

FLOOR CEILING AIR CONDITIONER

SPLIT SYSTEM

**SERIES: FBF / FBD DCI
PBF / PBD DCI**



INSTALLATION AND OPERATION MANUAL

Please read the manual before using and keep it for further use.

Getting started...

Required tools list

- | | | |
|--------------------------------------------|---------------------------------|-------------------|
| 1. Screw driver | 8. Gas leak detector | 15. Torque wrench |
| 2. Electric drill, hole core drill (60 mm) | 9. Measuring tape | 18 Nm (1.8 kgf.m) |
| 3. Hexagonal wrench | 10. Thermometer | 45 Nm (4.5 kgf.m) |
| 4. Spanner | 11. Megameter | 65 Nm (6.5 kgf.m) |
| 5. Pipe cutter | 12. Multimeter | 75 Nm (7.5 kgf.m) |
| 6. Reamer | 13. Vacuum pump | 85 Nm (8.5 kgf.m) |
| 7. Knife | 14. Gauge manifold (for R-410A) | |



SAFETY PRECAUTIONS

Read the following "SAFETY PRECAUTIONS" carefully before installation.

Electrical work must be installed by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model to be installed.

The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.



WARNING

- Use qualified installer and follow careful this instructions, otherwise it will cause electrical shock, water leakage, or aesthetic problem.
- Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
- For electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough it will cause electrical shock or fire.
- Use the specified cable and connecting tightly for indoor/outdoor connection. Connect tightly and clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat-up or fire at the connection.
- Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.
- Before obtaining access to terminals, all supply circuits must be disconnected
- When carrying out piping connection, take care not to let air substance other than the specified refrigerant go into refrigeration cycle, otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion or injury.
- Do not damage or use unspecified power supply cord. Otherwise, it will cause fire or electrical shock.
- Do not modify the length of the power supply cord or use of the extension cord, and do not share the single outlet with other electrical appliances. Otherwise, it will cause fire or electrical shock.
- This equipment must be earthed. It may cause electrical shock if grounding is not perfect.
- Do not install the unit at place where leakage of flammable gas may occur. In case of leaks and accumulates at surrounding of the unit, it may cause fire.
- Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
- If supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

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 their do not play with the appliance

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ATTENTION

- Selection of the units location. Select a location which is rigid and strong enough to support or hold the unit and select a location for easy maintenance.
- Do not release refrigerant during piping work for installation, reinstallation and during repairing a refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.
- Installation work. It may need two people to carry out the installation work.
- Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.

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

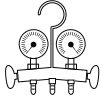





The items to be followed are classified by the symbols:



WARNING
This indication shows the possibility of causing death or serious injury.



Symbol with background white denotes item that is PROHIBITED from doing.

INSTALLATION / SERVICE TOOLING FOR R410A		Changes
Gauge manifold		As the working pressure is high, it is impossible to measure the working pressure using conventional gauges. In order to prevent any other refrigerant from being charged, the port diameters have been changed.
Charge hose		In order to increase pressure resisting strength, hose materials and port sizes have been changed (to 1/2 UNF 20 threads per inch). When purchasing a charge hose, be sure to confirm the port size.
Electronic scale for refrigerant charging		As working pressure is high and gasification speed is fast, it is difficult to read the indicated value by means of charging cylinder, as air bubbles occur.
Torque wrench (nominal dia. 1/2, 5/8)		The size of opposing flare nuts have been increased. Incidentally, a common wrench is used for nominal diameters 1/4 and 3/8.
Flare tool (clutch type)		By increasing the clamp bar's receiving hole size, strength of spring in the tool has been improved.
Gauge for projection adjustment		Used when flare is made by conventional flare tool.
Vacuum pump adapter & check valve		Connected to a conventional vacuum pump. It is necessary to use an adapter to prevent vacuum pump oil from flowing back into the charge hose. The charge hose connecting part has two ports -- one for conventional refrigerant (7/16 UNF 20 threads per inch) and one for R410A. If the vacuum pump oil (mineral) mixes with R410A a sludge may occur and damage the equipment.
Gas leakage detector		Exclusive for HFC refrigerant.

Incidentally, the "refrigerant cylinder" comes with the refrigerant designation (R410A) and protector coating in the U.S.'s ARI specified rose colour (ARI colour code: PMS 507). Also, the "charge port and packing for refrigerant cylinder" requires 1/2 UNF 20 threads per inch corresponding to the charge hose's port size.

CAUTION R410A Air Conditioner Installation

THIS AIR CONDITIONER ADOPTS THE NEW HFC REFRIGERANT (R410A) WHICH DOES NOT DESTROY OZONE LAYER. R410A refrigerant is apt to be affected by impurities such as water, oxidizing membrane, and oils because the working pressure of R410A refrigerant is approx. 1.6 times of refrigerant R22. Accompanied with the adoption of the new refrigerant, the refrigeration machine oil has also been changed. Therefore, during installation work, be sure that water, dust, former refrigerant, or refrigeration machine oil does not enter into the new type refrigerant R410A air conditioner circuit. To prevent mixing of refrigerant or refrigerating machine oil, the sizes of connecting sections of charging port on main unit and installation tools are different from those used for the conventional refrigerant units. Accordingly, special tools are required for the new refrigerant (R410A) units. For connecting pipes, use new and clean piping materials with high pressure fittings made for R410A only.

Moreover, do not use the existing piping because there are some problems with pressure fittings and possible impurities in existing piping.










Do not vent R410A into atmosphere. R410A is a fluorinated greenhouse gas, covered by Kyoto Protocol, with a global warming potential (GWP)-1725.

Changes in the product and components In air conditioners using R410A, in order to prevent any other refrigerant from being accidentally charged, the service port diameter size of the outdoor unit control valve (3 way valve) has been changed. (1/2 UNF 20 threads per inch). In order to increase the pressure resisting strength of the refrigerant piping, flare processing diameter and opposing flare nuts sizes have been changed. (for copper pipes with nominal dimensions 1/2 and 5/8).

In case of pipes welding please make sure to use dry Nitrogen inside the pipes.

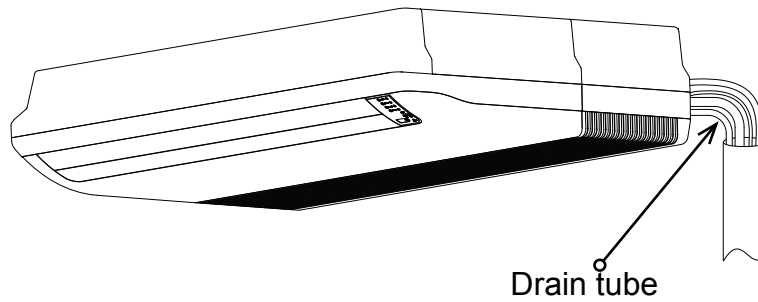
Use copper tube of special thickness for R410A: 1/4"-1/2" 0.8 mm
5/8"-3/4" 1 mm
7/8" 1.1 mm

ATTACHED ACCESSORIES

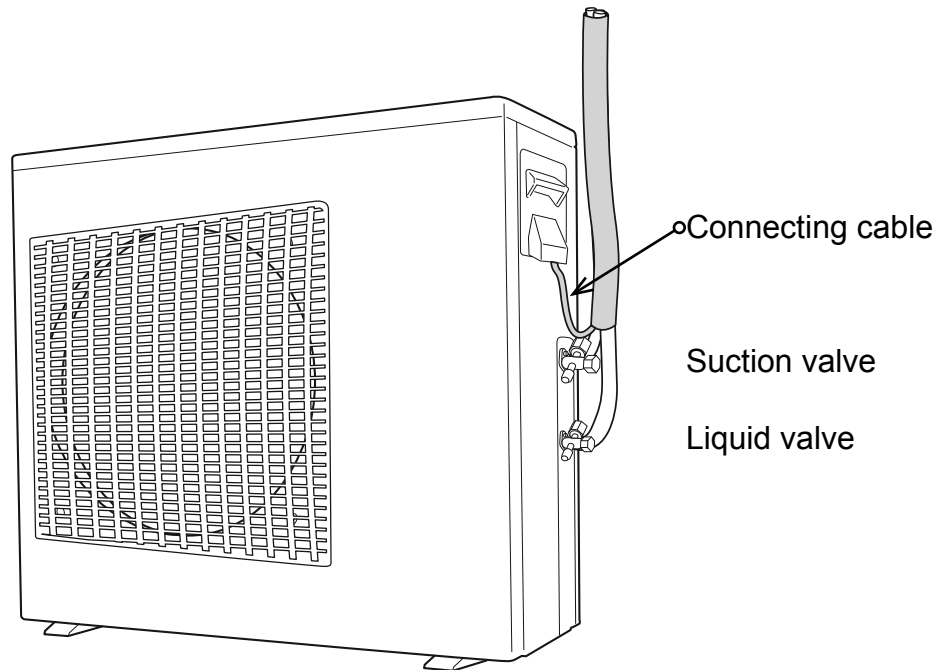
Description	Amount	Name	Use
	1	Technician's installation and operation manual	Installation instructions
	1	Instruction manual for remote control	Operation instructions for remote
	1	Remote control including batteries	Operating the air-conditioner
	1	Remote control bracket	Hanging the remote control on the wall
	4	Rubber mounting pads	Padding of the outdoor unit
	4	Tie - Wraps	Tightening the indoor and the outdoor units electrical cables
	4 each	Dibbles - Screws - Washers	Installing bracket for remote control and central control display
	1	Drain elbow	Connecting drain hose to outdoor
	4 each	Machine bolts-washers	Mounting indoor unit

GENERAL INFORMATION

Indoor Unit

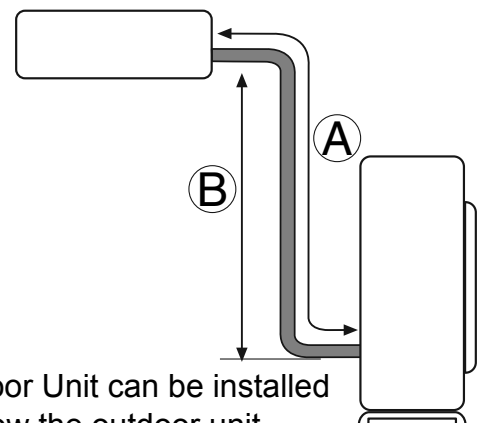


Outdoor Unit

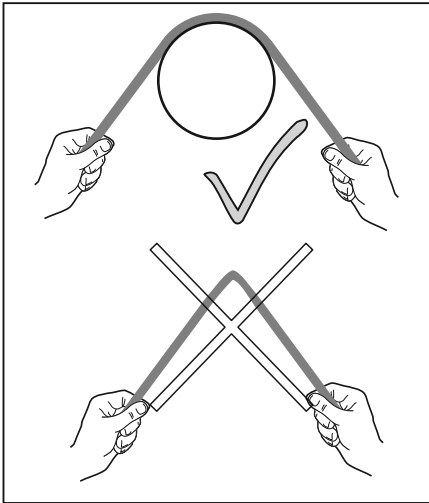


MAXIMUM PIPES LENGTH & HEIGHT

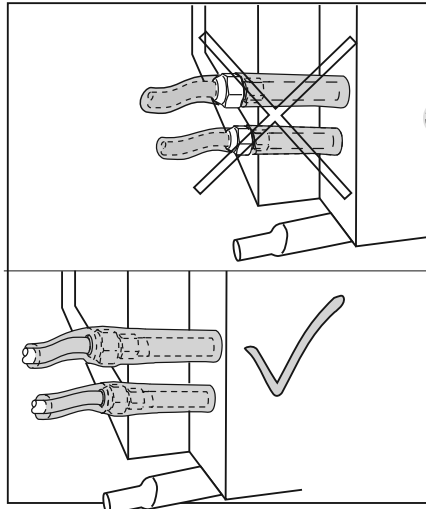
NOMINAL CAPACITY	TUBES O.D.	LENGTH (A)	HEIGHT (B)
8.2 kW	3/8"-5/8"	50	25
10.5 kW	3/8"-3/4"	50	25
12.0 kW	3/8"-3/4"	50	25
14.0 kW	1/2"-7/8"	50	25
10.0 kW DCI INV	3/8"-5/8"	70	30
12.5 kW DCI INV	3/8"-3/4"	70	30
14.0 kW DCI INV	3/8"-3/4"	70	30



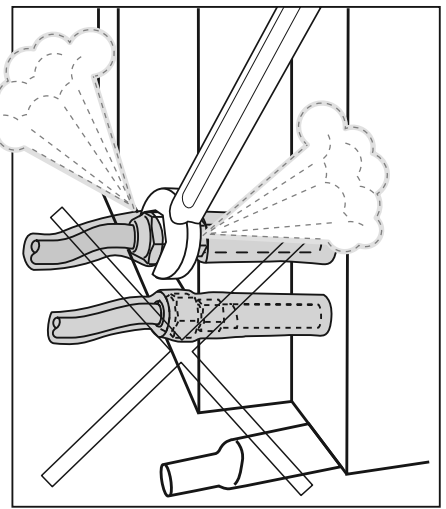
GENERAL PRECAUTION



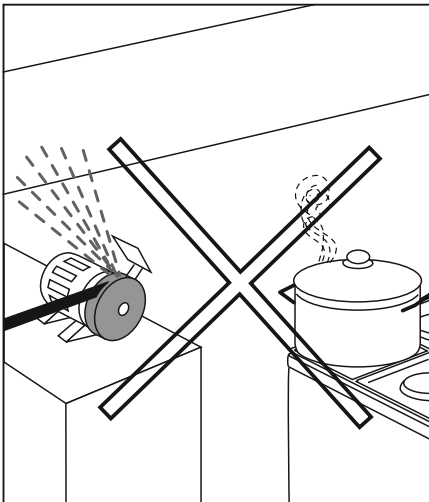
Always use the support of a large radius cylinder for banding the tubes, using pipe bending tools



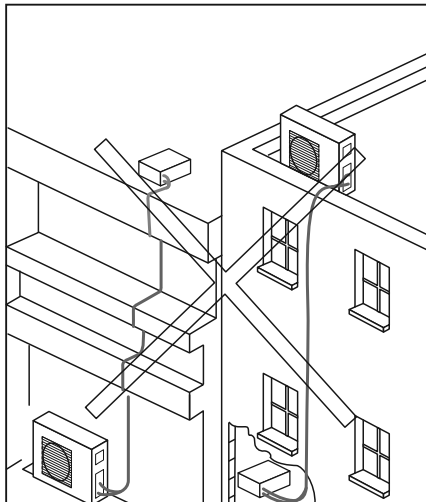
Do not leave nuts of gas tubes uncovered



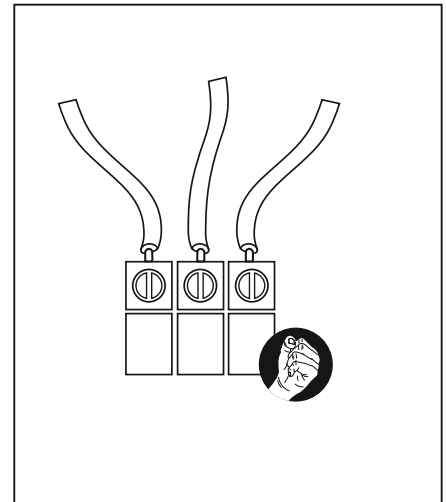
Do not untie gas tubes after installation



Avoid placing the indoor unit near water or oily mist.



Avoid pipes bending and keep pipes as short as possible.



Tighten electrical circuits cables

INDOOR UNIT INSTALLATION

Installation place

The indoor unit should be installed in a location that meets the following requirements:

- There is enough room for installation and maintenance.
- The ceiling is horizontal, and its structure can endure the weight of the indoor unit.
- The outlet and the inlet are not impeded, and the influence of external air is the least.
- The air flow can reach throughout the room.
- The connecting pipe and drainpipe could be extracted out easily
- There is no direct radiation from heaters.

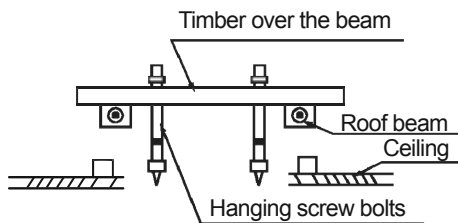
Install the main body

Installing f10 hanging screw bolts. (4 bolts)

- Please refer to the following figures for the distance measurement between the screw bolts.
- Please install with f10 hanging screw bolts.
- The handling to the ceiling varies from the constructions, consult the construction personnels for the specific procedures.
 - The size of the ceiling to be handled. Do keep the ceiling flat. Consolidate the roof beam for possible vibration.
 - For 12-14kw units the height installation must be at least 2.3 meter from the floor.
 - Cut off the roof beam.
 - Strengthen the place that has been cut off, and consolidate the roof beam.
- After the selection of installation location, position the refrigerant pipes, drain pipes indoor & outdoor wires to the connection places before hanging up the machine
- The installation of hanging screw bolts.

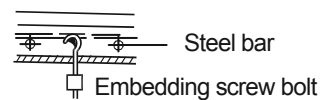
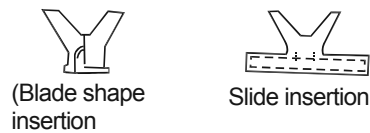
WOODEN CONSTRUCTION

Put the square timber transversely over the roof beam, then install the hanging screw bolts.



NEW CONCRETE BRICKS

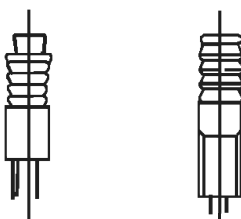
Inlaying or embedding the screw bolts.



(Pipe hanging and embedding screw bolt)

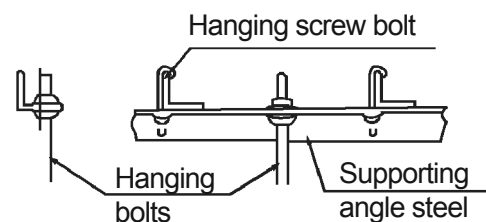
FOR ORIGINAL CONCRETE BRICKS

Install the hanging hook with expansible bolt in to the concrete deep to 45~50 mm to prevent loose.

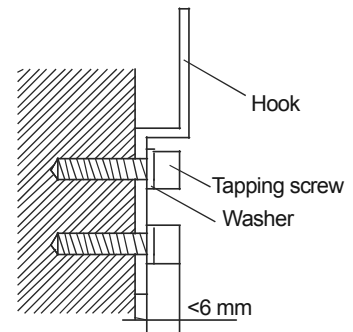
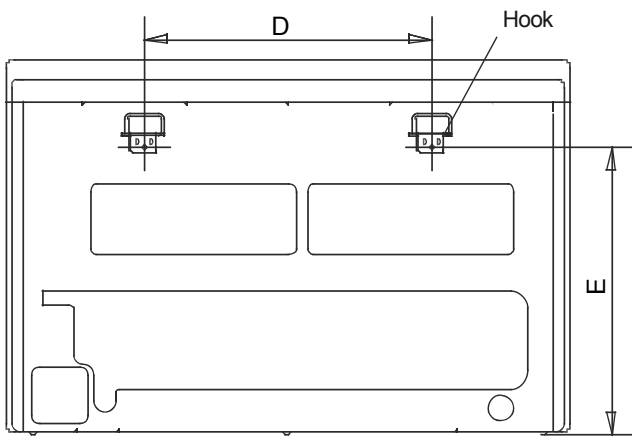
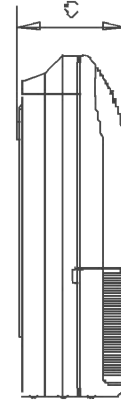
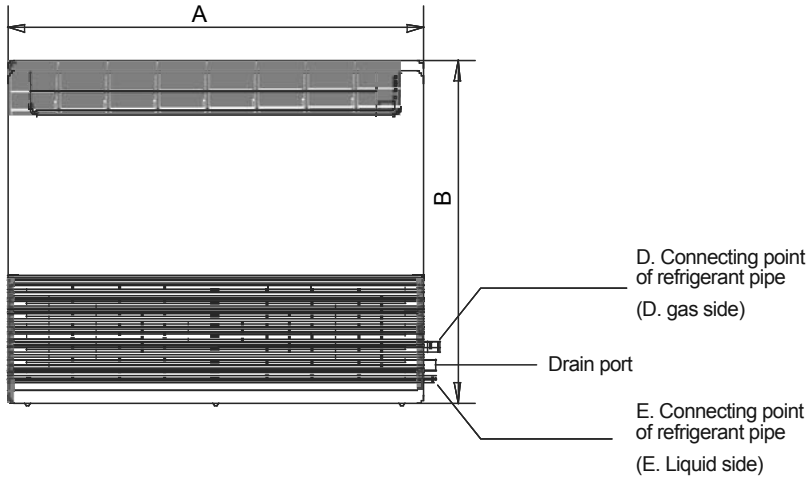


STEEL ROOF BEAM STRUCTURE

Install and use directly the supporting angle steel.

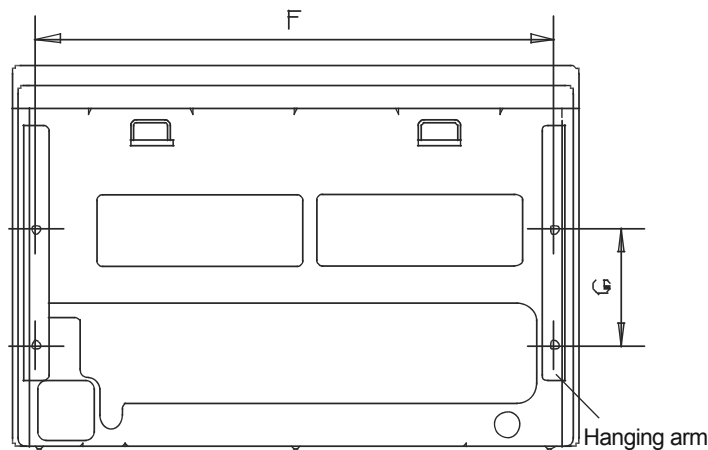


Wall Mounted Installation

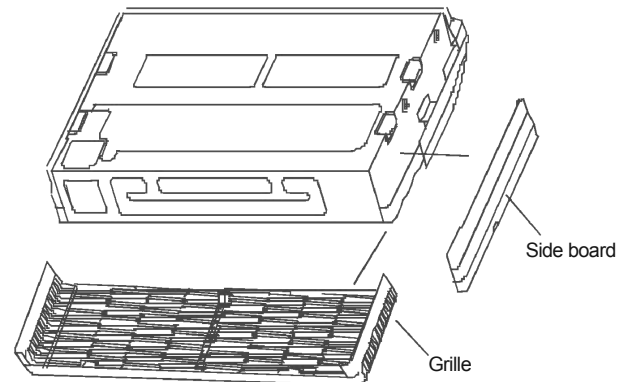


1. Fix the hook with tapping screw onto the wall.
2. Hang the indoor unit on the hook.

Ceiling Installation

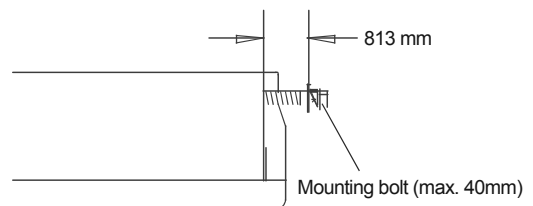
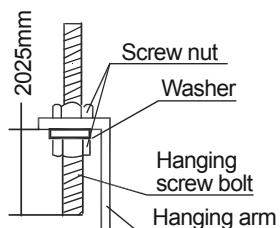


1. Remove the side board and the grille. (For models 12-14 kW, do not remove the grille.)

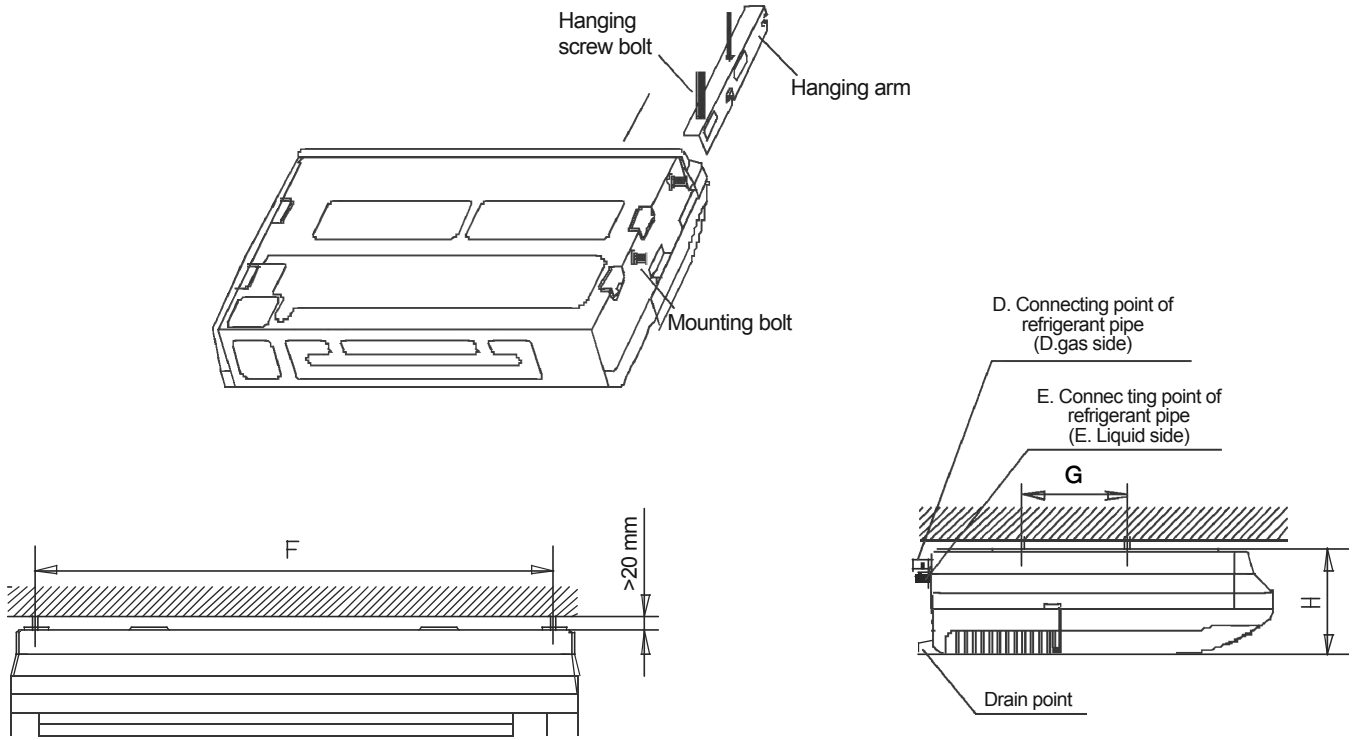


2. Locate the hanging arm on the hanging screw bolt.

Prepare the mounting bolts on the unit.



3. Hang the unit on the hanging arm by sliding backward. Securely tighten the mounting bolts on both sides.



⚠ ATTENTION

The figures above are based on model with 8.2 kW as rated capacity, which may differ from the unit you purchased.

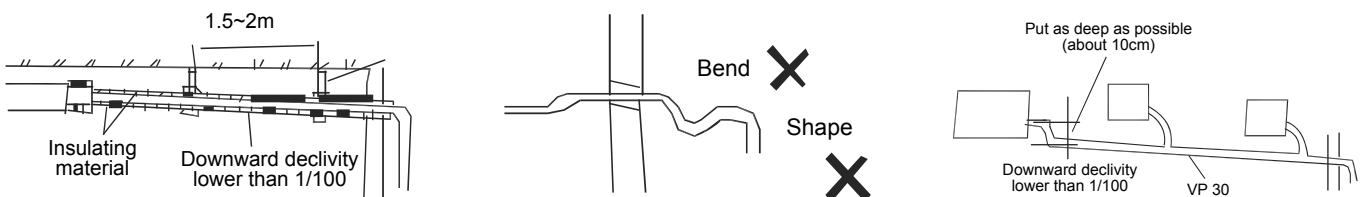
Unit dimension

NOMINAL CAPACITY	A	B	C	D	E	F	G	H
8.2 kW - 10.5 kW	1280	660	206	795	506	1195	200	203
12.0 kW - 14.0 kW	1670	680	244	1070	450	1542	200	240

Install the drain pipe of the indoor unit

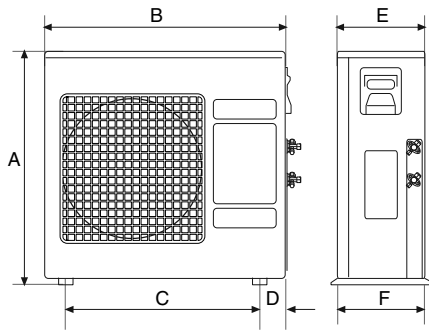
The outlet has PTI screw bread, Please use sealing materials and pipe sheath (fitting) when connecting PVC pipes.

- The drain pipe of indoor unit must be heat insulated, or it will condense dew, as well as the connections of the indoor unit.
- Hard PVC binder must be used for pipe connection, and make sure there is no leakage.
- With the connection part to the indoor unit, please be noted not to impose pressure on the side of indoor unit pipes.
- When the declivity of the drain pipe downwards is over 1/100, there should not be any winding.
- The total length of the drain pipe when pulled out transversely shall not exceed 20m, when the pipe is over long, a prop stand must be installed to prevent winding.
- Refer to the figures below for the installation of the pipes.



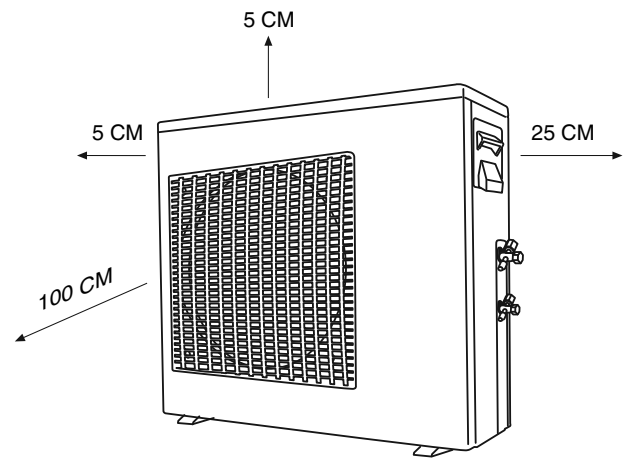
OUTDOOR UNIT

UNIT DIMENSIONS



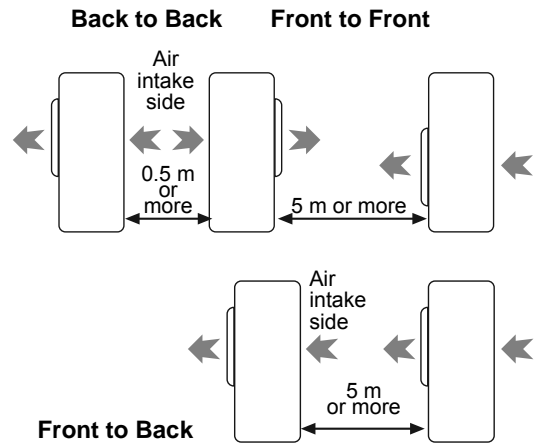
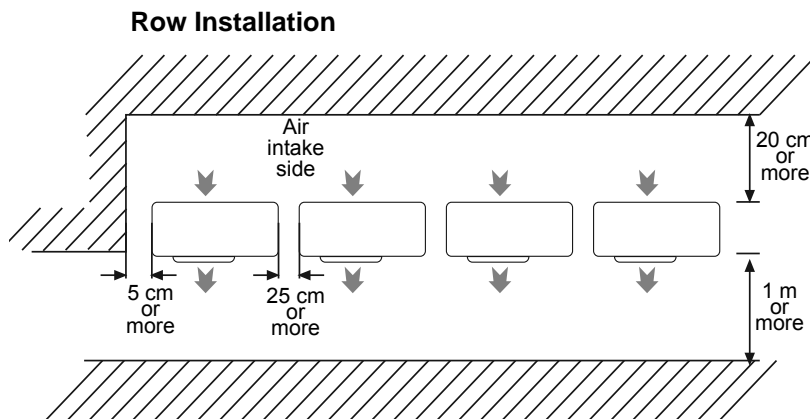
NOMINAL CAPACITY	A	B	C	D	E	F
8.2 kW	860	900	705	97	340	357
10.5 kW	970	900	705	97	340	357
10.0 kW	970	900	705	97	340	357
12.0 kW	970	900	705	97	340	357
14.0 kW	1255	900	705	97	340	357
12.5 kW DCI INV	1255	900	705	97	340	357
14.0 kW DCI INV	1255	900	705	97	340	357

CLEARANCES AROUND THE UNIT



SEVERAL OUTDOORS INSTALLATION

When installing several outdoors units please take into account the air flow around the units and follow the minimum distance suggestions as shown in the diagrams below.

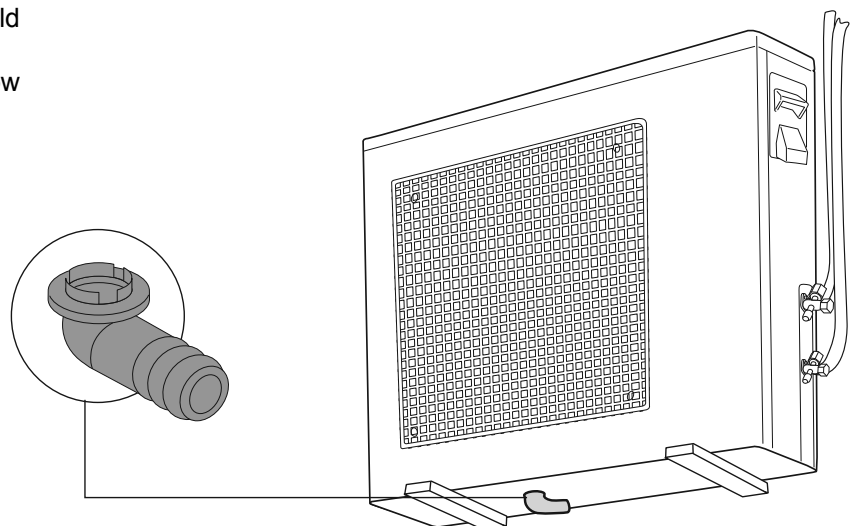


DISPOSAL OF OUTDOOR UNIT DRAIN WATER

In case of using a drain elbow, the unit should be placed on a stand at least 3 cm high.

Install the hose with a downward to allow smooth flow of draining water.

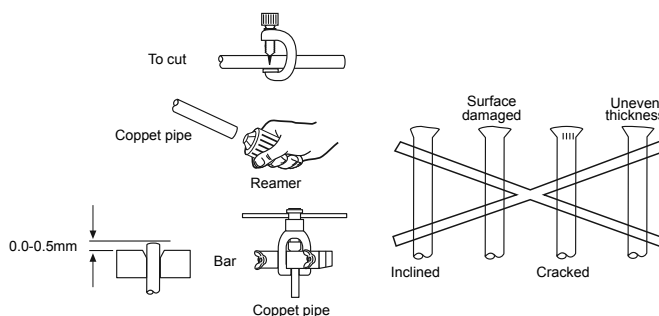
Use 16mm I.D. tube for drainage.



PIPES CONNECTIONS

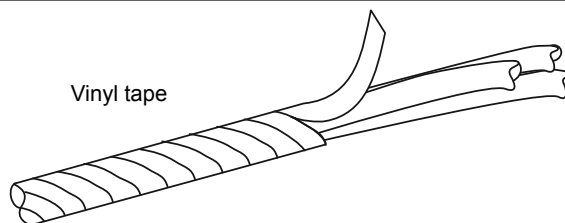
CUTTING AND FLAING THE PIPES

1. Please use the pipe cutter for cutting the pipes.
2. Remove all burrs by using reamer. Gas leakage might happen if burrs are not removed! Turn pipes edge down to avoid metal powder from entering down the pipes.
3. After inserting the flare nut into the cooper pipes, please make a flare.



PIPE INSULATION

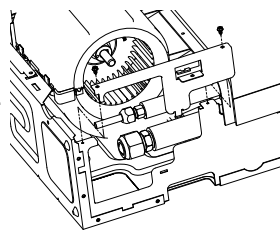
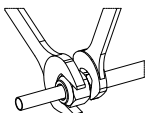
1. Please carry out insulation at pipe connection portion as mentioned in Indoor/ Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.
2. If drain hose or connecting pipes is in the room (where dew may form). Please increase the insulation by using POLY-E FOAM with thickness of 9 mm or more.



PIPE CONNECTIONS TO THE UNIT

Connecting to the indoor unit

1. Align the center of the pipes and finger tight the flare nut.
2. Use the torque wrench to tighten the nut firmly.
3. For flare fixation open tube cover - 2 screws. (For 12-14 kW units - 4 screws).



Connecting to the outdoor unit

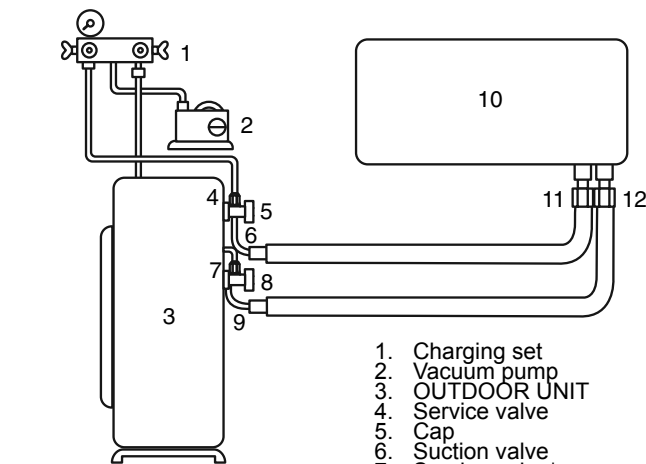
1. Align the center of the pipes to the valves.
2. Use the torque wrench to tighten the valves firmly according to table:

TUBE (Inch)	1/4	3/8	1/2	5/8	3/4
Flare Nuts	13-18	40-45	60-65	70-75	80-85
Valve Cap	13-20	13-20	18-25	18-25	40-50
Service Port Cap	11-13	11-13	11-13	11-13	11-13

EVACUATION OF PIPES AND INDOOR UNIT

After connection the unions of the indoor and outdoor units, evacuate the air from the tubes and from the indoor unit as the follow

1. Connect the charging hoses with a push pin to the low and high sides of the charging set and the service port of the suction and liquid valves. Be sure to connect the end of the charging hose with the push pin to the service port.
2. Connect the center hose of the charging set to a vacuum pump.
3. Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0MPa (0cm Hg) to - 0.1 MPa (-76cm Hg). Let the pump run for fifteen minutes.
4. Close the valves of both the low and high sides of the charging set and turn off the vacuum pump. Note that the needle in the gauge should not move after approximately five minutes.
5. Disconnect the charging hose from the vacuum pump and from the service ports of the suction and liquid valves.
6. Tighten the service port caps from both valves, and open them using a hexagonal Allen wrench.
7. Remove the valve caps from both valves, and open them using a hexagonal Allen wrench.
8. Remount valve caps onto both of the valves.
9. Check for gas leaks from the four unions and from the valve caps. Test with electronic leak detector or with a sponge immersed in soapy water for bubbles.



Sample

	WING 30		PXD 30		ECF XL 30		DNG 30	
	FLO 30	SX 30	SX 30	TXE 80	KXL 30	CXE 80	DLS 30	NLS 80
COOLING CAPACITY	2950 Btu/h	2950 Btu/h	2950 Btu/h	2950 Btu/h	2950 Btu/h	2950 Btu/h	2950 Btu/h	2950 Btu/h
	860 W	830 W	830 W	830 W	830 W	830 W	840 W	840 W
HEATING CAPACITY	2970 Btu/h	2930 Btu/h	2930 Btu/h	2930 Btu/h	2930 Btu/h	2930 Btu/h	2930 Btu/h	2930 Btu/h
	870 W	830 W	830 W	830 W	830 W	830 W	830 W	830 W
Refrigerant	1.5m-15m	0 gram	0 gram	200gram	0 gram	200gram	0 gram	200gram
	15m-20m	440gram	440gram	640gram	440gram	640gram	440gram	640gram
	20m-25m	880gram	880gram	1140gram	880gram	1140gram	880gram	1140gram

REFRIGERANT R410A

1. Charging set
2. Vacuum pump
3. OUTDOOR UNIT
4. Service valve
5. Cap
6. Suction valve
7. Service valve*
8. Cap
9. Liquid valve
10. INDOOR UNIT
11. Suction flare connection
12. Liquid flare connection

NOTE: For additional charge of various tubing lengths, refer to outdoor unit table.

ELECTRICAL SPECIFICATIONS

POWER SUPPLY			1 PH UNITS			3 PH UNITS		
	NOMINAL	VOLTAGE LIMITS	CAP.	CIRCUIT BREAKER	POWER SUPPLY CABLE	CAP	CIRCUIT BREAKER	POWER SUPPLY CABLE
1PH	230/50/1	198-264V	8.2 kW	20A	3x2.5mm ²	8.2 kW	3x16A	5x2.5mm ²
3PH	400/50/3	360-440V	10.5 kW	25A	3x4mm ²	10.5 kW	3x16A	5x2.5mm ²
						12.5 kW	3x16A	5x2.5mm ²
						14.0 kW	3x16A	5x2.5mm ²

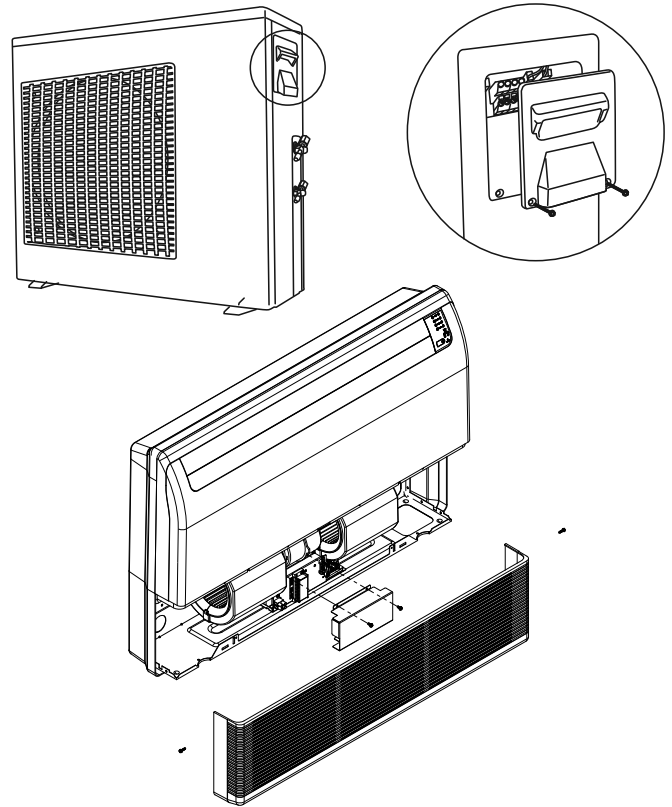
Electrical wiring and connections should be made by qualified electricians in accordance with local electrical codes and regulation. The air conditioner units must be grounded.

The air conditioner units must be connected to an adequate power outlet from a separate branch circuit protected by a time delay circuit breaker, as specified on unit's nameplate.

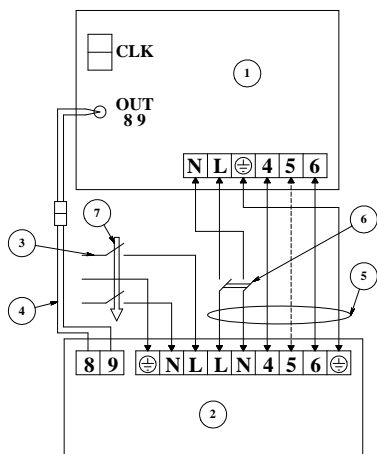
Voltage should not vary beyond ± 10% of the rated voltage.

For all power supply connections to the outdoor unit, also for the connecting cable between indoor and outdoor unit, only HO5RN-F (60245 IEC 57) cable is to use. For the optional power supply on the indoor unit at least HO5VV-F (60227 IEC 53) is to use.

1. Prepare the multiple wire cable ends for connection.
2. Take away the Indoor/outdoor cover and open the terminals, take away the cable clamp screw and turn over the cable clamp.
3. Connect the cable ends to the terminals of the indoor and outdoor units.
4. Connect the other end of the twin wire cable to the outdoor unit twin wire terminal.
5. Secure the multiple wire power cable with the cable clamps.
6. Fasten the twin wire cablr to the power cable with cable ties.



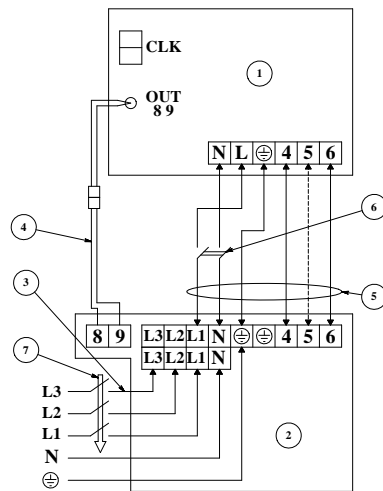
1PH Units Power supply to Outdoor Unit



----For Heat-pump Units only

- | | |
|--------------------------------------------|-----------------------------------------------------|
| 1. Indoor unit | 5. Inter connecting cable (6 x 1.5mm ²) |
| 2. Outdoor unit | 6. Safety Switch ON-OFF (by installer) |
| 3. Power supply cable | 7. Power breaker (by installer)* |
| 4. Control cable (2 x 0.5mm ²) | |

3PH Units Power supply to Outdoor Unit



- | | |
|--------------------------------------------|-----------------------------------------------------|
| 1. Indoor unit | 5. Inter connecting cable (6 x 1.5mm ²) |
| 2. Outdoor unit | 6. Safety Switch ON-OFF (by installer) |
| 3. Power supply cable | 7. Power breaker (by installer)* |
| 4. Control cable (2 x 0.5mm ²) | |

* The power breaker must be of type that disconnects all poles with 3 mm contact opening

ELECTRICAL CONNECTIONS

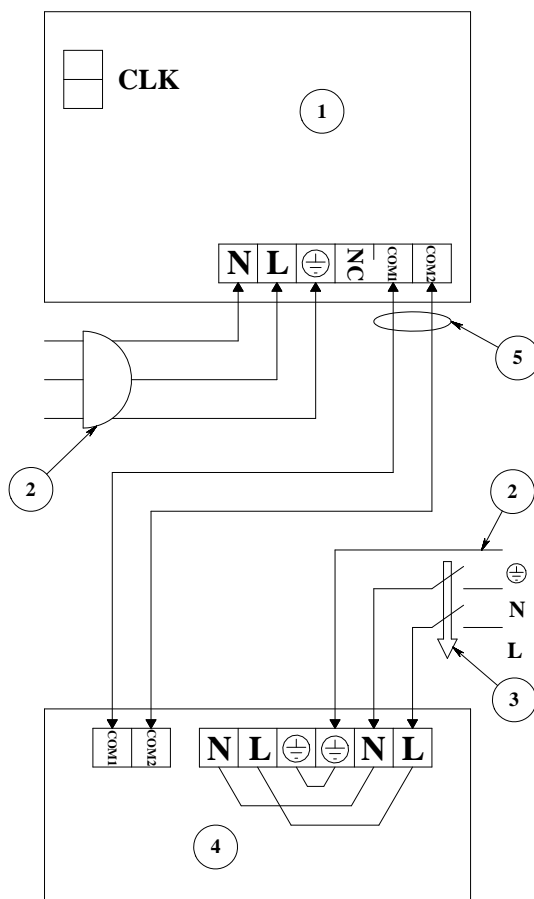
ELECTRICAL SPECIFICATIONS DCV INV

1 PH UNITS - POWER SUPPLY 230V / 50Hz / 1

POWER SUPPLY TO OUTDOOR UNIT ONLY			POWER SUPPLY TO INDOOR UNIT	
NOMINAL CAPACITY	CIRCUIT BREAKER	POWER SUPPLY CABLE	CIRCUIT BREAKER	POWER SUPPLY CABLE
10.0 kW*	20A	3x2.5mm ²	10A	3x1.5mm ²
	25A	3x4mm ²		
	32A	3x6mm ²		
12.5 kW*	20A	3x2.5mm ²	10A	3x1.5mm ²
	25A	3x4mm ²		
14.0 kW	32A	3x6mm ²		

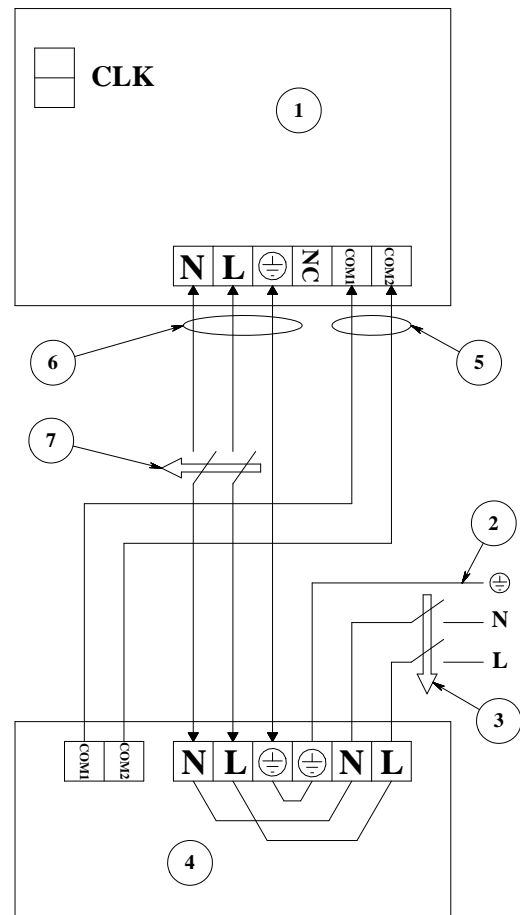
* Current can be set via display Board - see "Feature setup" paragraph

1PH Units Power supply to both Outdoor and Indoor units



1. Indoor unit
2. Power Supply Cable
3. Main Power Breaker*
4. Outdoor Unit
5. Interconnecting Cable (2x0.75mm²)

1PH Units Power supply to Outdoor Unit



1. Indoor unit
2. Power Supply Cable
3. Main Power Breaker*
4. Outdoor Unit
5. Interconnecting Cable (2x0.75mm²)
6. Power Interconnecting Cable (3x1.5mm²)
7. Power Breaker (*by installer)

* The power breaker must be of type that disconnects all poles with 3 mm contact opening.

ADDITIONAL OPTIONS FOR 4-5-6 PH (10-14 KW) DCI UNITS ONLY

1. FEATURES SETUP

1.1 DISPLAY BOARD GENERAL DESCRIPTION

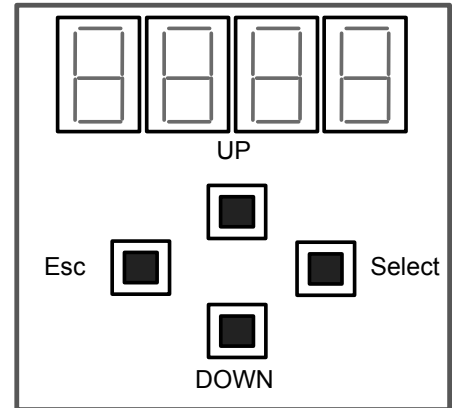
The display board serves as interface between the installer/technician and the A/C unit.

Buttons description:

Up & Down - used to scroll between options (up and down)

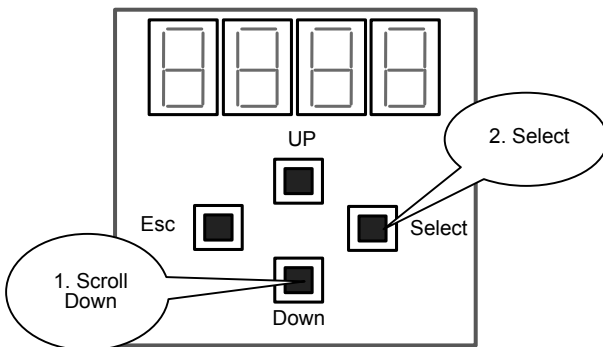
Select - used to select an option

Escape - Will go up one level in the menu



1.2 SET-UP

There are 2 types of current limitation for the maximum current drawn by the outdoor unit, one is to set maximum limit to the current and the other is to set power shedding limit. For both actions follow the below described procedure.



Mode (Cl/Ht/Sb)		
Technician Test (tt)		
	-	Technician Test Cool (ttC)
	-	Technician Test Heat (ttH)
Diagnostics (dla)		
	-	Outdoor Unit (Odu)
	-	Indoor Unit (Idu)
Set Up (Set)		
	-	Indoor Unit Supply (IdSU)
	-	Max Current Limit (CurL)
	-	Power Shedding (PSC)

1. Scroll down the "Down" button until setup is displayed (Set) and then press the "Select" button.
2. Scroll down the "Down" button to choose the option required and press the "Select" button.

1.2.1 Maximum Current Limit

The maximum operating current of the unit can be selected by the table in order to reduce/increase the circuit breaker value. This operation will affect the maximum capacity of the unit.

The default values are: indoor unit supplied from outdoor unit ("OUT") and the current is 30A for 12.5kW unit and 25A for 10.0 kW unit.

Enter the Set Up menu by Scrolling down to "Set" and set the indoor unit supply (IdSU) parameter to either "Out" for external power supply for Indoor unit (via Outdoor unit) or "In" for supplying the indoor unit from separate internal circuit breaker.

Escape one time and scroll to "CURL".

Enter the value corresponding the max current as per the table.

Display	Max. Current setting	Circuit breaker
30_A	30A	32A
27_A	27A	30A/32A
23_A	23A	25A
18_A	18A	20A
14_A	14A	16A

1.2.2 Power Shedding Current Limit

The maximum operating current of the unit can be limited by setting the unit into power shedding mode which will control the unit up to pre-defined current percentage (out the max current). This operation will reduce the maximum capacity of the unit.

ADDITIONAL OPTIONS FOR 4-5-6 PH (10-14 KW) DCI UNITS ONLY

Activation of this feature is described in the next paragraph of "Dry Contacts".

The upper limit of the power consumption (Current) can be setup by the display board according to the table.

In order for this feature to become active you must shorten the "PWS" dry contact (see below procedure).

Enter the Set Up menu by Scrolling down to "Set" and set the power shedding control ("PSC") parameter according to the table.

Display	Max Current Setting
50%	% of Max. Current
60%	
70%	
80%	

1.3 FEATURE SET UP WITH DRY CONTACTS (INPUT)

The input dry contacts are used for controlling.

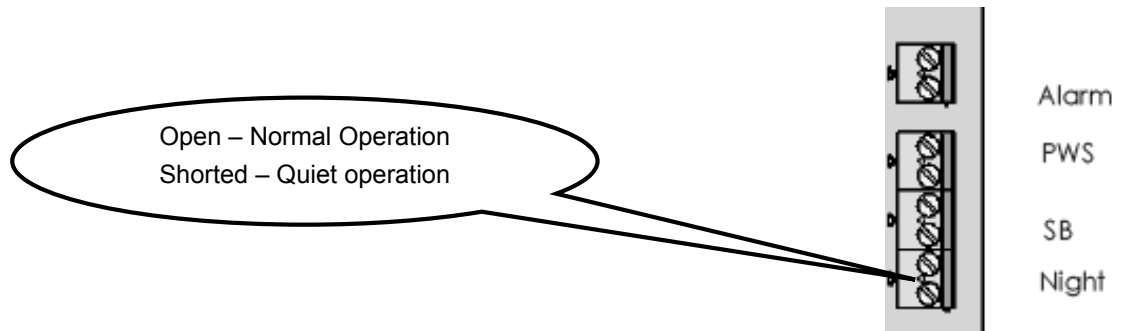
An external circuitry which may include a switch or a relay should be used for closing the internal circuit to indicate that some change is required.

A wire of up to 1.5mm² is recommended to be used.

Note: NO external power should be used in this case!

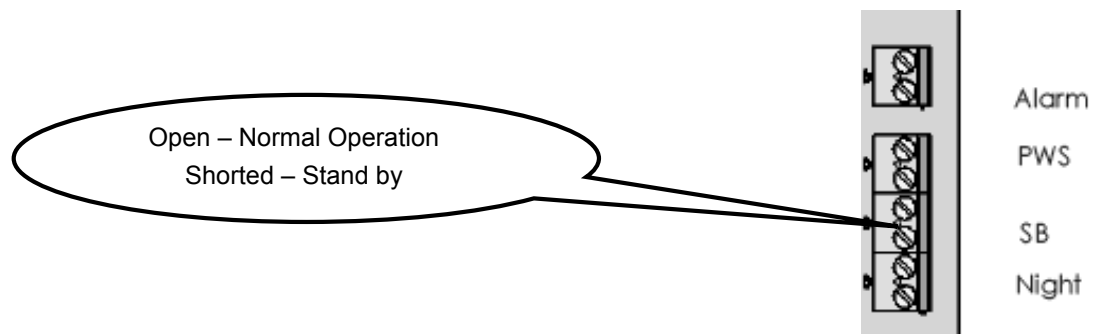
1.3.1 Night Mode quiet operation (Cool mode)

When "Night" dry contact is shorted, the unit will enter to a special mode and reduce the compressor and outdoor fans speed to allow quiet operation.



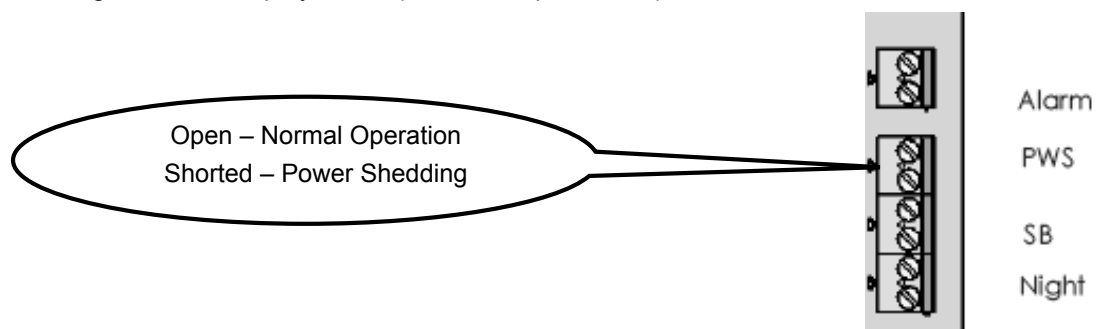
1.3.2 Stand-By

When "SB" dry contact is shorted, the unit will stop and go to stand by mode.



1.3.3 Power Shedding

When "PWS" dry contact is shorted, the unit will limit its maximum power consumption according to a pre defined value. This value can be changed via the display board (see above procedure).



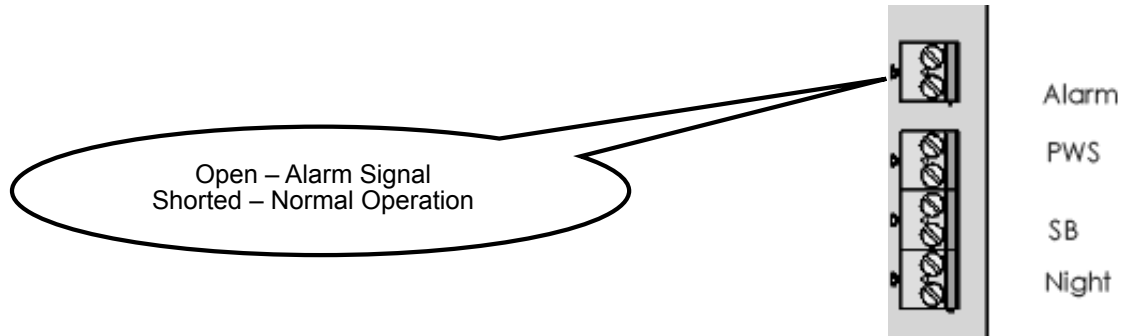
ADDITIONAL OPTIONS FOR 4-5-6 PH (10-14 KW) DCI UNITS ONLY

1.4 FEATURE SET UP WITH DRAY CONTACTS (OUTPUT)

1.4.1 Alarm

The alarm dry contacts is used to indicate a problem or any malfunction of the system.

An internal relay is used to close an external circuit which may include an external power supply. The external circuit should include some kind of a load (lightening bulb, LED, etc).



When “Alarm” dry contact is open, alarm output will be activated when there is any ODU fault or protection.

Alarm output will turn off as soon as the fault is cleared.

Output specifications: Voltage – Max 24VAC/DC

Current – Max 3.0Amp

A wire of up to 1.5mm² is recommended to be used.

1.5 ACCESSORIES SET UP

1.5.1 BASE HEATER (BH)

Base Heater is an heating element designed to melt any ice that is accumulated

on the outdoor unit base during heating operation.

The unit will automatically detect the heater and operate unique operation logic to

ensure operation only at freeze time.

Output specifications: Voltage – Max 240VAC

Current – Max 1.0Amp

A wire of up to 1.5mm² is recommended to be used

1.5.2 CRANCK CASE HEATER (CCH)

Cranck Case Heater is an heating element designed to heat-up the compressor oil cranck case during heating operation.

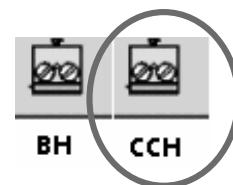
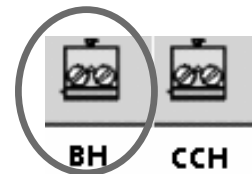
The unit will automatically detect the heater and operate unique operation logic to ensure operation only at freeze time.

Output specifications: Voltage – Max 240VAC

Current – Max 1.0Amp

A wire of up to 1.5mm² is recommended to be used

Note: Heaters should be ordered and provided safety approved by the manufacturer.



Check list before operation

CHECK THE DRAINAGE

Pour water into the drain tray-styrofoam.

Ensure that water flows out from drain hose of the indoor unit.

EVALUATION OF THE PERFORMANCE

Operate the unit at cooling mode and high fan speed for fifteen minutes or more.

Measure the temperature of the intake and discharge air.

Ensure the difference between the intake temperature and the discharge is more than 8 °C.

CHECK ITEMS

- | | |
|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <input type="checkbox"/> Is there any gas leakage at flare nut connections? | <input type="checkbox"/> Is the indoor unit properly mounted to the ceiling? |
| <input type="checkbox"/> Has the heat insulation been carried out at flare nut connection? | <input type="checkbox"/> Is the power supply voltage complied with rated value? |
| <input type="checkbox"/> Is the connecting cable being fixed to terminal board firmly? | <input type="checkbox"/> Is there any abnormal sound? |
| <input type="checkbox"/> Is the connecting cable being clamped firmly? | <input type="checkbox"/> Is the cooling operation normal? |
| <input type="checkbox"/> Is the drainage OK? | <input type="checkbox"/> Is the thermostat operation normal? |
| (Refer to "Check the drainage" section) | <input type="checkbox"/> Is the remote control's LCD operation normal? |
| <input type="checkbox"/> Is the earth wire connection properly done? | |

INDICATORS AND CONTROL BUTTONS ON THE CONDITIONER

A STANDBY INDICATOR (STBY)

Lights up when the unit is plugged and ready to receive remote control commands.

B OPERATION INDICATOR (OPER)

Lights up during operation. Blinks once to indicate that the signals from the remote control were received and stored. Blinks continuously to indicate that the compressor is in protection mode.

C TIMER INDICATOR (TIMER)

Lights up when the conditioner is scheduled for timer and/or sleep operation.

D FILTER INDICATOR

Lights up when the air filter must be cleaned.

E COOLING INDICATOR

Lights up when the Mode button is pressed.

F MODE (HEATING/COOLING) INDICATOR

Stops the conditioner's operation without using the remote control.

G HEATING INDICATOR

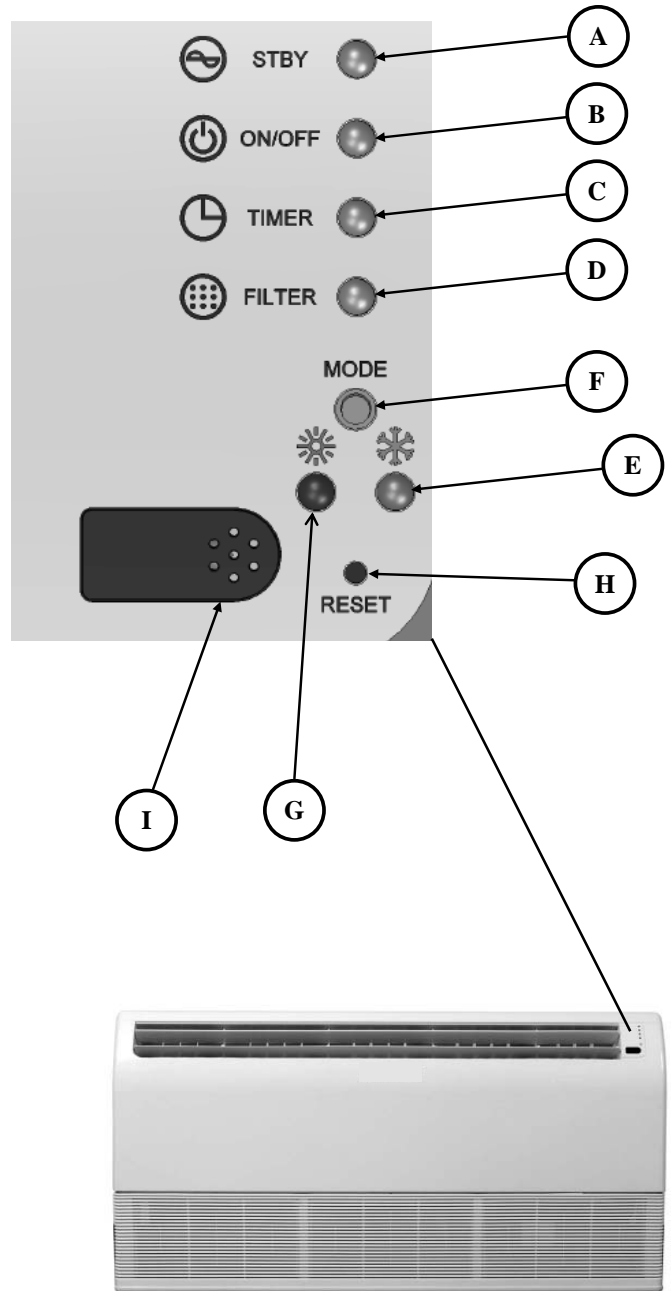
Lights up only when the MODE (F) button is pressed.

H FILTER RESET BUTTON

- Turns off the filter indicator light and resets the timer count after reinserting the clean filters.
- Disables the buzzer when desired.

I SIGNAL RECEIVER

Receives signals from the remote control.



SWITCHING THE AIR-CONDITIONER ON/OFF

If you cannot use the remote control, use button (F-) (Mode) on the conditioner's control panel to cool or heat or to stop the operation. The indicators (E) and (G) light up to indicate the current operational mode of the conditioner.

AIR-CONDITIONER PROTECTION MODES

Your air-conditioner includes several automatic protection modes, which enable you to use it at any time in any season, regardless of the outdoor temperature. Hereunder is a partial description of these protection modes:

Operation Mode	Governing conditions	Switch for protection against	Controlled Means
Cooling or Dry	Low outdoor temperature	Indoor coil freezing up (steams)	Stops the operation of the compressor and the fan in the outdoor unit when they approach freezing conditions.
	High outdoor temperature	Overheating of outdoor coil (condenses)	Stops the operation of the compressor and the fan in the outdoor unit when they approach overheating conditions. Restarts automatically. Indicator blinks (B).
Heating	Low outdoor temperature	Outdoor coil ice building up (condenses)	Reverses operation from heating to cooling for short periods to de-ice the outdoor coil. Indicator blinks (B).
	High indoor or outdoor temperature	Indoor coil overheats (steaming)	Stops the operation of the fan and the compressor when the indoor coil reaches high temperatures. Operation restarts automatically.

PROTECTION FOR THE ELECTRONIC SYSTEM

- The distance between remote control unit and any electrical appliance should be at least 1m.

MAINTENANCE



CAUTION

Before you clean the air conditioner, be sure the power supply is off.

Check if the wiring is not broken off or disconnected. Use a dry cloth to wipe the indoor unit and remote controller.

A wet cloth may be used to clean the indoor unit if it is very dirty.

Never use a damp cloth on the remote controller.

Do not use a chemically-treated duster for wiping or leave such material on the unit for long, it may damage or fade the surface of the unit.

Do not use benzine, thinner, polishing powder, or similar solvents for cleaning.

These may cause the plastic surface to crack or deform.

Maintenance after a long stop period

(eg. at the beginning of the season)

Check and remove everything that might be blocking inlet and outlet vents of indoor units and outdoor units.

Clean air filters and casings of indoor units.

Refer to "Cleaning the air filter" or details on how to proceed and make sure to install cleaned air filters back in the same position.

Turn on the power at least 12 hours before operating the unit in order to ensure smoother operation. As soon as the power is turned on, the remote controller displays appear.

Maintenance before a long stop period

(eg. at the end of the season)

Let the indoor units run in fan only operation for about half a day in order to dry the interior of the units.

Clean air filters and casings of indoor units. Refer to "Cleaning the air filter" for details on how to proceed and make sure to install cleaned air filters back in the same position.

Cleaning the air filter

The air filter can prevent the dust or other particulate from going inside. In case of blockage of the filter, the working efficiency of the air conditioner may greatly decrease. Therefore, the filter must be cleaned once two weeks during long time usage.

If the air conditioner is installed in a dust place, clean the the air filter frequent. If the accumulated dust is too heavy to be cleaned, please replace the filter with a new one(replaceable air filter is an optional fitting).

8.2-10.5 kw

- Open the air intake.
- Take out the air filter.
- Clean the air cleaning filter with water or vacuum cleaner, then dry it in cool place.
- Re-install the air filter in the reverse order.

12.0-14.0 kw

- Directly pull out the air filter from air inlet.
- Clean the air cleaning filter with water or vacuum cleaner, then dry it in cool place.
- Re-install the air filter in the reverse order.

NOTE

- The air-in side should face up when using vacuum cleaner.
- The air-in side should face down when using water.



CAUTION

Do not dry out the air filter under direct sunshine or with fire.

