Flex+ Series R410A

Systems－Outdoor Unit

Owner's Manual Impecca Air Conditioners

ISMO-6021

Thank you for choosing Impecca air conditioners, please read this owner's manual carefully before operation and keep it for future reference.

Impecca reserves the right to interpret this manual which will be subject to any change due to product improvement without further notice.

Preface

Flex + Series adopt the advanced manufacturing technology and takes the environmental-friendly R410A as refrigerant, which is a green product in the 21st century. Please carefully read the manual before installation and operation.

1) Flex + Series systems conform to design standard ARI 210240-2008.
2) To ensure safety when operating this system, please strictly follow the instructions in this manual.
3) Make sure that the manual is kept by the operators or serviceman.
4) The refrigerant pipes and accessories must be designed exclusively for R410A.
5) The total capacity of the indoor units which runs at the same time cannot exceed the capacity of the outdoor units; otherwise, the cooling (heating) effect of each indoor unit would be lower than the nominal capacity.
6) In case of malfunction, please examine the following items and contact our appointed service centers as soon as possible.
   - ◆ Nameplate (model, cooling capacity, product code, ex-factory date).
   - ◆ Malfunction status (detail description of conditions before and after malfunction occurs).
7) It is a normal phenomenon that the fan of indoor unit will still run for 20~70 seconds after the indoor unit receives the “stop” signal so as to make full use of the waste heat.
8) When the work mode of the indoors is conflict with the modes of outdoor units, it will be indicated on the display of the wired controller in five seconds and then the indoor unit will stop. In this case, please harmonize their work modes: the cooling mode is compatible with the dry mode.
9) If the supply power fails when the unit is running, then the indoor unit will send the “start” signal to the outdoor unit three minutes later after the power recovery.
10) The power cable and transmission line must not be twisted together, but instead of separated with an interval of at least 2cm; otherwise it may be result in communication problem.
11) This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
12) All graphics and information in this manual are only for reference. Manufacturer reserves the right for changes in terms of sales or production at any time and without prior notice.

This product must not be disposed together with the domestic waste. This product has to be disposed at an appointed place for recycling of electrical and electronic appliances.

Thank you for purchasing Impecca air conditioners. Before using, please read this manual carefully and keep it properly for further reference.

Contents

1 Safety Precautions

⚠	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
⚠**WARNING**	This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.
⚠**CAUTION**	This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property.
NOTICE	NOTICE is used to address practices not related to personal injury.

⚠**WARNING**	
1)	Instructions for installation and use of this product are provided by the manufacturer.
2)	Installation must be performed in accordance with the requirements of NEC and CEC by appointed personnel only.
3)	The installation should be left to the appointed service center and according to the instructions given in the manual. Improper installation may cause fall down, water leakage, electric shock or fire etc.
4)	For operating the air conditioner pleasantly, please install it as outlined in this installation manual.
5)	The power supply must adopt the special circuit with air switch protection and assure it has enough capacity
6)	Connect the indoor unit, BU module and outdoor unit with the room air conditioner piping and cord available from our standard parts. This installation manual describes the correct connections using the installation set available from our standard parts.
7)	Before installation, check the parameter of power cord and make sure that it complies with the power supply requirement on the nameplate. Make sure the power supply is safe.
8)	This air conditioner must be properly grounded through the receptacle to avoid electric shock. The ground wire shouldn't be connected with gas pipe, water pipe, lightning arrester or telephone line.
9)	If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces toxic gas.
10)	Do not power on until all installation work is complete.
11)	During installation, make sure that the refrigerant pipe is attached firmly before you start up the compressor. Do not operate the compressor under the condition of refrigerant piping not attached properly with valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.
12)	When installing and relocating the air conditioner, do not mix gases except the specified refrigerant (R410A) to enter the refrigerant cycle. If air or other gas enters the refrigerant cycle, the pressure inside the cycle will rise to an abnormally high value and cause breakage, injury, etc.
13)	This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
14)	Never cut off or damage power cables and transmission wires. If the power cable or transmission line were damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
15)	After the power cord is connected, please install the cover of electric box to avoid danger.

16)	When installing or relocating the unit, please contact the appointed service center for the repair or relocation. Meanwhile the specialized parts and accessories must be used. Otherwise, it may result in water leakage, electric shock or fire hazard.
17)	Diameter of power cord must be large enough. Damaged power cord or connecting wire must be replaced by specialized electric cable.
18)	The power wire and transmission line must be more than one meter away from televisions or radios which can emit electromagnetic waves to prevent image interference or noise. Otherwise, the unit maybe not work
19)	Nitrogen must be charged according to technical requirements.
20)	For units with wired controllers, do not connect power supply until the wired controller is well installed. Otherwise, the wired controller cannot be used.
21)	When installation is finished, please check and make sure the drain pipe, pipeline and electric wire are all well connected so as to avoid water leakage, refrigerant leakage, electric shock and fire hazard.
22)	Never extend fingers or objects into air outlet or return air grille.
23)	Please keep the room well-ventilated and it could avoid oxygen deficit.
24)	Never start or stop the air conditioner by inserting or removing the power cord.
25)	Before startup of the compressor, please turn on the main power switch of the unit for more than 8 hours and it makes sure that the heater belt of the compressor has been energized for at least eight hours! Once the compressor is started, it must be guaranteed that it works continuously for at least 30 minutes, otherwise it would be damaged!
26)	Never operate the unit with wet hands. Otherwise, it may cause electric shock.
27)	Before cleaning and repairing, it is necessary to stop working and turn off the power supply. Otherwise, it may cause electric shock or damage.
28)	Do not spray water on the air conditioner or it will cause malfunction or electric shock.
29)	The air conditioner is not support to install in the circumstances as the following that where there is full of mist of oil, damp or corrosive gas, flammable gases, the acidic or alkaline vapor and the ocean.
30)	Volatile liquid like thinner or gasoline will damage the appearance of air conditioner. (Please use soft dry cloth and wet cloth with mild detergent to clean unit’s appearance.)
31)	Never standing or place objects on outdoor unit. Person or objects falling from the unit may cause injury.
32)	If abnormal condition occurs (e.g. unpleasant smell), please turn off the unit at once and disconnect power supply. Then contact appointed service center. If the air conditioner continues to operate despite of abnormal condition, it may be damaged and cause electric shock or fire hazard.
33)	The drain pipe should be installed as instructed in the manual to guarantee the proper drainage; meanwhile it should be insulated to prevent condensing; otherwise the improper installation would cause water leakage and then wet the household wares in the room.
34)	Don't attempt to repair the air conditioner by yourself. The improper repair will lead to electric shock or fire, please contact the appointed service center and ask professional technicians to repair it.
35)	Please take notice of the installation foundation of the unit after long use, if it is damaged, it may lead to the fall of the unit and cause the injury.
36)	Be sure to shut off the power supply when you do not use the air conditioner for a long time. Otherwise, the dusts may accumulate in it, which may cause overheating or fire hazards.
37)	Impecca is not responsible for any personal injury or property loss caused by improper installation, improper debugging, unnecessary repair or not following the instructions of this manual.

2 Attention for Installation

2.1 Precautions for R410A

- It is very strict that the refrigerant pipes should be clean and dry.
- The R410A is a mixed refrigerant, when adding the refrigerant to the unit, it must be in its liquid state. If the refrigerant is in gas state, the composition has been changed and the capability of the unit will decrease.
- When the refrigerant leaks out, please do not touch the leakage. Otherwise, it will result in frostbite.
- It does not support to let a lot of refrigerant go into the ambient atmosphere, because it will strengthen the green house effect. Otherwise, it will produce toxic gas when the refrigerant contacts with the fire.

2.2 Precaution for Installation

- The unit is so heavy that it is more than 110kg, so more than two persons will be needed to remove the unit. The package cannot bear it, so do not grasping it.
- When remove the units, please place the hands on the corner and take care not to hurt the hands by the fins.
- It is very likely to dispose the waste to the garbage bin after the installation.

2.3 Precaution for Operation Test

In order to protect the compressor from vibrating during transportation and 2 metal gaskets are used. They must be removed prior to commissioning and tied back the nut firmly; otherwise the unit might not be operated well.

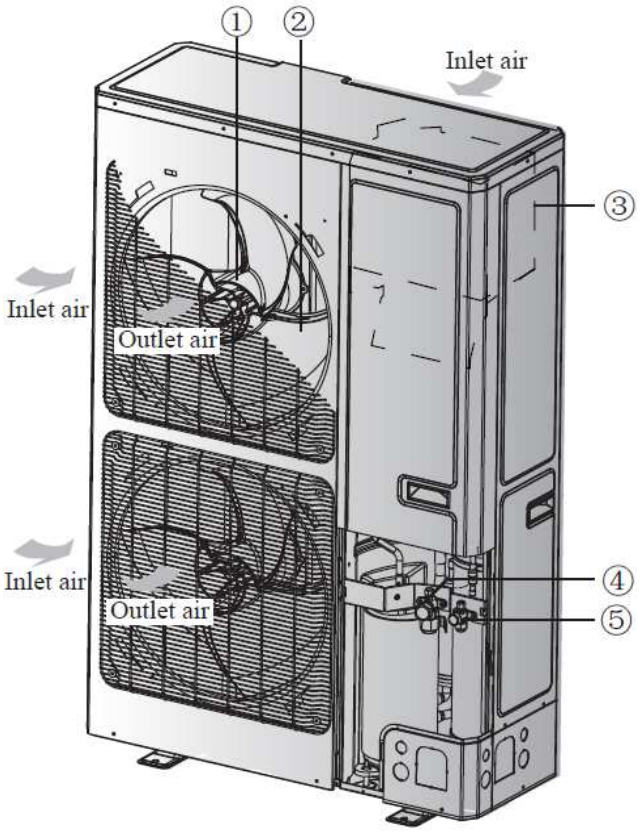
2.4 Accessories

For the accessories of the air conditioner, please look out the Packing List in the package.

3 Product Introduction

The Impecca Flex + Series adopts inverter compressor technology. According to change displacement of compressor, stepless capacity regulation within range of 10%～100% can be realized. Various product lineups are provided with capacity range from 14kW to 16kW, which can be widely used in residential house, business office, hotel and where especially applicable to the place with variable load change. Impecca air conditioner is absolutely your best choice.

3.1 Names of Main Parts



NO.	①	②	③	④	⑤
Name	Fan motor	Axial flow fan blade	Electrical box	Gas side stop valve	Liquid side stop valve

Fig. 1

3.2 Combinations for Outdoor and Indoor Units

Table 1

Sorts		GWHD(56S)ND3CO
No. of indoor units to be connected	Min	2
	Max	9
No. of BU modules to be connected	Min	1
	Max	3
Total capacity of indoor units to be connected(Btu/h)	Min	28000
	Max	81000

3.3 Parts and Components of Unit

For the Flex + Series, one outdoor unit is able to drive up to three BU modules and nine indoor units which include cassette type, duct type, wall mounted type, floor ceiling type and console type. The outdoor unit will run as long as any one indoor unit receives the running command, and all indoor units stop once the outdoor unit is turned off.

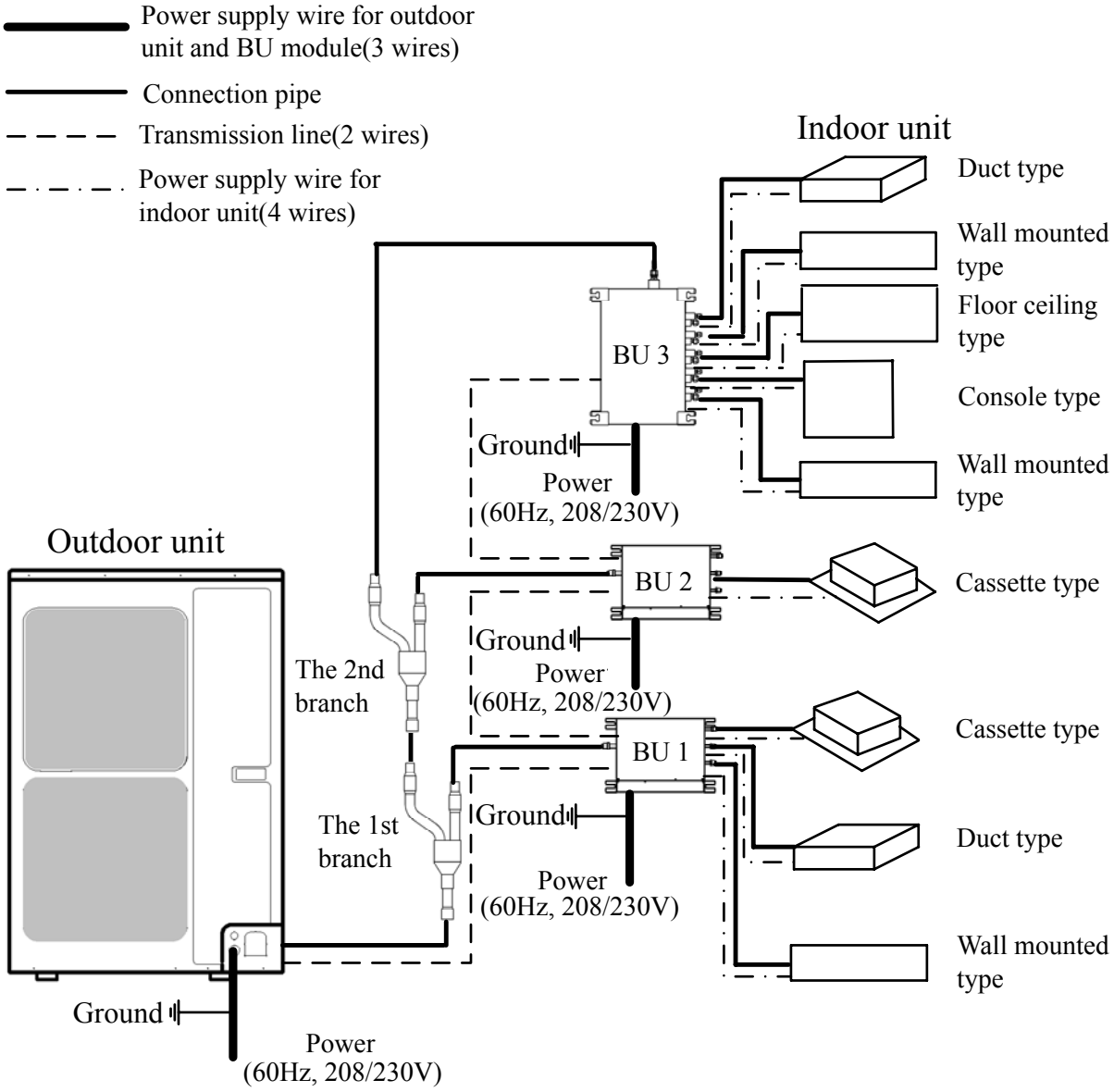


Fig. 2

3.4 Working Temperature Range

Table 2

Sorts	Outside temperature: DB(℃/℉)
Maximum cooling	48℃(118℉)
Minimum cooling	-18℃(0℉)
Maximum heating	24℃(75℉)
Minimum heating	-20℃(-4℉)

4 Selection of Installation Location and Precautions

⚠WARNING	
1)	The installation of the air conditioner must be in accordance with the national and local laws and regulations.
2)	The quality of the installation will affect the capability of air conditioner directly. The installation should be left to the appointed service center. Please contact your dealer after purchasing this machine. Professional installation workers will provide installation and test services according to the installation manual.
3)	The air conditioner should not install in this place where the small animals exist, because they may cause malfunctions, smoke or fire. Please keep the area around the unit clean.

4.1 Selection of Installation Location

⚠WARNING	
1)	The outdoor unit must be installed on a firm and solid support which can withstand the weight, meanwhile the mounting surface must be horizontal plane. Otherwise, the unit would fall down and cause injury or death.
2)	The location must be out of children's reach, please keep the unit away from children.
3)	During installation, if the outdoor unit has to be exposed to strong wind, it must be fixed securely.
4)	There is enough space for the installation and maintenance. Meanwhile, there is not any obstacle near the air inlet and outlet of the indoor and outdoor units.
5)	The place should be well-ventilated, so the machine can absorb and discharge sufficient air.
6)	Avoid place the outdoor unit under the windows or between the constructions, hence to prevent normal operating noise from entering the room.
7)	When strong winds of 5 m/sec or more exist in the place of the installation, the outlet of the unit cannot face the wind. If the wind blows against the outdoor unit's air outlet, it will cause deterioration of the operational capacity and maybe break the fan.
8)	Do not install in the place where there is heat source, flammable or explosive gas, a place subject to severe dust, salty fog and polluted air.
9)	Installation at the following places might lead to the air conditioner malfunction, such as where is full of machine oil, saline-sodic soil near the sea, sulphide fog, high frequency facilities or special conditions. If it is unavoidable, please contact the appointed service center.

NOTICE	
1)	It is better that do not install the unit where it will be exposed to direct sunlight. (If necessary, please install a blind that does not interfere with the air flow.)
2)	The unit should be free from getting dirty or getting wet by rain as much as possible
3)	Outdoor unit shall be installed close to the indoor unit, hence to minimize the length and bends of cooling pipe.
4)	Do not place animals and plants in the path of the air inlet and outlet of the units.
5)	Make sure that the unit will not cause any operating vibration or noise after installation.

4.2 Outline Dimension of Outdoor Unit

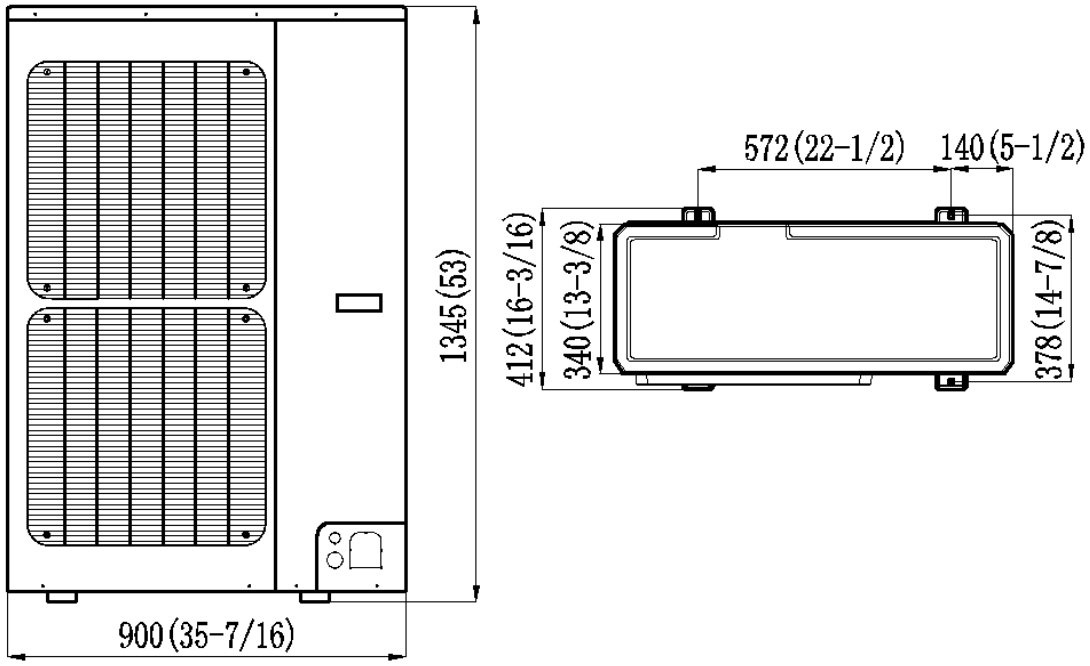


Fig. 3 (unit: mm/inch)

4.3 Installation and Servicing Space

1) In case of installing only one unit

In case obstacles exist around the unit, the required installation space is in the Fig. 4.

2) In case of installing multiple units(2 units or more)

In case multiple rows of series installation, the required installation space is in the Fig. 5.

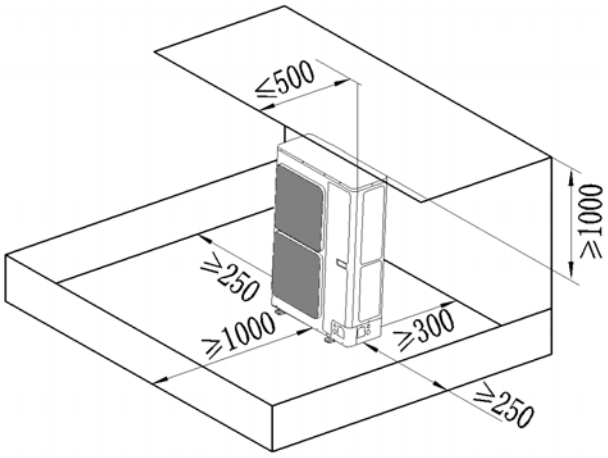


Fig. 4 (unit: mm)

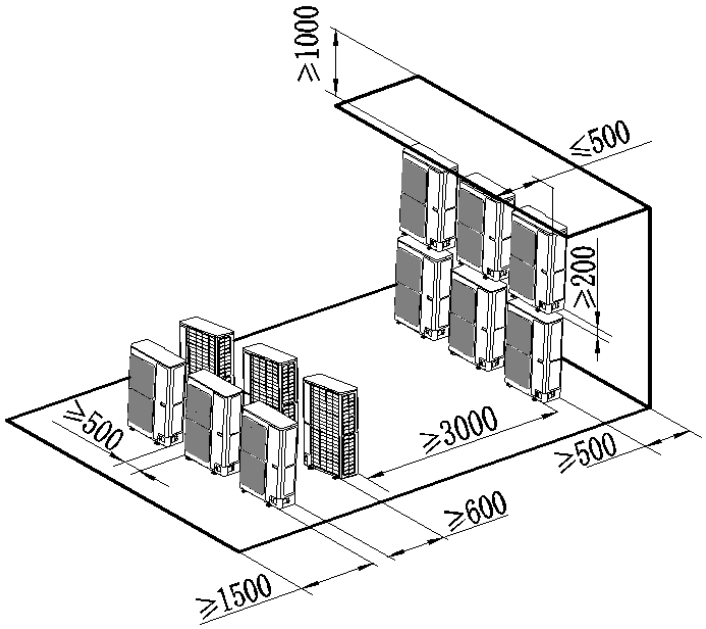
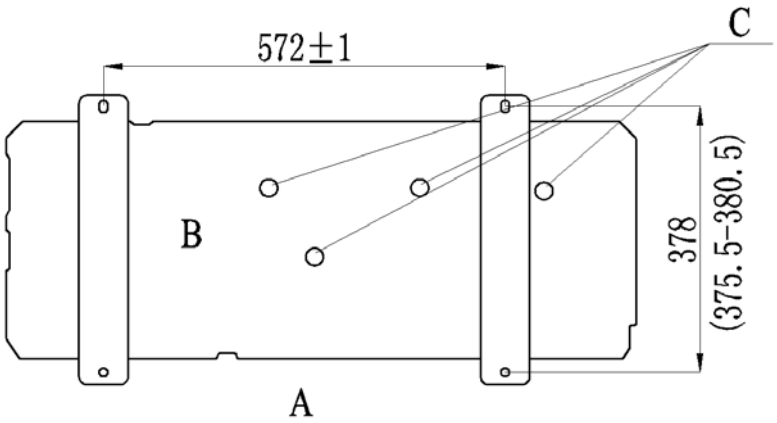


Fig. 5 (unit: mm)

5 Installation Instruction

1) Check the installation location and ensure it is strength and level, so that the unit will not cause any operating vibration or noise after installation.
2) In accordance with the foundation drawing in the following figure, please drill 4 holes in the installation location.



A: The outlet side B: Bottom view (mm) C: Drain hole

Fig. 6

3) Fix the unit securely with the foundation bolts. You can get the M10 or M12 foundation bolts, nuts and washers from the market.

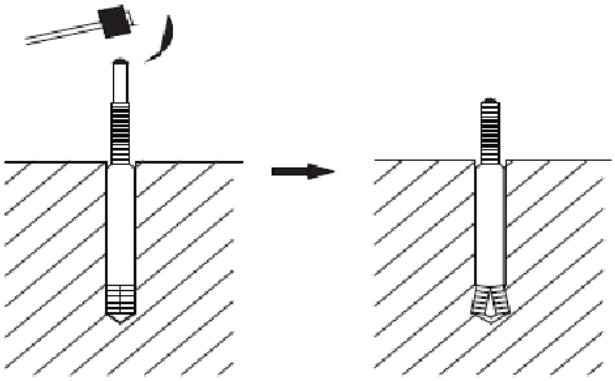


Fig. 7

4) Rubber or spring shock absorbers should be used during the installation of the outdoor unit to meet the noise and vibration requirements.
5) Screw the foundation bolts into the ground and it is better that its length is less than 20mm (4/5inch) from the foundation face.

6 Installation of Refrigerant Pipes

6.1 Allowable Length and Drop Height of Connecting Pipe

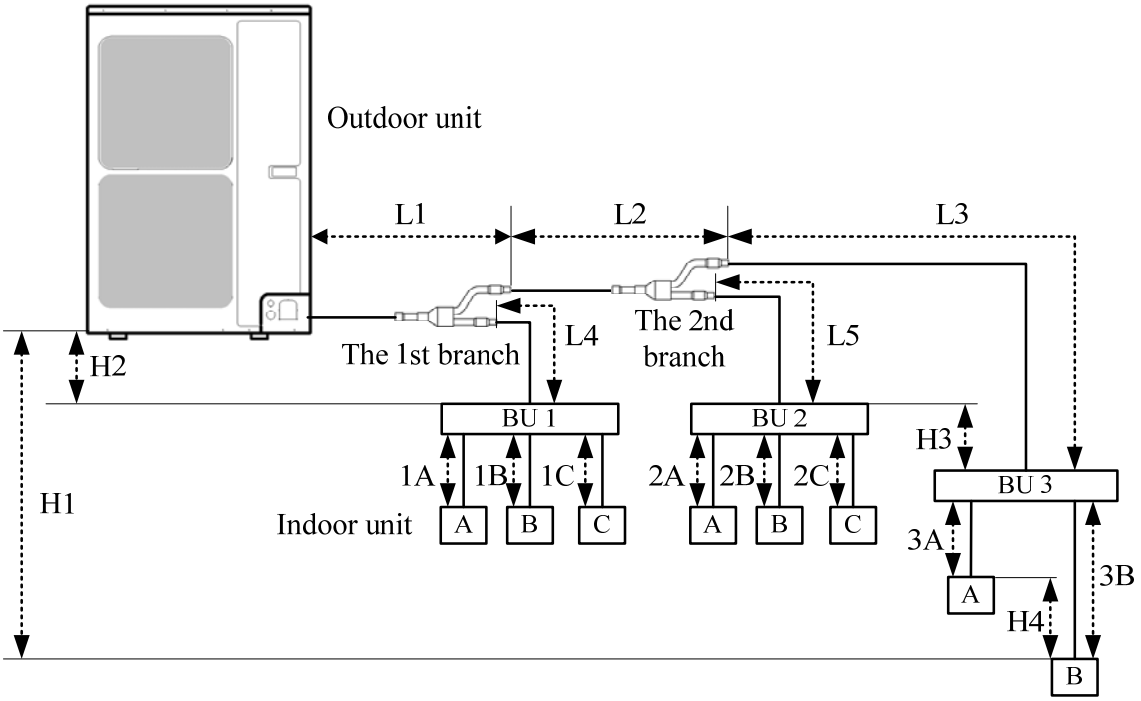


Fig. 8 (8 indoor units)

Table 3

The sorts		The pipes	Length(m/feet)
Maximum allowable length	Total length between outdoor unit and BU modules	L1+L2+L3+L4+L5	≤55(181)
	Total length between indoor units and BU	1A+1B+1C+2A+2B+2C+ 3A+3B	≤90(295)
	Between indoor unit and BU module	1A;1B;1C;2A;2B;2C;3A;3B	≤15(49)
	Between indoor unit and the 1st branch	L4+1B;L2+L5+2A; L2+L3+3B	≤40(131)
Maximum allowable length	Between outdoor and indoor units	H1	≤30(99)
	Between outdoor units and BU modules	H2	≤30(99)
	Between BU and BU modules	H3	≤15(49)
	Between indoor and indoor units	H4	≤15(49)
Minimum allowable length	Between outdoor and the 1st branch	L1	≥5(16)
	Between BU and the branch	L3;L4;L5	as possible as short

NOTICE! **BU module should be placed within the level between the outdoor unit and indoor unit.**

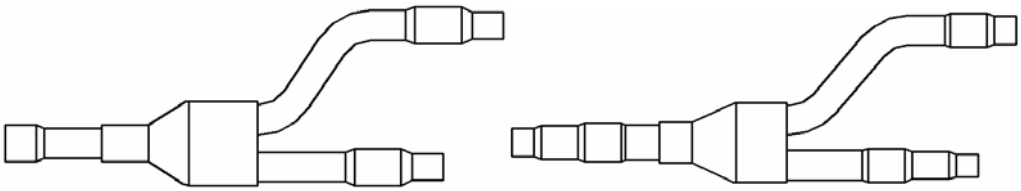
6.2 Dimension of Connecting Pipe

Table 4

Sorts		Gas Pipe （mm/inch）	Liquid Pipe （mm/inch）
Outdoor unit	ISMO-6021	Φ15.9(5/8)	Φ9.52(3/8)
Between outdoor unit and the 1st branch	The pipe L1	Φ19.05(3/4)	Φ9.52(3/8)
Between the 1st and the 2nd branch	The pipe L2	Φ15.9(5/8)	Φ9.52(3/8)

6.3 Connection of Branch Pipe

1) If two or three BU modules used, Y-type branch pipe of FQ01A/A will be chosen.



FQ01A/A (Liquid pipe) FQ01A/A (Gas pipe)

Fig. 9

2) Y-type branch pipe is equipped with auxiliary tubes to adjust the diameter of different pipes. If the dimension of the pipe selected is different from the dimension of branch pipe joint, Cut the copper tube in the middle with tube cutter and clear up burrs. Please do that as following figure.

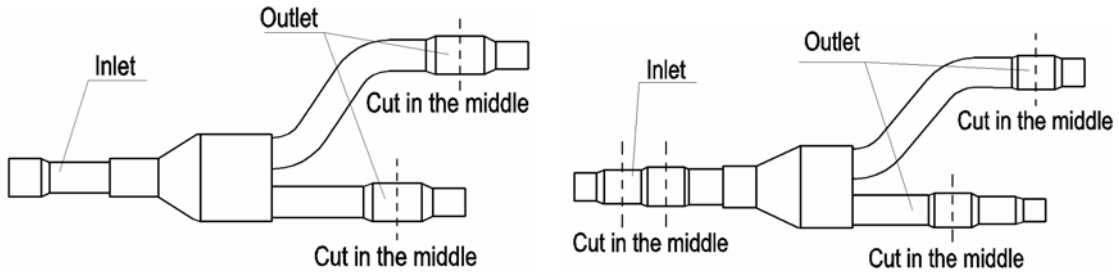


Fig. 10

3) Y-type branch pipe must be installed in vertical or horizontal direction. In the inlet of the branch pipe, keep at least 500mm straight pipe.

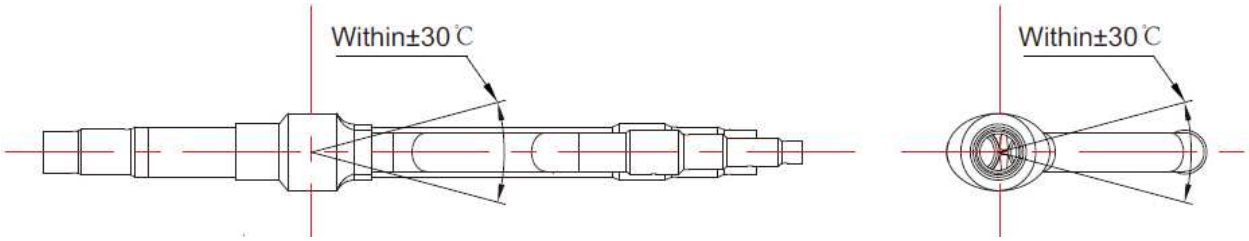


Fig. 11

6.4 Connection of Refrigerant Pipes

⚠CAUTION	
1)	Conform to the following principles during pipe connection: Outdoor unit shall be installed close to the indoor unit, hence to minimize the length and bends of connection pipes; the height gap of outdoor unit and indoor units should be as small as possible; the radius of curvature should be as large as possible.
2)	The brazing operation must be strictly in accordance with the process requirements. Rosin joint or pin hole is not allowed.
3)	During the installation, do not damage the pipeline. The pipeline's radius of bending must be over than 200mm(8inch). The pipes cannot repeatedly be bent or straightened. Otherwise it will get harden and crack. Do not bend or straight the pipes for more than 3 times at the same position.

1) The process of flaring

① Using the tube cutter to cut the connecting pipe in the appropriate place and remove the burrs.

② Install the nut before the flaring operation.

③ Check the flared portion, whether there is fractured or not.

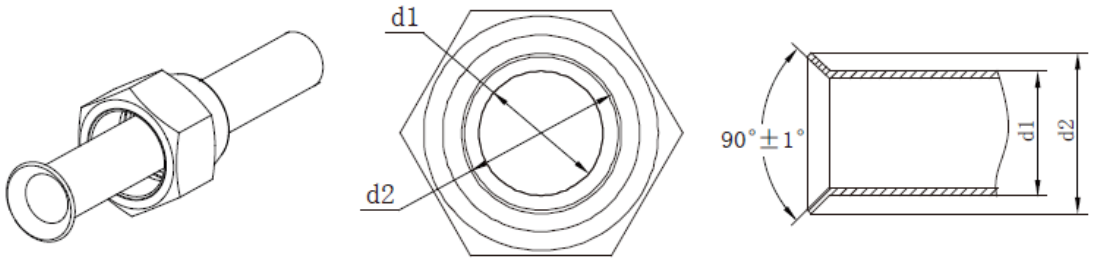


Fig. 12

2) Precaution for elbow operation

① The elbow operation could be done by hands. Be careful and do not damage the pipe.

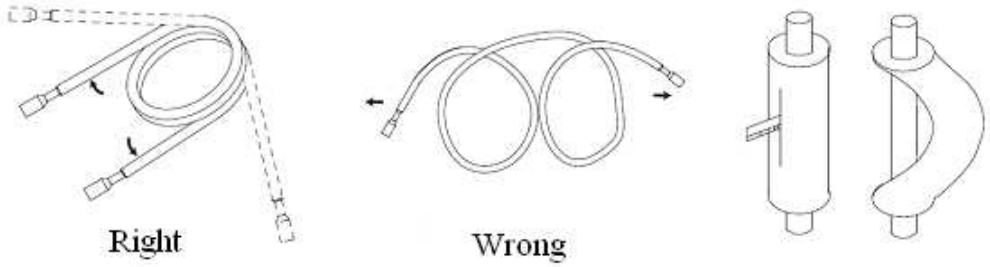


Fig. 13

② If the thermal insulation of the refrigerant pipe is not removed, please do not bend the pipe. Otherwise, it maybe leads the pipe to crack. It is better to make an incision with a knife in the thermal insulation and removes it. After elbow operation is finished, recover the thermal insulation with binding band.

3) The process of install refrigerant pipes

① Remove the screw caps from the pipes.

② Align the flared end of copper tube with the center of pipe joint. Tighten the nuts by hands. (If the flared end of copper tube and the center of pipe joint are not in coaxial, it is hard to tighten the nuts by hands, please do not tighten it with spanners, because the screw thread may be broken by force).

③ Tighten the flaring nuts with torque wrench until you hear a "click". (The spanner and torque

wrench should be perpendicular to the refrigerant pipeline).

④ The following table for the torque required to tighten the nuts.

Table 5

Pipe diameter (mm/inch)	Thickness of copper tube(mm/inch)	Tightening torque (N·m/1bf·ft)
Φ6.35(1/4)	≥0.8(1/32)	15～30(11~22)
Φ9.52(3/8)	≥0.8(1/32)	35～40(26~29)
Φ12.7(1/2)	≥0.8(1/32)	45～50(33~37)
Φ15.9(5/8)	≥1.0(1/25)	60～65(44~48)
Φ19.05(3/4)	≥1.0(1/25)	70～75(52~55)

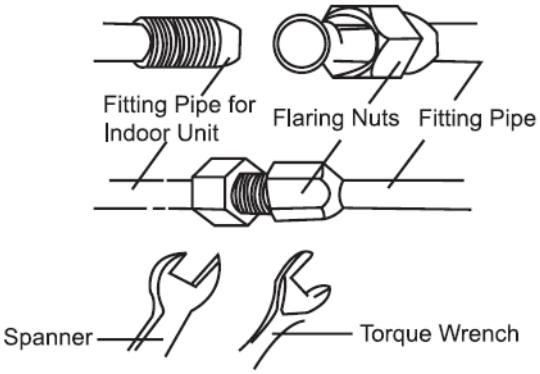
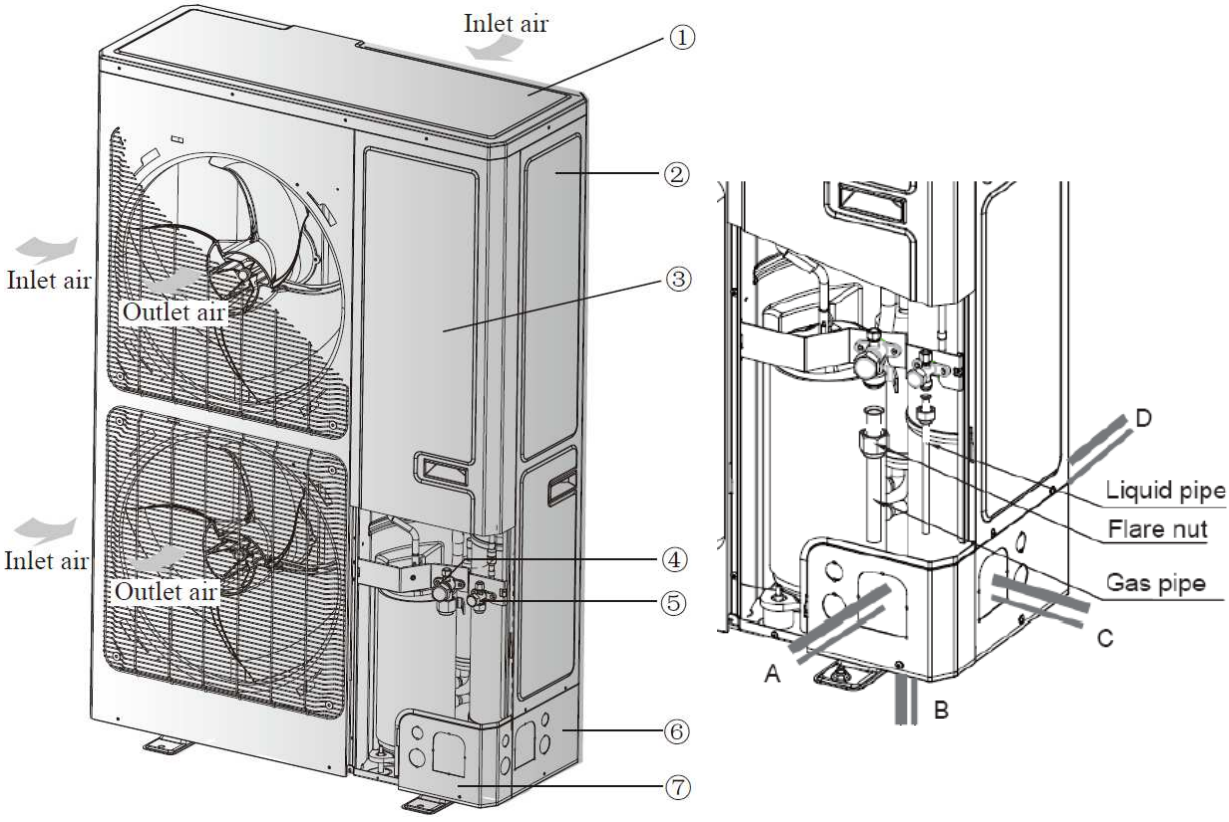


Fig. 14

⚠CAUTION	
1)	During the connection of the indoor unit and BU module to the refrigerant pipe, never pull any joints of the indoor unit and the BU module by force; otherwise the capillary pipe or other pipe may crack, which then would result in leakage.
2)	The refrigerant pipe should be supported by brackets, that is, don't let the unit withstand the weight of it.
3)	For the Flex + Series, each pipe should be labeled to tell which system it belongs to avoid mistaken inaccurate piping.

6.5 Connection of Refrigerant Pipe



NO.	①	②	③	④
Name	Coping plate	Rear side plate	Front side plate	Gas side stop valve
NO.	⑤	⑥	⑦	
Name	Liquid side stop valve	Right connection board	Front connection board	
NO.	A	B	C	D
Name	Front connection	Bottom connection	Side connection	Rear connection

Fig. 15

1) Unscrew the coping plate, front side plate, right connection board and front connection board.
2) The refrigerant pipes can be installed in four directions, please choose the proper direction.
3) Knock the holes in the plate of the chosen direction with the drill and hammer.
4) Connect the pipes to the stop valves.
5) Bend the pipes to go through the knockout holes.
6) Cover the through-holes with sealing materials to prevent the water, dust or small animals going into the outdoor unit.

6.6 Leak Test

1) Please make sure that the stop valves of the outdoor unit are closed during the operation.
2) The leak test should be made by pressurizing nitrogen gas. ⚠**WARNING! Do not mix oxygen, C_2H_2 or other dangerous gas into the refrigerant circuit.**
3) Turn on the Hi-knob and Lo-knob. ***NOTICE!*** **The leak test should be done simultaneously at both the gas and liquid stop valves.**
4) Open the pressure reducing valve, pressurize the connection pipes to 1.0 MPa (10 bar) slowly, wait fifteen minutes, and make sure that the pressure will not drop.
5) Rise the pressure to 4.0 MPa (40 bar) slowly, wait 24 hours and make sure the pressure will not drop
6) If the pressure does not decrease, the pipes have passed the test. Otherwise, look for where the gas leaks from.

1: Outdoor unit
2: Liquid side stop valve
3: Gas side stop valve
4: Pressure-vacuum gauge
5: Hi-knob
6: Lo-knob
7: Pressure reducing valve
8: Nitrogen

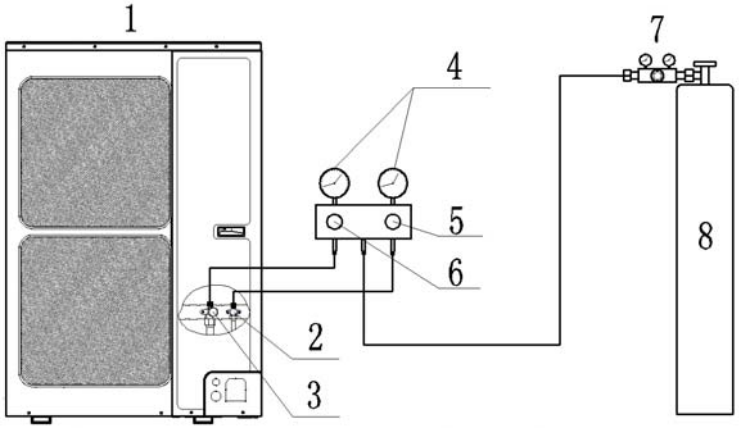


Fig. 16

6.7 Vacuum Operation

1) Make sure the stop valves of the outdoor unit are closed fully during the operation.
2) As shown in the following figure, expel the gas from the refrigerant pipes by the vacuum pump.
3) Open the pump and turn on the knobs to evacuate the gas in the liquid and gas pipes. ***NOTICE!*** **The vacuuming should be done simultaneously at both the gas and liquid stop valves.**
4) When the pressure of the system is less than −0.1Mpa (−1bar), keep the system for more than

one hour under the condition.

1: Outdoor unit
2: Liquid side stop valve
3: Gas side stop valve
4: Pressure-vacuum gauge
5: Hi-knob
6: Lo-knob
7: Vacuum pump

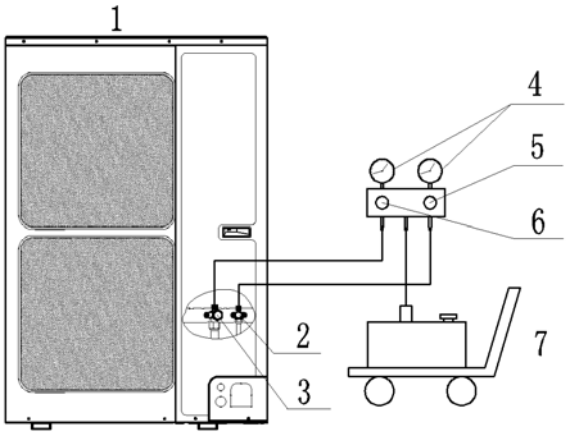


Fig. 17

5) Turn off the knobs firstly and then the pump, and if the pressure of the pressure-vacuum gauge does not rise within 2 hours, the system is under a vacuum. Otherwise, the system has leaked, please look for where the gas leaks in.

6.8 Refrigerant Charging

The refrigerant has been charged into the outdoor unit before shipped from the manufacturer, while additional refrigerant still need be charged into the refrigerant pipe in the field installation.

6.8.1 Calculation of the Additional Refrigerant Charging

1) Get the refrigerant charge of the outdoor unit from the nameplate.

NOTICE
1) The refrigerant charge of the outdoor unit does not include the charged additionally in the indoor unit, BU module and the refrigerant pipe.
2) For the length of the connecting pipe is decided on the field, the amount of additional refrigerant shall be decided depending on the dimension and the length of the liquid pipe used on the field.
3) It does not need to add refrigerant if the total length of liquid pipe is within 30m (98-3/8feet).
4) Record the amount of additional refrigerant for convenience of future maintenance.

2) Calculating the Mass of Additional Refrigerant

Additional Refrigerant Charge (kg/oz) = Σ the Liquid Pipe Length of Φ6.35 × 0.022kg/m (0.020oz/inch)+Σ the Liquid Pipe Length of Φ9.52×0.054kg/m (0.048oz/inch)−1.47kg(51.86oz)

NOTICE**! If the additional refrigerant charge is negative, it does not need to add refrigerant.**

3) Example: GWHD(56S)ND3CO

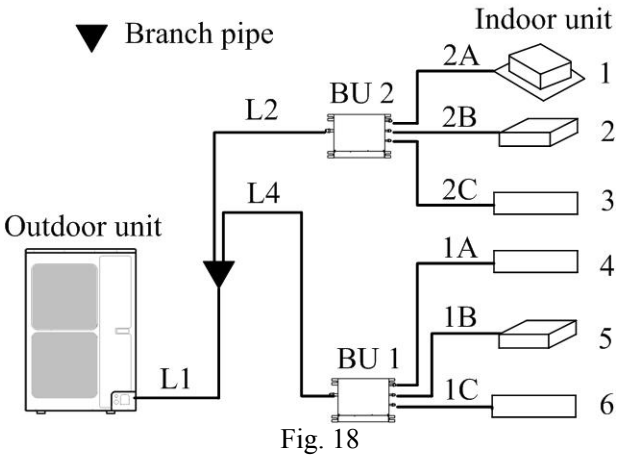


Fig. 18

Table 6

Serial No.	Model	
Indoor unit 1	Cassette type	ISMI-C15
Indoor unit 2	Duct type	N/A
Indoor unit 3	Wall mounted type	ISMI-W092
Indoor unit 4	Wall mounted type	ISMI-W092
Indoor unit 5	Duct type	N/A
Indoor unit 6	Wall mounted type	ISMI-W092

Table 7

Serial	Diameter(mm/inch)	Length(m/feet)
L1	Φ9.52(3/8)	20(65-5/8)
L2	Φ9.52(3/8)	10(32-3/4)
L4	Φ9.52(3/8)	10(32-3/4)
1A	Φ6.35(1/4)	5(16-3/8)
1B	Φ6.35(1/4)	5(16-3/8)
1C	Φ6.35(1/4)	5(16-3/8)
2A	Φ6.35(1/4)	5(16-3/8)
2B	Φ6.35(1/4)	5(16-3/8)
2C	Φ6.35(1/4)	5(16-3/8)

The total length of the liquid pipes: 20+10+10+5+5+5+5+5+5=70m (229-5/8feet).

Thus, the total length is over than 30m (98-3/8feet), so the air conditioner needs to add refrigerant.

◆ Additional refrigerant charge

Σ the Liquid Pipe Length of Φ6.35×0.022kg/m +Σ the Liquid Pipe Length of Φ9.52×0.054kg/m −1.47kg

=(5+5+5+5+5+5)(m)×0.022kg/m+(20+10+10)(m)×0.054kg/m−1.47kg

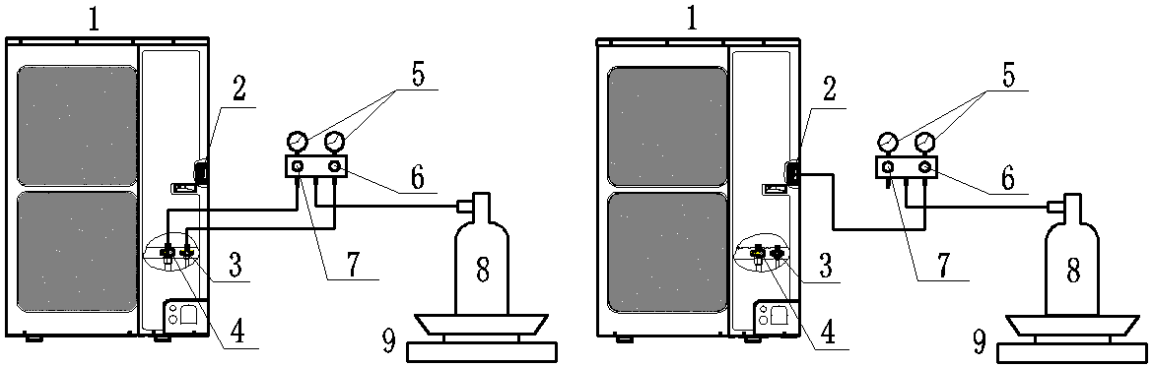
=1.35kg (47.63oz)

4) Additional refrigerant charge record for future maintenance

Table 8

Diameter(mm)	Total length(m/feet)	Additional refrigerant charge(kg/oz)
Φ6.35(1/4)		
Φ9.52(3/8)		
Total		

6.8.2 Procedures for adding refrigerant



NO.	1	2	3	4	5
Name	Outdoor unit	Service port	Liquid side stop valve	Gas side stop valve	Pressure-vacuum gauge
NO.	6	7	8		9
Name	Hi-knob	Lo-knob	R410A tank		Scale

Fig. 19

1) When the liquid and gas stop valves have not been opened, the system is under the vacuum:

① Refer to the left of the figure above; connect the R410A tank to the system.

② Turn on the R410A tank and the Hi-knob; charge the R410A refrigerant into the unit from the liquid side stop valve. The Lo-knob should be closed completely.

③ Turn off the R410A tank and the Hi-knob immediately, when the adding refrigerant is enough.

④ Turn on the liquid and gas side stop valves in an anticlockwise direction slowly and completely.

2) If the pressure of the system is too high to charge refrigerant, you can do as follow.

① Turn on the liquid and gas side stop valves in an anticlockwise direction slowly and completely.

② Turn on the power of the air conditioner, and set cooling mode, running more than 0.5h when outside temperature is higher than 15℃(59℉) DB.

a) Refer to the left of the figure above; connect the R410A tank to the system.

b) Turn on the R410A tank and the Lo-knob; charge the R410A refrigerant into the unit from the gas side stop valve. The Hi-knob should be closed completely.

c) Turn off the R410A tank and the Lo-knob immediately, when adding refrigerant is enough.

③ Turn on the power of the air conditioner, and set heating mode, running more than 0.5h when outside temperature is lower than 15℃(59℉) DB.

a) Refer to the right of the figure above; connect the R410A tank to the system.

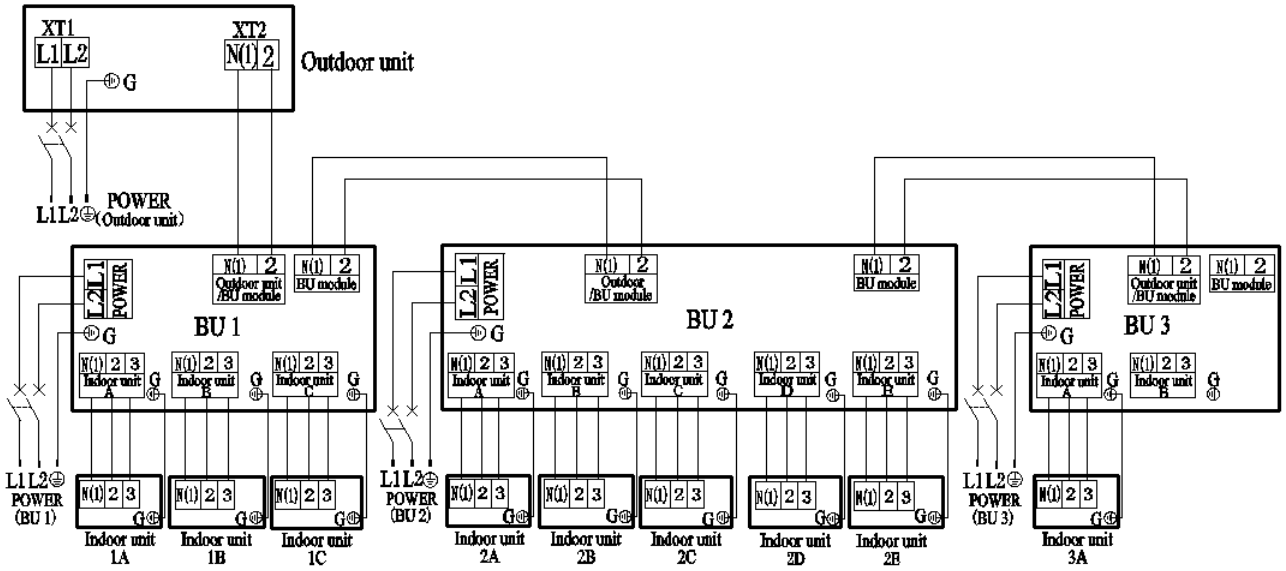
b) Turn on the R410A tank and the Hi-knob; charge the R410A refrigerant into the unit from the service port. The Lo-knob should be closed completely.

c) Turn off the R410A tank and the Hi-knob immediately, when adding refrigerant is enough.

⚠CAUTION
1) Make sure that the liquid and gas side stop valves are opened completely after the installation.
2) Make sure that the length of liquid pipe is exactly.
3) Additional refrigerant charge must be measured exactly.
4) Make sure that the refrigerant which charge into the unit is in liquid state.
5) Please prevent the refrigerant leakage away from your body when remove the charging hose.
6) Please heat the refrigerant tank with hot water or hot air when the outside temperature is too low. However, it must be forbidden to heat with fire directly, otherwise it may lead to explosion.

7 Electrical Wiring Work

7.1 Wiring Connection



NOTICE! **The "L1", "3" terminals are connected to the live wire, the "L2","N(1)" terminals are connected to the neutral wire and the "2" terminal is connected to the transmission line.**

Fig. 20

7.2 Requirements of Power Circuit and Cable

Table 9

Phase and frequency		1Ph,60Hz
Voltage		208/230V
Recommended cable of outdoor unit (Pieces × Sectional area)		3×6.0 mm^2
Recommended cable of BU module (Pieces × Sectional area)		3×0.75 mm^2
Transmission line (Pieces × Sectional area)		2×1.5 mm^2
Recommended cable of indoor unit (Pieces × Sectional area)		4×0.75mm^2
Capacity of the air switch	ISMO-6021	40A
	BU module	10A

NOTICE	
1)	The total length of the transmission line between the outdoor unit and the furthest BU module is not more than 55m (180feet). Otherwise, the system cannot work possibility.
2)	The specifications of the power cable and transmission line listed in the table above are determined based on the maximum power (maximum amps) of the unit.

3)	The specifications of the power cable listed in the table above are applied to the conduit-guarded multi-wire copper cable (like, YJV copper cable, consisting of PE insulated wires and a PVC cable jacket) used at 40℃(104℉) and resistible to 90℃(194℉), and shall be at least those of ordinary polychloroprene sheathed cords. If the working condition changes, they should be modified according to the related national standard.
4)	The specifications of the air switch listed in the table above are applied to the breaker with the working temperature at 40℃(104℉). If the working condition changes, they should be modified according to the related national standard.
5)	The length of the recommended power cable should be less than 15meters (49feet); otherwise, the diameter of the power cable is not enough.
6)	Mentioned power cable and transmission line length is just a reference value. It may be different depending on the condition of installation, humidity or materials, etc.
7)	An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

7.3 Ground Requirements

⚠WARNING	
1)	The air conditioner is classified into the Class I appliances, so its ground ways must be reliable.
2)	The ground wire must be fixed on the screw hole with the sign as the right figure. ⏚
3)	The yellow-green wire of the air conditioner is the ground wire and must be fixed by the tapping screw. And it cannot be used for other purpose or cut off. Otherwise, it will cause the hazard of electric shock.
4)	The reliable ground terminal should be provided and the ground wire cannot be connected to any of the following places: a. Water pipe; b. Coal gas pipe; c. Sewage pipe; d. Lightning rod e. Telephone line f. Other unreliable places considered by a professional.

7.4 Precautions on the Electrical Wiring Work

⚠WARNING	
1)	The electrical installation should be carried out by the professional as instructed by the local laws, regulations and also this manual.
2)	The ground connection should be reliable and the ground wire should be connected to the dedicated device of the building by the professional.
3)	Before starting work, the power must not be supplied to the unit.
4)	The air switch coupled with the leakage current protection switch must be equipped in the circuits, which is of enough capacity and of both magnetic and thermal tripping functions in case of the short circuit and overload.
5)	The electrical work should use a cable length enough to cover the entire distance with no connection. If it is unavoidable, please make sure the connection should be reliable, the external forces will not act on the wires and the joint is not bared. Otherwise it will cause electrical shock or fire etc.
6)	The power cable with the rated voltage and exclusive circuit for the air conditioner should be used.
7)	Do not pull the power cable by force after it is installed.
8)	The diameter of the power cable should be large enough and once it is damaged, it must be replaced by the dedicated one.
9)	The multi-wire copper cable should be used for the power cable and the transmission line.

7.5 Precaution of Laying Wires

1) Use a wire stripper to strip off a length of the insulation layer at the end of the wires;
2) Loosen the screws on the terminal block of the air conditioner;
3) Press the ends of the cable tightly onto the round terminals corresponding to the size of the screws.
4) Pass the screw through the round terminals and fix it onto the terminal block.

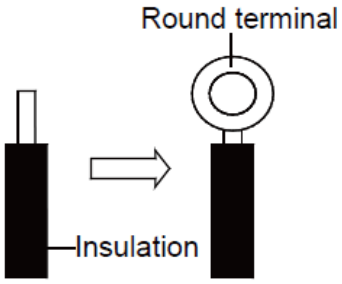


Fig. 21

7.6 Procedures for Electrical Wiring Work

1) Knock the holes in the plate of the chosen direction with the hammer.
2) Place the rubber ring on the knockout hole.
3) Let the power cable and transmission line go through the knockout hole.
4) Connect the power cable of the outdoor unit to the L1, L2 terminals with the sign of the XT1 and as well as the ground screw.
5) Connect the transmission line of the outdoor unit to the N(1), 2 terminals with the sign of the XT2.
6) Fix the power cable and transmission line firmly by cable fixing clip. In order to protect the power cable and transmission line from damage by the pipes or others, an interval of at least 2cm (3/4inch) away is essential.
7) Screw the coping plate, front side plate, right connection board, front connection board back.
8) Cover the through-holes with sealing materials to prevent the water, dust or small animals going into the outdoor unit.

⚠CAUTION	
1)	The transmission line and the power cable must be separated with an interval of at least 2cm (3/4inch); otherwise it may be result in communication problem.
2)	In order to protect the power cable and transmission line from damaging by the knockout hole, the rubber ring must be placed on the hole. Otherwise, it may cause electrical shock or fire etc.
3)	The power wire and transmission line must be more than 1 meter (3-1/4feet) away from televisions or radios which can emit electromagnetic waves to prevent image interference or noise. Otherwise, the unit maybe cannot work.
4)	Confirm the each cable connected to the terminal screw is exactly and securely after finishing the electric work.
5)	Fix each ground wire separately with the ground screw.
6)	If the connecting wire is connected to the terminal incorrectly, it may cause a fire.

8 Design of Drainage Pipeline

8.1 Installation of Drain Hose

1) Choose one drain hole in the bottom of the outdoor unit.
2) Connect the drain hose to the drain hole.
3) The drain hose should be kept at 5~10 degrees of gradient to facilitate discharge of the condensing water. Take care that does not exert too much force on the hose.
4) Thermal insulation materials should be placed at the joints of the drain hose so as to prevent from dew condensation. Fix the drain hose firmly by binding band.

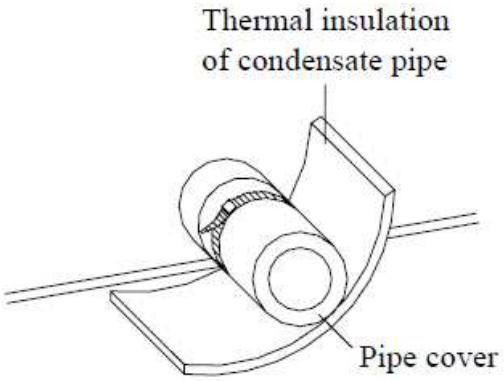


Fig. 22

5) The end of the drain hose should be inserted into the hole of drainage pipeline.

8.2 Design of Drainage Pipeline

1) The drainage pipeline should be kept at a certain gradient (1/50—1/100) so as to avoid bulges of pipes where there might be water bends.
2) The drainage pipeline is form of the hard PVC pipes for common purposes which can be purchased locally. The diameter of the PVC pipes is not less than 17mm (11/16inch) and the pipeline should be fixed as close to the BU module as possible.
3) Insert the drain hose into the drain hole of drainage pipeline. Use binding band to fix it tightly. It is not allowed to use adhesive glue to join the drain hose to the drainage hole.
4) When the drainage pipeline is laid for a couple of units, the position of the shared pipeline should be approximately 100mm lower than the drainage hole of each module. In this case, some special-purpose pipes with thicker walls will be used.

NOTICE! **At intervals of about 1 meter (3-1/4feet), fix the drain pipes to the wall with brackets, not floating in the air.**

9 Installation of Protective Layer

1) The refrigerant pipes should be insulated by the heat insulation material and plastic tape in order to prevent water condensation and leakage.
2) Do not use the foam on the branch pipe as the material for heat insulation, heat insulation material of branches should be the same as that of the pipeline.

NOTICE! **The heat resistance of heat insulation material should be over than 120℃(248℉) and its thickness is more than 9mm(3/8inch).**

3) The joints of the system should be wrapped with the heat insulation material and no gap is allowed on the joint of the system, as shown in the following figure.

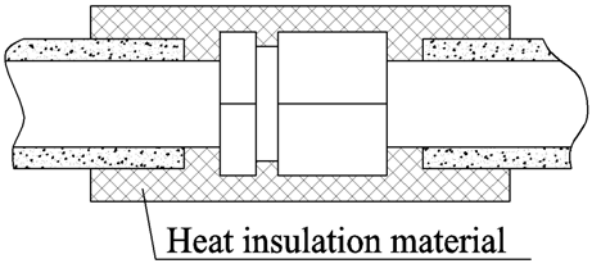


Fig. 23

4) Bundle the refrigerant pipe and transmission line together with tape, and separate them from the drain pipe to prevent the condensate water overflowing.
5) Wrap the pipe from the bottom of the outdoor unit to the top of the pipe where it enters the wall. During the wrapping, the later circle should cover half of the former one.

⚠CAUTION
1) At intervals of about 1 meter (3-1/4feet), fix the refrigerant pipes to the wall with brackets, that is, don't let the unit withstand the weight of it or float it in the air.
2) After the pipe is protected well enough, never bend it to form a small angle(＜90°), otherwise it would crack or break.
3) Do not wrap the refrigerant pipes very tight, otherwise the insulation effect would be weakened. Additionally, make sure the drain hose is separated from the refrigerant pipes.
4) After that, cover the hole on the wall with sealing materials to prevent wind and noise going into the room.

10 Test Operation

10.1 Check after Installation

Table 10

Items to be checked	Possible malfunction
Has it been fixed reliable?	The unit may drop, vibrate or make noise.
Has the gas leakage been checked?	It may cause insufficient cooling(heating) capacity.
Is the thermal insulation of the unit sufficient?	It may cause condensation and dripping.
Is the drainage well?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunction or the components may be burned out
Are the lines and pipelines correctly installed?	It may cause electric malfunction or the components may be burned out
Has the unit been safely grounded?	It may cause electrical leakage.
Are the models of lines in conformity with requirements?	It may cause electric malfunction or the components may be burned out
Are there any obstacles near the air inlet and outlet of the indoor and outdoor units?	It may cause insufficient cooling(heating) capacity.
Have the length of connection pipes and refrigerant charge amount been recorded?	It is not easy to decide the charge amount of refrigerant.

10.2 Test Operation

1) Before test operation

- ◆ The appearance of the unit and the refrigerant pipes cannot be damaged during the installation.
- ◆ Do not switch on power before installation is finished completely.
- ◆ Electrical wiring must be connected correctly and securely.
- ◆ The stop valves of the outdoor unit should be opened fully.
- ◆ All the impurities such as scraps and thrums must be cleared from the unit.

2) Test operation method

① The test operation should be carried out by the professionally skilled personnel on the premise that all items listed above are in normal conditions.

② Set the status of the power supply switch as “ON” eight hours before the start of operation

③ Press mode button, to select the COOL, or HEAT. Whether the air conditioner is work normally or not.

- ◆ The fan motor of the indoor unit will run automatically in one minute.
- ◆ The fan motor and compressor of the outdoor unit will run automatically in one minute.

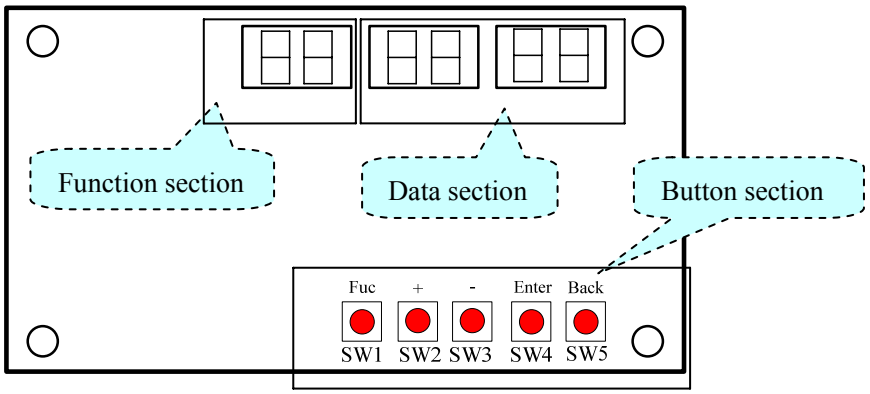
④ Make sure that every combination of indoor units can work well.

⚠WARNING
If the unit cannot work nor has any abnormal noise after the compressor is started, turn off the unit for an immediate check.

11 Testing Board Introduction

11.1 Compose of the Testing Board

The testing board is in front of electrical box and can be observed well. It has several following advantages: detect indoor unit numbers and indoor unit address, displays real running function and error code automatically. It is composed of the function section, data section and button section.



11.2 Instruction of Function and Data Section

<table>
<tr><th>Running state</th><th>The display of function section</th><th>The display of data section</th></tr>
<tr><td>Stop</td><td>① The section will display the numbers of the indoor units which have established communication with the outdoor unit. For example, if there are seven established indoor units, the section will display “7”.
② It will display the address of the indoor units by turns. For example, the “1b” is represented of the indoor unit 1B.
(BU module:1/2/3，Indoor unit: A/b/C/d/E)</td><td>① If the function section displays the numbers of the indoor units, the data section will display the outside temperature. For example, the “35” is represented of 35℃.
② If the function section displays the address of the indoor unit，the data section will display the model of the indoor unit, for example, the “35” is represented of 35 model.</td></tr>
<tr><td>Normal</td><td>The code of running state:
<table>
<tr><th>Code</th><th>Running state</th><th>Code</th><th>Running state</th></tr>
<tr><td>UE</td><td>Pressure equalization</td><td>UH</td><td>Heating</td></tr>
<tr><td>UP</td><td>Pump down</td><td>F7</td><td>Oil returning</td></tr>
<tr><td>UC</td><td>Cooling</td><td>H1</td><td>Defrosting</td></tr>
</table></td><td>It displays the target gear of the compressor. If the gear is zero, it will display “0”. For example, the gear is the fifteenth; it will display “15”. The range of the gear is from 0 to 60.</td></tr>
<tr><td>Malfunction</td><td>If the malfunction occurs in the system, the section will display the error code. If there are several malfunctions, it will display the error codes by turns at intervals of 2 seconds.</td><td>① If the malfunction occurs in the outdoor unit, the section displays nothing;
② If the malfunction occurs in the indoor units, the section displays the address of the indoor unit.</td></tr>
</table>

12 Troubleshooting

⚠WARNING	
1)	In the event of abnormal conditions (like, stinky smell), please shut off the power supply immediately and then contact the appointed service center; otherwise, the abnormal running would damage the air conditioner and also would cause electric shock or fire hazard .
2)	Do not repair the air conditioning personally but instead contact the professionally skilled personnel at the appointed service center, as the incorrect repair would cause electric shock or fire hazard etc.

12.1 Check before Contacting Service Center

Please check the following items before contacting the maintenance serviceman.

Conditions	Causes	Corrective actions
The unit does not run at all	Broken fuse or breaker is off	Replace the damaged fuse or close the breaker
	Power off	Restart the unit after power supply resumes
	Power supply plug is loose	Plug the power supply properly
	The batteries voltage of the remote controller is insufficient	Replace with new batteries
	Remote controller is out of the control scope	The distance shall be within 8m
The unit stops soon after it starts	Air inlet or outlet of indoor unit or outdoor unit is blocked	Remove the obstacles
Cooling or heating is abnormal	Air inlet or outlet of indoor unit or outdoor unit is blocked	Remove the obstacles
	Temperature setting is improper	Adjust the setting of remote controller or wire controller
	Air speed is set too low	Adjust the setting of remote controller or wire controller
	Improper airflow direction	Adjust the setting of remote controller or wire controller
	Door or window is open	Close the door or window
	Under direct sunshine	Hang curtain or blinders over the window
	Too many people in the room	
	Too many heat sources indoors	Reduce the heat sources
	The filter screen is dirt or blocked	Clean the filter screen

NOTICE! **If the air conditioner still runs abnormally after the above check and handling, please contact the local appointed service center and also give a description of the error occurred as well as the model of the unit.**

12.2 Problem Handling

The conditions listed below are not classified into errors.

Conditions		Causes
The unit does not run	When restart the unit soon after it is stopped	The overload protection switch of the unit let the startup delayed for three minutes
	As soon as power supply is on	The unit will stand by for approximate one minute
The unit blows out mist	When the cooling operation starts	The hi-humidity air indoor is cooled quickly
The unit generates noise	The unit "clatters" as soon as it starts running	It is the sound generated during the initialization of the electronic expansion valve
	The unit "swishes" during the cooling operation	It is the sound when the refrigerant gas runs inside the unit
	The unit "swishes" when it is started or stopped	It is the sound when the refrigerant gas stops running
	The unit "swishes" when it is in and after the running	It is the sound when the draining system is operating
	The unit "squeaks" when it is in and after the running	It is the sound of frication generated by the skin plate etc which swells due to the temperature change
The unit blows out dust	When the unit restarts after it is not used for a long time	The dust inside the unit is blown out again
The unit emits odors	When the unit is running	The odors absorbed in are blown out

12.3 Error Description

If some error occurs when the unit is running, the error code will be displayed and check for more details about the meaning of each error.

Errors of definition	Main control display for outdoor unit			Indoor unit code	Testing board code
	Yellow LED	Red LED	Green LED		
The compressor is startup	Flash 1 time				
IPM current protection	Flash 3 times			H5	H5
IPM temperature protection	Flash 5 times			P8	P8
PFC current protection	Flash 7 times				HC
PFC temperature protection	Flash 8 times			P8	P8
Low voltage protection	Flash 9 times			PL	PL
High voltage protection	Flash 10 times			PH	PH
Low pressure protection	Flash 11 times				E3
High pressure protection	Flash 12 times				E8
High pressure switch protection	Flash 13 times				E1
Capacitor charging error	Flash 14 times				PU
AC current protection	Flash 15 times			E5	E5

Memory card error	Flash 16 times				EE
Compressor demagnetizing protection	Flash 17 times			HE	HE
Compressor desynchronizing	Flash 18 times			H7	H7
Compressor phase lack	Flash 19 times			U2	U2
Compressor phase circuit detection error	Flash 20 times			U1	U1
Compressor power protection	Flash 21 times			L9	L9
Compressor overload protection	Flash 22 times			H3	H3
Compressor discharge temperature protection	Flash 23 times			E4	E4
Lack of refrigerant or jam protection	Flash 31 times			F0	F0
Normal operation		Flash 1 time			
Frequency limitation for AC current		Flash 2 times			F8
Oil returning		Flash 3 times			F7
Defrosting		Flash 4 times		H1	H1
Frequency limitation for IPM temperature		Flash 5 times			EU
Frequency limitation for PFC temperature		Flash 6 times			EU
Frequency limitation for compressor overload		Flash 8 times			LU
Frequency limitation for compressor discharge temperature		Flash 9 times			F9
Frequency limitation for low pressure		Flash 10 times			Pn
Frequency limitation for high pressure		Flash 11 times			F6
Discharge temperature sensor error		Flash 12 times		F5	F5
Outdoor temperature sensor error		Flash 13 times		F3	F3
Suction temperature sensor error		Flash 15 times			dc
Condenser temperature sensor error		Flash 16 times		A7	A7
Sub-cool temperature sensor error		Flash 17 times			bC
Low pressure sensor error		Flash 18 times			dL
High pressure sensor error		Flash 19 times			e1
Fan motor error for indoor unit		Flash 20 times		H6	H6
Driving board is connected			Flash 1 time		
Testing board is connected			Flash 2 times		
Computer is connected			Flash 4 times		
Indoor unit 1 is connected			Flash 5 times		
Indoor unit 2 is connected			Flash 6 times		
Indoor unit 3 is connected			Flash 7 times		
Indoor unit 4 is connected			Flash 8 times		
Indoor unit 5 is connected			Flash 9 times		

Indoor unit 6 is connected			Flash 10 times		
Indoor unit 7 is connected			Flash 11 times		
Indoor unit 8 is connected			Flash 12 times		
Indoor unit 9 is connected			Flash 13 times		
Indoor unit anti-freeze protection				E2	E2
Indoor temperature sensor error				F1	F1
Indoor evaporator midway temperature sensor error				F2	F2
Temperature sensor error for liquid pipe of BU module				b5	b5
Temperature sensor error for gas pipe of BU module				b7	b7
Running mode conflicts				E7	E7
Communication error				E6	E6 indoor unit address
Communication error between the main board and driving board					P6
Communication error between the main board and testing board					CE
Gas sensor error of indoor unit					Fn
Humidity sensor error of indoor unit					L1
Water full error of indoor unit				E9	E9
Jumper terminal error of indoor unit				C5	C5
Phase lack of power supply					dJ
Fan motor error of outdoor unit					L3
Refrigerant recovery mode				Fo	Fo

- Display mode of Red LED and Yellow LED: At intervals of half a second, flash for half a second; if there are several malfunctions, it will display the error codes by turns at intervals of one second.
- Display mode of Green LED: At intervals of 1/4 second, flash for 1/4 second; and it displays the running states by turns at intervals of half a second.

13 Maintenance

Check, maintenance and care regularly should be performed by professional personnel, which will prolong the unit service life.

13.1 Outdoor Condenser

Outdoor condenser is required to be cleaned every two months. Use vacuum cleaner with nylon brush to clean up dust and sundries on the surface of condenser. Blow away dust by compressed air if it is available. Never use water to wash the condenser.

13.2 Drain Pipe

In order to drain condensate smoothly, please check the drain pipe regularly is clogged or not.

13.3 Check before the Seasonal Use

- Check the air inlet and outlet of the indoor and outdoor units to confirm there is no blockage.
- Check the ground wire to confirm the grounding is reliable.
- Check the batteries of the wireless remote controller to ensure that they have been replaced.
- Check the filter screen that it has been set soundly.
- If the air-conditioning unit shall be operated again after a long-term shut off, set the status of the power supply switch as “ON” eight hours before the start of operation, so as to ensure the successful startup of the air-conditioning unit.
- Check the outdoor unit to ensure the installation of it is steady. Contact the appointed service center if there is any abnormal condition.

13.4 Maintenance after Seasonal Use

- Turn off the power supply of the air conditioning unit and set the status of the power supply switch as “OFF”.
- Clean the filter screen and the housing of the indoor and outdoor units.
- Remove the dust and the foreign matters of the outdoor unit.
- In the event of rusting, please use the anti-rust paint to stop spreading of rust.

Refer to the ***Installation and Operation Manual*** of each indoor unit respectively for detailed maintenance.

14 After-sales Service

If the unit cannot work or has any problem, please contact the local after-sales service agency designated by Impecca.

Warranty should meet the following requirements:

① The installation and test operation of the unit should be operated by professional personnel from appointed service center.

② Only Impecca manufactured accessories can be used on the machine.

③ All the instructions listed in this manual should be followed.

④ Warranty will be automatically invalid if fails to obey any item mentioned above.

15 CUSTOMER SUPPORT

Before contacting customer support, please see the troubleshooting guide above.

Visit our website to contact us, find answers to Frequently Asked Questions, and for other resources which may include an updated version of this user's guide.

WWW.IMPECCA.COM

If you wish to contact us by phone, please be sure to have your model number and serial number ready and call us between 9:00am and 6:00pm ET, at +1 866-954-4440.

Keep tabs on Impecca's newest innovations & enter contests via our social network feeds:

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www.instagram.com/impecca/

@impeccausa

Flex+

R410A Systems—BU

modules:

IS-BU12

IS-BU13

IS-BU15

Owner's Manual

Air Conditioners

INVERTER

Preface

Flex+ Series adopt the advanced manufacturing technology and takes the environmental-friendly R410A as refrigerant, which is a green product in the 21st century. Please carefully read the manual before installation and operation.

1) Flex+ Series systems conform to design standard ARI 210240-2008.
2) To ensure safety when operating this system, please strictly follow the instructions in this manual.
3) Make sure that the manual is kept by the operators or serviceman.
4) The refrigerant pipes and accessories must be designed exclusively for R410A.
5) The total capacity of the indoor units which runs at the same time cannot exceed the capacity of the outdoor units; otherwise, the cooling (heating) effect of each indoor unit would be lower than the nominal capacity.
6) In case of malfunction, please examine the following items and contact our appointed service centers as soon as possible.
   - ◆ Nameplate (model, cooling capacity, product code, ex-factory date).
   - ◆ Malfunction status (detail description of conditions before and after malfunction occurs).
7) It is a normal phenomenon that the fan of indoor unit will still run for 20-70 seconds after the indoor unit receives the “stop” signal so as to make full use of the waste heat.
8) When the work mode of the indoors is conflict with the modes of outdoor units, it will be indicated on the display of the wired controller in five seconds and then the indoor unit will stop. In this case, please harmonize their work modes: the cooling mode is compatible with the dry mode.
9) If the supply power fails when the unit is running, then the indoor unit will send the “start” signal to the outdoor unit three minutes later after the power recovery.
10) The power cable and transmission line must not be twisted together, but instead of separated with an interval of at least 2cm; otherwise it may be result in communication problem.
11) This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
12) All graphics and information in this manual are only for reference. Manufacturer reserves the right for changes in terms of sales or production at any time and without prior notice.

This product must not be disposed together with the domestic waste. This product has to be disposed at an authorized place for recycling of electrical and electronic appliances.

Thank you for purchasing Impecca air conditioners. Before using, please read this manual carefully and keep it properly for further reference.

Contents

1 Safety Precautions

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
⚠WARNING	This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.
⚠CAUTION	This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property.
NOTICE	NOTICE is used to address practices not related to personal injury.

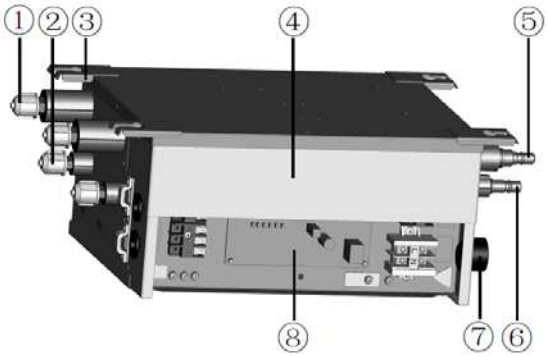
⚠WARNING	
1)	Instructions for installation and use of this product are provided by the manufacturer.
2)	Installation must be performed in accordance with the requirements of NEC and CEC by appointed personnel only.
3)	The installation should be left to the appointed service center and according to the instructions given in the manual. Improper installation may cause fall down, water leakage, electric shock or fire etc.
4)	For operating the air conditioner pleasantly, please install it as outlined in this installation manual.
5)	The power supply must adopt the special circuit with air switch protection and assure it has enough capacity
6)	Connect the indoor unit, BU module and outdoor unit with the room air conditioner piping and cord available from our standard parts. This installation manual describes the correct connections using the installation set available from our standard parts.
7)	Before installation, check the parameter of power cord and make sure that it complies with the power supply requirement on the nameplate. Make sure the power supply is safe.
8)	This air conditioner must be properly grounded through the receptacle to avoid electric shock. The ground wire shouldn't be connected with gas pipe, water pipe, lightning arrester or telephone line.
9)	If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces toxic gas.
10)	Do not power on until all installation work is complete.
11)	During installation, make sure that the refrigerant pipe is attached firmly before you start up the compressor. Do not operate the compressor under the condition of refrigerant piping not attached properly with valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.
12)	When installing and relocating the air conditioner, do not mix gases except the specified refrigerant (R410A) to enter the refrigerant cycle. If air or other gas enters the refrigerant cycle, the pressure inside the cycle will rise to an abnormally high value and cause breakage, injury, etc.
13)	This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
14)	Never cut off or damage power cables and transmission wires. If the power cable or transmission line were damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
15)	After the power cord is connected, please install the cover of electric box to avoid danger.

16) When installing or relocating the unit, please contact the appointed service center for the repair or relocation. Meanwhile the specialized parts and accessories must be used. Otherwise, it may result in water leakage, electric shock or fire hazard.
17) Diameter of power cord must be large enough. Damaged power cord or connecting wire must be replaced by specialized electric cable.
18) The power wire and transmission line must be more than one meter away from televisions or radios which can emit electromagnetic waves to prevent image interference or noise. Otherwise, the unit maybe not work
19) Nitrogen must be charged according to technical requirements.
20) For units with wired controllers, do not connect power supply until the wired controller is well installed. Otherwise, the wired controller cannot be used.
21) When installation is finished, please check and make sure the drain pipe, pipeline and electric wire are all well connected so as to avoid water leakage, refrigerant leakage, electric shock and fire hazard.
22) Never extend fingers or objects into air outlet or return air grille.
23) Please keep the room well-ventilated and it could avoid oxygen deficit.
24) Never start or stop the air conditioner by inserting or removing the power cord.
25) Before startup of the compressor, please turn on the main power switch of the unit for more than 8 hours and it makes sure that the heater belt of the compressor has been energized for at least eight hours! Once the compressor is started, it must be guaranteed that it works continuously for at least 30 minutes, otherwise it would be damaged!
26) Never operate the unit with wet hands. Otherwise, it may cause electric shock.
27) Before cleaning and repairing, it is necessary to stop working and turn off the power supply. Otherwise, it may cause electric shock or damage.
28) Do not spray water on the air conditioner or it will cause malfunction or electric shock.
29) The air conditioner is not support to install in the circumstances as the following that where there is full of mist of oil, damp or corrosive gas, flammable gases, the acidic or alkaline vapor and the ocean.
30) Volatile liquid like thinner or gasoline will damage the appearance of air conditioner. (Please use soft dry cloth and wet cloth with mild detergent to clean unit's appearance.)
31) Never standing or place objects on outdoor unit. Person or objects falling from the unit may cause injury.
32) If abnormal condition occurs (e.g. unpleasant smell), please turn off the unit at once and disconnect power supply. Then contact appointed service center. If the air conditioner continues to operate despite of abnormal condition, it may be damaged and cause electric shock or fire hazard.
33) The drain pipe should be installed as instructed in the manual to guarantee the proper drainage; meanwhile it should be insulated to prevent condensing; otherwise the improper installation would cause water leakage and then wet the household wares in the room.
34) Don't attempt to repair the air conditioner by yourself. The improper repair will lead to electric shock or fire, please contact the appointed service center and ask professional technicians to repair it.
35) Please take notice of the installation foundation of the unit after long use, if it is damaged, it may lead to the fall of the unit and cause the injury.
36) Be sure to shut off the power supply when you do not use the air conditioner for a long time. Otherwise, the dusts may accumulate in it, which may cause overheating or fire hazards.
37) Impecca Electric Appliances, Inc. of Zhuhai is not responsible for any personal injury or property loss caused by improper installation, improper debugging, unnecessary repair or not following the instructions of this manual.

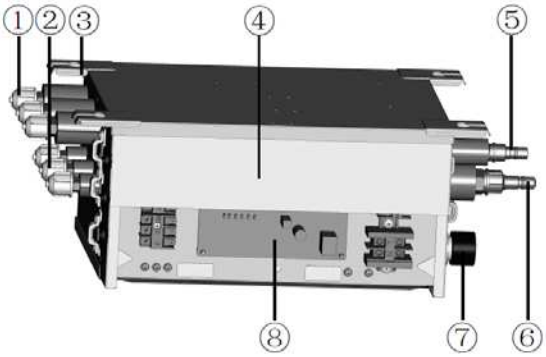
2 Product Introduction

The BU module of Impecca Flex+ Series is the latest branch device, which adopts intelligent control technology. Responding to the changes in load of the indoor units, it can coordinate the flow rate of the refrigerant well. Otherwise, it is very compact and offers a flexible choice about the installation location, such as the ceiling of parlor, corridor, balcony, storeroom and etc.

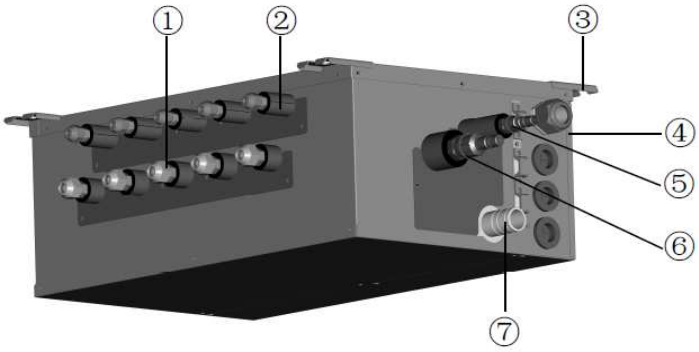
2.1 Names of Main Parts



a) IS-BU12



b) IS-BU13



e) IS-BU15

NO.	①	②	③	④
Name	Gas piping of indoor unit side	Liquid piping of indoor unit side	Hanger metal	Electrical equipment plate
NO.	⑤	⑥	⑦	⑧
Name	Liquid piping of outdoor unit side	Gas piping of outdoor unit side	Drain hole	Printed circuit board

Fig. 1

2.2 Combinations for Outdoor and Indoor Units

Table 1

Sorts		IS-BU12	IS-BU13	IS-BU15
No. of connectable indoor units	Min	1	1	1
	Max	2	3	5

2.3 Parts and Components of Unit

For the Super Free Match Series, one outdoor unit is able to drive up to three BU modules and nine indoor units which include cassette type, duct type, wall-mounted type, floor ceiling type and console type. The outdoor unit will run as long as any one indoor unit receives the running command, and all indoor units stop once the outdoor unit is turned off.

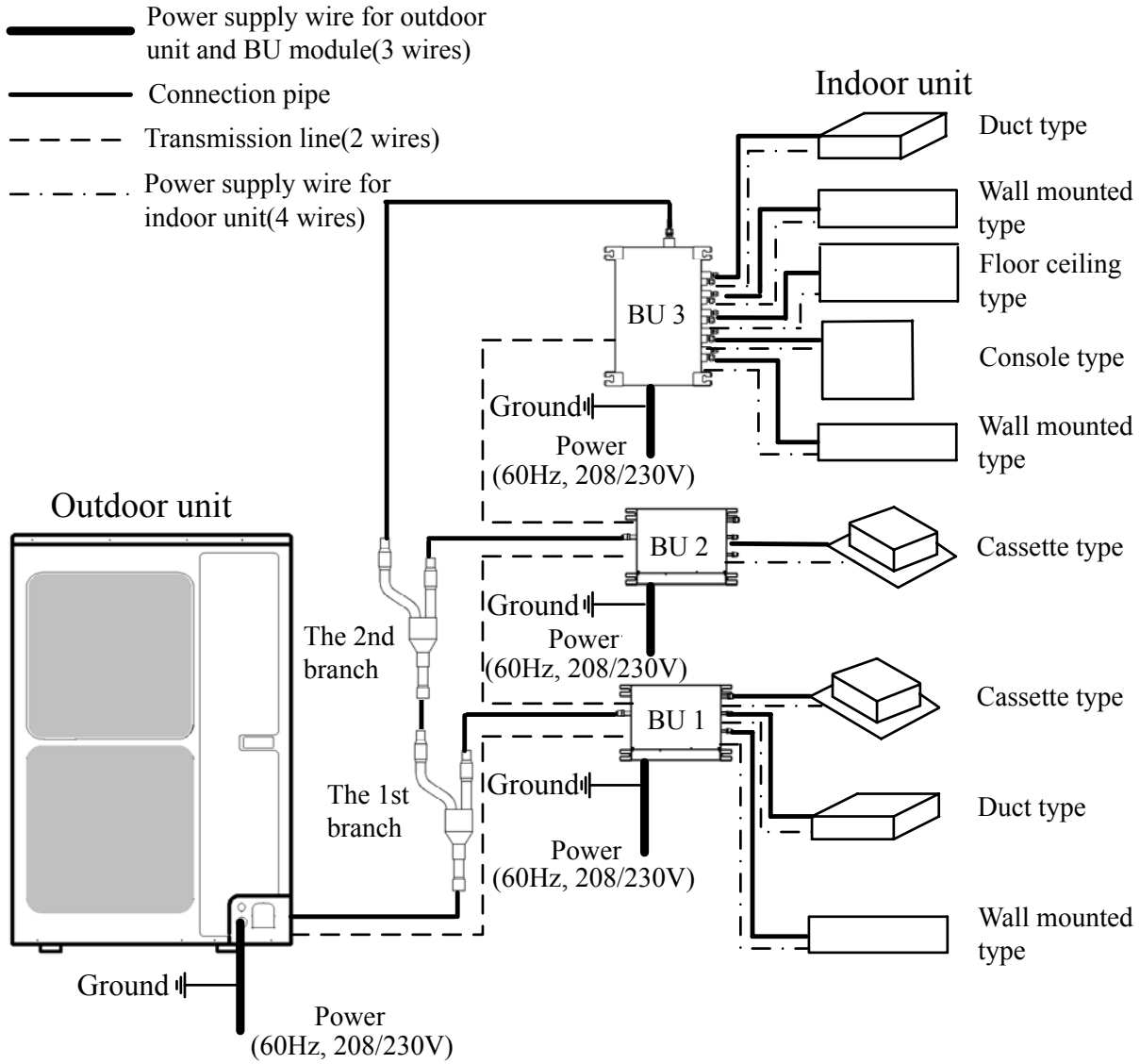


Fig. 2

2.4 Working Temperature Range

Table 2

Sorts	Outside temperature: DB(℃/℉)
Maximum	50℃(122℉)
Minimum	-15℃(5℉)

3 Selection of Installation Location and Precautions

⚠WARNING	
1)	The installation of the air conditioner must be in accordance with the national and local laws and regulations.
2)	The quality of the installation will affect the capability of air conditioner directly. The installation should be left to the appointed service center. Please contact your dealer after purchasing this machine. Professional installation workers will provide installation and test services according to the installation manual.
3)	The air conditioner should not install in this place where the small animals exist, because they may cause malfunctions, smoke or fire. Please keep the area around the unit clean.

3.1 Selection of Installation Location

⚠WARNING	
1)	The BU module must be installed on a firm and solid support which can withstand the weight of the module and the mounting surface must be horizontal plane. The BU module can be chosen to install in the ceiling, such as the ceiling of parlor, corridor, balcony, storeroom and etc.
2)	The location must be out of children's reach, please keep the unit away from children.
3)	The BU module is for indoor use. If installing in the outdoors, the location must be away from wind and rain. Otherwise, it maybe causes water leakage, electric shocks or fire etc.
4)	There is enough space for the installation and maintenance.
5)	Avoid direct sunlight or other heat sources exist.
6)	Do not install in location that is hot or humid for long periods of time.
7)	Avoid the BU module installed in the bedroom and study, where these places need to be quiet.
8)	BU module cannot be installed in the place of inflammable and explosive materials and severe dust, smoke and the other air pollution, such as the kitchen.
9)	There is enough space to install drainage pipe, so that the condensed water can be discharged.
10)	Installation at the following places might lead to the air conditioner malfunction, such as where is full of machine oil, saline-sodic soil near the sea, sulphide fog, high frequency facilities or special conditions. If it is unavoidable, please contact the appointed service center.

NOTICE	
1)	Make sure that the unit will not cause any operating vibration or noise after installation.
2)	BU module shall be installed close to the indoor unit, hence to minimize the length and bends of cooling pipe.

3.2 Outline Dimension and Servicing Space of IS-BU12

1) Outline dimension

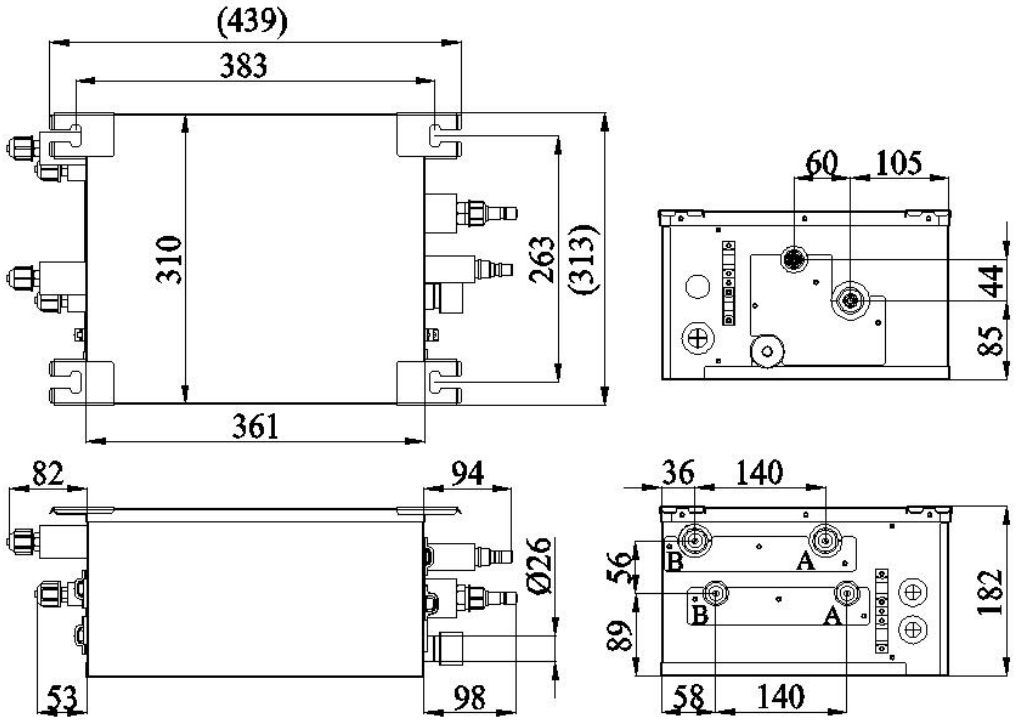
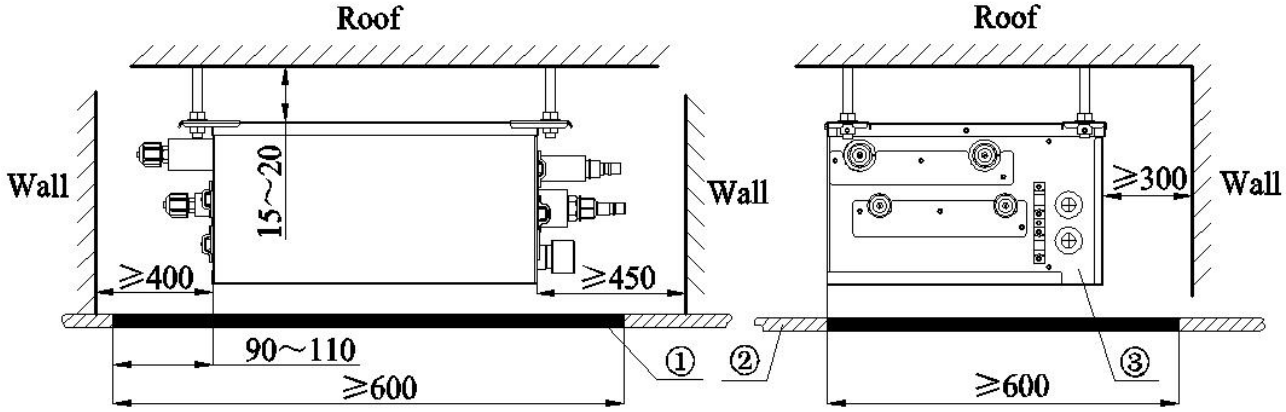


Fig. 3 (mm)

Table 3

Sorts	Indoor unit side (mm/inch)		Outdoor unit side (mm/inch)
	Port A	Port B	
Liquid pipe	Φ6.35(1/4)	Φ6.35(1/4)	Φ9.52(3/8)
Gas pipe	Φ9.52(3/8)	Φ9.52(3/8)	Φ15.9(5/8)

2) Installation and service space



NO.	①	②	③
Name	Servicing space	Ceiling	Electrical box side

Fig. 4 (mm)

3.3 Outline Dimension and Servicing Space of IS-BU13

1) Outline dimension

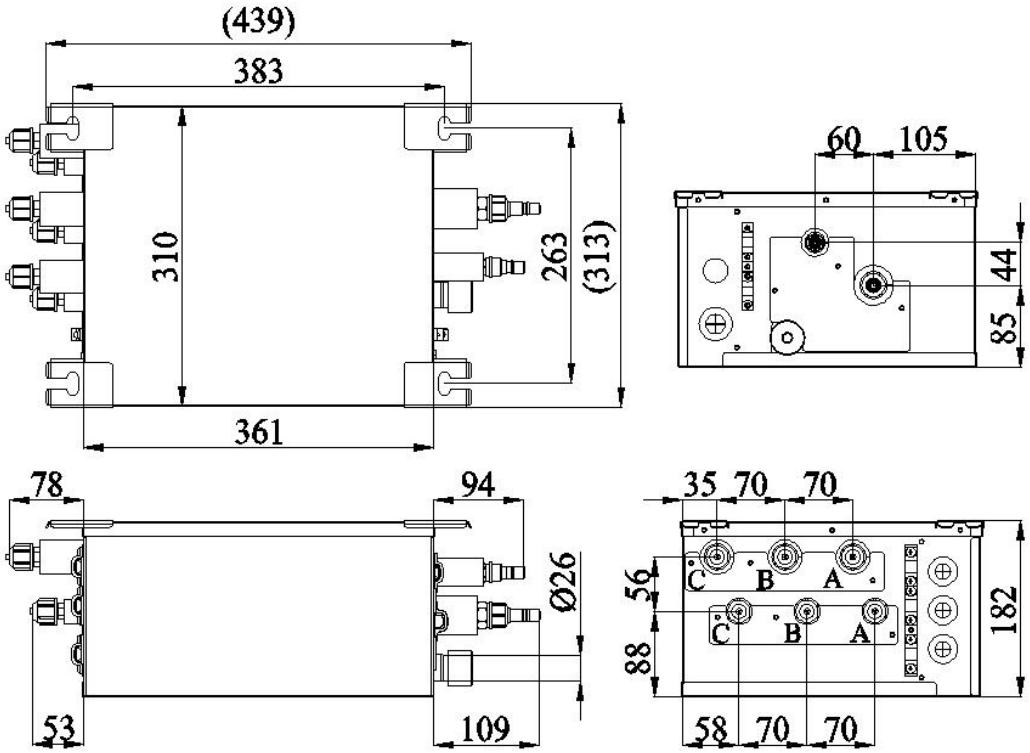
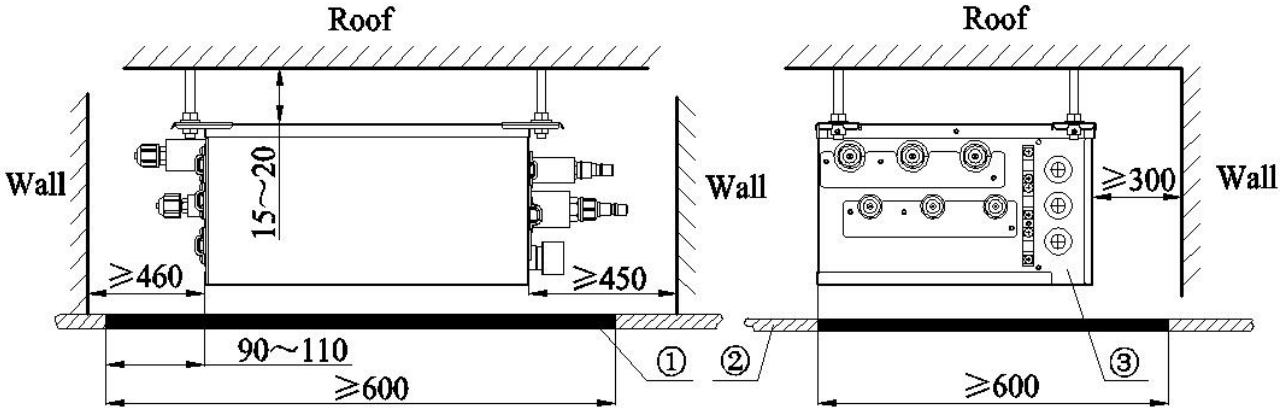


Fig. 5 (mm)

Table 4

Sorts	Indoor unit side (mm/inch)			Outdoor unit side (mm/inch)
	Port A	Port B	Port C	
Liquid pipe	Φ6.35(1/4)	Φ6.35(1/4)	Φ6.35(1/4)	Φ9.52(3/8)
Gas liquid	Φ9.52(3/8)	Φ9.52(3/8)	Φ9.52(3/8)	Φ15.9(5/8)

2) Installation and service space



NO.	①	②	③
Name	Servicing space	Ceiling	Electrical box side

Fig. 6 (mm)

3.6 Outline Dimension and Servicing Space of IS-BU15

1) Outline dimension

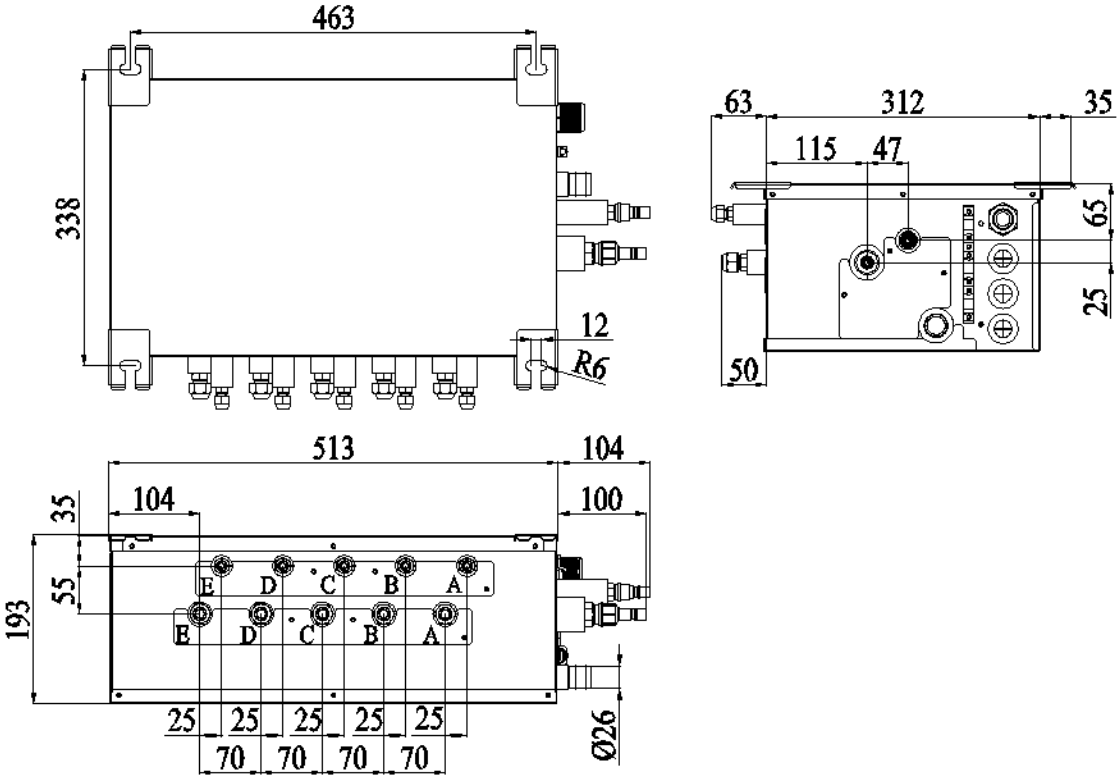
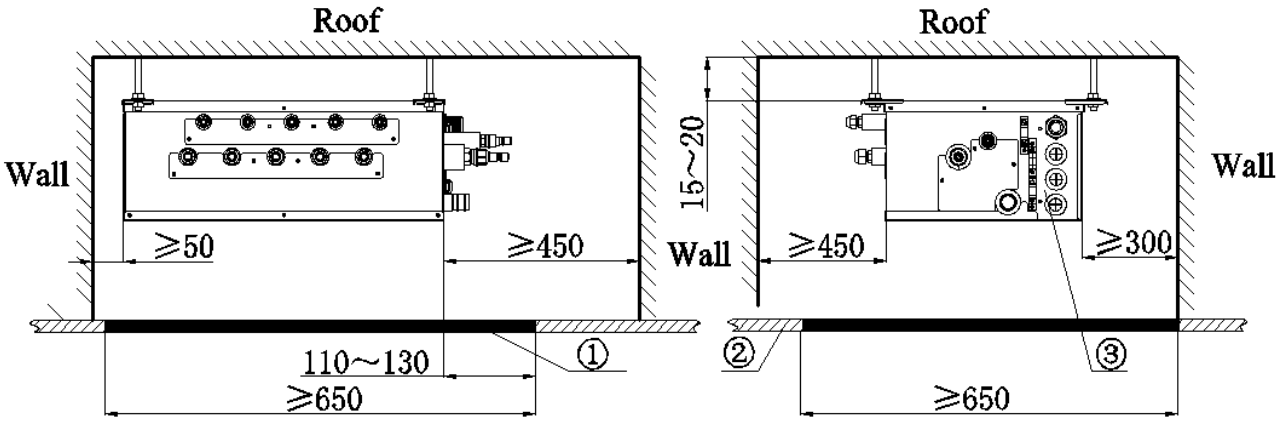


Fig. 11 (mm)

Table 7

Sorts	Indoor unit side (mm/inch)	Outdoor unit side (mm/inch)
Liquid pipe	Φ6.35(1/4)	Φ9.52(3/8)
Gas pipe	Φ9.52(3/8)	Φ15.9(5/8)

2) Installation and service space



NO.	①	②	③
Name	Servicing space	Ceiling	Electrical box side

Fig. 12 (mm)

4 Installation Instruction

1) Check the installation location and ensure it is strength and level. Otherwise, there should be enough space to install drainage pipe, so that the condensed water can be discharged.
2) Reference to the size of hanger metal and drill 4 holes in the installation location.
3) Hang the hanger bolts.

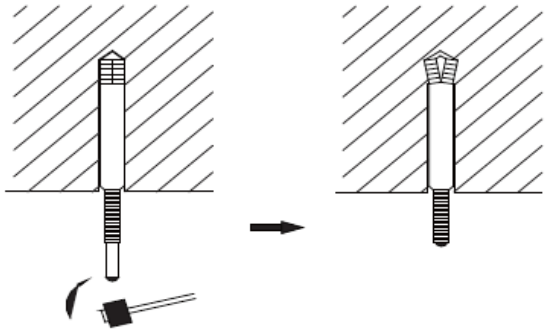


Fig. 13

4) Fix the modules securely with the hanger bolts. You can get the M10 or M8 hanger bolts, nuts and washers from the market.

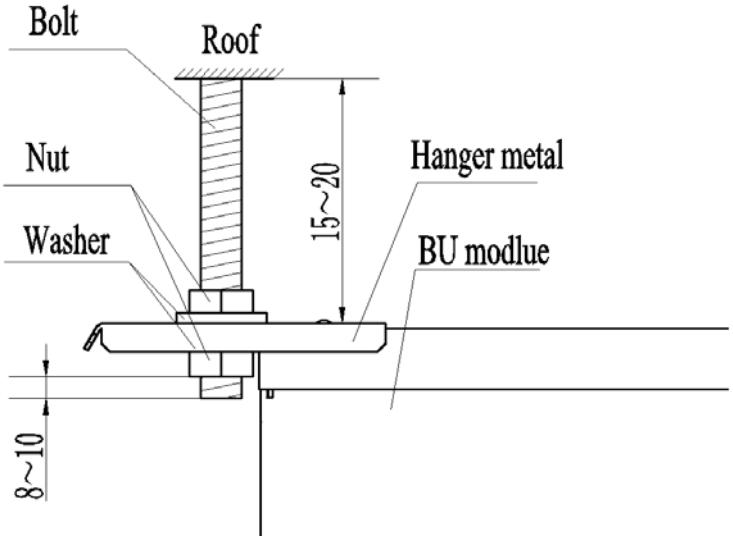


Fig. 14 (mm)

5) Adjusting the nuts position, so that the BU module should be level in front/back and left/right.

5 Installation of Refrigerant Pipes

5.1 Allowable Length and Drop Height of Connecting Pipe

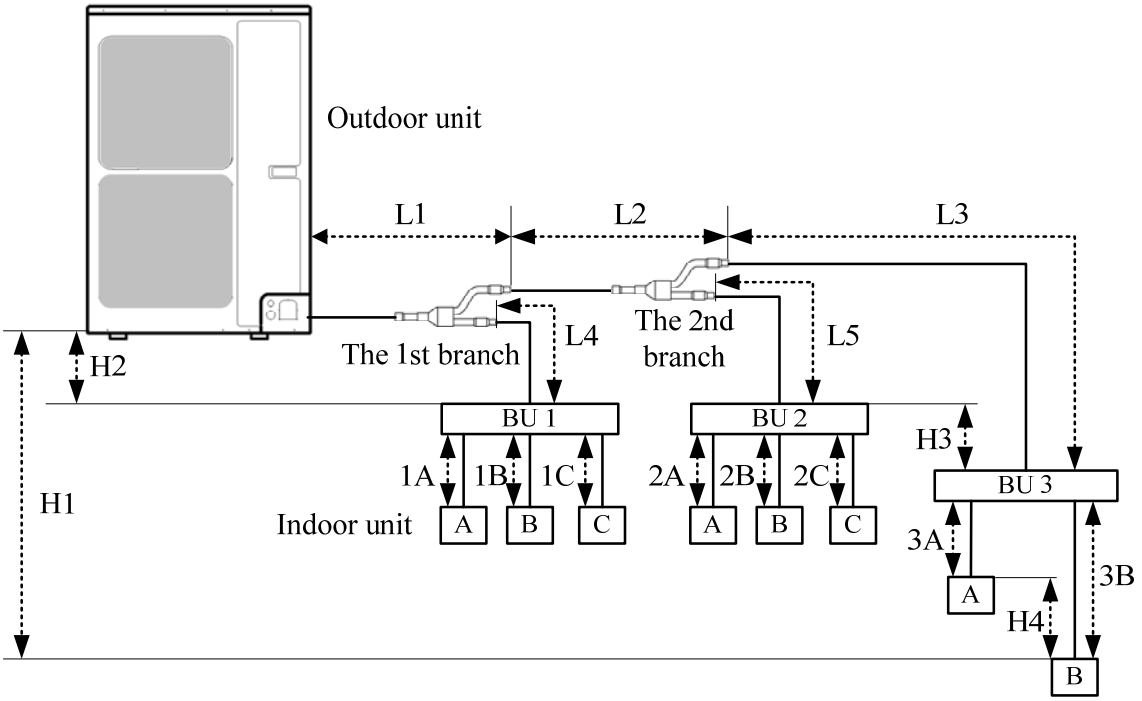


Fig. 15 (8 indoor units)

Table 8

The sorts			The pipes	Length(m/feet)
Maximum allowable length	Total length between outdoor unit and BU modules		L1+L2+L3+L4+L5	≤55(181)
	Total length between indoor units and BU	ISMO-6021	1A+1B+1C+2A+2B+2C+ 3A+3B	≤90(295)
	Between indoor unit and BU module		1A;1B;1C;2A;2B;2C;3A;3B	≤15(49)
	Between indoor unit and the 1st branch		L4+1B;L2+L5+2A; L2+L3+3B	≤40(131)
Maximum allowable length	Between outdoor and indoor units		H1	≤30(99)
	Between outdoor units and BU modules		H2	≤30(99)
	Between BU and BU modules		H3	≤15(49)
	Between indoor and indoor units		H4	≤15(49)
Minimum allowable length	Between outdoor and the 1st branch		L1	≥5(16)
	Between BU and the branch		L3;L4;L5	as possible as short

NOTICE! **BU module should be placed within the level between the outdoor unit and indoor unit.**

5.2 Installation of Piping Adapter (IS-BU12 IS-BU13 and IS-BU15)

If the piping connection size of BU module does not match with that of the outdoor unit and indoor units, it should prevail with the piping connection size of the outdoor unit and indoor units.

Install the optional piping adapters to the BU module, so that the piping connection size of BU module can match with that of the outdoor unit and indoor units.

1) Piping adapter(Optional accessories)

Table 9

NO.	Name	Port A (mm/inch)	Port B (mm/inch)
1	Φ15.9→Φ19.05	Φ15.9(5/8)	Φ19.05(3/4)
2	Φ9.52→Φ12.7	Φ9.52(3/8)	Φ12.7(1/2)
3	Φ9.52→Φ15.9	Φ9.52(3/8)	Φ15.9(5/8)
4	Φ6.35→Φ9.52	Φ6.35(1/4)	Φ9.52(3/4)

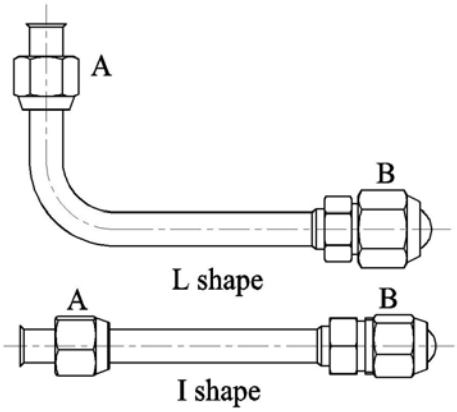


Fig. 16

2) Install the piping adapter

① Refer to the piping connection size of the outdoor unit and indoor units, the appropriate piping adapter should be adopted.

② Align the flared end of copper tube with the center of pipe joint. Tighten the nuts with hands. Then tighten the flaring nuts with torque wrench until you hear a “click”.

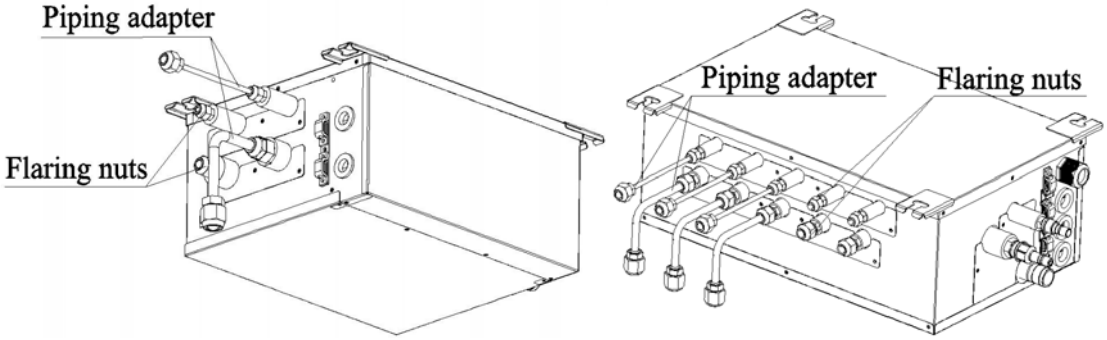


Fig. 17

3) Sealing the unconnected port

If the port of BU module indoor side does not connected to one indoor unit, the port must be sealed to prevent refrigerant leaks. Please tighten the copper flaring nuts to the unconnected port with torque wrench until you hear a “click”.

5.4 Precaution for Connection

⚠CAUTION	
1)	Conform to the following principles during pipe connection: Outdoor unit shall be installed close to the indoor unit, hence to minimize the length and bends of connection pipes; the height gap of outdoor unit and indoor units should be as small as possible; the radius of curvature should be as large as possible.
2)	The brazing operation must be strictly in accordance with the process requirements. Rosin joint or pin hole is not allowed.
3)	During the installation, do not damage the pipeline. The pipeline's radius of bending must be over than 200mm (8inch). The pipes cannot repeatedly be bent or straightened. Otherwise it will get harden and crack. Do not bend or straight the pipes for more than 3 times at the same position.

1) The process of flaring

① Using the tube cutter to cut the connecting pipe in the appropriate place and remove the burrs.

② Install the nut before the flaring operation.

③ Check the flared portion, whether there is fractured or not.

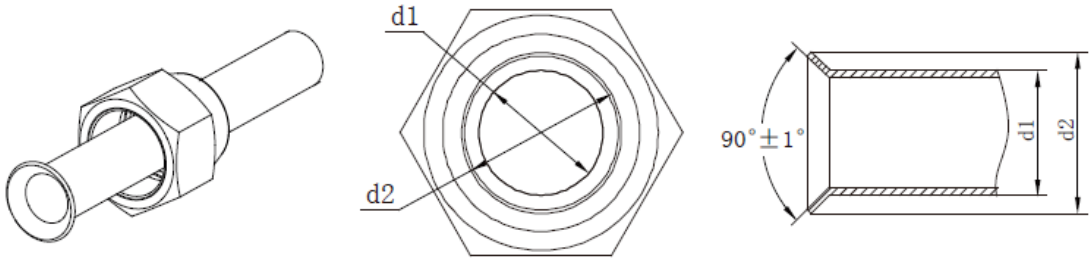


Fig. 21

2) Precaution for elbow operation

① The elbow operation could be done by hands. Be careful and do not damage the pipe.

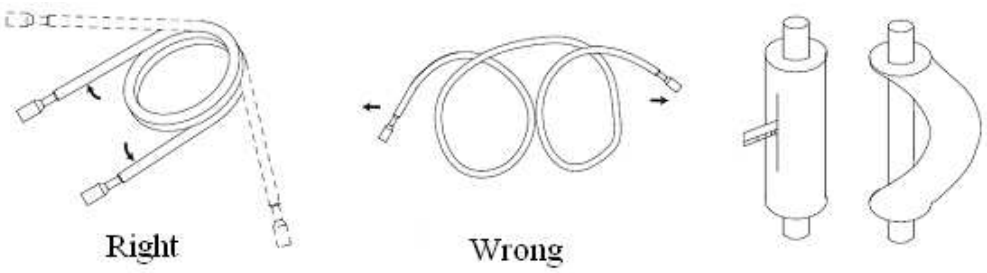


Fig. 22

② If the thermal insulation of the refrigerant pipe is not removed, please do not bend the pipe. Otherwise, it maybe leads the pipe to crack. It is better to make an incision with a knife in the thermal insulation and removes it. After elbow operation is finished, recover the thermal insulation with binding band.

3) The process of install refrigerant pipes

① Remove the screw caps from the pipes.

② Align the flared end of copper tube with the center of pipe joint. Tighten the nuts by hands. (If the flared end of copper tube and the center of pipe joint are not in coaxial, it is hard to tighten the nuts by hands, please do not tighten it with spanners, because the screw thread may be broken by force).

③ Tighten the flaring nuts with torque wrench until you hear a “click”. (The spanner and torque wrench should be perpendicular to the refrigerant pipeline).

④ The following table for the torque required to tighten the nuts.

Table 10

Pipe diameter (mm/inch)	Thickness of copper tube(mm/inch)	Tightening torque (N·m/1bf·ft)
Φ6.35(1/4)	≥0.8(1/32)	15～30(11~22)
Φ9.52(3/8)	≥0.8(1/32)	35～40(26~29)
Φ12.7(1/2)	≥0.8(1/32)	45～50(33~37)
Φ15.9(5/8)	≥1.0(1/25)	60～65(44~48)
Φ19.05(3/4)	≥1.0(1/25)	70～75(52~55)

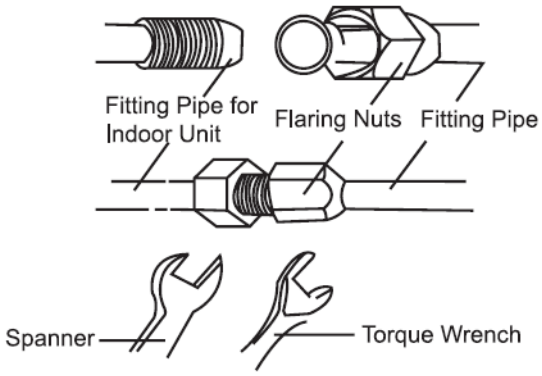
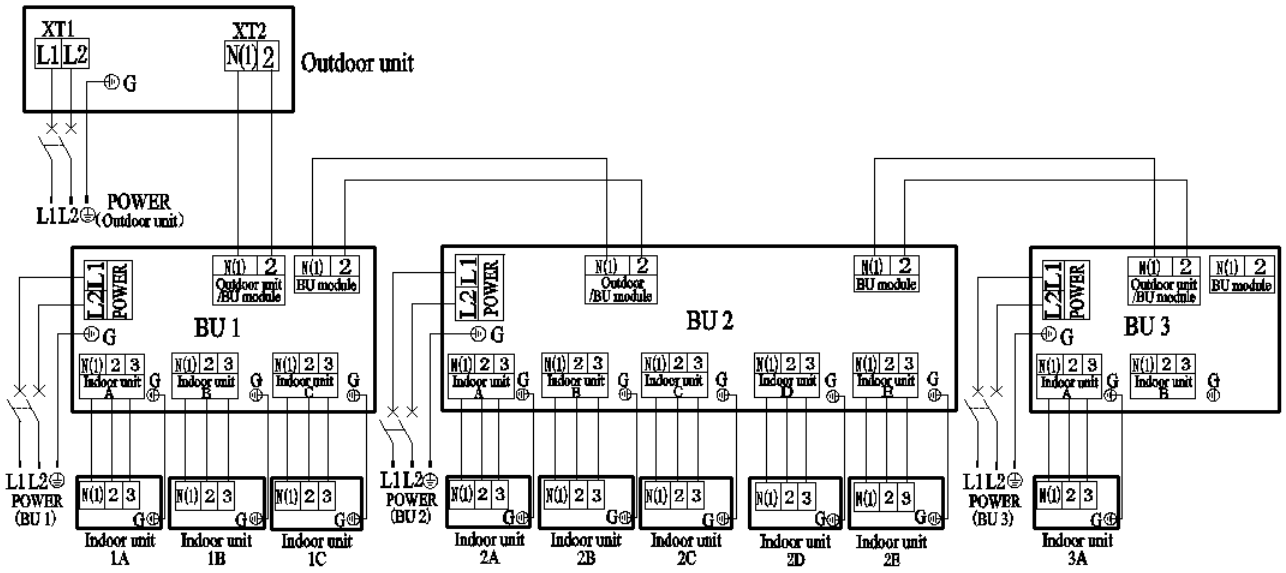


Fig. 23

⚠CAUTION
1) During the connection of the indoor unit and BU module to the refrigerant pipe, never pull any joints of the indoor unit and the BU module by force; otherwise the capillary pipe or other pipe may crack, which then would result in leakage.
2) The refrigerant pipe should be supported by brackets; that is, don’t let the unit support its weight.
3) For the Flex+ system, each pipe should be labeled to tell which system it belongs to avoid mistaken, inaccurate piping.

6 Electrical Wiring Work

6.1 Wiring Connection



NOTICE! **The "L1", "3" terminals are connected to the live wire, the "L2","N(1)" terminals are connected to the neutral wire and the "2" terminal is connected to the transmission line.**

Fig. 24

6.2 Requirements of Power Circuit and Cable

Table 11

Phase and frequency		1Ph,60Hz
Voltage		208/230V
Recommended cable of outdoor unit (Pieces × Sectional area)	ISMO-6021	3×6.0 mm^2
Recommended cable of BU module (Pieces × Sectional area)		3×0.75 mm^2
Transmission line (Pieces × Sectional area)		2×1.5 mm^2
Recommended cable of indoor unit (Pieces × Sectional area)		4×0.75mm^2
Capacity of the air switch	ISMO-6021	40A
	BU module	10A

NOTICE	
1)	The total length of the transmission line between the outdoor unit and the furthest BU module is not more than 180 feet (55m). Otherwise, the system cannot work possibility.
2)	The specifications of the power cable and transmission line listed in the table above are determined based on the maximum power (maximum amps) of the unit.
3)	The specifications of the power cable listed in the table above are applied to the conduit-guarded

	multi-wire copper cable (like, YJV copper cable, consisting of PE insulated wires and a PVC cable jacket) used at 104℉ (40℃） and resistible to 194℉ (90℃), and shall be at least those of ordinary polychloroprene sheathed cords. If the working condition changes, they should be modified according to the related national standard.
4)	The specifications of the air switch listed in the table above are applied to the breaker with the working temperature 104℉ (40℃). If the working condition changes, they should be modified according to the related national standard.
5)	The length of the recommended power cable should be less than 49 feet (15 meters); otherwise, the diameter of the power cable is not enough.
6)	Written power cable and transmission line length is just a reference value. It may be different depending on the condition of installation, humidity or materials, etc.
7)	An all-pole disconnection switch having a contact separation of at least 3mm (1/8 inch) in all poles should be connected in fixed wiring.

6.3 Ground Requirements

⚠WARNING	
1)	The air conditioner is classified into the Class I appliances, so its ground ways must be reliable.
2)	The ground wire must be fixed on the screw hole with the sign as the right figure. ⏚
3)	The yellow-green wire of the air conditioner is the ground wire and must be fixed by the tapping screw. And it cannot be used for other purpose or cut off. Otherwise, it will cause the hazard of electric shock.
4)	The reliable ground terminal should be provided and the ground wire cannot be connected to any of the following places: a. Water pipe; b. Coal gas pipe; c. Sewage pipe; d. Lightning rod e. Telephone line f. Other unreliable places considered by a professional.

6.4 Precautions on the Electrical Wiring Work

⚠WARNING	
1)	The electrical installation should be carried out by the professional as instructed by the local laws, regulations and also this manual.
2)	The ground connection should be reliable and the ground wire should be connected to the dedicated device of the building by the professional.
3)	Before starting work, the power must not be supplied to the unit.
4)	The air switch coupled with the leakage current protection switch must be equipped in the circuits, which is of enough capacity and of both magnetic and thermal tripping functions in case of the short circuit and overload.
5)	The electrical work should use a cable length enough to cover the entire distance with no connection. If it is unavoidable, please make sure the connection should be reliable, the external forces will not act on the wires and the joint is not bared. Otherwise it will cause electrical shock or fire etc.
6)	The power cable with the rated voltage and exclusive circuit for the air conditioner should be used.
7)	Do not pull the power cable by force after it is installed.
8)	The diameter of the power cable should be large enough and once it is damaged, it must be replaced by the dedicated one.
9)	The multi-wire copper cable should be used for the power cable and the transmission line.

6.5 Precaution of Laying Wires

1) Use a wire stripper to strip off a length of the insulation layer at the end of the wires;
2) Loosen the screws on the terminal block of the air conditioner;
3) Press the ends of the cable tightly onto the round terminals corresponding to the size of the screws.
4) Pass the screw through the round terminals and fix it onto the terminal block.

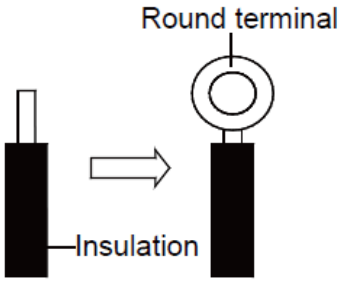
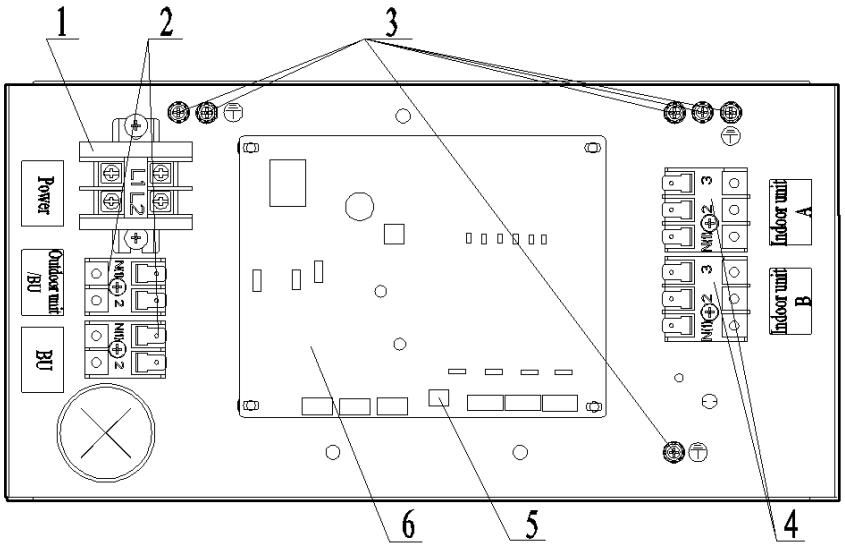


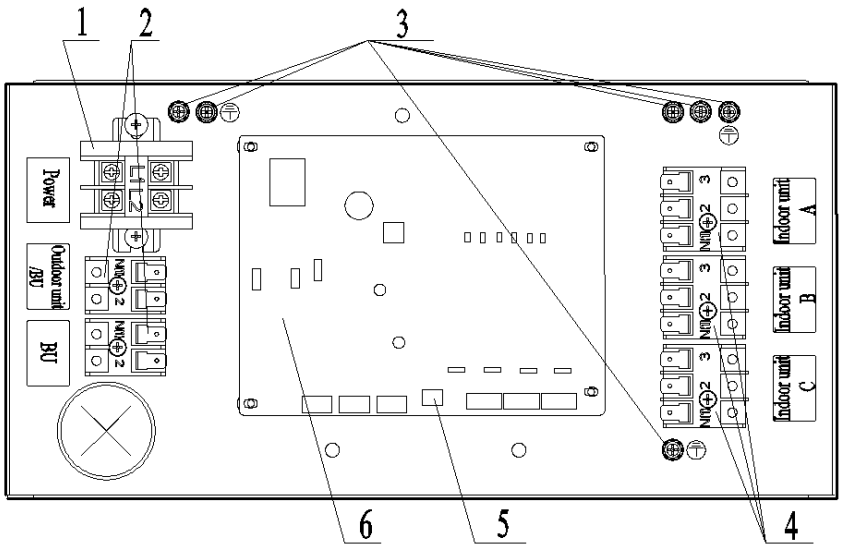
Fig. 25

6.6 Procedures for Electrical Wiring Work

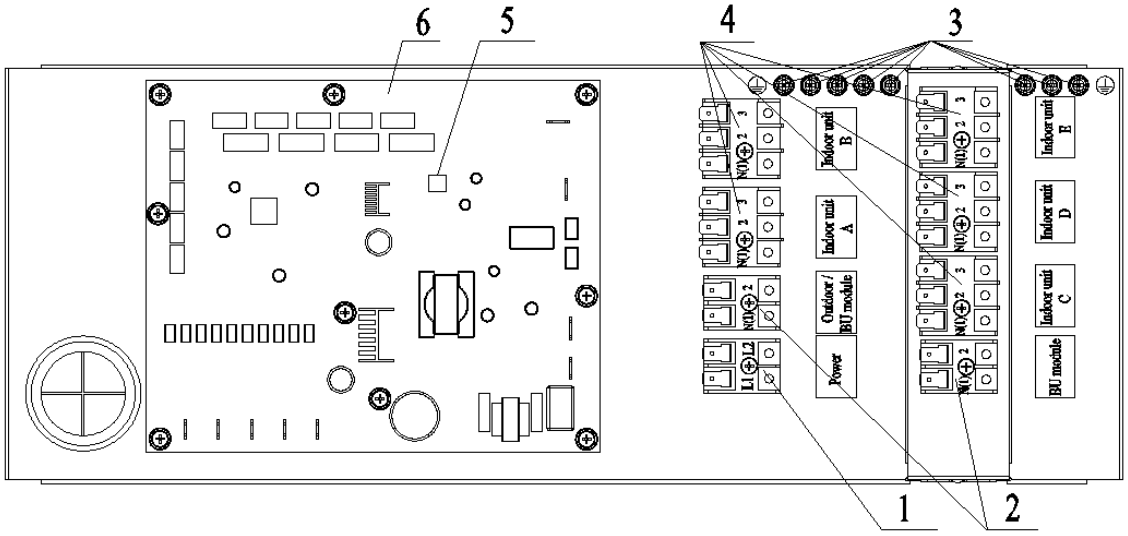
1) Unscrew the electrical equipment plate.
2) The structure of behind the electrical equipment plate.



a) IS-BU12



b) IS-BU13



c) IS-BU15

NO.	1	2	3
Name	Terminal black for BU module power supply	Terminal black for transmission line	Ground screw
NO.	4	5	6
Name	Terminal black for indoor unit power supply	DIP switch	Printed circuit board

Fig. 26

3) Let the power cable and transmission line go through the rubber ring. In order to protect the power cable and transmission line from damaging by the hole, the rubber ring cannot fall from that, otherwise, it may cause electrical shock or fire etc.
4) Connect the power cable of the BU module to the L1, L2 terminals with the sign of Power and as well as the ground screw.
5) Connect the transmission line of the BU module to the N(1), 2 terminals with the sign of Outdoor unit/BU module.
6) If the transmission line need to be connected to the other BU module, please connect the extra

line to the N(1), 2 terminals with the sign of BU module.

7) Connect the power cable of the indoor unit to the N(1), 2 and 3 terminals with the sign of Indoor unit A (B, C, D and E) and as well as the ground screw.
8) Fix the power cable and transmission line firmly by cable fixing clip.
9) Screw the electrical equipment plate.

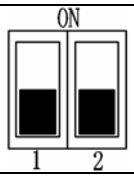
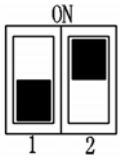
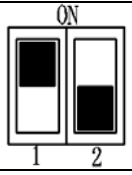
⚠CAUTION	
1)	The transmission line and the power cable must be separated with an interval of at least 2cm (3/4inch); otherwise it may be result in communication problem.
2)	Confirm the each cable connected to the terminal screw is exactly and securely after finishing the electric work.
3)	Fix each ground wire separately with the ground screw.
4)	When connecting indoor units, make sure to connect refrigerant pipes and power cables to the same connection ports marked with matching signs (A, B, C ,D and E).
5)	If the connecting wire is connected to the terminal incorrectly, the unit will not work normally.
6)	The refrigerant pipe should be supported by brackets, that is, don't let the unit withstand the weight of it.
7)	For the Flex+ system, each pipe should be labeled to tell which system it belongs to avoid mistaken inaccurate piping.

6.7 Instructions for DIP Switch

- 2 digits DIP is adopted to assign the address when using multi-BU modules and the address cannot be repeated in the same unit.
- One outdoor unit can connect to no more than 3 BU modules.
- "ON" side means "ON" and the opposite side represents "OFF".

NOTICE!: **The black part is lever.**

Table 12

Number	DIP Code		Icon	Address
	DIP 1	DIP 2		
1	OFF	OFF		BU 1
2	OFF	ON		BU 2
3	ON	OFF		BU 3

7 Design of Drainage Pipeline

7.1 Installation of Drain Hose

1) Remove the rubber stopper of drain hole.
2) Connect the drain hose to the drain hole of BU module.
3) The drain hose should be kept at 5-10 degrees of gradient to facilitate discharge of the condensing water. Take care that does not exert too much force on the hose.
4) Thermal insulation materials should be placed at the joints of the drain hose so as to prevent from dew condensation. Fix the drain hose firmly by binding band.

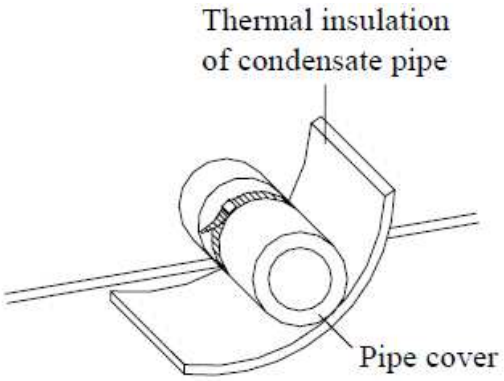


Fig. 27

5) The end of the drain hose should be inserted into the hole of drainage pipeline.

7.2 Design of Drainage Pipeline

1) The drainage pipeline should be kept at a certain gradient (1/50-1/100) so as to avoid bulges of pipes where there might be water bends.
2) The drainage pipeline is form of the hard PVC pipes for common purposes which can be purchased locally. The diameter of the PVC pipes is not less than 31mm (1-1/4inch) and the pipeline should be fixed as close to the BU module as possible.
3) Insert the drain hose into the drain hole of drainage pipeline. Use binding band to fix it tightly. It is not allowed to use adhesive glue to join the drain hose to the drainage hole.
4) When the drainage pipeline is laid for a couple of units, the position of the shared pipeline should be approximately 100mm lower than the drainage hole of each module. In this case, some special-purpose pipes with thicker walls will be used.

NOTICE! **At intervals of about 1 meter (3-1/4feet), fix the drain pipes to the wall with brackets, not floating in the air.**

8 Test Operation

After all the installation has been accomplished, follow the “operation test” as described in the outdoor unit owner’s manual.

9 Troubleshooting

⚠WARNING
1) In the event of abnormal conditions (such as an unpleasant smell), please shut off the power supply immediately and then contact the appointed service center; otherwise, the abnormal running would damage the air conditioner and also would cause electric shock or fire hazard .
2) Do not repair the air conditioning personally but instead contact the professionally skilled personnel at the appointed service center, as the incorrect repair would cause electric shock or fire hazard etc.

Table 13

Errors	Indicating LED flashing times			Indoor unit error code	Outdoor unit error code
	Yellow LED	Green LED	Red LED		
BU 1 is connected	Flash 1 time				
BU 2 is connected	Flash 2 times				
BU 3 is connected	Flash 3 times				
Indoor unit A is connected		Flash 1 time			
Indoor unit B is connected		Flash 2 times			
Indoor unit C is connected		Flash 3 times			
Indoor unit D is connected		Flash 4 times			
Indoor unit E is connected		Flash 5 times			
Indoor unit A gas tube temperature sensor error			Flash 1 time	b7	b7 indoor unit address
Indoor unit A liquid tube temperature sensor error			Flash 2 times	b5	b5 indoor unit address
Indoor unit B gas tube temperature sensor error			Flash 3 times	b7	b7 indoor unit address
Indoor unit B liquid tube temperature sensor error			Flash 4 times	b5	b5 indoor unit address
Indoor unit C gas tube temperature sensor error			Flash 5 times	b7	b7 indoor unit address
Indoor unit C liquid tube temperature sensor error			Flash 6 times	b5	b5 indoor unit address
Indoor unit D gas tube temperature sensor error			Flash 7 time	b7	b7 indoor unit address
Indoor unit D liquid tube temperature sensor error			Flash 8 times	b5	b5 indoor unit address
Indoor unit E gas tube temperature sensor error			Flash 9 time	b7	b7 indoor unit address
Indoor unit E liquid tube temperature sensor error			Flash 10 times	b5	b5 indoor unit address

10 After-Sales Service

If there is any quality or other issue, please contact the after-sales service center.

CUSTOMER SUPPORT

Before contacting customer support, please see the troubleshooting guide above.

Visit our website to contact us, find answers to Frequently Asked Questions, and for other resources which may include an updated version of this user's guide.

WWW.IMPECCA.COM

If you wish to contact us by phone, please be sure to have your model number and serial number ready and call us between 9:00am and 6:00pm ET, at +1 866-954-4440.

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Flex Series R410A GMV Multi VFR System-Indoor Unit (For North America) Compact Panel Cassette Type Indoor Unit

Owner's Manual

Air Conditioners

Model:
ISMI-C15

- Thank you for choosing Air Conditioners, please read this owner's manual carefully before operation and retain it for future reference. If you have lost the Owner's Manual, please contact the local agent or visit www.Impecca.com for an electronic version.
- Impecca reserves the right to interpret this manual which will be subject to any change due to product improvement without further notice.
- Impecca reserves the final right to interpret this manual.

User Notice

◆ When operating, the entire capacity of the cooperating indoor unit should be not larger than 150% of outdoor unit. Otherwise, it will cause the shortage of cooling (heating) capacity.

◆ A Breaker(or fuse) need to be installed in every indoor unit, and the capacity should in according with indoor unit's electrical parameter; all the indoor units are required to be centralized controlled by a total Switch, this Switch can cut off the electric power supply in case of emergency. The Breaker(or fuse) on each indoor units have the function of short circuit prevention and abnormal overload avoiding, it should be connected in normal situation. The total switch controlling the power supply of all the indoor units. Before clearing and maintenance job being carried out to the indoor units, it is very important to turn off the total power supply switch.

◆ In order to turn on the units successfully, the main power switch should be opened 8 hours before the operation.

◆ After receiving the turn off signal, every indoor unit will continue to work for 20-70sec to make use of the rest cool air or the rest heat air in the heat exchanger, while preparing for the next operation. And this is normal.

◆ When the selected operating mode of the indoor unit are clash with the operating mode of the outdoor unit, the malfunction light will blink after 5s on the indoor unit or remote controller showing that the operation clash, then the indoor unit will stop. At this time, change the operation mode of the indoor unit to the one that would not clash with the outdoor operating mode to make the operation normal. The cooling mode is not clash with the dry mode, while the fan mode is not clash with any mode.

◆ The appliance shall not be installed in the laundry.

◆ An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

◆ Information regarding transport/storage temperature (-25-55°C) is missing.

◆ Main switch provided by end user: main switch handle should be black or gray, it can be locked in "OFF" position with padlock.

◆ The main disconnection device should be explained in user manual and the height should be recommended at 0.6-1.7m. over current protection is required(UL 1995,CSA C22.2).

◆ The cooling range of the unit is the outdoor environment temp.-5~48°C DB, the heating range of the unit(only for the heat pump type unit) is the outdoor environment temp. -15~27°C WB.

This product must not be disposed together with the domestic waste. This product has to be disposed at an authorized place for recycling of electrical and electronic appliances.

Thank you for your selecting of Impecca air conditioner, please read this usage and install instruction carefully and keep it well in order to use this unit correctly.

Contents

1 Safety Information

Please read this manual carefully before use this unit, and operate it correctly according to the guide in this manual.

Please take specially note to the meaning of these two marks:

⚠ **Warning!:** This mark means that it may cause casualty or badly heart if the operation is incorrect.

⚠ **Note!:** This mark means that it may cause casualty or property loss if the operation is incorrect.

⚠ **Warning:**

◆ Do not adopt fuse with unsuitable capacity or adopt iron thread instead of fuse, otherwise malfunction or fire may happened.

◆ Cut down the main power switch immediately if malfunction (such as smell the burning odor etc.) happened.

◆ Maintain ventilation to prevent oxygen leakage in room.

◆ Don't insert finger or stick like things into discharge vent or outlet grill.

◆ Please make sure that the unit is installed in the place that can bear the weight of it adequately. If the place is not strong enough, the air conditioner may drop and cause casualty event.

◆ Don't spray or smear any oil paint or insecticide on the surface of unit, otherwise, fire may be leaded.

(1). Do not refit the conditioner. Please contact the agency or prefect ional personnel to repair or move the conditioner.

An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

⚠ **Note!:**

◆ Please check and make sure that the cord, drainage pipe and tubes are connected in the correct way to prevent leakage of water, refrigerant, electric shock or fire.

◆ The main power must connectable to the earth in order to assure the conditioner earthing effectively and to prevent electric shock. Please don't connect the earthing line with the gas pipe, water pipe, lightening rod or the connecting line of telephone.

◆ The air conditioner should be turned off at least after 5 mins' operation; otherwise it would affect the duration of the unit.

◆ Don't let the children operate the air conditioner.

◆ Please don't operate the unit by wet hand.

◆ Please turn off the main power of the unit before cleaning the conditioner or change the filter.

◆ Please cut off the main power if the conditioner will be used for a long time.

2 Install of The Compact Panel Cassette Type Indoor Unit

2.1 Schematic diagram of installation spaces

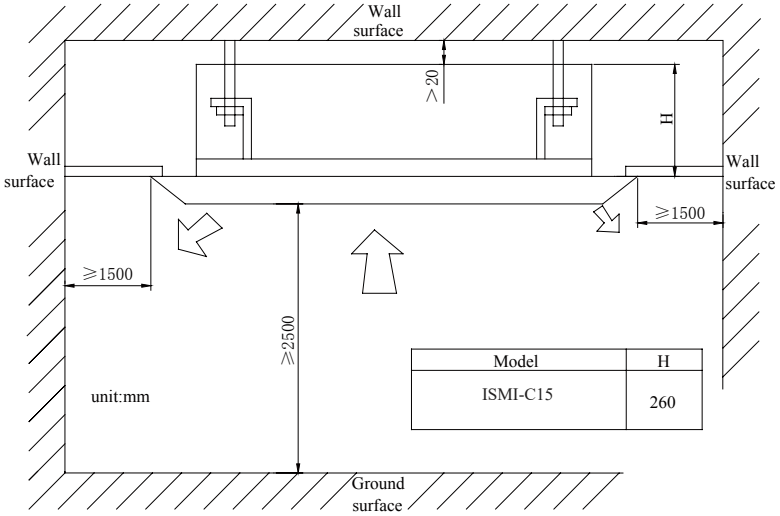


Fig.1

2.2 Select install location of the indoor unit

(1). Obstruct should put away from the intake or outlet vent of the indoor unit so that the airflow can be blown though all the room.

(2). Make sure that the installation had accord with the requirement of the schematic diagram of installation spaces.

(3). Select the place where can stand 4 times of the weight of the indoor unit and would not increase the operating noise and oscillate.

(4). The horizontally of the installation place should be guaranteed.

(5). Select the place where easy drain condensated coagulated water, and easy connect with outdoor unit.

(6). Make sure that there are enough space for care and maintenance. Make sure that the weight between the indoor unit and ground is above 2500mm.

(7). When installing the steeve bolt, check if the install place can stand the weight 4 times of the unit's. If not, reinforce before installation. (Refer to the install cardboard and find where should be reinforced)

⚠ Note!

There will be lots of lampblack and dust stick on the acentric, heat exchanger and water pump in dining room and kitchen, which would reduce the capacity of heat exchanger, lead water leakage and abnormal operation of the water pump. **The following treatment should be taken under this circumstance:**

(8). Ensure that the smoke trap above cooker has enough capacity to obviate lampblack to prevent the indraft of the lampblack by the air conditioner.

(9). Keep the air conditioner far from the kitchen so that the lampblack would not be indraft by the air conditioner.

2.3 Important notice

◆ To guarantee the good performance, the unit must be installed by professional personnel according with this instruction.

◆ Please contact the local Impecca special nominated repair department before installation. Any malfunction caused by the unit that is installed by the department that is not special nominated by Impecca would not deal with on time by the inconvenience of the business contact.

2.4 Dimension of ceiling opening and location of the hoisting screw (M10)

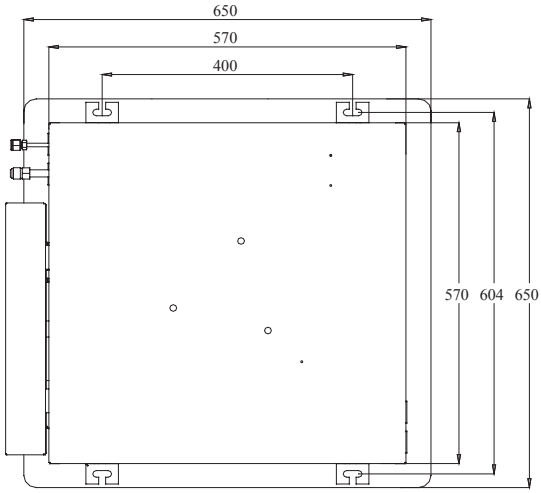


Fig.2 Install dimension of mode

◆ The drilling of holes in the ceiling must be done by the professional personnel.

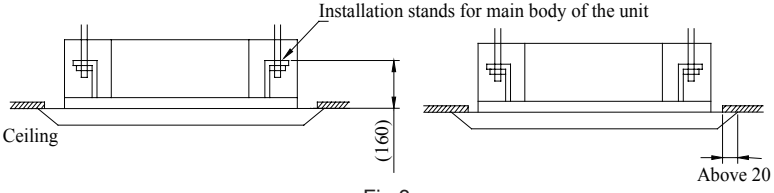


Fig.3

Notes: The dimension for the ceiling openings with * marks can be as large as 610mm. But the overlapping sections of the ceiling and the decorated surface boards should be maintained at no less than 20mm.

2.5 Main body of hoisting air conditioner

(1). The primary step for install the indoor unit.

◆ When attach the hoisting stand on hoisting screw, do use nut and gasket individually at the upper and lower of the hoisting stand to fix it. The use of gasket anchor board can prevent gasket break off.

(2). Use install cardboard.

◆ Please refer to the install cardboard about the dimension of ceiling opening.

◆ The central mark of the ceiling opening is marked on the install cardboard.

◆ Install the install cardboard on the unit by bolt (3 piece), and fix the angle of the drainage pipe at the outlet vent by bolt.

(3). Adjust the unit to the suitable install place. (Refer to the fig.3)

(4). Check if the unit is horizontal.

◆ Inner drainage pump and bobber switch are included in the indoor unit, check if 4 angle of every unit are horizontal by water lever. (If the unit is slant toward the opposite of the coagulate water flow, there may be malfunction of the bobber switch and lead water drop.)

(5). Backout the gasket anchor board used to prevent gasket break off and tighten the nut on it.

(6). Backout the install cardboard.

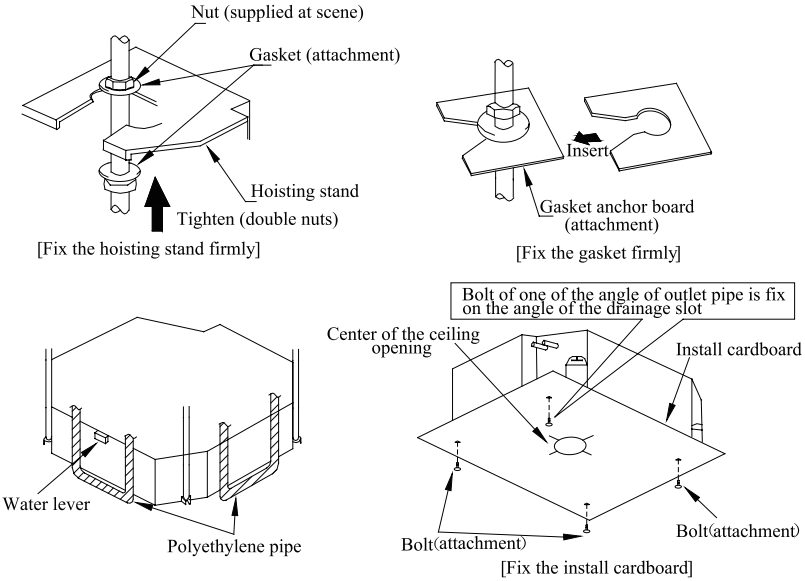


Fig.4

⚠ **Note!**: Please do tighten the nuts and bolts to prevent air conditioner break off.

2.6 Connection of the refrigerant pipe

◆ When connect the pipe to the unit or backout it from the unit, please do use both spanner and torque wrench. as shown in fig.5.

◆ When connect, smear both inside and outside of the flare nut with freeze motor oil, screw it by hand and then tighten it with spanner.

◆ Refer to form 1 to check if the wrench had been tightened (too tight would mangle the nut and lead leakage).

◆ Examine the connection pipe to see if it had gas leakage, then take the treatment of heat insulation, as shown in the fig.5.

◆ Only use median sponge to entwine the wiring interface of the gas pipe and heat preservation sheath of the gas collection tube.

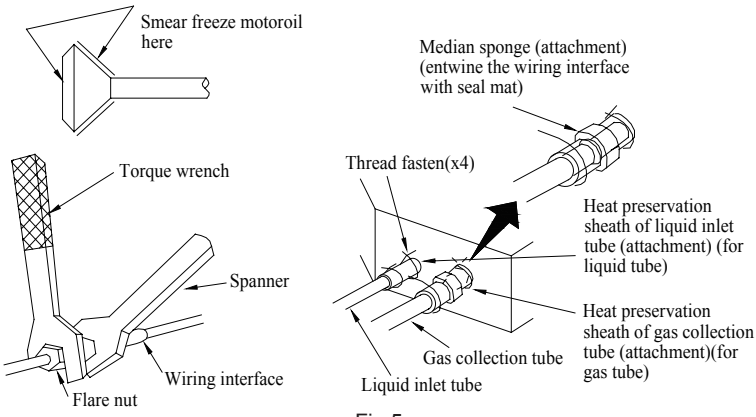


Fig.5

Form 1: The tightening torque needed for tightening nut

Diameter（Inch）	Surface thickness（mm）	Tightening torque (N • m)
φ1/4''	⩾ 0.5	15-30 (N • m)
φ3/8''	⩾ 0.71	30-40 (N • m)
φ1/2''	⩾ 1	45-50 (N • ·m)
φ5/8''	⩾ 1	60-65 (N • m)
φ3/4''	⩾ 1	70-75 (N • ·m)

2.7 Drainage hose

(1). Install the drain hose

◆ The diameter of the drain hose should be equal or bigger than the connection pipe's. (The diameter of polythene pipe: Outer diameter 25mm Surface thickness ⩾ 1.5mm)

◆ Drain hose should be short and drooping gradient should at less 1/100 to prevent the formation of air bubble.

◆ If drain hose cannot has enough drooping gradient, drain raising pipe should be added.

◆ To prevent bent of the drain hose, the distance between hoisting stand should is 1 to 1.5m.

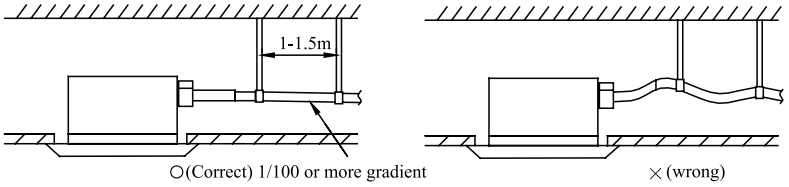


Fig.6

◆ Use the drain hose and clamp attached. Insert the drain hose to the drain vent, and then tighten the clamp.

◆ Entwine the big sponge on the clamp of drain hose to insulate heat.

◆ Heat insulation should be done to indoor drain hose.

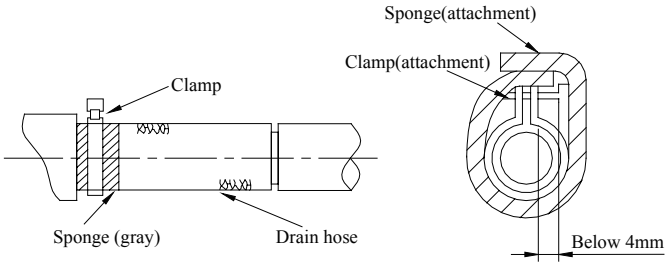


Fig.7

Drain stepup pipe note

◆ The install height of the drain raising pipe should less than 280mm.

◆ The drain raising pipe should form a right angle with the unit, and distance to unit should not beyond 300mm.

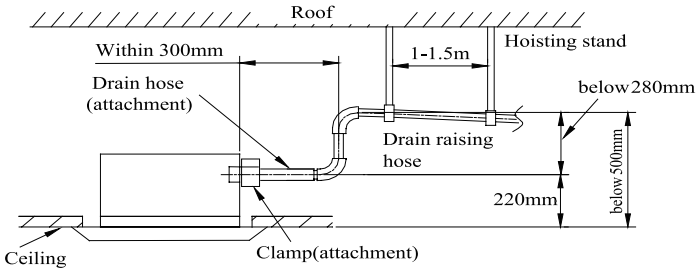


Fig.8

Instruction

◆ The slant gradient of the attached drain hose should be within 75mm so that the drain hole doesn't has to endure the unnecessary outside force.

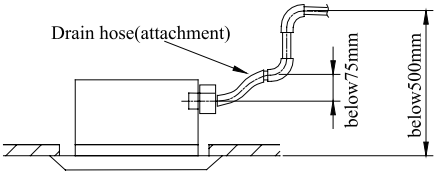
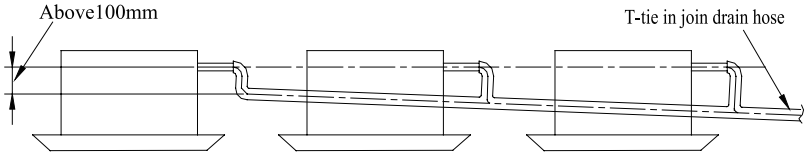


Fig.9

◆ Please install the drain hose according to the following process if several drain hoses join together.



The specs of the selected join drain hose should fits the running capacity of the unit.

Fig.10

(2). Check the smoothness of drain after installation.

◆ Check the drain state by immitting 600cc water slowly from the outlet vent or test hole.

◆ Check the drain in the state of refrigerating after installation of the electric circuit.

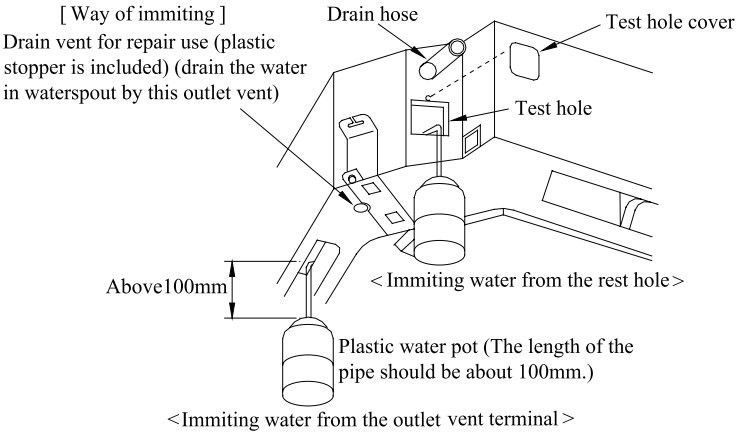


Fig.11

2.8 Electrical wiring

⚠ **Note:The power of the entire indoor unit must be connected in outdoor unit.**

◆ About the electrical wiring, please see the circuit diagram attached with the unit.

◆ All the installation of electrical wiring must be done by professional personnel.

◆ Please do take the earthing treatment.

Wiring method of connection unit and controller

◆ Connection wiring (communication):

① Open electric box cover, drag the wiring (communication)from the rubber plug A, and impact them well individually by impact fastener.

② Wiring according to the indoor side circuit diagram.

◆ Fix the impact fastener after connection.

◆ Entwine the small sponge on the electric wire(do entwine it to prevent condensation).

◆ Impact tightly by impact fastener after connection and then fit on the electric box.

◆ Connect the 3 cord rubber wire to the counter terminal of the 3 way terminal board.

The power cord reference Power cord standard recommending table

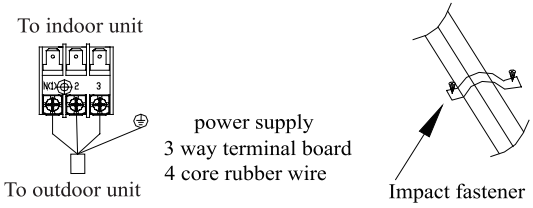


Fig.12

Power cord standard recommending table

Power Supply (V, Ph, Hz)	Min. Sectional Area of Earth Wire(AWG)	Min. Sectional Area of Power Cord(AWG)
208~203V-1Ph-60Hz	UL1015 AWG 18*1	UL1015 AWG 18*3

2.9 Install the panel

(1). Set the panel to the indoor unit body by matching the position of the swing flap motor of the panel to the piping position of the panel to the piping position of the indoor unit as shown by fig.13.

(2). Install the panel

① . Install the panel on the indoor unit temporarily. When install, hang the latch on the hook that is located on the opposite side of the swing flap on the panel of the indoor unit. (2 positions)

② . Hang the remaining 2 latches to the hooks on the sides of the indoor unit.(Be careful not to let the swing motor lead wire get caught in the sealing material.)

③ . Screw the 4 hexagon head screws under the latches in about 15mm. (The panel would rise)

④ . Adjust the panel by turning it toward the direction pointed by the arrow as shown in fig.13, so that the adjust board connect the ceiling well.

⑤ . Tighten the screws until the thickness of the sealing material between panel and indoor unit reduced to 5-8mm.

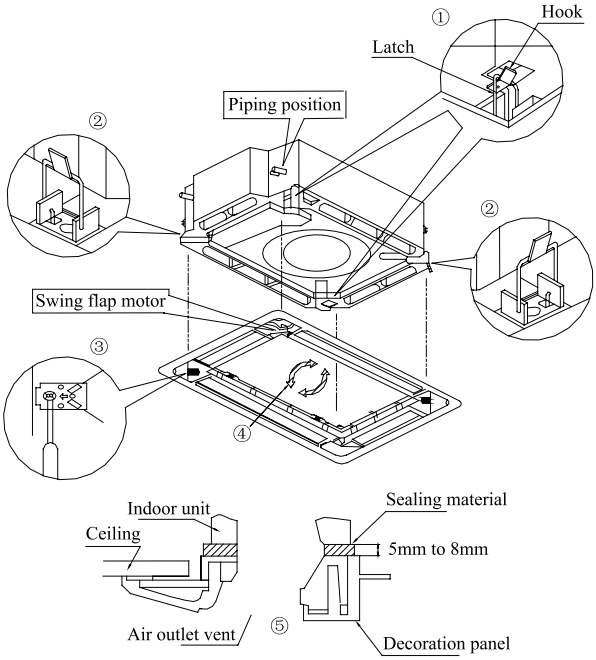


Fig.13

Notes:

① . Improper screwing of the screws may cause the troubles shown in fig.14.

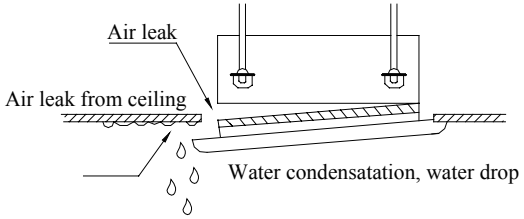


Fig.14

② . If gap still exist between ceiling and decoration panel after tightening the screws, readjust the height of the indoor unit. (As shown in fig.15)

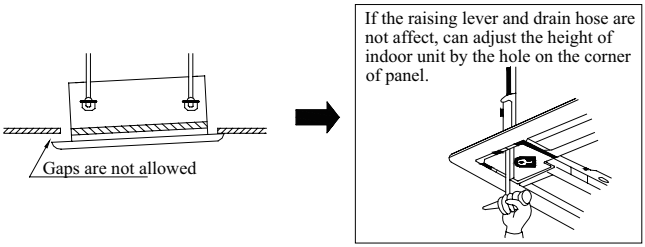


Fig.15

※ After fixing, be sure no gap left between the ceiling and the panel.

③ . Wiring of the decoration panel (Fig.16)

Connect the joints for swing flap motor lead wire (at 2 places) installed on the panel.

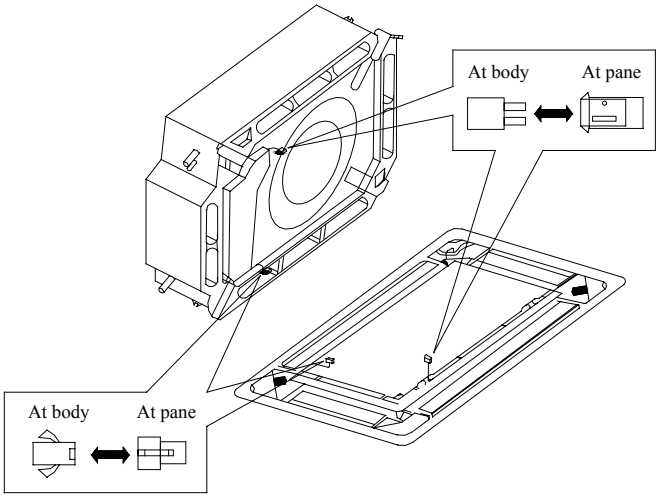
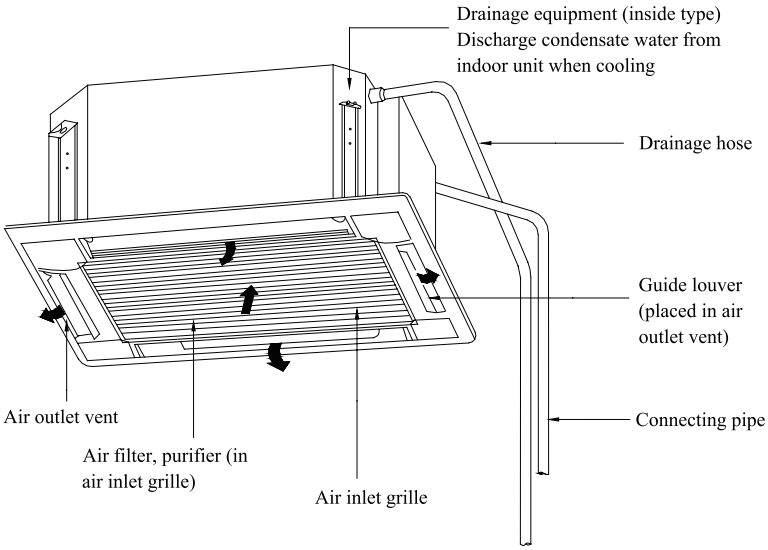


Fig.16

3 Constitutes and Names of Parts of Compact Panel Cassette Type Indoor Unit



4 Working Temperature Range

Working Temperature Range

	Indoor side state		Outdoor side stae	
	Dry bulb temp. ℃	Wet bulb temp. ℃	Dry bulb temp. ℃	Wet bulb temp. ℃
Rated Cooling	27	19	35	24
Max. cooling	32	23	48	26
Min. cooling	21	15	18	—
Rated Heating	20	15	7	6
Max. heating	27	—	24	18
Min. heating	20	15	— 15	— 16

5 Malfunction Debarring

⚠Warning!

◆ Cut down the main power switch immediately if malfunction (such as smell the burning odor etc.) happened, and then contact service center. If the abnormal state is maintained, the unit may be damaged or electric shock or fire may be happened.

◆ Do not refit the conditioner. Please contact service center to repair or move the conditioner.

5.1 Check the following items before contacting maintenance center

Phenomena	Reason	Remedial Measures
Air conditioner doesn't run at all	Blow of fuse or breaker	Change fuse or close breaker
	Power cut	Restart when there is power supply
	Don't connect with power	Connect power well
	Low batteries of wireless remote controller	Change new batteries
	Wireless remote controller exceed remote control area	Signal could be received within 8m
Air conditioner runs but stops immediately	Blockage in inlet or outlet vent of indoor or outdoor unit	Clean out blockage
Abnormal cooling or heating	Blockage in inlet or outlet vent of indoor or outdoor unit	Clean out blockage
	Improper of temp. setting	Adjust settings in wireless remote controller
	Low setting of fan speed	Adjust settings in wireless remote controller
	Incorrect of wind direction	Adjust settings in wireless remote controller
	Door or window opened	Close
	Direct sun burn	Hang curtain or jalousie before windows
	Too many people in room	
	Too many heater in room	
	Filter blocked by dirt	Clean filter

5.2 Instruction

If problem still cannot found out after above checking, please contact service center and instruct phenomena and model.

5.3 The following circumstance are not malfunction

"Malfunction"		Reason
Air conditioner doesn't run	Start up unit immediately after turned off	The overload protects switch makes it run after 3 minutes delay.
	When opening power	Run for about 1 minute without other actions
Mist is blown from air conditioner	When cooling	The high humidity air in room is cooled rapidly
Noise is heard from air conditioner	Slight click sound heard once begin running	Sound of initialization for electric expand valve
	Hissing sound heard continuously when cooling	The sound for gas refrigerant flowing in the unit
	Hissing sound heard when staring or stopping	The sound for gas refrigerant stops flow
	Slight hissing sound heard when running or after running	Sound for running of drainage system
	Creak sound heard when running or after running	The grating sound caused by expands of panel and other parts for the change of temperature
Dust be blown for air conditioner	Started up after long time's doesn't runs	Dust in indoor unit be blown out
Odor gives out from air conditioner	When running	This is because when air conditioning, odors or cigarette smoke from the room that was sucked in is discharged again.

5.4 After-sales Service

When having quality or other problems when purchasing air conditioner, please contact the local service center.

6 Maintenance Method

When air conditioner won't be used for a long time, please cut off the main power supply of air conditioner.

⚠Warning!

◆ Do turn off the unit and cut off the main power supply when cleaning the air conditioner, otherwise electric shock or harm may happen.

◆ It is forbidden to wash air conditioner by water rinsing, otherwise electric shock may happen.

6.1 Cleaning air filter

Air filters should be cleaned by professionals with proper operation to ensure personal safety.

When the usage environment has lots of dust, air filter should be cleaned more frequently (about once 6 months).

(1). Open air inlet grille

Loosen two screws on the air inlet grille with a screwdriver. And pull the 2 handle on air inlet grille at the same time with the direction showed by arrow in fig.17, pull down slowly. (Reverse when closing)

(2). Disassembly air filter

As shown in fig.18, pull the handle behind air inlet grille, raise it and disassembly. Then discharge the 3 purifier fixed on filter.

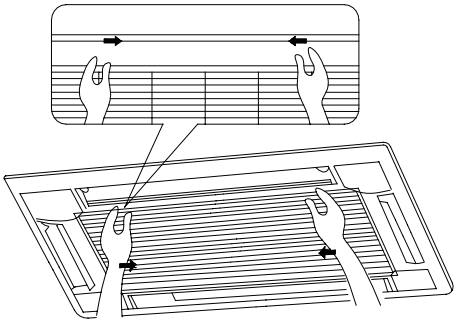


Fig.17

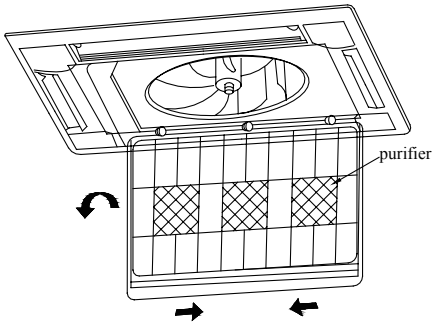


Fig.18

(3). Clean

Adopts cleaner or water to wash filter; if the filter is too dirty (like oil stain on it), adopts warm water (lower than 45℃) with neutral scourer to clean it, then dry it in the shade.

⚠Note !

Do not clean the filter by hot water whose temp. is higher than 45 ℃ to prevent fade or deformation.

Do not burn it on fire or the filter would catches fire or deformation.

(4). Install air filter

Fix the 3 purifiers on filter, install filter on the several bulges on top of air inlet grille, pull the handle behind air inlet grille toward inside to fix filter. As shown in fig.19.

(5). Close air inlet grille (Refer to the 1st step)

Maintenance Method

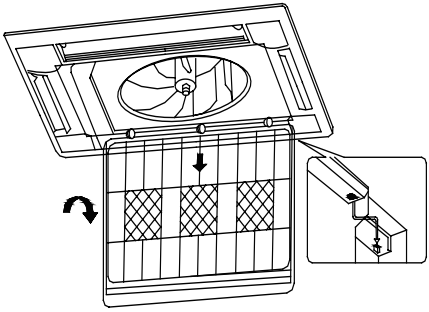


Fig.19

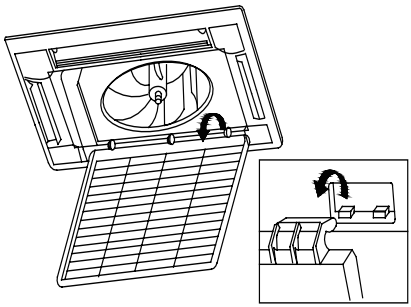


Fig.20

6.2 Clean air inlet grille

(1). Open air inlet grille (the same with the 1st step of Clean Air Filter)

(2). Take out air filter (the same with the 2nd step of Clean Air Filter)

(3). Take out air inlet grille

Open air inlet grille for an angle of 45°, as shown in fig.20, rise it.

(4). Clean

Clean it by pubescence brush, water and neutral cleaning, then throw water or dry it.

⚠**Note** !

Do not use water above 45℃ to wash the panel to prevent fade or deformation.

(5). Install air inlet grille (refer to 3rd step)

(6). Install air filter (refer to the 4th step of Clean Air Filter)

(7). Close air inlet grille (refer to the 1st step)

6.3 Install and change of air purifier

(1). Open air inlet grille (the same the 1st step of Clean Air Filter)

(2). Disassembly purifier

As shown in fig.21, disassembly air filter, screw out fixing bolts fixed on purifier on filter, then purifier could be disassembly.

(3). Take out the package sack of static fiber net filter, then install the filter in stand of purifier, and fix purifier on air filter.

(4). Install air filter (the same with the 4th step of Clean Air Filter)

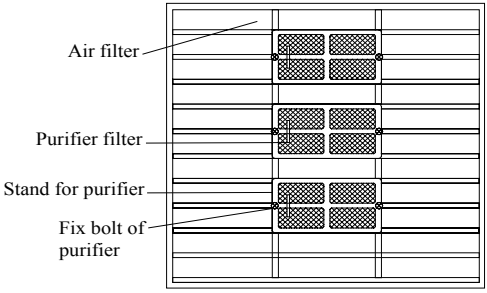


Fig.21

Function and usage period for air purifying

◆ Could adsorb CO, CO_2, benzene, aldehydes and odor of gasoline etc..

◆ Could adsorb deleterious material that is smaller than 1μm in air, as dust, pollen, bacteria, and virus.

◆ Usage period is 6 months to 1 year. If it is necessary to be changed, purchase new purifier in the nearest Impecca special engaged maintenance center.

6.4 Clean Outlet vent and Surface Panel

◆ Clean the surface panel by soft dry cloth or wet cloth with neutral scourer.

◆ It is forbidden to clean surface panel by gasoline, benzene, diluents, cleansing powder etc..

◆ If the guide louver is too dirty, it may be removed to be cleaned. (As narrated below)

Disassembly and install of guide louver

(1). Disassembly guide louver

Screw bolts in both end of guide louver to loose.

⚠**Note**！

Do not wipe guide louver powerfully when cleaning, otherwise fluff on surface would fall off.

(2). Install guide louver

Rotate guide louver slightly could install the protruding edge of both end into grooves on both end of guide louver, and then tighten bolts.

6.5 Maintenance before or after usage season

Check before the usage season

◆ Check if there is blockage in inlet or outlet vent of air conditioner.

◆ Check if the earthing wire had earthed reliably.

◆ Check if the air filter had been installed well.

◆ In order to start up the air conditioner smoothly after long time's turned off, turn on the main power supply 8 hours before turning on the air conditioner.

Maintenance after usage season

◆ Clean filter and body of air conditioner.

◆ Cut off the main power supply of air conditioner.

◆ The cooling or heating capacity and sound level are tested before leaving factory.

◆ If the parameter changed, refer to the data offered on nameplate.

6.6 CUSTOMER SUPPORT

Before contacting customer support, please see the troubleshooting guide above.

Visit our website to contact us, find answers to Frequently Asked Questions, and for other resources which may include an updated version of this user's guide.

WWW.IMPECCA.COM

If you wish to contact us by phone, please be sure to have your model number and serial number ready and call us between 9:00am and 6:00pm ET, at +1 866-954-4440.

Keep tabs on Impecca's newest innovations & enter contests via our social network feeds:

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@impeccausa

Flex Series R410A GMV Multi VRF
Cassette Type Indoor Unit
(For North America)

Owner's Manual

Commercial Air Conditioners

Model: ISMI-C24

Thank you for choosing Commercial Air Conditioners, please read this owner's manual carefully before operation and retain it for future reference.

User Notice

◆ The total capacity of the indoor units which runs at the same time can not exceed 150% of that of outdoor units; otherwise, the cooling (heating) effect of each unit would be poor.

◆ A breaker (or fuse) needs to be installed in every indoor unit, and the capacity should be in accordance with indoor unit's electrical parameter; all the indoor units are required to be centralized controlled by a main switch, this switch can cut off the electric power supply in case of emergency. The breaker (or fuse) on each indoor unit has the function of preventing short circuit and avoiding abnormal overload, it should be connected in normal situation. The main switch controls the power supply of all the indoor units. Before cleaning and maintaining the indoor units, it is very important to turn off the main power supply switch.

◆ In order to turn on the units successfully, the main power switch should be opened 8 hours before the operation.

◆ It is a normal phenomenon that the indoor unit will still run for 20-70 seconds after the indoor unit receives the "stop" signal so as to make full use of after-heat for the next operation.

◆ When the running modes of the indoor and outdoor units conflict, it will be indicated on the display of the wired controller in five seconds and then the indoor unit will stop. At this time, change the operation mode of the indoor unit to the one that would not clash with the outdoor operating mode to make the operation normal. The HEAT mode conflicts with each of the COOL mode, DRY mode and FAN mode, while the COOL mode, DRY mode and FAN mode are compatible between each other.

◆ The appliance shall not be installed in moist places, such as laundry.

◆ An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

◆ Main switch is provided by end user. Main switch knob should be in black or gray, it can be locked on "OFF" with padlock.

◆ The instruction of main power switch should be included in user manual and the recommended installing height should be at 0.6-1.7m. And also over current protection is required (UL 1995,CSA C22.2).

◆ The outdoor ambient temperature of the unit under cooling mode ranges from -5~48°C DB. The outdoor ambient temperature of the unit (only for the heat pump type unit) under heating mode ranges from -15~27°C WB.

◆ This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

This product must not be disposed together with the domestic waste. This product has to be disposed at an authorized place for recycling of electrical and electronic appliances.

Thank you for selecting Impecca air conditioner. Before use, please read this manual carefully and keep it properly for furthur reference.

Contents

1 Safety Precautions

Please read this manual carefully before using this unit, and operate it correctly according to the guide in this manual.

Please take special attention to the meaning of these two marks:

⚠ **Warning!** It indicates improper operation which will lead to human casualty or severe injury.

⚠ **Note!** It indicates improper operation which will lead to injury or property damage.

⚠ **Warning:**

◆ Do not adopt fuse with unsuitable capacity or adopt iron wire instead of fuse, otherwise malfunction or fire may happen.

◆ Turn off the main power switch immediately if malfunction (such as smell the burning odor etc.) happens.

◆ Keep good ventilation in the room to avoid oxygen deficit.

◆ Don't insert finger or stick-like objects into the air inlet/outlet grille.

◆ Please install the unit in a place where is strong enough to withstand the weight of the unit; otherwise, the unit would fall down and cause injury or death.

◆ Don't apply or spray and paint or insecticide on the surface of unit, otherwise, fire may happen.

◆ Never refit the unit and contact the sales agent or the professional installation personnel for the repair or relocation of the unit.

An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

⚠ **Note:**

◆ Before using the unit, please check if the piping and wiring are correct to avoid water leakage, refrigerant leakage, electric shock, or fire etc.

◆ The main power supply must be earthed soundly to avoid the hazard of electric shock and never connect this earth wire to the gas pipe, running water pipe, lightening rod or phone cable's earth lead.

◆ Turn off the unit after it runs at least five minutes; otherwise its service life will be shortened.

◆ Don't allow children operate the air conditioner.

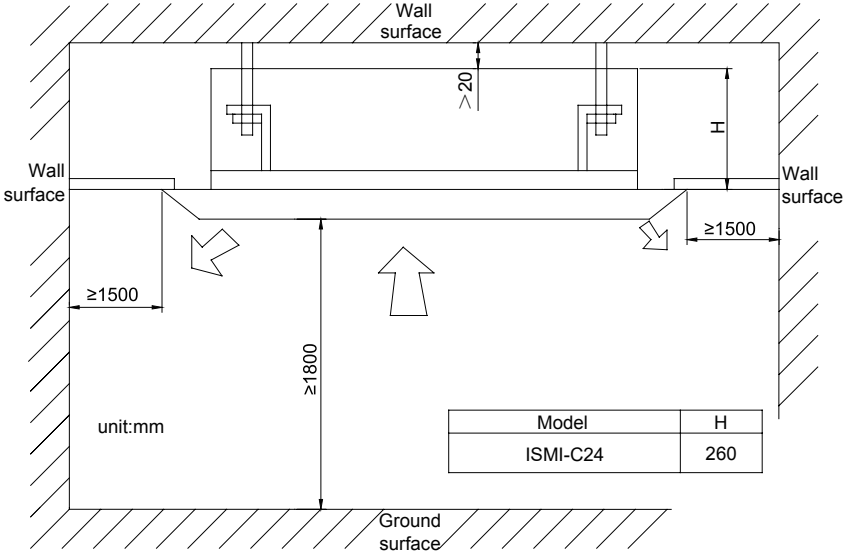
◆ Don't allow children operate the air conditioner.

◆ Please turn off the main power of the unit before cleaning the conditioner or change the filter.

◆ Please cut off the main power if the conditioner will not be used for a long time.

2 Installation of the Cassette Type Indoor Unit

2.1 Schematic Diagram of Installation Spaces



Model	H
ISMI-C24	260

Fig.1

2.2 Installation Location of the Indoor Unit

(1). Obstruct should be taken away from the inlet or outlet of the indoor unit so that the airflow can be blown though all the room.

(2). Ensure the installation work is done as per the schematic diagram of installation spaces.

(3). Select a place where is strong enough to withstand 4 times of the weight of the indoor unit; otherwise it would incur vibration and noise.

(4). Ensure the installation place is at horizontal level.

(5). Select a place where the condensate water is easily drained out and the drain pipe can be easily connected with outdoor unit.

(6). Make sure that there is enough space for care and maintenance. Make sure that the distance between the indoor unit and ground is above 1800mm.

(7). When installing the steeve bolt, check if the installing place can stand 4 times of the weight of the units. If not, reinforce before installation. (Refer to the installation cardboard and find where should be reinforced)

⚠ **Note!**

There will be lots of lampblack and dust sticking on the acentric, heat exchanger and water pump in dining room and kitchen, which would reduce the capacity of heat exchanger, lead water leakage and abnormal operation of the water pump. **The following treatment should be taken under this circumstance:**

1). Ensure that the smoke trap above cooker has enough capacity to obviate lampblack to prevent the indraft of the lampblack by the air conditioner.

2). Keep the air conditioner far from the kitchen so that the lampblack would not be indraft by the air conditioner.

2.3 Important Notice:

◆ To guarantee the good performance, the unit must be installed by technician according with this instruction.

◆ Please contact the local Impecca special nominated repair department before installation. Any malfunction caused by the unit that is installed by the department that is not special nominated by Impecca would not deal without time by the inconvenience of the business contact.

2.4 Dimension of Ceiling Opening and Location of the Hoisting Screw (M10)

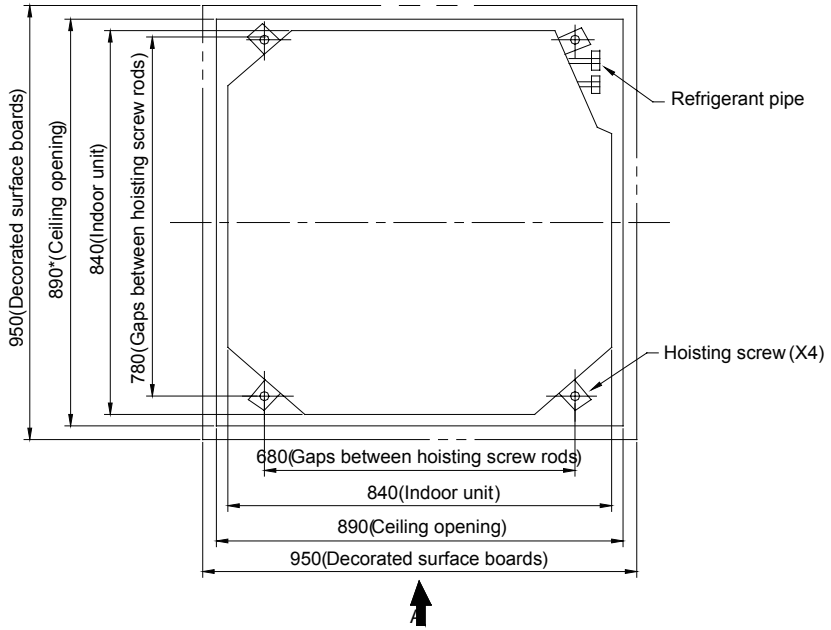


Fig.2 Install Dimension of Model ISMI-C24

◆ The drilling of holes in the ceiling must be done by the technicians.

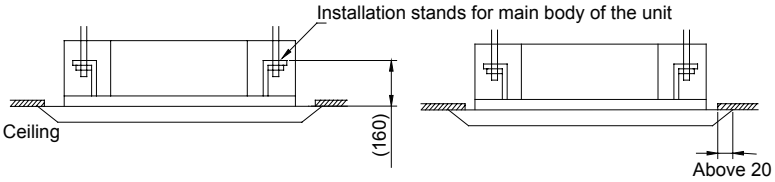


Fig.3

Notes: The dimension for the ceiling openings with * marks can be as large as 910mm. But the overlapping sections of the ceiling and the decorated surface boards should be maintained at no less than 20mm.

2.5 Main Body of Hoisting Air Conditioner

(1). The primary step for installing the indoor unit.

◆ When attach the hoisting stand with hoisting screw, do use nut and gasket respectively at the upper and lower of the hoisting stand to fix it. The use of gasket anchor board can prevent gasket from breaking off.

(2). Use installation cardboard

◆ Please refer to the installation cardboard about the dimension of ceiling opening.

◆ The central mark of the ceiling opening is marked on the installation cardboard.

◆ Install the installation cardboard on the unit by bolts (3 pieces), and fix the angle of the drainage pipe at the outlet vent by bolt.

(3). Adjust the unit to the suitable install place. (Refer to the Fig.4)

(4). Check if the unit is horizontal.

◆ Inner drainage pump and float switch are included in the indoor unit, check if 4 angle of every unit are horizontal by water level. (If the unit is slant toward the opposite of the coagulate water flow, there may be malfunction of the float switch and lead water drop.)

(5). Back-out the gasket anchor board used to prevent gasket from breaking off and tighten the nut on it.

(6). Back-out the installation cardboard.

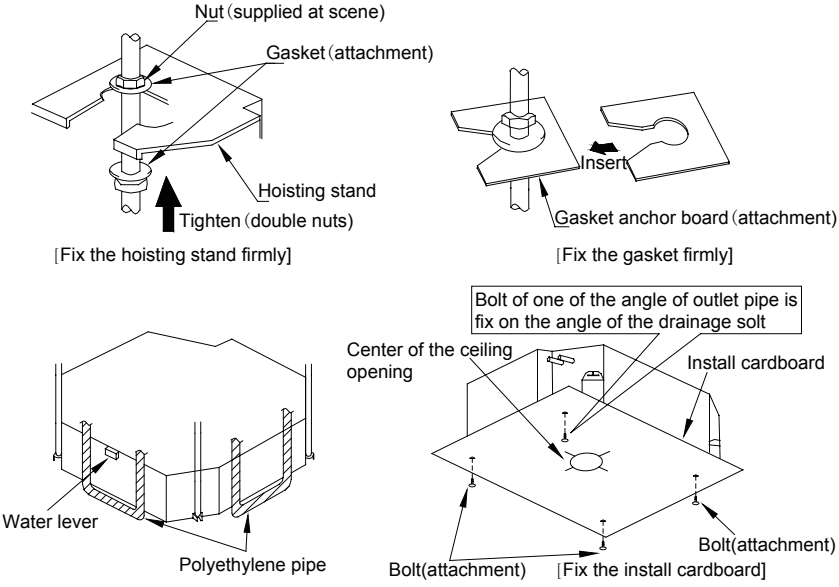


Fig.4

⚠ Note!

- Please do tighten the nuts and bolts to prevent air conditioner from falling down.

2.6 Connection of the Refrigerant Pipe

◆ When connect the pipe to the unit or remove it from the unit, please do use both spanner

and torque wrench. as shown in Fig.5.

◆ When connect, smear both inside and outside of the flare nut with freeze motor oil, screw it by hand and then tighten it with spanner.

◆ Refer to Table 1 to check if the nut has been tightened (tighten too greatly would damage the nut and lead to leakage).

◆ Examine the connection pipe to see if it has gas leakage, then take the treatment of heat insulation, as shown in the Fig.5.

◆ Only use medium-sized sponge to entwine the wiring interface of the gas pipe and heat insulation of the gas collection tube.

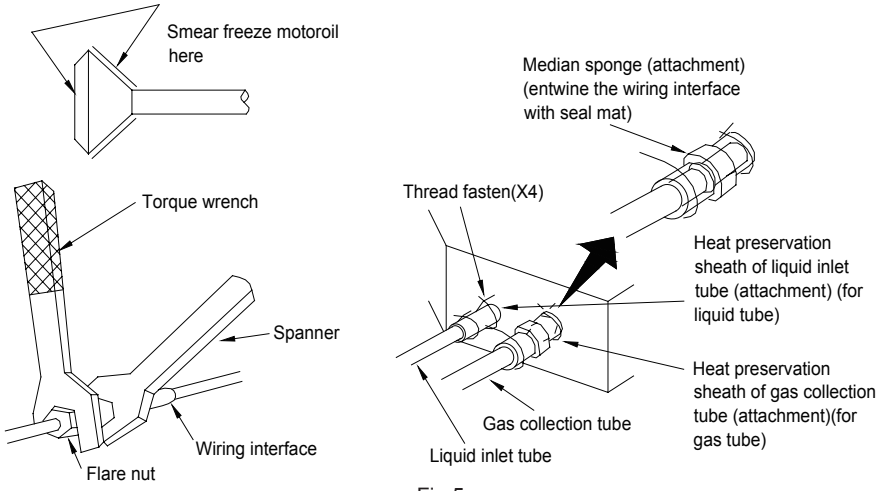


Fig.5

Table 1: The moment of torque for tightening nut

Diameter（Inch）	Surface thickness（mm）	Moment of torque (N • m)
φ1/4”	⩾ 0.5	15-30 (N • m)
φ3/8”	⩾ 0.71	30-40 (N • m)
φ1/2”	⩾ 1	45-50 (N • ·m)
φ5/8”	⩾ 1	60-65 (N • m)
φ3/4”	⩾ 1	70-75 (N • ·m)

If the specification of the outdoor unit pipe joint does not conform to that of the indoor unit, then the joint specification of the outlet pipe of the indoor unit takes precedence. A reducing nipple shall be installed at the joint of the outdoor unit so as to make the joint of the outdoor unit compatible with that of the indoor unit.

2.7 Drain Hose

(1). Install the drain hose

◆ The diameter of the drain hose should be equal or larger than that of connection pipes. (The diameter of polythene pipe: Outer diameter: 25mm; Surface thickness ≥1.5mm)

◆ Drain hose should be short and drooping gradient should at least 1/100 to prevent the

formation of air bubble.

◆ If drain hose cannot has enough drooping gradient, drain raising pipe should be added.

◆ To prevent bent of the drain hose, the distance between hoisting stand and the drain hose should be 1 to 1.5m.

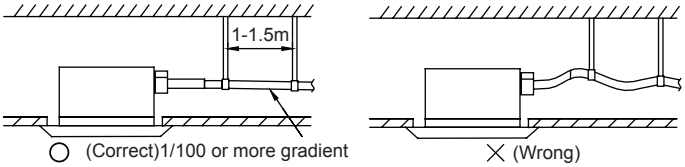


Fig.6

◆ Use the drain hose and clamp attached. Insert the drain hose to the drain vent, and then tighten the clamp.

◆ Wrap clamp with sponge on the drain hose to insulate heat.

◆ Heat insulation should be done to indoor drain hose.

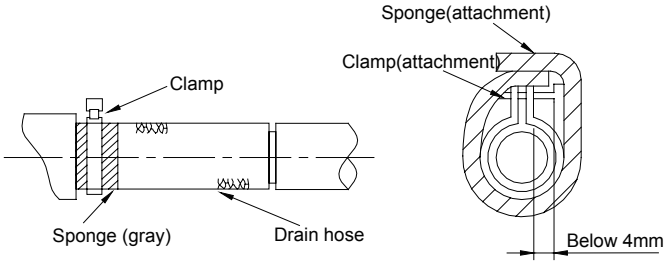


Fig.7

Drain Stepup Pipe Note

◆ The installation height of the drain raising pipe should less than 280mm.

◆ The drain raising pipe should form a right angle with the unit, and distance to unit should not beyond 300mm.

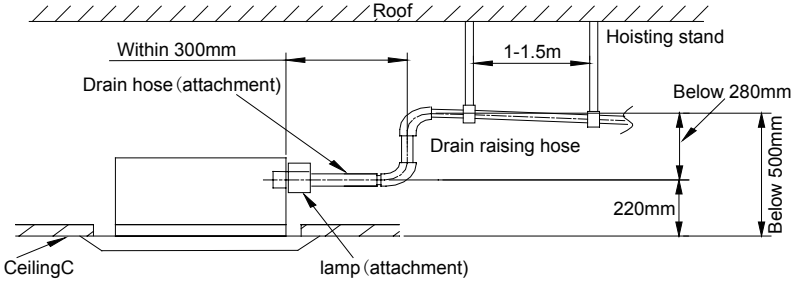


Fig.8

Instruction

◆ The fall of the attached drain hose should be within 75mm so that the joint of the drain pipe doesn't have to endure the unnecessary outside force.

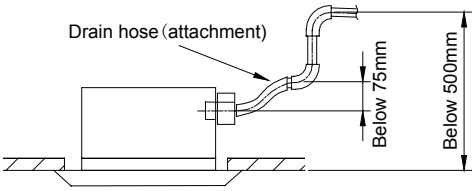
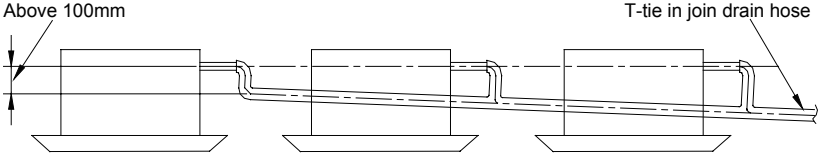


Fig.9

◆ Please install the drain hose according to the following process if several drain hoses join together.



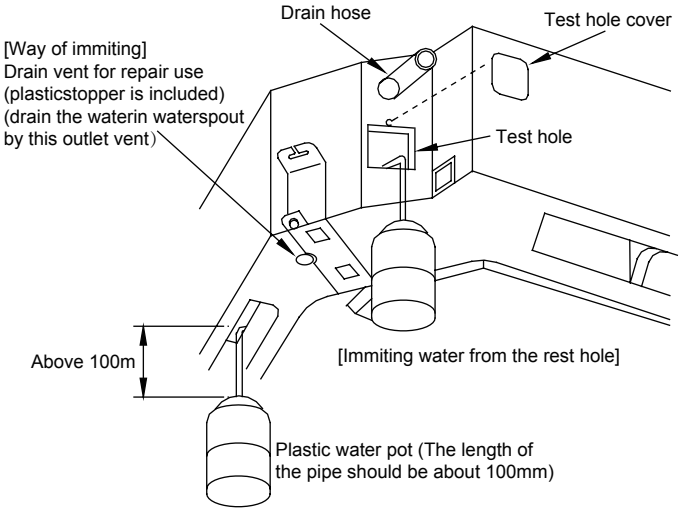
The specs of the selected jion drain hose should fits the running capacity of the unit

Fig.10

(2). Check the drain state after installation

◆ Check the drain state by immitting 600ml water slowly from the outlet vent or test hole.

◆ Check the drain state under cooling mode after electric circuit installation work is done.



[Immiting water from the outlet vent terminal]

Fig.11

2.8 Electrical wiring

⚠ **Note:The power of the entire indoor unit must be connected with outdoor unit.**

◆ About the electrical wiring, please see the circuit diagram attached with the unit.

◆ All the installation of electrical wiring must be done by technicians.

◆ Please do take the earthing treatment.

Wiring Method of Connection Unit and Controller

◆ Connection wiring (communication):

① Open electric box cover(1), drag the wiring (communication)from the rubber plug A, and impact them well individually by impact fastener.

② Wiring according to the indoor side circuit diagram.

◆ Fix the impact fastener after connection.

◆ Wrap the small-sized sponge on the electric wire (do entwine it to prevent condensation).

◆ Impact tightly by impact fastener after connection and then fit on the electric box (1) and (2).

◆ Put the 4-core cable through the hole of the chassis and the bottom of the appliance upward, and then connect the power line and the communication line from the outdoor unit to the corresponding terminals N(1), 2, 3 , and grounding terminal of the indoor unit. Wiring shall be done properly as per the wiring diagram. (Note: Be sure the wring terminals A/B/C/D and piping joints A/B/C/D of the indoor unit match with that of the outdoor unit respectively).

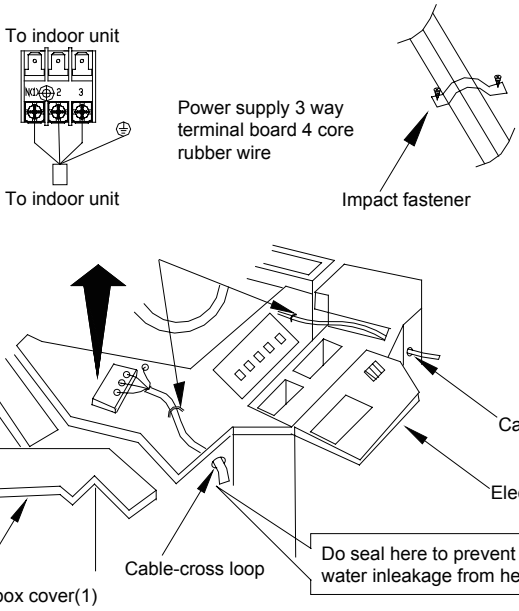
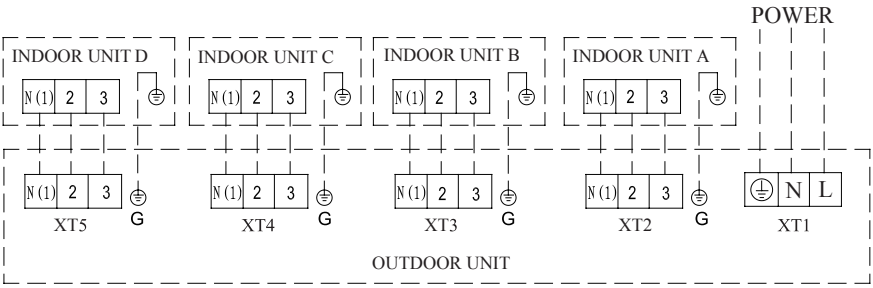
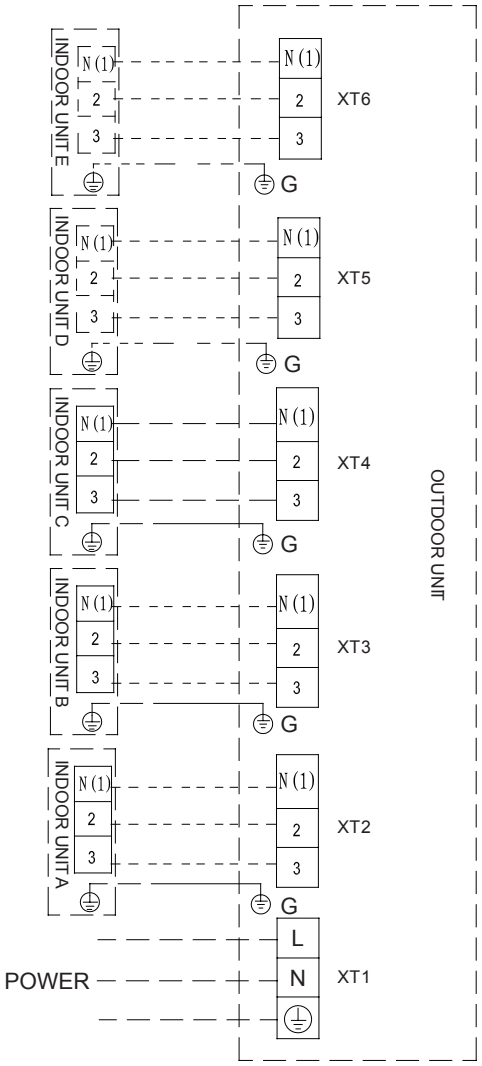


Fig.12

GWHD(36)ND3AO



GWHD(42)ND3AO



2.9 Install the Panel

1. Set the panel to the indoor unit body by matching the position of the swing flap motor of the panel to the piping position of the panel to the piping position of the indoor unit as shown by Fig.13.

2. Install the panel

(1). Install the panel on the indoor unit temporarily. When install, hang the latch on the hook that is located on the opposite side of the swing flap on the panel of the indoor unit. (2 positions)

(2). Hang the remaining 2 latches to the hooks on the sides of the indoor unit.(Be careful not to let the swing motor lead wire get caught in the sealing material.)

(3). Screw the 4 hexagon head screws under the latches in about 15mm. (The panel would rise)

(4). Adjust the panel by turning it toward the direction pointed by the arrow as shown in Fig.13, so that the adjust board connect the ceiling well.

(5). Tighten the screws until the thickness of the sealing material between panel and indoor unit reduced to 5-8mm.

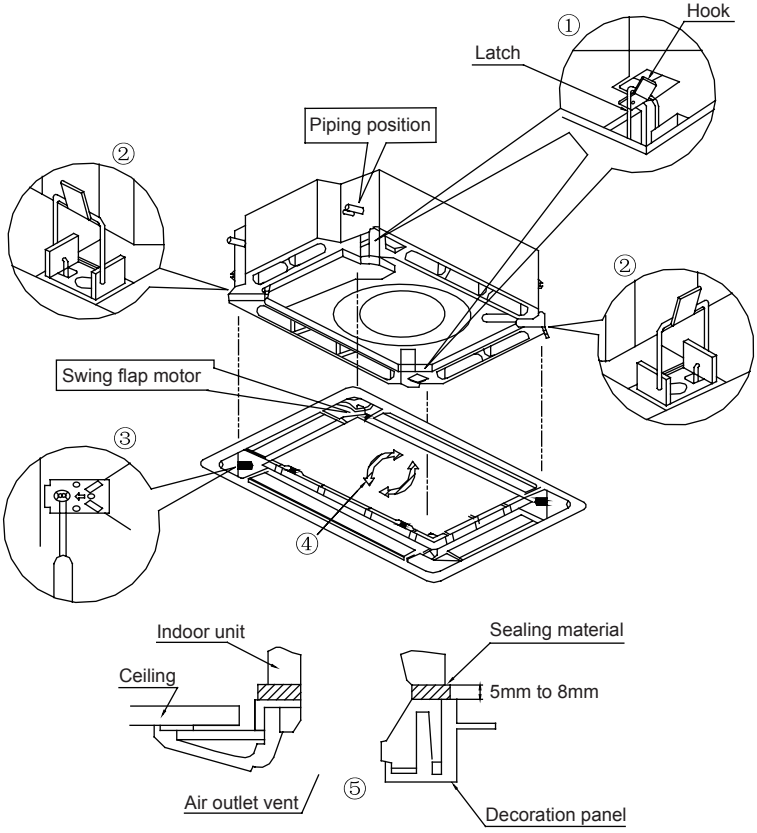


Fig.13

Notes:

① . Improper screwing of the screws may cause the troubles shown in Fig.14.

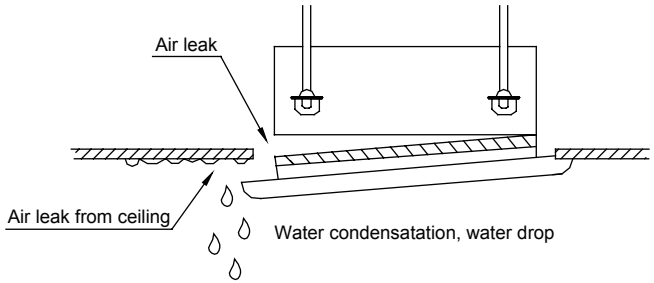


Fig.14

② . If gap still exist between ceiling and decoration panel after tightening the screws, readjust the height of the indoor unit. (As shown in Fig.15)

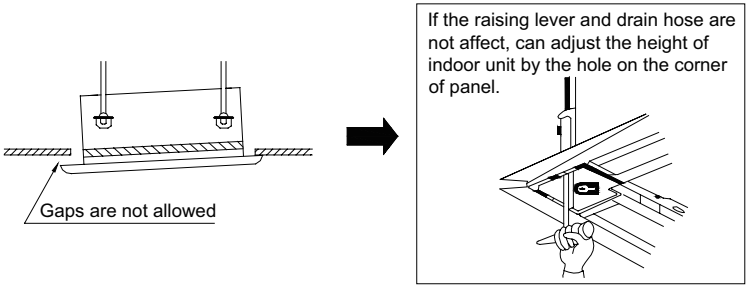


Fig.15

※ After fixing, be sure that there is no gap between the ceiling and the panel.

③ . Wiring of the decoration panel (Fig.16)

Connect the joints for swing flap motor lead wire (at 2 places) installed on the panel.

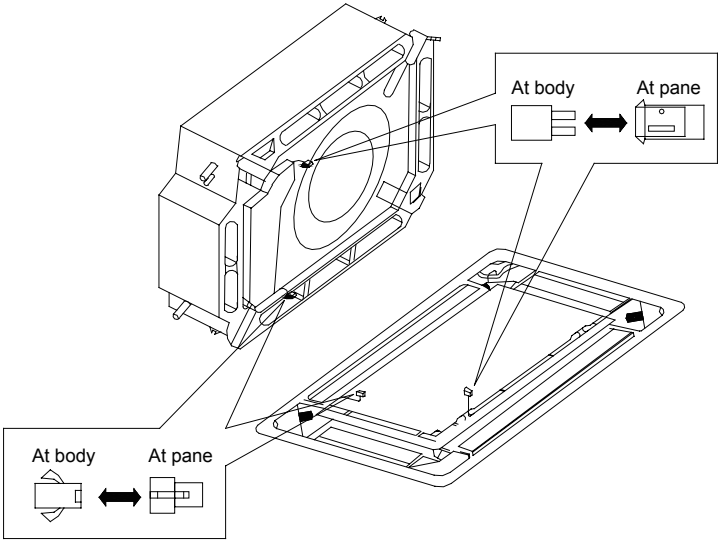


Fig.16

3 Parts and Components of Cassette Type Indoor Unit

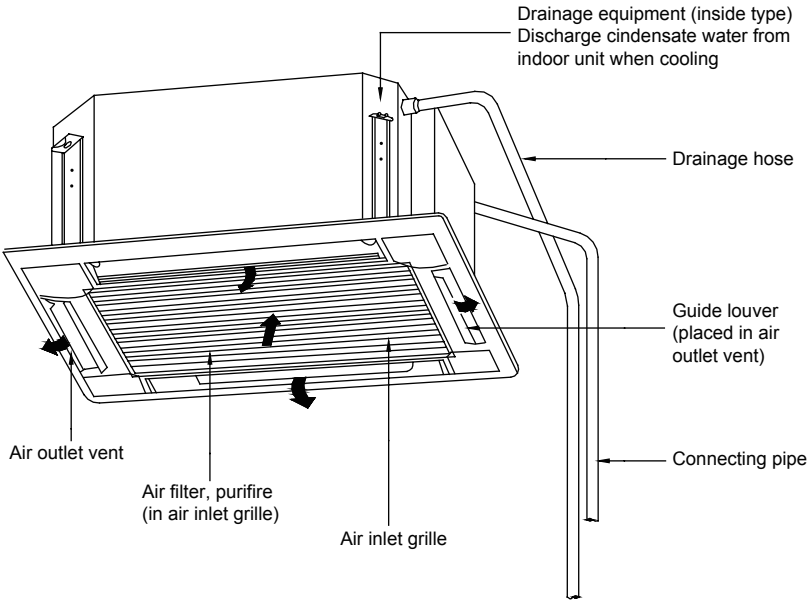


Fig.17 ISMI-C24

4 Working Temperature Range

Working Temperature Range

	Indoor side state ℉（℃）		Outdoor side state ℉（℃）	
	Dry bulb temp. ℉（℃）	Wet bulb temp. ℉（℃）	Dry bulb temp. ℉（℃）	Wet bulb temp. ℉（℃）
Rated. Cooling	80.0(26.7)	67.0(19.4)	95.0(35.0)	75.0(23.9)
Max. cooling	80.0(26.7)	67.0(19.4)	115.0(46.1)	75.0(23.9)
Min. cooling	67.0(19.4)	57.0(13.9)	67.0(19.4)	57.0(13.9)
Rated. Heating	70.0(21.1)	60.0(15.6)	47.0(8.3)	43.0(6.1)
Max. heating	80.0(26.7)	—	75.0(23.9)	65.0(18.3)
Low Ambient heating	70.0(21.1)	60.0(15.6)	5.0(-15.0)	3.2(-16.0)

5 Trouble Shooting

⚠ Warning!

◆ Cut down the main power switch immediately if malfunction (such as smell the burning odor etc.) happens, and then contact service center. If the abnormal state is maintained, the unit may be damaged or electric shock or fire may happen.

◆ Do not refit the conditioner. Please contact service center to repair or move the conditioner.

★ Check the following items before contacting maintenance center

Phenomena	Reason	Remedial Measures
Air conditioner doesn't run at all	Blow of fuse or breaker	Change fuse or close breaker
	Power cut	Restart when there is power supply
	Don't connect with power	Connect power well
	Low batteries of wireless remote controller	Change new batteries
	Wireless remote controller exceed remote control area	Signal could be received within 8m
Air conditioner runs but stops immediately	Blockage in inlet or outlet vent of indoor or outdoor unit	Clean out blockage
Abnormal cooling or heating	Blockage in inlet or outlet vent of indoor or outdoor unit	Clean out blockage
	Improper of temp. setting	Adjust settings in wireless remote controller
	Low setting of fan speed	Adjust settings in wireless remote controller
	Incorrect of wind direction	Adjust settings in wireless remote controller
	Door or window opened	Close
	Direct sun burn	Hang curtain or jalousie before windows
	Too many people in room	
	Too many heater in room	
	Filter blocked by dirt	Clean filter

★ Instruction

If problem still cannot be solved after above checking, please contact service center.

★ The following circumstance doesn't belong to malfunction

"Malfunction"		Reason
Air conditioner doesn't run	Start up unit immediately after turned off	The overload protects switch makes it run after 3 minutes delay.
	When opening power	Run for about 1 minute without other actions
Mist is blown from air conditioner	When cooling	The high humidity air in room is cooled rapidly
Noise is heard from air conditioner	Slight click sound heard once begin running	Sound of initialization for electric expand valve
	Hissing sound heard continuously when cooling	The sound for gas refrigerant flowing in the unit
	Hissing sound heard when staring or stopping	The sound for gas refrigerant stops flow
	Slight hissing sound heard when running or after running	Sound for running of drainage system
	Creak sound heard when running or after running	The grating sound caused by expands of panel and other parts for the change of temperature
Dust be blown for air conditioner	Started up after long time's doesn't runs	Dust in indoor unit be blown out
Odor gives out from air conditioner	When running	This is because when air conditioning, odors or cigarette smoke from the room that was sucked in is discharged again.

★ After-sales Service

If there is any quality or other issues after purchasing air conditioner, please contact the local service center.

6 Maintenance Method

When the unit won't be used for a long time, please cut off the main power supply of air conditioner.

⚠ Warning!

◆ Do turn off the unit and cut off the main power supply when cleaning the air conditioner, otherwise electric shock or harm may happen.

◆ It is forbidden to wash air conditioner by water rinsing, otherwise electric shock may happen.

6.1 Cleaning Air Filter

When the usage environment has lots of dust, air filter should be cleaned more frequently (about once 6 months).

(1). Open air inlet grille

Pull the 2 handles on air inlet grille at the same time with the direction showed by arrow in Fig. 18, pull it down slowly. (As per the reverse disassembly order when closing)

(2). Disassemble air filter

As shown in Fig. 19, pull the handle behind air inlet grille, raise it and disassemble. Then remove the 3 purifiers fixed on filter.

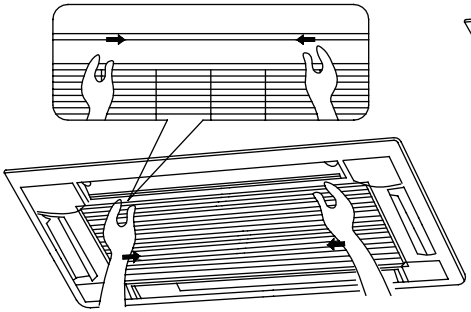


Fig. 18

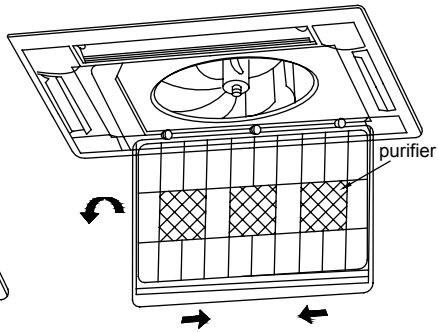


Fig. 19

(3). Clean

Use a cleaner or some water to wash filter; if the filter is too dirty (like oil stain on it), use some warm water (lower than 45℃) with neutral detergent to clean it, then dry it in the shade.

⚠ Note!

Do not clean the filter by hot water which temp. is higher than 45 ℃ to prevent fading or deformation.

Do not place the filter near fire; otherwise the filter may catch fire or lead to deformation.

(4). Install air filter

Fix the 3 purifiers on filter, install filter on the several bulges on top of air inlet grille, pull the handle behind air inlet grille toward inside to fix filter. As shown in Fig. 20.

(5). Close air inlet grille (Refer to the 1st step)

Maintenance Method

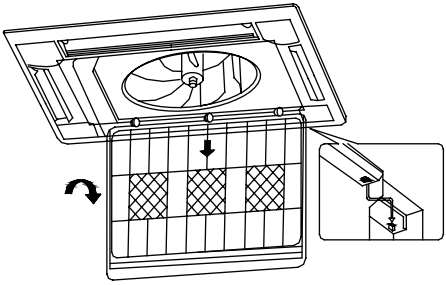


Fig. 20

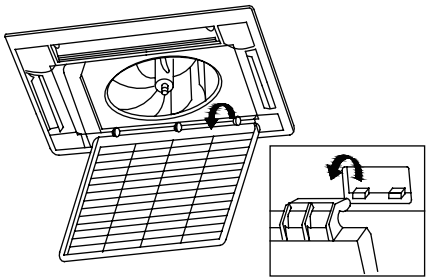


Fig. 21

6.2 Clean Air Inlet Grille

(1). Open air inlet grille (the same with the 1st step of Clean Air Filter)

(2). Take out air filter (the same with the 2nd step of Clean Air Filter)

(3). Take out air inlet grille

Open air inlet grille for an angle of 45°, as shown in fig. 21, raise it.

(4). Clean

Clean it by soft brush, water and neutral cleaning, then dry it after cleaning.

⚠ **Note!**

Do not use water above 45℃ to wash the panel to prevent fading or deformation.

(5). Install air inlet grille (refer to 3rd step)

(6). Install air filter (refer to the 4th step of Clean Air Filter)

(7). Close air inlet grille (refer to the 1st step)

6.3 Install and Change of Air Purifier

(1). Open air inlet grille (the same the 1st step of Clean Air Filter)

(2). Disassembly purifier

As shown in fig 22, disassembly air filter, screw out fixing bolts fixed on purifier on filter, then purifier could be disassembly.

(3). Take out the package sack of static fiber net filter, then install the filter in stand of purifier, and fix purifier on air filter.

(4). Install air filter (the same with the 4th step of Clean Air Filter)

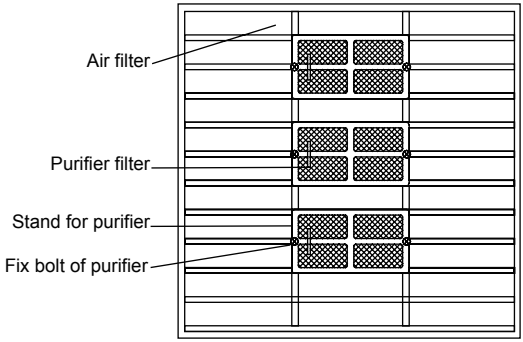


Fig.22

Function and usage period for air purifying

◆ Adsorb CO, CO_2, benzene, aldehydes and odor of gasoline etc..

◆ Adsorb poisonous material that is smaller than 1μm in air, as dust, pollen, bacteria, and virus.

◆ Usage period is 6 months to 1 year. If it is necessary to be changed, purchase new purifier in the nearest Impecca special engaged maintenance center.

6.4 Clean Outlet Vent and Surface Panel

◆ Clean the surface panel by soft dry cloth or wet cloth with neutral scourer.

◆ It is forbidden to clean surface panel by gasoline, benzene, diluents, cleansing powder etc..

◆ If the guide louver is too dirty, it may be removed to be cleaned. (As narrated below)

Disassembly and installation of guide louver

(1). Disassemble guide louver

Screw bolts in both ends of guide louver to loose.

⚠ **Note!**

Do not forcibly wipe guide louver when cleaning, otherwise painted surface layer would fall off.

(2). Install guide louver

Rotate guide louver slightly could install the protruding edge of both end into grooves on both end of guide louver, and then tighten bolts.

6.5 Maintenance before or after Seasonal Use

Check before the seasonal use

◆ Check if there is blockage at inlet or outlet of air conditioner.

◆ Check if the earthing wire has been earthed reliably.

◆ Check if the air filter has been installed well.

◆ In order to start up the air conditioner smoothly after long time's turned off, turn on the main power supply 8 hours before turning on the air conditioner.

Maintenance after seasonal use

◆ Clean filter and body of air conditioner.

◆ Cut off the main power supply of air conditioner.

◆ The cooling or heating capacity and sound level are tested before leaving factory.

◆ If the parameter changes, refer to the data offered on nameplate.

6.6 Technical Support

Before calling technical support, please see the troubleshooting guide above. You may also visit our website at www.impecca.com for answers to Frequently Asked Questions and to contact us.

Email: support@impecca.com
Phone: +1 866–954–4440
Web: www.impecca.com

Wired Controller

IS-TT850

User's Manual

Thank you for choosing Impecca Air Conditioners. Please read this owner’s manual carefully before operation and retain it for future reference.

User Notice

⚠ Please carefully read this manual before installation and use of this product

- Ensure there is separate power supply for each indoor unit.
- Never install wired controller in a wet place or under direct sunlight.
- Shielded twisted pair line must be substituted as signal line for wired controller if the unit is installed in the place where there is electromagnetic interference.
- Make sure communication line is connected into correct port to avoid communication malfunction.
- Never knock, throw or frequently disassemble the wired controller.
- Never operate the wired controller with wet hand.

Contents

1 Display Section

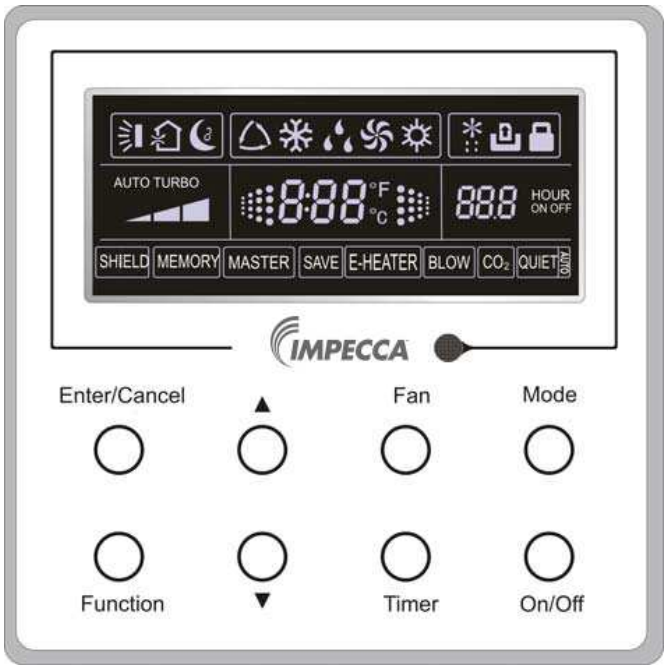


Fig1.1.1 Diagram of wired controller

1.1 LCD Display of Wired Controller

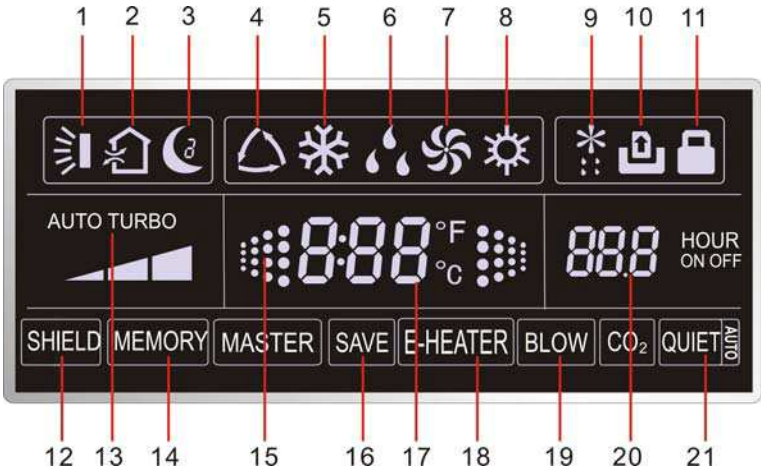


Fig.1.1.2 LCD display

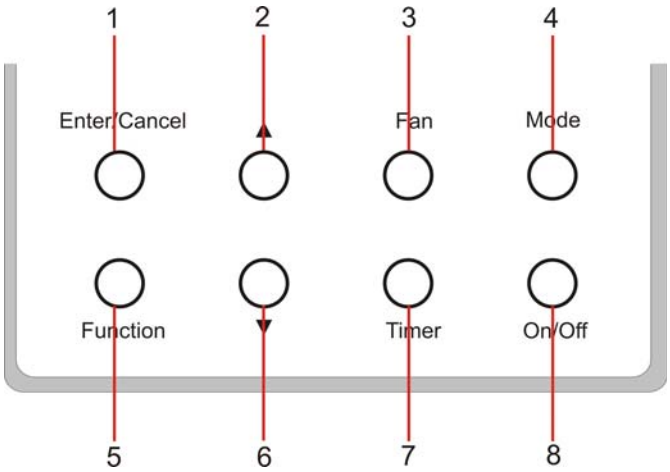
1.2 Instruction to LCD Display

Table 1.1

No.	Symbols	Description
1		Swing function
2		Air exchange function (this function is yet unavailable for this unit).
3		Sleep function (Only sleep 1).
4		Each kind of running mode of indoor unit (auto mode)
5		Cooling mode
6		Dry mode
7		Fan mode
8		Heating mode
9		Defrosting function for the outdoor unit.
10		Gate-control function (this function is yet unavailable for this unit).
11		Lock function.
12	SHIELD	Shield functions (Button operation, temperature setting, On/Off operation, Mode setting are disabled by the remote monitoring system.)
13	Turbo	Turbo function state
14	MEMORY	Memory function (The indoor unit resumes the original setting state after power failure and then power recovery).
15		It blinks under on state of the unit without operation of any button.
16	SAVE	Energy-saving function (this function is yet unavailable for this unit).
17		Ambient/setting temperature value
18	E-HEATER	Electric auxiliary heating function.
19	BLOW	Blow function.
20		Timing value.
21	QUIET	Quiet function (two types: quiet and auto quiet) (this function is yet unavailable for this unit).

2 Buttons

2.1 Layout of Buttons



2.2 Functions of Buttons

Table 2.1

No.	Name	Function
1	Enter/Cancel	Function selection and cancellation.
2	▲	① . Running temperature setting of the indoor unit, range:61°F-86° F(16°C-30°C). ② . Timer setting, range:0.5(30 minutes) - 24 (hours).
6	▼	
3	Fan	Setting of the low/middle/high/auto fan speed.
4	Mode	Setting of the Cooling/Heating/Fan/Dry/Auto mode of the indoor unit.
5	Function	Switchover among the functions of Turbo/Save/E-heater/Blow etc..
7	Timer	Timer setting.
8	On/Off	Turn on/off the indoor unit.
4+2	Mode + ▲	With the A/C powered off, press these two buttons together for 5 seconds to toggle the Memory function. With Memory on, the unit will return the the previous setting after resuming from a power failure. With Memory toggled off, it will stay off
3+6	Fan+▼	With the A/C powered off, press these two buttons together for 5 seconds to determine if your unit is capable of just cooling or both cooling and heating, indicated by the symbols shown.
4+6	Mode + ▼	With the A/C powered off, press these two buttons together for 5 seconds to toggle between Fahrenheit and Celsius.
2+6	▲+▼	Press these two buttons together for 5 seconds to toggle the lock function.

3 Operation Instructions

3.1 On/Off

Press On/Off button to toggle your A/C's power.

Note: The state shown in Fig.3.1.1 indicates the “Off” state of the unit after power has been restored to the unit. The screen shown in Fig.3.1.2 indicates the “On” state of the unit after power on.

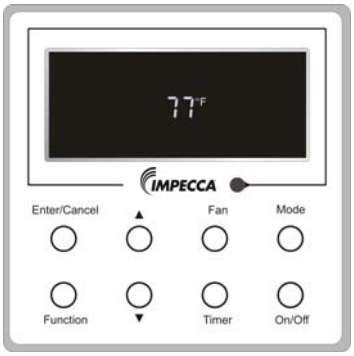


Fig.3.1.1 “Off” State

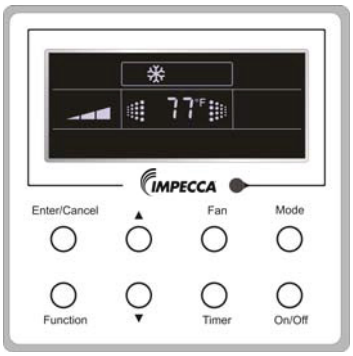
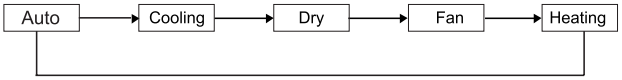


Fig.3.1.2 “On” State

3.2 Mode Setting

Under ON state of the unit, press the Mode to switch the operation modes as the following sequence: Auto–Cooling–Dry–Fan–Heating.



3.3 Temperature Setting

Press ▲or ▼ to increase/decrease the preset temperature. If pressing either of them continuously, the temperature will be increased or decreased by 1° every half a second,as shown in Fig.3.3.1.

In the Cooling, Dry, Fan or Heating mode, the temperature setting range is 61°F-86° F(16°C-30°C). In the Auto mode, the setting temperature not manually adjustable.

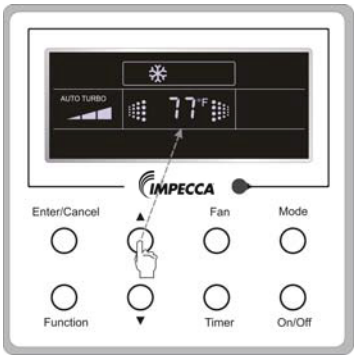


Fig.3.3.1

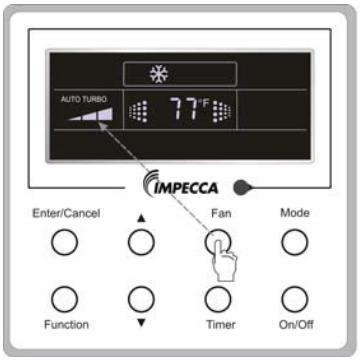
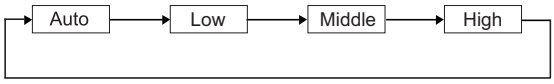


Fig.3.4.1

3.4 Fan Setting

While the unit is powered on, press *Fan* and then fan speed of the indoor unit will change circularly as shown in Fig.3.4.1.



(Fig. 3.4.1)

3.5 Timer Settings

While the unit is powered on, pressing the Timer button allows you to set the delay until the unit turns off. While the unit is powered off, pressing the Timer button allows you to set the dealy until the unit turns on.

- Timer on setting details:

  With the unit turned off, and no timer already programmed, press the Timer button. The display will show "0.5" with "Hour on" blinking. Press▲or▼button to adjust delay until unit turns on and press Timer or Enter/Cancel to confirm.

- Timer off setting details:

With the unit turned on, and no timer already programmed, press the Timer button. The display will show "0.5" with "Hour off" blinking.

- Timer off setting details:

With the unit turned on, and no timer already programmed, press the Timer button. The display will show "0.5" with "Hour off" blinking, press▲ or ▼ button to adjust delay until unit turns on and press Timer or Enter/Cancel to confirm.

• 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 the "On" state of the unit is shown as Fig.3.5.1.

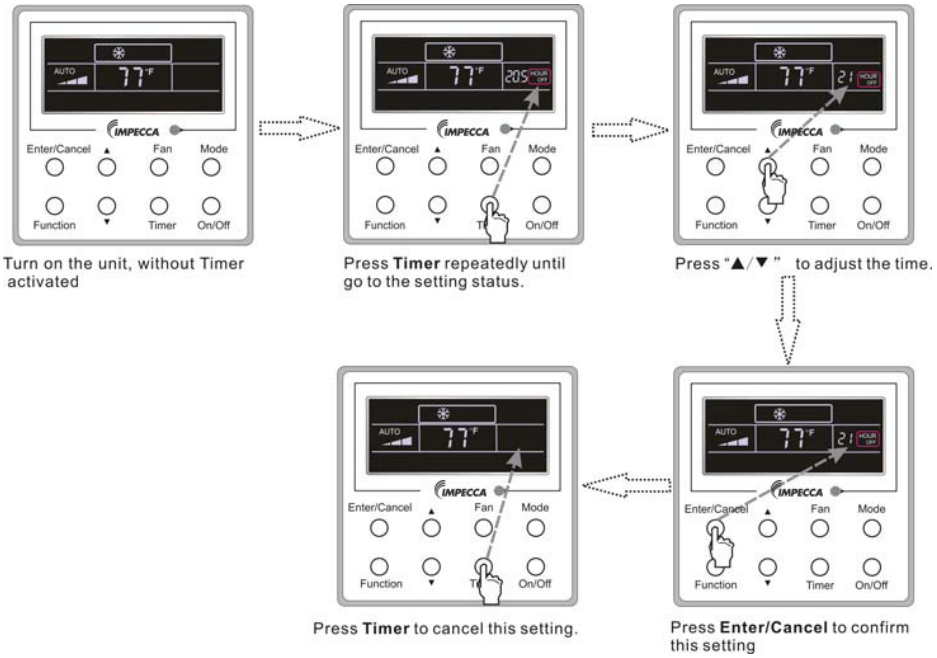


Fig.3.5.1 Timer off Setting under the "On" State of the Unit

Timer on setting under the “Off” state of the unit is shown as Fig.3.5.2.

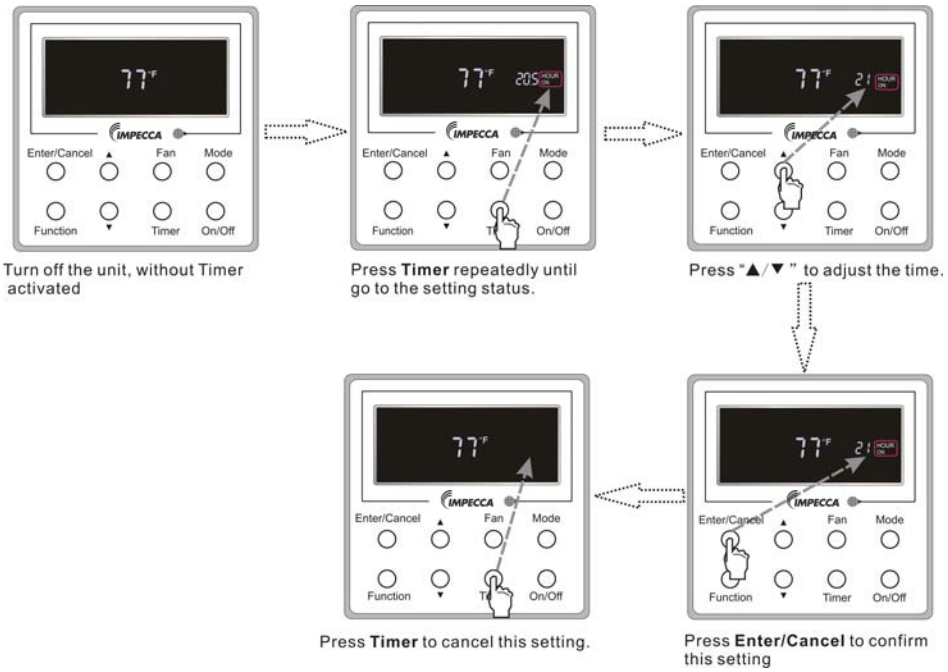


Fig.3.5.2 Timer on Setting under the “Off” State of the Unit

Timer range: 0.5-24hr. Every press of ▲or ▼ will make the set time increased or decreased by 0.5hr. If either of them is pressed continuously, the set time will increase/ decrease by 0.5hr every 0.5s.

3.6 Swing Setting

Swing On: Press Function under on state of the unit to activate the swing function. In this case, will blink. After that, press Enter/Cancel to make a confirmation.

Swing Off: When the Swing function is on, press Function to enter the Swing setting interface,with blinking. After that, press Enter/Cancel to cancel this function. Swing setting is shown as Fig.3.6.1.

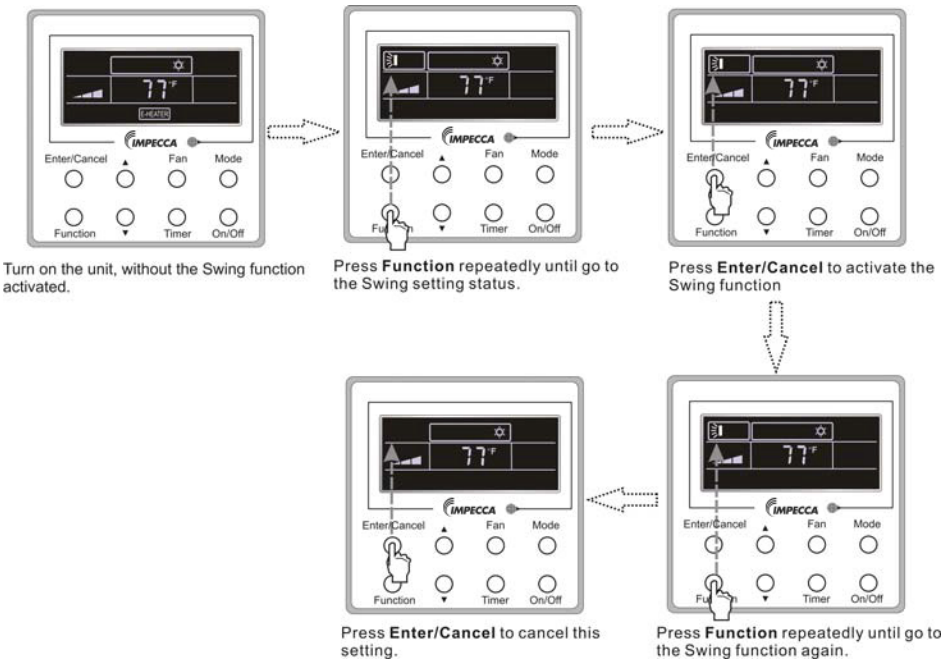


Fig.3.6.1 Swing Setting

Notes:

①. Sleep, Turbo or Blow setting is the same as the Swing setting.

②. After the setting has been done, it has to press the key “Enter/Cancel” to back to the setting status or quit automatically five seconds later.

3.7 Sleep Setting

Sleep on: Press Function under the On state of the unit till the unit enters the Sleep setting state. After that, press Enter/Cancel to confirm this setting.

Sleep off: When the Sleep function is activated, press Function to enter the Sleep setting status. After that, press Enter/Cancel to cancel this function.

In the Cooling or Dry mode, the temperature will increase by 1°C after the unit runs under Sleep1 for 1hr and 1°C after another 1hr.After that, the unit will run at this temperature.

In the Heating mode, the temperature will decrease by 1°C after the unit runs under Sleep 1 for 1hr and 1°C after another 1hr. After that, the unit will run at this temperature.

Sleep setting is shown as Fig.3.7.1.

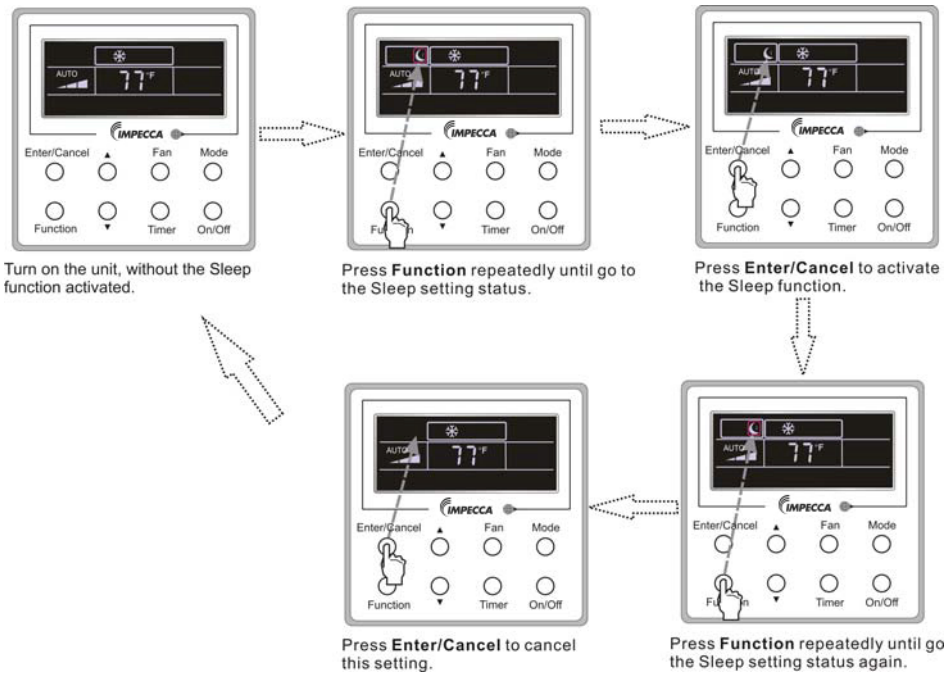


Fig.3.7.1. Sleep Setting

3.8 Turbo Setting

Turbo function: The unit at the high fan speed can realize quick cooling or heating so that the room temperature can quickly approach the setting value.

In the Cooling or Heating mode, press Function till the unit enters the Turbo setting status and then press Enter/Cancel to confirm the setting.

When the Turbo function is activated, press Function to enter the Turbo setting status and then press Enter/Cancel to cancel this function.

Turbo function setting is as shown in Fig.3.8.1.

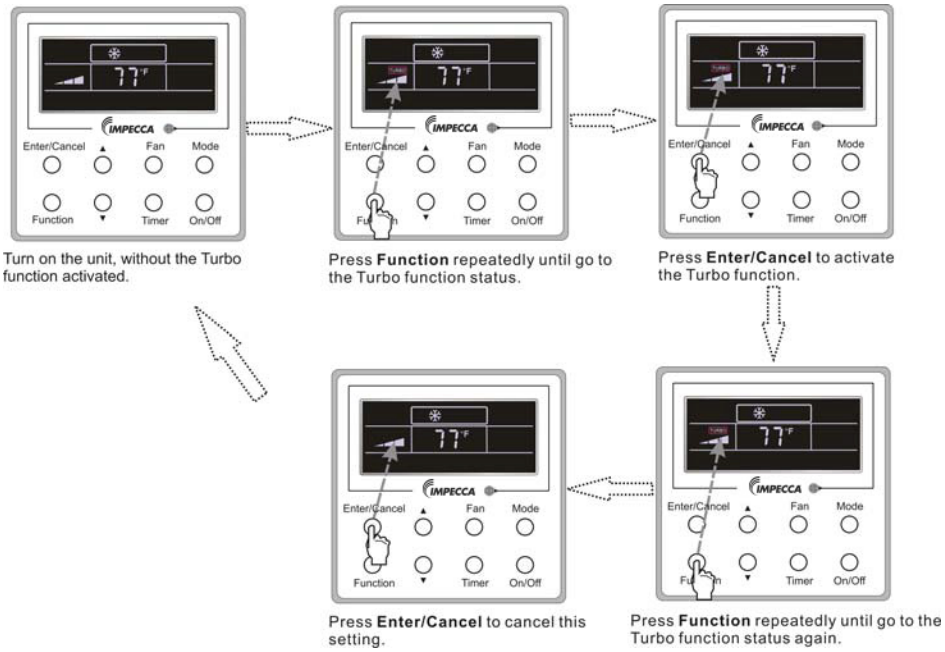


Fig.3.8.1 Turbo Setting

3.9 E-heater Setting

E-heater (auxiliary electric heating function): In the Heating mode, E-heater is allowed to be turned on for improvement of efficiency.

Once the wired controller or the remote controller enters the Heating mode, this function will be turned on automatically.

Press Function in the Heating mode to enter the E-heater setting interface and then press Enter/Cancel to cancel this function.

Press Function to enter the E-heater setting status, if the E-heater function is not activated, and then press Enter/Cancel to activate it.

The setting of this function is shown as Fig.3.9.1 below:

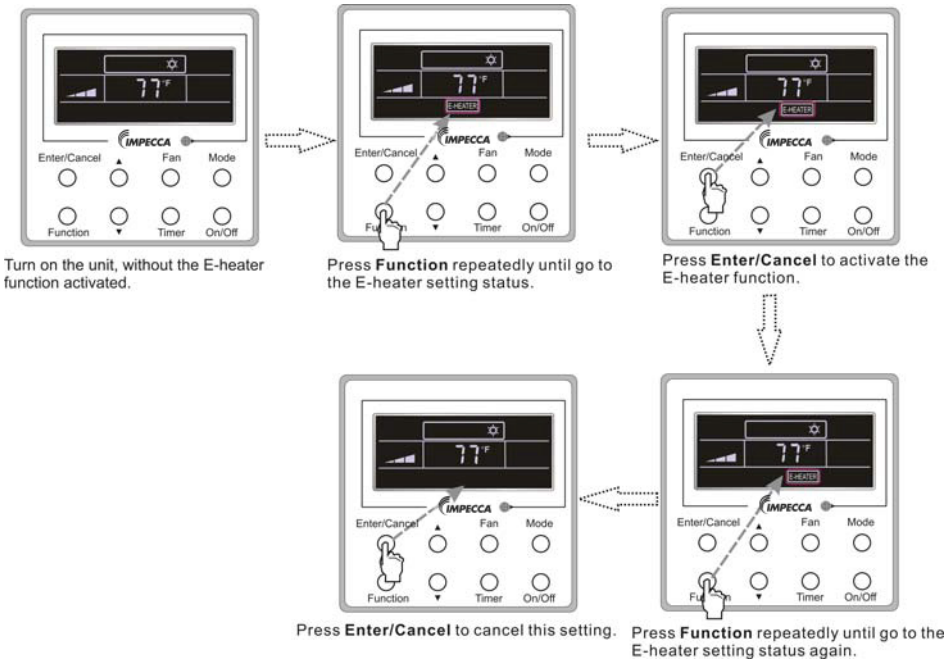


Fig.3.9.1 E-heater Setting

3.10 Blow Setting

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

In the Cooling or Dry mode, press Function till the unit enters the Blow setting status and then press Enter/Cancel to active this function.

When the Blow function is activated, press Function to the Blow setting status and then press Enter/Cancel to cancel this function.

Blow function setting is as shown in Fig.3.10.1

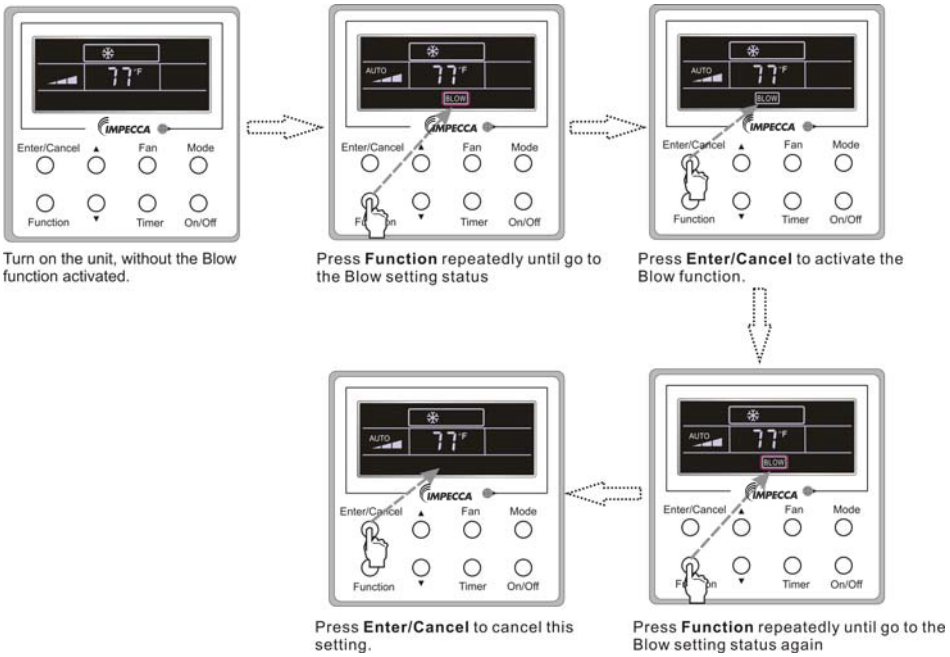


Fig.3.10.1 Blow Setting

Notes:

①. When the Blow function is activated, if turning off the unit by pressing On/Off or by the remote controller, the indoor fan will run at the low fan speed for 2 min, with “BLOW” displayed on the LCD. While, if the Blow function is deactivated, the indoor fan will be turned off directly.

②. Blow function is unavailable in the Fan or Heating mode.

3.11 Other Functions

a. Lock

Upon startup of the unit without malfunction or under the “Off” state of the unit, press ▲ and ▼ at the same time for 5s till the wired controller enters the Lock function. In this case, LCD displays .

After that, repress these two buttons at the same time for 5s to quit this function.

Under the Lock state, any other button press won’t get any response.

b. Memory

Memory switchover: Under the “Off” state of the unit, press Mode and ▲ at the same time for 5s to switch memory states between memory on and memory off. When this function is activated, Memory will be displayed. If this function is not set, the unit will be under the “Off” state after power failure and then power recovery.

Memory recovery: If this function has been set for the wired controller, the wired controller after power failure will resume its original running state upon power recovery. Memory contents: On/Off,Mode, set temperature, set fan speed and Lock function.

4 Installation and Dismantlement

4.1 Connection of the Signal Line of the Wired Controller

- Open the cover of the electric control box of the indoor unit.
- Let the single line of the wired controller through the rubber ring.
- Connect the signal line of the wired control to the 4-pin socket of the indoor unit PCB.
- Tighten the signal wire with ties.
- The communication distance between the main board and the wired controller can be up to 20 meters (the standard distance is 8 meters)

4.2 Installation of the Wired Controller

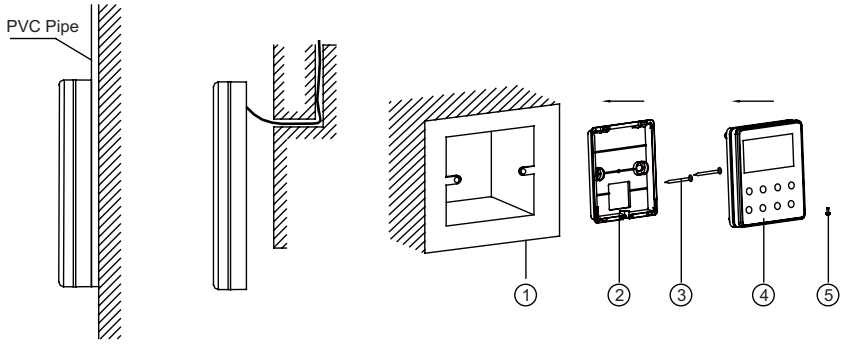


Fig.4.1 Accessories for the Installation of the Wired Controller

Table 4.1

No.	1	2	3	4	5
Name	Socket box embedded in the wall*	Back-plate of the Wired Controller	Screw M4X25*	Front Panel of the Wired Controller	Screw ST 2.9X6*

*Not included

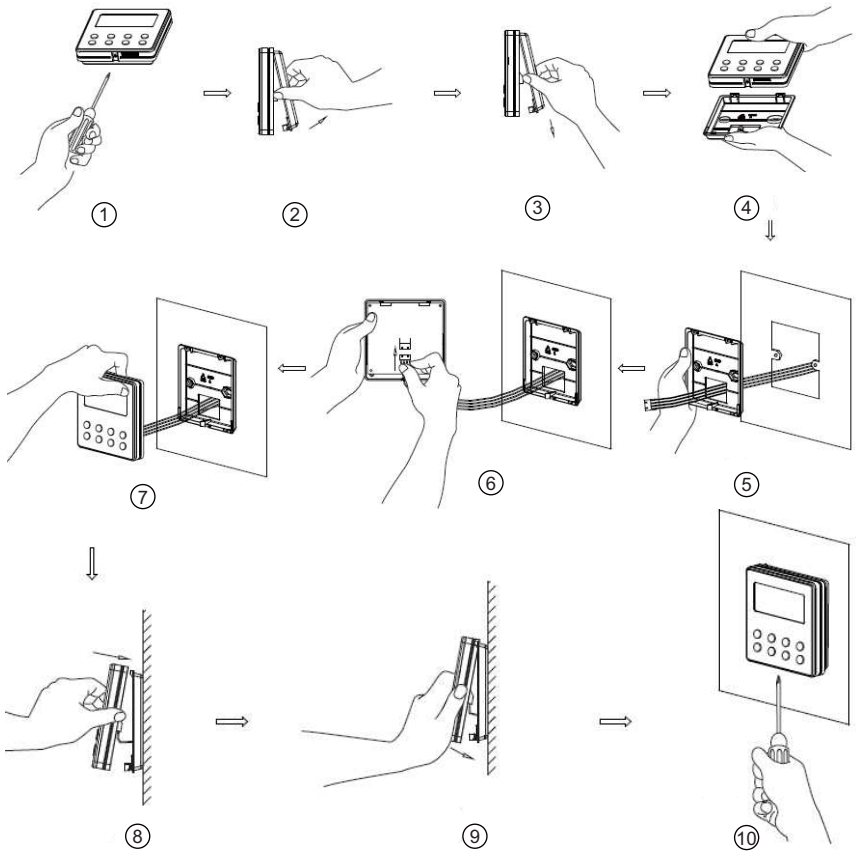


Fig.4.2

Fig.4.2 shows the installation steps of the wired controller, but there are some issues that need your attention.

1) Prior to the installation, please firstly cut off the power supply of the wire buried in the installation hole, that is, no operation is allowed with electricity during the whole installation.

2) Pull out the four-core twisted pair line from the installation holes and then let it go through the rectangular hole behind the back-plate of the wired controller.

3) Stick the soleplate of the wired controller to the wall over the installation hole and then fix it with screws M4X25.

4) Insert the four-core twisted pair line into the slot of the wired controller and then buckle the front panel and the back-plate of the wired controller together.

5) Finally, fix the front panel and the soleplate of the wired controller tightly by screws ST2.9X6.

⚠CAUTION!

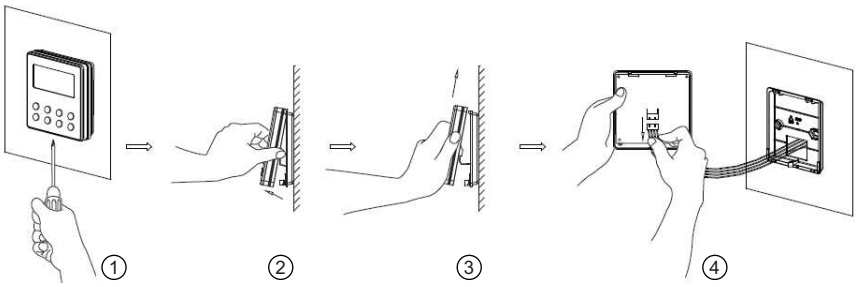
Please pay special attention to the followings during the connection to avoid the malfunction of the air conditioning unit due to electromagnetic interference.

①. Separate the signal and communication lines of the wired controller from the power cord

and connection lines between the indoor and outdoor unit, with a minimum interval of 20cm, otherwise the communication of the unit will probably work abnormally.

②. If the air conditioning unit is installed where is vulnerable to electromagnetic interference,then the signal and communication lines of the wired controller must be the shielding twisted pair lines.

4.3 Dismantlement of the Wired Controller



5 Errors Display

If there is an error occurring during the operation of the system, the error code will be displayed on the LCD, as show in Fig.5.1. If multi errors occur at the same time, their codes will be displayed circularly.

Note: In event of any error, please turn off the unit and contact the professionally skilled personnel.

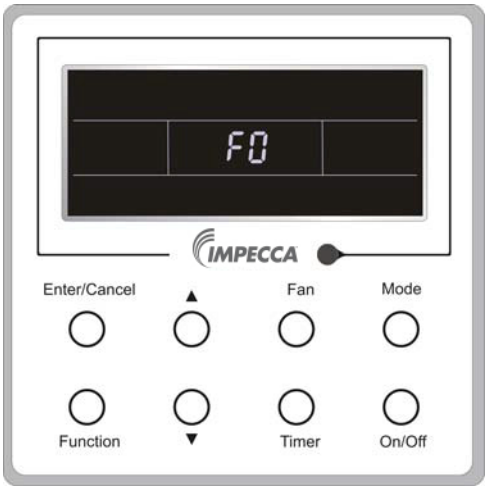


Fig.5.1

Table 5.1 Meaning of Each Error

Error	Error Code	Error	Error Code
Return air temperature sensor open/ short circuited	F1	Drive board communication error	P6
evaporator temperature sensor open/ short circuited	F2	Compressor overheating protection	H3
Indoor unit liquid valve temperature sensor open/short circuited	b5	Indoor and outdoor units unmatched	LP
Indoor gas valve temperature sensor open/ short circuited	b7	Communication line misconnected or expansion valve error	dn
IPM temperature sensor open/short circuited	P7	Running mode conflict	E7
Outdoor ambient temperature sensor open/ short circuited	F3	Pump-down	Fo
Outdoor unit condenser mid-tube temperature sensor open/short circuited	F4	Jumper error	C5
Discharge temperature sensor open/ short circuited	F5	Forced defrosting	H1
Indoor and outdoor communication error	E6	Compressor startup failure	Lc
DC bus under-voltage protection	PL	High discharge temperature protection	E4
DC bus over-voltage protection	PH	Overload protection	E8
Compressor phase current sensing circuit error	U1	Whole unit over-current protection	E5
Compressor demagnetization protection	HE	Over phase current protection	P5
PFC protection	Hc	Compressor desynchronizing	H7
IPM Temperature Protection	P8	IPM Current protection	H5
Over-power protection	L9	Compressor phase loss/reversal protection	Ld
System charge shortage or blockage protection	F0	Frequency restricted/reduced with whole unit current protection	F8
Capacitor charging error	PU	Frequency restricted/reduced with IPM current protection	En
High pressure protection	E1	Frequency restricted/reduced with high discharge temperature	F9
Low pressure protection	E3	Frequency restricted/reduced with anti-freezing protection	FH
Compressor stalling	LE	Frequency restricted/reduced with overload protection	F6
Over-speeding	LF	Frequency restricted/reduced with IPM temperature protection	EU
Drive board temperature sensor error	PF	Indoor unit full water error	E9
AC contactor protection	P9	Anti-freezing protection	E2
Temperature drift protection	PE	AC input voltage abnormal	PP
Sensor connection protection	Pd	Whole unit current sensing circuit error	U5
DC bus voltage drop error	U3	4-way valve reversing error	U7
Outdoor fan 1 error protection	L3	Motor stalling	H6
Outdoor fan 2 error protection	LA	PG motor zero-crossing protection	U8

Technical Support

Before calling technical support, please see the troubleshooting guide above. You may also visit our website at www.impecca.com for answers to Frequently Asked Questions and to contact us.

Email: support@impecca.com

Phone: +1 866–954–4440

Web: www.impecca.com