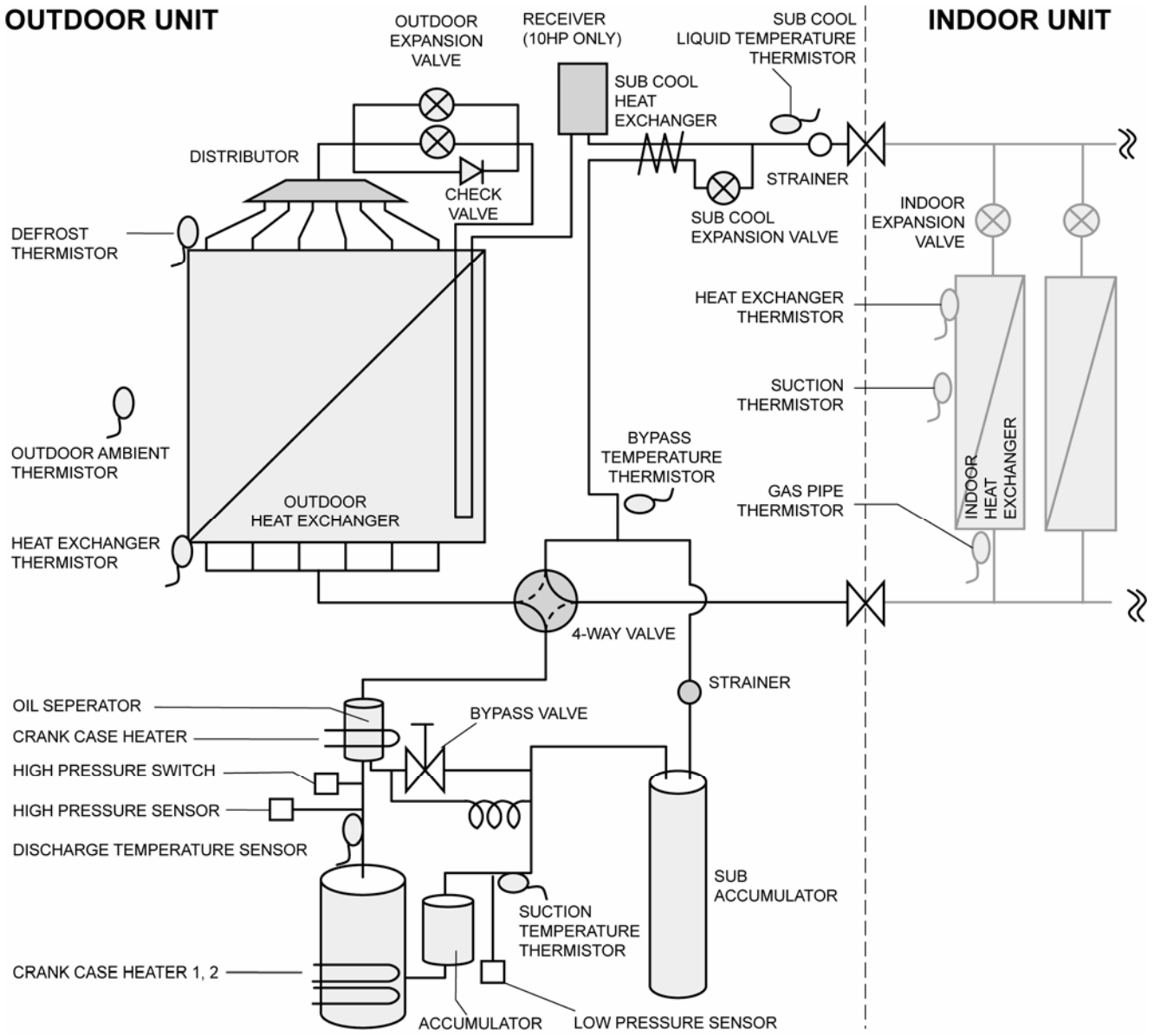
⑥	CONDUIT HOLE (BUS LINE)
⑤	CONDUIT HOLE (POWER CORD)
④	PIPE HOLE (BOTTOM)
③	PIPE HOLE (FRONT)
②	3-WAY VALVE (GAS SIDE)
①	3-WAY VALVE (LIQUID SIDE)
No	APPLICATION

(unit: mm)

U-10EA1E8	326	Φ9.52 FLARE	Φ22.22 BRAZING
U-8EA1E8	196*		Φ19.05 BRAZING
MODEL NAME	A	LIQUID SIDE	GAS SIDE
	CONNECTING PIPE		

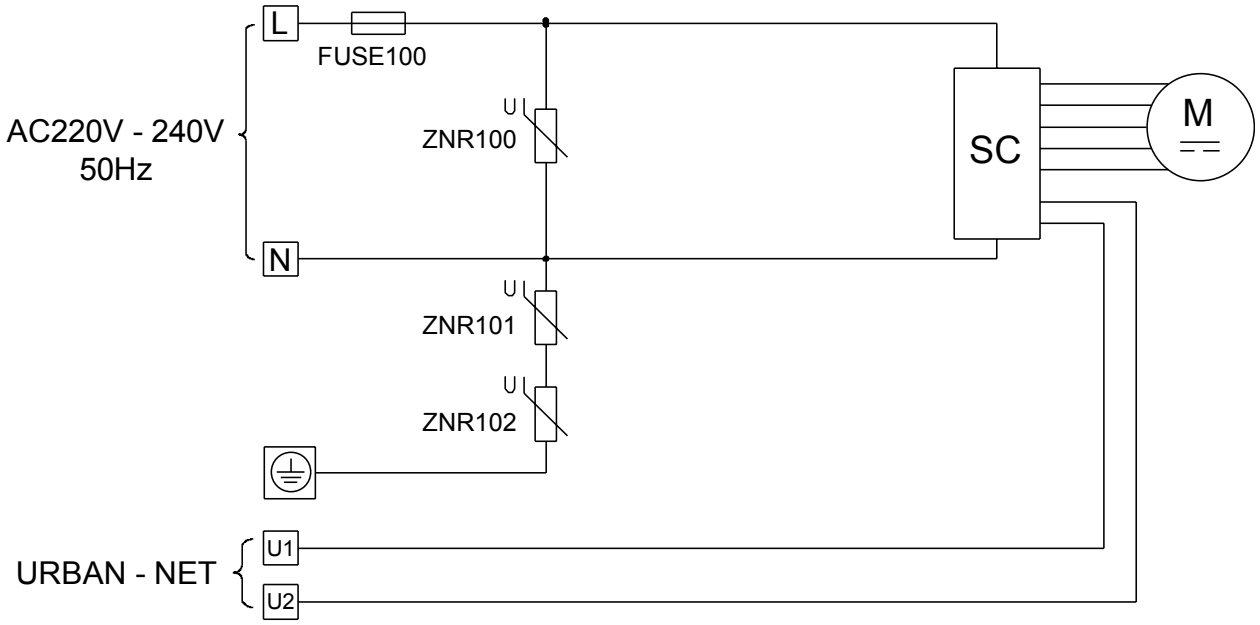
* DIMENSION WHEN USE THE ACCESSORY PIPE

5. Refrigeration Cycle Diagram

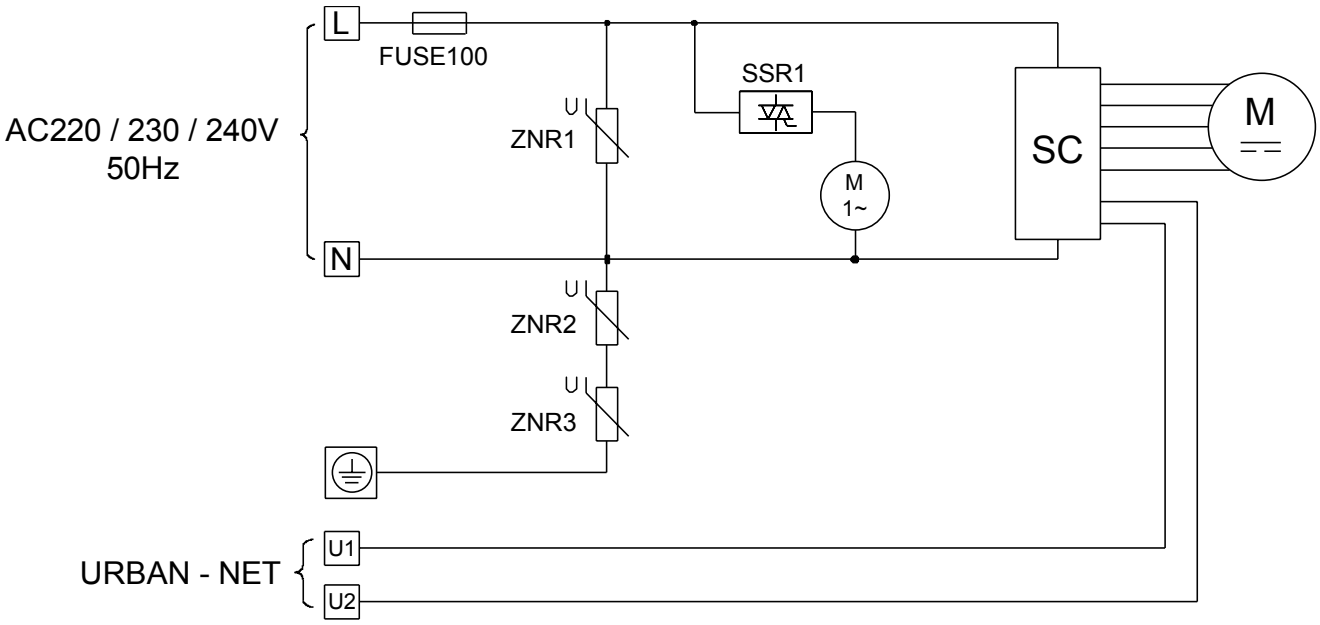


6. Block Diagram

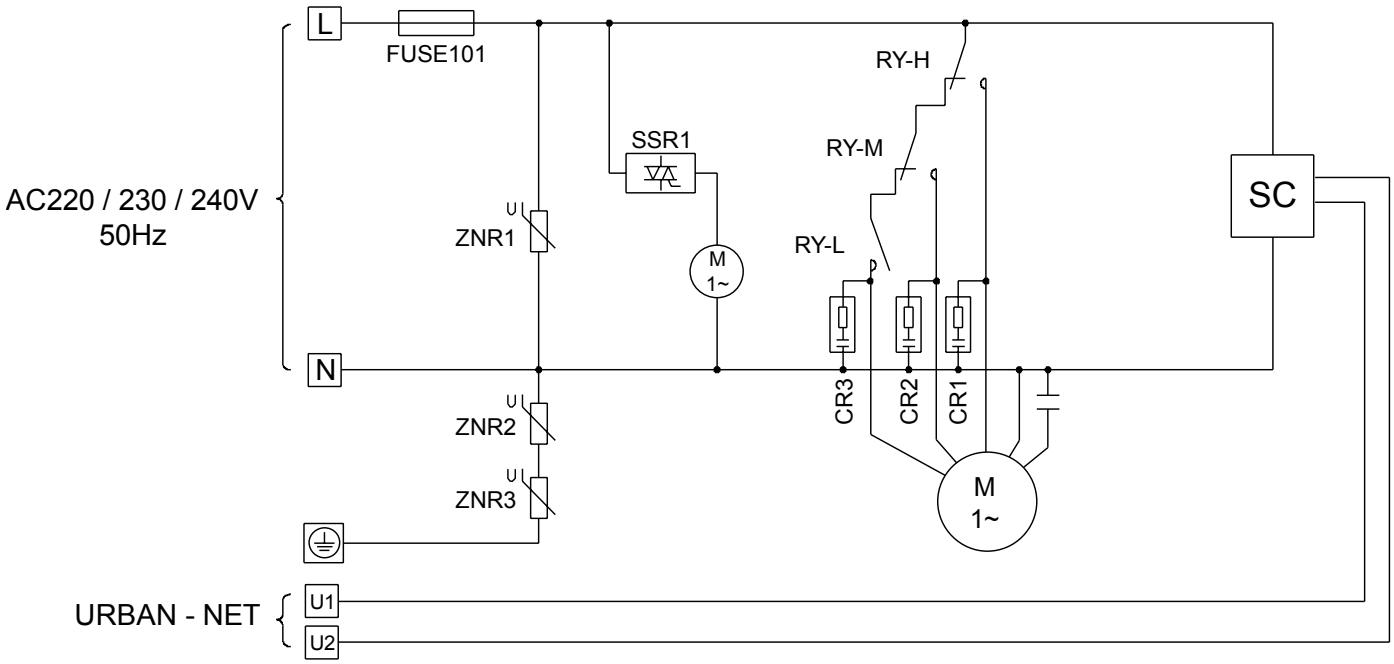
6.1 Wall Mounted Type Indoor Unit – KA1E5 Series



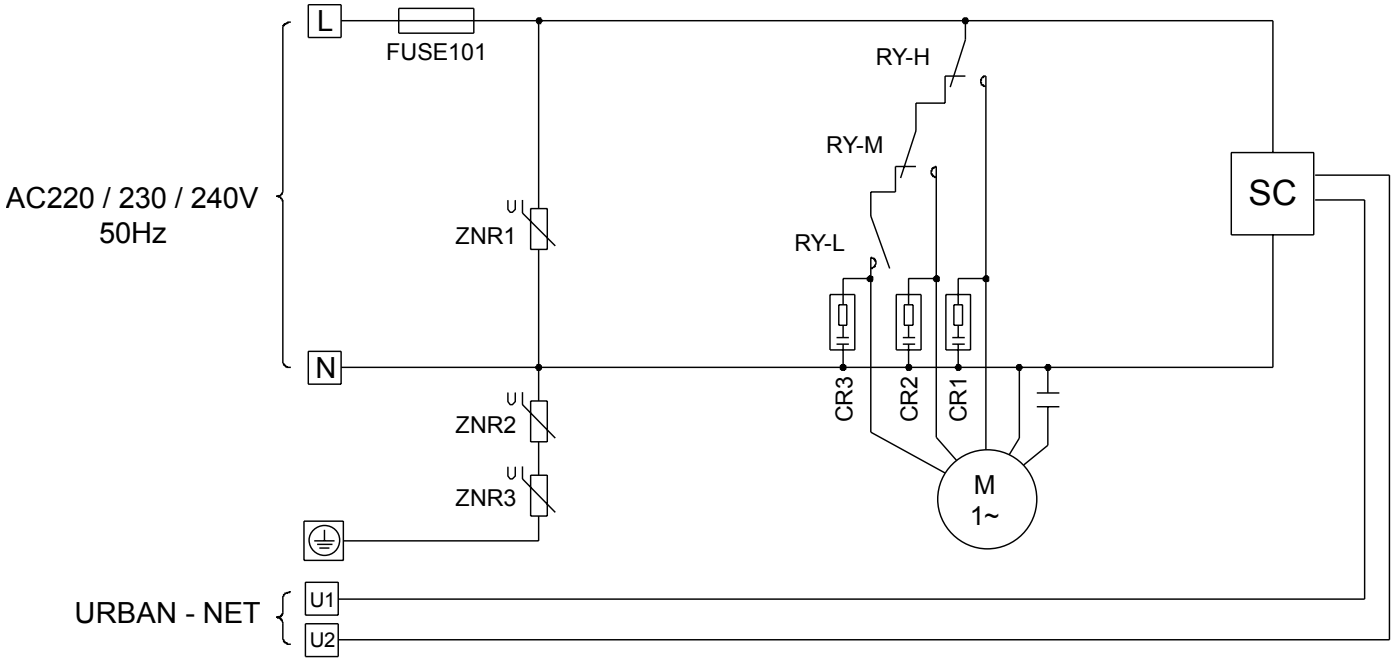
6.2 60 x 60 Cassette Type Indoor Unit – YA1E5 Series



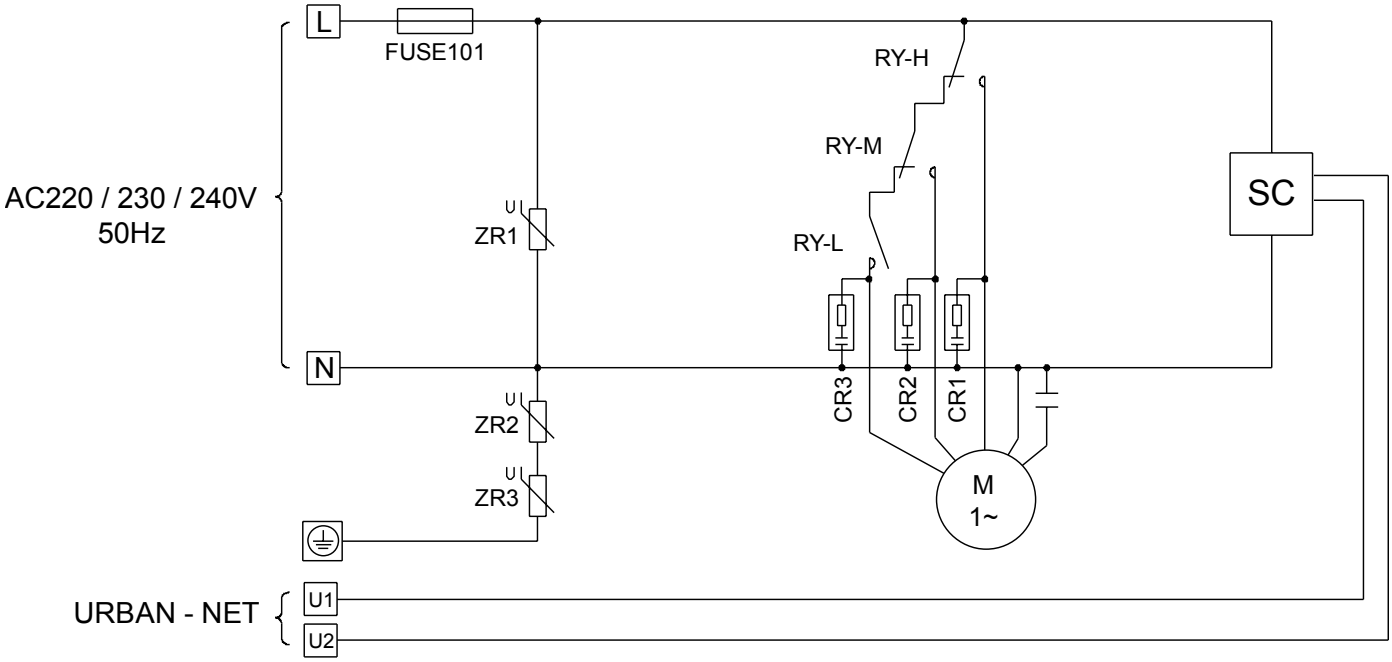
6.3 95 x 95 Cassette Type Indoor Unit – UA1E5 Series



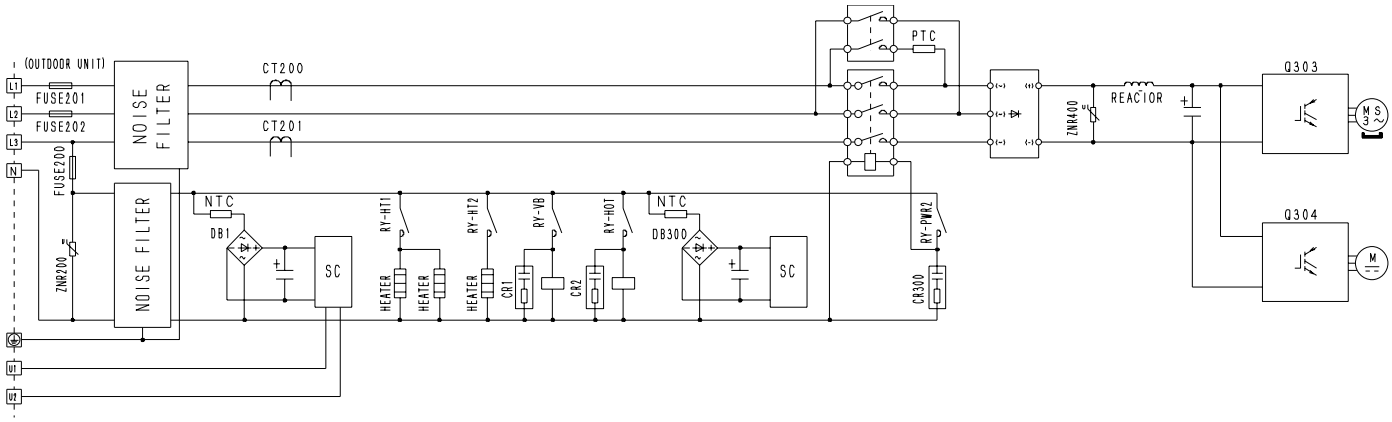
6.4 Slim Hide Away Type Indoor Unit – NA1E5 Series



6.5 Low Static Pressure Hide Away Type Indoor Unit – MA1E5 Series

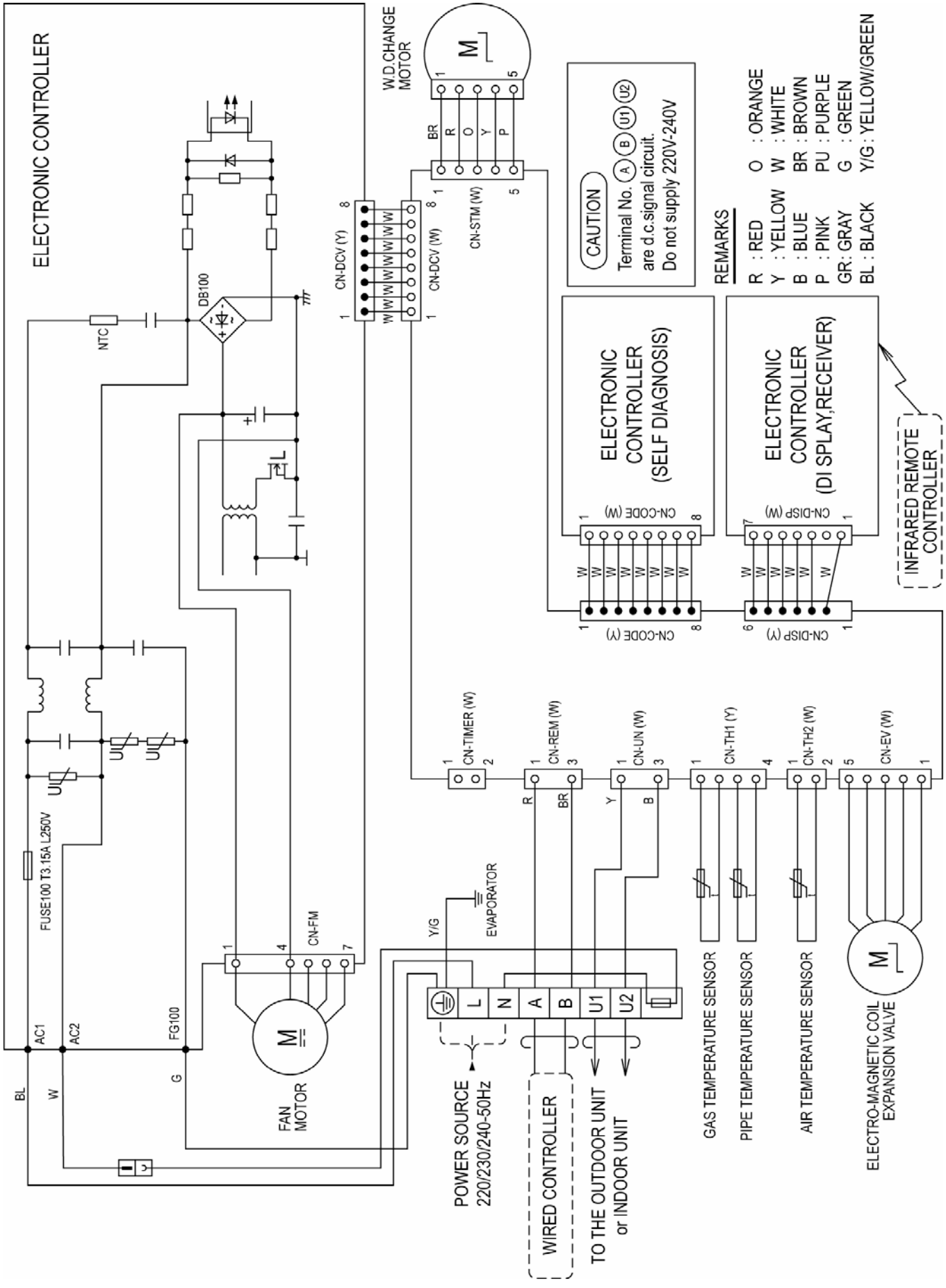


6.6 Outdoor Unit – EA1E8 Series

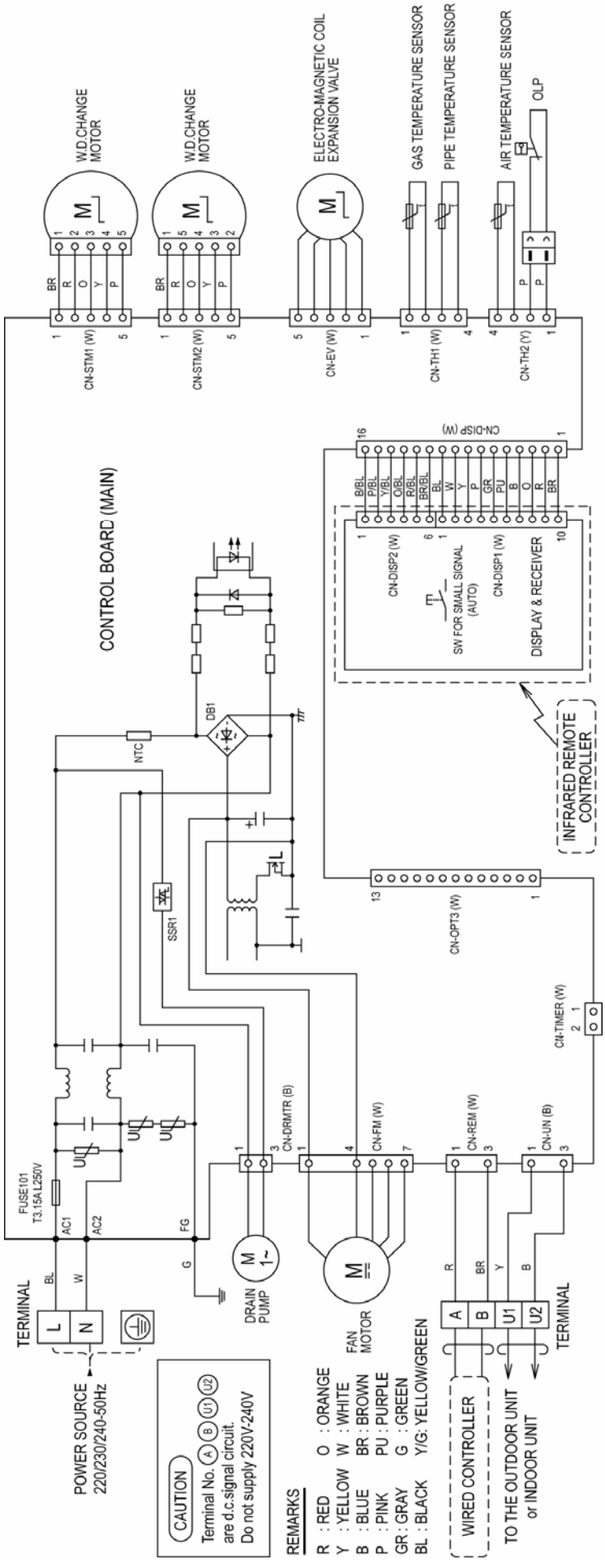


7. Wiring Connection Diagram

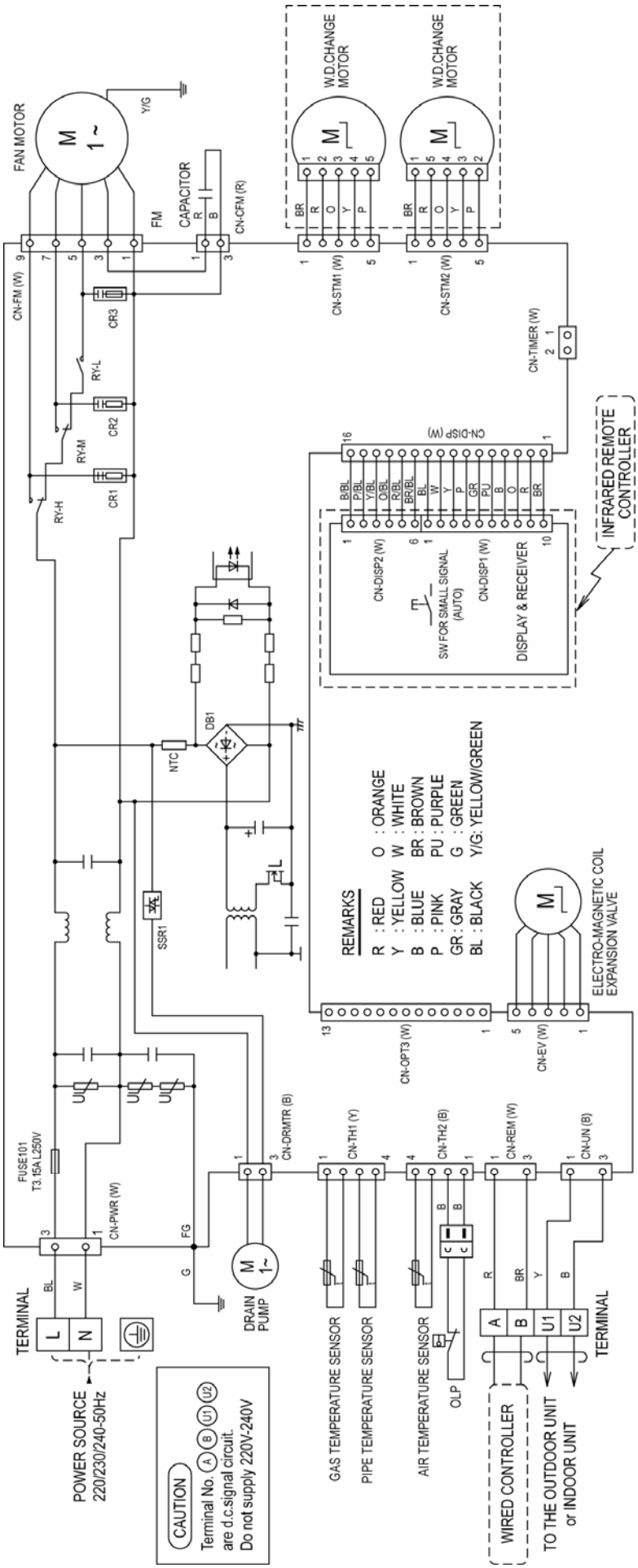
7.1 Wall Mounted Type Indoor Unit – KA1E5 Series



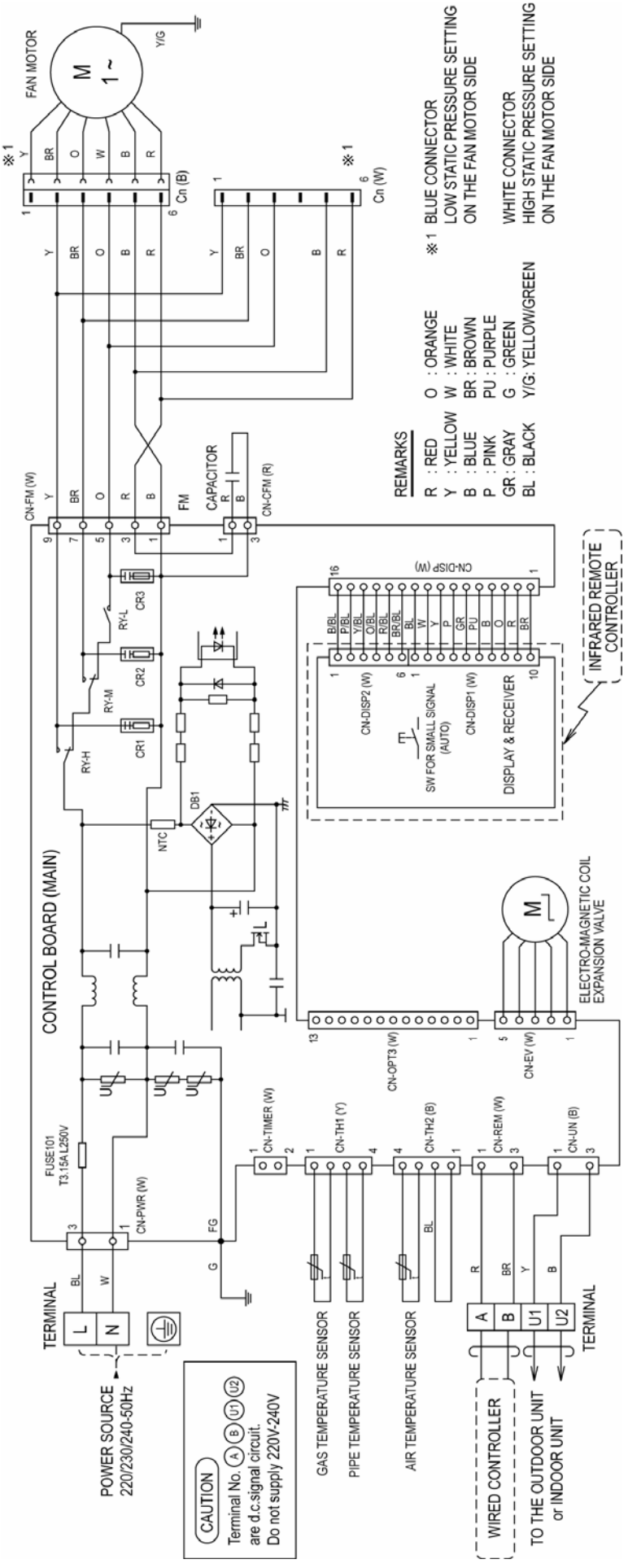
7.2 60 x 60 Cassette Type Indoor Unit – YA1E5 Series



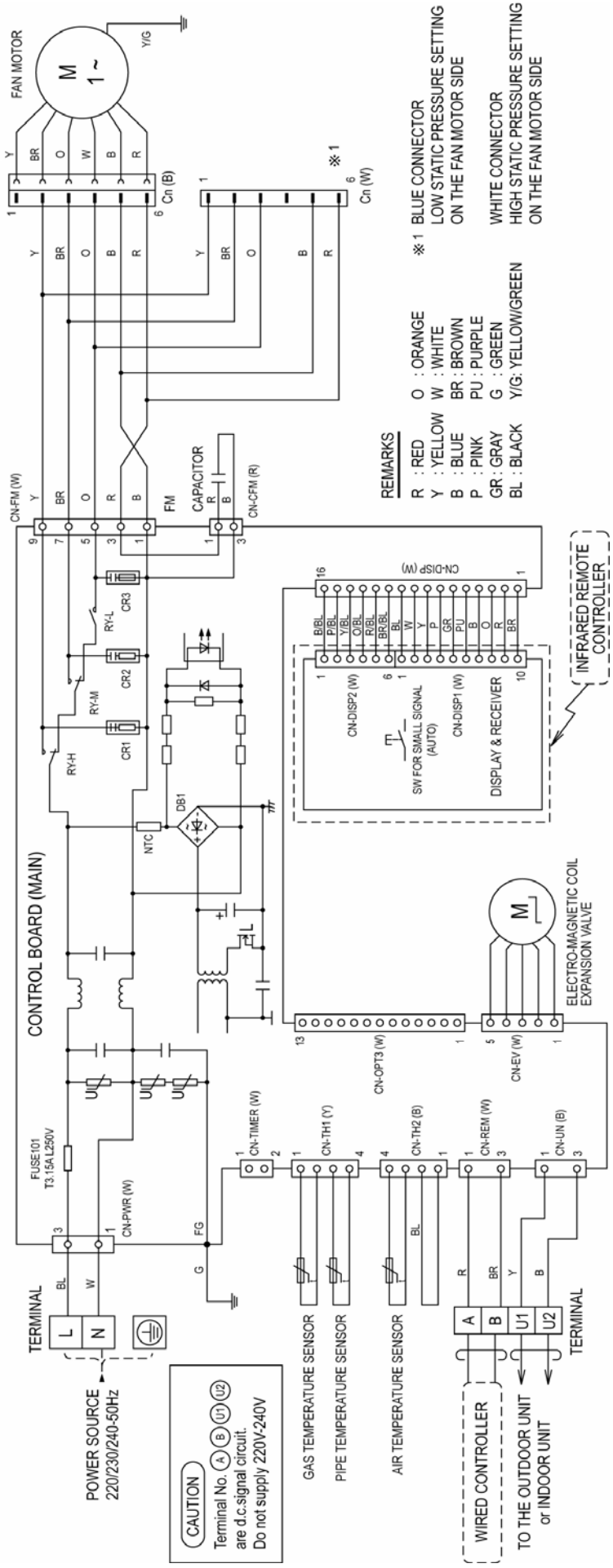
7.3 95 x 95 Cassette Type Indoor Unit – UA1E5 Series



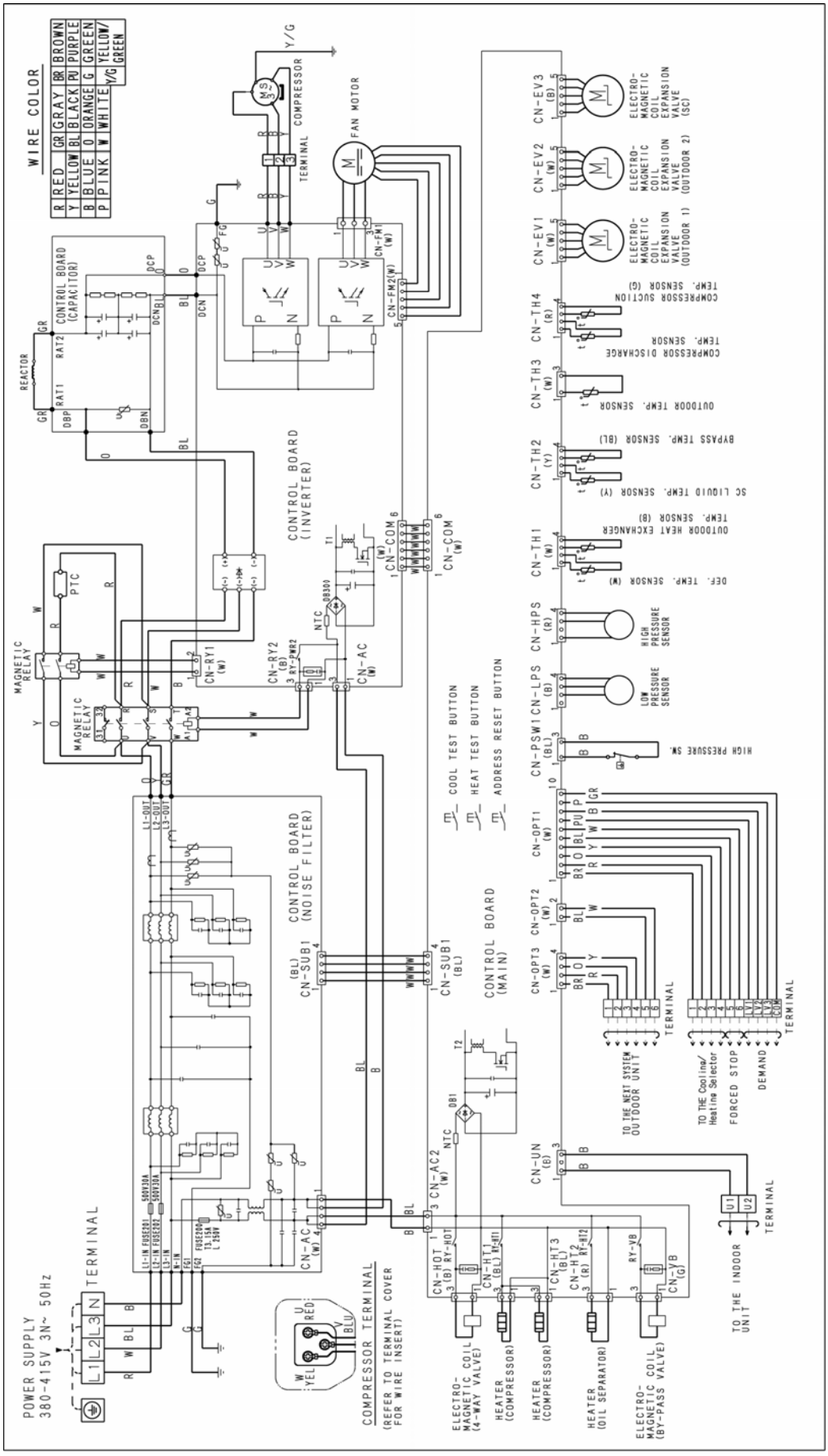
7.4 Slim Hide Away Type Indoor Unit – NA1E5 Series



7.5 Low Static Pressure Hide Away Type Indoor Unit – MA1E5 Series

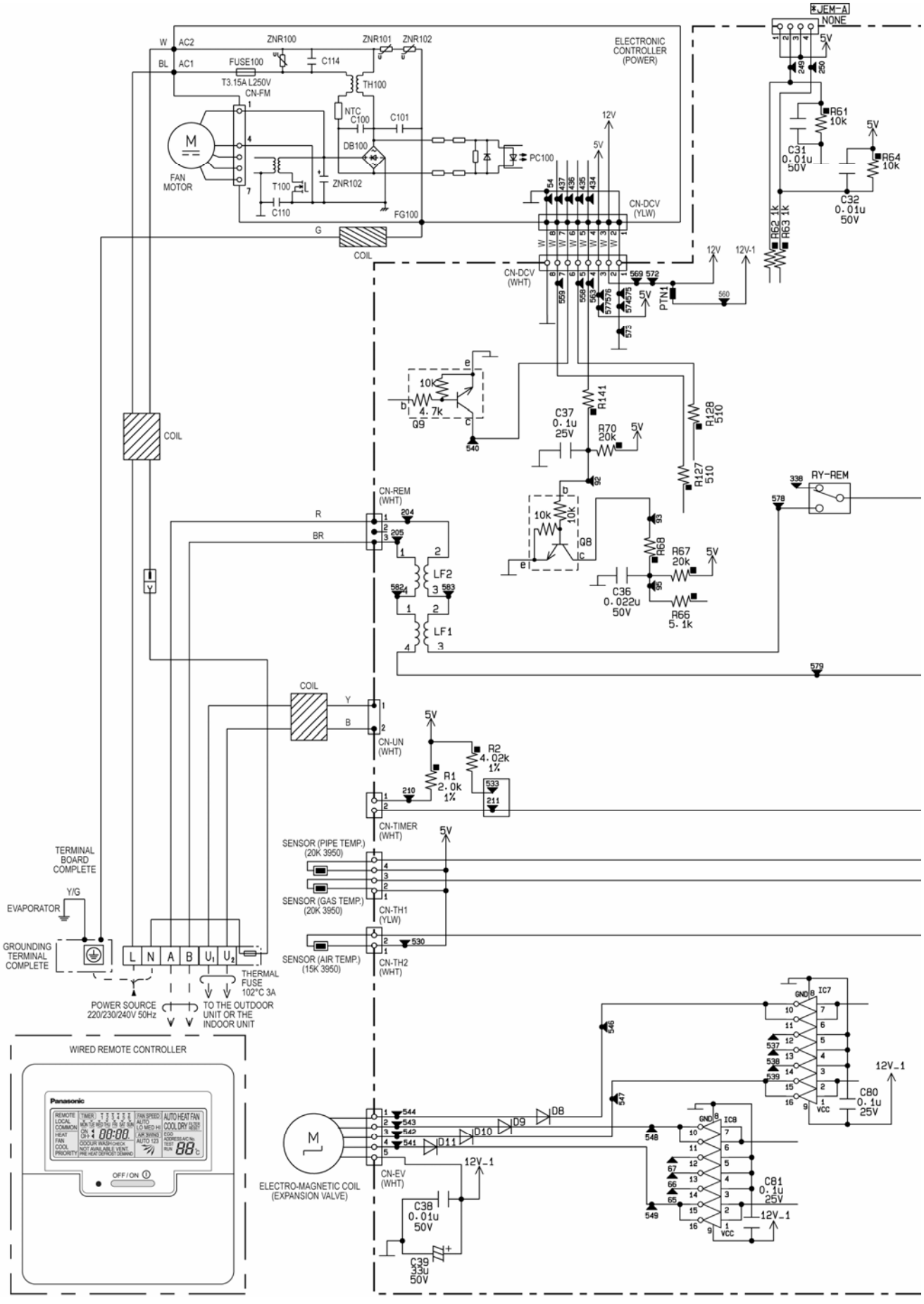


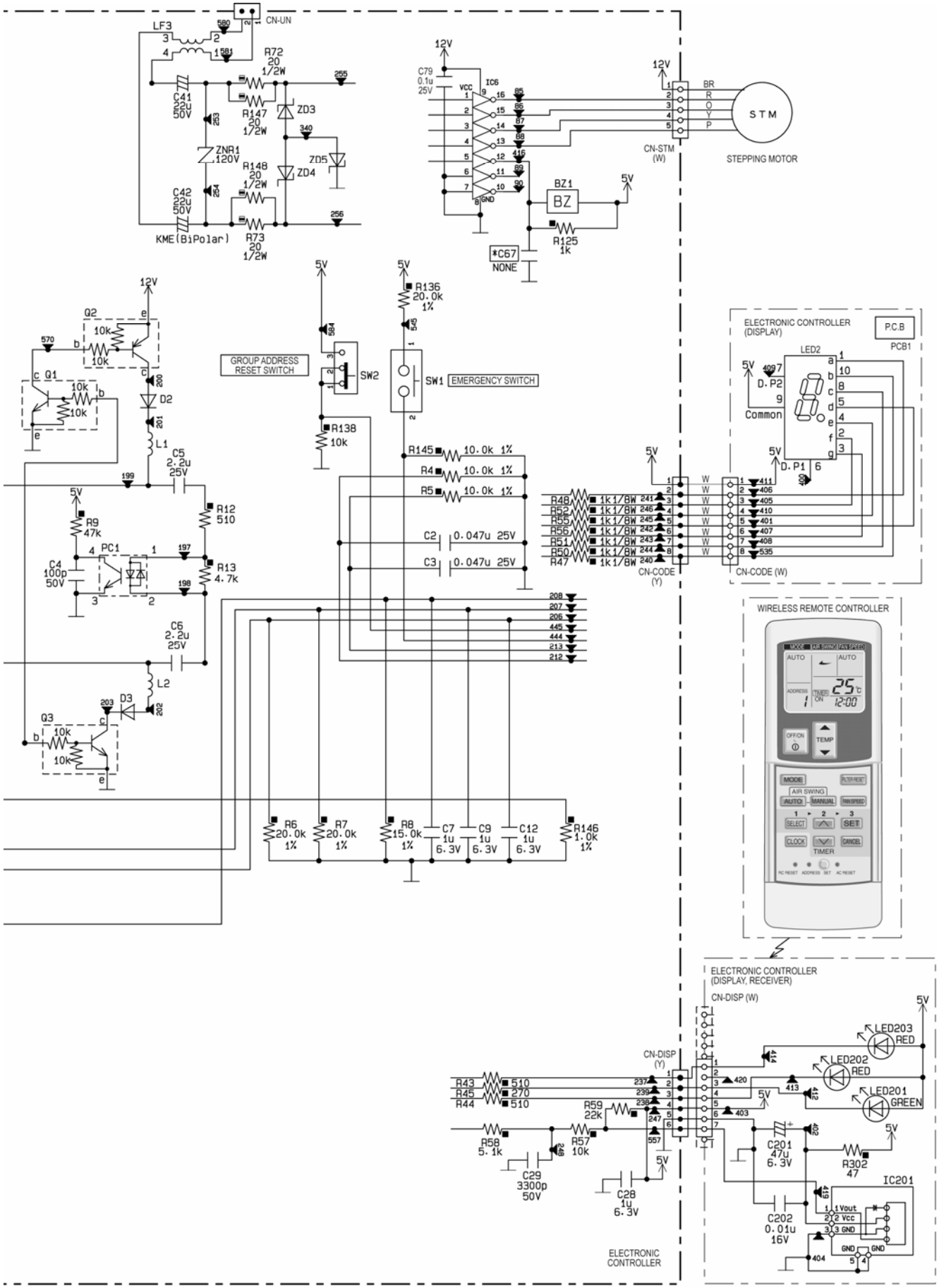
7.6 Outdoor Unit – EA1E8 Series



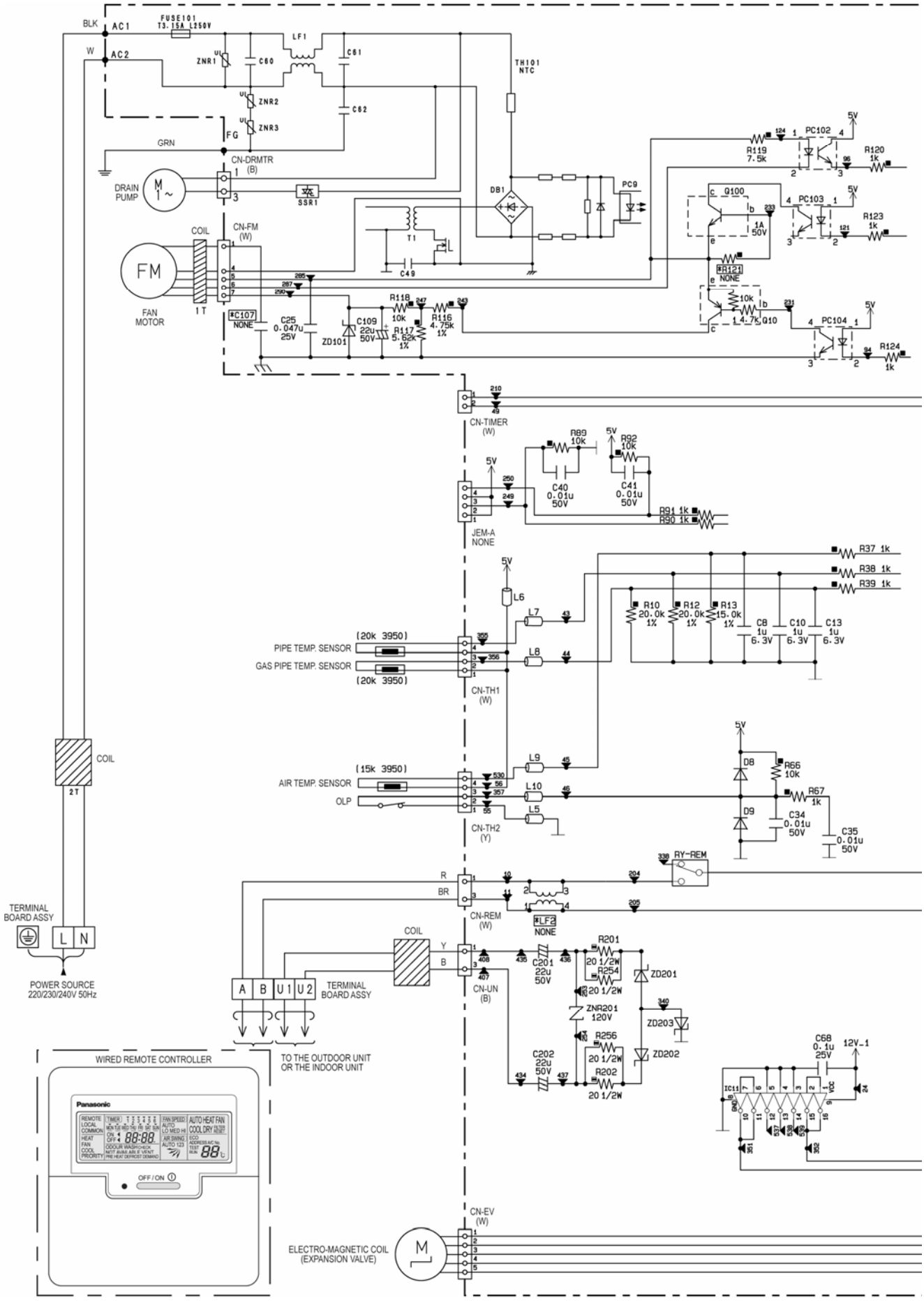
8. Electronic Circuit Diagram

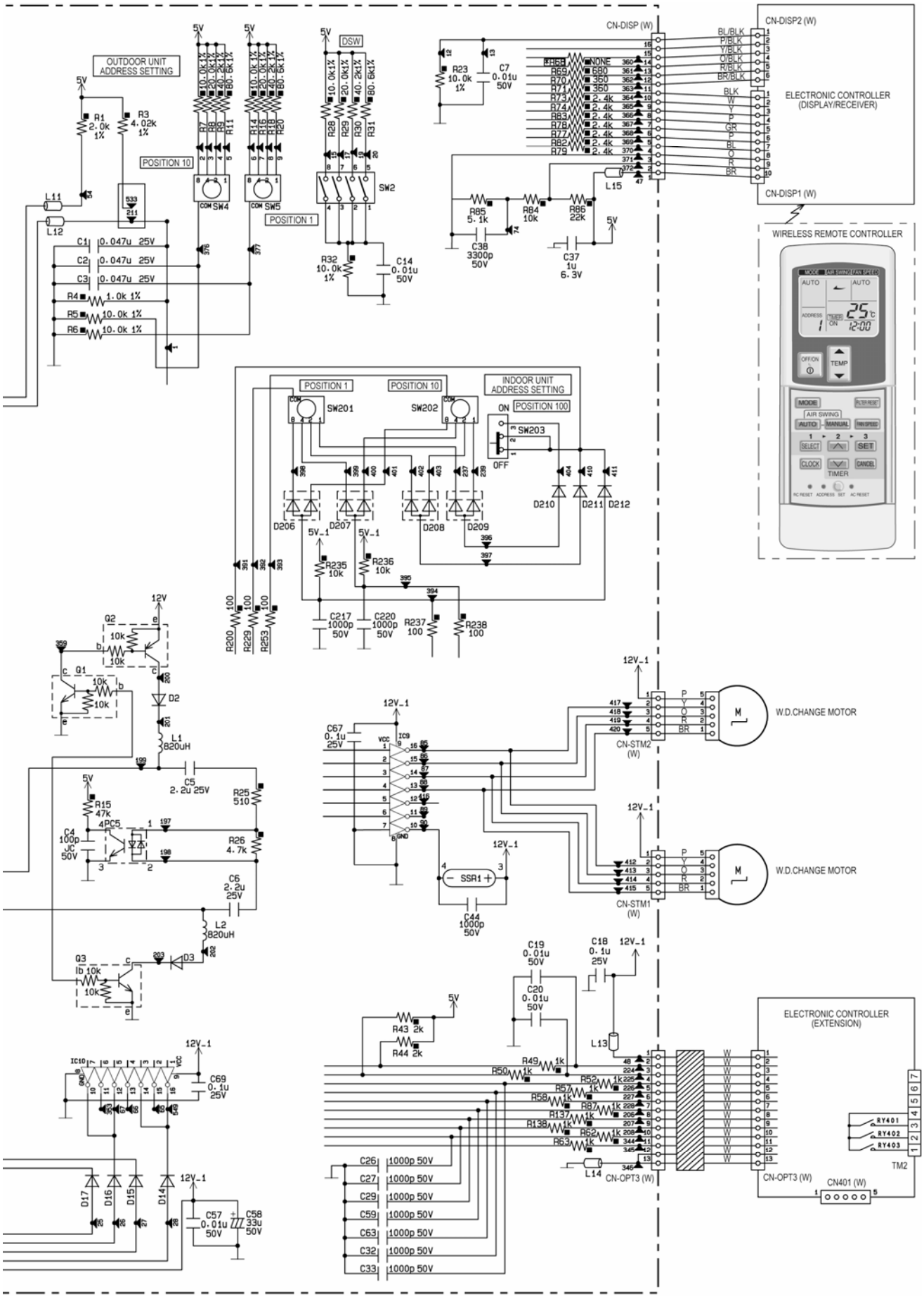
8.1 Wall Mounted Type Indoor Unit – KA1E5 Series



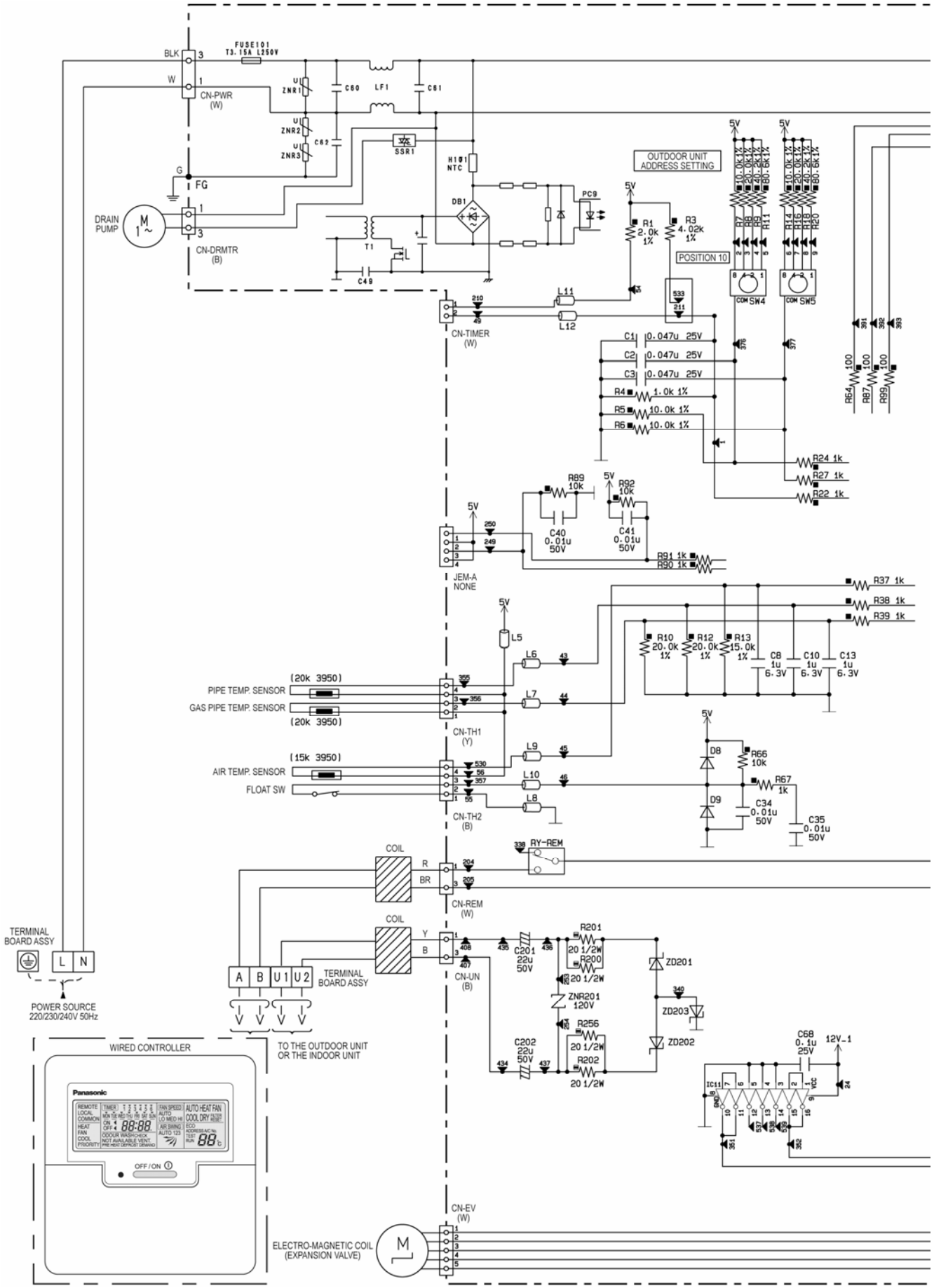

CN-UN
LF3
R72 20 1/2W
C41 22u 50V
R147 20 1/2W
ZD3
ZD5
ZD4
ZNR1 120V
R148 20 1/2W
C42 22u 50V
KME(BiPolar)
R73 20 1/2W
12V
C79 0.1u 25V
IC6
CN-STM (W)
STM
STEPPING MOTOR
BZ1
BZ
R125 1k
*C67 NONE
5V
R136 20.0k 1%
GROUP ADDRESS RESET SWITCH
SW2
SW1
EMERGENCY SWITCH
R138 10k
Q2
Q1
D2
L1
C5 2.2u 25V
R9 47k
R12 510
PC1
C4 100p 50V
R13 4.7k
C6 2.2u 25V
L2
D3
Q3
R145 10.0k 1%
R4 10.0k 1%
R5 10.0k 1%
C2 0.047u 25V
C3 0.047u 25V
R48 1k1/8W
R52 1k1/8W
R55 1k1/8W
R56 1k1/8W
R51 1k1/8W
R50 1k1/8W
R47 1k1/8W
CN-CODE (Y)
CN-CODE (W)
ELECTRONIC CONTROLLER (DISPLAY)
P.C.B
PCB1
LED2
D.P2
Common
D.P1
R6 20.0k 1%
R7 20.0k 1%
R8 15.0k 1%
C7 1u 6.3V
C9 1u 6.3V
C12 1u 6.3V
R146 1.0k 1%
WIRELESS REMOTE CONTROLLER
ELECTRONIC CONTROLLER (DISPLAY, RECEIVER)
CN-DISP (W)
CN-DISP (Y)
R43 510
R45 270
R44 510
R59 22k
R58 5.1k
R57 10k
C29 3300p 50V
C28 1u 6.3V
LED203 RED
LED202 RED
LED201 GREEN
C201 47u 6.3V
R302 47
IC201
C202 0.01u 16V
ELECTRONIC CONTROLLER

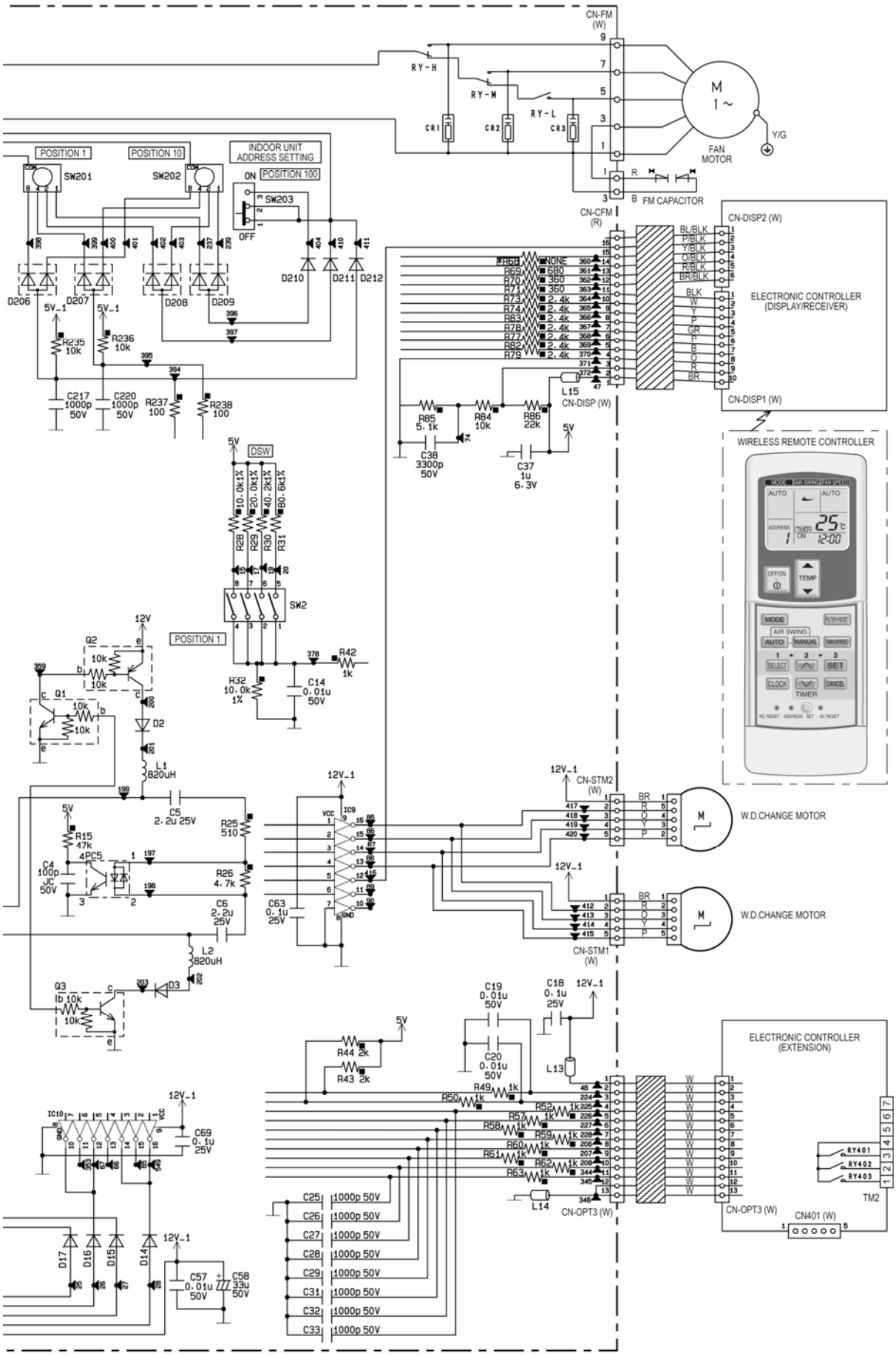
8.2 60 x 60 Cassette Type Indoor Unit – YA1E5 Series



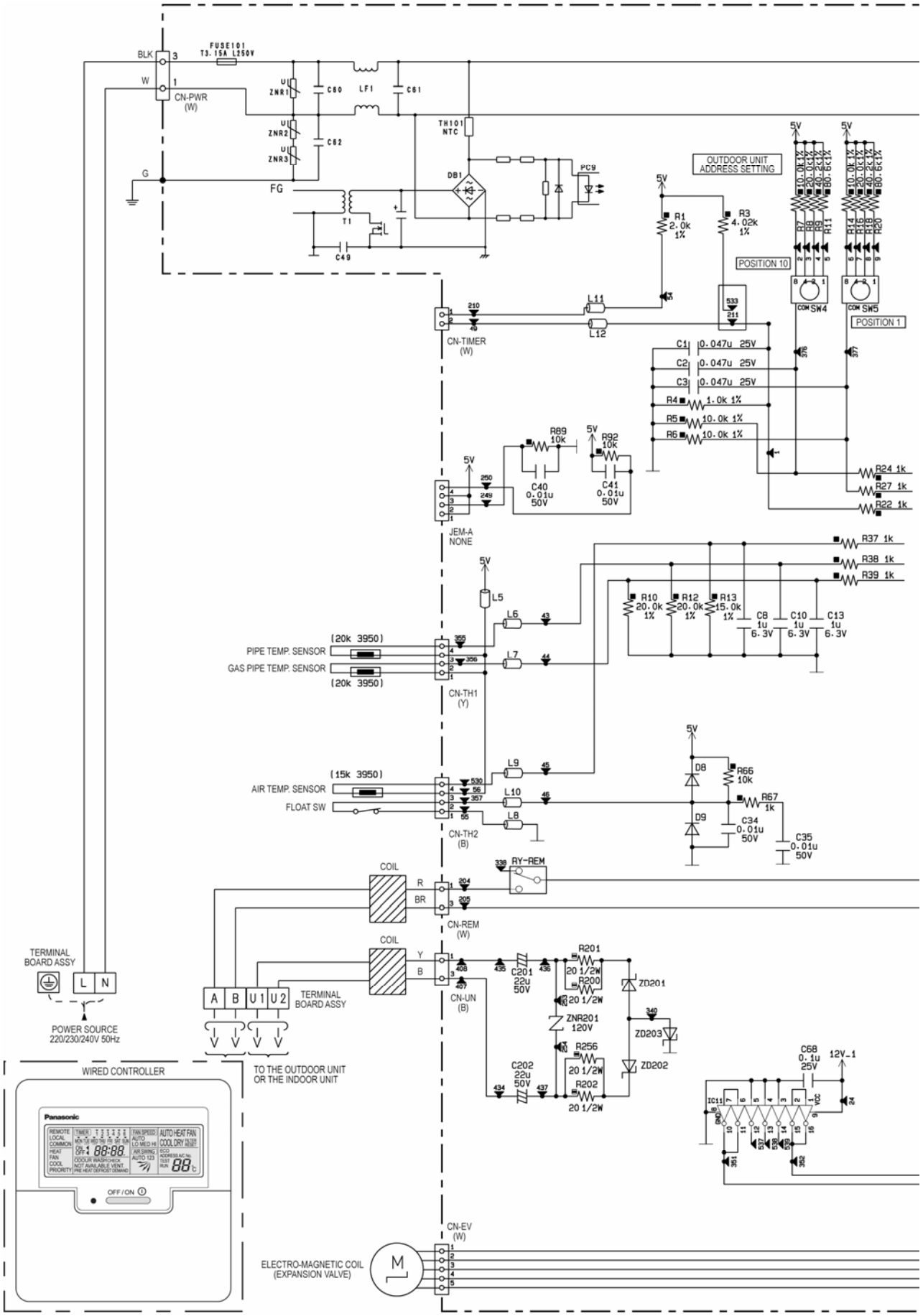

OUTDOOR UNIT ADDRESS SETTING
POSITION 10
POSITION 1
DSW
SW2
SW4
SW5
CN-DISP (W)
CN-DISP2 (W)
ELECTRONIC CONTROLLER (DISPLAY/RECEIVER)
CN-DISP1 (W)
WIRELESS REMOTE CONTROLLER
INDOOR UNIT ADDRESS SETTING
POSITION 100
SW201
SW202
SW203
W.D.CHANGE MOTOR
CN-STM2 (W)
CN-STM1 (W)
ELECTRONIC CONTROLLER (EXTENSION)
CN-OPT3 (W)
CN401 (W)
TM2

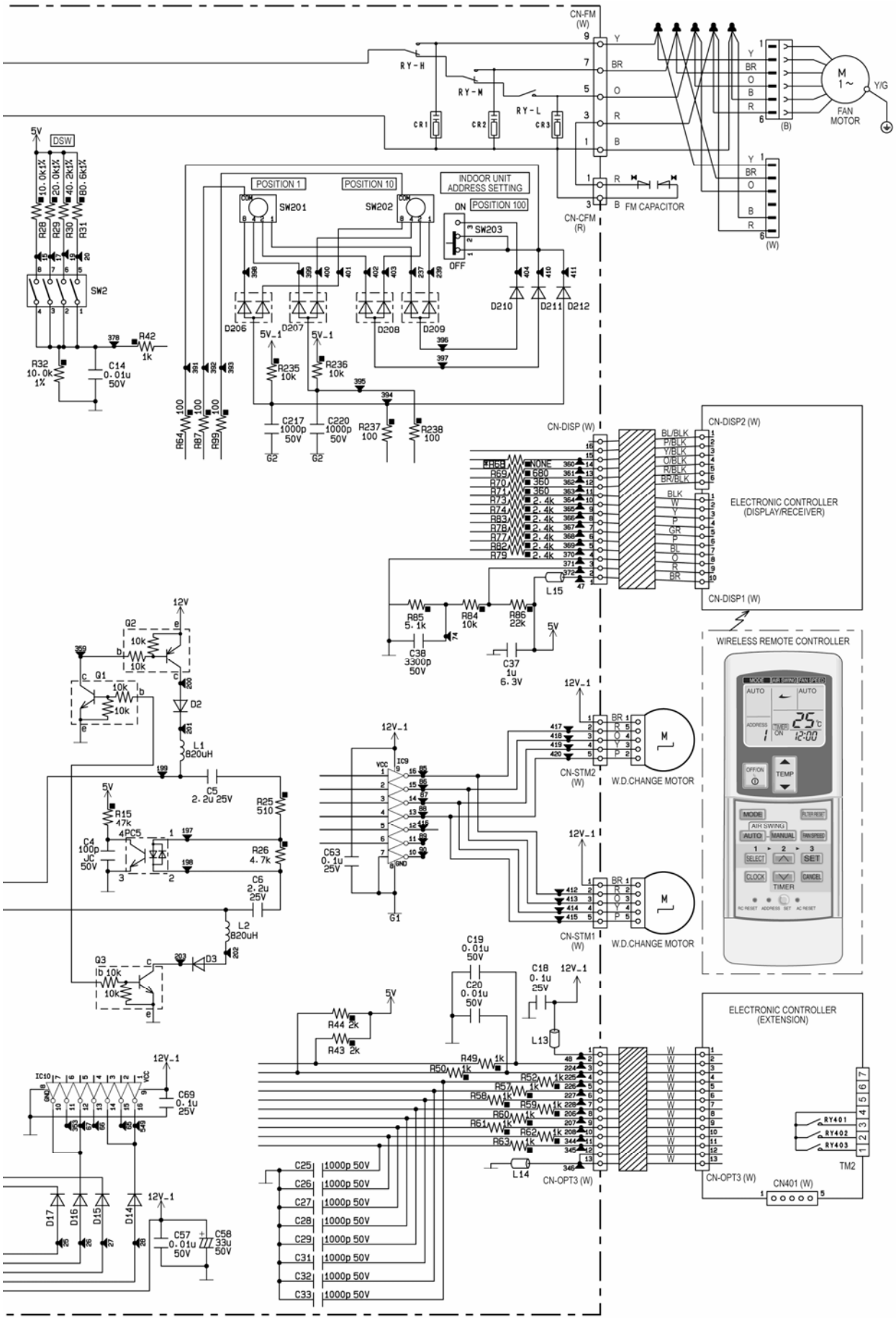
8.3 95 x 95 Cassette Type Indoor Unit – UA1E5 Series



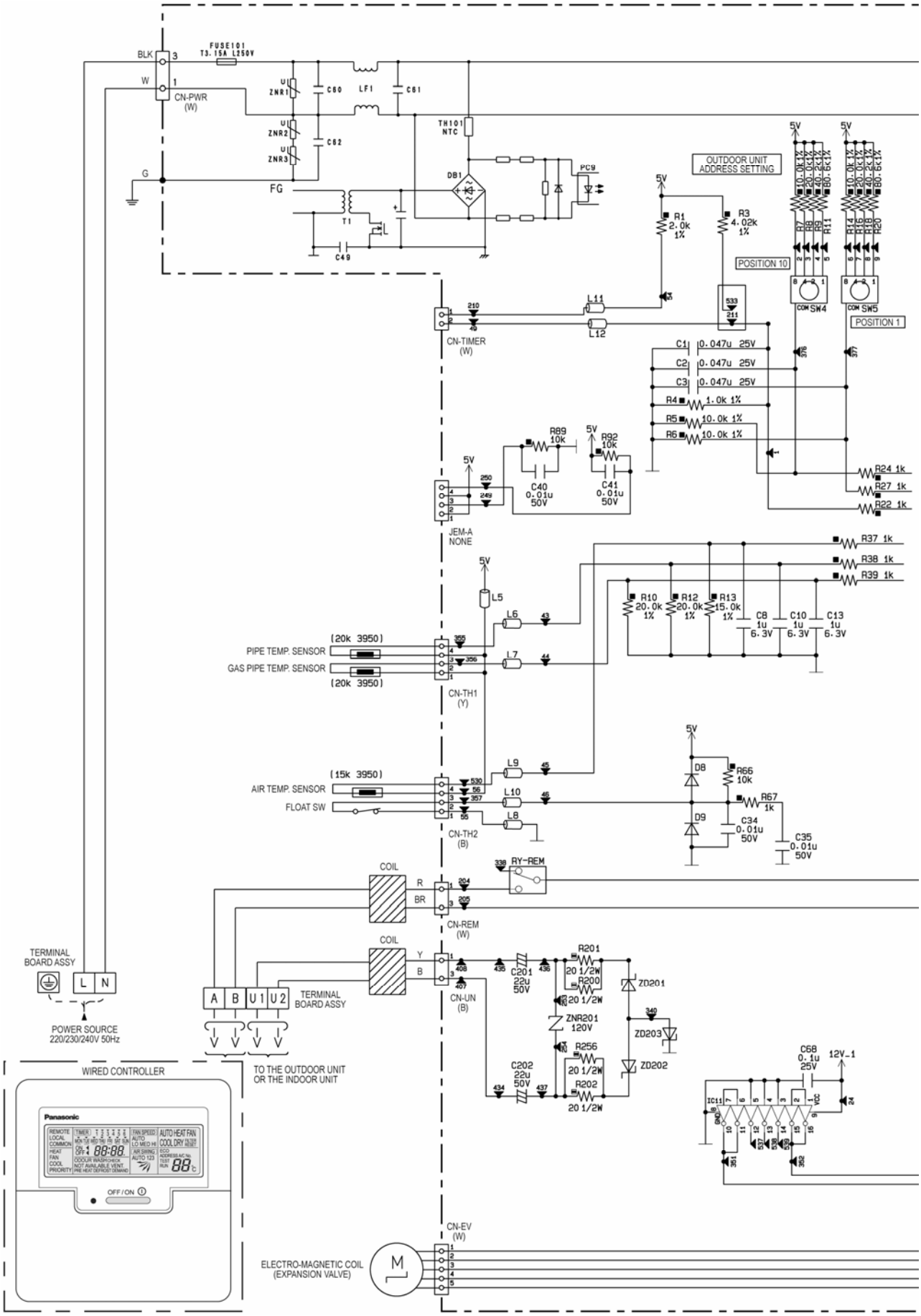

CN-FM (W)
RY-H
RY-M
RY-L
CR1
CR2
CR3
M 1~
FAN MOTOR
Y/G
R
B
FM CAPACITOR
CN-CFM (R)
CN-DISP2 (W)
ELECTRONIC CONTROLLER (DISPLAY/RECEIVER)
CN-DISP1 (W)
WIRELESS REMOTE CONTROLLER
POSITION 1
POSITION 10
POSITION 100
INDOOR UNIT ADDRESS SETTING
SW201
SW202
SW203
ON
OFF
D206
D207
D208
D209
D210
D211
D212
R235 10k
R236 10k
C217 1000p 50V
C220 1000p 50V
R237 100
R238 100
R85 5.1k
R84 10k
R86 22k
C38 3300p 50V
C37 1u 6.3V
L15
CN-DISP (W)
DSW
SW2
R28
R29
R30
R31
R32 10.0k 1%
C14 0.01u 50V
R42 1k
Q1
Q2
D2
L1 820uH
C5 2.2u 25V
R15 47k
R25 510
R26 4.7k
C4 100p 50V
4PC5
C6 2.2u 25V
L2 820uH
Q3
D3
IC9
C63 0.1u 25V
CN-STM2 (W)
CN-STM1 (W)
W.D.CHANGE MOTOR
W.D.CHANGE MOTOR
C19 0.01u 50V
C18 0.1u 25V
C20 0.01u 50V
L13
L14
R44 2k
R43 2k
R49 1k
R50 1k
R52 1k
R57 1k
R58 1k
R59 1k
R60 1k
R61 1k
R62 1k
R63 1k
CN-OPT3 (W)
ELECTRONIC CONTROLLER (EXTENSION)
CN-OPT3 (W)
CN401 (W)
RY401
RY402
RY403
TM2
IC10
C69 0.1u 25V
D17
D16
D15
D14
C57 0.01u 50V
C58 33u 50V
C25 1000p 50V
C26 1000p 50V
C27 1000p 50V
C28 1000p 50V
C29 1000p 50V
C31 1000p 50V
C32 1000p 50V
C33 1000p 50V

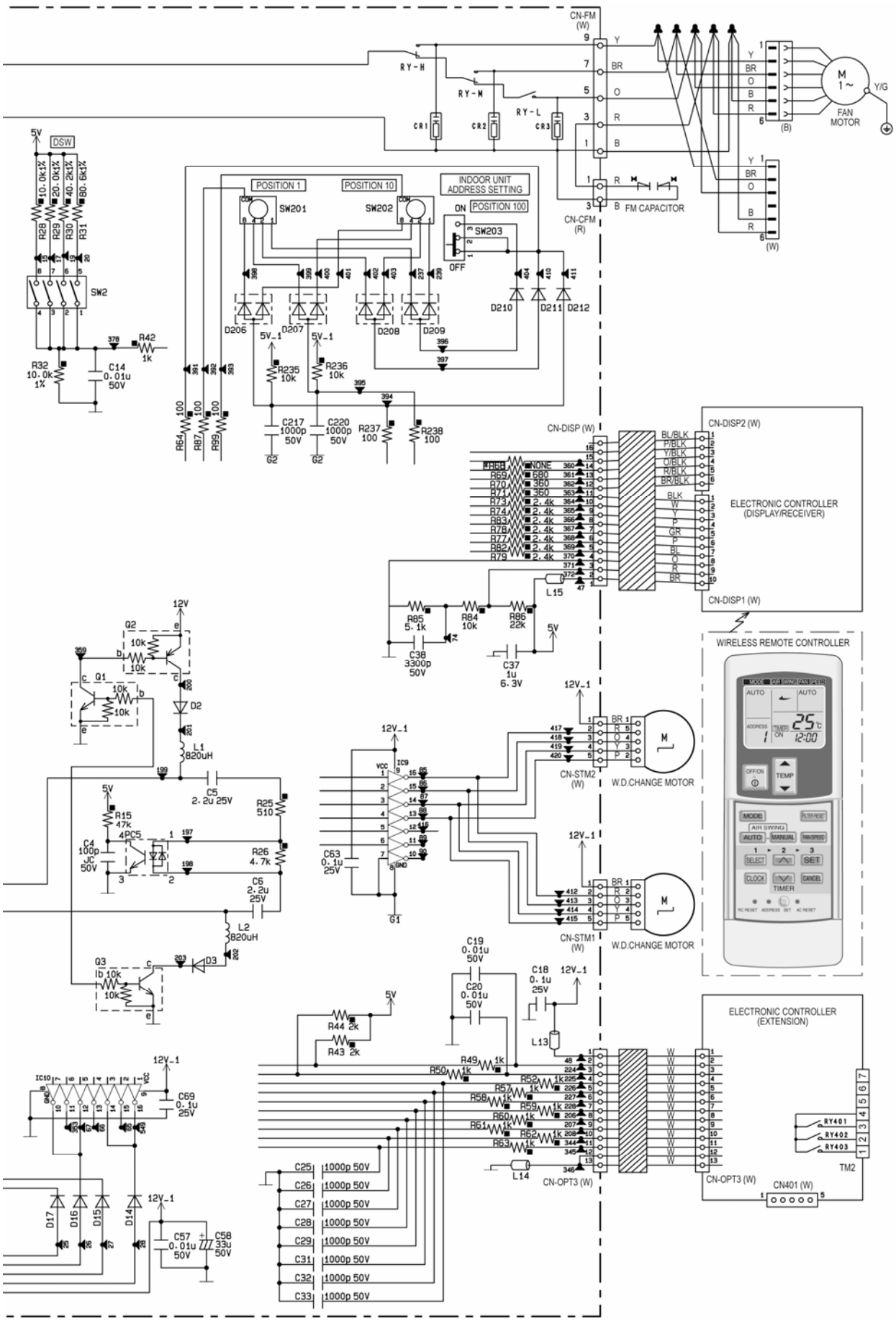
8.4 Slim Hide Away Type Indoor Unit – NA1E5 Series



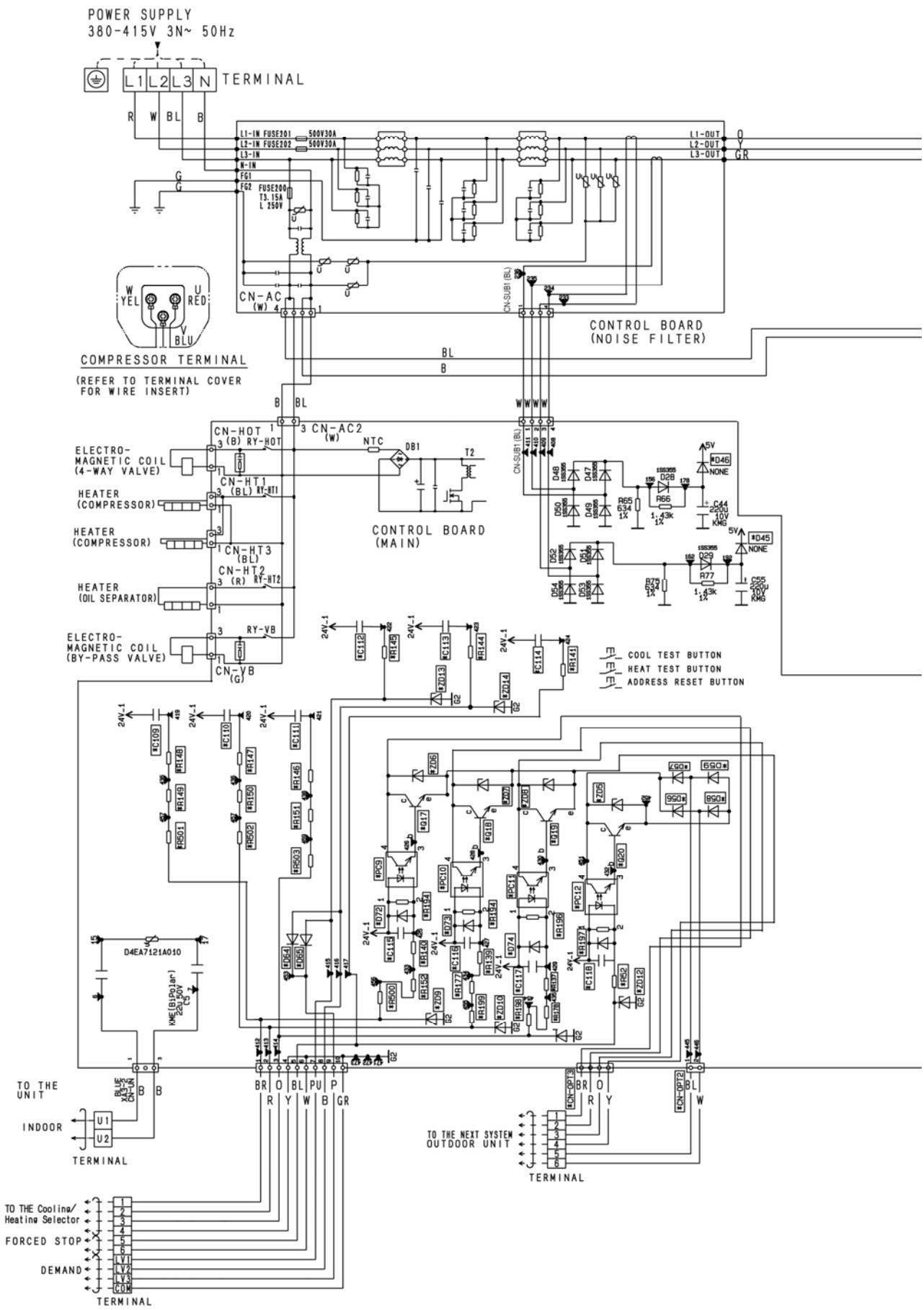

CN-FM (W)
RY-H
RY-M
RY-L
CR1
CR2
CR3
FAN MOTOR
FM CAPACITOR
CN-CFM (R)
DSW
SW2
SW201
SW202
SW203
POSITION 1
POSITION 10
POSITION 100
INDOOR UNIT ADDRESS SETTING
D206
D207
D208
D209
D210
D211
D212
CN-DISP (W)
CN-DISP2 (W)
CN-DISP1 (W)
ELECTRONIC CONTROLLER (DISPLAY/RECEIVER)
WIRELESS REMOTE CONTROLLER
CN-STM2 (W)
CN-STM1 (W)
W.D.CHANGE MOTOR
ELECTRONIC CONTROLLER (EXTENSION)
CN-OPT3 (W)
CN401 (W)
TM2

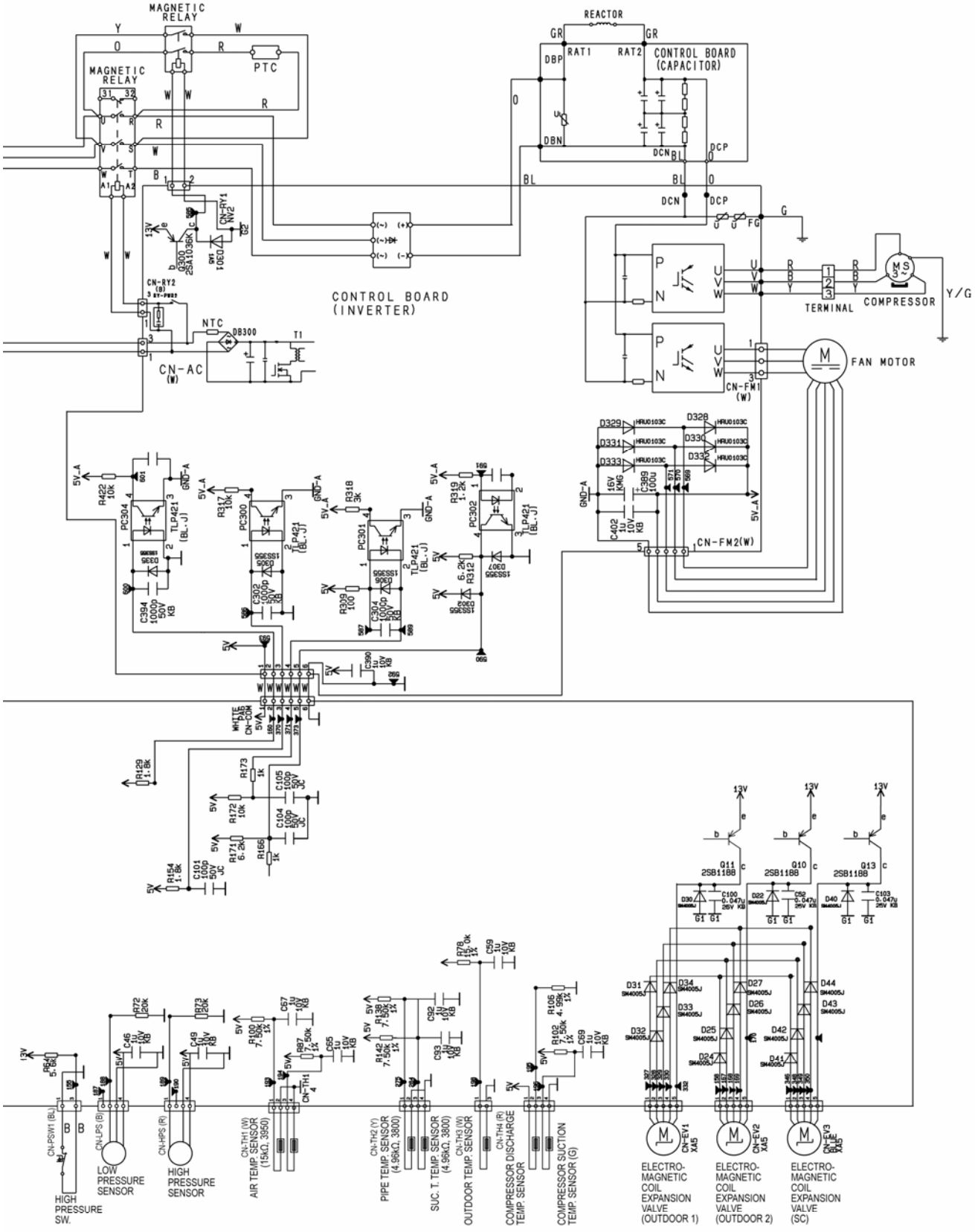
8.5 Low Static Pressure Hide Away Type Indoor Unit – MA1E5 Series




CN-FM (W)
RY-H
RY-M
RY-L
CR1
CR2
CR3
FAN MOTOR
FM CAPACITOR
CN-CFM (R)
DSW
SW2
SW201
SW202
SW203
POSITION 1
POSITION 10
POSITION 100
INDOOR UNIT ADDRESS SETTING
D206
D207
D208
D209
D210
D211
D212
CN-DISP (W)
CN-DISP2 (W)
CN-DISP1 (W)
ELECTRONIC CONTROLLER (DISPLAY/RECEIVER)
WIRELESS REMOTE CONTROLLER
CN-STM2 (W)
CN-STM1 (W)
W.D.CHANGE MOTOR
ELECTRONIC CONTROLLER (EXTENSION)
CN-OPT3 (W)
CN401 (W)
TM2
RY401
RY402
RY403

8.6 Outdoor Unit – EA1E8 Series

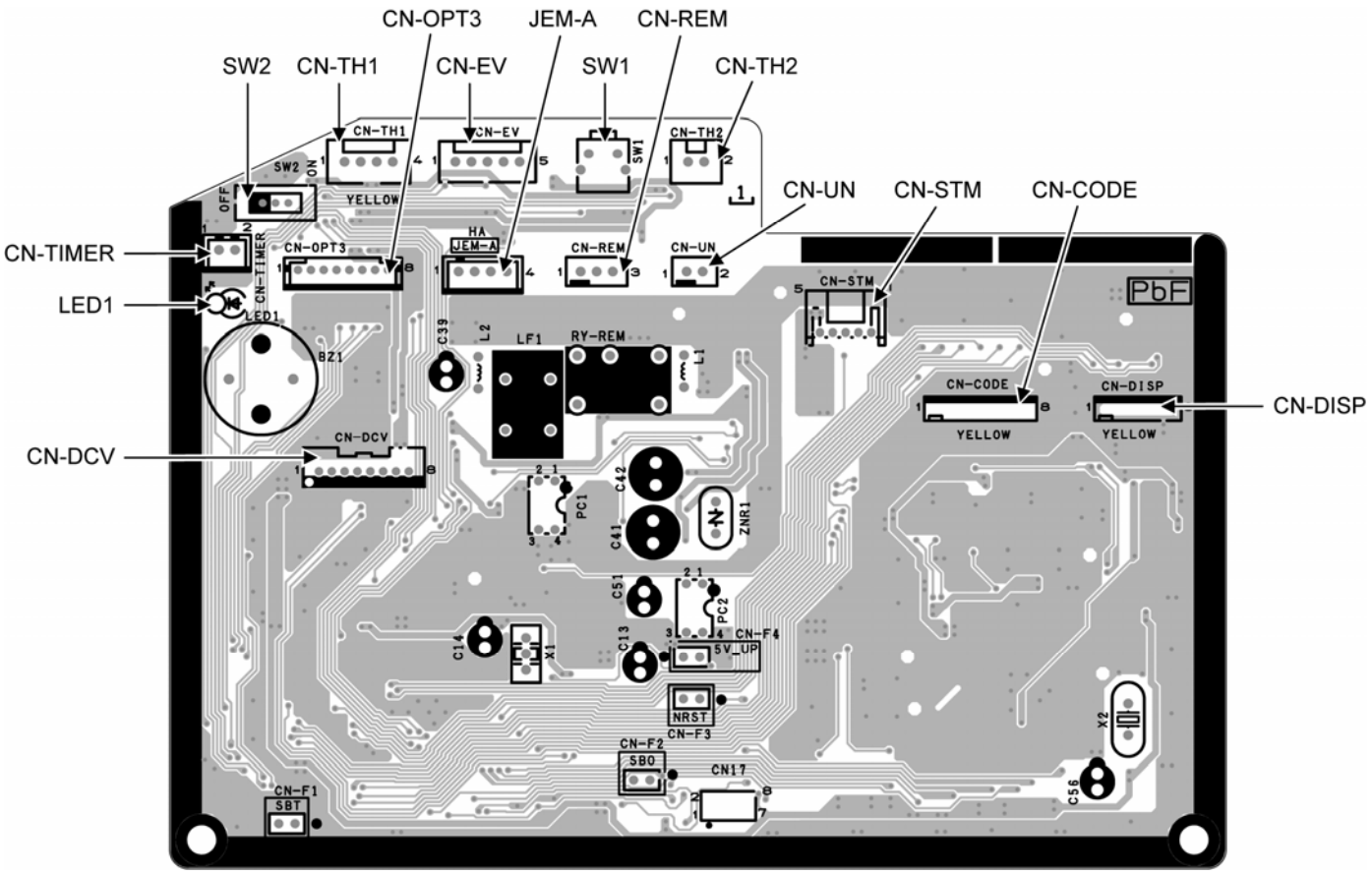



MAGNETIC RELAY
MAGNETIC RELAY
PTC
REACTOR
CONTROL BOARD (CAPACITOR)
CONTROL BOARD (INVERTER)
TERMINAL
COMPRESSOR
FAN MOTOR
CN-AC (W)
CN-FM1 (W)
CN-FM2(W)
NTC
DB300
T1
HIGH PRESSURE SW.
LOW PRESSURE SENSOR
HIGH PRESSURE SENSOR
AIR TEMP. SENSOR (15kΩ, 3950)
PIPE TEMP. SENSOR (4.96kΩ, 3800)
SUC. T. TEMP. SENSOR (4.96kΩ, 3800)
OUTDOOR TEMP. SENSOR
COMPRESSOR DISCHARGE TEMP. SENSOR
COMPRESSOR SUCTION TEMP. SENSOR (G)
ELECTRO-MAGNETIC COIL EXPANSION VALVE (OUTDOOR 1)
ELECTRO-MAGNETIC COIL EXPANSION VALVE (OUTDOOR 2)
ELECTRO-MAGNETIC COIL EXPANSION VALVE (SC)

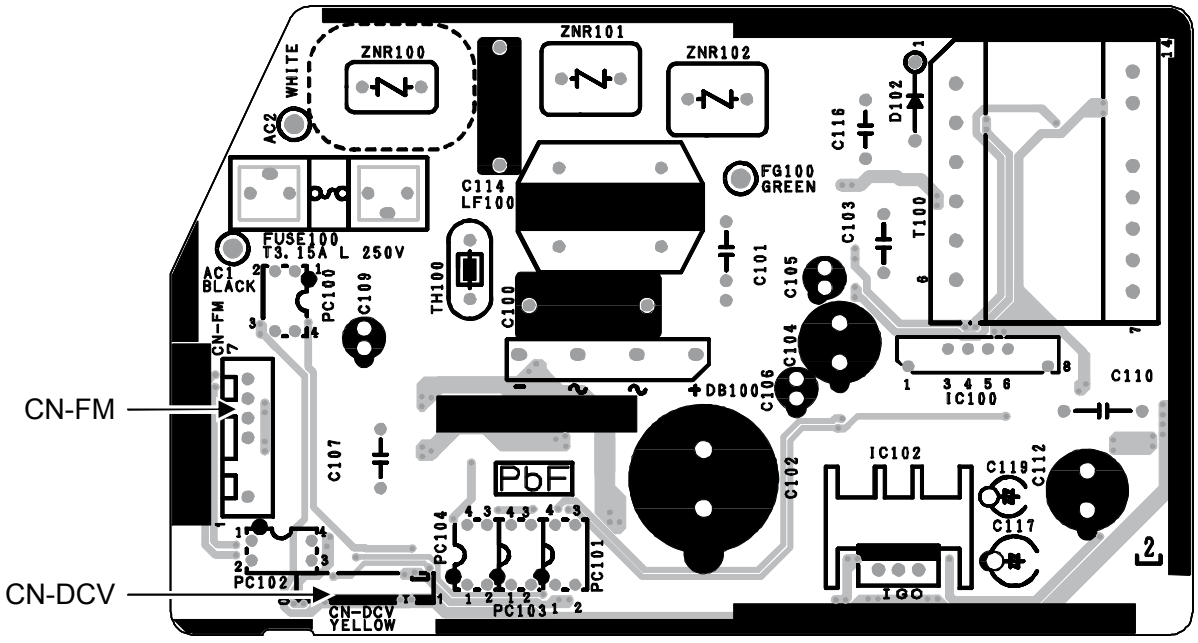
9. Printed Circuit Board

9.1 Wall Mounted Type Indoor Unit – KA1E5 Series

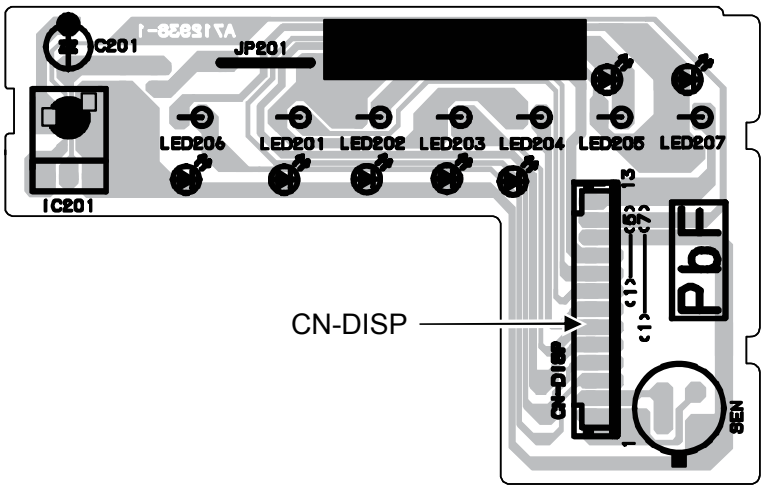
9.1.1 Main PCB



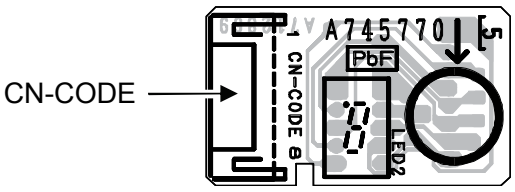
9.1.2 Power PCB



9.1.3 Receiver PCB

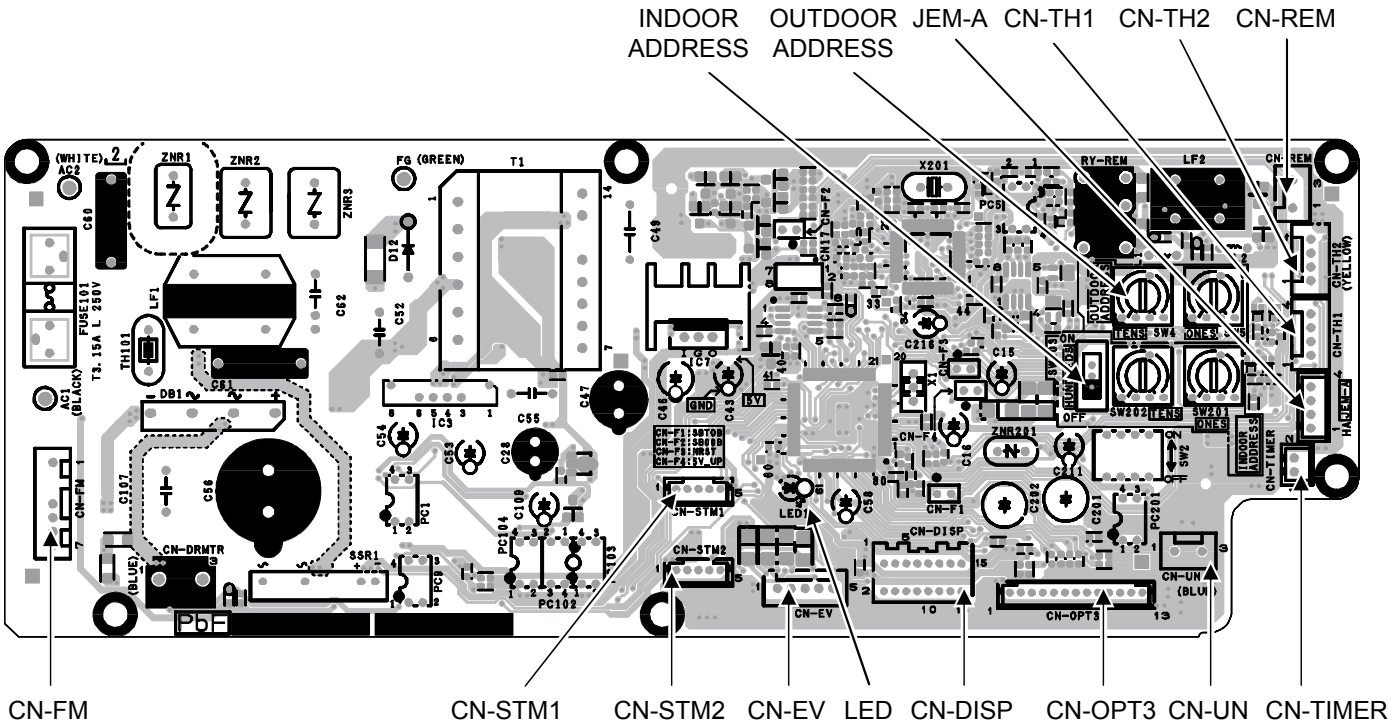


9.1.4 Error Code Display PCB



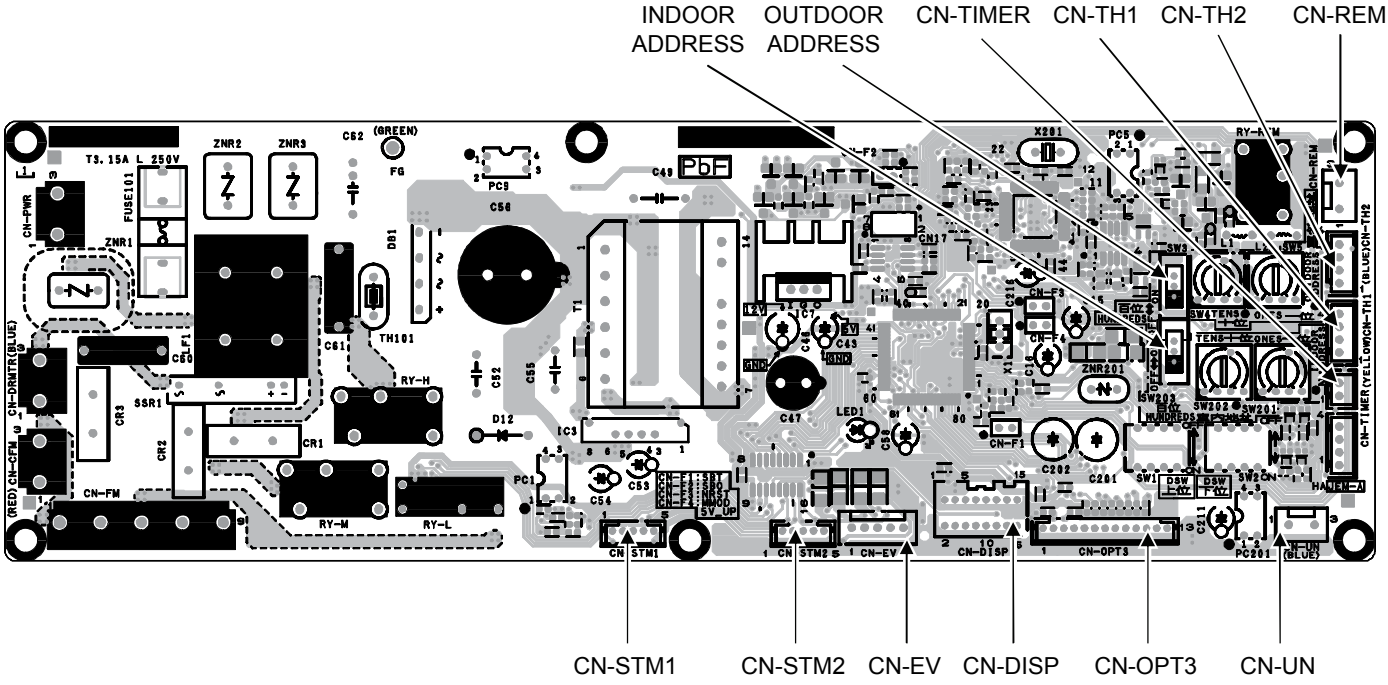
9.2 60 x 60 Cassette Type Indoor Unit – YA1E5 Series

9.2.1 Main PCB



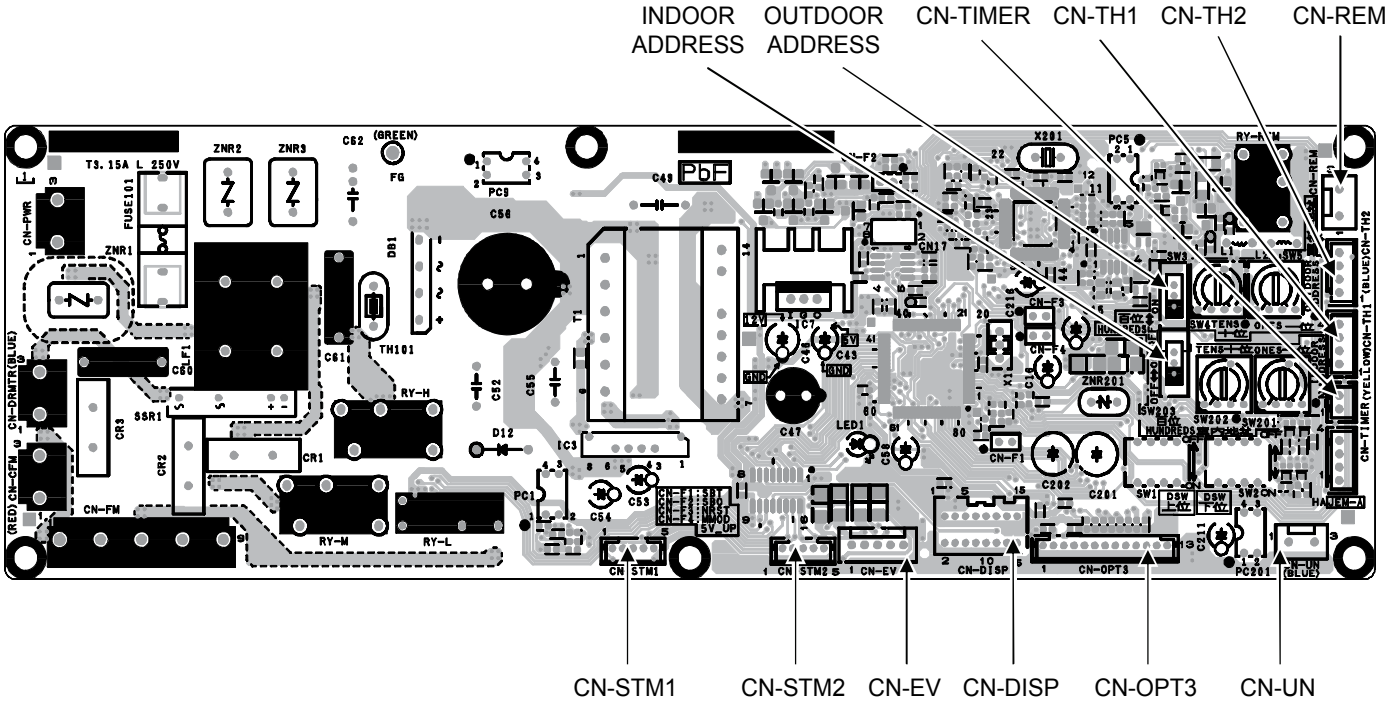
9.3 95 x 95 Cassette Type Indoor Unit – YA1E5 Series

9.3.1 Main PCB



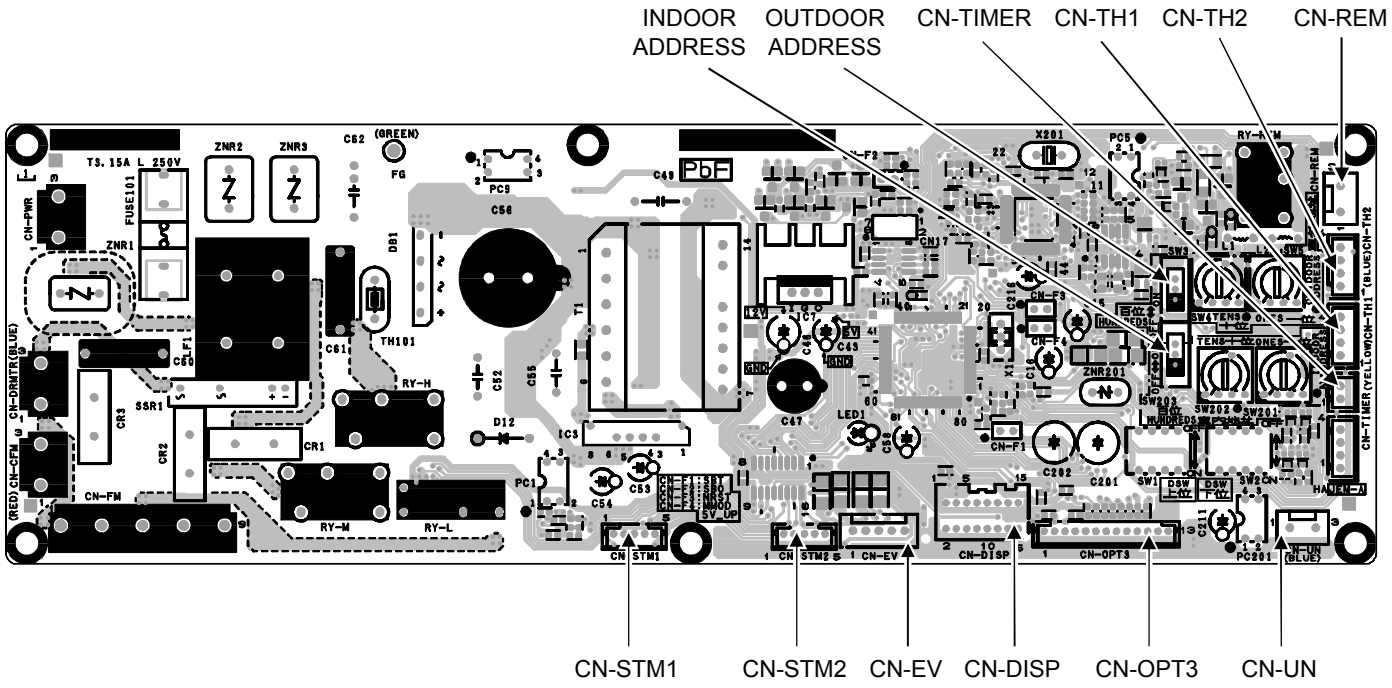
9.4 Slim Hide Away Type Indoor Unit – NA1E5 Series

9.4.1 Main PCB



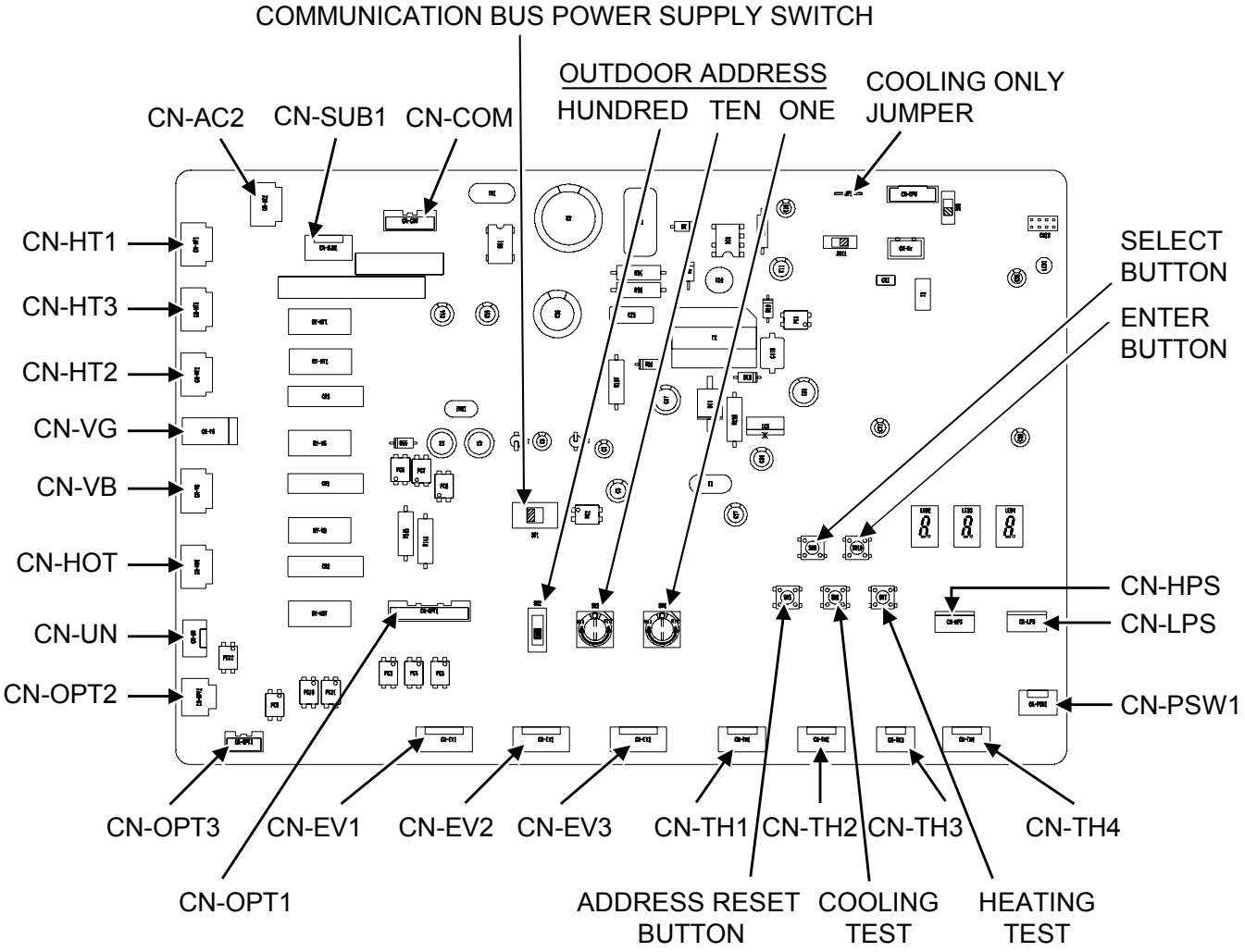
9.5 Low Static Pressure Hide Away Type Indoor Unit – MA1E5 Series

9.5.1 Main PCB

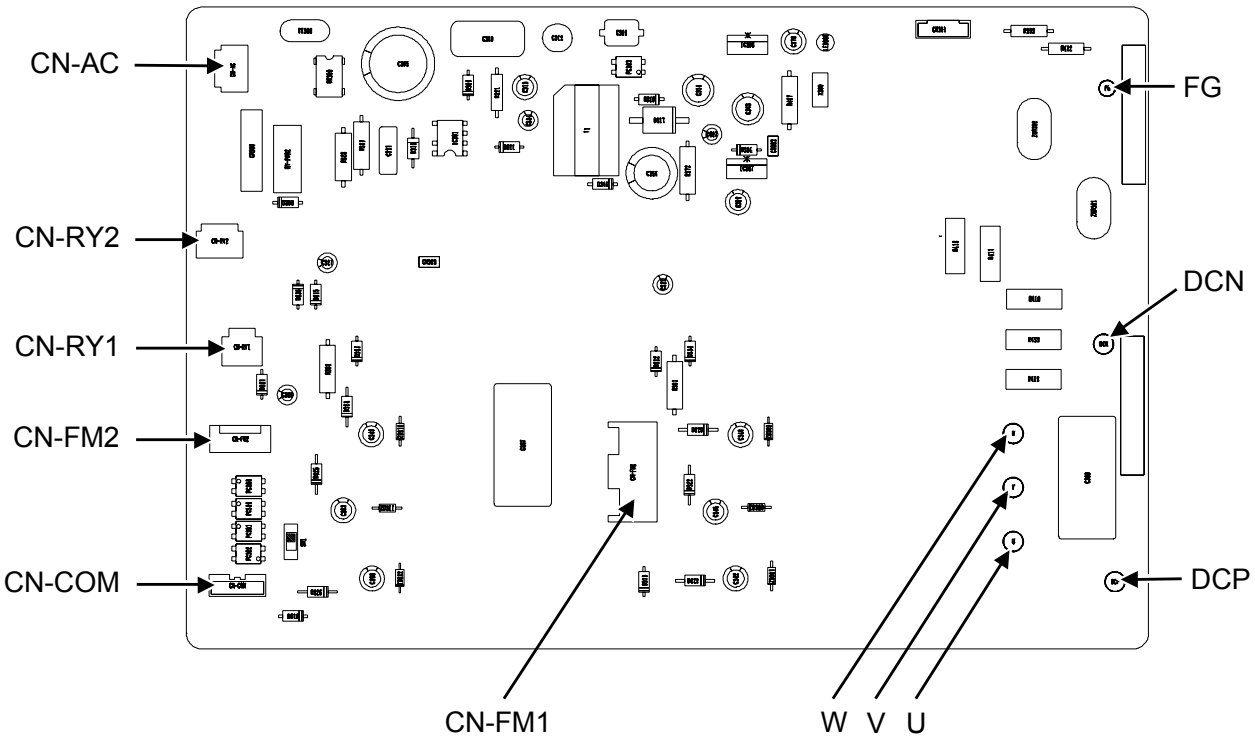


9.6 Outdoor Unit – EA1E8 Series

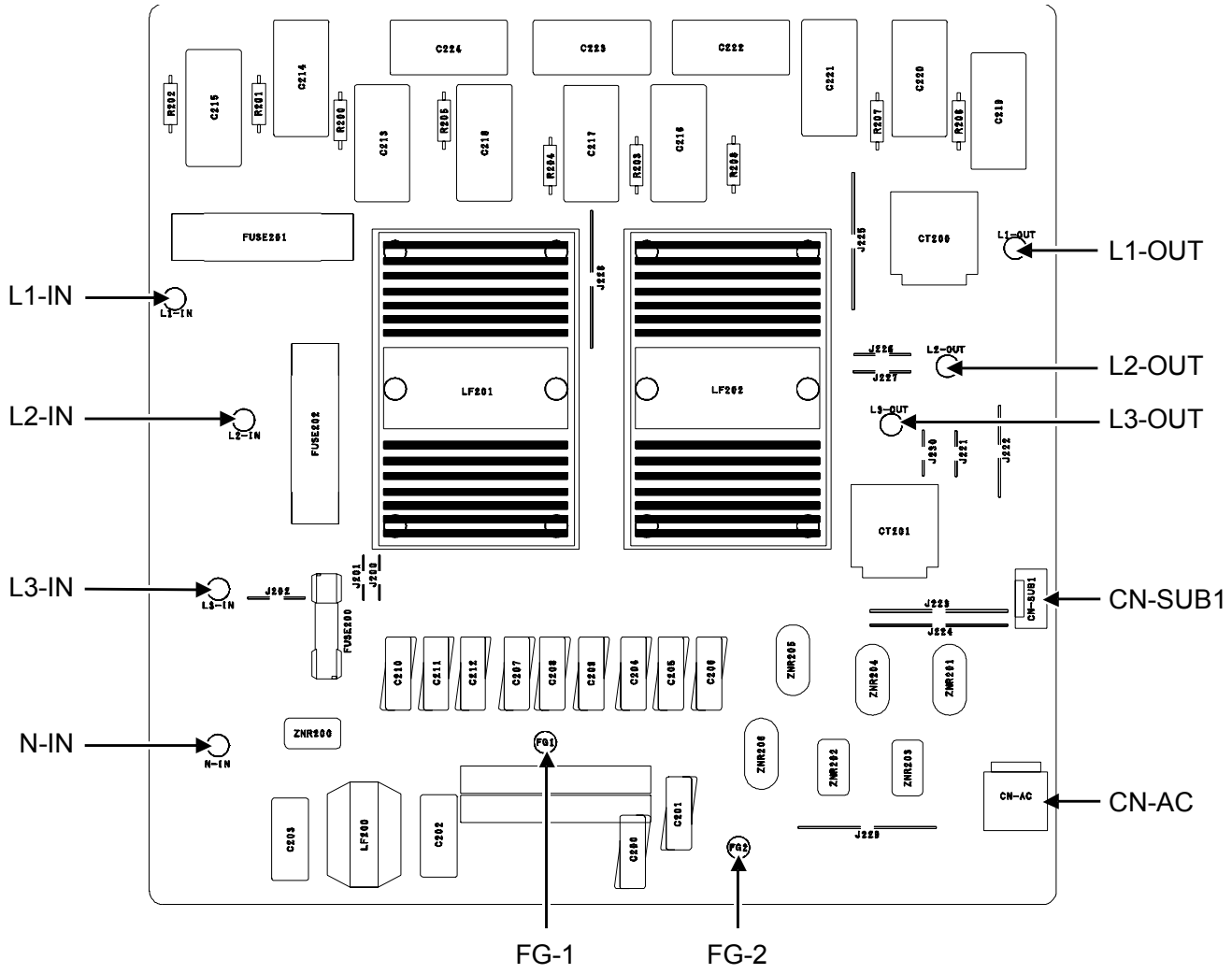
9.6.1 Main PCB



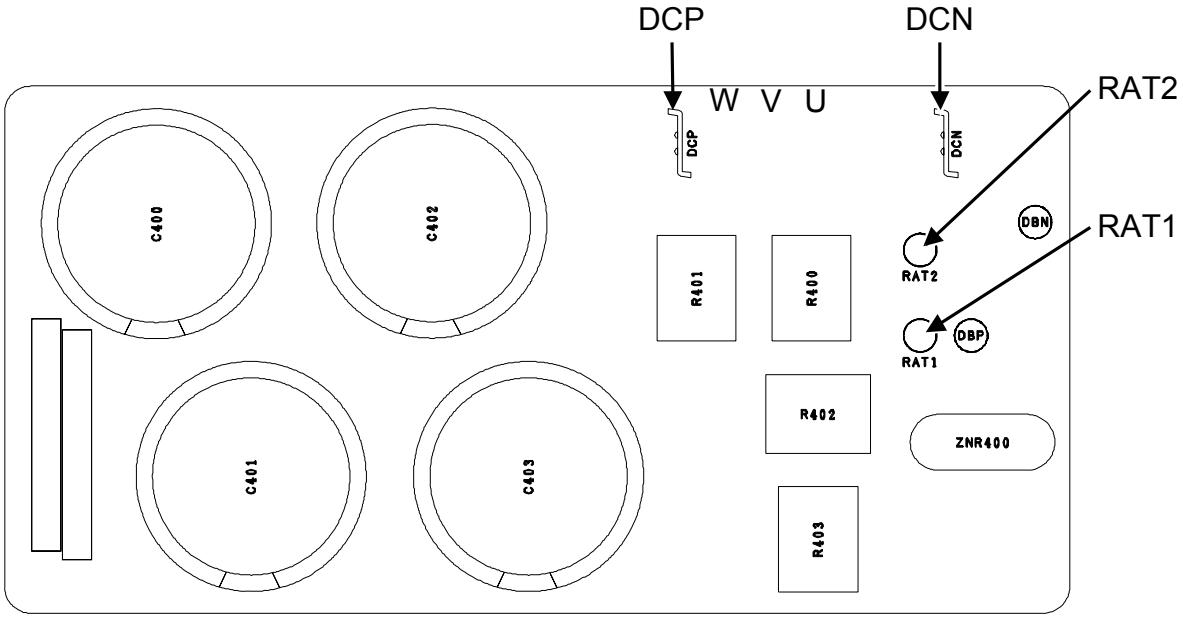
9.6.2 Inverter PCB



9.6.3 Noise Filter PCB



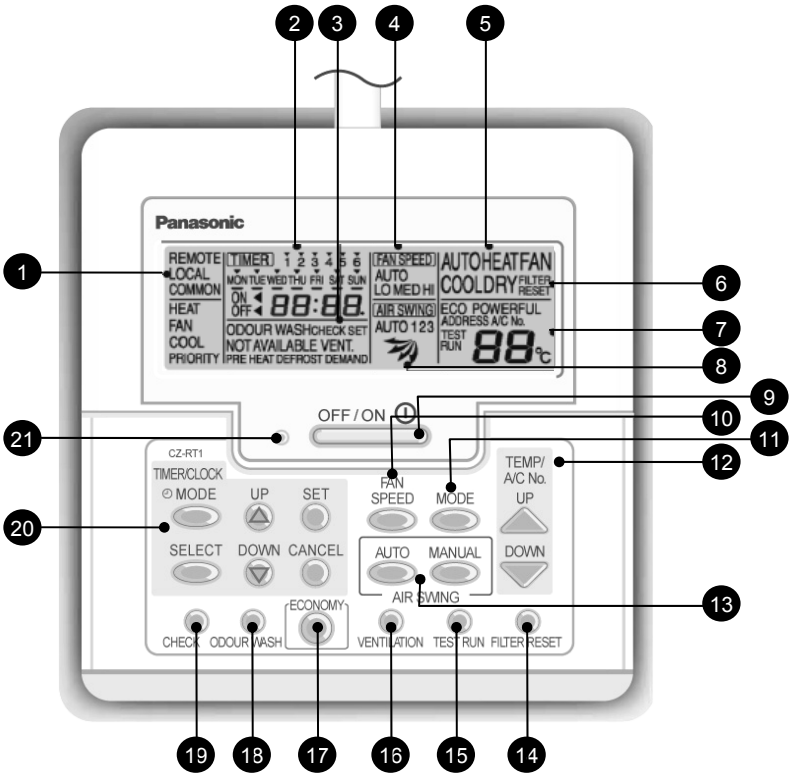
9.6.4 Capacitor PCB



10. Remote Control Operating Instructions

10.1 Wired remote control CZ-RT1

Name and function of each part



1 **REMOTE**
The OFF/ON button cannot be used.
LOCAL
All wired remote control buttons can be used.

2 **Timer/time setting display**

3 **Check display**

4 **Fan Speed display**

5 **Operation mode selection display**

6 **FILTER RESET display**
Appear after the cumulative running time reaches approximately 2,500 hours of operation.

7 **Temperature setting display (16°C – 31°C)**

8 **Airflow direction setting display**

9 **OFF/ON button**
Used to start and stop the operation.

10 **FAN SPEED button**
Used to select the fan speed of HI, MED, LO or AUTO.

11 **MODE button**
Used to select operation mode of AUTO, HEAT, FAN, COOL or DRY.

12 **TEMP (UP/DOWN) button**
Use to select the desired temperature.

13 **AIR SWING (AUTO/MANUAL) button**
Not applicable for Hide Away models.

14 **FILTER RESET button**
Press to reset the “FILTER RESET” display after washing the filter.

15 **TEST RUN button***

16 **VENTILATION button***

17 **ECONOMY button**
Function not available for this model.

18 **ODOUR WASH button**
Function not available for this model.

19 **CHECK button**
Press this button if the check display is flashing.

20 **TIMER/CLOCK SET button**
Use to set the timer operation and the current time.

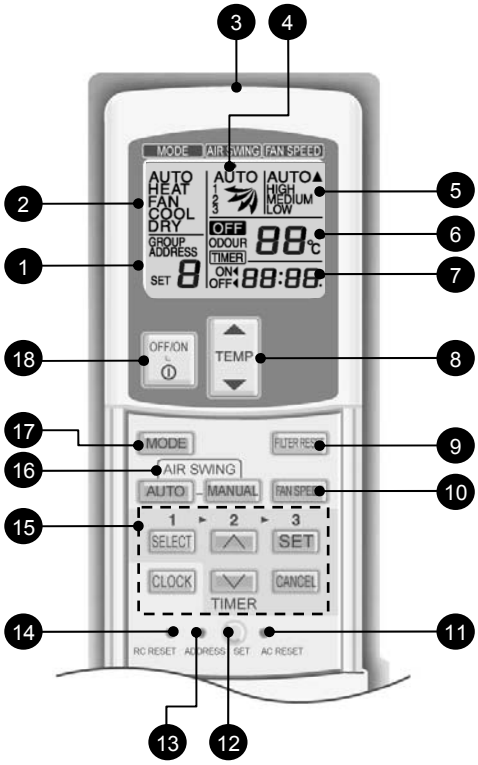
21 **OPERATION Indicator**
Light ON when the unit in operation.

NOTES

- Buttons with * mark are not needed for normal operation. If one of these buttons is pressed by mistake, press the same button once again to cancel the operation.
- When the power resumed after power failure, by default the unit will restart automatically with all previous setting preserved by the memory function under AUTO RESTART function.

10.2 Wireless Remote Control
CZ-RWS1 – Heat Pump models / CZ-RWC1 – Cooling models

Name and Function of each part



1. **Address number display**
2. **Operation mode selection display**
3. **Infrared Transmitter**
   Transmit the remote control signal.
4. **Airflow direction setting display**
5. **Fan speed display**
6. **Temperature setting display (16°C – 31°C)**
7. **Timer/time setting display**
   Show the timer operation setting time or the current time.
8. **TEMP (UP/DOWN) buttons**
   Use to select desired temperature.
9. **FILTER RESET button**
   Press to turn OFF the “FILTER” indicator at the control panel.
10. **FAN SPEED button**
    Use to select the fan speed of HIGH, MEDIUM, LOW and AUTO.
11. **AC RESET button***
    System reset.
12. **SET button**
    Local setting function
13. **ADDRESS button***
    Use to change the address setting of indoor unit.
14. **RC RESET button**
    Use to clear the remote control setting from memory.
15. **TIMER/CLOCK SET buttons**
    Use to set timer operation and current time.
16. **AIR SWING (AUTO/MANUAL) buttons**
    Not applicable for Hide Away models.
17. **MODE button**
    Use to select operation mode of AUTO, HEAT, FAN, COOL or DRY. HEAT mode is not available for CZ-RWC1.
18. **OFF/ON button**
    Use to start or stop the operation

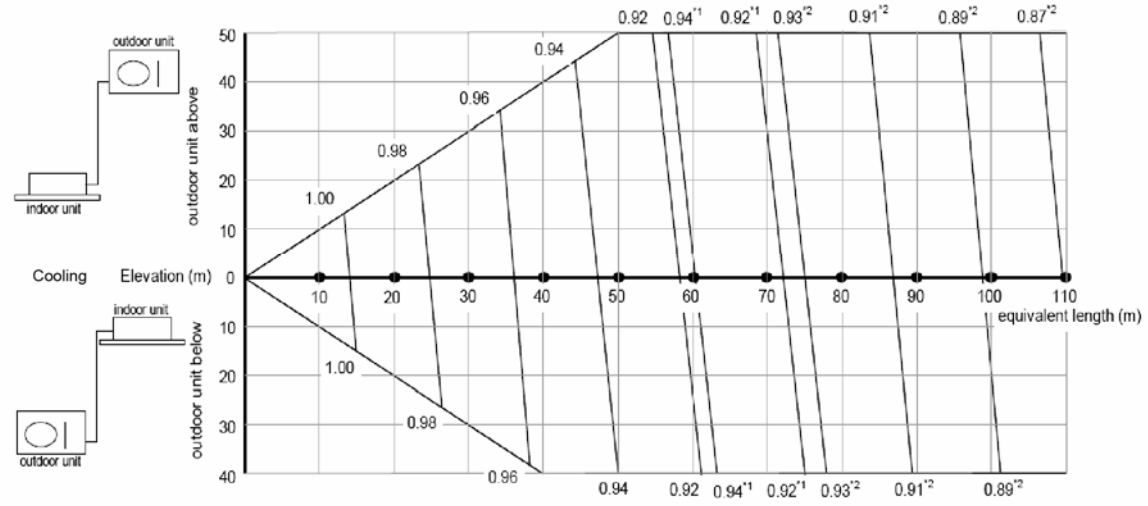
NOTE

- Buttons with * mark are not needed for normal operation. If one of these buttons is pressed by mistake, press the same button once again to cancel the operation.
- When the power resumed after power failure, by default the unit will restart automatically with all previous setting preserved by the memory function under AUTO RESTART function.

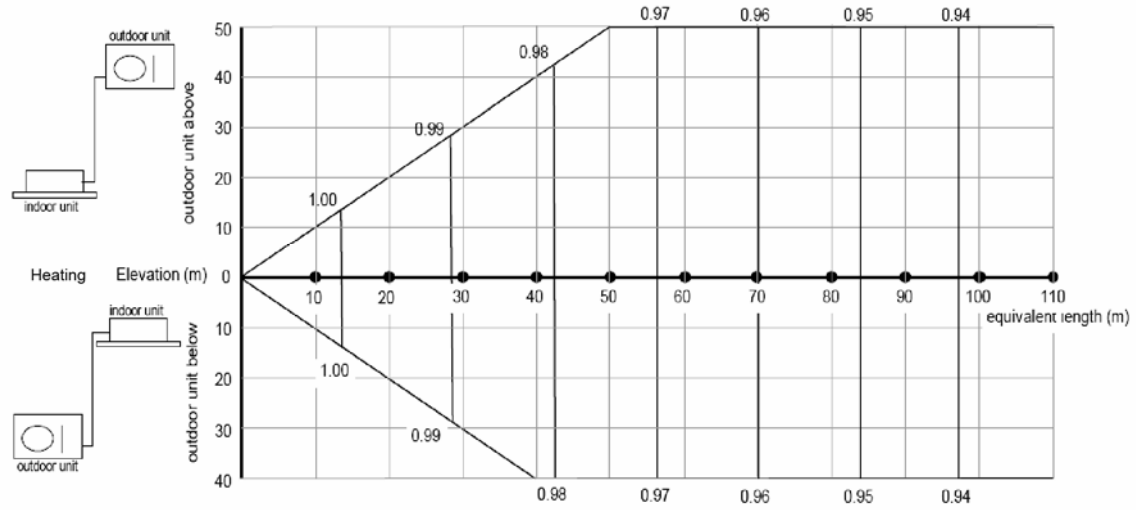
11. Installation Instruction

11.1 CAPACITY CORRECTION CHART

Capacity correction according to the connecting pipe length is shown in the figure below.



*1 In Local Setting Mode, when equivalent pipe length setting is [101] (60 m to 90 m).
*2 In Local Setting Mode, when equivalent pipe length setting is [102] (90 m to 190 m).
Please refer to “Local Setting Mode” in “11.2 Installation Instructions FS Multi Outdoor Unit” for details.



11.1.1 CAPACITY CORRECTION FACTOR CALCULATION METHOD

Calculation of Capacity Equivalent Length:

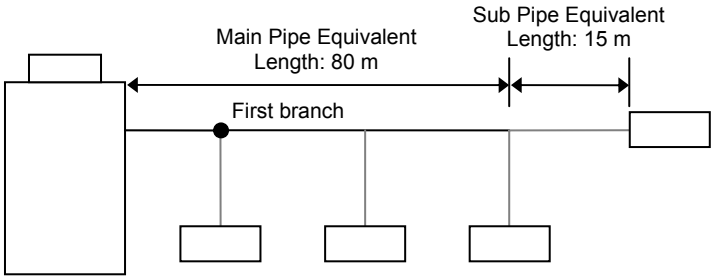
Equivalent Length =	Main Pipe Equivalent Length	x	Correction Factor	+	Sub Pipe Equivalent Length

If the maximum extension equivalent length is over 90m or the main pipe maximum equivalent length is over 60m, the diameter of the pipe between the outdoor unit and the first branch must be size-up in accordance to below table.

When size-up is applied, please include the Correction Factor for Capacity Equivalent Length calculation.

Condition		Equivalent Length	Pipe diameter between outdoor unit and first branch		Correction Factor
			8HP	10HP	
Liquid Pipe	Outdoor unit to furthest indoor unit	≤ 90 m	9.52 mm (3/8”)		-
	Total main pipe length	≤ 60 m			
	Outdoor unit to furthest indoor unit	> 90 m	12.70 mm (1/2”)		0.5
	Total main pipe length	> 60 m			
Gas Pipe	Outdoor unit to furthest indoor unit	≤ 90 m	19.05 mm (3/4”)	22.22 mm (7/8”)	-
	Total main pipe length	≤ 60 m			
	Outdoor unit to furthest indoor unit	> 90 m	22.22 mm (7/8”)	25.40 mm (1”)	0.5
	Total main pipe length	> 60 m			

Example



Equivalent Length = 80 m x 0.5 + 15 m = 55 m

According to result of Equivalent Length, retrieve the capacity correction from the corresponding figure.

11.2 FS MULTI OUTDOOR UNIT

REFRIGERANT
R 410A

HP	MODEL NAME
8 HP	U-8EA1E8
10 HP	U-10EA1E8

Refer to the indoor unit installation instruction manual for the indoor unit installation.

- This product uses refrigerant series R410A with the design pressure of 4.15 MPa.
- Refer to the caution items listed in “Refrigerant installation” for the installation of the refrigerant piping and maintain strict control concerning the prevention of mixing impurities (water and mineral oils such as Suniso oils) with R410A.
- The indoor unit to be connected must be R410A compatible and be sure to check the catalogue, etc. for available models. The product may not operation properly if connected to other indoor units.

Optional parts: For piping installation, branch pipe unit is needed. Make the necessary preparations for the number of indoor units for piping installation to be connected.

Caution: Ensure that the branch pipe unit used is compatible with R410A. Refer to “Refrigerant installation” for the refrigerant piping installation.

Separately sold refrigerant branch pipe unit model number

Line branch pipe	CZ-P280BK1
4-header branch pipe	SPG-HCH280M CZ-P4HPC2
3-header branch pipe	APR-RTP280AGB CZ-P3HPC2

Combination of indoor and outdoor units

Outdoor unit model name	Outdoor unit cooling rated capacity	Total capacity of the indoor units		Number of connectable indoor units	
		Minimum	Maximum	Minimum	Maximum
U-8EA1E8	22.4kW	11.2kW	29.1kW	2 unit	13 unit
U-10EA1E8	28.0kW	14.0kW	36.4kW	2 unit	16 unit

1. Use the above table to combine the number of indoor units with the appropriate capacity which matches the outdoor unit’s cooling capacity rating. Set the combined number of units to comply with the appropriate capacity.
2. Assuming a system where all indoor units are operating at the same time, set the total capacity of the outdoor unit considering external factors that can decrease the cooling capacity rating. Higher total capacities may lead to reduced indoor capacity and overload.

Precautions in terms of safety

Carry out installation work with reliability after thorough reading of this “Precaution in terms of safety”.

- Precautions shown here are differentiated between ⚠ Warnings and ⚠ Cautions. Those that have much chances for leading to significant result such as fatality or serious injury if wrong installation would have been carried out are listed compiling them especially into the column of ⚠ Warnings.
  However, even in the case of items which are listed in the column of ⚠ Cautions, such items also have a chance for leading to significant result depending on the situations.
  In either case, important descriptions regarding the safety are listed, then observe them without fail.
- As to indications with illustration

⚠	This mark means “Caution” or “Warning”.

⏚	This mark means “Earth”.

- After installation work has been completed, do not only make sure that the unit is free from any abnormal condition through the execution of try run but also explain how to use and how to perform maintenance of this unit to the customer according to the instruction manual.
  In addition, request the customer to keep this manual for installation work together with instruction manual.

⚠ Warnings	
▲	The appliance must be installed by technician, who takes into account the requirements given by ISO 5149 or eventual equivalent requirements.
▲	As to installation, request the distributor or vendor to perform it. Imperfection in installation caused by that having been carried out by the customer himself may leads to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability according to this manual for installation work. Imperfection in installation lead to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability on the place that can bear the weight of this unit sufficiently. Insufficient strength leads to injury due to falling of the unit.
▲	Carry out predetermined installation work in preparation for strong wind such as typhoon, earthquake. Imperfection in installation work may lead to accidents arisen from overturn, etc.
▲	The unit must be installed in accordance with applicable national and local regulations. Any electrical work should only be carried out by qualified technician and use exclusive circuits without fail. Presence of insufficient capacity in power circuit or imperfection in execution leads to electric shock, fire, etc.
▲	Wiring shall be connected securely using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.
▲	If installing inside a small room, measures should be taken to prevent refrigerant levels from building up to critical concentrations in the event of a refrigerant leak occurring. Please discuss with the place of purchase for advice on what measures may be necessary to prevent critical concentrations being exceeded. If the refrigerant leaks and reaches critical concentration levels, there is the danger that death from suffocation may result.
▲	Securely attach the protective covers for the outdoor unit connection cables and power cord so that they do not lift up after installation. If the covers are not properly attached and installed, the terminal connections may overheat, and fire or electric shock may result.
▲	Switch off all supplies before accessing any electrical part.
▲	If refrigerant gas escapes during installation, ventilate the affected area. If the refrigerant gas comes into contact with sparks or naked flames, it will cause toxic gases to be generated.
▲	Improper fixing of screw may cause leakage current and electrical shock.
▲	Must not use other parts except original optional parts described in catalog and manual.
▲	Once installation work is completed, check that there are no refrigerant gas in the room that can come into contact with sparks or flames from a fan heater, stove or kitchen range, which will cause toxic gases to be generated.
▲	When performing piping work do not mix air except for specified refrigerant (R410A) in refrigeration cycle. It causes capacity down, and risk of explosion and injury due to high tension inside the refrigerant cycle.
▲	Earth This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, lightning rod and telephone. Otherwise, it may cause electrical shock in case the equipment breakdown or has leakage current.
▲	Installation of Earth Leakage Current Breaker This equipment must be installed with earth leakage current breaker. Otherwise, it may cause electrical shock and fire in case the equipment breakdown or has leakage current.

⚠ Cautions	
▲	Do not install the unit at the place where the possibility of inflammable gas leakage exists. If such gas leakages should arise and the gas builds up around the unit, such situation may lead to ignition.
▲	Drain piping should be made to ensure secure drainage according to the manual for installation work and carry out the thermal insulation to prevent the occurrence of condensation. Imperfection in piping work leads to water leakage and may cause the house and property, etc. to become wet.
▲	Position the indoor unit and outdoor unit, power cords and indoor/ outdoor unit connection cables in a way so that they are at least 1 meter away from televisions and radios. This is to avoid problems such as interference with picture and/or sound. (However, note that depending on the electromagnetic wave conditions, interference may still occur even if the separation distance is more than 1 meter.)
▲	When fixing the product with an overturn prevention wire, care should be taken to choose a place where no one trips over the fixing wire.

⚠ Warning	
	■ For this equipment, pump-down should not be performed. It causes the compressor to break down. ■ During installation, ensure that the refrigerant piping is installed before operating the compressor. (Do not install the refrigerant piping while the compressor is operating with the 2-way valve and 3-way valve opened, as this leads to air intake and an abnormal high pressure in the refrigerant cycle which may cause an explosion and/or injury).

11.2.1 PARTS INCLUDED IN PACKAGE

Please confirm the following parts are bundled in with the outdoor unit.

Part name	Q'ty	Diagram	Application
Different lengths of piping	1		For use with gas pipe line connections (only U-8EA model)
Included assembly instructions	1		This manual
Banding strap	2		For binding electrical wires together
Protective bushing	2		For protecting electrical wires

11.2.2 SELECT THE OUTDOOR UNIT INSTALLATION LOCATION

⚠ **Warning**	Refrigerant gas leakage countermeasures Indoor/outdoor units are filled with a large amount of gas, in the unlikely event a gas leak develops, there is the danger of oxygen deficiency. Please ensure measures are taken for ventilation in accordance with the size of the room.

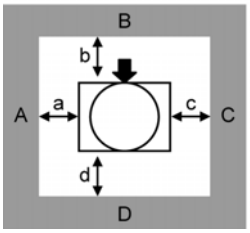
1. Install the unit once you have checked that the installation location matches the following conditions.
   - A location with sufficient ventilation.
   - Use in a ventilated area where hot and cold air won't be a problem.
   - A location where the area around the discharge is not exposed to animals or plants which could adversely affect the release of hot or cool air from the unit.
   - A location where the discharge and operation noise will not be a nuisance to the neighbours.
   - A location that can support the product's weight or vibrations and secured for horizontal installation wherever possible.
   - A location that does not obstruct the air discharge or intake.
   - A location where there is no danger of flammable or corrosive gas leaks.
   - A location that provides space for installation and service.
   - A location that allows the pipe and cable length fixture for internal and external connections.
2. If installing at locations prone to snowfall, install the unit as high as possible with suitable roofing which shelters the unit from snow. Please check the installation of the heavy snow hood once again.
3. Avoid installing the units in location where there are petroleum products (such as machine oil), saline content, sulphurous gas and where high frequency noise is generated.
4. Place the indoor and outdoor unit, power cords and indoor/outdoor unit connection cables at a minimum distance of 1 meter or more away from televisions and radios. This is to avoid interference to picture and/or sound. (However, depending on the electromagnetic waves, noise interference may still occur even with the 1 meter separation.)
5. For restaurants and kitchens, avoid installing at locations which draws oil and steam.
   Plastic parts can deteriorate from droplets of oil and steam or it can cause falling parts or water leakage.
6. Avoid installing at the location where cutting oil mist or iron powder is present.
7. If there is an immense voltage fluctuation due to the location's problem, ensure to split the power supply.
8. Please avoid installation in places where small animals live, places where leaves pile up, or places where thick grass grows. If a small animal, etc. gets inside the units, and the electric parts are touched, there is the potential for malfunction and smoke, etc. and this could cause a fire.
9. When transporting the model, please utilize appropriate lifting equipment.

11.2.3 SELECTING THE LOCATION FOR INSTALLATION SERVICE

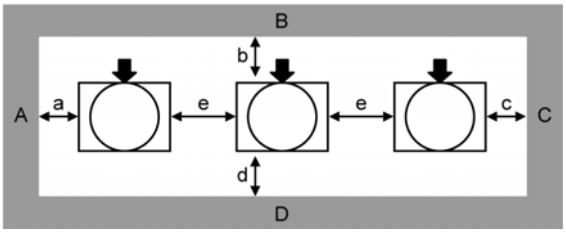
There is the possibility that the space will be occupied by other units, so it is necessary to take up the least amount of space. Leave just enough space that the unit may be accessed / removed.

Maximum wall height when top opened with 4 walls surrounded the outdoor unit.
Wall B = 500 mm
Wall A & Wall C = no limit
Wall D = 1500 mm

SINGLE UNIT INSTALLATION

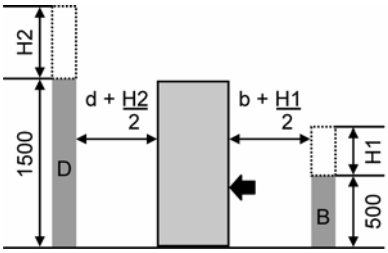


MULTIPLE UNIT INSTALLATION



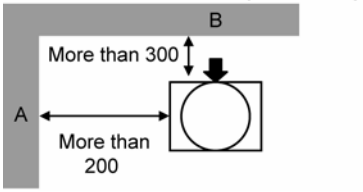
Both side gap minimization	Suction side gap minimization
a & c ≥ 15 mm	a & c ≥ 50 mm
b ≥ 300 mm	b ≥ 100 mm
d ≥ 500 mm	d ≥ 500 mm
e ≥ 20 mm	e ≥ 100 mm

CAUTION
When Wall B and Wall D exceeds the height limits as mentioned, additional gap is required as shown in figure below

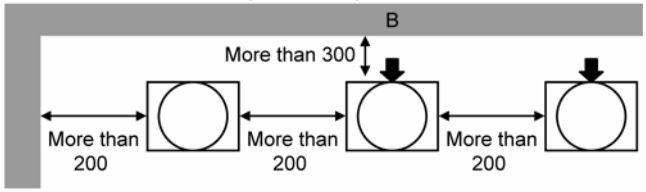


Maximum wall height when top opened with 2 walls surrounded the outdoor unit.
Wall A & Wall B = no limit

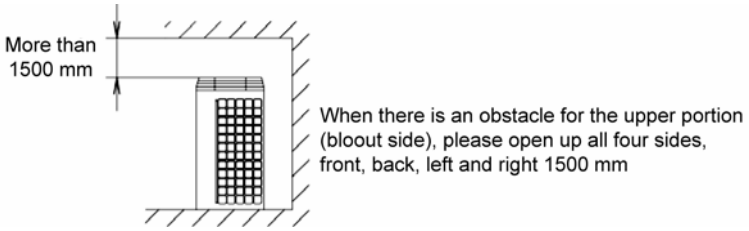
SINGLE UNIT INSTALLATION **(unit: mm)**



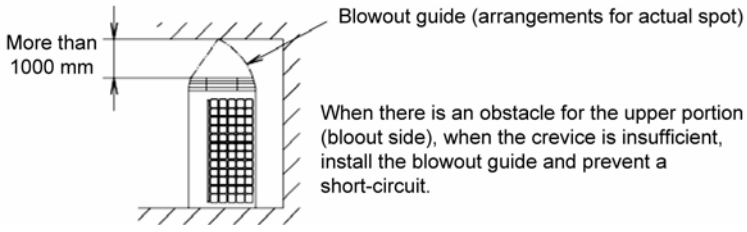
MULTIPLE UNIT INSTALLATION **(unit: mm)**



- When there is an obstacle for the upper portion blowout side)

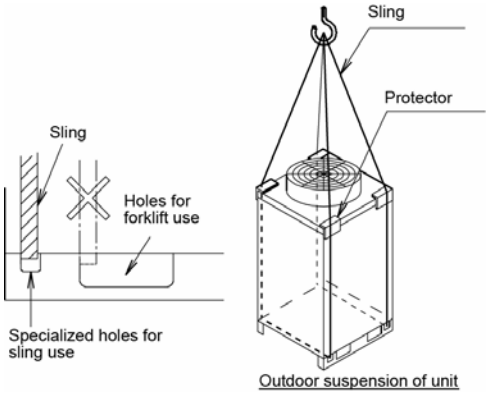


- *When there is an obstacle for the upper portion blowout side), when the crevice is insufficient



11.2.4 TRANSPORTATION OF THE OUTDOOR UNIT

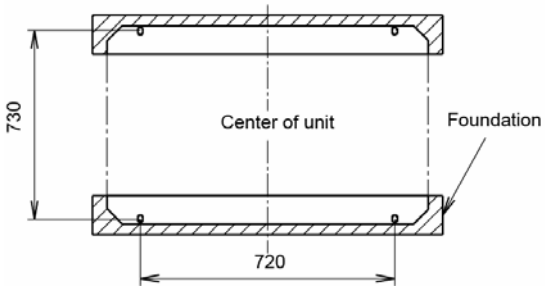
1. When bringing in the main body, please do not drop or overturn the unit.
2. Prior to bringing in the unit, check the unit for stability and protruding edges and then open it, please do this close to the location of installation.
3. For lifting the unit, ensure there is enough strength that the weight can be sufficiently handled, use a cloth sling that won't damage the unit, and of course pass through the lower portion of the specialized rope holes when suspending the unit.
4. When using a sling to suspend the unit and taking care not to damage the unit, please use protector, etc. Of course, please use a specialized sling with holes when lifting the unit.
5. When using a forklift, please pass the fork of the forklift through the forklift holes on the lower portion of the unit.

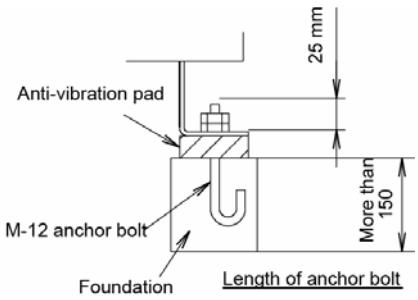


Outdoor suspension of unit

11.2.5 INSTALLATION OF THE OUTDOOR UNIT

1. In order to prevent damage of outside unit due to earthquake/typhoons, please affix bolt as shown below.
2. For the foundation of the outside unit, use concrete or an angle-grade rigid foundation.
3. In accordance with the installation guide, vibrations will be transmitted from the installed portion, causing noise on the walls and ceiling, so there are instances where vibration has occurred.
4. Please use a foundation with a height of at least 150 mm.
5. Please confirm the unit is secured with anchor bolt, metal washer, and nut.
6. Please ensure anchor bolt protrudes 25 mm.





7. During of heating operation and defrosting, drain water is expelled. Please install in an area with good drainage or install a drain gutter. Please take steps to ensure the wall facing the unit is protected against drained water.

11.2.6 REFRIGERANT PIPING INSTALLATION

For indoor unit refrigerant piping installation, refer to the installation instruction manual that comes with that indoor unit.

Do not reuse existing piping, install new piping.

- Interior and exterior surfaces of the pipes should be kept free of: sulfur from overuse, acidic grime, oily gunk, moisture, etc.
- For refrigerant pipes, please use the following materials:
  Materials: phosphor deoxidized seamless copperless pipes (outer diameter less than Ø15.88 C1220T-0, greater than Ø19.05 C1220T- 1/2H).

Pipe diameter	ø6.35	ø9.52	ø12.7	ø15.88	ø19.05	ø22.22	ø25.4
Minimum thickness	0.8	0.8	0.8	1.0	1.0	1.0	1.0
Material	C1220T-0				C1220T-1/2H		

*For ø19.05, if a thickness of greater than 2mm, use of C1220T-0 is possible.

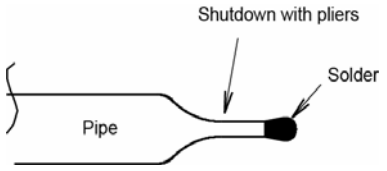
- For 8HP (CU-8EA***) gas suction side panel, use Ø19.05.
  When connecting, utilize included sockets when assembling refrigerant pipes.

11.2.6.1 Regarding pipe assembly

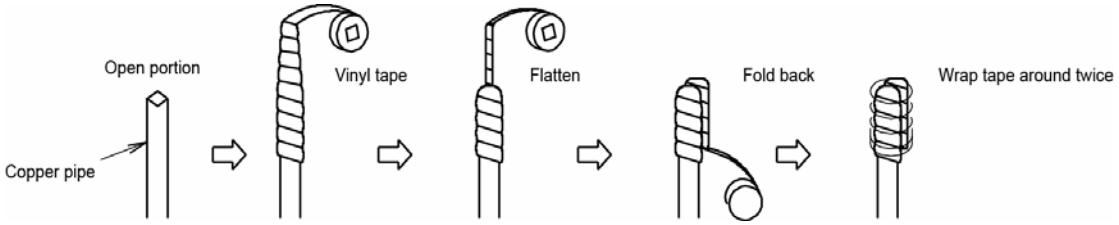
1. Protective coverings for refrigerant pipes
   For protective coverings for refrigerant pipes, preventing drain water, grime, dust, etc. from getting inside is an extraordinarily important operation.
   It is important for the leading edge of the pipe to be completely clean, and the essential points are outlined below.

Place	Terms of condition	Cleaning method
Outside	More than 1month	pinching
	More than 1 month	pinching and taping
Inside	regardless	

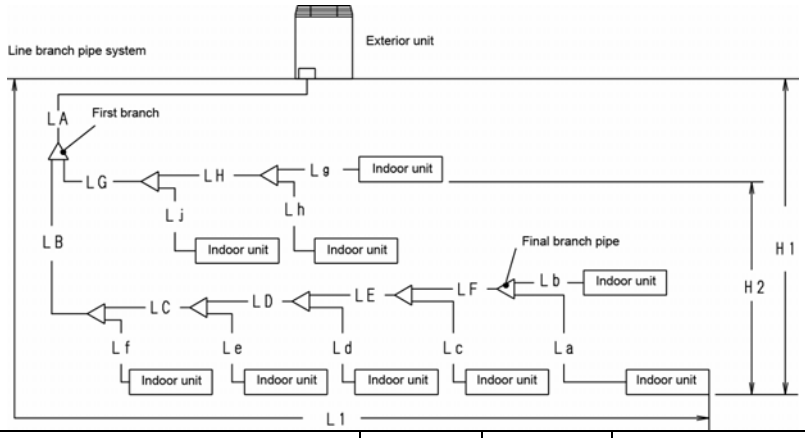
- Pinch method
  Close leading edge of the pipe with pliers,seal cracks by soldering.



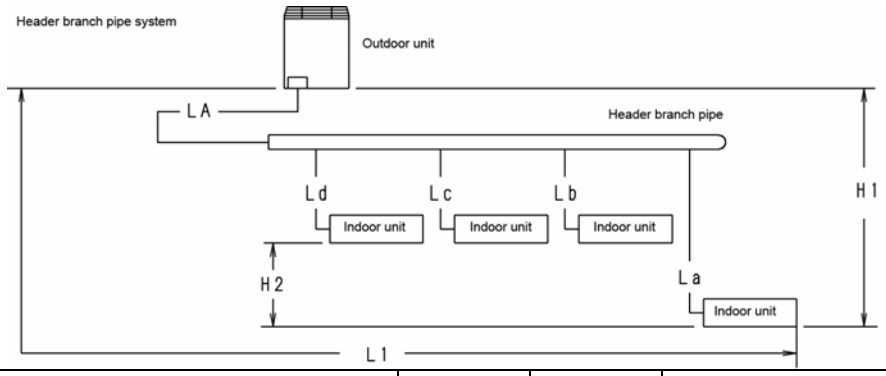
- Taping method: wrap vinyl tape around leading edge.



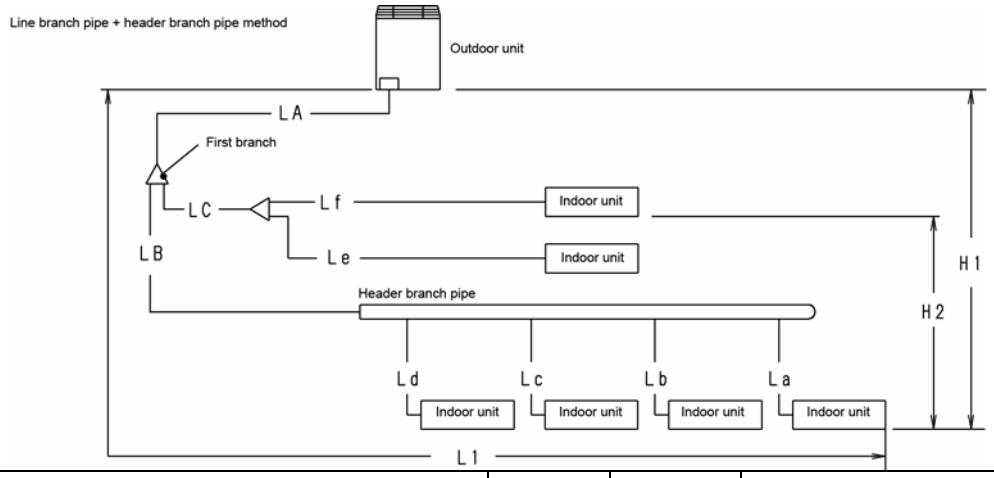
11.2.6.2 Allowable piping length



				8HP	10HP	Example of piping connection
Allowable height difference	Height difference between indoor and outdoor units	Outdoor unit top	Actual length	Less than 50 m	Less than 50 m	H1
		Outdoor unit bottom	Actual length	Less than 40 m	Less than 40 m	
	Height difference between indoor units		Actual length	Less than 15 m	Less than 15 m	H2
Allowable piping length	Total extension		Actual length	Less than 300 m	Less than 300 m	LA + LB + LC + LD + LE + LF + LG + LH + La + Lb + Lc + Ld + Le + Lf + Lg + Lh + Lj
	Maximum extension *1		Actual length	Less than 165 m	Less than 165 m	L1 (LA + LB + LC + LD + LE + LF + LG + LH + La)
			Equivalent length	Less than 190 m	Less than 190 m	
	Main pipe maximum length *2		Equivalent length	Less than 135 m	Less than 135 m	LA + LB + LC + LD + LE + LF + LG + LH
	First branch pipe ~ most distant indoor unit		Equivalent length	Less than 40 m	Less than 40 m	LB + LC + LD + LE + LF + La
	Maximum indoor unit connection pipe length *3		Actual length	Less than 30 m	Less than 30 m	La, Lb, Lc, Ld, Le, Lf, Lg, Lh, Lj, L branch pipe inside maximum length



				8HP	10HP	Example of piping connection
Allowable height difference	Height difference between indoor and outdoor units	Outdoor unit top	Actual length	Less than 50 m	Less than 50 m	H1
		Outdoor unit bottom	Actual length	Less than 40 m	Less than 40 m	
	Height difference between indoor units		Actual length	Less than 15 m	Less than 15 m	H2
Allowable piping length	Total extension		Actual length	Less than 300 m	Less than 300 m	LA + La + Lb + Lc + Ld
	Maximum extension *1		Actual length	Less than 165 m	Less than 165 m	L1 (LA + La)
			Equivalent length	Less than 190 m	Less than 190 m	
	First branch pipe ~ most distant indoor unit *2		Equivalent length	Less than 135 m	Less than 135 m	L1 (LA + La)
	Maximum indoor unit connection pipe length *3		Actual length	Less than 30 m	Less than 30 m	La, Lb, Lc, Ld, L branch pipe inside maximum length



				8HP	10HP	Example of piping connection
Allowable height difference	Height difference between indoor and outdoor units	Outdoor unit top	Actual length	Less than 50 m	Less than 50 m	H1
		Outdoor unit bottom	Actual length	Less than 40 m	Less than 40 m	
	Height difference between indoor units		Actual length	Less than 15 m	Less than 15 m	H2
Allowable piping length	Total extension		Actual length	Less than 300 m	Less than 300 m	LA + LB + LC + La + Lb + Lc + Ld + Le + Lf
	Maximum extension *1		Actual length	Less than 165 m	Less than 165 m	L1 (LA + LB + La)
			Equivalent length	Less than 190 m	Less than 190 m	
	Main pipe maximum length *2		Equivalent length	Less than 135 m	Less than 135 m	LA + LB
	First branch pipe ~ most distant indoor unit		Equivalent length	Less than 40 m	Less than 40 m	LB + La
	Maximum indoor unit connection pipe length *3		Actual length	Less than 30 m	Less than 30 m	La, Lb, Lc, Ld, Le, Lf, L branch pipe inside maximum length

*1, *2 If the maximum extension equivalent length is over 90 m or the main pipe maximum equivalent length is over 60 m, the diameter of the pipe between the outdoor unit and the first branch must be ranked up in accordance with the below table.

*3 The maximum length of the indoor unit connection pipe depends on the indoor unit capacity.
(Please refer to the table below.)

Indoor unit capacity	Max. indoor unit connection pipe length
Less than 6.3 kW	15 m
More than 7.1 kW	30 m

				Pipe diameter between outdoor unit and first branch	
				8HP	10HP
Equivalent length	Maximum extension	Less than 90 m	Liquid pipe	Ø9.52	Ø9.52
			Gas pipe	Ø19.05	Ø22.22
		More than 90 m and less than 190 m	Liquid pipe	Ø12.7	Ø12.7
			Gas pipe	Ø22.22	Ø25.4
	Main pipe maximum length	Less than 60 M	Liquid pipe	Ø9.52	Ø9.52
			Gas pipe	Ø19.05	Ø22.22
		More than 60 m and less than 135 m	Liquid pipe	Ø12.7	Ø12.7
			Gas pipe	Ø22.22	Ø25.4

Equivalent lengths of elbows and branches

	ø6.35	ø9.52	ø12.7	ø15.88	ø19.05	ø22.22	ø25.4
Elbow	0.16 m	0.18 m	0.20 m	0.25 m	0.35 m	0.40 m	0.45 m
Branch pipe	0.50 m						

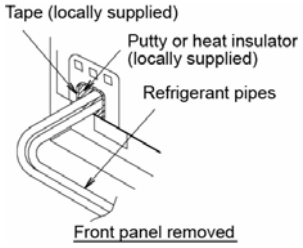
Pipe size between branches

After-branch interior unit total capacity		More than 16.0 kW	More than 16.0 kW Less than 2.0 kW	More than 22.4 kW
Pipe diameter	Liquid pipe	ø9.52	ø9.52	ø9.52
	Gas side	ø15.88	ø19.05	ø22.22

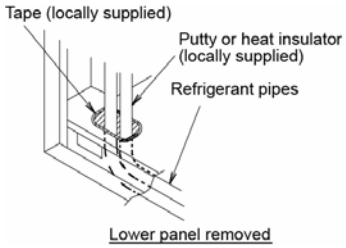
Caution

1. The pipe size between branches should not exceed the diameter of the pipe between outdoor unit and first branch.
2. After the header branch, don't implement another header branch.
3. After the header branch, don't implement another line branch.

11.2.6.3 Precautions during refrigerant installation



- Use clean pipes with no dust inside.
  The pipe may corrode with the presence of fluorine dust which will adversely affect the refrigerant piping system due to deterioration of the refrigerant oil, etc.
- This unit is specifically for R410A. Ensure to adhere to the following items and install accordingly:
  - Use pipe cutters and fl aring tools which are specially designed for use with R410A.
  - When connecting with flaring tools, coat the flare section with ether-based oil.
  - Ensure to use the fl are nuts supplied with the unit when connecting this unit.
  - When storing pipes on the site pinch and tape the pipes to prevent foreign materials, dust and water from getting into it.
- The connecting pipes can be routed through the front or the bottom of the outdoor unit casing:
- Make holes in the pipe panel for the pipes to penetrate it and lay the pipes accordingly.
  - It is recommended that after removing partition, remove flashing and apply anti-rust paint to the edge portions and surrounding edge areas. It is recommended to apply additional substance to the cut area for anti-rust protection.
- Close the gap at the pipe connected area with putty or heat insulator (locally supplied).
  - If an insect or small animal enters the outdoor unit, there is the risk of shorting in the product electronic casing.
- Apply tape (procured locally) to the gap around the removed pipe to ensure preservation.



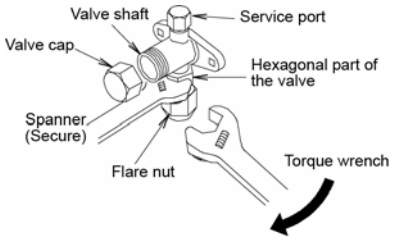
Additional refrigerant charge

This system required additional refrigerant charge for any pipe length.
Additional amount of refrigerant per 1 m pipe length

Liquid pipe diameter	Addition amount of refrigerant [g/m]
Ø6.35	26
Ø9.52	56
Ø12.7	128
Maximum additional amount of refrigerant	24 kg

* Please do not add refrigerant in excess of the maximum additional amount of refrigerant. This is a cause of compression failure.

Caution for handling liquid-side 3-way valve

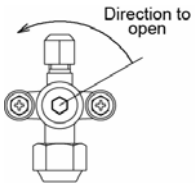


- Do not open the 3-way valve until the piping installation is completed. (Shipping closed)
- During installation the side panel may warp if only the flare nut is loosened and tightened with a torque wrench. As a result, always be sure to secure to the hexagonal part of the 3-way valve with a spanner, or other tool.
  • If the nuts are over tightened, they may cause the fl ares to break or leak.
- Do not add additional force to the valve's cover.
  • Using spanners on the cover or valve itself (other than the hexagonal parts) may cause gas leakage.

Avoid using spanners on the cover or parts other than the hexagonal part of the valve.

[3-way valve operation method]

• Use an Allen wrench (Size 4 mm or 6 mm).
Opening : Open the cover and turn the Allen wrench counter-clockwise until it stops.
Opening : Open the cover and turn the Allen wrench clockwise until it stops.



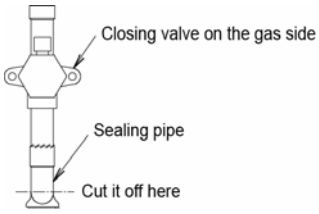
Caution for handling gas-side 3-way valve

- Do not open the three-way valve until air purge is completed. (closed at shipping)

[How to remove the sealing pipes]

When connecting the refrigerant pipe to the outdoor unit, remove the sealing pipe by performing the following steps:

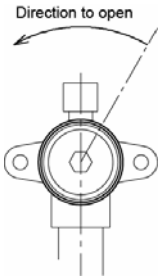
Step 1. Make sure that the closing valve is closed.
Step 2. Connect the charge hose to the service port to release gas in the sealing pipe if any.
Step 3. Cut off the sealing pipe at its edge and make sure that the remaining gas is completely
Step 4. Remove the sealing pipe by using the burner.



Remove the sealing pipe by using the burner after completely discharging the collected oil and gas.
If the burner is used with the collected oil and gas remained inside, the oil can be ignited or the pipe be blown up, which could cause injuries.

[3-way valve operation method]

• Use an Allen wrench (Size 8 mm)
Opening : Open the cover and turn the Allen wrench counter-clockwise until it stops.
Opening : Open the cover and turn the Allen wrench clockwise until it stops.



11.3 Cooling/Heating Selector CZ-RD1 Installation Instructions

- This module is used for cooling, heating and fanning operation settings.

▪ Before installing the Cooling/Heating Selector, be sure to thoroughly read the “Precautions in terms of safety” section in the installation instructions.

Precautions in terms of safety	Always Observe Safety Precautions	All important descriptions regarding safety are listed here, and always observe them without fail.

▪ An explanation for the following safety marks/symbols is provided and indicates the level of harm or damage incurred from improper installation or disregarding the safety precautions.

 Warning	This warning mark indicates that “There exists a possibility the serious injury or death may result”.
 Caution	This cautionary mark indicates that “There only exists a possibility that injury or damage to property may result”.

▪ An explanation for the following safety symbols is provided and describes the type of precautions that are required.

	This symbol indicates something that is PROHIBITED.
	This symbol indicates something that is REQUIRED.

After installing the Cooling/Heating Selector, check that the module functions properly and also explain the operation and cleaning procedures to the customer according to the instruction manual. Furthermore, ask the customer to keep this installation instructions and the instruction manual in a safe place for later reference.

 Warning

- Ask the vendor or a qualified technician to perform the installation.
  A faulty installation carried out by the customer may lead to electric shock or fire.
- Be sure to carry out proper installation according to the installation instructions.
  A faulty installation may lead to electric shock or fire.
- The unit must be installed in accordance with applicable national and local regulations. Any electrical work should only be carried out by qualified technician and use exclusive circuits without fail.
  Presence of insufficient capacity in power circuit or imperfection in execution leads to electric shock, fire, etc.
- Be sure to always use the parts accessories or the specified parts for the connection and installation.
  Failure to do so may lead to electric shock or fire.
- Connect all wiring and cables securely with the specified cables or wires so that external force from the cables does not transfer to the terminal connection section. An insecure or faulty connection may lead to unit failure, excessive heat, or fire.
- Be sure to always turn the power off before proceeding with wire and cable set up.
  Failure to do so may lead to electric shock or fire.

 Caution

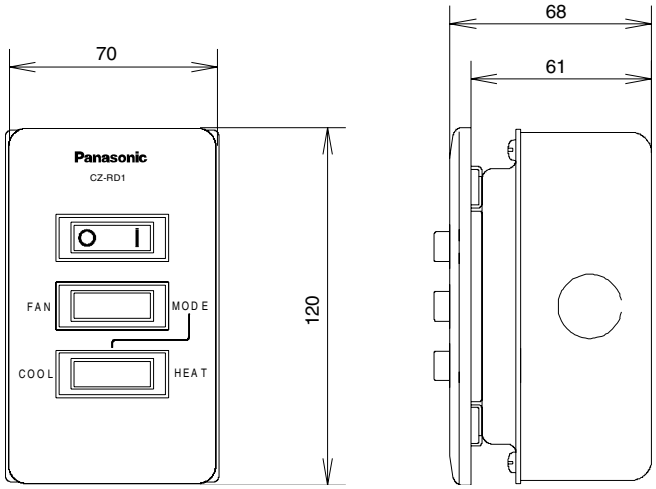
- Do not install near a place where there is risk of leaking flammable gas.
  Failure to do so can lead to electric shock or fire.

Accessories Check that you have the following accessories.

Name	Q'ty	Diagram	Remark
Cooling/Heating selector SW	1		For setting the cooling/heating operation
Installation instructions	1		This manual

11.3.1.1 EXTERNAL DIMENSIONS

(Unit: mm)

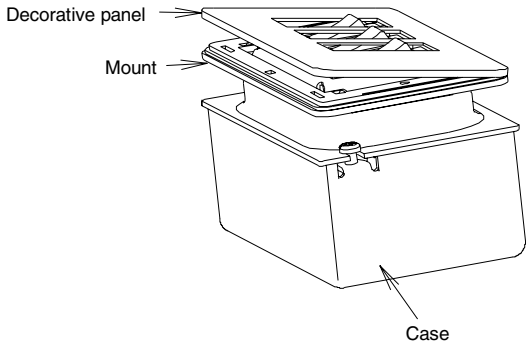


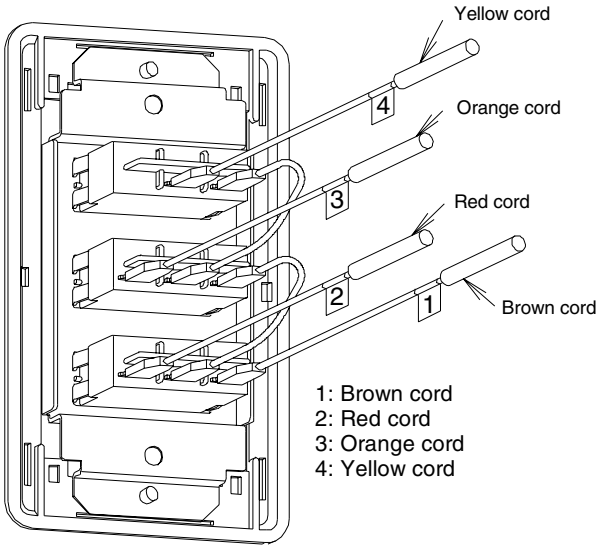
11.3.1.2 CONNECTION PROCEDURE

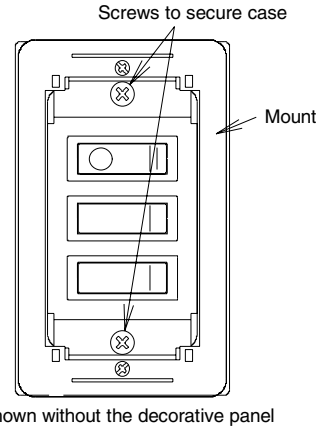
⚠	Be sure to always turn the power off before proceeding with wire and cable set up. Failure to do so may lead to electric shock or fire.

- Connecting cable to H05RN-F or H07RN-F which conforms to CENELEC (HAR) rating specifications, or use the cables based on IEC standard. (245IEC57, 245IEC66) Diameter: 0.5 mm^2.
- The maximum wire/cable length is 150 meters. Also avoid installing near power cable due to possible malfunction.

1. Removing the decorative panel.
   The decorative panel is embedded in the unit.
   Remove the decorative panel from the mount.
   You can separate the decorative panel from mount quite easily at the points where it clips in.
2. Remove the case.
   Remove the screws (2 pcs.) that secure the case.
3. Connect the wiring.
   Connect the electric wiring (Local supply) to the round terminals of the short wires and then crimped.

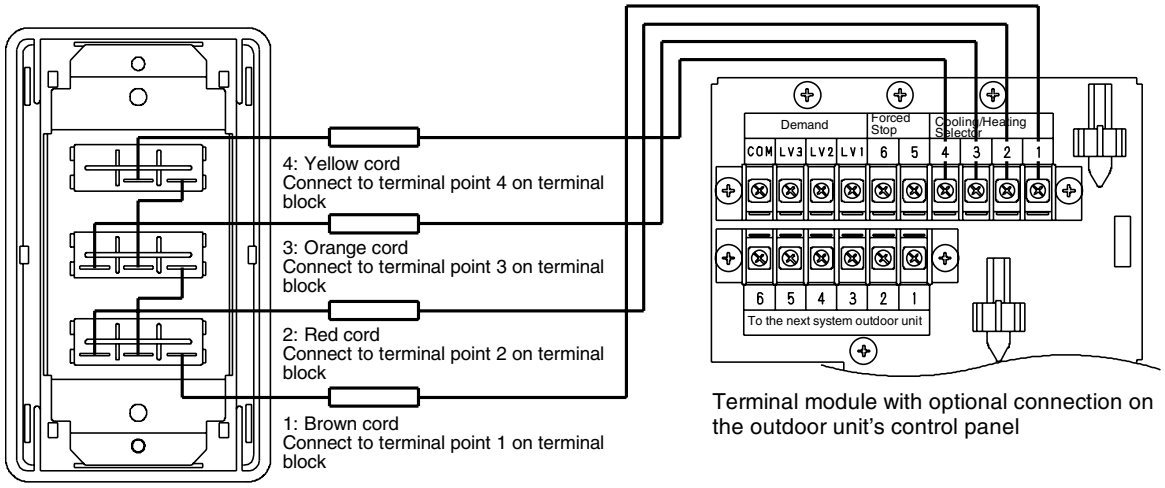






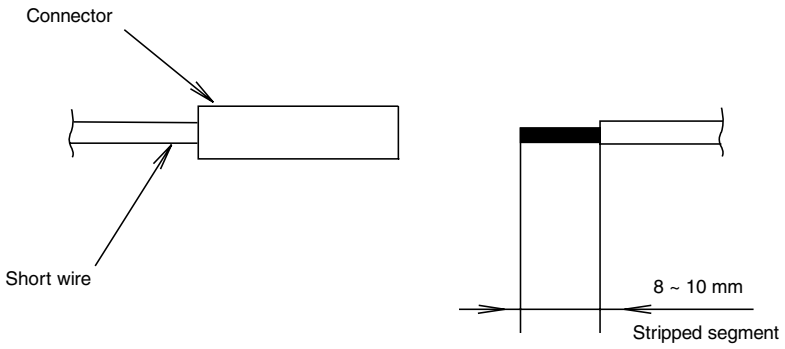
Shown without the decorative panel

Connect to the round terminals of the short wires No.1~4. Install securely using a crimp-type device for round terminals. The cords have positive and negative properties. On the outdoor unit's terminal module, match and connect (optional connection) to the terminal points 1 through 4 for the Cooling/Heating Selector section on the terminal module.



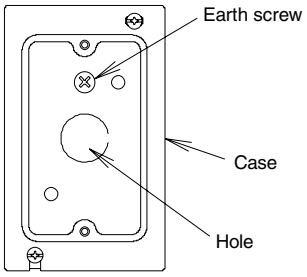
Terminal module with optional connection on the outdoor unit's control panel

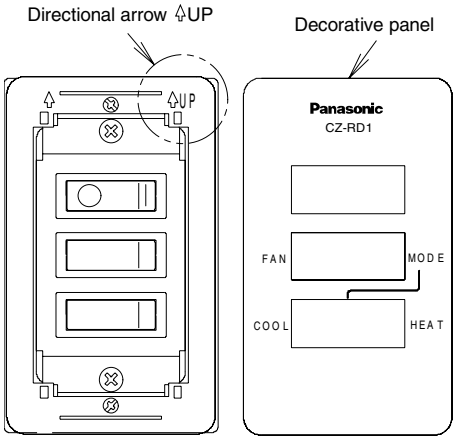
When connecting to the short wire, follow the diagram below and strip 8 to 10 mm of the wire's end exposing the base wire. After inserting it into the connector, securely crimp the connection so it does not disconnect.



4. Connect the earth wire
   Connect the earth wire to the screw on the bottom side of the case.
5. Open the hole to the exterior and pull the electrical wiring through.
   There is a hole on the bottom of the case and on the side of the case.
   Only use the necessary hole and pull the wiring through to the exterior.
   Seal the hole to prevent small animals from entering the unit.
6. Install the case.
   Re-install the case that was removed by securing it with the screws.
7. Install the decorative panel.
   Install the decorative panel by clipping it in.
   There is a specific direction to install the decorative panel.
8. Install the decorative panel by matching the directional arrow ↑UP for the decorative panel as shown in the illustration to the right.

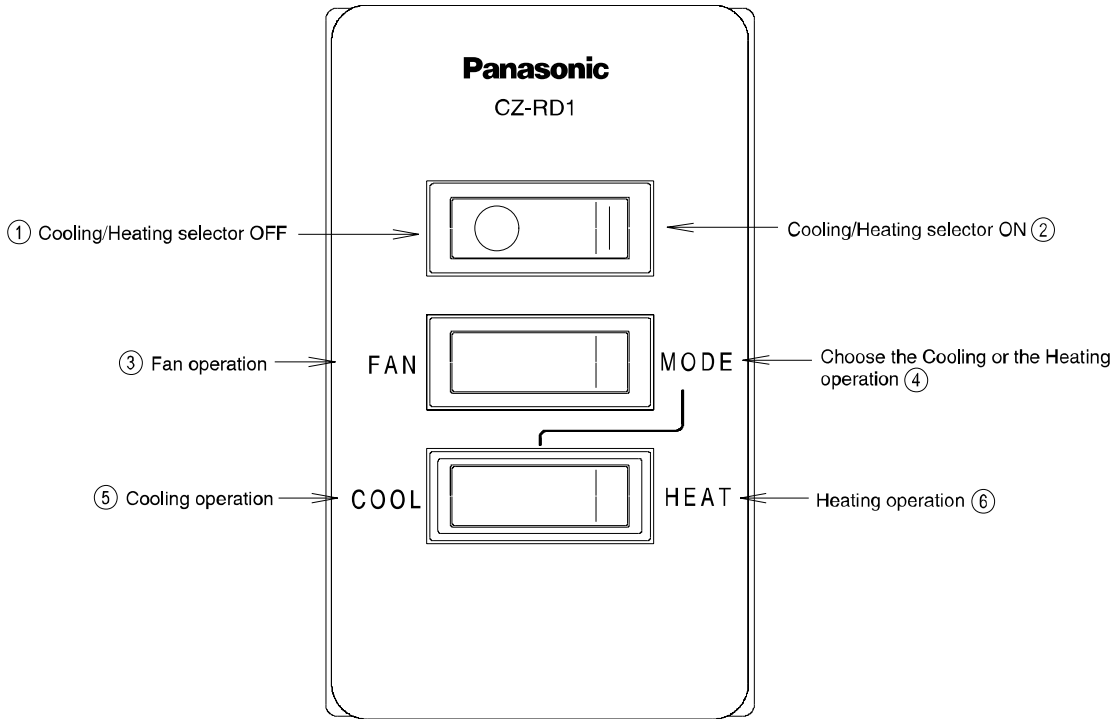
Install the case by matching it with the directional arrow.





Please note the installation direction.

11.3.1.3 OPERATING PROCEDURE



1. Enable or disable cooling/heating selector.
   Choose SW ① or ②.
   By choosing ①, the set operations are turned OFF, and by choosing ②, the set operations are turned ON.
2. Choose either the fan operation or the cooling/heating operation.
   Choose SW ③ or ④.
   Choose ③ for the fan operation, and choose ④ for the cooling/heating operations.
   By choosing ③, the wired remote control indicates priority to the fan operation.
3. Choose either the cooling operation or the heating operation.
   Choose SW ⑤ or ⑥.
   Choose ⑤ for the cooling operation, and choose ⑥ for the heating operation.
   By choosing ⑤, the wired remote control indicates priority to the cooling operation.
   By choosing ⑥, the wired remote control indicates priority to the heating operation.

11.3.1.4 CHECK AFTER COMPLETING INSTALLATION

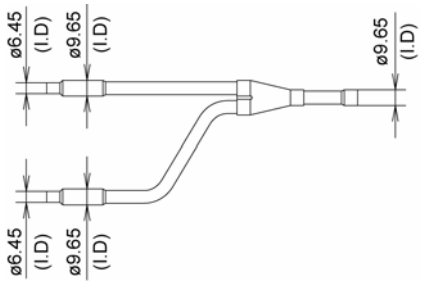
Check the signals to make sure the each setting switch operates properly.
Be sure that choosing ② to enable cooling/heating selector.

11.4 BRANCH PIPE CZ-P280BK1

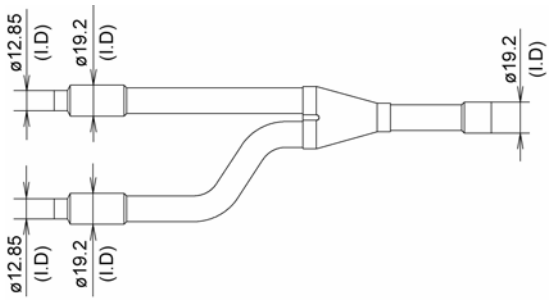
- Before installation work, ”Installation Instructions” for the main air conditioner unit and this Installation Instructions should be read carefully.
- This branch pipe is for refrigerant R410A.

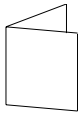
11.4.1 Details of parts supplied (Make sure that the following attachments are included.)

① Liquid side branch pipe (inner diameter)

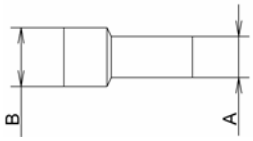


② Gas side branch pipe (inner diameter)



③ Thermal insulator (Gas side)	④ Thermal insulator (Liquid side)	⑤ Installation instructions
1pcs	1pcs	1sheet
		

⑥ Variant pipes



ø19.05	ø15.88	1
ø12.7	ø15.88	2
ø19.05	ø25.4	1
ø19.05	ø22.2	3
ø9.52	ø12.7	1
A	B	Quantity

11.4.2 Indoor/Outdoor unit piping installation

- For details on the allowable amount of refrigerant, allowable pipe lengths and allowable elevation difference, refer to the installation instructions provided with the indoor unit.
- The diameter of the piping for the indoor and outdoor units differs depending on the model of the unit. (Refer to respective diameter of the piping for the indoor and the outdoor units and install accordingly.) Use pipe cutters to cut the appropriate connecting section of the branch pipe to match the diameter of piping for the indoor and outdoor units.

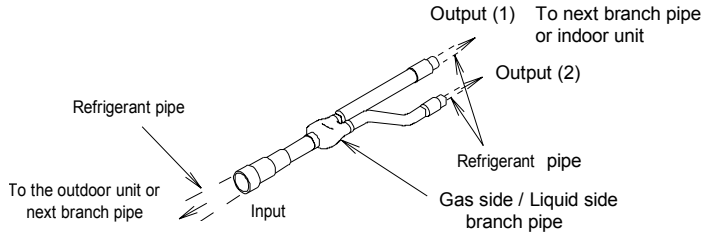
Pipe diameter for indoor unit

Cooling capacity of the indoor unit	Liquid side pipe diameter	Gas side pipe diameter
2.2 kW - 6.3 kW	ø6.35	ø12.7
7.1 kW and above	ø9.52	ø15.88

Pipe diameter for indoor unit

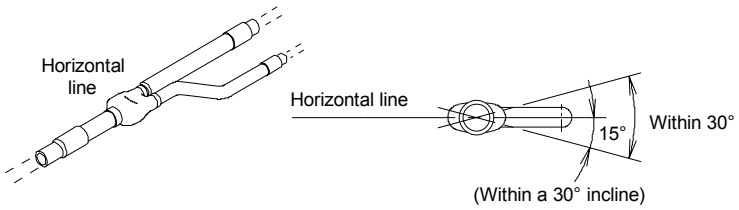
Cooling capacity of the outdoor unit	Liquid side pipe diameter	Gas side pipe diameter
22.4 kW	ø9.52	Ø19.05
24.0 kW	ø9.52	Ø22.22

11.4.2.1 Installation instructions



11.4.2.2 Installation precaution

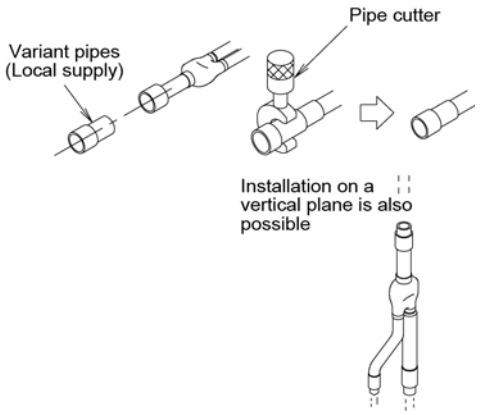
Position the branch pipe on the appropriate horizontal and vertical plane so that branch flow is even.



11.4.2.3 Precautions at connecting points

After removing any impurities at the mouth of the pipe or the connecting points, be sure to clean the inside of the pipe with nitrogen gas (nitrogen displacement) to prevent oxide scale forming on the inner surface of the pipe. This step is extremely important when making the connections in the refrigerant piping. (Do not use an antioxidant)

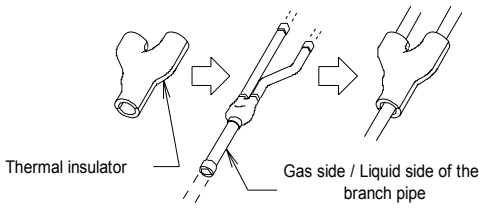
- If the size of the selected on-site pipe and the size of the branch pipe differ, cut the connecting section with pipe cutters per the illustration below.
  (Be sure to deburr and remove any impurities on the cutting surface.)



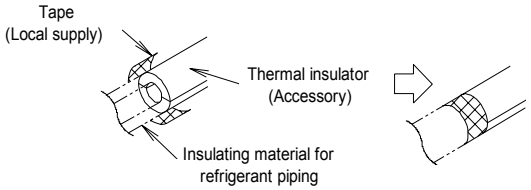
11.4.3 Insulation directions

Gas side / Liquid side branch pipe insulation.
Note: Use insulating material that can tolerate 120°C on the gas side.

1) Insulate the gas side / liquid side of the branch pipe with thermal insulator.

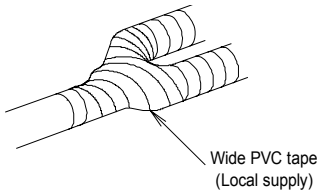


2) Wrap tape all around the areas where the insulating materials are joined in order to seal it.



Note: Do not use any adhesive agents on the connections between thermal insulator.

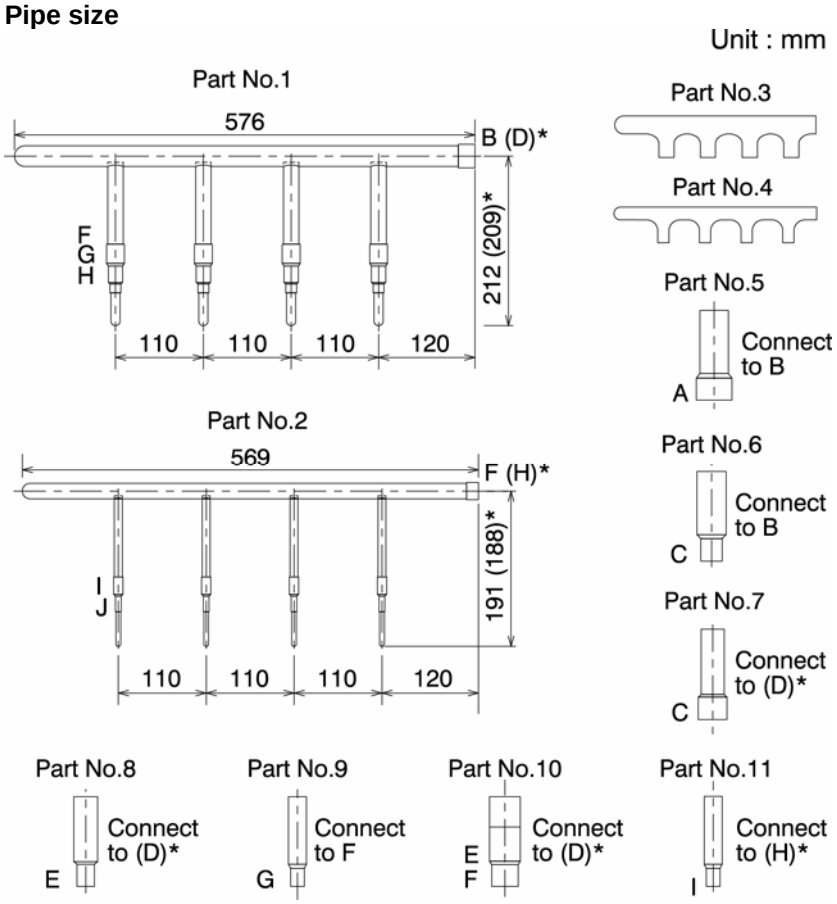
3) Wrap a wide PVC tape all around the surfaces where the ends of the branch pipe and insulating materials are abutted so as to close any gaps.



11.5 HEADER PIPE CZ-P4HPCC2 / CZ-P3HPC2

HEADER PIPE INSTALLATION

Pipe size



NOTE * The values and alphabets given in the parenthesis indicate the size of CZ-P4HPC2, P4HP1C2.

- Size if connection joint on each part
  (shown are inside diameter of tubing)

Size	Part A	Part B	Part C	Part D	Part E	Part F	Part G	Part H	Part I	Part J
mm	Ø38.1	Ø31.75	Ø28.58	Ø25.4	Ø22.22	Ø19.05	Ø15.88	Ø12.7	Ø9.52	Ø6.35

Check!

Confirm the parts supplied in the header pipe set.
The content shows as shown in the table below.

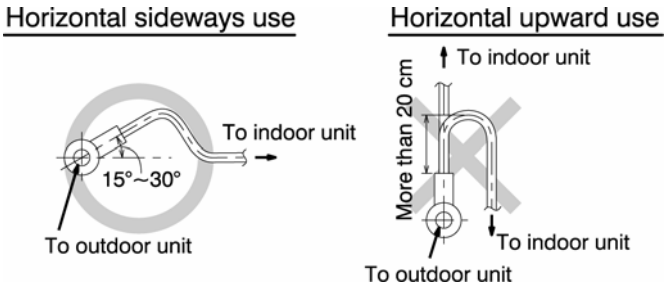
	Content		Content
Part No. 1	Header pipe to gas side	Part No. 7	Reducer (attached to P4HP2C2)
Part No. 2	Header pipe to liquid side	Part No. 8	Reducer (attached to P4HP2C2)
Part No. 3	Insulator for part No. 1	Part No. 9	Reducer (attached to 4HP2C2)
Part No. 4	Insulator for part No. 2	Part No. 10	Reducer (attached to P4HP1C2)
Part No. 5	Reducer (attached to P4HP2C2)	Part No. 11	Reducer (attached to P4HP1C2)
Part No. 6	Reducer (attached to P4HP2C2)		

Installation

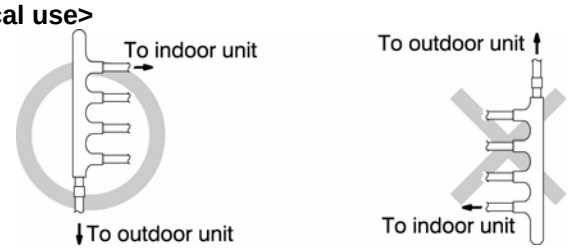
- Be sure to handle the header pipe in the correct direction as shown below.

<Horizontal use>

- Be sure to use the pipe in the 15-degree to 30-degree tilt position.
  Regarding the branch pipe of the indoor unit side, raise the pipe correctly as shown in “Horizontal sideways use” and joint the pipe sideways.



<Vertical use>



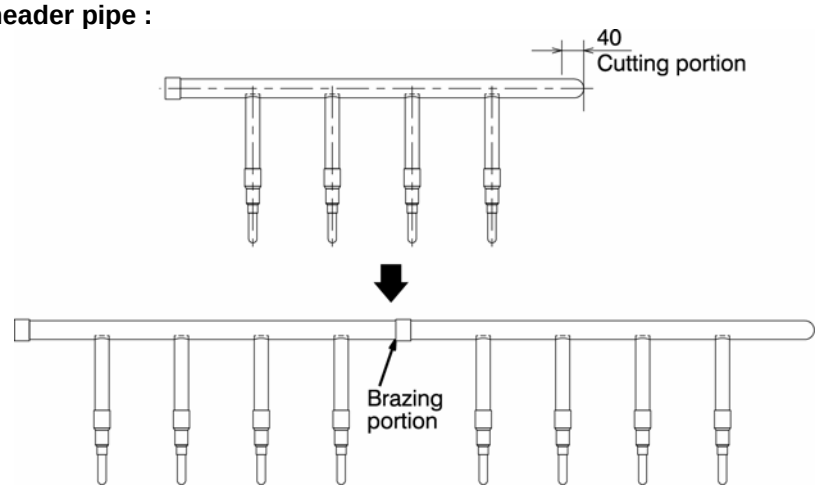
- Cut off the header pipe by the pipe cutter according to meet the demand of the local pipe size selected in consideration of the total amount of indoor units.
  (It is not necessary to cut off the pipe if it is identical to the tip of the size.)

NOTE

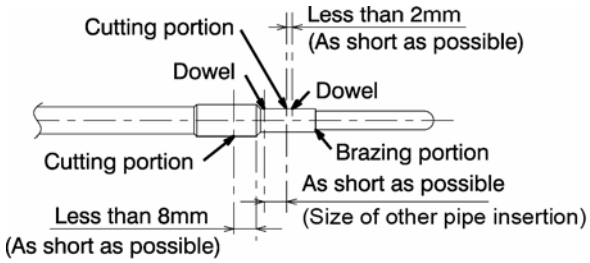
Do not forcibly cut off the pipe to escape deformation.
(If doing so, connection pipe cannot be inserted.)
When selecting the size, refer to “Installation Instructions” supplied with the outdoor unit.

- When using with 3 indoor units, cut off the tube and joint in the position fitted to the refrigerant tubing size at the side of 3 indoor units.
  When not to use some of the header pipes, leave as-is.
- When using with 5 to 8 indoor units, joint two header pipes as shown below.

In case of using header pipe :



Pipe cutting portion :



- After cutting off the piping, carefully remove burrs from the cut cross section of the pipe and make a smooth finish.
  (If there is any hollow on the pipe, enlarge the opening port by a mechanical pipe expander.)
- Use the supplied reducer according to the tube size from the side of outdoor unit. In this case, braze it in the local field.
- Check that there is no foreign substance inside the branch pipe side.
- Use the supplied insulator for the insulation of the branch pipe.
  (When using other than that, be sure to insulate it to tolerate the temperature of more than 120°C.)
- For the details, refer to “Installation Instructions”.

Request for Replacement of Nitrogen When Brazing

If the replacement if nitrogen was not carried out when brazing the refrigerant pipe of the outdoor unit and indoor unit, oxidized scale occurs and the motor valve and strainer become clogged.
This will cause malfunction. It is necessary to replace the air in the pipe with the nitrogen gas when brazing the pipe and prevent the trouble caused by the oxidized scale.

11.6 FS WALL MOUNTED TYPE INDOOR UNIT

REFRIGERANT
R 410A

HP	Cooling capacity	Model name	HP	Cooling capacity	Model name
0.8	2.2kW	S-22KA1E5	0.8	2.2kW	S-22KA1E5S
1.0	2.8kW	S-28KA1E5	1.0	2.8kW	S-28KA1E5S
1.5	3.6kW	S-36KA1E5	1.5	3.6kW	S-36KA1E5S
1.75	4.5kW	S-45KA1E5	1.75	4.5kW	S-45KA1E5S
2.0	5.6kW	S-56KA1E5			
2.5	6.3kW	S-63KA1E5			
3.0	7.1kW	S-71KA1E5			

Precautions in terms of safety

Carry out installation work with reliability after thorough reading of this “Precaution in terms of safety”.

- Precautions shown here are differentiated between ⚠ Warnings and ⚠ Cautions. Those that have much chances for leading to significant result such as fatality or serious injury if wrong installation would have been carried out are listed compiling them especially into the column of ⚠ Warnings.
  However, even in the case of items which are listed in the column of ⚠ Cautions, such items also have a chance for leading to significant result depending on the situations.
  In either case, important descriptions regarding the safety are listed, then observe them without fail.
- As to indications with illustration

⚠	This mark means “Caution” or “Warning”.

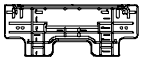
⏚	This mark means “Earth”.

- After installation work has been completed, do not only make sure that the unit is free from any abnormal condition through the execution of trial run but also explain how to use and how to perform maintenance of this unit to the customer according to the instruction manual.

⚠ **Warnings**	
▲	The appliance must be installed by technician, who takes into account the requirements given by ISO5149 or eventual equivalent requirements.
▲	As to installation, request the distributor or vendor to perform it. Imperfection in installation caused by that having been carried out by the customer himself may leads to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability according to this manual for installation work. Imperfection in installation leads to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability on the place that can bears the weight of this unit sufficiently. Insufficient strength leads to injury due to falling of the unit.
▲	Carry out predetermined installation work in preparation for strong wind such as typhoon, earthquake. Imperfection in installation work may lead to accidents arisen from overturn, etc.
▲	The unit must be installed in accordance with applicable national and local regulations. Any electrical work should only be carried out by qualified technician and use exclusive circuits without fail. Presence of insufficient capacity in power circuit or imperfection in execution leads to electric shock, fire, etc.
▲	Wiring shall be connected using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.
▲	If installing inside a small room, measures should be taken to prevent refrigerant levels from building up to critical concentrations in the event of a refrigerant leak occurring. Please discuss with the place of purchase for advice on what measures may be necessary to prevent critical concentrations being exceeded. If the refrigerant leaks and reaches critical concentration levels, there is the danger that death from suffocation may result.
▲	Securely attach the protective covers for the outdoor unit connection cables and power cord so that they do not lift up after installation. If the covers are not properly attached and installed, the terminal connections may overheat, and fire or electric shock may result.
▲	Switch off all supplies before accessing any electrical part.
▲	If refrigerant gas escapes during installation, ventilate the affected area. If the refrigerant gas comes into contact with sparks or naked flames, it will cause toxic gases to be generated.
▲	Once installation work is completed, check that there are no refrigerant gas in the room that can come into contact with sparks or flames from a fan heater, stove or kitchen range, which will cause toxic gases to be generated.
▲	When performing piping work do not mix air except for specified refrigerant (R410A) in refrigeration cycle. It causes capacity down, and risk of explosion and injury due to high tension inside the refrigerant cycle.

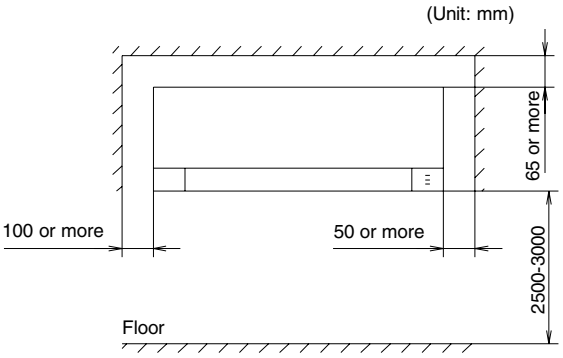
⚠ Cautions	
▲	Carry out Earthing work. Do not connect the Earth return to the gas pipe, water line pipe, lightning rod and telephone lines. Imperfection in Earth return may lead to electric shock
▲	Do not install the unit at the place where the possibility of inflammable gas leakage exists. If gas leakage should arise and the gas builds up around the unit, such situation may lead to ignition.
▲	Mounting of the earth leakage circuit breaker is required. Omission in mounting of the earth leakage circuit breaker may lead to electric shock.
▲	Drain piping should be made to ensure secure drainage according to the manual for installation work and carry out the thermal insulation to prevent the occurrence of condensation. Imperfection in piping work leads to water leakage and may cause the house and property, etc. to become wet.
▲	Position the indoor unit, outdoor unit, power cords and indoor/outdoor unit connection cables in a way so that they are at least 1 meter away from televisions and radios. This is to avoid problems such as interference with picture and/or sound. (However, note that depending on the electromagnetic wave conditions, interference may still occur even if the separation distance is more than 1 meter.)

11.6.1 ACCESSORIES PACKED IN THE INDOOR UNIT CONTAINER

Name	Q'ty	Appearance	Purpose
Plate	1		
Screw	5		Installation plate fixing screw
Installation Instruction	1		This manual

11.6.2 SELECTING THE LOCATION FOR THE INDOOR UNIT

- Install the indoor unit once the following conditions are satisfied and after receiving the customer approval.
  1. The indoor unit must be within a maintenance space.
  2. The indoor unit must be free from any obstacles in path of the air inlet and outlet, and must allow spreading of air throughout the room.



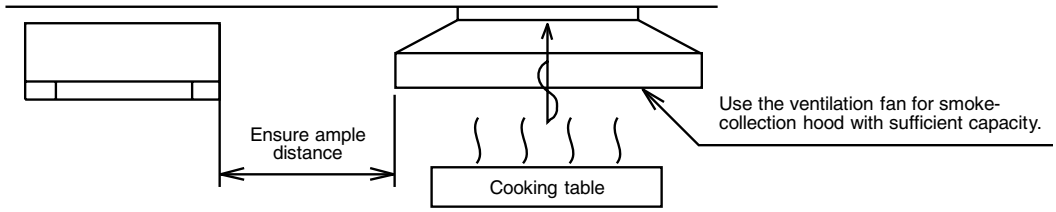
⚠ Warnings
3. The installation position must be able to support a load four times the indoor unit weight.

4. The indoor unit must be away from heat and steam sources, but avoid installing it near an entrance.
5. The indoor unit must allow easy draining.
6. The indoor unit must allow easy connection to the outdoor unit.
7. Before installing in quiet room such as a bedroom, please consult with an authorized distributor.
8. The indoor unit must be from at least 3m away from any noise-generating equipment. The electrical wiring should be locally decided.
9. If the power supply is subject to noise generation, add a suppressor.
10. Do not install the indoor unit in a laundry. Electric shocks may result.

Note • Thoroughly study the following installation locations

1. In such places as restaurants and kitchens, considerable amount of oil steam and flour adhere to the fan, the fin of the heat exchanger, resulting in heat exchange reduction, spraying, dispersing of water drops, etc. In these cases, take the following actions:

- Make sure that the ventilation fan for smoke-collecting hood on a cooking table has sufficient capacity so that it draws oily steam which should not flow into the suction of the air conditioner.
- Make enough distance from the cooking room to install the air conditioner in such place where it may not suck in oily steam.

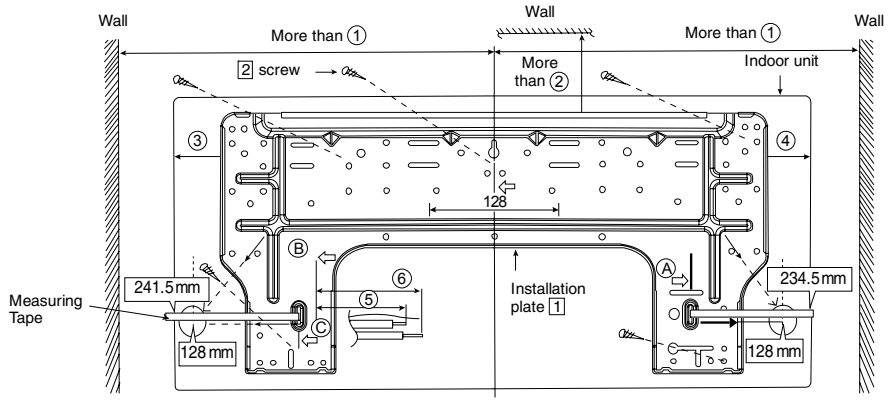


2. Avoid installing the air conditioner in such circumstances where cutting oil mist or iron powder exist especially in factories, etc.
3. Avoid places where inflammable gas is generated, flows-in, contaminated, or leaked.
4. Avoid places where sulphurous acid gas or corrosive gas can be generated.
5. Avoid places near high frequency generators.

11.6.3 INSTALLATION OF INDOOR UNIT

HOW TO FIX INSTALLATION PLATE

The mounting wall shall be strong and solid enough to prevent it from the vibration.



Model	Dimension					
	①	②	③	④	⑤	⑥
S-22KA**, S-28KA** S-36KA**, S-45KA**	535 mm	82 mm	165 mm	158 mm	43 mm	95 mm
S-56KA**, S-63KA** S-71KA**	635 mm	82 mm	165 mm	158 mm	169 mm	219 mm

The centre of installation plate should be at more than ① at right and left of the wall.

The distance from installation plate edge to ceiling should more than ②.

From installation plate left edge to unit's left side is ③.

From installation plate right edge to unit's right side is ④.

Ⓑ : For left side piping, piping connection for liquid should be about ⑤ from this line.

: For left side piping, piping connection for gas should be about ⑥ from this line.

1. Mount the installation plate on the wall with 5 screws or more (at least 5 screws).
   (If mounting the unit on the wall, consider using anchor bolts.)
   - Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.

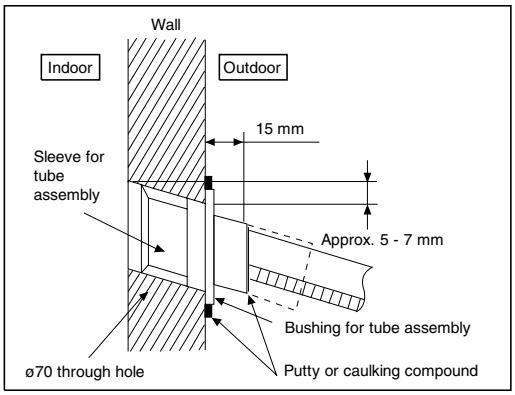
2. Drill the piping plate hole with ø70mm hole-core drill.
   - Line according to the left and right side of the installation plate. The meeting point of the extended line is the center of the hole. Another method is by putting measuring tape at position as shown in the diagram above. The hole center is obtained by measuring the distance namely 128 mm for left and right hole respectively.
   - Drill the piping plate hole at either the right or the left and the hole should be slightly slanted to the outdoor side.

TO DRILLA HOLE IN THE WALL AND INSTALL A SLEEVE OF PIPING

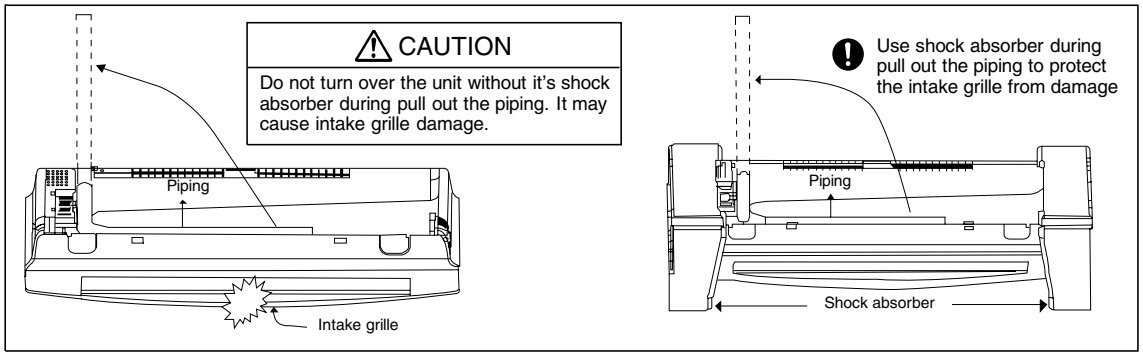
1. Insert the piping sleeve to the hole.
2. Fix the bushing to the sleeve.
3. Cut the sleeve until it extrudes about 15 mm from the wall.

> **⚠ CAUTION**
>
> When the wall is hollow, please be sure to use the sleeve for tube assembly to prevent dangers caused by mice biting the connecting cable.

4. Finish by sealing the sleeve with putty or caulking compound at the final stage.



INDOOR UNIT INSTALLATION



1. FOR THE RIGHT REAR PIPING

Step-1 Pull out the Indoor piping

↓

Step-2 Install the Indoor Unit

↓

Step-3 Secure the Indoor Unit

↓

Step-4 Insert the connecting cable

2. FOR THE RIGHT AND RIGHT BOTTOM PIPING

Step-1 Pull out the Indoor piping

↓

Step-2 Install the Indoor Unit

↓

Step-3 Insert the connecting cable

↓

Step-4 Secure the Indoor Unit

3. FOR THE EMBEDDED PIPING

Step-1 Replace the drain hose

↓

Step-2 Bend the embedded piping

↓

- Use a spring bender or equivalent to bend the piping so that the piping is not crushed.

Step-3 Pull the connecting cable into Indoor Unit

↓

- The inside and outside connecting cable can be connected without removing the front grille.

Step-4 Cut and flare the embedded piping

↓

- When determining the dimensions of the piping, slide the unit all the way to the left on the installation plate.

Step-5 Install the Indoor Unit

↓

Step-6 Connect the piping

↓

- Please refer to "REFRIGERANT PIPING" column.

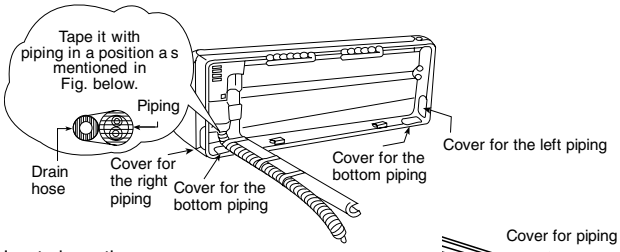
Step-7 Insulate and finish the piping

↓

- Please carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor unit installation diagram.
- If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with tickness 6mm or above.

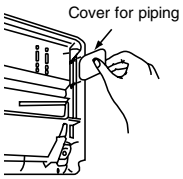
Step-8 Secure the Indoor Unit

Right Rear piping

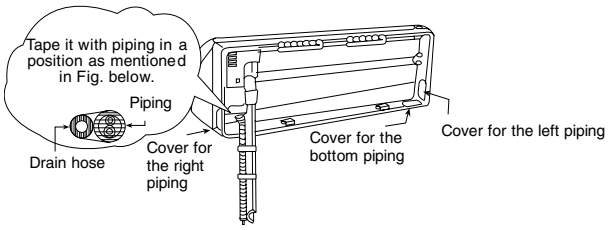


How to keep the cover

In case of the cover is cut, keep the cover at the rear of chassis as shown in the illustration for future reinstallation.
(Left, right and 2 bottom covers for piping.)

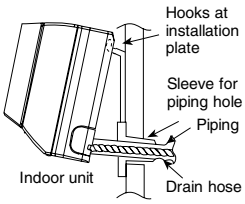


Right and Right Bottom piping



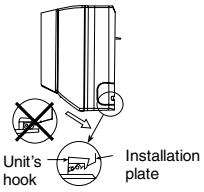
Install the indoor unit

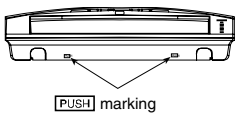
Hook the indoor unit onto the upper portion of installation plate. (Engage the indoor unit with the upper edge of the installation plate). Ensure the hooks are properly seated on the installation plate by moving it in left and right.



Secure the Indoor Unit

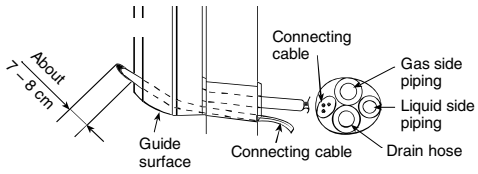
1. Press the lower left and right side of the unit against the installation plate until hooks engages with their slot (sound click).



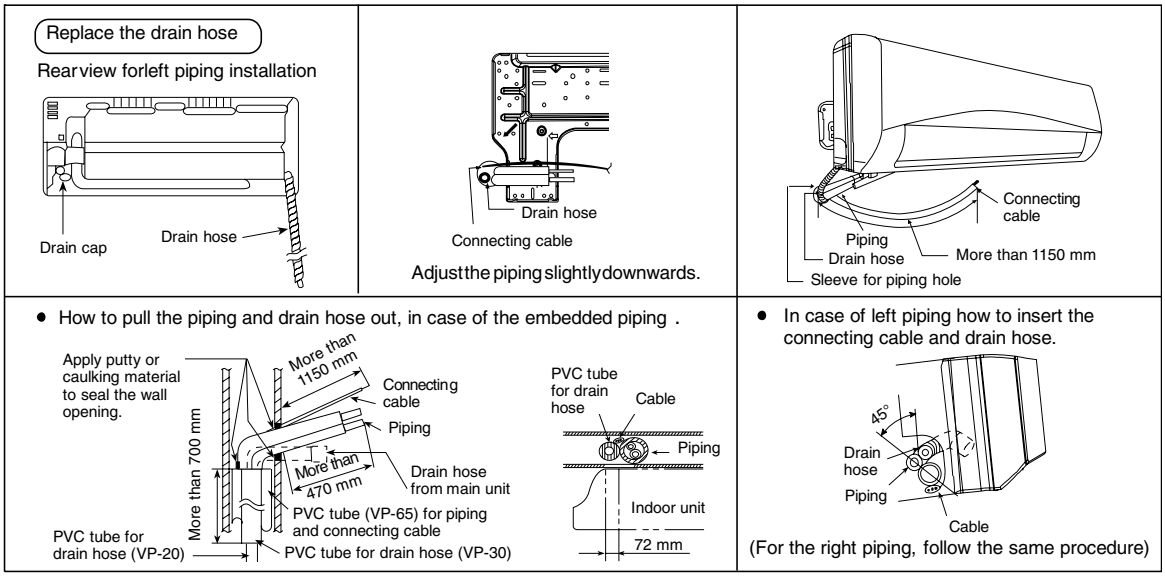


To take out the unit, push the PUSH marking at the bottom unit, and pull it slightly towards you to disengage the hooks from the unit.

Insert the connecting cable



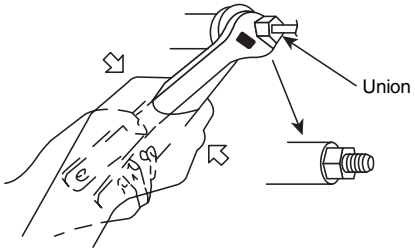
(This can be used for left rear piping and bottom piping also.)



11.6.4 REFRIGERANT PIPING

Refrigerant is charged to the outdoor unit. For details, see the manual for installation work of outdoor unit. (Additional charging, etc.)

1. Brazing for piping.
   a. Execute brazing before tightening the flare nut.
   b. Brazing must be executed while blowing nitrogen gas. (This prevents generation of oxidized scale in copper pipe.)
2. When there is a lot of brazings for long piping, install a strainer midway of the piping. (The strainer is locally supplied.)
3. Use clean copper pipe with inner wall surface free from mist and dust. Blow nitrogen gas or air to blow off dust in the pipe before connection.
4. Form the piping according to its routing. Avoid bending and bending back the same piping point more than three times. (This will result in hardening of the pipe).
5. After deforming the pipe, align centers of the union fitting of the indoor unit and the piping, and tighten them firmly with wrenches.
6. Connect pipe to the service valve or ball valve which is located below the outdoor unit.
7. After completed the piping connection, be sure to check if there is gas leakage in indoor and outdoor connection.



Vacuum drying

After completing the piping connection, execute vacuum drying for the connecting piping and the indoor unit.
The vacuum drying must be carried out by using the service ports of both the liquid and gas side valves.

CAUTION Use two wrenches and tighten with regular torque.

Flare nut fastening torque N•m (kgf•cm)			
ø6.35mm	18 (180)	ø12.7mm	55 (560)
ø9.52mm	42 (430)	ø15.88mm	65 (660)

Cooling capacity	Liquid piping	Gas side piping
2.2kW - 6.3kW	ø6.35mm	ø12.7mm
7.1kW or more	ø9.52mm	ø15.88mm

11.6.5 ELECTRICAL WIRING

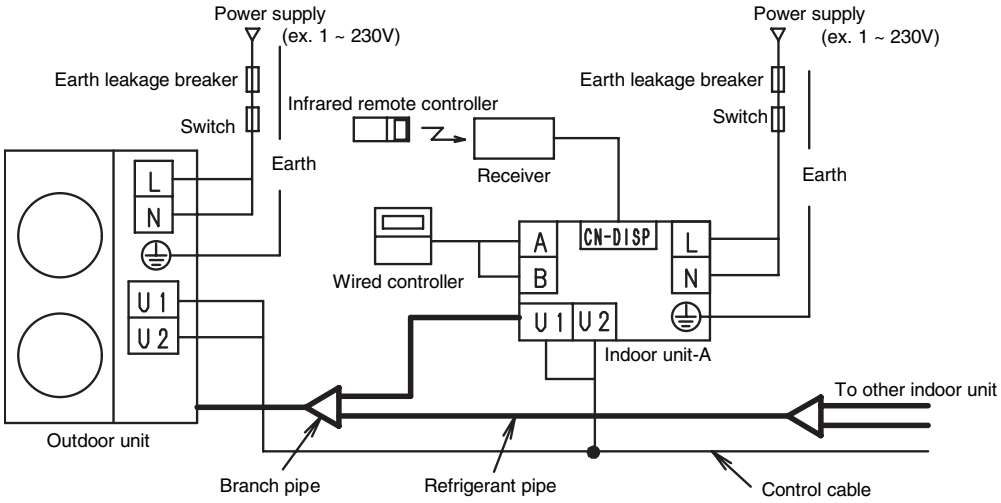
As to main power source and cable size of outdoor unit, read the installation instructions attached to the outdoor unit.

⚠ **Warning**	The units must be installed in accordance with applicable national and local regulations. The units installed by a professional installer must be supplied from a dedicated electrical circuit. All electric work must be carried out by a qualified technician according to proper technical standards for electrical work and according to installation instructions for installation work. If circuits with insufficient capacity are used, or if electrical work is not carried out properly, electric shocks or fire may result.
⚠ **Caution**	Be sure to install a current leakage breaker or circuit breaker to the main power supply, otherwise electric shocks may result.
⚠ **Caution**	Be sure to connect the unit to secure earth connection. (with a earth resistance of 100 Ω or less). If the earthing work is not carried out properly, electric shocks may result.
⚠ **Warning**	Wiring shall be connected securely using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.

1. Select a power source that is capable of supplying the current required by the air conditioner.
2. Feed the power source to the unit via a distribution switch board designed for this purpose, the switch should disconnected all poles with a contact separation of at least 3 mm.
3. Always ground the air conditioner with a grounding wire and screw to meet the LOCAL REGULATIONS.
4. Be sure to connect the wires correctly to terminal board with connecting the crimp type ring terminal to the wires.
5. Be sure to turn off the main power before installing and connecting the remote control.

Note	If momentarily turning on the power supply for both the indoor and outdoor units, do not turn the power off after at least 1 minute has passed. (For the system's automatic setting.) Turning off the power supply on the way may cause an abnormal operation.

- Use the standard power cord for Europe (such as H05RN-F or H07RN-F which conforms to CENELEC (HAR) rating specifications) or use the cables based on IEC standard. (245IEC57, 245IEC66)



Provide separate power supplies to the indoor and outdoor units.

- Power supply specifications

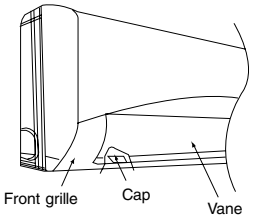
Model name	Power supply	Power supply cable		Leakage current breaker (A)	Circuit breaker (Minimum capacity)		※2 Control Cable U1 U2	Remote Controller Cable A B
		Minimum power cable supply cables L N ⏚	※1 Length (m)		Switch (A)	Fuse (A)		
Indoor unit	220V-240V~	2 mm^2	100	15A	15A	15A	0.75 mm^2	0.5 ~ 2 mm^2

※ 1. The maximum length shows a 2% voltage drop.
※ 2. Use an unshielded bus transmission line.

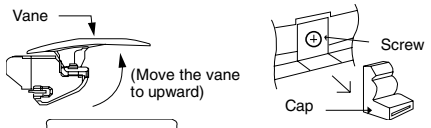
CONNECTING THE WIRES TO THE CONTROL BOX
You can see the power supply box on the right side after removing the front grille.

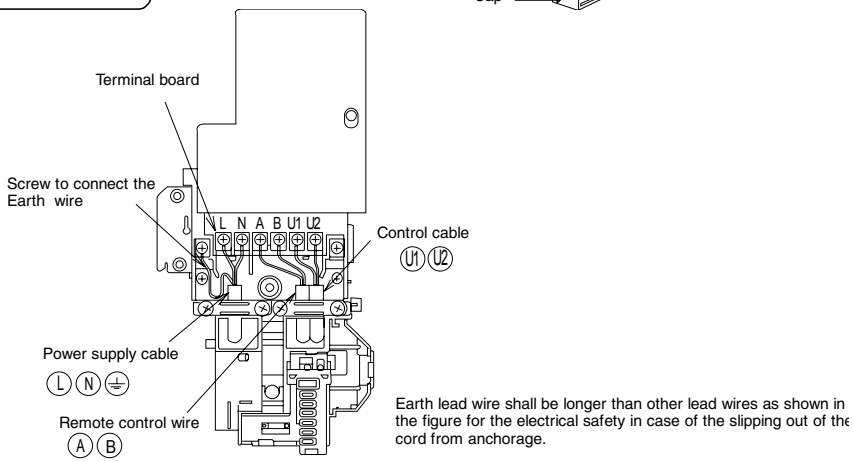
HOW TO TAKE OUT FRONT GRILLE
Please follow the steps below to take out front grille if necessary such as when servicing.

1. Set the vertical airflow direction louvers to the horizontal position.
2. Slide down the 2 caps (3/4 ~ 1.75HP) or 3 caps (2.0 ~ 3.0HP) on the front grille as shown in the illustration at right, and then remove the 2 (3/4~ 1.75HP) or 4 (2.0 ~ 3.0HP) mounting screws.
3. Pull the lower section of the front grille towards you to remove the front grille.



When reinstalling the front grille, first set the vertical airflow direction louver to the horizontal position and then carry out above steps 2 - 3 in the reverse order.





11.6.6 SETTINGS

Manual address setting cannot be done on wall type indoor units.

※ The automatic system settings can take up to 1 minute once power is supplied; do not operate the remote control during this time.

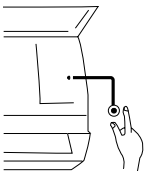
※ Once the wires are connected to 1 Remote Control group control and power is supplied to the indoor unit, the A/C No. is automatically set. To stop group control use, follow the directions below and clear the A/C No. that was automatically set after disconnecting the wires for group control. If it is not cleared then the wired remote control will not show any display.

- Instructions on clearing the A/C No. after automatic setup
  Turn OFF the indoor unit power supply → Set the SW2 (P.C.B) to ON → Turn ON the power supply of the indoor unit → After approximately 1 minute, turn OFF the power supply to the indoor unit → Set the SW2 (P.C.B) to OFF.
  (The next time the power supply is turned ON, the A/C No. will be cleared.)
- Do not set the SW2 to ON except when clearing the A/C No. as mentioned above. If the SW2 is set to ON, the wired remote control will no display.

Setting for 1 remote control group control

- A maximum of 16 indoor units can be connected at the time of group control. (Do not connect the heat pump unit with the cooling only unit.)
- Only automatic setting is possible when setting the group control address (A/C No.). (Manual setting cannot be performed.)
- The A/C No. setting cannot be confirmed when using the automatic method.
  ■ Automatic setting
  Refer to the remote control's installation instruction manual for the remote control settings.

AUTO SWITCH OPERATION



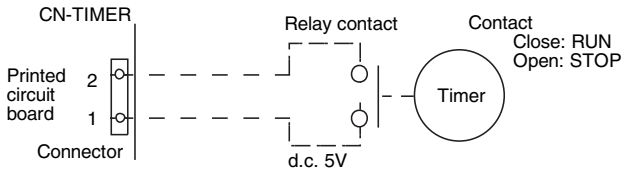
The below operations will be performed by pressing the “AUTO” switch.

1. AUTO OPERATION MODE
   The Auto operation will be activated immediately once the Auto Switch is pressed and release before 5 sec..
2. COOLING TRIAL OPERATION
   The Test Run operation will be activated if the Auto Switch is pressed continuously for more than 5 sec. to below 8 sec..
   A “pep” sound will occur at the fifth sec., in order to identify the starting of Test Run operation.
3. HEATING TRIAL OPERATION
   Press the “AUTO” switch continously for more than 8 sec. to below 11 sec. and release when a “pep pep” sound is occured at eight sec. (However, a “pep” sound is occured at fifth sec..) then press Remote control “A/C Reset” button once. Remote control signal will activate operation to force heating mode.
4. REMOTE CONTROL RECEIVING SOUND ON/OFF
   The ON/OFF of Remote control receiving sound can be change over by the following steps:
   a. Press AUTO switch continuously for more than 26 sec. to below 31 sec..
      A “pep” “pep” “pep” “pep” “pep” “pep” sound will occur at the twenty-sixth sec..
   b. Press the “AC RESET” button once. Remote Control signal will activate the Remote Control sound setting mode.
   c. Press the “AUTO” switch once to select Remote control receiving sound ON/OFF. A “pep” sound indicates receiving sound ON, and a “peep” sound indicates receiving sound OFF.

11.6.7 AS FOR TIMER OUTPUT

- Connect the timer cord to connector (CN-TIMER) on print circuit board.

Timer setting



- The connector must use XH-2 (housing) manufactured by J.S.T. Mfg. Co., Ltd.
- Wiring must use vinyl code with the sheath or cable line diameter 0.3mm^2.
- The length of wiring should be within 150m and separated from power line in order to prevent malfunction.
- The input current is DC5V, and 1mA. The relay contact must use the contact for the minute electric current suitable for this.

11.7 FS MULTI FOUR-WAY MINI CASSETTE TYPE INDOOR UNIT

REFRIGERANT
R 410A

HP	Cooling capacity	Model name	HP	Cooling capacity	Model name
0.8	2.2kW	S-22YA1E5	1.75	4.5kW	S-45YA1E5
1.0	2.8kW	S-28YA1E5	2.0	5.6kW	S-56YA1E5
1.5	3.6kW	S-36YA1E5			

Precautions in terms of safety

Carry out installation work with reliability after thorough reading of this “Precaution in terms of safety”.

- Precautions shown here are differentiated between ⚠ Warnings and ⚠ Cautions. Those that have much chances for leading to significant result such as fatality or serious injury if wrong installation would have been carried out are listed compiling them especially into the column of ⚠ Warnings.
  However, even in the case of items which are listed in the column of ⚠ Cautions, such items also have a chance for leading to significant result depending on the situations.
  In either case, important descriptions regarding the safety are listed, then observe them without fail.
- As to indications with illustration

⚠	This mark means “Caution” or “Warning”.

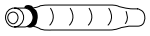
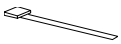
⏚	This mark means “Earth”.

- After installation work has been completed, do not only make sure that the unit is free from any abnormal condition through the execution of trial run but also explain how to use and how to perform maintenance of this unit to the customer according to the instruction manual.

⚠ Warnings	
▲	The appliance must be installed by technician, who takes into account the requirements given by ISO5149 or eventual equivalent requirements.
▲	As to installation, request the distributor or vendor to perform it. Imperfection in installation caused by that having been carried out by the customer himself may leads to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability according to this manual for installation work. Imperfection in installation leads to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability on the place that can bears the weight of this unit sufficiently. Insufficient strength leads to injury due to falling of the unit.
▲	Carry out predetermined installation work in preparation for strong wind such as typhoon, earthquake. Imperfection in installation work may lead to accidents arisen from overturn, etc.
▲	The unit must be installed in accordance with applicable national and local regulations. Any electrical work should only be carried out by qualified technician and use exclusive circuits without fail. Presence of insufficient capacity in power circuit or imperfection in execution leads to electric shock, fire, etc.
▲	Wiring shall be connected using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.
▲	If installing inside a small room, measures should be taken to prevent refrigerant levels from building up to critical concentrations in the event of a refrigerant leak occurring. Please discuss with the place of purchase for advice on what measures may be necessary to prevent critical concentrations being exceeded. If the refrigerant leaks and reaches critical concentration levels, there is the danger that death from suffocation may result.
▲	Securely attach the protective covers for the outdoor unit connection cables and power cord so that they do not lift up after installation. If the covers are not properly attached and installed, the terminal connections may overheat, and fire or electric shock may result.
▲	Switch off all supplies before accessing any electrical part.
▲	If refrigerant gas escapes during installation, ventilate the affected area. If the refrigerant gas comes into contact with sparks or naked flames, it will cause toxic gases to be generated.
▲	Once installation work is completed, check that there are no refrigerant gas in the room that can come into contact with sparks or flames from a fan heater, stove or kitchen range, which will cause toxic gases to be generated.
▲	When performing piping work do not mix air except for specified refrigerant (R410A) in refrigeration cycle. It causes capacity down, and risk of explosion and injury due to high tension inside the refrigerant cycle.

⚠ Cautions	
▲	Carry out Earthing work. Do not connect the Earth return to the gas pipe, water line pipe, lightning rod and telephone lines. Imperfection in Earth return may lead to electric shock.
▲	Do not install the unit at the place where the possibility of inflammable gas leakage exists. If gas leakage should arise and the gas builds up around the unit, such situation may lead to ignition.
▲	Mounting of the earth leakage circuit breaker is required. Omission in mounting of the earth leakage circuit breaker may lead to electric shock.
▲	Drain piping should be made to ensure secure drainage according to the manual for installation work and carry out the thermal insulation to prevent the occurrence of condensation. Imperfection in piping work leads to water leakage and may cause the house and property, etc. to become wet.
▲	Position the indoor unit, outdoor unit, power cords and indoor/outdoor unit connection cables in a way so that they are at least 1 meter away from televisions and radios. This is to avoid problems such as interference with picture and/or sound. (However, note that depending on the electromagnetic wave conditions, interference may still occur even if the separation distance is more than 1 meter.)

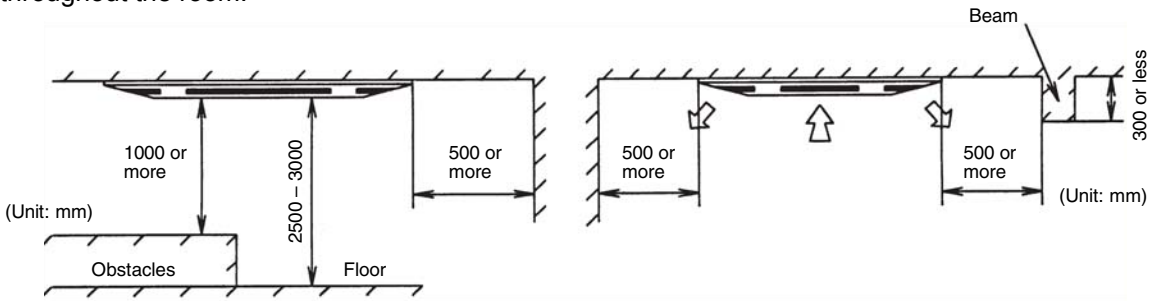
11.7.1 ACCESSORIES PACKED IN THE INDOOR UNIT CONTAINER

Name	Q'ty	Appearance	Purpose
Drain hose with a clip	1		For drain piping
Heat insulator	2		For insulating refrigerant pipe joint
Band	4		For fastening the heat insulator
Flat washer for M10	8		For fixing the hanging bolts
Screw M5	4		Set screw for paper model and panel fixing
Installation Instruction	1		This manual

11.7.2 SELECTING THE LOCATION FOR THE INDOOR UNIT

Provide a check port on the piping side ceiling for repair and maintenance.

- Install the indoor unit once the following conditions are satisfied and after receiving the customer approval.
  1. The indoor unit must be within a maintenance space.
  2. The indoor unit must be free from any obstacles in path of the air inlet and outlet, and must allow spreading of air throughout the room.



✳ If the height from the floor to ceiling exceeds three meters, air flow distribution deteriorates and the effect is decreased.

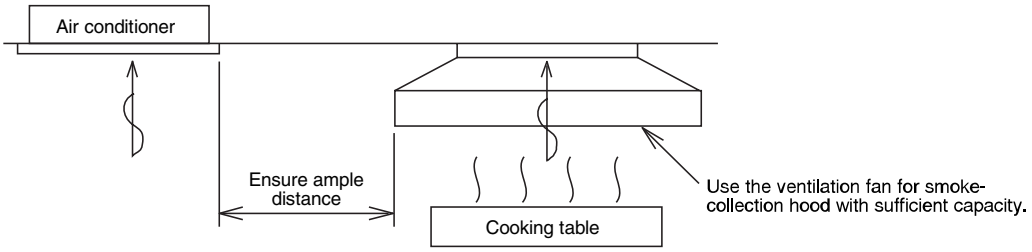
⚠ Warnings
3. The installation position must be able to support a load four times the indoor unit weight.

4. The indoor unit must be away from heat and steam sources, but avoid installing it near an entrance.
5. The indoor unit must allow easy draining.
6. The indoor unit must allow easy connection to the outdoor unit.
7. Place the indoor unit according to the height from the ceiling shown in the table below.
8. The indoor unit must be from at least 3m away from any noise-generating equipment. The electrical wiring should be locally decided.
9. If the power supply is subject to noise generation, add a suppressor.
10. Do not install the indoor unit in a laundry. Electric shocks may result.
11. Before installing in quiet room such as a bedroom, please consult with an authorized distributor.

Note • Thoroughly study the following installation locations

1. In such places as restaurants and kitchens, considerable amount of oil steam and flour adhere to the turbo fan, the fin of the heat exchanger and the drain pump, resulting in heat exchange reduction, spraying, dispersing of water drops, drain pump malfunction, etc.
   In these cases, take the following actions:

- Make sure that the ventilation fan for smoke-collecting hood on a cooking table has sufficient capacity so that it draws oily steam which should not flow into the suction of the air conditioner.
- Make enough distance from the cooking room to install the air conditioner in such place where it may not suck in oily steam.



2. Avoid installing the air conditioner in such circumstances where cutting oil mist or iron powder exist especially in factories, etc.
3. Avoid places where inflammable gas is generated, flows-in, contaminated, or leaked.
4. Avoid places where sulphurous acid gas or corrosive gas can be generated.
5. Avoid places near high frequency generators.

Model name		Height from the ceiling
S-22YA1E5	S-28YA1E5	280mm or more
S-36YA1E5	S-45YA1E5	
S-56YA1E5		

11.7.3 INSTALLATION OF INDOOR UNIT

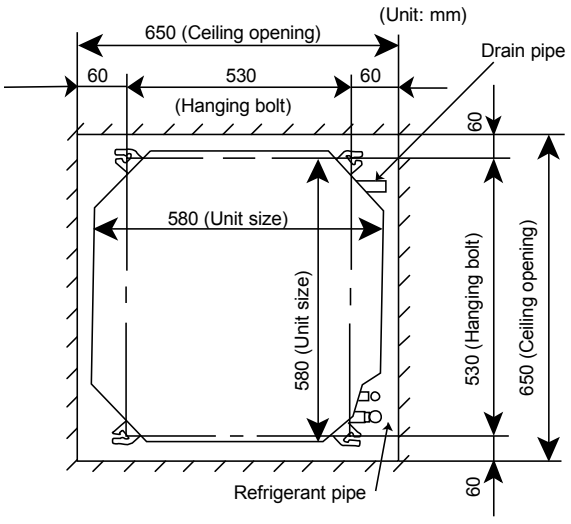
CEILING OPENING DIMENSIONS AND HANGING BOLT LOCATION

The paper model for installation expand or shrink according to temperature and humidity.
Check on dimensions before using it.

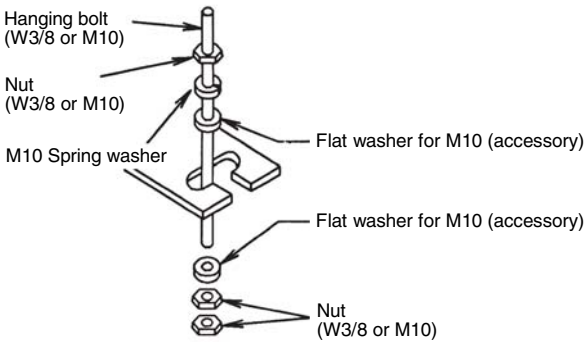
Caution	During the installation, care must be taken not to damage electric wires.

- The dimensions of the paper model for installation are the same as those of the ceiling opening dimensions.
- Be sure to discuss the ceiling drilling work with the workers concerned.

This air conditioner uses a drain up motor.
Horizontally install the unit using a level gauge.

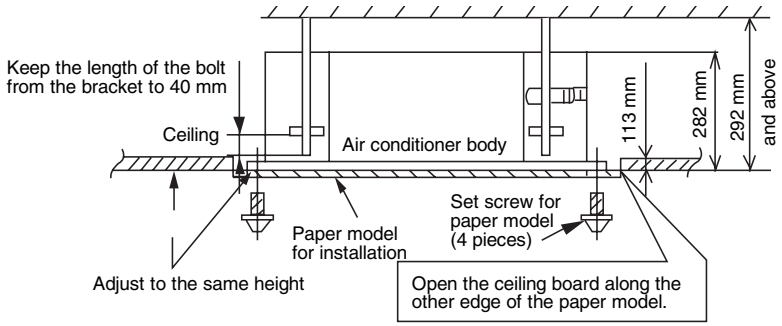


POSITIONS OF AIR CONDITIONER BODY AND CEILING SURFACE



⚠ **Warning**	Tighten the nut and bolt to prevent unit from falling

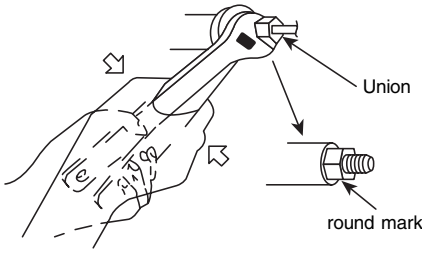
HANGING POSITION OF THE AIR CONDITIONER BODY



11.7.4 REFRIGERANT PIPING

Refrigerant is charged to the outdoor unit. For details, see the manual for installation work of outdoor unit. (Additional charging, etc.)

1. Brazing for piping.
   a. Execute brazing before tightening the flare nut.
   b. Brazing must be executed while blowing nitrogen gas. (This prevents generation of oxidized scale in copper pipe.)
2. When there is a lot of brazings for long piping, install a strainer midway of the piping. (The strainer is locally supplied.)
3. Use clean copper pipe with inner wall surface free from mist and dust. Blow nitrogen gas or air to blow off dust in the pipe before connection.
4. Form the piping according to its routing. Avoid bending and bending back the same piping point more than three times. (This will result in hardening of the pipe).
5. After deforming the pipe, align centers of the union fitting of the indoor unit and the piping, and tighten them firmly with wrenches.
6. Connect pipe to the service valve in the outdoor unit.
7. After completed the piping connection, be sure to check if there is gas leakage in indoor and outdoor connection.



- Confirm the round mark of the union (thin side) is always at lower direction after connecting piping.

Vacuum drying

After completing the piping connection, execute vacuum drying for the connecting piping and the indoor unit. The vacuum drying must be carried out by using the service ports of both the liquid and gas side valves.

CAUTION Use two wrenches and tighten with regular torque.

Flare nut fastening torque N•m (kgf•cm)			
ø6.35mm	18 (180)	ø12.7mm	55 (560)

Liquid side piping	Gas side piping
ø6.35mm	ø12.7mm

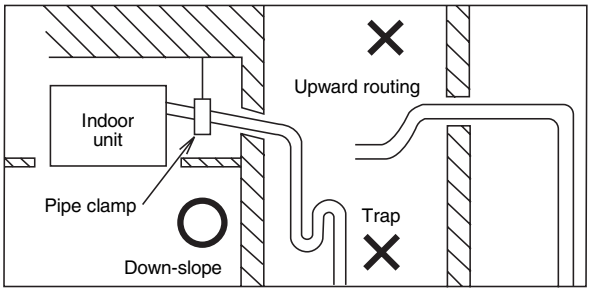
11.7.5 INDOOR UNIT DRAIN PIPING

- Drain piping must have down-slope (1/50 to 1/100); be sure not to provide up-and-down slope to prevent reversal flow.
- During drain piping connection, be careful not to exert extra force on the drain port at the indoor unit.
- The outside diameter of the drain connection at the indoor unit is 32 mm.

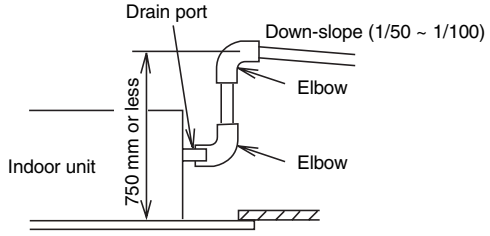
Piping material: Polyvinyl chloride pipe VP-25 and pipe fittings.

- Be sure to perform heat insulation on the drain piping.

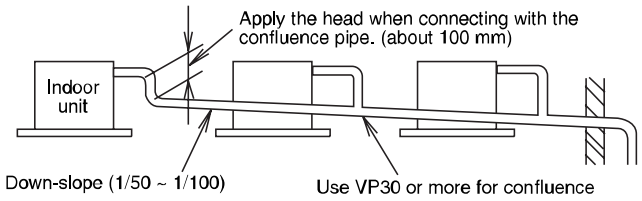
Heat insulation material: Polyethylene foam with thickness more than 8 mm (local supply).



- The height of drain may be possible up to 750 mm.



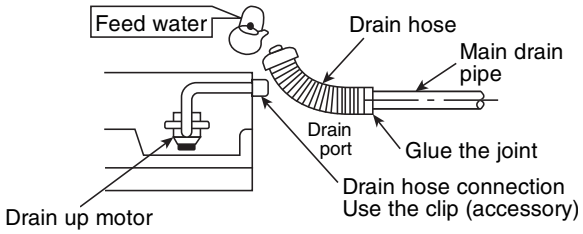
- When drain set piping, install as shown in the figure below.



Drain Test

The air conditioner uses a drain up motor to drain water. Use the following procedure to test the drain up motor operation.

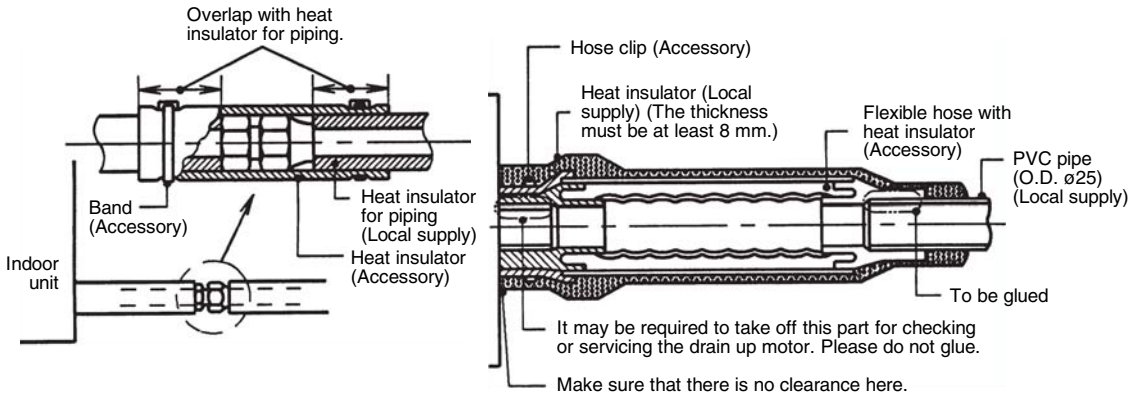
- Connect the main drain pipe to exterior and leave it provisionally until the test comes to an end.
- Feed water to the flexible drain hose and check the piping for leakage.
- Be sure to check the drain up motor for normal operating and noise when electric wiring is complete.
- When the test is complete, connect the flexible drain hose to the drain port.



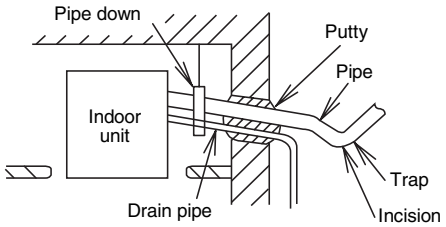
11.7.6 HEAT INSULATION

⚠ Caution	Be sure to perform heat insulation on the drain, liquid and gas piping. Imperfection in heat insulation work leads to water leakage.

1. Use the heat insulation material for the refrigerant piping which has an excellent heat-resistance (over 120°C).



2. Precautions in high humidity circumstance.
   This air conditioner has been tested according to the “JIS Standard Conditions with Mist” and have been confirmed that there are no faults. However, if it is operated for a long time in high humid atmosphere (dew point temperature: more than 23°C), water drops are liable to fall. In this case, add heat insulation material according to the following procedure:
   - Heat insulation material to be prepared…
     Adiabatic glass wool with thickness 10 to 20 mm.
   - Stick glass wool on all air conditioners that are located in ceiling atmosphere.
   - In addition to the normal heat insulation (thickness: more than 8 mm) for refrigerant piping (gas piping: thick piping) and drain piping, add a further of 10 mm to 30 mm thickness material.



✳ Put the incision at the trap part of the heat insulator (for water drain)

Wall seal

- When the outdoor unit is installed on a higher position than the indoor unit, install the trap so as not to instill rain water into the wall by transmitting in piping.
- Stuff the space among piping, the electric wire, and the drain hose with “Putty” and seal the penetration wall hole.
  Make sure that rain water do not instill into the wall.

11.7.7 ELECTRICAL WIRING

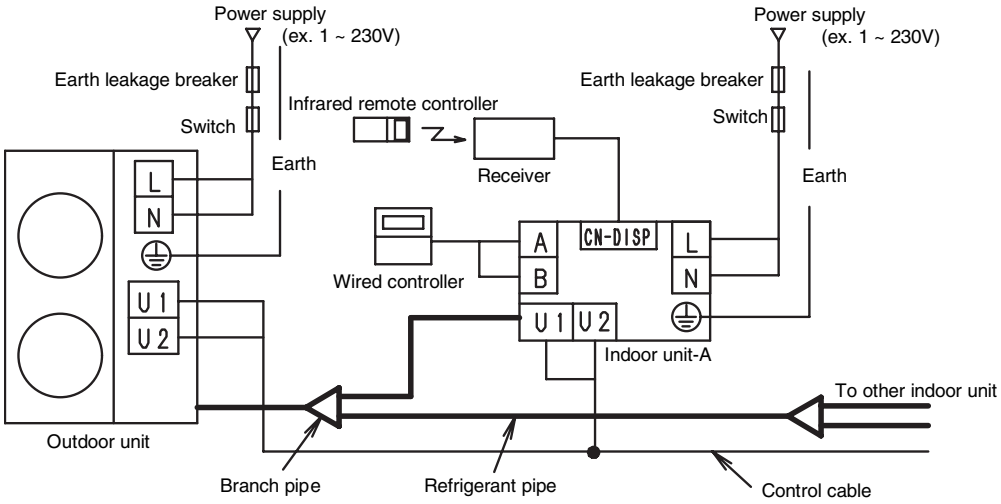
As to main power source and cable size of outdoor unit, read the installation instructions attached to the outdoor unit.

⚠ **Warning**	The units must be installed in accordance with applicable national and local regulations. The units installed by a professional installer must be supplied from a dedicated electrical circuit. All electric work must be carried out by a qualified technician according to proper technical standards for electrical work and according to installation instructions for installation work. If circuits with insufficient capacity are used, or if electrical work is not carried out properly, electric shocks or fire may result.
⚠ **Caution**	Be sure to install a current leakage breaker or circuit breaker to the main power supply, otherwise electric shocks may result.
⚠ **Caution**	Be sure to connect the unit to secure earth connection. (with a earth resistance of 100 Ω or less). If the earthing work is not carried out properly, electric shocks may result.
⚠ **Warning**	Wiring shall be connected securely using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.

1. Select a power source that is capable of supplying the current required by the air conditioner.
2. Feed the power source to the unit via a distribution switch board designed for this purpose, the switch should disconnected all poles with a contact separation of at least 3 mm.
3. Always ground the air conditioner with a grounding wire and screw to meet the LOCAL REGULATIONS.
4. Be sure to connect the wires correctly to terminal board with connecting the crimp type ring terminal to the wires.
5. Be sure to turn off the main power before installing and connecting the remote control.

Note	If momentarily turning on the power supply for both the indoor and outdoor units, do not turn the power off after at least 1 minute has passed. (For the system’s automatic setting.) Turning off the power supply on the way may cause an abnormal operation.

- Use the standard power cord for Europe (such as H05RN-F or H07RN-F which conforms to CENELEC (HAR) rating specifications) or use the cables based on IEC standard. (245IEC57, 245IEC66)



Provide separate power supplies to the indoor and outdoor units.

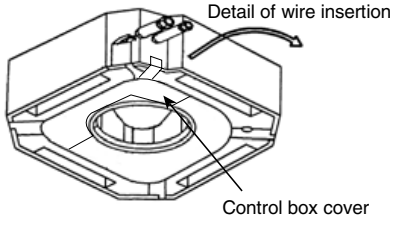
- Power supply specifications

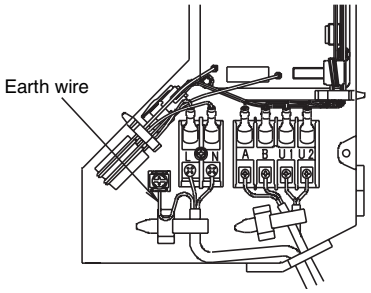
Model name	Power supply	Power supply cable		Leakage current breaker (A)	Circuit breaker (Minimum capacity)		※2 Control Cable ⓤ1 ⓤ2	Remote Controller Cable Ⓐ Ⓑ
		Minimum power cable supply cables Ⓛ Ⓝ ⏚	※1 Length (m)		Switch (A)	Fuse (A)		
Indoor unit	220V-240V~	2 mm^2	100	15A	15A	15A	0.75 mm^2	0.5 ~ 2 mm^2

※ 1. The maximum length shows a 2% voltage drop.
※ 2. Use an unshielded bus transmission line.

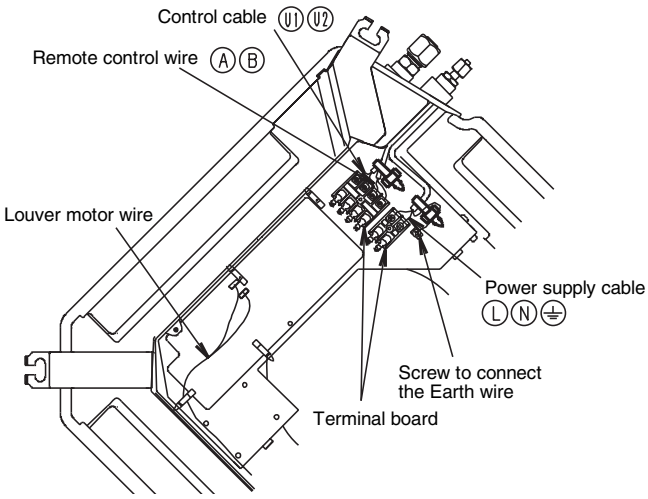
CONNECTING THE WIRES TO THE CONTROL BOX

- Remove the mounting screw, remove the control box cover, and then connect the wires by following the procedure given in the illustration.





Caution	Make sure that screws of the terminal are securely tightened.



Earth lead wire shall be longer than other lead wires as shown in the figure for the electrical safety in case of the slipping out of the cord from anchorage.

11.8 FS MULTI FOUR-WAY CASSETTE TYPE INDOOR UNIT

REFRIGERANT
R 410A

*Only available for selected country

HP	Cooling capacity	Model name
2.5	6.3kW	S-63UA1E5
3.0	7.1kW	S-71UA1E5
3.5	9.0kW	S-90UA1E5
4.0	10.0kW	S-100UA1E5
5.0	12.5kW	S-125UA1E5

Precautions in terms of safety

Carry out installation work with reliability after thorough reading of this “Precaution in terms of safety”.

- Precautions shown here are differentiated between ⚠ Warnings and ⚠ Cautions. Those that have much chances for leading to significant result such as fatality or serious injury if wrong installation would have been carried out are listed compiling them especially into the column of ⚠ Warnings.
  However, even in the case of items which are listed in the column of ⚠ Cautions, such items also have a chance for leading to significant result depending on the situations.
  In either case, important descriptions regarding the safety are listed, then observe them without fail.
- As to indications with illustration

⚠	This mark means “Caution” or “Warning”.

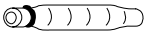
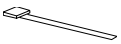
⏚	This mark means “Earth”.

- After installation work has been completed, do not only make sure that the unit is free from any abnormal condition through the execution of trial run but also explain how to use and how to perform maintenance of this unit to the customer according to the instruction manual.

⚠ Warnings	
▲	The appliance must be installed by technician, who takes into account the requirements given by ISO5149 or eventual equivalent requirements.
▲	As to installation, request the distributor or vendor to perform it. Imperfection in installation caused by that having been carried out by the customer himself may leads to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability according to this manual for installation work. Imperfection in installation leads to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability on the place that can bears the weight of this unit sufficiently. Insufficient strength leads to injury due to falling of the unit.
▲	Carry out predetermined installation work in preparation for strong wind such as typhoon, earthquake. Imperfection in installation work may lead to accidents arisen from overturn, etc.
▲	The unit must be installed in accordance with applicable national and local regulations. Any electrical work should only be carried out by qualified technician and use exclusive circuits without fail. Presence of insufficient capacity in power circuit or imperfection in execution leads to electric shock, fire, etc.
▲	Wiring shall be connected using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.
▲	If installing inside a small room, measures should be taken to prevent refrigerant levels from building up to critical concentrations in the event of a refrigerant leak occurring. Please discuss with the place of purchase for advice on what measures may be necessary to prevent critical concentrations being exceeded. If the refrigerant leaks and reaches critical concentration levels, there is the danger that death from suffocation may result.
▲	Securely attach the protective covers for the outdoor unit connection cables and power cord so that they do not lift up after installation. If the covers are not properly attached and installed, the terminal connections may overheat, and fire or electric shock may result.
▲	Switch off all supplies before accessing any electrical part.
▲	If refrigerant gas escapes during installation, ventilate the affected area. If the refrigerant gas comes into contact with sparks or naked flames, it will cause toxic gases to be generated.
▲	Once installation work is completed, check that there are no refrigerant gas in the room that can come into contact with sparks or flames from a fan heater, stove or kitchen range, which will cause toxic gases to be generated.
▲	When performing piping work do not mix air except for specified refrigerant (R410A) in refrigeration cycle. It causes capacity down, and risk of explosion and injury due to high tension inside the refrigerant cycle.

⚠ Cautions	
▲	Carry out Earthing work. Do not connect the Earth return to the gas pipe, water line pipe, lightning rod and telephone lines. Imperfection in Earth return may lead to electric shock.
▲	Do not install the unit at the place where the possibility of inflammable gas leakage exists. If gas leakage should arise and the gas builds up around the unit, such situation may lead to ignition.
▲	Mounting of the earth leakage circuit breaker is required. Omission in mounting of the earth leakage circuit breaker may lead to electric shock.
▲	Drain piping should be made to ensure secure drainage according to the manual for installation work and carry out the thermal insulation to prevent the occurrence of condensation. Imperfection in piping work leads to water leakage and may cause the house and property, etc. to become wet.
▲	Position the indoor unit, outdoor unit, power cords and indoor/outdoor unit connection cables in a way so that they are at least 1 meter away from televisions and radios. This is to avoid problems such as interference with picture and/or sound. (However, note that depending on the electromagnetic wave conditions, interference may still occur even if the separation distance is more than 1 meter.)

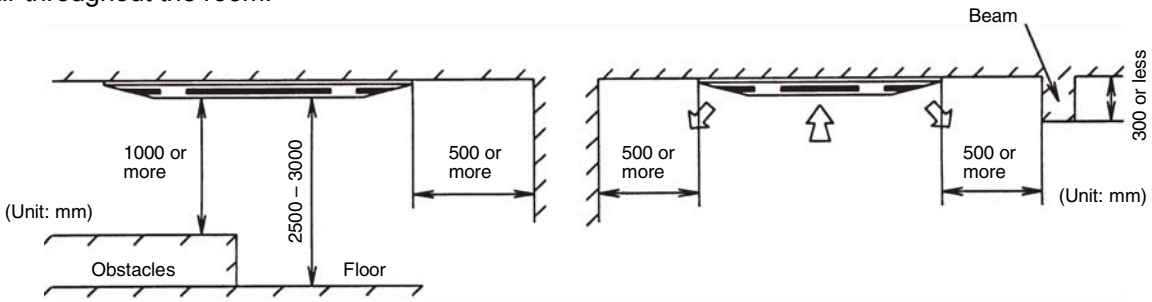
11.8.1 ACCESSORIES PACKED IN THE INDOOR UNIT CONTAINER

Name	Q'ty	Appearance	Purpose
Drain hose with a clip	1		For drain piping
Heat insulator	2		For insulating refrigerant pipe joint
Band	4		For fastening the heat insulator
Flat washer for M10	8		For fixing the hanging bolts
Screw M5	4		Set screw for paper model and panel fixing
Installation Instruction	1		This manual

11.8.2 SELECTING THE LOCATION FOR THE INDOOR UNIT

Provide a check port on the piping side ceiling for repair and maintenance.

- Install the indoor unit once the following conditions are satisfied and after receiving the customer approval.
  1. The indoor unit must be within a maintenance space.
  2. The indoor unit must be free from any obstacles in path of the air inlet and outlet, and must allow spreading of air throughout the room.



✳ If the height from the floor to ceiling exceeds three meters, air flow distribution deteriorates and the effect is decreased.

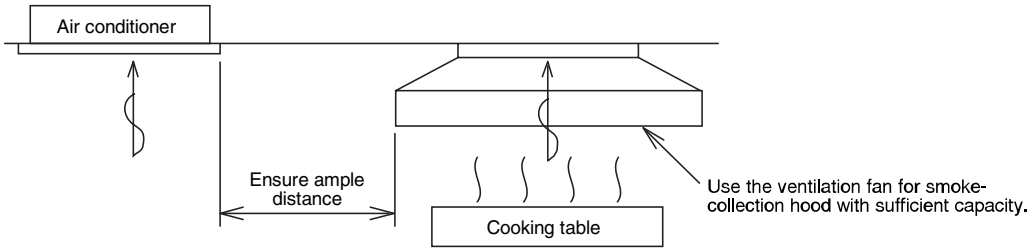
⚠ Warnings
3. The installation position must be able to support a load four times the indoor unit weight.

4. The indoor unit must be away from heat and steam sources, but avoid installing it near an entrance.
5. The indoor unit must allow easy draining.
6. The indoor unit must allow easy connection to the outdoor unit.
7. Place the indoor unit according to the height from the ceiling shown in the table below.
8. The indoor unit must be from at least 3m away from any noise-generating equipment. The electrical wiring should be locally decided.
9. If the power supply is subject to noise generation, add a suppressor.
10. Do not install the indoor unit in a laundry. Electric shocks may result.

Note • Thoroughly study the following installation locations

1. In such places as restaurants and kitchens, considerable amount of oil steam and flour adhere to the turbo fan, the fin of the heat exchanger and the drain pump, resulting in heat exchange reduction, spraying, dispersing of water drops, drain pump malfunction, etc.
   In these cases, take the following actions:

- Make sure that the ventilation fan for smoke-collecting hood on a cooking table has sufficient capacity so that it draws oily steam which should not flow into the suction of the air conditioner.
- Make enough distance from the cooking room to install the air conditioner in such place where it may not suck in oily steam.



2. Avoid installing the air conditioner in such circumstances where cutting oil mist or iron powder exist especially in factories, etc.
3. Avoid places where inflammable gas is generated, flows-in, contaminated, or leaked.
4. Avoid places where sulphurous acid gas or corrosive gas can be generated.
5. Avoid places near high frequency generators.

Model name		Height from the ceiling
S-63UA1E5 S-90UA1E5	S-71UA1E5	246mm or more

11.8.3 INSTALLATION OF INDOOR UNIT

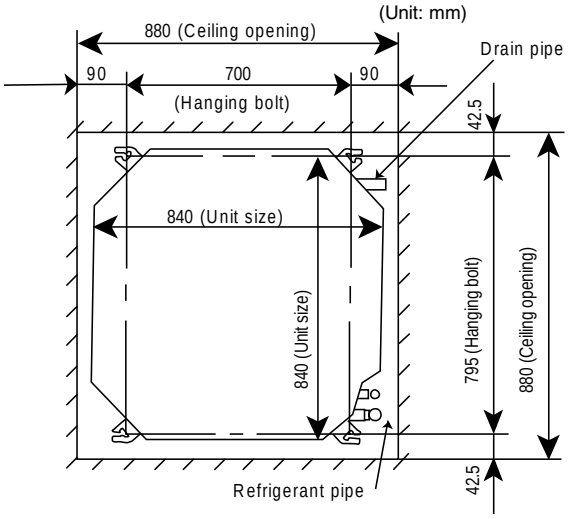
CEILING OPENING DIMENSIONS AND HANGING BOLT LOCATION

The paper model for installation expand or shrink according to temperature and humidity.
Check on dimensions before using it.

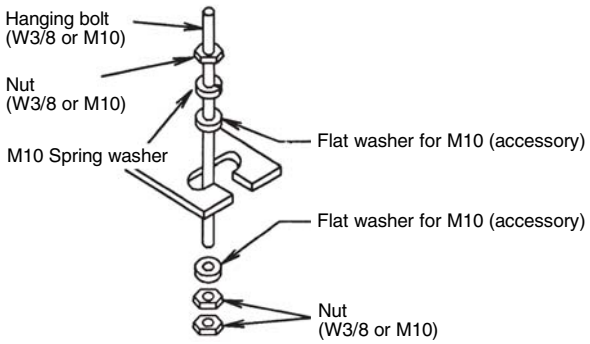
Caution	During the installation, care must be taken not to damage electric wires.

- The dimensions of the paper model for installation are the same as those of the ceiling opening dimensions.
- Be sure to discuss the ceiling drilling work with the workers concerned.

This air conditioner uses a drain up motor.
Horizontally install the unit using a level gauge.



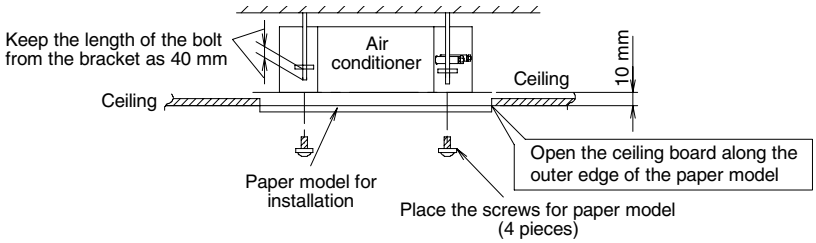
POSITIONS OF AIR CONDITIONER BODY AND CEILING SURFACE



⚠ **Warning**	Tighten the nut and bolt to prevent unit from falling

HANGING POSITION OF THE AIR CONDITIONER BODY

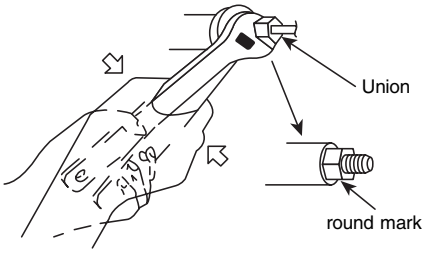
Air conditioner body gap setting between ceiling surface should be 10mm as right figure. (Adjustment of height direction should be done after fixing decorative panel.)



11.8.4 REFRIGERANT PIPING

Refrigerant is charged to the outdoor unit. For details, see the manual for installation work of outdoor unit. (Additional charging, etc.)

1. Brazing for piping.
   a. Execute brazing before tightening the flare nut.
   b. Brazing must be executed while blowing nitrogen gas. (This prevents generation of oxidized scale in copper pipe.)
2. When there is a lot of brazings for long piping, install a strainer midway of the piping. (The strainer is locally supplied.)
3. Use clean copper pipe with inner wall surface free from mist and dust. Blow nitrogen gas or air to blow off dust in the pipe before connection.
4. Form the piping according to its routing. Avoid bending and bending back the same piping point more than three times. (This will result in hardening of the pipe).
5. After deforming the pipe, align centers of the union fitting of the indoor unit and the piping, and tighten them firmly with wrenches.
6. Connect pipe to the service valve in the outdoor unit.
7. After completed the piping connection, be sure to check if there is gas leakage in indoor and outdoor connection.



- Confirm the round mark of the union (thin side) is always at lower direction after connecting piping.

Vacuum drying

After completing the piping connection, execute vacuum drying for the connecting piping and the indoor unit.
The vacuum drying must be carried out by using the service ports of both the liquid and gas side valves.

CAUTION Use two wrenches and tighten with regular torque.

Flare nut fastening torque N•m (kgf•cm)			
ø6.35	18 (180)	ø12.7	55 (560)
ø9.52	42 (430)	ø15.88	65 (660)

Cooling capacity	Liquid piping	Gas side piping
2.2kW - 6.3kW	ø6.35mm	ø12.7mm
7.1kW or more	ø9.52mm	ø15.88mm

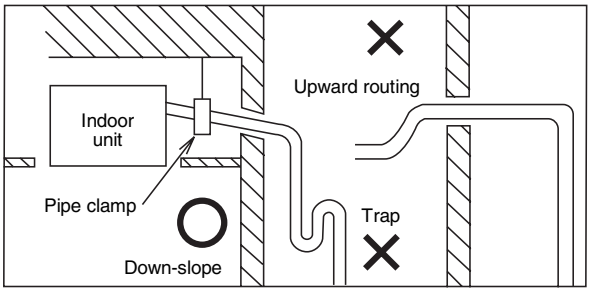
11.8.5 INDOOR UNIT DRAIN PIPING

- Drain piping must have down-slope (1/50 to 1/100); be sure not to provide up-and-down slope to prevent reversal flow.
- During drain piping connection, be careful not to exert extra force on the drain port at the indoor unit.
- The outside diameter of the drain connection at the indoor unit is 32 mm.

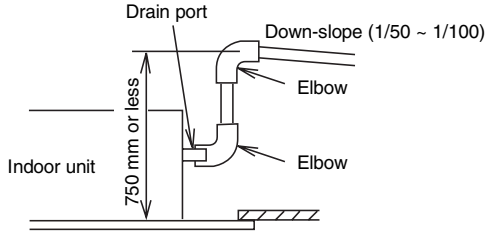
Piping material: Polyvinyl chloride pipe VP-25 and pipe fittings.

- Be sure to perform heat insulation on the drain piping.

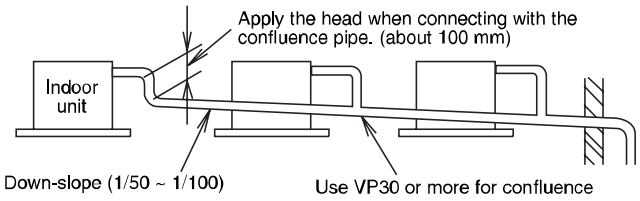
Heat insulation material: Polyethylene foam with thickness more than 8 mm (local supply).



- The height of drain may be possible up to 750 mm.



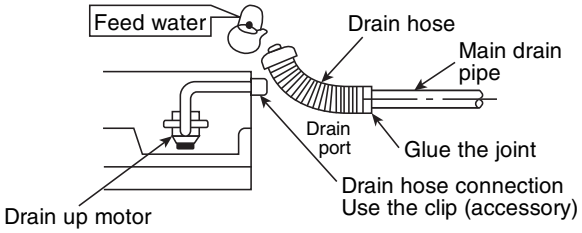
- When drain set piping, install as shown in the figure below.



Drain Test

The air conditioner uses a drain up motor to drain water. Use the following procedure to test the drain up motor operation.

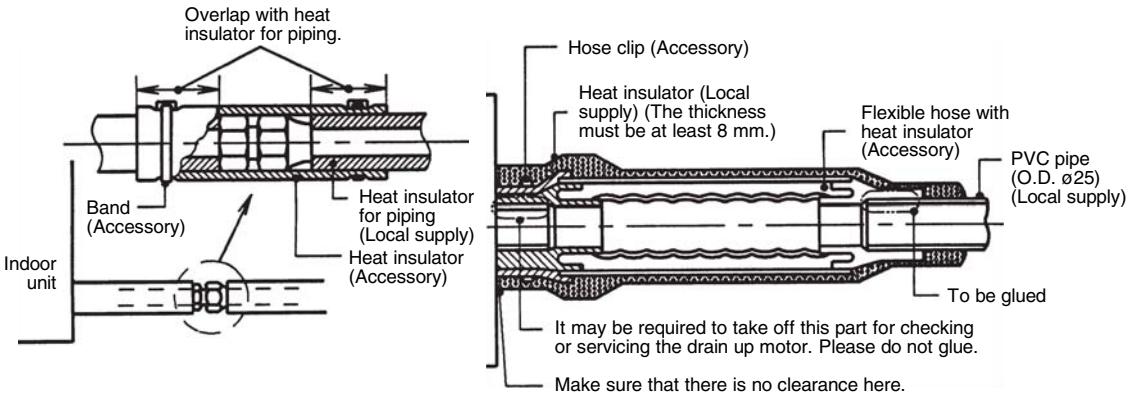
- Connect the main drain pipe to exterior and leave it provisionally until the test comes to an end.
- Feed water to the flexible drain hose and check the piping for leakage.
- Be sure to check the drain up motor for normal operating and noise when electric wiring is complete.
- When the test is complete, connect the flexible drain hose to the drain port.



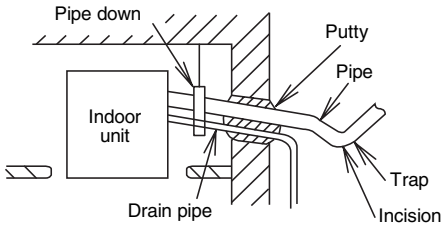
11.8.6 HEAT INSULATION

⚠ **Caution**	Be sure to perform heat insulation on the drain, liquid and gas piping. Imperfection in heat insulation work leads to water leakage.

1. Use the heat insulation material for the refrigerant piping which has an excellent heat-resistance (over 120°C).



2. Precautions in high humidity circumstance.
   This air conditioner has been tested according to the “JIS Standard Conditions with Mist” and have been confirmed that there are no faults. However, if it is operated for a long time in high humid atmosphere (dew point temperature: more than 23°C), water drops are liable to fall. In this case, add heat insulation material according to the following procedure:
   - Heat insulation material to be prepared…
     Adiabatic glass wool with thickness 10 to 20 mm.
   - Stick glass wool on all air conditioners that are located in ceiling atmosphere.
   - In addition to the normal heat insulation (thickness: more than 8 mm) for refrigerant piping (gas piping: thick piping) and drain piping, add a further of 10 mm to 30 mm thickness material.



✳ Put the incision at the trap part of the heat insulator (for water drain)

Wall seal

- When the outdoor unit is installed on a higher position than the indoor unit, install the trap so as not to instill rain water into the wall by transmitting in piping.
- Stuff the space among piping, the electric wire, and the drain hose with “Putty” and seal the penetration wall hole.
  Make sure that rain water do not instill into the wall.

11.8.7 ELECTRICAL WIRING

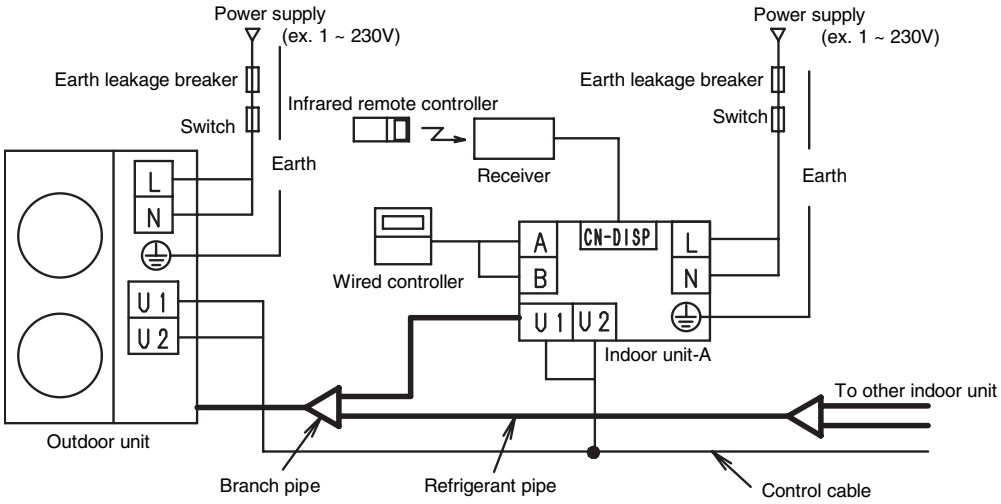
As to main power source and cable size of outdoor unit, read the installation instructions attached to the outdoor unit.

⚠ **Warning**	The units must be installed in accordance with applicable national and local regulations. The units installed by a professional installer must be supplied from a dedicated electrical circuit. All electric work must be carried out by a qualified technician according to proper technical standards for electrical work and according to installation instructions for installation work. If circuits with insufficient capacity are used, or if electrical work is not carried out properly, electric shocks or fire may result.
⚠ **Caution**	Be sure to install a current leakage breaker or circuit breaker to the main power supply, otherwise electric shocks may result.
⚠ **Caution**	Be sure to connect the unit to secure earth connection. (with a earth resistance of 100 Ω or less). If the earthing work is not carried out properly, electric shocks may result.
⚠ **Warning**	Wiring shall be connected securely using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.

1. Select a power source that is capable of supplying the current required by the air conditioner.
2. Feed the power source to the unit via a distribution switch board designed for this purpose, the switch should disconnected all poles with a contact separation of at least 3 mm.
3. Always ground the air conditioner with a grounding wire and screw to meet the LOCAL REGULATIONS.
4. Be sure to connect the wires correctly to terminal board with connecting the crimp type ring terminal to the wires.
5. Be sure to turn off the main power before installing and connecting the remote control.

Note	If momentarily turning on the power supply for both the indoor and outdoor units, do not turn the power off after at least 1 minute has passed. (For the system’s automatic setting.) Turning off the power supply on the way may cause an abnormal operation.

- Use the standard power cord for Europe (such as H05RN-F or H07RN-F which conforms to CENELEC (HAR) rating specifications) or use the cables based on IEC standard. (245IEC57, 245IEC66)



Provide separate power supplies to the indoor and outdoor units.

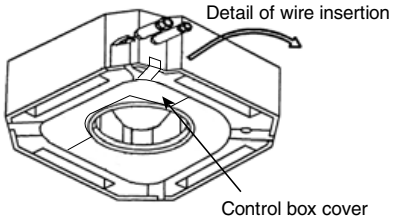
- Power supply specifications

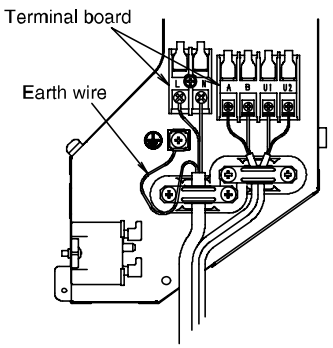
Model name	Power supply	Power supply cable		Leakage current breaker (A)	Circuit breaker (Minimum capacity)		※2 Control Cable ⓤ1 ⓤ2	Remote Controller Cable Ⓐ Ⓑ
		Minimum power cable supply cables Ⓛ Ⓝ ⏚	※1 Length (m)		Switch (A)	Fuse (A)		
Indoor unit	220V-240V~	2 mm^2	100	15A	15A	15A	0.75 mm^2	0.5 ~ 2 mm^2

※ 1. The maximum length shows a 2% voltage drop.
※ 2. Use an unshielded bus transmission line.

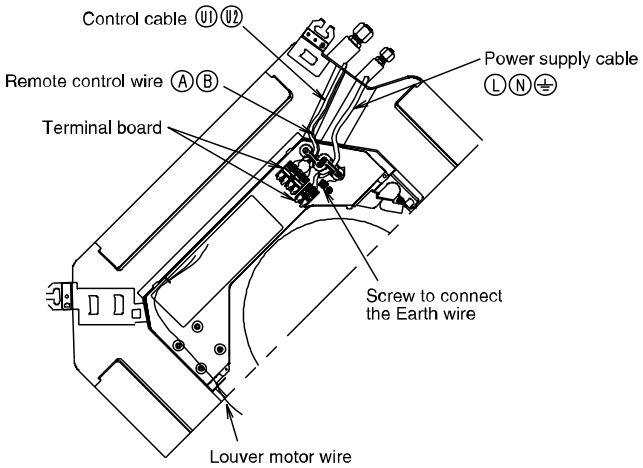
CONNECTING THE WIRES TO THE CONTROL BOX

- Remove the mounting screw, remove the control box cover, and then connect the wires by following the procedure given in the illustration.





Caution	Make sure that screws of the terminal are securely tightened.



Earth lead wire shall be longer than other lead wires as shown in the figure for the electrical safety in case of the slipping out of the cord from anchorage.

11.8.8 SETTINGS

※ The automatic system settings can take up to 1 minute once power is supplied; do not operate the remote control during this time.

※ In the event that 1 remote control group control is not used, do not set up the group control address (A/C No.). The wired remote control will not display when the settings for the A/C No. are set to a value other than “01”.

※ Once the wires are connected to 1 remote control group control and power is supplied to the indoor unit, the A/C No. is automatically set. To stop group control use, follow the directions below and clear the A/C No. that was automatically set after disconnecting the wires for group control. If it is not cleared then the wired remote control will not show any display.

- Instructions on clearing the A/C No. after automatic setup
  Turn OFF the indoor unit power supply → Using the DIP switch set the A/C No. to “16” → Turn ON the power supply of the indoor unit → After approximately 1 minute, turn OFF the power supply to the indoor unit → Set the DIP switch for the A/C No. to “01”.
  (The next time the power supply is turned ON, the A/C No. will be cleared.)

Setting for 1 remote control group control

- A maximum of 16 indoor units can be connected at the time of group control. (Do not connect the heat pump unit with the cooling only unit.)
- There are 2 methods for setting the group control address (A/C No.); an automatic and a manual setting method.
- The A/C No. setting cannot be confirmed when using the automatic method.
- To set each indoor unit’s A/C No., use the manual setting method.
  However, if the wall type indoor unit is connected, then manual setting is not possible.

■ Automatic setting

- By switching ON the indoor unit’s power supply with the DIP switch where the A/C No. is set to “01” (factory setting), the A/C No. will be automatically set. (After activating the power for all indoor units, the automatic setting takes approximately one minute.)
- Once the A/C No. is automatically set, even when the power supply is switched OFF, the setting is stored. To reset the A/C No. setting, follow the instructions for the “group control automatic address reset”. Refer to the item “Local setting” in the installation instruction manual that comes with the wired remote control for the “group control automatic address reset” method.
  * If the indoor unit’s A/C No. DIP switch is not set to “01”, the automatic setting cannot be reset.

■ Manual setting

- The manual setting is performed using each indoor unit’s printed circuit board DIP switch. (Refer to the diagram below)
- Set the DIP switch once the power supply for each indoor unit is switched OFF. When the power supply is turned ON, the stored A/C No. is recalled.
- To change the setting of the A/C No., turn OFF the power supply before resetting the DIP switch.
  * Ensure that there is no redundancy in the A/C No. Any redundancy can cause faulty control.
  * Ensure to set the A/C No. to “01” for 1 indoor unit.

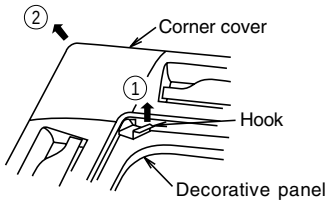
A/C No.	01	02	03	04	05	06	07	08
Indoor unit printed circuit board DIP switch (SW2)								
	Unnecessary operation	1-ON	2-ON	1,2-ON	3-ON	1,3-ON	2,3-ON	1,2,3-ON
A/C No.	09	10	11	12	13	14	15	16
Indoor unit printed circuit board DIP switch (SW2)								
	4-ON	1,4-ON	2,4-ON	1,2,4-ON	3,4-ON	1,3,4-ON	2,3,4-ON	1,2,3,4-ON

(Refer to the remote control’s installation instruction manual for the remote control settings.)

11.8.9 INSTALLATION OF DECORATIVE PANEL

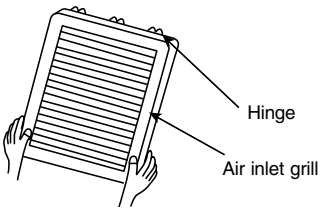
The decorative panel has its installation direction. Confirm the direction by displaying the piping side.

1. Remove the air inlet grill from the decorative panel.
2. Remove the corner cover in 4 corner places.
   Pull hook of corner cover as direction ①, at same time remove it by sliding out in direction ②.

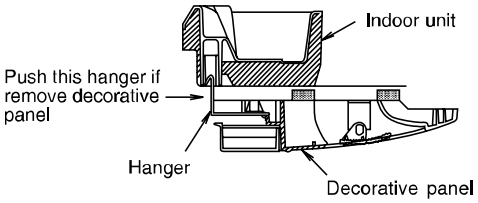


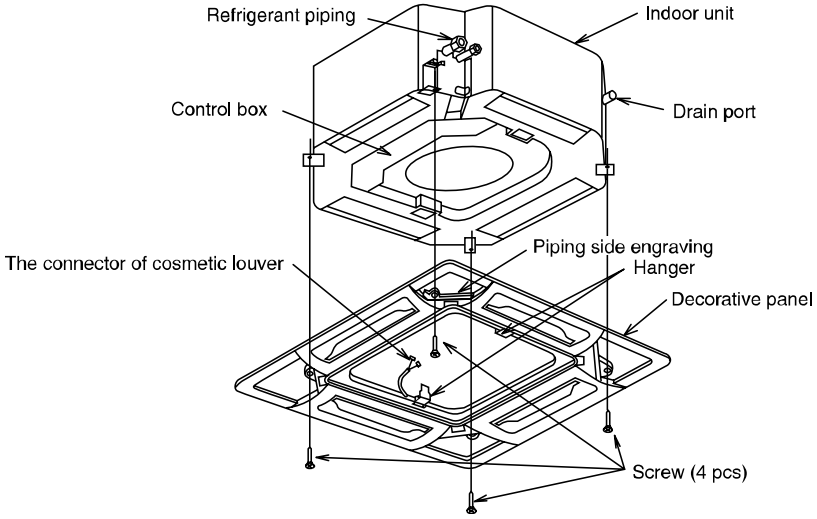
3. Fix the hanger (2 pieces) of the decorative panel to the indoor unit.
   There is direction information at decorative panel [PIPING SIDE] indication meaning the direction of piping side.
4. Adjust between decorative panel fixing hole and indoor unit screw hole.
5. Fix decorative panel with 4 screws with already fix at paper model for installation.

Before installing the decorative panel, always remove the paper template



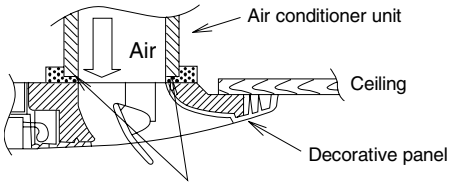
* Hang the hinge on the hole of decorative panel. (The direction of the installation is free.)





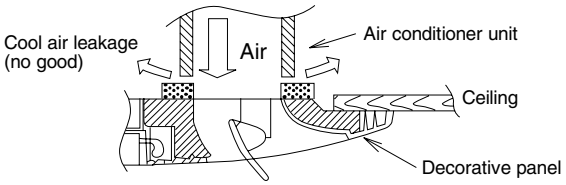
⚠ **Caution**	Install certainly the decorative panel. Cool air leakage causes sweating. → Water drops fall.

Good example

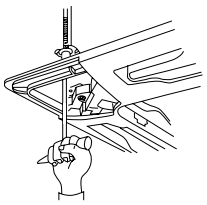


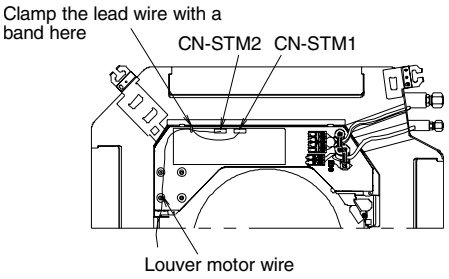
Fit the insulator (this part) and be careful for cool air leakage.

Bad example



6. Adhere the cosmetic panel and ceiling wall together and confirm no gap in between. Readjust indoor unit height, if there is a gap between ceiling wall and decorative panel although it have been fixed by screw.
   If there are no effect to the indoor unit level and drain piping etc., the adjustment of indoor unit height can be adjusted through the corner cover hole. Tighten back firmly the fixing nut of indoor unit after adjustment has been made.
7. Open the indoor control box cover. (2 pcs)
8. Insert firmly the connector of cosmetic louver to indoor PCB CN-STM1 and CN-STM2.
   Be caution not to clamp the cord in between control board and control board cover.
9. After complete, install back removed part follow opposite procedure.





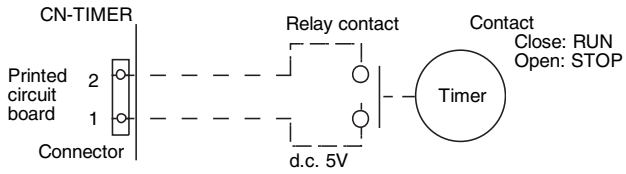
⚠ **Warning**	Be sure to hook the air inlet grill string, to prevent grill from falling and causing injury from it.

When using the infrared remote control, refer to the instruction manual supplied with the infrared remote control (option) and the infrared receiver (option)

11.8.10 AS FOR TIMER OUTPUT

- Connect the timer cord to connector (CN-TIMER) on print circuit board.

Timer setting

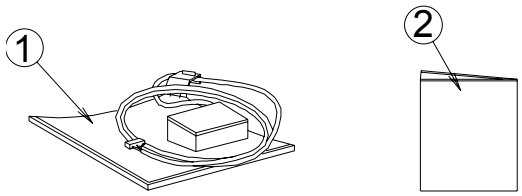


- The connector must use XH-2 (housing) manufactured by J.S.T. Mfg. Co., Ltd.
- Wiring must use vinyl code with the sheath or cable line diameter 0.3mm^2.
- The length of wiring should be within 150m and separated from power line in order to prevent malfunction.
- The input current is DC5V, and 1mA. The relay contact must use the contact for the minute electric current suitable for this.

11.9 INFRARED RECEIVER CZ-RWRU1 (FOR CASSETTE ONLY)

- Before installing the infrared remote control, be sure to thoroughly read the “Precautions in terms of safety” section of the installation instructions provided with the indoor unit.
  Also, be sure to thoroughly read the wireless remote control installation instructions as well.
- After installation is complete, carry out a test operation to check that the unit functions properly and also explain the operation and cleaning procedures to the customer in accordance with the details in the instruction manual. Furthermore, ask the customer to keep this installation instructions and the operation instruction in a safe place for later reference.

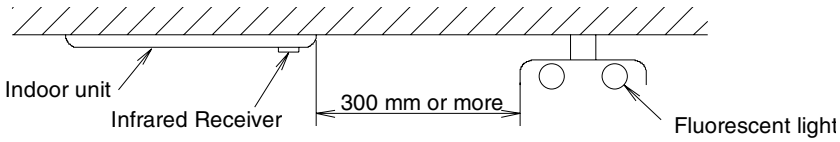
11.9.1 ACCESSORIES SUPPLIED WITH THE INFRARED RECEIVER



No.	Name	Qty.
①	Infrared Receiver (For Cassette only)	1
②	Installation instructions (This manual)	1

11.9.2 INSTALLING THE INFRARED RECEIVER

- When installing the infrared receiver (accessory), remove one of the corner covers from the decorative panel and replace it.
- The receiver should be in a place where it will not be affected by the direct light from fluorescent lights. (Refer to the illustration below)
  (If using an inverter-type fluorescent light, keep the receiver at least 1 meter away from the light, otherwise the remote control operation may not work properly.)



Turn on the fluorescent lights and check to that the receiver properly receives the remote control signal while the fluorescent lights are lit.
(If the earth wire is not connect, the infrared receiver may not receive the signal.)

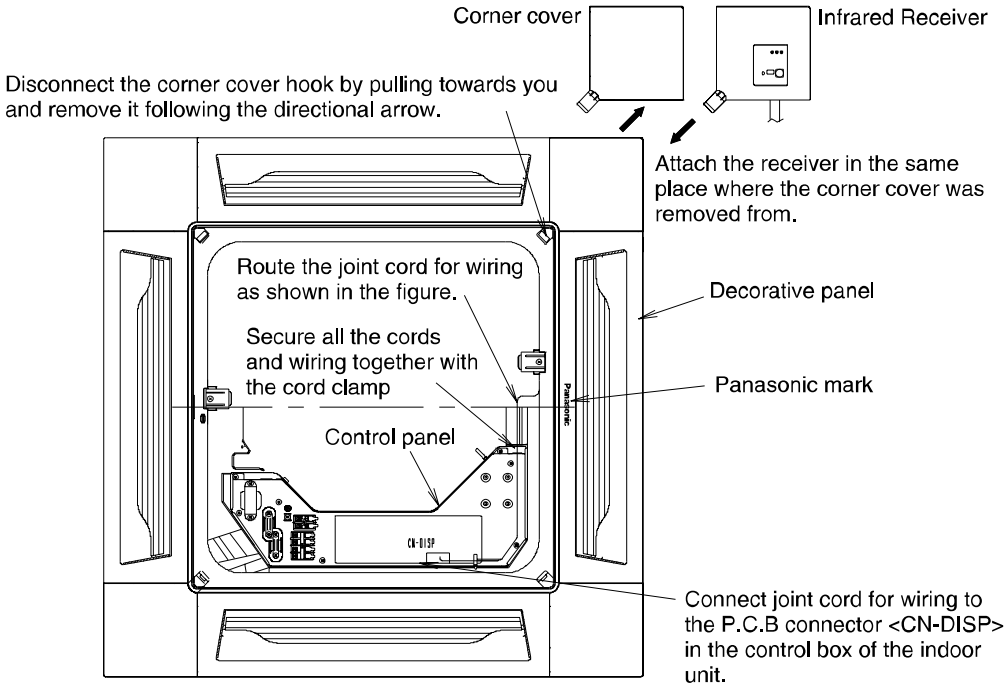
- The infrared remote control can be used to operate indoor units at a maximum range of 8 meters from directly in front of the indoor unit.
- If the remote control is at an angle to the receiver, the operating range may become shortened.

INFRARED RECEIVER ASSEMBLY PROCEDURE

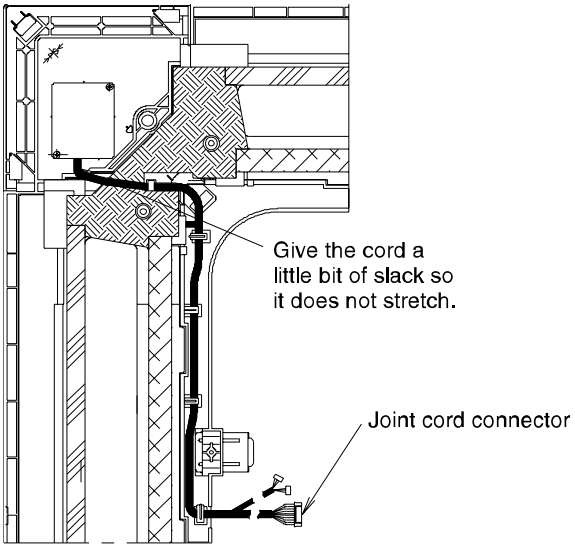
① Attach the infrared receiver onto the decorative panel of the indoor unit as shown in the figure.

1. Remove the “corner cover” to the left side of the “Panasonic” mark on the decorative panel as shown in the figure.
2. Attach the infrared receiver in the same place where the corner cover was removed from.

② Route the joint cord for wiring and connect it to the P.C.B connector <CN-DISP> in the control box of the indoor unit. After connecting the cord, secure all the cords and wiring (louver motor wire, etc.) together with the clamp.

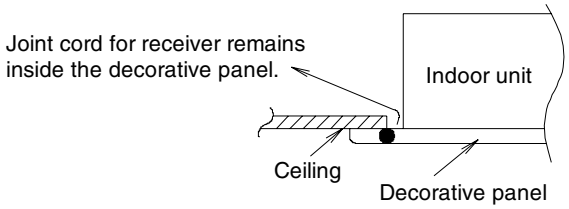


1. After attaching the infrared receiver to the decorative panel, route the receiver's joint cord as shown in the diagram below and pass the cord through the hook located on the rear side of the decorative panel so it does not stick out.



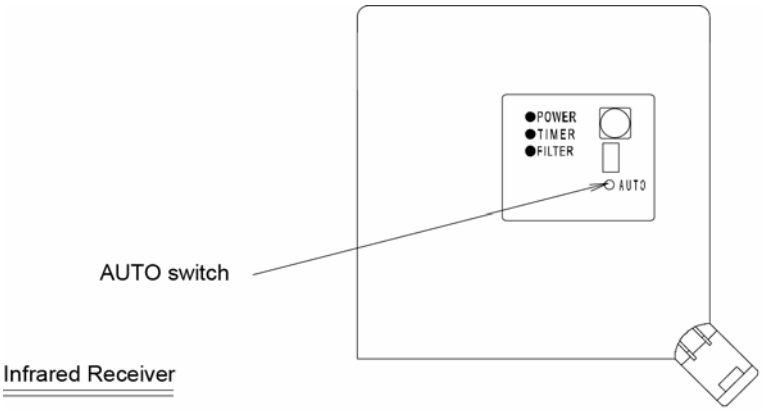
2. Remove the control box cover by removing the two screws and connect joint cord for wiring to the P.C.B connector <CN-DISP> in the control box.

Note
When securing the decorative panel to the unit, be sure that the receiver's joint cord remains inside the decorative panel and is not caught on the ceiling.



11.9.3 EMERGENCY OPERATION

- If you do not have the infrared remote control (because the batteries are weak, or some other reason prevents the infrared remote control from being used), the emergency operation can be carried out at the receiver.



- Press the AUTO switch to start the emergency operation. Press the AUTO switch once more to stop the emergency operation.
- Press the AUTO switch for 5 seconds or more (it will beep once) to start the cooling operation. Again, press the AUTO switch for 5 seconds or more (it will beep twice) to start the heating operation.
- The setting of the fan speed and louver control will be fixed as shown by the table below.
- While the indoor unit is running, the POWER indicator on the infrared receiver will illuminate, and it will light off when the indoor unit stops.
- Heating operation is not available for indoor units which are for cooling only.

Operation mode	Fan speed	Louver
Cooling	Hi	Previous setting
Heating	Hi	Previous setting

INSTRUCTIONS FOR USERS

Please refer to the instruction manual provided with the indoor unit for instructions on how to use the infrared remote control.

11.10 FS MULTI SLIM DUCT TYPE INDOOR UNIT (NA1E5 SERIES)

REFRIGERANT
R 410A

*Only available for selected country

HP	Cooling capacity	Model name
0.8	2.2kW	S-22NA1E5
1.0	2.8kW	S-28NA1E5
1.25	3.2kW	S-32NA1E5
1.5	3.6kW	S-36NA1E5
1.65	4.0kW	S-40NA1E5
1.75	4.5kW	S-45NA1E5
2.0	5.6kW	S-56NA1E5

Precautions in terms of safety

Carry out installation work with reliability after thorough reading of this “Precaution in terms of safety”.

- Precautions shown here are differentiated between ⚠ Warnings and ⚠ Cautions. Those that have much chances for leading to significant result such as fatality or serious injury if wrong installation would have been carried out are listed compiling them especially into the column of ⚠ Warnings.
  However, even in the case of items which are listed in the column of ⚠ Cautions, such items also have a chance for leading to significant result depending on the situations.
  In either case, important descriptions regarding the safety are listed, then observe them without fail.
- As to indications with illustration

⚠	This mark means “Caution” or “Warning”.

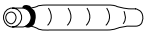
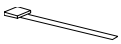
⏚	This mark means “Earth”.

- After installation work has been completed, do not only make sure that the unit is free from any abnormal condition through the execution of trial run but also explain how to use and how to perform maintenance of this unit to the customer according to the instruction manual.

⚠ Warnings	
▲	The appliance must be installed by technician, who takes into account the requirements given by ISO5149 or eventual equivalent requirements.
▲	As to installation, request the distributor or vendor to perform it. Imperfection in installation caused by that having been carried out by the customer himself may leads to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability according to this manual for installation work. Imperfection in installation leads to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability on the place that can bears the weight of this unit sufficiently. Insufficient strength leads to injury due to falling of the unit.
▲	Carry out predetermined installation work in preparation for strong wind such as typhoon, earthquake. Imperfection in installation work may lead to accidents arisen from overturn, etc.
▲	The unit must be installed in accordance with applicable national and local regulations. Any electrical work should only be carried out by qualified technician and use exclusive circuits without fail. Presence of insufficient capacity in power circuit or imperfection in execution leads to electric shock, fire, etc.
▲	Wiring shall be connected using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.
▲	If installing inside a small room, measures should be taken to prevent refrigerant levels from building up to critical concentrations in the event of a refrigerant leak occurring. Please discuss with the place of purchase for advice on what measures may be necessary to prevent critical concentrations being exceeded. If the refrigerant leaks and reaches critical concentration levels, there is the danger that death from suffocation may result.
▲	Securely attach the protective covers for the outdoor unit connection cables and power cord so that they do not lift up after installation. If the covers are not properly attached and installed, the terminal connections may overheat, and fire or electric shock may result.
▲	Switch off all supplies before accessing any electrical part.
▲	If refrigerant gas escapes during installation, ventilate the affected area. If the refrigerant gas comes into contact with sparks or naked flames, it will cause toxic gases to be generated.
▲	Once installation work is completed, check that there are no refrigerant gas in the room that can come into contact with sparks or flames from a fan heater, stove or kitchen range, which will cause toxic gases to be generated.
▲	When performing piping work do not mix air except for specified refrigerant (R410A) in refrigeration cycle. It causes capacity down, and risk of explosion and injury due to high tension inside the refrigerant cycle.

⚠ Cautions	
▲	Carry out Earthing work. Do not connect the Earth return to the gas pipe, water line pipe, lightning rod and telephone lines. Imperfection in Earth return may lead to electric shock.
▲	Do not install the unit at the place where the possibility of inflammable gas leakage exists. If gas leakage should arise and the gas builds up around the unit, such situation may lead to ignition.
▲	Mounting of the earth leakage circuit breaker is required. Omission in mounting of the earth leakage circuit breaker may lead to electric shock.
▲	Drain piping should be made to ensure secure drainage according to the manual for installation work and carry out the thermal insulation to prevent the occurrence of condensation. Imperfection in piping work leads to water leakage and may cause the house and property, etc. to become wet.
▲	Position the indoor unit, outdoor unit, power cords and indoor/outdoor unit connection cables in a way so that they are at least 1 meter away from televisions and radios. This is to avoid problems such as interference with picture and/or sound. (However, note that depending on the electromagnetic wave conditions, interference may still occur even if the separation distance is more than 1 meter.)

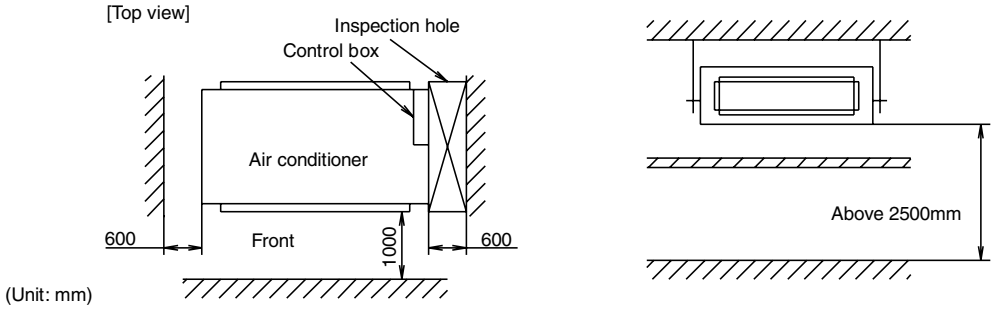
11.10.1 ACCESSORIES PACKED IN THE INDOOR UNIT CONTAINER

Name	Q'ty	Appearance	Purpose
Drain hose	1		For drain piping
Heat insulator	2		For insulating refrigerant pipe joint
Band	4		For fastening the heat insulator
Flat washer for M10	8		For fixing the hanging bolts
Installation Instruction	1		This manual

11.10.2 SELECTING THE LOCATION FOR THE INDOOR UNIT

Provide a check port on the piping side ceiling for repair and maintenance.

- Install the indoor unit once the following conditions are satisfied and after receiving the customer approval.
  1. The indoor unit must be within a maintenance space.
  2. The indoor unit must be free from any obstacles in path of the air inlet and outlet, and must allow spreading of air throughout the room.



✳ If the height from the floor to ceiling exceeds three meters, air flow distribution deteriorates and the effect is decreased.

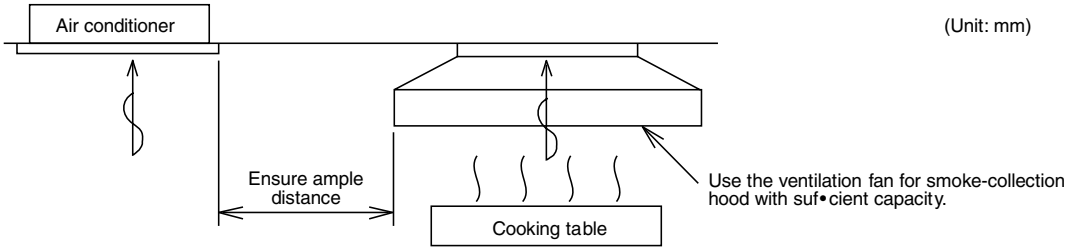
⚠ Warnings
3. The installation position must be able to support a load four times the indoor unit weight.

4. The indoor unit must be away from heat and steam sources, but avoid installing it near an entrance.
5. The indoor unit must allow easy draining.
6. The indoor unit must allow easy connection to the outdoor unit.
7. Place the indoor unit easy water drainage. (Suitable dimension "H" is necessary to get slop to drain as figure.)
8. The indoor unit must be from at least 3m away from any noise-generating equipment. The electrical wiring should be locally decided.
9. If the power supply is subject to noise generation, add a suppressor.
10. Do not install the indoor unit in a laundry. Electric shocks may result.

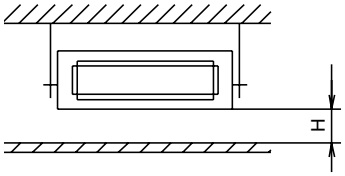
Note • Thoroughly study the following installation locations

1. In such places as restaurants and kitchens, considerable amount of oil steam and flour adhere to the turbo fan, the fin of the heat exchanger and the drain pump, resulting in heat exchange reduction, spraying, dispersing of water drops, drain pump malfunction, etc.
   In these cases, take the following actions:

- Make sure that the ventilation fan for smoke-collecting hood on a cooking table has sufficient capacity so that it draws oily steam which should not flow into the suction of the air conditioner.
- Make enough distance from the cooking room to install the air conditioner in such place where it may not suck in oily steam.

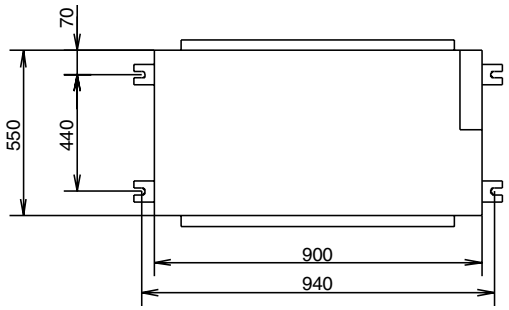


2. Avoid installing the air conditioner in such circumstances where cutting oil mist or iron powder exist especially in factories, etc.
3. Avoid places where inflammable gas is generated, flows-in, contaminated, or leaked.
4. Avoid places where sulphurous acid gas or corrosive gas can be generated.
5. Avoid places near high frequency generators.

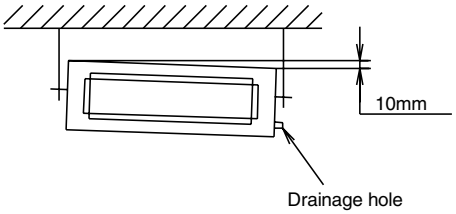


11.10.3 INSTALLATION OF INDOOR UNIT

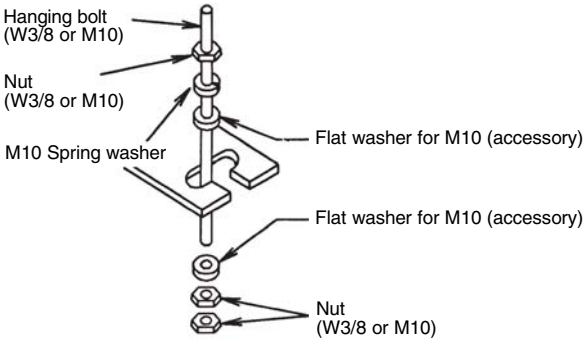
POSITION OF SUSPENSION BOLT

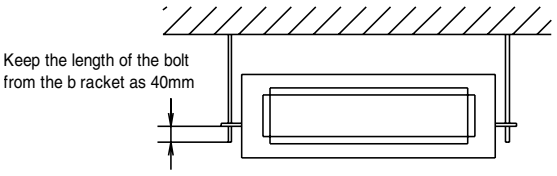


- Place a padding between the unit and duct to absorb unnecessary vibration.
- Install the unit connecting to the side of a drainage hole as shown in the diagram for easy water drainage.



POSITIONS OF AIR CONDITIONER BODY AND CEILING SURFACE

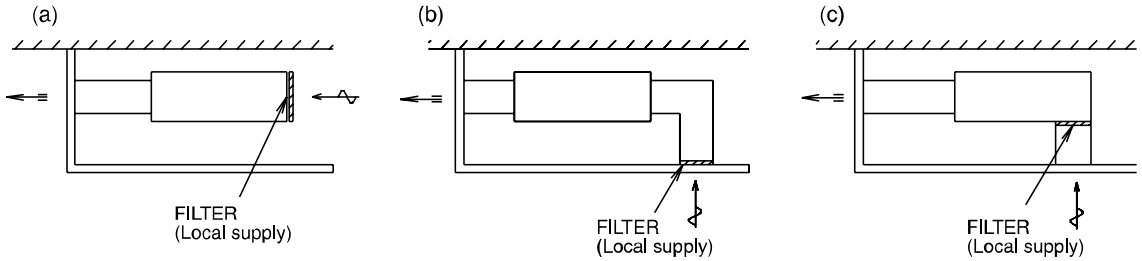




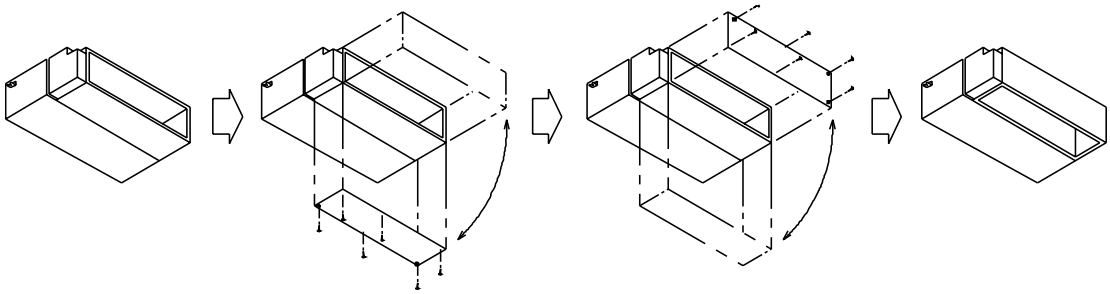
⚠ **Warning**	Tighten the nut and bolt to prevent unit from falling

INSTALLATION OF DUCT

1. There are three ways to install the duct for the air inlet as shown below; (a) ~ (c).



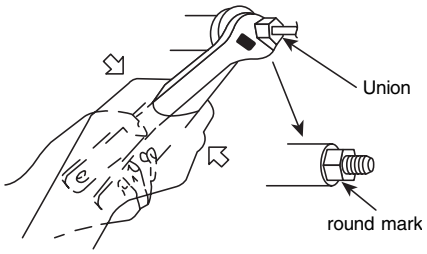
2. The bottom of the panel can be converted into an air inlet [as the case of diagram (c)] as shown below;



11.10.4 REFRIGERANT PIPING

Refrigerant is charged to the outdoor unit. For details, see the manual for installation work of outdoor unit. (Additional charging, etc.)

1. Brazing for piping.
   a. Execute brazing before tightening the flare nut.
   b. Brazing must be executed while blowing nitrogen gas. (This prevents generation of oxidized scale in copper pipe.)
2. When there is a lot of brazings for long piping, install a strainer midway of the piping. (The strainer is locally supplied.)
3. Use clean copper pipe with inner wall surface free from mist and dust. Blow nitrogen gas or air to blow off dust in the pipe before connection.
4. Form the piping according to its routing. Avoid bending and bending back the same piping point more than three times. (This will result in hardening of the pipe).
5. After deforming the pipe, align centers of the union fitting of the indoor unit and the piping, and tighten them firmly with wrenches.
6. Connect pipe to the service valve or ball valve which is located below the outdoor unit.
7. After completed the piping connection, be sure to check if there is gas leakage in indoor and outdoor connection.



- Confirm the round mark of the union (thin side) is always at lower direction after connecting piping.

Vacuum drying

After completing the piping connection, execute vacuum drying for the connecting piping and the indoor unit. The vacuum drying must be carried out by using the service ports of both the liquid and gas side valves.

CAUTION Use two wrenches and tighten with regular torque.

Flare nut fastening torque N•m (kgf•cm)			
ø6.35mm	18 (180)	ø12.7mm	55 (560)
ø9.52mm	42 (430)	ø15.88mm	65 (660)

Cooling capacity	Liquid piping	Gas piping
2.2kW - 6.3kW	ø6.35mm	ø12.7mm
7.1kW or more	ø9.52mm	ø15.88mm

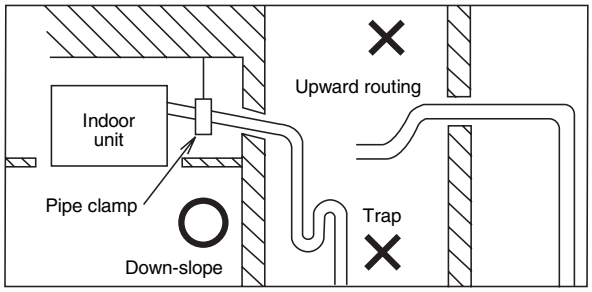
11.10.5 INDOOR UNIT DRAIN PIPING

- Drain piping must have down-slope (1/50 to 1/100); be sure not to provide up-and-down slope to prevent reversal flow.
- During drain piping connection, be careful not to exert extra force on the drain port at the indoor unit.
- The outside diameter of the drain connection at the indoor unit is 16 mm.

Piping material: Polyvinyl chloride pipe VP-16 and pipe fittings.

- Be sure to perform heat insulation on the drain piping.

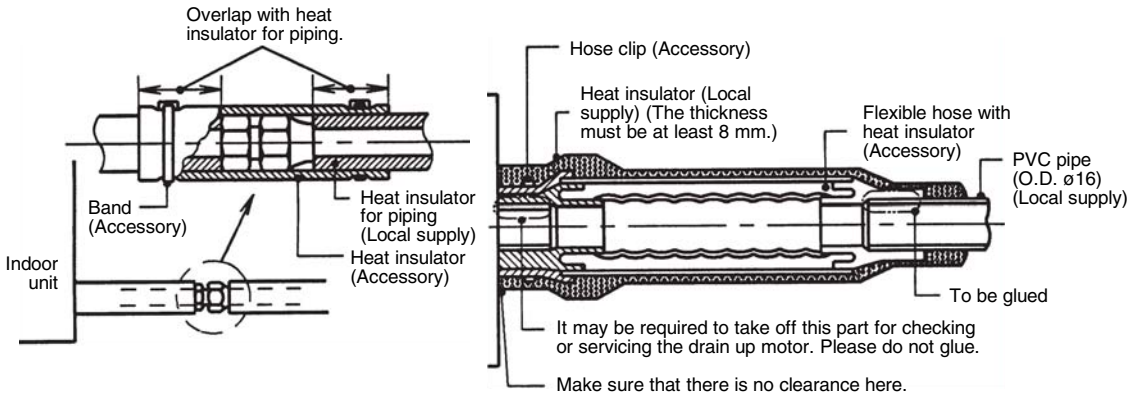
Heat insulation material: Polyethylene foam with thickness more than 8 mm (local supply).



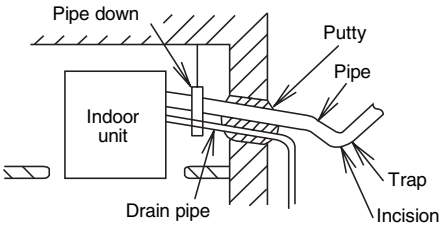
11.10.6 HEAT INSULATION

⚠ **Caution**	Be sure to perform heat insulation on the drain, liquid and gas piping. Imperfection in heat insulation work leads to water leakage.

1. Use the heat insulation material for the refrigerant piping which has an excellent heat-resistance (over 120°C).



2. Precautions in high humidity circumstance.
   This air conditioner has been tested according to the "JIS Standard Conditions with Mist" and have been confirmed that there are no faults. However, if it is operated for a long time in high humid atmosphere (dew point temperature: more than 23°C), water drops are liable to fall. In this case, add heat insulation material according to the following procedure:
   - Heat insulation material to be prepared… Adiabatic glass wool with thickness 10 to 20 mm.
   - Stick glass wool on all air conditioners that are located in ceiling atmosphere.
   - In addition to the normal heat insulation (thickness: more than 8 mm) for refrigerant piping (gas piping: thick piping) and drain piping, add a further of 10 mm to 30 mm thickness material.

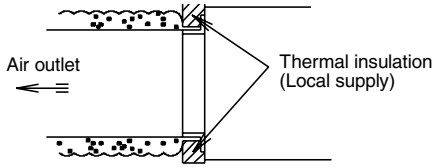


✳ Put the incision at the trap part of the heat insulator (for water drain)

Wall seal

- When the outdoor unit is installed on a higher position than the indoor unit, install the trap so as not to instill rain water into the wall by transmitting in piping.
- Stuff the space among piping, the electric wire, and the drain hose with "Putty" and seal the penetration wall hole.
  Make sure that rain water do not instill into the wall.

3. The duct connection of the air outlet thermal insulation.



11.10.7 ELECTRICAL WIRING

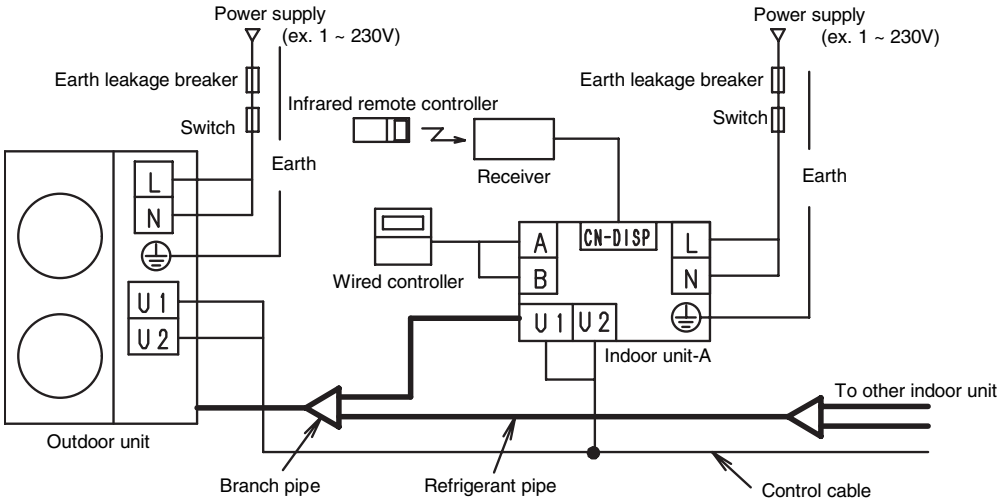
As to main power source and cable size of outdoor unit, read the installation instructions attached to the outdoor unit.

⚠ **Warning**	The units must be installed in accordance with applicable national and local regulations. The units installed by a professional installer must be supplied from a dedicated electrical circuit. All electric work must be carried out by a qualified technician according to proper technical standards for electrical work and according to installation instructions for installation work. If circuits with insufficient capacity are used, or if electrical work is not carried out properly, electric shocks or fire may result.
⚠ **Caution**	Be sure to install a current leakage breaker or circuit breaker to the main power supply, otherwise electric shocks may result.
⚠ **Caution**	Be sure to connect the unit to secure earth connection. (with a earth resistance of 100 Ω or less). If the earthing work is not carried out properly, electric shocks may result.
⚠ **Warning**	Wiring shall be connected securely using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.

1. Select a power source that is capable of supplying the current required by the air conditioner.
2. Feed the power source to the unit via a distribution switch board designed for this purpose, the switch should disconnected all poles with a contact separation of at least 3 mm.
3. Always ground the air conditioner with a grounding wire and screw to meet the LOCAL REGULATIONS.
4. Be sure to connect the wires correctly to terminal board with connecting the crimp type ring terminal to the wires.
5. Be sure to turn off the main power before installing and connecting the remote control.

Note	If momentarily turning on the power supply for both the indoor and outdoor units, do not turn the power off after at least 1 minute has passed. (For the system's automatic setting.) Turning off the power supply on the way may cause an abnormal operation.

- Use the standard power cord for Europe (such as H05RN-F or H07RN-F which conforms to CENELEC (HAR) rating specifications) or use the cables based on IEC standard. (245IEC57, 245IEC66)



Provide separate power supplies to the indoor and outdoor units.

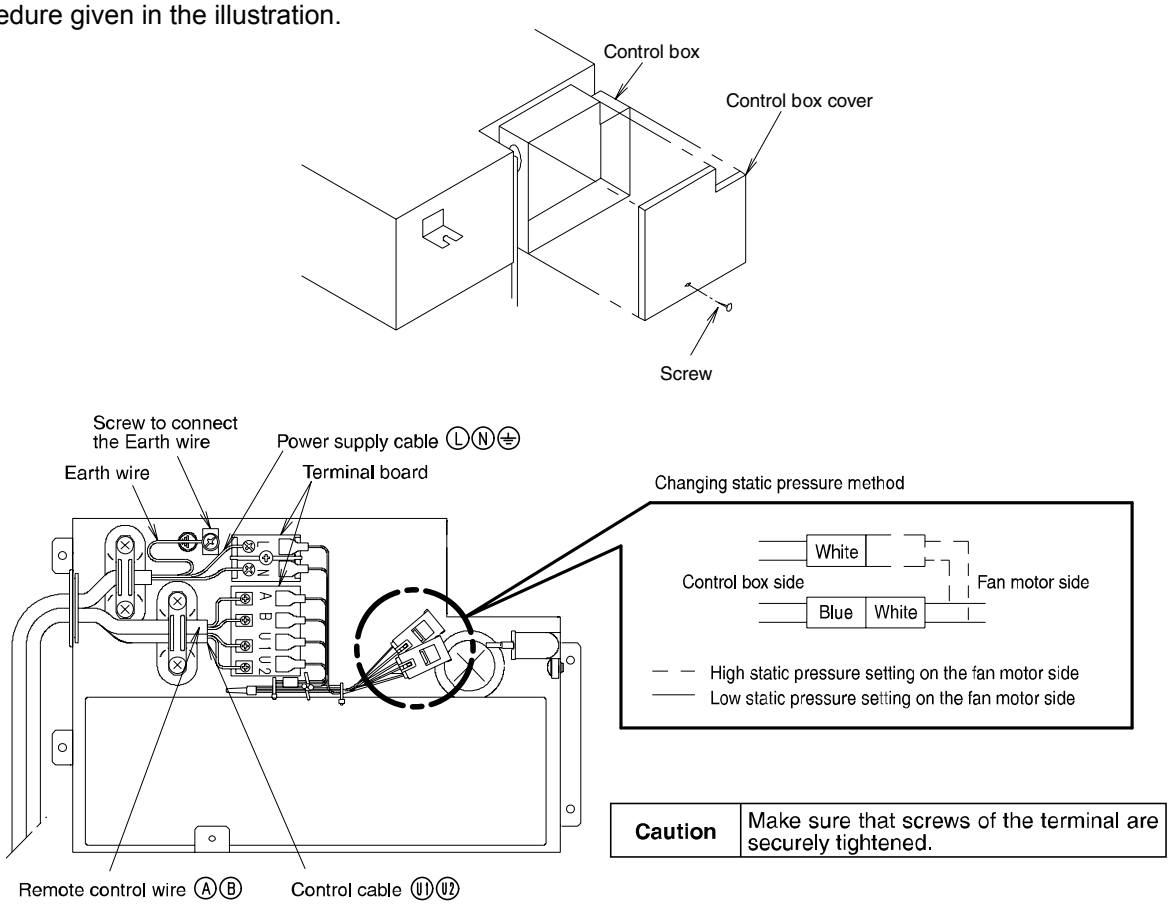
- Power supply specifications

Model name	Power supply	Power supply cable		Leakage current breaker (A)	Circuit breaker (Minimum capacity)		※ 2 Control Cable ⑪⑫	Remote Controller Cable ⒶⒷ
		Minimum power cable supply cables ⓁⓃ⏚	※ 1 Length (m)		Switch (A)	Fuse (A)		
Indoor unit	220V-240V~	2 mm^2	100	15A	15A	15A	0.75 mm^2	0.5 ~ 2 mm^2

※ 1. The maximum length shows a 2% voltage drop.
※ 2. Use an unshielded bus transmission line.

CONNECTING THE WIRES TO THE CONTROL BOX

- Remove the mounting screw, remove the control box cover, and then connect the wires by following the procedure given in the illustration.



Caution	Make sure that screws of the terminal are securely tightened.

11.10.8 SETTINGS

※ The automatic system settings can take up to 1 minute once power is supplied; do not operate the remote control during this time.
※ In the event that 1 remote control group control is not used, do not set up the group control address (A/C No.). The wired remote control will not display when the settings for the A/C No. are set to a value other than “01”.
※ Once the wires are connected to 1 remote control group control and power is supplied to the indoor unit, the A/C No. is automatically set. To stop group control use, follow the directions below and clear the A/C No. that was automatically set after disconnecting the wires for group control. If it is not cleared then the wired remote control will not show any display.

- Instructions on clearing the A/C No. after automatic setup
  Turn OFF the indoor unit power supply → Using the DIP switch set the A/C No. to “16” → Turn ON the power supply of the indoor unit → After approximately 1 minute, turn OFF the power supply to the indoor unit → Set the DIP switch for the A/C No. to “01”.
  (The next time the power supply is turned ON, the A/C No. will be cleared.)

Setting for 1 remote control group control

- A maximum of 16 indoor units can be connected at the time of group control. (Do not connect the heat pump unit with the cooling only unit.)
- There are 2 methods for setting the group control address (A/C No.); an automatic and a manual setting method.
- The A/C No. setting cannot be confirmed when using the automatic method.
- To set each indoor unit's A/C No., use the manual setting method.
  However, if the wall type indoor unit is connected, then manual setting is not possible.
  ■ Automatic setting
  - By switching ON the indoor unit's power supply with the DIP switch where the A/C No. is set to "01" (factory setting), the A/C No. will be automatically set. (After activating the power for all indoor units, the automatic setting takes approximately one minute.)
  - Once the A/C No. is automatically set, even when the power supply is switched OFF, the setting is stored. To reset the A/C No. setting, follow the instructions for the "group control automatic address reset". Refer to the item "Local setting" in the installation instruction manual that comes with the wired remote control for the "group control automatic address reset" method.
    * If the indoor unit's A/C No. DIP switch is not set to "01", the automatic setting cannot be reset.

  ■ Manual setting
  - The manual setting is performed using each indoor unit's printed circuit board DIP switch. (Refer to the diagram below)
  - Set the DIP switch once the power supply for each indoor unit is switched OFF. When the power supply is turned ON, the stored A/C No. is recalled.
  - To change the setting of the A/C No., turn OFF the power supply before resetting the DIP switch.
    * Ensure that there is no redundancy in the A/C No. Any redundancy can cause faulty control.
    * Ensure to set the A/C No. to "01" for 1 indoor unit.

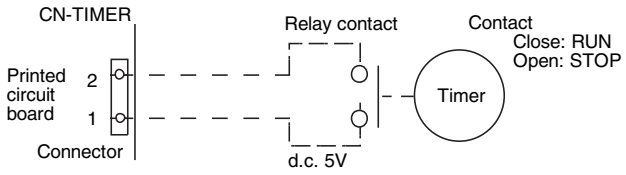
A/C No.	01	02	03	04	05	06	07	08
Indoor unit printed circuit board DIP switch (SW2)								
	Unnecessary operation	1-ON	2-ON	1,2-ON	3-ON	1,3-ON	2,3-ON	1,2,3-ON
A/C No.	09	10	11	12	13	14	15	16
Indoor unit printed circuit board DIP switch (SW2)								
	4-ON	1,4-ON	2,4-ON	1,2,4-ON	3,4-ON	1,3,4-ON	2,3,4-ON	1,2,3,4-ON

(Refer to the remote control's installation instruction manual for the remote control settings.)

11.10.9 AS FOR TIMER OUTPUT

- Connect the timer cord to connector (CN-TIMER) on print circuit board.

Timer setting



- The connector must use XH-2 (housing) manufactured by J.S.T. Mfg. Co., Ltd.
- Wiring must use vinyl code with the sheath or cable line diameter 0.3mm^2.
- The length of wiring should be within 150m and separated from power line in order to prevent malfunction.
- The input current is DC5V, and 1mA. The relay contact must use the contact for the minute electric current suitable for this.

11.11 FS MULTI DUCT TYPE INDOOR UNIT (MA1E5 SERIES)

REFRIGERANT
R 410A

HP	Cooling capacity	Model name
1.75	4.5kW	S-45MA1E5
2.0	5.6kW	S-56MA1E5
2.5	6.3kW	S-63MA1E5
3.0	7.1kW	S-71MA1E5
3.5	9.0kW	S-90MA1E5

Precautions in terms of safety

Carry out installation work with reliability after thorough reading of this “Precaution in terms of safety”.

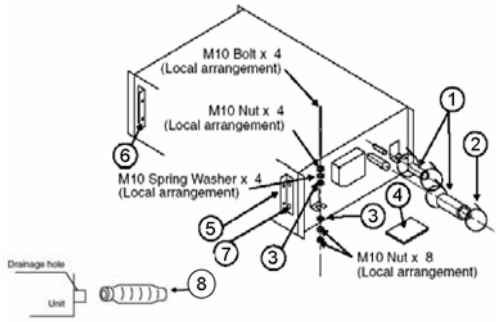
- Precautions shown here are differentiated between ⚠ Warnings and ⚠ Cautions. Those that have much chances for leading to significant result such as fatality or serious injury if wrong installation would have been carried out are listed compiling them especially into the column of ⚠ Warnings.
  However, even in the case of items which are listed in the column of ⚠ Cautions, such items also have a chance for leading to significant result depending on the situations.
  In either case, important descriptions regarding the safety are listed, then observe them without fail.
- As to indications with illustration
  ⚠ This mark means “Caution” or “Warning”. ⏚ This mark means “Earth”.
- After installation work has been completed, do not only make sure that the unit is free from any abnormal condition through the execution of trial run but also explain how to use and how to perform maintenance of this unit to the customer according to the instruction manual.

⚠ Warnings	
▲	The appliance must be installed by technician, who takes into account the requirements given by ISO5149 or eventual equivalent requirements.
▲	As to installation, request the distributor or vendor to perform it. Imperfection in installation caused by that having been carried out by the customer himself may leads to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability according to this manual for installation work. Imperfection in installation leads to water leakage, electric shock, fire, etc.
▲	Carry out the installation work with reliability on the place that can bears the weight of this unit sufficiently. Insufficient strength leads to injury due to falling of the unit.
▲	Carry out predetermined installation work in preparation for strong wind such as typhoon, earthquake. Imperfection in installation work may lead to accidents arisen from overturn, etc.
▲	The unit must be installed in accordance with applicable national and local regulations. Any electrical work should only be carried out by qualified technician and use exclusive circuits without fail. Presence of insufficient capacity in power circuit or imperfection in execution leads to electric shock, fire, etc.
▲	Wiring shall be connected using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.
▲	If installing inside a small room, measures should be taken to prevent refrigerant levels from building up to critical concentrations in the event of a refrigerant leak occurring. Please discuss with the place of purchase for advice on what measures may be necessary to prevent critical concentrations being exceeded. If the refrigerant leaks and reaches critical concentration levels, there is the danger that death from suffocation may result.
▲	Securely attach the protective covers for the outdoor unit connection cables and power cord so that they do not lift up after installation. If the covers are not properly attached and installed, the terminal connections may overheat, and fire or electric shock may result.
▲	Switch off all supplies before accessing any electrical part.
▲	If refrigerant gas escapes during installation, ventilate the affected area. If the refrigerant gas comes into contact with sparks or naked flames, it will cause toxic gases to be generated.
▲	Once installation work is completed, check that there are no refrigerant gas in the room that can come into contact with sparks or flames from a fan heater, stove or kitchen range, which will cause toxic gases to be generated.
▲	When performing piping work do not mix air except for specified refrigerant (R410A) in refrigeration cycle. It causes capacity down, and risk of explosion and injury due to high tension inside the refrigerant cycle.

⚠ Cautions	
▲	Carry out Earthing work. Do not connect the Earth return to the gas pipe, water line pipe, lightning rod and telephone lines. Imperfection in Earth return may lead to electric shock
▲	Do not install the unit at the place where the possibility of inflammable gas leakage exists. If gas leakage should arise and the gas builds up around the unit, such situation may lead to ignition.
▲	Mounting of the earth leakage circuit breaker is required. Omission in mounting of the earth leakage circuit breaker may lead to electric shock.
▲	Drain piping should be made to ensure secure drainage according to the manual for installation work and carry out the thermal insulation to prevent the occurrence of condensation. Imperfection in piping work leads to water leakage and may cause the house and property, etc. to become wet.
▲	Position the indoor unit, outdoor unit, power cords and indoor/outdoor unit connection cables in a way so that they are at least 1 meter away from televisions and radios. This is to avoid problems such as interference with picture and/or sound. (However, note that depending on the electromagnetic wave conditions, interference may still occur even if the separation distance is more than 1 meter.)

11.11.1 ACCESSORIES PACKED IN THE INDOOR UNIT CONTAINER

No	Parts name	Q'ty
1	Thermal insulator for refrigerant pipe	2
2	Hose clip for thermal insulator	5
3	M10 Flat waher	8
4	Thermal insulator for drainage hole	1
5	Duct flange R	1
6	Duct flange L	1
7	Screws	4
8	Flexible pipe	1

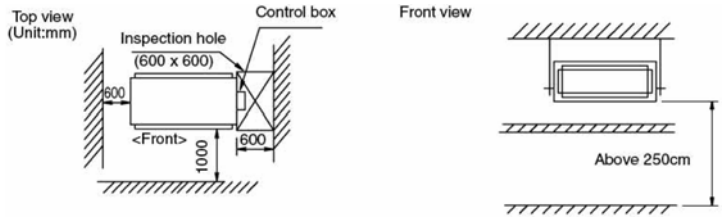


- (5) and (6) should be installed when the duct will be installed at the return hole.

11.11.2 SELECTING THE LOCATION FOR THE INDOOR UNIT

Provide a check port on the piping side ceiling for repair and maintenance.

- Install the indoor unit once the following conditions are satisfied and after receiving the customer approval.
  1. The indoor unit must be within a maintenance space.
  2. The indoor unit must be free from any obstacles in path of the air inlet and outlet, and must allow spreading of air throughout the room.



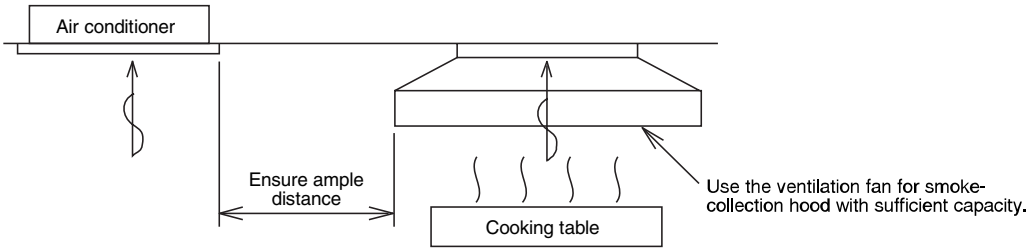
✳ If the height from the floor to ceiling exceeds three meters, air flow distribution deteriorates and the effect is decreased.

⚠ Warnings
3. The installation position must be able to support a load four times the indoor unit weight.

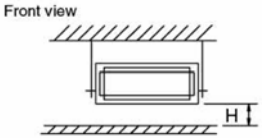
4. The indoor unit must be away from heat and steam sources, but avoid installing it near an entrance.
5. The indoor unit must allow easy draining.
6. The indoor unit must allow easy connection to the outdoor unit.
7. Place the indoor unit easy water drainage. (Suitable dimension "H" is necessary to get slop to drain as figure.)
8. The indoor unit must be from at least 3m away from any noise-generating equipment. The electrical wiring must be shielded with a steel conduit.
9. If the power supply is subject to noise generation, add a suppressor.
10. Do not install the indoor unit in a laundry. Electric shocks may result.

Note • Thoroughly study the following installation locations

1. In such places as restaurants and kitchens, considerable amount of oil steam and flour adhere to the turbo fan, the fin of the heat exchanger and the drain pump, resulting in heat exchange reduction, spraying, dispersing of water drops, drain pump malfunction, etc.
   In these cases, take the following actions:
   - Make sure that the ventilation fan for smoke-collecting hood on a cooking table has sufficient capacity so that it draws oily steam which should not flow into the suction of the air conditioner.
   - Make enough distance from the cooking room to install the air conditioner in such place where it may not suck in oily steam.

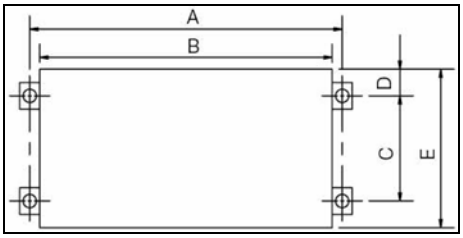


2. Avoid installing the air conditioner in such circumstances where cutting oil mist or iron powder exist especially in factories, etc.
3. Avoid places where inflammable gas is generated, flows-in, contaminated, or leaked.
4. Avoid places where sulphurous acid gas or corrosive gas can be generated.
5. Avoid places near high frequency generators.

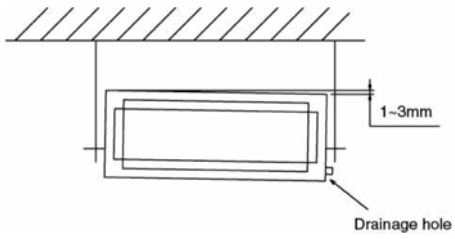


11.11.3 INSTALLATION OF INDOOR UNIT

POSITION OF SUPENSION BOLT

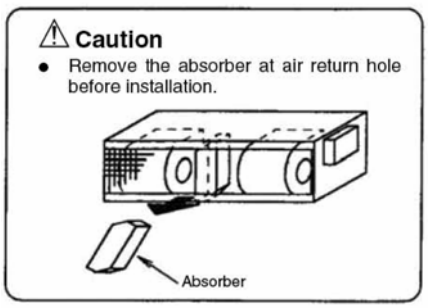


- Apply a joint-canvas between the unit and duct to absorb unnecessary vibration.
- Install the unit leaning to a drainage hole side as a figure for easy water drainage.



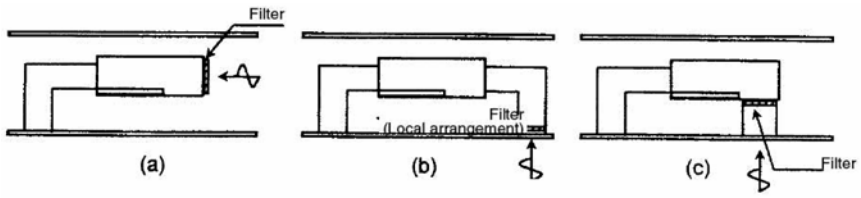
(unit: mm)

	A	B	C	D	E
S-45MA1E5	840	780	523	64	650
S-56MA1E5					
S-63MA1E5	1060	1000	523	64	650
S-71MA1E5					
S-90MA1E5					



INSTALLATION OF DUCT

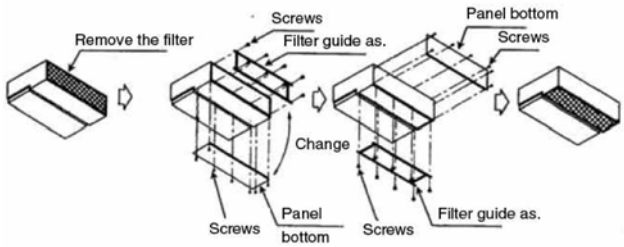
1. The duct of the air inlet could be installed by the three situations as shown in the illustration below (a) ~ (c).



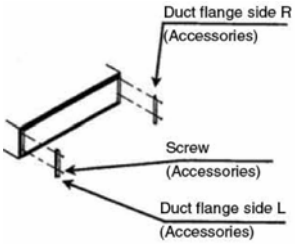
Setting the filter:

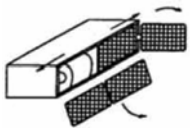
Case of (a): Reverse the filter and not install the duct of the air inlet.
Case of (b): Remove the filter (local arrangement) and install the duct of the air inlet.
Case of (c): Change the panel bottom to install the duct of the air inlet.

2. The panel bottom could be changed into air inlet (case of (c)) as shown in the illustration below.



3. When the duct of air inlet will be installed, install the duct flange side R & L to the air inlet with accessories as shown in the illustration.
4. The filter could be removed from any one of three directions as shown in the illustration below.

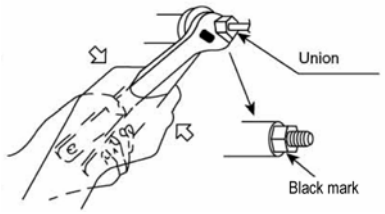




11.11.4 REFRIGERANT PIPING

Refrigerant is charged to the outdoor unit. For details, see the manual for installation work of outdoor unit. (Additional charging, etc.)

1. Brazing for piping.
   a. Execute brazing before tightening the flare nut.
   b. Brazing must be executed while blowing nitrogen gas. (This prevents generation of oxidized scale in copper pipe.)
2. When there is a lot of brazings for long piping, install a strainer midway of the piping. (The strainer is locally supplied.)
3. Use clean copper pipe with inner wall surface free from mist and dust. Blow nitrogen gas or air to blow off dust in the pipe before connection.
4. Form the piping according to its routing. Avoid bending and bending back the same piping point more than three times. (This will result in hardening of the pipe).
5. After deforming the pipe, align centers of the union fitting of the indoor unit and the piping, and tighten them firmly with wrenches.
6. Connect pipe to the service valve or ball valve which is located below the outdoor unit.
7. After completed the piping connection, be sure to check if there is gas leakage in indoor and outdoor connection.



- Confirm the black mark of the union (thin side) is always at lower direction after connecting piping.

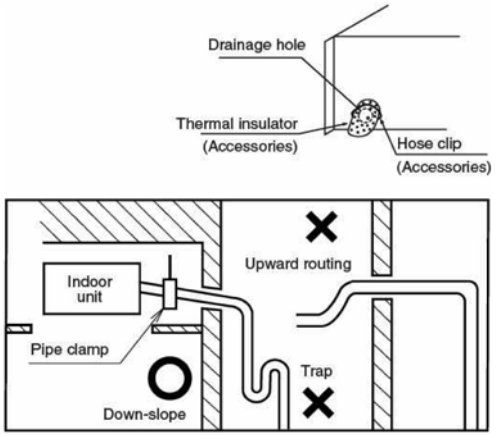
Vacuum drying
After completing the piping connection, execute vacuum drying for the connecting piping and the indoor unit.
The vacuum drying must be carried out by using the service ports of both the liquid and gas side valves.

CAUTION Use two wrenches and tighten with regular torque.

Flare nut fastening torque N•m (kgf•cm)					
ø6.35mm	18 (180)	ø12.7mm	55 (560)	ø19.05mm	100 (1020)
ø9.52mm	42 (430)	ø15.88mm	65 (660)		

11.11.5 INDOOR UNIT DRAIN PIPING

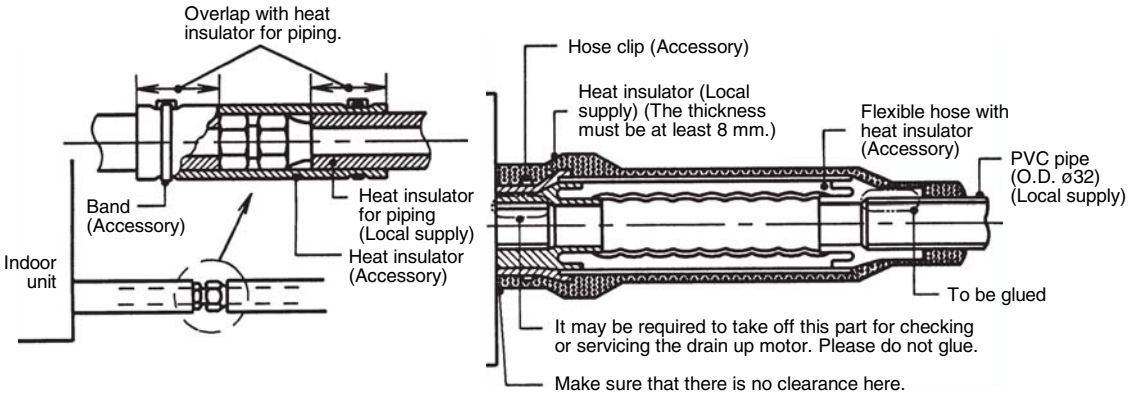
- The unit has two drainage holes at both side.
  The drainage hole without connection needs seal and thermal insulation with accessories.
- Always lay the drain with downward inclination (1/50 to 1/100).
  Prevent any upward flow or reverse flow in any part.
- 5mm or thicker formed thermal insulator shall always be provided for the drain pipe.



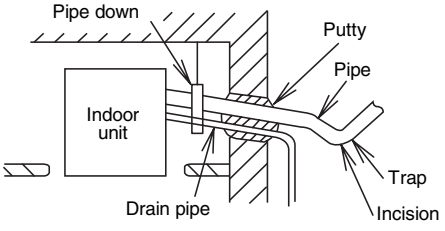
11.11.6 HEAT INSULATION

⚠ Caution	Be sure to perform heat insulation on the drain, liquid and gas piping. Imperfection in heat insulation work leads to water leakage.

1. Use the heat insulation material for the refrigerant piping which has an excellent heat-resistance (over 120°C).



2. Precautions in high humidity circumstance.
   This air conditioner has been tested according to the "JIS Standard Conditions with Mist" and have been confirmed that there are no faults. However, if it is operated for a long time in high humid atmosphere (dew point temperature: more than 23°C), water drops are liable to fall. In this case, add heat insulation material according to the following procedure:
   - Heat insulation material to be prepared… Adiabatic glass wool with thickness 10 to 20 mm.
   - Stick glass wool on all air conditioners that are located in ceiling atmosphere.
   - In addition to the normal heat insulation (thickness: more than 8 mm) for refrigerant piping (gas piping: thick piping) and drain piping, add a further of 10 mm to 30 mm thickness material.

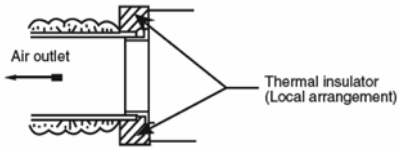


✳ Put the incision at the trap part of the heat insulator (for water drain)

Wall seal

- When the outdoor unit is installed on a higher position than the indoor unit, install the trap so as not to instill rain water into the wall by transmitting in piping.
- Stuff the space among piping, the electric wire, and the drain hose with “Putty” and seal the penetration wall hole.
  Make sure that rain water do not instill into the wall.

3. The duct connection of the air outlet needs thermal insulation.



11.11.7 ELECTRICAL WIRING

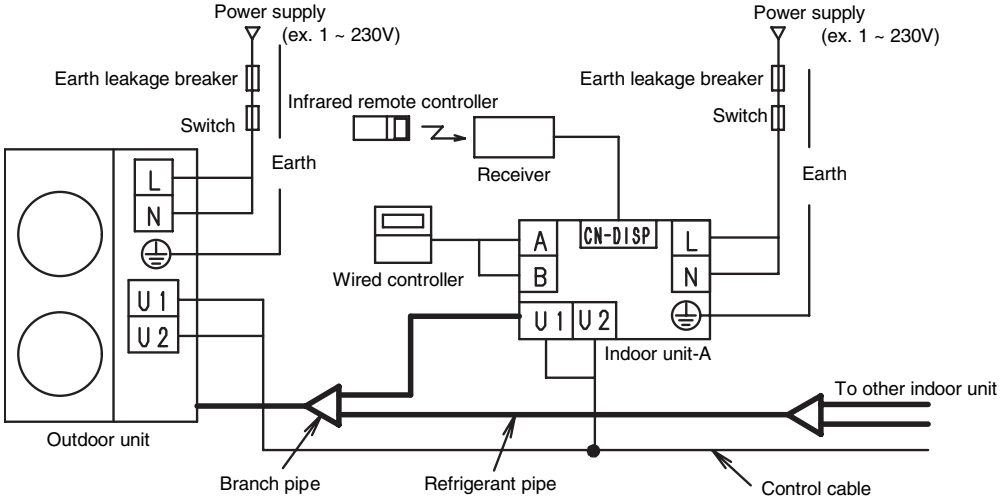
As to main power source and cable size of outdoor unit, read the installation instructions attached to the outdoor unit.

⚠ **Warning**	The units must be installed in accordance with applicable national and local regulations. The units installed by a professional installer must be supplied from a dedicated electrical circuit. All electric work must be carried out by a qualified technician according to proper technical standards for electrical work and according to installation instructions for installation work. If circuits with insufficient capacity are used, or if electrical work is not carried out properly, electric shocks or fire may result.
⚠ **Caution**	Be sure to install a current leakage breaker or circuit breaker to the main power supply, otherwise electric shocks may result.
⚠ **Caution**	Be sure to connect the unit to secure earth connection. (with a earth resistance of 100 Ω or less). If the earthing work is not carried out properly, electric shocks may result.
⚠ **Warning**	Wiring shall be connected securely using specified cables and fix them securely so that external force of the cables may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc.

1. Select a power source that is capable of supplying the current required by the air conditioner.
2. Feed the power source to the unit via a distribution switch board designed for this purpose, the switch should disconnected all poles with a contact separation of at least 3 mm.
3. Always ground the air conditioner with a grounding wire and screw to meet the LOCAL REGULATIONS.
4. Be sure to connect the wires correctly to terminal board with connecting the crimp type ring terminal to the wires.
5. Be sure to turn off the main power before installing and connecting the remote control.

Note	If momentarily turning on the power supply for both the indoor and outdoor units, do not turn the power off after at least 1 minute has passed. (For the system’s automatic setting.) Turning off the power supply on the way may cause an abnormal operation.

- Use the standard power cord for Europe (such as H05RN-F or H07RN-F which conforms to CENELEC (HAR) rating specifications) or use the cables based on IEC standard. (245IEC57, 245IEC66)



Provide separate power supplies to the indoor and outdoor units.

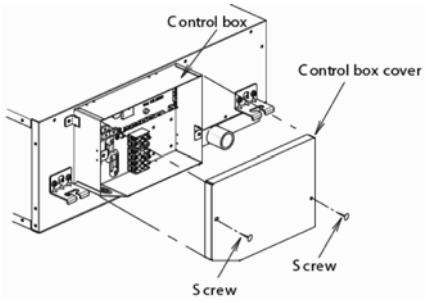
- Power supply specifications

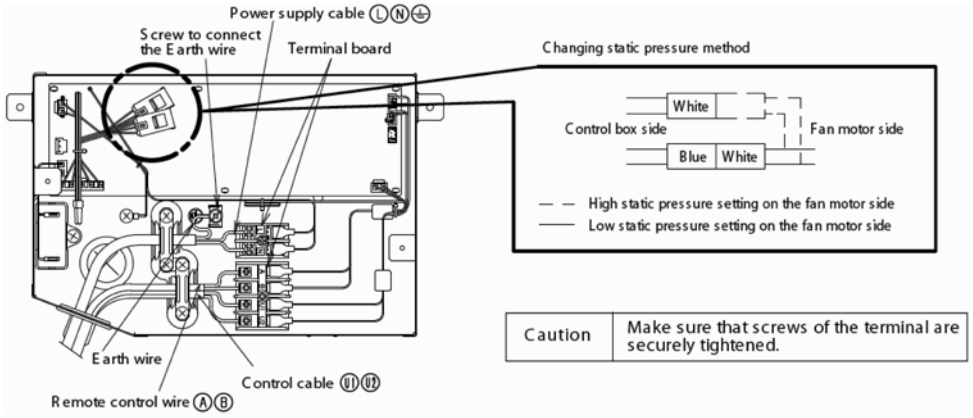
Model name	Power supply	Power supply cable		Leakage current breaker (A)	Circuit breaker (Minimum capacity)		※ 2 Control Cable ⓤ1 ⓤ2	Remote Controller Cable Ⓐ Ⓑ
		Minimum power cable supply cables Ⓛ Ⓝ ⏚	※ 1 Length (m)		Switch (A)	Fuse (A)		
Indoor unit	220V-240V~	2 mm^2	100	15A	15A	15A	0.75 mm^2	0.5 ~ 2 mm^2

※ 1. The maximum length shows a 2% voltage drop.
※ 2. Use an unshielded bus transmission line.

CONNECTING THE WIRES TO THE CONTROL BOX

- Remove the mounting screw, remove the control box cover, and then connect the wires by following the procedure given in the illustration.





11.11.8 SETTINGS

※ The automatic system settings can take up to 1 minute once power is supplied; do not operate the remote control during this time.
※ In the event that 1 remote control group control is not used, do not set up the group control address (A/C No.). The wired remote control will not display when the settings for the A/C No. are set to a value other than “01”.
※ Once the wires are connected to 1 remote control group control and power is supplied to the indoor unit, the A/C No. is automatically set. To stop group control use, follow the directions below and clear the A/C No. that was automatically set after disconnecting the wires for group control. If it is not cleared then the wired remote control will not show any display.
  - Instructions on clearing the A/C No. after automatic setup
    Turn OFF the indoor unit power supply → Using the DIP switch set the A/C No. to “16” → Turn ON the power supply of the indoor unit → After approximately 1 minute, turn OFF the power supply to the indoor unit → Set the DIP switch for the A/C No. to “01”.
    (The next time the power supply is turned ON, the A/C No. will be cleared.)

(Setting for 1 remote control group control)

- A maximum of 16 indoor units can be connected at the time of group control. (Do not connect the heat pump unit with the cooling only unit.)
- There are 2 methods for setting the group control address (A/C No.); an automatic and a manual setting method.
- The A/C No. setting cannot be confirmed when using the automatic method.
- To set each indoor unit’s A/C No., use the manual setting method.
  However, if the wall type indoor unit is connected, then manual setting is not possible.

■ Automatic setting

- By switching ON the indoor unit's power supply with the DIP switch where the A/C No. is set to "01" (factory setting), the A/C No. will be automatically set. (After activating the power for all indoor units, the automatic setting takes approximately one minute.)
- Once the A/C No. is automatically set, even when the power supply is switched OFF, the setting is stored. To view the resetting result, follow the instructions for the "group control automatic address reset". Refer to the item "On-site setting" in the installation instruction manual that comes with the wired remote control for the "group control automatic address reset" method.
  * If the indoor unit's A/C No. DIP switch is not set to "01", the automatic setting cannot be reset.

■ Manual setting

- The manual setting is performed using each indoor unit's printed circuit board DIP switch. (Refer to the diagram below)
- Set the DIP switch once the power supply for each indoor unit is switched OFF. When the power supply is turned ON, the stored A/C No. is recalled.
- To change the setting of the A/C No., turn OFF the power supply before resetting the DIP switch.
  * Ensure that there is no redundancy in the A/C No. Any redundancy can cause faulty control.
  * Ensure to set the A/C No. to "01" for 1 indoor unit.

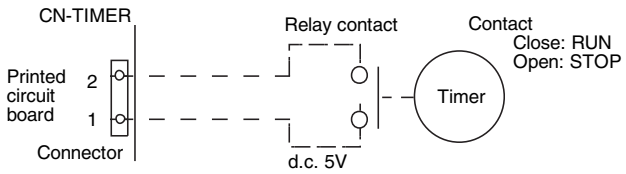
A/C No.	01	02	03	04	05	06	07	08
Indoor unit printed circuit board DIP switch (SW2)								
	Unnecessary operation	1-ON	2-ON	1,2-ON	3-ON	1,3-ON	2,3-ON	1,2,3-ON
A/C No.	09	10	11	12	13	14	15	16
Indoor unit printed circuit board DIP switch (SW2)								
	4-ON	1,4-ON	2,4-ON	1,2,4-ON	3,4-ON	1,3,4-ON	2,3,4-ON	1,2,3,4-ON

(Refer to the remote control's installation instruction manual for the remote control settings.)

11.11.9 AS FOR TIMER OUTPUT

- Connect the timer cord to connector (CN-TIMER) on print circuit board.

Timer setting

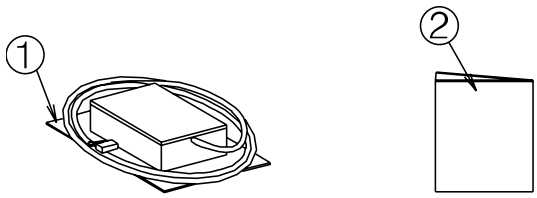


- The connector must use XH-2 (housing) manufactured by J.S.T. Mfg. Co., Ltd.
- Wiring must use vinyl code with the sheath or cable line diameter 0.3mm^2.
- The length of wiring should be within 150m and separated from power line in order to prevent malfunction.
- The input current is DC5V, and 1mA. The relay contact must use the contact for the minute electric current suitable for this.

11.12 INFRARED RECEIVER CZ-RWRM1 (FOR DUCTED ONLY)

- Before installing the infrared remote control, be sure to thoroughly read the “Precautions in terms of safety” section of the installation instructions provided with the indoor unit. Also, be sure to thoroughly read the infrared remote control installation instructions as well.
- After installation is complete, carry out a test operation to check that the unit functions properly and also explain the operation and cleaning procedures to the customer in accordance with the details in the instruction manual. Furthermore, ask the customer to keep this installation instructions and the operation instruction in a safe place for later reference.

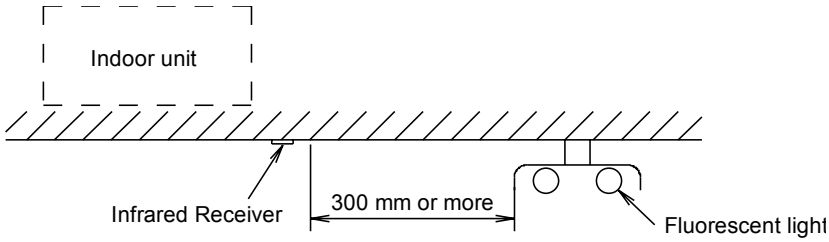
11.12.1 ACCESSORIES SUPPLIED WITH THE INFRARED RECEIVER



No.	Name	Qty.
①	Infrared Receiver (For Ducted series only)	1
②	Installation instructions (This manual)	1

11.12.2 INSTALLING THE INFRARED RECEIVER

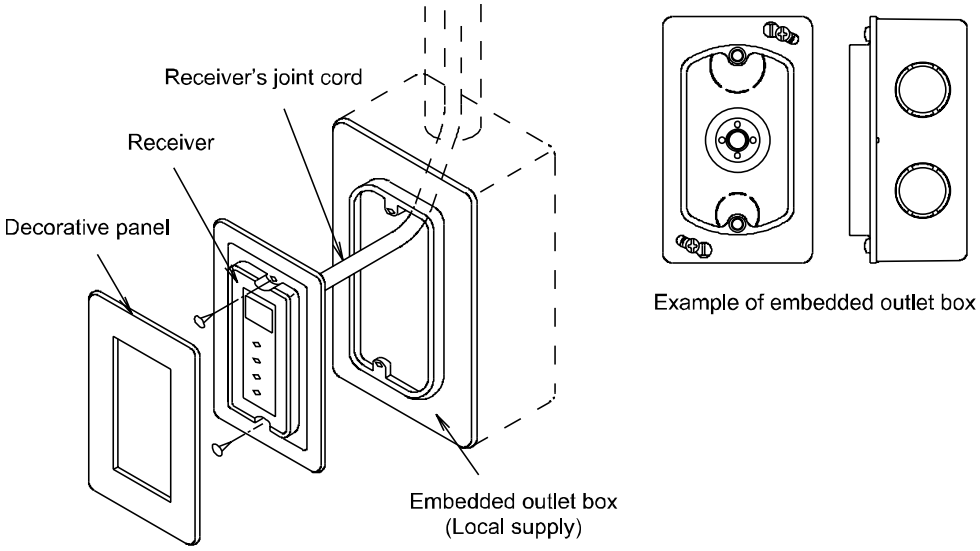
- The infrared remote control infrared receiver should be in a place where it will not be affected by the direct light from fluorescent lights. (Refer to the illustration below)
  (If using an inverter-type fluorescent light, keep the receiver at least 1 meter away from the light, otherwise the remote control operation may not work properly.)



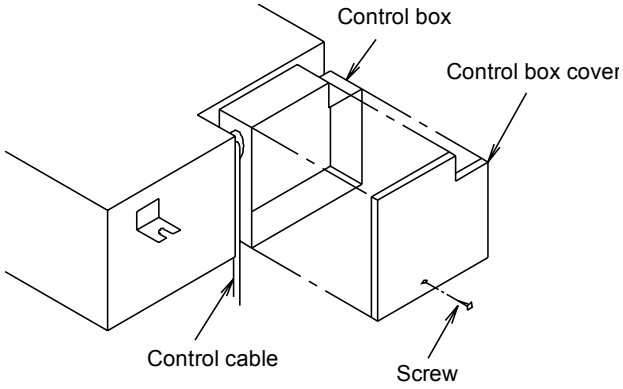
Turn on the fluorescent lights and check to that the infrared receiver properly receives the remote control signal while the fluorescent lights are lit.
(If the earth wire is not connect, the infrared receiver may not receive the signal.)

- Select a place where the remote control can be operated easily (after obtaining approval from the customer).
- Install in a place which is away from direct sunlight and as free from humidity as possible.
- Avoid installing the receiver joint cord near refrigerant pipes or drain pipes.
- Install the receiver joint cord at least 5 cm away from other electric wires (including stereo and television cables, etc.) to avoid mis-operation (electromagnetic noise).
- If passing the infrared receiver joint cord through a wall, be sure to install a water trap above the cord.
- The infrared remote control can be used to operate indoor units at a maximum range of 8 meters from directly in front of the indoor unit.
- If the remote control is at an angle to the receptor, the operating range may become shortened.

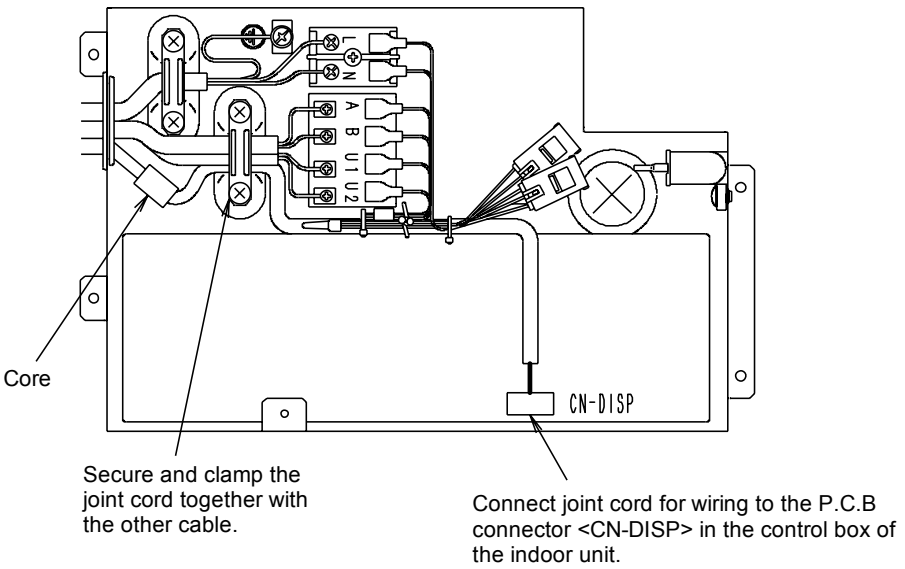
Example of embedding into the wall



Remove the decorative panel for the receiver and secure the outlet box with 2 screws so it is embedded.

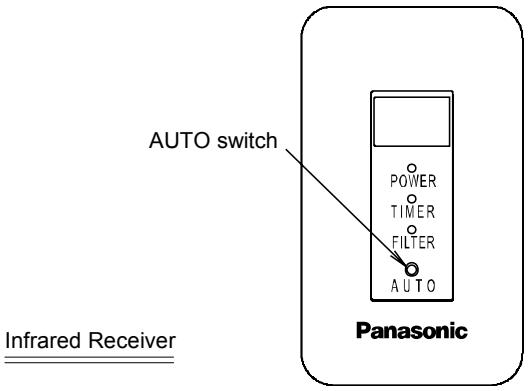


Remove the control box cover by removing the screws and connect the joint cord for wiring to the P.C.B connector <CN-DISP> in the control box.



11.12.3 EMERGENCY OPERATION

- If you do not have the infrared remote control (because the batteries are weak, or some other reason prevents the infrared remote control from being used), the emergency operation can be carried out at the receiver.



- Press the AUTO switch to start the emergency operation. Press the AUTO switch once more to stop the emergency operation.
- Press the AUTO switch for 5 seconds or more (it will beep once) to start the cooling operation. Again, press the AUTO switch for 5 seconds or more (it will beep twice) to start the heating operation.
- The setting of the fan speed and louver control will be fixed as shown by the table below.
- While the indoor unit is running, the POWER indicator on the infrared receiver will illuminate, and it will light off when the indoor unit stops.
- Heating operation is not available for indoor units which are for cooling only.

Operation mode	Fan speed	Louver
Cooling	Hi	Previous setting
Heating	Hi	Previous setting

INSTRUCTIONS FOR USERS

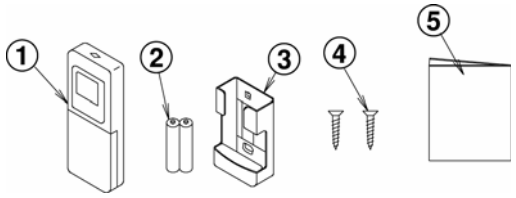
Please refer to the instruction manual provided with the indoor unit for instructions on how to use the infrared remote control.

11.13 WIRELESS REMOTE CONTROL CZ-RWS1 / CZ-RWC1

CZ-RWS1	**(Cooling/Heating)**
CZ-RWC1	**(Cooling only)**

- Before installing the infrared remote control, be sure to thoroughly read the “Precautions in terms of safety” section of the installation instructions provided with the indoor unit.
- After installing the infrared remote control, carry out a test operation to check that the remote control functions properly and also explain the operation and cleaning procedures to the customer in accordance with the details in the instruction manual. Furthermore, ask the customer to keep this installation instructions and the operation instruction in a safe place for later reference.

11.13.1 ACCESSORIES SUPPLIED WTH THE INFRARED REMOTE CONTROL



No.	Name	Qty.	No.	Name	Qty.
①	Infrared Remote Control	1	④	Holder fixing screw	2
②	R03 battery	2	⑤	Installation instructions (This manual)	1
③	Holder	1			

11.13.2 INFRARED REMOTE CONTROL OPERATION

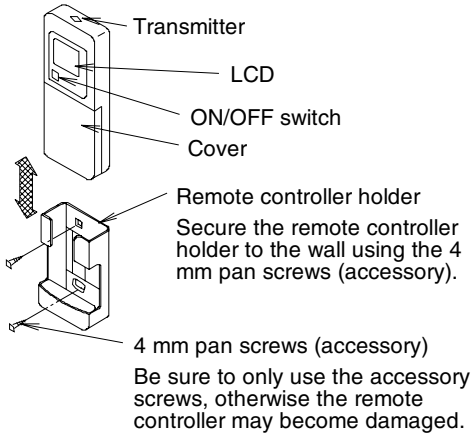
- The infrared remote control can be used to operate indoor units at a maximum range of 8 meters from directly in front of the indoor unit.
- If the remote control is at an angle to the receptor unit, the operating range may become shortened.
- If using a single remote control to operate several air conditioners, address setting will be required.
- (To be discussed later.)

INFRARED REMOTE CONTROL INSTALLATION PROCEDURE
(Use the holder to store the remote control.)

The remote control can be installed to the wall.

① Secure the holder with the screws provided. (2 screw locations)

② Insert and remove the remote control by sliding it in/out from the top of the holder.

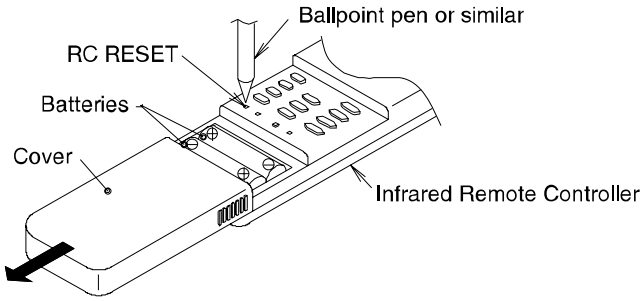


Note

- The holder should be in a place where it is not exposed to any type of heat (such as direct sunlight or near a stove).
- The remote control may not transmit to the receiver properly while it is in the holder. Be sure to remove the remote control unit from the holder and face the receiver when operating it.

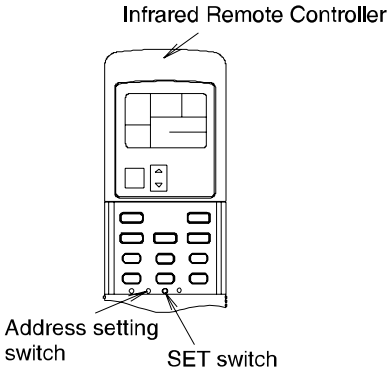
INSERTING THE BATTERIES

- Remove the battery cover from the infrared remote control, and then insert the two accessory R03 size batteries. (Be sure not to mistake the polarities.)
- When inserting the batteries for the first time, or when replacing the batteries, the remote control can not operating. In such case, use a ballpoint pen or similar object to push the RC RESET switch.
  The remote control should then start operating normally.
- When operating the remote control, if the LCD flickers or if everything lights up, replace the remote control with new batteries.



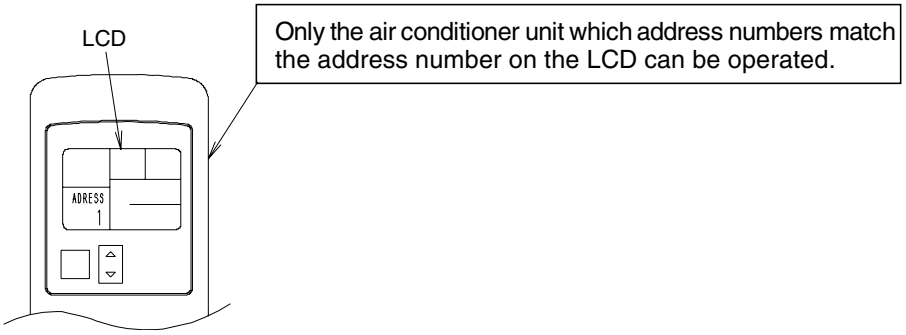
11.13.3 ADDRESS SETTING

- If using a single remote control to operate several air conditioners, be sure to set the address setting for the remote control and receiver.
- At the time of shipment from the factory, the address numbers for both the infrared remote control and the receiver are set to “1.” (When using only one indoor unit, the indoor unit can be used without changing the factory default settings.)



REMOTE CONTROL ADDRESS SETTING
Press the address setting switch with a ballpoint pen or similar object to change the address setting as shown in the illustration to the right.

The address number displayed on the LCD changes in the order:
[ADDRESS 1] → [ADDRESS 2] → [ADDRESS 3] → [GROUP] → [ADDRESS 1] → ... each time this switch is pressed.



Note

- If the batteries are replaced or the remote control is reset, the address setting will return to ADDRESS 1, so you will need to repeat the address setting. All setting details which are stored in memory will be cleared, so you will need to repeat the settings.
- If the address is set to GROUP, more than one indoor unit can be operated at the same time. (Regardless of the address number of the infrared receiver, the indoor units can be operated with one remote control.)

INFRARED RECEIVER SETTING

1. Press and hold the emergency operation switch for approximately 11 seconds and release it when it beeps 3 times. *Note: It beeps once after 5 seconds and twice after 8 seconds.
2. Press the AC RESET on the remote control.
3. When it is properly set, it beeps once to indicate completion.
4. Check to see if the remote control functions properly or not.

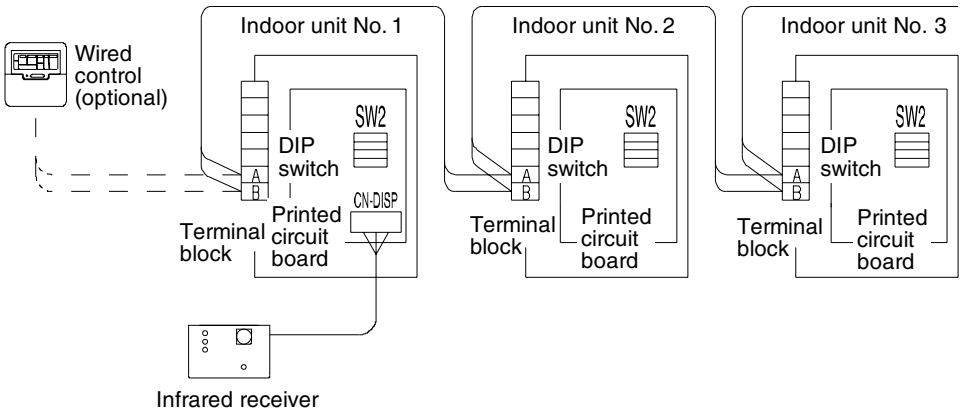
11.13.4 SETTINGS

CONTROL USING TWO REMOTE CONTROLS

- If both the infrared remote control and the optional wired remote control are being used together, either remote control can be used to operate the indoor units. (The indoor unit can be used to operated with the last switch pressed having priority.)
- Up to 2 optional wired remote controls can be connected and used.

1 REMOTE CONTROL GROUP CONTROL

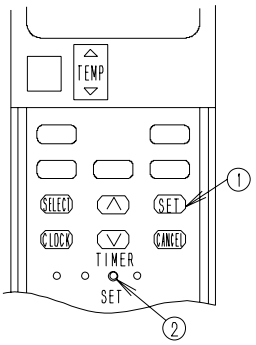
- When using group control, up to a maximum of 16 indoor units can be connected. (Do not mix heat pump units and cooling only units.)
- For details on how to set the address (A/C No.) for group control, refer to the “Setting for 1 remote control group control” section in the installation instructions provided with the indoor unit.



LOCAL SETTING

- Press the SET switch ② to operate the “Local setting mode”.
- Use the △▽ switches TEMP to choose the “Mode No.”
- Use the ∧∨ switches TIMER to choose the “Setting value”.
- Press the SET switch ① to check the setting details.

  The setting details are displayed for approximately 4 seconds and then it exits the local setting mode.



If no operation is performed, the “Local setting mode” clears after 30 seconds.

Model No.	Item	Setting Value	Setting Remarks
00	Indoor unit address setting	000	Clear address
		001 ~ 200	Set address “001” to “200”
02	Low sound at night	000	Not set (Clear)
		001	Low sound level 1
		002	Low sound level 2
		003	Low sound level 3
06	Outdoor unit address setting	000	Clear address
		001 ~ 199	Set address “001” to “199”

Note: 1. The default setting at shipment is “000”.

SETTING INDOOR UNIT ADDRESS

- Setting and clearing the indoor unit address (Central control address) can be performed.
- It is possible to set the address value from “001” to “200”. Setting the address to “000” clears it.
- Set the mode number to “00” and choose a setting value from “000” to “200” according to the local setting procedure.

SETTING OUTDOOR UNIT ADDRESS

- Setting and clearing the outdoor unit address on the indoor unit can be performed.
- It is possible to set the address value from “001” to “199”. Setting the address to “000” clears it.
- Set the mode number to “06” and choose a setting value from “000” to “199” according to the local setting procedure.

LOW SOUND SETTING

- Press the SET switch ② to operate the “Local setting mode”.
- Use the △▽ switches TEMP to choose “02” for the “Mode No.”
- Use the ∧∨ switches TIMER to choose from “001”, “002” or “003” for the “Setting value”.
- Press the SELECT switch and use the ∧∨ switches TIMER to set the night time low noise “end” time.
  Press the SET switch ① to confirm.
- After the “end” time is set, the display proceeds to the “start” time setting. Use the ∧∨ switches TIMER to adjust the time and the SET switch ① to fix the “start” time setting. After the “start” time is displayed for approximately 2 seconds, it exits from local setting mode.

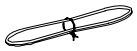
Note

* Be sure to always set the current time with the infrared remote control.
  (Refer to the operation instruction for the current time setting method.)
* For ventilation control, select the mode number and corresponding setting in the table according to the local setting procedure.

11.14 WIRED REMOTE CONTROL CZ-RT1

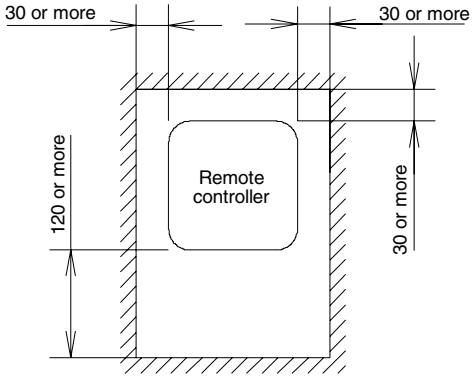
- Before installing the wired remote control, be sure to thoroughly read the “Precautions in terms of safety” in the installation instructions provided with the indoor unit.
- After installing the wired remote control, carry out a test operation to check that the remote control functions properly, and also explain the operation and cleaning procedures to the customer in accordance with the details in the instruction manual.
  Furthermore, ask the customer to keep this installation instructions and the operation instruction in a safe place for later reference.

11.14.1 ACCESSORIES SUPPLIED WITH THE WIRED REMOTE CONTROL

Name	Q’ty	Diagram	Remark
Remote control	1		
Remote control cable	1		Connecting between the air conditioner unit and the remote control (Length 10 m)
4 mm wood screw	3		Installing the remote control to the wall (1 spare)
M4 screw	3		Installing the remote control to an outlet box
Round terminal	2		Connecting to the indoor unit terminal block

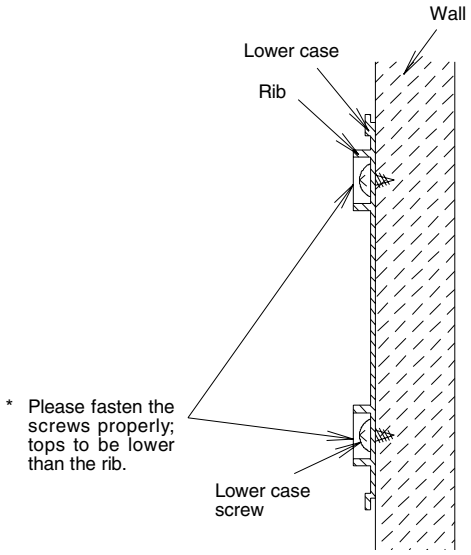
11.14.2 NOTES REGARDING WIRED REMOTE CONTROL SET-UP LOCATION

- Select a place where the remote control can be operated easily (after obtaining approval from the customer).
- Install in a place which is away from direct sunlight and as free from humidity as possible.
- Install in a place which is as flat as possible to avoid the remote control from warping (If installed to a wall with an uneven surface, damage to the LCD case or operation problems may result.)
- Install in a place where the LCD can be seen easily. If the remote control is installed somewhere which is too high or too low, it may be difficult to read the LCD. (Standard height from the floor is 1.2 to 1.5 meters)
- Avoid installing the remote control cable near refrigerant pipes or drain pipes.
- Install the remote control cable at least 5 cm away from other electric wires (including stereo and television cables, etc.) to avoid mis-operation (electromagnetic noise).
- If passing the remote control cable through a wall, be sure to install a water trap above the cable.
- Allow sufficient space around the remote control as shown in the illustration below. Secure the lower case of the remote control to the wall or to an outlet box.



(Unit: mm)

- Use the lower case screws (2 pcs) provided in the accessories.
- Be sure to secure lower case until the head of the screw is flush.
  Failure to do so may cause the head of the screw to hit the control board and lead to control board damage.

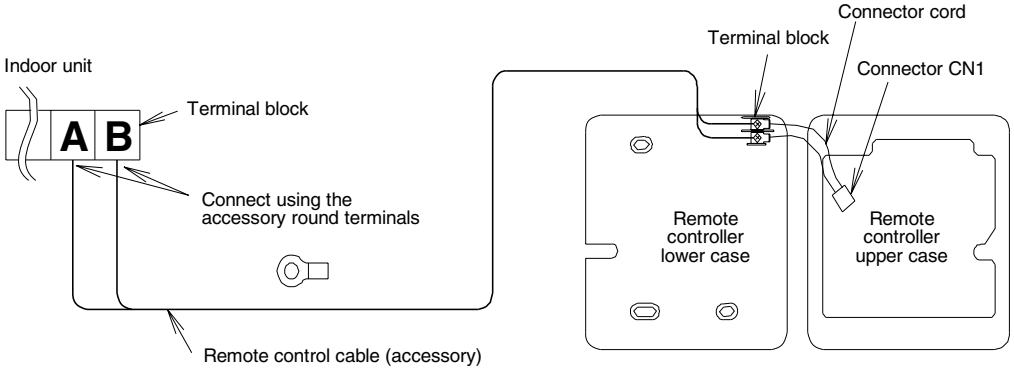


11.14.3 REMOTE CONTROL INSTALLATION

- Be sure to turn off the main power before installing and connecting the remote control.
  (If the remote control is connected while the power is still turned on, the remote control display may not appear.)
  If no display appears on the remote control, check it by referring to “If the remote control displays nothing” under the section “4. Settings”.
- Be careful not to short the remote control while there is an electrical current running through the remote control cable.

REMOTE CONTROL WIRING

- Connect the indoor unit and the remote control as shown in the illustration below.
- The remote control cable is non-polar.
- At the time of shipment from the factory, the connector cable used to connect the terminal block and connector CN1 is disconnected. When connecting the remote control wiring and installing the remote control, be sure to connect the cord to the connector CN1.
- The remote control cable supplied is 10 m long. Cut the necessary length of cable and connect the cable.



EXTENDING THE REMOTE CONTROL CABLE

- Solder a sheathed PVC cord or cable (0.5 - 2 mm^2) with specifications among those given below to the remote control end of the accessory remote control cable (10 m).
- ● PVC round cabtire cord IEC 502
- ● 600V PVC-insulated PVC sheathed round cable IEC 227-4
- ● 600V PVC-insulated PVC sheathed flat cable IEC 227-4

NOTE

The maximum possible length for the remote control cable is 200 m.

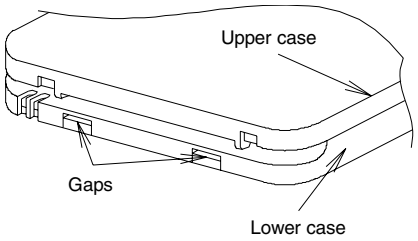
REMOTE CONTROL INSTALLATION PROCEDURE

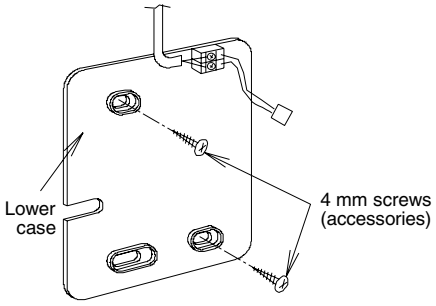
- Remove the remote control lower case.
  (Insert a flat-tipped screw driver or similar 2 to 3 mm into one of the gaps at the bottom of the case, and then twist the screw driver to open. [Refer to the illustration on the right.])
  Be careful not to damage the lower case.
- Secure the lower case to the wall or outlet box.
  (Refer to the illustration on the right for the embedded and exposed positions for the remote control cable.)

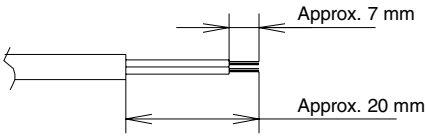
  NOTE
  * Do not remove the protective tape which is affixed to the upper case circuit board.

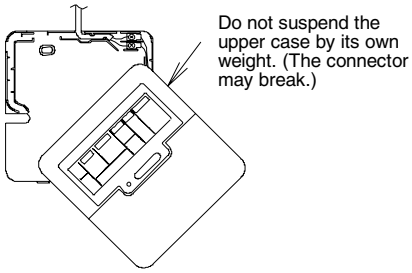
- If installing the remote control with the remote control cable exposed, use nippers to cut a notch into the upper case. (The feeding-out direction can be either up or to the left or right)
- Strip the end of the remote control cable which is to be connected to the remote control. (Refer to the illustration on the right)
- Route the remote control cable inside the lower case in accordance with the intended feeding-out direction. (Refer to the illustration on the right)
  Securely connect the connector CN1. (If it is not connected, the remote control will not operate.)

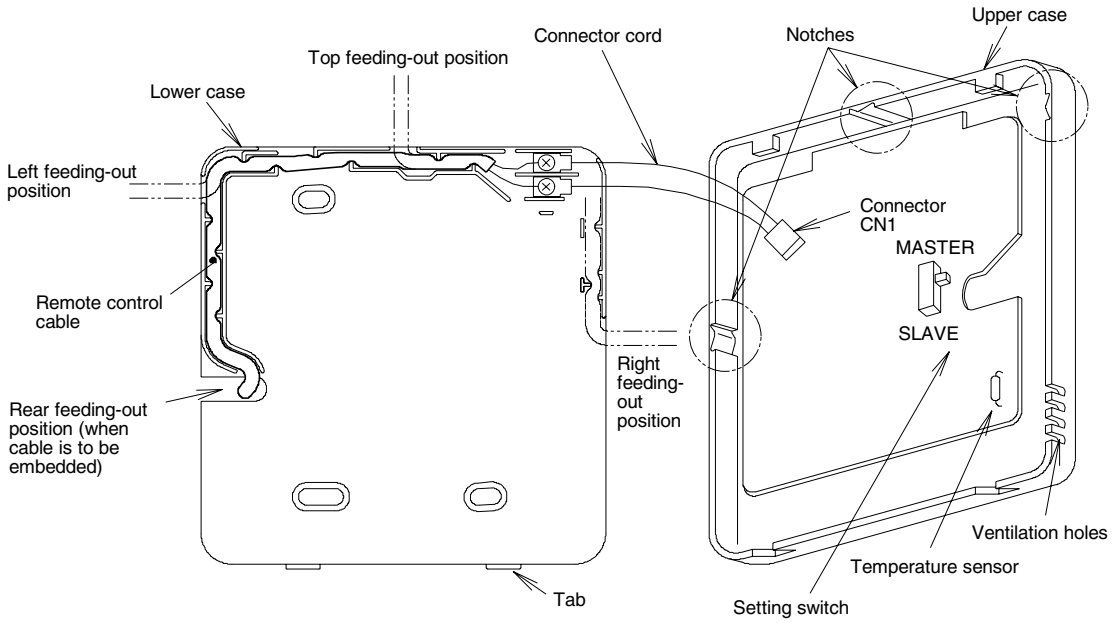
  NOTE
  * After connecting the connector, do not suspend the upper case by its own weight, otherwise the connector cord may break.



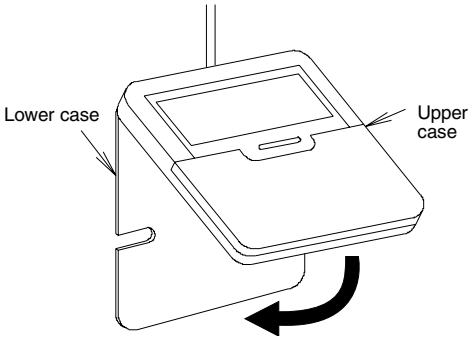






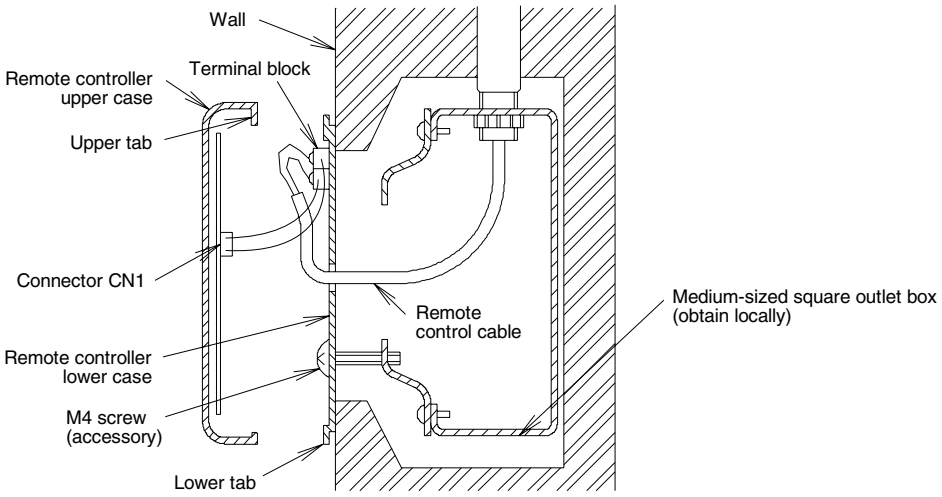


- If controlling using two remote controls, refer to the “Control using two remote controls” under section “4. Settings.”
- Secure the upper case to the lower case. (Hook the upper tab of the upper case into the lower case, and then push the upper case until it snaps shut onto the lower case tab, while being careful not to clamp the remote control cable and the connector cord.)



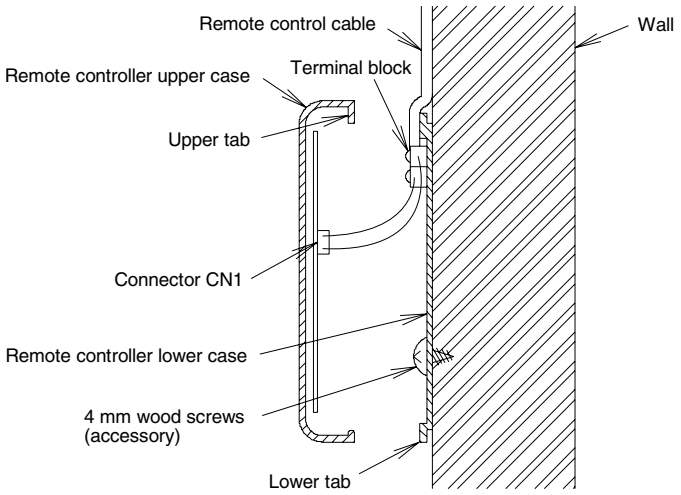
If remote control cable is embedded

1. Embed an outlet box into the wall, and then secure the remote control base plate to the outlet box with the two accessory M4 screws. Make sure that the base plate is flat against the wall at this time, with no bending (looseness)
2. Pass the remote control cable into the box and then install the remote control.



If installing with the remote control cable exposed

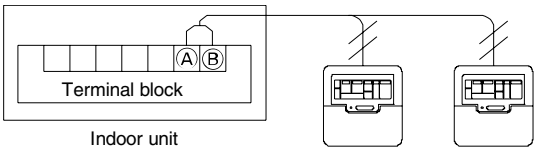
1. Secure the remote control base plate to the wall with the two accessory 4 mm screws.
2. The feeding-out direction for the remote control cable can be either up or to the left or the right. (Refer to the illustration above.)
3. Route the remote control cable as shown in the illustration above. Pull the cord firmly around the outside of the base plate at this time.



11.14.4 SETTINGS

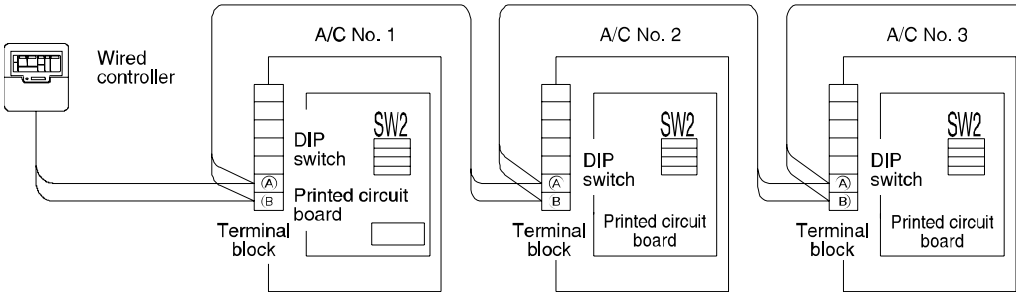
CONTROL USING TWO REMOTE CONTROLS

- Up to two remote controls can be installed for a single indoor unit, and either remote control can be used to operate the indoor unit. (The indoor unit can be operated with the last switch pressed having priority.)
- Remote control thermistor cannot be used. Do not switch to the remote control thermistor.
- Connect the remote controls
  Connect both remote controls to terminals Ⓐ and Ⓑ on the indoor unit terminal block (non-polar).



GROUP CONTROL

- Up to a maximum of 16 indoor units can be connected at the time of group control. (Do not connect the heat pump unit with the cooling unit only.)
- All in the group will be set by the remote control thermistor setting when using the remote control thermistor.
- For the address setting method (A/C No. setting), refer to the section “Group control setting” in the installation instructions provided with the indoor unit.



LOCAL MODE SETTING ● Procedure

1. When operation is stopped, press the TEST RUN switch for 5 seconds, and it will switch to LOCAL MODE.
2. Press the UP / DOWN (TEMP & A/C No.) switch and select the “Mode No”.
3. Press the SELECT switch in order to choose the setting value.
4. Press the UP / DOWN (TIMER) switch to choose the “Setting Value”.
5. Press the SET switch to fix the setting that is displayed.
6. After checking the setting, press the TEST RUN switch to return to the normal display.
   If no operation is performed, the “Local setting mode” clears after 30 seconds.

Model No.	Item	Setting Value	Setting Remarks
00	Indoor unit address (Central control address)	000	Clear address
		001 ~ 200	Set address [001] ~ [200]
02	Low sound at night	000	Not set (Clear)
		001	Low sound level 1
		002	Low sound level 2
		003	Low sound level 3
06	Outdoor unit address	000	Clear address
		001 ~ 199	Set address [001] ~ [199]
10	Automatic address resetting for group control	000	-
		001	Reset address
11	Switching the thermistor	000	Indoor unit thermistor
		001	Remote control thermistor
12	Ventilation unit control (Option)	000	-
		001	Available (Non-linking)
		002	Available (linking OFF)
		003	Available (linking ON/OFF)

Note: 1. The default setting at shipment is “000”.

SETTING INDOOR UNIT ADDRESS (Central control address)

- Checking, setting and clearing the indoor unit address (Central control address) can be performed.
- It is possible to set the address value from “001” to “200”. Setting the address to “000” clears it.

① Perform the steps (1) and (2) from the local setting procedure.
For step (2), select “00”.

② Press the SELECT switch to check the indoor unit address.
* For group control, choose the air conditioner No. with the UP / DOWN (TEMP & A/C No.) switches.

③ To check the address only, press the TEST RUN switch to return to the normal display.
To set and clear the address, press the SELECT switch again and it will display the address settings for the indoor unit.

④ The UP / DOWN (TIMER) switches set the indoor unit address.

⑤ Once the indoor unit address is fixed with the SET switch, and it will return to the check display screen for the indoor unit address.
* It is possible to choose a different air conditioner No. with the UP / DOWN (TEMP & A/C No.) switches under group control. After selecting a different air conditioner No., return to step ③ of the procedure.

⑥ After checking the indoor unit address, press the TEST RUN switch to return to the normal display.

SETTING OUTDOOR UNIT ADDRESS

- Checking, setting and clearing the outdoor unit address can be performed.
- It is possible to set the address value from “001” to “199”. Setting the address to “000” clears it.

① Perform the steps (1) and (2) from the local setting procedure.
For step (2), select “06”.

② Press the SELECT switch to check the outdoor unit address.
* For group control, choose the air conditioner No. with the UP / DOWN (TEMP & A/C No.) switches.

③ To check the address only, press the TEST RUN switch to return to the normal display.
To set and clear the address, press the SELECT switch again and it will display the address settings for the outdoor unit.

④ The UP / DOWN (TIMER) switches set the outdoor unit address.

⑤ Once the outdoor unit address is fixed with the SET switch, and it will return to the check display screen for the outdoor unit address.
* It is possible to choose a different air conditioner No. with the UP / DOWN (TEMP & A/C No.) switches under group control. After selecting a different air conditioner No., return to step ③ of the procedure.

⑥ After checking the outdoor unit address, press the TEST RUN switch to return to the normal display.

LOW SOUND NIGHT MODE SETTING

① Perform the steps (1) through (5) from the local setting procedure.
For step (2), select “02”.
For step (4), select from “001”, “002” or “003”.

② Press the MODE (TIMER) switch to display the “start” time for low sound night mode.

③ Use the UP / DOWN (TIMER) switches to set the start time for low sound night mode.

④ Press the SELECT switch to display the “end” time for low sound night mode.

⑤ Use the UP / DOWN (TIMER) switches to set the end time for low sound night mode.

⑥ The start and end time for low sound night mode is fixed with the SET switch.

⑦ After checking the settings, press the TEST RUN switch to return to the normal display.
Note: Be sure to always set the current time with the wired remote control.
(Refer to the instruction manual for the current time setting method)

※ For automatic address resetting for group control, switching the thermistor, and ventilation unit control, set and choose the mode number and corresponding value in the table according to the local setting procedure.

IF REMOTE CONTROL DISPLAYS NOTHING

- Check the power supply to the indoor unit.
- Check once more that the remote control cable is securely connected.
  (Check for loose terminals, poor contacts, connection positions on the terminal block, etc.)
- If the above checks show that nothing is wrong but nothing still appears on the remote control display, refer to “Settings” in the installation instructions that is provided with the indoor unit.

SETTING FOR 1 REMOTE CONTROL GROUP CONTROL

- A maximum of 16 indoor units can be connected at the time of group control. (Do not connect the heat pump unit with the cooling only unit.)
- There are 2 methods for setting the group control address (A/C No.); an automatic and a manual setting method.
- The A/C No. setting cannot be confirmed when using the automatic method.
- To set each indoor unit’s A/C No., use the manual setting method.
  However, if the wall type indoor unit is connected, then manual setting is not possible.
  ■ Automatic setting
    - By switching ON the indoor unit’s power supply with the DIP switch where the A/C No. is set to “01” (factory setting), the A/C No. will be automatically set. (After activating the power for all indoor units, the automatic setting takes approximately one minute.)
    - Once the A/C No. is automatically set, even when the power supply is switched OFF, the setting is stored. To reset the A/C No. setting, follow the instructions for the “group control automatic address reset”. Refer to the item “Local setting” in the installation instruction manual that comes with the wired remote control for the “group control automatic address reset” method.
      * If the indoor unit’s A/C No. DIP switch is not set to “01”, the automatic setting cannot be reset.

  ■ Manual setting
    - The manual setting is performed using each indoor unit’s printed circuit board DIP switch. (Refer to the diagram below)
    - Set the DIP switch once the power supply for each indoor unit is switched OFF. When the power supply is turned ON, the stored A/C No. is recalled.
    - To change the setting of the A/C No., turn OFF the power supply before resetting the DIP switch.
      * Ensure that there is no redundancy in the A/C No. Any redundancy can cause faulty control.
      * Ensure to set the A/C No. to “01” for 1 indoor unit.

A/C No.	01	02	03	04	05	06	07	08
Indoor unit printed circuit board DIP switch (SW2)	 Unnecessary operation	 1-ON	 2-ON	 1,2-ON	 3-ON	 1,3-ON	 2,3-ON	 1,2,3-ON
A/C No.	09	10	11	12	13	14	15	16
Indoor unit printed circuit board DIP switch (SW2)	 4-ON	 1,4-ON	 2,4-ON	 1,2,4-ON	 3,4-ON	 1,3,4-ON	 2,3,4-ON	 1,2,3,4-ON

11.14.5 SELF-DIAGNOSIS FUNCTION

- The lit LED 1 (Green) on the printed circuit board for the outdoor unit indicates that the printed circuit board for COM is operating properly. When it is unlit or blinks irregularly, check the power connections and then turn the power on again.

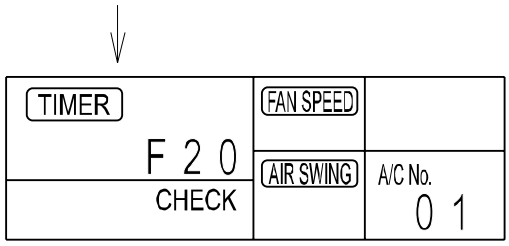
IF "CHECK" IS BLINKING ON THE TIMER

- If the "CHECK" display on the wired remote control is blinking, the details of the problems are displayed on the timer display screen each time the CHECK switch is pressed.
- Further details of the problem can be displayed by pressing the SET switch while the general problem details are being displayed.

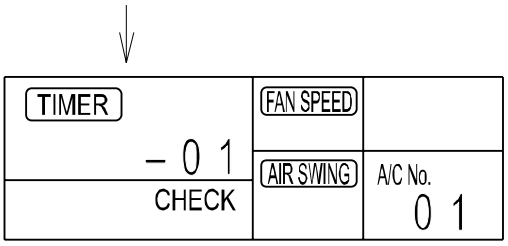
Example of current problem display

- Press the CHECK switch → Further details of the problem can be displayed by pressing the SET switch.

Problem display



Problem details



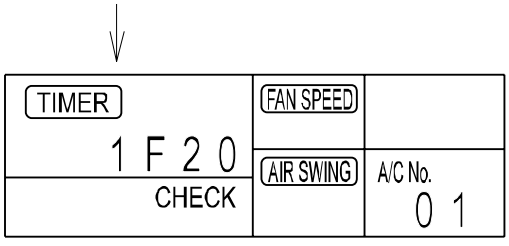
REVIEWING THE PROBLEM HISTORY

- If the "CHECK" display on the wired remote control is not blinking, press the CHECK switch continuously for 5 seconds or more to display the problem details for the last problem or the problem before that.
- You can then switch between the display for the previous problem and the problem before that by pressing the UP / DOWN (TIMER) switches.
- Press the CHECK switch once more to return to the normal display.

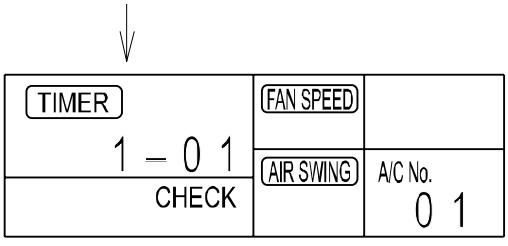
Example of previous problem display

- Press the CHECK switch for 5 seconds or more → Further details of the problem can be displayed by pressing the SET switch.

Problem display



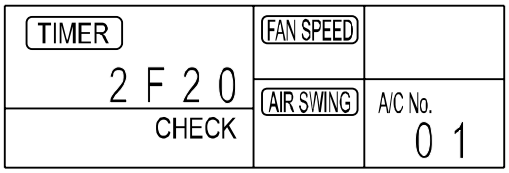
Problem details



Example of the abnormality before previous display

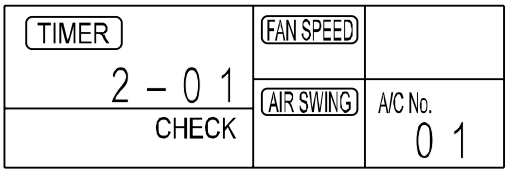
- While the previous display still appears, press UP (TIMER)

Problem display



- Further details of the problem can be displayed by pressing the SET switch.

Problem details



- The display can be switched between the previous problem and the one before that by pressing the UP / DOWN (TIMER) switches.

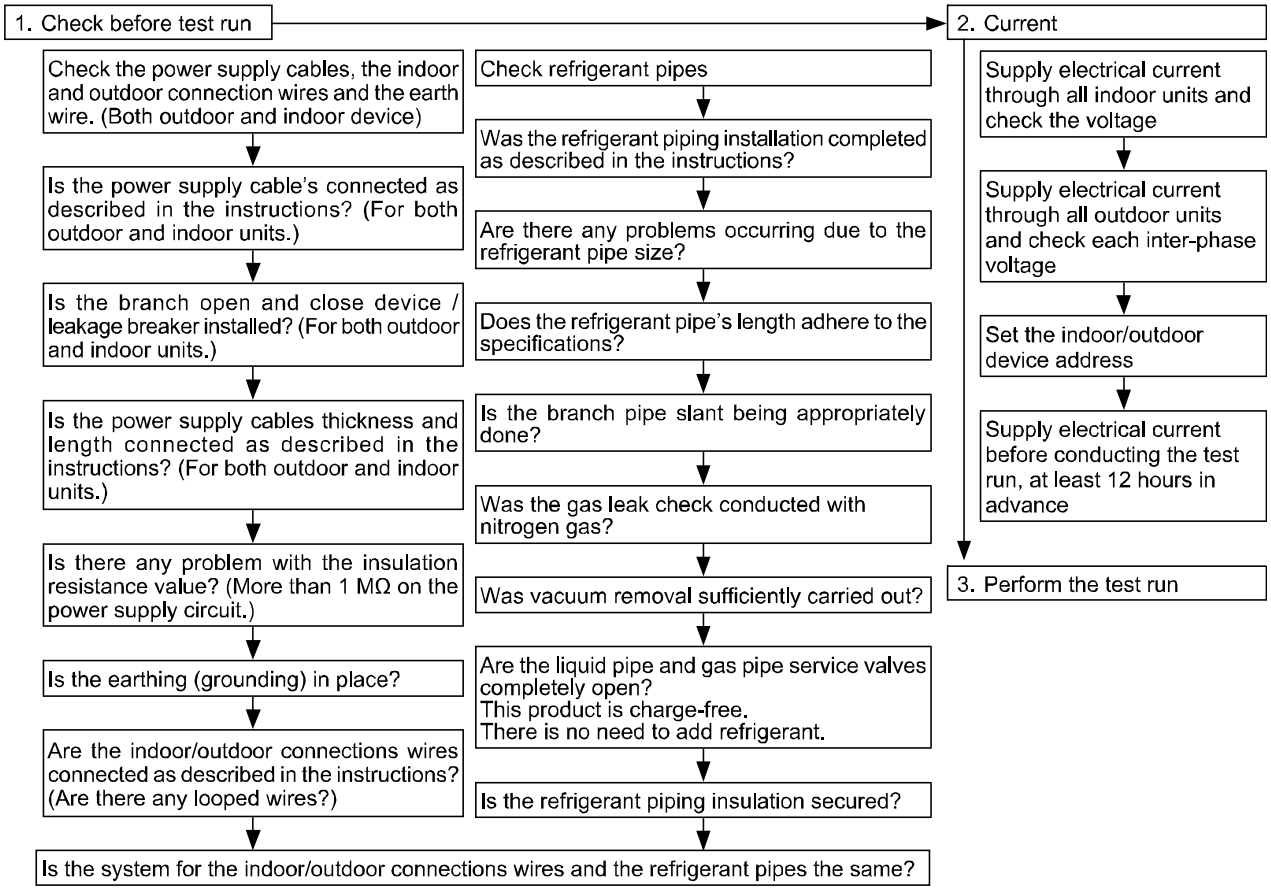
After eliminating the cause of the problem, press the CHECK switch once more to return to the normal display.

12. Testing and Commissioning

12.1 OUTDOOR UNIT

12.1.1 PRECAUTIONS REGARDING TEST RUN

The process flow shows the start of the test run



Check Before Test Run

	Content check
Power supply cable Indoor/outdoor connection wire Earth wire	● Is the wire set up and connected as described in the instructions? Check for any phase sequence. ● Are the wire connection's screws loose? ● Is the open and close device / leakage breaker installed? ● Is the power supply cable's thickness and length appropriately measured as described in the instructions? ● Is it earthed (grounded)? ● Check that the insulation resistant value is more than 1 MΩ. Use the 500 V mega-testers to measure the insulation. Do not use the mega-testers for any other circuit except for voltage of 220 V to 240 V. ● Are the wire connections for the indoor/outdoor units connected as described in the instructions? Are there any looped wires?
Refrigerant pipe	● Is the piping installed as described in the instructions? ● Are the pipes sizes appropriate? ● Does the pipe's length adhere to the specifications? ● Is the branch pipe slant being appropriately done as described in the instructions? ● Was vacuum removal sufficiently carried out? ● Was the leak tightness test carried out with nitrogen gas? Use the testing pressure of 4.15 MPa. ● Is the piping insulation material appropriately installed? Insulation material is necessary for both gas and liquid piping. ● Is the 3-way valve for the liquid side and gas side open?
Filling additional refrigerant	● This product is charge-free. No additional refrigerant is necessary.
Other	● Does the indoor unit's connection capacity fall within the range of 50 to 130%? ● Check that the refrigerant piping and the related wiring is connected to the same refrigerant system.

- Always be sure to use properly insulated tool to operate the switch on the circuit board. (Do not use your finger or a metallic object)
- Never switch the power supply ON until the installation has completed.
- Supply electrical current through all indoor units and check the voltage.
- Supply electrical current through all the outdoor units and check each inter-phase voltage.
- Switch the power supply ON at least 12 hours before the test run.
- Removing a connector while the current is running can cause damage to the control board. Once the power supply is turned OFF, be sure to wait 5 minutes or more before starting to work on it.
- Follow the indoor and outdoor units' instructions.
- Before the test run, ensure to check that the 3-way valve is open. Operating while the valve is closed causes the compressor to fail.
- Ensure to connect the refrigerant piping and the related wiring to the same refrigerant system.
- If the refrigerant piping and the related wiring are different and not connected to the same refrigerant system, it leads to abnormal operation and causes damage to the unit.

Test Run Procedure

- Ensure to conduct a test run. In addition, be sure to run the cooling operation test run for at least 20 minutes before starting the heating operation test run.
- If you cannot be near the outdoor unit during test run, request for another person to replace you or install a frontal panel.
- Once the cooling test run is functioning properly, check that the outflow from the indoor unit is cool.
- Once the heating test run is functioning properly, check that the outflow from the indoor unit is warm.
- If the indoor unit has a wired remote control attached, check that the temperature values displayed during test run for the heat exchanger are as follows.
  (The heat exchanger temperature is displayed on the wired remote control timer display screen.)
  The heat exchanger temperature during the cooling test run is 6 to 20°C and during the heating test run it is 25 to 55°C.
  If the connected indoor unit's capacity exceeds 100% or if the pipe length is long, the heat exchanger temperature during cooling test run will be high and low during heating test run.
- If the units do not operate during test run, perform the malfunctioning diagnostics to countermeasure any problems. Resume the test run.

■ Performing test run of the outdoor unit

- Press the TEST RUN button on the outdoor unit's control board for more than 1 second.
- If you want to cancel after performing the test run, press the TEST RUN button again for more than 1 second.
- Perform test run for each outdoor unit and check that all indoor units connected by the refrigerant piping are also performing the test run. Ensure that the refrigerant piping system and the electrical wiring system are the same.

■ Performing trial operation of the indoor unit
- For the test run method, read the installation instruction manual for the indoor unit and Infrared receiver controller (sold separately).
- Perform test run for each indoor unit and check that the refrigerant piping system and the electrical wiring system are the same.

12.1.2 REGARDING LOCAL SETTINGS

■ If necessary, do on-site setting according to the following.
- Operation and Settings
- Perform on-site settings based on the following table by using “Select” and “Enter” buttons on the main board in outdoor unit and according to the display for 3 digits 7 SEG, “LED2”, “LED3”, and “LED4”.

On-site setting	Mode		Item		Setting content		
					☒☒ 0	☒☒ 1	☒☒ 2
888	1.-.-	Setting mode	10−	Setting Pipe length	S	M	L
			11−	Select the automatic reset on electric power failure	Enable	Disable	
			12−	Power saving	OFF	ON	
			14−	Set high static pressure	OFF	ON	
			CCL	Clear local setting mode			
	F.-.-	Confirmation mode	Display setting mode status in order.				

- Press and hold on “Select” and “Enter” buttons simultaneously, and release them when 7 SEG display [8.8.8] lights (Over 5 seconds).
- [1.-.-.] is flashing.
- When “Enter” button is pressed, [1], the first column (left) in 7 SEG display, is flashing.
- Press “Select” button and select the second one (center).
  Item which is not included in Table 1 is displayed but ignore it by pressing “Select” button.
- When “Enter” button is pressed, the second column (center) is flashing.
- Press “Select” and select the content of the third column (right). All [0] are set on shipping.
- When “Enter” button is pressed, the third column (right) of 7 SEG display is displayed and local setting is done.
- When “Select” and “Enter” buttons are pressed simultaneously (over 5 seconds), 7 SEG display light off.
  When it is not operated for 30 seconds, 7 SEG display also light off.

Local setting detail

Setting Pipe length
Set the appropriate pipe length according to the optimal length based on Table 2.

Select the automatic reset on electric power failure
All indoor units with the same outdoor units address as outdoor units based on Table 3 can be set to be enabled/disabled for auto reset electric power failure.

Set Power saving
The maximum current of equipments can be reduced up to 70% based on Table 4. However, note that air conditioning performance is lower while this feature is set.

Set high static pressure
According to Table 5, when outlet duct is connected to outdoor units in high static pressure, set this. (ON: MAX 60 Pa)

Table 2

Equivalent pipe length setting	Maximum extension
[1.0.0.]	Less than 60 m
[1.0.1.]	60 m to 90 m
[1.0.2.]	90 m to 190 m

Table 3

Select the automatic reset on electric power failure	
[1.1.0.]	With automatic reset on electric power failure
[1.1.1.]	With automatic reset on electric power failure

Table 4

Set Power saving	
[1.2.0.]	OFF
[1.2.1.]	ON

Table 5

Set high static pressure	
[1.4.0.]	OFF
[1.4.1.]	ON

Verifying local setting status

To verify the setting, do the following action.
Press and hold on “Select” and “Enter” buttons simultaneously until 7 SEG display [8.8.8] light on (over 5 seconds).
[1.-.-.] is flashing.
Press “Select” button and select [F.-.-.].
When “Enter” button is pressed, the setting contents is sequentially displayed from [1.0.*.].
(If items are not included in Table 1, ignore them.)
After verifying the on-site setting status, when “Select” and “Enter” buttons are pressed simultaneously (over 5 seconds) until 7 SEG light off.

12.1.3 CHECKS AFTER INSTALLATION HAVE COMPLETED

- Check the following items after completing installation.
  - ☐ Is there a short circuit with the intake air flow?
  - ☐ Is the insulation secure? (Refrigerant piping)
  - ☐ Are there any errors with the wiring?
  - ☐ Are the terminal screws loose? Tightening torque (Unit: N•cm {kgf•cm})
    M4… 157-196 {16-20}, M5... 196-245 {20-25}.
  - ☐ Is the drain water flowing smoothly?
  - ☐ Is the insulation material properly installed?
  - ☐ Is the earth wire securely connected?
  - ☐ For the power supply switch, was there only 1 switch turned ON for the bus line communications wire? (Were 2 switches turned ON?)
  - ☐ Is the front panel and the indoor unit air conditioner firmly fixed and was the installation completed without any leakage from the refrigerant?
  - ☐ Are the indoor and outdoor units secured firmly installed with bolts at secured locations?

12.1.4 REGARDING DELIVERY TO THE CUSTOMER

- Request the customer to review the instruction manual and explain the operating method for the product.
- During delivery, not only provide explanation of the operating methods but the serviceperson also writes his/her name in the comment column (FS MULTI test operation check sheet) and gives it to the customer. In addition, it is also recommended that regular inspection checks are agreed upon for maintenance.

User inspection places	• Filter and grill cleaning • Exterior cleaning
Serviceman inspection places	• Check the operating status • Clean the drain pan or things related to the water discharge • Heat exchanger cleaning • Treat exterior for anti-corrosion

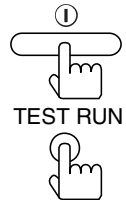
Refer to the installation instruction manual provided with the indoor unit for the specifications on the indoor unit installation.

12.2 INDOOR UNIT

12.2.1 PRECAUTION IN TEST RUN

For test run, refer to the “Precautions in test run” in the outdoor unit installation instructions manual.

Test run is conducted using the wired remote control, AUTO switch or by using the outdoor units. For the wired remote control test run see the instructions below.



- Switch the power supply to ON for at least 12 hours in advance before the test run.
- First, press the ON/OFF (⏻) button.
- Next, select the operational modes.
- Then press the TEST RUN button within 1 minute of pressing the ON/OFF (⏻) button.
- Be sure to run the cooling operation test run for at least 20 minutes before starting the heating operation test run.
- Press TEST RUN or ON/OFF (⏻) button again to cancel the test run mode.

NOTE 1 Detaching a connector with electrical current may cause damage to the control board. Ensure to turn OFF the power supply and wait for at least 5 minutes before performing this operation.

NOTE 2 Do not short the remote control wires. (There is no protective circuit operation.) Normal operation will commence once the short is solved.

NOTE 3 During the test run; ensure to operate the units in cooling mode prior to operating the units in heating mode. Caution: Operating the units in heating mode first may cause compressor failure.

NOTE 4 Test run should be performed for a minimum of 20 minutes. (Test run using the remote control will change to normal operation after 30 minutes.)

NOTE 5 Use the outdoor unit to cancel the outdoor unit test run and the wired remote control to cancel the wired remote control test run. For the test run method using the AUTO switch, refer to the “AUTO operation” section in the installation instruction manual for the infrared receiver.

12.2.2 CHECK THE FOLLOWING ITEMS WHEN INSTALLATION IS COMPLETE

- After completing work, be sure to measure and record trial run properties, and store measuring data, etc.
- Measuring items are room temperature, outside temperature, suction temperature, blow out temperature, wind velocity, wind volume, voltage, current, presence of abnormal vibration and noise, operating pressure, piping temperature.
- As to the structure and appearance, check the following items.

☐ Is circulation of air adequate?
☐ Is draining smooth?
☐ Is heat insulation complete (refrigerant and drain piping)?
☐ Is there any leakage of refrigerant?
☐ Is remote controller switch operated?
☐ Is there any faulty wiring?
☐ Are the terminal screws loosened?
M3…69-98N•cm {7-10kgf•cm}
M4…157-196N•cm {16-20kgf•cm}
M5…196-245N•cm {20-25kgf•cm}

12.2.3 HAND OVER

- Teach the customer the operation and maintenance procedures, using the operation manual (air filter cleaning, temperature control, etc.)

As to parts to be sold separately

- With regards to installation of the parts sold separately, follow the installation instructions which is provided with the parts sold separately.

As for work specifications of the outdoor unit, read the OUTDOOR UNIT INSTALLTION INSTRUCTIONS attached to the outdoor unit.

13. Outdoor Unit Operation Control

13.1 System Start Control

13.1.1 Outdoor unit operation mode judgment

- When remote control, centralized control, or Cool/Heat Selector Switch (CZ-RD1) is turned ON, outdoor unit operation mode is set as shown in table below:

Indoor Unit Operation Condition	Outdoor Unit Operation Condition
Cool or Soft Dry Mode	Cool Mode
Heat Mode	Heat Mode
Fan Mode	Off

- The priority of outdoor unit operation mode is given to the indoor unit that turn ON first, when another operation mode is selected from other indoor unit, the subsequence operation mode will be standby.
- When all indoor units have stopped operation in deice control, outdoor unit continues operation Heat mode, and operation mode stops after completion of deice control.

13.2 Outdoor Expansion Valve Control

Expansion Valve is a VDC12 solenoid valve that controls the amount of refrigerant flow.

Operation	Power Up	Comp Start Up	Normal Control
Cooling	Initialization	Open 480pulse (fully)	Open 480pulse (fully)
Heating	Initialization	T_{out} > 10°C 350pulses T_{out} = 1~10°C 400pulses T_{out} ≤ 0°C 480pulses	Opening depend on condenser super heat condition.

Initialization Process :
- 1st - Close valve fully.
- 2nd - Open valve fully.

Initialization Process will be executed every cycle of 10th compressor ON time during operation.

13.3 4 way Valve Control

4 Way Valve is a VAC220~240 solenoid valve used to reverse the refrigerant flow in system.

Cooling Operation Cycle : - 4 Way Valve OFF
Heating Operation Cycle : - 4 Way Valve ON

For 4 way valve control,
Delay 5sec for ON : - Accumulating pressure for valve mechanically opening.
Delay 60sec for OFF : - Equaling refrigerant pressure in system.

13.4 Sub Cool Control

Sub Cool Control only will operate during cooling mode with below conditions are fulfilled :

- Cooling Operation.
- Outdoor air temp > - 5°C.
- Outdoor high pressure sensor temp value > 27°C.
- Total Operating Indoor capacity > 1.6HP.

Due to Super heat is happened, Sub Cool Expansion Valve more opening if below condition happened :-
(Bypass Pipe Temp – Low Pressure Sensor Temp Value) – Target

Due to Present of Sub Cool, Sub Cool Expansion Valve less opening if below condition happened :-
(Hi Pressure Sensor Temp Value – SC Pipe Temp) – Target

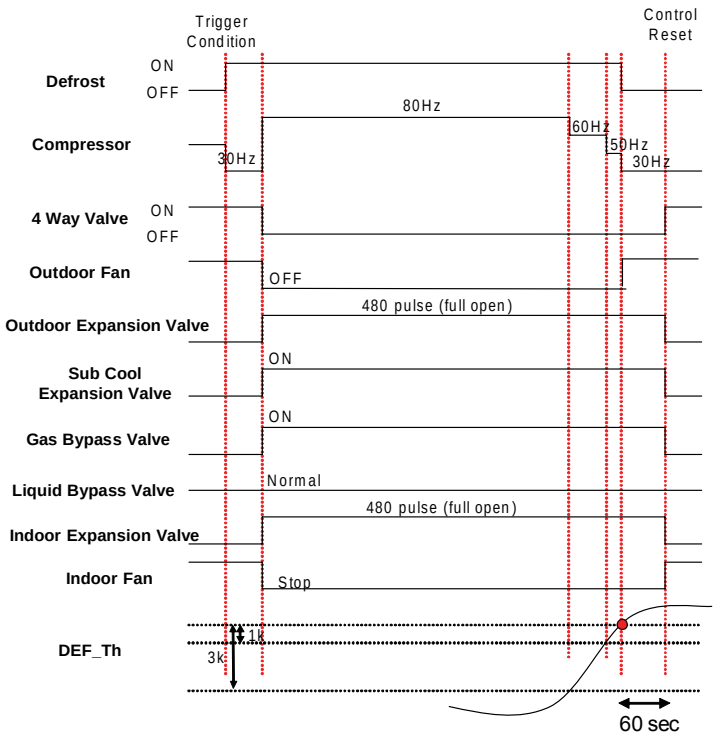
Sub Cool Expansion Valve is full close when above conditions not fulfilled.

13.5 Deice Control

- This control will operate for 1 cycle after accumulation time for heating (Compressor ON) under low outdoor ambient environment as stated in table below:

Outdoor Air Temperature (°C)	Heat exchanger temperature (°C)	Acc. Time (minutes)
-3 & above	-5 to -7	75
	-7 or below	45
-3 to -10	-10 to -12	100
	-12 or below	55
Below -10	-15 to -22	115
	-22 or below	85

- During deice control, for indoor units in ON condition:
  - Indoor fan OFF
  - Power LED blinking
  - Expansion valve fully opened
- During deice control, for indoor units in OFF condition:
  - Expansion valve fully opened
- Deice control start condition:



- Deice control will end if below condition is fulfilled; whichever comes first.
  - Outdoor Heat Exchanger Discharge temperature achieved:

Outdoor Ambient Temperature (°C)	Deice Temperature sensor (°C)
-3 & above	13 or more
-3 to -10	11 or more
Below -10	5 or more

  - 10 minutes has elapsed

13.6 Crank Case Heater Control

- This control is used to prevent condensation of refrigerant inside compressor and keep the temperature of compressor oil at the suitable level.
- Crank case heater will ON if below conditions are all fulfilled:
  - Compressor is OFF.
  - Outdoor ambient temperature is less than 15°C.
  - Compressor discharge temperature is less than 15°C.
  - Crank case heater will OFF if either of conditions below is fulfilled:
  - Compressor is ON.
  - Outdoor ambient temperature is more than 17°C.
  - Compressor discharge temperature is more than 17°C.

14. Outdoor Unit Protection Control

14.1 Cooling Oil Return Control

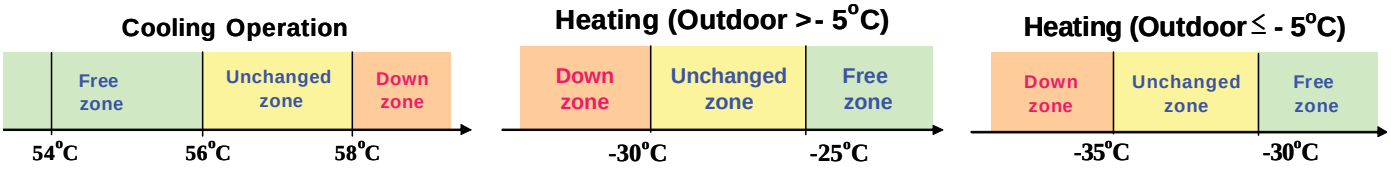
- Oil Return control will operate 1 cycle for every 3 hours of compressor accumulation run times (normal cooling operation mode continuously).
- Cooling oil return control will take 5 minutes to complete.
- During the control, Outdoor unit is fixed in cooling refrigerant cycle operation with fixed compressor frequency and all indoor's expansion valves are fixed open (even the indoor is in OFF operation or thermo OFF).
- Compressor accumulation run time counter will be reset when below conditions happened :
  - Completion of cooling oil return control.
  - System operation mode changed.

14.2 Heating Oil Return Control

- This control will operate 1 cycle if either 1 of below conditions fulfilled:
  - Every 3 hours of compressor accumulation run times (normal heating operation mode continuously).
  - Max Heat Exchanger Temperature (thermo ON) – Min Heat Exchanger Temperature (thermo OFF) > 15°C for 3 minutes continuously.
- During the control, Outdoor unit is continued in heating refrigerant cycle operation and expansion valve for indoor units (thermo OFF / stand-by) will be fully opened (for one minute) one at a time sequentially started from indoor unit with lowest Heat Exchanger Temperature (thermo OFF).
- Compressor accumulation run time counter will be reset when below conditions happened :
  - Completion of heating oil return control.
  - All indoor units thermo ON at 3rd hour of accumulation.
  - System operation mode changed.
  - Deice control activated.

14.3 Overload Control

- Overload control will operate if either 1 of below conditions happened :
  - During Cool Mode
    - Outdoor heat exchanger temp > +58°C for 10 seconds.
  - During Heat Mode
    - Outdoor heat exchanger temp < -30°C when outdoor ambient > -5°C
    - Outdoor heat exchanger temp < -35°C when outdoor ambient -5°C
- Every interval of 30sec, compressor frequency will reduce 10% if the outdoor heat exchanger temperature still at down zone.



- The compressor frequency will only reduce max 3 times OR to minimum frequency.
- For Heat operation, If compressor already reduced to minimum level but temp still at down zone, gas bypass valve will opens.

14.4 Low Load Control

- Low Load control will operate if either 1 of below conditions happened :
  - Indoor heat exchanger temp < 0°C during cooling operation.
  - Indoor heat exchanger temp > 54°C for 5 seconds during heating operation.
- Every interval (15 seconds for cool mode; 30 seconds for heat mode), compressor frequency will reduce 10% if the indoor heat exchanger temp still at down zone.

- The compressor frequency will only reduce to minimum frequency.
- If compressor already reduced to minimum level but temp still at down zone, gas bypass valve will opens.

14.5 Compressor Discharge Temperature Control

- This control will operate if compressor discharge temperature is detected hot at alert level.
  - If Compressor Discharge Temperature 100°C, liquid bypass valve will open.
  - If Compressor Discharge Temp 105°C, compressor frequency will reduce 10% if the compressor discharge temp still at down zone.

- The compressor frequency will only reduce max 2 times with 3 minutes interval OR to minimum frequency.
- If compressor already reduced to minimum level but temp still at down zone, gas bypass valve will opens.

14.6 Compressor Restart Delay Control

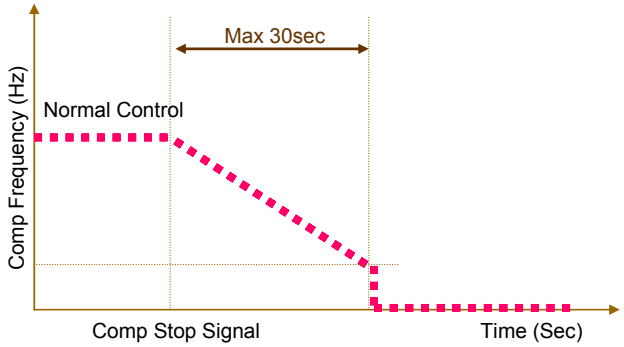
- Compressor only can be startup after at least 3 minutes of compressor OFF.
- During this control, compressor cannot restart and gas bypass valve is ON.

14.7 Outdoor Residual Heat Removal Control

- When compressor OFF, outdoor fan operate for 1 minute to remove the remaining heat.

14.8 Compressor Stops Control

- This control ensures compressor is stopped within 30 seconds during normal operation.
- If compressor stop is due to protection control, compressor will stop immediately.



- Outdoor fan motor will continue to run at maximum speed for 60 seconds after compressor OFF signal is received.
- Gas bypass valve will ON for 3 minutes once received compressor OFF signal.

14.9 Cooling Low Outdoor Ambient Temperature Protection Control

- When outdoor is operating in Cool Mode if outdoor ambient temperature is below -15°C and compressor is operating for 15 minutes, compressor will stop.
- When outdoor ambient temperature is less than -10°C, the system will restart.

14.10 Heating High Outdoor Ambient Temperature Protection Control

- When outdoor is operating in Heat mode, if outdoor ambient temperature is more than 35°C and compressor is operating for 15 minutes, compressor will stop.
- When outdoor ambient temperature is less than 27°C, the system will restart.

15. Indoor Unit Operation Control

15.1 Operation Mode Priority Control

- Operation modes available for remote control selection are: AUTO, COOL, DRY, HEAT and FAN
- Types of operation mode which cannot be performed simultaneously at different indoor unit will be in standby condition.

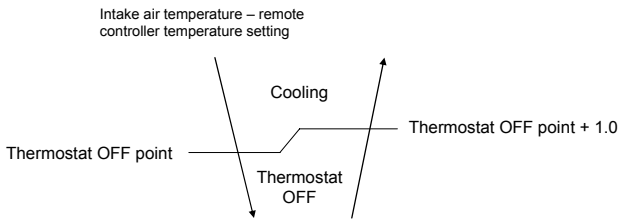
Room A	Room B	Unit B Operation Mode			
		Cool	Dry	Heat	Fan
Unit A Operation Mode	Cool	Cool / Cool	Dry / Cool	Standby / Cool	Fan / Cool
	Dry	Cool / Dry	Dry / Dry	Standby / Dry	Fan / Dry
	Heat	Standby / Heat	Standby / Heat	Heat / Heat	Standby / Heat
	Fan	Cool / Fan	Dry / Fan	Heat / Standby	Fan / Fan

15.2 Cooling Operation

15.2.1 Thermostat Control

- When room temperature reaches thermostat OFF set point or below for 5 minutes, indoor unit will send thermo OFF signal to outdoor unit.
- Thermostat OFF point (ΔD) is determined using Indoor Intake Temperature - Remote Control Setting Temperature. Default thermostat off point is shown in table below:

Model		Wall Mounted (KA1-series)	60 x 60 Cassette (YA1-series)	95 x 95 Cassette (UA1-series)	Slim Hide-away (NA1-series)	Low Static Hide-away (MA1-series)	
						4.5 / 5.6kW	6.3 / 7.1 / 9.0 kW
Thermostat OFF Point (ΔD) COOL Mode	Indoor fan speed ≥ Me	-2.0°C	-2.0°C	-1.5°C	-2.0°C	-1.0°C	-2.0°C
	Indoor fan speed < Me	-2.0°C	-2.5°C	-2.0°C	-2.0°C	-1.0°C	-2.0°C



- Thermostat OFF continues for 3 minutes, if the Intake Air Temperature - Internal Setting Temperature > Thermostat OFF point + 1.0°C
- The Thermostat OFF point can be altering using Remote Control Local setting mode.
  - i. Press SET (small button at wireless remote) or Press TEST RUN button for 5 sec (at wired remote).
  - ii. Press TEMP UP/DOWN buttons to scroll mode no. (04).
  - iii. Press Timer UP/DOWN buttons to scroll fan tap no. (000 ~ 004)
  - iv. Press TIMER SET button to confirm and transmit to indoor.

Local Setting Mode	Setting	Cool & Soft Dry Thermo Off Set Point Shift*
04	000	No Shift
	001	Shift 1°C lower
	002	Shift 2°C lower
	003	Shift 1°C higher
	004	Shift 2°C higher

15.2.2 Expansion Valve Control

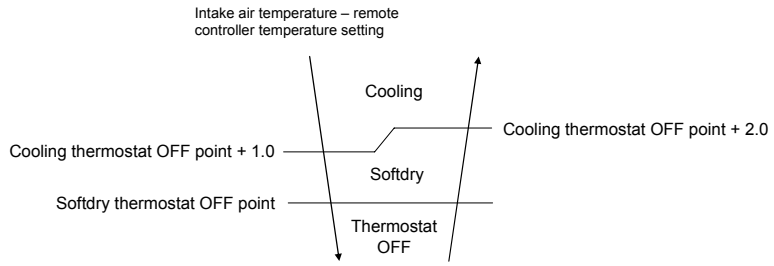
- During Thermostat OFF signal received, the indoor unit expansion valve is closed fully.

15.3 Soft Dry Operation

15.3.1 Thermostat Control

- Thermostat off point (ΔD) is determined using Indoor Intake Temperature - Remote Control Setting Temperature. Default thermostat off point is shown in table below:

Model	Wall Mounted (KA1-series)	60 x 60 Cassette (YA1-series)	95 x 95 Cassette (UA1-series)	Slim Hide-away (NA1-series)	Low Static Hide-away (MA1-series)	
					4.5 / 5.6 kW	6.3 / 7.1 / 9.0 kW
Thermostat OFF Point (ΔD)	-3.0	-3.0	-2.5	-3.0	-2.0	-3.0



- Thermostat OFF continues for 3 minutes, if the Intake Air Temperature - Internal Setting Temperature > Thermostat OFF point
- The Thermostat OFF point can be altering using Remote Control Local setting mode.
  i. Press SET (small button at wireless remote) or Press TEST RUN button for 5 sec (at wired remote).
  ii. Press TEMP UP/DOWN buttons to scroll mode no. (04).
  iii. Press Timer UP/DOWN buttons to scroll fan tap no. (000 ~ 004)
  iv. Press TIMER SET button to confirm and transmit to indoor.

Local Setting Mode	Setting	Cool & Soft Dry Thermo Off Set Point Shift*
04	000	No Shift
	001	Shift 1°C lower
	002	Shift 2°C lower
	003	Shift 1°C higher
	004	Shift 2°C higher

15.3.2 Expansion Valve Control

- During Thermostat OFF signal received, the indoor unit expansion valve is closed fully.

15.4 Heating Operation

15.4.1 Thermostat Control

- Thermostat off point (ΔD) is determined using Indoor Intake Temperature - Remote Control Setting Temperature. Default thermostat off point is shown in table below:

Model		Wall Mounted (KA1-series)	60 x 60 Cassette (YA1-series)	95 x 95 Cassette (UA1-series)	Slim Hide-away (NA1-series)	Low Static Hide-away (MA1-series)	
						4.5 / 5.6 kW	6.3 / 7.1 / 9.0 kW
Thermostat OFF Point (ΔD)	Indoor fan speed ≥ Me	2.0	3.5	-1.5	2.5	2.5	2.5
	Indoor fan speed < Me	2.0	4.0	-2.0	2.5	2.5	2.5

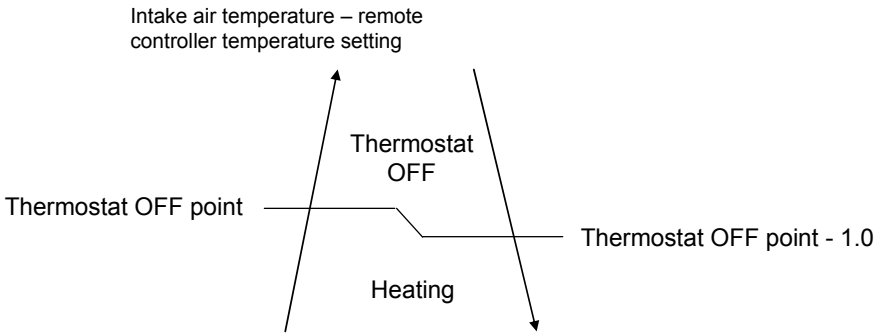


Figure 15: Heating thermostat OFF characteristic

- Thermostat OFF continues for 3 minutes, if the Intake Air Temperature - Internal Setting Temperature > Thermostat OFF point – 1.0°C
- The Thermostat OFF point can be altering using Remote Control Local setting mode.
  - i. Press SET (small button at wireless remote) or Press TEST RUN button for 5 sec (at wired remote).
  - ii. Press TEMP UP/DOWN buttons to scroll mode no. (05).
  - iii. Press Timer UP/DOWN buttons to scroll fan tap no. (000 ~ 004)
  - iv. Press TIMER SET button to confirm and transmit to indoor.

Local Setting Mode	Setting	Heat Mode Thermo Off Set Point Shift*
05	000	No Shift
	001	Shift 1°C higher
	002	Shift 2°C higher
	003	Shift 1°C lower
	004	Shift 2°C lower

15.4.2 Expansion Valve Control

- During Thermostat OFF, the indoor unit expansion valve operation is controlled by the system.

15.5 Auto Operation

- Operation mode is determined by indoor intake temperature and remote control setting temperature.
  - Indoor intake temperature < remote control setting temperature, Heat mode is selected.
  - Indoor intake temperature ≥ remote control setting temperature, Cool mode is selected.
- Indoor intake temperature (even for the indoor unit is standing by for different operation mode) is judged by
  - Operate indoor fan at Lo- for 30 seconds, for indoor unit with DC fan motor.
  - Operate indoor fan at Lo for 30 seconds, for indoor unit with AC fan motor.
- Immediate judgment to Heat mode if
  - Indoor intake temperature < 16°C
  - Deice operation
- The operation mode judgment repeats every 3 hours.
- For second judgment onwards
  - Indoor intake temperature ≥ remote control setting temperature + 3°C change from Heat Mode to Cool Mode.
  - Indoor intake temperature < remote control setting temperature - 3°C, change from Cool Mode to Heat Mode.

15.6 Indoor Fan Motor Operation

- Type of indoor fan motor are shown in below table:

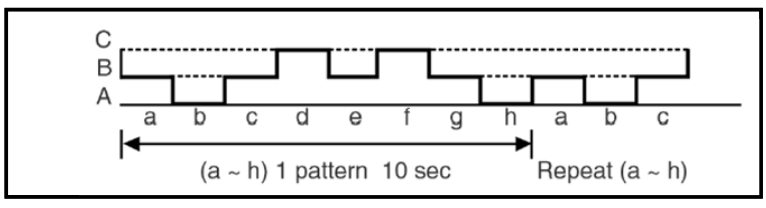
Wall Mounted Type (KA1E5 Series)	DC Fan Motor
60 x 60 Cassette Type (MA1E5 Series)	
95 x 95 Cassette Type (NA1E5 Series)	AC Fan Motor
Slim Hide-away Type (NA1E5 Series)	
Low Pressure Hide-away Type (MA1E5 Series)	

- During Cool / Fan Mode,
  - DC fan motor Manual fan speed is based on remote control setting.

Remote Control Setting	-	High	-	Medium	-	Low	-	-	-
Indoor fan tap	SHi	Hi	Me+	Me	Me-	Lo	Lo-	SLo	SSLo

  - The Remote Control High Fan Speed setting can be programmed to increase one tap up (Hi → SHi) using Remote Control Local Setting Mode.
    i. Press SET (small button at wireless remote) or Press TEST RUN button for 5 sec (at wired remote).
    ii. Press TEMP UP/DOWN buttons to scroll mode no. (01).
    iii. Press Timer UP/DOWN buttons to scroll fan tap no. (000 = Hi / 001 = SHi)
    iv. Press TIMER SET button to confirm and transmit to indoor.

  - DC fan motor Auto fan speed is specified to repetition of 8 patterns (1 pattern: 10 seconds) and follows odor cut control.



  - AC fan motor Manual fan speed is based on remote control setting.

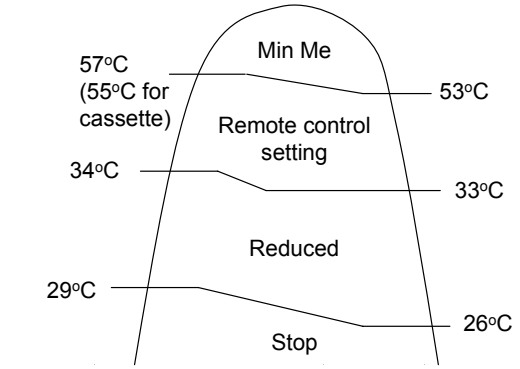
Mode	Hi	Me	Lo
Cool	•	•	•
Fan	•	•	•

- AC fan motor Auto fan speed is determined in table below and follows odor cut control.

Mode	Hi	Me	Lo	Stop
Cool	●	●	●	
Fan		●		

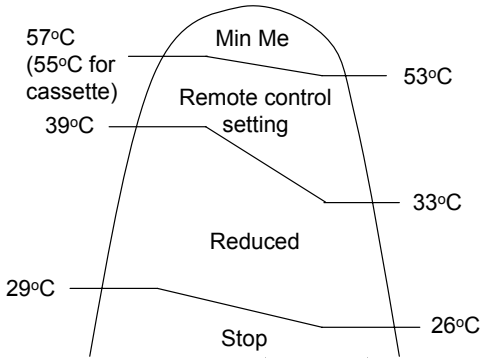
- During Soft Dry Mode
  - DC fan motor Manual and Auto indoor fan speed is fixed at SLo regardless of remote control fan setting.
  - AC fan motor Manual and Auto indoor fan speed is fixed at Lo regardless of remote control fan setting.

- During Heat Mode
  - DC fan motor Manual fan speed depends on indoor heat exchanger temperature and air swing setting.



Indoor heat exchanger temperature

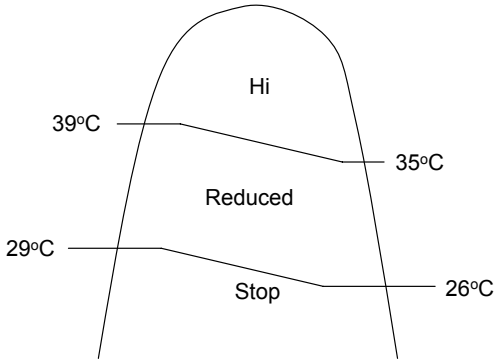
Automatic air swing



Indoor heat exchanger temperature

Manual air swing

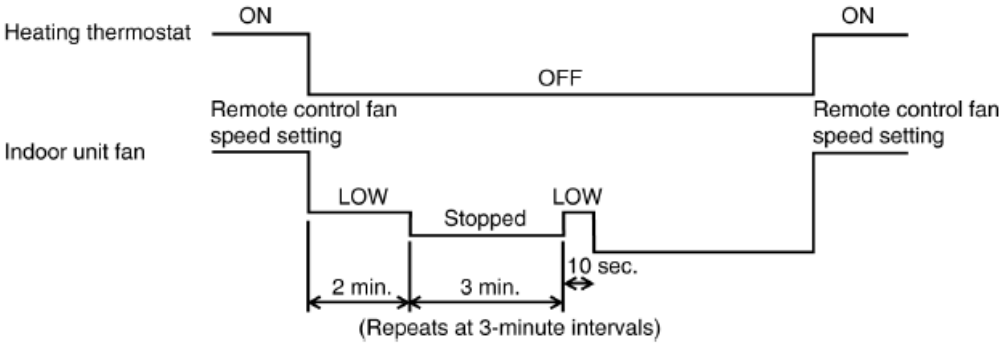
  - DC fan motor Auto fan speed depends on indoor heat exchanger temperature and air swing setting.



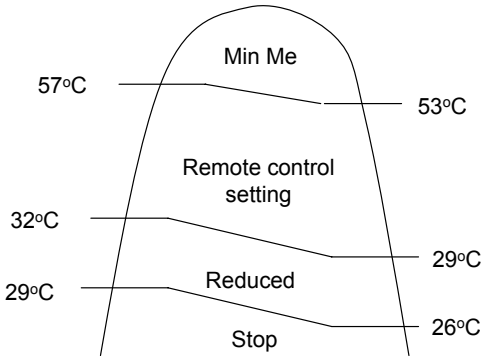
Indoor heat exchanger temperature

Automatic air swing / Manual air swing

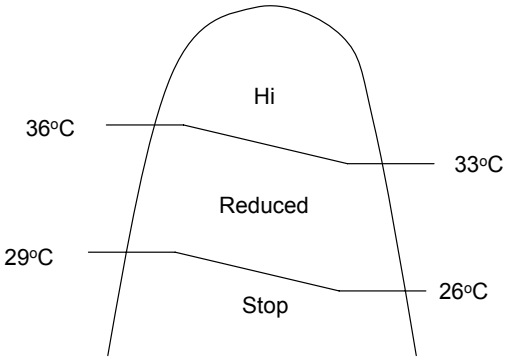
  - DC fan motor control during Thermostat OFF and Compressor OFF.



o AC fan motor Manual fan speed and Auto fan speed depends on indoor heat exchanger temperature.

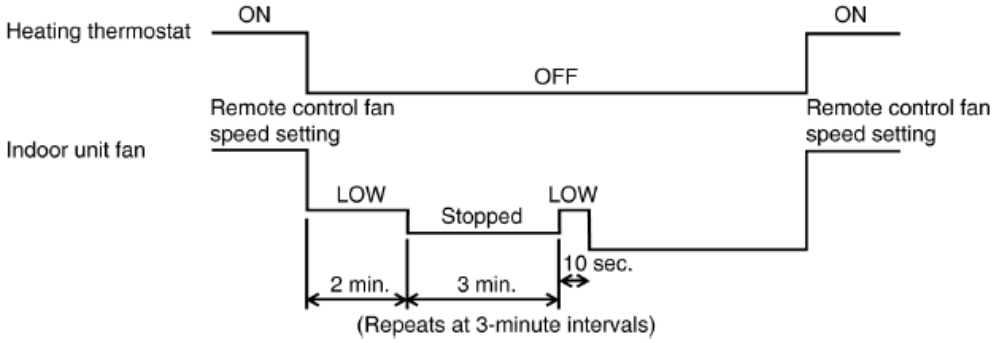


Indoor heat exchanger temperature

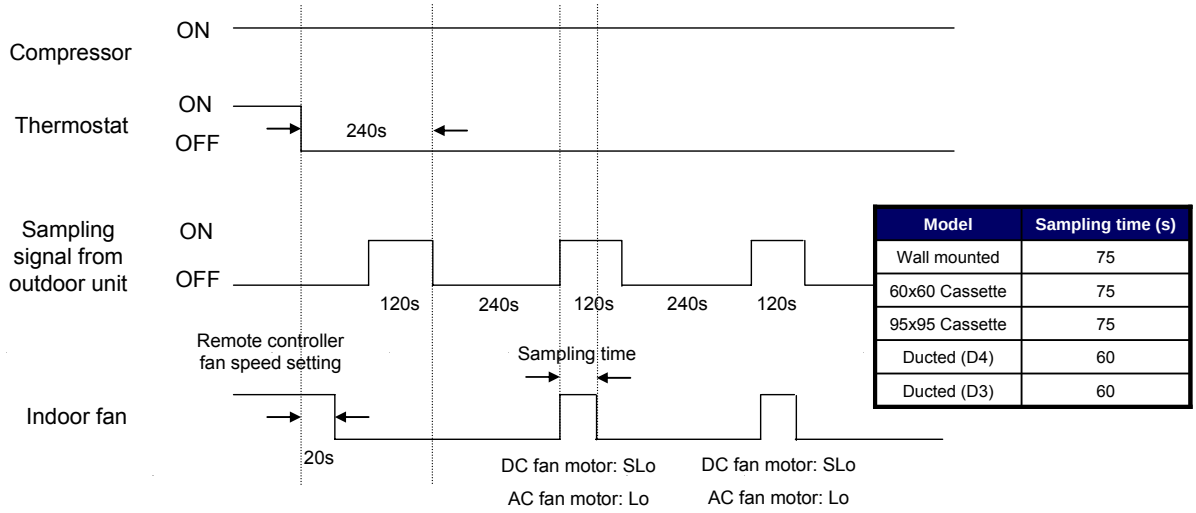


Indoor heat exchanger temperature

o AC Fan motor control during Thermostat OFF and Compressor OFF.

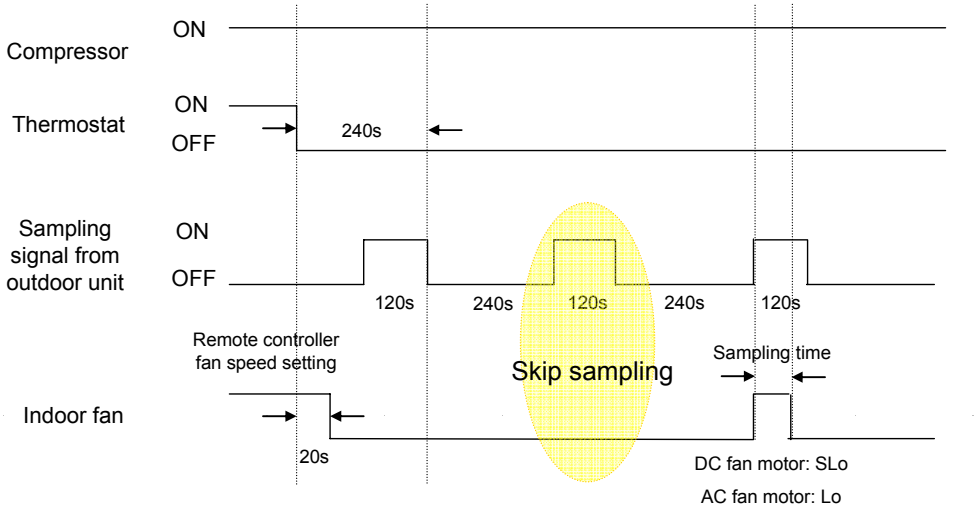


o Temperature sampling during thermostat OFF, compressor ON and temperature between indoor intake temperature and setting temperature is below 30°C.



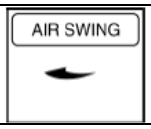
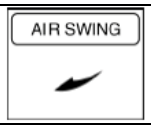
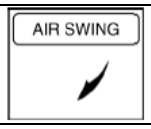
Model	Sampling time (s)
Wall mounted	75
60x60 Cassette	75
95x95 Cassette	75
Ducted (D4)	60
Ducted (D3)	60

o Temperature sampling during thermostat OFF, compressor ON and temperature between indoor intake temperature and setting temperature is above 30°C.

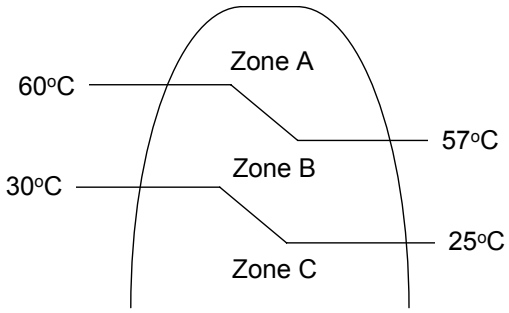


15.7 Airflow Direction

15.7.1 Wall Mounted Type (KA1E5 Series)

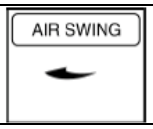
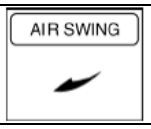
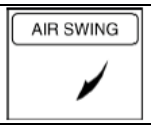
Air swing direction setting			Manual				Automatic
Mode	Condition						
			Step 1	Step 2	Step 3	Step 4	
Heat	Normal		20°	32°	50°	68°	
	Indoor heat exchanger temperature	Zone A					56°
		Zone B					56°
		Zone C					20°
	Deice		144°				
	Hot start		20°				
	Heat removal control		144°				
	Thermostat OFF		20°	32°	50°	68°	20°
Cool/Fan	Normal		20°	26°	32°	45°	20° ~ 45°
	Dew control		26°	26°	32°	45°	26° ~ 45°
	Thermostat OFF		20°	26°	32°	45°	20° ~ 45°
Dry	Normal		20°	26°	32°	45°	20° ~ 45°
	Dew control		26°	26°	32°	45°	26° ~ 45°
	Thermostat OFF		20°	26°	32°	45°	20° ~ 45°
Automatic mode judgment			20°	26°	32°	45°	20°
Operation stop			145°				

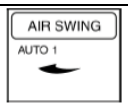
- Heating automatic air swing control according indoor heat exchanger temperature



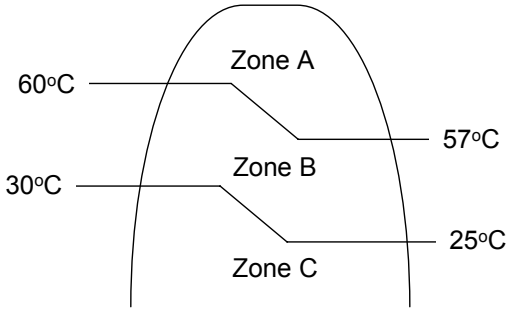
Indoor heat exchanger temperature

15.7.2 60 x 60 Cassette (YA1E5 Series)

Air swing direction setting		Manual			
Mode	**Condition**				
		Step 1	**Step 2**	**Step 3**	**Step 4**
Heat	Normal	20°	37°	53°	70°
	Deice	10°			
	Hot start	10°			
	Heat removal control	20°			
	Thermostat OFF	20°			
Cool/Fan	Normal	20°	37°	53°	70°
	Dew control	37°	37°	45°	45°
	Thermostat OFF	20°	37°	53°	70°
Dry	Normal	37°			
	Dew control	37°	37°	45°	45°
	Thermostat OFF	20°	37°	53°	70°
Automatic mode judgment		20°	37°	53°	70°
Operation stop		0°			

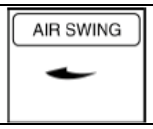
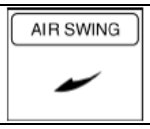
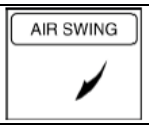
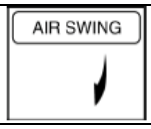
Air swing direction setting			Automatic		
Mode	**Condition**		 AUTO 1	 AUTO 2	 AUTO 3
Heat	Indoor heat exchanger temperature	Zone A	70°	70°	70°
		Zone B	20° ~ 70°	20° ~ 53°	42° ~ 70°
		Zone C	20°	20°	20°
	Deice		10°		
	Hot start		10°		
	Heat removal control		20°		
	Thermostat OFF		20°		
Cool/Fan	Normal		20° ~ 70°	20° ~ 53°	42° ~ 70°
	Dew control		34° ~ 45°	37° ~ 45°	42° ~ 45°
	Thermostat OFF		20° ~ 70°	20° ~ 53°	42° ~ 70°
Dry	Normal		37°		
	Dew control		37° ~ 45°	37° ~ 45°	42° ~ 45°
	Thermostat OFF		20° ~ 70°	20° ~ 53°	42° ~ 70°
Automatic mode judgment			20°	20°	20°
Operation stop			0°		

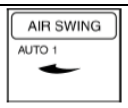
- Heating automatic air swing control according indoor unit heat exchanger temperature.



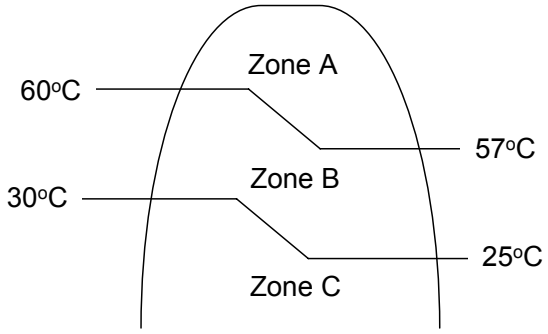
Indoor heat exchanger temperature

15.7.3 95 x 95 Cassette (UA1E5 Series)

Air swing direction setting		Manual			
Mode	**Condition**				
		Step 1	**Step 2**	**Step 3**	**Step 4**
Heat	Normal	20°	35°	50°	70°
	Deice	10°			
	Hot start	10°			
	Heat removal control	20°			
	Thermostat OFF	20°			
Cool/Fan	Normal	20°	35°	50°	70°
	Dew control	35°			
	Thermostat OFF	20°	35°	50°	70°
Dry	Normal	35°			
	Dew control	35°			
	Thermostat OFF	20°	35°	50°	70°
Automatic mode judgment		20°	35°	50°	70°
Operation stop		0°			

Air swing direction setting			Automatic		
Mode	**Condition**		 AUTO 1	 AUTO 2	 AUTO 3
Heat	Indoor heat exchanger temperature	Zone A	70°	70°	70°
		Zone B	20° ~ 70°	20° ~ 50°	40° ~ 70°
		Zone C	20°	20°	20°
	Deice		10°		
	Hot start		10°		
	Heat removal control		20°		
	Thermostat OFF		20°		
Cool/Fan	Normal		20° ~ 70°	20° ~ 50°	40° ~ 70°
	Dew control		35°		
	Thermostat OFF		20° ~ 70°	20° ~ 50°	40° ~ 70°
Dry	Normal		30°		
	Dew control		35°		
	Thermostat OFF		20° ~ 70°	20° ~ 50°	40° ~ 70°
Automatic mode judgment			20°	20°	20°
Operation stop			0°		

- Heating automatic air swing control according indoor unit heat exchanger temperature.



Indoor heat exchanger temperature

15.8 Odor Cut control

- This control starts when Cool / Soft Dry Mode ON and indoor fan speed is Auto.
- The Auto fan pattern during this control.

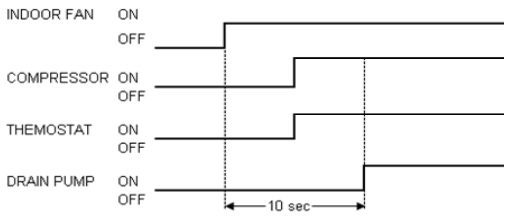
Thermostat & Compressor / Indoor fan		40 sec	50 sec	-	20 sec	120 sec	20 sec	40 sec	50 sec	-
		ON / OFF								
		Indoor fan								
DC fan motor	Cool	OFF	SSLo	Auto	SSLo	OFF	SSLo	OFF	SSLo	Auto
	Softdry	OFF	SSLo	SLo	SSLo	OFF	SSLo	OFF	SSLo	SLo
AC fan motor	Cool	OFF	Lo	Hi	Lo	OFF	Lo	OFF	Lo	Me
	Softdry	OFF	Lo	Lo	Lo	OFF	Lo	OFF	Lo	Lo

- During freeze prevention control, this control is not triggered.

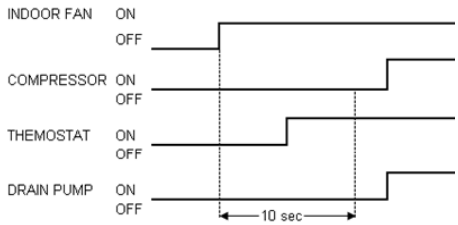
15.9 Drain Pump Control

- This control applicable for 95 x 95 Cassette and 60 x 60 Cassette indoor units only.
- During the unit is operating Cool / Soft Dry Mode

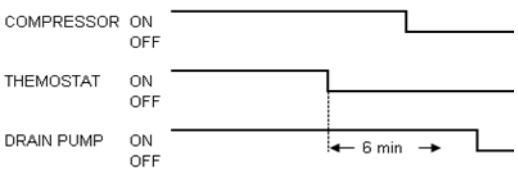
(A) When compressor starts within 10 seconds



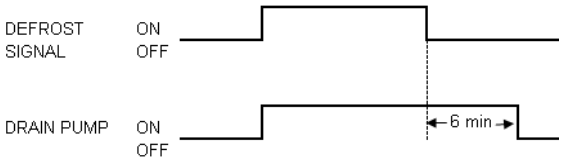
(B) When compressor starts after 10 seconds



(C) When thermostat OFF



- During the unit in deice operation



15.10 Filter Check Control

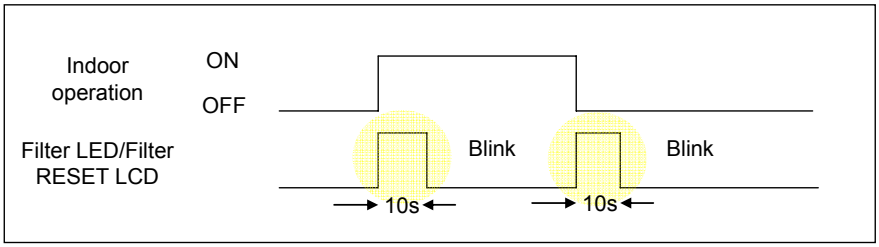
- This control detects the contamination of filter from the accumulated operation time of indoor unit

Model	Filter check time (hour)
Wall mounted	360
Except above	1000

- Accumulated time will be multiplied by a correction factor

Fan Number Group	Correction factor (%)
Below Lo	50
Below Me	75
Except above	100

- To inform user to clean the filter, FILTER RESET display on the wired remote control LCD and FILTER LED on indoor unit remote control receiver / indicator will blink for 10 seconds each time operation ON and operation OFF.



15.11 Powerful Operation Control

- This control activates to increase the output capacity when the indoor unit ON and the temperature difference between indoor intake temperature and remote control setting temperature is more than 5°C.

Operation Mode	Trigger Condition	Duration
Cooling	Intake Temp – Remote Setting > 5°C	30 minutes
Soft Dry	Intake Temp – Remote Setting > 5°C	30 minutes
Heating	Intake Temp – Remote Setting < 5°C	60 minutes

- During Powerful operation:
  i. The internal target of setting temperature will be shift 2°C DOWN for Cooling / Soft Dry and 2°C UP for Heating.
  ii. With the new internal target of setting temperature, the compressor frequency is increase and output capacity will increase.
  iii. After 30 minutes of powerful operation or the temperature target is achieved, the powerful operation control will be ended and the internal temperature target will back to normal.

16. Indoor Unit Protection Control

Protection controls applicable for Cool / Soft Dry Mode

16.1 Odor Remove control

16.2 Freeze Prevention control

- This control starts when all below condition are satisfied
  - Indoor thermostat ON and compressor ON for 4 minutes after startup.
  - Indoor heat exchanger temperature less than 4°C.
- When received freeze prevention signal from indoor unit, the compressor frequency changes according to indoor heat exchanger temperature.
- When freeze condition continuously for 6 minutes, indoor unit request thermostat OFF and capability supplies to targeted indoor unit stops.
- This control stops when indoor heat exchanger temperature > 6°.C

16.3 Dew Prevention control

- This control starts when all conditions below are satisfied
  - Indoor thermostat ON and compressor ON
  - Outdoor temperature < 30°C
  - Indoor intake temperature > 24°C
  - Indoor fan speed is ≤ Lo or AUTO
- Indoor fan speed changed from SLo to Lo and air swing angle follows dew prevention angle.
- When received dew prevention signal from indoor unit, compressor frequency reduces according to indoor heat exchanger temperature.
- This control stops when any conditions below is satisfied
  - Thermostat OFF or compressor OFF
  - Remote control fan speed & temperature setting changed
  - Outdoor temperature > 30°C
  - Indoor intake temperature < 24°C
  - Indoor heat exchanger temperature > 17°C

16.4 Mist Prevention Control

- This control starts when all conditions below are satisfied
  - Indoor thermostat ON and Compressor ON
  - Indoor fan ≤ Lo
  - Indoor heat exchanger temperature < 13°C
- When received mist prevention signal from indoor unit, the compressor frequency reduces according to indoor heat exchanger temperature.
- Indoor fan speed changes from SLo to Lo.
- This control stops when any conditions below is satisfied
  - Thermostat OFF or compressor OFF
  - Remote control fan speed & temperature setting changed
  - Indoor heat exchanger temperature > 14°C

Protection controls applicable for Heat Mode.

16.5 Hot Start Control

- This control starts when all conditions below are satisfied
  - Compressor ON after completion of deice operation.
- During this control
  - PRE HEAT will display on wired remote control LCD.
  - Indoor unit POWER LED blinks.
  - Indoor fan stops.
- This control stops when any conditions below is satisfied
  - Indoor heat exchanger temperature > 25°C
  - 4 minutes has passed after the start of heating operation

16.6 Indoor Residual Heat Removal Control

- This control starts when all conditions below are satisfied
  - Compressor ON
  - Indoor heat exchanger temperature is more than 45°C
  - Operation mode changed from Heat to Fan, Cool, Soft Dry or OFF.
  - Indoor Thermostat ON before Heat mode changes.
- During this control
  - DC motor fan speed is fixed at Lo-, and airflow direction is fixed.
  - AC motor fan speed is fixed at Lo, and airflow direction is fixed.
  - Indoor unit POWER LED is OFF
- This control stops when any conditions below is satisfied
  - 30 seconds has passed after the start of residual heat removal control
  - Compressor OFF

Protection controls applicable for all operation modes.

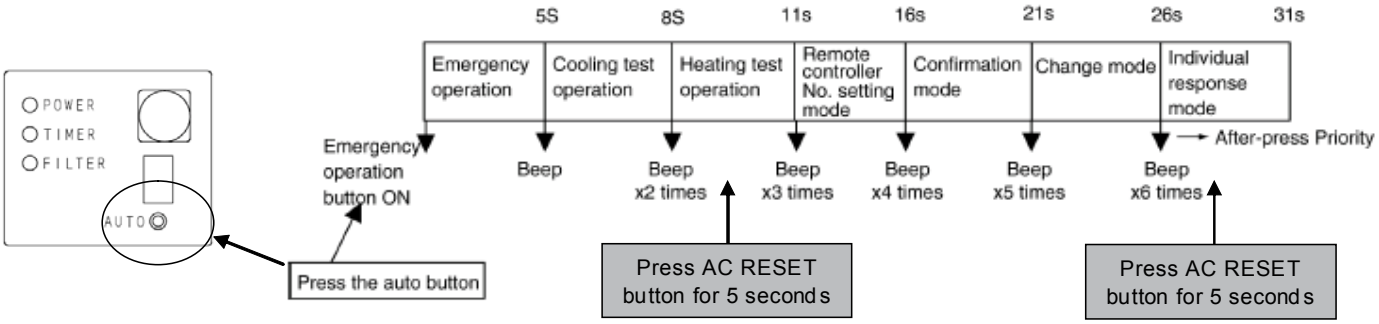
16.7 Auto Restart Control

- This control is available will auto restart the operation when electrical power resume from interruption.
- When electrical power resume, the outdoor unit will send an auto restart signal to all connected indoor units.
- Indoor Units that have Outdoor Address setting same with the Outdoor Unit will memorize the signal in EEPROM.
- This control could be enable/disable using Auto Restart Switch (AUTO R/S) at outdoor main PCB.

17. Servicing Mode

17.1 Emergency Operation

- Emergency operation can be performed in the event of misplaced of wireless remote control.



Emergency Operation

1. Press and hold the receptor's AUTO switch for less than 5s.

Force Cooling Mode

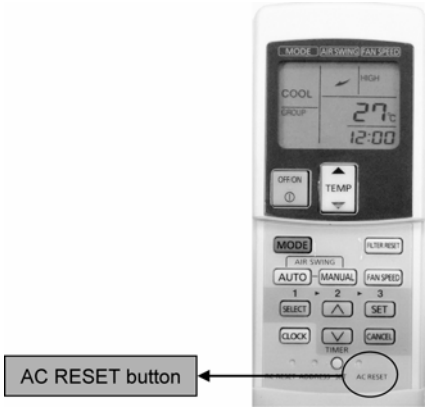
1. Press and hold the receptor's AUTO switch for more than 5s till one beep is heard.

Force Heating Mode

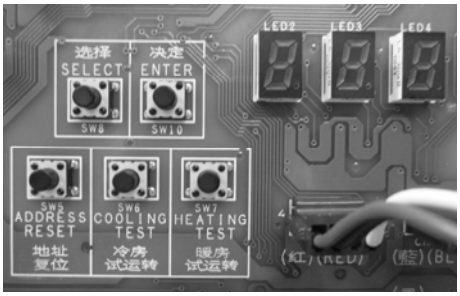
1. Press and hold the receptor's AUTO switch for more than 8s till two beeps is heard.
2. Press AC RESET button on the wireless remote control to enter heating mode.

Individual Response Mode (Receiving Sound ON/OFF Setting Mode)

1. Press and hold the receptor's AUTO switch for more than 26s till six beeps is heard.
2. Press AC RESET button on the wireless remote control to enter individual response mode.
3. Then, press AUTO switch to confirm ON/OFF receiving sound:



17.2 Outdoor Local Setting Mode



- To enter outdoor Local Setting Mode, at Outdoor unit main PCB:
  - Press and hold SELECT and ENTER button simultaneously for 5 seconds until the 3 digit 7 segment displaying “888”
  - Set the digit 1 by 1 starting from left to right by using SELECT to scroll the number 0~9, and ENTER to confirm the number of the digit.

Setting Mode		Item	Details							
			0	1	2	3	4	5	6	
1	10	Piping length Setting	Short	Medium	Long	-	-	-	-	
	11	Auto Restart	ON	OFF	-	-	-	-	-	
	12	Power Saving	OFF	ON	-	-	-	-	-	
	13	Indoor / Outdoor Elevation	<30m	≥30m	-	-	-	-	-	
	14	High static pressure	OFF	ON	-	-	-	-	-	
	15	Cool / Soft Dry Mode Thermo Shift	0°C	+1°C	+2°C	+3°C	-1°C	-2°C	-3°C	
	16	Heat Mode Thermo Shift	0°C	+1°C	+2°C	+4°C	-1°C	-2°C	-4°C	
	CCL	RESET	-	-	-	-	-	-	-	
Action Mode		Item	Details							Allowable operation
			0	1	-	-	-	-	-	
2	20	Air Tight Test	OFF	ON	-	-	-	-	-	Standby
	21	Refrigeration Collection	OFF	ON	-	-	-	-	-	Standby
	22	Vacuuming	OFF	ON	-	-	-	-	-	Standby
	23	Defrost operation	OFF	ON	-	-	-	-	-	HEAT Mode
	24	Pump Down	OFF	ON	-	-	-	-	-	Prohibited after installation
	CCL	RESET	-	-	-	-	-	-	-	

17.2.1 Auto Restart Control

- Auto Restart Function at outdoor main PCB is a setting to enable/disable AC system for auto restart back the operation when electrical power resume back from interruption.
- When electrical power on, the outdoor unit will send a signal about the auto restart switch setting to all connected indoor units.
- Indoor Units that having Outdoor Address setting same with the Outdoor Unit will be memorized the signal to EEPROM.

17.2.2 Power Save Control

- With Power Save ON, the maximum electrical current pulling from the power source is limited to 70%. Usually, it used when a 25A breaker is installed at power source line.
- If power save function is activated, the maximum performance capacity also dropped to lower level.

17.3 Wired Remote Control Local Setting Mode

- During unit off, press the TEST RUN button for 5 seconds to enter LOCAL MODE.
- Press Temperature Up / Down button to select Mode No.
- Press Timer SELECT button to enter setting mode.
- Press Timer Up / Down button to select setting value.
- Press Timer SET button to confirm the selection.
- Press TEST RUN button to exit LOCAL SETTING MODE. If no operation is performed for 30 seconds, exit LOCAL SETTING MODE.

Mode No.	Items	Setting value		Individual Setting Note 1)	Setting value memory terminal Note 2)
00	Centralized control address	000 – 200: Address 0 – Address 200		○	I
01	Fan speed up	000: OFF	001: ON		I
02	Nighttime low noise	000: Execute Reset (Level 0)			R
		001 – 003: Level 1 – Level 3			
	Nighttime low noise ON time	0:00 23.50 (10 minutes interval)			
	Nighttime low noise OFF time	0:00 23.50 (10 minutes interval)			
03	Thermostat OFF indoor fan control	000: Default control		○	I
		001: 10 seconds fan sampling operation			
		002: Fixed fan speed operation			
04	Thermostat OFF point adjustment	000: default Thermostat OFF point (ΔD)		○	I
		001: Cool = ΔD+2°C, Heat = ΔD-2°C			
		002: Cool = ΔD+4°C, Heat = ΔD-4°C			
		003: Cool = ΔD-2°C, Heat = ΔD+2°C			
		004: Cool = ΔD-4°C, Heat = ΔD+4°C			
06	Outdoor unit address	000: Clear address		○	I
		001 – 199: Address 1 - Address 199			
10	Group address reset	000: Non-processed	001: Execute Reset		Note 3)
11	Thermistor selection	000: Non-processed	001: Remote control		R
12	Ventilation unit control	000: OFF	001: ON (no-interlocking)		R
		002: ON (OFF coupling)	003: ON (ON/OFF coupling)		

Note 1) Mark ○ in the column of the “Individual setting” shows a setting item individually made for each connected indoor unit.
Note 2) “R” represents remote control and I “indoor unit”.
Note 3) Start the setting from the setting value 000.

17.3.1 Fan Speed Up

- This control can increase the fan speed of indoor unit with DC motor.
- When enable, the HIGH fan speed setting at Remote Control, indoor unit fan tap changed from Hi to SHi.

17.3.2 Night Time Low Noise

- This control turns down outdoor unit operation noise by limiting compressor and outdoor fan speed.

Setting Value	Description	Remark
000	Not set	Normal Noise Level
001	Level 1	Low Noise Level
002	Level 2	Lower Noise Level
003	Level 3	Lowest Noise Level

- Ensure current time is set correctly at remote control.
- After enable Night Time Low Noise at Level 1, Level 2 or Level 3, follow procedure below to set ON and OFF timer:
  - Press Timer MODE button, remote control LCD will display “ON Timer”
  - Press Timer Up / Down button to set the ON time for Night Time Low Noise
  - Press Timer SELECT button, remote control LCD will display “OFF Timer”
  - Press Timer Up / Down button to set the OFF time for Night Time Low Noise.
  - Confirm the Night Time Low Noise ON and OFF timer by pressing Timer SET button.
  - Press TEST RUN button to exit LOCAL SETTING MODE.

17.3.3 Thermostat OFF Indoor Fan Control

- During thermostat OFF and compressor OFF, indoor fan control can be alter to suit different application requirement.

Setting Value	Description	Operation details
000	Default control	Fan control by EEPROM
001	10 seconds fan sampling	Fan OFF for 3 minutes, then ON for 10 seconds.
002	Fixed fan speed	AC Fan Motor Speed: Lo DC Fan Motor Speed: Lo-

17.3.4 Thermostat OFF Point Adjustment

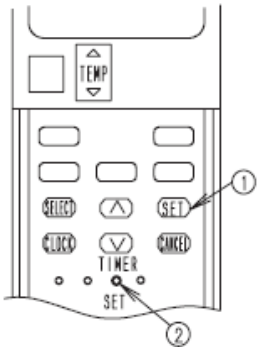
- The default thermostat OFF point might not be accurate depends on indoor unit installation condition, thermostat OFF point adjustment is could be done.

17.3.5 Thermistor Selection

- The default Indoor intake temperature sensor is set at indoor unit (000), the indoor intake temperature might not be accurate depends on indoor unit installation condition; indoor intake temperature sensor could be set at remote control.

17.4 Wireless Remote Control Local Setting Mode

- Press the SET button (2) to enter Local Setting Mode
- Press Temperature Up / Down button to select Mode No.
- Press Timer Up / Down button to select setting value.
- Press Timer SET button (1) to confirm the selection.
- Setting display for 4 seconds, exits from LOCAL SETTING MODE. If no operation is performed for 30 seconds, exit LOCAL SETTING MODE.



Mode No.	Items	Setting value		Individual Setting Note 1)
00	Centralized control address	000 – 200: Address 0 – Address 200		○
01	Fan speed up	000: OFF	001: ON	
02	Nighttime low noise	000: Execute Reset (Level 0)		
		001 – 003: Level 1 – Level 3		
	Nighttime low noise ON time	0:00 23.50 (10 minutes interval)		
	Nighttime low noise OFF time	0:00 23.50 (10 minutes interval)		
03	Thermostat OFF indoor fan control	000: Default control		○
		001: 10 seconds fan sampling operation		
		002: Fixed fan speed operation		
04	Thermostat OFF point adjustment	000: default Thermostat OFF point (ΔD)		○
		001: Cool = ΔD+2°C, Heat = ΔD-2°C		
		002: Cool = ΔD+4°C, Heat = ΔD-4°C		
		003: Cool = ΔD-2°C, Heat = ΔD+2°C		
		004: Cool = ΔD-4°C, Heat = ΔD+4°C		
06	Outdoor unit address	000: Clear address		○
		001 – 199: Address 1 - Address 199		

Note 1) Mark ○ in the column of the “Individual setting” shows a setting item individually made for each connected indoor unit.
Note 2) “R” represents remote control and I “indoor unit”.
Note 3) Start the setting from the setting value 000.

17.4.1 Night Time Low Noise

- This control turns down outdoor unit operation noise by limiting compressor and outdoor fan speed.

Setting Value	Description	Remark
000	Not set	Normal Noise Level
001	Level 1	Low Noise Level
002	Level 2	Lower Noise Level
003	Level 3	Lowest Noise Level

- Ensure current time is set correctly at remote control.
- To enable Night Time Low Noise:
  - Press SET button (2) to enter local setting mode
  - Press Temperature Up / Down button to select Mode No. 2
  - Press Timer Up / Down button to select 001, 002 or 003 for the noise level.
  - Press Timer SELECT button and then press Timer Up / Down button to set Night time low noise OFF time.
  - Press Timer SET button (1) to confirm the OFF time and continue set Night time low noise ON time.
  - Press Timer Up / Down button to set the ON time for Night Time Low Noise.
  - Press Timer SET button (1) to confirm the ON time.
  - After 2 seconds, exits from local setting mode.

17.4.2 Thermostat OFF Indoor Fan Control

- During thermostat OFF and compressor OFF, indoor fan control can be alter to suit different application requirement.

Setting Value	Description	Operation details
000	Default control	Fan control by EEPROM
001	10 seconds fan sampling	Fan OFF for 3 minutes, then ON for 10 seconds.
002	Fixed fan speed	AC Fan Motor Speed: Lo DC Fan Motor Speed: Lo-

17.4.3 Thermostat OFF Point Adjustment

The default thermostat OFF point might not be accurate depends on indoor unit installation condition, thermostat OFF point adjustment is could be done.

17.5 AC Reset Control

When AC Reset at remote control is pressed, all indoors & outdoor in the system (same Outdoor Address) will perform micron reset. All processing memory & counter will be cleared & restart.

Perform AC Reset when abnormal display at remote control or LED indicators is found during normal operation condition.

18. Troubleshooting Guide

18.1 Error Code Table

Outdoor Unit Error Code	Abnormality Control	Areas to verify
F27-01	Indoor / outdoor unit communication line disconnection error	Indoor / outdoor unit communication line, lead wire terminal.
F30-01	Total quantity / capacity of connected indoor unit error	Total quantity / capacity of connected indoor unit is insufficient or over.
F30-02	Noise filter circuit (capacitor) error.	Connection of Outdoor unit Inverter PCB and Capacitor PCB, Outdoor unit Inverter PCB.
F31-01	Low pressure protection	Refrigerant cycle, 2 or 3-way valve close, insufficient refrigerant.
F31-02	High pressure protection	Refrigerant cycle, 2 or 3-way valve close.
F31-06	4-way valve error	4-way valve, outdoor unit main PCB connector CN-HOT.
F31-08	Indoor unit freezing error	Abnormal indoor unit expansion valve.
F32-04	IPM temperature protection	Outdoor unit Inverter PCB.
F32-05	Total current protection	Compressor locked, refrigerant cycle.
F32-06	Compressor discharge temperature protection	Insufficient refrigerant.
F32-08	PFC protection	Outdoor unit inverter PCB.
F32-09	DC peak current error	Outdoor unit Inverter PCB, compressor locked, compressor lead wire connection.
F32-10	Compressor rotation error	Outdoor unit Inverter PCB, compressor locked, compressor lead wire connection.
F32-32	Communication error between outdoor unit main PCB and micro-controller.	Connector CN-COM between outdoor main PCB and Inverter PCB, Outdoor unit main PCB, Inverter PCB.
F35-02	Outdoor DC fan motor error	Outdoor unit Inverter PCB, Outdoor DC fan motor, outdoor unit Inverter PCB connectors CN-FM1, CN-FM2.
F40-01	Outdoor temperature sensor error	Outdoor temperature sensor lead wire, outdoor unit main PCB, connector CN-TH3.
F40-11	Compressor suction temperature sensor error	Compressor suction temperature lead wire, outdoor unit main PCB, connector CN-TH4, 3-way valve close.
F40-13	SC Liquid temperature sensor error	SC Liquid temperature sensor lead wire, outdoor unit main PCB connector CN-TH2
F40-21	Outdoor heat exchanger temperature sensor error	Outdoor heat exchanger temperature sensor lead wire, outdoor unit main PCB, connector CN-TH1.
F40-31	DEF temperature sensor error	DEF temperature sensor lead wire, outdoor unit main PCB, connector CN-TH1.
F40-33	Bypass temperature sensor error	Bypass temperature sensor lead wire, outdoor unit main PCB connector CN-TH2
F40-51	Compressor discharge temperature sensor error	Compressor discharge temperature sensor lead wire, outdoor unit main PCB connector CN-TH4, compressor discharge temperature sensor.
F41-01	High pressure sensor error	High pressure sensor lead wire, outdoor unit main PCB connector CN-HPS.
F41-02	High pressure switch disconnection error	High pressure switch lead wire, outdoor unit main PCB, connector CN-PSW1.
F41-11	Low pressure sensor error	Low pressure sensor lead wire, outdoor unit main PCB connector CN-LPS.
F42-11	Outdoor CT disconnection error	Outdoor unit main PCB.
F44-01	IPM temperature sensor error	Outdoor unit main PCB.
F45-01	Outdoor address double registration error	Outdoor unit address.

Indoor Unit Error Code	Abnormality Control	Areas to verify
F15-01	Drain level error	Drain pump, float switch, drain pipe, indoor unit main PCB, connector CN-DRMTR, CN-TH2.
F17-02	Indoor DC fan motor error	Indoor DC fan motor, connector CN-FM.
F20-01	Indoor liquid pipe temperature sensor error	Indoor liquid pipe temperature sensor lead wire, indoor unit main PCB, connector CN-TH2.
F20-02	Remote control thermistor error	Remote control thermistor.
F21-01	Indoor heat exchanger temperature sensor error	Indoor heat exchanger temperature sensor lead wire, indoor unit main PCB, connector CN-TH1.
F22-01	Indoor gas pipe temperature sensor error	Indoor gas pipe temperature sensor lead wire, indoor unit main PCB, connector CN-TH1.
F25-01	Indoor address double registration error	Indoor unit address.
F26-01	Remote control communication line disconnection error	Remote control lead wire, terminal, indoor unit main PCB connector CN-REM.
F27-01	Indoor / outdoor unit communication line disconnection error	Indoor / outdoor unit communication lead wire, connection terminal, indoor unit main PCB connector CN-UN, outdoor unit address.
F31-08 *	Indoor unit freezing error.	Abnormal indoor unit expansion valve, indoor unit heat exchanger sensor. * For indoor unit with error, indoor unit man PCB LED1 blinking ON: 2.5 sec. OFF: 0.5 sec..

18.2 Troubleshooting Flowchart

18.2.1 Drain Level Float Switch Problem (F15-01)

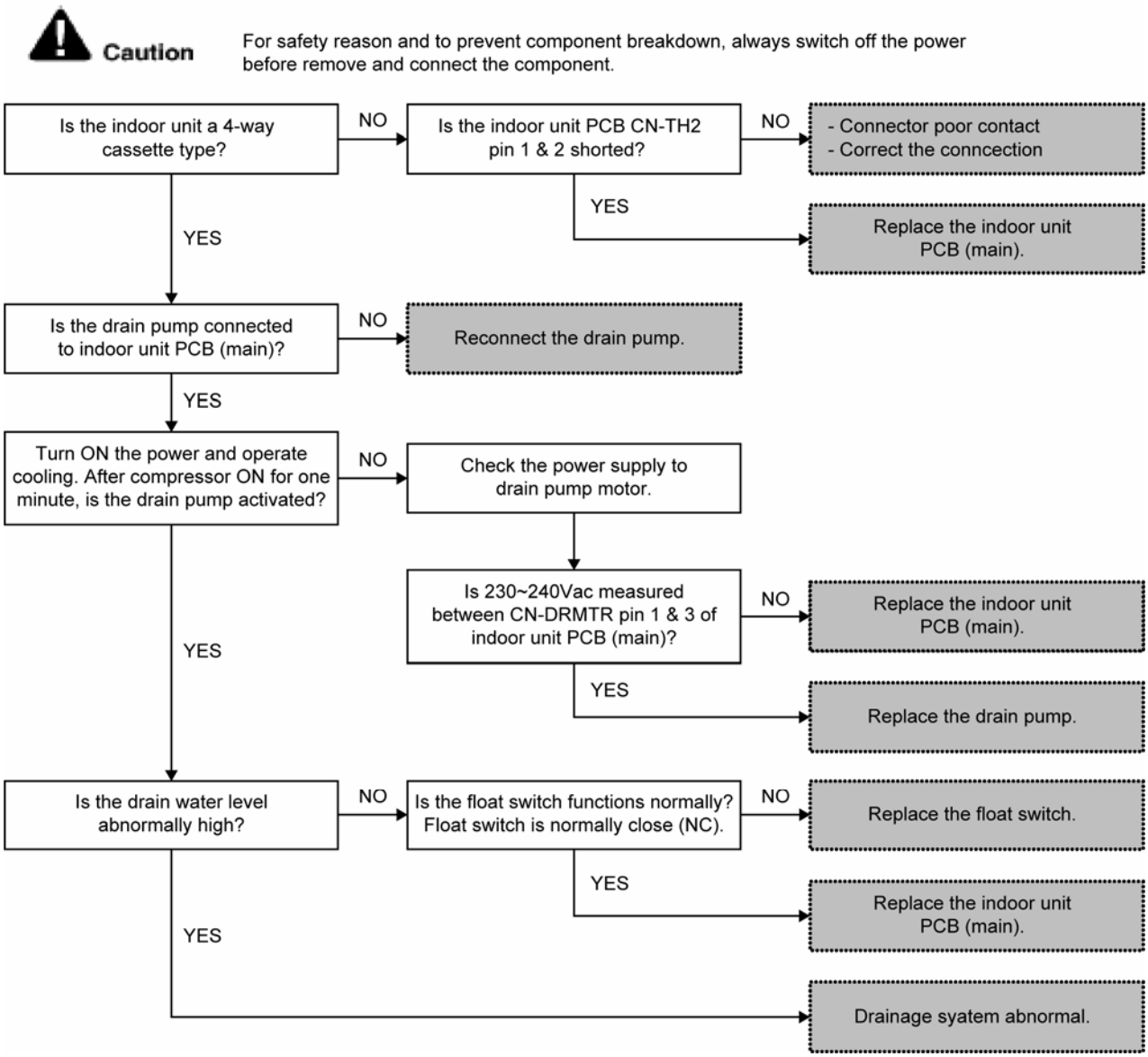
Malfunction Decision Conditions

- During operation of cooling and heating, the signal received from drain level float switch in indoor unit is checked whether it is normal.

Malfunction Caused

- Faulty connector connection.
- Faulty indoor unit drain pump motor.
- Clogged drain hose.
- Faulty indoor unit PCB (main).

Troubleshooting



18.2.2 Indoor Fan Motor (DC Motor) Mechanism Locked (F17-02)

Malfunction Decision Conditions

- The rotation speed detected by the Hall IC of the fan motor during fan motor operation is used to determine abnormal fan motor (feedback of rotation > 2550rpm or < 50rpm).

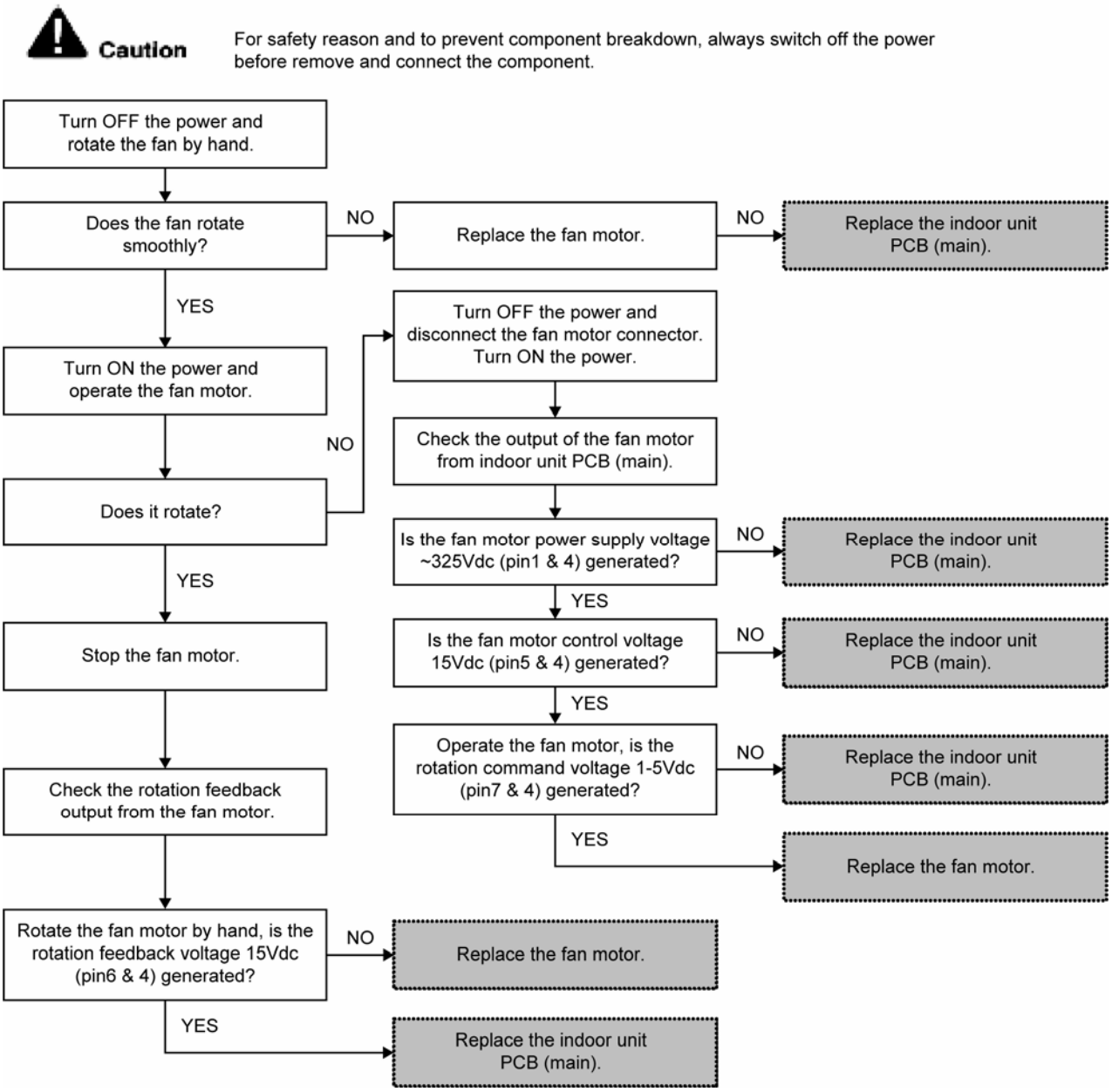
Malfunction Caused

- Operation stops due to short circuit inside the fan motor winding.
- Operation stops due to breaking of wire inside the fan motor.
- Operation stops due to breaking of fan motor lead wires.
- Operation stops due to fan motor Hall IC malfunction.
- Operation error due to faulty indoor unit PCB (main).

Abnormality Judgment

- Fan motor runs for 5 seconds and stops for 25 seconds, and repeat continuously for 7 times.

Troubleshooting



18.2.3 Indoor Intake Air Temperature Sensor Abnormality (F20-01)

Malfunction Decision Conditions

- During startup and operation of cooling and heating, the temperatures detected by the indoor intake air temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty indoor unit PCB (main).

Abnormality Judgment

- After 20 minutes operation start and indoor fan running.
- Continue for 120 seconds.

Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.

Check the CN-TH2 connector connection:
- Turn OFF the power
- Check the connector connection

Is the CN-TH2 connector connection normal?

NO → - Connector poor contact
- Correct the connection

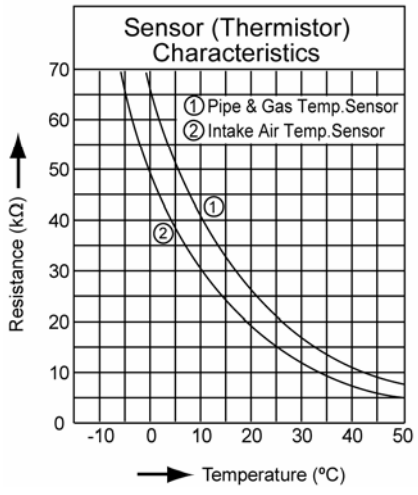
YES

Check the indoor intake air temperature sensor:
- Plug out connector from the indoor unit PCB (main)
- Measure the resistance of the indoor intake air temperature sensor

Is the measured resistance of the indoor intake air temperature sensor matches the value specified in its characteristic chart?

NO → - Defect in indoor intake air temperature sensor
- Replace the indoor intake air temperature sensor

YES → - Defect in indoor unit PCB (main)
- Replace the indoor unit PCB (main)



18.2.4 Wired Remote Control Thermistor Abnormality (F20-02)

Malfunction Decision Conditions

- During startup and operation of cooling and heating, the temperatures detected by the wired remote control thermistor are used to determine sensor errors.

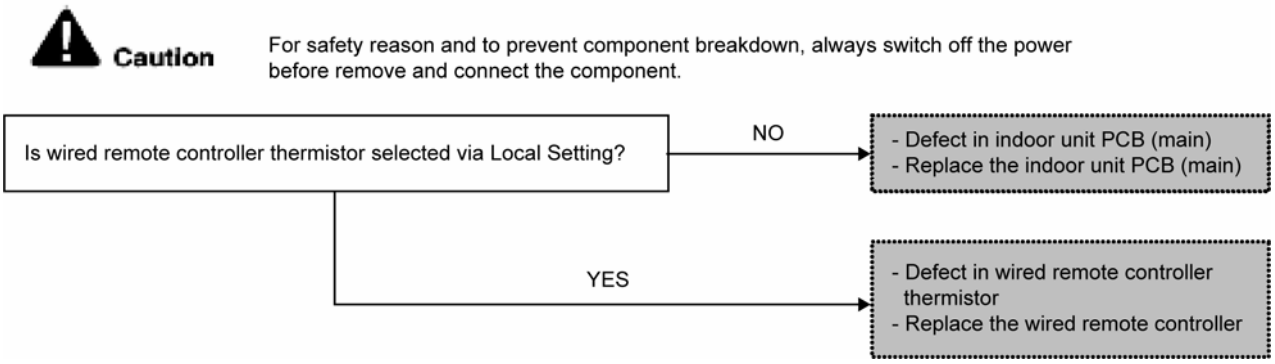
Malfunction Caused

- Faulty wired remote controller.
- Faulty indoor unit PCB (main).

Abnormality Judgment

- Abnormality occurs only when wired remote controller thermistor selection is made via Local Setting.

Troubleshooting



18.2.5 Indoor Pipe Temperature Sensor Abnormality (F21-01)

Malfunction Decision Conditions

- During startup and operation of cooling and heating, the temperatures detected by the indoor pipe temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty indoor unit PCB (main).

Abnormality Judgment

- Continue for 120 seconds.

Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.

Check the CN-TH1 connector connection:
- Turn OFF the power
- Check the connector connection

Is the CN-TH1 connector connection normal?

NO → - Connector poor contact
- Correct the connection

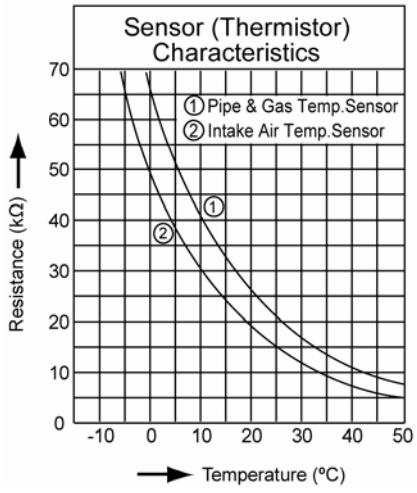
YES

Check the indoor pipe temperature sensor:
- Plug out connector from the indoor unit PCB (main)
- Measure the resistance of the indoor pipe temperature sensor

Is the measured resistance of the indoor pipe temperature sensor matches the value specified in its characteristic chart?

NO → - Defect in indoor pipe temperature sensor
- Replace the indoor temperature sensor complete (pipe & gas)

YES → - Defect in indoor unit PCB (main)
- Replace the indoor unit PCB (main)



18.2.6 Indoor Gas Temperature Sensor Abnormality (F22-01)

Malfunction Decision Conditions

- During startup and operation of cooling and heating, the temperatures detected by the indoor gas temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty indoor unit PCB (main).

Abnormality Judgment

- Continue for 120 seconds.

Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.

Check the CN-TH1 connector connection:
- Turn OFF the power
- Check the connector connection

Is the CN-TH1 connector connection normal?

NO → - Connector poor contact
- Correct the connection

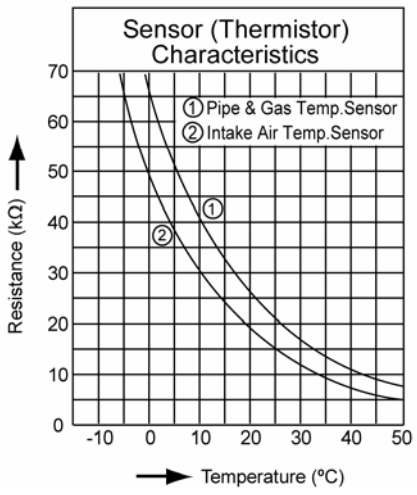
YES

Check the indoor gas temperature sensor:
- Plug out connector from the indoor unit PCB (main)
- Measure the resistance of the indoor gas temperature sensor

Is the measured resistance of the indoor gas temperature sensor matches the value specified in its characteristic chart?

NO → - Defect in indoor gas temperature sensor
- Replace the indoor temperature sensor complete (pipe & gas)

YES → - Defect in indoor unit PCB (main)
- Replace the indoor unit PCB (main)



18.2.7 Indoor Address Double Registration (F25-01)

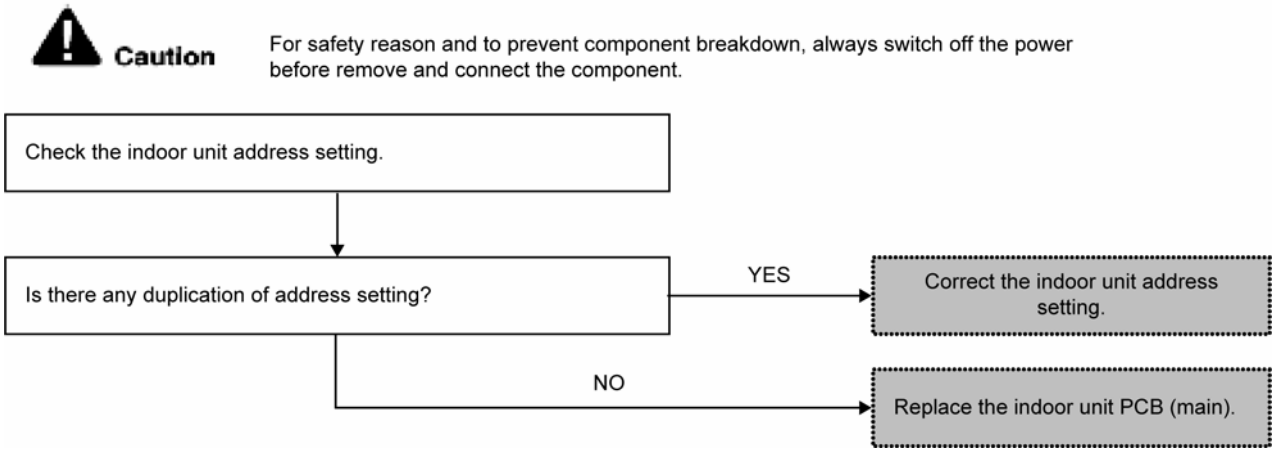
Malfunction Decision Conditions

- During standby, startup and operation of cooling and heating, the indoor unit detects the same address as that of its own.

Malfunction Caused

- Wrong indoor unit address setting.
- Faulty indoor unit PCB (main).

Troubleshooting



18.2.8 Remote Control Communication Line Disconnection Error (F26-01)

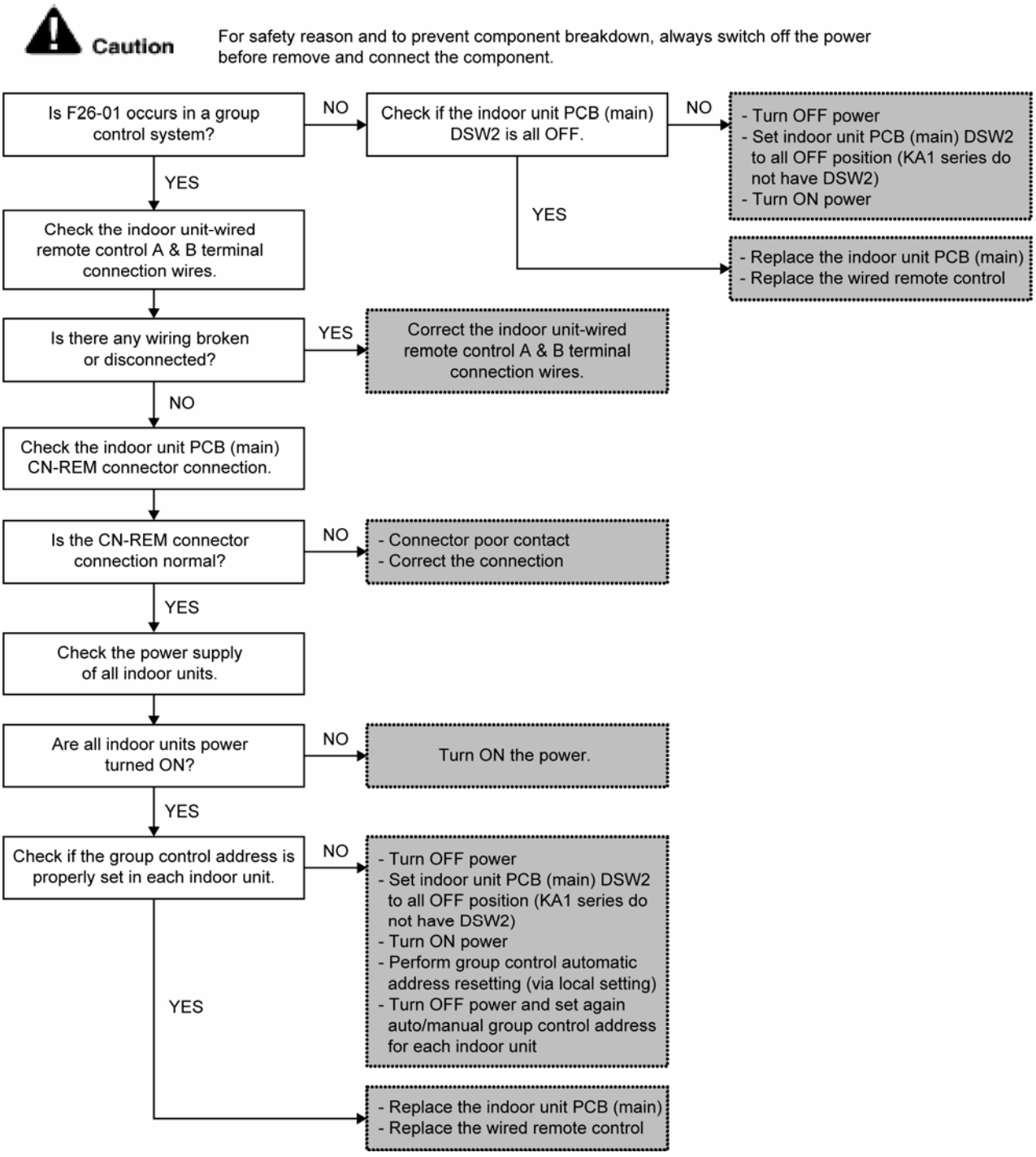
Malfunction Decision Conditions

- During standby, startup and operation of cooling and heating, normal transmission between remote control and indoor unit does not continue for 3 minutes.

Malfunction Caused

- Faulty connector connection.
- Improper group control address setting.
- Faulty wired remote control.
- Faulty indoor unit PCB (main).

Troubleshooting



18.2.9 Indoor/Outdoor Unit Communication Line Disconnection Error (F27-01)

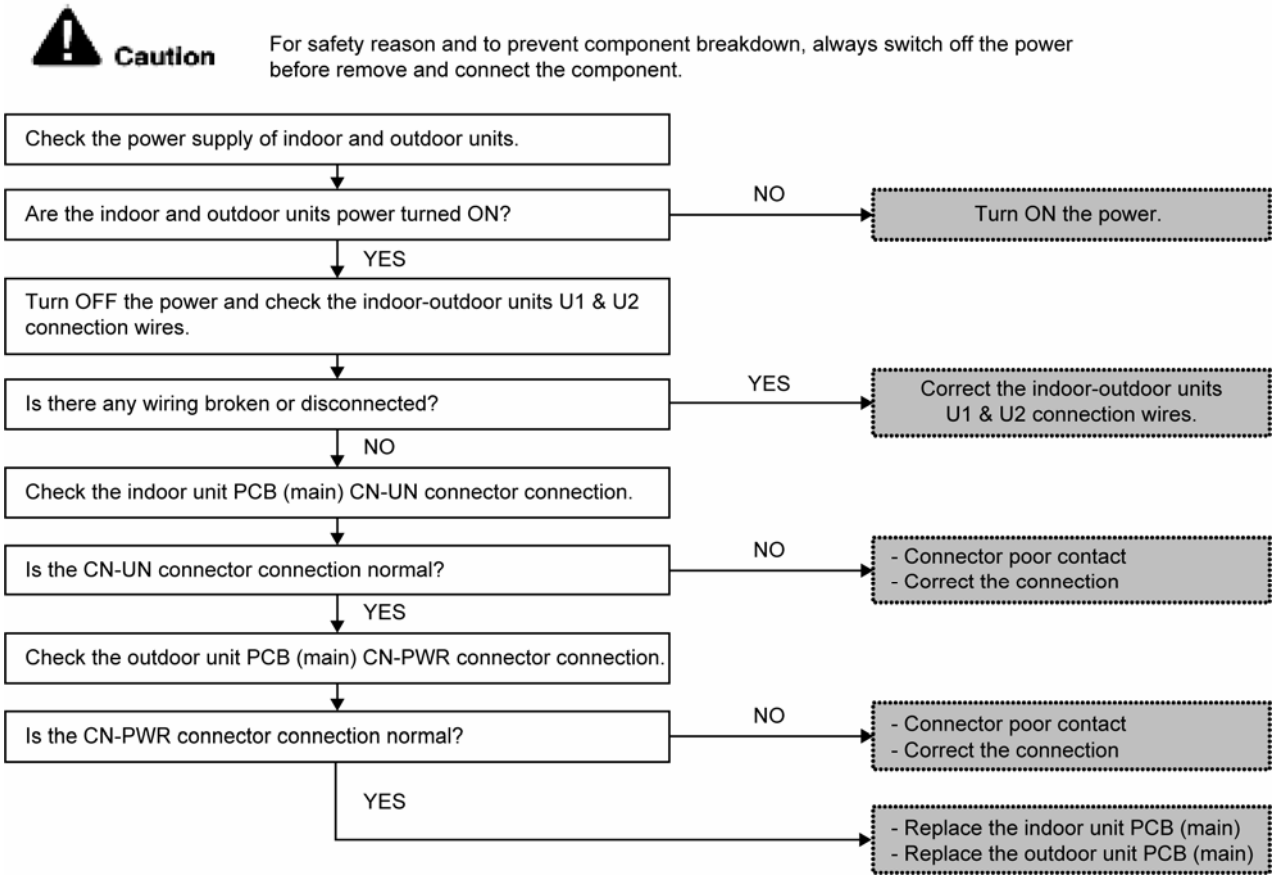
Malfunction Decision Conditions

- During standby, startup, and operation of cooling and heating, the transmission between indoor and outdoor unit is checked whether it is normal.

Malfunction Caused

- Indoor/outdoor power supply is OFF.
- Indoor-outdoor signal transmission error due to breaking of U1 & U2.
- Indoor-outdoor signal transmission error due to faulty CN-UN connector connection.
- Indoor-outdoor signal transmission error due to faulty CN-PWR connector connection.
- Faulty indoor unit PCB (main).
- Faulty outdoor unit PCB (main).

Troubleshooting



18.2.10 Total Quantity & Capacity of Connected Indoor Unit Abnormality (F30-01)

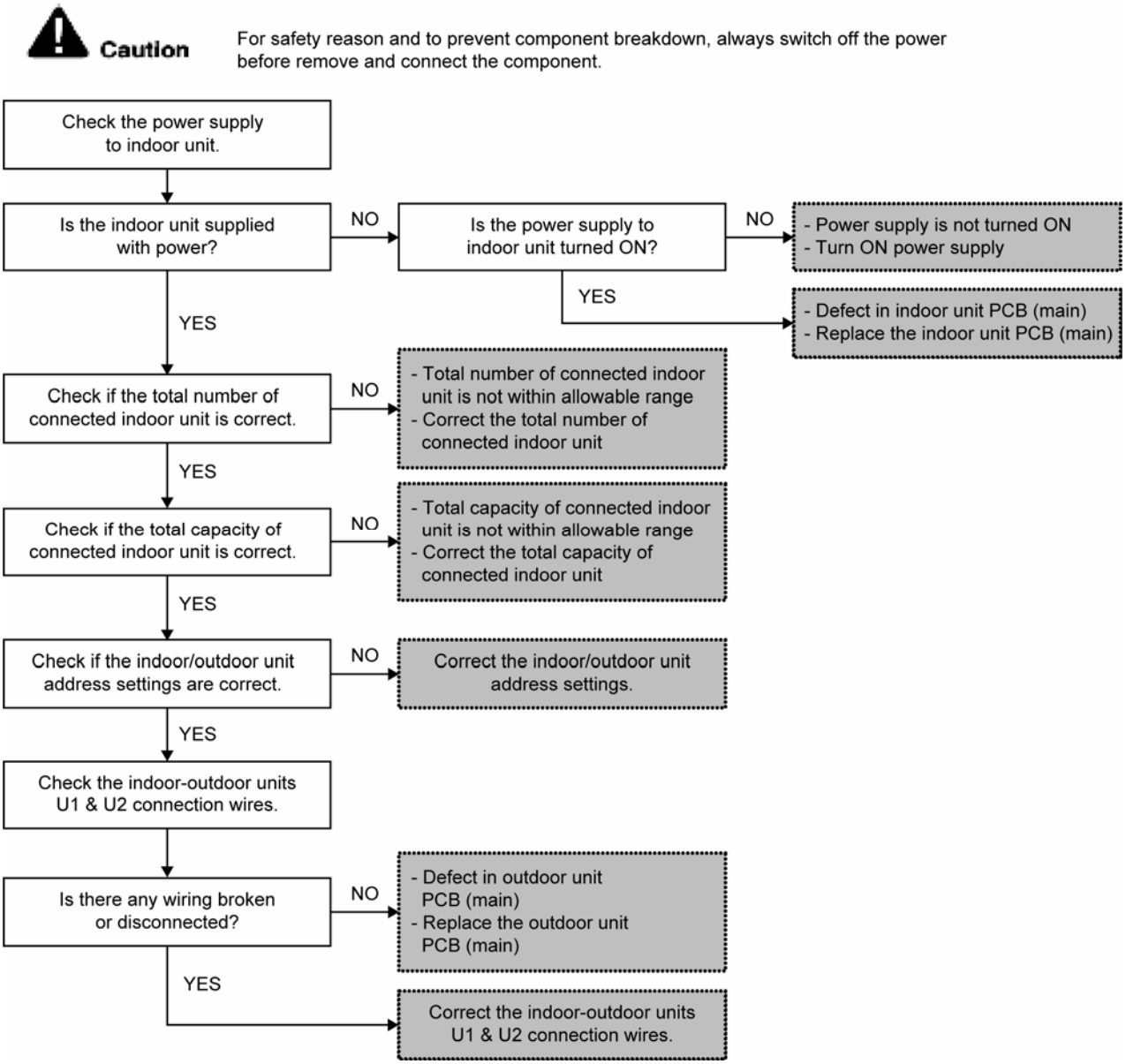
Malfunction Decision Conditions

- The total quantity & capacity of connected indoor units are used to determine abnormal system connectivity.

Malfunction Caused

- No power supply to indoor unit.
- Wrong total number (max. & min.) of connected indoor unit.
- Wrong total capacity (max. & min.) of connected indoor unit.
- Wrong indoor unit and outdoor unit address settings.
- Indoor-outdoor signal transmission error due to breaking of U1 & U2.
- Faulty outdoor unit PCB (main).

Troubleshooting



18.2.11 Low Pressure Protection (F31-01)

Malfunction Decision Conditions

- During operation of cooling and heating, when the outdoor unit low pressure sensor saturated temperature value detected < 45°C.

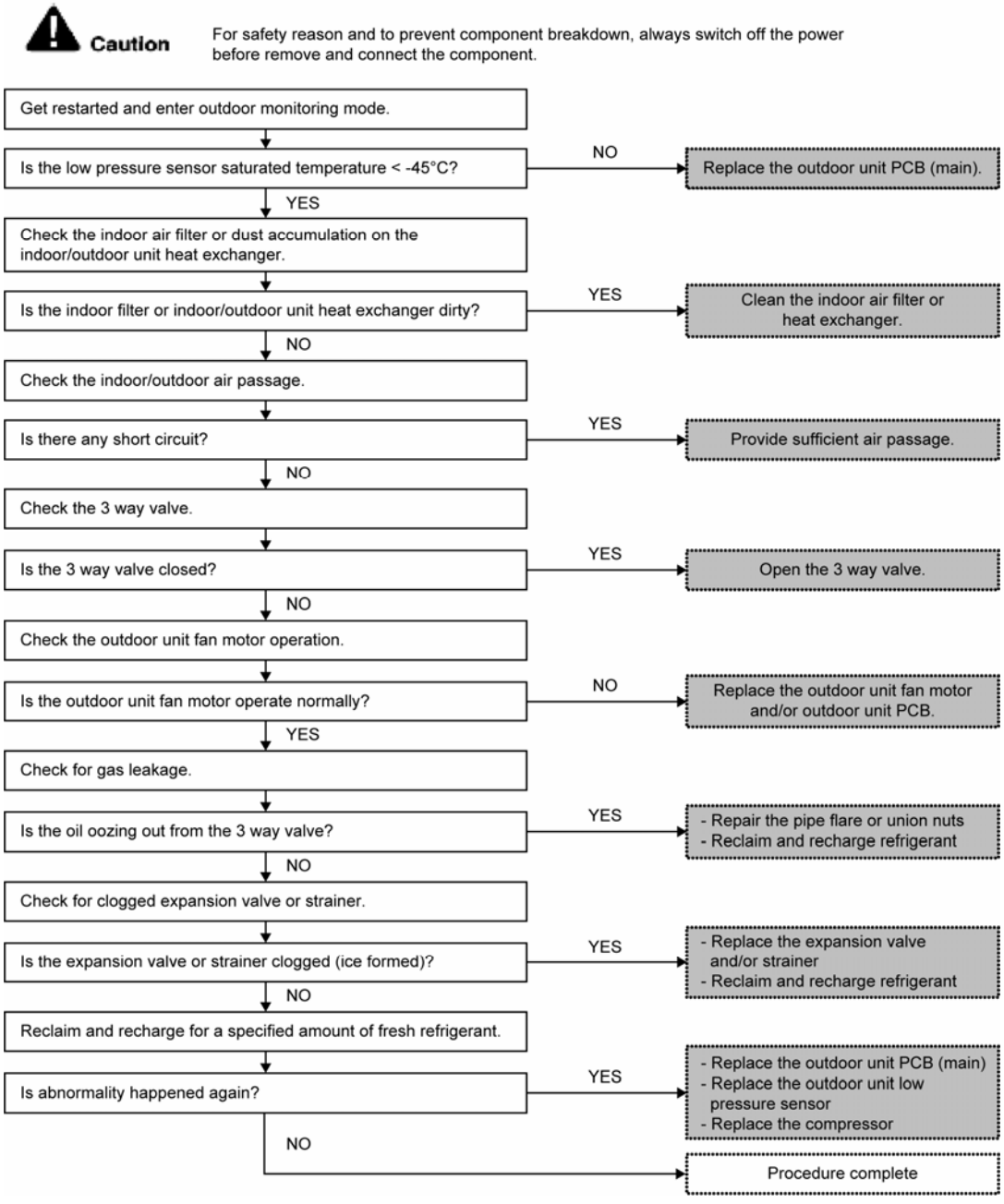
Malfunction Caused

- Clogged air filter of indoor unit.
- Dust accumulation on the indoor/outdoor unit heat exchanger.
- Air short circuit at indoor/outdoor unit.
- 3 way valve closed.
- Faulty outdoor unit fan motor.
- Refrigerant shortage (refrigerant leakage).
- Clogged expansion valve or strainer.
- Faulty outdoor unit low pressure switch.
- Faulty outdoor unit PCB (main).

Abnormality Judgment

- Continue 7 times in 60 minutes.

Troubleshooting



18.2.12 High Pressure Protection (F31-02)

Malfunction Decision Conditions

- During operation of cooling and heating, when the outdoor unit high pressure switch is open 4.15MPa and above.

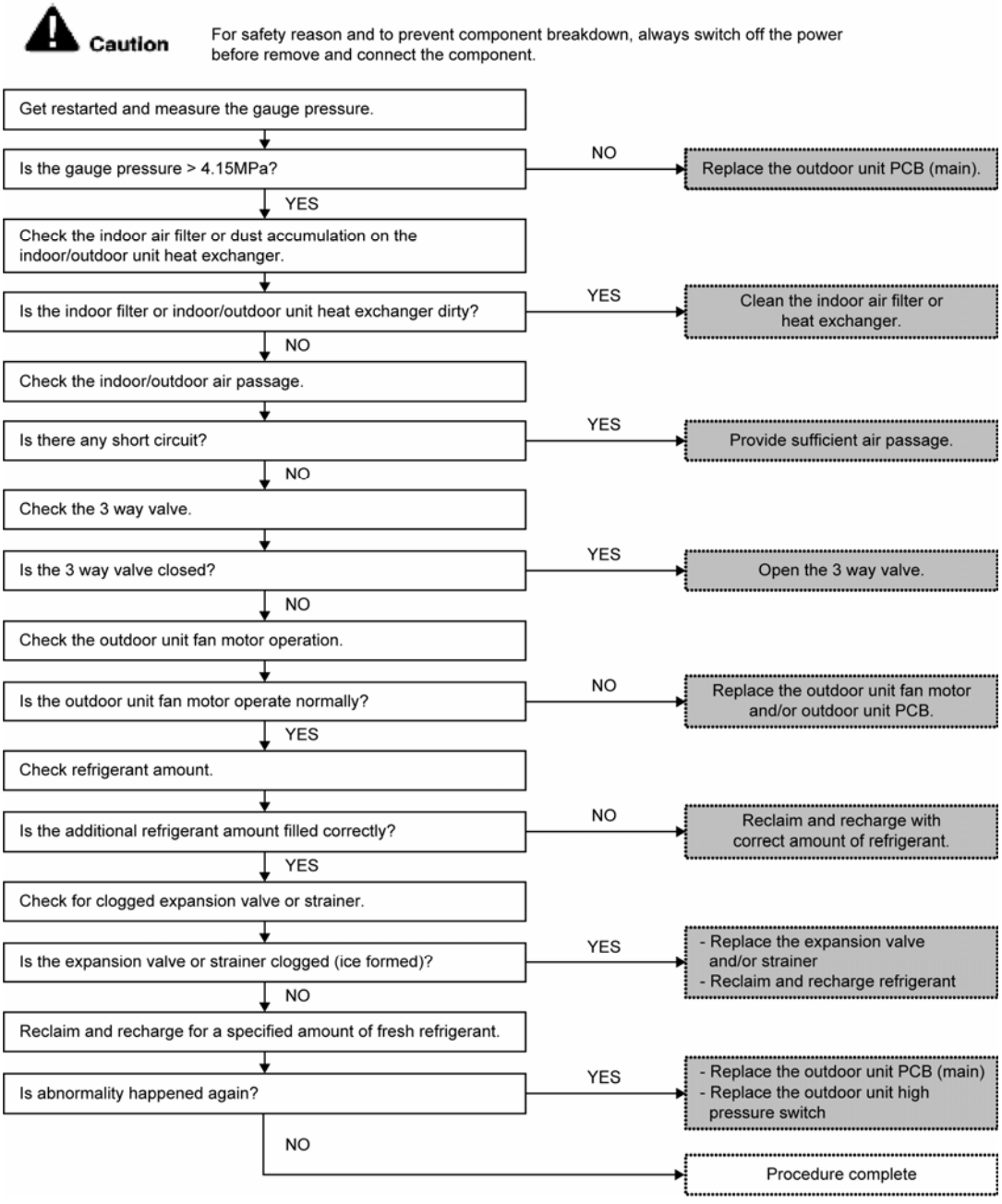
Malfunction Caused

- Clogged air filter of indoor unit.
- Dust accumulation on the indoor/outdoor unit heat exchanger.
- Air short circuit at indoor/outdoor unit.
- 3 way valve closed.
- Faulty outdoor unit fan motor.
- Excess refrigerant.
- Clogged expansion valve or strainer.
- Faulty outdoor unit high pressure switch.
- Faulty outdoor unit PCB (main).

Abnormality Judgment

- Continue 9 times in 60 minutes.

Troubleshooting



18.2.13 Four Way Valve Abnormality (F31-06)

Malfunction Decision Conditions

- During heating operation, when the indoor pipe temperature of thermostat ON indoor unit < 5°C.
- During cooling operation, when the indoor pipe temperature of thermostat ON indoor unit > 45°C.

Malfunction Caused

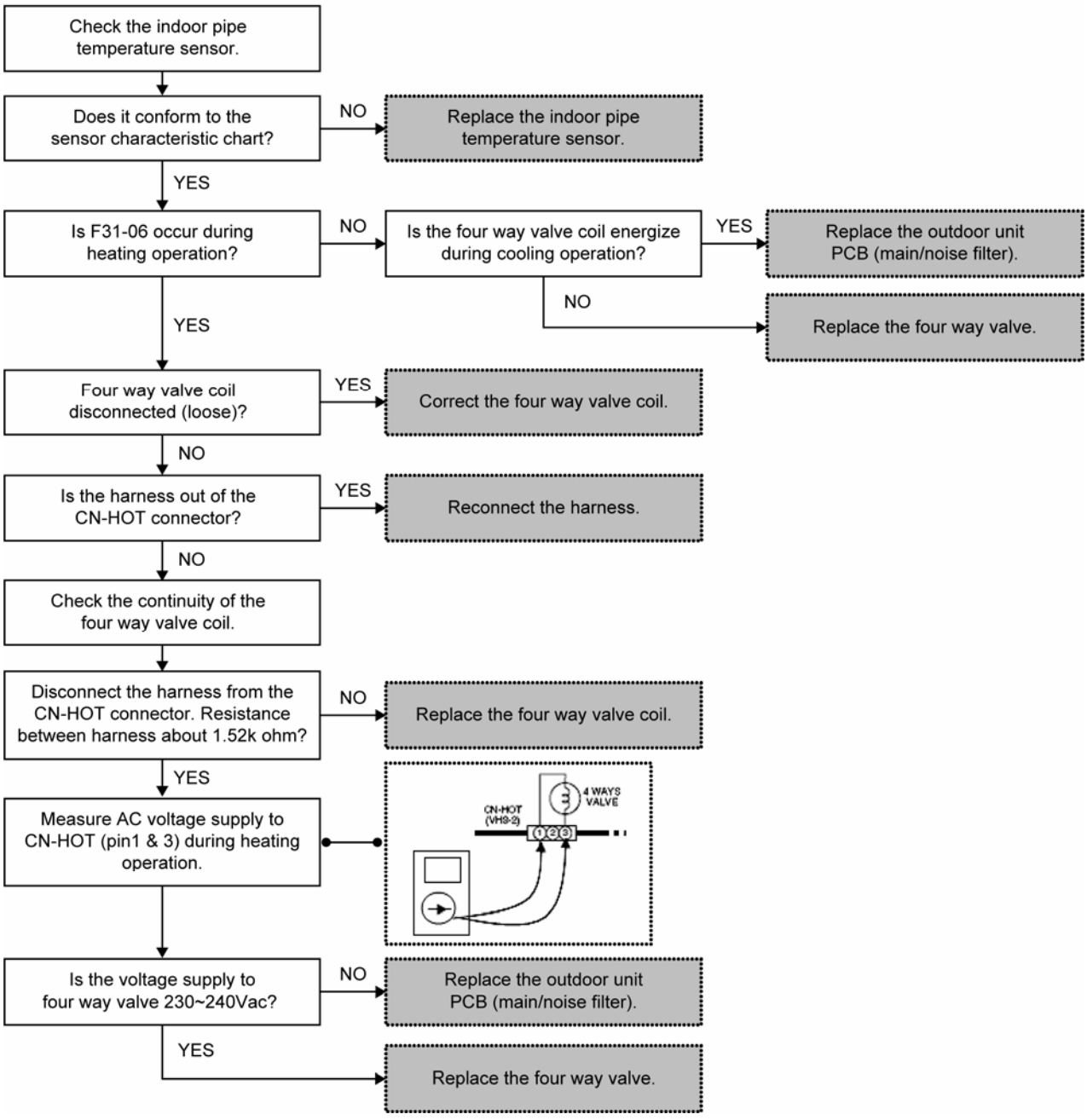
- Faulty sensor.
- Faulty connector connection.
- Faulty outdoor unit PCB (main/noise filter).
- Faulty four way valve.

Abnormality Judgment

- Continue 3 times in 45 minutes.

Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.



18.2.14 Indoor Unit Freezing Abnormality (F31-08)

Malfunction Decision Conditions

- During operation of cooling, and when outdoor unit receive indoor unit freezing abnormal signal (indoor pipe temperature < 0°C) from thermostat OFF/standby indoor unit.

Malfunction Caused

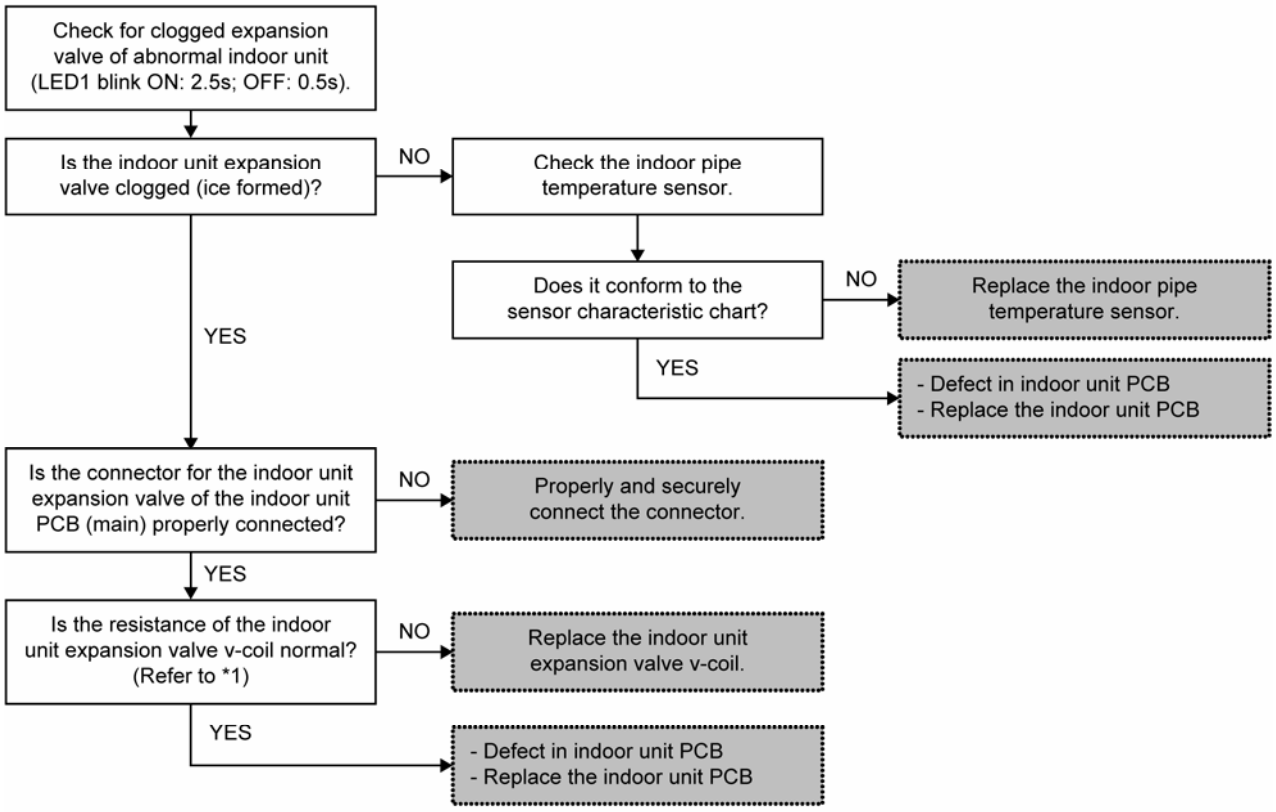
- Faulty sensor.
- Faulty indoor unit expansion valve.
- Faulty indoor unit PCB (main).

Abnormality Judgment

- Continue 3 times in 45 minutes.

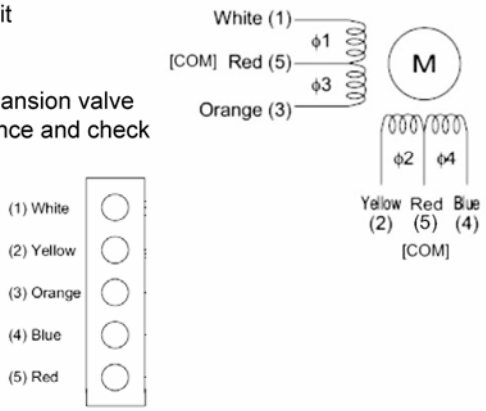
Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.



*1: Procedure for checking eletronic expansion valve of indoor unit

Turn off the main power supply and disconnect the electronic expansion valve CN-EV from indoor unit PCB, then make measurement of resistance and check for continuity between the connector pins to make judgment.



The normal states are as follow:

1. No continuity between Pins (1) and (2)
2. Approx. 92Ω resistance between Pins (1) and (3)
3. Approx. 46Ω resistance between Pins (1) and (5)
4. Approx. 92Ω resistance between Pins (2) and (4)
5. Approx. 46Ω resistance between Pins (2) and (6)

18.2.15 IPM Temperature Protection (F32-04)

Malfunction Decision Conditions

- During operation of cooling and heating, when IPM temperature data (95°C) is detected by the IPM temperature sensor.

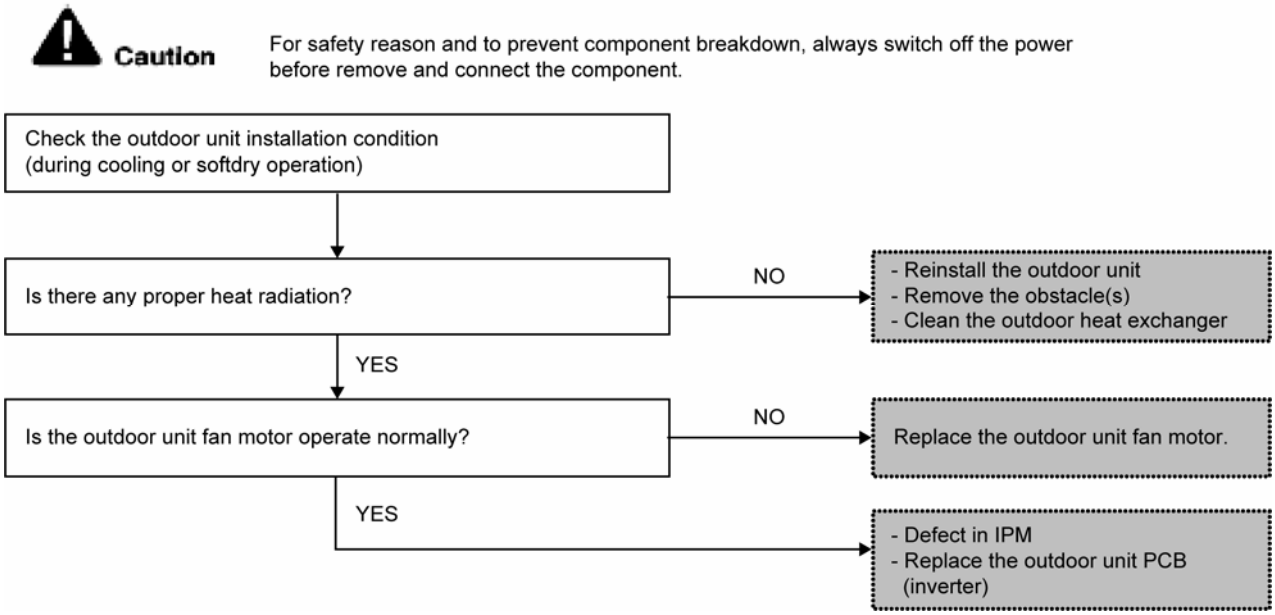
Malfunction Caused

- Air short circuit at outdoor unit.
- Faulty outdoor unit fan motor.
- Faulty outdoor unit PCB (inverter).

Abnormality Judgment

- Continue 4 times in 30 minutes.

Troubleshooting



18.2.16 Total Current Protection (F32-05)

Malfunction Decision Conditions

- During operation of cooling and heating, when an input over-current is detected by the current transformer (CT) in the outdoor unit PCB.

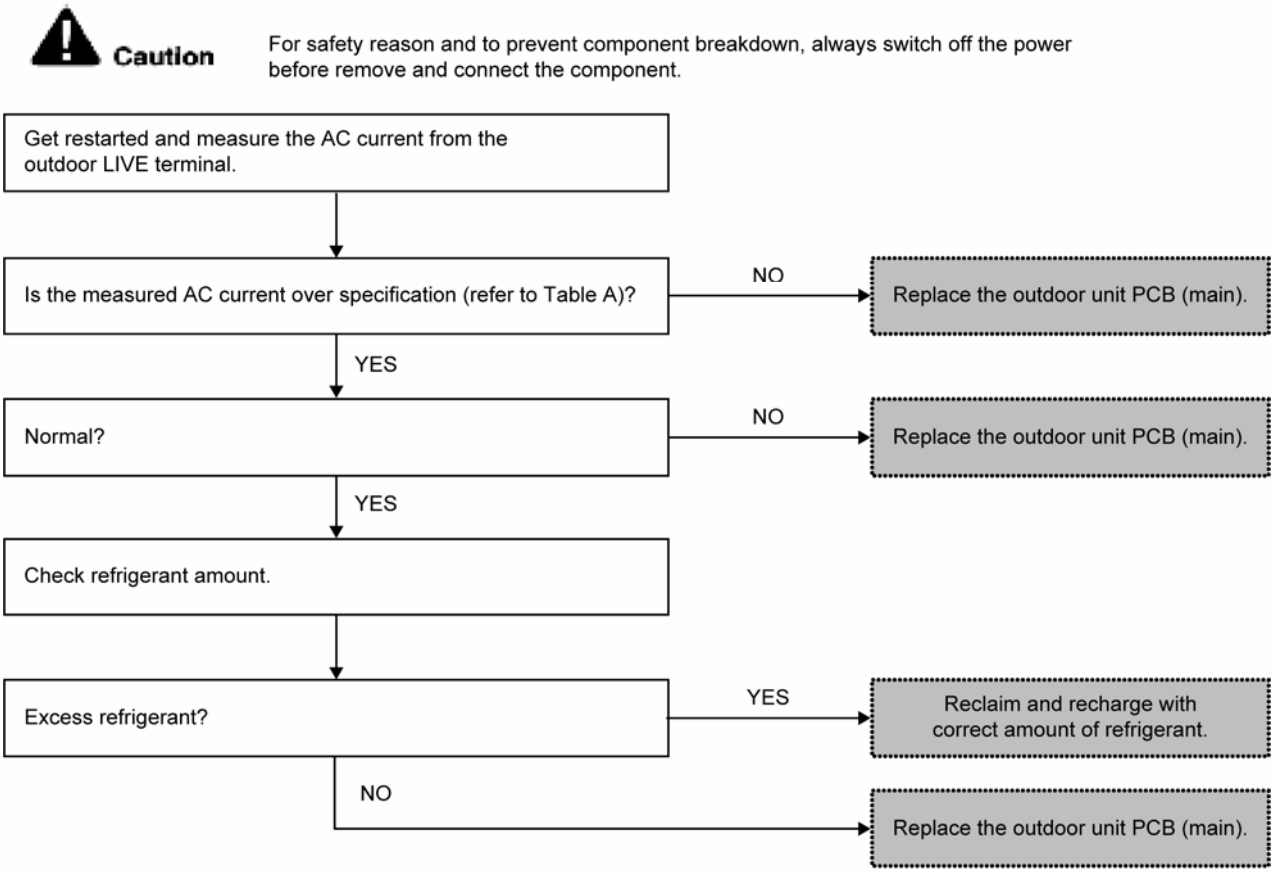
Malfunction Caused

- Excess refrigerant.
- Faulty outdoor unit PCB (main).

Abnormality Judgment

- Continue 6 times in 60 minutes.

Troubleshooting



Model	Standard		Power Save		DL1		DL2	
	Cool (A)	Heat (A)	Cool (A)	Heat (A)	Cool (A)	Heat (A)	Cool (A)	Heat (A)
8HP	16.58	14.54	11.60	10.13	8.04	7.24	4.54	4.14
10HP	18.03	16.97	12.19	11.90	10.42	9.43	5.95	5.34

18.2.17 Compressor Discharge Temperature Protection (F32-06)

Malfunction Decision Conditions

- During operation of cooling and heating, when compressor discharge temperature data (110°C) is detected by the compressor discharge temperature sensor.

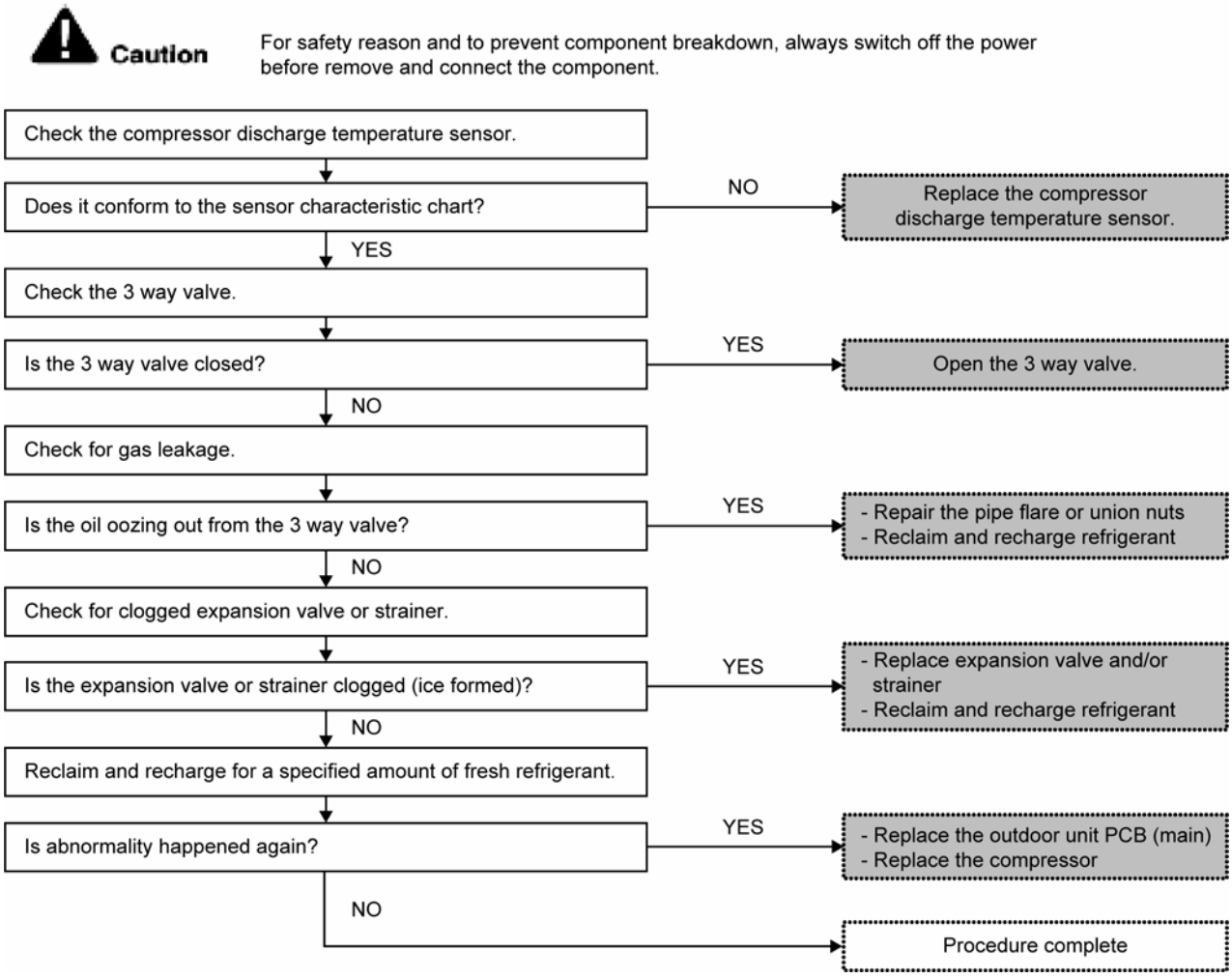
Malfunction Caused

- Faulty compressor discharge temperature sensor.
- 3 way valve closed.
- Refrigerant shortage (refrigerant leakage).
- Clogged expansion valve or strainer.
- Faulty outdoor unit PCB (main).
- Faulty compressor.

Abnormality Judgment

- Continue 6 times in 120 minutes.

Troubleshooting



18.2.18 DC Peak Current Detection (F32-09)

Malfunction Decision Conditions

- During operation of cooling and heating, when DC peak is detected by the inverter DC Peak sensing circuitry in the outdoor unit PCB (inverter).

Malfunction Caused

- Faulty outdoor unit PCB (inverter).
- Faulty compressor.

Abnormality Judgment

- Continue for 7 times within 30 minutes (DC peak occur within 30 seconds compressor startup).
- Continue for 3 times within 30 minutes (DC peak occur after 30 seconds compressor startup).

Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.

Check the compressor winding resistance:
- Turn OFF the power and disconnect the harnesses U, V, and W
- Measure the winding resistance between U-V, V-W, and W-U

→ Are the compressor's winding resistance (U-V, V-W, or U-W) shorted?

YES → - Compressor defective due to winding shorted
- Replace the compressor

NO → - Outdoor electronic circuit defect due to power transistor shorted
- Replace the outdoor unit PCB (inverter)

■ Checking the power transistor

- Never touch any live parts for at least 10 minutes after turning off the circuit breaker.
- If unavoidably necessary to touch a live part, make sure the power transistor's supply voltage is below 50 V using the tester.
- For the UVW, make measurements at the Faston terminal on the board or the relay connector.

Tester's negative terminal	Power transistor (+)	UVW	Power transistor (-)	UVW
Tester's positive terminal	UVW	Power transistor (+)	UVW	Power transistor (-)
Normal resistance	Several kohms to several Mohms			
Abnormal resistance	0 or ∞			

18.2.19 Compressor Rotation Failure (F32-10)

Malfunction Decision Conditions

- A compressor rotation failure is detected by checking the compressor running condition through the position detection circuitry in the outdoor unit PCB (nverter).

Malfunction Caused

- Compressor terminal disconnect.
- Faulty outdoor unit PCB (nverter).
- Faulty compressor.

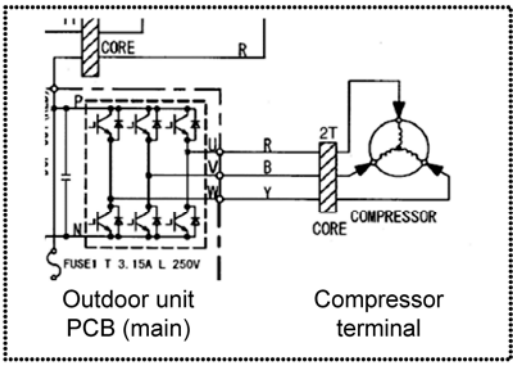
Abnormality Judgment

- Continue 4 times in 20 minutes.

Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.

Check the U, V, and W connector connection:
- Turn OFF the power
- Check the U, V, and W connector connection at outdoor unit PCB (main) and compressor terminal



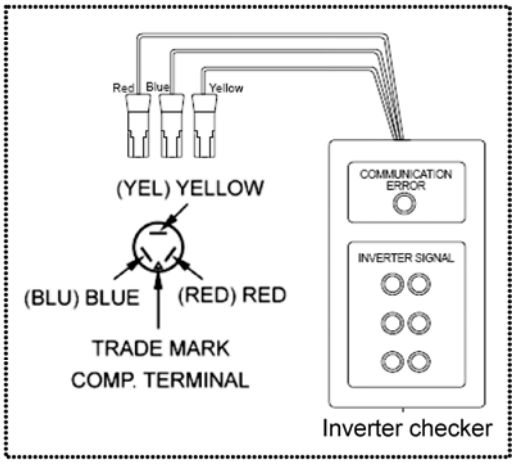
Is the connector connection normal?

NO → - Connector poor contact
- Correct the connection

YES

Disconnect the harnesses U, V, and W from the compressor terminal.

From the disconnected harnesses U, Y, and W, connect them to the inverter checker. Turn ON the power and operate the system. Check the inverter checker 6 LEDs blinking condition.



Is the blinking of the 6 LEDs in same sequence/condition?

NO → - IPM defective
- Replace the outdoor unit PCB (inverter)

YES → Replace the compressor.

18.2.20 Outdoor Fan Motor (DC Motor) Mechanism Locked (F35-02)

Malfunction Decision Conditions

- The rotation speed detected by the Hall IC of the fan motor during fan motor operation is used to determine abnormal fan motor (feedback of rotation > 2550rpm or < 20rpm).

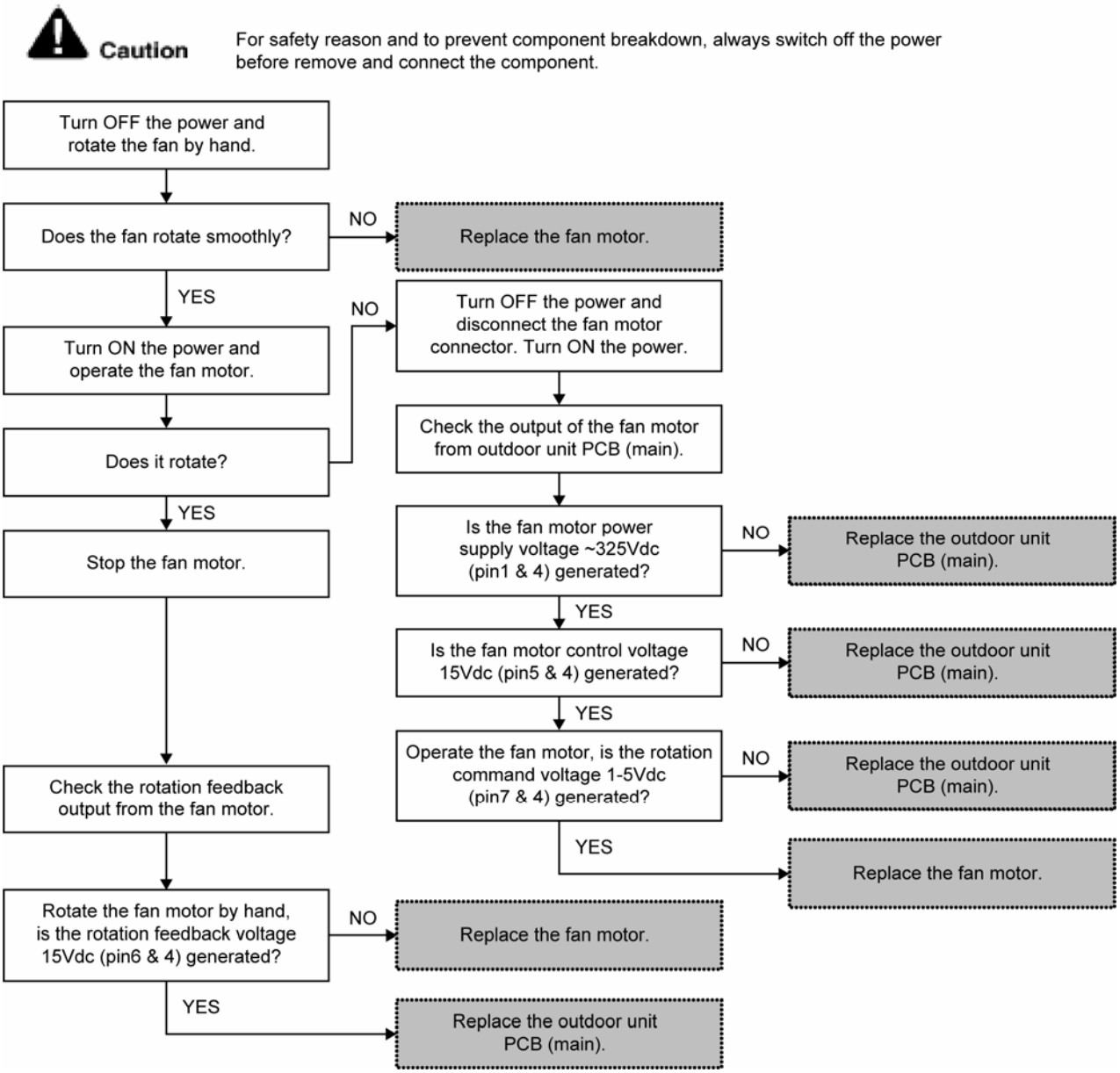
Malfunction Caused

- Operation stops due to short circuit inside the fan motor winding.
- Operation stops due to breaking of wire inside the fan motor.
- Operation stops due to breaking of fan motor lead wires.
- Operation stops due to fan motor Hall IC malfunction.
- Operation error due to faulty outdoor unit PCB (inverter).

Abnormality Judgment

- Continue 2 times in 30 minutes.

Troubleshooting



18.2.21 Outdoor Intake Air Temperature Sensor Abnormality (F40-01)

Malfunction Decision Conditions

- During startup and operation of cooling and heating, the temperatures detected by the outdoor intake air temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty outdoor unit PCB (main).

Abnormality Judgment

- Continue for 5 seconds.

Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.

Check the CN-TH3 connector connection:
- Turn OFF the power
- Check the connector connection

Is the CN-TH3 connector connection normal?

NO → - Connector poor contact
- Correct the connection

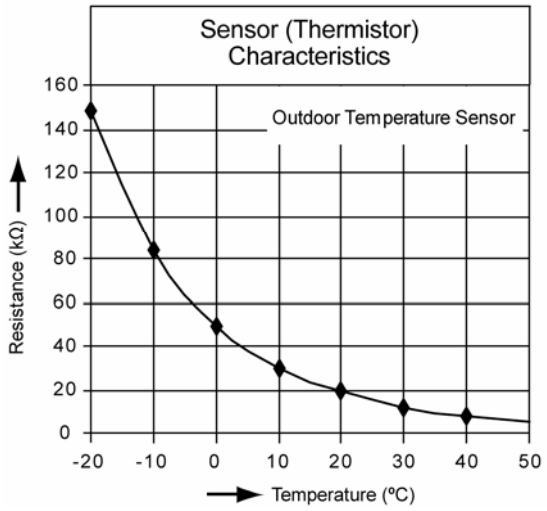
YES

Check the indoor intake air temperature sensor:
- Plug out connector from the outdoor unit PCB (main)
- Measure the resistance of the indoor intake air temperature sensor

Is the measured resistance of the outdoor intake air temperature sensor matches the value specified in its characteristic chart?

NO → - Defect in outdoor intake air temperature sensor
- Replace the outdoor temperature sensor complete (pipe & air)

YES → - Defect in outdoor unit PCB (main)
- Replace the outdoor unit PCB (main)



18.2.22 Compressor Suction Temperature Sensor Abnormality (F40-11)

Malfunction Decision Conditions

- During startup and operation of cooling and heating, the temperatures detected by the compressor suction temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty outdoor unit PCB (main).

Abnormality Judgment

- Continue for 5 seconds.

Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.

Check the CN-TH4 connector connection:
- Turn OFF the power
- Check the connector connection

Is the CN-TH4 connector connection normal?

NO → - Connector poor contact
- Correct the connection

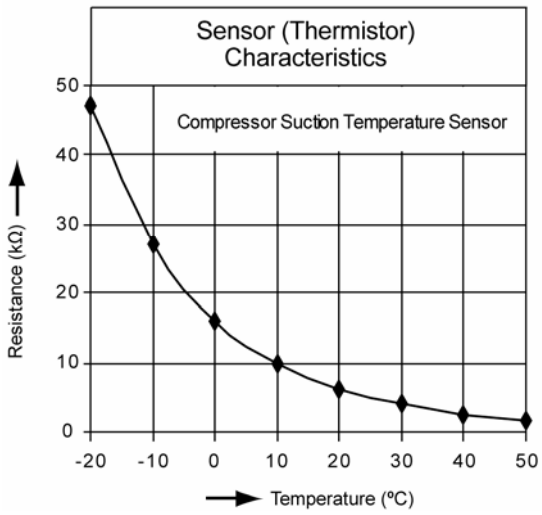
YES

Check the compressor suction temperature sensor:
- Plug out connector from the outdoor unit PCB (main)
- Measure the resistance of the compressor suction temperature sensor

Is the measured resistance of the compressor suction temperature sensor matches the value specified in its characteristic chart?

NO → - Defect in compressor suction temperature sensor
- Replace the outdoor temperature sensor complete (suction & defrost)

YES → - Defect in outdoor unit PCB (main)
- Replace the outdoor unit PCB (main)



18.2.23 Outdoor Heat Exchanger Sensor Abnormality (F40-21)

Malfunction Decision Conditions

- During startup and operation of cooling and heating, the temperatures detected by the outdoor pipe temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty outdoor unit PCB (main).

Abnormality Judgment

- Continue for 5 seconds.

Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.

Check the CN-TH1 connector connection:
- Turn OFF the power
- Check the connector connection

Is the CN-TH1 connector connection normal?

NO → - Connector poor contact
- Correct the connection

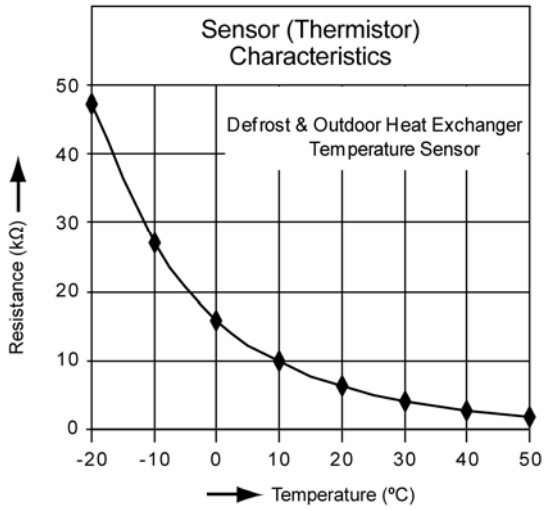
YES

Check the outdoor pipe temperature sensor:
- Plug out connector from the outdoor unit PCB (main)
- Measure the resistance of the outdoor pipe temperature sensor

Is the measured resistance of the outdoor pipe temperature sensor matches the value specified in its characteristic chart?

NO → - Defect in outdoor pipe temperature sensor
- Replace the outdoor temperature sensor complete (pipe & air)

YES → - Defect in outdoor unit PCB (main)
- Replace the outdoor unit PCB (main)



18.2.24 Outdoor Defrost Temperature Sensor Abnormality (F40-31)

Malfunction Decision Conditions

- During startup and operation of cooling and heating, the temperatures detected by the outdoor defrost temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty outdoor unit PCB (main).

Abnormality Judgment

- Continue for 5 seconds.

Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.

Check the CN-TH1 connector connection:
- Turn OFF the power
- Check the connector connection

Is the CN-TH1 connector connection normal?

NO → - Connector poor contact
- Correct the connection

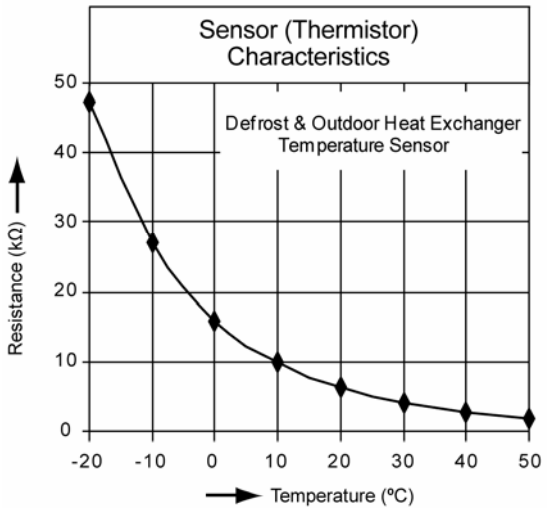
YES

Check the outdoor defrost temperature sensor:
- Plug out connector from the outdoor unit PCB (main)
- Measure the resistance of the outdoor defrost temperature sensor

Is the measured resistance of the outdoor defrost temperature sensor matches the value specified in its characteristic chart?

NO → - Defect in outdoor defrost temperature sensor
- Replace the outdoor temperature sensor complete (suction & defrost)

YES → - Defect in outdoor unit PCB (main)
- Replace the outdoor unit PCB (main)



18.2.25 Compressor Discharge Temperature Sensor Abnormality (F40-51)

Malfunction Decision Conditions

- During startup and operation of cooling and heating, the temperatures detected by the compressor discharge temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty outdoor unit PCB (main).

Abnormality Judgment

- Continue for 5 seconds.

Troubleshooting

Caution For safety reason and to prevent component breakdown, always switch off the power before remove and connect the component.

Check the CN-TH4 connector connection:
- Turn OFF the power
- Check the connector connection

↓

Is the CN-TH4 connector connection normal? → NO → - Connector poor contact - Correct the connection

↓ YES

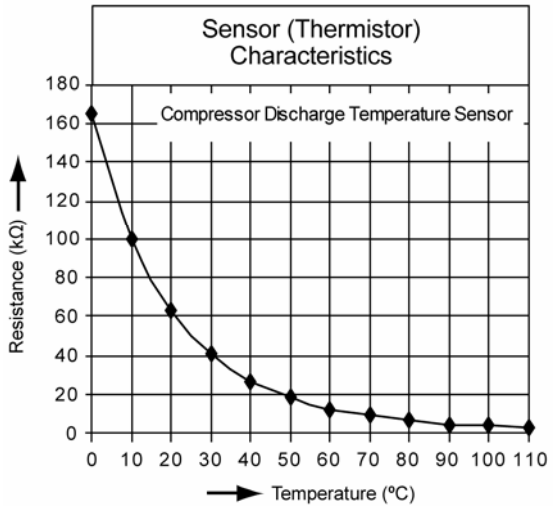
Check the compressor discharge temperature sensor:
- Plug out connector from the outdoor unit PCB (main)
- Measure the resistance of the compressor discharge temperature sensor

↓

Is the measured resistance of the compressor discharge temperature sensor matches the value specified in its characteristic chart? → NO → - Defect in compressor discharge temperature sensor - Replace the outdoor temperature sensor complete (discharge)

↓ YES

- Defect in outdoor unit PCB (main)
- Replace the outdoor unit PCB (main)



18.2.26 Outdoor High Pressure Switch Disconnect Abnormality (F41-02)

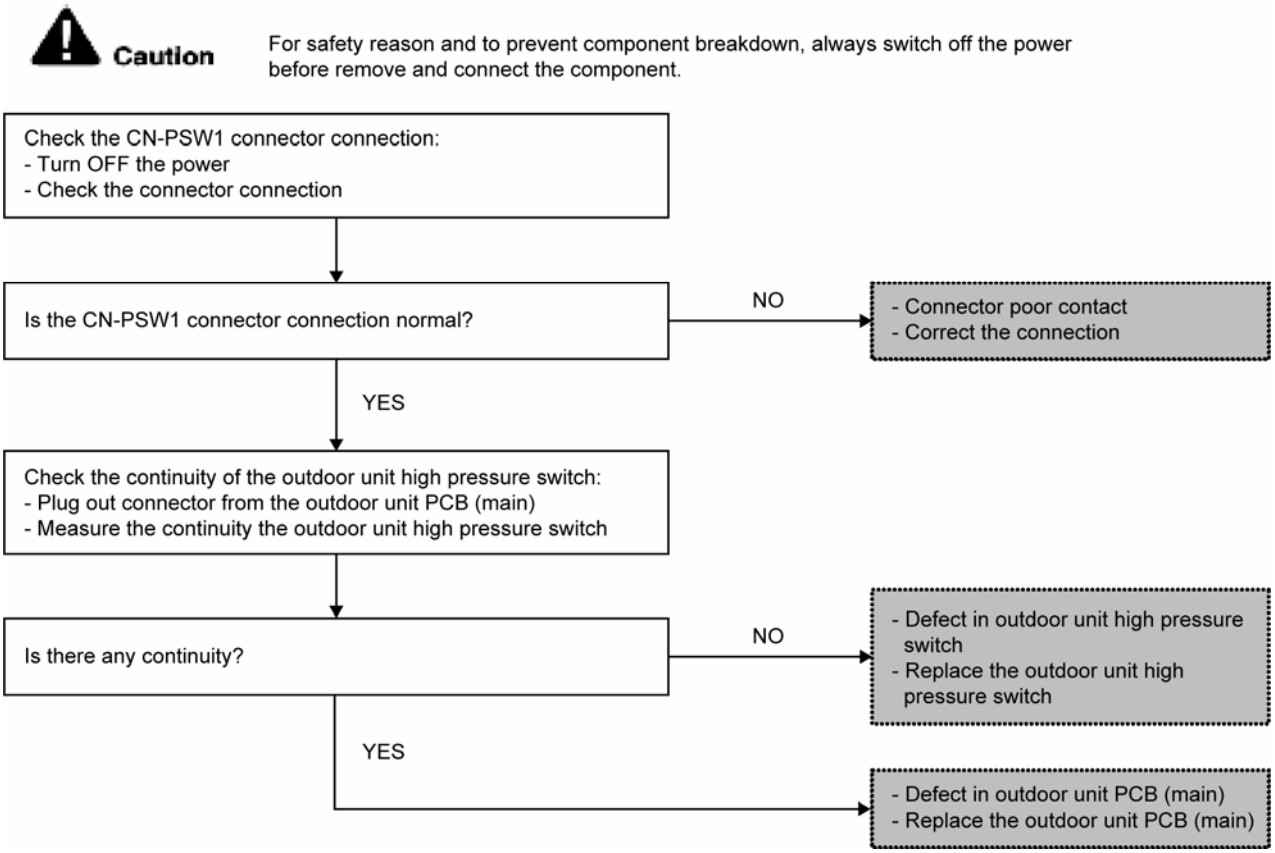
Malfunction Decision Conditions

- During compressor stop, when the outdoor unit high pressure switch is open for 1 minute.

Malfunction Caused

- Faulty connector connection.
- Faulty outdoor unit high pressure switch.
- Faulty outdoor unit PCB (main).

Troubleshooting



18.2.27 Outdoor Current Transformer Open Circuit (F42-11)

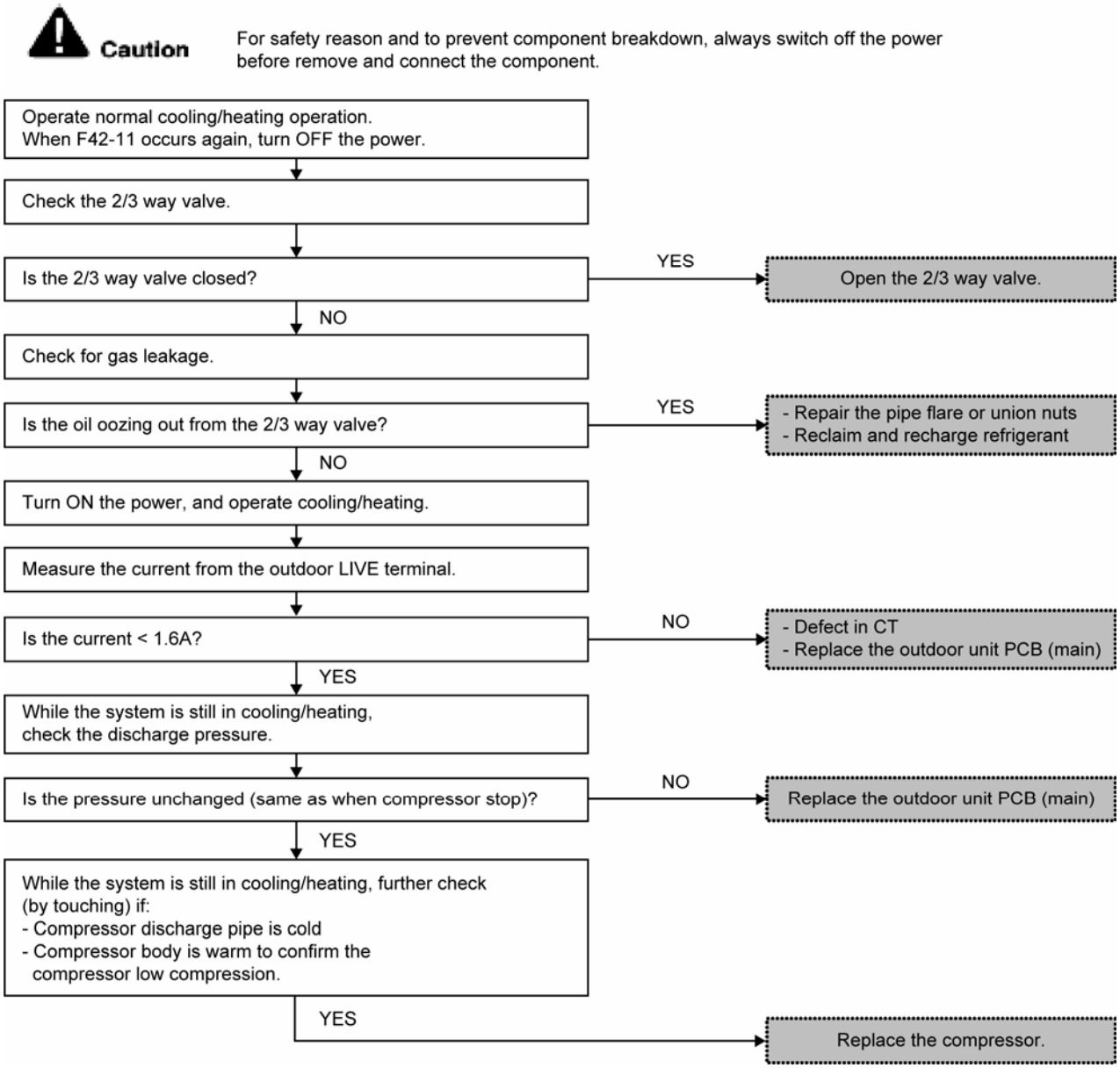
Malfunction Decision Conditions

- A current transformer (CT) open circuit is detected by checking the compressor running frequency (> 50Hz) and CT detected input current (< 1.6A) for continuously 60 seconds.

Malfunction Caused

- CT defective.
- Faulty outdoor unit PCB (main).
- Compressor defective (low compression).

Troubleshooting



18.2.28 IPM Temperature Sensor Abnormality (F44-01)

Malfunction Decision Conditions

- During startup and operation of cooling and heating, the temperatures detected by the IPM temperature sensor are used to determine sensor errors.

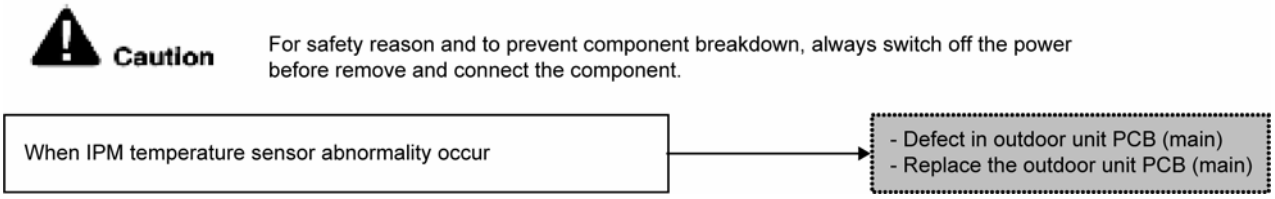
Malfunction Caused

- Faulty indoor unit PCB (main).

Abnormality Judgment

- Continue for 5 seconds.

Troubleshooting



18.2.29 Outdoor Address Double Registration (F45-01)

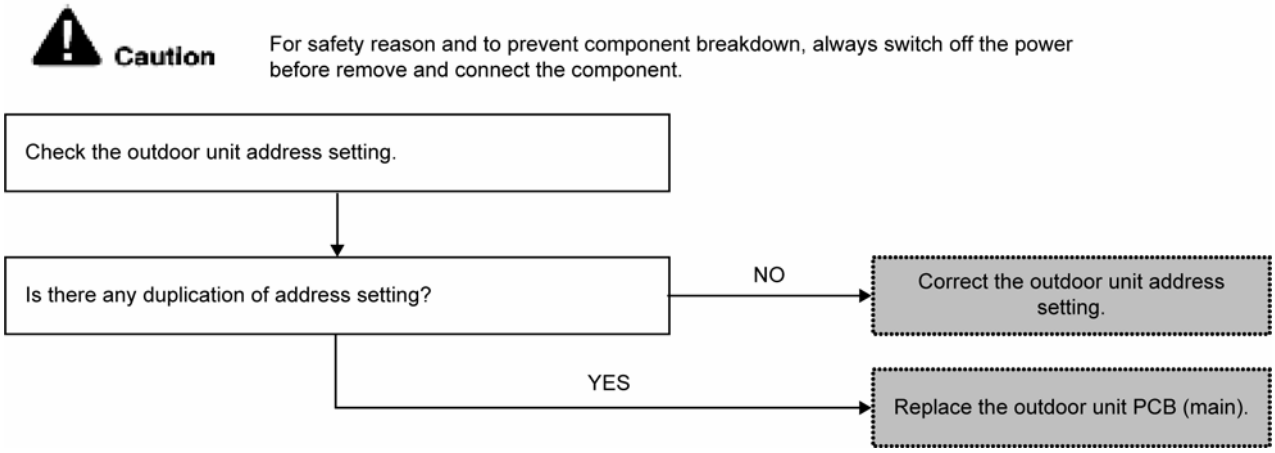
Malfunction Decision Conditions

- During standby, startup and operation of cooling and heating, the outdoor unit detects the same address as that of its own on any other outdoor unit of same urban network.

Malfunction Caused

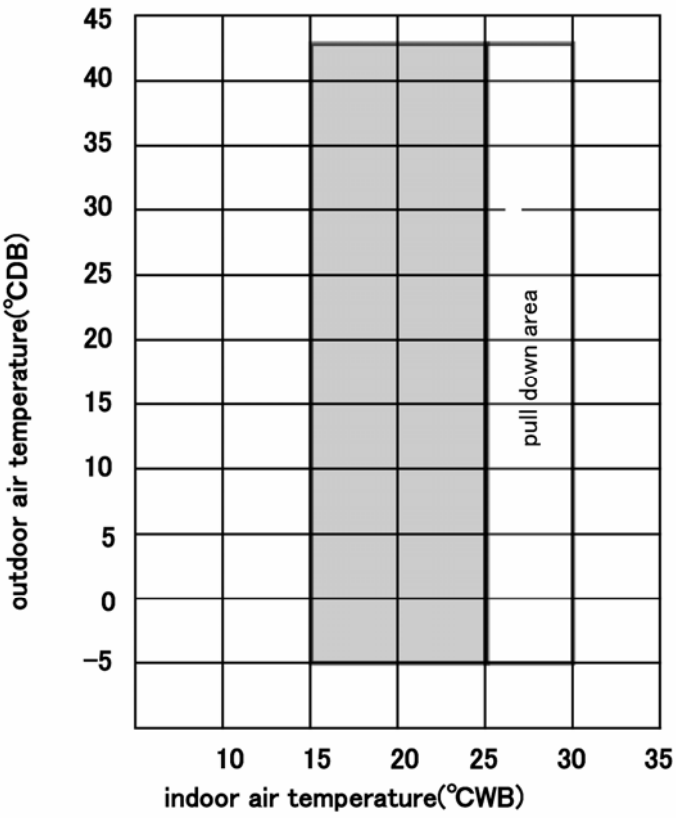
- Wrong outdoor unit address setting.
- Faulty outdoor unit PCB (main).

Troubleshooting

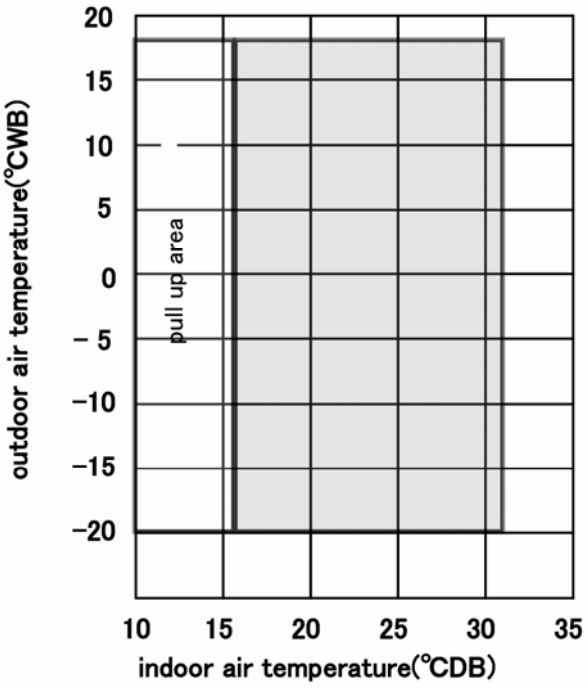


19. Operation Range

Cooling



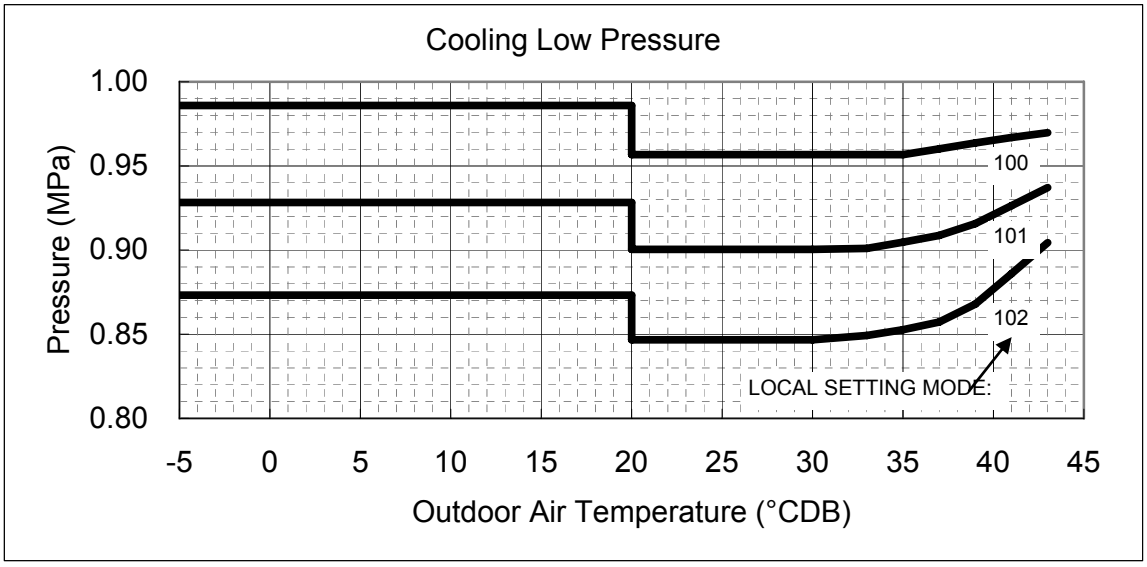
Heating

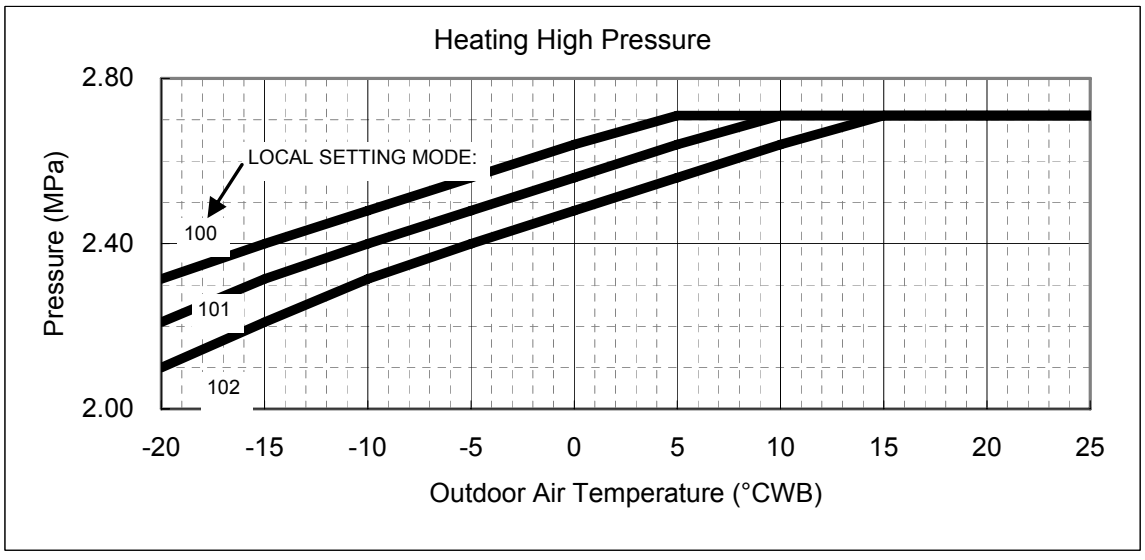


20. Discharge and Suction Pressure

			Lower limit	Upper limit
Discharge	Gauge Pressure	MPa(G)	*1 0.295	4.15
	Absolute Pressure	MPa(Abs)	0.396	4.251
	Saturation temp	°C	-20.0	64.5
Suction	Gauge Pressure	MPa(G)	0.2	*2 2.55
	Absolute Pressure	MPa(Abs)	0.301	2.651
	Saturation temp	°C	-26.2	43.82

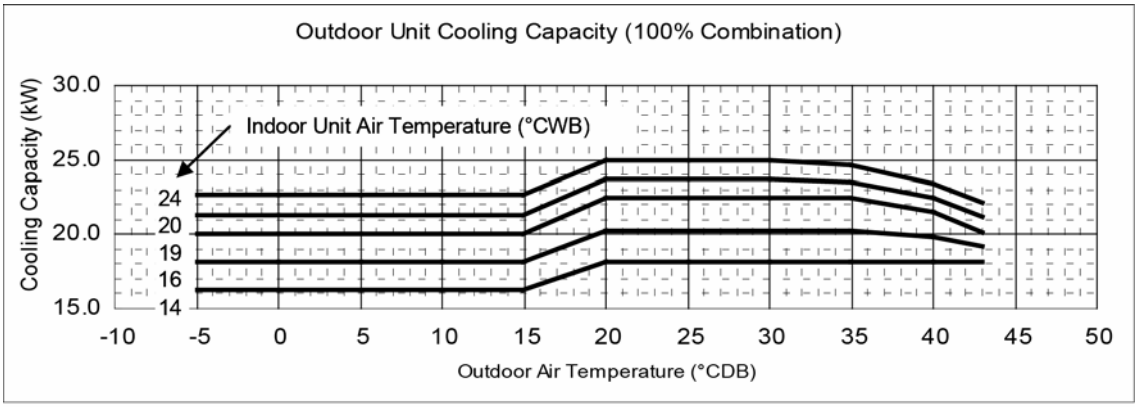
*1 Outdoor temp : Lower limit -20°C (Heating mode-off)
*2 Outdoor temp : Upper limit 43°C (Cooling mode-off)

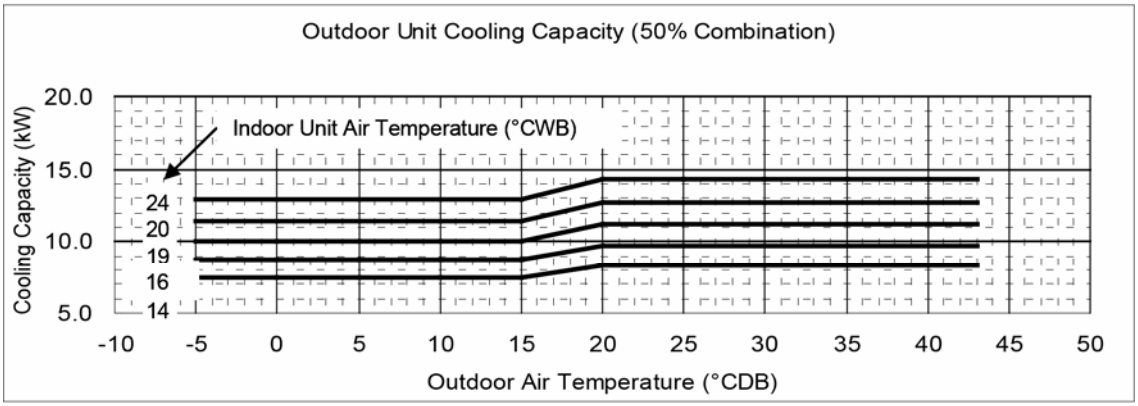


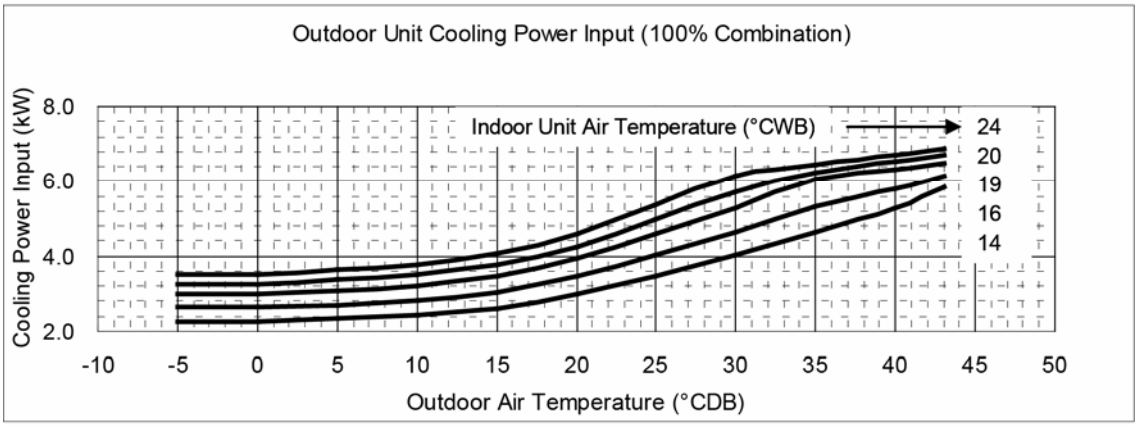


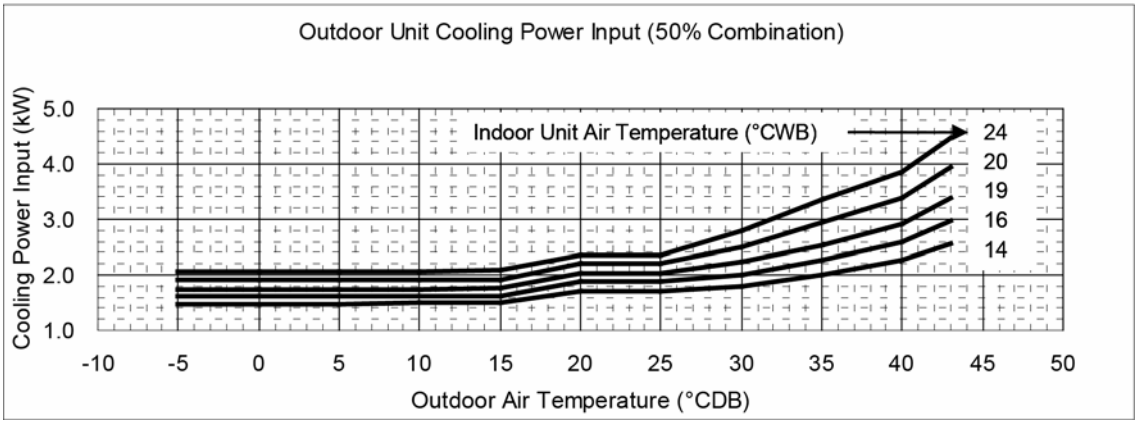
21. Outdoor Unit Cooling/Heating Capacity and Power Input

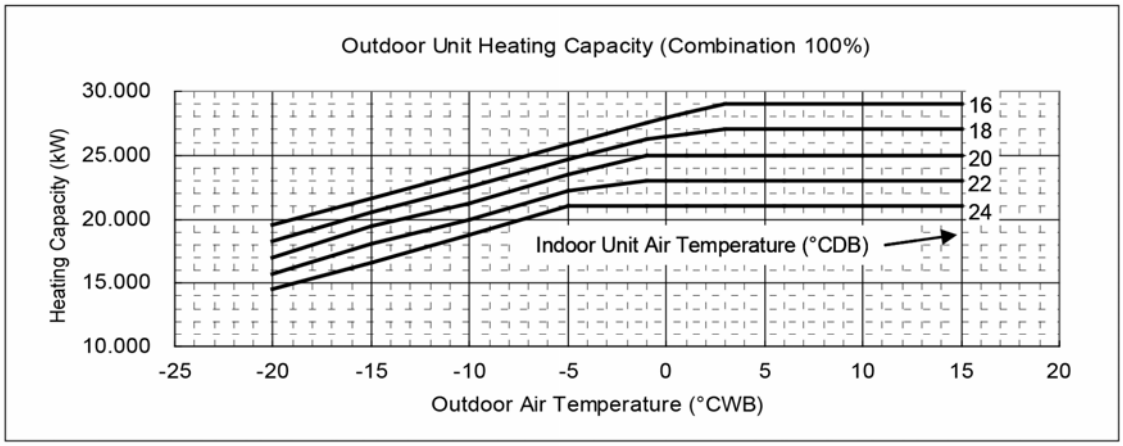
21.1 U-8EA1E8

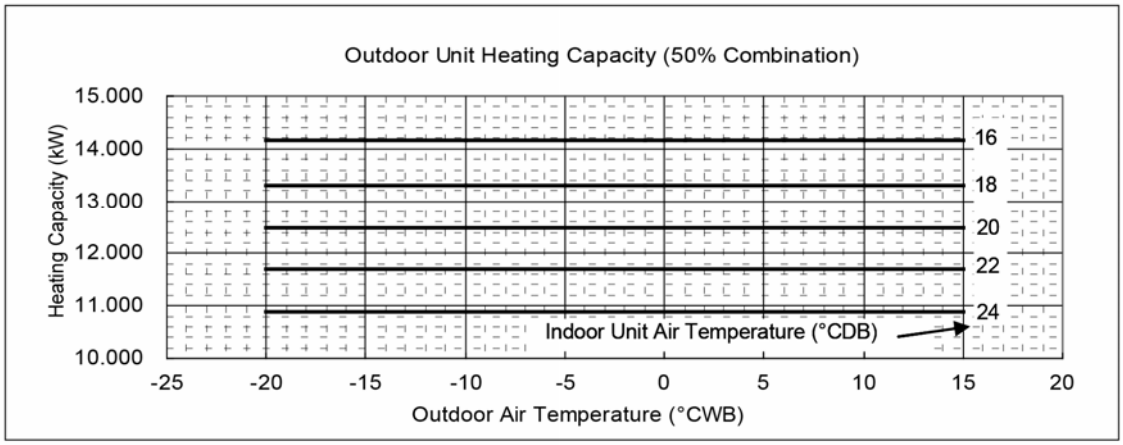


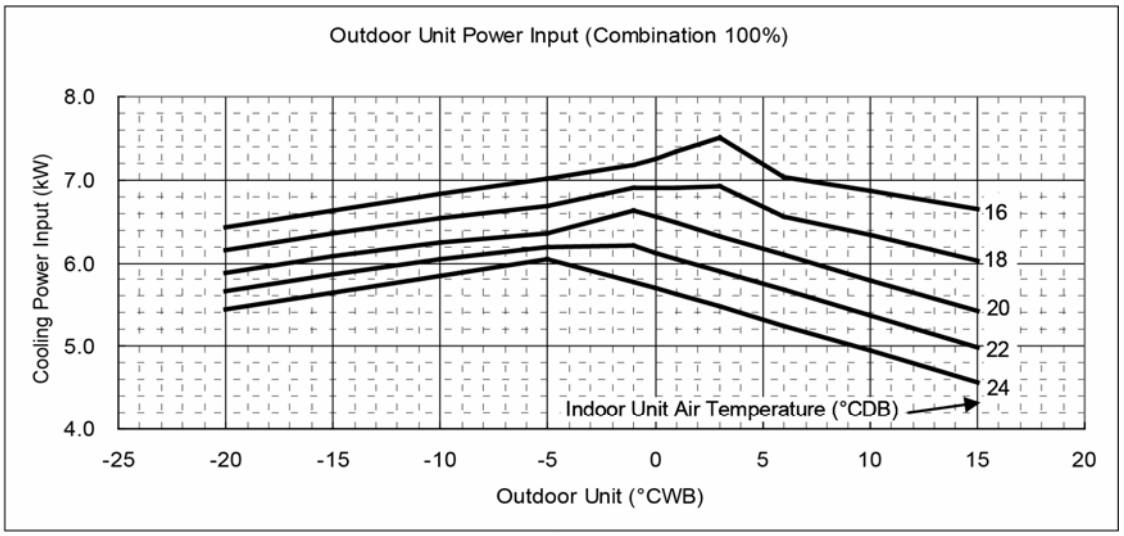


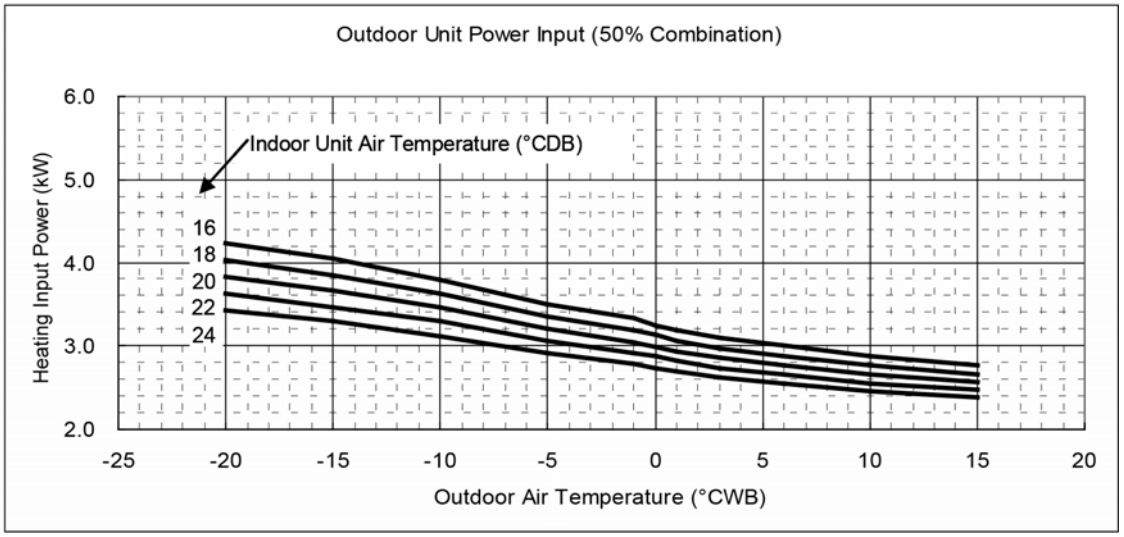




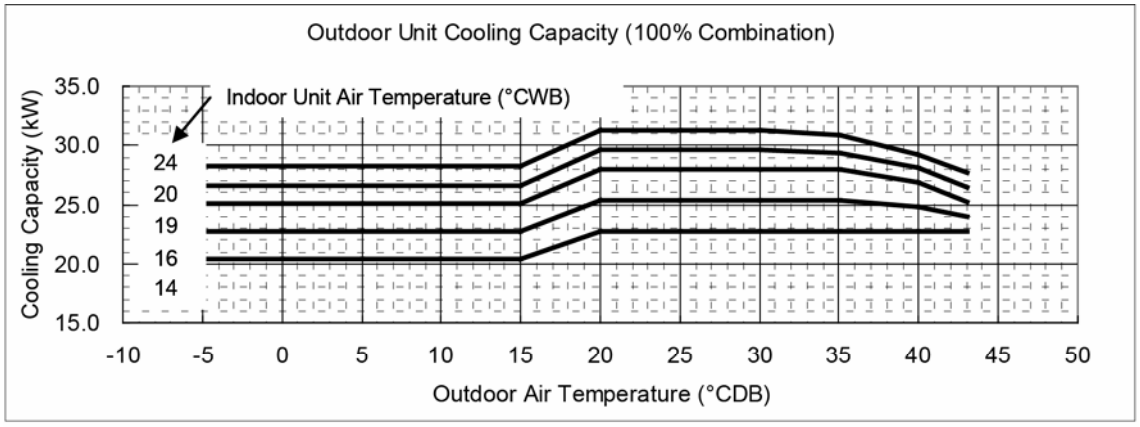

Outdoor Unit Heating Capacity (Combination 100%)
Heating Capacity (kW)
30.000
25.000
20.000
15.000
10.000
-25
-20
-15
-10
-5
0
5
10
15
20
Outdoor Air Temperature (°CWB)
16
18
20
22
24
Indoor Unit Air Temperature (°CDB)

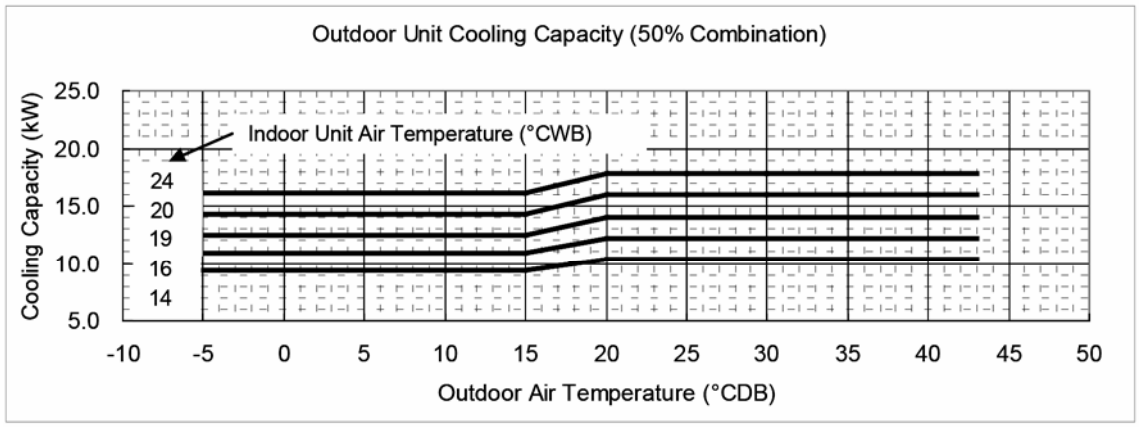

Outdoor Unit Heating Capacity (50% Combination)
Heating Capacity (kW)
15.000
14.000
13.000
12.000
11.000
10.000
-25
-20
-15
-10
-5
0
5
10
15
20
Outdoor Air Temperature (°CWB)
16
18
20
22
24
Indoor Unit Air Temperature (°CDB)

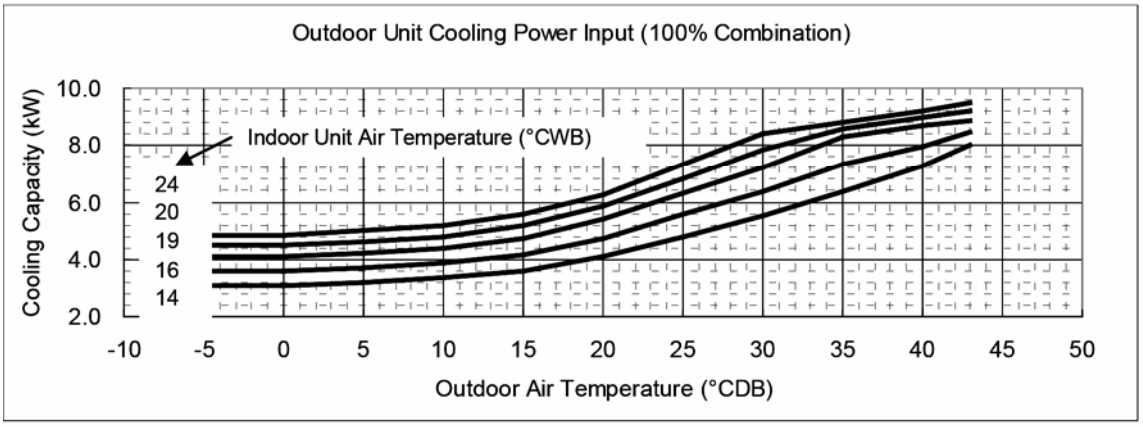

Outdoor Unit Power Input (Combination 100%)
Cooling Power Input (kW)
8.0
7.0
6.0
5.0
4.0
-25
-20
-15
-10
-5
0
5
10
15
20
Outdoor Unit (°CWB)
16
18
20
22
24
Indoor Unit Air Temperature (°CDB)

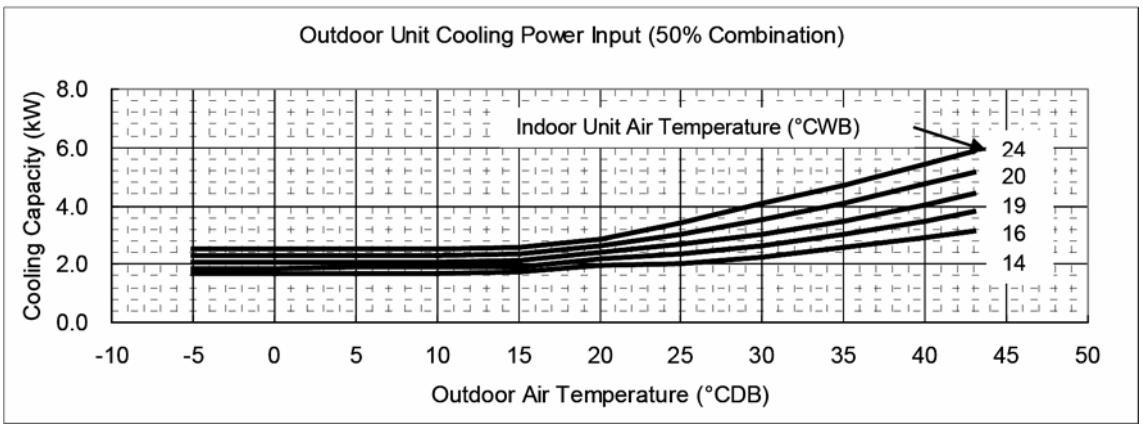

Outdoor Unit Power Input (50% Combination)
Heating Input Power (kW)
6.0
5.0
4.0
3.0
2.0
-25
-20
-15
-10
-5
0
5
10
15
20
Outdoor Air Temperature (°CWB)
Indoor Unit Air Temperature (°CDB)
16
18
20
22
24

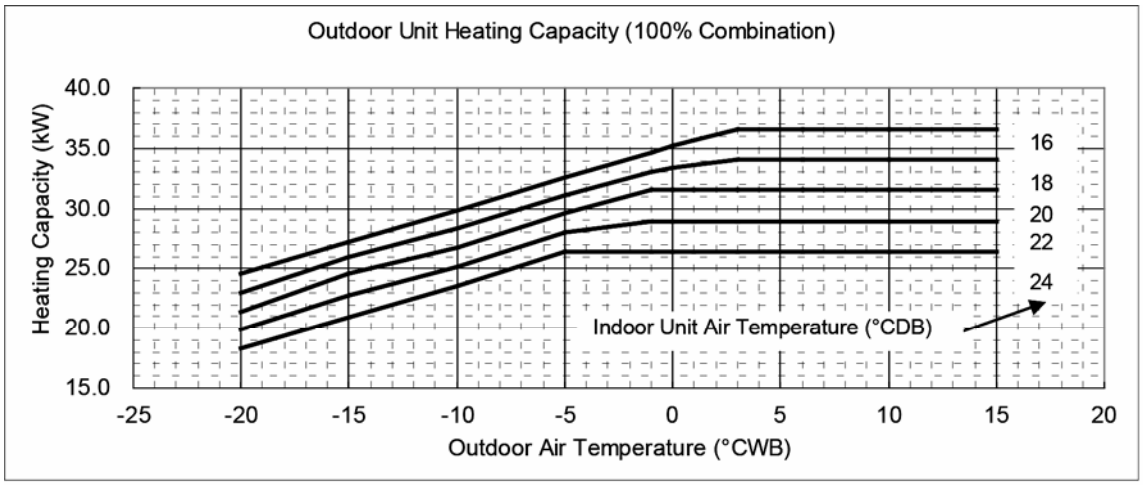
21.2 U-10EA1E8

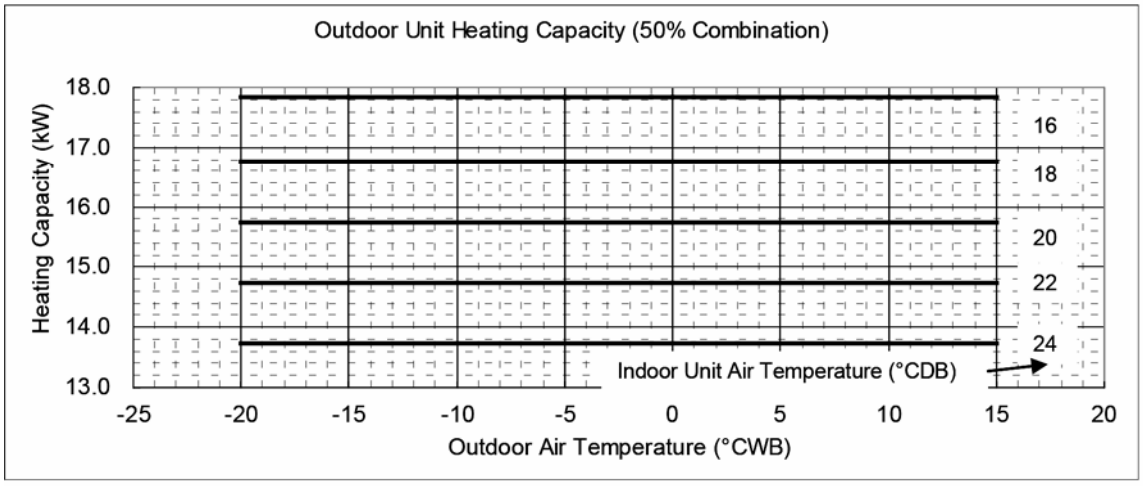


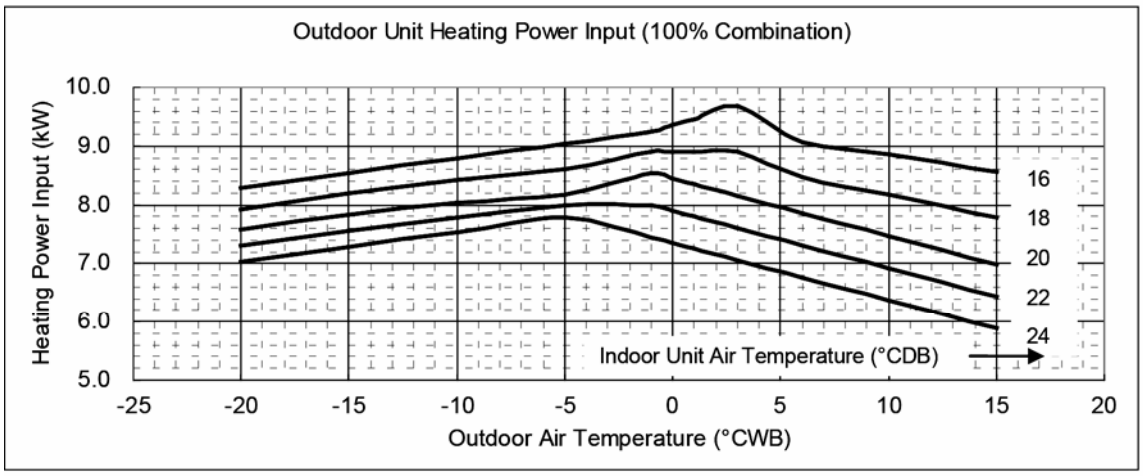


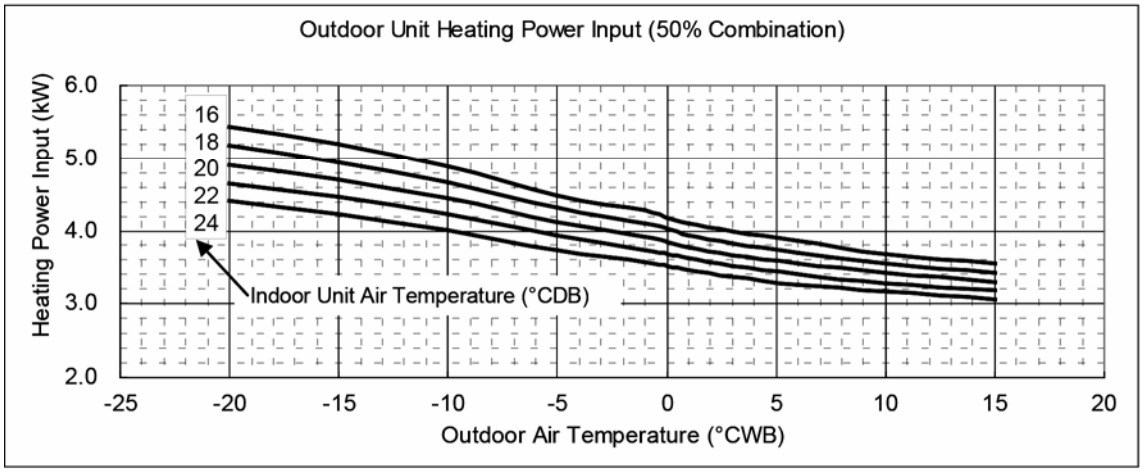





Outdoor Unit Heating Capacity (100% Combination)
Heating Capacity (kW)
40.0
35.0
30.0
25.0
20.0
15.0
-25
-20
-15
-10
-5
0
5
10
15
20
Outdoor Air Temperature (°CWB)
16
18
20
22
24
Indoor Unit Air Temperature (°CDB)


Outdoor Unit Heating Capacity (50% Combination)
Heating Capacity (kW)
18.0
17.0
16.0
15.0
14.0
13.0
-25
-20
-15
-10
-5
0
5
10
15
20
Outdoor Air Temperature (°CWB)
16
18
20
22
24
Indoor Unit Air Temperature (°CDB)


Outdoor Unit Heating Power Input (100% Combination)
Heating Power Input (kW)
10.0
9.0
8.0
7.0
6.0
5.0
-25
-20
-15
-10
-5
0
5
10
15
20
Outdoor Air Temperature (°CWB)
16
18
20
22
24
Indoor Unit Air Temperature (°CDB)


Outdoor Unit Heating Power Input (50% Combination)
Heating Power Input (kW)
6.0
5.0
4.0
3.0
2.0
-25
-20
-15
-10
-5
0
5
10
15
20
Outdoor Air Temperature (°CWB)
16
18
20
22
24
Indoor Unit Air Temperature (°CDB)

22. Combination Characteristic

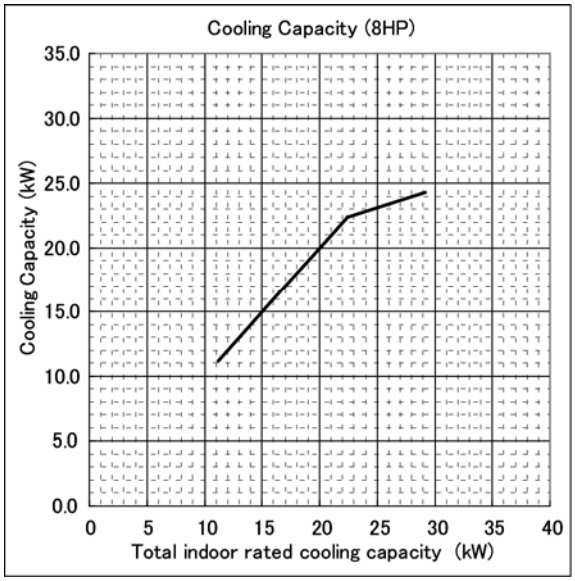
- Calculation method of indoor unit capacity
  (Example)
  Outdoor unit: U-8EA1E8
  Indoor unit: S-36KA1E5 x 3 + S-56KA1E5 + S-63KA1E5
  Actual cooling capacity of S-56KA1E5：

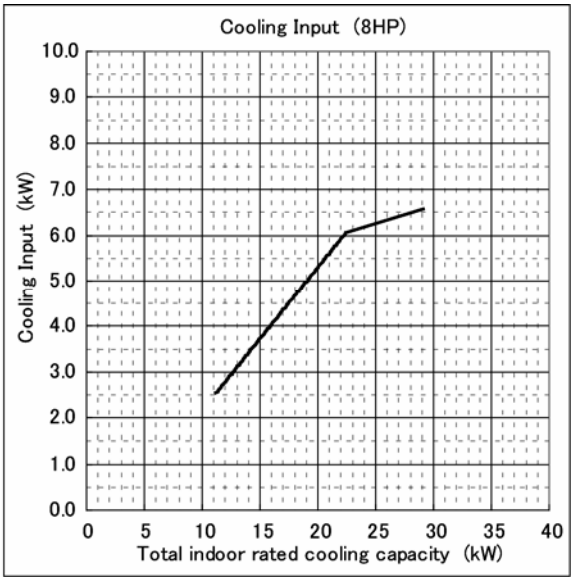
$$\text{Cooling capacity (22.4kW)} \times \frac{\text{indoor rated cooling capacity (5.6kW)}}{\text{Total indoor rated cooling capacity (22.7kW)}} = 5.53\text{kW}$$

Indoor Unit Cooling Capacity (kW)

	Indoor unit	0.8HP	1.0HP	1.25HP	1.5HP	1.65HP	1.75HP	2.0HP	2.5HP	3.0HP	3.5HP	4.0HP	5.0HP
Cooling	Cooling capacity	2.2kW	2.8kW	3.2kW	3.6kW	4.0kW	4.5kW	5.6kW	6.3kW	7.1kW	9.0kW	10.0kW	12.5kW
	Wall mounted	○	○		○		○	○	○	○			
	Mini cassette	○	○		○		○	○					
	Big cassette								○	○	○	○	○
	Duct D4	○	○	○	○	○	○	○					
	Duct D3						○	○	○	○	○	○	○

U-8EA1E8





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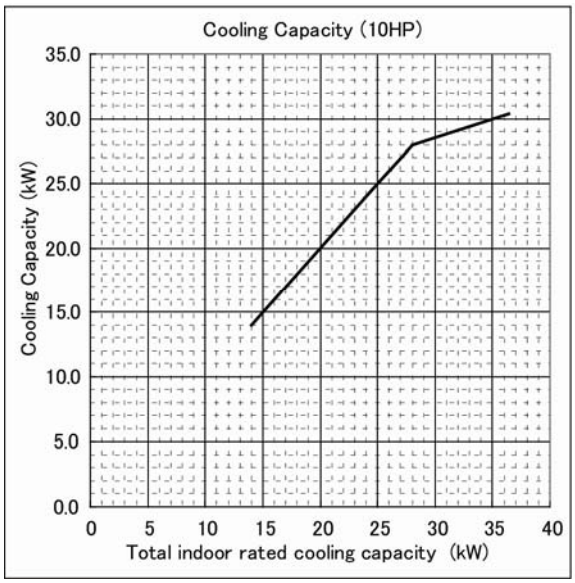

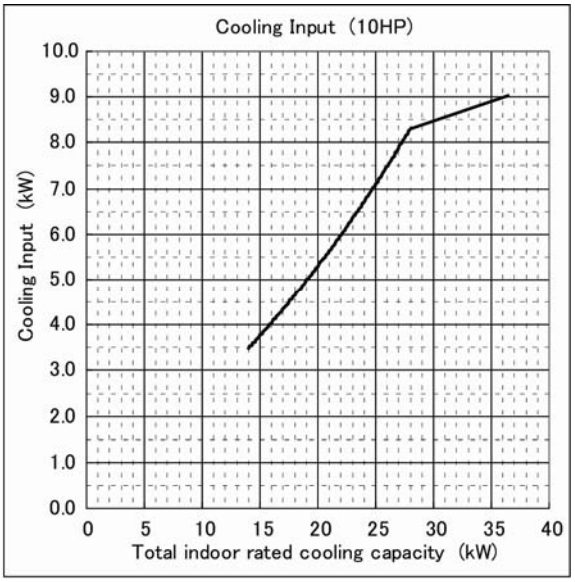

Indoor Unit heating capacity (kW)

	Indoor unit	0.8HP	1.0HP	1.25HP	1.5HP	1.65HP	1.75HP	2.0HP	2.5HP	3.0HP	3.5HP	4.0HP	5.0HP
Heating	Cooling capacity	2.5kW	3.2kW	3.6kW	4.2kW	4.5kW	5.1kW	6.4kW	7.1kW	8.0kW	10.0kW	11.2kW	14.0kW
	Wall mounted	○	○		○		○	○	○	○			
	Mini cassette	○	○		○		○	○					
	Big cassette								○	○	○	○	○
	Duct D4	○	○	○	○	○	○	○					
	Duct D3						○	○	○	○	○	○	○

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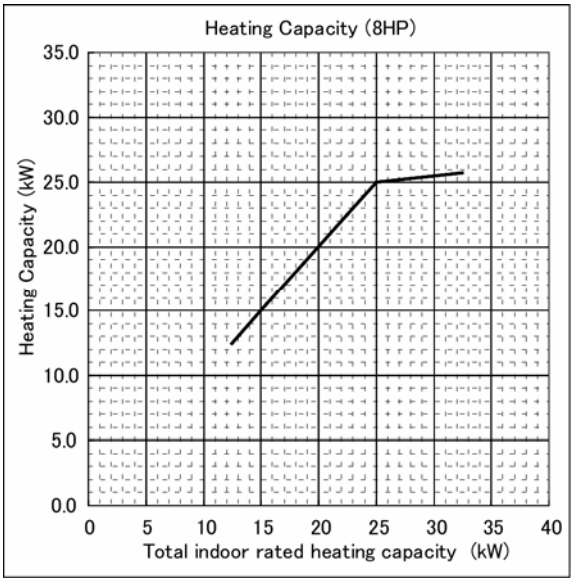

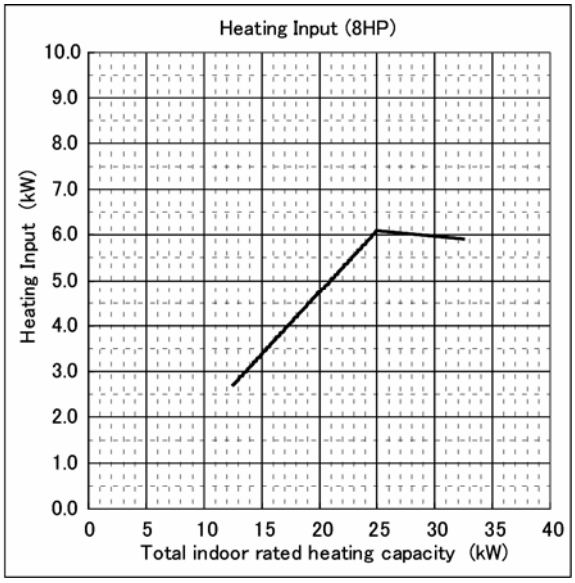

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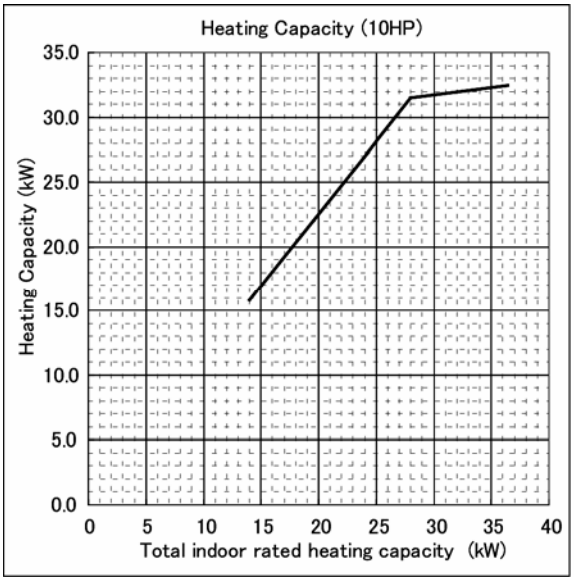
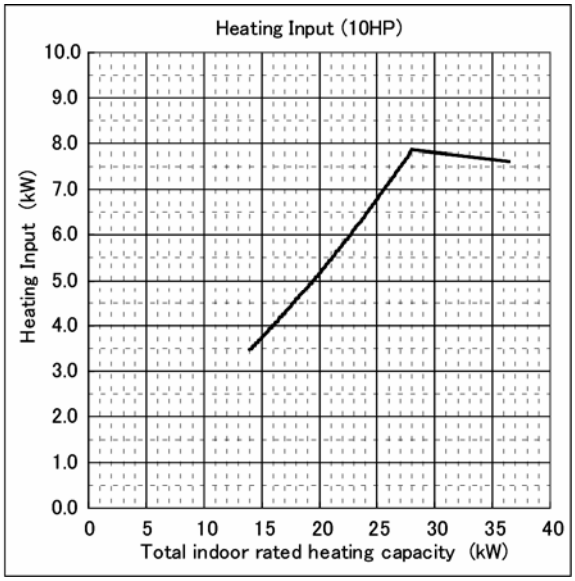




23. Cooling Capacity Tables

23.1 U-8EA1E8

Combination 130%
Capacity index(kW) 29.1

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	17.67	2.45	19.70	2.85	21.73	3.25	23.14	3.54	24.56	3.83
0	17.67	2.45	19.70	2.85	21.73	3.25	23.14	3.54	24.56	3.83
5	17.67	2.52	19.70	2.94	21.73	3.35	23.14	3.65	24.56	3.95
10	17.67	2.65	19.70	3.07	21.73	3.48	23.14	3.79	24.56	4.10
15	17.67	2.85	19.70	3.30	21.73	3.75	23.14	4.08	24.56	4.41
20	17.67	3.15	19.70	3.68	21.73	4.21	23.14	4.55	24.56	4.90
20	19.70	3.23	22.01	3.75	24.32	4.27	25.74	4.62	27.16	4.97
25	19.70	3.78	22.01	4.39	24.32	5.00	25.74	5.40	27.16	5.81
30	19.70	4.37	22.01	5.04	24.32	5.72	25.74	6.18	27.16	6.65
35	19.70	5.02	22.01	5.80	24.32	6.57	25.54	6.78	26.75	6.99
40	19.70	5.74	21.52	6.30	23.35	6.87	24.38	7.08	25.41	7.30
43	19.70	6.33	20.79	6.68	21.89	7.03	22.98	7.26	24.08	7.49

Combination 120%
Capacity index(kW) 26.9

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	17.21	2.39	19.18	2.78	21.15	3.17	22.54	3.45	23.92	3.73
0	17.21	2.39	19.18	2.78	21.15	3.17	22.54	3.45	23.92	3.73
5	17.21	2.46	19.18	2.86	21.15	3.26	22.54	3.55	23.92	3.84
10	17.21	2.58	19.18	2.98	21.15	3.39	22.54	3.69	23.92	3.99
15	17.21	2.77	19.18	3.21	21.15	3.65	22.54	3.97	23.92	4.30
20	17.21	3.07	19.18	3.58	21.15	4.10	22.54	4.43	23.92	4.77
20	19.18	3.15	21.43	3.65	23.68	4.16	25.06	4.50	26.44	4.84
25	19.18	3.68	21.43	4.27	23.68	4.86	25.06	5.26	26.44	5.66
30	19.18	4.25	21.43	4.91	23.68	5.57	25.06	6.02	26.44	6.48
35	19.18	4.89	21.43	5.64	23.68	6.40	24.86	6.60	26.05	6.80
40	19.18	5.59	20.96	6.14	22.73	6.69	23.74	6.89	24.75	7.10
43	19.18	6.16	20.25	6.50	21.31	6.85	22.38	7.07	23.44	7.29

Combination 110%
Capacity index(kW) 24.6

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	16.74	2.32	18.66	2.70	20.58	3.08	21.93	3.36	23.27	3.63
0	16.74	2.32	18.66	2.70	20.58	3.08	21.93	3.36	23.27	3.63
5	16.74	2.39	18.66	2.78	20.58	3.17	21.93	3.46	23.27	3.74
10	16.74	2.51	18.66	2.90	20.58	3.30	21.93	3.59	23.27	3.89
15	16.74	2.70	18.66	3.12	20.58	3.55	21.93	3.86	23.27	4.18
20	16.74	2.99	18.66	3.49	20.58	3.98	21.93	4.31	23.27	4.64
20	18.66	3.06	20.85	3.55	23.04	4.05	24.38	4.38	25.73	4.71
25	18.66	3.58	20.85	4.16	23.04	4.73	24.38	5.12	25.73	5.50
30	18.66	4.14	20.85	4.78	23.04	5.42	24.38	5.86	25.73	6.30
35	18.66	4.76	20.85	5.49	23.04	6.23	24.19	6.42	25.34	6.62
40	18.66	5.43	20.39	5.97	22.12	6.51	23.10	6.71	24.08	6.91
43	18.66	6.00	19.70	6.33	20.74	6.66	21.77	6.88	22.81	7.10

Combination 100%
Capacity index(kW) 22.4

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	16.3	2.26	18.1	2.63	20.0	3.00	21.3	3.26	22.6	3.53
0	16.3	2.26	18.1	2.63	20.0	3.00	21.3	3.26	22.6	3.53
5	16.3	2.32	18.1	2.71	20.0	3.09	21.3	3.36	22.6	3.63
10	16.3	2.44	18.1	2.82	20.0	3.21	21.3	3.49	22.6	3.78
15	16.3	2.62	18.1	3.04	20.0	3.45	21.3	3.76	22.6	4.06
20	16.3	2.90	18.1	3.39	20.0	3.87	21.3	4.19	22.6	4.51
20	18.1	2.98	20.3	3.46	22.4	3.93	23.7	4.25	25.0	4.58
25	18.1	3.48	20.3	4.04	22.4	4.60	23.7	4.97	25.0	5.35
30	18.1	4.02	20.3	4.64	22.4	5.27	23.7	5.69	25.0	6.12
35	18.1	4.62	20.3	5.34	22.4	6.05	23.5	6.24	24.6	6.43
40	18.1	5.28	19.8	5.80	21.5	6.32	22.5	6.52	23.4	6.72
43	18.1	5.83	19.2	6.15	20.2	6.48	21.2	6.69	22.2	6.90

Combination 90%
Capacity index(kW) 20.2

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	14.51	2.10	16.26	2.42	18.01	2.75	19.35	2.99	20.68	3.24
0	14.51	2.10	16.26	2.42	18.01	2.75	19.35	2.99	20.68	3.24
5	14.51	2.15	16.26	2.49	18.01	2.82	19.35	3.07	20.68	3.32
10	14.51	2.25	16.26	2.58	18.01	2.91	19.35	3.18	20.68	3.44
15	14.51	2.40	16.26	2.75	18.01	3.11	19.35	3.39	20.68	3.67
20	14.68	2.66	16.47	3.08	18.25	3.50	19.60	3.79	20.96	4.07
20	16.18	2.72	18.17	3.14	20.16	3.55	21.51	3.84	22.87	4.13
25	16.18	3.13	18.17	3.61	20.16	4.09	21.51	4.42	22.87	4.75
30	16.18	3.58	18.17	4.12	20.16	4.66	21.51	5.06	22.87	5.46
35	16.18	4.10	18.17	4.72	20.16	5.35	21.36	5.58	22.57	5.82
40	16.18	4.68	17.81	5.16	19.44	5.64	20.51	5.89	21.58	6.15
43	16.18	5.17	17.27	5.52	18.37	5.86	19.48	6.14	20.60	6.42

Combination 80%
Capacity index(kW) 17.9

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	12.74	1.94	14.38	2.22	16.01	2.49	17.37	2.72	18.74	2.94
0	12.74	1.94	14.38	2.22	16.01	2.49	17.37	2.72	18.74	2.94
5	12.74	1.98	14.38	2.27	16.01	2.55	17.37	2.78	18.74	3.01
10	12.74	2.06	14.38	2.34	16.01	2.62	17.37	2.86	18.74	3.10
15	12.74	2.17	14.38	2.47	16.01	2.77	17.37	3.02	18.74	3.27
20	13.09	2.42	14.79	2.77	16.49	3.12	17.89	3.38	19.29	3.64
20	14.21	2.47	16.06	2.82	17.92	3.17	19.32	3.43	20.72	3.69
25	14.21	2.77	16.06	3.17	17.92	3.57	19.32	3.86	20.72	4.16
30	14.21	3.13	16.06	3.59	17.92	4.05	19.32	4.42	20.72	4.79
35	14.21	3.58	16.06	4.11	17.92	4.65	19.21	4.92	20.50	5.20
40	14.21	4.07	15.79	4.51	17.38	4.96	18.57	5.27	19.76	5.57
43	14.21	4.52	15.39	4.88	16.58	5.24	17.80	5.58	19.02	5.93

Combination 70%
Capacity index(kW) 15.7

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	10.98	1.79	12.49	2.02	14.01	2.24	15.40	2.45	16.80	2.65
0	10.98	1.79	12.49	2.02	14.01	2.24	15.40	2.45	16.80	2.65
5	10.98	1.82	12.49	2.05	14.01	2.28	15.40	2.49	16.80	2.70
10	10.98	1.87	12.49	2.10	14.01	2.33	15.40	2.54	16.80	2.75
15	10.98	1.95	12.49	2.19	14.01	2.43	15.40	2.66	16.80	2.88
20	11.49	2.18	13.11	2.46	14.72	2.74	16.17	2.97	17.62	3.21
20	12.24	2.22	13.96	2.50	15.68	2.79	17.13	3.02	18.57	3.25
25	12.24	2.42	13.96	2.74	15.68	3.06	17.13	3.31	18.57	3.56
30	12.24	2.68	13.96	3.06	15.68	3.44	17.13	3.78	18.57	4.13
35	12.24	3.05	13.96	3.50	15.68	3.94	17.05	4.26	18.42	4.58
40	12.24	3.47	13.78	3.87	15.32	4.27	16.63	4.64	17.93	5.00
43	12.24	3.87	13.51	4.24	14.78	4.62	16.11	5.03	17.44	5.45

Combination 60%
Capacity index(kW) 13.4

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	9.21	1.63	10.61	1.81	12.01	1.99	13.43	2.18	14.86	2.36
0	9.21	1.63	10.61	1.81	12.01	1.99	13.43	2.18	14.86	2.36
5	9.21	1.65	10.61	1.83	12.01	2.01	13.43	2.20	14.86	2.38
10	9.21	1.68	10.61	1.86	12.01	2.04	13.43	2.23	14.86	2.41
15	9.21	1.73	10.61	1.91	12.01	2.09	13.43	2.29	14.86	2.49
20	9.90	1.94	11.43	2.15	12.96	2.36	14.46	2.57	15.95	2.77
20	10.27	1.97	11.85	2.19	13.44	2.41	14.93	2.61	16.43	2.81
25	10.27	2.07	11.85	2.30	13.44	2.54	14.93	2.75	16.43	2.96
30	10.27	2.23	11.85	2.53	13.44	2.83	14.93	3.15	16.43	3.46
35	10.27	2.53	11.85	2.88	13.44	3.24	14.90	3.60	16.35	3.96
40	10.27	2.86	11.76	3.23	13.26	3.59	14.68	4.01	16.11	4.43
43	10.27	3.21	11.63	3.61	12.99	4.00	14.43	4.48	15.86	4.97

Combination 50%
Capacity index(kW) 11.2

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	7.4	1.47	8.7	1.61	10.0	1.74	11.5	1.90	12.9	2.07
0	7.4	1.47	8.7	1.61	10.0	1.74	11.5	1.90	12.9	2.07
5	7.4	1.48	8.7	1.61	10.0	1.74	11.5	1.91	12.9	2.07
10	7.4	1.50	8.7	1.62	10.0	1.74	11.5	1.91	12.9	2.07
15	7.4	1.50	8.7	1.63	10.0	1.75	11.5	1.92	12.9	2.09
20	8.3	1.69	9.8	1.84	11.2	1.99	12.7	2.16	14.3	2.34
20	8.3	1.71	9.8	1.87	11.2	2.03	12.7	2.20	14.3	2.36
25	8.3	1.71	9.8	1.87	11.2	2.03	12.7	2.20	14.3	2.36
30	8.3	1.78	9.8	2.00	11.2	2.22	12.7	2.51	14.3	2.80
35	8.3	2.00	9.8	2.27	11.2	2.54	12.7	2.94	14.3	3.35
40	8.3	2.25	9.8	2.58	11.2	2.91	12.7	3.38	14.3	3.85
43	8.3	2.56	9.8	2.97	11.2	3.38	12.7	3.93	14.3	4.48

23.2 U-10EA1E8

Combination 130%
Capacity index(kW) 36.4

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	22.09	3.36	24.62	3.92	27.16	4.47	28.93	4.86	30.70	5.26
0	22.09	3.36	24.62	3.92	27.16	4.47	28.93	4.86	30.70	5.26
5	22.09	3.47	24.62	4.03	27.16	4.60	28.93	5.01	30.70	5.42
10	22.09	3.64	24.62	4.21	27.16	4.78	28.93	5.21	30.70	5.63
15	22.09	3.91	24.62	4.53	27.16	5.14	28.93	5.60	30.70	6.06
20	22.09	4.33	24.62	5.05	27.16	5.78	28.93	6.25	30.70	6.72
20	24.62	4.44	27.51	5.15	30.40	5.87	32.17	6.34	33.95	6.82
25	24.62	5.19	27.51	6.03	30.40	6.86	32.17	7.42	33.95	7.98
30	24.62	6.00	27.51	6.93	30.40	7.85	32.17	8.49	33.95	9.13
35	24.62	6.90	27.51	7.96	30.40	9.02	31.92	9.31	33.44	9.59
40	24.62	7.88	26.90	8.65	29.18	9.43	30.48	9.72	31.77	10.02
43	24.62	8.69	25.99	9.17	27.36	9.66	28.73	9.97	30.10	10.29

Combination 120%
Capacity index(kW) 33.6

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	21.51	3.28	23.98	3.81	26.44	4.35	28.17	4.74	29.90	5.12
0	21.51	3.28	23.98	3.81	26.44	4.35	28.17	4.74	29.90	5.12
5	21.51	3.38	23.98	3.93	26.44	4.48	28.17	4.88	29.90	5.28
10	21.51	3.54	23.98	4.10	26.44	4.66	28.17	5.07	29.90	5.48
15	21.51	3.81	23.98	4.41	26.44	5.01	28.17	5.45	29.90	5.90
20	21.51	4.22	23.98	4.92	26.44	5.62	28.17	6.08	29.90	6.55
20	23.98	4.32	26.79	5.02	29.60	5.71	31.33	6.18	33.05	6.64
25	23.98	5.06	26.79	5.87	29.60	6.68	31.33	7.22	33.05	7.77
30	23.98	5.84	26.79	6.74	29.60	7.64	31.33	8.27	33.05	8.89
35	23.98	6.71	26.79	7.75	29.60	8.79	31.08	9.06	32.56	9.34
40	23.98	7.67	26.20	8.43	28.42	9.18	29.67	9.47	30.93	9.75
43	23.98	8.46	25.31	8.93	26.64	9.40	27.97	9.71	29.30	10.02

Combination 110%
Capacity index(kW) 30.8

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	20.93	3.19	23.33	3.71	25.73	4.23	27.41	4.61	29.09	4.98
0	20.93	3.19	23.33	3.71	25.73	4.23	27.41	4.61	29.09	4.98
5	20.93	3.28	23.33	3.82	25.73	4.36	27.41	4.75	29.09	5.13
10	20.93	3.44	23.33	3.99	25.73	4.53	27.41	4.93	29.09	5.34
15	20.93	3.70	23.33	4.29	25.73	4.87	27.41	5.31	29.09	5.74
20	20.93	4.10	23.33	4.79	25.73	5.47	27.41	5.92	29.09	6.37
20	23.33	4.21	26.06	4.88	28.80	5.56	30.48	6.01	32.16	6.46
25	23.33	4.92	26.06	5.71	28.80	6.50	30.48	7.03	32.16	7.56
30	23.33	5.68	26.06	6.56	28.80	7.44	30.48	8.04	32.16	8.65
35	23.33	6.53	26.06	7.54	28.80	8.55	30.24	8.82	31.68	9.09
40	23.33	7.46	25.49	8.20	27.65	8.93	28.87	9.21	30.10	9.49
43	23.33	8.23	24.62	8.69	25.92	9.15	27.22	9.45	28.51	9.75

Combination 100%
Capacity index(kW) 28.0

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	20.3	3.10	22.7	3.61	25.0	4.11	26.6	4.48	28.3	4.84
0	20.3	3.10	22.7	3.61	25.0	4.11	26.6	4.48	28.3	4.84
5	20.3	3.19	22.7	3.72	25.0	4.24	26.6	4.61	28.3	4.99
10	20.3	3.35	22.7	3.88	25.0	4.40	26.6	4.80	28.3	5.19
15	20.3	3.60	22.7	4.17	25.0	4.74	26.6	5.16	28.3	5.58
20	20.3	3.99	22.7	4.65	25.0	5.32	26.6	5.75	28.3	6.19
20	22.7	4.09	25.3	4.75	28.0	5.40	29.6	5.84	31.3	6.28
25	22.7	4.78	25.3	5.55	28.0	6.32	29.6	6.83	31.3	7.35
30	22.7	5.52	25.3	6.38	28.0	7.23	29.6	7.82	31.3	8.41
35	22.7	6.35	25.3	7.33	28.0	8.31	29.4	8.57	30.8	8.83
40	22.7	7.25	24.8	7.97	26.9	8.68	28.1	8.95	29.3	9.22
43	22.7	8.00	23.9	8.45	25.2	8.89	26.5	9.18	27.7	9.47

Combination 90%
Capacity index(kW) 25.2

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	18.14	2.81	20.33	3.26	22.51	3.71	24.18	4.04	25.85	4.38
0	18.14	2.81	20.33	3.26	22.51	3.71	24.18	4.04	25.85	4.38
5	18.14	2.89	20.33	3.35	22.51	3.81	24.18	4.15	25.85	4.50
10	18.14	3.02	20.33	3.48	22.51	3.94	24.18	4.30	25.85	4.66
15	18.14	3.22	20.33	3.72	22.51	4.21	24.18	4.59	25.85	4.98
20	18.14	3.54	20.33	4.11	22.51	4.69	24.18	5.08	25.85	5.47
20	20.22	3.66	22.71	4.23	25.20	4.81	26.89	5.20	28.58	5.60
25	20.22	4.23	22.71	4.91	25.20	5.58	26.89	6.07	28.58	6.55
30	20.22	4.87	22.71	5.63	25.20	6.39	26.89	6.97	28.58	7.54
35	20.22	5.59	22.71	6.47	25.20	7.34	26.71	7.67	28.21	8.00
40	20.22	6.38	22.26	7.07	24.30	7.76	25.64	8.11	26.98	8.47
43	20.22	7.03	21.59	7.51	22.96	8.00	24.35	8.38	25.75	8.75

Combination 80%
Capacity index(kW) 22.4

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	15.93	2.52	17.97	2.91	20.01	3.30	21.72	3.60	23.43	3.91
0	15.93	2.52	17.97	2.91	20.01	3.30	21.72	3.61	23.43	3.91
5	15.93	2.59	17.97	2.98	20.01	3.38	21.72	3.69	23.43	4.00
10	15.93	2.69	17.97	3.08	20.01	3.48	21.72	3.80	23.43	4.13
15	15.93	2.85	17.97	3.27	20.01	3.69	21.72	4.03	23.43	4.37
20	15.93	3.09	17.97	3.57	20.01	4.06	21.72	4.40	23.43	4.75
20	17.76	3.23	20.08	3.72	22.40	4.21	24.15	4.56	25.90	4.92
25	17.76	3.67	20.08	4.26	22.40	4.85	24.15	5.31	25.90	5.76
30	17.76	4.22	20.08	4.89	22.40	5.55	24.15	6.11	25.90	6.67
35	17.76	4.83	20.08	5.60	22.40	6.38	24.01	6.77	25.62	7.17
40	17.76	5.51	19.74	6.17	21.73	6.83	23.21	7.27	24.70	7.71
43	17.76	6.05	19.24	6.58	20.72	7.11	22.25	7.57	23.77	8.03

Combination 70%
Capacity index(kW) 19.6

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	13.72	2.24	15.62	2.57	17.51	2.89	19.25	3.17	21.00	3.44
0	13.72	2.24	15.62	2.57	17.51	2.89	19.25	3.17	21.00	3.44
5	13.72	2.29	15.62	2.62	17.51	2.94	19.25	3.22	21.00	3.50
10	13.72	2.36	15.62	2.69	17.51	3.02	19.25	3.31	21.00	3.60
15	13.72	2.47	15.62	2.82	17.51	3.17	19.25	3.47	21.00	3.77
20	13.72	2.63	15.62	3.03	17.51	3.43	19.25	3.73	21.00	4.03
20	15.30	2.79	17.45	3.20	19.60	3.61	21.41	3.92	23.22	4.23
25	15.30	3.12	17.45	3.62	19.60	4.12	21.41	4.55	23.22	4.97
30	15.30	3.57	17.45	4.14	19.60	4.71	21.41	5.26	23.22	5.80
35	15.30	4.07	17.45	4.74	19.60	5.41	21.32	5.88	23.03	6.34
40	15.30	4.64	17.22	5.27	19.15	5.90	20.78	6.43	22.41	6.95
43	15.30	5.08	16.89	5.65	18.48	6.21	20.14	6.76	21.80	7.31

Combination 60%
Capacity index(kW) 16.8

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	11.52	1.95	13.26	2.22	15.01	2.49	16.79	2.73	18.57	2.97
0	11.52	1.95	13.26	2.22	15.01	2.49	16.79	2.73	18.57	2.98
5	11.52	1.99	13.26	2.25	15.01	2.51	16.79	2.76	18.57	3.01
10	11.52	2.02	13.26	2.29	15.01	2.56	16.79	2.81	18.57	3.07
15	11.52	2.09	13.26	2.37	15.01	2.64	16.79	2.90	18.57	3.17
20	11.52	2.18	13.26	2.49	15.01	2.80	16.79	3.05	18.57	3.31
20	12.84	2.36	14.82	2.69	16.80	3.02	18.67	3.28	20.53	3.55
25	12.84	2.57	14.82	2.98	16.80	3.39	18.67	3.79	20.53	4.18
30	12.84	2.91	14.82	3.40	16.80	3.88	18.67	4.40	20.53	4.93
35	12.84	3.31	14.82	3.88	16.80	4.45	18.62	4.98	20.44	5.51
40	12.84	3.77	14.71	4.37	16.58	4.98	18.35	5.59	20.13	6.19
43	12.84	4.10	14.54	4.71	16.24	5.32	18.03	5.96	19.82	6.59

Combination 50%
Capacity index(kW) 14.0

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	14.0		18.0		19.0		20.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	9.3	1.66	10.9	1.87	12.5	2.08	14.3	2.29	16.1	2.51
0	9.3	1.66	10.9	1.87	12.5	2.08	14.3	2.30	16.1	2.51
5	9.3	1.69	10.9	1.88	12.5	2.08	14.3	2.30	16.1	2.51
10	9.3	1.69	10.9	1.89	12.5	2.09	14.3	2.32	16.1	2.54
15	9.3	1.71	10.9	1.92	12.5	2.12	14.3	2.34	16.1	2.56
20	9.3	1.73	10.9	1.95	12.5	2.17	14.3	2.38	16.1	2.59
20	10.4	1.93	12.2	2.18	14.0	2.42	15.9	2.65	17.9	2.87
25	10.4	2.01	12.2	2.34	14.0	2.66	15.9	3.02	17.9	3.39
30	10.4	2.26	12.2	2.65	14.0	3.04	15.9	3.55	17.9	4.06
35	10.4	2.55	12.2	3.02	14.0	3.48	15.9	4.08	17.9	4.67
40	10.4	2.90	12.2	3.48	14.0	4.05	15.9	4.74	17.9	5.44
43	10.4	3.13	12.2	3.78	14.0	4.43	15.9	5.15	17.9	5.87

24. Heating Capacity Tables

24.1 U-8EA1E8

Combination 130%
Capacity index(kW) 32.5

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	20.11	6.23	18.81	5.97	17.51	5.71	16.23	5.50	14.96	5.29
-15	22.27	6.43	21.18	6.16	20.09	5.90	18.60	5.69	17.12	5.48
-10	24.43	6.62	23.16	6.33	21.89	6.05	20.58	5.86	19.28	5.67
-5	26.59	6.81	25.40	6.48	24.21	6.16	22.92	6.01	21.63	5.86
-1	28.33	6.96	27.04	6.70	25.75	6.43	23.69	6.02	21.63	5.60
0	28.76	7.04	27.25	6.70	25.75	6.36	23.69	5.94	21.63	5.53
1	29.19	7.11	27.47	6.70	25.75	6.28	23.69	5.87	21.63	5.46
3	29.87	7.28	27.81	6.71	25.75	6.14	23.69	5.72	21.63	5.31
6	29.87	6.82	27.81	6.37	25.75	5.92	23.69	5.50	21.63	5.09
10	29.87	6.67	27.81	6.15	25.75	5.62	23.69	5.21	21.63	4.80
15	29.87	6.45	27.81	5.85	25.75	5.26	23.69	4.84	21.63	4.43

Combination 120%
Capacity index(kW) 30.0

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	19.91	6.30	18.63	6.03	17.34	5.76	16.08	5.55	14.81	5.34
-15	22.05	6.49	20.97	6.22	19.89	5.96	18.42	5.75	16.95	5.54
-10	24.19	6.69	22.93	6.40	21.68	6.11	20.38	5.92	19.09	5.73
-5	26.34	6.88	25.15	6.55	23.97	6.22	22.70	6.07	21.42	5.92
-1	28.05	7.04	26.78	6.77	25.50	6.50	23.46	6.08	21.42	5.66
0	28.48	7.11	26.99	6.77	25.50	6.42	23.46	6.00	21.42	5.59
1	28.91	7.19	27.20	6.77	25.50	6.35	23.46	5.93	21.42	5.51
3	29.58	7.35	27.54	6.78	25.50	6.20	23.46	5.78	21.42	5.36
6	29.58	6.89	27.54	6.43	25.50	5.98	23.46	5.56	21.42	5.14
10	29.58	6.74	27.54	6.21	25.50	5.68	23.46	5.26	21.42	4.85
15	29.58	6.52	27.54	5.91	25.50	5.31	23.46	4.89	21.42	4.47

Combination 110%
Capacity index(kW) 27.5

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	19.72	6.36	18.44	6.09	17.17	5.82	15.92	5.61	14.67	5.40
-15	21.84	6.56	20.77	6.29	19.70	6.02	18.24	5.80	16.79	5.59
-10	23.96	6.75	22.71	6.46	21.46	6.18	20.18	5.98	18.91	5.79
-5	26.08	6.95	24.91	6.62	23.74	6.28	22.47	6.13	21.21	5.98
-1	27.78	7.11	26.51	6.84	25.25	6.56	23.23	6.14	21.21	5.72
0	28.20	7.18	26.72	6.84	25.25	6.49	23.23	6.07	21.21	5.64
1	28.62	7.26	26.94	6.84	25.25	6.41	23.23	5.99	21.21	5.57
3	29.29	7.43	27.27	6.85	25.25	6.26	23.23	5.84	21.21	5.42
6	29.29	6.96	27.27	6.50	25.25	6.04	23.23	5.62	21.21	5.19
10	29.29	6.81	27.27	6.27	25.25	5.74	23.23	5.32	21.21	4.89
15	29.29	6.58	27.27	5.97	25.25	5.37	23.23	4.94	21.21	4.52

Combination 100%
Capacity index(kW) 25.0

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	19.5	6.43	18.3	6.15	17.0	5.88	15.8	5.67	14.5	5.45
-15	21.6	6.62	20.6	6.35	19.5	6.08	18.1	5.86	16.6	5.65
-10	23.7	6.82	22.5	6.53	21.3	6.24	20.0	6.04	18.7	5.85
-5	25.8	7.02	24.7	6.68	23.5	6.35	22.3	6.20	21.0	6.04
-1	27.5	7.18	26.3	6.90	25.0	6.63	23.0	6.20	21.0	5.78
0	27.9	7.26	26.5	6.91	25.0	6.55	23.0	6.13	21.0	5.70
1	28.3	7.33	26.7	6.91	25.0	6.48	23.0	6.05	21.0	5.62
3	29.0	7.50	27.0	6.92	25.0	6.33	23.0	5.90	21.0	5.47
6	29.0	7.03	27.0	6.56	25.0	6.10	23.0	5.67	21.0	5.25
10	29.0	6.88	27.0	6.34	25.0	5.80	23.0	5.37	21.0	4.94
15	29.0	6.65	27.0	6.03	25.0	5.42	23.0	4.99	21.0	4.57

Combination 90%
Capacity index(kW) 22.5

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	18.45	5.96	17.27	5.71	16.10	5.45	14.95	5.24	13.79	5.03
-15	20.13	6.09	19.11	5.83	18.10	5.58	16.79	5.37	15.47	5.16
-10	21.81	6.20	20.65	5.93	19.50	5.66	18.33	5.47	17.15	5.28
-5	23.49	6.30	22.39	6.00	21.30	5.70	20.14	5.55	18.98	5.40
-1	24.83	6.39	23.66	6.14	22.50	5.90	20.74	5.53	18.98	5.16
0	25.17	6.44	23.83	6.13	22.50	5.83	20.74	5.46	18.98	5.09
1	25.51	6.49	24.00	6.12	22.50	5.76	20.74	5.39	18.98	5.02
3	26.03	6.61	24.26	6.11	22.50	5.62	20.74	5.25	18.98	4.89
6	26.03	6.21	24.26	5.81	22.50	5.42	20.74	5.06	18.98	4.69
10	26.03	6.06	24.26	5.61	22.50	5.16	20.74	4.79	18.98	4.43
15	26.03	5.86	24.26	5.35	22.50	4.84	20.74	4.48	18.98	4.12

Combination 80%
Capacity index(kW) 20.0

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	17.38	5.50	16.28	5.26	15.20	5.02	14.13	4.81	13.07	4.60
-15	18.64	5.55	17.66	5.31	16.70	5.07	15.51	4.87	14.33	4.67
-10	19.90	5.57	18.81	5.33	17.75	5.09	16.67	4.91	15.59	4.72
-5	21.16	5.57	20.12	5.32	19.10	5.06	18.03	4.91	16.96	4.76
-1	22.17	5.61	21.07	5.38	20.00	5.16	18.48	4.86	16.96	4.55
0	22.42	5.62	21.20	5.36	20.00	5.10	18.48	4.79	16.96	4.48
1	22.67	5.65	21.32	5.34	20.00	5.03	18.48	4.73	16.96	4.42
3	23.07	5.71	21.52	5.31	20.00	4.91	18.48	4.60	16.96	4.31
6	23.07	5.39	21.52	5.06	20.00	4.74	18.48	4.44	16.96	4.14
10	23.07	5.24	21.52	4.88	20.00	4.52	18.48	4.22	16.96	3.93
15	23.07	5.06	21.52	4.66	20.00	4.25	18.48	3.96	16.96	3.67

Combination 70%
Capacity index(kW) 17.50

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	16.31	5.04	15.29	4.81	14.30	4.59	13.32	4.38	12.34	4.18
-15	17.15	5.01	16.21	4.79	15.30	4.57	14.24	4.37	13.18	4.18
-10	17.99	4.95	16.98	4.73	16.00	4.51	15.01	4.34	14.02	4.16
-5	18.83	4.85	17.85	4.64	16.90	4.41	15.92	4.27	14.93	4.12
-1	19.50	4.82	18.48	4.63	17.50	4.43	16.22	4.18	14.93	3.93
0	19.67	4.80	18.57	4.59	17.50	4.37	16.22	4.13	14.93	3.88
1	19.84	4.80	18.65	4.55	17.50	4.31	16.22	4.07	14.93	3.82
3	20.10	4.81	18.78	4.50	17.50	4.20	16.22	3.96	14.93	3.72
6	20.10	4.57	18.78	4.31	17.50	4.05	16.22	3.82	14.93	3.58
10	20.10	4.43	18.78	4.15	17.50	3.88	16.22	3.64	14.93	3.42
15	20.10	4.27	18.78	3.97	17.50	3.67	16.22	3.44	14.93	3.22

Combination 60%
Capacity index(kW) 15.0

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	15.24	4.58	14.30	4.37	13.40	4.15	12.51	3.95	11.62	3.76
-15	15.66	4.47	14.76	4.27	13.90	4.07	12.97	3.87	12.04	3.69
-10	16.08	4.32	15.14	4.13	14.25	3.94	13.35	3.77	12.46	3.60
-5	16.50	4.13	15.58	3.95	14.70	3.77	13.81	3.62	12.91	3.48
-1	16.83	4.03	15.89	3.87	15.00	3.70	13.96	3.51	12.91	3.32
0	16.92	3.98	15.94	3.82	15.00	3.64	13.96	3.46	12.91	3.27
1	17.00	3.96	15.98	3.77	15.00	3.58	13.96	3.40	12.91	3.22
3	17.13	3.92	16.04	3.70	15.00	3.49	13.96	3.31	12.91	3.14
6	17.13	3.75	16.04	3.56	15.00	3.37	13.96	3.20	12.91	3.03
10	17.13	3.61	16.04	3.42	15.00	3.24	13.96	3.07	12.91	2.91
15	17.13	3.48	16.04	3.28	15.00	3.09	13.96	2.93	12.91	2.77

Combination 50%
Capacity index(kW) 12.50

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	14.17	4.12	13.31	3.92	12.50	3.72	11.69	3.52	10.89	3.34
-15	14.17	3.93	13.31	3.75	12.50	3.56	11.69	3.38	10.89	3.20
-10	14.17	3.69	13.31	3.54	12.50	3.36	11.69	3.20	10.89	3.03
-5	14.17	3.40	13.31	3.27	12.50	3.12	11.69	2.98	10.89	2.83
-1	14.17	3.25	13.31	3.11	12.50	2.96	11.69	2.83	10.89	2.70
0	14.17	3.16	13.31	3.05	12.50	2.91	11.69	2.79	10.89	2.66
1	14.17	3.11	13.31	2.99	12.50	2.86	11.69	2.74	10.89	2.62
3	14.17	3.02	13.31	2.89	12.50	2.78	11.69	2.66	10.89	2.56
6	14.17	2.93	13.31	2.81	12.50	2.69	11.69	2.58	10.89	2.48
10	14.17	2.79	13.31	2.69	12.50	2.60	11.69	2.49	10.89	2.40
15	14.17	2.69	13.31	2.60	12.50	2.50	11.69	2.41	10.89	2.32

24.2 U-10EA1E8

Combination 130%
Capacity index(kW) 41.0

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	25.33	8.03	23.70	7.69	22.06	7.35	20.45	7.08	18.84	6.81
-15	28.06	8.28	26.68	7.94	25.31	7.60	23.44	7.33	21.57	7.06
-10	30.78	8.53	29.18	8.16	27.58	7.80	25.94	7.55	24.29	7.31
-5	33.51	8.78	32.00	8.36	30.50	7.93	28.88	7.75	27.25	7.56
-1	35.69	8.97	34.07	8.63	32.45	8.29	29.85	7.75	27.25	7.22
0	36.23	9.07	34.34	8.63	32.45	8.19	29.85	7.66	27.25	7.13
1	36.78	9.17	34.61	8.63	32.45	8.10	29.85	7.57	27.25	7.03
3	37.64	9.38	35.04	8.64	32.45	7.91	29.85	7.38	27.25	6.84
6	37.64	8.79	35.04	8.21	32.45	7.63	29.85	7.09	27.25	6.56
10	37.64	8.60	35.04	7.92	32.45	7.25	29.85	6.71	27.25	6.18
15	37.64	8.31	35.04	7.54	32.45	6.78	29.85	6.24	27.25	5.71

Combination 120%
Capacity index(kW) 37.8

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	25.09	8.12	23.47	7.77	21.85	7.43	20.25	7.16	18.66	6.88
-15	27.79	8.37	26.42	8.02	25.06	7.68	23.21	7.41	21.36	7.13
-10	30.48	8.62	28.90	8.25	27.31	7.88	25.68	7.63	24.06	7.38
-5	33.18	8.87	31.69	8.44	30.20	8.02	28.60	7.83	26.99	7.63
-1	35.34	9.07	33.74	8.72	32.13	8.37	29.56	7.83	26.99	7.30
0	35.88	9.16	34.01	8.72	32.13	8.28	29.56	7.74	26.99	7.20
1	36.42	9.26	34.28	8.72	32.13	8.18	29.56	7.64	26.99	7.10
3	37.27	9.48	34.70	8.73	32.13	7.99	29.56	7.45	26.99	6.91
6	37.27	8.88	34.70	8.29	32.13	7.70	29.56	7.17	26.99	6.63
10	37.27	8.68	34.70	8.00	32.13	7.32	29.56	6.78	26.99	6.24
15	37.27	8.40	34.70	7.62	32.13	6.85	29.56	6.31	26.99	5.77

Combination 110%
Capacity index(kW) 34.7

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	24.84	8.20	23.24	7.85	21.63	7.50	20.06	7.23	18.48	6.95
-15	27.51	8.45	26.16	8.10	24.82	7.76	22.98	7.48	21.15	7.21
-10	30.19	8.70	28.61	8.33	27.04	7.96	25.43	7.71	23.82	7.46
-5	32.86	8.96	31.38	8.53	29.91	8.10	28.32	7.91	26.72	7.71
-1	35.00	9.16	33.41	8.81	31.82	8.46	29.27	7.91	26.72	7.37
0	35.53	9.26	33.67	8.81	31.82	8.36	29.27	7.82	26.72	7.27
1	36.07	9.36	33.94	8.81	31.82	8.27	29.27	7.72	26.72	7.18
3	36.91	9.57	34.36	8.82	31.82	8.07	29.27	7.53	26.72	6.98
6	36.91	8.97	34.36	8.37	31.82	7.78	29.27	7.24	26.72	6.69
10	36.91	8.77	34.36	8.09	31.82	7.40	29.27	6.85	26.72	6.31
15	36.91	8.48	34.36	7.70	31.82	6.91	29.27	6.37	26.72	5.83

Combination 100%
Capacity index(kW) 31.50

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	24.6	8.28	23.0	7.93	21.4	7.58	19.9	7.30	18.3	7.02
-15	27.2	8.54	25.9	8.19	24.6	7.83	22.8	7.56	20.9	7.28
-10	29.9	8.79	28.3	8.42	26.8	8.04	25.2	7.79	23.6	7.53
-5	32.5	9.05	31.1	8.61	29.6	8.18	28.0	7.98	26.5	7.79
-1	34.7	9.25	33.1	8.90	31.5	8.54	29.0	7.99	26.5	7.44
0	35.2	9.35	33.3	8.90	31.5	8.45	29.0	7.90	26.5	7.35
1	35.7	9.45	33.6	8.90	31.5	8.35	29.0	7.80	26.5	7.25
3	36.5	9.67	34.0	8.91	31.5	8.15	29.0	7.60	26.5	7.05
6	36.5	9.06	34.0	8.46	31.5	7.86	29.0	7.31	26.5	6.76
10	36.5	8.86	34.0	8.17	31.5	7.47	29.0	6.92	26.5	6.37
15	36.5	8.57	34.0	7.78	31.5	6.98	29.0	6.43	26.5	5.88

Combination 90%
Capacity index(kW) 28.4

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	23.25	7.69	21.76	7.35	20.29	7.02	18.83	6.75	17.38	6.48
-15	25.36	7.84	24.08	7.51	22.81	7.18	21.15	6.92	19.50	6.65
-10	27.48	7.99	26.02	7.64	24.57	7.30	23.09	7.05	21.61	6.81
-5	29.60	8.11	28.21	7.73	26.84	7.35	25.38	7.16	23.91	6.96
-1	31.29	8.24	29.81	7.92	28.35	7.60	26.13	7.13	23.91	6.65
0	31.71	8.30	30.02	7.90	28.35	7.51	26.13	7.04	23.91	6.56
1	32.14	8.36	30.24	7.89	28.35	7.42	26.13	6.95	23.91	6.47
3	32.80	8.51	30.57	7.87	28.35	7.24	26.13	6.77	23.91	6.30
6	32.80	8.00	30.57	7.49	28.35	6.98	26.13	6.51	23.91	6.05
10	32.80	7.81	30.57	7.23	28.35	6.65	26.13	6.18	23.91	5.71
15	32.80	7.55	30.57	6.89	28.35	6.23	26.13	5.77	23.91	5.30

Combination 80%
Capacity index(kW) 25.2

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	21.90	7.09	20.51	6.78	19.15	6.47	17.81	6.20	16.47	5.93
-15	23.48	7.15	22.25	6.84	21.04	6.54	19.55	6.27	18.05	6.02
-10	25.07	7.18	23.70	6.87	22.37	6.56	21.00	6.32	19.64	6.08
-5	26.66	7.18	25.35	6.85	24.07	6.52	22.72	6.33	21.36	6.13
-1	27.93	7.22	26.55	6.94	25.20	6.65	23.28	6.26	21.36	5.86
0	28.25	7.24	26.71	6.91	25.20	6.57	23.28	6.18	21.36	5.78
1	28.57	7.27	26.87	6.88	25.20	6.48	23.28	6.09	21.36	5.70
3	29.06	7.36	27.12	6.84	25.20	6.33	23.28	5.93	21.36	5.55
6	29.06	6.94	27.12	6.52	25.20	6.10	23.28	5.72	21.36	5.33
10	29.06	6.76	27.12	6.29	25.20	5.82	23.28	5.44	21.36	5.06
15	29.06	6.53	27.12	6.00	25.20	5.48	23.28	5.10	21.36	4.72

Combination 70%
Capacity index(kW) 22.05

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	20.55	6.49	19.26	6.20	18.02	5.91	16.78	5.64	15.55	5.39
-15	21.61	6.45	20.42	6.17	19.28	5.89	17.94	5.63	16.61	5.39
-10	22.66	6.37	21.39	6.10	20.16	5.81	18.91	5.59	17.67	5.36
-5	23.72	6.25	22.49	5.97	21.29	5.69	20.06	5.50	18.82	5.31
-1	24.57	6.21	23.29	5.96	22.05	5.71	20.43	5.39	18.82	5.07
0	24.78	6.19	23.39	5.91	22.05	5.63	20.43	5.32	18.82	5.00
1	24.99	6.19	23.50	5.87	22.05	5.55	20.43	5.24	18.82	4.93
3	25.33	6.20	23.67	5.80	22.05	5.41	20.43	5.10	18.82	4.80
6	25.33	5.88	23.67	5.55	22.05	5.22	20.43	4.92	18.82	4.62
10	25.33	5.70	23.67	5.34	22.05	4.99	20.43	4.69	18.82	4.40
15	25.33	5.51	23.67	5.12	22.05	4.73	20.43	4.44	18.82	4.14

Combination 60%
Capacity index(kW) 18.9

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	19.20	5.90	18.01	5.62	16.88	5.35	15.76	5.09	14.64	4.84
-15	19.73	5.76	18.59	5.50	17.51	5.24	16.34	4.99	15.16	4.76
-10	20.26	5.57	19.08	5.33	17.96	5.07	16.82	4.86	15.69	4.63
-5	20.79	5.32	19.63	5.09	18.52	4.86	17.40	4.67	16.27	4.48
-1	21.21	5.20	20.03	4.98	18.90	4.76	17.58	4.52	16.27	4.28
0	21.32	5.13	20.08	4.92	18.90	4.69	17.58	4.46	16.27	4.21
1	21.42	5.10	20.13	4.86	18.90	4.62	17.58	4.38	16.27	4.15
3	21.59	5.04	20.22	4.76	18.90	4.50	17.58	4.26	16.27	4.04
6	21.59	4.83	20.22	4.58	18.90	4.34	17.58	4.12	16.27	3.90
10	21.59	4.65	20.22	4.40	18.90	4.17	17.58	3.95	16.27	3.74
15	21.59	4.48	20.22	4.23	18.90	3.98	17.58	3.77	16.27	3.56

Combination 50%
Capacity index(kW) 15.75

TC：Total Capacity (kW)、PI：Power Input (kW)

Outdoor Air Temp. (°CWB)	Indoor Air Temperature (°CDB)									
	16.0		18.0		20.0		21.0		24.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-20	17.85	5.30	16.77	5.05	15.75	4.79	14.74	4.54	13.72	4.30
-15	17.85	5.07	16.77	4.83	15.75	4.59	14.74	4.35	13.72	4.13
-10	17.85	4.76	16.77	4.55	15.75	4.33	14.74	4.13	13.72	3.91
-5	17.85	4.38	16.77	4.21	15.75	4.02	14.74	3.84	13.72	3.65
-1	17.85	4.18	16.77	4.00	15.75	3.82	14.74	3.65	13.72	3.48
0	17.85	4.08	16.77	3.92	15.75	3.75	14.74	3.60	13.72	3.43
1	17.85	4.01	16.77	3.85	15.75	3.68	14.74	3.53	13.72	3.38
3	17.85	3.89	16.77	3.73	15.75	3.58	14.74	3.43	13.72	3.29
6	17.85	3.77	16.77	3.62	15.75	3.46	14.74	3.33	13.72	3.19
10	17.85	3.60	16.77	3.46	15.75	3.34	14.74	3.21	13.72	3.09
15	17.85	3.46	16.77	3.34	15.75	3.22	14.74	3.10	13.72	2.98

25. Sensible Heat Tables

25.1 U-8EA1E8

Connection Indoor Units：S--32NA1E5+S-36NA1E5+S-56NA1E5+S-100MA1E5 (as example)

Combination 100%

TC：Total Capacity(kW)、SH：Sensible heat(kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	15.0		17.0		19.0		21.0		23.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	16.3	13.66	18.1	14.80	20.0	15.11	21.3	14.86	22.6	14.66
0	16.3	13.66	18.1	14.80	20.0	15.11	21.3	14.86	22.6	14.66
5	16.3	13.66	18.1	14.80	20.0	15.11	21.3	14.86	22.6	14.66
10	16.3	13.66	18.1	14.80	20.0	15.11	21.3	14.86	22.6	14.66
15	16.3	13.66	18.1	14.80	20.0	15.11	21.3	14.86	22.6	14.66
20	18.1	15.23	20.3	16.53	22.4	16.92	23.7	16.52	25.0	16.21
25	18.1	15.23	20.3	16.53	22.4	16.92	23.7	16.52	25.0	16.21
30	18.1	15.23	20.3	16.53	22.4	16.92	23.7	16.52	25.0	16.21
35	18.1	15.23	20.3	16.53	22.4	16.92	23.7	16.52	25.0	16.21
40	18.1	15.23	20.3	16.53	22.4	16.92	23.7	16.52	25.0	16.21
43	18.1	15.23	20.3	16.53	22.4	16.92	23.7	16.52	25.0	16.21

Combination 50%

TC：Total Capacity(kW)、SH：Power Input(kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	15.0		17.0		19.0		21.0		23.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	7.4	6.96	8.7	7.63	10.0	7.74	11.5	8.40	12.9	8.90
0	7.4	6.96	8.7	7.63	10.0	7.74	11.5	8.40	12.9	8.90
5	7.4	6.96	8.7	7.63	10.0	7.74	11.5	8.40	12.9	8.90
10	7.4	6.96	8.7	7.63	10.0	7.74	11.5	8.40	12.9	8.90
15	7.4	6.96	8.7	7.63	10.0	7.74	11.5	8.40	12.9	8.90
20	8.3	7.75	9.8	8.52	11.2	8.66	12.7	9.34	14.3	9.84
25	8.3	7.75	9.8	8.52	11.2	8.66	12.7	9.34	14.3	9.84
30	8.3	7.75	9.8	8.52	11.2	8.66	12.7	9.34	14.3	9.84
35	8.3	7.75	9.8	8.52	11.2	8.66	12.7	9.34	14.3	9.84
40	8.3	7.75	9.8	8.52	11.2	8.66	12.7	9.34	14.3	9.84
43	8.3	7.75	9.8	8.52	11.2	8.66	12.7	9.34	14.3	9.84

Note：PI of indoor units is not included in the table.

25.2 U-10EA1E8

Connected Indoor Units：S-40NA1E5×2units＋S-100MA1E5×2units (as example)

Combination 100%　　TC：Total Capacity(kW)、SH：Sensible heat(kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	15.0		17.0		19.0		21.0		23.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	20.3	17.08	22.7	18.50	25.0	18.89	26.6	18.57	28.3	18.33
0	20.3	17.08	22.7	18.50	25.0	18.89	26.6	18.57	28.3	18.33
5	20.3	17.08	22.7	18.50	25.0	18.89	26.6	18.57	28.3	18.33
10	20.3	17.08	22.7	18.50	25.0	18.89	26.6	18.57	28.3	18.33
15	20.3	17.08	22.7	18.50	25.0	18.89	26.6	18.57	28.3	18.33
20	22.7	19.04	25.3	20.67	28.0	21.15	29.6	20.65	31.3	20.26
25	22.7	19.04	25.3	20.67	28.0	21.15	29.6	20.65	31.3	20.26
30	22.7	19.04	25.3	20.67	28.0	21.15	29.6	20.65	31.3	20.26
35	22.7	19.04	25.3	20.67	28.0	21.15	29.6	20.65	31.3	20.26
40	22.7	19.04	25.3	20.67	28.0	21.15	29.6	20.65	31.3	20.26
43	22.7	19.04	25.3	20.67	28.0	21.15	29.6	20.65	31.3	20.26

Combination 50%　　TC：Total Capacity(kW)、SH：Power Input(kW)

Outdoor Air Temp. (°CDB)	Indoor Air Temperature (°CWB)									
	15.0		17.0		19.0		21.0		23.0	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-5	9.3	8.69	10.9	9.53	12.5	9.67	14.3	10.50	16.1	11.13
0	9.3	8.69	10.9	9.53	12.5	9.67	14.3	10.50	16.1	11.13
5	9.3	8.69	10.9	9.53	12.5	9.67	14.3	10.50	16.1	11.13
10	9.3	8.69	10.9	9.53	12.5	9.67	14.3	10.50	16.1	11.13
15	9.3	8.69	10.9	9.53	12.5	9.67	14.3	10.50	16.1	11.13
20	10.4	9.69	12.2	10.65	14.0	10.83	15.9	11.67	17.9	12.30
25	10.4	9.69	12.2	10.65	14.0	10.83	15.9	11.67	17.9	12.30
30	10.4	9.69	12.2	10.65	14.0	10.83	15.9	11.67	17.9	12.30
35	10.4	9.69	12.2	10.65	14.0	10.83	15.9	11.67	17.9	12.30
40	10.4	9.69	12.2	10.65	14.0	10.83	15.9	11.67	17.9	12.30
43	10.4	9.69	12.2	10.65	14.0	10.83	15.9	11.67	17.9	12.30

Note：PI of indoor units is not included in the table.

26. Air Flow Volume

26.1 Wall Mounted Type Indoor Unit – KA1E5 Series

			S-22KA1E5(S)	S-28KA1E5(S)	S-36KA1E5(S)	S-45KA1E5(S)	S-56KA1E5
Cooling	Hi	m^3/min	9.5	9.7	10.9	11.3	15.3
	Me	m^3/min	8.2	8.3	9.4	9.7	13.2
	Lo	m^3/min	6.9	6.8	7.9	8.2	11.1
Heating	Hi	m^3/min	10.3	10.9	11.6	12.1	16.7
	Me	m^3/min	9.4	9.5	10.2	10.6	15.0
	Lo	m^3/min	8.4	8.4	8.8	9.1	13.4

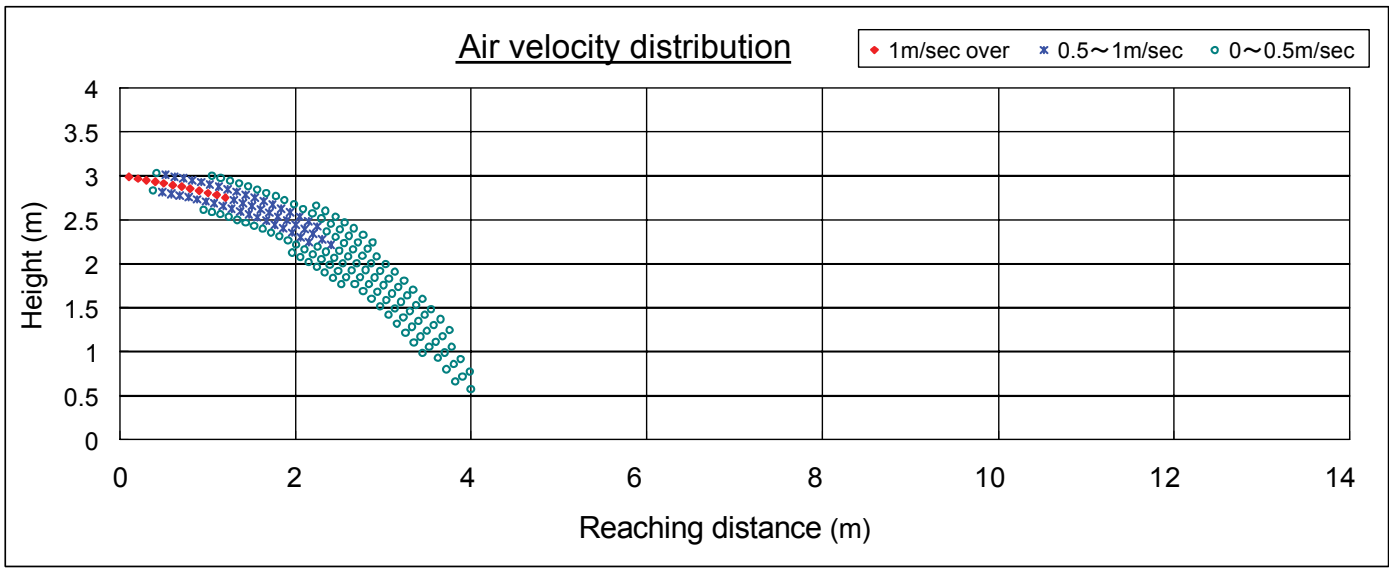
			S-63KA1E5	S-71KA1E5
Cooling	Hi	m^3/min	16.0	17.4
	Me	m^3/min	13.7	14.7
	Lo	m^3/min	11.4	12.0
Heating	Hi	m^3/min	17.1	18.3
	Me	m^3/min	15.1	16.0
	Lo	m^3/min	13.1	13.7

26.2 60 x 60 Cassette Type Indoor Unit – YA1E5 Series

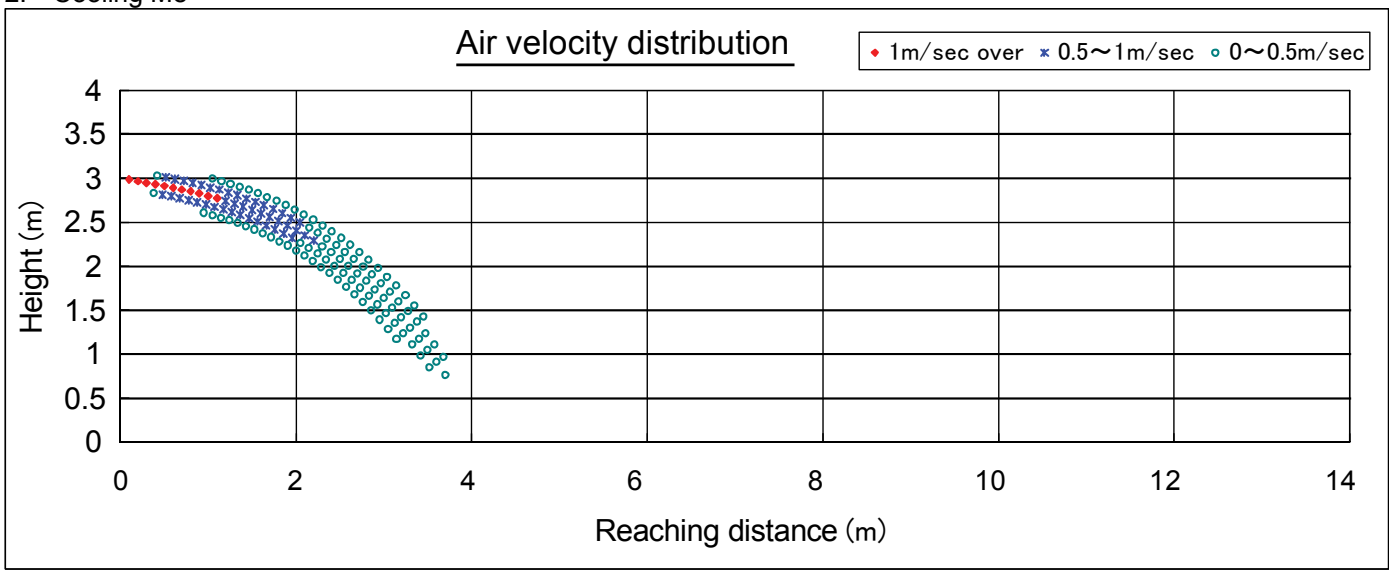
			S-22YA1E5	S-28YA1E5	S-36YA1E5	S-45YA1E5	S-56YA1E5
Cooling	Hi	m^3/min	8.3	8.6	9.0	9.3	9.9
	Me	m^3/min	7.3	7.4	7.7	7.9	8.6
	Lo	m^3/min	6.2	6.2	6.4	6.5	7.2
Heating	Hi	m^3/min	9.3	9.6	9.9	10.3	10.6
	Me	m^3/min	8.1	8.4	8.7	9.0	9.4
	Lo	m^3/min	7.4	7.7	8.0	8.3	8.6

S-22YA1E5
Airflow direction：20°

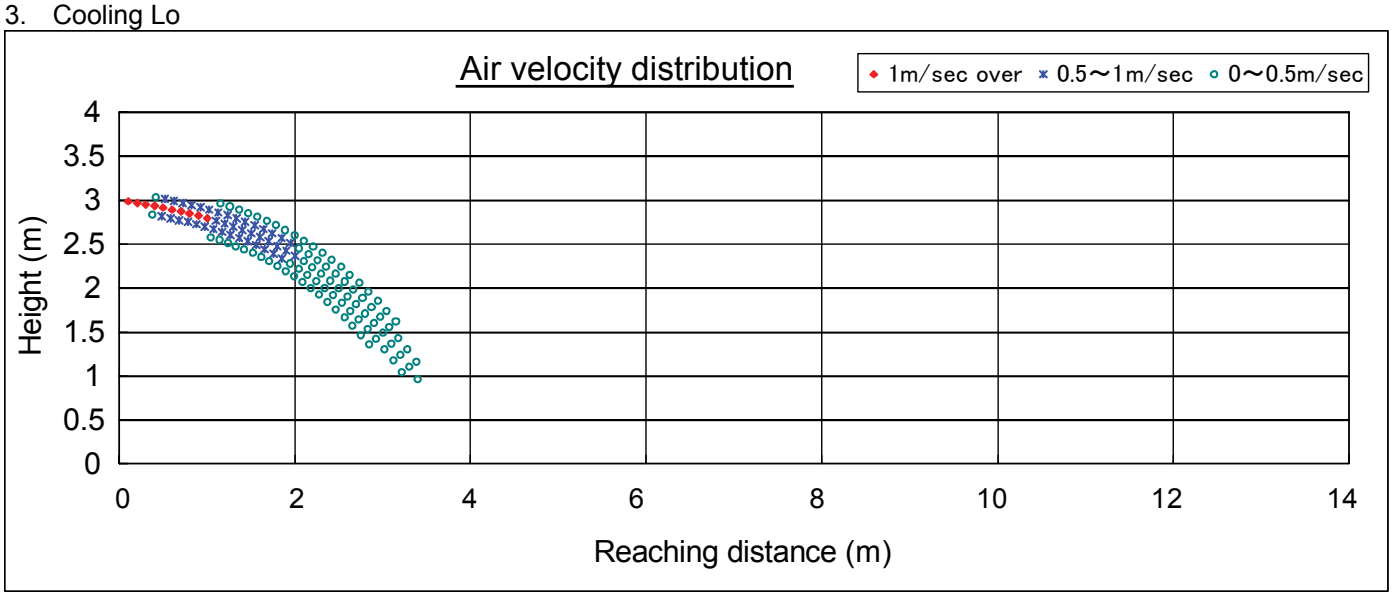
1. Cooling Hi



2. Cooling Me

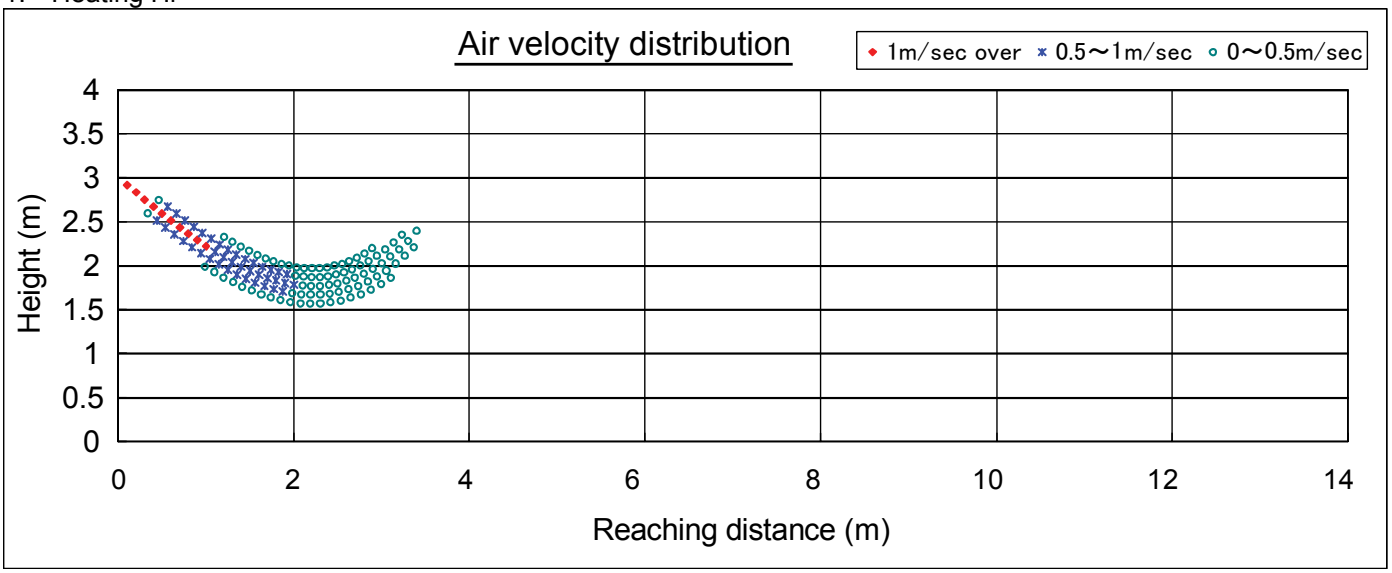


3. Cooling Lo

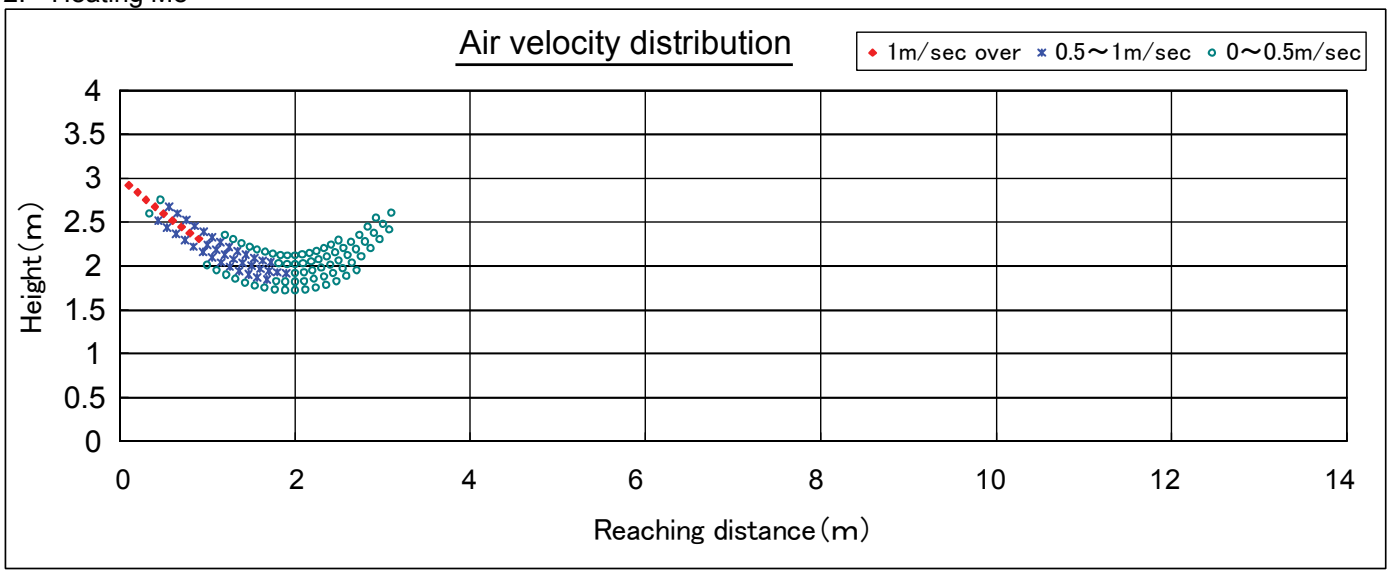


Airflow direction：70°

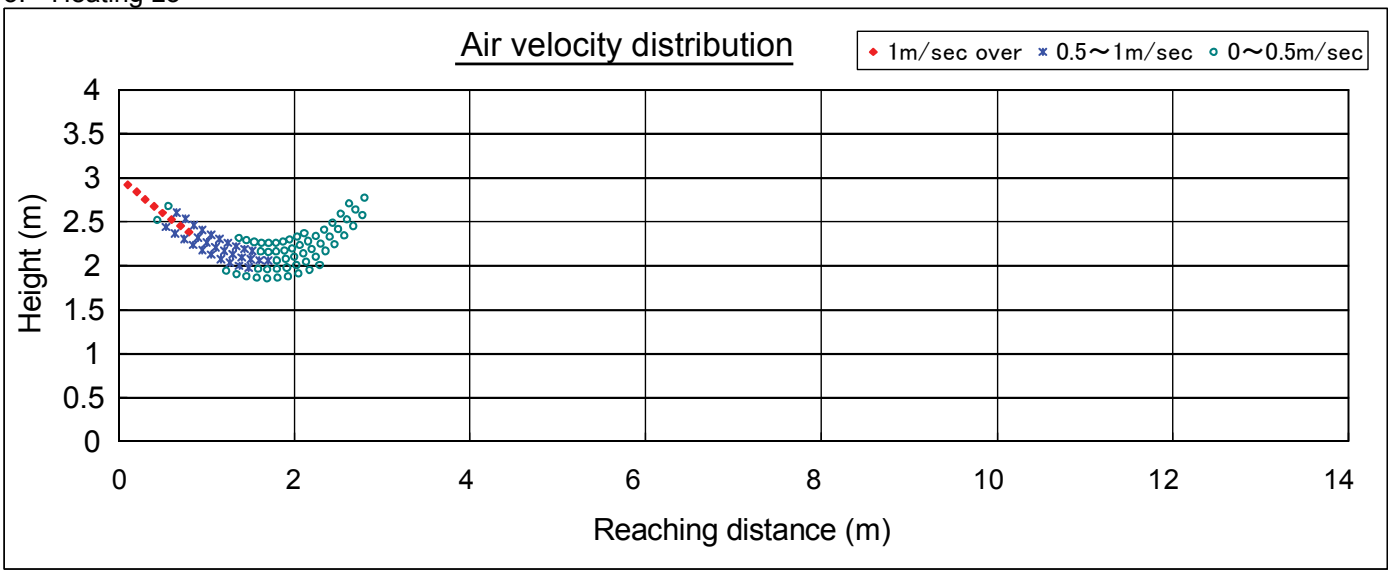
1. Heating Hi



2. Heating Me

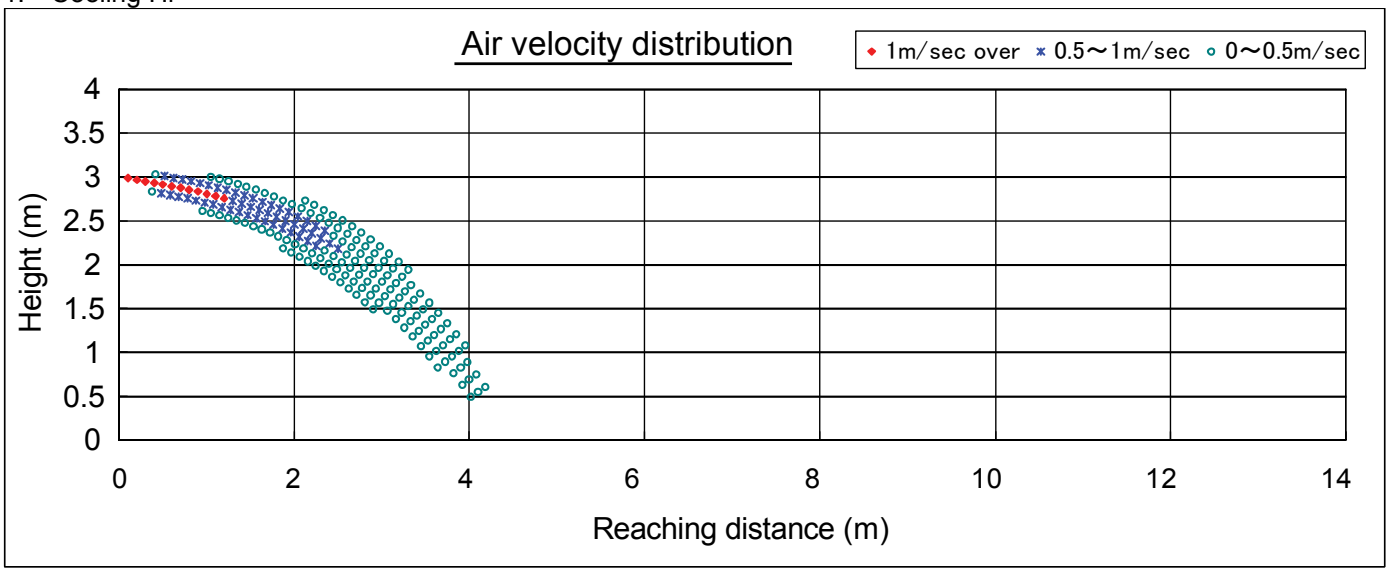


3. Heating Lo

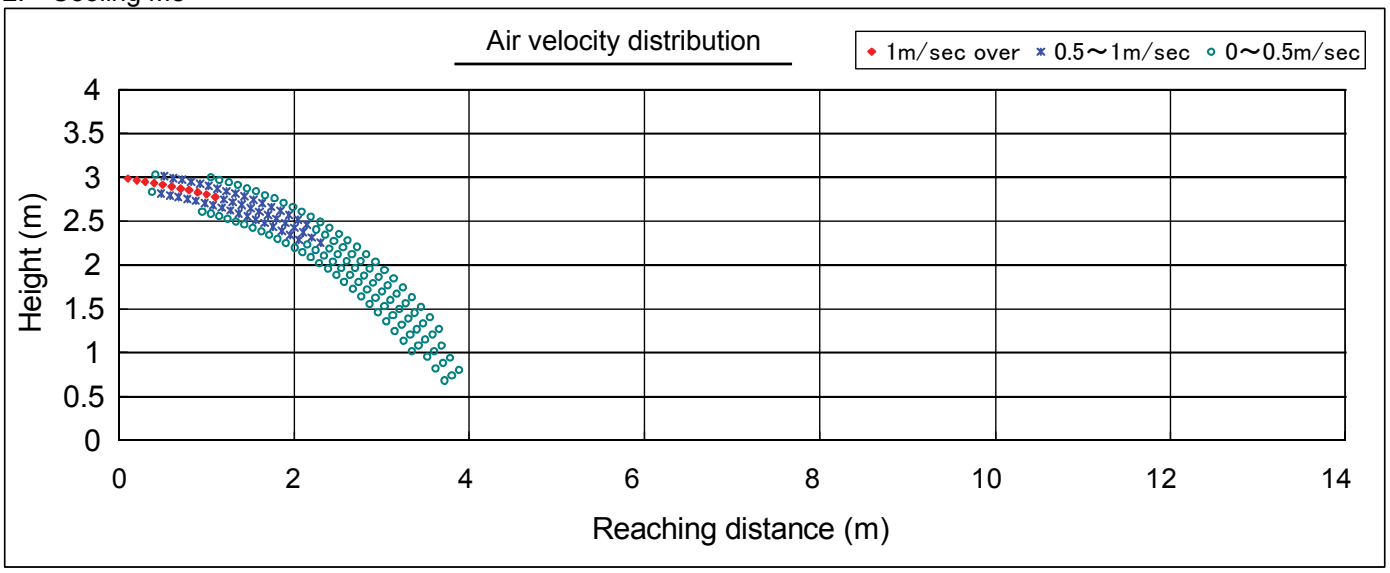


S-28YA1E5
Airflow direction：20°

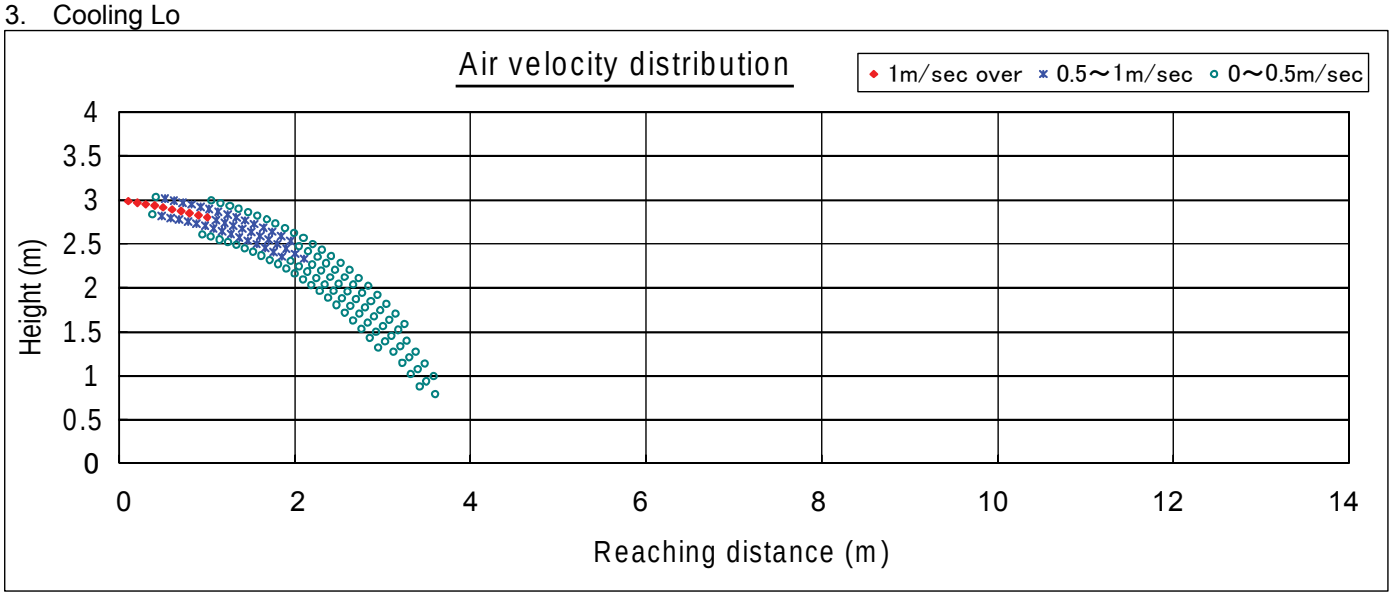
1. Cooling Hi



2. Cooling Me

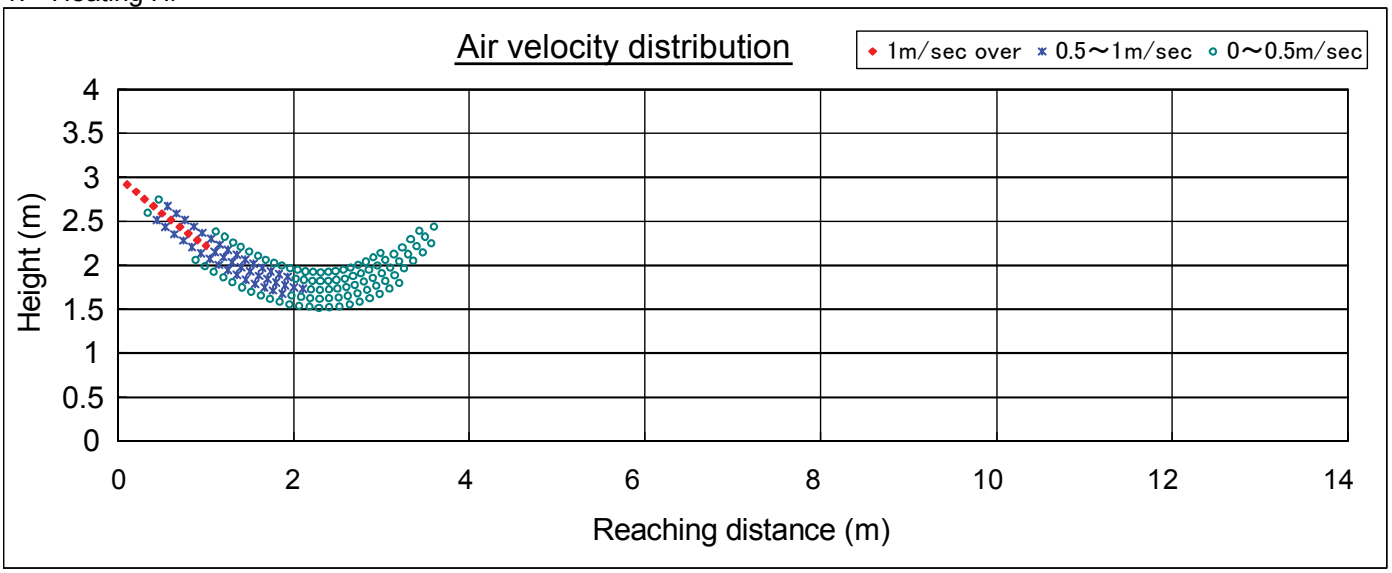


3. Cooling Lo

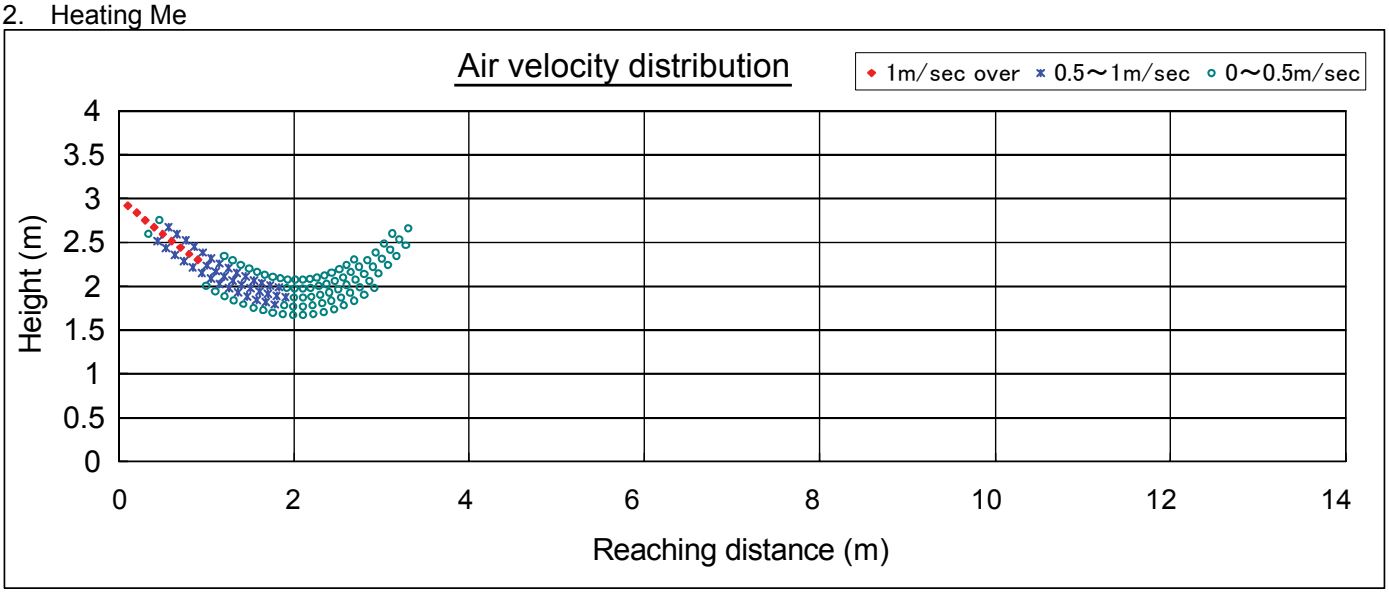


Airflow direction：70°

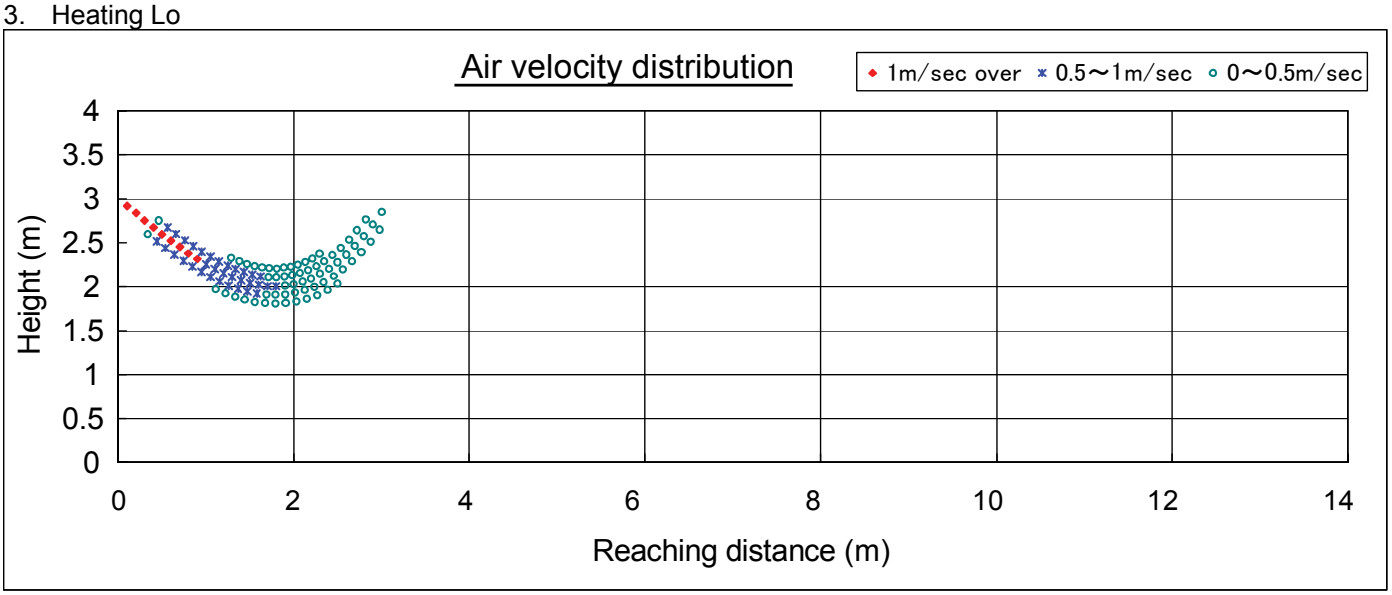
1. Heating Hi



2. Heating Me

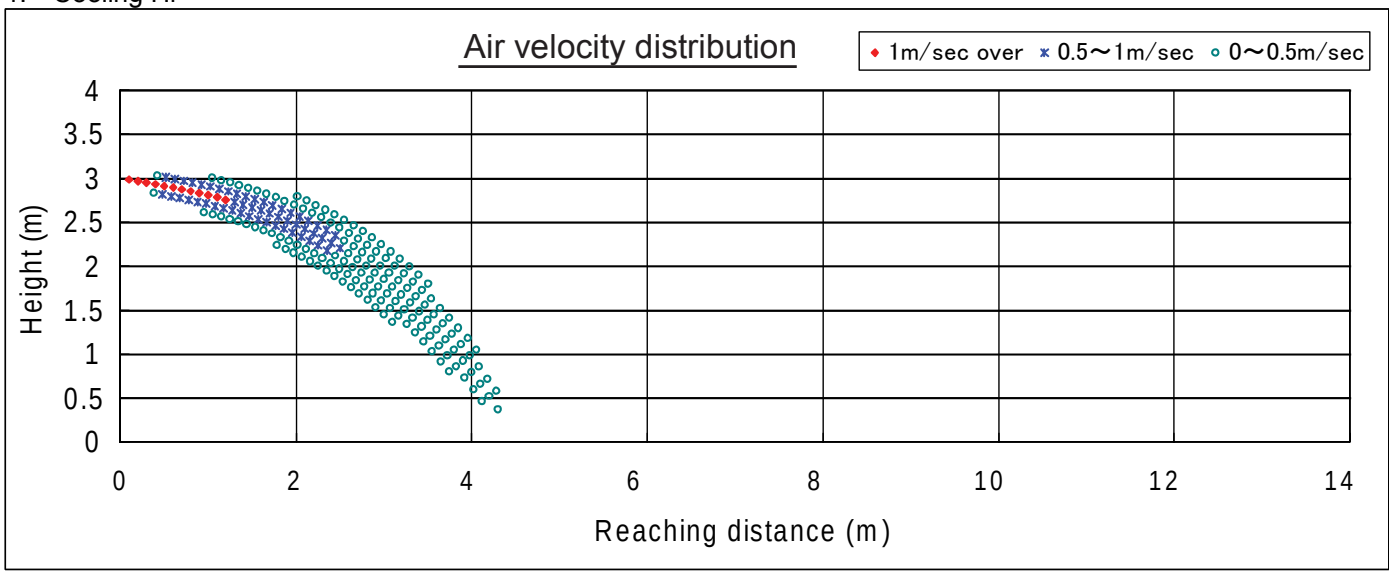


3. Heating Lo

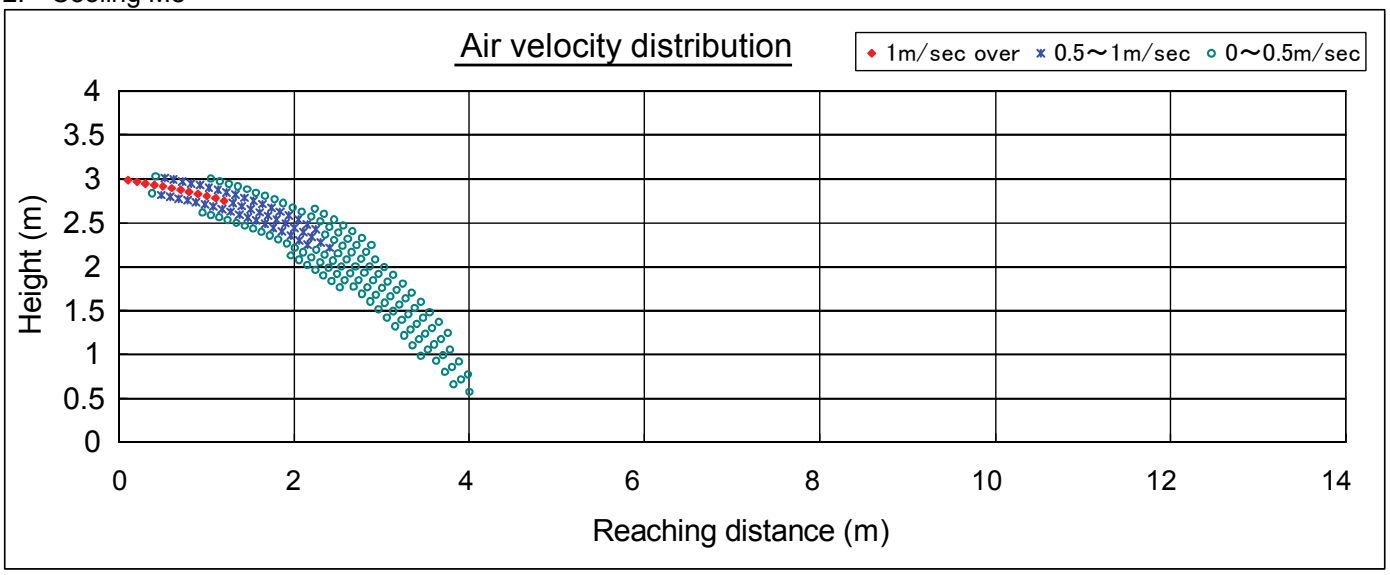


S-36YA1E5
Airflow direction：20°

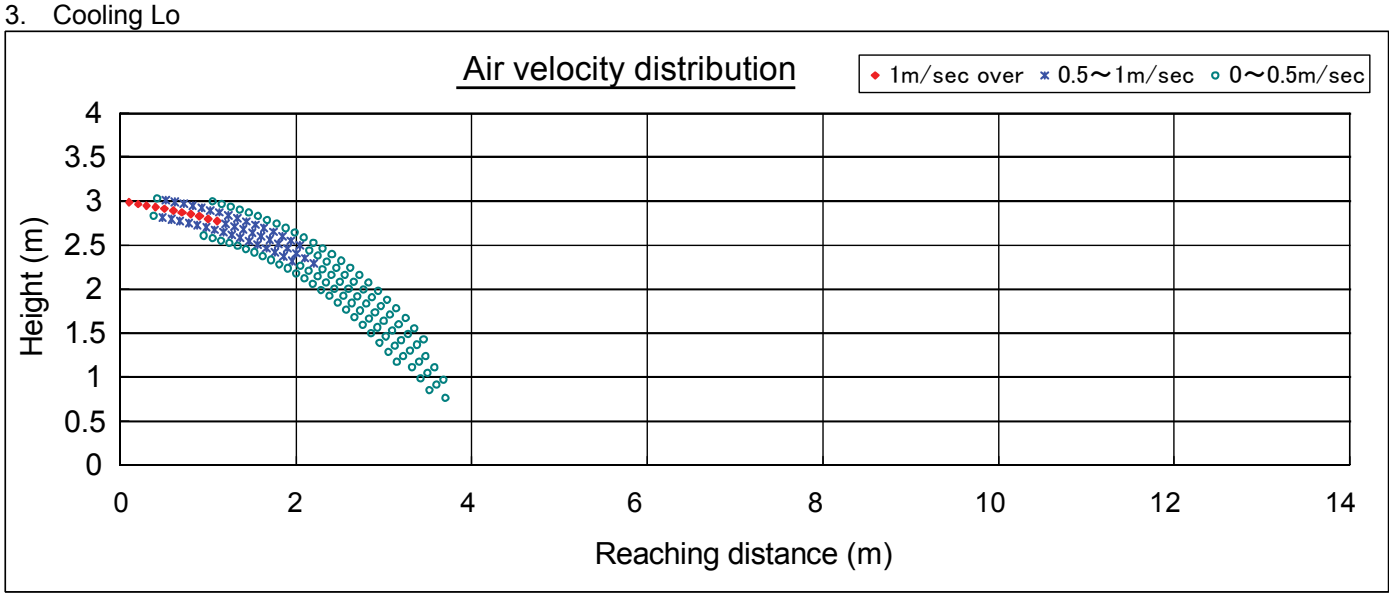
1. Cooling Hi



2. Cooling Me

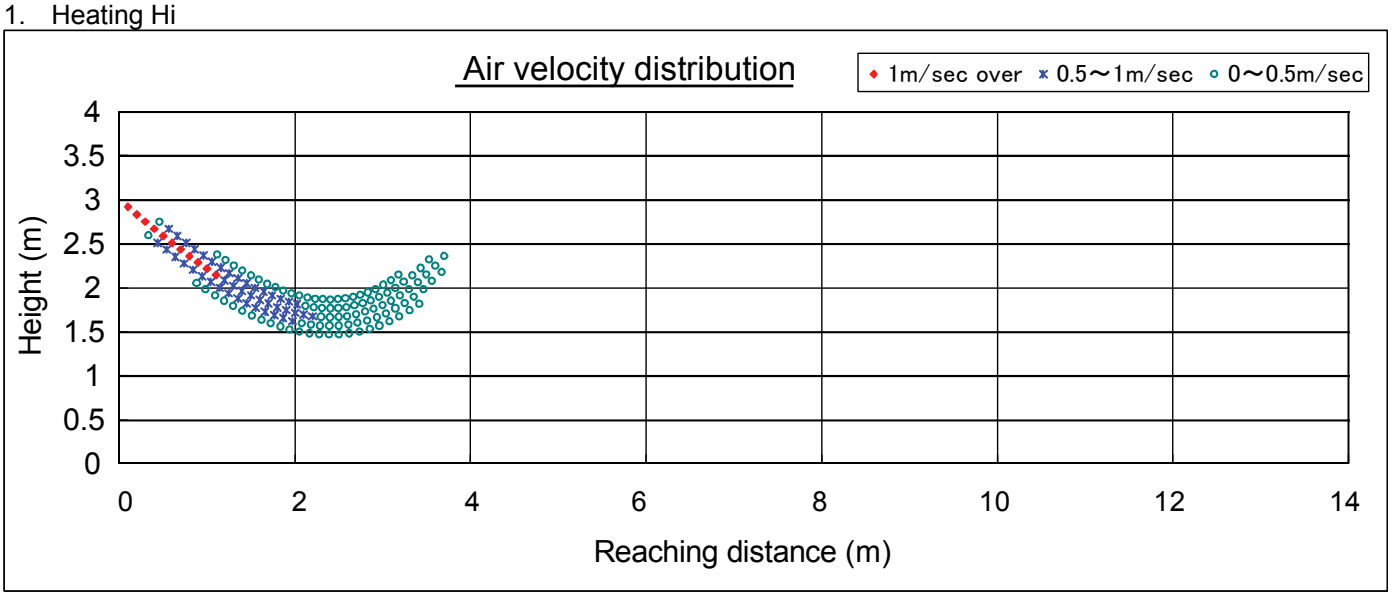


3. Cooling Lo

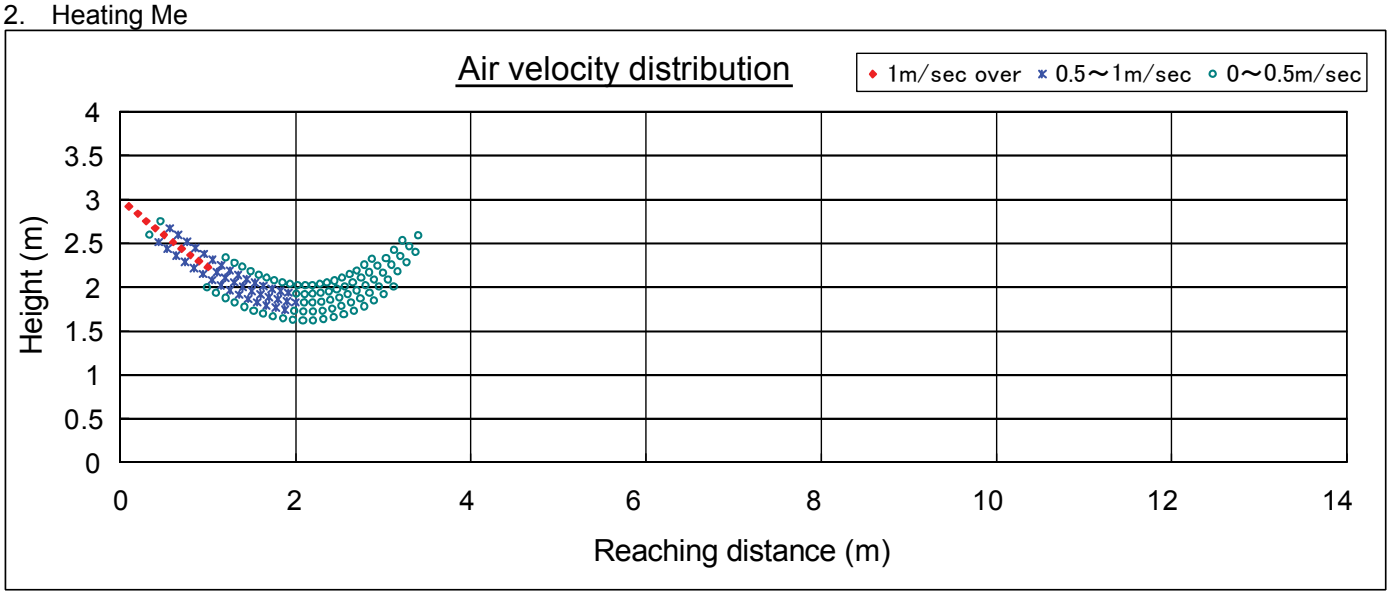


Airflow direction：70°

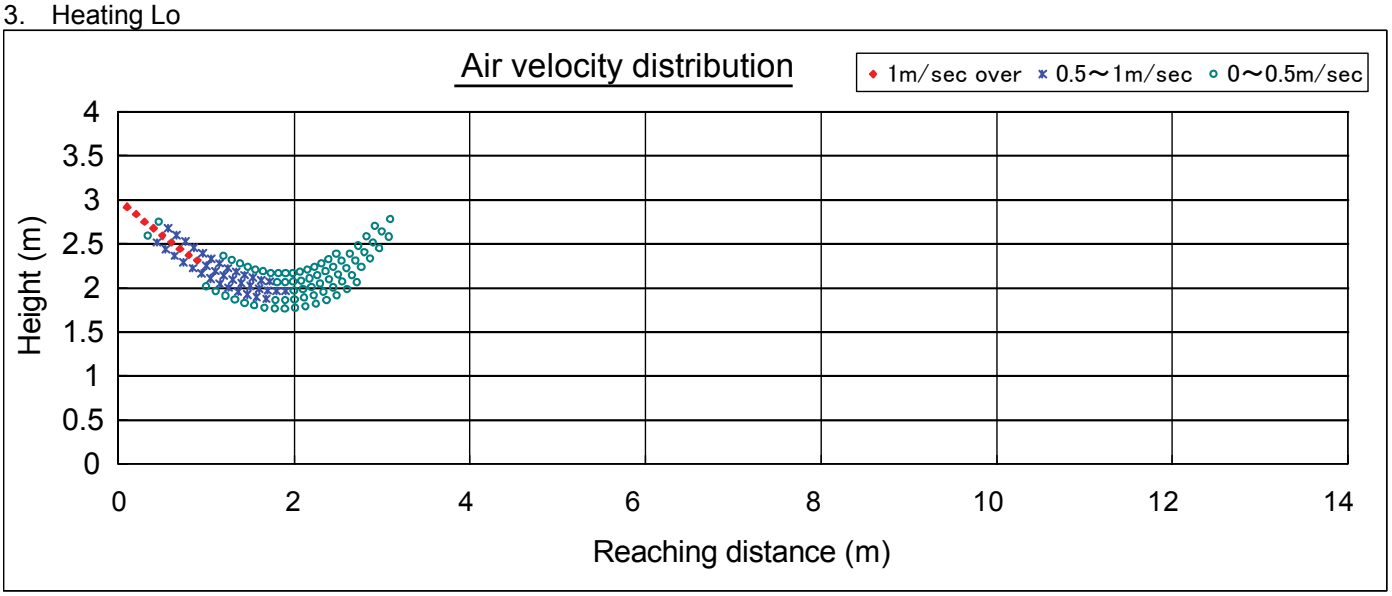
1. Heating Hi



2. Heating Me

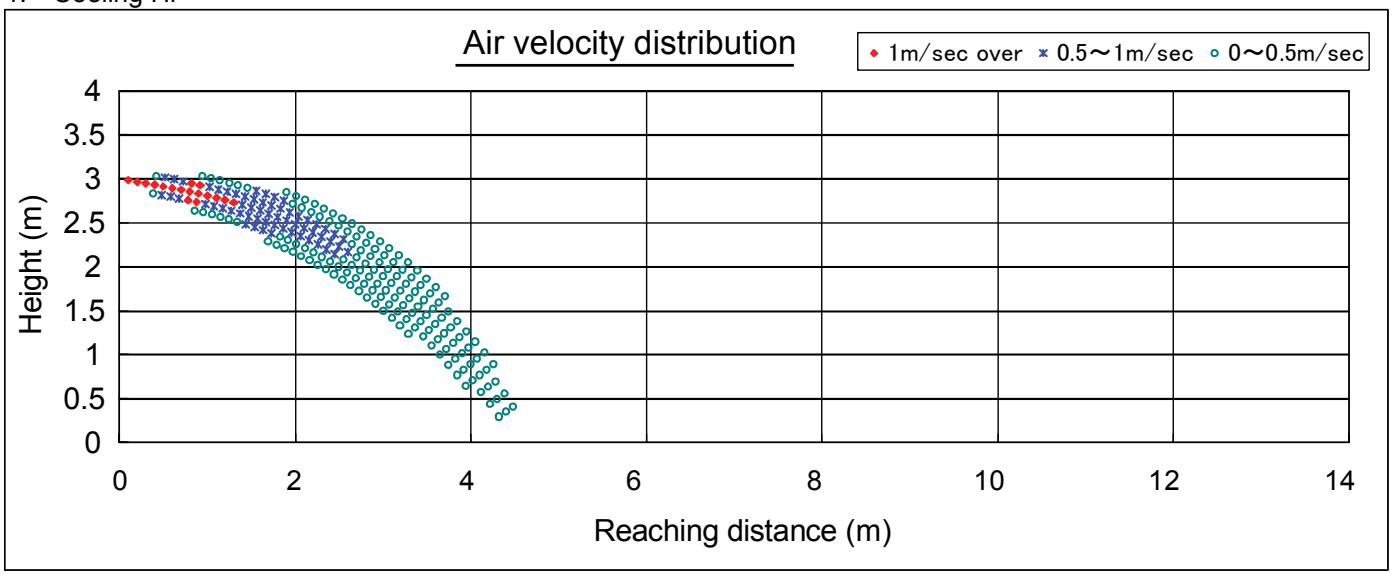


3. Heating Lo

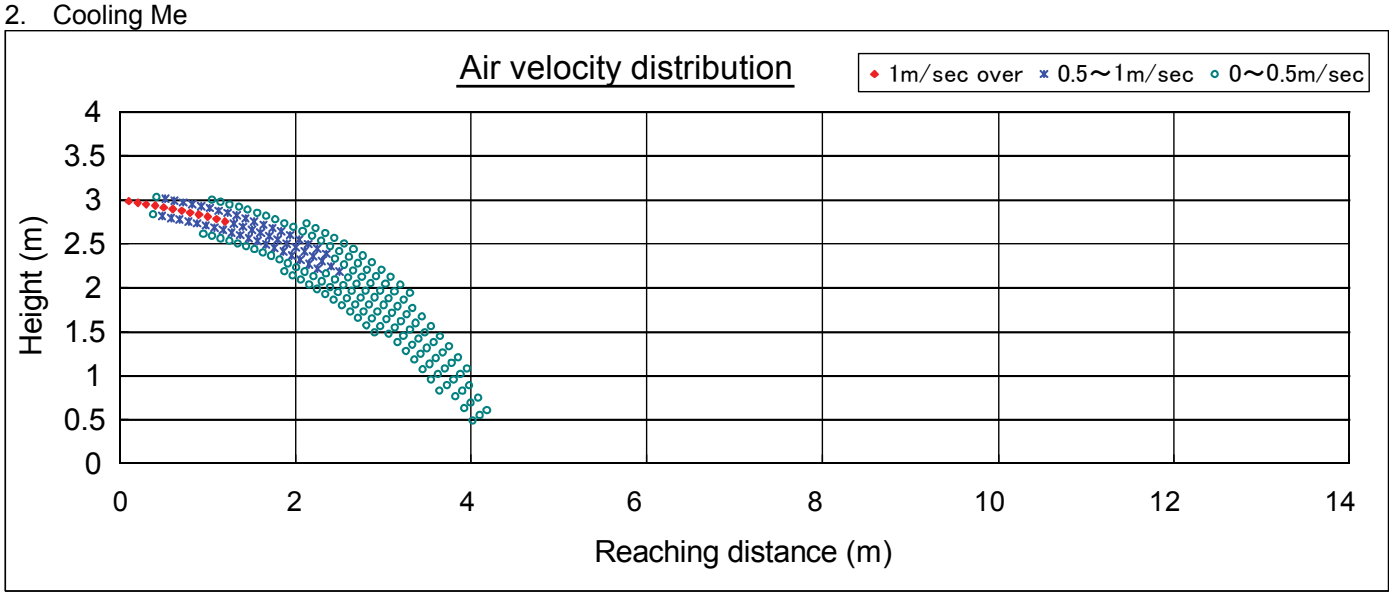


S-45YA1E5
Airflow direction：20°

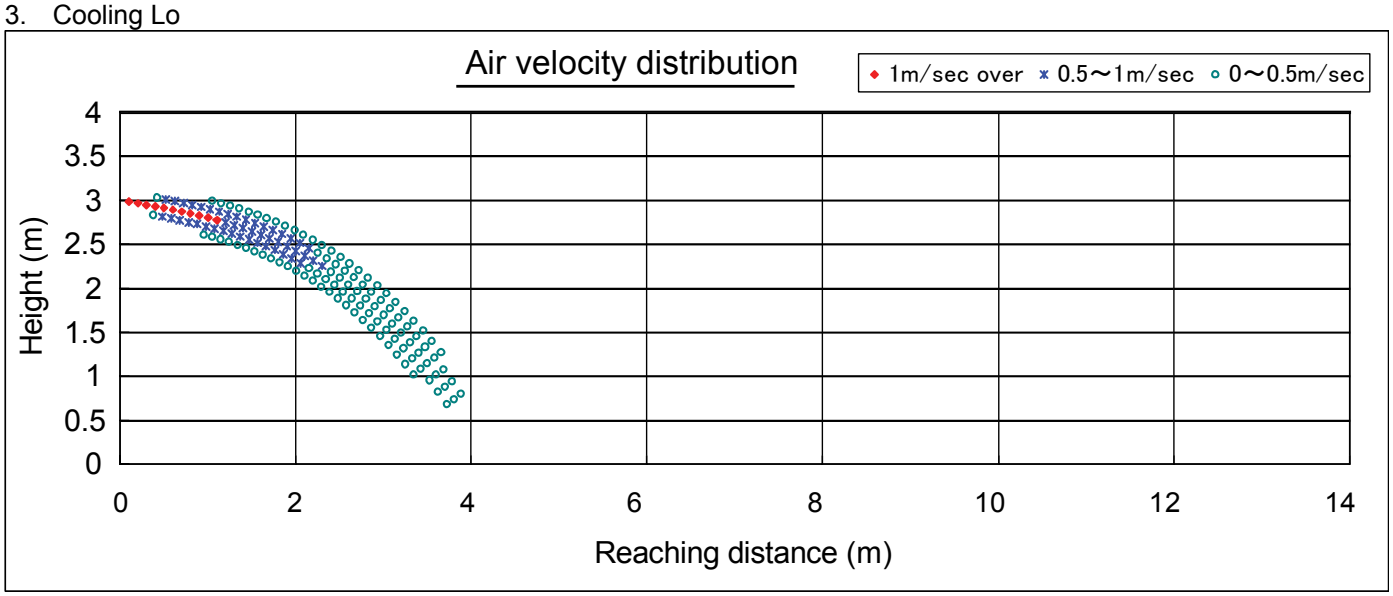
1. Cooling Hi



2. Cooling Me

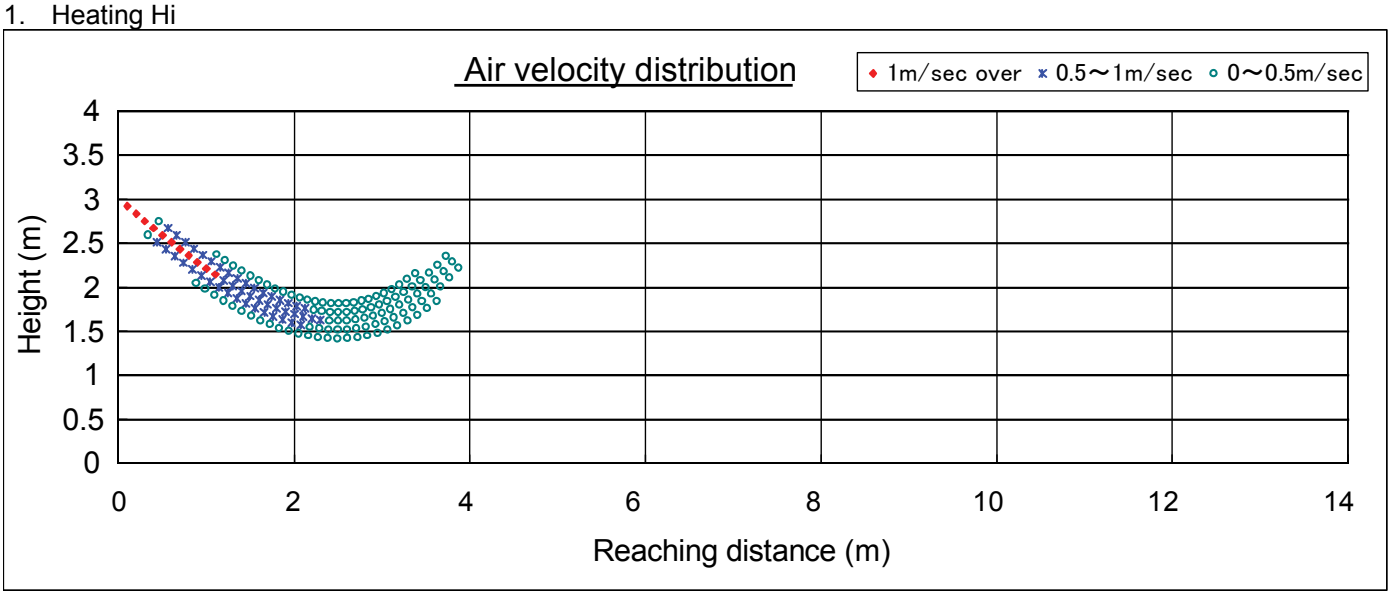


3. Cooling Lo

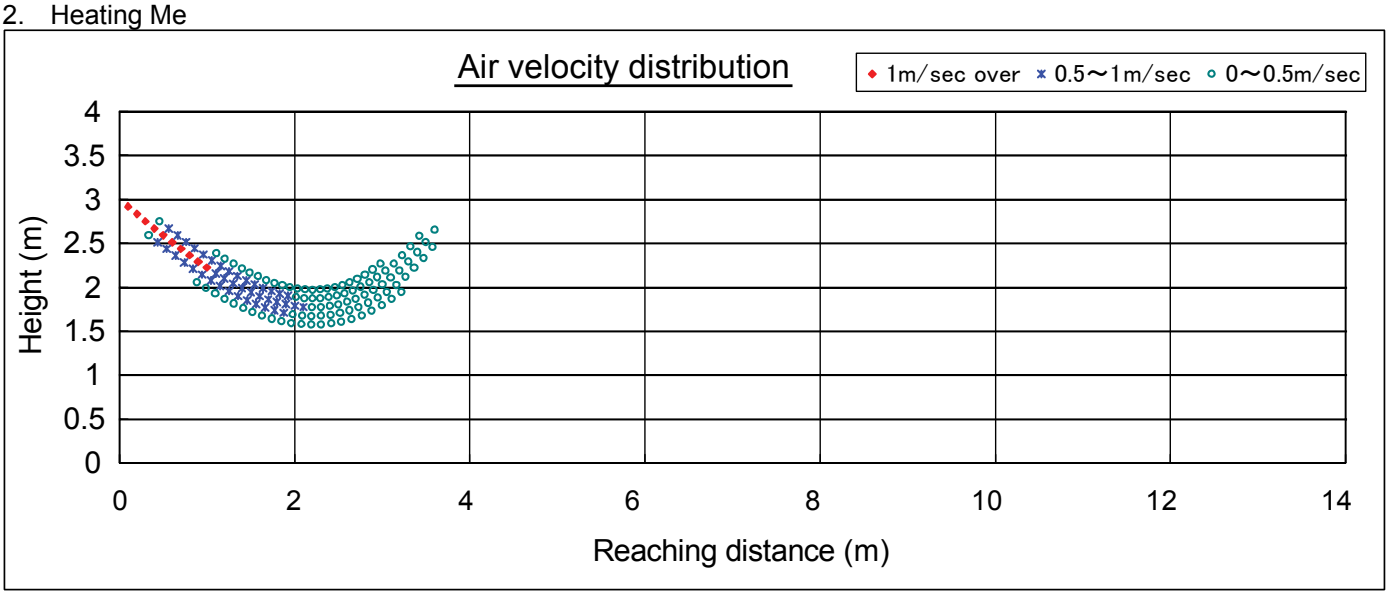


Airflow direction：70°

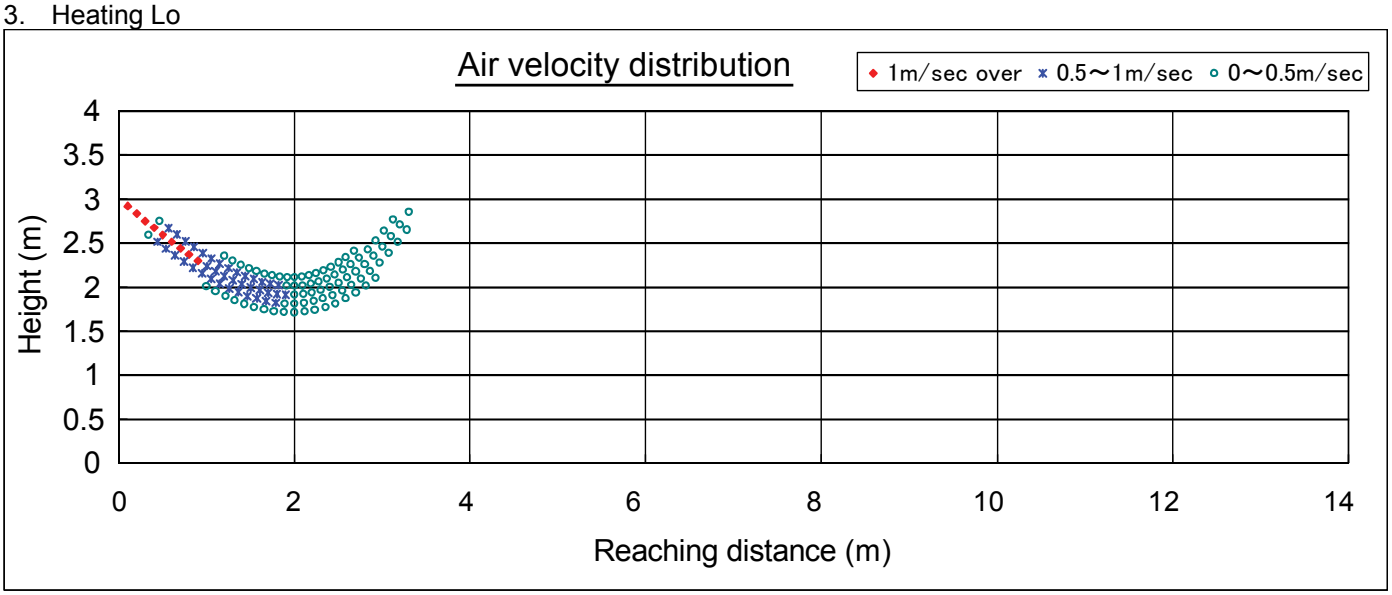
1. Heating Hi



2. Heating Me

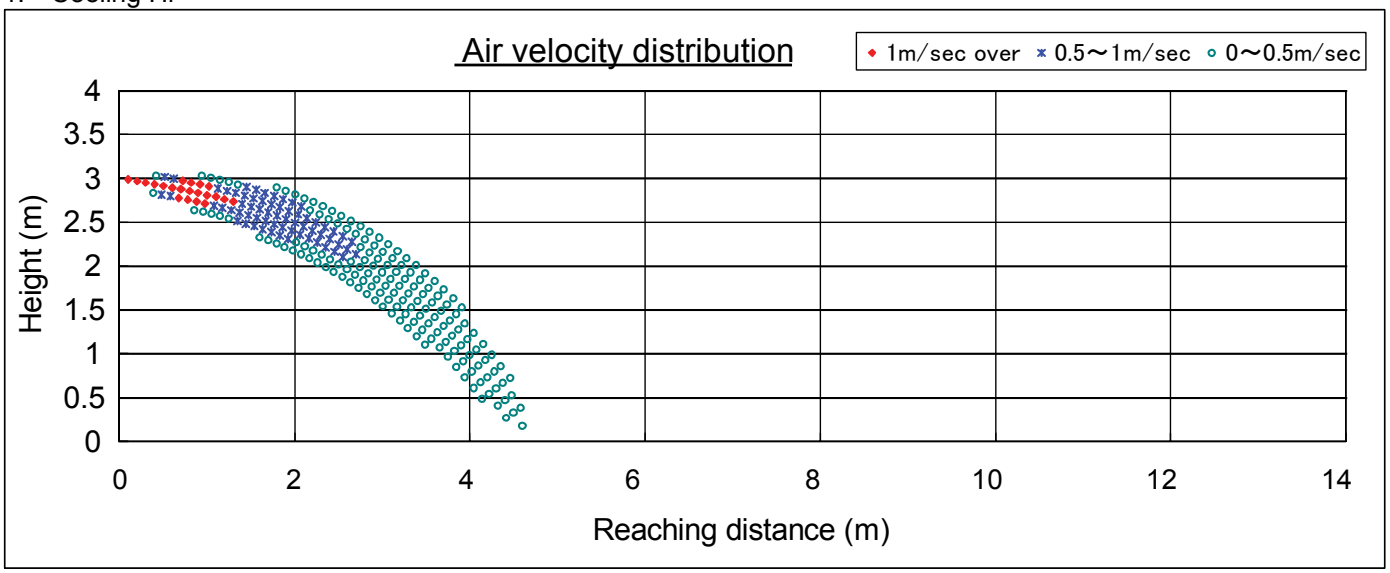


3. Heating Lo

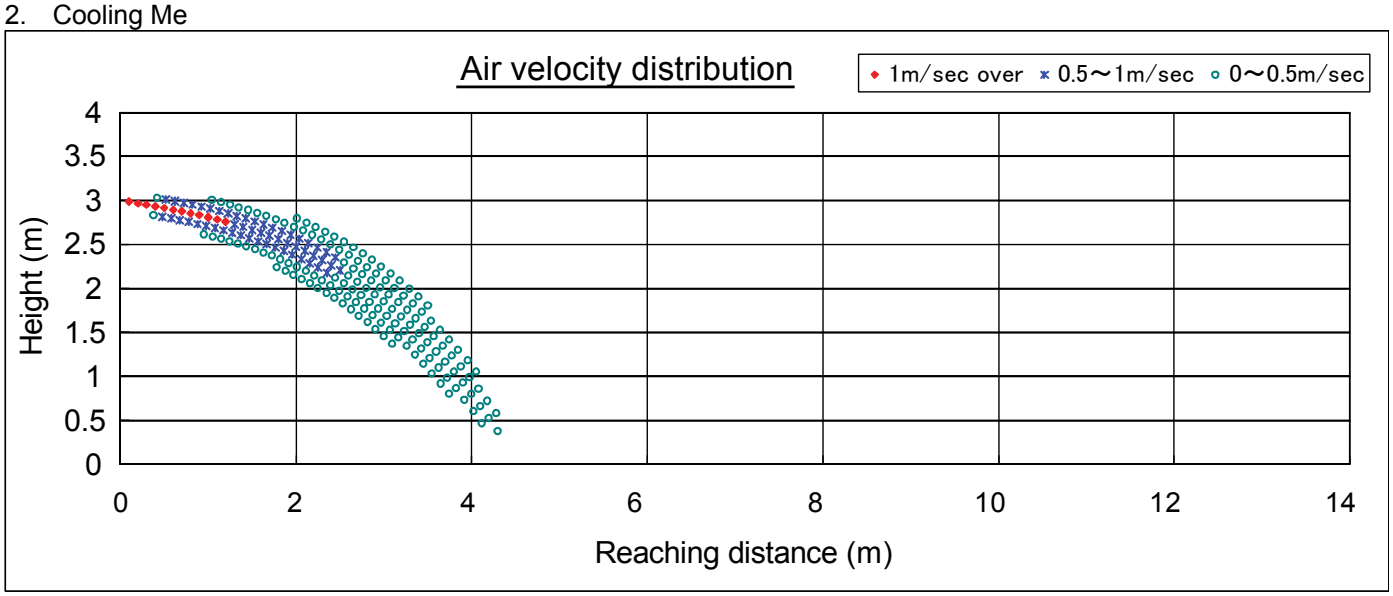


S-56YA1E5
Airflow direction：20°

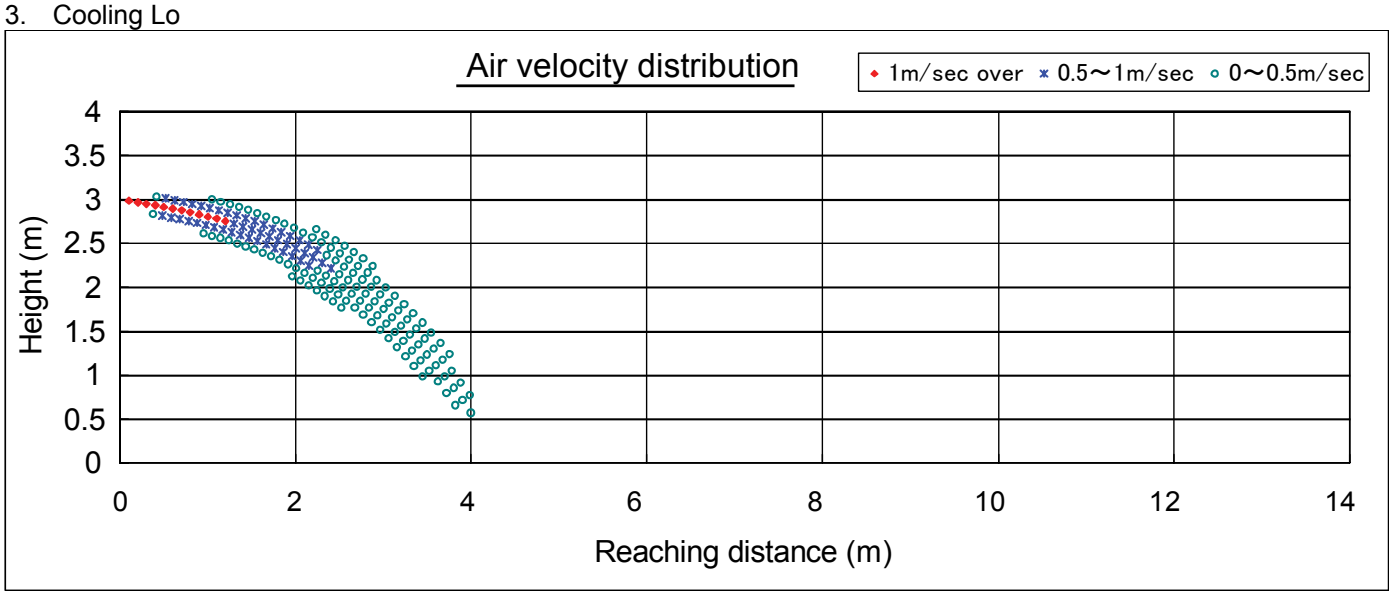
1. Cooling Hi



2. Cooling Me

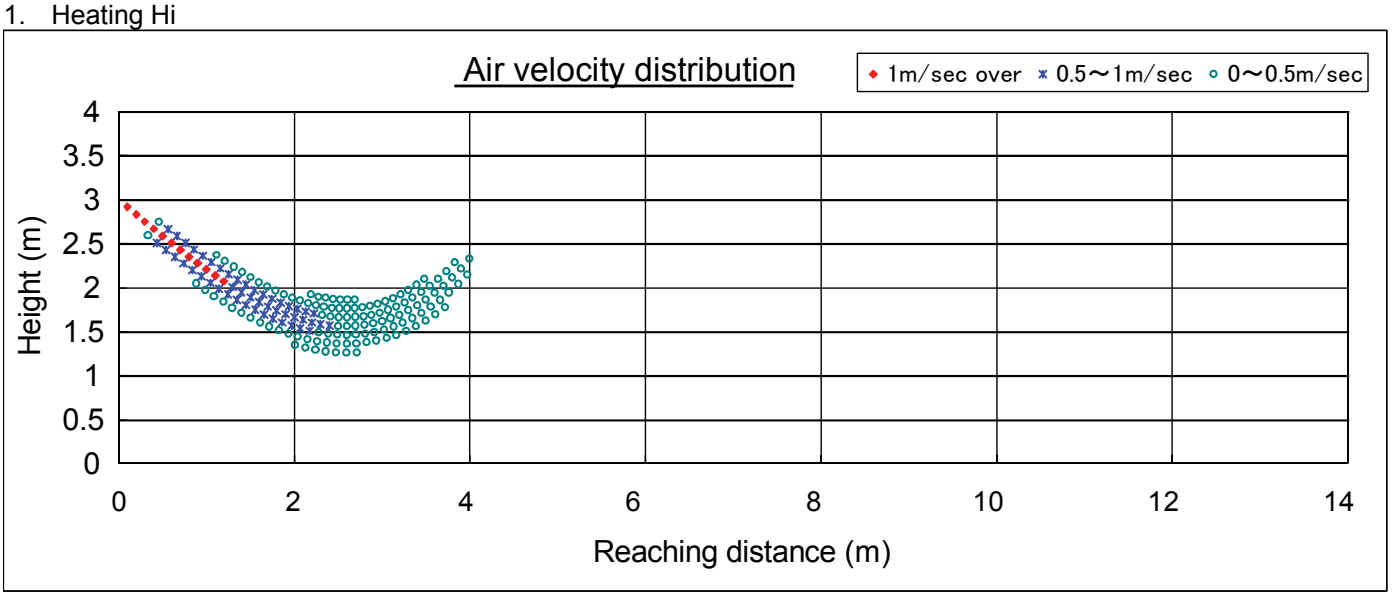


3. Cooling Lo

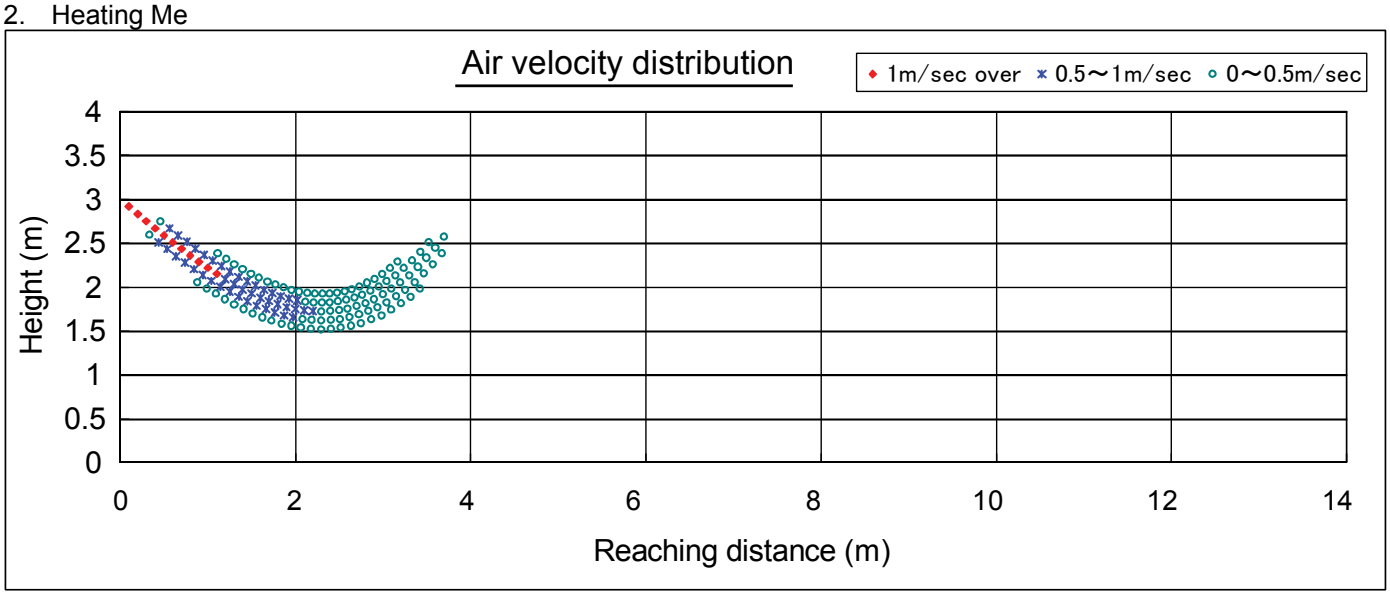


Airflow direction：70°

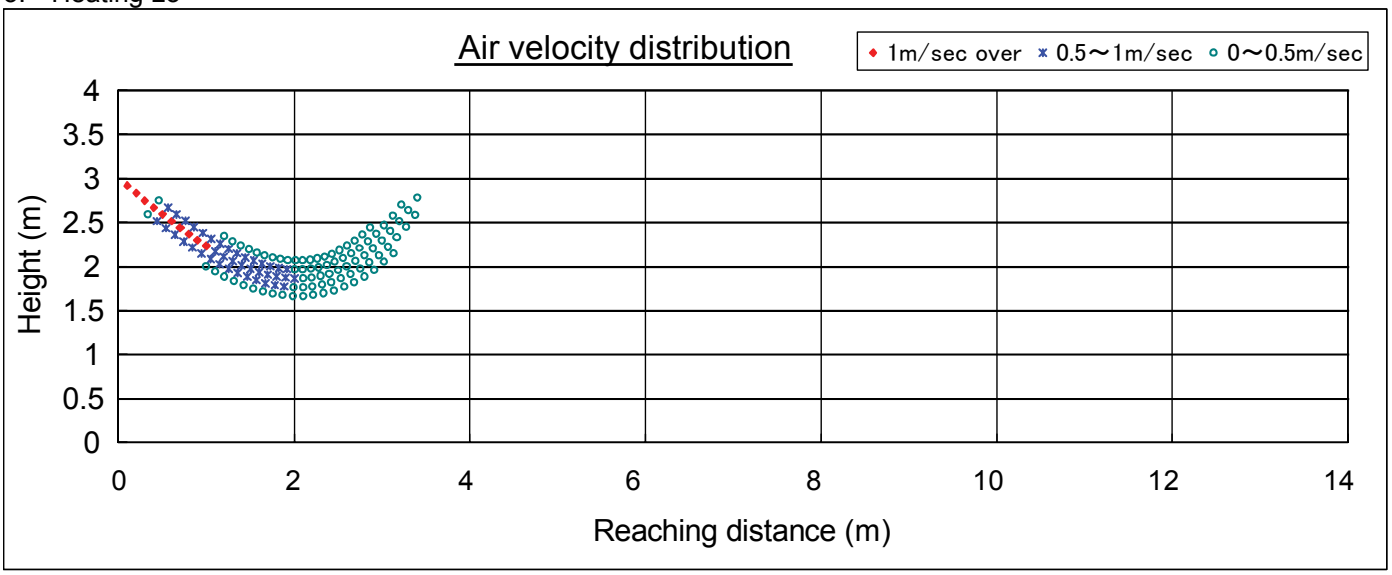
1. Heating Hi



2. Heating Me



3. Heating Lo

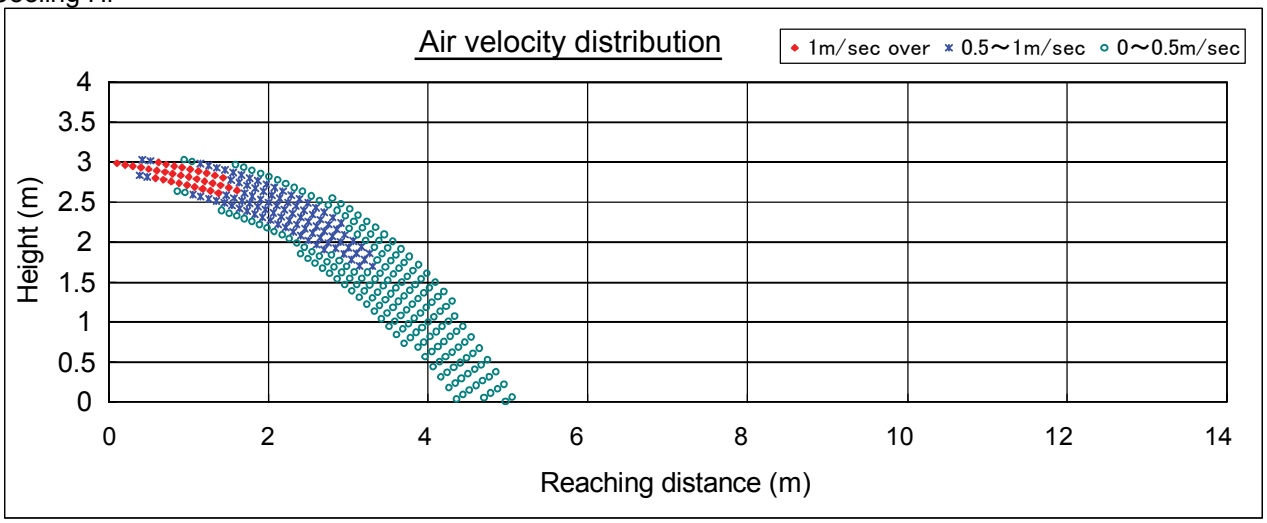


26.3 95 x 95 Cassette Type Indoor Unit – UA1E5 Series

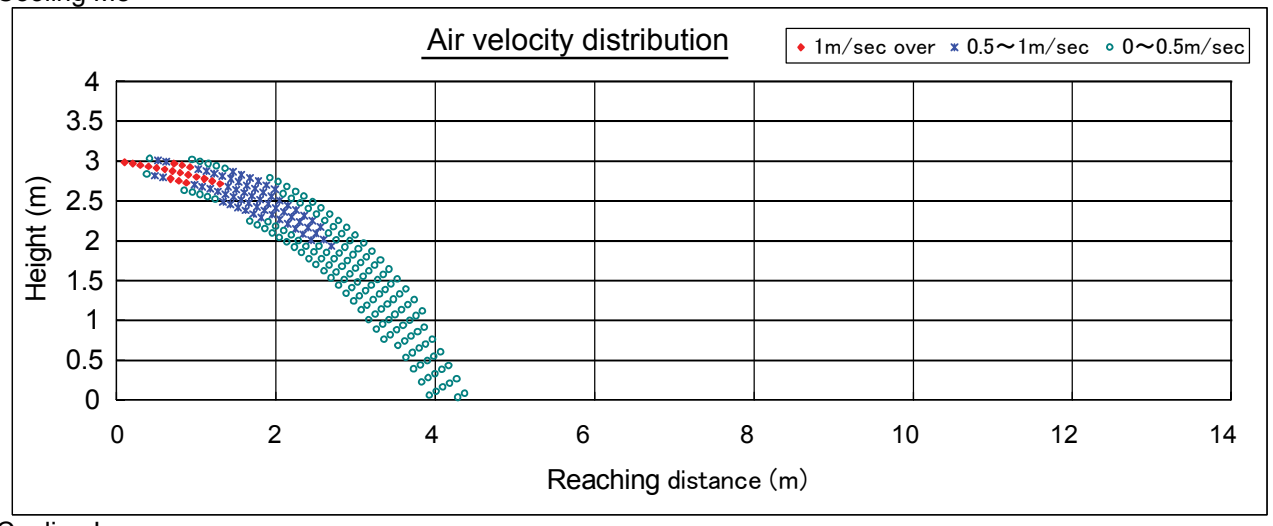
			S-63UA1E5	S-71UA1E5	S-90UA1E5	S-100UA1E5	S-125UA1E5
Cooling/ Heating	Hi	m^3/min	21.0	22.0	22.0	30.0	30.0
	Me	m^3/min	19.0	20.0	20.0	26.0	26.0
	Lo	m^3/min	17.0	18.0	18.0	22.0	22.0

S-63UA1E5
Airflow direction：20°

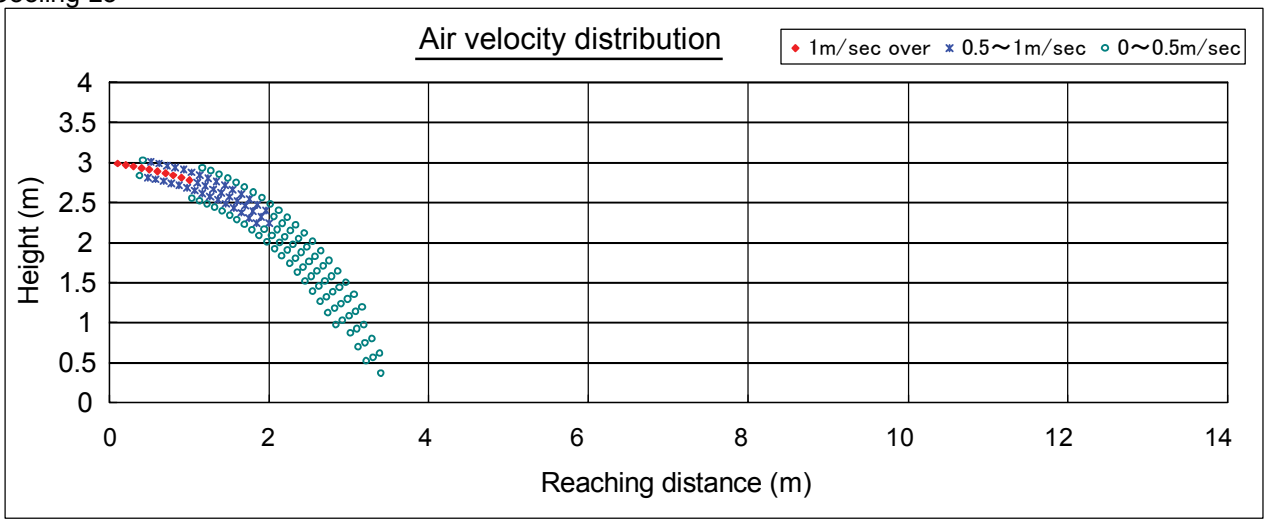
1. Cooling Hi



2. Cooling Me

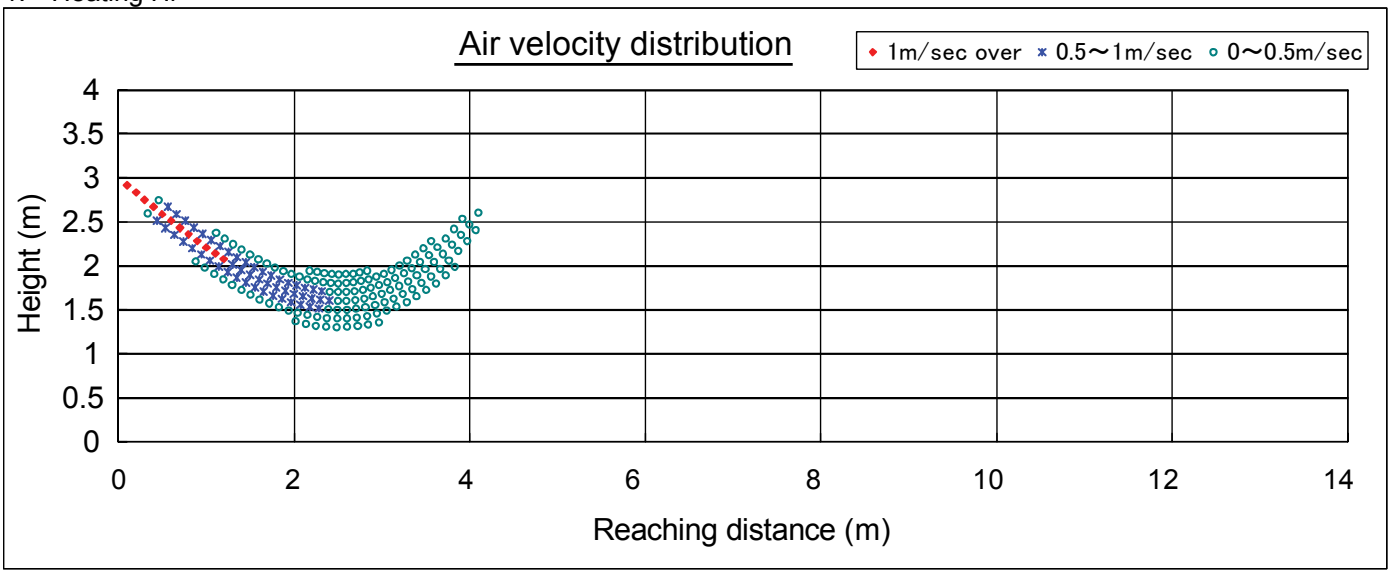


3. Cooling Lo

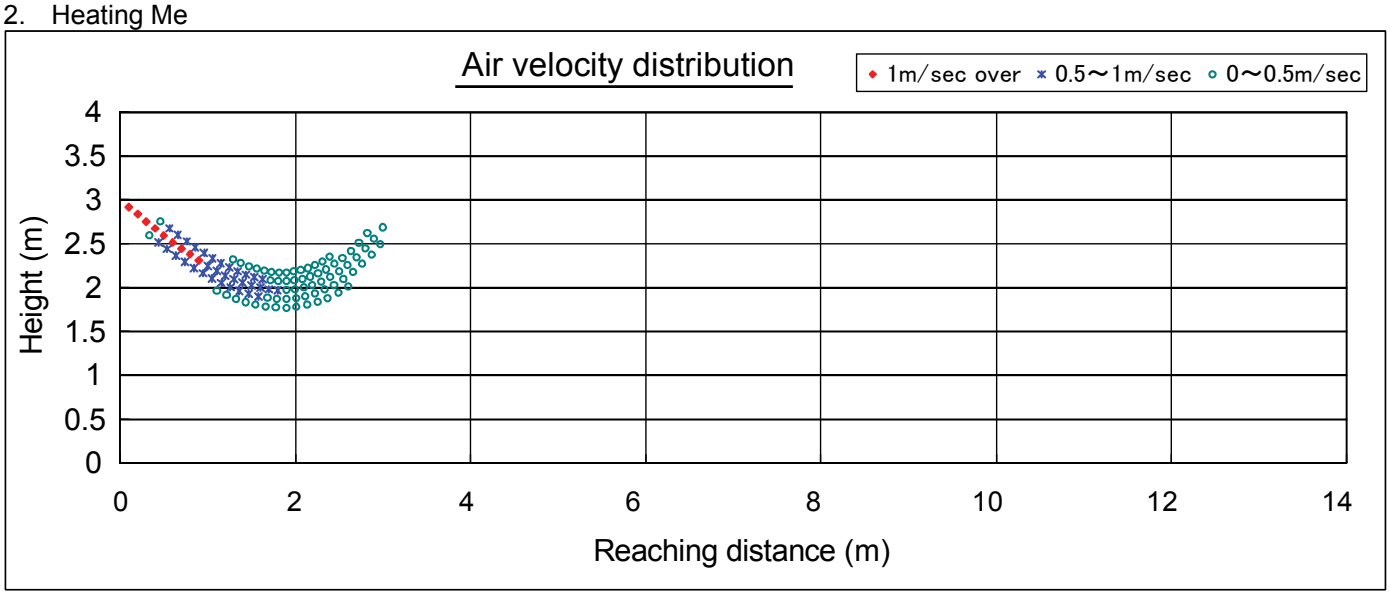


Airflow direction：70°

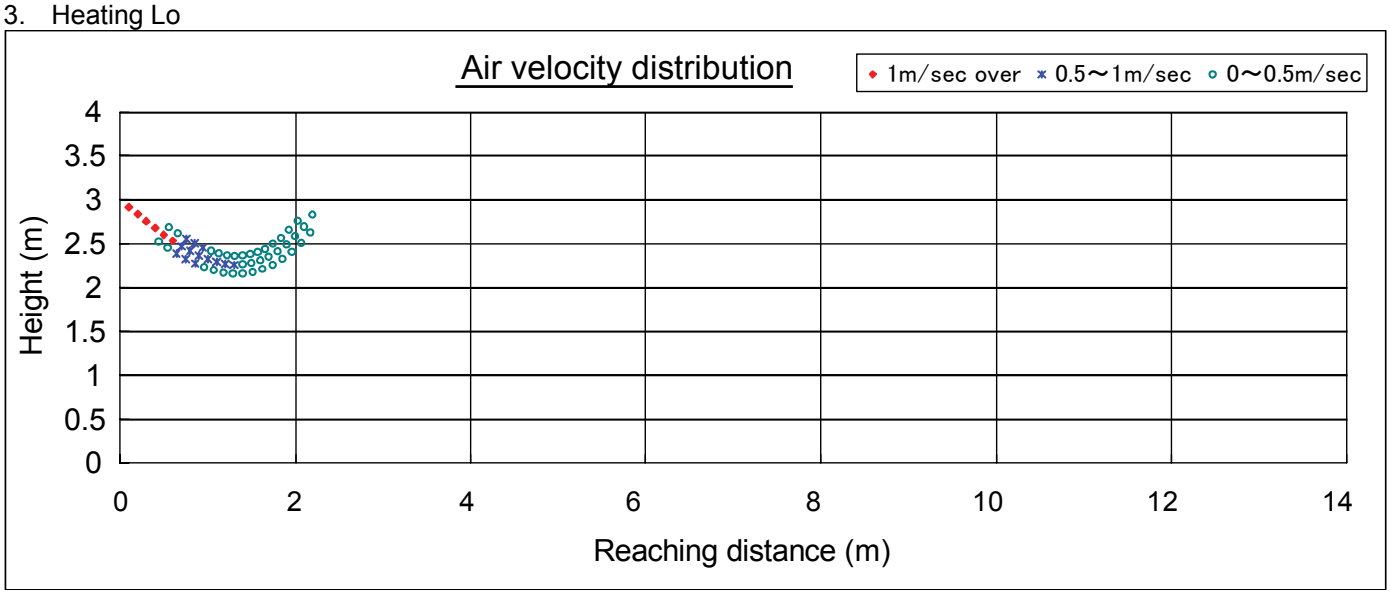
1. Heating Hi



2. Heating Me

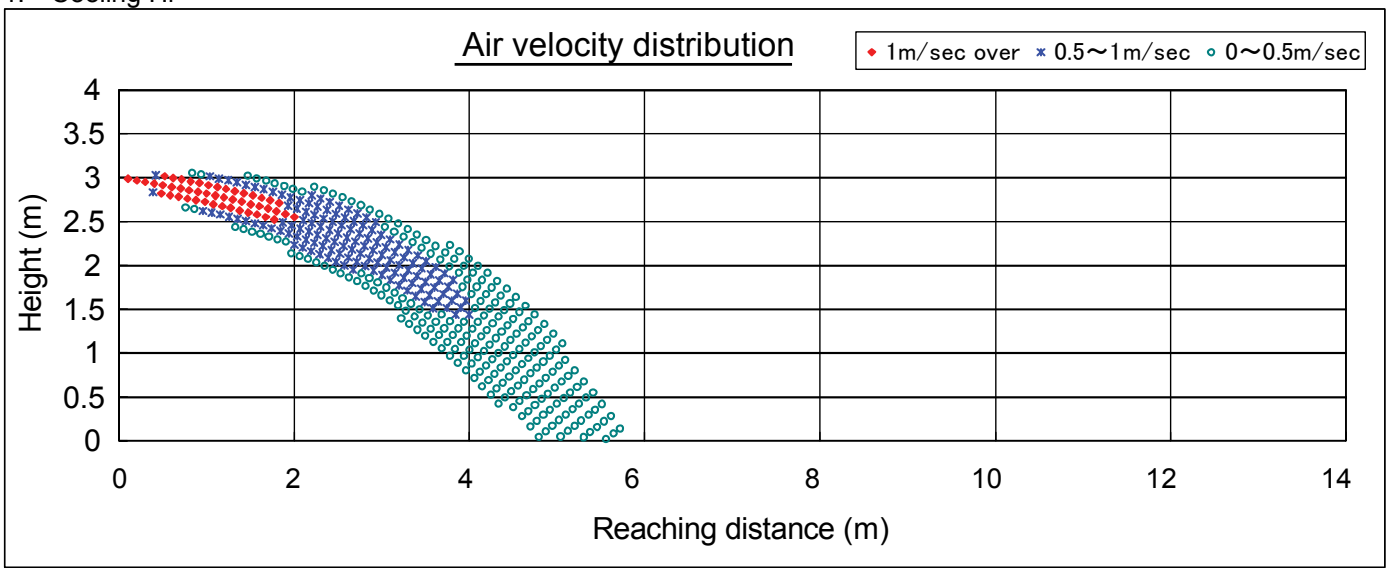


3. Heating Lo

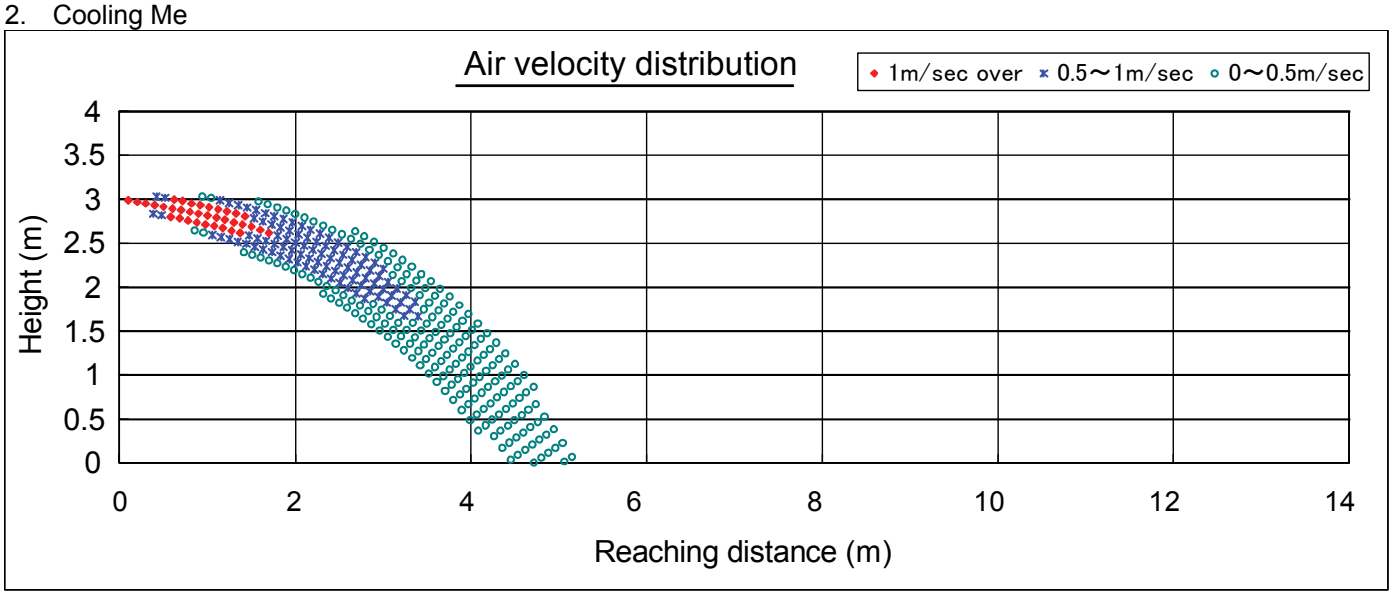


S-71UA1E5
Airflow direction：20°

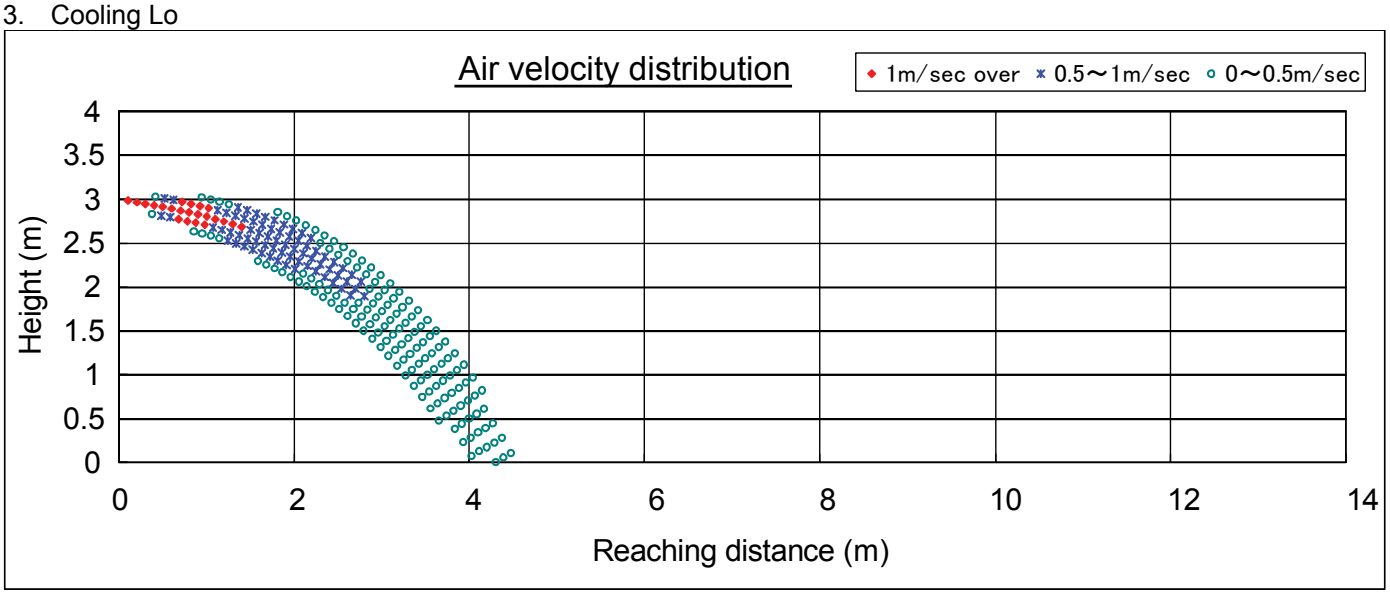
1. Cooling Hi



2. Cooling Me

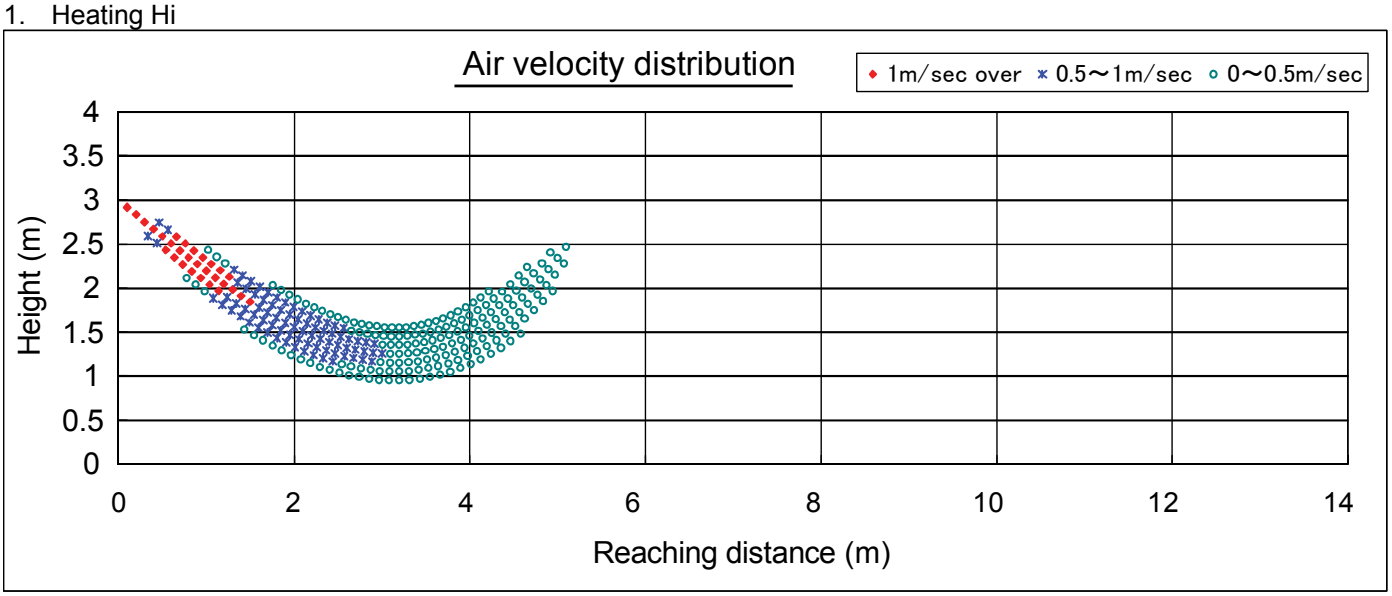


3. Cooling Lo

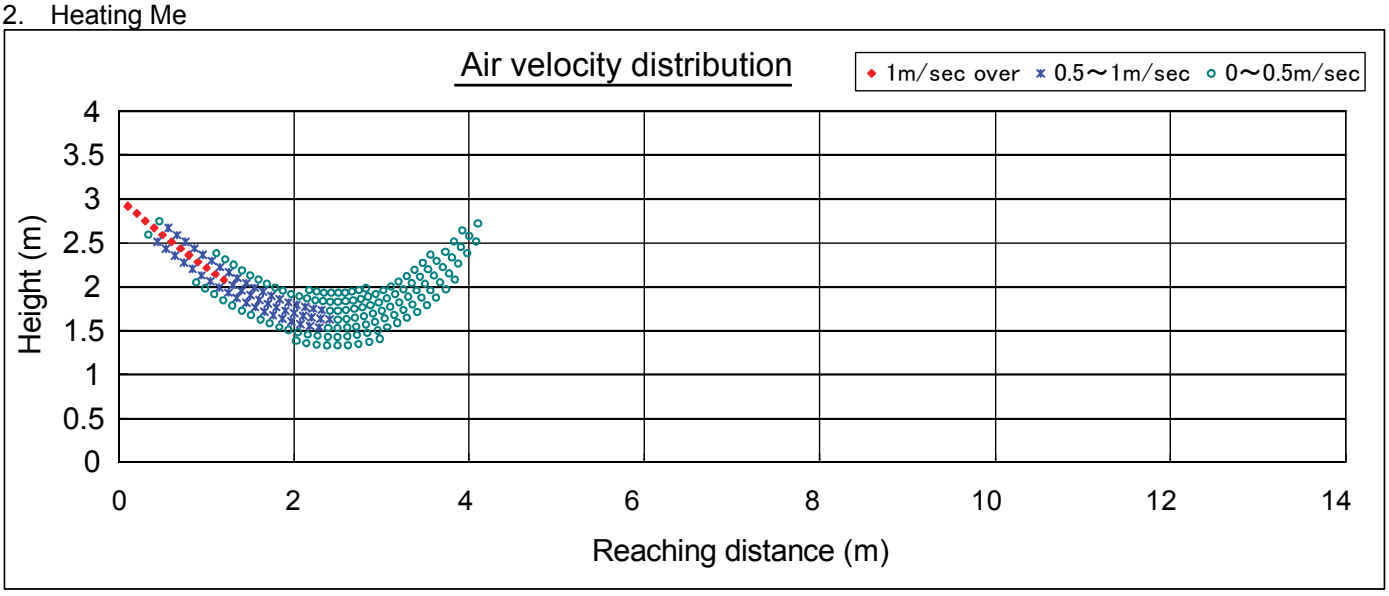


Airflow direction：70°

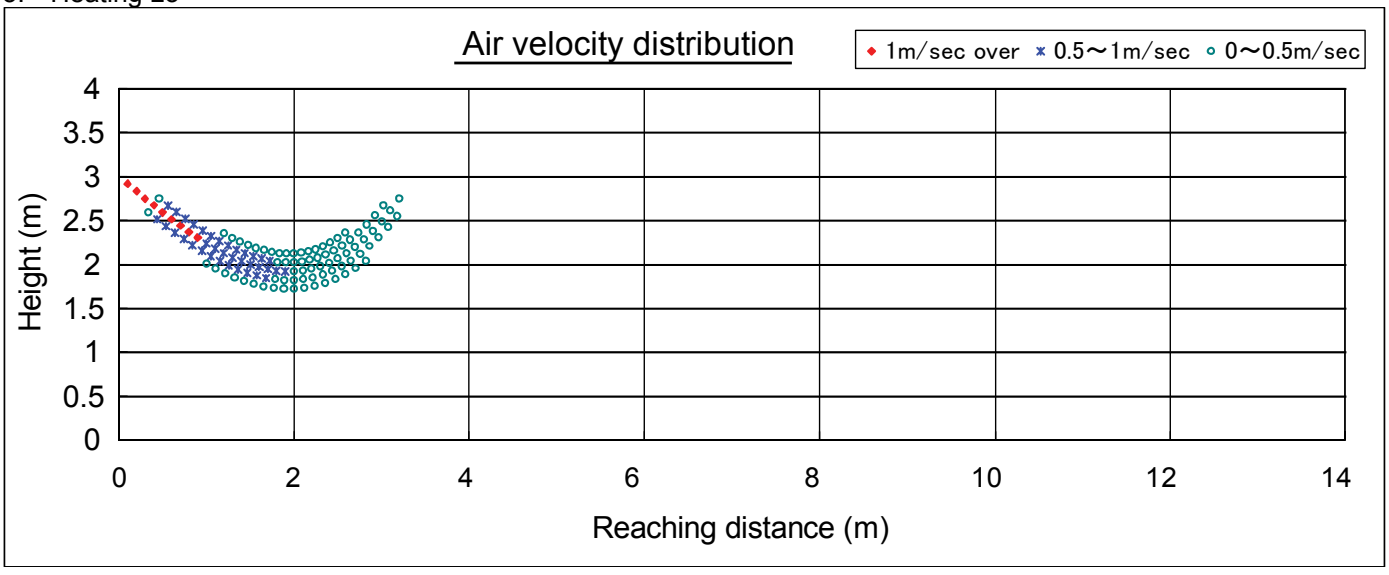
1. Heating Hi



2. Heating Me

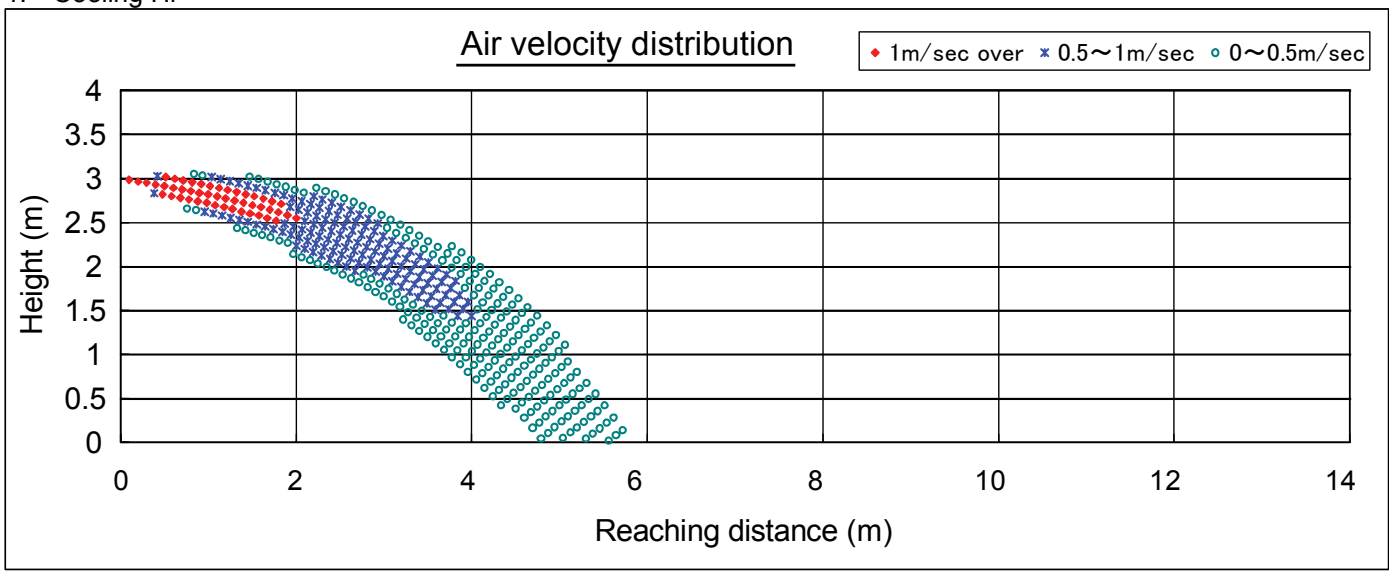


3. Heating Lo

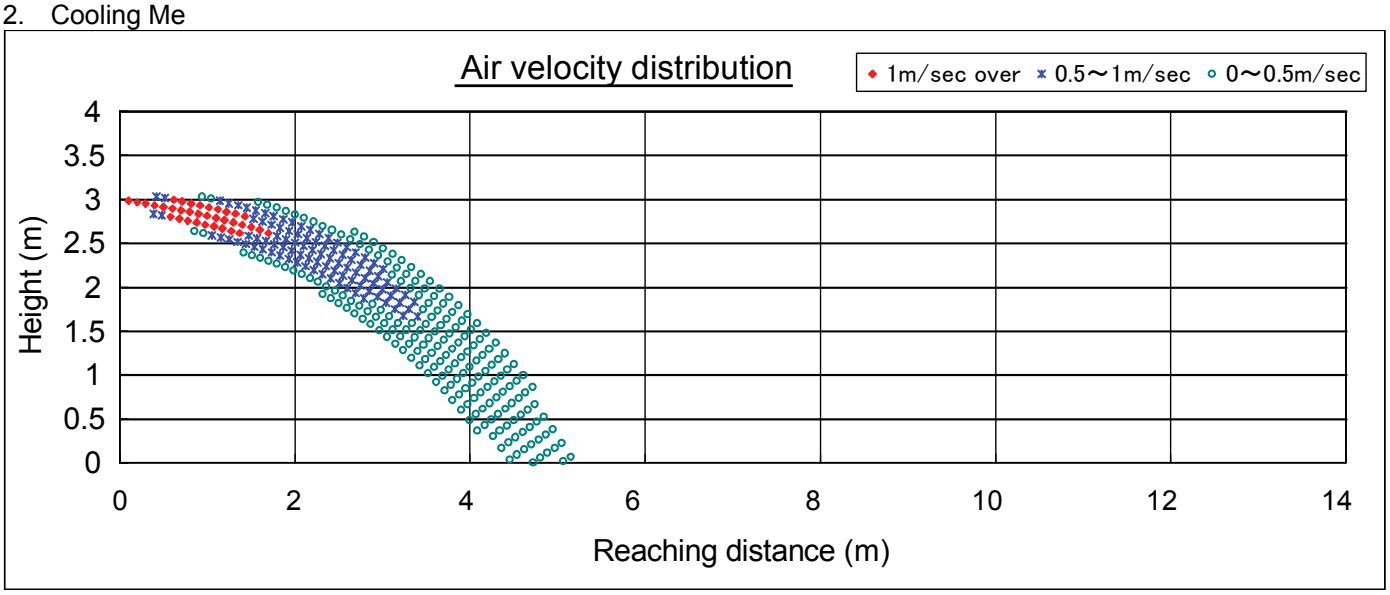


S-90UA1E5
Airflow direction：20°

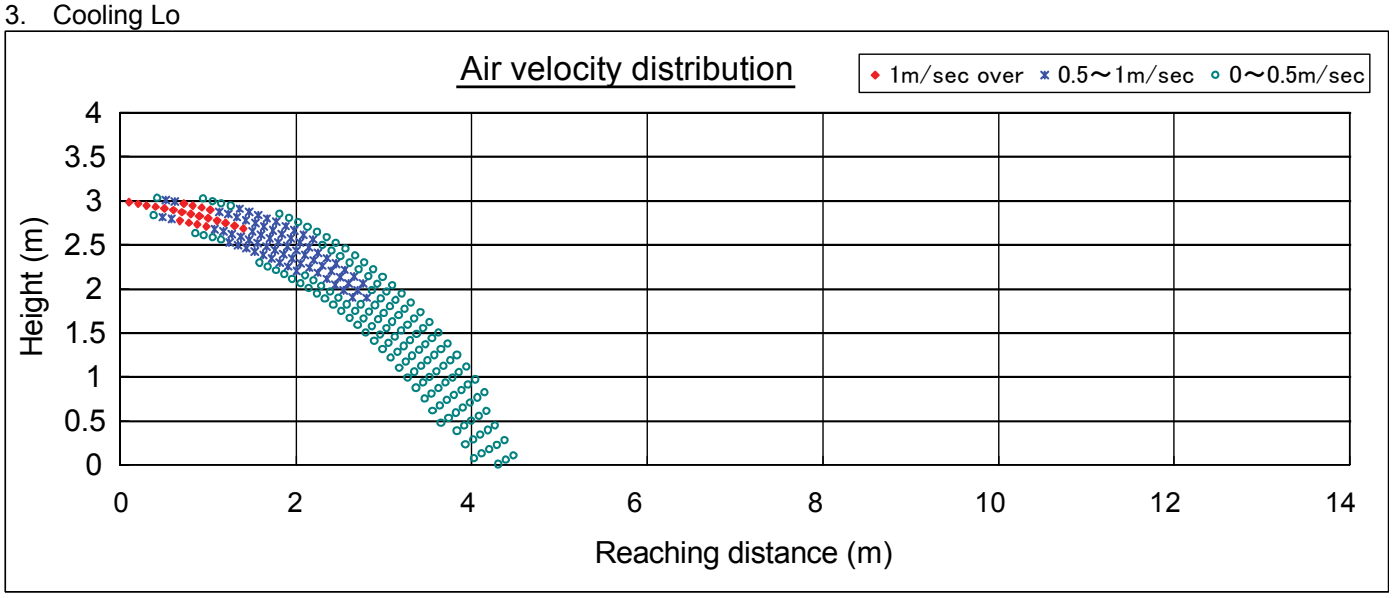
1. Cooling Hi



2. Cooling Me

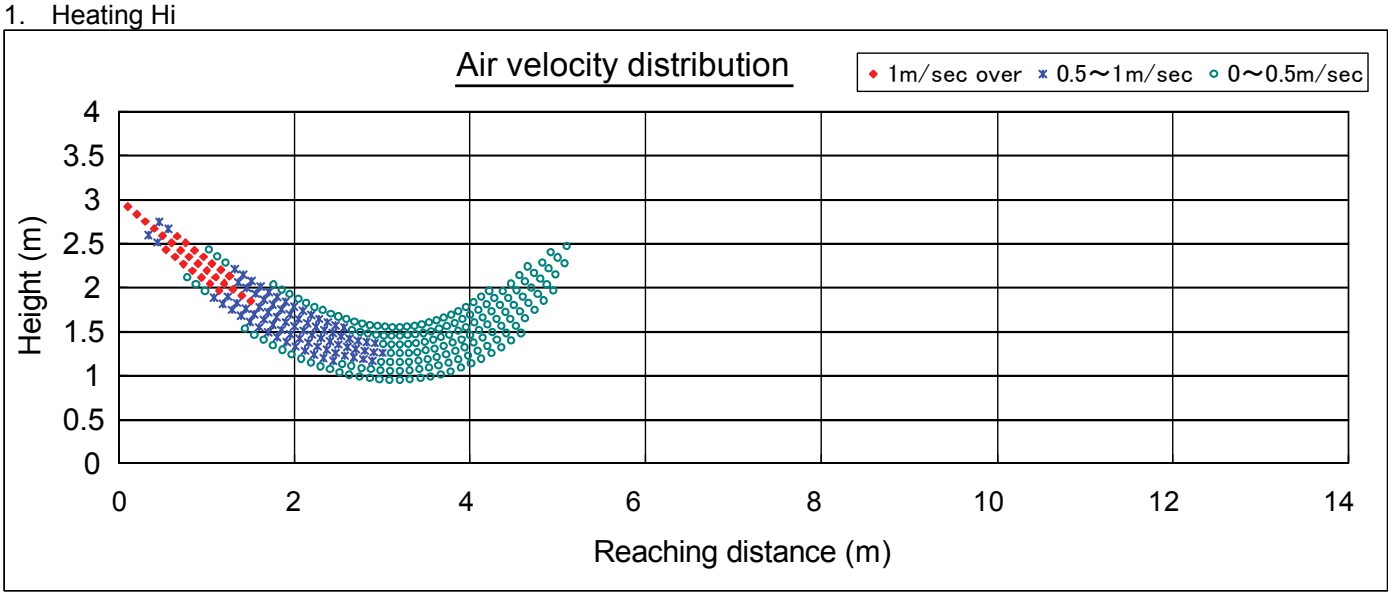


3. Cooling Lo

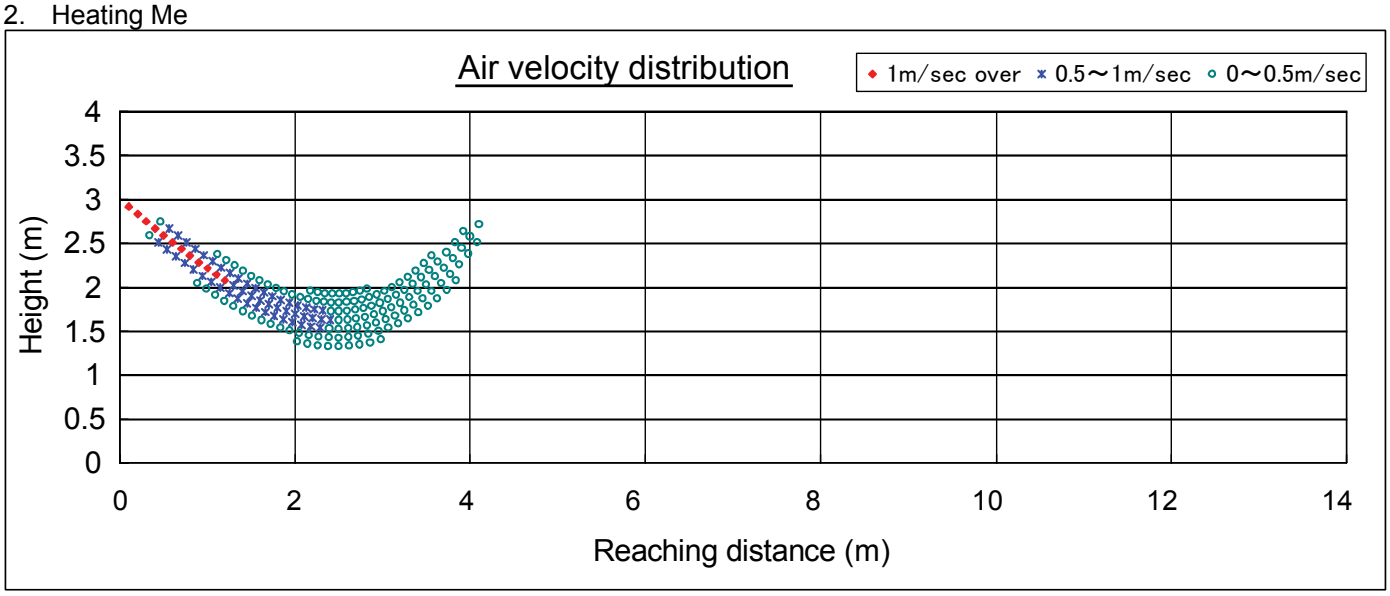


Airflow direction：70°

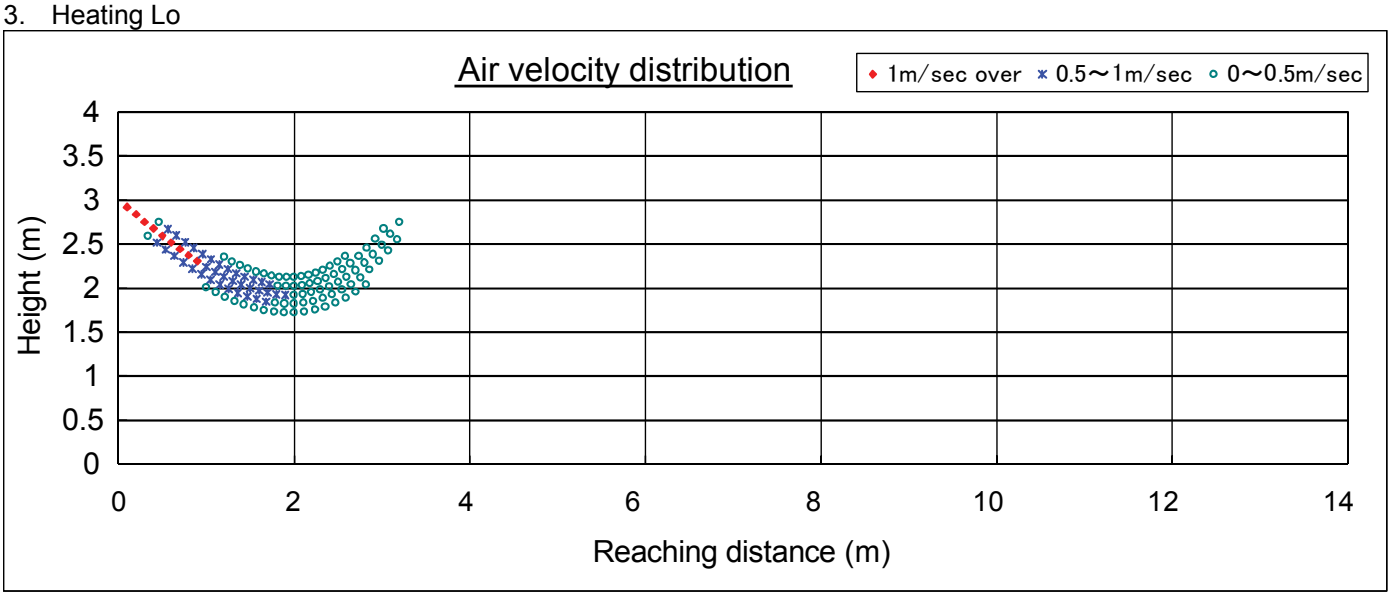
1. Heating Hi



2. Heating Me



3. Heating Lo

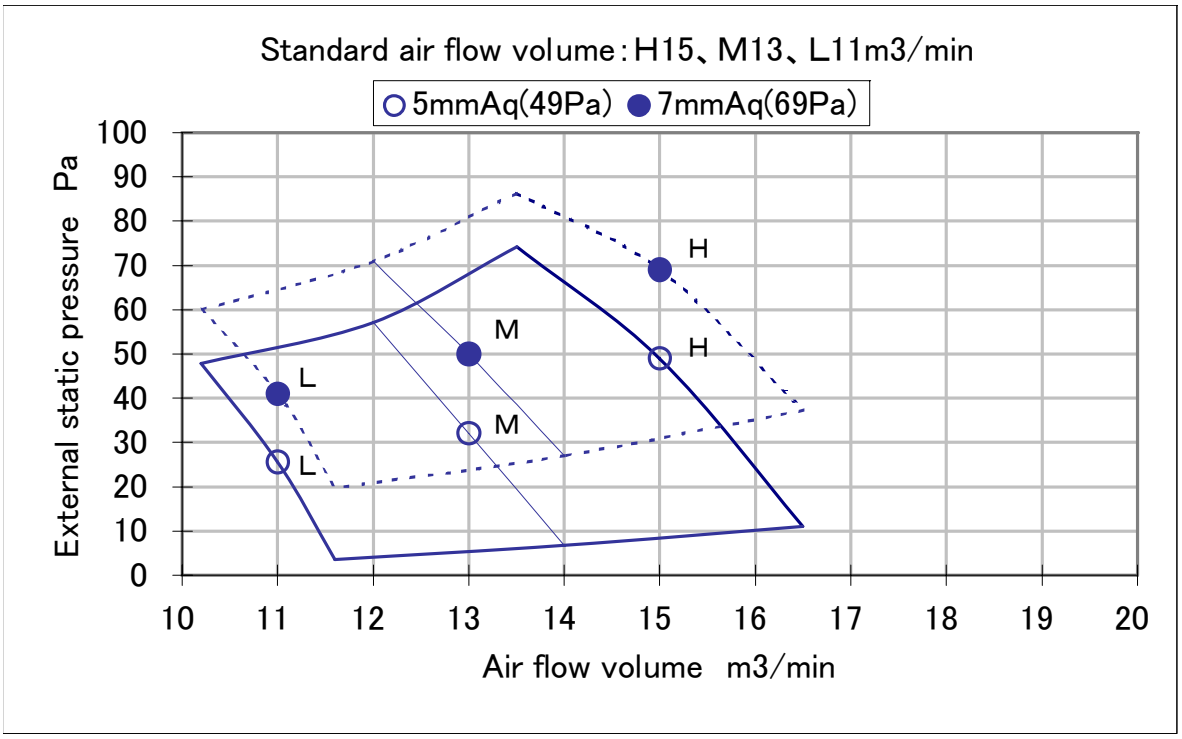


S-100UA1E5

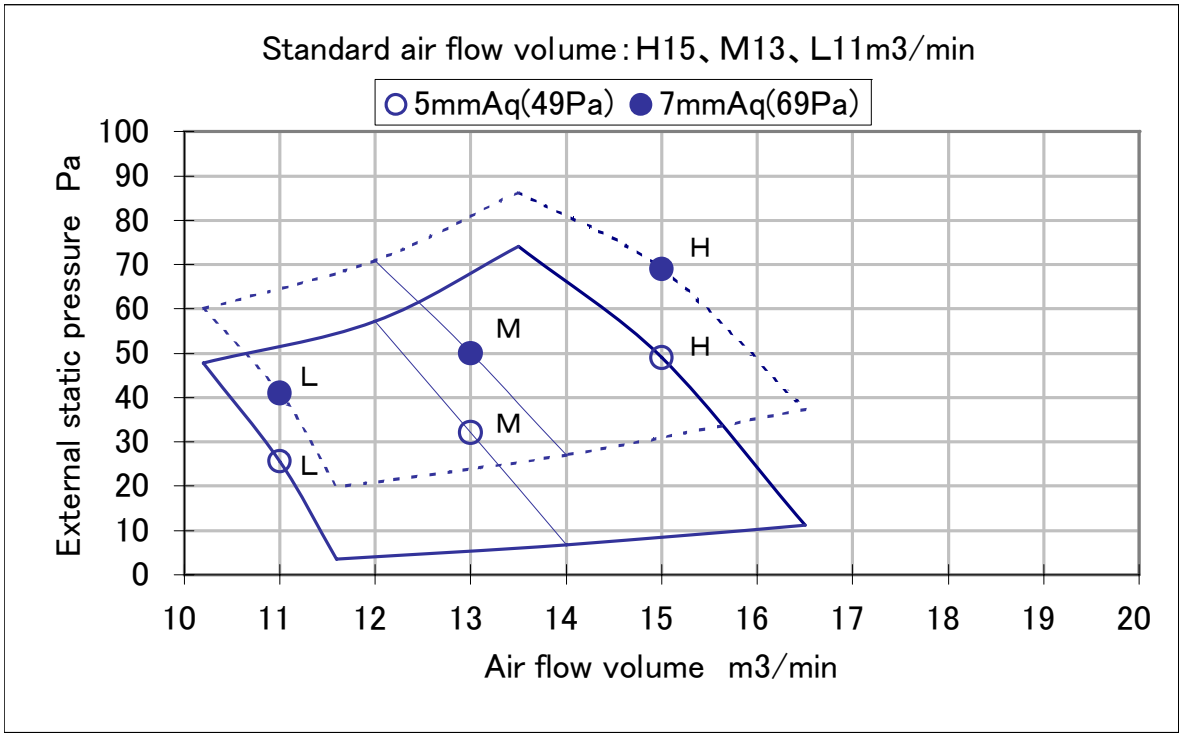
S-125UA1E5

26.4 Low Static Pressure Hide Away Type Indoor Unit – MA1E5 Series

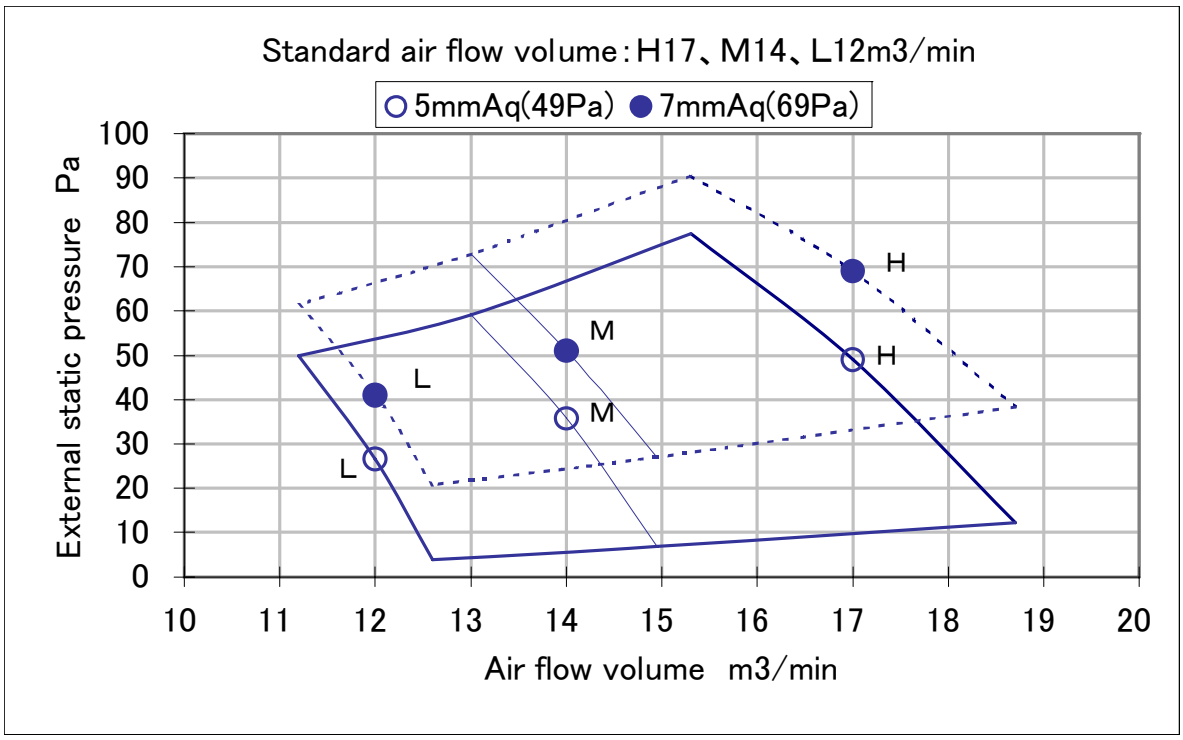
S-45MA1E5



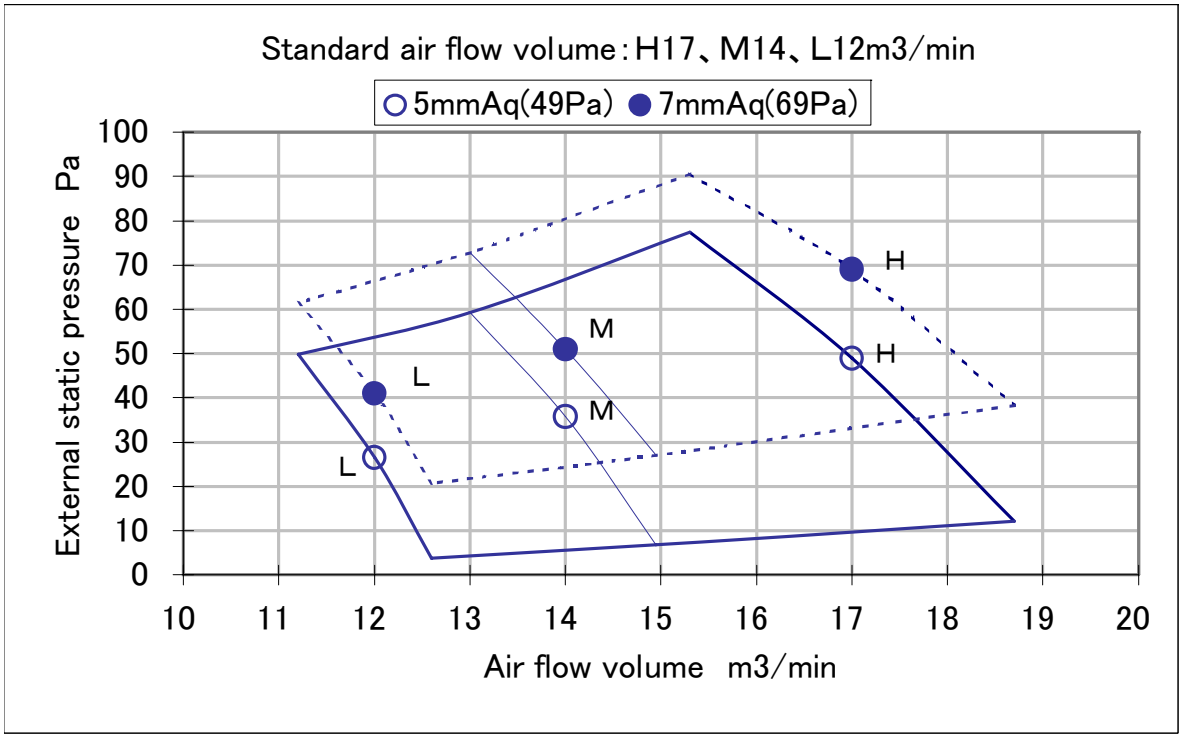
S-56MA1E5



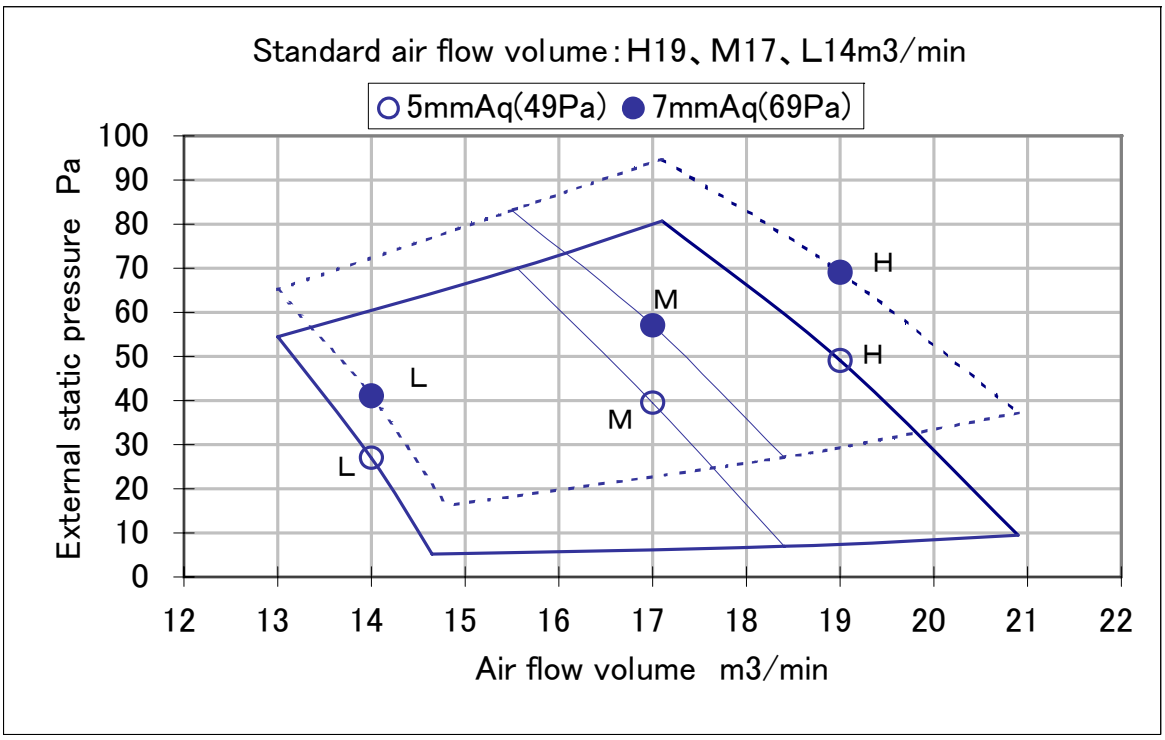
S-63MA1E5



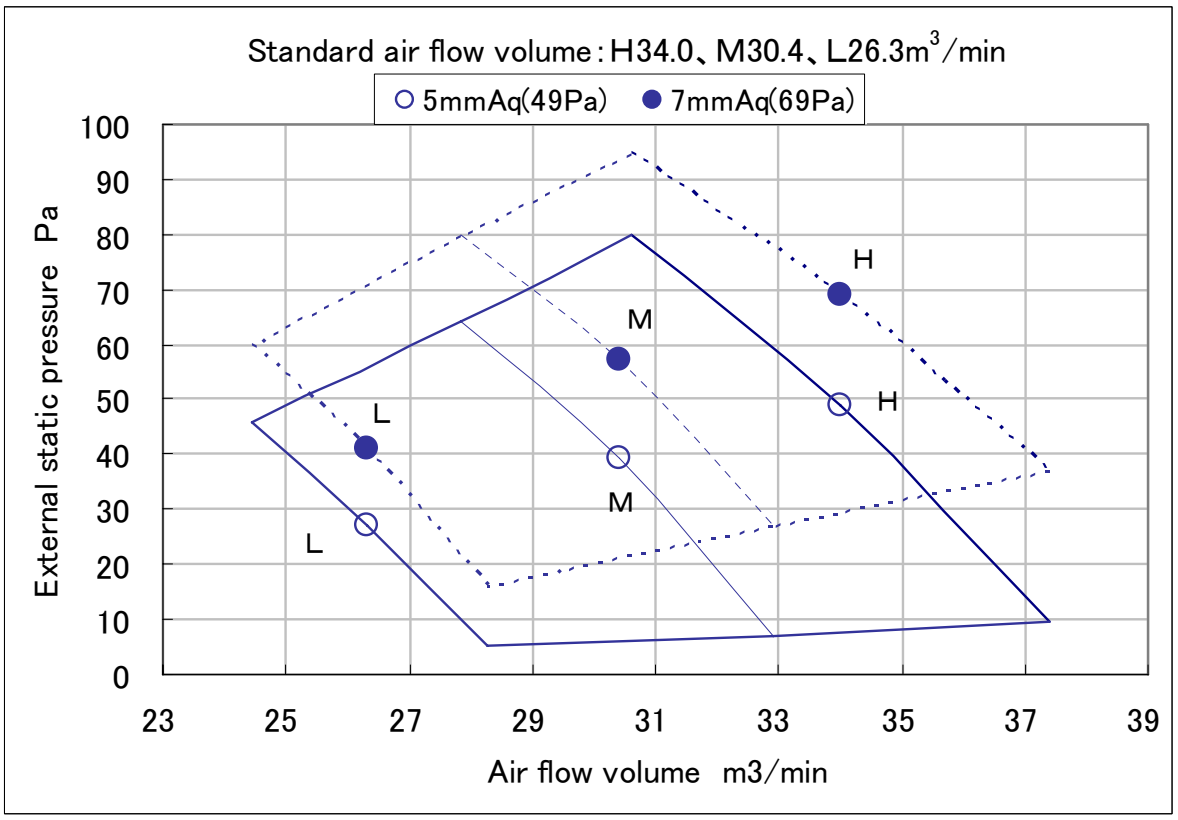
S-71MA1E5



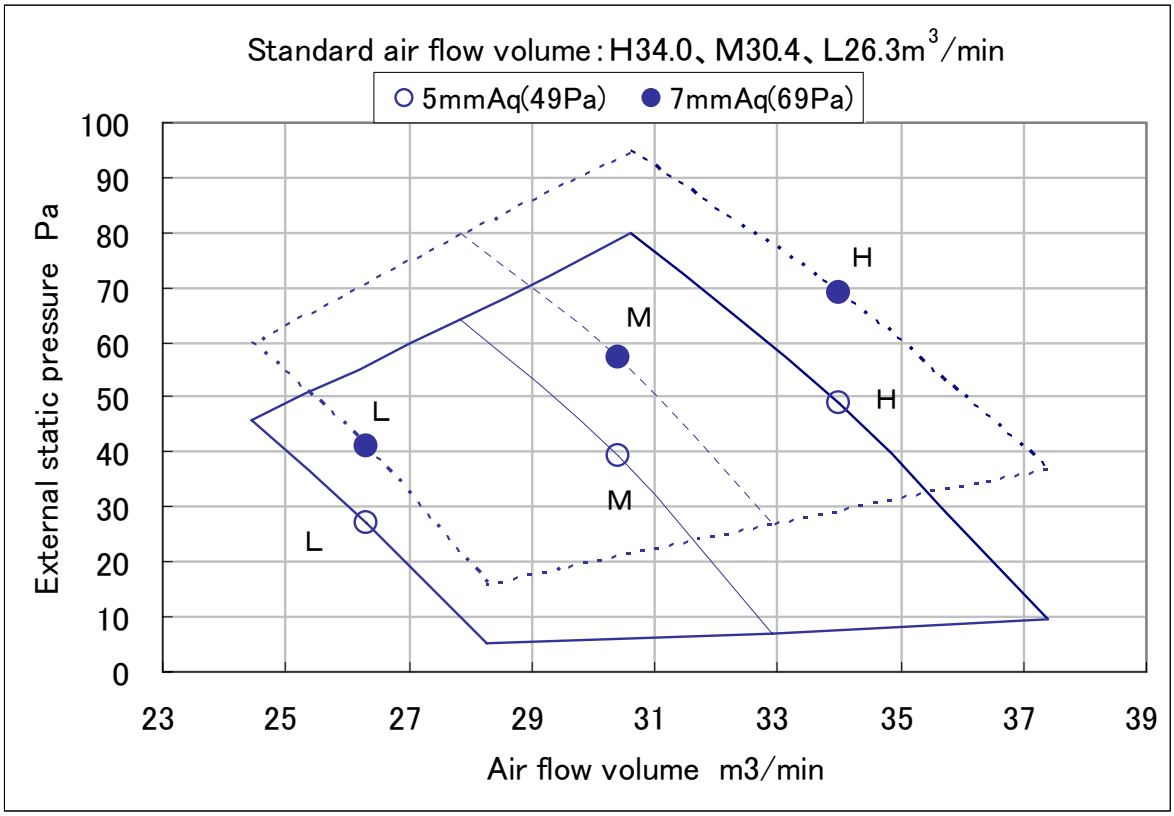
S-90MA1E5



S-100MA1E5

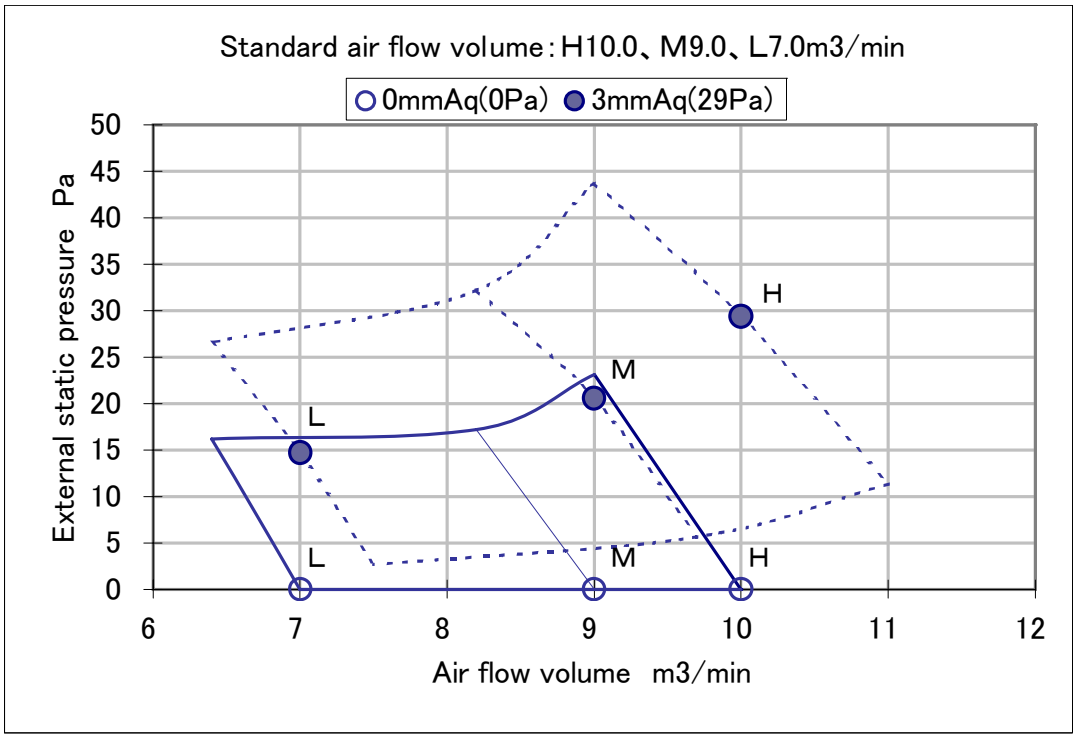


S-125MA1E5

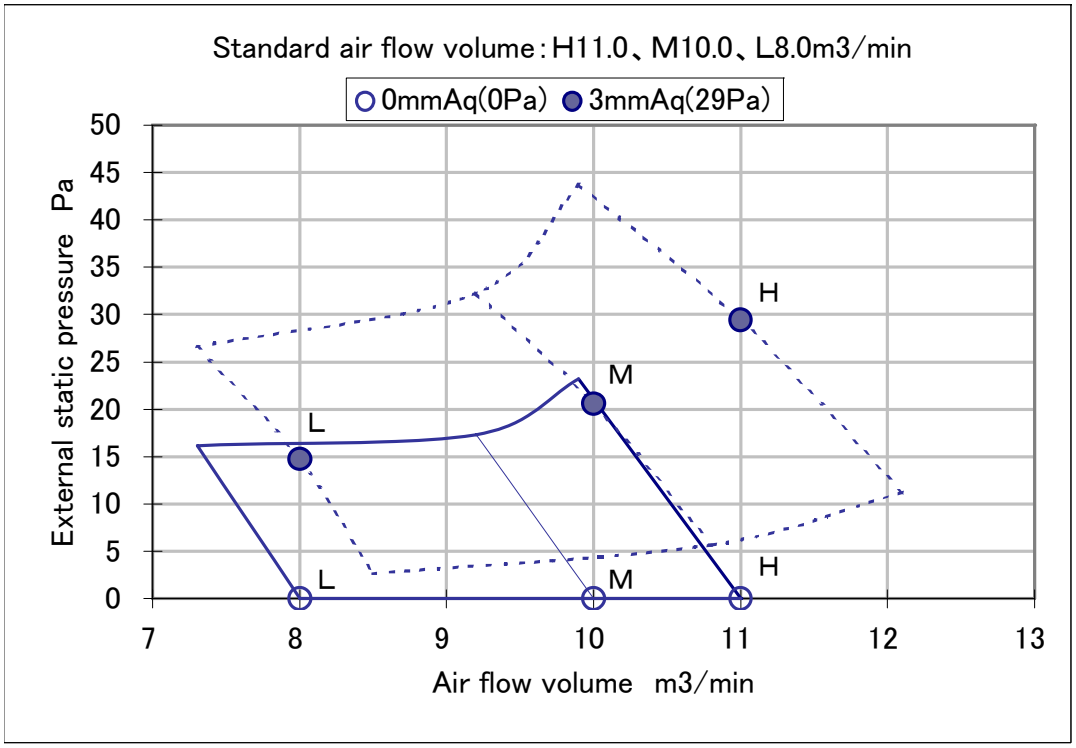

Standard air flow volume : H34.0、M30.4、L26.3m3/min
5mmAq(49Pa)
7mmAq(69Pa)
External static pressure Pa
100
90
80
70
60
50
40
30
20
10
0
23
25
27
29
31
33
35
37
39
Air flow volume m3/min
H
M
L
H
M
L

26.5 Slim Hide Away Type Indoor Unit – NA1E5 Series

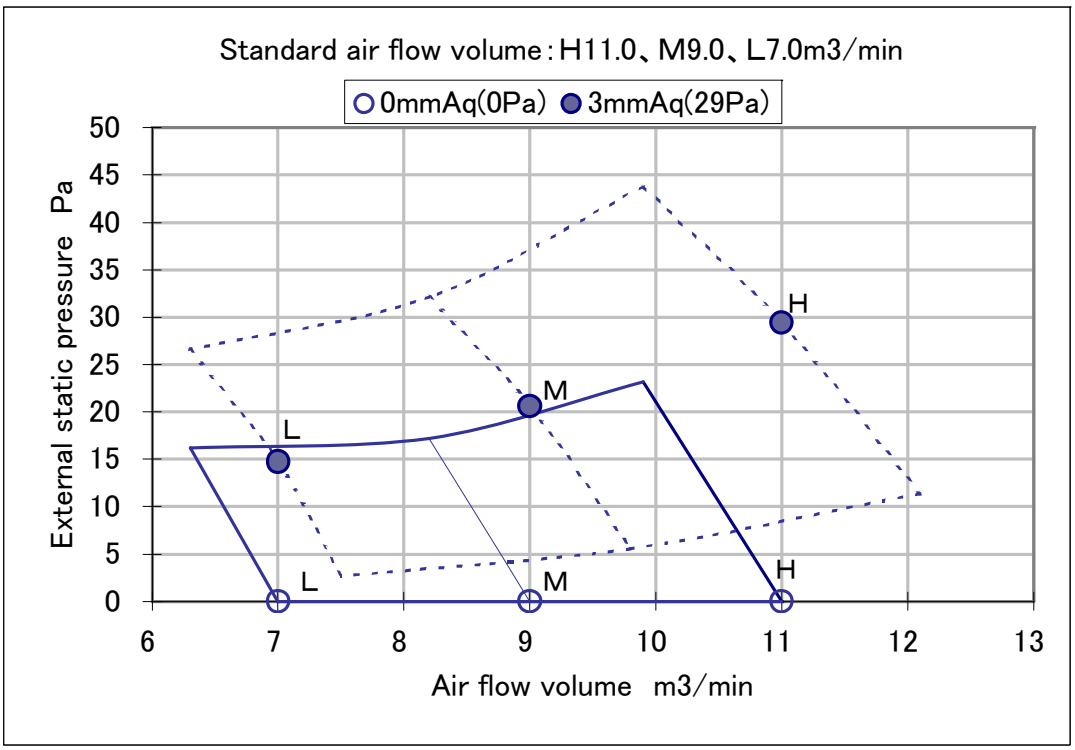
S-22NA1E5



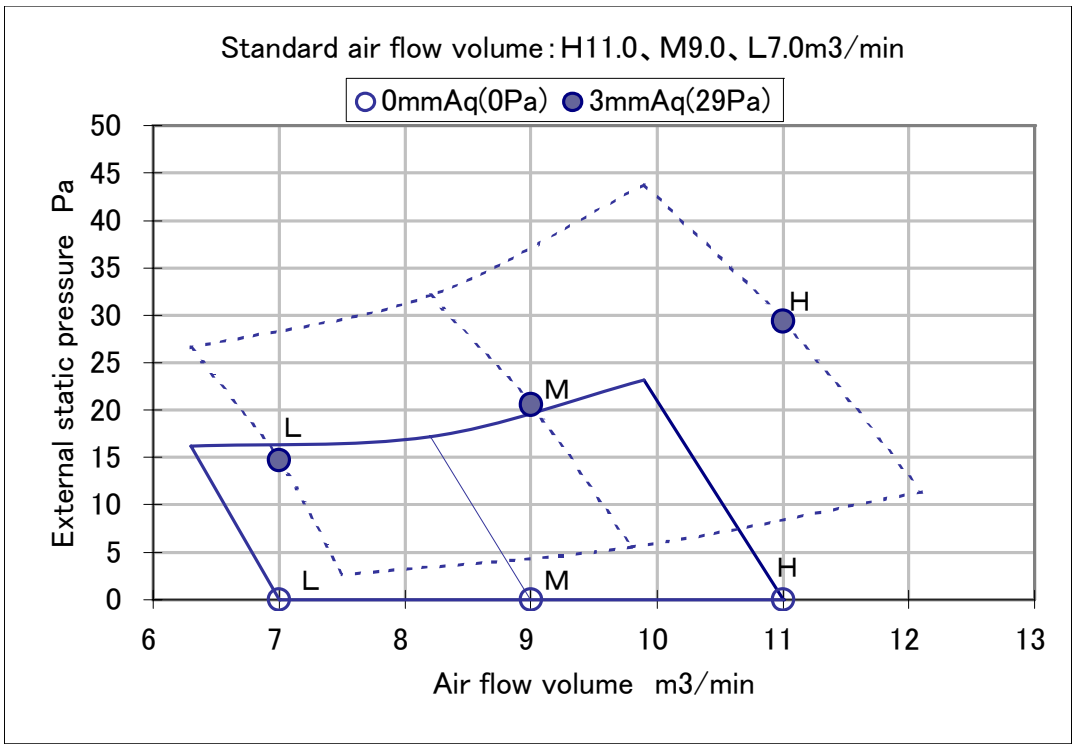
S-28NA1E5



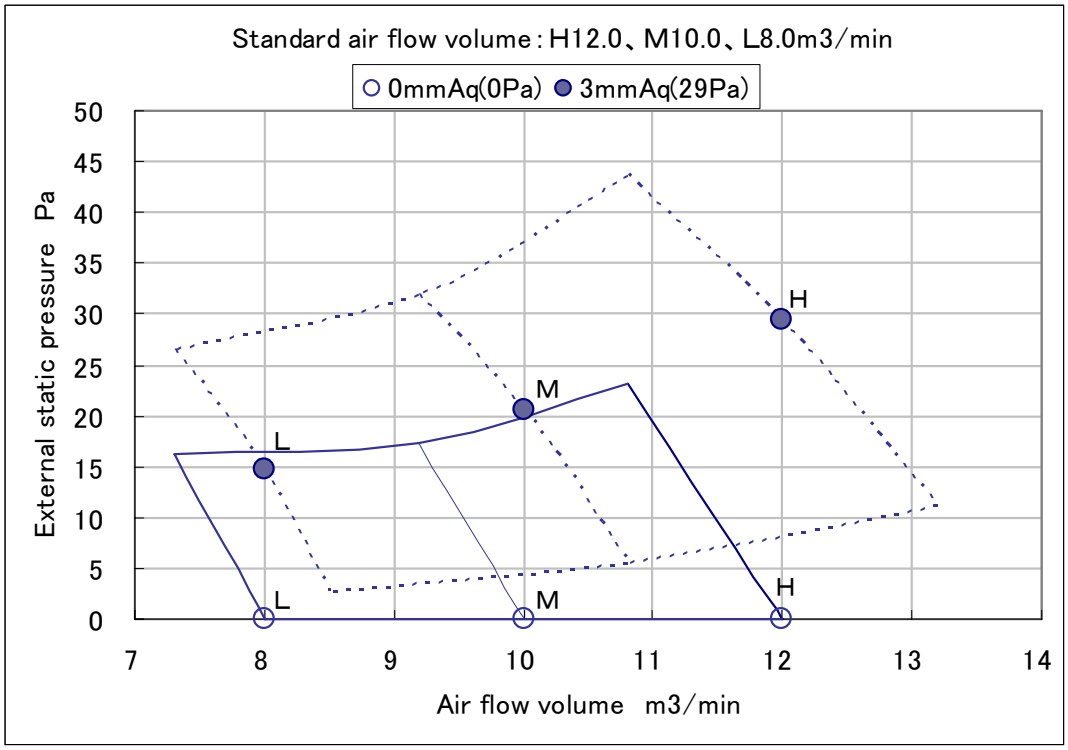
S-32NA1E5



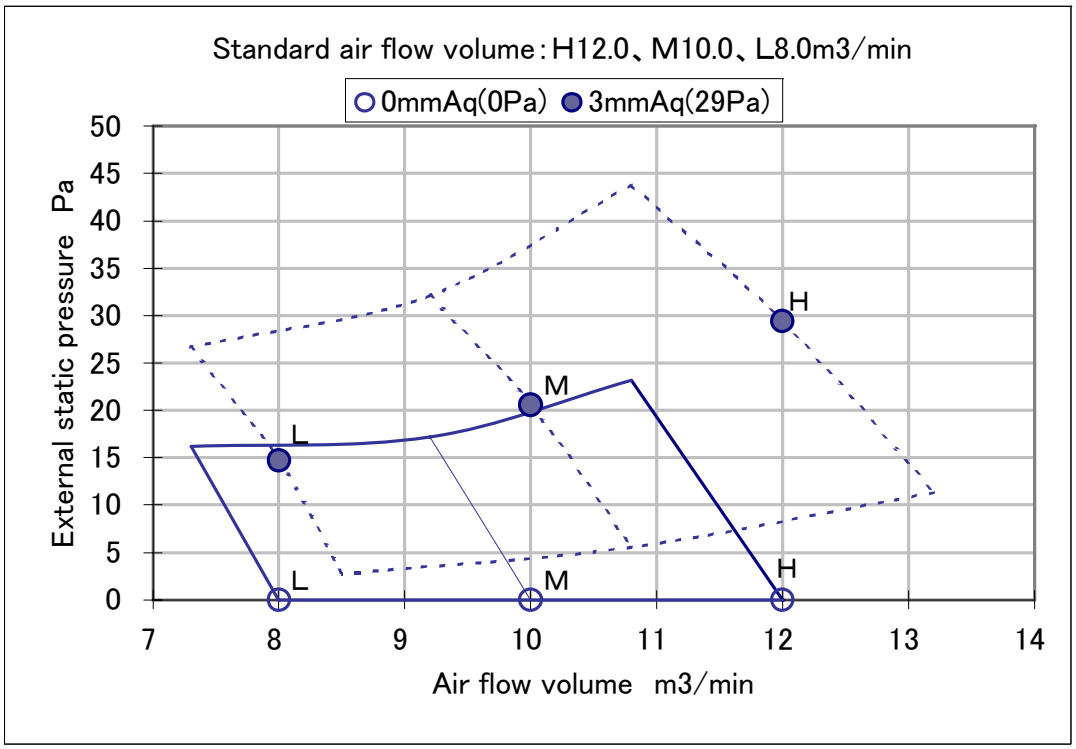
S-36NA1E5



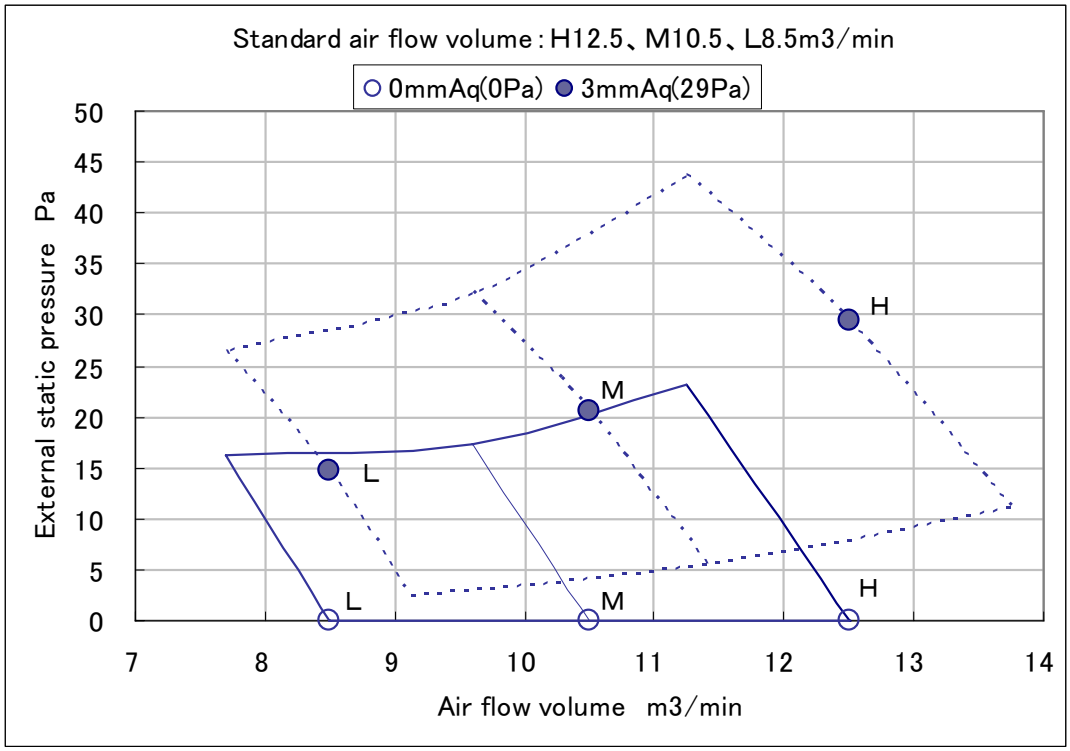
S-40NA1E5



S-45NA1E5



S-56NA1E5



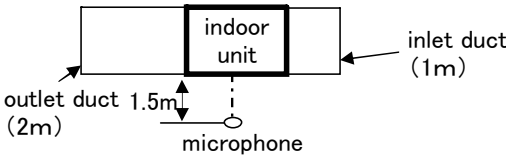
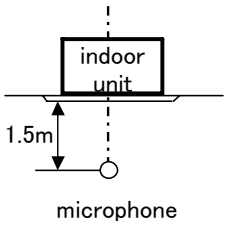
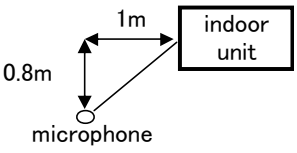
26.5.1 Outdoor Units

		U-8EA1E8	U-10EA1E8
Hi	m^3/min	150.0	154.0

27. Sound Data

27.1 Indoor Unit Measurement Specification

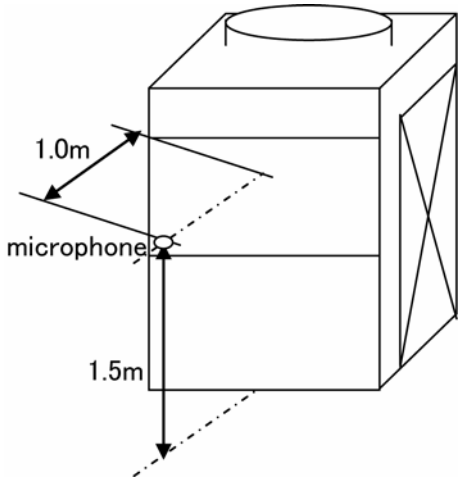
【dB(A)】

		Cooling		Heating		microphone position
		220/230V	240V	220/230V	240V	
		Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	
Slim Duct Type ※ 1	S-22NA1E5	36/30	36/31	36/30	36/31	
	S-28NA1E5	37/30	37/31	37/30	37/31	
	S-32NA1E5	38/31	38/32	38/31	38/32	
	S-36NA1E5	38/31	38/32	38/31	38/32	
	S-40NA1E5	39/32	39/33	39/32	39/33	
	S-45NA1E5	39/32	39/33	39/32	39/33	
	S-56NA1E5	39/32	39/33	39/32	39/33	
Low Static Pressure Duct Type ※ 2	S-45MA1E5	42/35	42/36	42/35	42/36	
	S-56MA1E5	42/35	42/36	42/35	42/36	
	S-63MA1E5	43/36	43/37	43/36	43/37	
	S-71MA1E5	43/36	43/37	43/36	43/37	
	S-90MA1E5	44/37	44/38	44/37	44/38	
	S-100MA1E5	47/43	47/44	47/43	47/44	
	S-125MA1E5	47/43	47/44	47/43	47/44	
60 x 60 Cassette Type	S-22YA1E5	36/33		36/33		
	S-28YA1E5	37/33		37/33		
	S-36YA1E5	38/34		38/34		
	S-45YA1E5	39/35		39/35		
	S-56YA1E5	40/36		40/36		
90 x 90 Cassette Type	S-63UA1E5	41/35	41/36	41/35	41/36	
	S-71UA1E5	42/36	42/37	42/36	42/37	
	S-90UA1E5	42/36	42/37	42/36	42/37	
	S-100UA1E5	48/43	48/43	48/43	48/43	
	S-125UA1E5	48/43	48/43	48/43	48/43	
Wall Mounted Type ※ 3	S-22KA1E5(S)	38/33		38/33		
	S-28KA1E5(S)	39/33		39/33		
	S-36KA1E5(S)	42/34		42/34		
	S-45KA1E5(S)	43/35		43/35		
	S-56KA1E5	44/38		44/38		
	S-63KA1E5	46/39		46/39		
	S-71KA1E5	48/40		48/40		

※ 1・・・The external static pressure of sound measurement is 0mmAq (0Pa).
※ 2・・・The external static pressure of sound measurement is 5mmAq (49Pa).
※ 3・・・(for example) S-22KA1E5：white color、S-22KA1E5S：silver color.

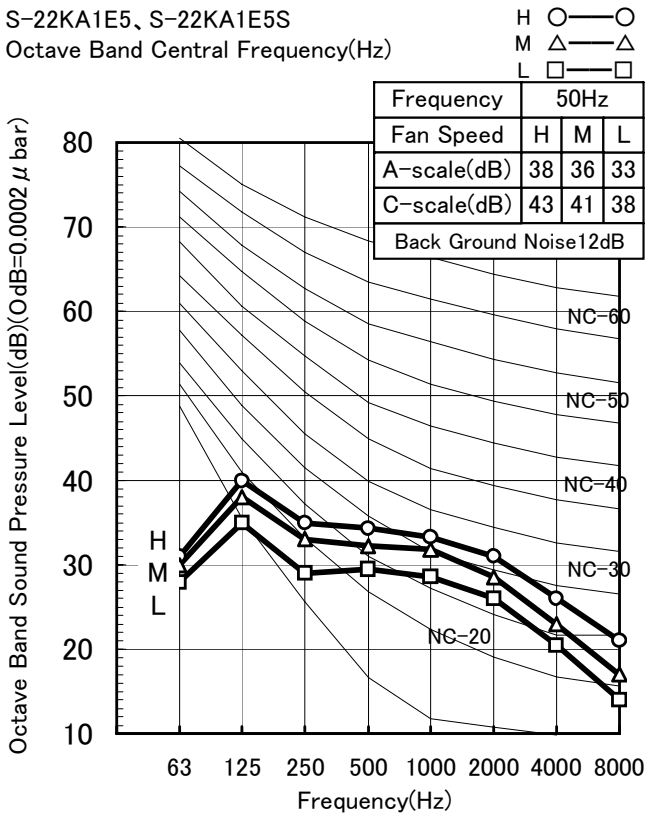
27.2 Outdoor Unit Measurement Specification

【dB(A)】

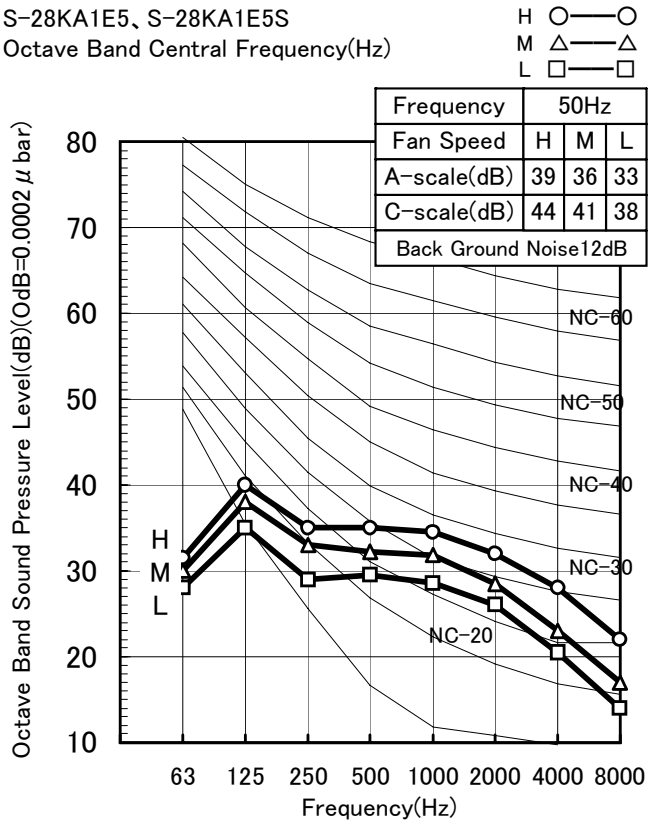
	Cooling	Heating	microphone position
	220/230/240V – 50Hz		
U-8EA1E8	58	59	
U-10EA1E8	59	60	

27.3 Wall Mounted Type Indoor Unit – KA1E5 Series

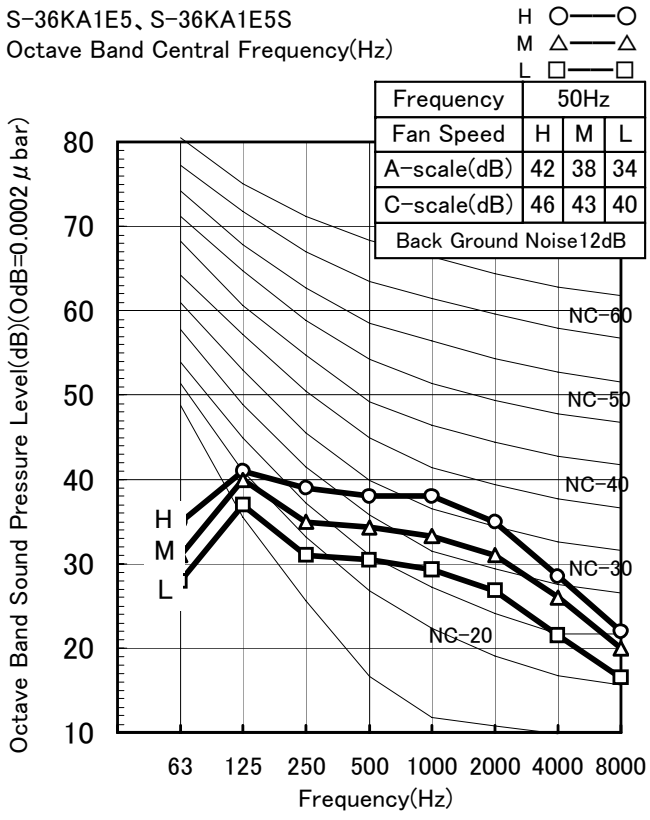
S-22KA1E5、S-22KA1E5S
Octave Band Central Frequency(Hz)



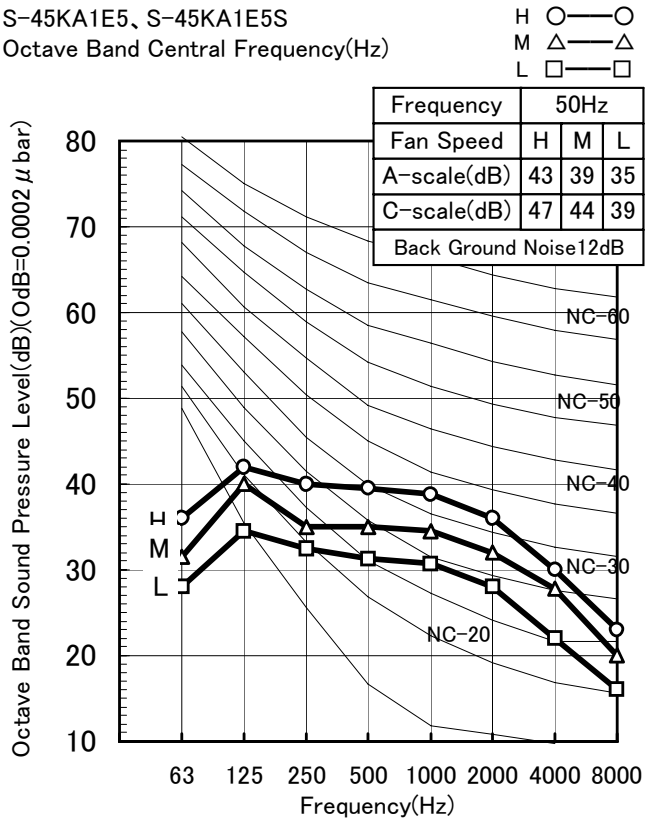
S-28KA1E5、S-28KA1E5S
Octave Band Central Frequency(Hz)



S-36KA1E5、S-36KA1E5S
Octave Band Central Frequency(Hz)

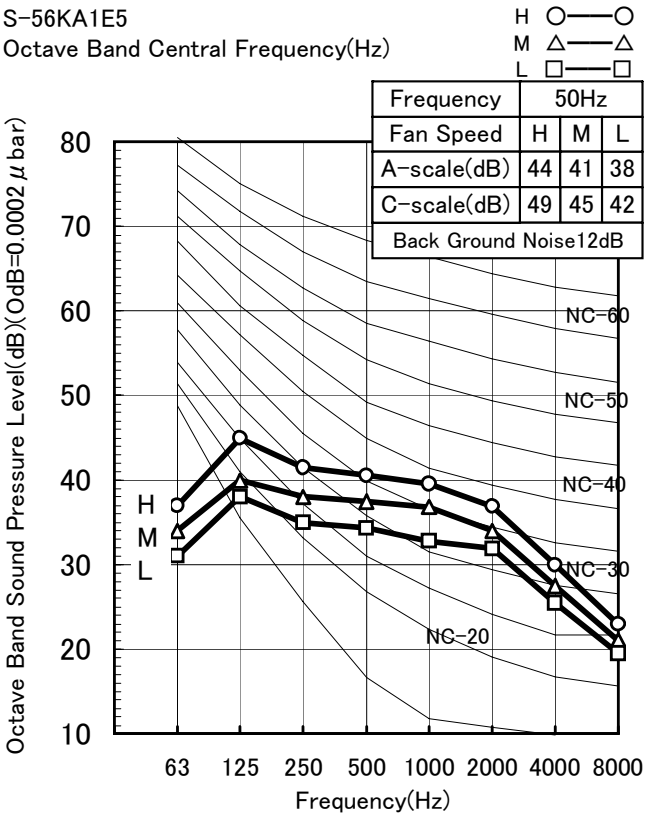


S-45KA1E5、S-45KA1E5S
Octave Band Central Frequency(Hz)



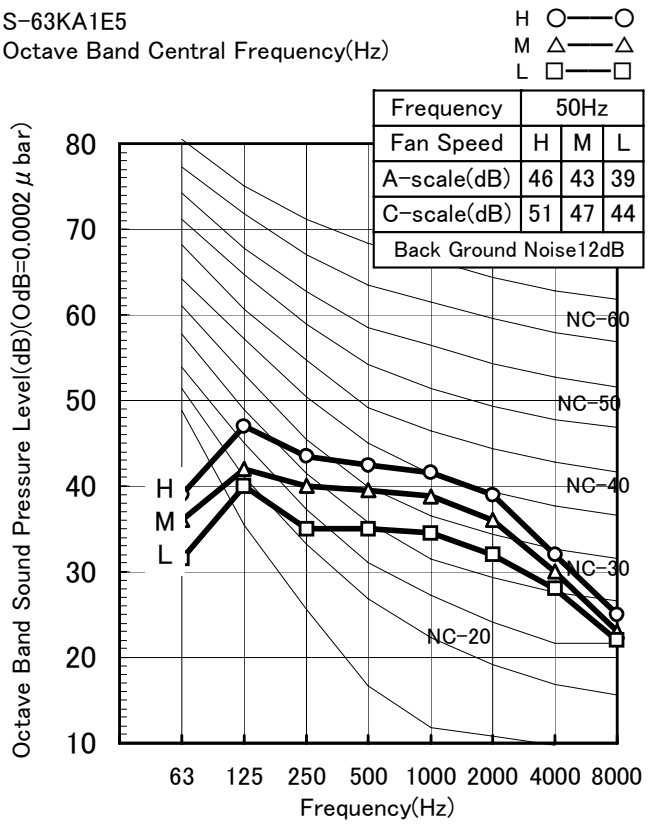
S-56KA1E5

Octave Band Central Frequency(Hz)



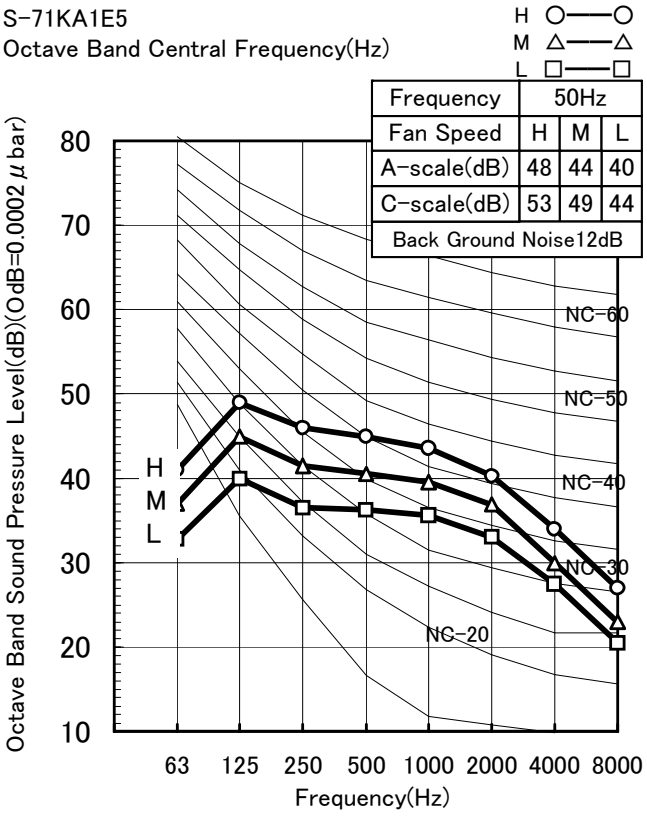
S-63KA1E5

Octave Band Central Frequency(Hz)



S-71KA1E5

Octave Band Central Frequency(Hz)

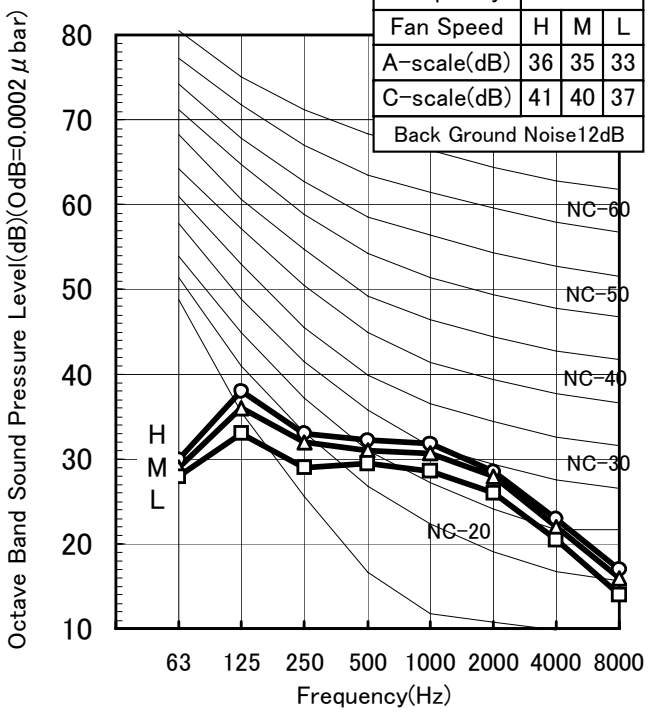


27.4 60 x 60 Cassette Type Indoor Unit

S-22YA1E5
Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

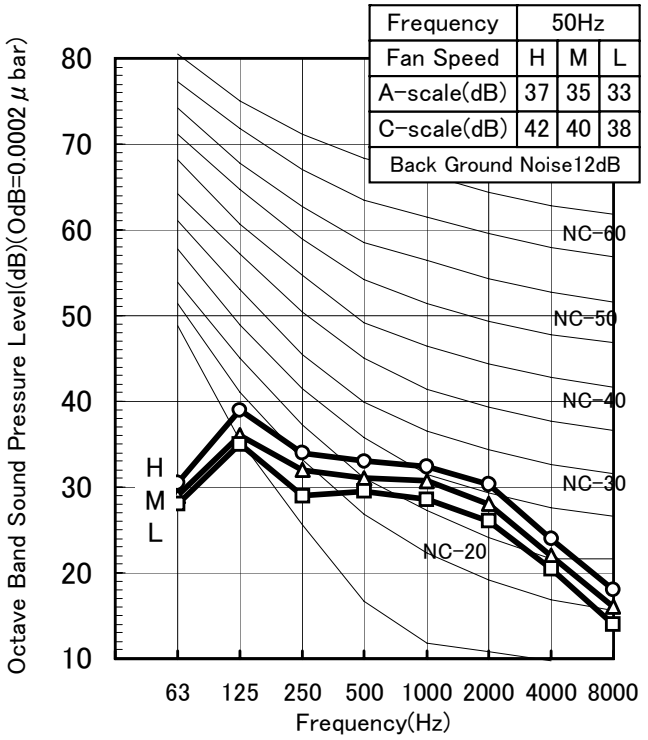
Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	36	35	33
C-scale(dB)	41	40	37
Back Ground Noise12dB			



S-28YA1E5
Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

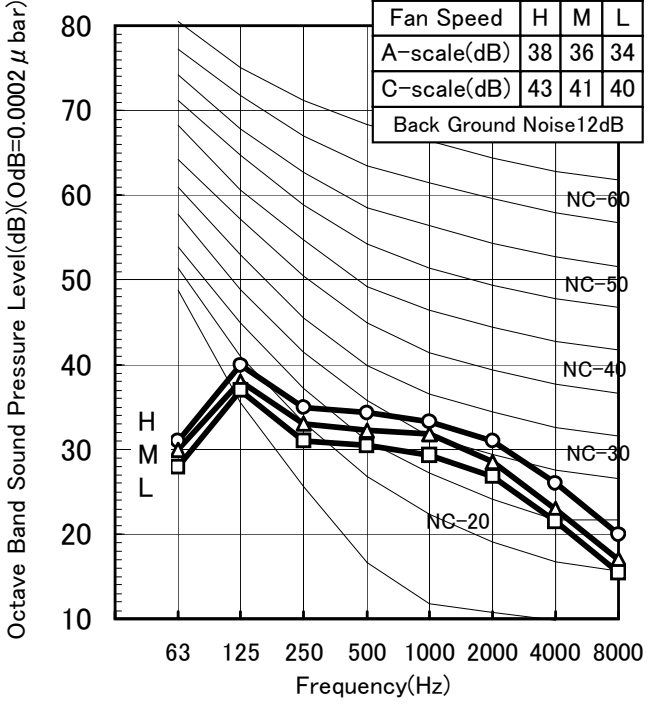
Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	37	35	33
C-scale(dB)	42	40	38
Back Ground Noise12dB			



S-36YA1E5
Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

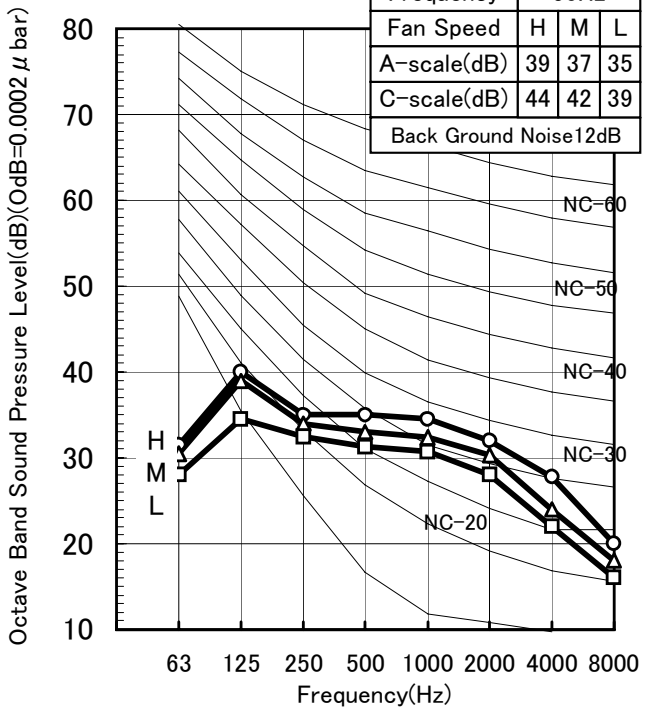
Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	38	36	34
C-scale(dB)	43	41	40
Back Ground Noise12dB			



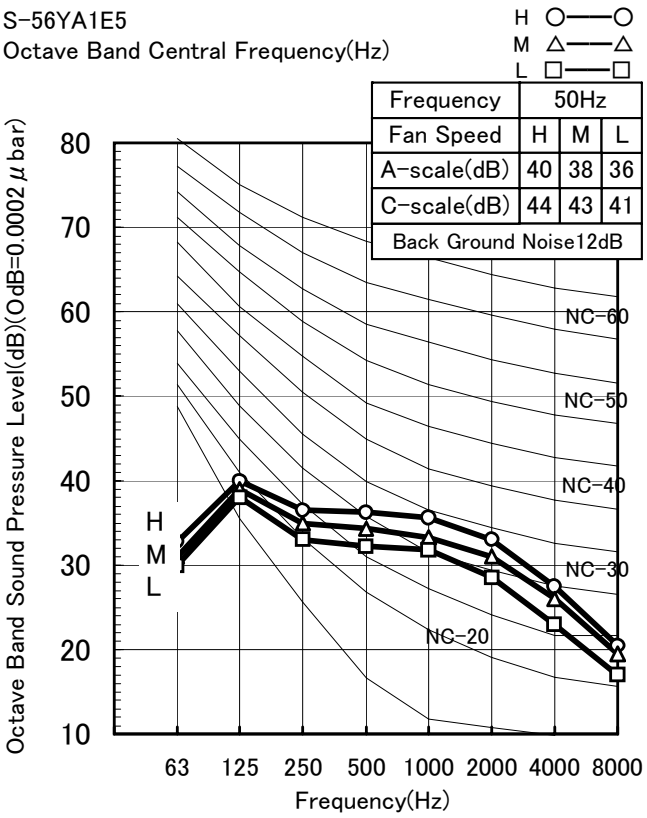
S-45YA1E5
Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	39	37	35
C-scale(dB)	44	42	39
Back Ground Noise12dB			

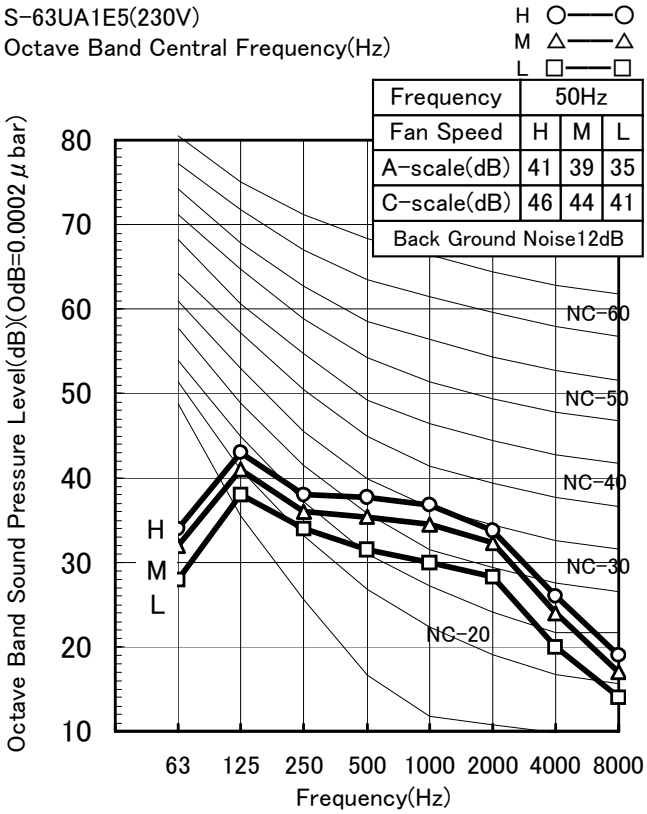


S-56YA1E5

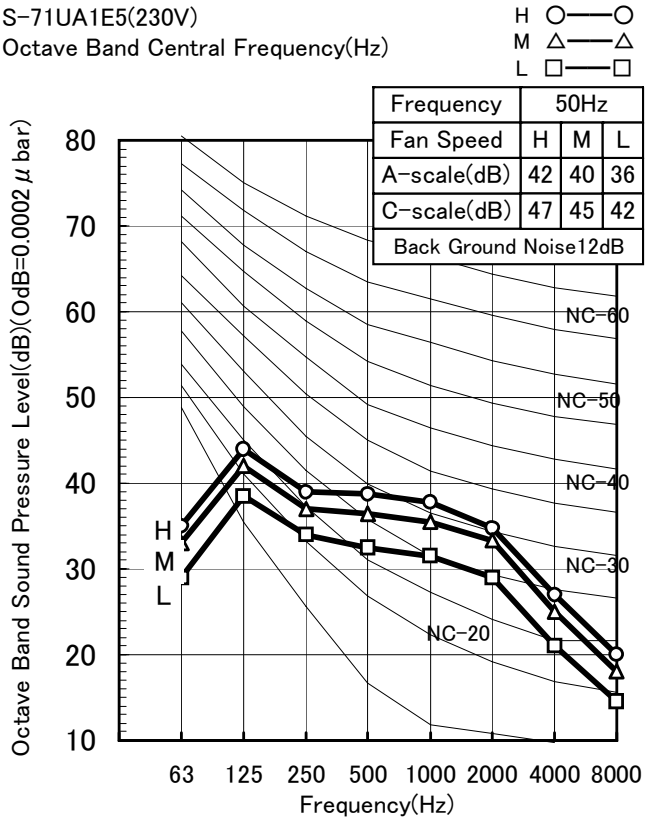

Octave Band Central Frequency(Hz)
H
M
L
Frequency 50Hz
Fan Speed H M L
A-scale(dB) 40 38 36
C-scale(dB) 44 43 41
Back Ground Noise12dB
Octave Band Sound Pressure Level(dB)(OdB=0.0002 μ bar)
80
70
60
50
40
30
20
10
NC-60
NC-50
NC-40
NC-30
NC-20
H
M
L
63 125 250 500 1000 2000 4000 8000
Frequency(Hz)

27.5 95 x 95 Cassette

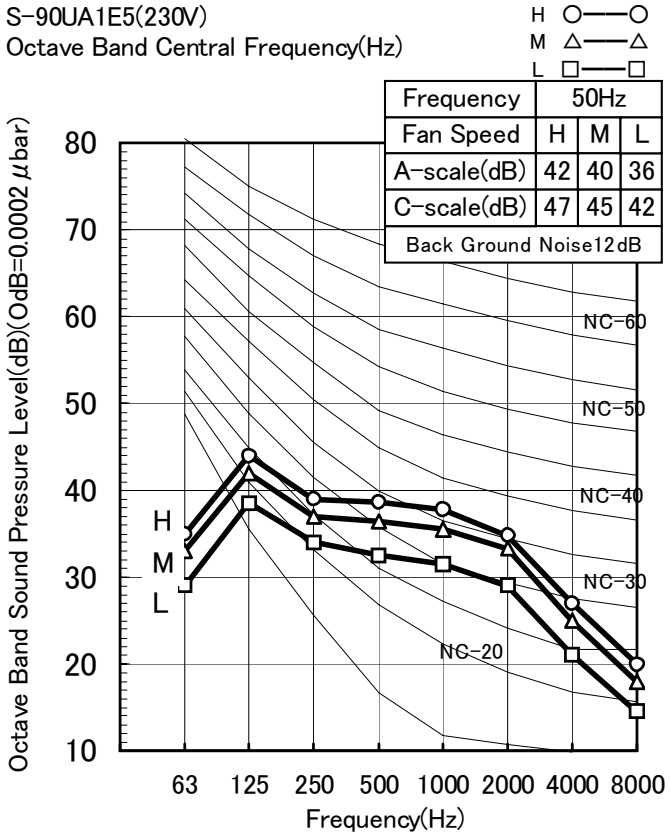
S-63UA1E5(230V)
Octave Band Central Frequency(Hz)



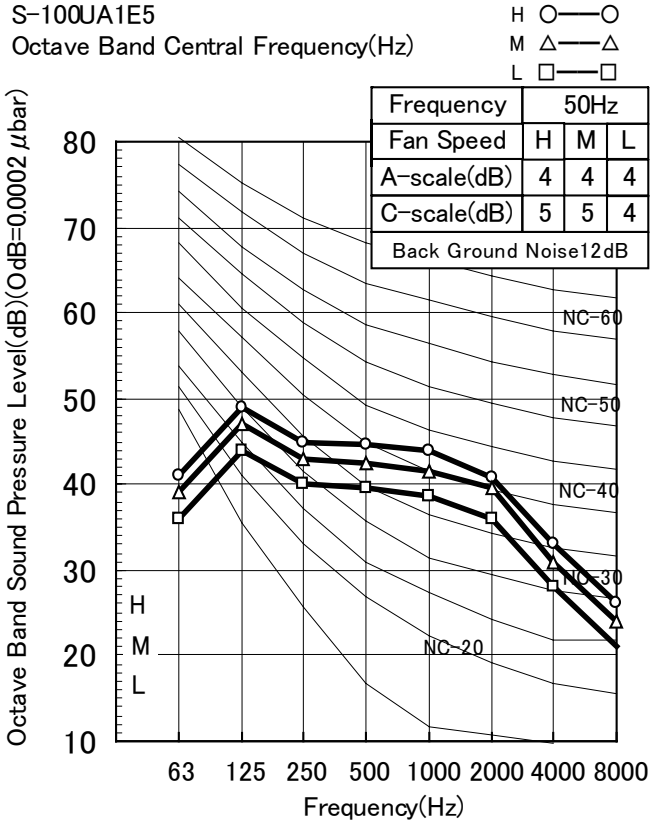
S-71UA1E5(230V)
Octave Band Central Frequency(Hz)



S-90UA1E5(230V)
Octave Band Central Frequency(Hz)

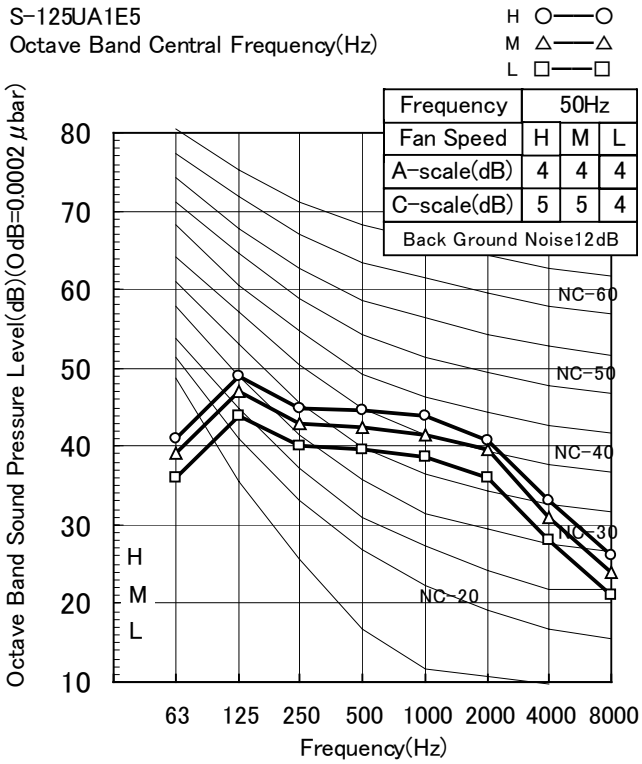


S-100UA1E5
Octave Band Central Frequency(Hz)



S-125UA1E5

Octave Band Central Frequency(Hz)

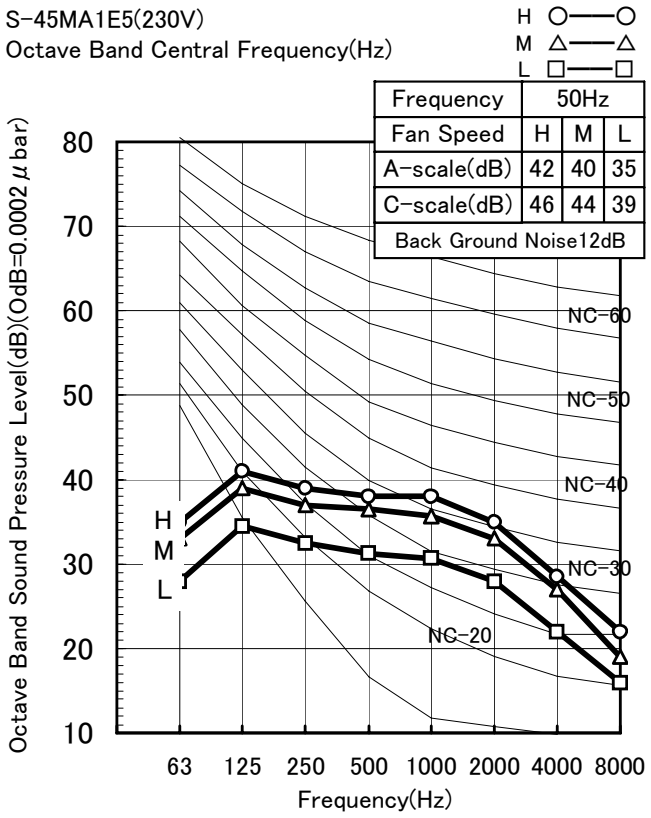


Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	4	4	4
C-scale(dB)	5	5	4

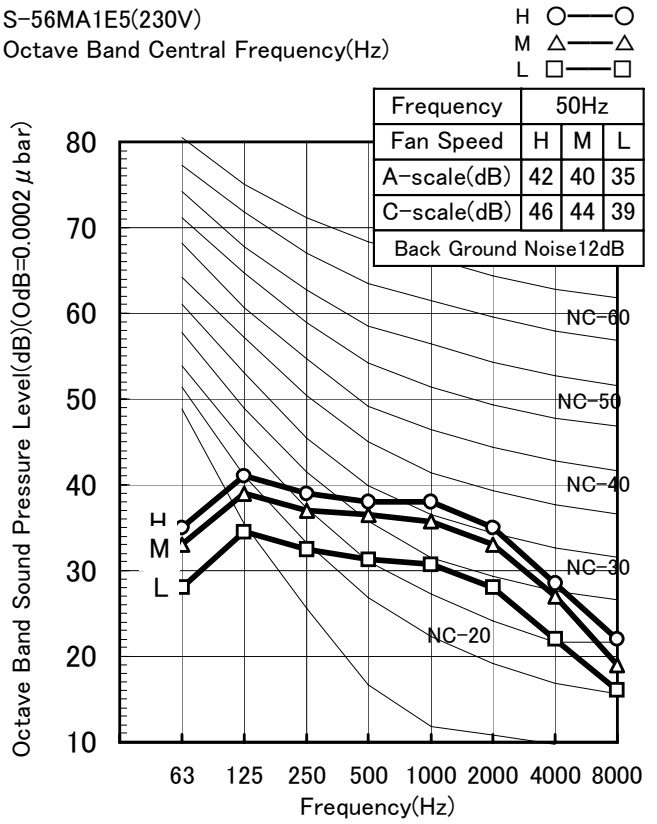
Back Ground Noise12dB

27.6 Low Static Pressure Duct Type – MA1E5 Series

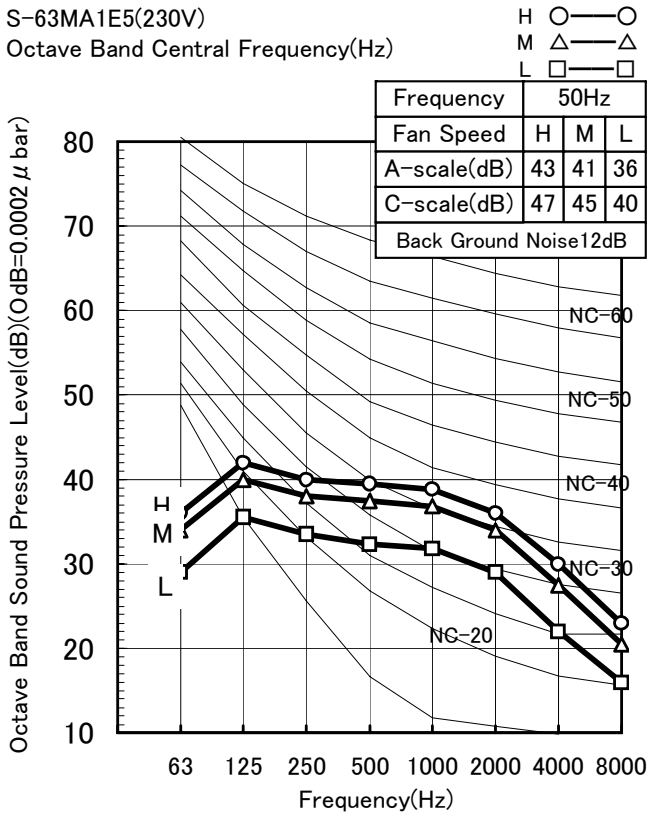
S-45MA1E5(230V)
Octave Band Central Frequency(Hz)



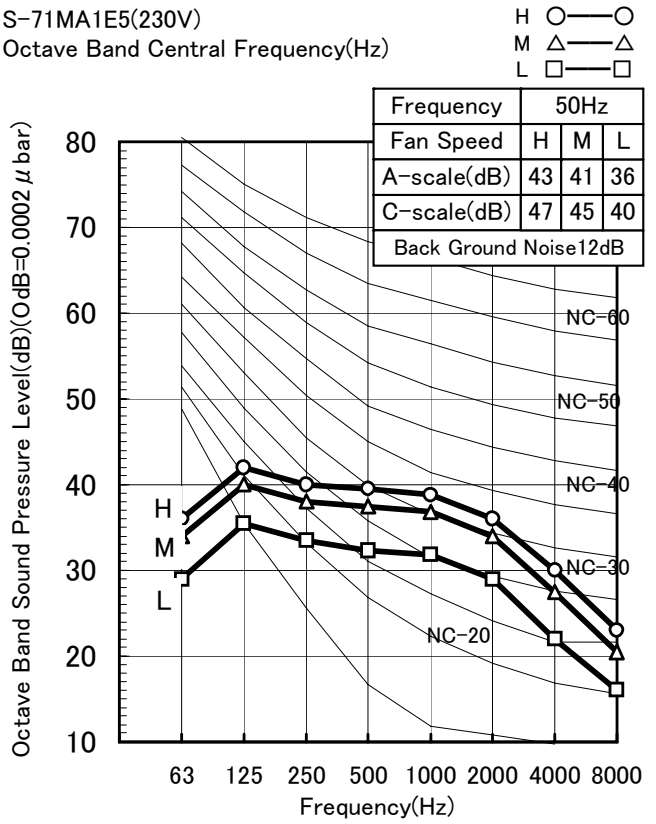
S-56MA1E5(230V)
Octave Band Central Frequency(Hz)



S-63MA1E5(230V)
Octave Band Central Frequency(Hz)



S-71MA1E5(230V)
Octave Band Central Frequency(Hz)

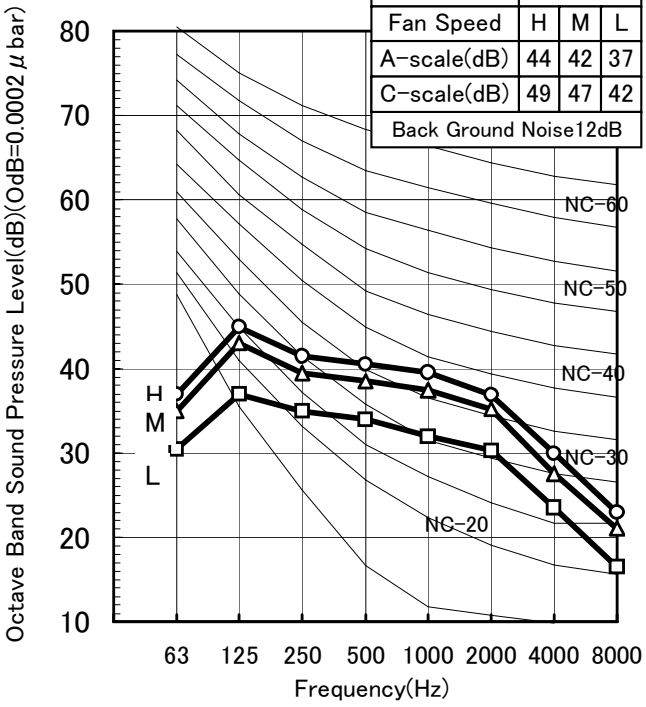


S-90MA1E5(230V)

Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	44	42	37
C-scale(dB)	49	47	42
Back Ground Noise12dB			

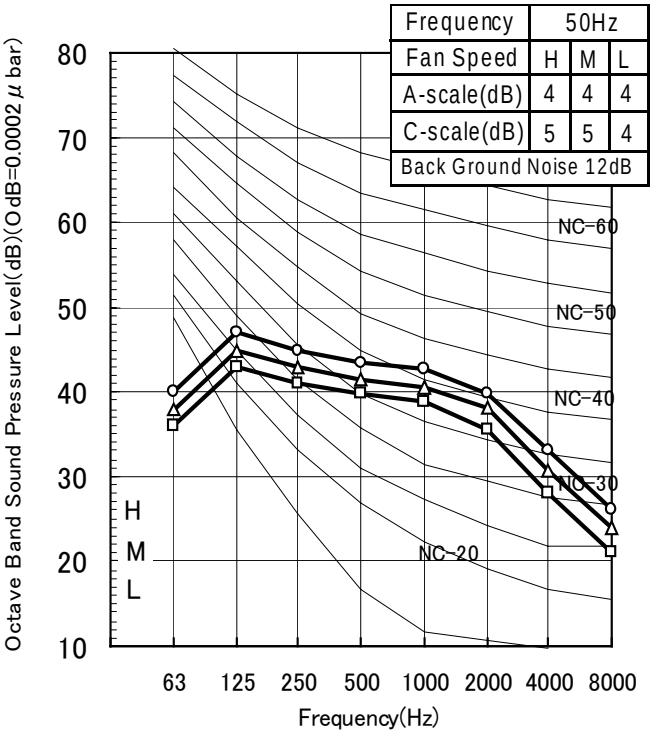


S-125MA1E5

Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	4	4	4
C-scale(dB)	5	5	4
Back Ground Noise 12dB			

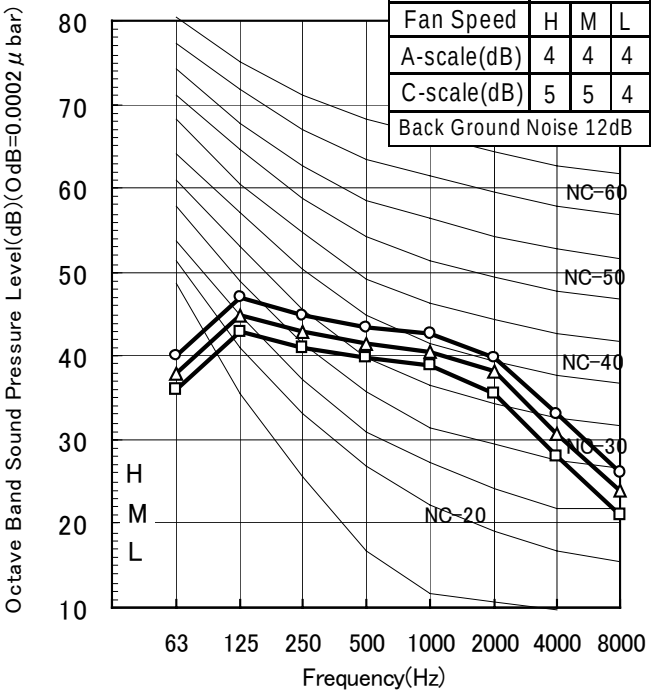


S-100MA1E5

Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	4	4	4
C-scale(dB)	5	5	4
Back Ground Noise 12dB			

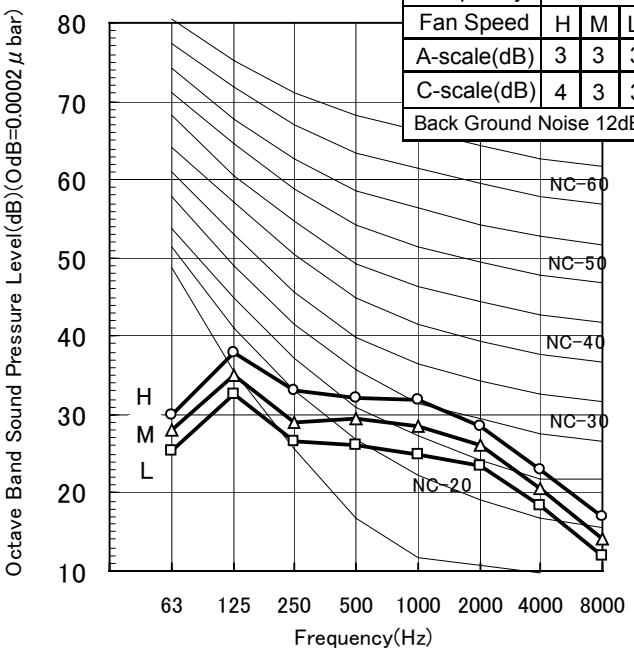


27.7 Slim Duct Type Indoor Unit – NA1E5

S-22NA1E5(230V)
Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

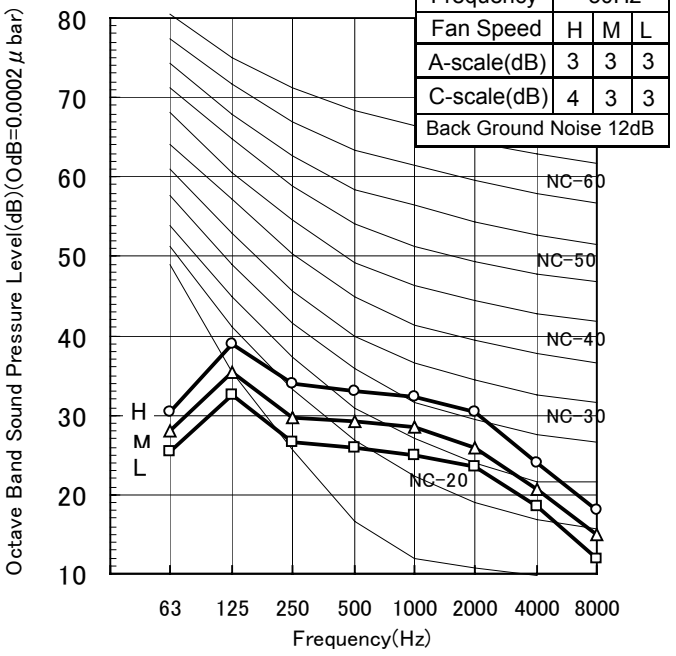
Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	3	3	3
C-scale(dB)	4	3	3
Back Ground Noise 12dB			



S-28NA1E5(230V)
Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

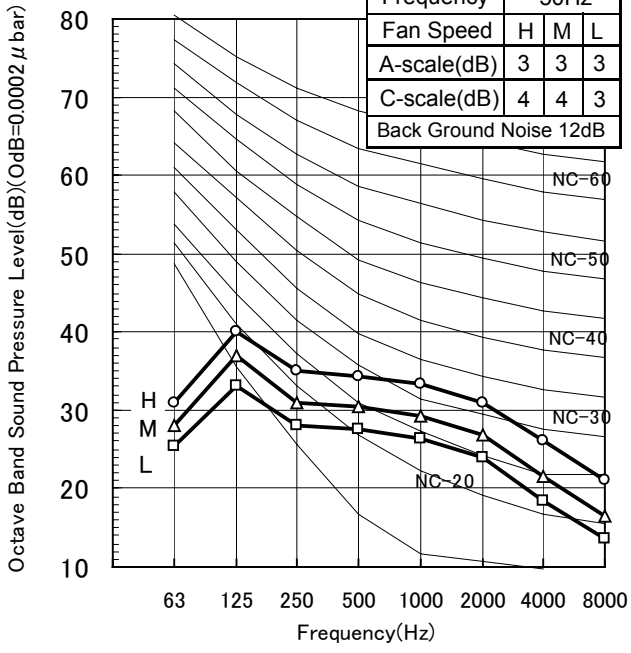
Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	3	3	3
C-scale(dB)	4	3	3
Back Ground Noise 12dB			



S-32NA1E5(230V)
Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

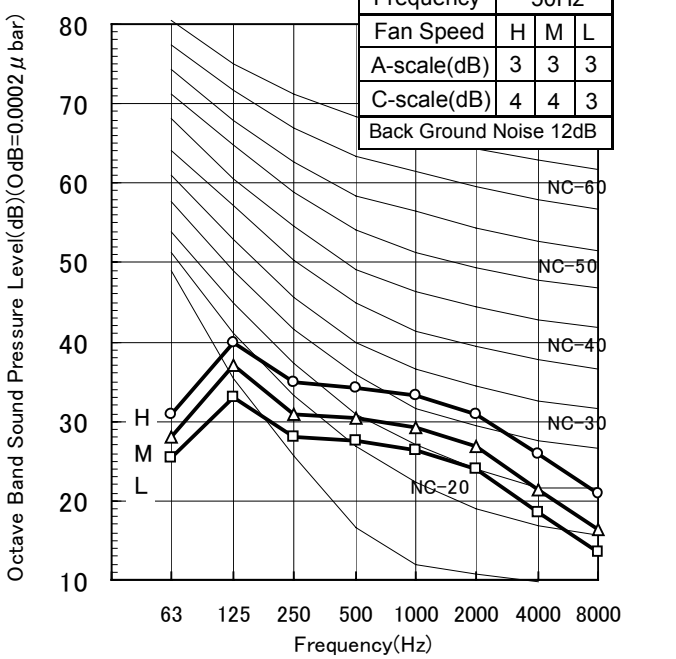
Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	3	3	3
C-scale(dB)	4	4	3
Back Ground Noise 12dB			



S-36NA1E5(230V)
Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

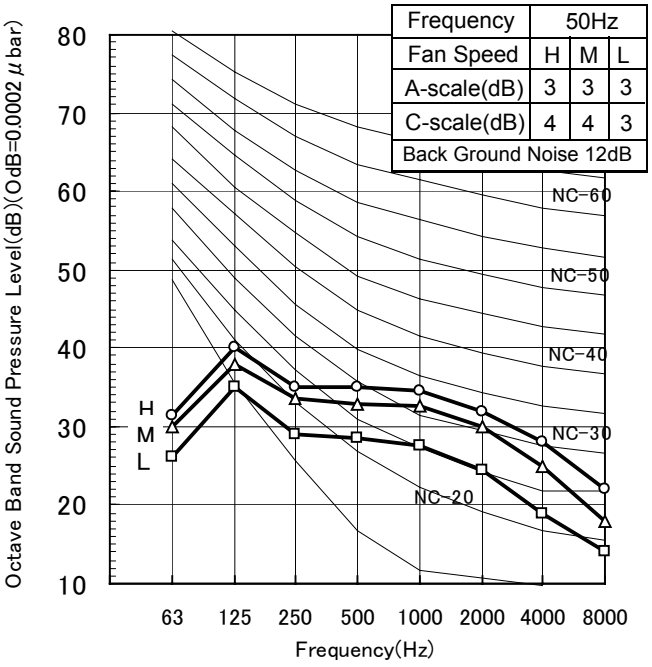
Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	3	3	3
C-scale(dB)	4	4	3
Back Ground Noise 12dB			



S-40NA1E5(230V)
Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

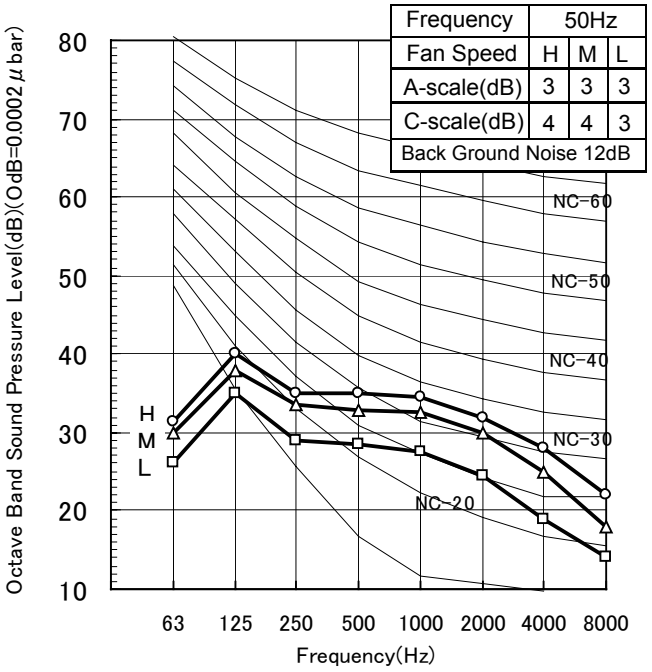
Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	3	3	3
C-scale(dB)	4	4	3
Back Ground Noise 12dB			



S-45NA1E5(230V)
Octave Band Central Frequency(Hz)

H ○——○
M △——△
L □——□

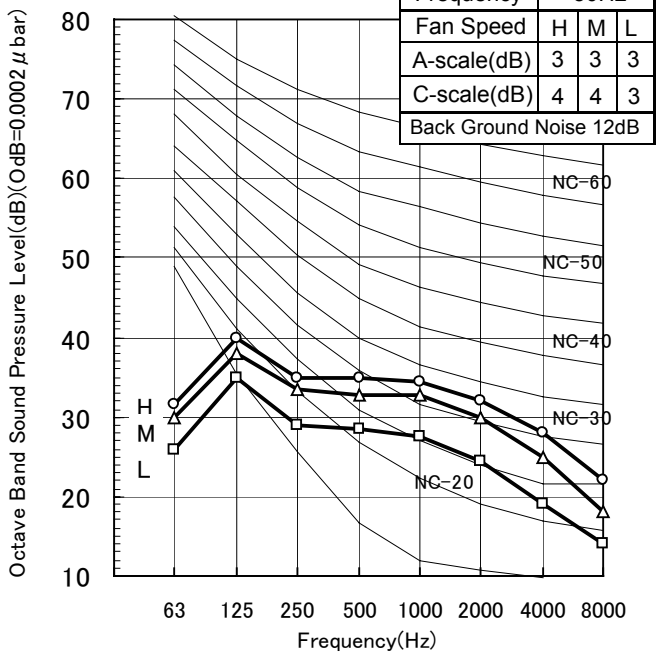
Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	3	3	3
C-scale(dB)	4	4	3
Back Ground Noise 12dB			



S-56NA1E5(230V)
Octave Band Central Frequency(Hz)

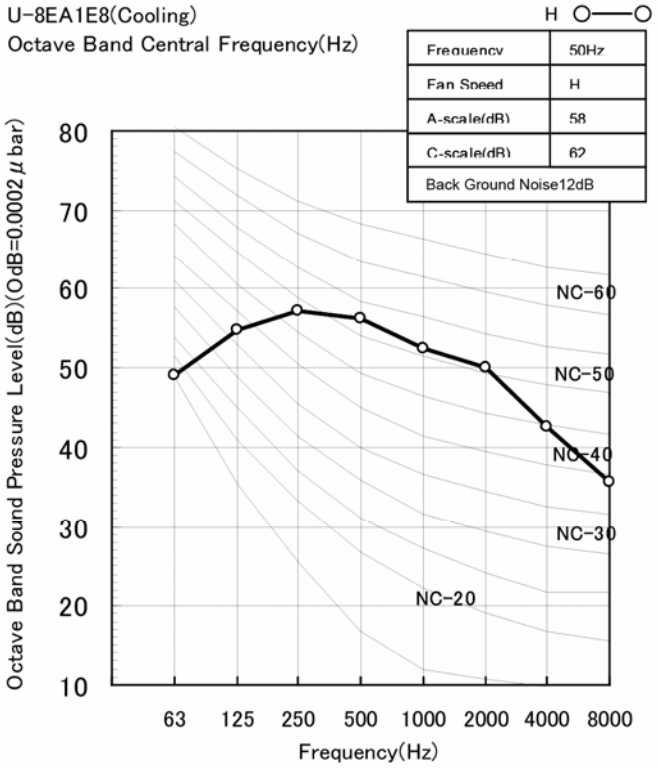
H ○——○
M △——△
L □——□

Frequency	50Hz		
Fan Speed	H	M	L
A-scale(dB)	3	3	3
C-scale(dB)	4	4	3
Back Ground Noise 12dB			

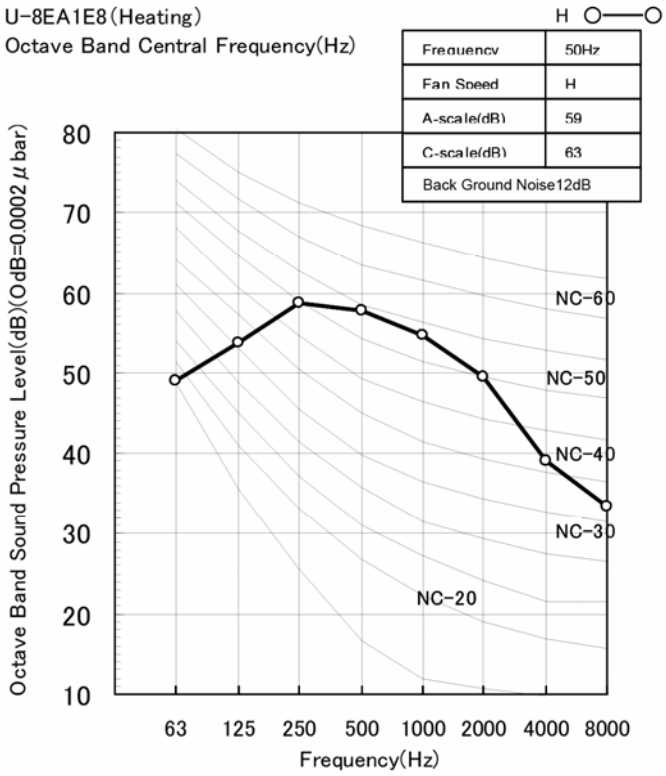


27.8 Outdoor Unit

U-8EA1E8(Cooling)

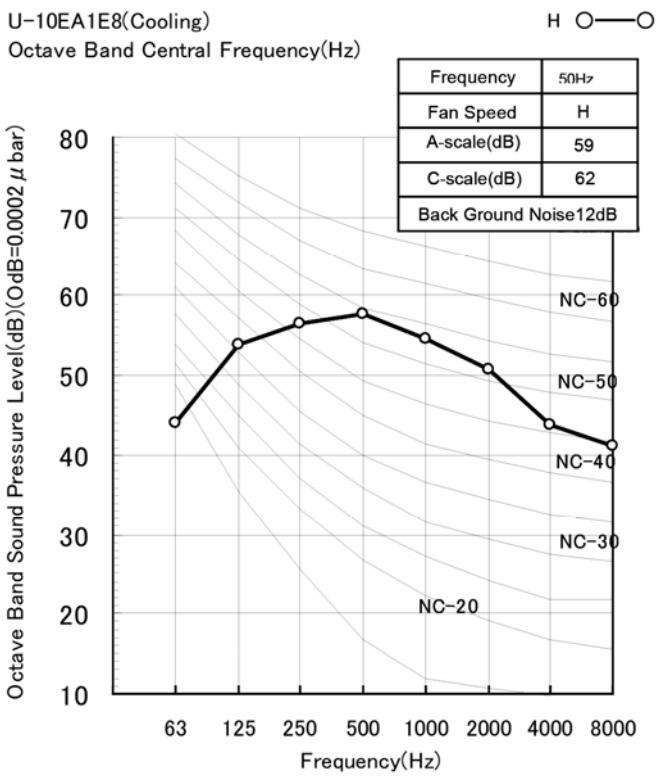


U-8EA1E8(Heating)

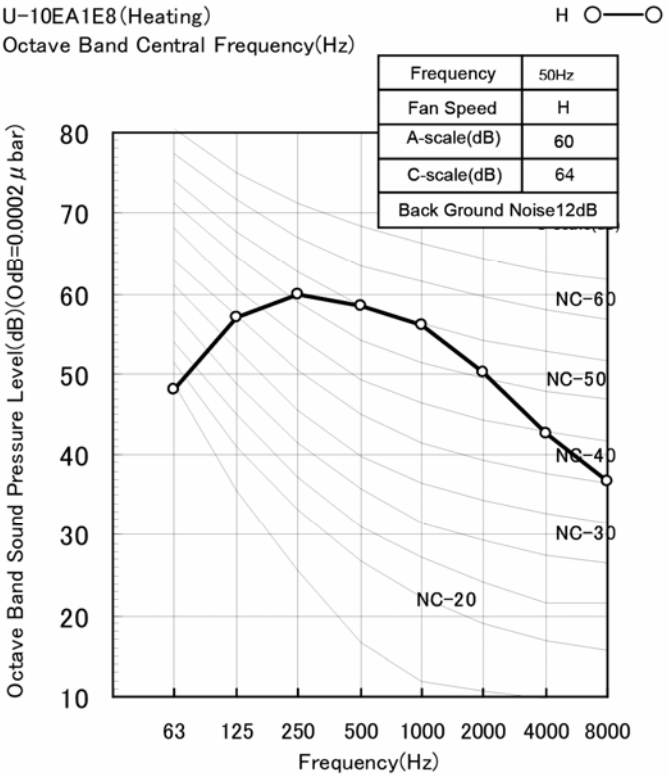


U-10EA1E8

U-10EA1E8(Cooling)



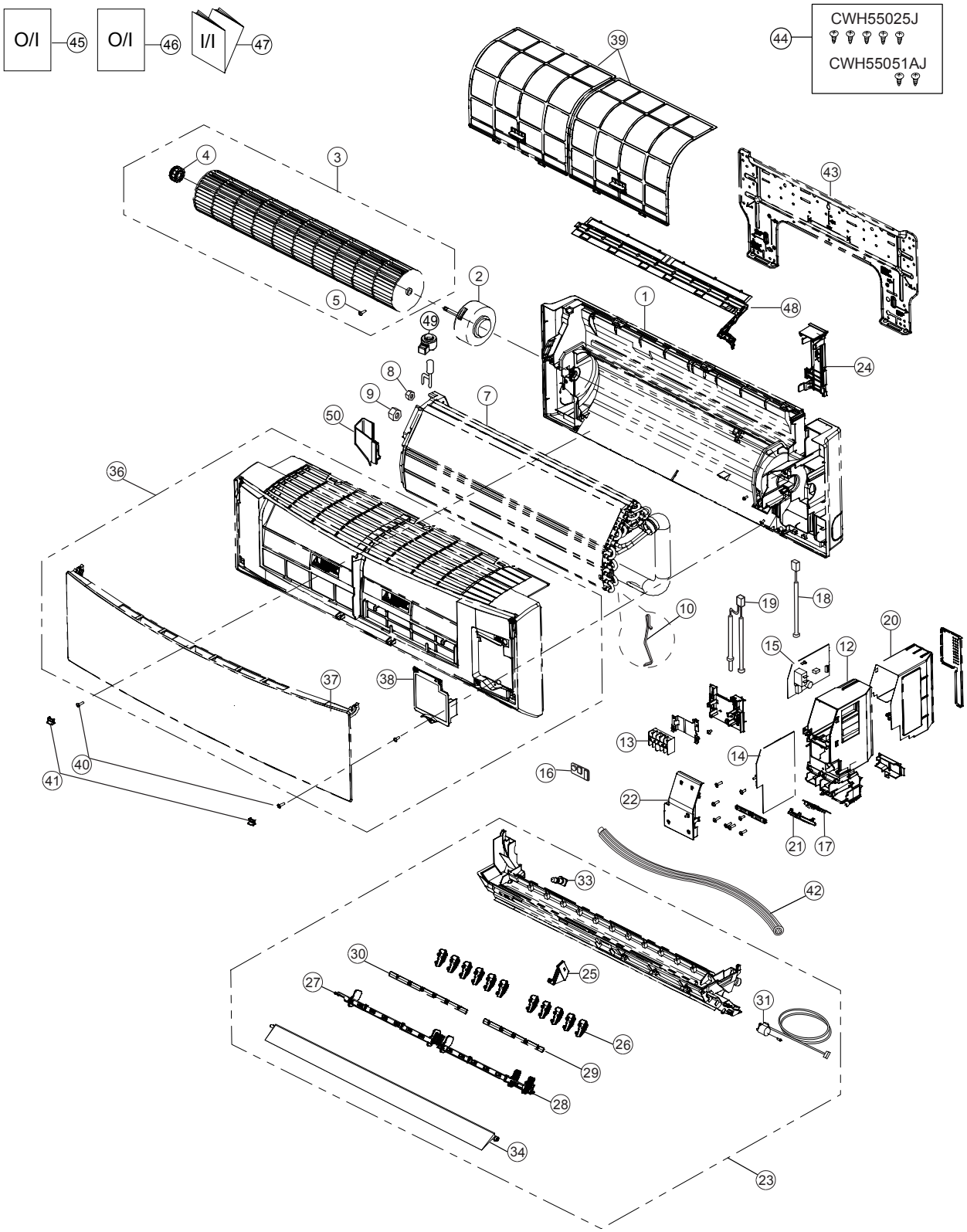
U-10EA1E8(Heating)



28. Exploded View and Replacement Parts List

28.1 Indoor Unit

28.1.1 S-22KA1E5 S-22KA1E5S S-28KA1E5 S-28KA1E5S S-36KA1E5 S-36KA1E5S S-45KA1E5 S-45KA1E5S



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY	S-22KA1E5	S-22KA1E5S	REMARK
1	CHASSY COMPLETE	1	CWD50C1653	CWD50C1666	
2	FAN MOTOR	1	L6CBYYYL0058	L6CBYYYL0058	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1076	CWH02C1076	
4	BEARING ASS'Y	1	CWH64K007	CWH64K007	
5	SCREW - CROSS FLOW FAN	1	CWH551146	CWH551146	
7	EVAPORATOR	1	CWB30C3135	CWB30C3135	
8	FLARE NUT (LIQUID)	1	CWT251030	CWT251030	
9	FLARE NUT (GAS)	1	CWT251032	CWT251032	
10	HOLDER SENSOR	1	CWH32143	CWH32143	
12	CONTROL BOARD CASING	1	CWH102370	CWH102370	
13	TERMINAL BOARD COMPLETE	1	CWA28C2484	CWA28C2484	O
14	ELECTRONIC CONTROLLER - MAIN	1	CWA73C4578	CWA73C4578	O
15	ELECTRONIC CONTROLLER - POWER	1	CWA745499	CWA745499	O
16	ELECTRONIC CONTROLLER-DISPLAY	1	CWA745770	CWA745770	O
17	ELECTRONIC CONTROLLER-INDICATOR & RECEIVER	1	CWA745769	CWA745769	O
18	SENSOR COMPLETE (AIR TEMP)	1	CWA50C2687	CWA50C2687	O
19	SENSOR COMPLETE(GAS & PIPE TEMP)	1	CWA50C2688	CWA50C2688	O
20	CONTROL BOARD TOP COVER	1	CWH131350	CWH131350	
21	INDICATOR HOLDER	1	CWD933021	CWD933021	
22	CONTROL BOARD FRONT COVER	1	CWH13C1212	CWH13C1212	
23	DISCHARGE GRILLE COMPLETE	1	CWE20C3084	CWE20C3083	
24	BACK COVER CHASSIS	1	CWD933019	CWD933019A	
25	FULCRUM	1	CWH621102	CWH621102	
26	VERTICAL VANE	11	CWE241287	CWE241287	
27	CONNECTING BAR	1	CWE261152	CWE261152	
28	CONNECTING BAR	1	CWE261153	CWE261153	
29	CONNECTING BAR	1	CWE261154	CWE261154	
30	CONNECTING BAR	1	CWE261155	CWE261155	
31	AIR SWING MOTOR	1	CWA981240	CWA981240	O
33	CAP - DRAIN TRAY	1	CWH521096	CWH521096	
34	HORIZONTAL VANE	1	CWE24C1268	CWE24C1288	
36	FRONT GRILLE COMPLETE	1	CWE11C4550	CWE11C4551	O
37	INTAKE GRILLE COMPLETE	1	CWE22C1507	CWE22C1482	
38	GRILLE DOOR	1	CWE14C1029	CWE14C1038	
39	AIR FILTER	2	CWD001279	CWD001279	
40	SCREW - FRONT GRILLE	2	XTT4+16CFJ	XTT4+16CFJ	
41	CAP - FRONT GRILLE	2	CWH521194	CWH521194A	
42	DRAIN HOSE	1	CWH851173	CWH851173	
43	INSTALLATION PLATE	1	CWH361097	CWH361097	
44	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	CWH82C1705	
45	OPERATING INSTRUCTION	1	CWF567211	CWF567211	
46	OPERATING INSTRUCTION	1	CWF567361	CWF567361	
47	INSTALLATION INSTRUCTION	1	CWF614160	CWF614160	
48	PARTICULAR PLATE COMPLETE	1	CWD91C0128	CWD91C0128	
49	V-COIL COMPLETE	1	CWA43C2372	CWA43C2372	
50	DRAIN PAN	1	CWH401062	CWH401062	

(Note)

- All parts are supplied from PHAAM, Malaysia (Vendor Code: 00029488)
- "O" marked parts are recommended to be kept in stock.

REF. NO.	PART NAME & DESCRIPTION	QTY	S-28KA1E5	S-28KA1E5S	REMARK
1	CHASSY COMPLETE	1	CWD50C1653	CWD50C1666	
2	FAN MOTOR	1	L6CBYYYL0058	L6CBYYYL0058	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1076	CWH02C1076	
4	BEARING ASS'Y	1	CWH64K007	CWH64K007	
5	SCREW - CROSS FLOW FAN	1	CWH551146	CWH551146	
7	EVAPORATOR	1	CWB30C3136	CWB30C3136	
8	FLARE NUT (LIQUID)	1	CWT251030	CWT251030	
9	FLARE NUT (GAS)	1	CWT251032	CWT251032	
10	HOLDER SENSOR	1	CWH32143	CWH32143	
12	CONTROL BOARD CASING	1	CWH102370	CWH102370	
13	TERMINAL BOARD COMPLETE	1	CWA28C2484	CWA28C2484	O
14	ELECTRONIC CONTROLLER - MAIN	1	CWA73C4579	CWA73C4579	O
15	ELECTRONIC CONTROLLER - POWER	1	CWA745499	CWA745499	O
16	ELECTRONIC CONTROLLER-DISPLAY	1	CWA745770	CWA745770	O
17	ELECTRONIC CONTROLLER-INDICATOR & RECEIVER	1	CWA745769	CWA745769	O
18	SENSOR COMPLETE (AIR TEMP)	1	CWA50C2687	CWA50C2687	O
19	SENSOR COMPLETE(GAS & PIPE TEMP)	1	CWA50C2688	CWA50C2688	O
20	CONTROL BOARD TOP COVER	1	CWH131350	CWH131350	
21	INDICATOR HOLDER	1	CWD933021	CWD933021	
22	CONTROL BOARD FRONT COVER	1	CWH13C1212	CWH13C1212	
23	DISCHARGE GRILLE COMPLETE	1	CWE20C3084	CWE20C3083	
24	BACK COVER CHASSIS	1	CWD933019	CWD933019A	
25	FULCRUM	1	CWH621102	CWH621102	
26	VERTICAL VANE	11	CWE241287	CWE241287	
27	CONNECTING BAR	1	CWE261152	CWE261152	
28	CONNECTING BAR	1	CWE261153	CWE261153	
29	CONNECTING BAR	1	CWE261154	CWE261154	
30	CONNECTING BAR	1	CWE261155	CWE261155	
31	AIR SWING MOTOR	1	CWA981240	CWA981240	O
33	CAP - DRAIN TRAY	1	CWH521096	CWH521096	
34	HORIZONTAL VANE	1	CWE24C1268	CWE24C1288	
36	FRONT GRILLE COMPLETE	1	CWE11C4550	CWE11C4551	O
37	INTAKE GRILLE COMPLETE	1	CWE22C1507	CWE22C1482	
38	GRILLE DOOR	1	CWE14C1029	CWE14C1038	
39	AIR FILTER	2	CWD001279	CWD001279	
40	SCREW - FRONT GRILLE	2	XTT4+16CFJ	XTT4+16CFJ	
41	CAP - FRONT GRILLE	2	CWH521194	CWH521194A	
42	DRAIN HOSE	1	CWH851173	CWH851173	
43	INSTALLATION PLATE	1	CWH361097	CWH361097	
44	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	CWH82C1705	
45	OPERATING INSTRUCTION	1	CWF567211	CWF567211	
46	OPERATING INSTRUCTION	1	CWF567361	CWF567361	
47	INSTALLATION INSTRUCTION	1	CWF614160	CWF614160	
48	PARTICULAR PLATE COMPLETE	1	CWD91C0128	CWD91C0128	
49	V-COIL COMPLETE	1	CWA43C2372	CWA43C2372	
50	DRAIN PAN	1	CWH401062	CWH401062	

(Note)

- All parts are supplied from PHAAM, Malaysia (Vendor Code: 00029488)
- "O" marked parts are recommended to be kept in stock.

REF. NO.	PART NAME & DESCRIPTION	QTY	S-36KA1E5	S-36KA1E5S	REMARK
1	CHASSY COMPLETE	1	CWD50C1653	CWD50C1666	
2	FAN MOTOR	1	L6CBYYYL0058	L6CBYYYL0058	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1076	CWH02C1076	
4	BEARING ASS'Y	1	CWH64K007	CWH64K007	
5	SCREW - CROSS FLOW FAN	1	CWH551146	CWH551146	
7	EVAPORATOR	1	CWB30C3136	CWB30C3136	
8	FLARE NUT (LIQUID)	1	CWT251030	CWT251030	
9	FLARE NUT (GAS)	1	CWT251032	CWT251032	
10	HOLDER SENSOR	1	CWH32143	CWH32143	
12	CONTROL BOARD CASING	1	CWH102370	CWH102370	
13	TERMINAL BOARD COMPLETE	1	CWA28C2484	CWA28C2484	O
14	ELECTRONIC CONTROLLER - MAIN	1	CWA73C4580	CWA73C4580	O
15	ELECTRONIC CONTROLLER - POWER	1	CWA745499	CWA745499	O
16	ELECTRONIC CONTROLLER-DISPLAY	1	CWA745770	CWA745770	O
17	ELECTRONIC CONTROLLER-INDICATOR & RECEIVER	1	CWA745769	CWA745769	O
18	SENSOR COMPLETE (AIR TEMP)	1	CWA50C2687	CWA50C2687	O
19	SENSOR COMPLETE(GAS & PIPE TEMP)	1	CWA50C2688	CWA50C2688	O
20	CONTROL BOARD TOP COVER	1	CWH131350	CWH131350	
21	INDICATOR HOLDER	1	CWD933021	CWD933021	
22	CONTROL BOARD FRONT COVER	1	CWH13C1212	CWH13C1212	
23	DISCHARGE GRILLE COMPLETE	1	CWE20C3084	CWE20C3083	
24	BACK COVER CHASSIS	1	CWD933019	CWD933019A	
25	FULCRUM	1	CWH621102	CWH621102	
26	VERTICAL VANE	11	CWE241287	CWE241287	
27	CONNECTING BAR	1	CWE261152	CWE261152	
28	CONNECTING BAR	1	CWE261153	CWE261153	
29	CONNECTING BAR	1	CWE261154	CWE261154	
30	CONNECTING BAR	1	CWE261155	CWE261155	
31	AIR SWING MOTOR	1	CWA981240	CWA981240	O
33	CAP - DRAIN TRAY	1	CWH521096	CWH521096	
34	HORIZONTAL VANE	1	CWE24C1268	CWE24C1288	
36	FRONT GRILLE COMPLETE	1	CWE11C4550	CWE11C4551	O
37	INTAKE GRILLE COMPLETE	1	CWE22C1507	CWE22C1482	
38	GRILLE DOOR	1	CWE14C1029	CWE14C1038	
39	AIR FILTER	2	CWD001279	CWD001279	
40	SCREW - FRONT GRILLE	2	XTT4+16CFJ	XTT4+16CFJ	
41	CAP - FRONT GRILLE	2	CWH521194	CWH521194A	
42	DRAIN HOSE	1	CWH851173	CWH851173	
43	INSTALLATION PLATE	1	CWH361097	CWH361097	
44	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	CWH82C1705	
45	OPERATING INSTRUCTION	1	CWF567211	CWF567211	
46	OPERATING INSTRUCTION	1	CWF567361	CWF567361	
47	INSTALLATION INSTRUCTION	1	CWF614160	CWF614160	
48	PARTICULAR PLATE COMPLETE	1	CWD91C0128	CWD91C0128	
49	V-COIL COMPLETE	1	CWA43C2372	CWA43C2372	
50	DRAIN PAN	1	CWH401062	CWH401062	

(Note)

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- "O" marked parts are recommended to be kept in stock.

REF. NO.	PART NAME & DESCRIPTION	QTY	S-45KA1E5	S-45KA1E5S	REMARK
1	CHASSY COMPLETE	1	CWD50C1653	CWD50C1666	
2	FAN MOTOR	1	L6CBYYYL0058	L6CBYYYL0058	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1076	CWH02C1076	
4	BEARING ASS'Y	1	CWH64K007	CWH64K007	
5	SCREW - CROSS FLOW FAN	1	CWH551146	CWH551146	
7	EVAPORATOR	1	CWB30C3136	CWB30C3136	
8	FLARE NUT (LIQUID)	1	CWT251030	CWT251030	
9	FLARE NUT (GAS)	1	CWT251032	CWT251032	
10	HOLDER SENSOR	1	CWH32143	CWH32143	
12	CONTROL BOARD CASING	1	CWH102370	CWH102370	
13	TERMINAL BOARD COMPLETE	1	CWA28C2484	CWA28C2484	O
14	ELECTRONIC CONTROLLER - MAIN	1	CWA73C4581	CWA73C4581	O
15	ELECTRONIC CONTROLLER - POWER	1	CWA745499	CWA745499	O
16	ELECTRONIC CONTROLLER-DISPLAY	1	CWA745770	CWA745770	O
17	ELECTRONIC CONTROLLER-INDICATOR & RECEIVER	1	CWA745769	CWA745769	O
18	SENSOR COMPLETE (AIR TEMP)	1	CWA50C2687	CWA50C2687	O
19	SENSOR COMPLETE(GAS & PIPE TEMP)	1	CWA50C2688	CWA50C2688	O
20	CONTROL BOARD TOP COVER	1	CWH131350	CWH131350	
21	INDICATOR HOLDER	1	CWD933021	CWD933021	
22	CONTROL BOARD FRONT COVER	1	CWH13C1212	CWH13C1212	
23	DISCHARGE GRILLE COMPLETE	1	CWE20C3084	CWE20C3083	
24	BACK COVER CHASSIS	1	CWD933019	CWD933019A	
25	FULCRUM	1	CWH621102	CWH621102	
26	VERTICAL VANE	11	CWE241287	CWE241287	
27	CONNECTING BAR	1	CWE261152	CWE261152	
28	CONNECTING BAR	1	CWE261153	CWE261153	
29	CONNECTING BAR	1	CWE261154	CWE261154	
30	CONNECTING BAR	1	CWE261155	CWE261155	
31	AIR SWING MOTOR	1	CWA981240	CWA981240	O
33	CAP - DRAIN TRAY	1	CWH521096	CWH521096	
34	HORIZONTAL VANE	1	CWE24C1268	CWE24C1288	
36	FRONT GRILLE COMPLETE	1	CWE11C4550	CWE11C4551	O
37	INTAKE GRILLE COMPLETE	1	CWE22C1507	CWE22C1482	
38	GRILLE DOOR	1	CWE14C1029	CWE14C1038	
39	AIR FILTER	2	CWD001279	CWD001279	
40	SCREW - FRONT GRILLE	2	XTT4+16CFJ	XTT4+16CFJ	
41	CAP - FRONT GRILLE	2	CWH521194	CWH521194A	
42	DRAIN HOSE	1	CWH851173	CWH851173	
43	INSTALLATION PLATE	1	CWH361097	CWH361097	
44	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	CWH82C1705	
45	OPERATING INSTRUCTION	1	CWF567211	CWF567211	
46	OPERATING INSTRUCTION	1	CWF567361	CWF567361	
47	INSTALLATION INSTRUCTION	1	CWF614160	CWF614160	
48	PARTICULAR PLATE COMPLETE	1	CWD91C0128	CWD91C0128	
49	V-COIL COMPLETE	1	CWA43C2372	CWA43C2372	
50	DRAIN PAN	1	CWH401062	CWH401062	

(Note)

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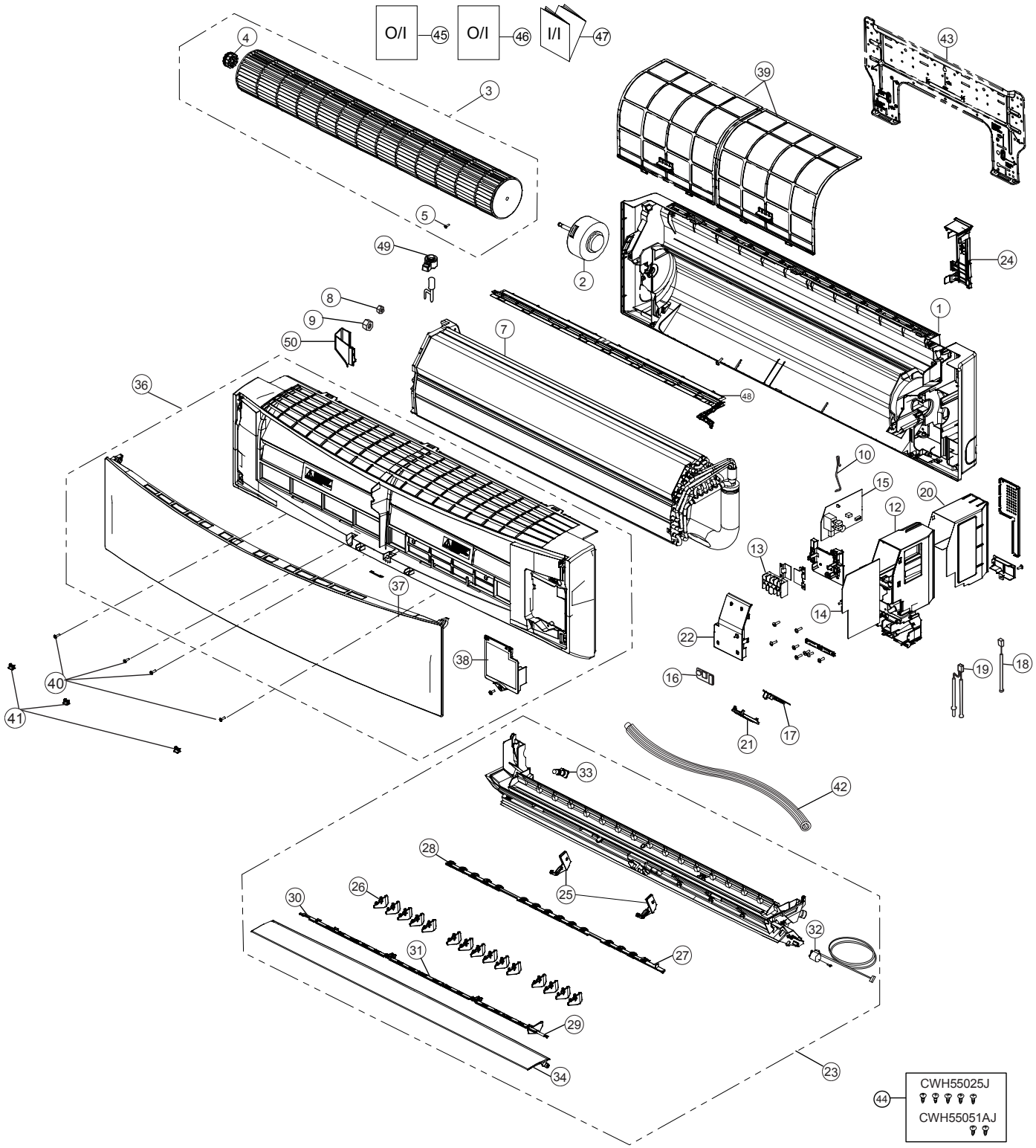
28.1.2 S-56KA1E5 S-63KA1E5 S-71KA1E5



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY	S-56KA1E5	S-63KA1E5	S-71KA1E5	REMARK
1	CHASSY COMPLETE	1	CWD50C1665	CWD50C1665	CWD50C1665	
2	FAN MOTOR	1	L6CBYYYL0057	L6CBYYYL0057	L6CBYYYL0057	O
3	CROSS FLOW FAN COMPLETE	1	CWH02C1077	CWH02C1077	CWH02C1077	
4	BEARING ASS'Y	1	CWH64K007	CWH64K007	CWH64K007	
5	SCREW - CROSS FLOW FAN	1	CWH551146	CWH551146	CWH551146	
7	EVAPORATOR	1	CWB30C3141	CWB30C3151	CWB30C3160	
8	FLARE NUT (LIQUID)	1	CWT251030	CWT251030	CWT251031	
9	FLARE NUT (GAS)	1	CWT251032	CWT251032	CWT251033	
10	HOLDER SENSOR	1	CWH32143	CWH32143	CWH32143	
12	CONTROL BOARD CASING	1	CWH102370	CWH102370	CWH102370	
13	TERMINAL BOARD COMPLETE	1	CWA28C2484	CWA28C2484	CWA28C2484	O
14	ELECTRONIC CONTROLLER - MAIN	1	CWA73C4582	CWA73C4583	CWA73C4584	O
15	ELECTRONIC CONTROLLER - POWER	1	CWA745499	CWA745499	CWA745499	O
16	ELECTRONIC CONTROLLER-DISPLAY	1	CWA745770	CWA745770	CWA745770	O
17	ELECTRONIC CONTROLLER-INDICATOR & RECEIVER	1	CWA745769	CWA745769	CWA745769	O
18	SENSOR COMPLETE (AIR TEMP)	1	CWA50C2687	CWA50C2687	CWA50C2687	O
19	SENSOR COMPLETE(GAS & PIPE TEMP)	1	CWA50C2688	CWA50C2688	CWA50C2688	O
20	CONTROL BOARD TOP COVER	1	CWH131350	CWH131350	CWH131350	
21	INDICATOR HOLDER	1	CWD933021	CWD933021	CWD933021	
22	CONTROL BOARD FRONT COVER	1	CWH13C1212	CWH13C1212	CWH13C1212	
23	DISCHARGE GRILLE COMPLETE	1	CWE20C3008	CWE20C3008	CWE20C3008	
24	BACK COVER CHASSIS	1	CWD933031	CWD933031	CWD933031	
25	FULCRUM	2	CWH621103	CWH621103	CWH621103	
26	VERTICAL VANE	15	CWE241289	CWE241289	CWE241289	
27	CONNECTING BAR	1	CWE261156	CWE261156	CWE261156	
28	CONNECTING BAR	1	CWE261158	CWE261158	CWE261158	
29	CONNECTING BAR	1	CWE261167	CWE261167	CWE261167	
30	CONNECTING BAR	1	CWE261159	CWE261159	CWE261159	
31	CONNECTING BAR	1	CWE261160	CWE261160	CWE261160	
32	AIR SWING MOTOR	1	CWA981241	CWA981241	CWA981241	O
33	CAP - DRAIN TRAY	1	CWH521096	CWH521096	CWH521096	
34	HORIZONTAL VANE	1	CWE24C1295	CWE24C1295	CWE24C1295	O
36	FRONT GRILLE COMPLETE	1	CWE11C4552	CWE11C4553	CWE11C4553	
37	INTAKE GRILLE COMPLETE	1	CWE22C1483	CWE22C1483	CWE22C1483	
38	GRILLE DOOR	1	CWE14C1029	CWE14C1029	CWE14C1029	
39	AIR FILTER	2	CWD001283	CWD001283	CWD001283	
40	SCREW - FRONT GRILLE	4	XTT4+16CFJ	XTT4+16CFJ	XTT4+16CFJ	
41	CAP - FRONT GRILLE	3	CWH521194	CWH521194	CWH521194	
42	DRAIN HOSE	1	CWH851173	CWH851173	CWH851173	
43	INSTALLATION PLATE	1	CWH361098	CWH361098	CWH361098	
44	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	CWH82C1705	CWH82C1705	
45	OPERATING INSTRUCTION	1	CWF567211	CWF567211	CWF567211	
46	OPERATING INSTRUCTION	1	CWF567361	CWF567361	CWF567361	
47	INSTALLATION INSTRUCTION	1	CWF614160	CWF614160	CWF614160	
48	PARTICULAR PLATE COMPLETE	1	CWD91C0133	CWD91C0133	CWD91C0133	

49	V-COIL COMPLETE	1	CWA43C2371	CWA43C2371	CWA43C2371	
50	DRAIN PAN	1	CWH401062	CWH401062	CWH401062	

(Note)

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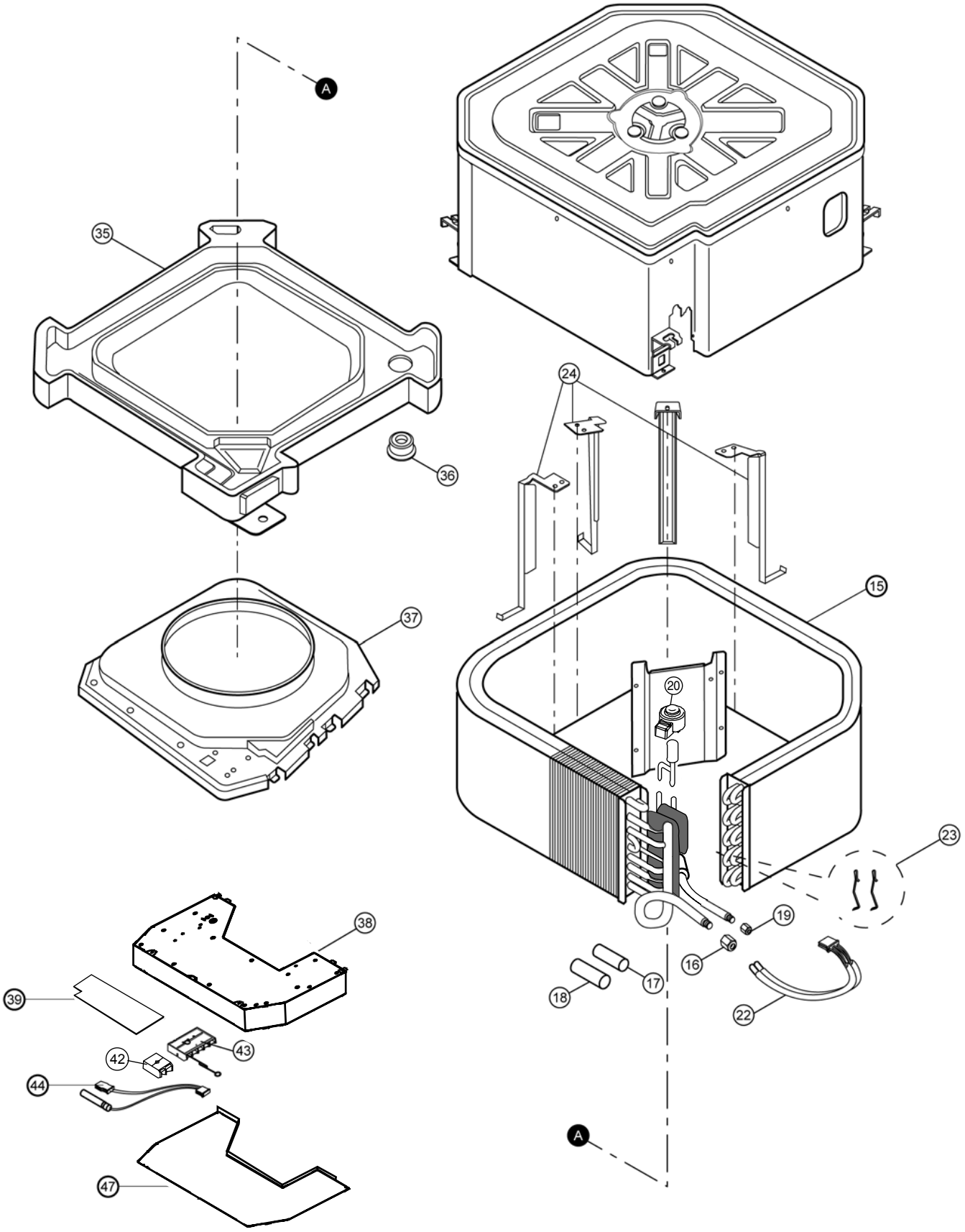
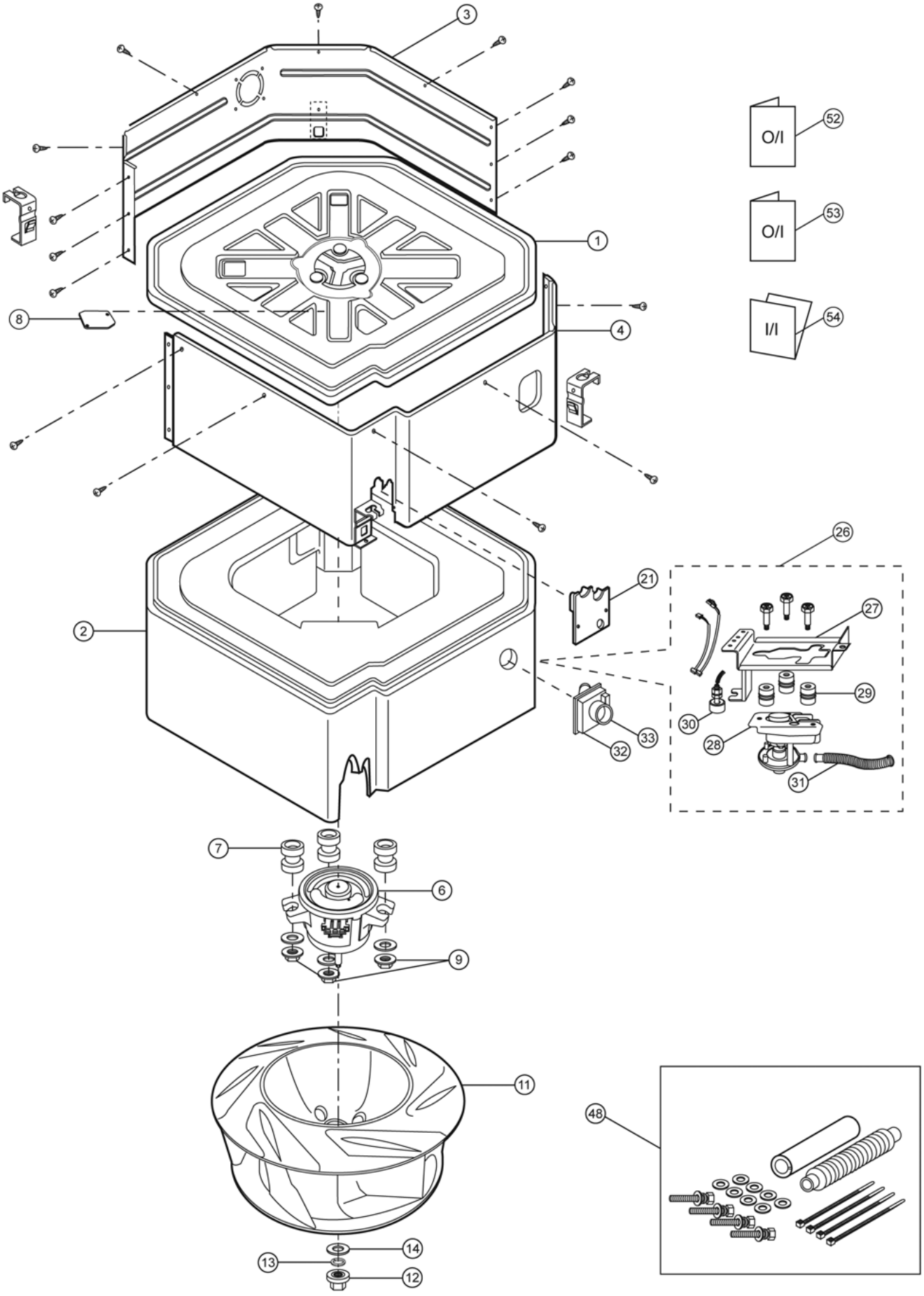
28.1.3 S-22YA1E5 S-28YA1E5 S-36YA1E5 S-45YA1E5 S-56YA1E5



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY	S-22YA1E5	S-28YA1E5	S-36YA1E5	REMARK
1	BASE PAN ASS'Y	1	CWD52K1100	CWD52K1100	CWD52K1100	
2	INNER POLYSTYRENE COMPLETE	1	CWG07C1067	CWG07C1067	CWG07C1067	
3	CABINET SIDE PLATE ASS'Y	1	CWE041121	CWE041121	CWE041121	
4	CABINET SIDE PLATE ASS'Y	1	CWE041122	CWE041122	CWE041122	
6	FAN MOTOR,DC 40W 3 PH	1	L6CBYYYL0048	L6CBYYYL0048	L6CBYYYL0048	O
7	ANTI-VIBRATION BUSHING	3	CWH501105	CWH501105	CWH501105	
8	CORD HOLDER	1	CWD741024	CWD741024	CWD741024	
9	SCREW - FAN MOTOR	3	CWH561058	CWH561058	CWH561058	
11	TURBO FAN	1	CWH03K1022	CWH03K1022	CWH03K1022	
12	NUT for TURBO FAN	1	CWH561042	CWH561042	CWH561042	
13	SPRING WASHER	1	XWA8BFJ	XWA8BFJ	XWA8BFJ	
14	PLAIN WASHER	1	XWG8H22FJ	XWG8H22FJ	XWG8H22FJ	
15	EVAPORATOR COMPLETE	1	CWB30C3133	CWB30C3155	CWB30C3155	
16	FLARE NUT (1/2")	1	CWT251032	CWT251032	CWT251032	
17	HEATPROOF TUBE	1	CWG021023	CWG021023	CWG021023	
18	HEATPROOF TUBE	1	CWG021064	CWG021064	CWG021064	
19	FLARE NUT (1/4")	1	CWT251030	CWT251030	CWT251030	
21	PIPE COVER	1	CWD93C1099	CWD93C1099	CWD93C1099	
20	V-COIL COMPLETE	2	CWA43C2386	CWA43C2386	CWA43C2386	
22	SENSOR - EVAPORATOR	1	CWA50C2735	CWA50C2735	CWA50C2735	
23	HOLDER SENSOR	2	CWH32143	CWH32143	CWH32143	
24	EVAPORATOR SUPPORTER	3	CWD911529A	CWD911529A	CWD911529A	
26	DRAIN PUMP COMPLETE	1	CWB53C1038	CWB53C1038	CWB53C1038	
27	PANEL DRAIN PUMP ASS'Y	1	CWD93K1021	CWD93K1021	CWD93K1021	
28	DRAIN PUMP	1	CWB532093	CWB532093	CWB532093	
29	ANTI - VIBRATION BUSHING	3	CWH501080	CWH501080	CWH501080	
30	FLOAT SWITCH - DRAIN PUMP	1	CWA121285	CWA121285	CWA121285	
31	FLEXIBLE PIPE	1	CWH85C1033	CWH85C1033	CWH85C1033	
32	DRAIN NOZZLE	1	CWH411011	CWH411011	CWH411011	
33	DRAIN HOSE HEAT INSULATION	1	CWG321050	CWG321050	CWG321050	
35	DRAIN PAN - COMPLETE	1	CWH40C1071	CWH40C1071	CWH40C1071	
36	DRAIN PLUG	1	CWB821008	CWB821008	CWB821008	
37	AIR GUIDER BLOWER WHEEL	1	CWD321058	CWD321058	CWD321058	
38	CONTROL BOARD CASING	1	CWH10K1108	CWH10K1108	CWH10K1108	
39	ELECTRONIC CONTROLLER - MAIN	1	CWA73C4573	CWA73C4574	CWA73C4575	O
42	TERMINAL BOARD ASS'Y	1	CWA28K1042J	CWA28K1042J	CWA28K1042J	O
43	TERMINAL BOARD ASS'Y	1	CWA28K1202	CWA28K1202	CWA28K1202	O
44	LEADWIRE-AIR TEMP. SENSOR	1	CWA67C8544	CWA67C8544	CWA67C8544	O
47	CONTROL BOARD COVER	1	CWH13C1202	CWH13C1202	CWH13C1202	
48	ACCESSORY COMPLETE	1	CWH82C1270	CWH82C1270	CWH82C1270	
52	OPERATING INSTRUCTION	1	CWF567156	CWF567156	CWF567156	
53	OPERATING INSTRUCTION	1	CWF567157	CWF567157	CWF567157	
54	INSTALLATION INSTRUCTION	1	CWF614111	CWF614111	CWF614111	

(Note)

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REF. NO.	PART NAME & DESCRIPTION	QTY	S-45YA1E5	S-56YA1E5	REMARK
1	BASE PAN ASS'Y	1	CWD52K1100	CWD52K1100	
2	INNER POLYSTYRENE COMPLETE	1	CWG07C1067	CWG07C1067	
3	CABINET SIDE PLATE ASS'Y	1	CWE041121	CWE041121	
4	CABINET SIDE PLATE ASS'Y	1	CWE041122	CWE041122	
6	FAN MOTOR,DC 40W 3 PH	1	L6CBYYYL0048	L6CBYYYL0048	O
7	ANTI-VIBRATION BUSHING	3	CWH501105	CWH501105	
8	CORD HOLDER	1	CWD741024	CWD741024	
9	SCREW - FAN MOTOR	3	CWH561058	CWH561058	
11	TURBO FAN	1	CWH03K1022	CWH03K1022	
12	NUT for TURBO FAN	1	CWH561042	CWH561042	
13	SPRING WASHER	1	XWA8BFJ	XWA8BFJ	
14	PLAIN WASHER	1	XWG8H22FJ	XWG8H22FJ	
15	EVAPORATOR COMPLETE	1	CWB30C3155	CWB30C3155	
16	FLARE NUT (1/2")	1	CWT251032	CWT251032	
17	HEATPROOF TUBE	1	CWG021023	CWG021023	
18	HEATPROOF TUBE	1	CWG021064	CWG021064	
19	FLARE NUT (1/4")	1	CWT251030	CWT251030	
21	PIPE COVER	1	CWD93C1099	CWD93C1099	
20	V-COIL COMPLETE	2	CWA43C2386	CWA43C2386	
22	SENSOR - EVAPORATOR	1	CWA50C2735	CWA50C2735	
23	HOLDER SENSOR	2	CWH32143	CWH32143	
24	EVAPORATOR SUPPORTER	3	CWD911529A	CWD911529A	
26	DRAIN PUMP COMPLETE	1	CWB53C1038	CWB53C1038	
27	PANEL DRAIN PUMP ASS'Y	1	CWD93K1021	CWD93K1021	
28	DRAIN PUMP	1	CWB532093	CWB532093	
29	ANTI - VIBRATION BUSHING	3	CWH501080	CWH501080	
30	FLOAT SWITCH - DRAIN PUMP	1	CWA121285	CWA121285	
31	FLEXIBLE PIPE	1	CWH85C1033	CWH85C1033	
32	DRAIN NOZZLE	1	CWH411011	CWH411011	
33	DRAIN HOSE HEAT INSULATION	1	CWG321050	CWG321050	
35	DRAIN PAN - COMPLETE	1	CWH40C1071	CWH40C1071	
36	DRAIN PLUG	1	CWB821008	CWB821008	
37	AIR GUIDER BLOWER WHEEL	1	CWD321058	CWD321058	
38	CONTROL BOARD CASING	1	CWH10K1108	CWH10K1108	
39	ELECTRONIC CONTROLLER - MAIN	1	CWA73C4576	CWA73C4577	O
42	TERMINAL BOARD ASS'Y	1	CWA28K1042J	CWA28K1042J	O
43	TERMINAL BOARD ASS'Y	1	CWA28K1202	CWA28K1202	O
44	LEADWIRE-AIR TEMP. SENSOR	1	CWA67C8544	CWA67C8544	O
47	CONTROL BOARD COVER	1	CWH13C1202	CWH13C1202	
48	ACCESSORY COMPLETE	1	CWH82C1270	CWH82C1270	
52	OPERATING INSTRUCTION	1	CWF567156	CWF567156	
53	OPERATING INSTRUCTION	1	CWF567157	CWF567157	
54	INSTALLATION INSTRUCTION	1	CWF614111	CWF614111	

(Note)

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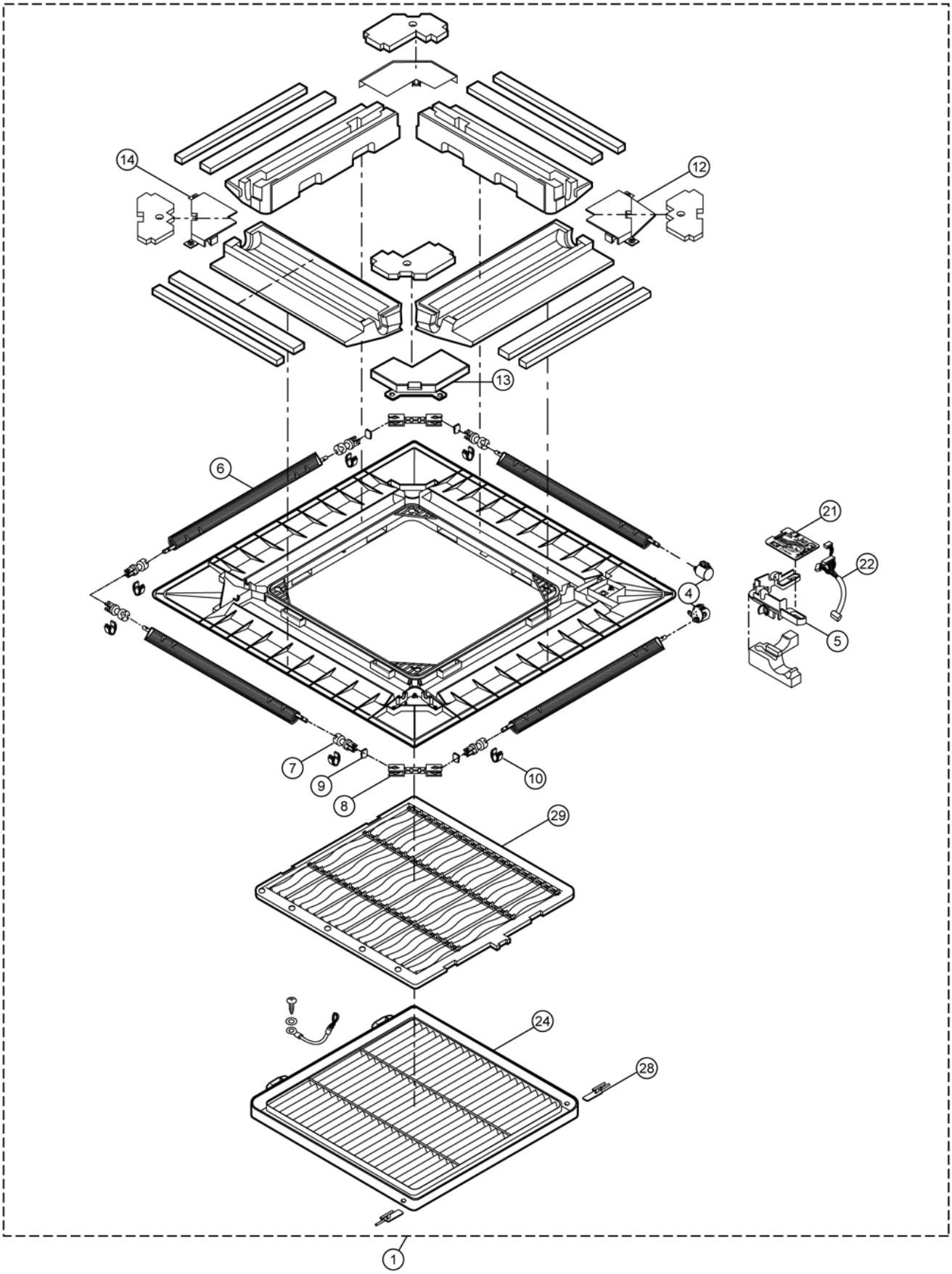

Note
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The non-numbered parts are not kept as standard service parts.

REF. NO.	PART DESCRIPTION	QTY	PART NO.	REMARK
1	FRONT GRILLE - COMPLETE	1	CWE11C4526	
4	A.S MOTOR DC SINGLE 12V 250 OHM	2	CWA981105J	
5	BRACKET - A.S.MOTOR	1	CWD932522	
6	VANE	4	CWE241159	
7	SHAFT	6	CWH631038	
8	SHAFT	2	CWH631045	
9	CONNECTOR - SHAFT	4	CWH081007	
10	BEARING	6	CWH641008	
12	PLATE COVER FOR A.S.MOTOR	1	CWD911459	
13	PLATE COVER FOR CONNECTING SHAFT	2	CWD911460	
14	PLATE COVER FOR END SHAFT	1	CWD911461	
21	ELECTRONIC CONT. (RECEIVER & INDICATOR)	1	CWA744545	
22	LEAD WIRE - COMPLETE	1	CWA67C8578	
24	INTAKE GRILLE	1	CWE221131	
28	LEVER ARM	2	CWH651029	
29	AIR FILTER	1	CWD001142	

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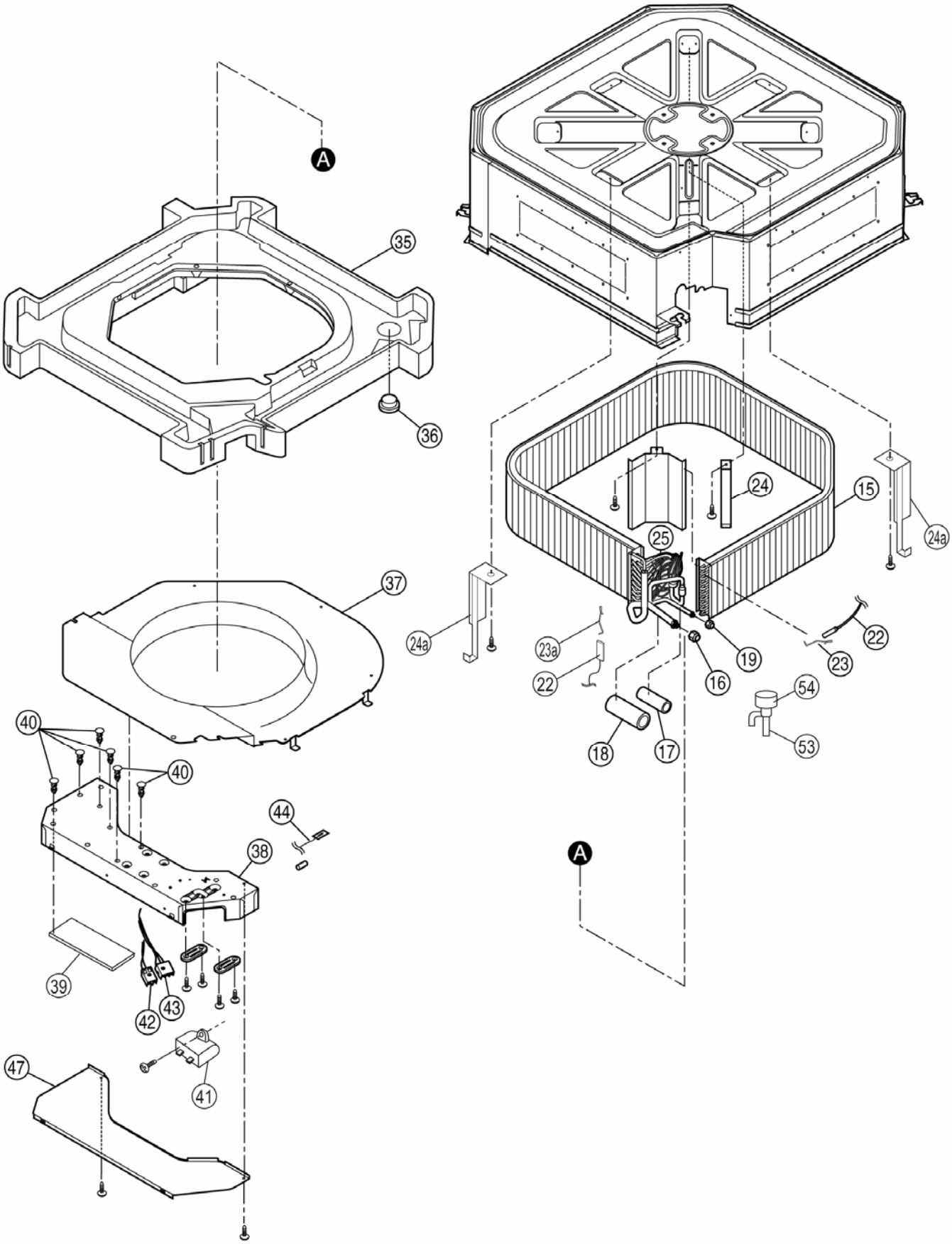
28.1.4 S-63UA1E5 S-71UA1E5 S-90UA1E5 S-100UA1E5 S-125UA1E5



Note
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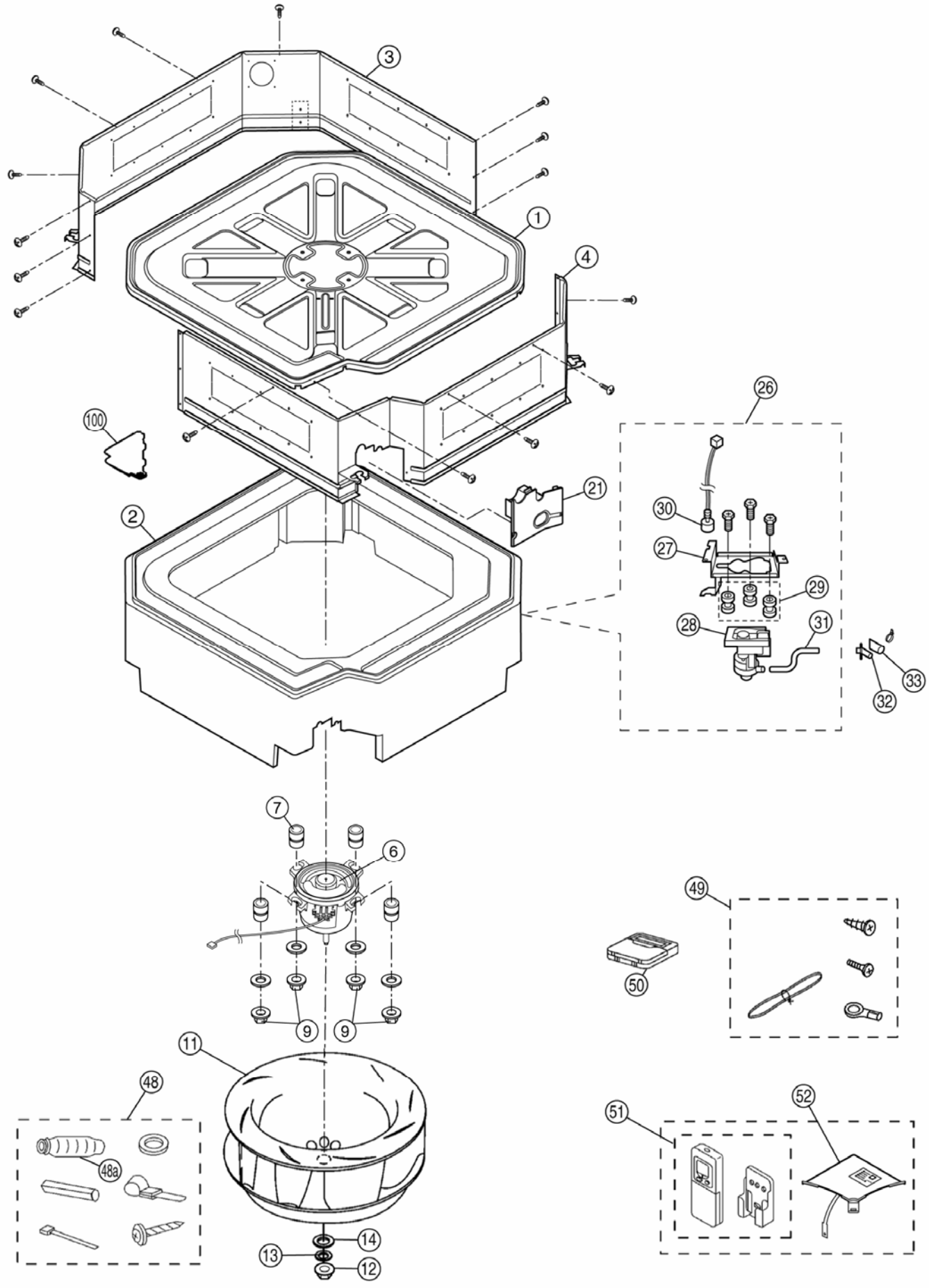
The non-numbered parts are not kept as standard service parts.



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY	S-63UA1E5	S-71UA1E5	S-90UA1E5	REMARK
1	BASE PAN ASS'Y	1	CWD52K1111	CWD52K1111	CWD52K1111	
2	INNER POLYSTYRENE COMPLETE	1	CWG07C1060	CWG07C1060	CWG07C1060	
3	CABINET SIDE PLATE	1	CWE041139	CWE041139	CWE041139	
4	CABINET SIDE PLATE	1	CWE041140	CWE041140	CWE041140	
6	FAN MOTOR	1	L6LAJYF00017	L6LAJYF00017	L6LAJYF00017	O
7	ANTI-VIBRATION BUSHING	4	CWH501016	CWH501016	CWH501016	
9	SCREW-FAN MOTOR	4	CWH7080300J	CWH7080300J	CWH7080300J	
11	TURBO FAN	1	CWH03K1021	CWH03K1021	CWH03K1021	
12	NUT FOR TURBO FAN	1	XNG8FJ	XNG8FJ	XNG8FJ	
13	SP WASHER	1	XWA8BFJ	XWA8BFJ	XWA8BFJ	
14	WASHER	1	CWH571048	CWH571048	CWH571048	
15	EVAPORATER COMPLETE	1	CWB30C3260	CWB30C3173	CWB30C3173	
16	FLARE NUT	1	CWT251032	CWT251033	CWT251033	
17	HEATPROOF TUBE	1	CWG122699	CWG122699	CWG122699	
18	HEATPROOF TUBE	1	CWG122692	CWG122692	CWG122692	
19	FLARE NUT	1	CWT25086	CWT25087	CWT25087	
21	PIPE COVER	1	CWD93C1052	CWD93C1052	CWD93C1052	
22	SENSOR-EVAPORATER	1	CWA50C2437	CWA50C2437	CWA50C2437	
23	PLATE SPRING	1	CWH711010	CWH711010	CWH711010	
23-a	PLATE SPRING	1	CWH711013	CWH711013	CWH711013	
24	EVAPORATER SUPPORTER	1	CWD911638A	CWD911638A	CWD911638A	
24-a	EVAPORATER SUPPORTER	2	CWD911689A	CWD911689A	CWD911689A	
25	TUBE ASS'Y (CAPIL. TUBE)	1	CWT07K1363	CWT07K1363	CWT07K1363	
26	DRAIN PUMP COMPLETE	1	CWB53C1023	CWB53C1023	CWB53C1023	
27	PANEL DRAIN PUMP ASS'Y	1	CWD93K1016	CWD93K1016	CWD93K1016	
28	DRAIN PUMP	1	CWB532065	CWB532065	CWB532065	
29	ANTI-VIBRATION BUSHING	3	CWH501097	CWH501097	CWH501097	
30	FLOAT SWITCH-DRAIN PUMP	1	CWA121244	CWA121244	CWA121244	
31	FLEXIBLE PIPE	1	CWH851156	CWH851156	CWH851156	
32	DRAIN NOZZLE	1	CWH411013	CWH411013	CWH411013	
33	DRAIN HOSE HEAT INSULATION	1	CWG101284	CWG101284	CWG101284	
35	DRAIN PAN-COMPLETE	1	CWH40C1053	CWH40C1053	CWH40C1053	
36	DRAIN PLUG	1	CWB821016	CWB821016	CWB821016	
37	AIR GUIDER B.W.	1	CWD321093	CWD321093	CWD321093	
38	CONTROL BOARD A'SSY	1	CWH10K1084	CWH10K1084	CWH10K1084	
39	ELECTRONIC CONTROLLER-COMPLETE	1	CWA73C4046	CWA73C4047	CWA73C4048	O
40	SPACER	6	CWH541026	CWH541026	CWH541026	
41	SH CAPACITOR	1	DS441255XPQE	DS441305XPQC	DS441305XPQC	
42	TERMINAL BOARD ASS'Y	1	CWA28K1042J	CWA28K1042J	CWA28K1042J	O
43	TERMINAL BOARD ASS'Y	1	CWA28K1202	CWA28K1202	CWA28K1202	O
44	LEAD WIRE-COMPLETE	1	CWA67C8646	CWA67C8646	CWA67C8646	
47	CONTROL BOARD COVER-COMPLETE	1	CWH13C1203	CWH13C1203	CWH13C1203	
48	ACCESSORY-COMPLETE	1	CWH82C1752	CWH82C1752	CWH82C1752	
48A	FLEXIBLE PIPE	1	CWH851032	CWH851032	CWH851032	
49	WIRED REMOTE CONTROL COMPLETE(ACCESSORY)	1	CWG87C2049	CWG87C2049	CWG87C2049	
50	WIRED REMOTE CONTROL COMPLETE	1	CWA75C3587	CWA75C3587	CWA75C3587	
51	WIRELESS REMOTE CONTROL COMPLETE(HEAT PUMP)	1	CWA75C3621	CWA75C3621	CWA75C3621	
	WIRELESS REMOTE CONTROL COMPLETE(COOLING ONLY)	1	CWA75C3629	CWA75C3629	CWA75C3629	

52	RAY RECEIVER COMPLETE	1	CWD91C0134	CWD91C0134	CWD91C0134	
53	EXPANSION VALVE	1	CWB051049	CWB051049	CWB051049	
54	V-COIL COMPLETE	1	CWA43C2388	CWA43C2388	CWA43C2388	
100	CORD HOLDER	1	CWD741022	CWD741022	CWD741022	
55	OPERATING INSTRUCTION	1	CWF567158	CWF567158	CWF567158	
56	OPERATING INSTRUCTION	1	CWF567159	CWF567159	CWF567159	
57	INSTALLATION INSTRUCTION	1	CWF614112	CWF614112	CWF614112	

(Note)
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- “O” marked parts are recommended to be kept in stock.

REF. NO.	PART NAME & DESCRIPTION	QTY	S-100UA1E5	S-125UA1E5	REMARK
1	BASE PAN ASS'Y	1	CWD52K1117	CWD52K1117	
2	INNER POLYSTYRENE COMPLETE	1	CWG07C1068	CWG07C1068	
3	CABINET SIDE PLATE	1	CWE041141	CWE041141	
4	CABINET SIDE PLATE	1	CWE041142	CWE041142	
6	FAN MOTOR	1	L6LALYF00006	L6LALYF00006	O
7	ANTI-VIBRATION BUSHING	4	CWH501052	CWH501052	
9	SCREW-FAN MOTOR	4	CWH7080300J	CWH7080300J	
11	TURBO FAN	1	CWH03K1023	CWH03K1023	
12	NUT FOR TURBO FAN	1	XNG8FJ	XNG8FJ	
13	SP WASHER	1	XWA8BFJ	XWA8BFJ	
14	WASHER	1	CWH571048	CWH571048	
15	EVAPORATER COMPLETE	1	CWB30C3201	CWB30C3201	
16	FLARE NUT	1	CWT251033	CWT251033	
17	HEATPROOF TUBE	1	CWG122699	CWG122699	
18	HEATPROOF TUBE	1	CWG122692	CWG122692	
19	FLARE NUT	1	CWT251021	CWT251021	
21	PIPE COVER	1	CWD93C1052	CWD93C1052	
22	SENSOR-EVAPORATER	1	CWA50C2437	CWA50C2437	
23	PLATE SPRING	1	CWH711010	CWH711010	
23-a	PLATE SPRING	1	CWH711013	CWH711013	
24	EVAPORATER SUPPORTER	1	CWD911478A	CWD911478A	
24-a	EVAPORATER SUPPORTER	2	-	-	
25	TUBE ASS'Y (CAPIL. TUBE)	1	CWT07K1533	CWT07K1533	
26	DRAIN PUMP COMPLETE	1	CWB53C1023	CWB53C1023	
27	PANEL DRAIN PUMP ASS'Y	1	CWD93K1016	CWD93K1016	
28	DRAIN PUMP	1	CWB532065	CWB532065	
29	ANTI-VIBRATION BUSHING	3	CWH501097	CWH501097	
30	FLOAT SWITCH-DRAIN PUMP	1	CWA121245	CWA121245	
31	FLEXIBLE PIPE	1	CWH851156	CWH851156	
32	DRAIN NOZZLE	1	CWH411013	CWH411013	
33	DRAIN HOSE HEAT INSULATION	1	CWG101284	CWG101284	
35	DRAIN PAN-COMPLETE	1	CWH40C1053	CWH40C1053	
36	DRAIN PLUG	1	CWB821016	CWB821016	
37	AIR GUIDER B.W.	1	CWD321096	CWD321096	
38	CONTROL BOARD A'SSY	1	CWH10K1084	CWH10K1084	
39	ELECTRONIC CONTROLLER-COMPLETE	1	CWA73C4787	CWA73C4788	O
40	SPACER	6	CWH541026	CWH541026	
41	SH CAPACITOR	1	DS441405XPQG	DS441405XPQG	
42	TERMINAL BOARD ASS'Y	1	CWA28K1042J	CWA28K1042J	O
43	TERMINAL BOARD ASS'Y	1	CWA28K1202	CWA28K1202	O
44	LEAD WIRE-COMPLETE	1	CWA67C8646	CWA67C8646	
47	CONTROL BOARD COVER-COMPLETE	1	CWH13C1203	CWH13C1203	
48	ACCESSORY-COMPLETE	1	CWH82C1752	CWH82C1752	
48A	FLEXIBLE PIPE	1	CWH851032	CWH851032	
49	WIRED REMOTE CONTROL COMPLETE(ACCESSORY)	1	CWG87C2049	CWG87C2049	
50	WIRED REMOTE CONTROL COMPLETE	1	CWA75C3587	CWA75C3587	
51	WIRELESS REMOTE CONTROL COMPLETE(HEAT PUMP)	1	CWA75C3621	CWA75C3621	
	WIRELESS REMOTE CONTROL COMPLETE(COOLING ONLY)	1	CWA75C3629	CWA75C3629	

52	RAY RECEIVER COMPLETE	1	CWD91C0134	CWD91C0134	
53	EXPANSION VALVE	1	CWB051051	CWB051051	
54	V-COIL COMPLETE	1	CWA43C2387	CWA43C2387	
100	CORD HOLDER	1	CWD741022	CWD741022	
55	OPERATING INSTRUCTION	1	CWF567760	CWF567760	
56	OPERATING INSTRUCTION	1	-	-	
57	INSTALLATION INSTRUCTION	1	CWF614582	CWF614582	

(Note)

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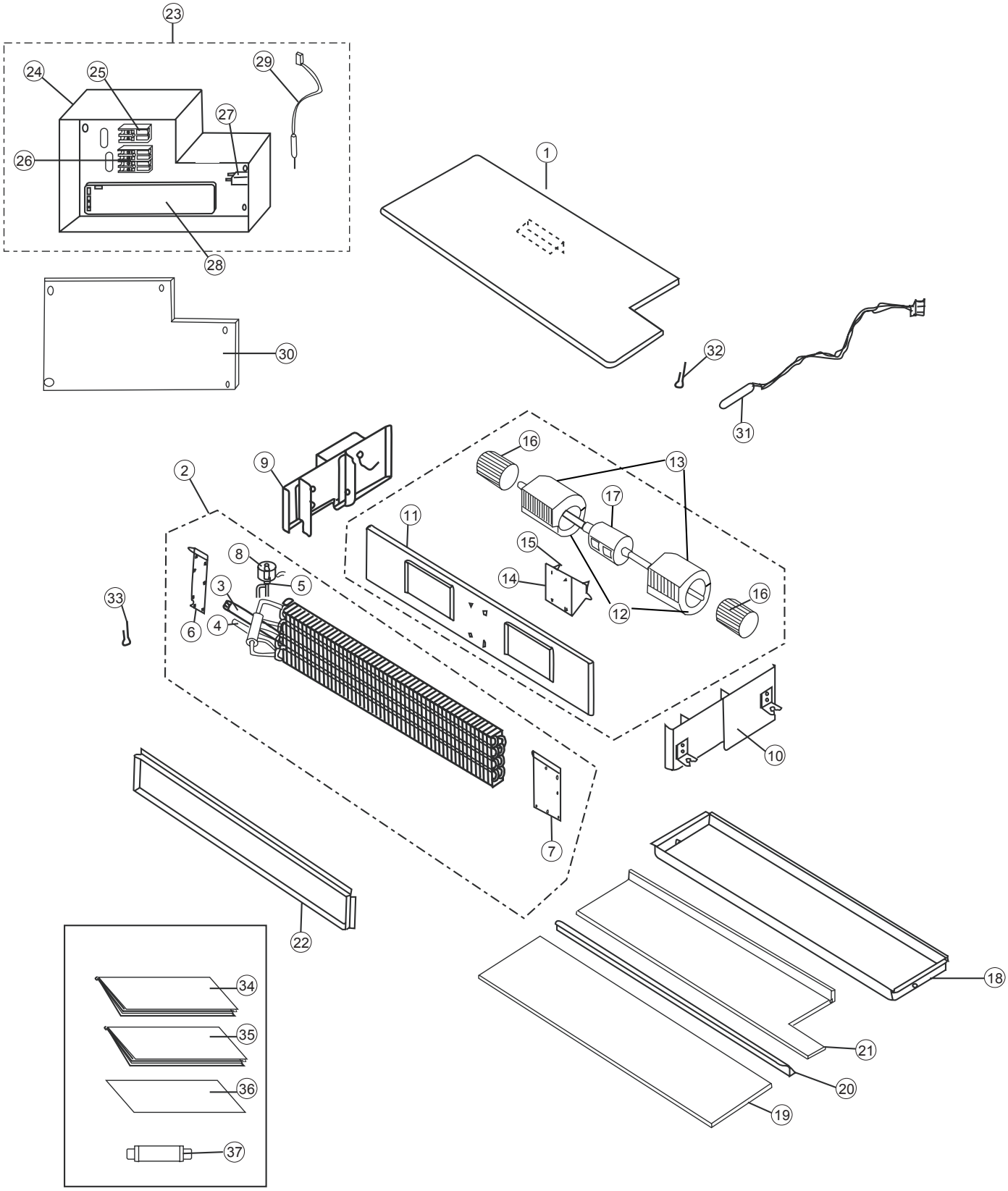
28.1.5 S-22NA1E5 S-28NA1E5 S-32NA1E5 S-36NA1E5 S-40NA1E5 S-45NA1E5 S-56NA1E5



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY	S-22NA1E5	S-28NA1E5	S-32NA1E5	REMARK
1	CABINET TOP PLATE	1	CWE03K1029	CWE03K1029	CWE03K1029	
2	EVAPORATOR COMPLETE	1	CWB30C3146	CWB30C3179	CWB30C3148	O
3	PIPE BRANCH (G)	1	CWT07K1364	CWT07K1364	CWT07K1376	
4	PIPE BRANCH (L)	1	CWT01C5132	CWT01C5132	CWT01C5133	
5	EXPANSION VALVE	1	CWB051029	CWB051029	CWB051029	
6	PARTICULAR PLATE(LEFT)	1	CWD91C0016	CWD91C0016	CWD91C0016	
7	PARTICULAR PLATE(RIGHT)	1	CWD91C0017	CWD91C0017	CWD91C0017	
8	COIL FOR EXPANSION VALVE	1	CWA43C2389	CWA43C2389	CWA43C2389	
9	CABINET SIDE PLATE (L)	1	CWE04C1107	CWE04C1107	CWE04C1107	
10	CABINET SIDE PLATE(R)	1	CWE04C1131	CWE04C1131	CWE04C1131	
11	BULKHEAD	1	CWD53C1033	CWD53C1033	CWD53C1033	
12	AIR GUIDER B.W.(BOTTOM)	2	CWD321068	CWD321068	CWD321068	
13	AIR GUIDER B.W.(UPPER)	2	CWD321069	CWD321069	CWD321069	
14	FAN MOTOR BRACKET (BACK)	1	CWD541102	CWD541102	CWD541102	
15	FAN MOTOR BRACKET (FRONT)	1	CWD541103	CWD541103	CWD541103	
16	BLOW WHEEL	2	CWH01K1026	CWH01K1026	CWH01K1026	
17	FAN MOTOR	1	L6LAJYF00018	L6LAJYF00018	L6LAKYF00010	O
18	DRAIN PAN COMPLETE	1	CWH40C1063	CWH40C1063	CWH40C1063	
19	BOTTOM PLATE (DRAIN SIDE)	1	CWE051025	CWE051025	CWE051025	
20	BOTTOM PLATE (MIDDLE)	1	CWE051026	CWE051026	CWE051026	
21	BOTTOM PLATE (FAN SIDE)	1	CWE051011	CWE051011	CWE051011	
22	FLANGE COMPLETE	1	CWD60K1009	CWD60K1009	CWD60K1009	
23	C-BOX COMPLETE	1	CWH14C7300	CWH14C7301	CWH14C7302	
24	CONTROL BOARD CASING	1	CWH10K1097	CWH10K1097	CWH10K1097	
25	TERMINAL BOARD	1	CWA28K1042J	CWA28K1042J	CWA28K1042J	O
26	TERMINAL BOARD	1	CWA28K1202	CWA28K1202	CWA28K1202	O
27	CAPACITOR	1	DS441155XPQE	DS441205XPQC	DS441205XPQC	
28	ELECTRONIC CONTROLLER	1	CWA73C4050	CWA73C4051	CWA73C4052	O
29	INTAKE AIR SENSOR	1	CWA50C2425	CWA50C2425	CWA50C2425	O
30	CONTROL BOARD COVER	1	CWH131159	CWH131159	CWH131159	
31	PIPING TEMP.SENSOR	1	CWA50C2436	CWA50C2436	CWA50C2436	
32	HOLDER-SENSOR	1	CWH711010	CWH711010	CWH711010	O
33	HOLDER-SENSOR	1	CWH711013	CWH711013	CWH711013	O
34	OPERATING INSTRUCTIONS	1	CWF567160	CWF567160	CWF567160	
35	OPERATING INSTRUCTIONS	1	CWF567161	CWF567161	CWF567161	
36	INSTALLATION INSTRUCTIONS	1	CWF614113	CWF614113	CWF614113	
37	DRAIN HOSE	1	CWH85C1010	CWH85C1010	CWH85C1010	

(Note)

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REF. NO.	PART NAME & DESCRIPTION	QTY	S-36NA1E5	S-40NA1E5	REMARK
1	CABINET TOP PLATE	1	CWE03K1029	CWE03K1029	
2	EVAPORATOR COMPLETE	1	CWB30C3148	CWB30C3148	O
3	PIPE BRANCH (G)	1	CWT07K1376	CWT07K1376	
4	PIPE BRANCH (L)	1	CWT01C5133	CWT01C5133	
5	EXPANSION VALVE	1	CWB051029	CWB051029	
6	PARTICULAR PLATE(LEFT)	1	CWD91C0016	CWD91C0016	
7	PARTICULAR PLATE(RIGHT)	1	CWD91C0017	CWD91C0017	
8	COIL FOR EXPANSION VALVE	1	CWA43C2389	CWA43C2389	
9	CABINET SIDE PLATE (L)	1	CWE04C1107	CWE04C1107	
10	CABINET SIDE PLATE(R)	1	CWE04C1131	CWE04C1131	
11	BULKHEAD	1	CWD53C1033	CWD53C1033	
12	AIR GUIDER B.W.(BOTTOM)	2	CWD321068	CWD321068	
13	AIR GUIDER B.W.(UPPER)	2	CWD321069	CWD321069	
14	FAN MOTOR BRACKET (BACK)	1	CWD541102	CWD541102	
15	FAN MOTOR BRACKET (FRONT)	1	CWD541103	CWD541103	
16	BLOW WHEEL	2	CWH01K1026	CWH01K1026	
17	FAN MOTOR	1	L6LAKYF00010	L6LAKYF00010	O
18	DRAIN PAN COMPLETE	1	CWH40C1063	CWH40C1063	
19	BOTTOM PLATE (DRAIN SIDE)	1	CWE051025	CWE051025	
20	BOTTOM PLATE (MIDDLE)	1	CWE051026	CWE051026	
21	BOTTOM PLATE (FAN SIDE)	1	CWE051011	CWE051011	
22	FLANGE COMPLETE	1	CWD60K1009	CWD60K1009	
23	C-BOX COMPLETE	1	CWH14C7303	CWH14C7304	
24	CONTROL BOARD CASING	1	CWH10K1097	CWH10K1097	
25	TERMINAL BOARD	1	CWA28K1042J	CWA28K1042J	O
26	TERMINAL BOARD	1	CWA28K1202	CWA28K1202	O
27	CAPACITOR	1	DS441205XPQC	DS441255XPQE	
28	ELECTRONIC CONTROLLER	1	CWA73C4053	CWA73C4054	O
29	INTAKE AIR SENSOR	1	CWA50C2425	CWA50C2425	O
30	CONTROL BOARD COVER	1	CWH131159	CWH131159	
31	PIPING TEMP.SENSOR	1	CWA50C2436	CWA50C2436	
32	HOLDER-SENSOR	1	CWH711010	CWH711010	O
33	HOLDER-SENSOR	1	CWH711013	CWH711013	O
34	OPERATING INSTRUCTIONS	1	CWF567160	CWF567160	
35	OPERATING INSTRUCTIONS	1	CWF567161	CWF567161	
36	INSTALLATION INSTRUCTIONS	1	CWF614113	CWF614113	
37	DRAIN HOSE	1	CWH85C1010	CWH85C1010	

(Note)

- All parts are supplied from PHAAG, China.
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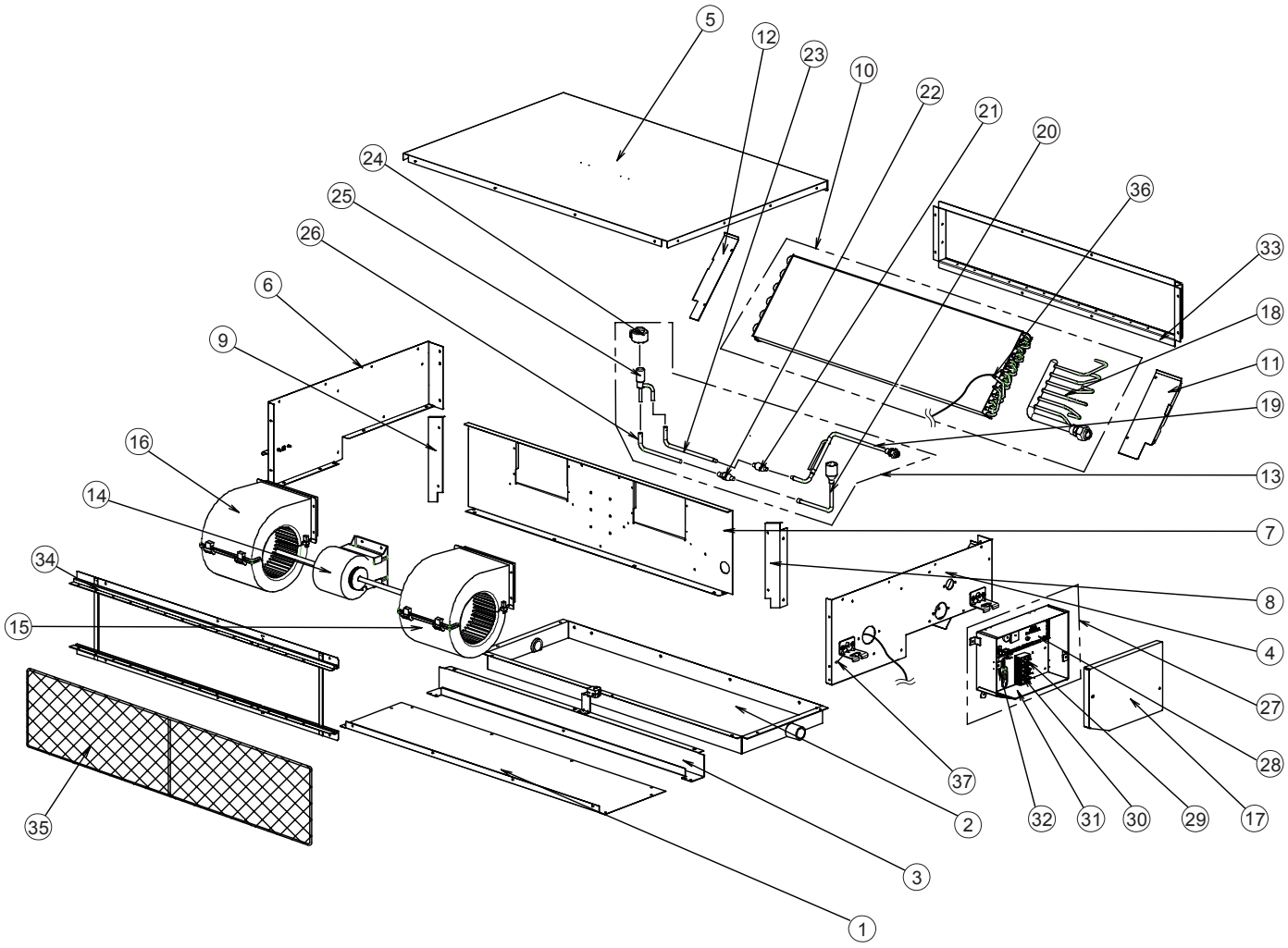
REF. NO.	PART NAME & DESCRIPTION	QTY	S-45NA1E5	S-56NA1E5	REMARK
1	CABINET TOP PLATE	1	CWE03K1029	CWE03K1029	
2	EVAPORATOR COMPLETE	1	CWB30C3148	CWB30C3148	O
3	PIPE BRANCH (G)	1	CWT07K1376	CWT07K1376	
4	PIPE BRANCH (L)	1	CWT01C5133	CWT01C5133	
5	EXPANSION VALVE	1	CWB051029	CWB051029	
6	PARTICULAR PLATE(LEFT)	1	CWD91C0016	CWD91C0016	
7	PARTICULAR PLATE(RIGHT)	1	CWD91C0017	CWD91C0017	
8	COIL FOR EXPANSION VALVE	1	CWA43C2389	CWA43C2389	
9	CABINET SIDE PLATE (L)	1	CWE04C1107	CWE04C1107	
10	CABINET SIDE PLATE(R)	1	CWE04C1131	CWE04C1131	
11	BULKHEAD	1	CWD53C1033	CWD53C1033	
12	AIR GUIDER B.W.(BOTTOM)	2	CWD321068	CWD321068	
13	AIR GUIDER B.W.(UPPER)	2	CWD321069	CWD321069	
14	FAN MOTOR BRACKET (BACK)	1	CWD541102	CWD541102	
15	FAN MOTOR BRACKET (FRONT)	1	CWD541103	CWD541103	
16	BLOW WHEEL	2	CWH01K1026	CWH01K1026	
17	FAN MOTOR	1	L6LAKYF00010	L6LALYF00005	O
18	DRAIN PAN COMPLETE	1	CWH40C1063	CWH40C1063	
19	BOTTOM PLATE (DRAIN SIDE)	1	CWE051025	CWE051025	
20	BOTTOM PLATE (MIDDLE)	1	CWE051026	CWE051026	
21	BOTTOM PLATE (FAN SIDE)	1	CWE051011	CWE051011	
22	FLANGE COMPLETE	1	CWD60K1009	CWD60K1009	
23	C-BOX COMPLETE	1	CWH14C7304	CWH14C7305	
24	CONTROL BOARD CASING	1	CWH10K1097	CWH10K1097	
25	TERMINAL BOARD	1	CWA28K1042J	CWA28K1042J	O
26	TERMINAL BOARD	1	CWA28K1202	CWA28K1202	O
27	CAPACITOR	1	DS441255XPQE	DS441255XPQE	
28	ELECTRONIC CONTROLLER	1	CWA73C4054	CWA73C4055	O
29	INTAKE AIR SENSOR	1	CWA50C2425	CWA50C2425	O
30	CONTROL BOARD COVER	1	CWH131159	CWH131159	
31	PIPING TEMP.SENSOR	1	CWA50C2436	CWA50C2436	
32	HOLDER-SENSOR	1	CWH711010	CWH711010	O
33	HOLDER-SENSOR	1	CWH711013	CWH711013	O
34	OPERATING INSTRUCTIONS	1	CWF567160	CWF567160	
35	OPERATING INSTRUCTIONS	1	CWF567161	CWF567161	
36	INSTALLATION INSTRUCTIONS	1	CWF614113	CWF614113	
37	DRAIN HOSE	1	CWH85C1010	CWH85C1010	

(Note)

- All parts are supplied from PHAAG, China.

“O” marked parts are recommended to be kept in stock.

28.1.6 S-45MA1E5 S-56MA1E5 S-63MA1E5 S-71MA1E5 S-90MA1E5



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME	PARTS NUMBER	QUANTITY PER 1 UNIT		REMARK
			S-45MA1E5	S-56MA1E5	
1	PANEL BOTTOM	P42-T04150	1	1	
2	DRAIN PAN ASSY	P42-T04460	1	1	
3	STAY DRAIN PAN ASSY	P45-T09250	1	1	
4	PANEL SIDE L ASSY	P42-T04390	1	1	
5	PANEL TOP ASSY	P42-T03740R	1	1	
6	PANEL SIDE R ASSY	P42-T04280	1	1	
7	FAN BASE	P45-T07690R	1	1	
8	FAN BRACKET L	P02-T07890R	1	1	
9	FAN BRACKET R	P02-T07900R	1	1	
10	EVAPORATOR ASSY	P45-T09260	1	1	O
11	BRACKET EVA L	P05-T13000R	1	1	
12	BRACKET EVA R	P05-T13010R	1	1	
13	TUBE ASSY COMPLETE	P45-T09100	1	1	
14	FAN MOTOR	P06-T05800	1	1	O
15	CASING AS.	P45-T07950R	1	1	
16	CASING AS.	P45-T07950R	1	1	
17	COVER RELAY BOX	P06-T05830	1	1	
18	HEADER PIPE ASSY	P45-T07850	1	1	
19	MULTIBENT TUBE	P05-T14780	1	1	
20	MAINFOLD TUBE ASSY	P45-T09110	1	1	
21	STRAINER	B111033	1	1	
22	SILENCER	B121017	1	1	
23	L-SHAPED TUBE	P05-T14770	1	1	
24	EXPANSION VALVE COIL	P05-T15110	1	1	
25	EXPANSION VALVE	P05-T14970	1	1	
26	L-SHAPED TUBE	P05-T14760	1	1	
27	RELAY BOX ASSY (CMPT)	P46-T08090	1	-	
		P46-T08120	-	1	
28	PCB BOARD (PROGRAM)	A73C4608	1	-	O
		A73C4609	-	1	O
29	TERMINAL BOARD (2P)	P06-T05770	1	1	O
30	TERMINAL BOARD (3P)	P46-T05780	1	1	O
31	RELAY BOX ASSY (WELD)	P46-T08010	1	1	
32	CAPACITOR	P06-T05400	1	1	
33	DUCT FLANGE ASSY	P42-T03770R	1	1	
34	FILTER GUIDE ASSY	P42-T03790R	1	1	
35	FILTER	P03-T01520R	1	1	
36	COIL SENSOR	A50C2438	1	1	
37	THERMISTOR	P06-T05180	1	1	

(Note)

- All parts are supplied from PTW, Taiwan.
- “O” marked parts are recommended to be kept in stock.

REF. NO.	PART NAME	PARTS NUMBER	QUANTITY PER 1 UNIT			REMARK
			S-63MA1E5	S-71MA1E5	S-90MA1E5	
1	PANEL BOTTOM	P42-T04160	1	1	1	
2	DRAIN PAN ASSY	P42-T04470	1	1	1	
3	STAY DRAIN PAN ASSY	P45-T08740	1	1	1	
4	PANEL SIDE L ASSY	P42-T04290	1	1	1	
5	PANEL TOP ASSY	P42-T03750R	1	1	1	
6	PANEL SIDE R ASSY	P42-T04280	1	1	1	
7	FAN BASE ASSY	P45-T08850	1	1	1	
8	FAN BRACKET L	P02-T07890R	1	1	1	
9	FAN BRACKET R	P02-T07900R	1	1	1	
10	EVAPORATOR ASSY	P45-T09380	1	-	-	O
		P45-T08780	-	1	1	
11	BRACKET EVA L	P05-T13000R	1	1	1	
12	BRACKET EVA R	P05-T13010R	1	1	1	
13	TUBE ASSY COMPLETE	P45-T09400	1	-	-	
		P45-T09270	-	1	1	
14	FAN MOTOR	P06-T05800	1	1	-	O
		P06-T05810	-	-	1	
15	CASING AS.	P45-T07950R	1	1	1	
16	CASING AS.	P45-T07950R	1	1	1	
17	COVER RELAY BOX	P06-T05830	1	1	1	
18	HEADER PIPE ASSY	P45-T09390	1	-	-	
		P45-T08820	-	1	1	
19	MULTIBENT TUBE	P05-T15240	1	-	-	
		P05-T14320	-	1	1	
20	MAINFOLD TUBE ASSY	P45-T08840	1	1	1	
21	STRAINER	B111033	1	1	1	
22	SILENCER	B121017	1	1	1	
23	L-SHAPED TUBE	P05-T15260	1	1	1	
24	EXPANSION VALVE COIL	P05-T15110	1	1	1	
25	EXPANSION VALVE	P05-T14960	1	1	1	
26	L-SHAPED TUBE	P05-T15250	1	1	1	
27	RELAY BOX ASSY (CMPT)	P46-T08070	1	-	-	
		P46-T08130	-	1	-	
		P46-T08140	-	-	1	
28	PCB BOARD (PROGRAM)	A73C4610	1	-	-	O
		A73C4611	-	1	-	O
		A73C4612	-	-	1	O
29	TERMINAL BOARD (2P)	P06-T05770	1	1	1	O
30	TERMINAL BOARD (3P)	P46-T05780	1	1	1	O
31	RELAY BOX ASSY (WELD)	P46-T08010	1	1	1	
32	CAPACITOR	P06-T05400	1	1	1	
33	DUCT FLANGE ASSY	P42-T03780R	1	1	1	
34	FILTER GUIDE ASSY	P42-T03800R	1	1	1	
35	FILTER	P03-T01510R	1	1	1	
36	COIL SENSOR	A50C2438	1	1	1	
37	THERMISTOR	P06-T05180	1	1	1	

(Note)

- All parts are supplied from PTW, Taiwan.
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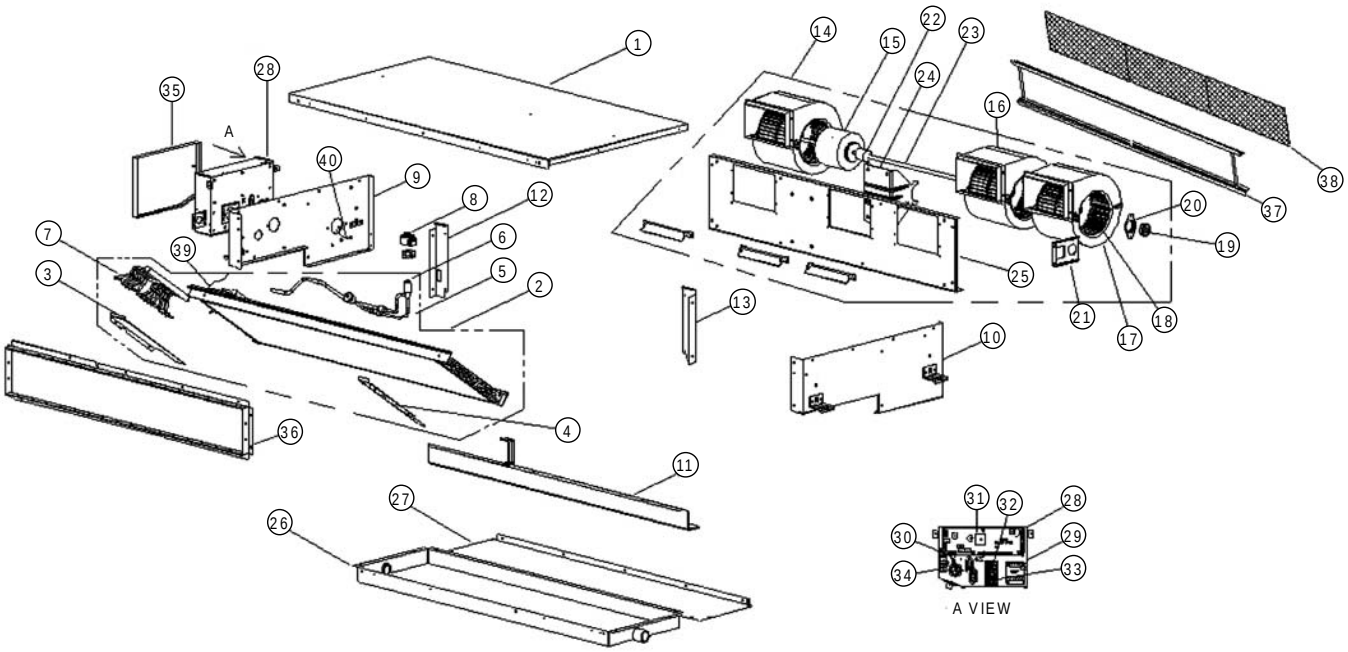
28.1.7 S-100MA1E5 S-125MA1E5



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME	PARTS NUMBER	QUANTITY PER 1 UNIT		REMARK
			S-100MA1E5	S-125MA1E5	
1	PANEL TOP ASSY	P42-T03630R	1	1	O
2	EVAPORATOR ASSY	P45-T08970	1	1	
3	BRACKET EVA L	P05-T13750R	1	1	
4	BRACKET EVA R	P05-T13760R	1	1	
5	TUBE ASSY COMPLETE	P45-T08980	1	1	
6	EXPANSION VALVE	P05-T14950	1	1	
7	HEADER PIPE ASSY	P45-T09020	1	1	
8	EXPANSION VALVE COIL	P05-T15100	1	1	
9	PANEL SIDE L ASSY	P42-T04380	1	1	
10	PANEL SIDE R ASSY	P42-T04370	1	1	
11	STAY DRAIN PAN ASSY	P46-T08110	1	1	
12	FAN BRACKET L	P02-T07890R	1	1	
13	FAN BRACKET R	P02-T07900R	1	1	
14	FAN BASE CMPT	P45-T09060	1	1	
15	FAN MOTOR	P06-T05960	1	1	O
16	CASING TOP	P05-T13570	3	3	
17	CASING BOT	P05-T13580	3	3	
18	IMPELLER	P05-T14380	3	3	
19	BEARING	H64C1001	1	1	
20	BEARING COVER	P05-T12770R	1	1	
21	BEARING SUPPORTER	P05-T13770R	1	1	
22	CONNECT SHAFT	H08C025R	1	1	
23	SHAFT	P05-T11110R	1	1	
24	STAY FAN MOTOR	P06-T04990R	1	1	
25	FAN BASE	P45-T07640R	1	1	
26	DRAIN PAN ASSY	P42-T04450	1	1	
27	PANEL BOTTOM	P42-T04170	1	1	
28	RELAY BOX ASSY (CMPT)	P46-T08330	1	-	
		P46-T08000	-	1	
29	RELAY BOX ASSY (WELD)	P46-T08010	1	1	
30	LEAD WIRE HARNESS - FM	P46-T08050	1	1	
31	PCB BOARD (PROGRAM)	P46-T08340	1	-	O
		P46-T08200	-	1	O
32	TERMINAL BOARD (2P)	P06-T05770	1	1	O
33	TERMINAL BOARD (3P)	P06-T05780	1	1	O
34	CAPACITOR	P06-T05410	1	1	
35	COVER RELAY BOX	P06-T05830	1	1	
36	DUCT FLANGE ASSY	P42-T03680R	1	1	
37	FILTER GUIDE ASSY	P42-T03700R	1	1	
38	FILTER	P03-T01490R	1	1	
39	COIL SENSOR	A50C2438	1	1	
40	THERMISTOR	P06-T05180	1	1	

(Note)

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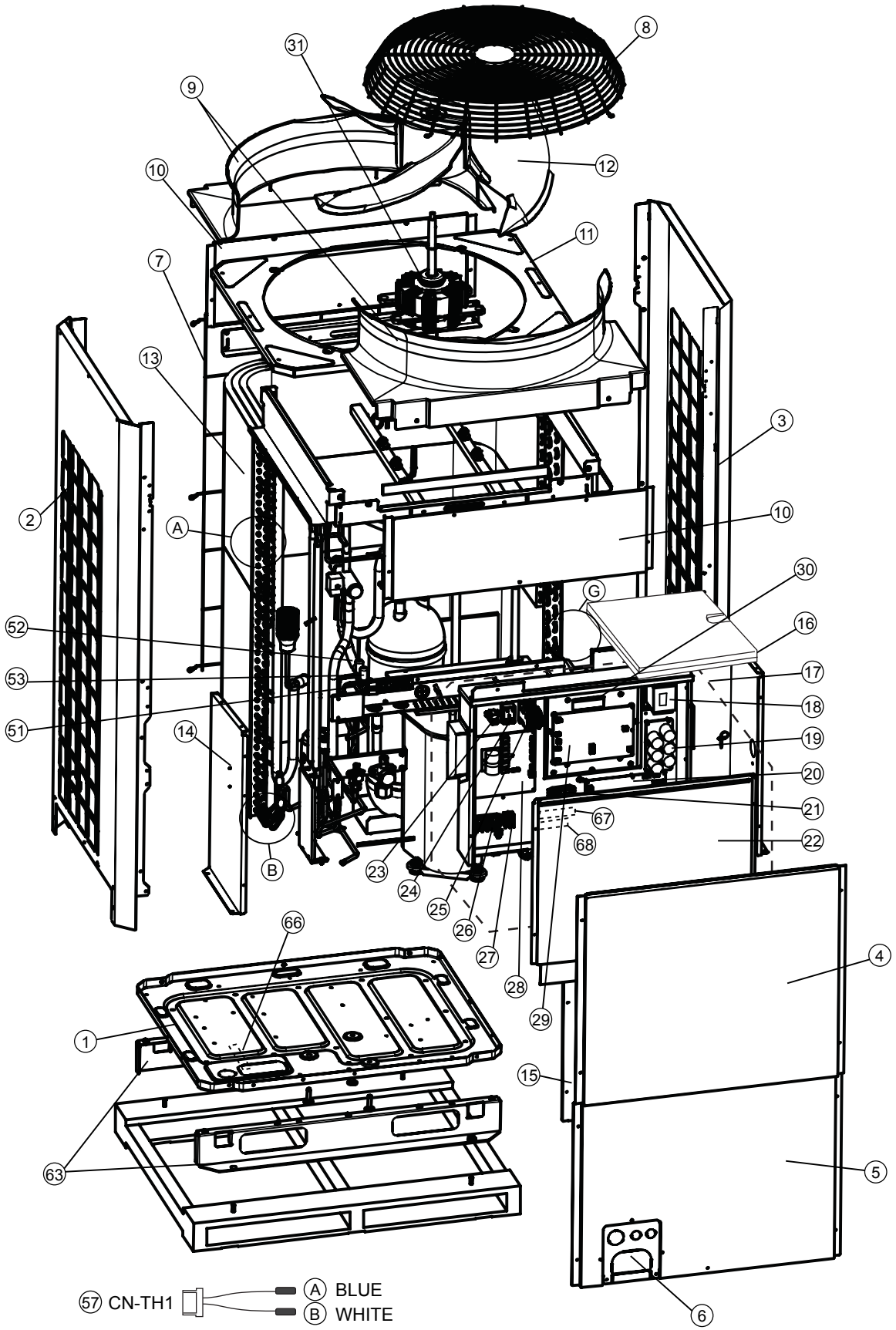
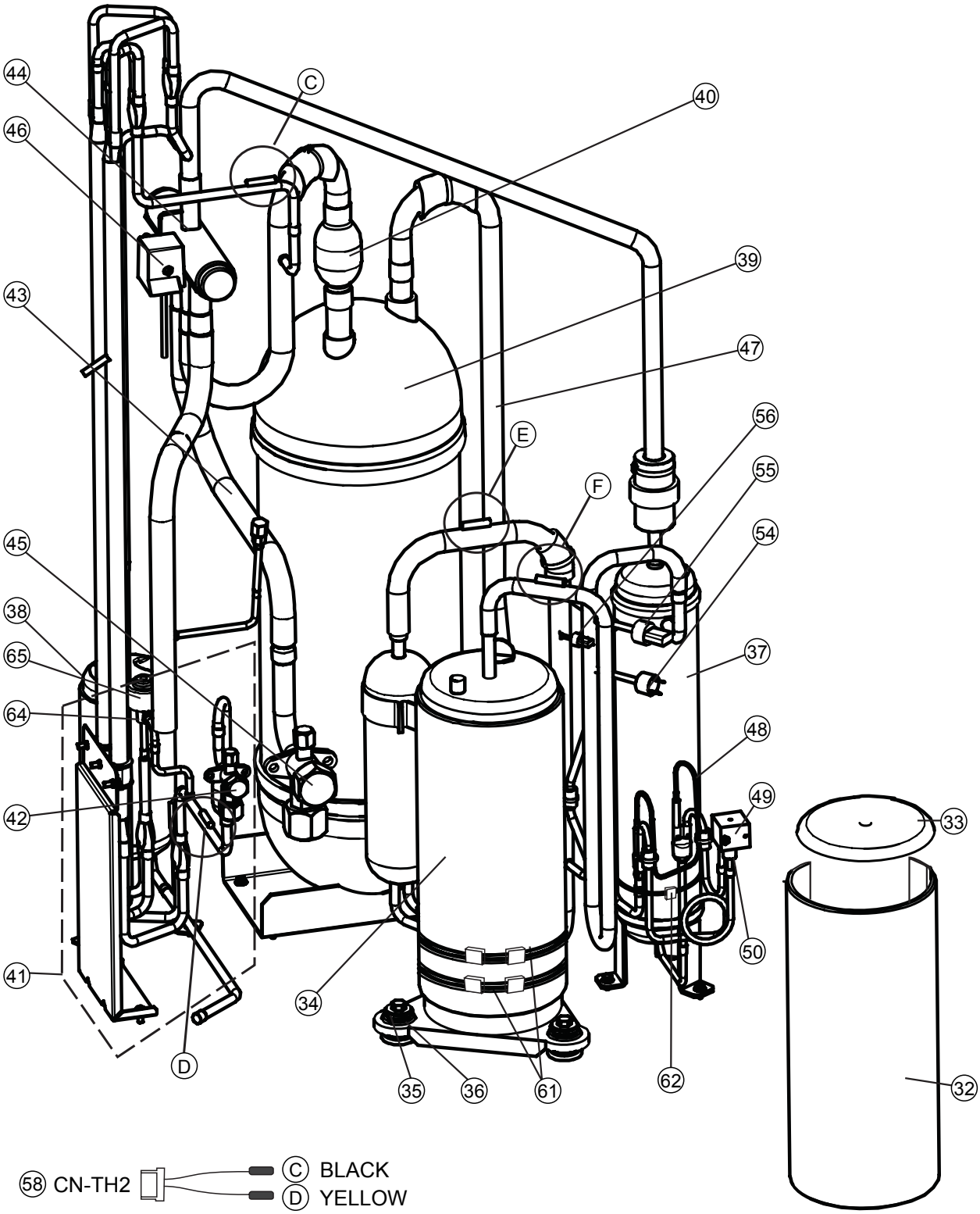
28.2 Outdoor Unit

28.2.1 U-8EA1E8 U-10EA1E8



Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.



58 CN-TH2 — C BLACK; D YELLOW

59 CN-TH3 — G OUTDOOR TEMP.

60 CN-TH4 — E GREEN; F

Note
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

REF. NO.	PART NAME & DESCRIPTION	QTY	U-8EA1E8	U-10EA1E8	REMARK
1	BASE PAN ASS'Y	1	CWD52K1238A	CWD52K1238A	
2	CABINET SIDE PLATE（LEFT）	1	CWE041497A	CWE041497A	
3	CABINET SIDE PLATE（RIGHT）	1	CWE041498A	CWE041498A	
4	CABINET FRONT PLATE (UPPER)	1	CWE061257A	CWE061257A	
5	CABINET FRONT PLATE (LOWER)	1	CWE061258A	CWE061258A	
6	CABINET FRONT PLATE (PIPE OUTLET)	1	CWE061259A	CWE061259A	
7	WIRE NET (BACK)	1	CWD041159	CWD041159	
8	WIRE NET (AIR DISCHARGE)	1	CWD041152	CWD041152	
9	AIR GUIDER	1	CWD311025	CWD311025	
10	CABINET FRONT PLATE (FRONT, BACK)	2	CWE061260A	CWE061260A	
11	CABINET TOP PLATE	1	CWE031132A	CWE031132A	
12	PROPELLER FAN	2	CWH03K1051	CWH03K1051	
13	CONDENSER COMPLETE	1	CWB32C2906	CWB32C2935	
14	SOUND PROOF BOARD (LEFT, RIGHT)	1	CWH15C1033	CWH15C1033	
15	SOUND PROOF BOARD (FRONT)	1	CWH151229	CWH151229	
16	SOUND PROOF BOARD (TOP)	1	CWH15K1036	CWH15K1036	
17	CONTROL BOARD COMPLETE	1	CWH14C7971	CWH14C7972	
18	PEAKING COILS	2	G0C452J00006	G0C452J00006	
19	ELECTRONIC CONTROLLER	1	CWA745564	CWA745564	
20	ELECTRONIC CONTROLLER-MAIN	1	CWA73C4783	CWA73C4782	
21	TERMINAL BOARD ASS'Y (COMPRESSOR)	1	CWA28K1086	CWA28K1086	
22	CONTROL BOARD COVER	1	CWH131443	CWH131443	
23	PTC THERMISTOR	1	D4DDG1010001	D4DDG1010001	
24	MAGNETIC RELAY (SMALL)	1	K6C2AGA00002	K6C2AGA00002	
25	MAGNETIC RELAY (BIG)	1	K6C4E8A00001	K6C4E8A00001	
26	TERMINAL BOARD ASSY (POWER SUPPLY)	1	CWA28K1109	CWA28K1109	
27	TERMINAL BOARD ASS'Y (COMMUNICATION)	1	CWA28K1080J	CWA28K1080J	
28	ELECTRONIC CONTROLLER	1	CWA746386	CWA746386	
29	ELECTRONIC CONTROLLER	1	CWA73C4781	CWA73C4781	
30	DIODE MODULES	1	B0KA00000025	B0KA00000025	
31	FAN MOTOR	1	DMSBB8PAC	DMSBB8PAC	
32	SOUND PROOF MATERIAL	1	CWG302560	CWG302560	
33	SOUND PROOF MATERIAL	1	CWG302561	CWG302561	
34	COMPRESSOR	1	CWB092532	CWB092532	
35	ANTI-VIBRATION BUSHING	3	CWH50055	CWH50055	
36	NUT	3	CWH561049	CWH561049	
37	OIL SEPARATOR	1	CWB161012	CWB161012	
38	RECEIVER	1	-	CWB141051	
39	ACCUMULATOR	1	CWB131052	CWB131052	
40	STRAINER	1	CWB111060	CWB111060	
41	TUBE ASS'Y (LIQUID SIDE)	1	CWT026894	CWT026894	
42	3 WAYS VALVE (LIQUID SIDE)	1	CWB011292	CWB011292	
43	TUBE ASS'Y (4-WAY VALVE)	1	CWB00C1069	CWB00C1070	
44	4-WAY VALVE	1	CWB001069	CWB001069	
45	3-WAY VALVE (GAS SIDE)	1	CWB011620	CWB011620	
46	V-COIL COMPLETE (4-WAY VALVE)	1	CWA43C2366	CWA43C2366	
47	TUBE ASS'Y (ACCUMULATOR)	1	CWT026889	CWT026889	
48	TUBE ASS'Y (BYPASS)	1	CWT026891	CWT026891	

49	V-COIL COMPLETE (BYPASS)	1	CWA43C2391	CWA43C2391	
50	2-WAY VALVE	1	CWB021509	CWB021509	
51	TUBE ASS'Y (EXPANSION VALVE)	1	CWT026897	CWT026897	
52	EXPANSION VALVE	2	CWB051020J	CWB051020J	
53	V-COIL COMPLETE (EXPANSION VALVE)	2	CWA43C2377	CWA43C2377	
54	HIGH PRESSURE SWITCH	1	CWA101013	CWA101013	
55	HIGH PRESSURE SENSOR	1	CWA50C2660	CWA50C2660	
56	LOW PRESSURE SENSOR	1	CWA50C2661	CWA50C2661	
57	SENSOR COMPLETE(CN-TH1)	1	CWA50C2704	CWA50C2704	
58	SENSOR COMPLETE(CN-TH2)	1	CWA50C2705	CWA50C2705	
59	SENSOR COMPLETE(CN-TH3)	1	CWA50C2707	CWA50C2707	
60	SENSOR COMPLETE(CN-TH4)	1	CWA50C2706	CWA50C2706	
61	HEATER (COMPRESSOR)	2	CWA341063	CWA341063	
62	HEATER (OIL SEPERATOR)	1	CWA341064	CWA341064	
63	BRACKET - UNIT MOUNTING	2	CWD571167A	CWD571167A	
64	EXPANSION VALVE (SUB COOL)	1	CWB051029	CWB051029	
65	V-COIL COMPLETE (SUB COOL)	1	CWA43C2378	CWA43C2378	
66	STRAIGHT TUBE	1	-	CWT102816	
67	INDICATION LABLE	1	CWF738530	CWF738530	
68	INDICATION LABLE	1	CWF738531	CWF738531	

(Note)
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