DAIKIN

SiK401005

Service Manual

U-MATCH Air Conditioners

[Applied Models]

- **Non-Inverter Pair : Cooling Only**
- **Non-Inverter Pair : Heat Pump**

Non-Inverter Pair Duct Type

1. INTRODUCTION

1.1 Safety Cautions

Cautions and Warnings

- Be sure to read the following safety cautions before conducting repair work.
- The caution items are classified into "⚠**Warning**" and "⚠**Caution**". The "⚠**Warning**" items are especially important since they can lead to death or serious injury if they are not followed closely. The "⚠**Caution**" items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.
- About the pictograms

△ This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.

○ This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.

● This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.

- After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates normally, and explain the cautions for operating the product to the customer

1.1.1 Caution in Repair

⚠**Warning**	
Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair. Working on the equipment that is connected to a power supply can cause an electrical shook. If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.	
If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas. The refrigerant gas can cause frostbite.	
When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first. If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.	
If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.	
The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work. A charged capacitor can cause an electrical shock.	
Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.	

Caution	
Do not repair the electrical components with wet hands. Working on the equipment with wet hands can cause an electrical shock.	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shocks.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	

1.1.2 Cautions Regarding Products after Repair

Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only

Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only
Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.	
Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections can cause excessive heat generation or fire.	
When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.	
Do not mix air or gas other than the specified refrigerant (R410A) in the refrigerant system. If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	
When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

 **Caution**	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	For integral units only

1.1.3 Inspection after Repair

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it can cause an electrical shock, excessive heat generation or fire.	

Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 Mohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.1.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.1.5 Using Icons List

Icon	Type of Information	Description
 Note:	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
 Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.
 Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

Part1
SPECIFICATIONS

1. MODELS LIST

1.1 Outdoor Unit

Model	Refrigerant	Power Supply	Appearance
R24PEVLK RY24PEVLK	R22	220V 1Ph 60Hz	
R30PEVLK RY30PEVLK	R22	220V 1Ph 60Hz	
R36PEVLK RY36PEVLK	R22	220V 1Ph 60Hz	
R42PETLK RY42PETLK	R22	220V 3Ph 60Hz	
R42PEYLK RY42PEYLK	R22	380V 3Ph 60Hz	
R48PETLK RY48PETLK	R22	220V 3Ph 60Hz	
R48PEYLK RY48PEYLK	R22	380V 3Ph 60Hz	

1.2 Indoor Unit

Type	Indoor Model	Outdoor Model	Nominal Capacity Cooling/Heating (Btu/h)	Refrigerant	Power Supply	Appearance
Duct Type	FDM24PEVLK	R24PEVLK	23200/-	R22	220V 1Ph 60Hz	
		RY24PEVLK	22500/25600			
	FDM30PEVLK	R30PEVLK	28000/-			
		RY30PEVLK	28000/31700			
	FDM36PEVLK	R36PEVLK	32000/-			
		RY36PEVLK	32000/35800			
	FDM42PEVLK	R42PETLK	41000/-			
		RY42PETLK	41000/48000			
		R42PEYLK	41000/-			
		RY42PEYLK	41000/48000			
	FDM48PEVLK	R48PETLK	45000/-			
		RY48PETLK	45000/54600			
		R48PEYLK	45000/-			
		RY48PEYLK	45000/54600			

NOTES: The universal outdoor units means that the customer can choose any of three kind of indoor units to mach the outdoor unit without any change with it.

2. NOMENCLATURE

Sky Air Indoor Unit

R-407C R-22

F D Y M P 24 P E V1 K

- **Unit Category**
  F : Air Cooled Split Indoor Unit
- **Shape (1)**
  H : Ceiling Suspended
  (The case with Shape(2) is excluded.)
  U : New Ceiling Suspended Cassette
  A : Wall Mounted
  V : Floor Standing
  D : Duct Connection
  D : High Static Pressure
  DM(G) : Middle Static Pressure
  DB(G) : Low Static Pressure
- **Type**
  blank : Cooling Only
  Y : Heat Pump or Cooling Only
- **Shape (2)**
  C : Multi Flow Cassette
  K : Ceiling Mounted Cassette Corner
  B : Ceiling Mounted Built-in
- **Refrigerant**
  P : R-407C
  blank : R-22
- **Capacity Indication**
  Rated cooling capacity
  (kW at 50Hz) × 10
- **Model Change Symbol**
  Progress with each design change
- **Minor Change Symbol**
- **Power Supply Symbol**
- **Standard Symbol**
- **Management Suffix**
  A number of a figure

■ Standard Symbol

Corresponding Standards	Standard Compatibility Symbol	Applicable Unit
General	Blank	Indoor Unit and Outdoor Unit
China	C	
Taiwan	T	
Thailand	S	
Australia	A	
Europe	B	
Korea	D	
U.S.A.	U	
Argentina	Z	
High Temperature Area	K	Outdoor Unit
Anti-corrosion	E	

3. FUNCTION

Function	Description
Memory function	When unit restarts after power off, it will run under the previous status and the mode and parameters will be kept the same.
Timing function	It can set the time when to start/stop the unit separately. Meanwhile the setting can run circularly.
Self-diagnosis with alarm function	Once the unit runs abnormally, the error codes will come up and the alarm will ring immediately
Sleep function	Under the energy saving mode, it is controlled automatically.
Automatic function	Under the Auto mode, based on the actual demand, the fan speed of the indoor unit can be adjusted automatically.
Reverse (open) Phase protection	Once the Phase sequence of power supply is incongruent or the Phase is absent, the unit won't work and will display the error codes.
Anti-high temperature protection	Once the heat exchanger temperature of indoor unit is too high, the compressor will stop .
Timing ON/OFF display	Display and timing turn ON/OFF time
Fan speed display	Display the speed (high, medium, low) of fan
Function model display	Cooling mode, dehumidifying mode, heating mode, fan mode
Testing display	Display testing mode
Temperature display	Display room temperature and set temperature

4. PRODUCT DATA

4.1 Product Data at Rated Condition

Model	Indoor unit		FDM24PEVLK	FDM30PEVLK	FDM36PEVLK
	Outdoor unit		R24PEVLK	R30PEVLK	R36PEVLK
Nominal Capacity	Cooling	kW	6.8	8.2	9.4
		Btu/h	23200	28000	32000
Power Input	Cooling	kW	2.65	3.30	4.00
EER		W/W	2.57	2.48	2.35
Indoor Unit			FDM24PEVLK	FDM30PEVLK	FDM36PEVLK
Power Supply		—	220V 1Ph 60Hz		
Heat Exchange		—	Cross Fin Coil		
Fan	Type	—	Centrifugal fan		
	Drive	—	Direct Driver		
	Motor Output	kW	0.15	0.15	0.5
	Air Flow	m^3/h	1650	1650	2500
	Ext. Static Pressure	Pa	25	37	37
Sound Pressure Level (H/M/L)		dB(A)	49/47/45	49/47/45	55/51/48
Air Filter		—	Standard washable synthetic		
Drain Piping		mm	φ20×1.2	φ20×1.2	φ20×1.2
Dimensions (W×H×D) (Outline/Package)		mm	1270×268×530 1345×283×594	1270×268×530 1345×283×594	1226×290×775 1335×305×834
Weight (Net/Gross)		kg	37/45	37/45	57/64
Outdoor Unit			R24PEVLK	R30PEVLK	R36PEVLK
Power Supply		—	220V 1Ph 60Hz		
Heat Exchange		—	Cross Fin Coil		
Fan	Type	—	Axial fan		
	Motor Output	kW	0.068	0.09	0.09
	Fan Motor Speed	rpm	815	780	780
Compressor	Type	—	ROTARY		
	Motor Output	kW	1.5	2.20	2.20
Refrigerant	Type	—	R22		
	Control	—	Orifice	Orifice	Orifice
	Charge	kg	2.1	2.9	3.4
Dimensions (W×H×D) (Outline/Package)		mm	1018×695×412 1100×755×450	980×790×427 1080×840×485	980×790×427 1080×840×485
Weight (Net/Gross)		kg	55/59	68/76	68/76
Piping Connections	Liquid	mm	φ9.52	φ9.52	φ12.7
	Gas	mm	φ15.9	φ15.9	φ19.05
	Max. Length	m	30	30	50
	Max. Height Difference	m	15	15	30

Continued 1

Model	Indoor unit		FDM42PEVLK	FDM42PEVLK
	Outdoor unit		R42PETLK	R42PEYLK
Nominal Capacity	Cooling	kW	12	12
		Btu/h	41000	41000
Power Input	Cooling	kW	5.28	5.28
EER/COP		W/W	2.27	2.27
Indoor Unit			FDM42PEVLK	FDM42PEVLK
Power Supply		—	220V 1Ph 60Hz	
Heat Exchange		—	Cross Fin Coil	
Fan	Type	—	Centrifugal fan	
	Drive	—	Direct Driver	
	Motor Output	kW	0.5	0.5
	Air Flow	m^3/h	2400	2400
	Ext. Static Pressure	Pa	37	37
Sound Pressure Level (H/M/L)		dB(A)	55/51/48	55/51/48
Air Filter		—	Standard washable synthetic	
Drain Piping		mm	φ20×1.2	φ20×1.2
Dimensions (W×H×D) (Outline/Package)		mm	1226×290×775 1335×305×834	1226×290×775 1335×305×834
Weight (Net/Gross)		kg	57/64	57/64
Outdoor Unit			R42PETLK	R42PEYLK
Power Supply		—	220V 3Ph 60Hz	380V 3Ph 60Hz
Heat Exchange		—	Cross Fin Coil	
Fan	Type	—	Axial fan	
	Motor Output	kW	0.14	0.14
	Fan Motor Speed	rpm	850	850
Compressor	Type	—	SCROLL	SCROLL
	Motor Output	kW	4.4	4.55
Refrigerant	Type	—	R22	
	Control	—	Orifice	Orifice
	Charge	kg	4.2	4.5
Dimensions (W×H×D) (Outline/Package)		mm	1107×1100×440 1170×1220×490	1107×1100×440 1170×1220×490
Weight (Net/Gross)		kg	109/122	109/122
Piping Connections	Liquid	mm	φ12.7	φ12.7
	Gas	mm	φ19.05	φ19.05
	Max. Length	m	50	50
	Max. Height Difference	m	30	30

Continued:2

Model	Indoor unit		FDM48PEVLK	FDM48PEVLK
	Outdoor unit		R48PETLK	R48PEYLK
Nominal Capacity	Cooling	kW	13.2	13.2
		Btu/h	45000	45000
Power Input	Cooling	kW	5.76	5.76
EER/COP		W/W	2.29	2.29
Indoor Unit			FDM48PEVLK	FDM48PEVLK
Power Supply		—	220V 1Ph 60Hz	
Heat Exchange		—	Cross Fin Coil	
Fan	Type	—	Centrifugal fan	
	Drive	—	Direct Driver	
	Motor Output	kW	0.5	0.5
	Air Flow	m^3/h	2400	2400
	Ext. Static Pressure	Pa	50	50
Sound Pressure Level (H/M/L)		dB(A)	55/51/48	55/51/48
Air Filter		—	Standard washable synthetic	
Drain Piping		mm	φ20×1.2	φ20×1.2
Dimensions (W×H×D) (Outline/Package)		mm	1226×290×775 1335×305×834	1226×290×775 1335×305×834
Weight (Net/Gross)		kg	57/64	57/64
Outdoor Unit			R48PETLK	R48PEYLK
Power Supply		—	220V 3Ph 60Hz	380V 3Ph 60Hz
Heat Exchange		—	Cross Fin Coil	
Fan	Type	—	Axial fan	
	Motor Output	kW	0.14	0.14
	Fan Motor Speed	rpm	850	850
Compressor	Type	—	SCROLL	SCROLL
	Motor Output	kW	5.15	5.1
Refrigerant	Type	—	R22	
	Control	—	Orifice	Orifice
	Charge	kg	4.3	4.3
Dimensions (W×H×D) (Outline/Package)		mm	1107×1100×440 1170×1220×490	1107×1100×440 1170×1220×490
Weight (Net/Gross)		kg	109/122	109/122
Piping Connections	Liquid	mm	φ12.7	φ12.7
	Gas	mm	φ19.05	φ19.05
	Max. Length	m	50	50
	Max. Height Difference	m	30	30

Continued 3

Model	Indoor unit		FDM24PEVLK	FDM30PEVLK	FDM36PEVLK
	Outdoor unit		RY24PEVLK	RY30PEVLK	RY36PEVLK
Nominal Capacity	Cooling	kW	6.6	8.2	9.4
		Btu/h	22500	28000	32000
	Heating	kW	7.5	9.3	10.5
		Btu/h	25600	31700	35800
Power Input	Cooling	kW	2.70	3.45	4.00
	Heating	kW	2.60	3.40	3.50
EER/COP		W/W	2.44/2.88	2.38/2.74	2.35/3.00
Indoor Unit			FDM24PEVLK	FDM30PEVLK	FDM36PEVLK
Power Supply		—	220V 1Ph 60Hz		
Heat Exchange		—	Cross Fin Coil		
Fan	Type	—	Centrifugal fan		
	Drive	—	Direct Driver		
	Motor Output	kW	0.15	0.15	0.5
	Air Flow	m^3/h	1650	1650	2500
	Ext. Static Pressure	Pa	25	37	37
Sound Pressure Level (H/M/L)		dB(A)	49/47/45	49/47/45	55/51/48
Air Filter		—	Standard washable synthetic		
Drain Piping		mm	φ20×1.2	φ20×1.2	φ20×1.2
Dimensions (W×H×D) (Outline/Package)		mm	1270×268 ×530 1345 ×283×594	1270×268 ×530 1345 ×283×594	1226×290×775 1335×305×834
Weight (Net/Gross)		kg	37/45	37/45	57/64
Outdoor Unit			RY24PEVLK	RY30PEVLK	RY36PEVLK
Power Supply		—	220V 1Ph 60Hz		
Heat Exchange		—	Cross Fin Coil		
Fan	Type	—	Axial fan		
	Motor Output	kW	0.068	0.09	0.09
	Fan Motor Speed	rpm	815	780	780
Compressor	Type	—	ROTARY		
	Motor Output	kW	1.5	2.2	2.2
Refrigerant	Type	—	R22		
	Control	—	Orifice	Orifice	Orifice
	Charge	kg	2.1	2.9	3.4
Dimensions (W×H×D) (Outline/Package)		mm	1018×695×412 1100×755×450	980×790×427 1080×840×485	980×790×427 1080×840×485
Weight (Net/Gross)		kg	55/59	68/76	68/76
Piping Connections	Liquid	mm	φ9.52	φ9.52	φ12.7
	Gas	mm	φ15.9	φ15.9	φ19.05
	Max. Length	m	30	30	50
	Max. Height Difference	m	15	15	30

Continued 4

Model	Indoor unit		FDM42PEVLK	FDM42PEVLK
	Outdoor unit		RY42PETLK	RY42PEYLK
Nominal Capacity	Cooling	kW	12	12
		Btu/h	41000	41000
	Heating	kW	14	14
		Btu/h	48000	48000
Power Input	Cooling	kW	5.17	5.17
	Heating	kW	5.27	5.27
EER/COP		W/W	2.32/2.66	2.32/2.66
Indoor Unit			FDM42PEVLK	FDM42PEVLK
Power Supply		—	220V 1Ph 60Hz	
Heat Exchange		—	Cross Fin Coil	
Fan	Type	—	Centrifugal fan	
	Drive	—	Direct Driver	
	Motor Output	kW	0.5	0.5
	Air Flow	m^3/h	2400	2400
	Ext. Static Pressure	Pa	37	37
Sound Pressure Level (H/M/L)		dB(A)	55/51/48	55/51/48
Air Filter		—	Standard washable synthetic	
Drain Piping		mm	φ20×1.2	φ20×1.2
Dimensions (W×H×D) (Outline/Package)		mm	1226×290×775 1335×305×834	1226×290×775 1335×305×834
Weight (Net/Gross)		kg	57/64	57/64
Outdoor Unit			RY42PETLK	RY42PEYLK
Power Supply		—	220V 3Ph 60Hz	380V 3Ph 60Hz
Heat Exchange		—	Cross Fin Coil	
Fan	Type	—	Axial fan	
	Motor Output	kW	0.14	0.14
	Fan Motor Speed(H/M/L)	rpm	850	850
Compressor	Type	—	SCROLL	SCROLL
	Motor Output	kW	4.4	4.55
Refrigerant	Type	—	R22	
	Control	—	Orifice	Orifice
	Charge	kg	4.5	4.6
Dimensions (W×H×D) (Outline/Package)		mm	1107×1100×440 1170×1220×490	1107×1100×440 1170×1220×490
Weight (Net/Gross)		kg	109/122	109/122
Piping Connections	Liquid	mm	φ12.7	φ12.7
	Gas	mm	φ19.05	φ19.05
	Max. Length	m	50	50
	Max. Height Difference	m	30	30

Continued 5

Model	Indoor unit		FDM48PEVLK	FDM48PEVLK
	Outdoor unit		RY48PETLK	RY48PEYLK
Nominal Capacity	Cooling	kW	13.2	13.2
		Btu/h	45000	45000
	Heating	kW	16.0	16.0
		Btu/h	54600	54600
Power Input	Cooling	kW	5.79	5.79
	Heating	kW	5.90	5.90
EER/COP		W/W	2.28/2.71	2.28/2.71
Indoor Unit			FDM48PEVLK	FDM48PEVLK
Power Supply		—	220V 1Ph 60Hz	
Heat Exchange		—	Cross Fin Coil	
Fan	Type	—	Centrifugal fan	
	Drive	—	Direct Driver	
	Motor Output	kW	0.5	0.5
	Air Flow	m^3/h	2400	2400
	Ext. Static Pressure	Pa	50	50
Sound Pressure Level (H/M/L)		dB(A)	55/51/48	55/51/48
Air Filter		—	Standard washable synthetic	
Drain Piping		mm	φ20×1.2	φ20×1.2
Dimensions (W×H×D) (Outline/Package)		mm	1226×290×775 1335×305×834	1226×290×775 1335×305×834
Weight (Net/Gross)		kg	57/64	57/64
Outdoor Unit			RY48PETLK	RY48PEYLK
Power Supply		—	220V 3Ph 60Hz	380V 3Ph 60Hz
Heat Exchange		—	Cross Fin Coil	
Fan	Type	—	Axial fan	
	Motor Output	kW	0.14	0.14
	Fan Motor Speed	rpm	850	850
Compressor	Type	—	SCROLL	SCROLL
	Motor Output	kW	5.1	5.1
Refrigerant	Type	—	R22	
	Control	—	Orifice	Orifice
	Charge	kg	4.4	4.4
Dimensions (W×H×D) (Outline/Package)		mm	1107×1100×440 1170×1220×490	1107×1100×440 1170×1220×490
Weight (Net/Gross)		kg	109/122	109/122
Piping Connections	Liquid	mm	φ12.7	φ12.7
	Gas	mm	φ19.05	φ19.05
	Max. Length	m	50	50
	Max. Height Difference	m	30	30

Notes:

① Nominal capacities are based on the following conditions.

	Indoor	Outdoor
Cooling	DB: 27°C WB: 19°C	DB: 35°C WB: 24°C
Heating	DB: 20°C WB: --°C	DB: 7°C WB: 6°C
Piping Length	5m	

② The air volume is measured at the relevant standard external static pressure.

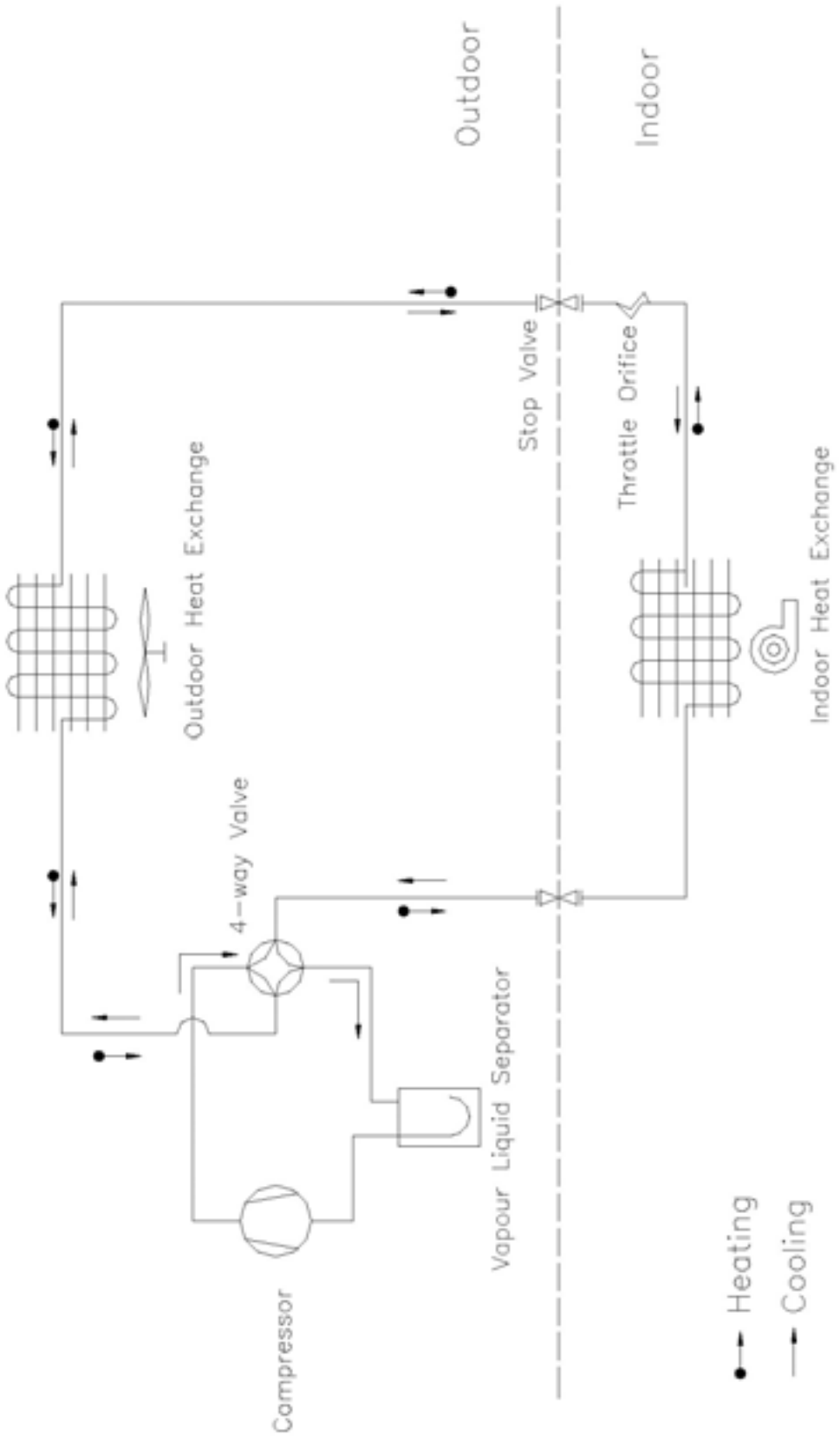
③ Noise is tested in the Semi shield room, so it should be slightly higher in the actual operation due to environmental change.

4.2 Electrical Data

Model		Compressor				Fan Motor		Max. Fuse Breaker Size	Min. Disconnect Size (Indoor/Outdoor)
		Power Supply	Qty.	LRA	RLA	Condenser Fan Motors	Supply Blower Motor		
		V, Ph, Hz	—	Each	Each	FLA Each	FLA Each	Amperes	Amperes
R24PEVLK (RY24PEVLK)	FDM24PEVLK	220V 1Ph 60Hz	1	61	11.2	0.9	1.17	25	25/16
R30PEVLK (RY30PEVLK)	FDM30PEVLK	220V 1Ph 60Hz	1	95	15.4	1.1	1.17	32	32/25
R36PEVLK (RY36PEVLK)	FDM36PEVLK	220V 1Ph 60Hz	1	95	15.4	1.1	3.56	32	6/32
R42PETLK (RY42PETLK)	FDM42PEVLK	220V 3Ph 60Hz	1	115	14	1.1	3.26	32	6/25
R42PEYLK (RY42PEYLK)	FDM42PEVLK	380V 3Ph 60Hz	1	55	7.5	1.1	3.26	25	6/20
R48PETLK (RY48PETLK)	FDM48PEVLK	220V 3Ph 60Hz	1	134	16.6	1.1	3.26	32	6/32
R48PEYLK (RY48PEYLK)	FDM48PEVLK	380V 3Ph 60Hz	1	63	11.2	1.1	3.26	25	6/25

Notes:
RLA: Rated load amperes
LRA: Locked rotor amperes
FLA: Full load amperes

5. PIPING DIAGRAM

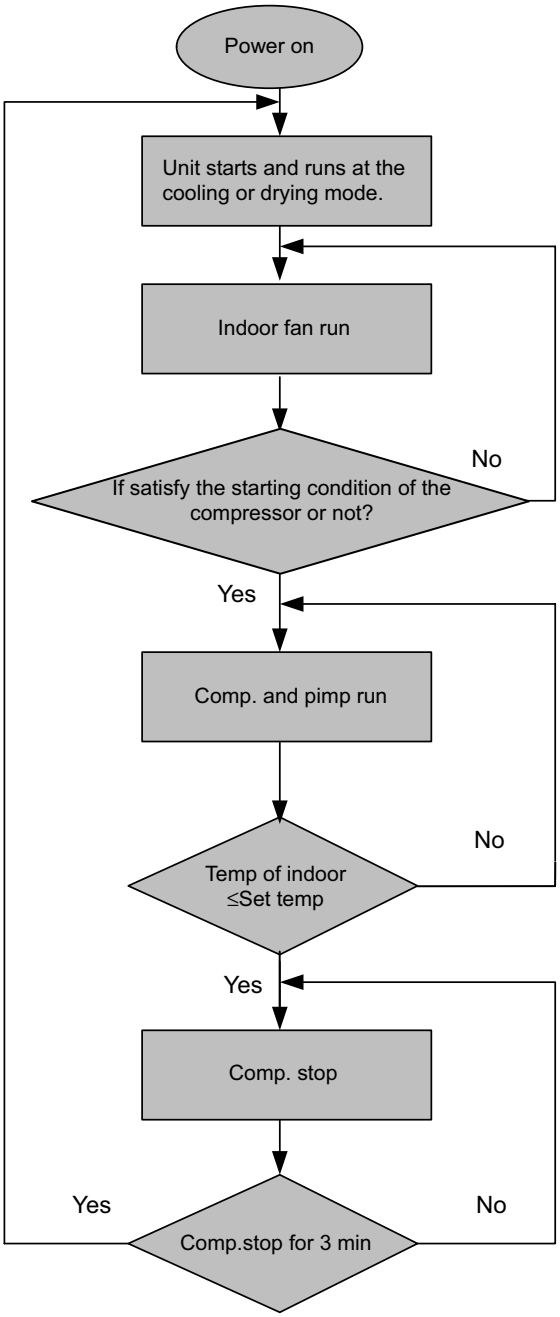


Part 2
FUNCTION CONTROL

1. OPERATION FLOWCHART

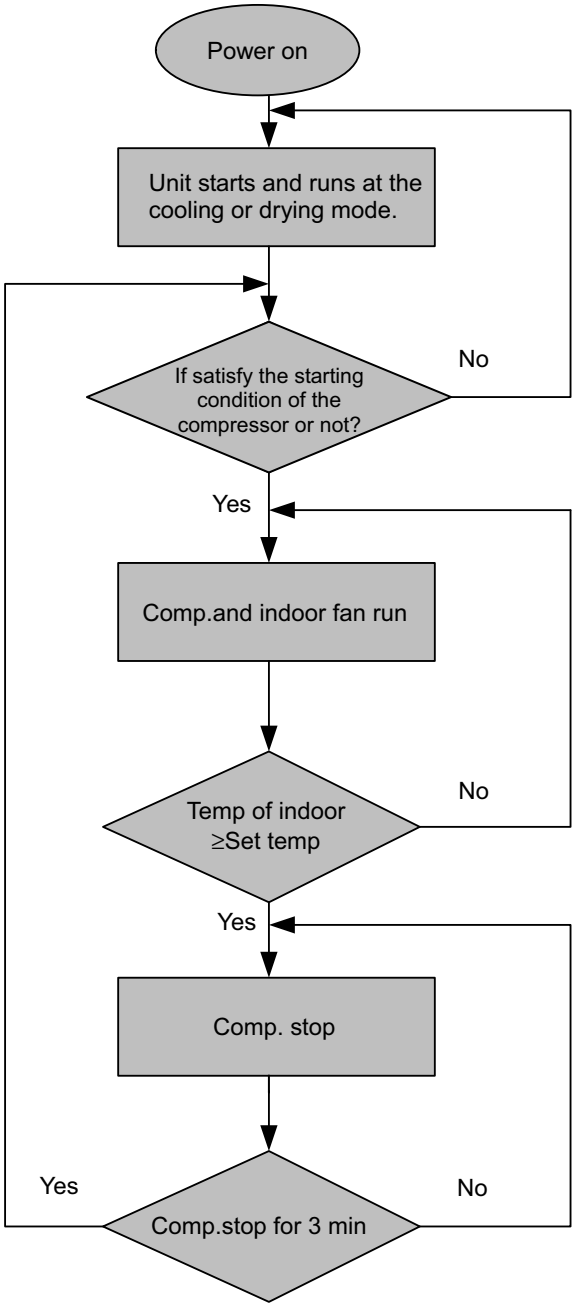
1.1 Cooling/Dry Operation

The operation flowchart for cooling/dry operation is as follows.



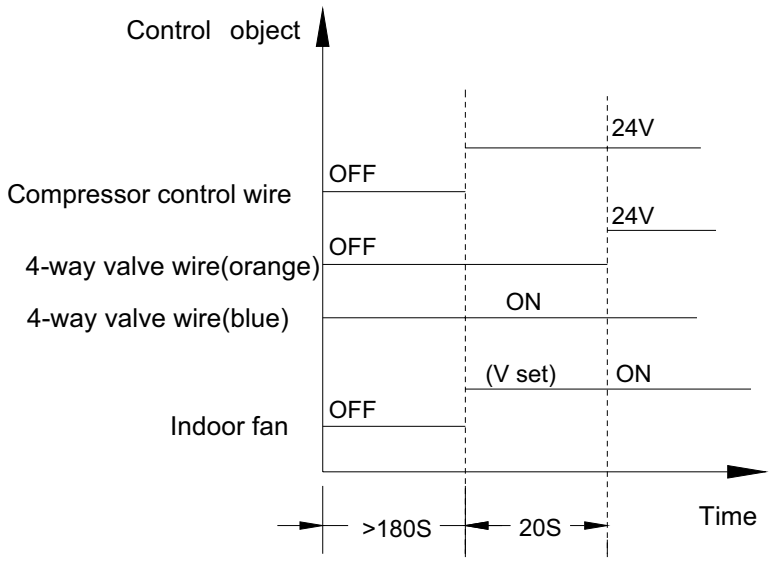
1.2 Heating Operation

The operation flowchart for heating operation is as follows.



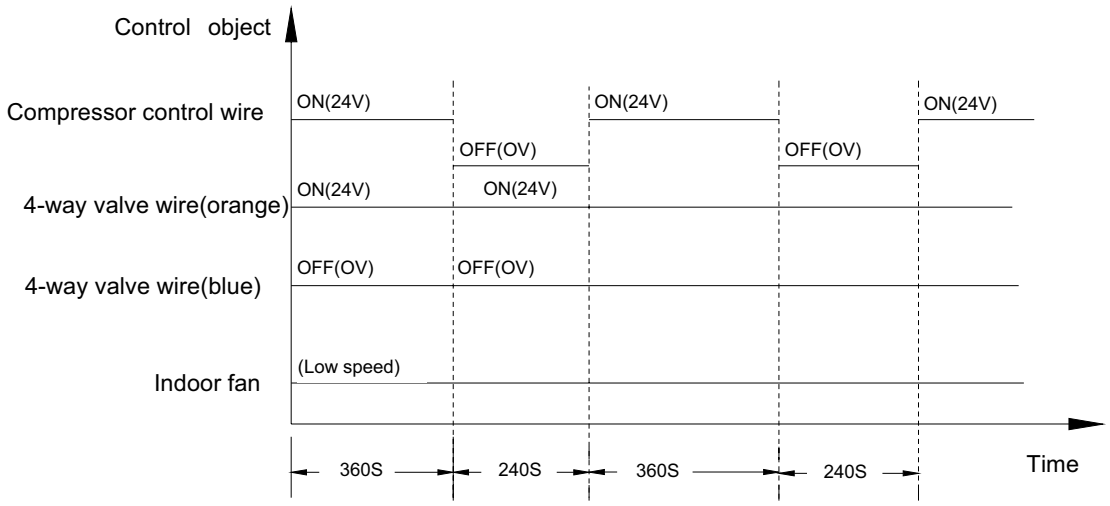
2. MAIN LOGIC

2.1 Cooling



When $T_{ambient} \geq T_{set}$, the unit will start in cooling mode; In this case, the compressor starts and indoor fan runs at set speed. After 20s, 4 way valve for cooling starts.
When $T_{ambient} \leq T_{set}-1°C$, the unit will stop during cooling operation; In this case, the compressor stops and indoor fan runs at set speed. The 4-way valve for cooling remains original state.
When $T_{set}-1°C < T_{ambient} < T_{set}+1°C$, the unit will keep its original state.

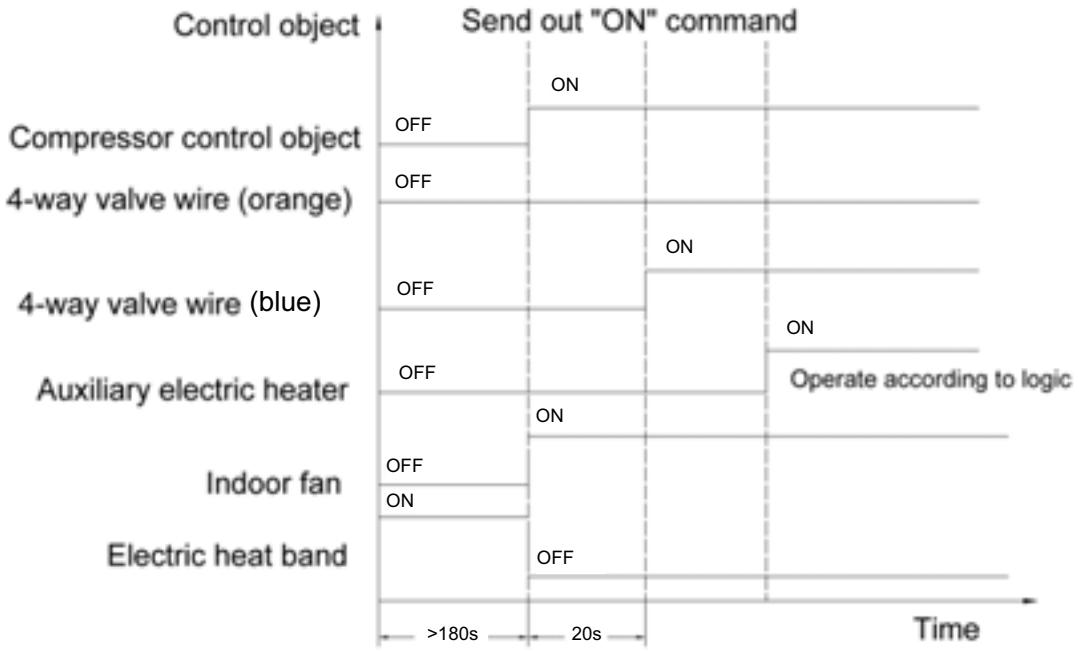
2.2 Dry Mode



When $T_{ambient} \geq T_{set}+2°C$, the unit will start in cooling mode; In this case, the compressor starts and indoor fan runs at set speed. After 20s, 4 way valve for cooling start running.
When $T_{ambient} \leq T_{set}-2°C$, the unit will stop during cooling operation; In this case, the compressor stops and indoor fan runs at set speed. The 4-way valve for cooling remains original state.

When $T_{set}-2°C < T_{ambient} < T_{set}+2°C$, the unit will operate in the state that the compressor starts 6min and then stops 4min in cycle. In this case, indoor fan runs at low speed and the 4-way valve for cooling is always running.

2.3 Heating Mode

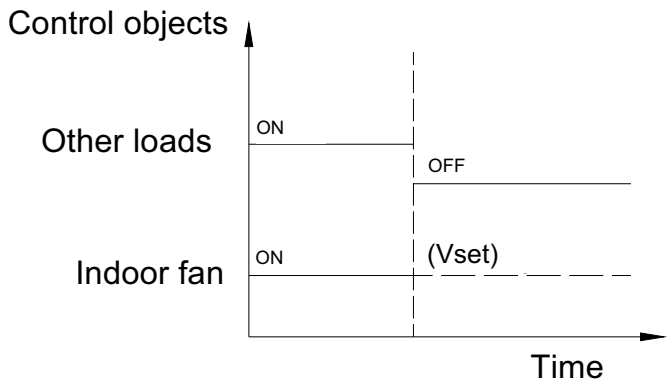


When $T_{ambient} \leq T_{set}-1°C$, the unit will start in heating mode; In this case, compressor starts and indoor fan runs at set speed. After 20s, the 4-way valve for heating start running.

When $T_{ambient} \geq T_{set}+1°C$, the compressor will stop operation. In this case, the 4-way valve is still energized, indoor fan will run at low speed under the state of blowing residual heat.

When $T_{set}-1°C < T_{ambient} < T_{set}+1°C$, the unit will keep its original state.

2.4 Fan Mode



Indoor fan will run at high speed for 5s and then at set speed. In this case, other loads stop.

3. WIRED REMOTE CONTROLLER

3.1 Displaying Part

Fig.3.1.1 Outline of wired controller

3.1.1 LCD Display of Wired Controller

Fig.3.1.2 LCD display

3.1.2 Instruction to LCD Display

No.	Description	Instruction to Displaying Contents
1	Swing *	Swing function
2	Air *	Air exchange function
3	Sleep	Sleeping state
4	Running mode	Each kind of running mode of indoor unit (auto mode)
5	Cooling	Cooling mode
6	Dry	Dry mode
7	Fan	Fan mode
8	Heating	Heating mode
9	Defrost *	Defrosting state
10	Gate-control card *	Gate control
11	Shield	Lock state
12	Shield	Shielding state (buttons, temperature, on/off, mode or save is shielded by long-distance monitoring
13	Turbo	Turbo function state
14	Memory	Memory state (Indoor unit resumes original setting state after power failure and then power recovery)
15	Twinkle	Flicking when unit is on without operation of buttons
16	Save	Energy-saving state
17	Temperature	Ambient/setting temperature value
18	E-Heater *	E-HEATER display means electric-heater is available
19	Blow	Blow mark
20	Timer	Timer-displayed location
21	Quiet	Quiet state(two types: quiet and auto quiet)
Notes: The function with * are reserved for other models and are not applicable for the models listed in this manual.		

Table 3.1

3.2 Buttons

3.2.1 Silk Screen of Buttons

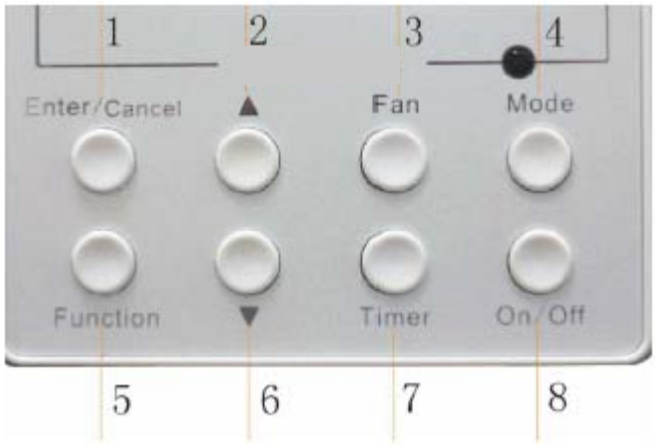


Fig. 3.2.1 Silk screen of buttons

3.2.2 Instruction to Function of Buttons

No.	Description	Function of Button
1	Enter/cancel	(1) Function selection and canceling; (2) Press it for 5s to enquiry the outdoor ambient temperature. *
2	▲	(1) Running temperature setting of indoor unit, range: 16~30°C (2) Timer setting, range: 0.5-24hr (3) Switchover between quiet/auto quiet
6	▼	
3	Fan	Setting of high/middle/low/auto fan speed
4	Mode	Setting of cooling/heating/fan/dry mode of indoor unit
5	Function	Switch over among these functions of air/sleep/turbo/save/e-heater/blow /quiet
7	Timer	Timer setting
8	On/off	Turn on/off indoor unit
4 Mode and 2 ▲	Memory function	Press Mode and ▲ for 5s under off-state of the unit to enter/cancel key memory function (If memory is set, indoor unit will resume original setting state after power failure and then power recovery. If not, indoor unit is defaulted to be off after power recovery. Memory function is defaulted to be off before outgoing.)
2 ▲ and 6 ▼	Lock	Upon startup of the unit without malfunction or under off-state of the unit, press ▲ ▼ at the same time for 5s in to lock state. In this case, any other buttons won't respond the press. Repress ▲ ▼ key for 5s to quit lock state.
4 Mode and 5 Function	Enquiry and setting of address of wired controller	Under the off-state of the unit, press Mode/Function button for 5 seconds to set the address.

5 Function And 7 Timer	Setting Ambient Temperature Sensor and three Grades of Speed for Indoor Fan	Under off-state of the unit, press **Function** and **Timer** buttons continuously for 5s to go to debugging menu. Press **Mode** button to adjust the setting items and ▲ or ▼ button to set the actual value.
5 Function and 6▼	Enquiry of Historical Errors	Continuously press **Function** and ▼ buttons for 5s to go to the enquiry state. In this state, press **Enter/Cancel** button to quit, or it will automatically quit after there is not any operation of button in 30min

Table 3.2

3.3 Installation of Wired Controller and Project Debugging

3.3.1 Installation of Wired Controller

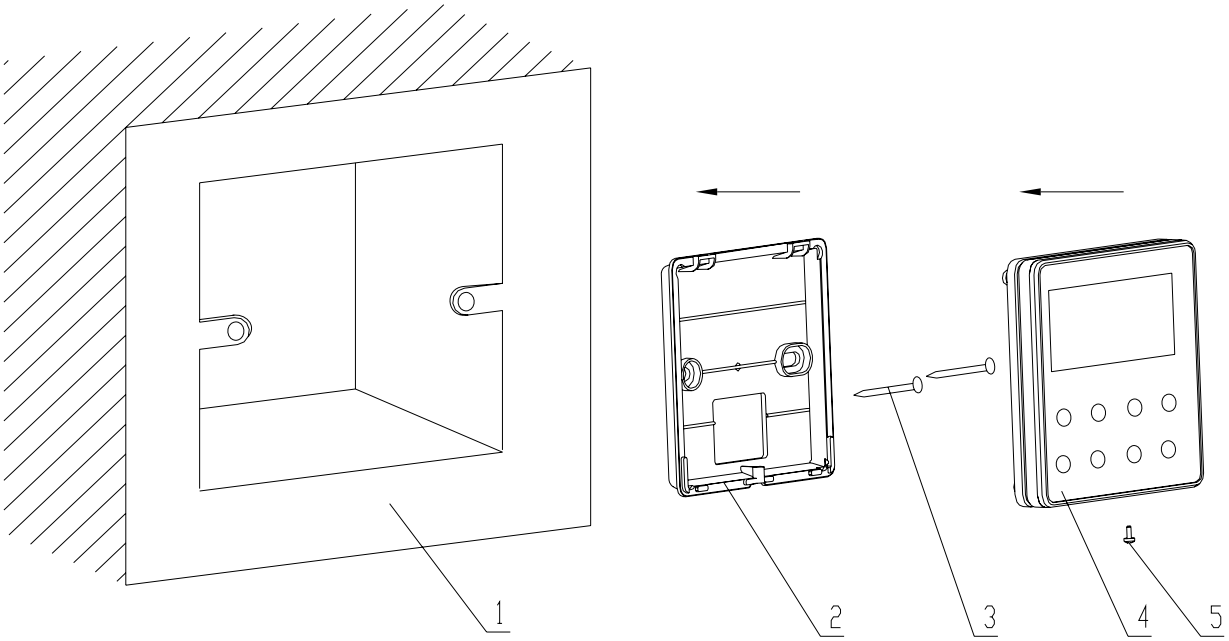


Fig.3.3.1: Sketch for Installation of Wired Controller

No.	1	2	3	4	5
Description	Socket's base box installed in the wall	Soleplate of controller	Screw M4X25	Front panel of controller	Screw ST2.2X6.5

Fig.3.3.1: Sketch for Installation of Wired Controller. Pay attention to the following items during installation of wired controller:

1. Cut off power supply of heavy-current wire embedded in mounting hole in the wall before installation. It is prohibited to perform the whole procedure with electricity.
2. Pull out the 4-core twisted pair line in mounting hole and then make it through the rectangle hole at the back of controller's soleplate.
3. Joint the controller's soleplate on wall face and then fix it in mounting hole with screws M4X25.
4. Insert the 4-core twisted pair line through rectangle hole into controller's slot and buckle the front panel and soleplate of controller together.
5. At last, fix the controller's front panel and soleplate with screws ST2.2X6.5.

⚠ Caution:

During connection of wirings, pay special attention to the following items to avoid interference of electromagnetism to unit and even failure of it.

1. To ensure normal communication of the unit, signal line and wiring (communication) of wired controller should be separated from power cord and indoor/outdoor connection lines. The distance between them should be kept 20cm in min.
2. If the unit is installed at the place where there is interference of electromagnetism, signal line and wiring (communication) of wired controller must be shielded by twisted pair lines.

3.3.2 Project Debugging

Enquiry of wired controller's address:

Press **Function** and **Mode** buttons at the same time for 5s under off-state of the unit, and then LCD displays wired controller's address numbers.

Setting of wired controller's address:

Press **Function** and **Mode** buttons at the same time for 5s.In this case, LCD displays address number. Then press▲ or ▼ button to adjust address (address no.:1-16) .After that, press **Enter/Cancel** button to confirm.

Addresses of the wired controller are used for centralized control of wired controller. Enquiry and setting of wired controller's address is shown as Fig.3.3.2 below:

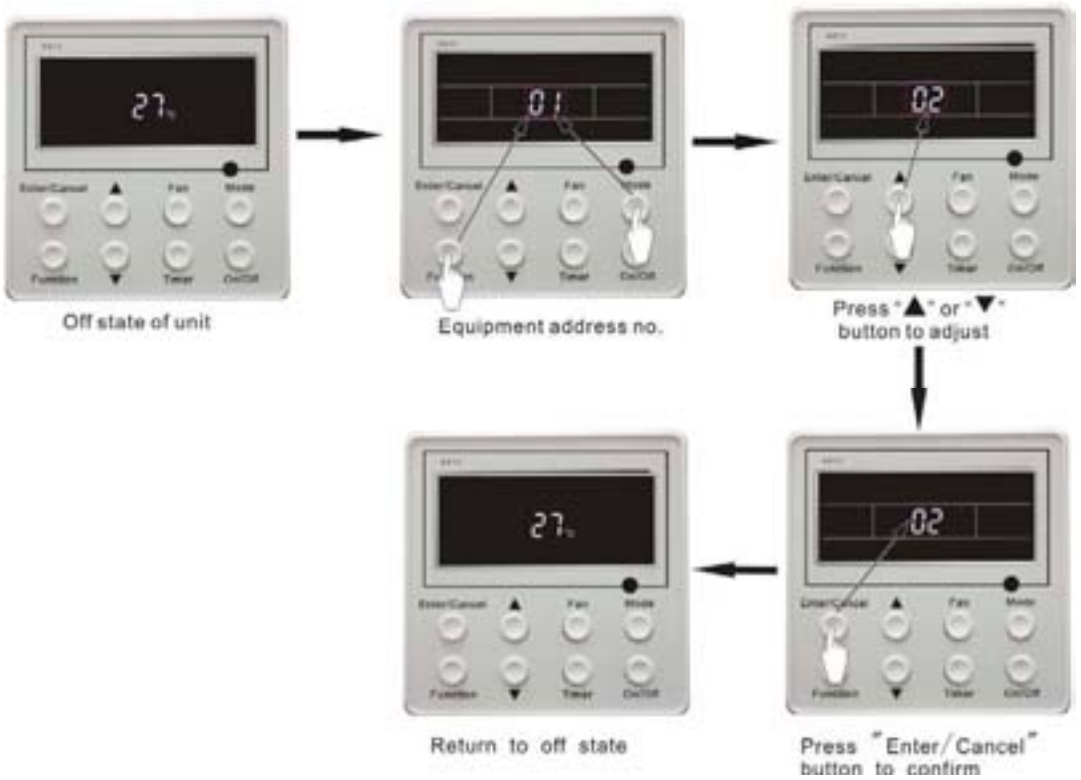


Fig.3.3.2: Enquiry and Setting of Wired Controller's Address

3.4 Instruction to Operation

3.4.1 On/Off

Press On/Off button to turn on the unit.
Repress this button to turn off the unit.

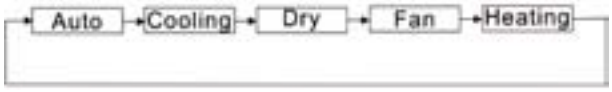
Note: The state shown in Fig.3.4.1 indicates off-state of the unit after energization.
The state shown in Fig.3.4.2 indicates on-state of the unit after energization.

Fig.3.4.1 Off state of the unit

Fig.3.4.2 On state of the unit

3.4.2 Mode Setting

Under on-state of the unit, press **Mode** button to switch the operation modes as the following sequence:



3.4.3 Temperature Setting

Press ▲ or ▼ button to increase or decrease of setting temperature under on-state of the unit. If press either of them continuously, temperature will be increased or decreased by 1°C every 0.5s.

In Cooling, Dry, Fan and Heating mode, temperature setting range is 16°C~30°C.

In Auto mode, the setting temperature is un-adjustable.

As shown in Fig.3.4.3

Fig 3.4.3

3.4.4 Fan Speed Setting

Press **Fan** button, fan speed of indoor unit will change as below:

As shown in Fig.3.4.4.

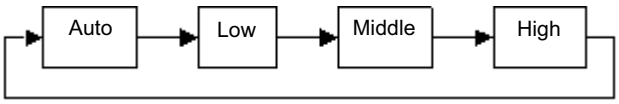


Fig.3.4.4

3.4.5 Swing Control Function *

Under on-state of unit, press **Function** button till the unit enters swing control function and then press “Enter/Cancel“ button to turn on “swing” control function.

During swing function, press **Function** button till the unit enters swing control function and then press **Enter/Cancel** button to cancel swing control function.

Swing control function setting is shown in Fig.3.4.5.

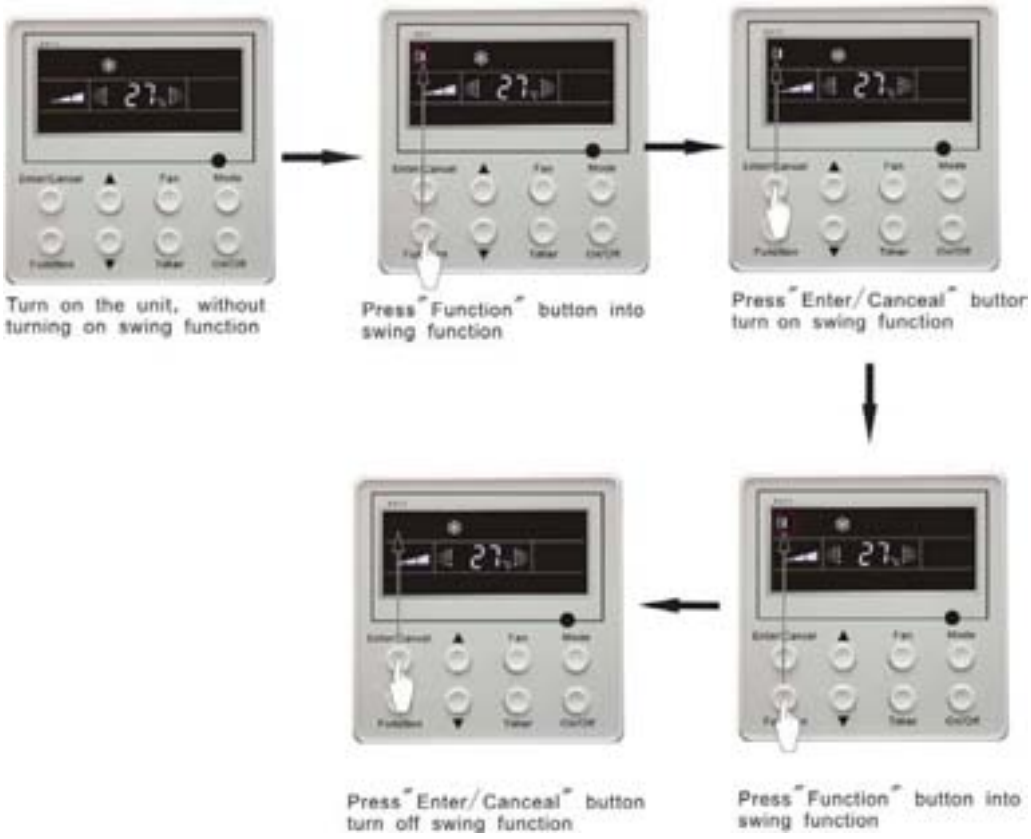


Fig. 3.4.5

3.4.6 Timer Setting

Press Timer button to set timer off of the unit. Under off-state of the unit, press **Timer** button to set timer on of the unit in the same way.

Timer on setting:

Under off-state of the unit without timer setting, if Timer button is pressed, LCD will display **xx. Hour**, with ON blinking. In this case, press ▲ or ▼ button to adjust timer on and then press Timer to confirm. If **Mode** button is pressed before pressing **Timer** button to confirm, timer mode will be switched to timer off setting mode. In this case, LCD displays **xx. Hour**, with OFF blinking. In this case, press▲ or ▼ button to adjust timer off and then press Timer to confirm. When LCD displays **xx. Hour On Off**, **xx. Hour** means time of timer on, but time of timer off won’t be displayed.

Timer off setting:

Under on-state of the unit without timer setting, if **Timer** button is pressed, LCD will display **xx. Hour**, with **OFF** blinking. In this case, press▲ or ▼ button to adjust timer on and then press Timer to confirm. If **Mode** button is pressed before pressing **Timer** button to confirm, timer mode will be switched to timer on setting mode. In this case, LCD displays **xx. Hour**, with **ON** blinking. In this case, press▲ or ▼ button to adjust timer on and then press **Timer** button to confirm. When LCD displays **xx. Hour On Off**, **xx. Hour** means time of timer off, but time of timer on won’t be displayed.

Cancel timer:

After setting of timer, if **Timer** button is pressed, LCD won’t display **xx. Hour** so that

timer setting is canceled.

Timer off setting under **on-state** of the unit is shown as Fig.3.4.6

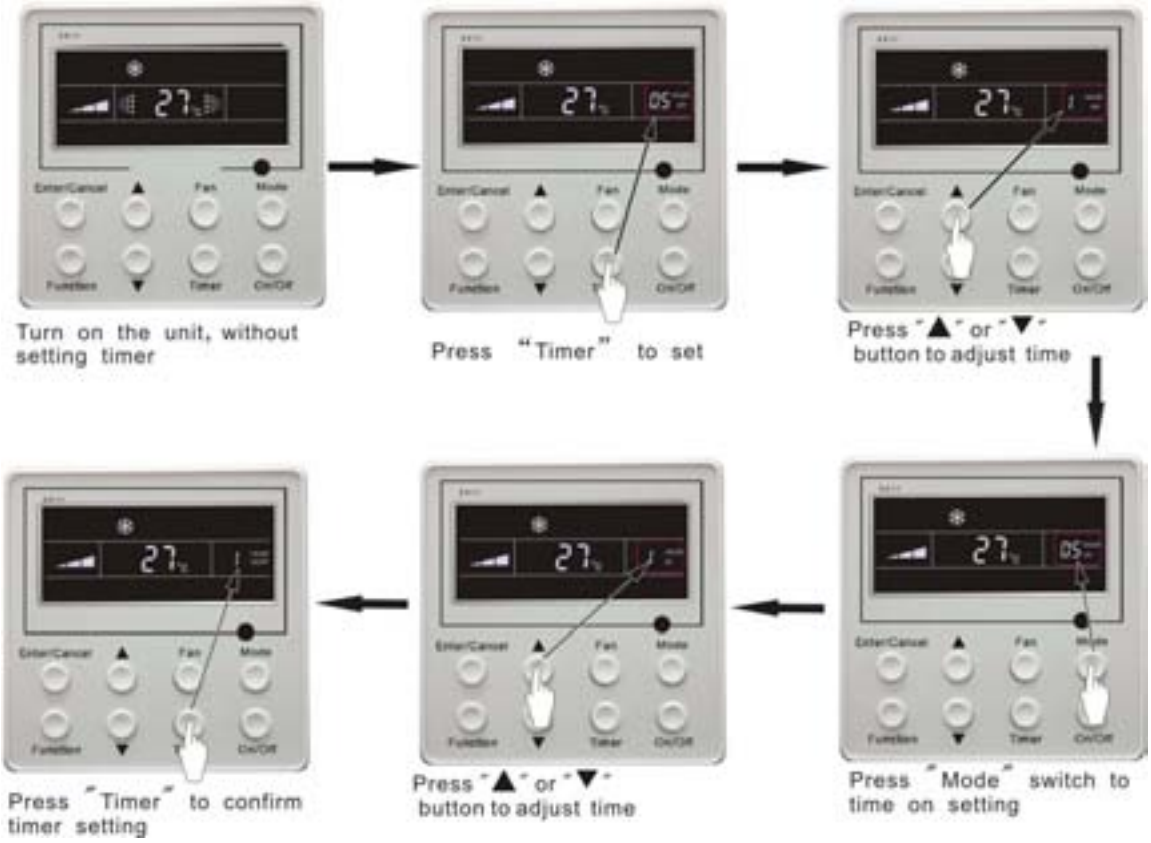


Fig. 3.4.6 Timer setting under on-state of the unit

Timer range:

0.5-24hr. Every press of▲ or ▼ button will make setting time increased or decreased by 0.5hr. If press either of them continuously, setting time will automatically increase/decrease by 0.5hr every 0.5s.

Note:

1. If both timer on and timer off are set in unit on interface, the wired controller only display time of time off. If both of them are set in unit off-state, only time of timer on is displayed.
2. Timer on in unit on-state is timed from the time of unit off and timer off in unit off-state is timed from the time of unit on.

3.4.7 Air Exchange Setting *

Turn on air Exchange function:

Under on-state of the unit, press **Function** button to go to the this function setting (**Air** mark blinks). IR 1 displayed at the ambient temperature-displayed location (888) is defaulted (the last type of **AIR** will be displayed after adjustment).Press ▲ or ▼ button to adjust air type. Press **Enter/Cancel** button to turn on/off air function. After turning on this function, the air mark shows.

There are 10 types of AIR, but only 1-2 types are for remote control. Refer to the following details:

1——The unit continuously runs for 60min, and fresh air valve runs for 6 min.
2——The unit continuously runs for 60min, and fresh air valve runs for 12 min.
3——The unit continuously runs for 60min, and fresh air valve runs for 18 min.
4——The unit continuously runs for 60min, and fresh air valve runs for 2 4 min.
5——The unit continuously runs for 60min, and fresh air valve runs for 30 min.
6——The unit continuously runs for 60min, and fresh air valve runs for 36 min.
7——The unit continuously runs for 60min, and fresh air valve runs for 42 min.
8——The unit continuously runs for 60min, and fresh air valve runs for 48 min.
9——The unit continuously runs for 60min, and fresh air valve runs for 54 min.
10——The unit continuously runs for 60min, and fresh air valve always runs.

Turn off air Exchange function: During Air function, press **Function** button to go to the Air function. In this case, **air** mark is blinking, and then press **Enter/cancel** button to turn off this function. Air mark will subsequently disappear.

Air Exchange setting is shown as in fig.3.4.7:

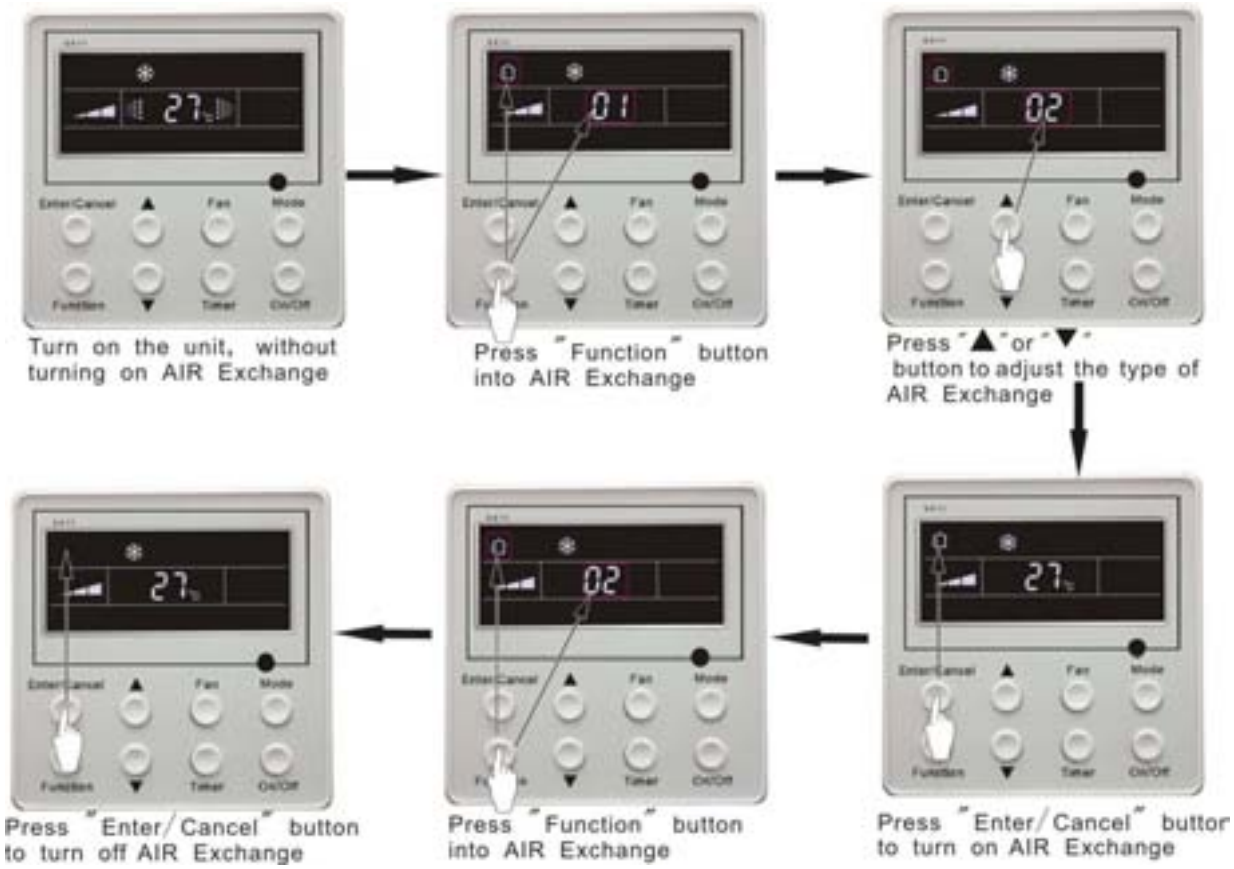


Fig.3.4.7 Air exchange device

Note: In air exchange mode, press Function button or there is not any operation within 5s after the last button operation, the system will be quit from air exchange setting and current energy-saving data won't be memorized.

3.4.8 Sleep Setting

Sleep on: Press **Function** button under on-state of the unit into sleep function and then press **Enter/Cancel** button to turn on sleeping function.

Sleep off: During sleep on-state, press **Function** button to go to the sleep function and then press **Enter/Cancel** button to turn off this function.

Sleep setting is shown as Fig.3.4.8:

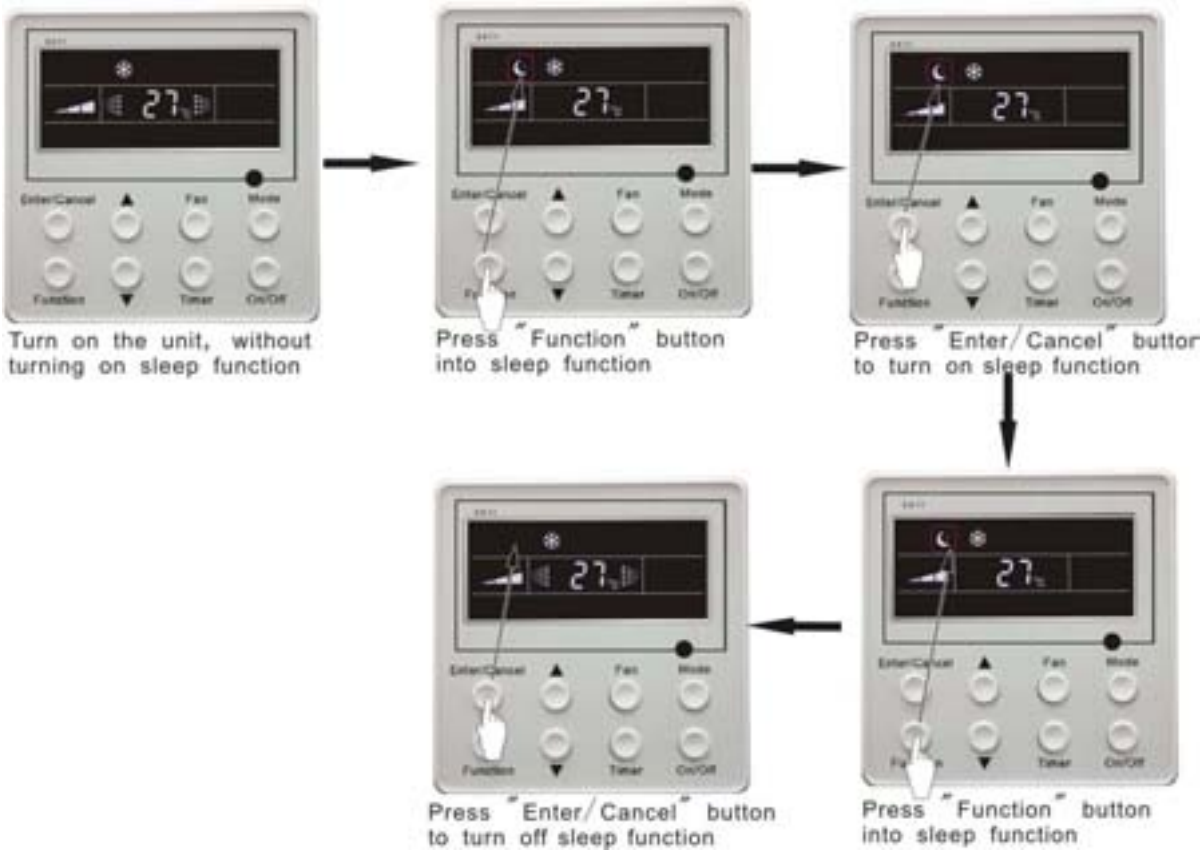


Fig.3.4.8 Sleep setting

Sleep setting is clear after power failure and then power recovery. There is not sleep function in fan and auto mode.

Note: In cooling and dry mode, if the unit with sleep function has run for 1 hour, the preset temperature will be increased by 1°C and 1°C in another 1 hour. After that, the unit will run at this temperature. In heating mode, if the unit with sleep function has run for 1 hour, the preset temperature will be decreased by 1°C and 1°C in another 1 hour. After that, the unit will run at this temperature.

3.4.9 Turbo Function Setting

Turbo function:

The unit at high fun speed can realize quick cooling or heating so that room temperature can quickly approach the setting temperature.

In cooling or heating mode, press **Function** button till the unit enters **Turbo** function and then press **Enter/Cancel** button to turn on **turbo** function.

During **Turbo** function, press **Function** button till the unit enters **Turbo** function and then press **Enter/Cancel** button to cancel **Turbo** function.

Turbo function setting is shown in Fig.3.4.9:

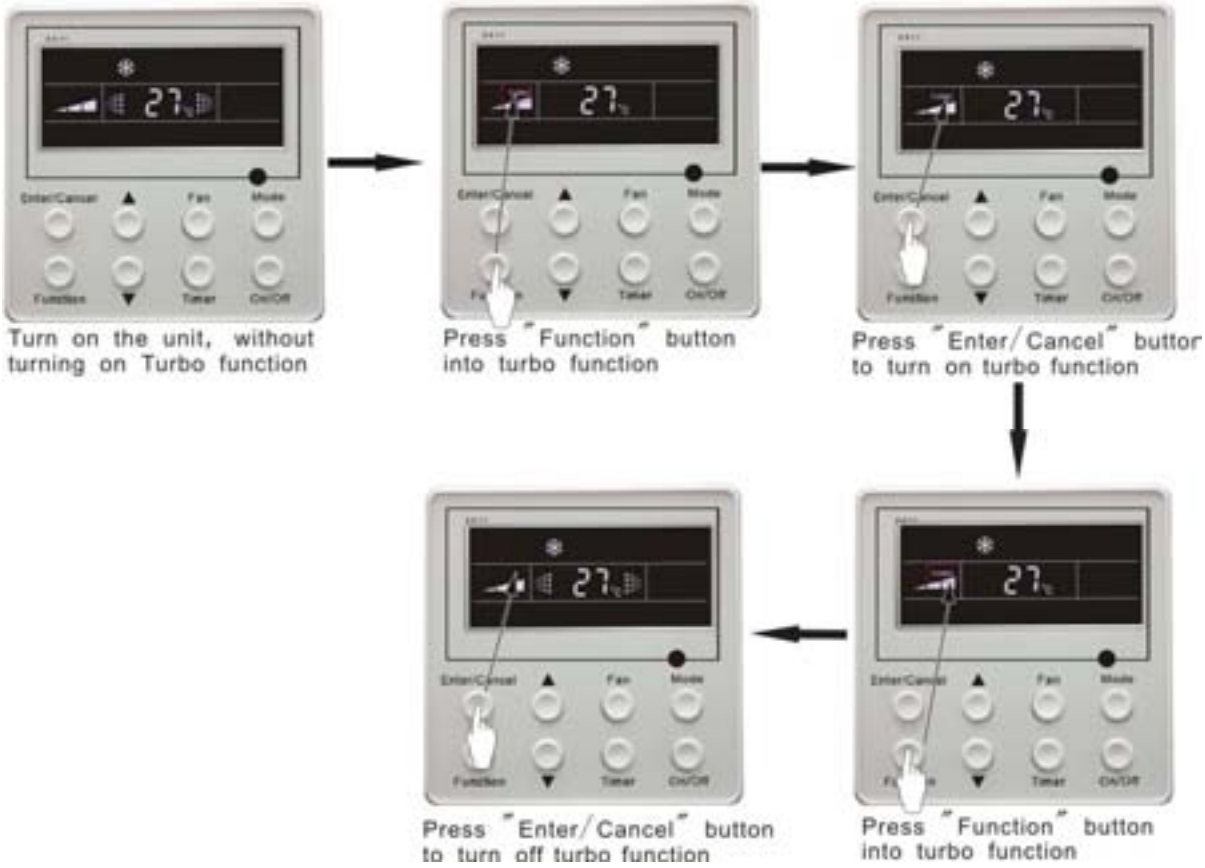


Fig.3.4.9 Turbo Function Setting

Note:

1. **Turbo** function will be turned off after power failure and then recovery. In dry, fan and auto mode, **Turbo** function can not be set and **Turbo** mark won't be displayed.
2. **Turbo** function will be automatically canceled after setting of quiet function.

3.4.10 Save Function Setting

Energy Saving Function:

Energy saving can make the air conditioner runs in smaller temperature range by setting lower limited value of setting temperature in cooing or dry mode and upper limited value in heating mode.

Energy Saving Setting for Cooling mode

Under on-state and in cooling or dry mode of the unit, press **Function** button into energy saving function, with **SAVE** blinking. Press ▲ or ▼ button to adjust lower limited value of setting temperature in cooing mode. After that press **Enter/Cancel** button to turn on energy saving function for cooling mode.

Energy Saving Setting for Heating mode

Under on-state and in heating mode of the unit, press **Function** button into energy saving function, with **SAVE** blinking. Press Mode button into energy saving function for heating and then press ▲ or ▼ button to adjust upper limited value of setting temperature in heating mode. After that, press **Enter/Cancel** button to turn on energy saving function for heating mode.

After energy saving function is turned on, press **Function** button into energy saving function and press **Enter/cancel** to cancel this function.

The energy saving setting is shown in the Fig.3.4.10.

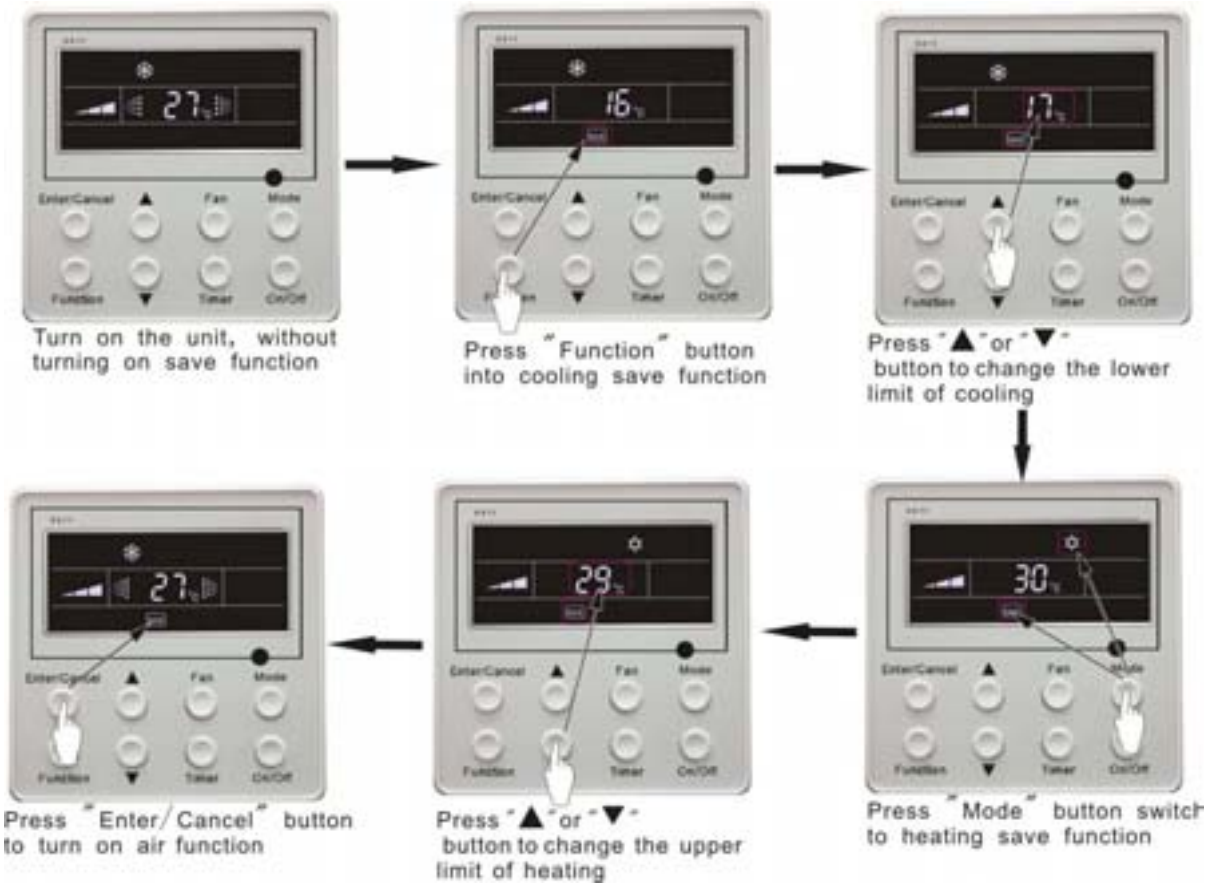


Fig.3.4.10 Energy Saving Setting

Note:

1. In Auto running mode with save function on, the unit will be forcibly quit Auto running Mode and change to current operation mode. After setting of save, sleep function will be canceled.
2. In save mode, if **Function** button is pressed or there is not any operation within 5s after the last button operation, the system will be quit from save function setting and current

data won't be memorized.

3. After power failure and then recovery, save function setting will be memorized.
4. The lower limited value in cooling mode is 16°C and the upper limited value in heating mode is 30°C.
5. After save setting, if the setting temperature is out of the range in the mode, the limited value will prevail.

3.4.11 E-HRATER Setting *

E-HEATER:

n the heating mode, R-heater is allowed to be turned on for improvement of efficiency.

If heating mode is turned on by button operation, auxiliary electric heating function will be automatically turned on.

Press **Function** button in heating mode to go to the auxiliary electric heating function, the **E-HEATER** blinking, and press **Enter/Cancel** button to turn on this function. In the case, the **E-HEATER** will be displayed, which means E-heater is allowed to be turned on.

If auxiliary electric heating function is on, press **Function** button to confirm or press **Enter/Cancel** button to cancel. In this case, **E-HEATER** won't be displayed which means E-heater is prohibited to be turned on.

The setting of this function is shown as Fig.3.4.11 below:

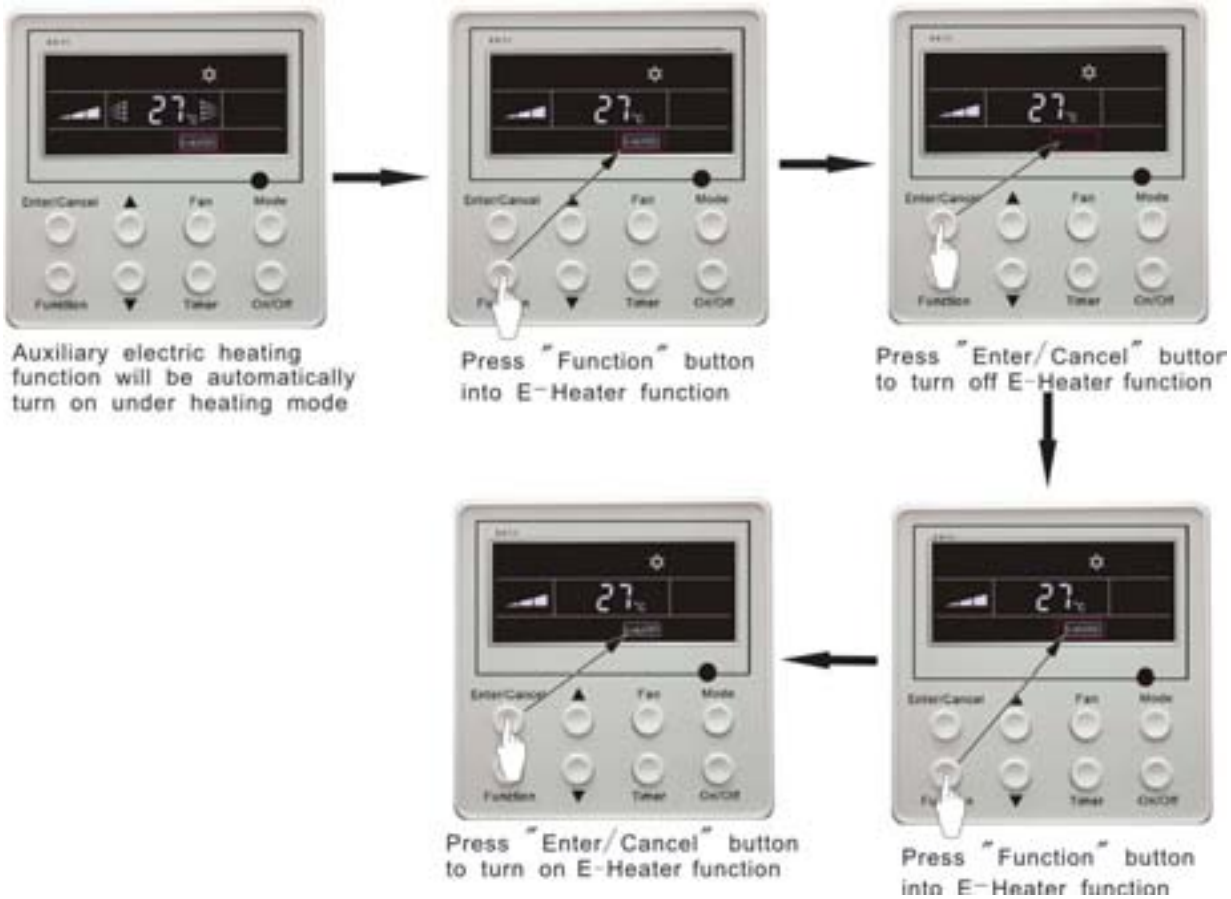


Fig.3.4.11 Auxiliary Electric Heating Function Setting

Note:

E-HEATER can not be set in cooling, dry and fan mode, **E-HEATER** mark won't be displayed. The setting is shown in Fig.3.4.11.

3.4.12 Blow Function Setting

BLOW function:

After the unit is turned off, water in evaporator of indoor unit will be automatically evaporated to avoid mildew.

In cooling and dry mode, press **Function** button till the unit enters **BLOW** function, with **BLOW** blinking, and then press **Enter/Cancel** button to turn on this function.

In BLOW mode, press **Function** button till the unit enters **BLOW** function and then press Enter/Cancel button to cancel this function.

BLOW function setting is shown in Fig.3.4.12.

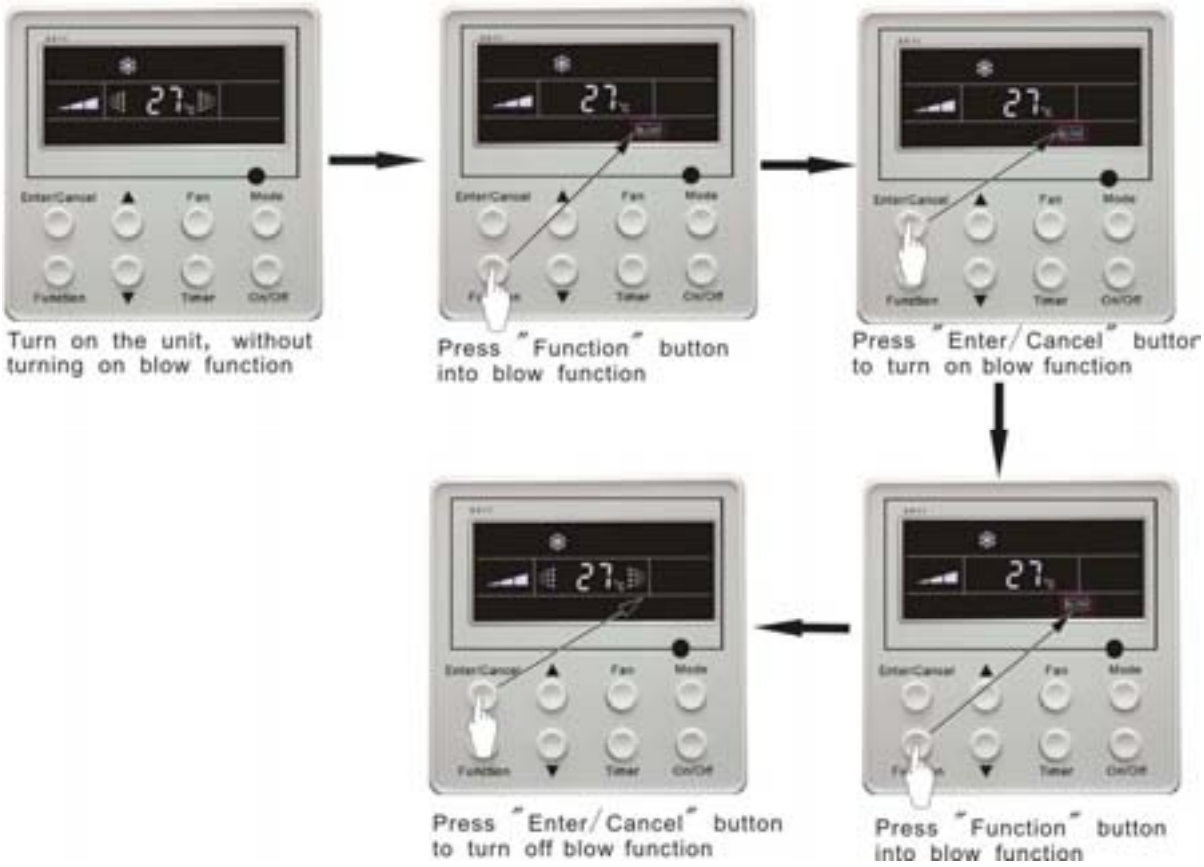


Fig.3.4.12 Blow function setting

Note:

1. After setting BLOW function, turn off the unit by pressing **On/Off** button or remote controller, indoor fan will run at low fan speed for 10 min. (**BLOW** shows). Meanwhile, if **BLOW** function is canceled indoor fan will be turned off directly.
2. There is not BLOW function in fan or heating mode.

3.4.13 Quiet Function Setting

Quiet function consists of two kinds: QUITE and AUTO QUITE.

Press **Function** button till the unit enters quiet function setting state, **Quiet or Auto Quiet** mark blinks. In this case, press ▲ or ▼ button to switch between Quiet and Auto Quiet and then press **Enter/Cancel** button to turn on this function.

In quiet mode, press **Function** button till the unit enters quiet function. In this case, **Quiet or Auto Quiet** icon blinks and then press **Enter/Cancel** button to cancel this function.

Quiet function setting is shown in Fig.3.4.13

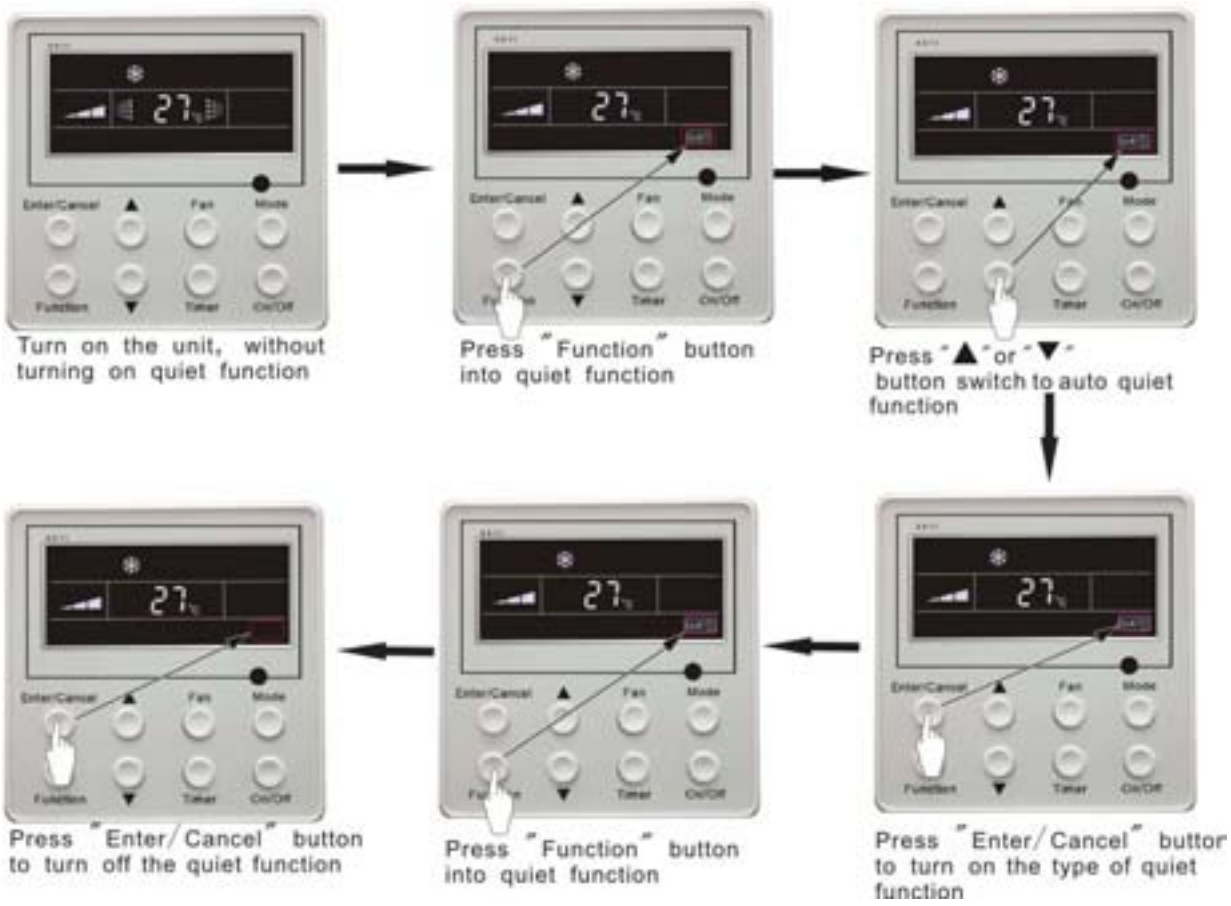


Fig.3.4.13 Quiet function setting

Note:

1. During quiet function, fan speed is un-adjustable.
2. When turning on auto quiet function, the unit will enter quiet running state according to temperature difference between room temperature and setting temperature. In this case, fan speed is adjustable. If temperature difference between room temperature and setting temperature ≥ 4°C, fan will keep its current speed; if 2°C≤temperature difference ≤3°C; fan speed will be reduced by one grade, but if it is at minimum grade, it is un-adjustable.; if temperature difference ≤1°C, fan speed will be at minimum grade
3. In auto quiet mode, fan speed can not be raised but reduced. If high fan speed is manually adjusted, auto quiet mode will quit.
4. There is not auto quiet function in fan or dry mode. Quiet off is default after power failure and then power recovery.
5. If quite function is set, turbo function will be canceled.

3.4.14 Field Functions

Under off-state of the unit, press **Function** and **Timer** buttons continuously for 5s to go to debugging menu. Press **Mode** button to adjust the setting items and ▲ or ▼ button to set the actual value.

3.4.14.1 Ambient Temperature Sensor Setting

In field setting mode, press **Mode** button to adjust the temperature displayed location displaying 00, and press ▲ or ▼ button to adjust setting state at timer displayed location.

There are 3 types for selection:

① Indoor ambient temperature is that at return air inlet
(01 is displayed at timer displayed location)

② Indoor ambient temperature is that at the place of screen
(02 is displayed at timer displayed location)

③ Return air inlet temperature sensor shall be selected for cooling, dry and fan modes and wired controller temperature sensor (03 is displayed at timer displayed location) shall be selected for heating and auto modes.

3.4.14.2 Three Grades of Speed for Indoor Fan

In field setting mode, press **Mode** button to adjust the temperature displayed location displaying 01 and press ▲ or ▼ button to adjust setting state at timer displayed location. There are 2 types for selection:

① 3 low grades (LCD displays 01)

② 3 high grades (LCD displays 02)

Three low grades indicate high, medium and low grades and 3 high grades indicate super-high, high and medium grades.

Press **Enter/Cancel** button to save the setting and quit after setting. If there is not any operation within 20s after the system responds to the last button operation in this interface, the system will quit this menu and display normal off-state; meanwhile, current setting won't be saved.

3.4.15 Other Functions

3.4.15.1 Lock Function

Upon startup of the unit without malfunction or under off-state of the unit, press ▲ and ▼ buttons at the same time for 5s till the wired controller enters lock state. In this case, LCD displays  . After that, repress these two buttons at the same time for 5s to quit lock state.

Under lock state, any other buttons won't give any response to the press.

3.4.15.2 Memory Function

Memory switchover:

Under off-state of the unit, press **Mode** and ▲ buttons at the same time for 5s to switch memory modes. During setting memory mode, **Memory** will be displayed. If this function is not set, the unit will be under off-state after power failure and then power recovery.

Memory recovery:

If memory mode has been set for wired controller, the wired controller after power failure will resume its original running state upon power recovery.

Note: It will take about 5 seconds to save all the information, therefore, please do not cut off the power at this time, or It may fails.

3.4.15.3 Enquiry of Historical Errors

Continuously press **Function** and ▼ buttons for 5s into enquiry state. In this state, press **Enter/Cancel** button to quit, or it will automatically quit after there is not any operation of button in 30min. In enquiry state, press **Mode** button to adjust temperature displayed location displaying 00-04 and press ▲ or ▼ button to make timer displayed location display error code. If 2E1 is displayed in timer displayed location, it means high pressure protection of the system 2.

3.4.15.4 Selection of Centigrade and Fahrenheit

Under off-state of the unit, press **Mode** and ▼ at the same time for 5s, the displayer panel will switch between Centigrade and Fahrenheit.

3.5 Error Display

If there is malfunction during running of the system, LCD will display error code at temperature–displayed location. Once there is more than one malfunction, error codes will be displayed circularly. If there are multiple circuit systems, the system number of failed system will be displayed before the colon (not for single system).

If malfunction occurs, turn off the unit and contact nearest dealer for help.

As shown in Fig.3.5.1, it means high pressure protection of system 2 under unit on.

Fig.3.5.1

Error codes and description:

Error codes	Description
E2	Indoor anti-freezing protection
E6	Communication malfunction
E9	Water overflow protection
F0	Indoor unit ambient sensor malfunction at air return opening
F1	Evaporator sensor malfunction
F5	Ambient sensor malfunction on Displayer(or LED board)

3.6 Setting of Indoor Room Sensor

3.6.1 Setting of Double Indoor Room Sensors

This series of ducted air-conditioning unit has two indoor room sensors. One is located at the air intake of the indoor unit and the other one is located inside the wired controller.

User can select one from the two indoor room sensors on the basis of the engineering requirement.

(Refer to the section of wired controller instructions for detailed operation.)

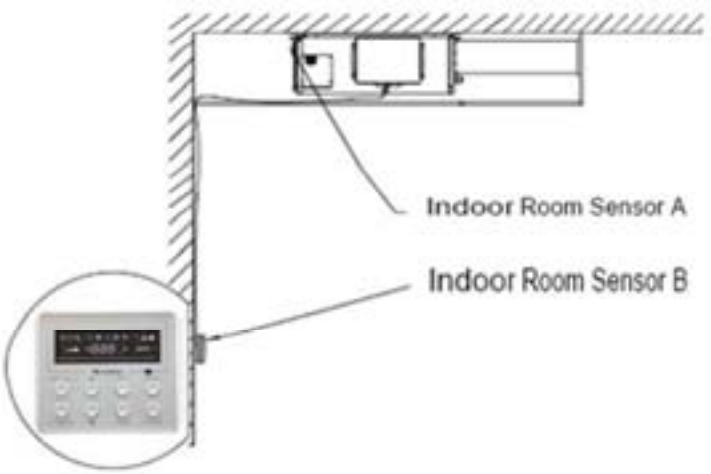


Fig.3.6.1

3.6.2 Fresh Air Control *

11-level control can be realized for the amount of fresh air taken in. The function not only facilitates the health of users, but also controls the electricity consumption loss due to taking fresh air in. This kind of control can be carried out through the wired controller. The function can be set and go into effect at any time, and features very simple operation. (Refer to the section of wired controller instructions for detailed operation.)

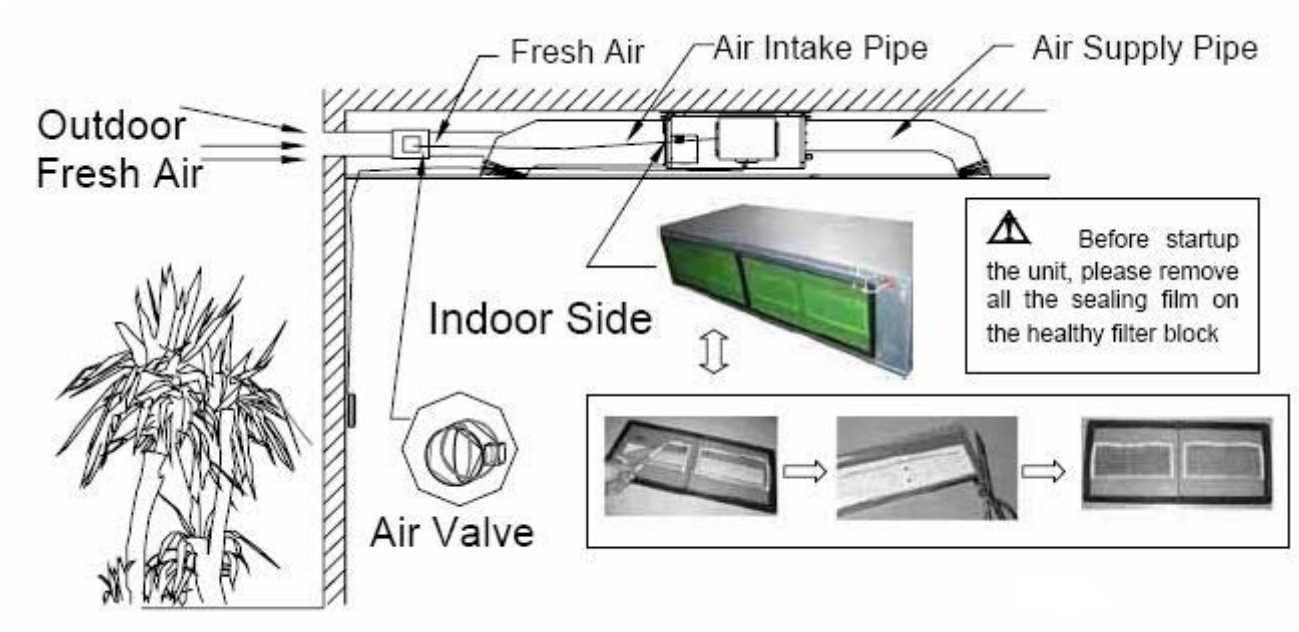


Fig.3.6.2

3.6.3 Position and Method of Installing Wired Remote Controller

1. One end of the control wire of the wired controller is connected with main board inside the electrical box of indoor unit and should be tightened by wire clamps, while the other should be connected with the wired controller. The control wire is connected between the indoor unit and the wired controller with the length of eight meters.
2. The material to be adopted for the control wire should be metallic substance. The wired controller could not be disassembled and the control wire to be used for the wired controller should not be changed by users optionally, the installation and maintenance should be carried out by the installer.
3. First select an installation position. According to the size of the control wire for the wired remote controller, leave a recess or a embedded wire hole to bury the communication line.
4. If the control wire between the wired remote controller and the indoor unit is surface-mounted, use 1# metallic pipe and make matching recess in the wall (Refer to Fig.3.6.4); If concealed installation is adopted, 1# metallic pipe can be used (Refer to Fig.3.6.5).
5. No matter if surface mounting or concealed mounting is selected, it is required to drill 2 holes (in the same level) between which the distance shall be the same as the distance (60mm) of installation holes in the bottom plate of the wired controller. Then insert a wood plug into each hole, fix the bottom plate of the wired controller to the way through these two holes, plug the control wire onto the control panel, and lastly install the panel of the wired controller (Refer to Fig.3.3.1).

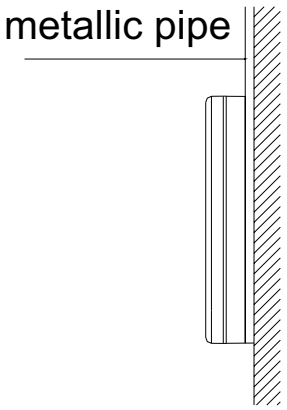


Fig.3.6.4

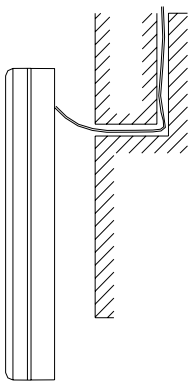


Fig.3.6.5

⚠Caution:

During the installation of the bottom plate of the wired controller, pay attention to the direction of the bottom plate. The plate's side with two notches must be at the lower position, otherwise the panel of the wired controller cannot be correctly installed.

⚠ Caution:

1. The communication distance between the main board and the wired controller can be as far as 20m (The standard distance is 8m).
2. The wired controller shall not be installed in a place where there is water drop or large amount of water vapor.

4. DEFROSTING CONTROL (Heat pump)

The defrosting mode:

After the compressor consecutively runs for “t” minutes, it will start defrosting if the sensor detects the temperature ≤“T1”°C for consecutive 1 minute. It will stop defrosting when defrosting has run for 10 minutes or the sensor detects the temperature over “T2”°C.

Defrosting control:

There are 8 defrosting modes corresponding to different DIP ways.

The “t” “T1” “T2” “T” are defined as below:

t----------The defrosting temp sensor starts to detect after the compressor has been operating for t minutes accumulatively

T1----------The defrosting circuit on the main board starts to work when the defrosting temp sensor has been in T1°C or under T1°C for 1 minute continuously

T2---------The defrosting will stop after it goes on for 10 minutes continuously or the temp sensor detects the ambient temperature over T2°C

T----------Outdoor ambient temperature

DIP and corresponding temperature

Outdoor ambient temp sensor	Outdoor ambient temp sensor does not work				Outdoor ambient temp sensor works							
DIP	000	001	010	011	100		101		110		111	
T	-	-	-	-	≥-3	<3	≥-3	<3	≥-3	<3	≥-3	<3
t	30	44	60	90	30	60	44	60	60	90	90	120
T1	0	-2	0	0	-2	-10	-2	-10	-2	-15	-2	-15
T2	20	20	20	20	20	15	20	15	20	15	20	15

The default setting of DIP switch included in the WZ14301 main board of outdoor unit:
DIP switch (SA1): Position 1,2 to “ON”; Position 3 to number port.

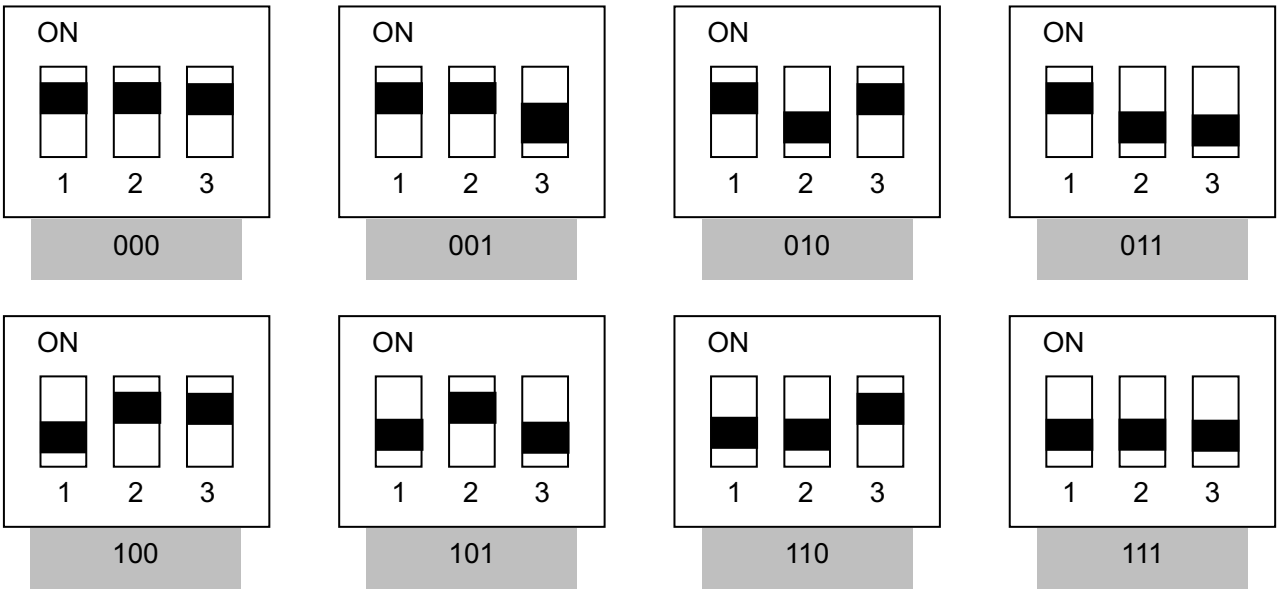
In summary:

In “heating” mode of A/C unit, after the compressor has been operating for t minutes continuously, the defrosting will starts if the defrosting temp sensor has been in T1°C for 1 minute continuously. At the same time, the 4-way valve is electrified, the fan motor of outdoor unit stops running. The defrosting will stop after it goes on for 10 minutes continuously or the temp sensor detects the ambient temperature over T2°C. At the same time, the 4-way valve is de-energized, the fan motor of outdoor unit is energized and the auxiliary electric heating device runs as per the setting of wired controller. The defrosting stops immediately if the A/C is diverted to “COOLING” mode while the outdoor unit is defrosting.

Forced defrosting:

When the forced defrosting button is pushed, the A/C will start to defrost promptly. At the same time, the 4-way valve is energized, the fan motor of outdoor unit stops running and the auxiliary electric heating device is energized. The defrosting will stop after it goes on for 10 minutes or the temp sensor detects the ambient temperature over T2. At the same time, the 4-way valve is de-energized, the fan motor of outdoor unit is energized and the auxiliary electric heating device runs as per the setting of wired controller.

DIP switch (SA1):



Warning:
The default setting of DIP switch included in the WZ14301 main board of outdoor unit: DIP switch (SA1): Position 1,2 to "ON"; Position 3 to number port

Note 1:
Figure A shows OFF position of DIP switch. Figure B shows ON position of DIP switch.

Figure A

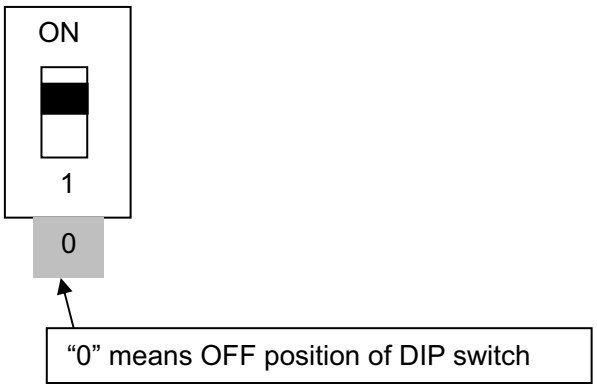
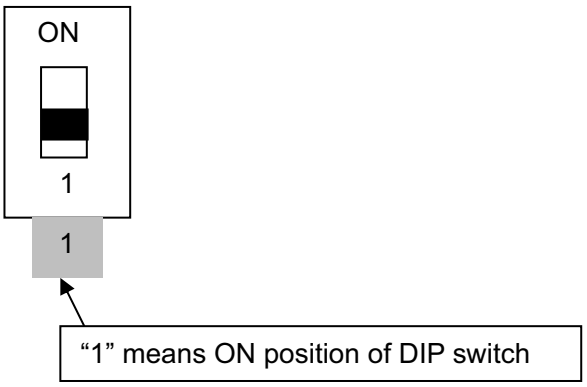
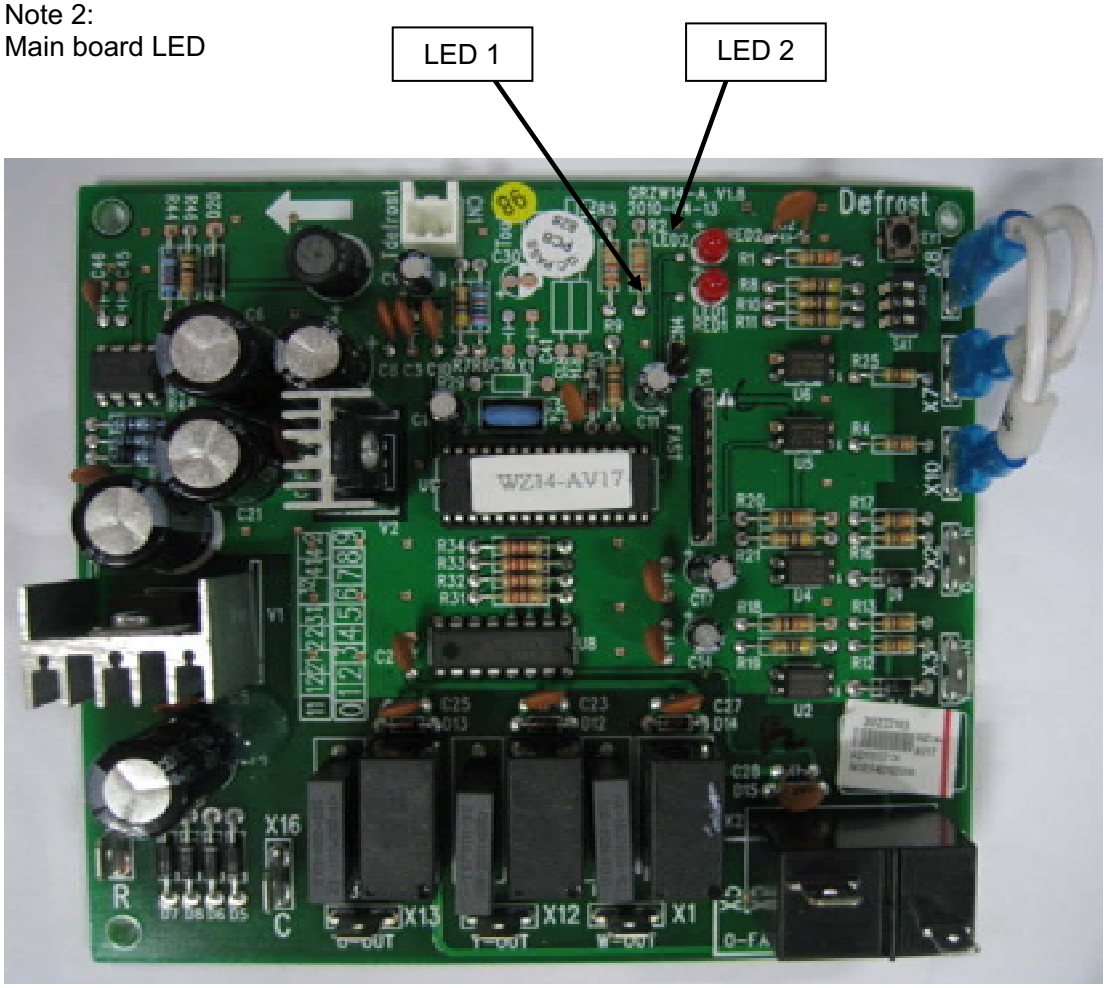


Figure B



Note 2:
Main board LED



The description of main board LED indication

	Mainboard LED display instruction	
	LED 1	LED 2
Normal Operation	Blinks every 0.5s	Blinks every 0.5s
Defrosting	ON	ON
High pressure protection	Blinks every 0.5s	OFF
Low pressure protection	OFF	Blinks every 0.5s
Outdoor ambient Temp. thermistor malfunction	OFF	ON
Defrosting Temp. thermistor malfunction	ON	OFF

5. MAINBOARD CODE SETTING

Please find the corresponding mainboard according to the unit type and then check whether the mainboard code is right according to the mainboard.

The relation between mainboard type and unit type:

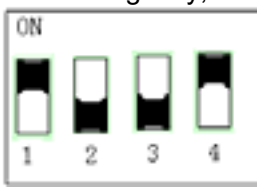
mainboard: Z4G25C Z4G25B

Code location and meaning:

Please find the corresponding mainboard according to the complete unit type and then check whether the mainboard code conforms to the figures below according to the mainboard. Cooling only unit as well as cooling and heating unit is differentiated by location “4” of DIP switch. When it is dialed to “4”, it means cooling and heating when it is dialed to ON, it means cooling only. The third code remains in “3”. Please refer to the following figure for detailed coding.

Ceiling Type

Cooling only;



Cooling and heating;

Part 3
INSTALLATION

1. INDOOR UNIT INSTALLATION

1.1 Installation of Duct Type

1.1.1 Before Installation

- ◆ After receiving the machine, check if there is any damage during transportation. If there is damage on the surface or inside, inform the carrier or equipment supplier in written form immediately.
- ◆ After receiving the machine, check the unit and its accessories according to the packing list. Confirm that the model is the same and the unit is intact. At the same time, check the specification and quantity of the accessories.
- ◆ Select the correct route and method of transportation to avoid damage of the unit and any accident incurred. Out of protecting the unit and security consideration, it is advised that move the unit with its package. Even if that is forbidden in special situation, don't remove the carton to avoid looseness and drop.
- ◆ Check if the installation base is solid. When the unit is installed in the metal part of the building, must make sure electric insulation and make sure that it conforms with related standards.
- ◆ Make sure that the installation site is far away from where the flammable or explosive substances are stored to avoid explosion or fire may occur by leakage of such substances.

1.1.2 Installation Site

- ◆ Ensure the top hanging piece has strong strength to withstand the weight of the unit.
- ◆ The drainage pipe has convenient flow of water.
- ◆ There is no obstacle blocking the air intake and exhaust outlet, so as to ensure sound air circulation.
- ◆ The installation spaces required by the drawing must be ensured, so as to provide enough space for the service and maintenance.
- ◆ The installation site must be far away from heat source, leakage of inflammable gas or smoke.
- ◆ The indoor unit is of ceiling mount (indoor unit is hidden inside the ceiling).
- ◆ The indoor and outdoor units, the power cable and the connecting electrical lines must be kept at least 1 meter from any TV set or radio. This is to avoid image interference or noise of the TV set or radio. (Even if the distance is 1 meter, noise can also exist if there is strong electric wave.)

1.1.3 Caution for Installation

1) The unit is installed inside room and usually, by the way of ceiling-type. Make sure that the hanger on the ceiling can withstand the weight of the indoor unit.
2) Rubber shock pad (thickness ≥20mm) and rubber junction shall be applied to avoid noise and vibration.

3) Insert a M10 expansion bolt into the hole. Drive a nail into the bolt. Refer to the profile dimensions drawing of the indoor unit for the distance between the holes. Refer to Fig.1.1.1 shows for the installation of the expansion bolt.

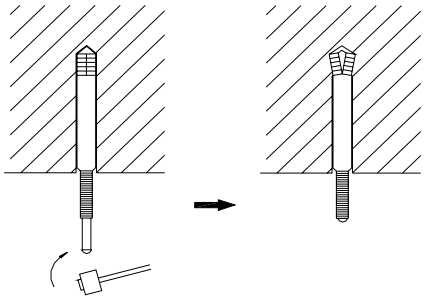


Fig.1.1.1

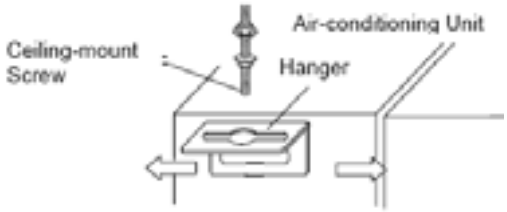


Fig.1.1.2

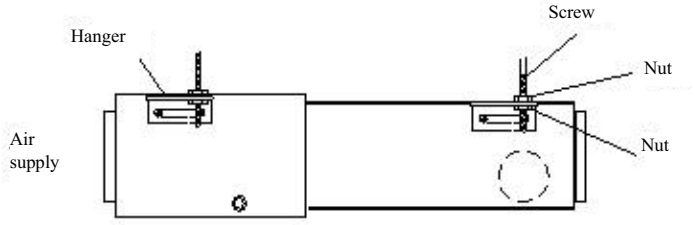


Fig.1.1.3

4) Install the hanger onto the indoor unit as Fig.1.1.2 and Fig.1.1.3 shows.
5) Install the indoor unit at the ceiling as Fig.1.1.5 shows.

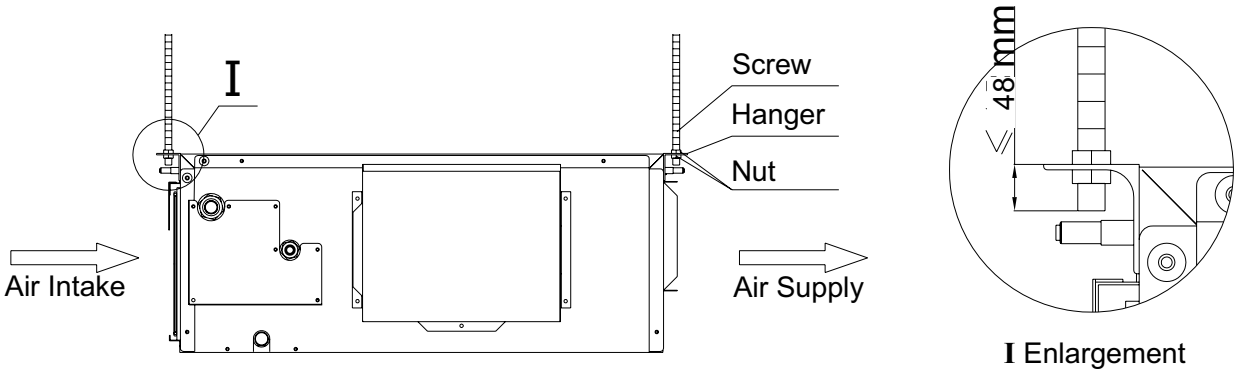
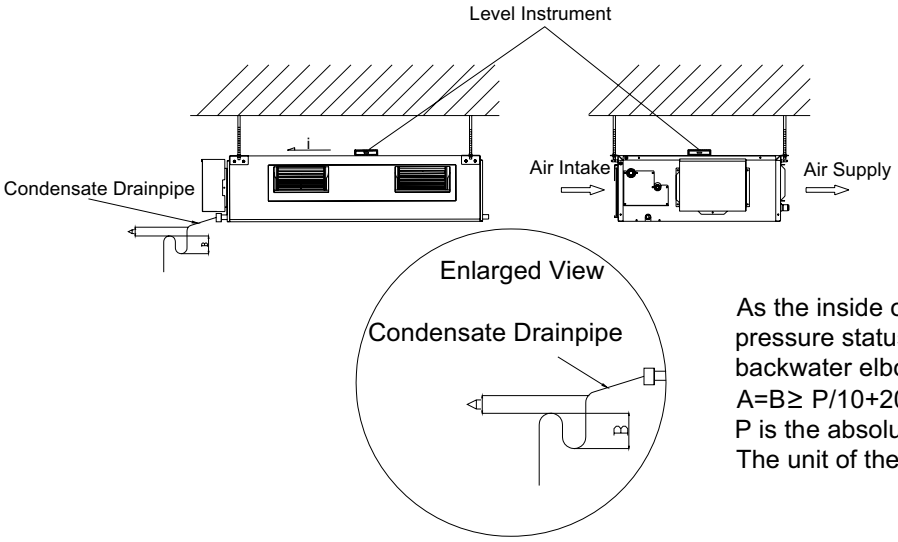


Fig.1.1.5

6) Precautions for unfavorable installation:
   - ◆ The preparation of all pipes (connecting pipes and drainage pipes) and cables (connecting lines of wire controller, indoor unit and outdoor unit) must be ready before the installation, so as to make the installation easier.
   - ◆ Drill an opening on the ceiling. Maybe it is required to support the ceiling to ensure the evenness of it and avoid the vibration of it. Consult with the user or a construction company for details.
   - ◆ In case the strength of ceiling is not enough, use angle iron sections to set up a beam support. Place the unit at the beam and fix it.

7) Horizontal Survey of the Indoor Unit

After installation of the indoor unit is finished, horizontal survey of the complete unit must be executed to confirm the horizontal placement of the unit, which is shown as below:



As the inside of the unit is in the negative pressure status, it is required to set up a backwater elbow. The requirements is:
A=B≥ P/10+20(mm)
P is the absolute pressure inside the unit.
The unit of the pressure is Pa.

Fig.1.1.6

1.1.4 Dimension Data

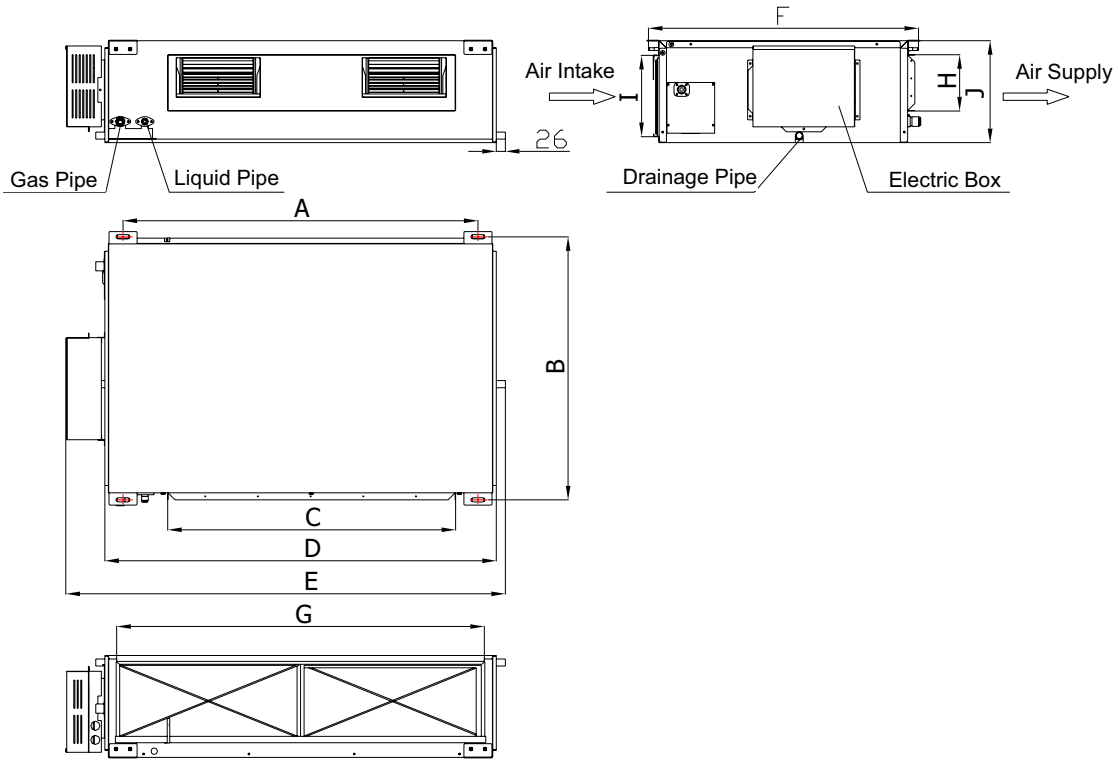


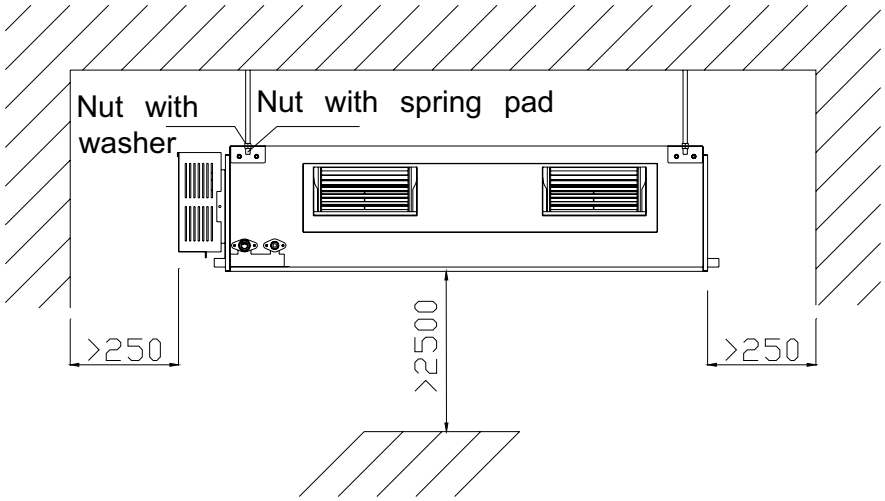
Fig.1.1.7(a)

Item / Model	A	B	C	D	E	F	G	H	I	J	Connecting Pipe (Liquid Pipe)	Connecting Pipe (Gas Pipe)	Drainage Pipe (Outer Diameter × Wall Thickness)
FDM24PEVLK	1101	515	820	1159	1270	530	1002	160	235	268	ϕ9.52	ϕ15.9	ϕ20×1.2
FDM30PEVLK	1101	515	820	1159	1270	530	1002	160	235	268	ϕ9.52	ϕ15.9	ϕ20×1.2
FDM36PEVLK	1011	748	820	1115	1226	775	979	160	231	290	ϕ12.7	ϕ19.05	ϕ20×1.2
FDM42PEVLK	1011	748	820	1115	1226	775	979	160	231	290	ϕ12.7	ϕ19.05	ϕ20×1.2
FDM48PEVLK	1011	748	820	1115	1226	775	979	160	231	290	ϕ12.7	ϕ19.05	ϕ20×1.2

Accessories Sheet

Name	Qty	Description
Use and Installation Instruction	1	
Heat Insulator of Gas Pipe Joint	1	For gas joint of the indoor unit
Heat Insulator of Liquid Pipe Joint	1	For liquid joint of the indoor unit
Heat Insulator of drain Pipe	2	For wrapping condensate pipe and rubber plug
Nut with Washer M8	8	For fixing hook hitch
Nut with Washer M10	4	4 sets; for installation of the indoor unit
Nut and Spring Pad	4	
Hanger	4	For installation of the indoor unit
Bundle of Threads	4 or 8pcs	4pcs for 2HP unit and 8pcs for others
Wired Controller	1	
Remote Controller	1	
Battery	2	
Accordion Pipe	0, 2pcs or 4pcs	0 for 2HP unit, 2pcs for 2.5-3HP unit and 4pcs for 4-5HP unit
Power Cord	1－2pcs	2pcs for 4-5HP unit and 1pcs for others
Connecting Wire	2－3pcs	3pcs for 4-5HP unit and 2pcs for others

1.1.5 Installation Clearance Data



Indoor Unit Fig.1.1.8

1.1.6 Drain Piping Work

1) Installation of Drainage Pipeline

- A drainage outlet is located at both the left and right sides of the indoor unit. After selecting one drainage outlet, the other outlet shall be blocked by rubber plug. Bundle the blocked outlet with string to avoid leakage, and also use thermal insulation materials to wrap the blocked outlet.
- When shipped out from factory, both the Drainage outlets are blocked by rubber plugs.
- When connecting the drainage pipe with the unit, do not apply excessive force to the pipeline at the side of the unit. The fixing position of the pipeline shall be near the unit.
- Use the general-purpose hard PVC pipes which are purchased locally as the drainage pipeline. When carrying out connection, place the end of the PVC pipeline into the drainage hole. Use flexible drainage tube and tighten it with thread loop. Never use adhesive to connect the drainage hole and the flexible drainage tube. (As shown in Fig.1.1.9)
- When the laid drainage pipe is used for multiple units, the common pipe shall be about 100mm lower than the drainage outlet of each set of unit. A pipe with thicker wall shall be used for such purpose.

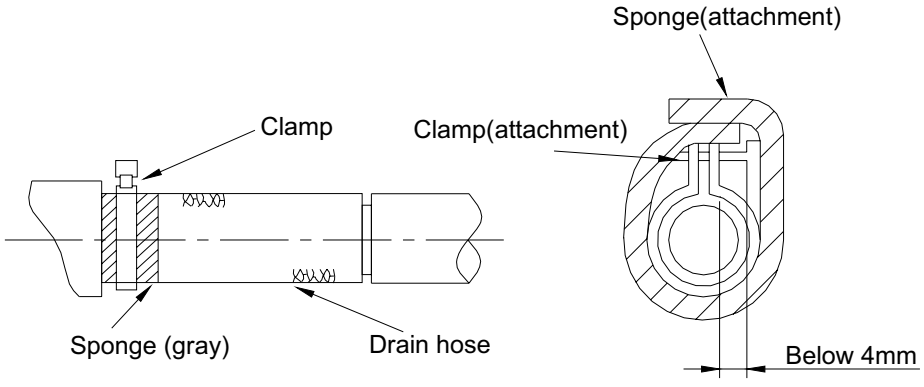


Fig.1.1.9

2) Testing of Drainage System
   - ◆ After the electrical installation is completed, carry out the testing of the drainage system.
   - ◆ During the test, check if the water correctly flows through the pipelines. Carefully observe the joints to ensure that there is no leakage. If the unit is to be installed in a new house, carry out testing before decorating the ceiling.

3) Matters of Attention
   - ◆ The joint of Drainage Pipeline must not have leakage.
   - ◆ The Drainage Pipeline shall be installed with an inclination angel of 5~10°, so as to facilitate the drainage of condensate. The joints of the Drainage Pipeline must be covered by thermal insulation materials to avoid generation of exterior condensate. (As shown in Fig.1.1.10)

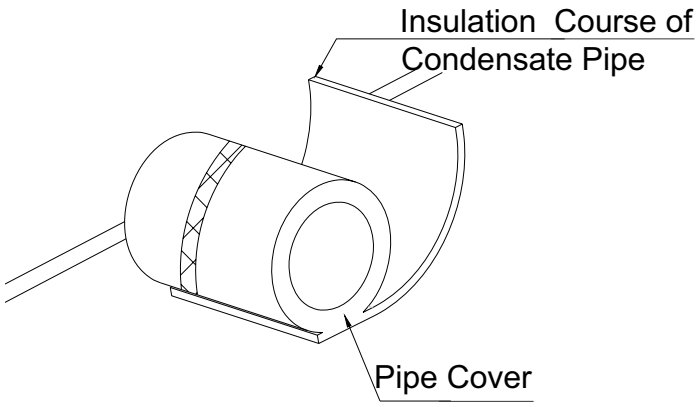


Fig.1.1.10

1.1.7 Installation of Air Duct and the Opening

Caution:

- ◆ The air supply pipe, the air intake pipe and the fresh air pipe must be covered with a layer of thermal insulation, so as to avoid thermal leakage and condensation. Firstly apply liquid nail on the ducts, then attach the thermal insulation cotton with a layer of tinfoil. Use the liquid nail cover to fix it. Lastly use tinfoil adhesive tape to carefully seal the joints; other good thermal insulation materials can also be used.
- ◆ The air supply ducts and the air intake pipes shall be fixed to the prefabricated boards of the ceiling by using iron supports. The joints of the ducts must be sealed by glue so as to avoid leakage.
- ◆ The design and installation of air pipes must be in conformity with the relevant state engineering criteria.
- ◆ The edge of the air intake pipe must be at least 150mm away from the wall. The air intake must be covered with filter.
- ◆ Silencing and shock absorption shall be considered in the design and installation of the air pipes. Additionally, the noise source must be far away from where people stay. The air intake shall not be located above the place where users stay (offices and rest places, etc.).

1) Installation of the Air Supply Duct

◆ Installation of Rectangular Air Duct as shown in Fig.1.1.11

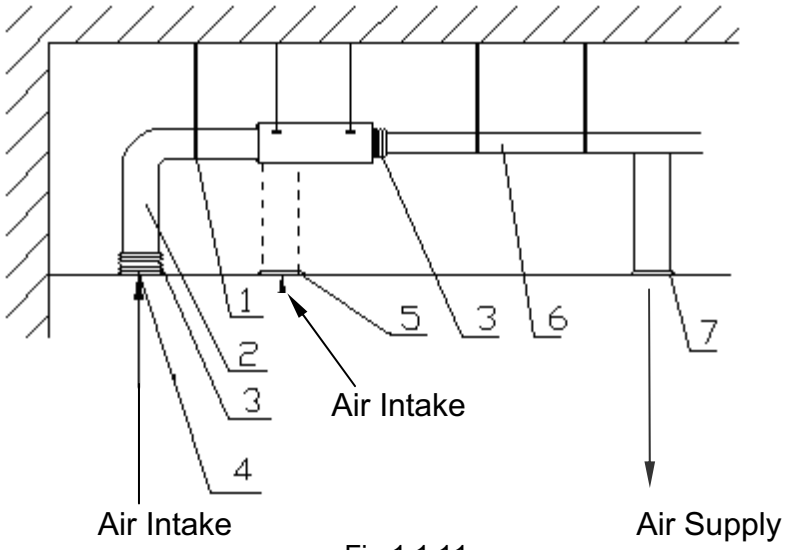


Fig.1.1.11

No	Name	No	Name
1	Hanger	5	Air Inlet
2	Air Intake Duct	6	Main Air Supply Pipe
3	Canvas Air Duct	7	Air Outlet
4	Air Inlet		

◆ Installation of Round Air Duct as shown in Fig.1.1.12

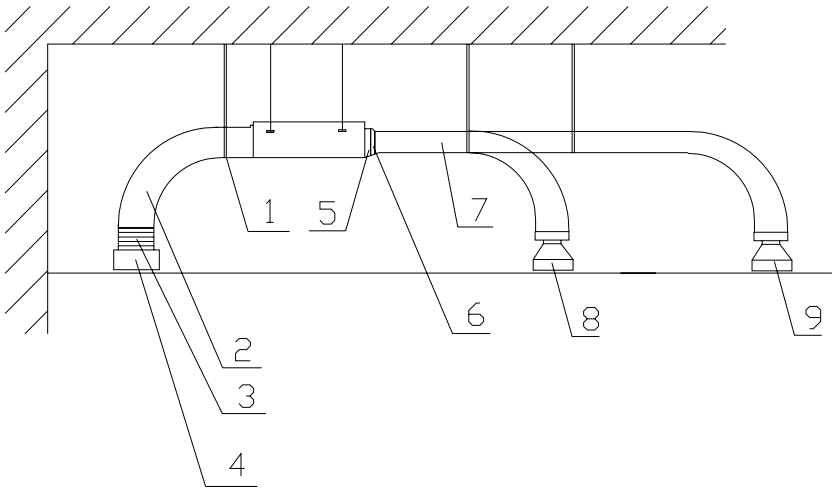


Fig.1.1.12

No	Name	No	Name
1	Hanger	6	Transition Air Duct
2	Air Intake Duct	7	Air Supply Duct
3	Canvas Air Duct	8	Diffuser
4	Air Intake Shutter	9	Diffuser Joint
5	Air Outlet		

Caution:

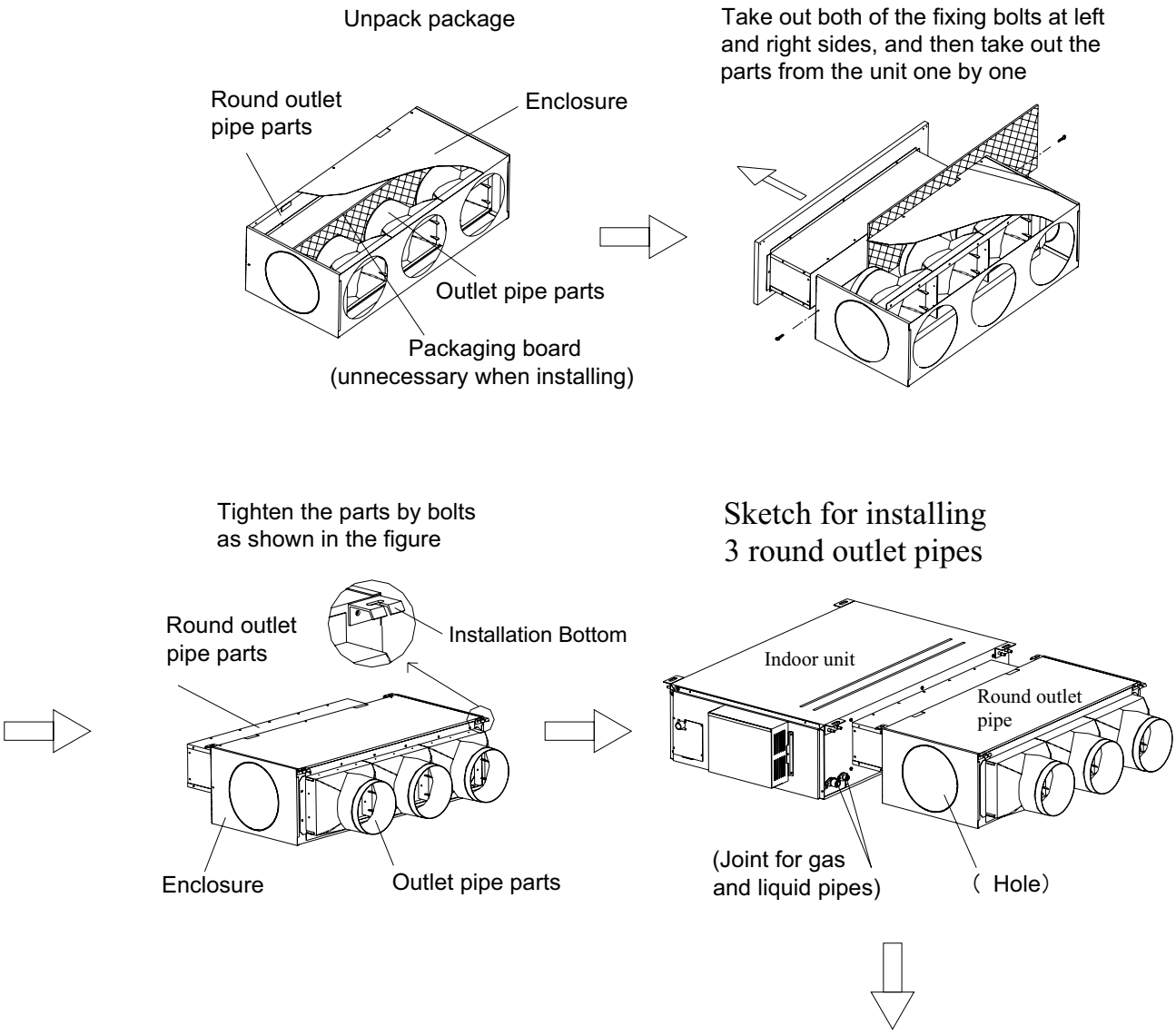
- The air supply pipe, the air intake pipe and the fresh air pipe must be covered with a layer of thermal insulation, so as to avoid thermal leakage and condensation. Firstly apply liquid nail on the pipes, then attach the thermal insulation cotton with a layer of tinfoil. Use the liquid nail cover to fix it. Lastly use tinfoil adhesive tape to carefully seal the joints; other good thermal insulation materials can also be used.
- The air supply duct and the air intake duct shall be fixed to the prefabricated boards of the ceiling by using iron supports. The joints of the pipes must be sealed by glue so as to avoid leakage.
- The design and installation of air pipes must be in conformity with the relevant state engineering criteria.
- The edge of the air intake pipe must be at least 150mm away from the wall. The air intake must be covered with filter.
- Silencing and shock absorption shall be considered in the design and installation of the air pipes. Additionally, the noise source must be far away from where people stay. The air intake shall not be located above the place where users stay (offices and rest places, etc.).

Note:

The above just shows the installation of back air inlet but bottom air inlet should be applied according to the actual situation. Its installation is similar to that of back air inlet. At least one air outlet shall keep open among all air outlets. Round air ducts can also be adopted which supply air to room by round heat retaining hose. Both air supply duct and air intake duct need to be thermal insulated.

2) Installation of Round Air Outlet

Install sketch for round outlet pipe



If you are going to install a 5-round outlet pipe, please purchase another set of parts for the round outlet pipes that are used at both sides.

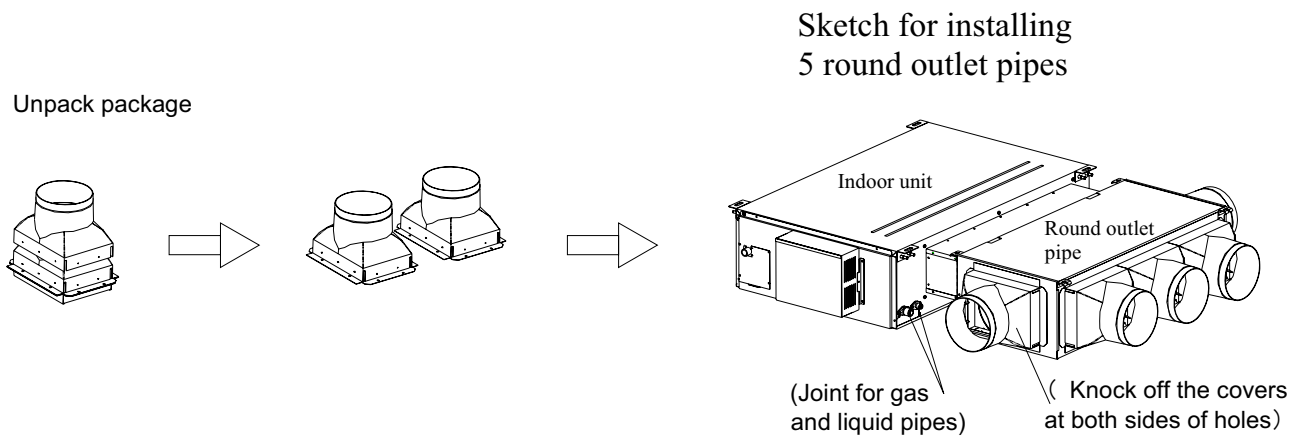


Fig.1.1.16

2. OUTDOOR UNIT INSTALLATION

2.1 Before Installation

- After receiving the machine, check if there is any damage during transportation. If there is damage on the surface or inside, inform the carrier or equipment supplier in written form immediately.
- After receiving the machine, check the unit and its accessories according to the packing list. Confirm that the model is the same and the unit is intact. At the same time, check the specification and quantity of the accessories.
- Select the correct route and method of transportation to avoid damage of the unit and any accident incurred. Out of protecting the unit and security consideration, it is advised that move the unit with its package. Even if that is forbidden in special situation, don't remove the carton to avoid looseness and drop.
- Check if the installation base is solid. When the unit is installed in the metal part of the building, must make sure electric insulation and make sure that it conforms with related standards.
- Make sure that the installation site is far away from where the flammable or explosive substances are stored to avoid explosion or fire may occur by leakage of such substances.

2.2 Installation Site

- To ensure the unit in proper function, selection of installation location must be in accordance with following principles:
- Outdoor unit shall be installed in the way that the air discharged by outdoor unit will not return and that sufficient space for repair shall be provided around the machine.
- The installation site must have good ventilation, so that the outdoor unit can take in and exhaust enough air. Ensure that there is no obstacle for the air intake and exhaust of the outdoor unit. If there is any obstacle blocking the air intake or exhaust, remove it.
- Place of installation shall be strong enough to support the weight of outdoor unit, and it shall be able to insulate noise and prevent vibration. Ensure that the wind and noise from the unit will not affect your neighbors.
- Avoid direct sunshine over the unit. It is better to set up a sun shield as the protection.
- Place of installation must be able to drain the rainwater and defrosting water.
- Place of installation must ensure the machine will not be buried under snow or subject to the influence of rubbish or oil fog.
- The installation site must be at a place where the air exhaust outlet does not face strong wind.
- Lift the outdoor unit with indicated holes for hoist. Protect the unit from collision when lifting, in case it will rust.

Rubber shock pad and rubber junction shall be applied to meet the requirements of noise and vibration.

- Installation dimensions shall comply with the instruction manual and the outdoor unit shall be fixed.
- Installation of the unit shall be executed by professionals.

2.3 Caution for Installation

- The installation of the outdoor unit shall guarantee that the discharged air will return and enough service space shall be reserved around the unit.
- Installation site shall be in good ventilation so that the unit can intake and discharge adequate air. Make sure that there is no obstruction for air inlet and out let. If there is, please remove such obstructions.
- If the unit is installed on the solid surface, fix the unit with M10 bolts and nuts and make sure the erection and horizontality of the unit.
- Lift the outdoor unit with indicated holes for hoist. Protect the unit from collision when lifting, in case it will rust.
- Rubber shock pad and rubber junction shall be applied to meet the requirements of noise and vibration
- If drain pipe shall be installed, insert the joints of drainage into outlet in base plate of the outdoor unit. And then connect the joints with an drain pipe.
- Wall bushing shall be installed when pipe goes through the wall.
- Installation dimensions shall comply with the instruction manual and the outdoor unit shall be fixed.
- Installation of the unit shall be executed by professionals.

2.4 Dimension Data

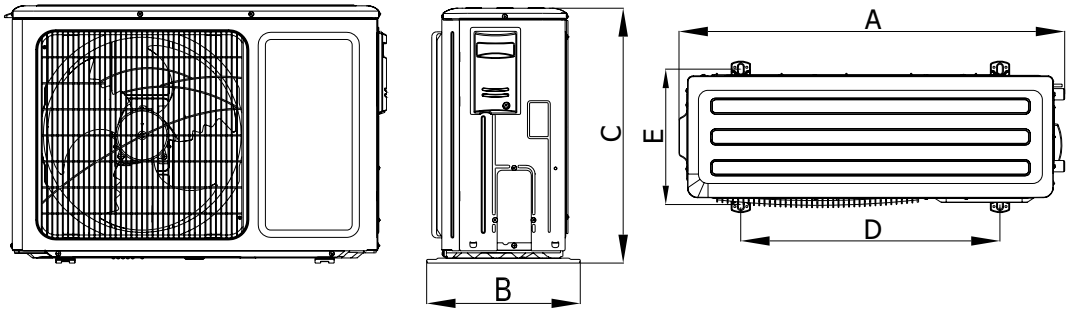


Fig.2.4.1

Unit: mm

Model / Item	R24PEVLK RY24PEVLK	R30PEVLK R36PEVLK RY30PEVLK RY36PEVLK	R42PETLK R42PEYLK RY42PETLK RY42PEYLK	R48PETLK R48PEYLK RY48PETLK RY48PEYLK
A	1018	980	1107	1107
B	412	427	440	440
C	695	790	1100	1100
D	572	610	631	631
E	378	395	400	400

2.5 Installation Clearance Data

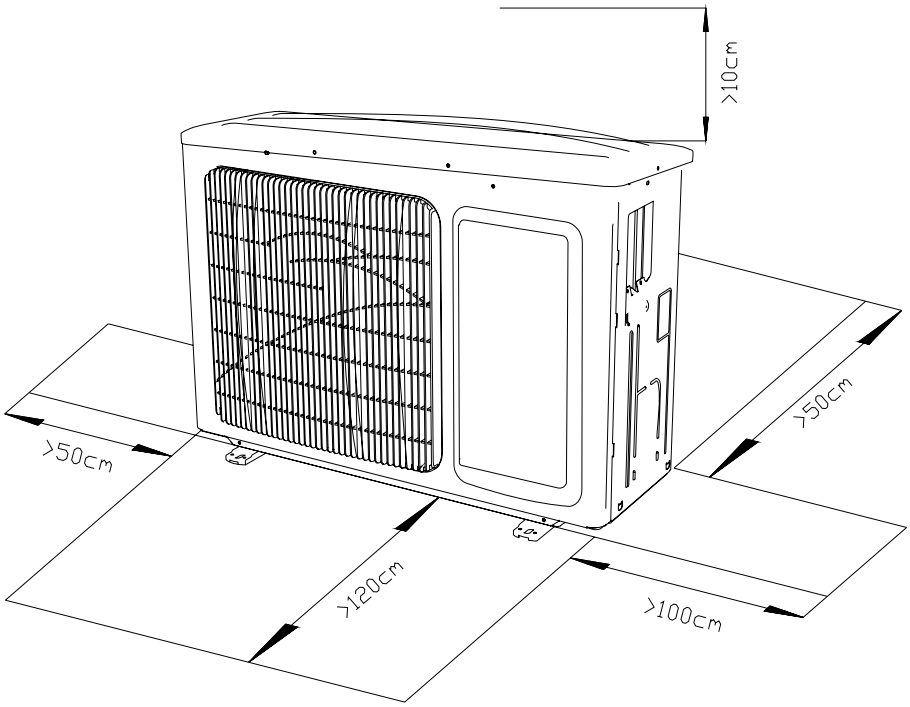


Fig.2.5.1

2.6 Installation of Wired Controller

1) First select an installation position. According to the size of the communication line of the wired controller, leave a recess or a embedded wire hole to bury the communication line.

2) If the communication line between the wire controller (85×85×16) and the indoor unit is surface-mounted, use 1# PVC pipe and make matching recess in the wall (Refer to Fig.2.6.1); If concealed installation is adopted, 1# PVC pipe can be used (Refer to Fig.2.6.2).

3) No matter if surface mounting or concealed mounting is selected, it is required to drill 2 holes (in the same level) between which the distance shall be the same as the distance (60mm) of installation holes in the bottom plate of the wire controller. Then insert a wood plug into each hole. Fix the bottom plate of the wired controller to the wall by using the two holes. Plug the communication line onto the control panel. Lastly install the panel of the wired controller.

Caution:

◆ During the installation of the bottom plate of the wired controller, pay attention to the direction of the bottom plate. The plate's side with two notches must be at the lower position, otherwise the panel of the wire controller cannot be correctly installed.

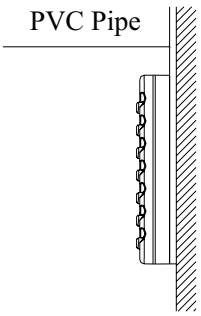


Fig.2.6.1
Surface Mounting of Cable

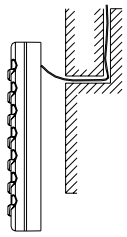


Fig.2.6.2
Concealed mounting of Cable

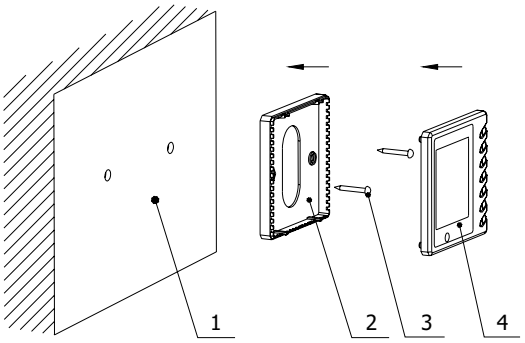


Fig.2.6.3
Schematic Diagram of Installation

No.	Name
1	Wall Surface
2	Bottom Plate of Wire Controller
3	Screw M4X10
4	Panel of Wired Controller

◆ The standard communication distance between the main board and the wired controller is 8m.

◆ The wired controller shall not be installed in a place where there is water drop or large amount of water vapor.

3. REFRIGERATION PIPING WORK

3.1 Refrigeration Piping Work Procedures

1) Installation Sketch of Throttle Valve

◆ Structure of throttle valve

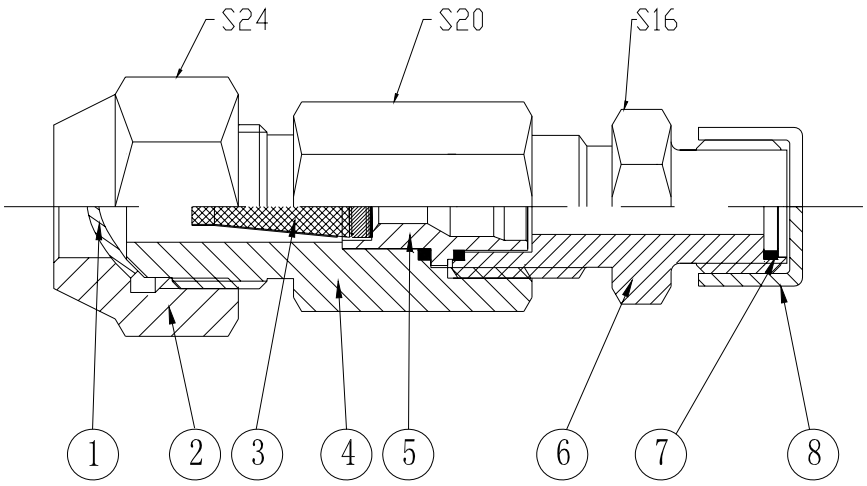


Fig.3.1.1

No.	Names	No.	Names
1	1/2 Copper seal cap	5	Valve base A
2	Na son	6	Double joint
3	Filter (60 mesh)	7	Seal ring
4	Joint	8	Seal cap

◆ During connection, remove the plastic seal cap at one end of the throttle valve (Part 8 in the above figure 3.1.1)

◆ Remove the end cap of liquid pipe joint (Note: Flange is equipped with the liquid pipe joint of ducted type unit)

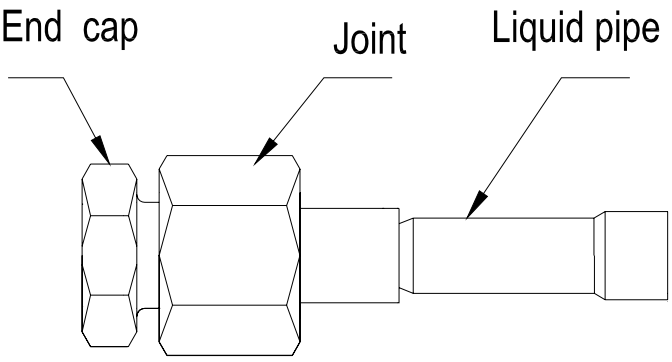


Fig.3.1.2

◆ Confirm the specification of cooling/heating throttle orifice according to model of the unit (marked on the unit).

Model of Unit	Cooling throttle orifice	Heating throttle orifice
FDM24PEVLK FDYM24PEVLK	56#	47#
FDM30PEVLK FDYM30PEVLK	65#	60#
FDM36PEVLK FDYM36PEVLK	69#	58#
FDM42PEVLK FDYM42PEVLK	81#	65#

◆ Installation of cooling throttle orifice

Put the cooling throttle orifice confirmed according to above table onto the valve base of liquid pipe joint.

Notice! Pay attention to specification and installation direction of throttle orifice.

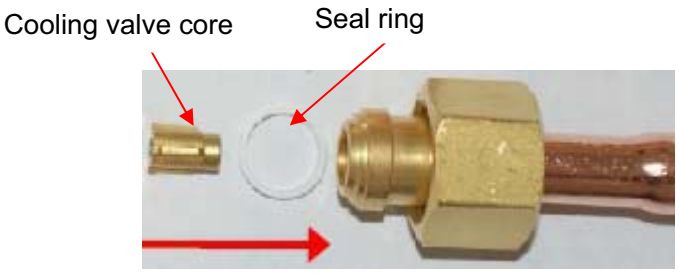


Fig.3.1.3

◆ Installation of heating throttle orifice

Put the heating throttle orifice confirmed according to above table onto the valve base A of throttle orifice.

Notice! Pay attention to specification and installation direction of throttle orifice.

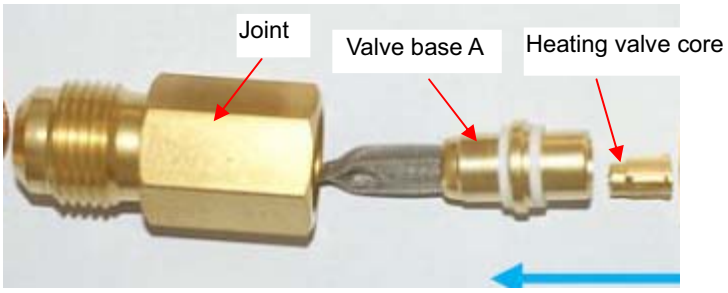


Fig.3.1.4

◆ Installation of throttle valve

Its installation is shown in Figure 3.1.5:

Fig.3.1.5

Notice! In order to ensure normal operation of the unit, never inversely install the cooling throttle orifice and heating throttle orifice.

Install the throttle valve and throttle orifice according to the above sequence. Meanwhile, the seal rings shall be installed properly at joints to prevent leakage.

Model	Torque moment
FDM24PEVLK FDYM24PEVLK	20±5(N • m)
FDM30PEVLK FDYM30PEVLK	20±5(N • m)
FDM36PEVLK FDYM36PEVLK	20±5(N • m)
FDM42PEVLK FDYM42PEVLK	20±5(N • m)
FDM48PEVLK FDYM48PEVLK	20±5(N • m)

◆ Connection pipe and joint of throttle valve

After connection of throttle orifice, throttle vale and liquid pipe joint, connect connection pipe directly with joint of throttle valve.

2) Connection Pipe

◆ The connection pipe must meet the following requirements. The three basic principles are that the pipe shall be kept dry, clean and no leakage.

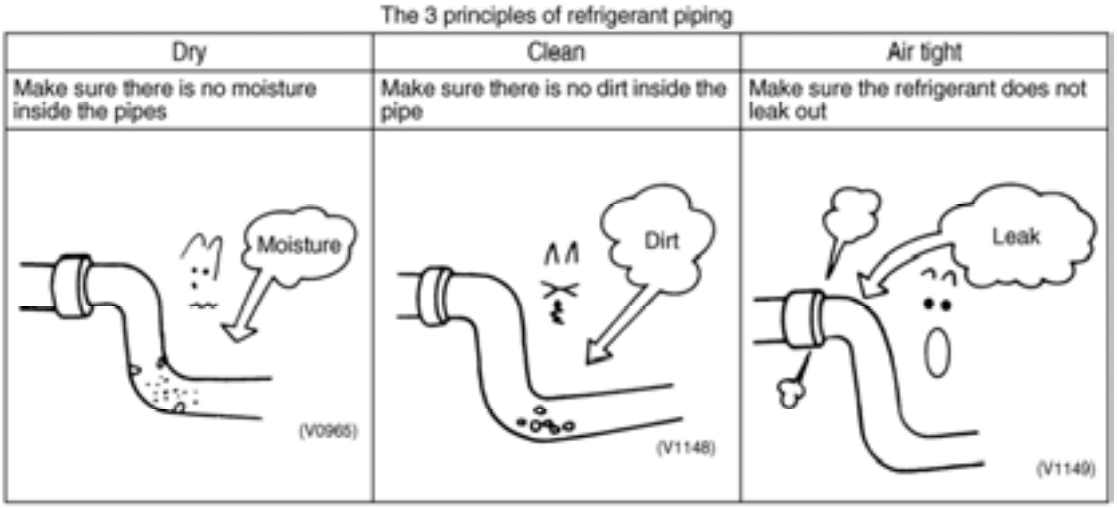


Fig.3.1.6

◆ Align the flared end of copper pipe with the center of threaded connector and use your hands to securely tighten the flared nuts.

◆ Tighten the flared nuts with torque wrench, until you hear a ‘KATA” sound from the torque wrench, as shown in Fig.3.1.6. See Table 3.1.6 for the torque required for tightening the nuts.

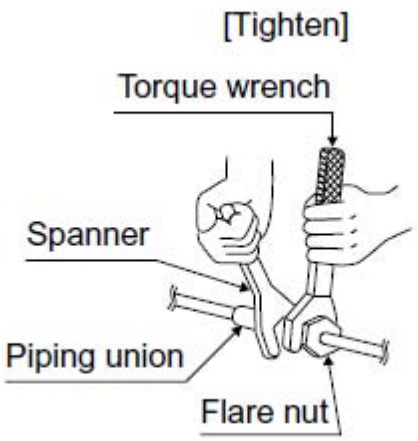


Fig.3.1.7

Form 3.1.6 the tightening torque needed for tightening nut

Pipe diameter	Tightening Torque
1/4″	15-30 (N·m)
3/8″	35-40 (N·m)
5/8″	60-65 (N·m)
1/2″	45-50 (N·m)
3/4″	70-75 (N·m)

- The bend of pipe shall not be too small; otherwise the pipe might be broken. Please use pipe bender to bend the pipe.
- Generally, the pipe shall be welded with the weld junction upward or horizontal. Avoid welding with the pipe opening downward. (Downward welding is easy to cause defects, which may affect the weld quality or even cause leakage, as show in Fig.3.1.8).

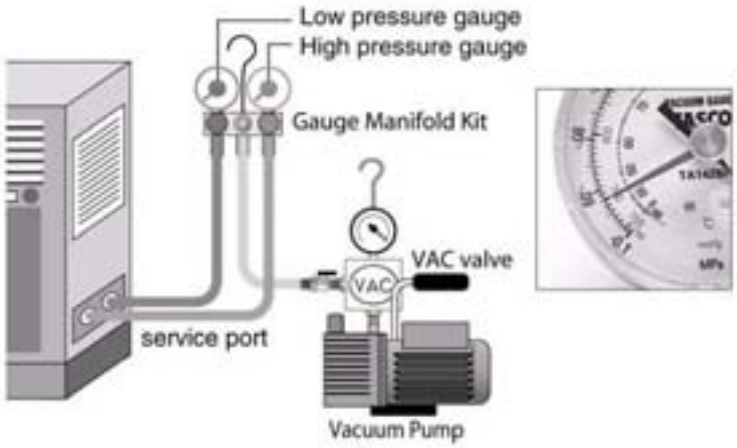


Fig.3.2.8

- Use sponge to wrap the connection pipes and connectors that are not thermally insulated, and tighten with plastic tapes.

3) Vacuum and Leakage Detection

- ◆ Remove the cap from liquid valve and gas valve.
- ◆ Align with the pipe center and tighten the jointing nuts adequately with your hand.
- ◆ Tighten the nuts with wrench.
- ◆ Remove the 1-way cap from the gas valve.
- ◆ Use the hexagonal socket spanner to rotate the element of liquid valve for 1/4 turns and use the screwdriver to prop up the element of gas valve to discharge the gas.
- ◆ Discharge the gas for 15 seconds, until refrigerant gas appears. The, immediately close the 1-way valve and tighten the valve cap.
- ◆ Open the element of liquid valve and gas valve to full (See Fig.3.1.9).

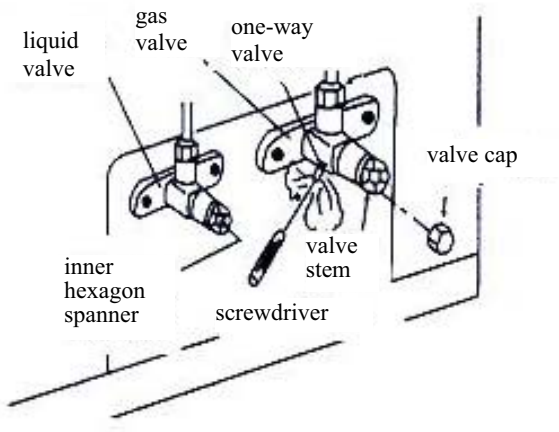


Fig.3.1.9

- ◆ Tighten the valve cap and then use soap water or leakage detector to check the connection between outdoor unit and pipe for any leakage.

Caution:
If possible, it is best to discharge the air out of the machine from the valve by using vacuum pump. To establish vacuum by using vacuum pump, please operate as follows:

- ◆ Take out the nut cover of the inlet for refrigerant.
- ◆ Connect the tube of the vacuum watch with the vacuum pump, with the low-pressure end linking to the inlet for refrigerant. (As shown in Fig.3.1.10)

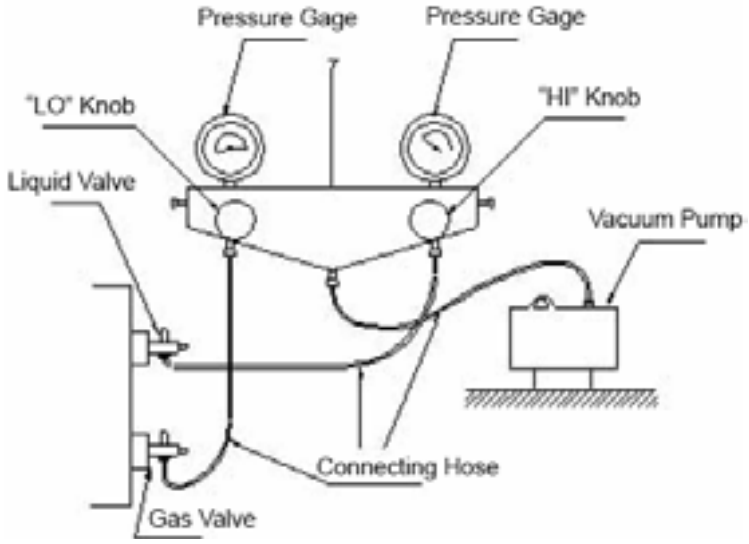


Fig.3.1.10

- ◆ Start the vacuum pump, when the indicator turns to 1 bar, and then close the low pressure handle and stop the vacuum pump. After that, keep this state for 15 minutes, ensure the pressure of the vacuum watch remains.
- ◆ Take out the valve cover of the gas valve together with the liquid valve.
- ◆ Loose the cord of liquid valve until the pressure rise to 0 bar.
- ◆ Dismantle the tube from the cover of the inlet for refrigerant then, tighten the cover.
- ◆ Loose the valve cord of the gas valve as well as the liquid valve entirely.
- ◆ Tighten the valve cover of the gas valve and liquid valve so as to check whether leakage will occur or not.

4) Installation of Protective Layer of Connecting Pipe

- ◆ To avoid generation of condensate on the connecting pipe and avoid leakage, the big pipe and the small pipe of the connecting pipe must be covered by thermal insulation materials, be bundled by adhesive tape, and be isolated from air.
- ◆ The joint connecting to the indoor unit must be wrapped by thermal insulation material. There shall be no gap between the connecting pipe joint and the wall of the indoor unit. Refer to Fig.3.1.11.

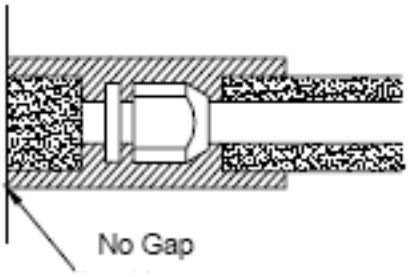


Fig.3.1.11

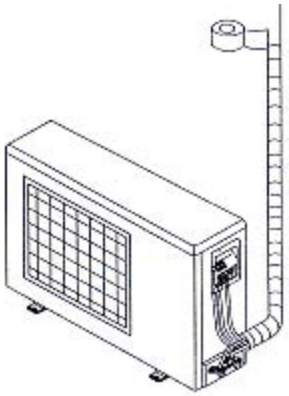


Fig.3.1.12

- ◆ Use adhesive tape to bundle the connecting pipe and the cables together. To prevent condensate from overflowing out from the drainage pipe, separate the drainage pipe from the connecting pipe and the cables.
- ◆ Use thermal insulation tape to wrap the pipes from the bottom of the outdoor unit until the upper end of the pipe where the pipe enters the wall. When wrapping thermal insulation tape, the later circle of tape must cover half of the former circle of tape (Fig.3.1.12).
- ◆ Wrapped pipe must be fixed to wall using pipe clamps.

Caution:

- ◆ After the pipes are wrapped by protective materials, never bend the pipes to form very small angle, otherwise the pipes may crack or break.
- ◆ Do not wrap the protective tape too tight, otherwise the efficiency of thermal insulation may be decreased. Ensure that the condensate drainage flexible tube is separated from the bundled pipes.
- ◆ After the protective work is completed and the pipes are wrapped, use seal material to block the hole in the wall, so as to prevent rain and wind from entering the room.

3.2 Caution in Connecting Pipes

The layout of connection pipes shall be in reference to the following principles according to site conditions:

- Shorten the connection pipe to minimum, preferably within 5m.
- Reduce the height difference between indoor and outdoor units as possible as it might be.
- Minimize the number of elbows on connection pipe.
- If the connection pipe is longer than 20m, it is needed to check if the lubricating oil in the system is enough. Add if needed.
- The refrigerant charge volume inside the machine is suitable for 7m connection pipe. To extend the length of connection pipe, it is needed to add an appropriate quantity of refrigerant. For extension of pipe length by every 1 meter, the refrigerant to be added is as follows. The maximum allowable length of pipe is 30m.
- If the height difference between indoor and outdoor units is over 10m, it is required to install an oil trap every 6 meters.
- When the indoor and outdoor units are on different height, please refer to Fig.3.2.1 for pipe layout.

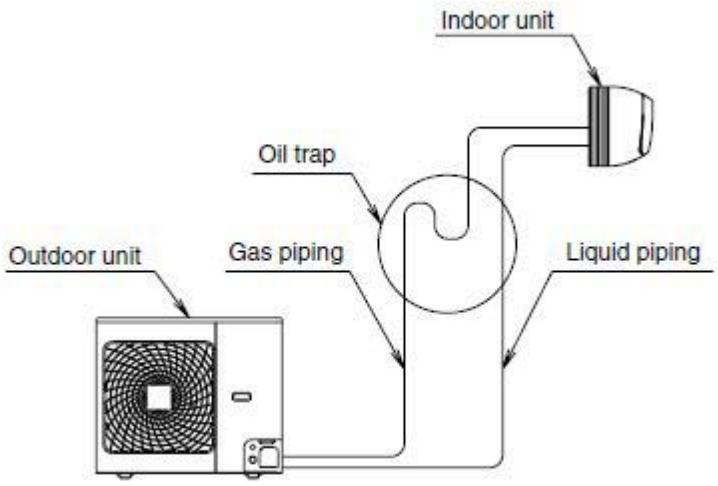


Fig.3.2.1

3.3 Specification of Connection Pipe

Model	Size of Fitting Pipe (inch)		Max. Pipe Length (m)	Max. Height Difference between Indoor Unit and Outdoor Unit (m)	Amount of Additional Refrigerant to be Filled (For Extra Length of Pipe)
	Gas Pipe	Liquid Pipe			
FDM24PEVLK R24PEVLK/ RY24PEVLK	5/8	3/8	30	15	60g/m
FDM30PEVLK R30PEVLK/ RY30PEVLK					
FDM36PEVLK R36PEVLK/ RY36PEVLK	3/4	1/2	50	30	120g/m
FDM42PEVLK R42PETLK/ R42PETLK R42PEYLK/ RY42PEYLK					
FDM48PEVLK R48PETLK/ RY48PETLK R48PEYLK/ RY48PEYLK					

Note:

1. The standard pipe length is 5m. When the length (L) of the connecting pipe is less than or equals 5m, there is no need to add refrigerant. If the connecting pipe is longer than 5m, it is required to add refrigerant. In the above table, the amounts of refrigerant to be added for the models are listed for each additional meter of pipe length.
2. The pipe wall thickness shall be 0.5-1.0 mm and the pipe wall shall be able to withstand the pressure of 6.0MPa.
3. The longer the connecting pipe, the lower the cooling effect and the heating effect.

4. ELECTRIC WIRING WORK

4.1 Wiring Principle

4.1.1 Electric Wiring

- The power supply must be exclusive for air conditioners.
- The power cable should be reliable and fixed, in order to avoid the wiring terminal be suffered from force.
- The wire diameter of power cable should be large enough, if power cable and connection wire be damaged; it should be replaced by the exclusive cable.
- All electric installation must be done by professional personnel according to local law, regulation and this manual.
- It should be reliably earthed, and it should be connected to the special earth device, the installation work should be operated by the professional.
- The creepage protect switch and air switch must be installed.
- Air switch should have the thermal dropout and magnetic dropout function, in order to avoid the short circuit and overload.
- Refer to the wiring diagram adhered on the unit during wiring on site.

4.1.2 Earthing Requirements

- It should be reliably earthed.
- The yellow-green two-color wiring of air conditioner is grounding wire and cannot be used for other purposes. It cannot be cut off and be fixed by tapping screw, otherwise it would cause electric shock.

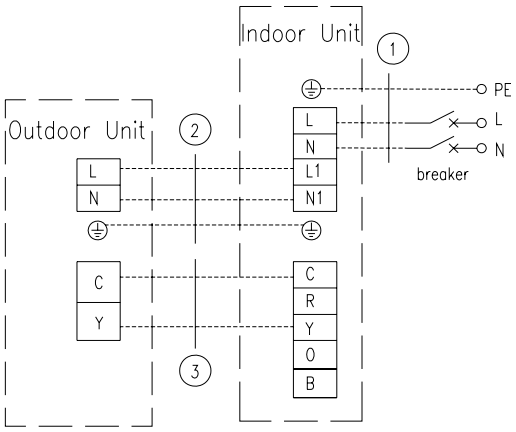
- The user must offer the reliable grounding terminal. Please don't connect the grounding wire to the following places:

  ① Water pipe;
  ② Gas pipe;
  ③ Blowing pipe;
  ④ Other places Where are not recommended or approved by the professional personnel.

4.2 Electric Wiring Design

4.2.1 Duct type

R24PEVLK+FDM24PEVLK



POWER 220V~60Hz

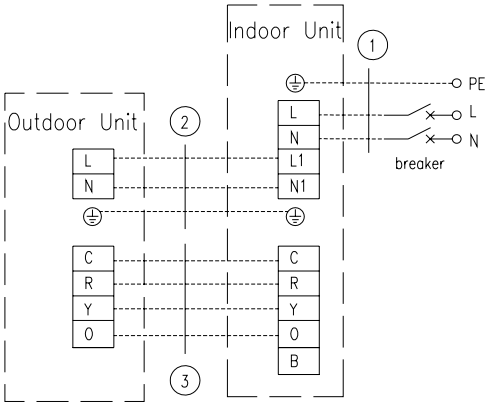
① Power Cord 3×4.0mm^2 (H07RN-F)

② Power Cord 3×2.5mm^2 (H07RN-F)

③ Communication Cords 2×1.0mm^2 (H07RN-F)

Capability of Breaker: 25A

RY24PEVLK+FDYM24PEVLK



POWER 220V~60Hz

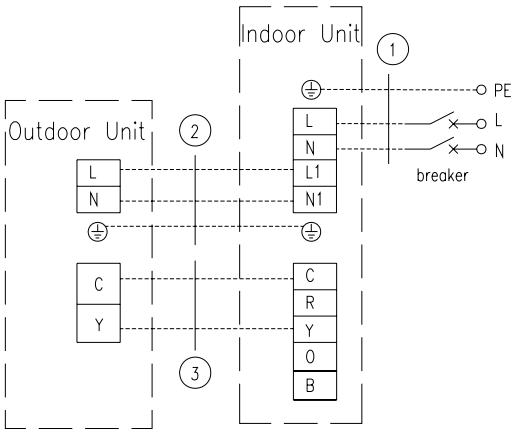
① Power Cord 3×4.0mm^2 (H07RN-F)

② Power Cord 3×2.5mm^2 (H07RN-F)

③ Communication Cords 4×1.0mm^2 (H07RN-F)

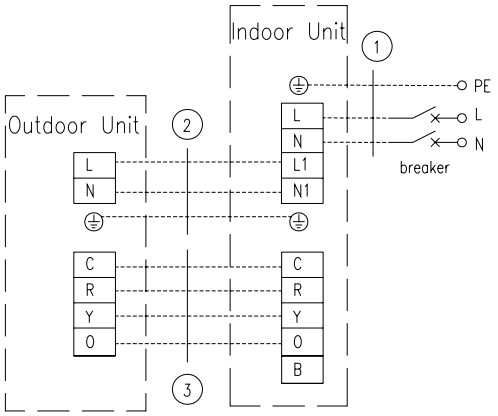
Capability of Breaker: 25A

R30PEVLK+ FDM30PEVLK



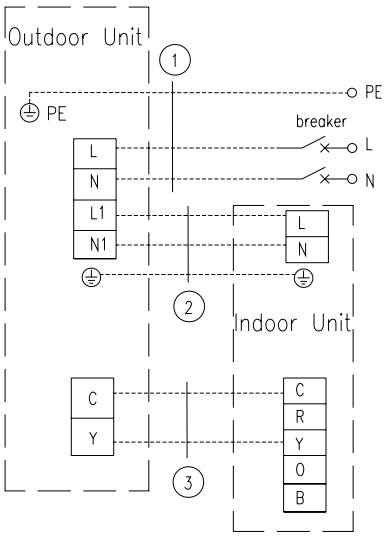
POWER 220V~60Hz
① Power Cord 3×6.0mm^2 (H07RN-F)
② Power Cord 3×4.0mm^2 (H07RN-F)
③ Communication Cords 2×1.0mm^2 (H07RN-F)
Capability of Breaker: 32A

RY30PEVLK+ FDYM30PEVLK



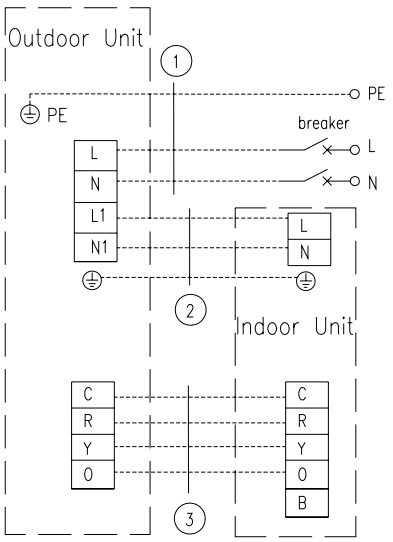
POWER 220V~60Hz
① Power Cord 3×6.0mm^2 (H07RN-F)
② Power Cord 3×4.0mm^2 (H07RN-F)
③ Communication Cords 4×1.0mm^2 (H07RN-F)
Capability of Breaker: 32A

R36PEVLK + FDM36PEVLK



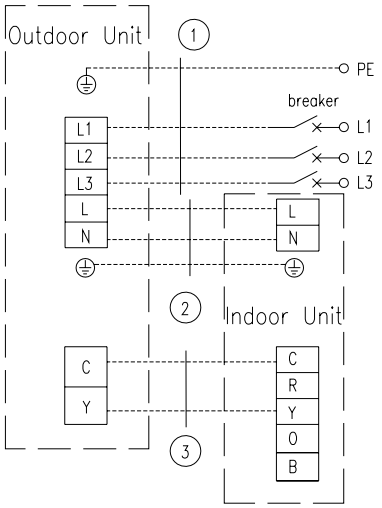
POWER 220V~60Hz
① Power Cord 3×6.0mm^2 (H07RN-F)
② Power Cord 3×1.0mm^2 (H07RN-F)
③ Communication Cords 2×1.0mm^2 (H07RN-F)
Capability of Breaker: 32A

RY36PEVLK + FDYM36PEVLK



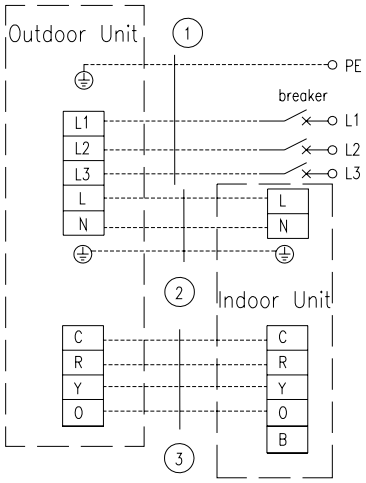
POWER 220V~60Hz
① Power Cord 3×6.0mm^2 (H07RN-F)
② Power Cord 3×1.0mm^2 (H07RN-F)
③ Communication Cords 4×1.0mm^2 (H07RN-F)
Capability of Breaker: 32A

R42PETLK + FDM42PEVLK
R48PETLK + FDM48PEVLK



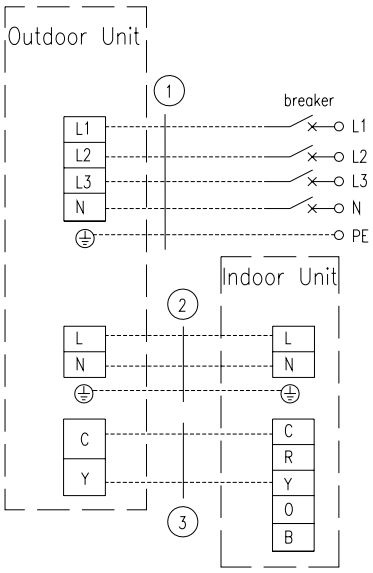
POWER 220V 3~60Hz
① Power Cord 4×6.0mm^2 (H07RN-F)
② Power Cord 3×1.0mm^2 (H07RN-F)
③ Communication Cords 2×1.0mm^2 (H07RN-F)
Capability of Breaker: 32A

RY42PETLK + FDYM42PEVLK
RY48PETLK + FDYM48PEVLK



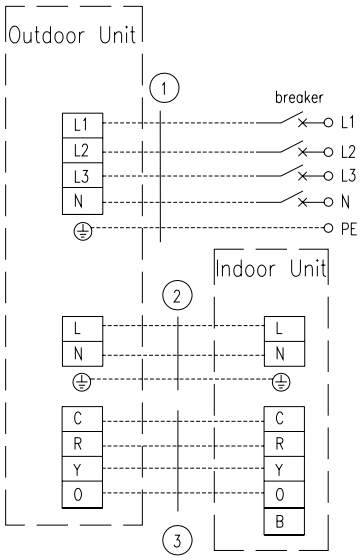
POWER 220V 3~60Hz
① Power Cord 4×6.0mm^2 (H07RN-F)
② Power Cord 3×1.0mm^2 (H07RN-F)
③ Communication Cords 4×1.0mm^2 (H07RN-F)
Capability of Breaker: 32A

R42PEYLK + FDM42PEVLK
R48PEYLK + FDM48PEVLK



POWER 380V 3N~60Hz
① Power Cord 5×4.0mm^2 (H07RN-F)
② Power Cord 3×1.0mm^2 (H07RN-F)
③ Communication Cords 2×1.0mm^2 (H07RN-F)
Capability of Breaker: 25A

RY42PEYLK + FDYM42PEVLK
RY48PEYLK + FDYM48PEVLK



POWER 380V 3N~60Hz
① Power Cord 5×4.0mm^2 (H07RN-F)
② Power Cord 3×1.0mm^2 (H07RN-F)
③ Communication Cords 4×1.0mm^2 (H07RN-F)
Capability of Breaker: 25A

Part 4
MAINTENANCE

1. REMOTE CONTROLLER DISPLAY MALFUNCTION AND DESCRIPTION

Malfunction Code	Trouble Case	Origin of Trouble Signal	Measure
E2	**Indoor anti freezing Protection**	Evaporator temperature thermistor of indoor unit	When defrosting operation and dehumidifying operation have been performed a period of time, in the case of detecting the evaporator temperature less than -2°C by the evaporator temperature thermistor, the compressor and outdoor unit fan will stop. In the case of the evaporator temperature equal to 10°C or more, the alarm displays malfunction code on the screen and the compressor will be stopped for 3mins and then the system will back to the normal operation.
E6	**Malfunction of Communications**	Communication	Check the communication state between the indoor unit PCB and outdoor unit PCB by micro-computer. Abnormality is detected when the correct communication is not conducted in 30se. When the malfunction of communication occurs, the system will be shut down and LED on the remote controller will blink and the screen will display the malfunction code (E6).The reset for the communication failure is automatic reset.
E9	**Malfunction of drain water level**	Liquid water level	When a liquid water level switch opens for more than 8 seconds, it means a malfunction occurs to the drain water level. In this case, the LED on the remote controller will blink and the malfunction code (E9) will be displayed. Beside, the reset for the water level protection can only be done manually.
F0	**Malfunction of Indoor room temperature thermistor at Air Intake**	Indoor room thermistor	Malfunction of indoor room temperature thermistor at air intake is detected when a short circuit or an open circuit in the indoor room temperature thermistor for more than 5 sec. The indoor room temperature value will be set at 24°C forcibly. The reset for the malfunction of indoor room temperature thermistor is automatic. If the malfunction of indoor room temperature thermistor will be reset in air supply mode, the malfunction code (F0) will disappear on the screen and the indoor unit fan will run normally.
F1	**Malfunction of evaporator Temperature thermistor**	Evaporator temperature thermistor	Malfunction of evaporator temperature thermistor is detected when there is a short circuit or an open circuit in the evaporator temperature thermistor for more than 5 sec. The system will be shut down in cooling operation and dehumidifying operation. The screen will display the malfunction code (F1). The reset for the malfunction of evaporator temperature thermistor is automatic. In air supply mode, the screen will display the malfunction code (F1). However, the indoor unit fan will run normally in this case.

Malfunction Code	Trouble Case	Origin of Trouble Signal	Measure
F5	**Malfunction of Indoor Room temperature thermistor at Wired Remote Controller**	Indoor room temperature thermistor	Malfunction is detected when there is a short circuit or an open circuit in the indoor room temperature thermistor for more than 5 sec. The system will be shut down in cooling operation and dehumidifying operation. The screen will display the malfunction code (F5). The reset for the malfunction of discharge temperature thermistor is automatic. In air supply mode, the screen will display the malfunction code (F5). However, the indoor unit fan will run normally in this case.

2. FLOW CHART OF TROUBLESHOOTING

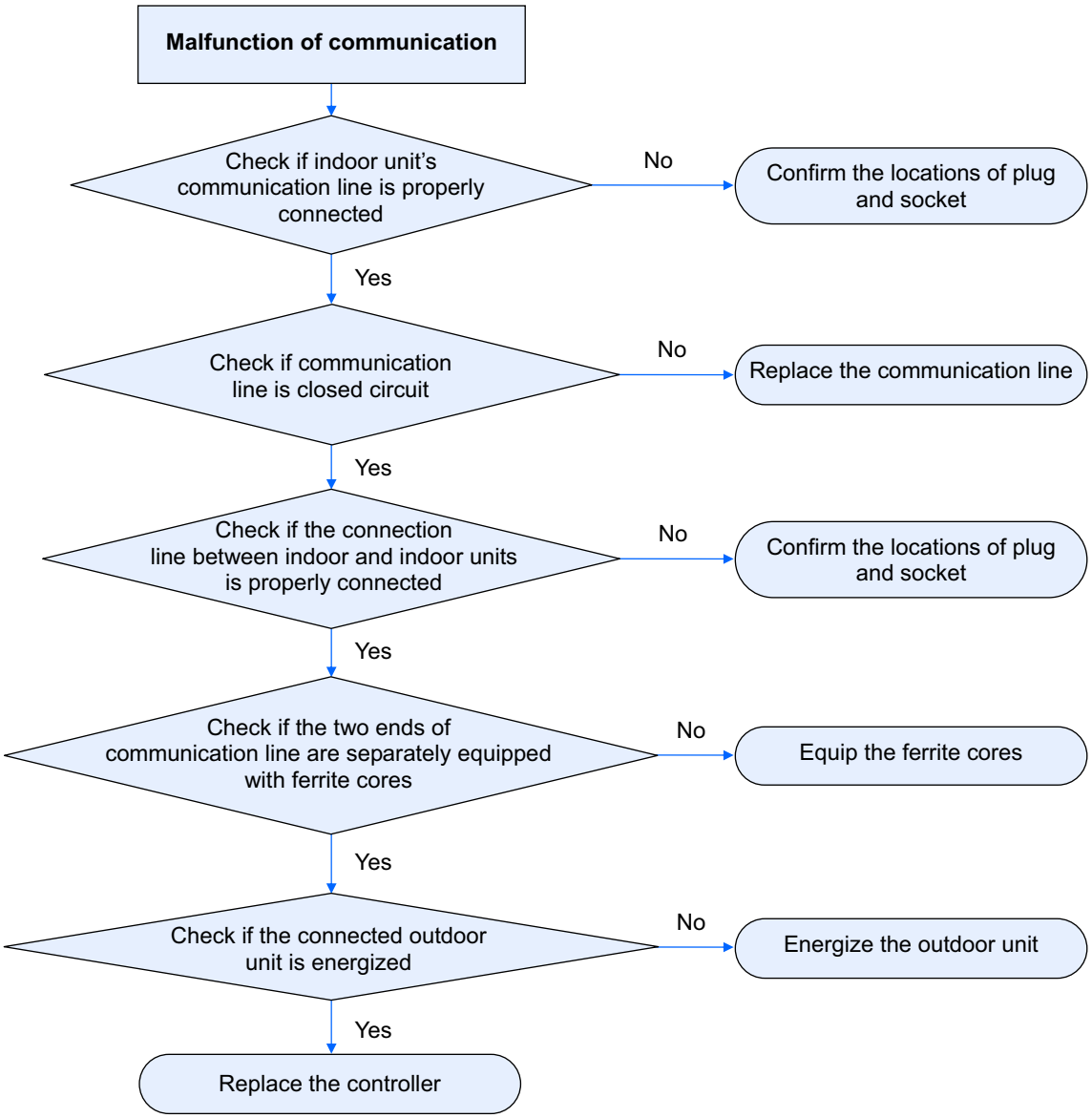
Service engineers shall collect the malfunction information as much as possible and then research it thoroughly. Besides, they should list those electrical parts which may cause malfunction and determine where the problem really is and finally sort out the perfect solution.

★ Observe the status of the complete device but not the partial device

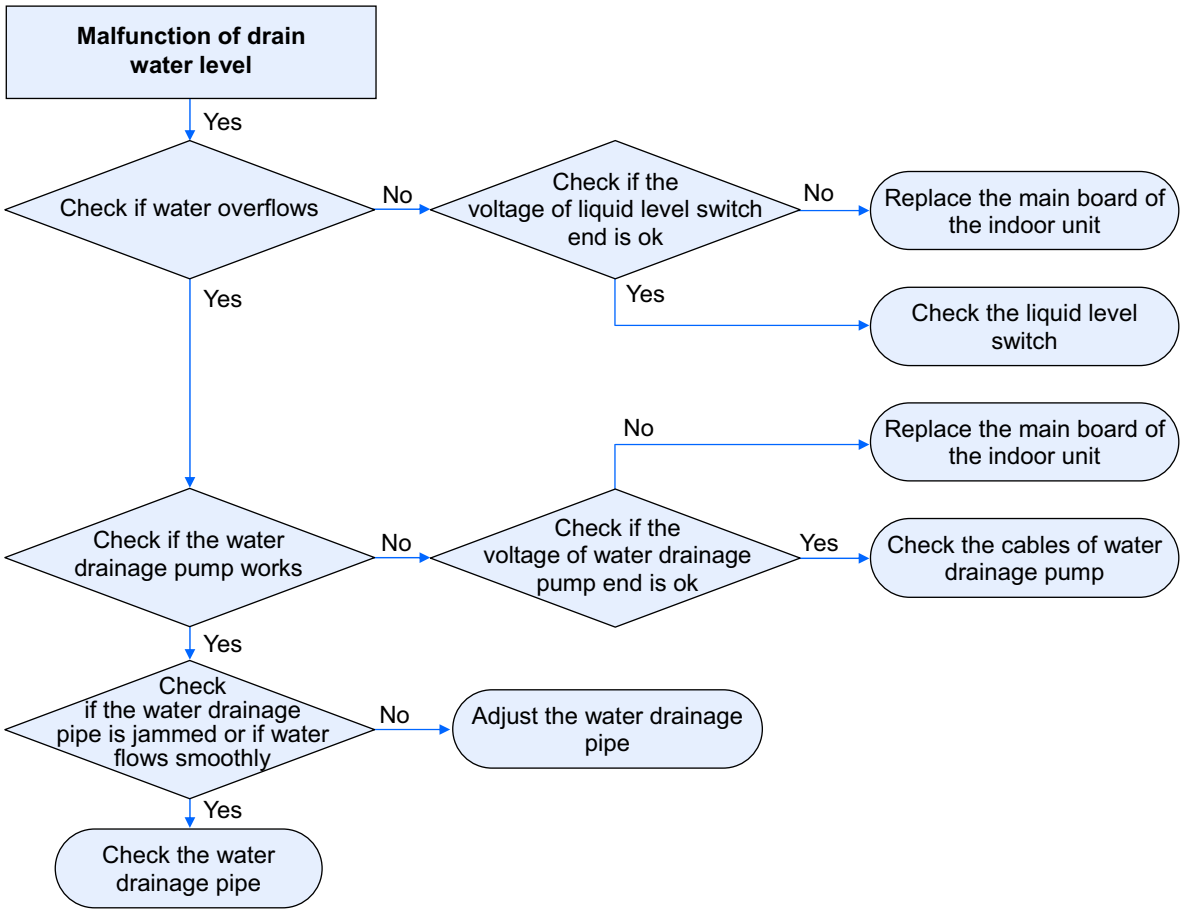
★ It is advised to start from the simple operations when analyzing, ,judging and confirming what has caused the malfunction, and then conduct the complicated operations, such as the removal of device, replacement of parts and change of refrigerant.

★ Find out the cause of the malfunction. As several malfunctions may occur at the same time to the unit, so a comprehensive analysis is needed to make the cause found out reliable authentic.

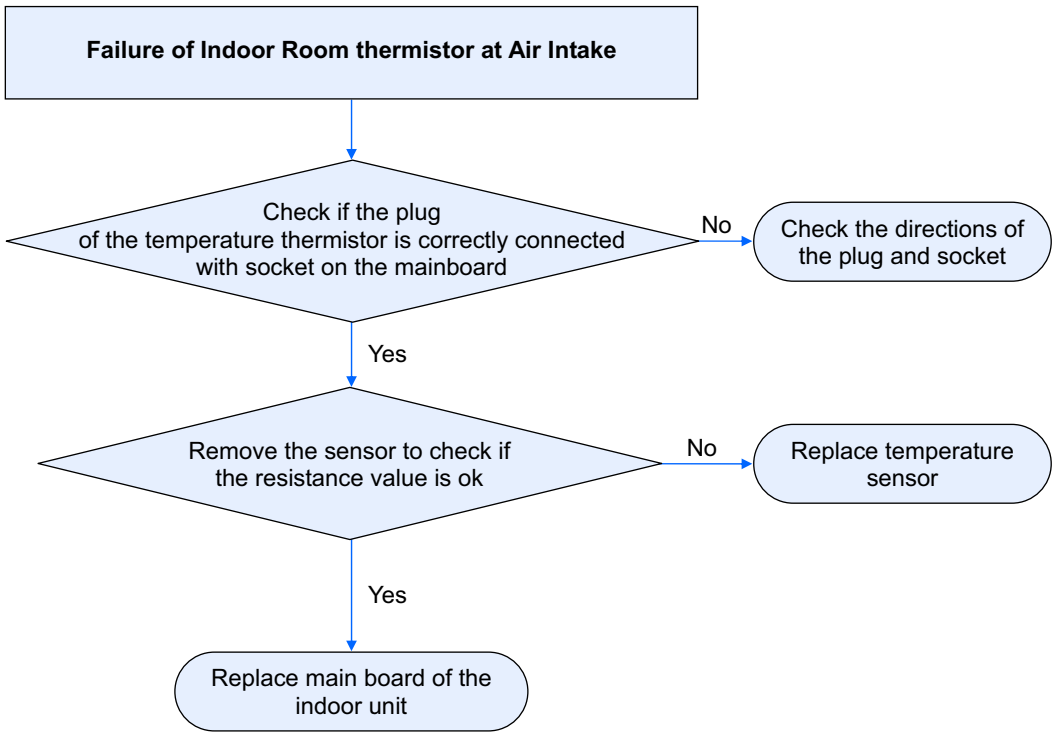
◆Malfunction display: E6 Communications Failure



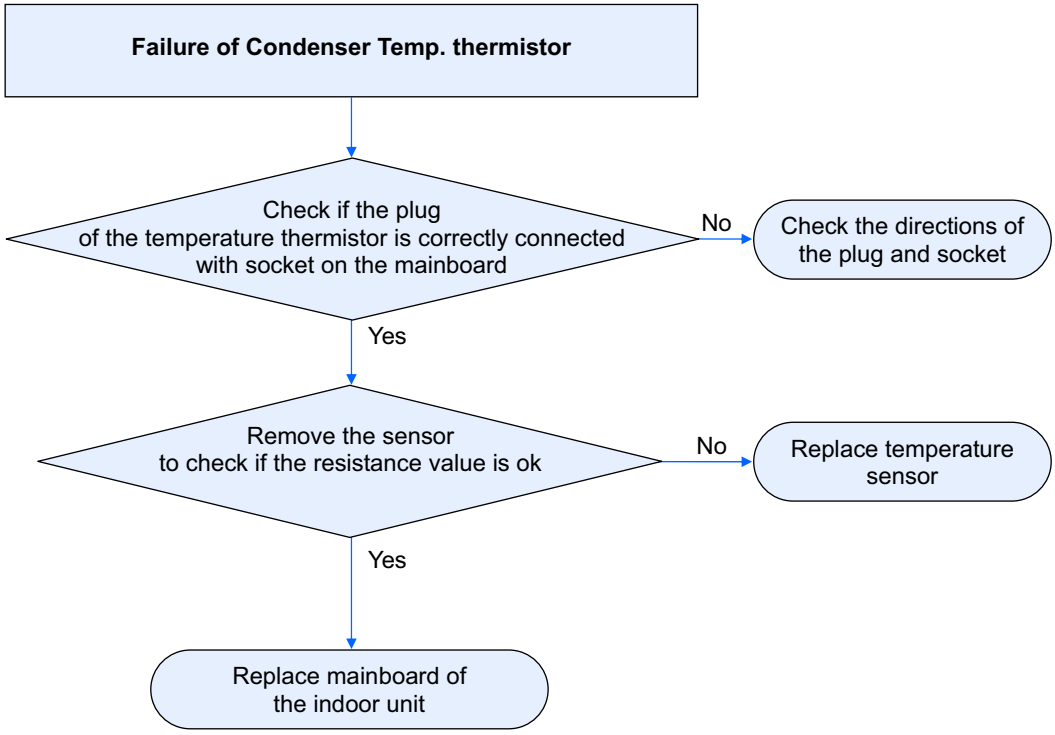
◆Malfunction display: E9 Malfunction of drain water level



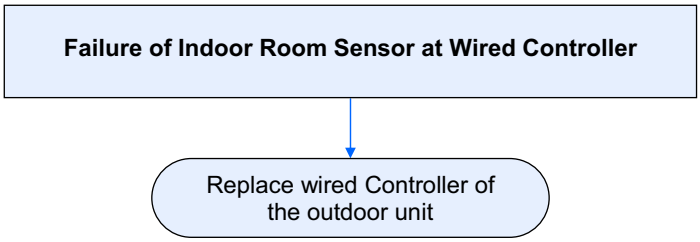
◆Malfunction display: F0 Malfunction of Indoor Room thermistor at Air Intake



◆Malfunction display: F1 Malfunction of Evaporator Temp. Thermistor



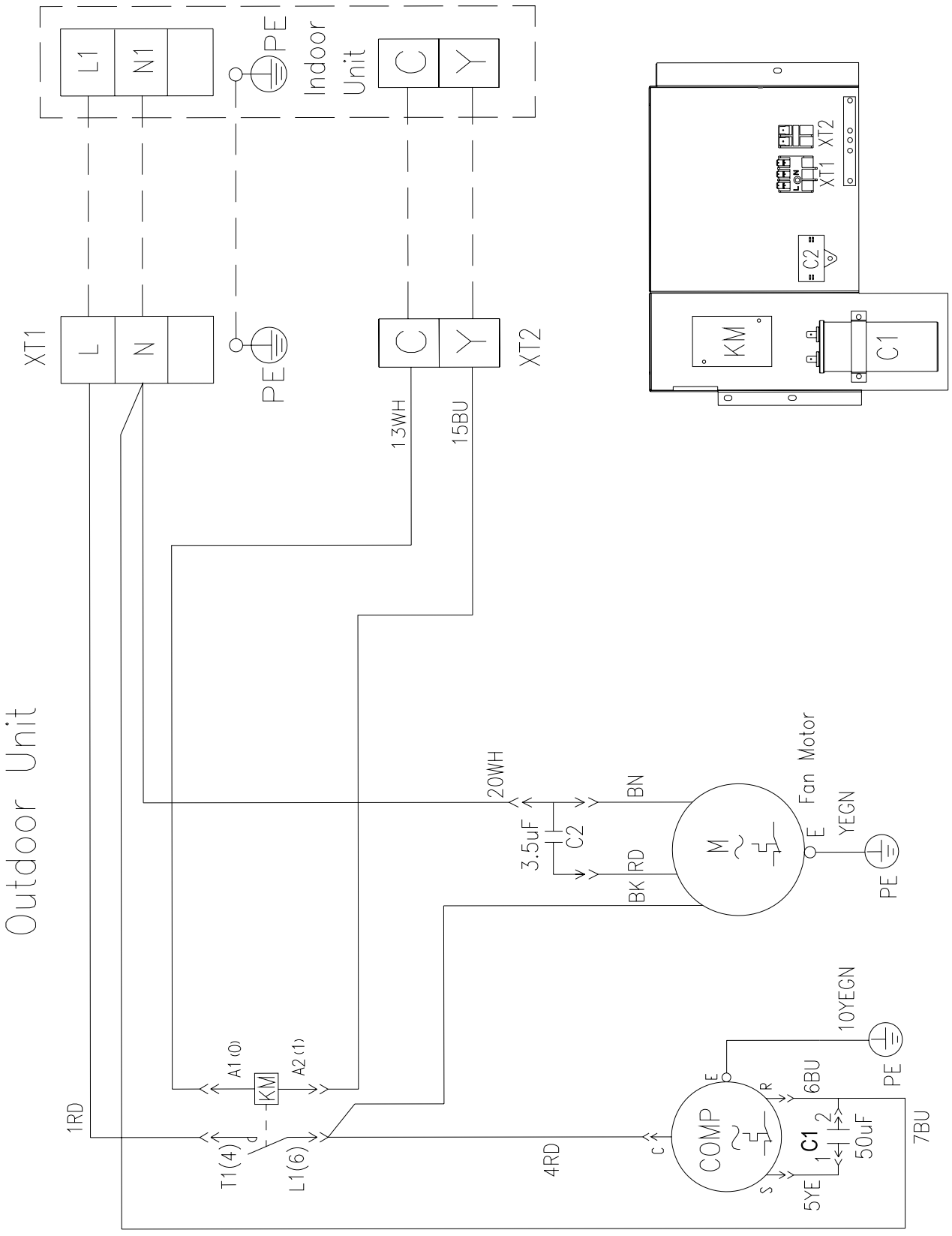
◆Malfunction display: F5 Malfunction of Indoor Room Thermistor at Wired Controller



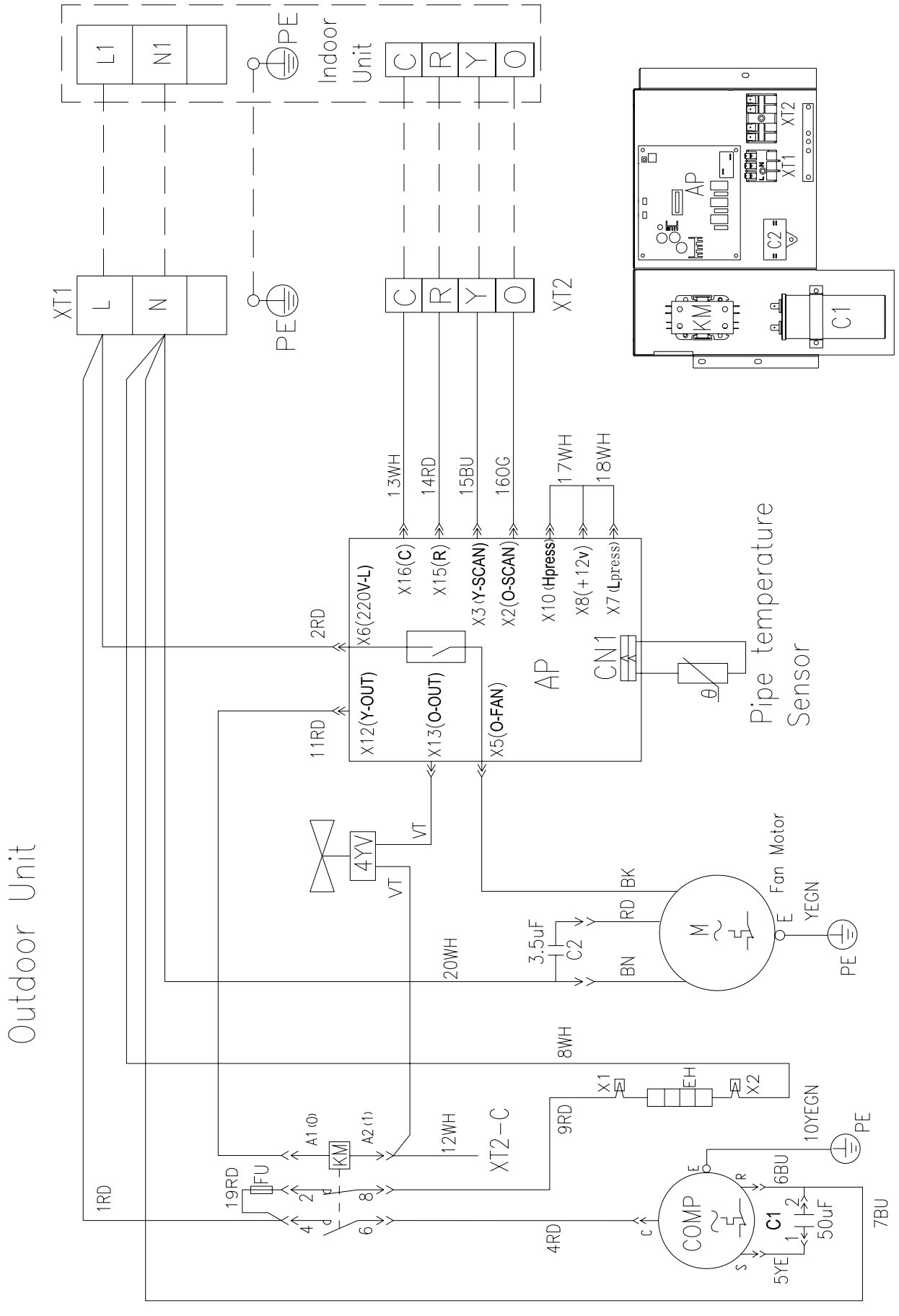
3. WIRING DIADRAM

3.1 Wiring Diagram-Outdoor Units

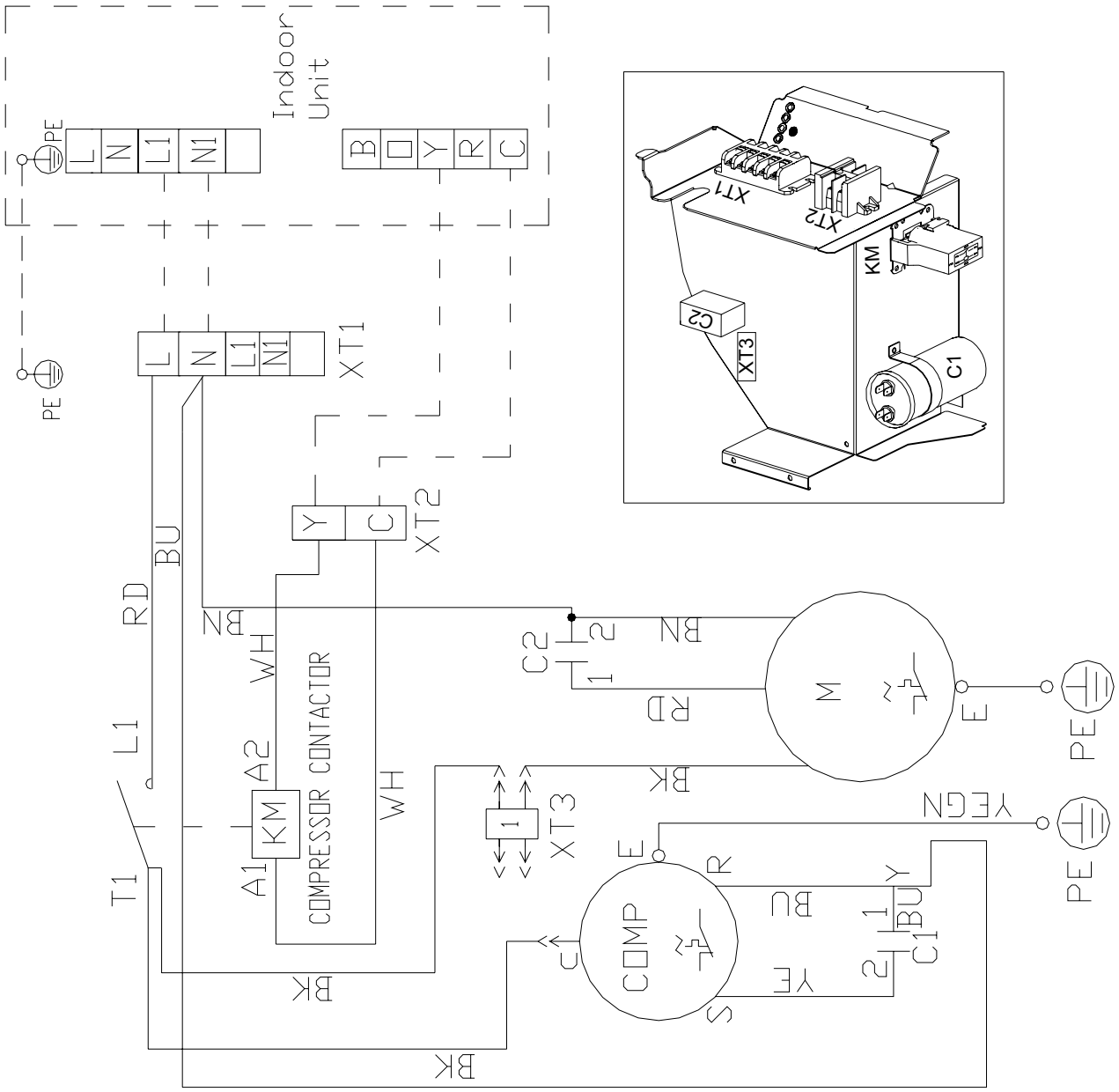
1. R24PEVLK



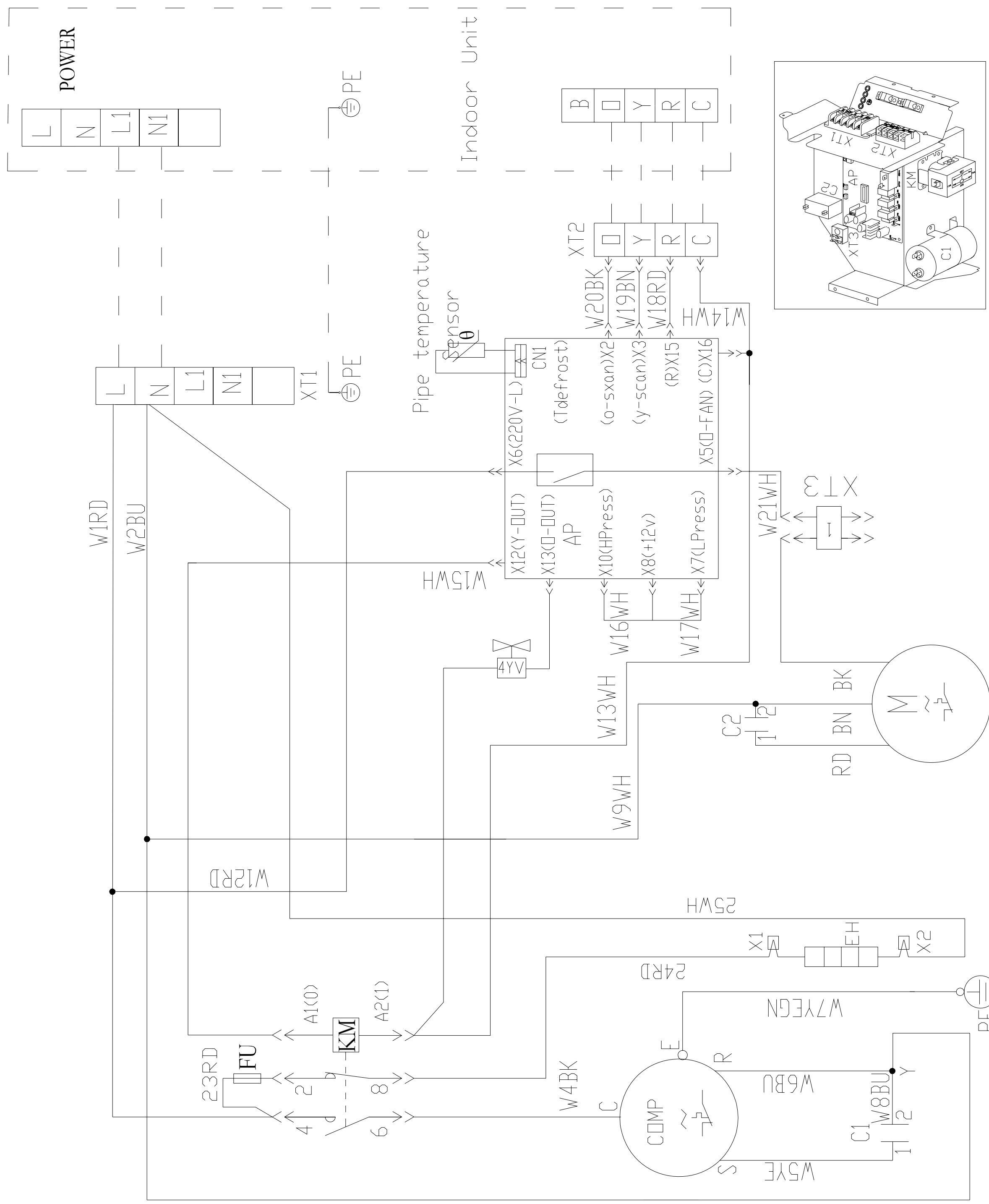
2. RY24PEVLK


Indoor Unit
L1
N1
PE
C
R
Y
O
XT1
L
N
XT2
AP
XT1
XT2
C2
KM
C1
13WH
14RD
15BU
16OG
17WH
18WH
X16(C)
X15(R)
X3 (Y-SCAN)
X2(O-SCAN)
X10 (Hpress)
X8(+12v)
X7 (Lpress)
2RD
X6(220V-L)
11RD
X12(Y-OUT)
X13(O-OUT)
X5(O-FAN)
CN1
θ
Pipe temperature Sensor
4YV
VT
Outdoor Unit
Fan Motor
BK
RD
BN
3.5uF
C2
M
E
YEGN
20WH
8WH
X1
EH
X2
10YEGN
9RD
12WH
XT2-C
A1 (0)
A2 (1)
KM
19RD
FU
1RD
4RD
COMP
C
R
S
6BU
C1
50uF
7BU
5YE

3. R30PEVLK

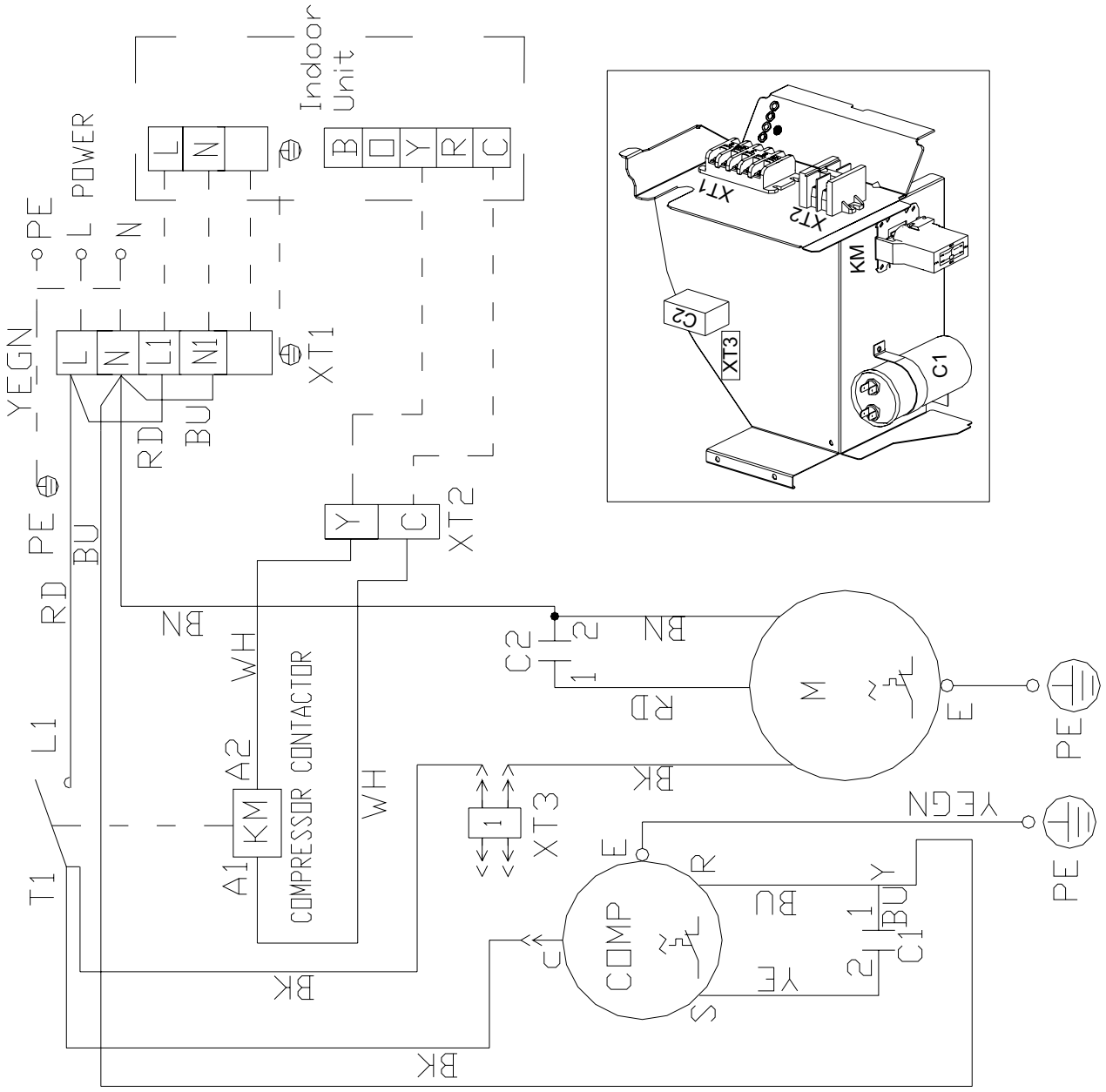

Indoor Unit
PE
L
N
L1
N1
B
D
Y
R
C
XT1
XT2
XT3
KM
C1
C2
T1
L1
A1
A2
KM
COMPRESSOR CONTACTOR
WH
BU
RD
BN
BK
YEGN
M
E
PE
COMP
S
C
R
1
2
Y

4. RY30PEVLK

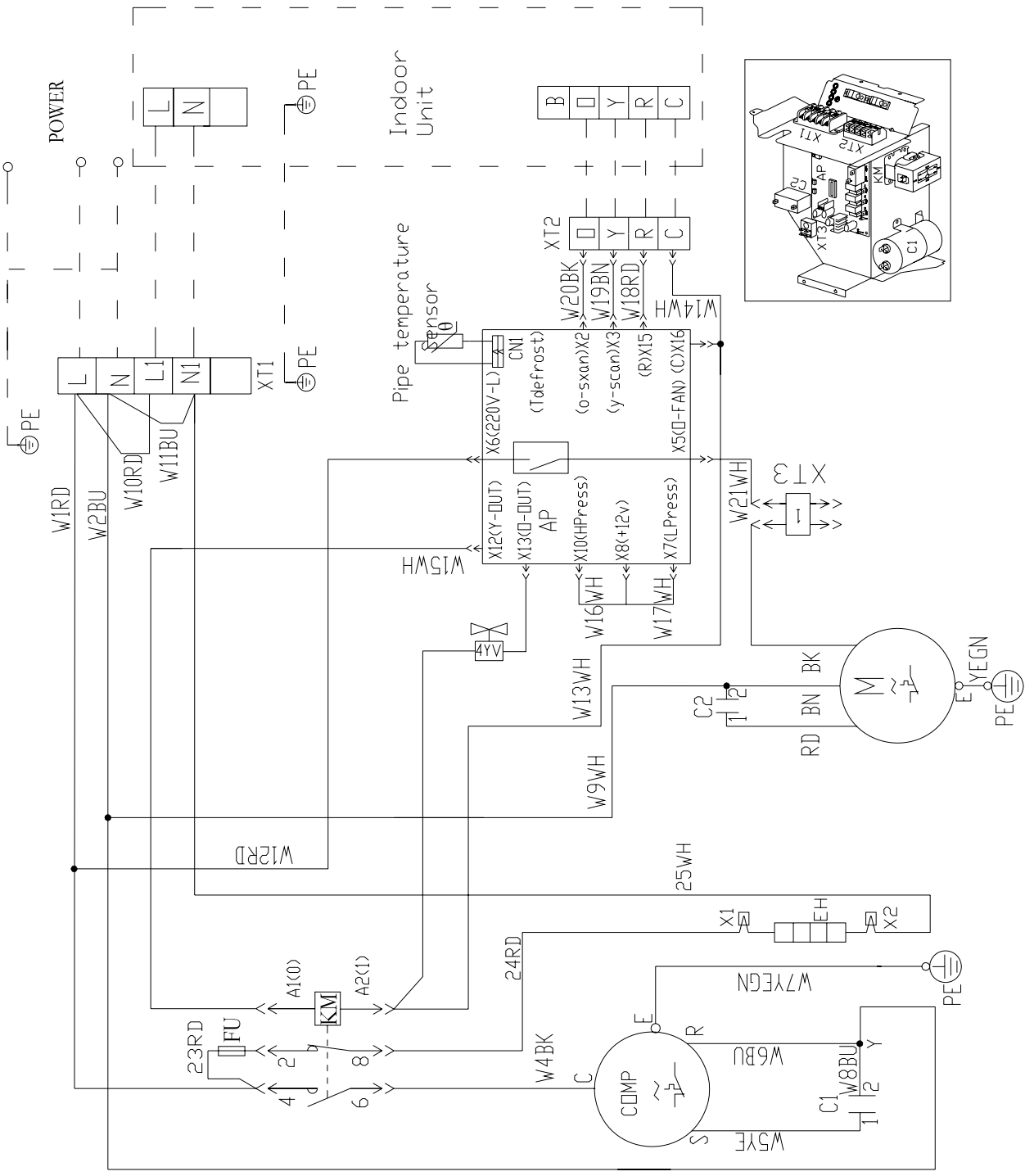


POWER
Indoor Unit
PE
XT1
XT2
XT3
Pipe temperature Sensor
CN1
(Tdefrost)
X6(220V-L)
(o-sxan)X2
(y-scan)X3
(R)X15
(C)X16
X5(O-FAN)
X12(Y-OUT)
X13(O-OUT)
AP
X10(HPress)
X8(+12v)
X7(LPress)
W1RD
W2BU
W20BK
W19BN
W18RD
W14WH
W21WH
W15WH
W16WH
W17WH
W13WH
W9WH
W12RD
25WH
24RD
23RD
W4BK
W7YEGN
W6BU
W8BU
W5YE
4YV
FU
KM
A1(0)
A2(1)
EH
X1
X2
C1
C2
COMP
M
BK
BN
RD
YEGN

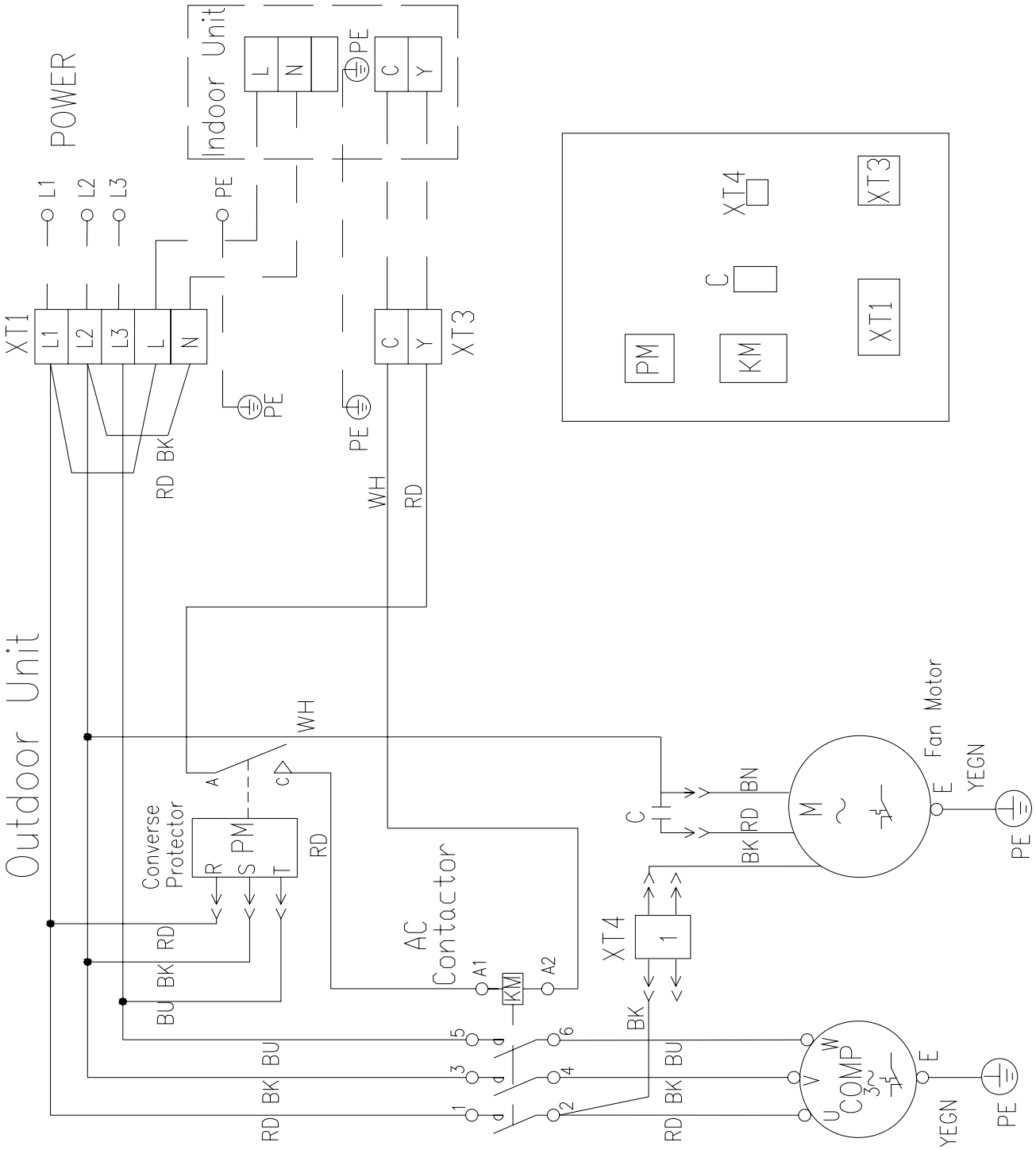
5. R36PEVLK


Indoor Unit
L
N
B
O
Y
R
C
XT1
XT2
KM
C2
XT3
C1
PE
L POWER
N
YEGN
L
N
L1
N1
XT1
RD
BU
PE
BU
RD
Y
C
XT2
BN
WH
A2
KM
A1
COMPRESSOR CONTACTOR
L1
T1
BK
WH
XT3
1
C2
2
1
BN
RD
M
E
PE
BK
YEGN
PE
E
R
COMP
C
S
BU
Y
YE
2
1
BU
C1

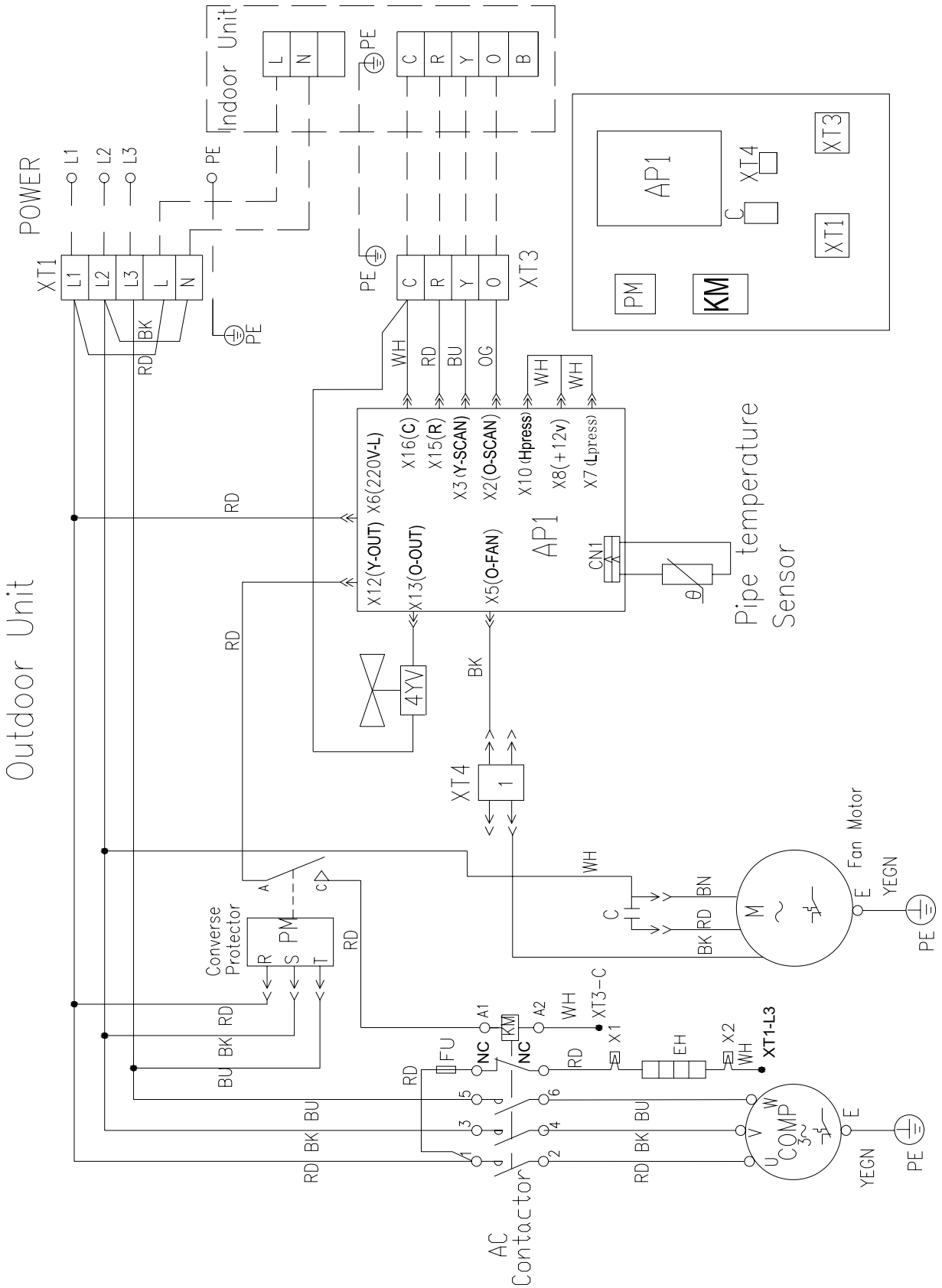
6. RY36PEVLK


POWER
L
N
PE
Indoor Unit
B
D
Y
R
C
XT2
Pipe temperature Sensor
θ
CN1
(Tdefrost)
W20BK
W19BN
W18RD
W14WH
(o-scan)X2
(y-scan)X3
(R)X15
(C)X16
X5(D-FAN)
X6(220V-L)
XT1
L1
N1
W1RD
W2BU
W10RD
W11BU
X12(Y-OUT)
X13(D-OUT)
AP
X10(HPress)
X8(+12v)
X7(LPress)
W15WH
W16WH
W17WH
W21WH
X3T
4YV
W13WH
W9WH
C2
BK
BN
RD
M
E
YEGN
PE
W12RD
25WH
X1
EH
X2
24RD
A1(0)
A2(1)
KM
23RD
FU
W4BK
COMP
C
R
S
E
W6BU
W5YE
W7YEGN
C1
W8BU
Y
XT1
XT2
XT3
KM
AP
C1

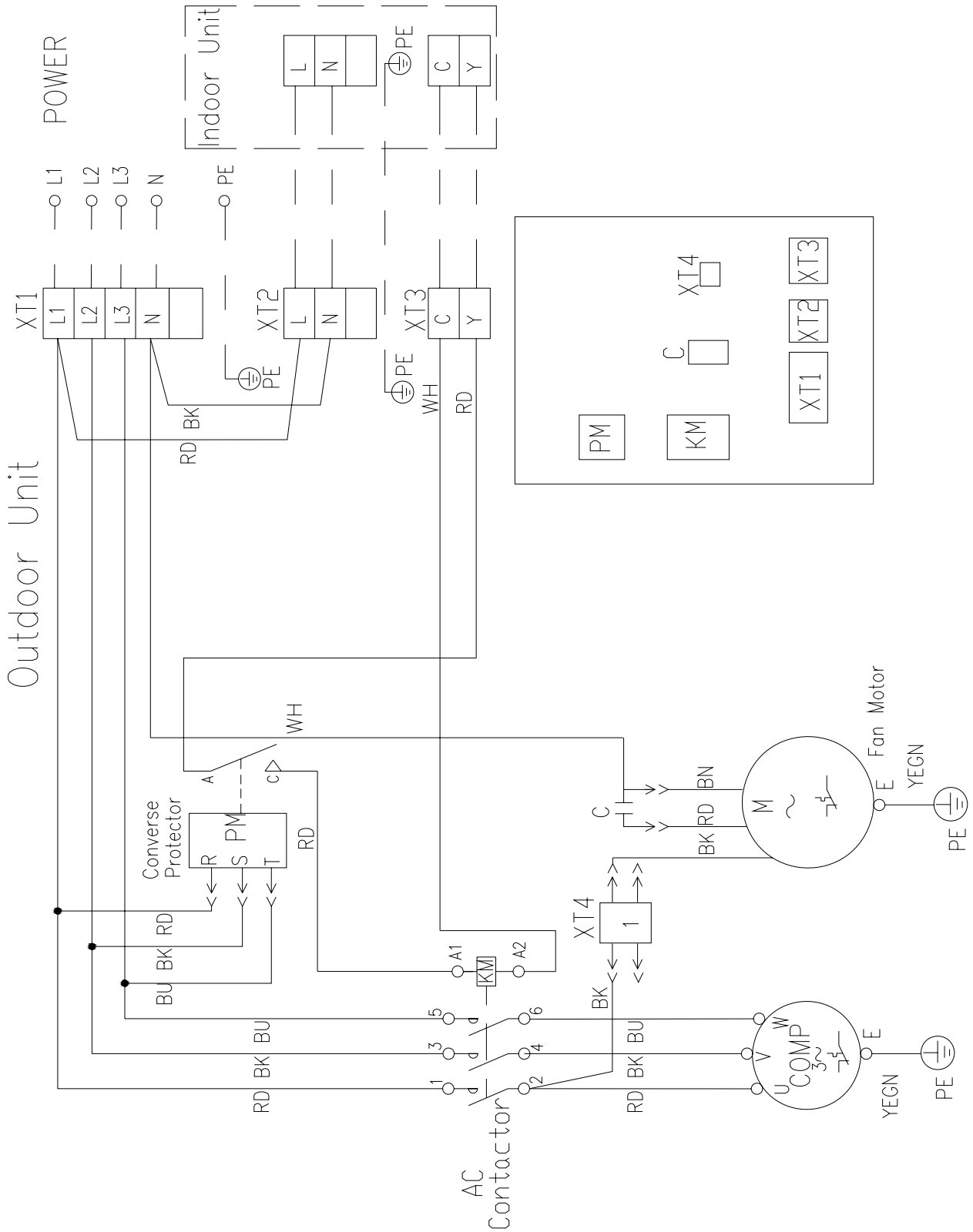
7. R42PETLK, R48PETLK



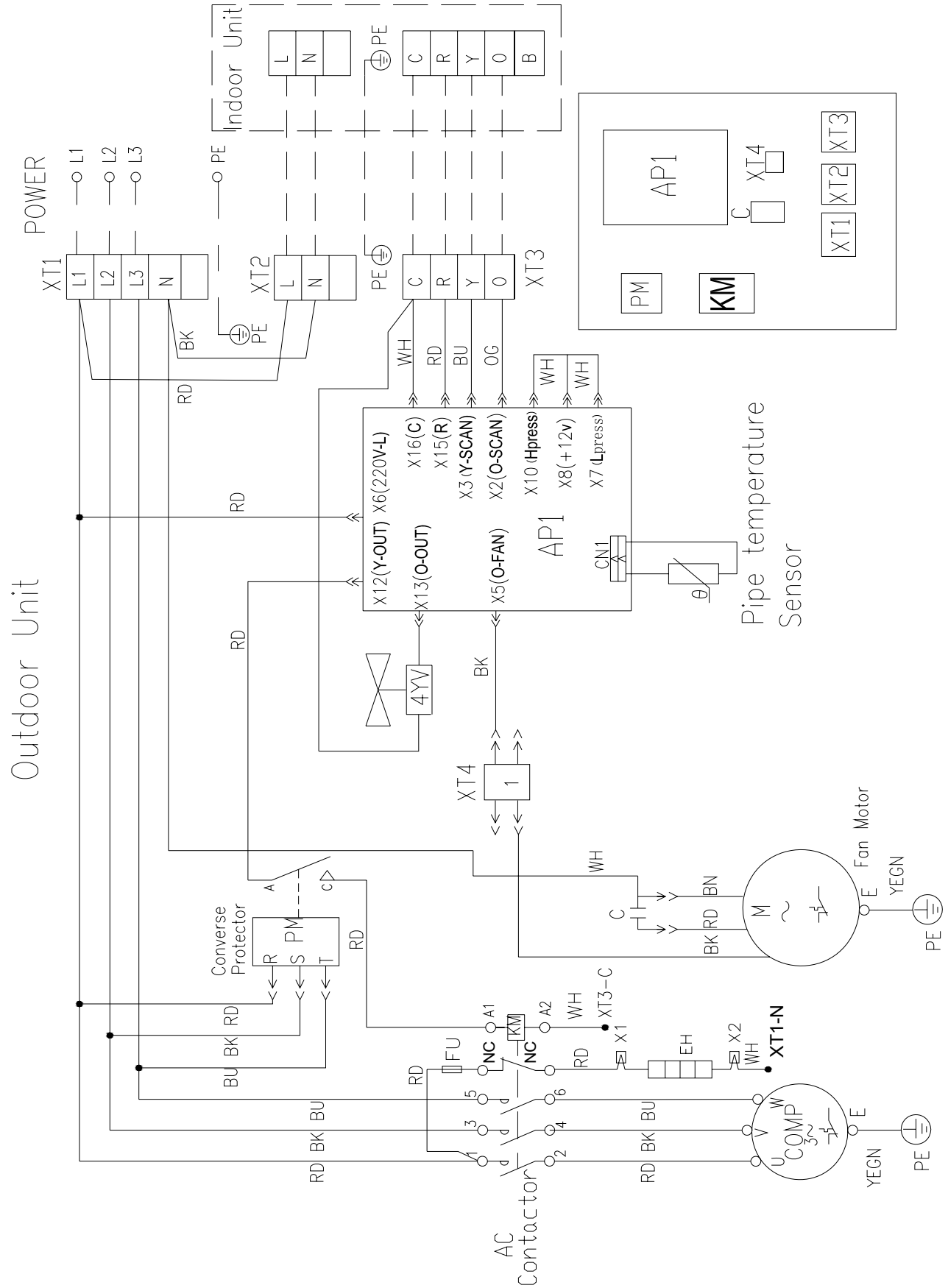
8. RY42PETLK, RY48PETLK



9. R42PEYLK, R48PEYLK

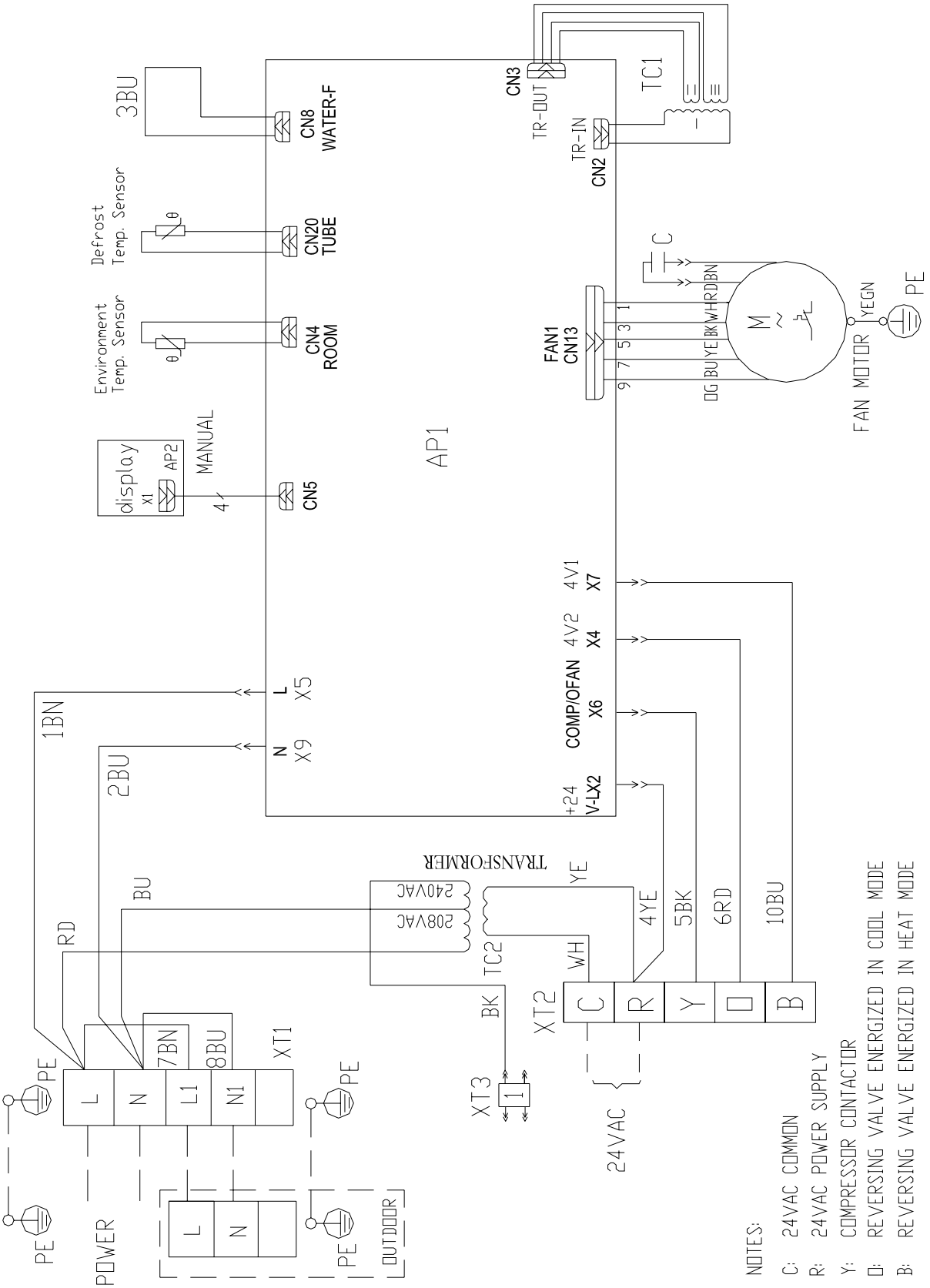


10. RY42PEYLK, RY48PEYLK

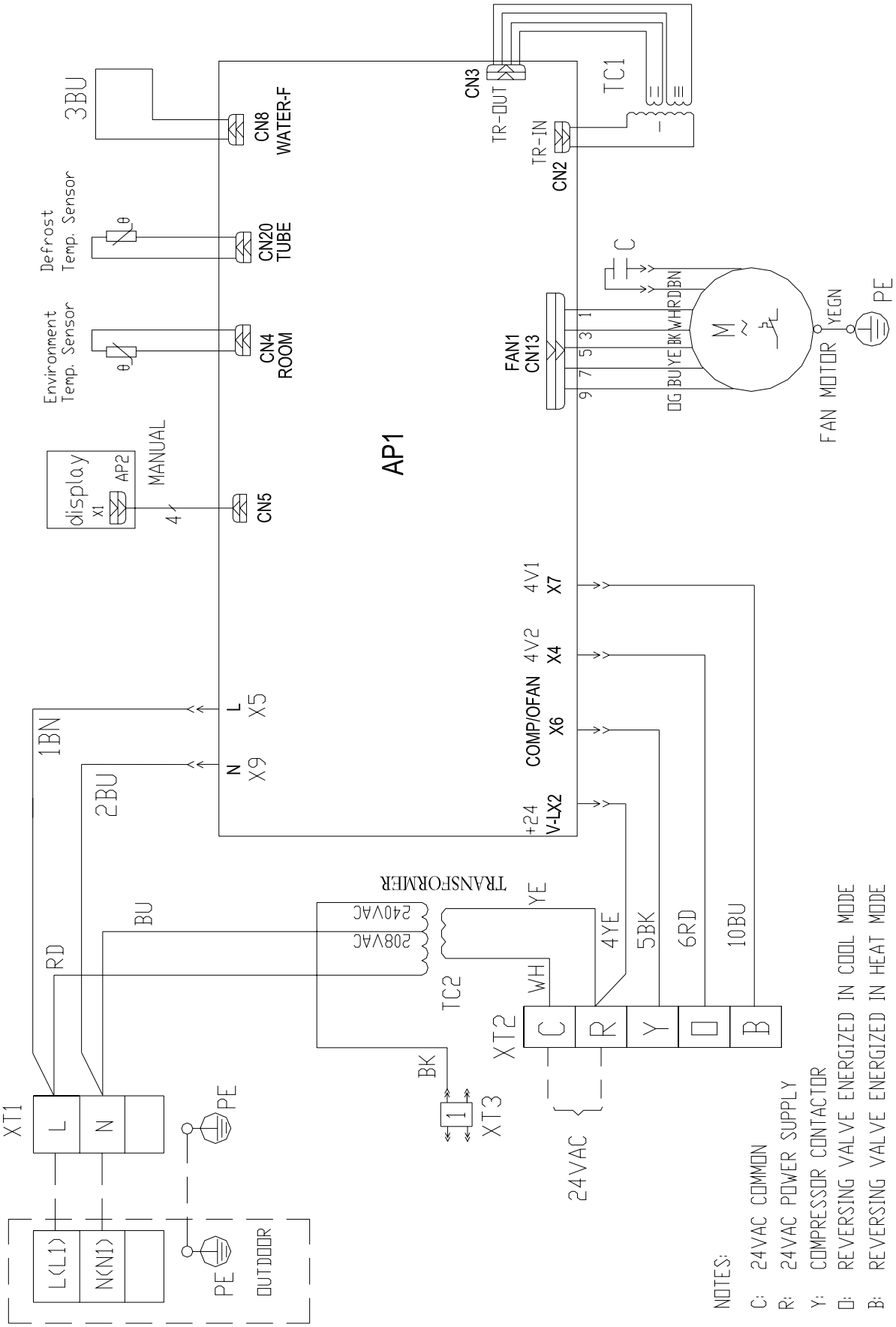


3.2 Wiring Diagram-Indoor units

Model:**FDM24PEVLK; FDM30PEVLK;**



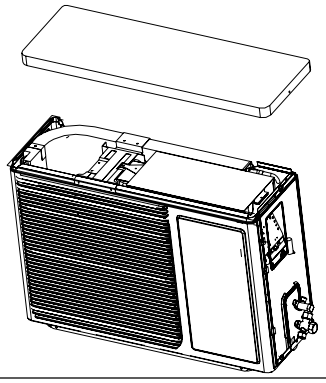
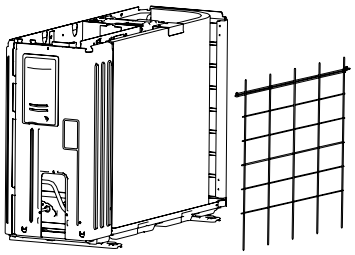
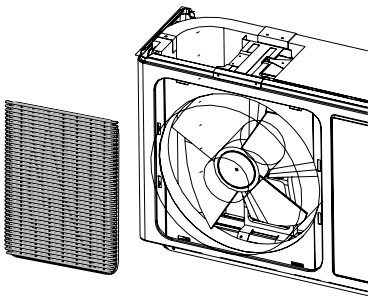
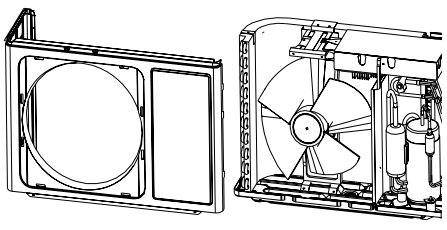
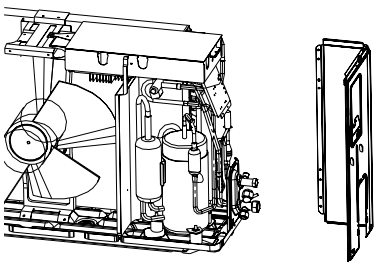
Model:**FDM36PEVLK; FDM42PEVLK; FDM48PEVLK;**

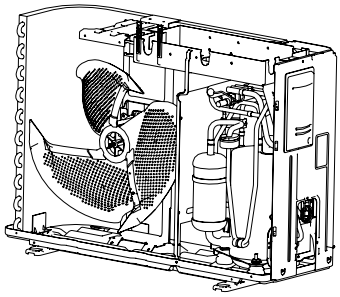
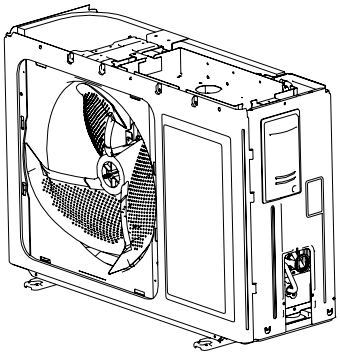
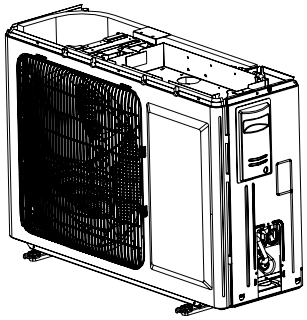
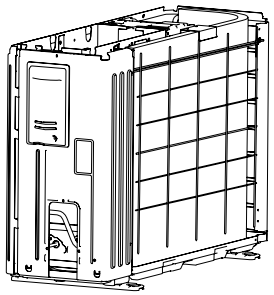
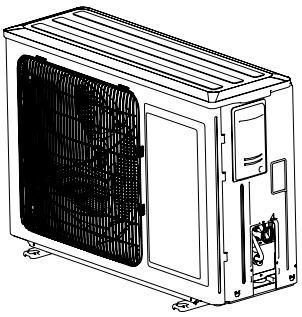


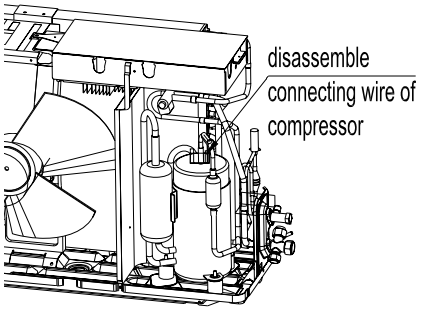
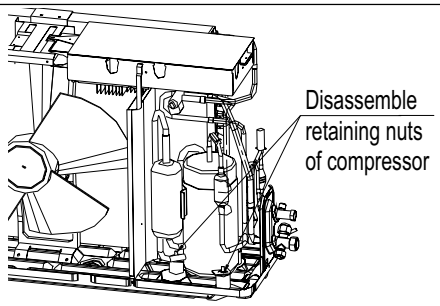
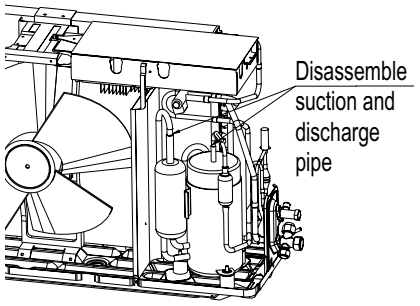
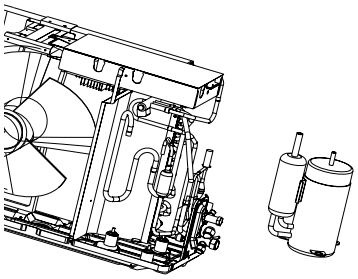
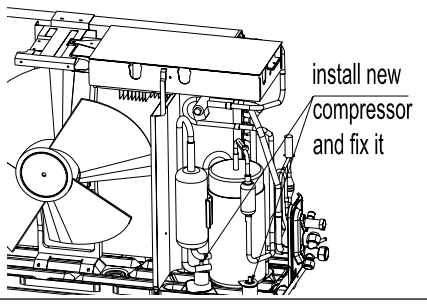
4. DISASSEMBLY AND ASSEMBLY PROCEDURE OF MAIN PARTS

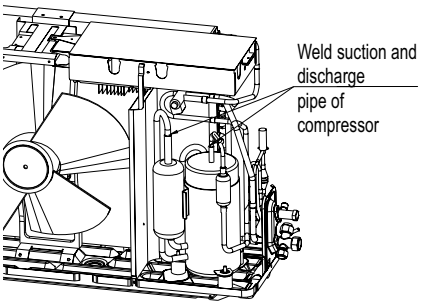
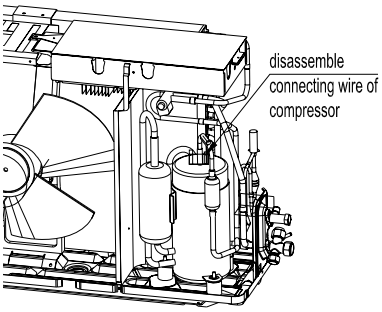
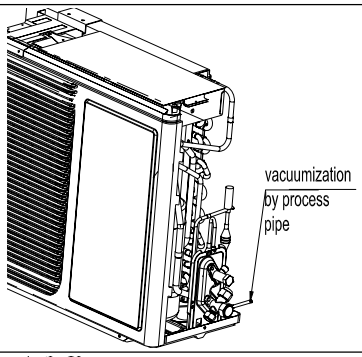
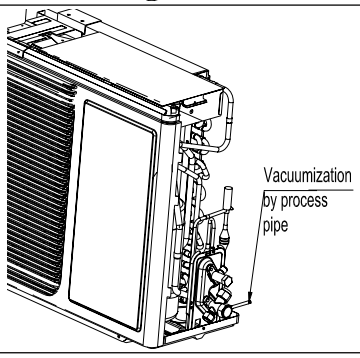
4.1 Outdoor Unit

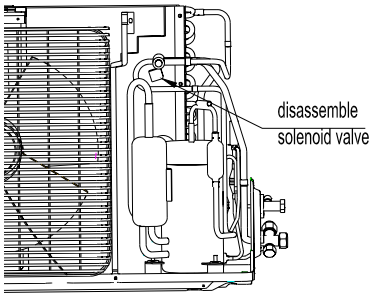
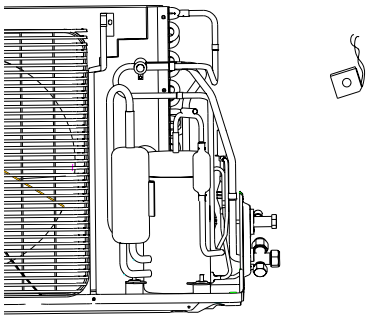
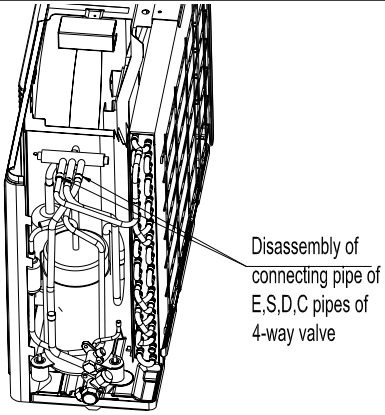
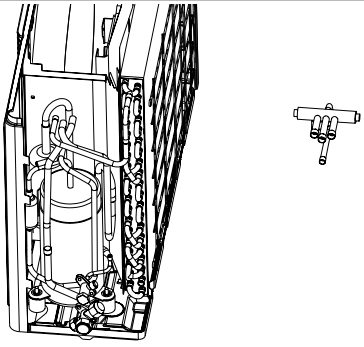
Disassembly and Assembly of Main Parts of Outdoor Unit

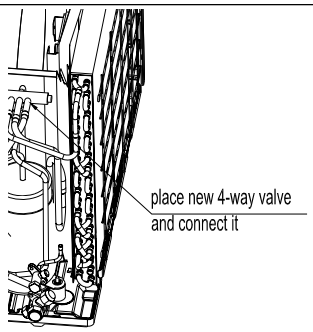
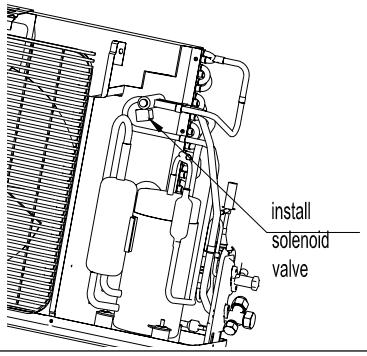
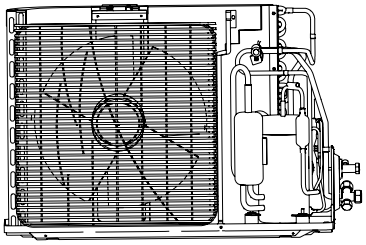
Disassembly and Assembly of external casing		
Remark :Make sure that the power supply is cut off before disassemble of the external casing.		
Step	Illustration	Handling Instruction
1.Disassembly of the top cover		●Unscrew retaining srcews on top cover ●Remove it from the unit.
2. Disassembly of rear grill		● Loose retaining screw on the rear grill with screwdriver. ●Remove rear grill from the unit.
3. Disassembly of front grill		●Disassemble the screws of the front grill with screwdriver ● Disassemble and remove the front grill from the panel (external casing).
4. Disassembly of panel (external casing)		●Disassemble the retaining screws on the panel (external casing); ●Remove the panel (external casing) from the unit.
5. Disassembly of right (back) panel		●Disassemble the screws on the right (back) panel with screwdriver. ●Remove the right (back) panel from the unit.

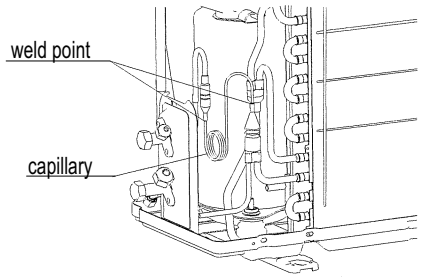
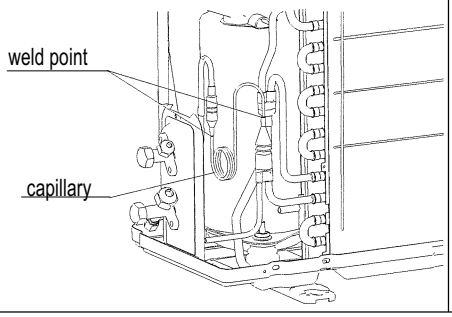
6. Installation of new right (back) panel		●Put new right (back) panel into right position. ●Screw down the surrounding retaining screws with screwdriver.
7. Installation of new panel (external casing)		●Put new panel (external casing) into right position on the unit; ●Screw down the surrounding retaining screws with screwdriver.
8. Installation of front grill		●Put new front grill into correct position on the unit ●Screw down the surrounding retaining screws with screwdriver.
9. Installation of new rear grill		●Put new rear grill into the right position on the unit ●Screw down the surrounding retaining screws with screwdriver.
10. Installation of new top cover		●Put the new top cover into the correct position on the unit ●Screw down the surrounding retaining screws with screwdriver

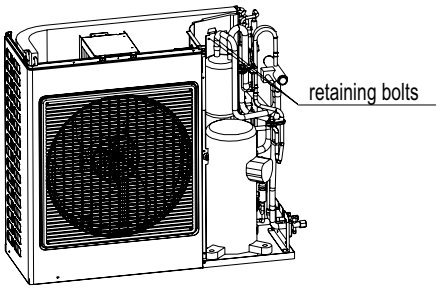
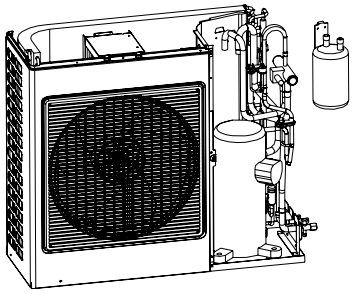
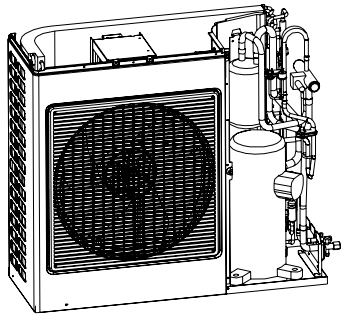
Disassembly and Assembly of Compressor		
Remark : Make sure there isn't any refrigerant in pipe system and the power supply is cut off before removal of the compressor..		
Step	Illustration	Handling Instruction
1. Disconnect the power cord		●Unscrew the retaining screw of power cord with screwdriver. ●Unplug the power cord. Note:Earmark the colour of wire corresponding to the terminal when Removing the wire , and the mixture can be avoided when recovering the wire connection.
2. Disassembly of retaining nuts on compressor		●Disassemble the retaining nuts on the compressor with wrench
3. Dismantle the discharge pipe and the suction pipe of compressor		●Heat the suction and discharge pipe with gas welding before removing compressor. ●Conduct nitrogen-fill protection when welding and the pressure of nitrogen is 0.5±0.1Mpa (relative pressure) ●Heating with caution in case the surroundings get burning due to high temperature.
4. Remove compressor		●Remove compressor from chassis.
5. Fix the new compressor on base plate		●Position accurately the new compressor. ●Screw down fixing nuts for compressor with wrench. ●Do not up-side-down compressor during assembly.

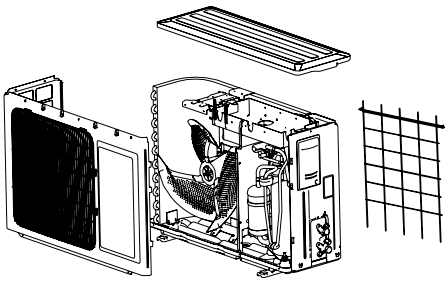
6. Connection of suction and discharge pipe with pipeline system		●Heat the suction and discharge pipe with gas welding before removing compressor. ●Provide nitrogen protection during gas welding and the nitrogen pressure should be 0.5±0.1kgf/cm^2 (relative pressure) ●Please pay attention to heating in case that surrounding materials should be burnt by high temperature.
7. Connection power supply wires of compressor		●Assemble the power supply wires onto right position according to the order of disassembly. ●Screw down the retaining screw for the power supply wires with screwdriver.
8. Vacuumization by fluorin-feeding nozzle		●Vacuumize the system by fluorin-feeding nozzle
9. Recharge refrigerants by fluorin-feeding nozzle		●recharge refrigerants to the system by fluorin-feeding nozzle ●Volume of refilling should be in accordance with the requirement on the unit nameplate.

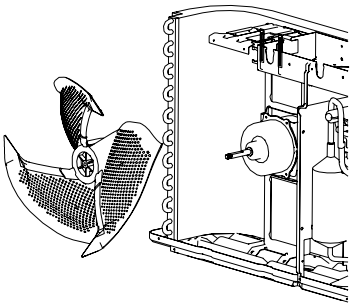
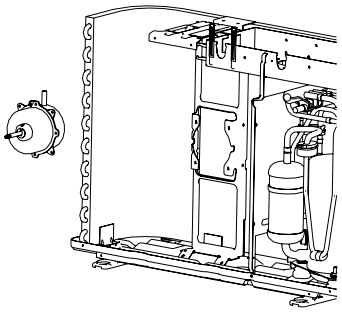
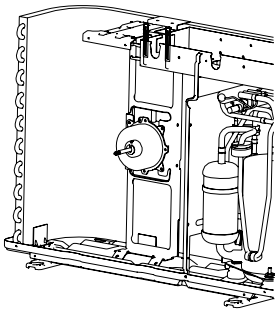
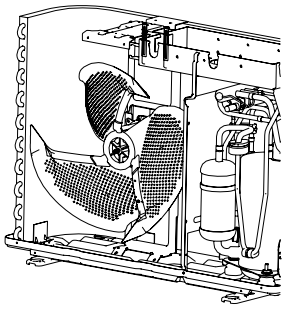
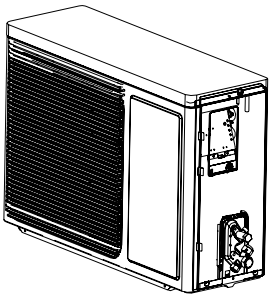
Disassembly and Assembly of 4-way valve		
Remark : Make sure that there isn't any refrigerant in pipe system and the power supply is cut off before removal of 4-way valve.		
Step	Illustration	Handling Instruction
1. Disassembly of solenoid valve		●Cut off power supply and reclaim refrigerants properly. ●Disassemble solenoid valve with wrench
2. Removal of solenoid valve		●Remove the solenoid valve from 4-way valve.
3. Disassembly of 4-way valve		●Heat connection pipes for 4 pipes of 4-way valve with gas welding before removal of 4-way valve. ●Record the direction of the 4-way valve and installation position of each pipe before welding away 4-way valve.
4. Removal of 4-way valve		●Remove the old 4-way valve from the pipe line.

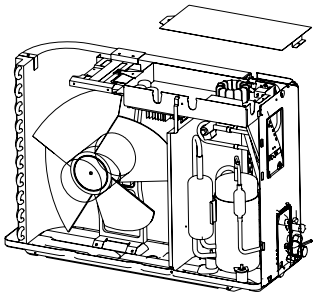
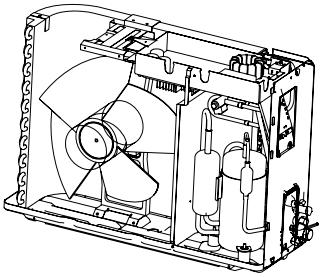
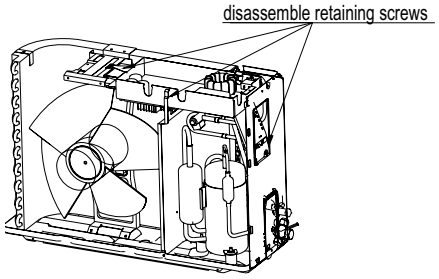
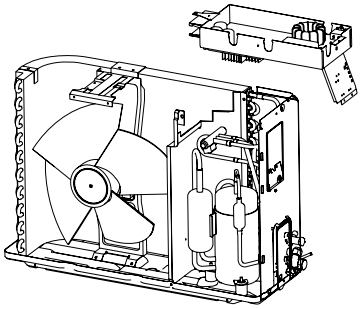
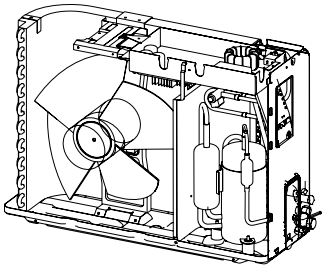
5. Installation of New 4-way valve		●Position accurately the new 4-way valve. ●Connect new 4-way valve with pipe line. ●Wrap the valve with wet cloth when welding 4-way valve in case sliding block inside the valve would be burnt and water would flow into the pipe line. ●Nitrogen should be used for the welding and the nitrogen pressure shall be 0.5±0.1Mpa (relative pressure).
6. Assembly of solenoid valve		●Assemble solenoid valve onto the new 4-way valve in order of disassembly.
7. Examination of System and cooling medium filling		●Pump vacuum and fill cooling medium if the system leak test passes.

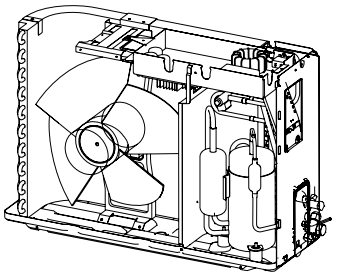
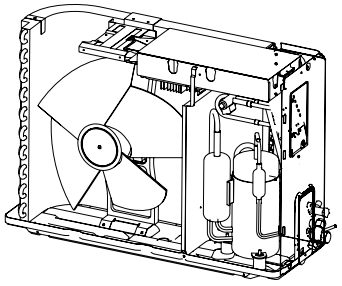
Disassembly and Assembly of capillary		
Remark : Make sure that there isn't any refrigerant in pipe system and the power supply is cut off before removal of the capillary		
Step	Illustration	Handling Instruction
1. Disassembly of Capillary		●Weld two welding points connecting capillary with other pipe lines. ●Remove capillary.
2. Assembly of New capillary		●Install new capillary. ●Weld the points connected with other pipe lines. ●Re-conduct the system leak test. Pump vacuum and fill the refrigerants.

Disassembly and Assembly of Vapor Liquid Separator		
Remark : Make sure that there isn't any refrigerant in pipe system and the power supply is cut off before removal of the vapor liquid separator.		
Step	Illustration	Handling Instruction
1. Disassembly of retaining bolts for liquid reservoir		●Disassemble the retaining screws on the pothooks of the reservoir with screwdriver.
2. Disassembly of vapor liquid separator		●Separate two pipes connecting the vapor liquid separator with the pipe line through gas welding. ●Remove vapor liquid separator.
3. Installation of new vapor liquid separator		●Position accurately new vapor liquid separator. ●Connect new vapor liquid separator with pipe line using gas welding ●screw down the retaining bolts on pothook.

Disassembly and Assembly of Axial Flow Fan and motor		
Remark : Make sure that power supply of the unit is cut down before removal of axial flow fan and motor.		
Step	Illustration	Handling Instruction
1. Disassembly of outer parts		●Disassemble outer parts of unit top cover, panel (external casing), screen, etc. according to the description above in order to disassemble axial flow fan and motor conveniently.

2. Disassembly of axial flow fan		●Hold the fans without movement. ●Disassemble retaining nuts for the fans with wrench. ●Take down and remove fans from motor.
3. Disassembly of fan motor		●Open the cover plate of electric box ●Loose the connecting plug for motor wires and pull out the wires through the hole ●Disassemble retaining screws for motor support and remove the motor
4. Installation of new motor		●Position accurately the new motor on the motor support. ●Screw down the retaining screw for motor. ●Connect the motor wire through the hole with the corresponding position inside the electrical parts box and fasten the connecting plug. ●Cover the cover plate of electric box and screw it down by bolts.
5. Assembly of new axial flow fan		●Position reliably the new fan on the motor axis ●Hold the fans without movement. ●Screw down retaining screws for fan with wrench.
6. Assembly of outer parts		●Re-assemble the outer parts of unit top cover, panel (external casing) and rear grill, etc. according to the description mentioned above.

Disassembly and Assembly of electrical parts box		
Remark : Make sure that power supply of the unit is cut down before removal of electrical parts box or electrical parts box modules.		
Step	Illustration	Handling Instruction
1. Disassembly of cover of electrical box.		●Cut off power supply ●Disassemble retaining screws between cover and electric box ●Remove the cover.
2. Pull away the power supply wires for components like motor, etc.		●Disassemble electrical components, like mainboard inside the electrical parts box connected with outer components (power-loaded wires for components like compressor, motor). Attention: Record right position for wire connection during disassembly of connecting wires.
3. Disassembly of sub-assy of electrical box.		●Disassemble retaining screws between electrical parts box and middle clapbord, motor support as well as right panel with screwdriver.
4. Removal of sub-assy of electrical box		●Hold and remove them upward to disconnect them with middle partition ●Remove sub-assy of electric box.
5. Install new sub-assy of electric box		●Position accurately the new sub-assy of electrical box. ●Re-fasten the sub-assy of electrical box and screw down with screwdriver

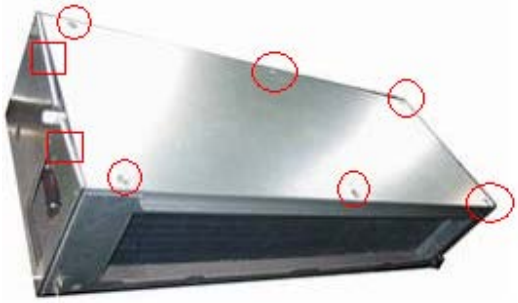
6. Connection of power supply wires of each component		●Re-connect the connection wires of components with right position according to the order of disassembly.
7. Install cover of electric box		●Position accurately the new cover of electrical box. ●Re-fasten and screw down retaining screws with screwdriver

4.2 Indoor Unit

4.2.1 Duct Type

Disassembly of filter screen for return air		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly. Do not put filter screen near the high temperature heat source		
Step	Illustration	Handling Instruction
Disassembly of filter screen for return air		●Compress the filter screen for return air down on the guide slot sponge, and remove according to the direction shown by the arrow. There are 2 filter screens for return air

Disassembly of electrical parts box cover panel and electrical parts box		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly, especially the electrical components. Do not dampen or hit them		
Step	Illustration	Handling Instruction
1. Disassembly of electric box cover		●Disassemble the screw according to the position shown in the circle and the box and remove the electric box in the direction of the arrow.
2. Disassembly of electric parts box		●Disassemble the fastening screw and remove the electrical parts box. (As is shown in the graph, there are 2 fastening screws in the circle and the screws in the direction of arrow shall be disassembled too.)

Disassembly of water-containing plate		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly.		
Step	Illustration	Handling Instruction
1. Disassembly of cover plate		●Disassemble the fastening screws on the cover plate and remove the cover plate. (As is shown in the graph, six circles represent fastening screws under the cover plate and the box represents two fastening screws on water-containing plate symmetrically arranged both on left and right.)
2. Disassembly of water-containing plate		●Disassemble the fastening screws on the water-containing plate, pull upward and remove the water-containing plate. Disassembled water-containing plate is shown in the graph.

Disassembly of fan and motor		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly.		
Step	Illustration	Handling Instruction
1. Disassembly of fan		●Disassemble the fixing screws on the fan components. (As is shown in Graph 10, six circles represent screws.)
2. Disassembly of motor		●Disassemble the fastening screws on the fan and motor. Remove the fan. (As is shown in Graph 11, the red box represents were the screws are.)

Disassembly of evaporator		
Remark: Make sure that the power supply is cut off and protect the copper tube and aluminum fin. If the time for disassembly shall be long, put the copper tube under pressurized condition.		
Step	Illustration	Handling Instruction
1. Disassembly of fixing screws on the side panels of evaporator		●Disassemble the fastening screw connecting left and right side panels on the evaporator and the upper cover plate. (As is shown in the arrow's direction in Graph 12.)
2. Disassemble fastening screws connecting evaporator valve seal-plate and joint flange		●Disassemble the fastening screws on the valve seal-plate and remove the valve seal-plate. Disassemble the fastening screws on the evaporator's joint flange. (As is shown in the graph, the red box represents the fastening screws on seal-plates while the red circles represent the fastening screws on joing flange.
3. Removal of evaporator		●Remove the evaporator. Removed evaporator is shown in the graph.

Disassembly of external casing cabinet		
Remark: Make sure the power supply is cut off before disassembling and protect all the parts during disassembly.		
Step	Illustration	Handling Instruction
1. Disassembly of fastening screws between cover plates		●Disassemble the fastening screws between right and left panels and upper cover plates. Disassemble right and left panels. (As is shown in the graph, red circles represent screws.)
2. Disassembly of external casing cabinet		●Disassembled external casing cabinet is shown in the graph.

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- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorised parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.

JMI-0107 JQA-1452

About ISO 9001
ISO 9001 is a plant certification system defined by the International Organization for Standardization (ISO) relating to quality assurance. ISO 9001 certification covers quality assurance aspects related to the "design, development, manufacture, installation, and supplementary service" of products manufactured at the plant.

EC99J2044

About ISO 14001
ISO 14001 is the standard defined by the International Organization for Standardization (ISO) relating to environmental management systems. Our group has been acknowledged by an internationally accredited compliance organisation as having an appropriate programme of environmental protection procedures and activities to meet the requirements of ISO 14001.

Dealer

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