

FRANÇAIS MULTI SPLIT DCI

ENGLISH MULTI SPLIT DCI

DEUTSCH MULTI-SPLITGERÄT DCI

ESPAÑOL DCI MULTI SPLIT

ITALIANO DCI MULTI SPLIT

РУССКИЙ МУЛЬТИСПЛИТ DCI



INSTRUCTIONS DE MONTAGE
INSTALLATION INSTRUCTIONS
AUFSTELLUNGSANLEITUNG
INSTRUCCIONES DE INSTALACIÓN
MANUALE PER L'INSTALLAZIONE
ИНСТРУКЦИИ ПО УСТАНОВКЕ

Airwell

MULTI SPLIT SYSTEM DCI



INSTALLATION INSTRUCTIONS

2 0 0 9

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) | |

ATTENTION

1. 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.
2. 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.
3. Installation work. It may need two people to carry out the installation work.
4. Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.



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.

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.



WARNING

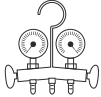





1. Use qualified installer and follow careful this instructions, otherwise it will cause electrical shock, water leakage, or aesthetic problem.
2. Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
3. 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.
4. 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.
5. 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.
6. Before obtaining access to terminals, all supply circuits must be disconnected.
7. 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. 
8. Do not damage or use unspecified power supply cord. Otherwise, it will cause fire or electrical shock. 
9. 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. 
10. This equipment must be earthed. It may cause electrical shock if grounding is not perfect.
11. 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.
12. Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
13. 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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Please refer to indoor unit installation manual supplied with the indoor unit!

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.

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).

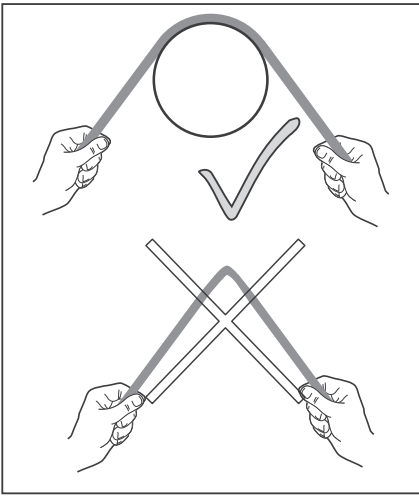
In case of pipes welding please make sure to use dry Nitrogen inside the pipes.

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

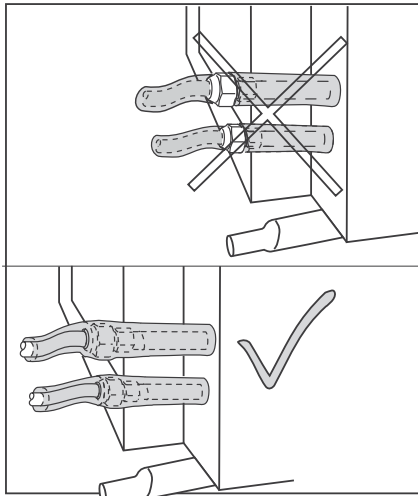
ATTACHED ACCESSORIES

Description	Amount	Name	Use
	1	Technician's installation manual	Installation instructions
	4	Rubber mounting pads	Padding of the outdoor unit
	1	Drain elbow	Connecting drain hose to outdoor
	2	Transition unions 1/2" - 3/8"	Flare connection transitions in outdoor unit
	2	Transition unions 1/2" - 5/8"	Flare connection transitions in outdoor unit
	2	Transition unions 3/8" - 1/4"	Flare connection transitions in outdoor unit

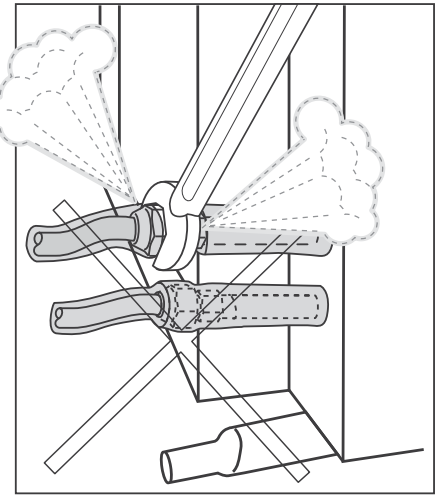
GENERAL PRECAUTION



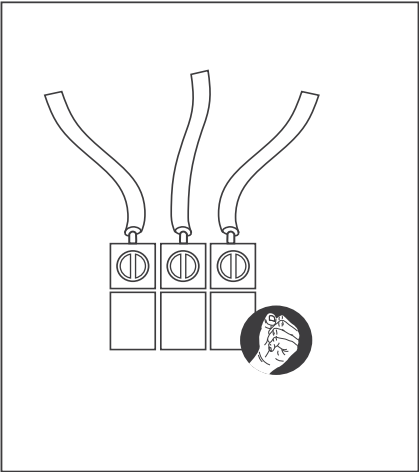
Always use the support of a large radius cylinder for bending the tubes, using pipe bending tools



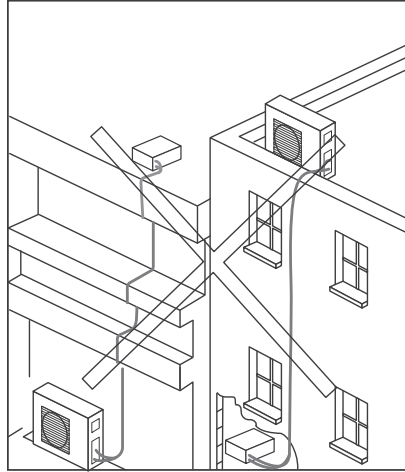
Do not leave nuts of gas tubes uncovered



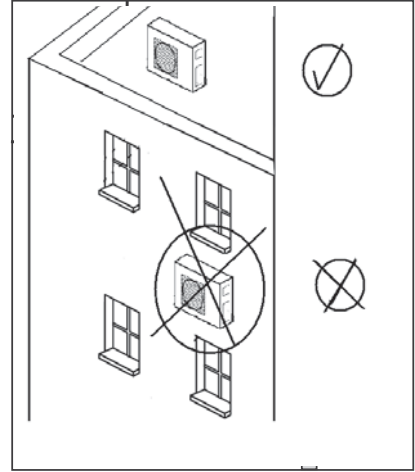
Do not untie gas tubes after installation



Tighten electrical circuits cables



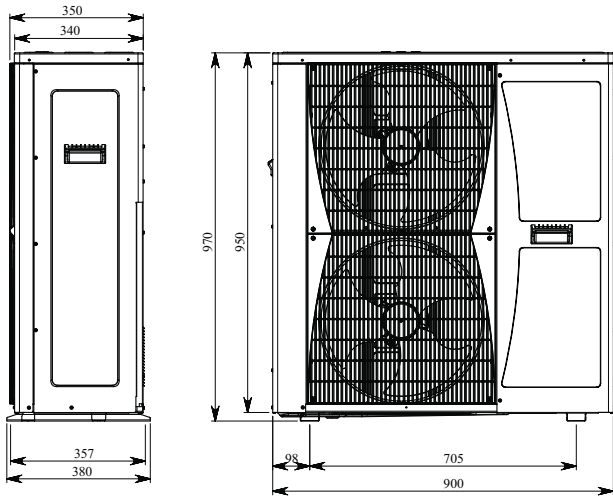
Avoid pipes bending and keep pipes as short as possible.



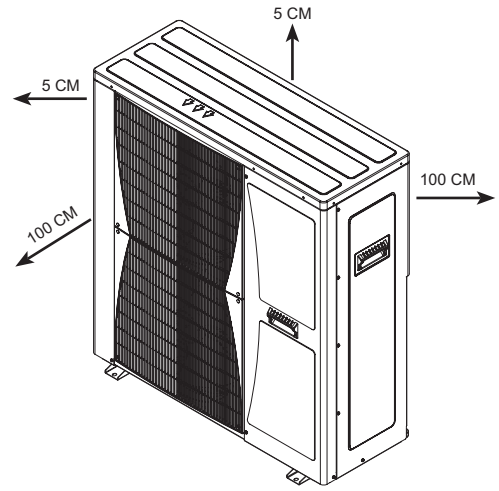
Do not install out of the window

OUTDOOR UNIT

UNIT DIMENSIONS



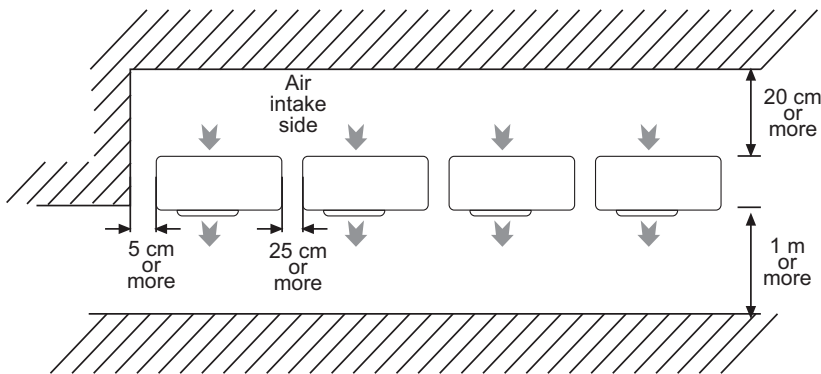
CLEARANCE AROUND THE UNIT



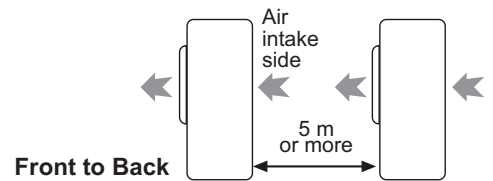
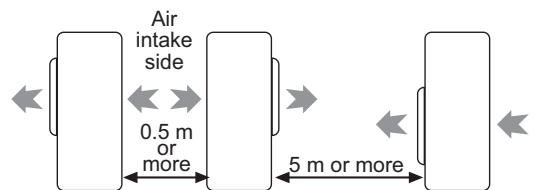
SEVERAL OUTDOORS INSTALLATION

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.

Row Installation



Back to Back Front to Front

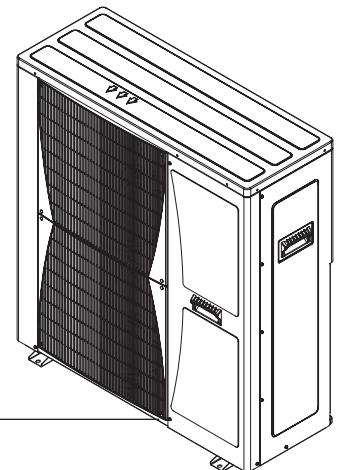
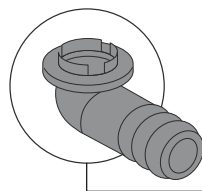


DISPOSAL OF OUTDOOR UNIT DRAIN WATER

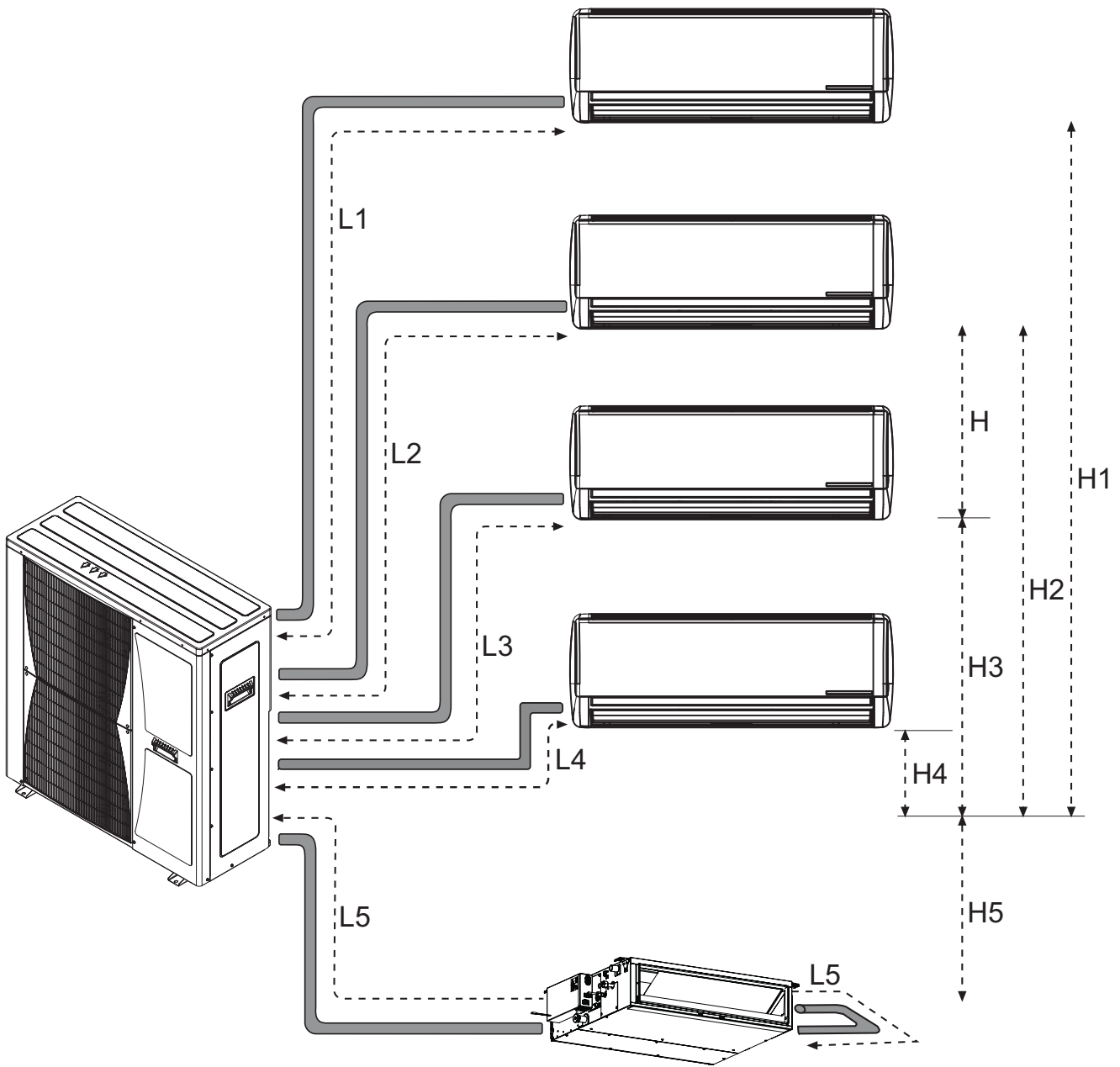
In case of using a drain elbow, the unit should be placed on a stand at least 3 cm high.

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

Use 16mm I.D. tube for drainage.

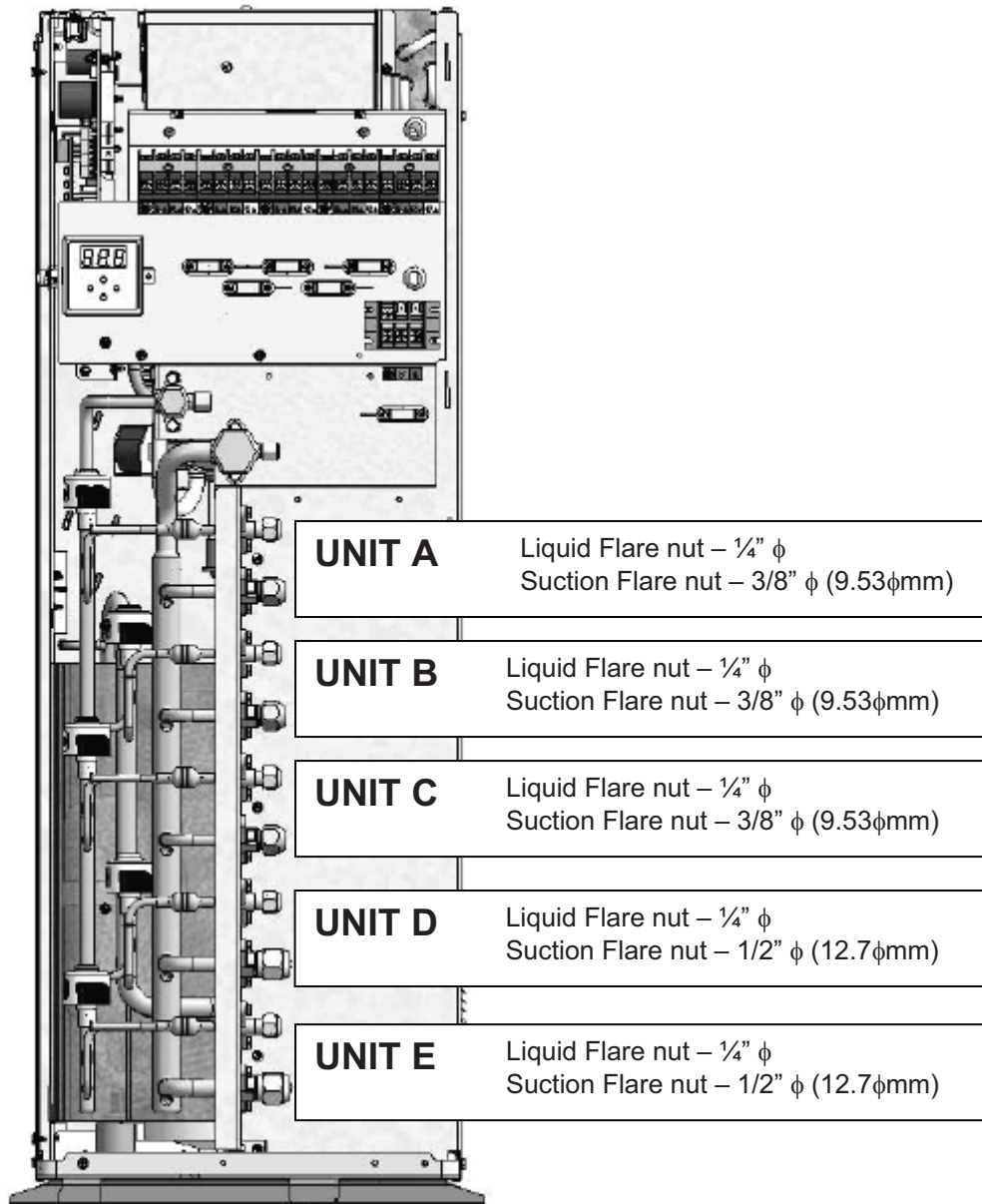


PIPING LENGTH



L1, L2, L3, L4, L5	≤ 25 m
L1+L2+L3+L4+L5	≤ 80 m
H1, H2, H3, H4, H5, H	≤ 15 m


PIPES CONNECTION



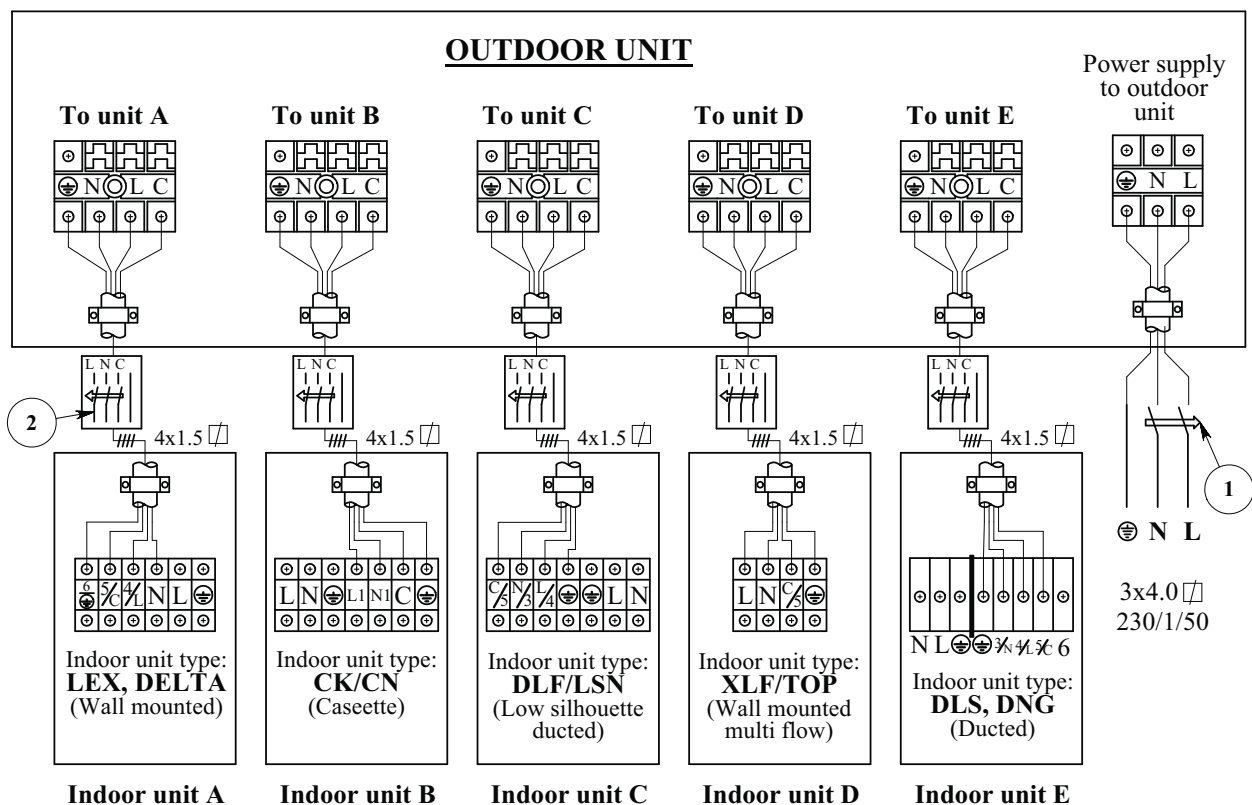
**For large indoor units of 5.0(18); 6.0(21); 7.0(24) kW –
Always use the lower connection points “Unit D” and “Unit E”.**

ELECTRICAL CONNECTIONS

1. 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.
2. 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.
3. Voltage should not vary beyond $\pm 10\%$ of the rated voltage.
4. For all power supply connections to the outdoor unit, also for the connecting cable between indoor and outdoor unit, only H05RN-F (60245 IEC 57) cable is to be used. For the optional power supply on the indoor unit at least H05W-F (60227 IEC 53) is to be used.
5. Prepare the multiple wire cable ends for connection.
6. Take away the Indoor/outdoor cover and open the terminals, take away the cable clamp screw and turn over the cable clamp.
7. Connect the cable ends to the terminals of the indoor and outdoor units.
8. Connect the other end of the twin wire cable to the outdoor unit twin wire terminal.
9. Secure the multiple wire power cable with the cable clamps.

POWER SUPPLY TO OUTDOOR UNIT				POWER SUPPLY TO INDOOR UNIT	
SUPPLY	NOMINAL CAPACITY	CIRCUIT BRAKER	POWER SUPPLY CABLE		
230v / 50Hz / 1PH	10.0kW	25A	3x4mm ²	POWER SUPPLY TO INDOOR UNITS IS NOT ALLOWED!	

ELECTRICAL CONNECTION SCHEME



1. Main power breaker.
2. Power breaker (*by installer).

FEATURES SETUP

Display Board general description

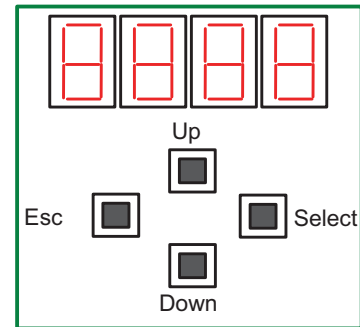
The display board serves as interface between the installer/technician and the A/C unit.

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



THERMAL MODE SETTING

If an indoor unit is defined as the priority unit, the operational mode (Cool/Heat) will be than defined according to this unit.

If no unit is selected the default is the first unit to be turned ON defines the mode of operation.

1. Scroll Down

2. Select

Mode (CL/Ht/Sb)	
Technician Test (tt)	
	Technician Test Cool (ttC)
	Technician Test Heat (ttH)
Installation Test (It)	
	Number of IDUs (nid)
	Begin test (bgn)
	Test Result (PF)
	Matrix Table Test Result (tbl)
	Problem Correction (Crt)
Diagnostics (diA)	
	Outdoor Unit (o)
	Indoor Unit A (a)
	Indoor Unit B (b)
	Indoor Unit C (c)
	Indoor Unit D (d)
	Indoor Unit E (E)
Set Up (StP)	
	First IDU Wins (idu)
	IDU A is master (A-p)
	IDU B is master (b-p)
	IDU C is master (c-p)
	IDU D is master (d-p)
	IDU E is master (E-p)
	'Forced mode' input (Frc)

Scroll down the "Down" button until setup is displayed (StP) and than press the "Select" button.

Scroll down the "Down" button to choose the option required and press the "Select" button.

a. No unit priority – Display shows “IdU” (Default value).



b. Unit A is in priority – Display shows “A-p”



c. Unit B is in priority – Display shows “b-p”



d. Unit C is in priority – Display shows “c-p”



e. Unit D is in priority – Display shows “d-p”



f. Unit E is in priority – Display shows “E-p”



g. Forced mode is impied - Display shows “FrC”



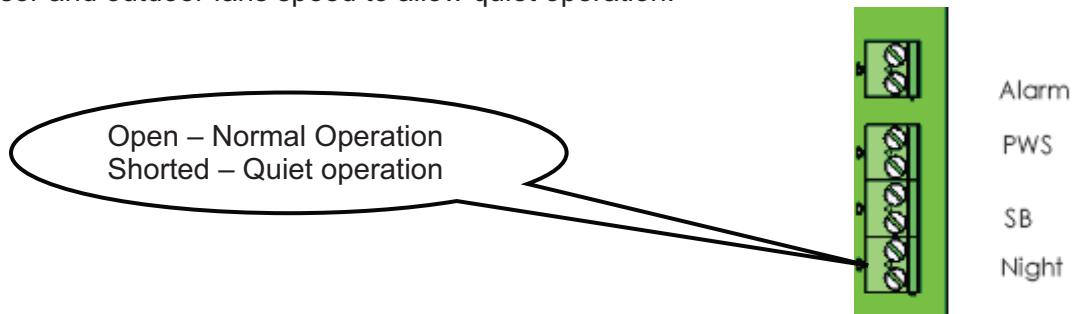
Feature set up with dry contacts (Input)

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!

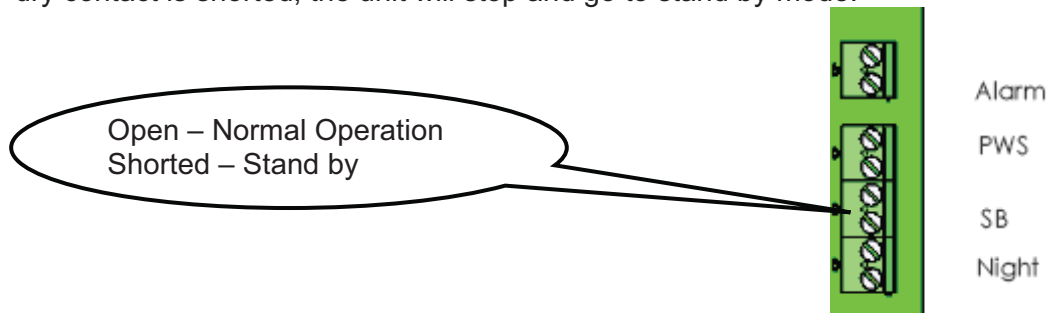
Night Mode quiet operation

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.



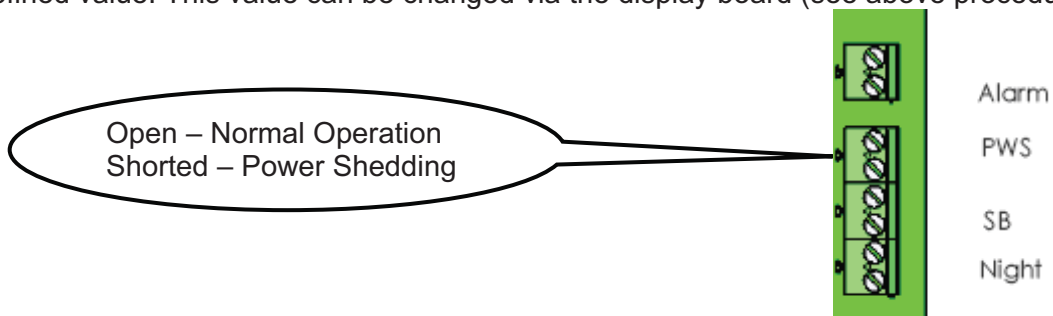
Stand-By

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



Power Shedding

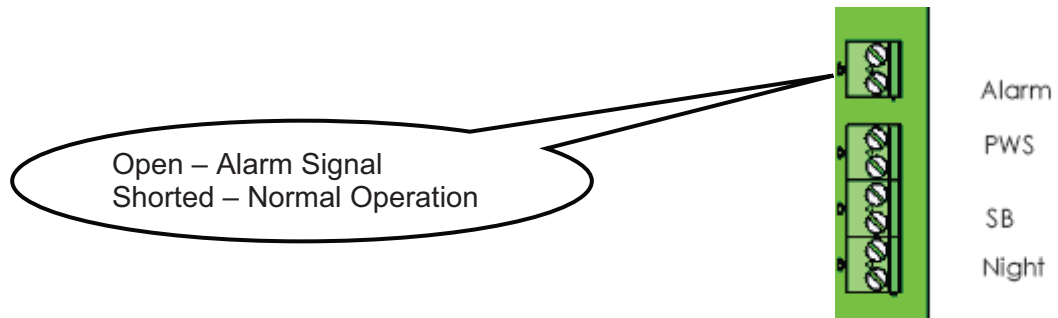
When "PWS" dry contact is shorted, the unit will limit its maximum power consumption according to a pre defined value. This value can be changed via the display board (see above procedure).



Feature set up with dry contacts (Output)

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.

ACCESSORIES set up

BASE HEATER (BH)

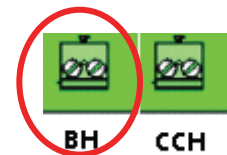
Base Heater is a heating element designed to melt any ice that is accumulated on the outdoor unit base during heating operation.

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



CRANK CASE HEATER (CCH)

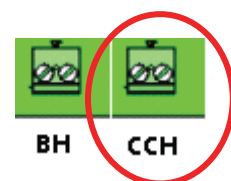
Crank Case Heater is a heating element designed to heat-up the compressor oil crank case during heating operation.

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



INSTALLATION TEST

For proper system operation, each communication cable has to be connected to the corresponding indoor unit, following the refrigerant tubes. This means that the communication lines Ca, Cb, Cc, Cd and Ce has to be connected to the indoor units A, B, C, D and E respectively.

To serve this purpose the system is designed to have “installation Test Mode”. When this mode is set, the unit verifies whether the correct connections were made or not.

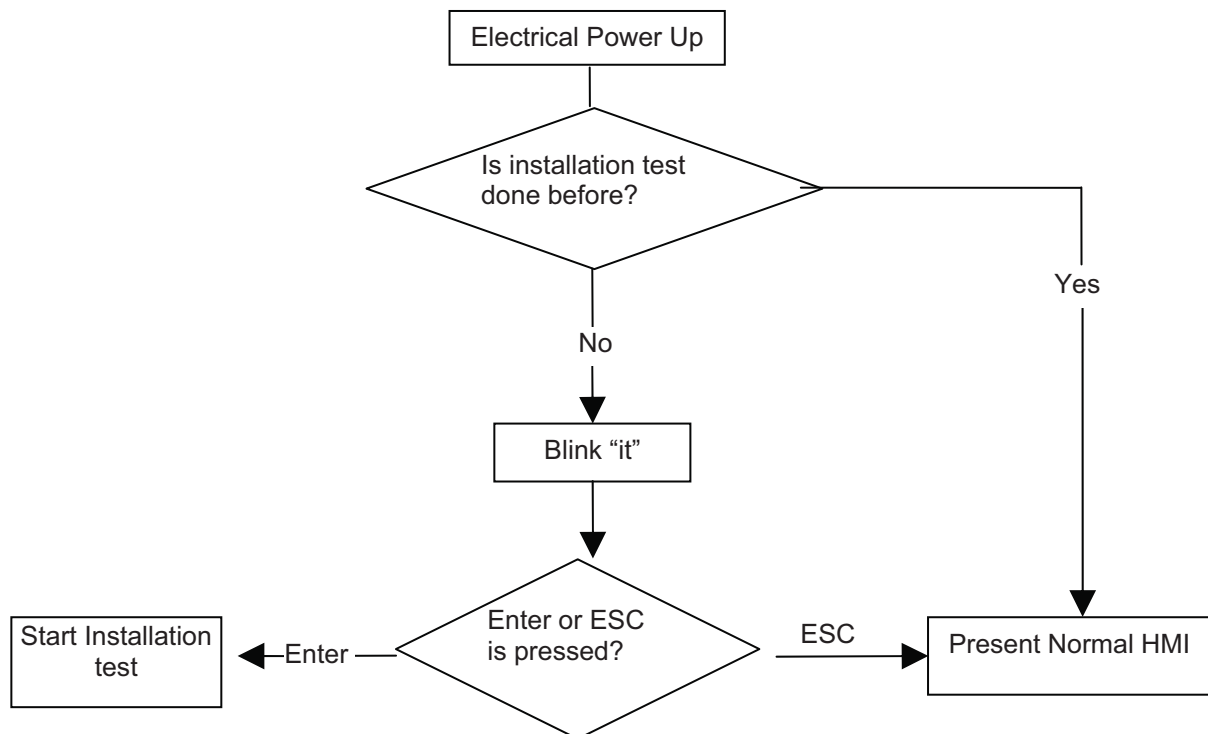
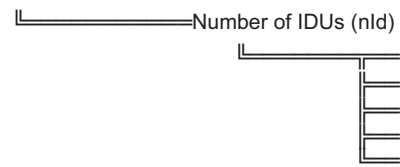
Notes:

1. The miswiring check cannot be performed while outdoor temperature is below 5°C. in this case the display will show “OAT”.
2. The miswiring check cannot be performed if some components in the unit are out of operation. In this case the display will show the error code “xxx”.
3. The indoor units are turned automatically to installation test mode, no need to turn them ON.

Please follow the steps below:

1. Make sure all wiring and piping to indoor units are properly connected.
2. Turn ON the power breaker.
3. Enter the number of connected indoor units. (1, 2...5).
4. Enter installation test (It)
 - a. Entering at first time

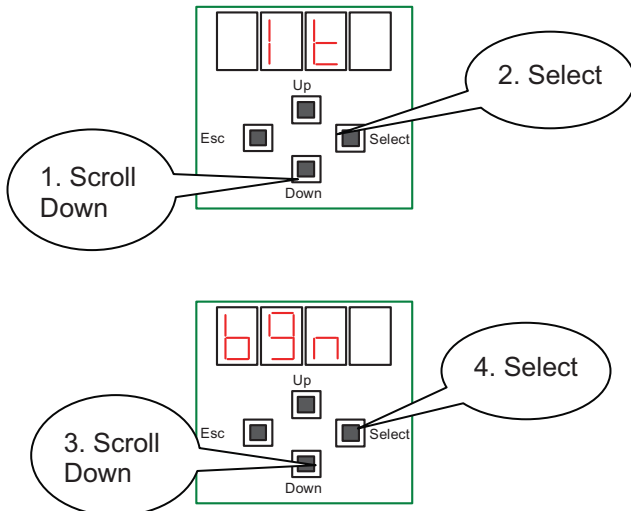
Installation Test (It)



b. Entering by scrolling the menu (any time)

Enter the test by scrolling down to installation test (It)

1. Press the “Down” button until “It” is shown on the display.
2. Press “Select”.
3. Scroll down until the display shows “bgn”.
4. Press “Select”.



Mode (CL/Ht/Sb)	
Technician Test (tt)	
	Technician Test Cool (ttC)
	Technician Test Heat (ttH)
Installation Test (It)	
	Number of IDUs (nid)
	Begin test (bgn)
	Test Result (PF)
	Matrix Table Test Result (tbl)
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	Outdoor Unit (o)
	Indoor Unit A (a)
	Indoor Unit B (b)
	Indoor Unit C (c)
	Indoor Unit D (d)
	Indoor Unit E (E)
Set Up (StP)	
	First IDU Wins (idu)
	IDU A is master (A-p)
	IDU B is master (b-p)
	IDU C is master (c-p)
	IDU D is master (d-p)
	IDU E is master (E-p)
	'Forced mode' input (Frc)

5. During installation test the system works without the installer interference. It can be observed that the compressor, outdoor fan, indoor fans are stopped and starts according to preset procedure.
6. The system exits installation test either by continuous press on the escape button for 5 seconds or when the system finishes installation test by itself after 15 to 19 minutes. During the installation test the system will count down the remaining time in minutes.
7. After installation test the system stops for 5 minutes and then resumes its normal operation. The judgment code is shown on the display – either 'pass' or 'fail'.

P A S S

Installation test passed with success

F A I L

Installation test failed

8. Upon the judgment code, if required, the installer should correct the communication wiring.

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 wall/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?
(Refer to "Check the drainage" section) | <input type="checkbox"/> Is the thermostat operation normal? |
| <input type="checkbox"/> Is the earth wire connection properly done? | <input type="checkbox"/> Is the remote control's LCD operation normal? |

