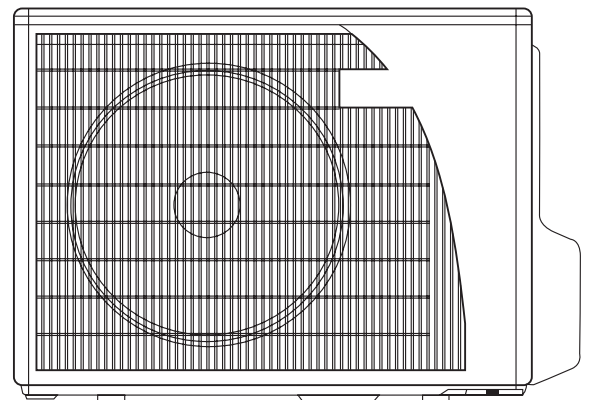
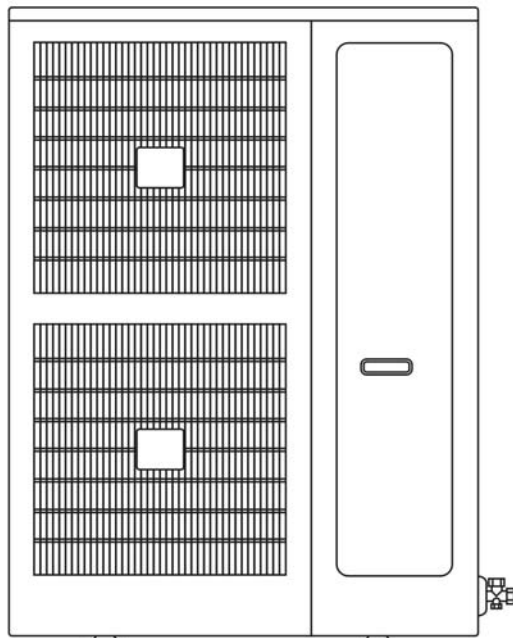
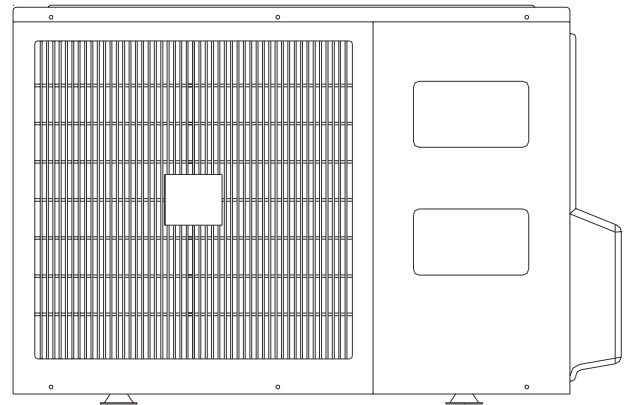
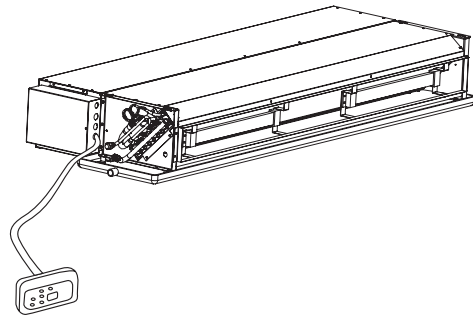


Comfort Range

Ductable Pressurized Split System Air Conditioners

EDS Series



OPERATION AND INSTALLATION MANUAL



IT IS MANDATORY TO CUTOFF POWER SUPPLY BEFORE STARTING TO WORK IN THE ELECTRIC CASING BOXES

GENERAL RECOMMENDATIONS

- Congratulations for having selected an our air conditioner.

SAFETY DIRECTIONS

- Follow the safety rules in forces when you are working on your appliance.
- Installation and maintenance of the equipment should be performed by qualified specialists.
- Make sure that the power supply and its frequency are adapted to the required electric current of operation, taking into account specific conditions of the location and the current required for any other appliance connected with the same circuit.
- Maximal installation altitude is 1000m.
- The appliance shall be installed in accordance with national wiring regulation.

WARNING

- Cut off power supply before starting to work on the appliance.
- The manufacturer declines any responsibility and the warranty becomes void if these instructions are not respected.
- If you meet a problem, please call the Technical Department of your area.
- If possible, assemble the mandatory or optional accessories before placing the appliance on its final location. (see instructions provided with each accessory).

The information contained in these instructions are subject to modification without advance notice.

In order to become fully familiar with the appliance,we suggest to read also our Technical Instructions.

TRANSPORTATION AND STORAGE

Upon receipt of the equipment, check for carton visible damage, make a notation on the shipper's delivery ticket before signing. If there is any evidence rough handling, immediately open the carton to check for concealed damage, if any damage is found, notify the carrier within 48 hours to establish your claim and request their inspection and a report. The Warranty Claim Department should then be contacted.

Do not stand or transport the machines on end. For storing, each carton is marked with "up" arrows.

In the event that elevator transfer makes up-ended positioning unavoidable, absolutely make sure that the machine is in the normal upright position for at least 24 hours before operating.

Temporary storage at the job site must be indoors, completely sheltered from rain, snow, etc. high or low temperature naturally associated with weather pattern will not harm the conditioners. The transport and storage temperature range is from -25°C to 55°C, otherwise, may deteriorate certain plastic materials and cause permanent damage.

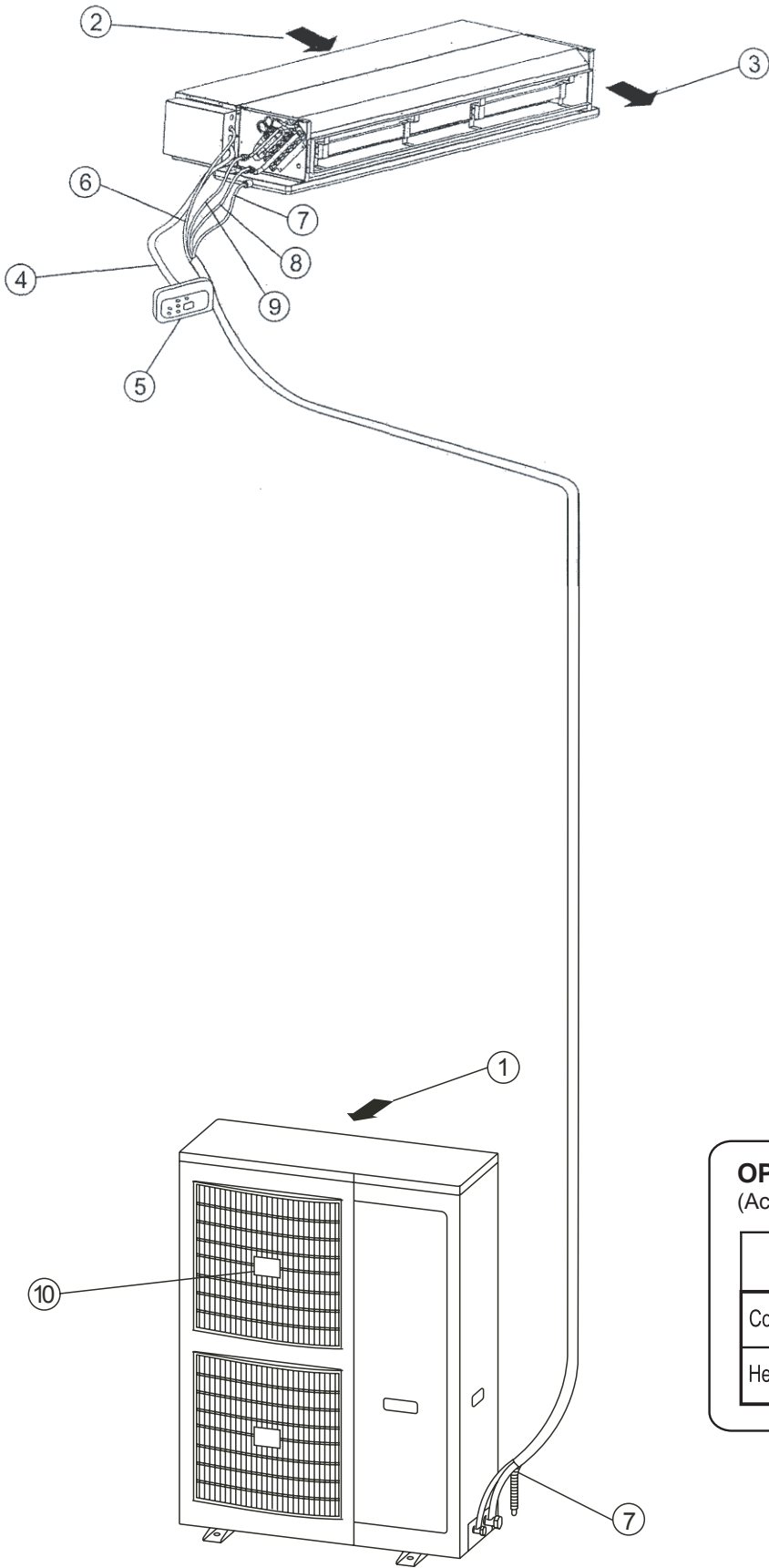
Note: Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and are experienced with this type of equipment.

Caution: Sharp edges are a potential injury hazard. Avoid contact with them.

OPERATION INSTRUCTIONS

SYSTEM DESCRIPTION	1
MODES OF OPERATION, FUNCTIONS AND FEATURES	2
CENTRAL CONTROL DISPLAY PANEL	4
PROTECTION MODES	5
CARE AND MAINTENANCE	6
OPERATING TIPS	6
BEFORE CALLING FOR SERVICE	7

SYSTEM DESCRIPTION



1. Outdoor Unit Air Intake

2. Return Air Intake

3. Supply Air Outlet

4. Central Control Unit Cord

5. Central Control Unit Display

6. Interconnecting Cable

7. Condensate Tube

8. Suction Tube

9. Liquid Tube

10. Outdoor Unit Air Outlet

OPERATING TEMPERATURE RANGE

(According to T1 temperature condition)

	R22	Indoor		Outdoor	
		DB[°C]	WB[°C]	DB[°C]	WB[°C]
Cooling	Upper Limit	32	23	46	NA
	Lower Limit	21	15	21	NA
Heating	Upper Limit	27	NA	24	18
	Lower Limit	15	NA	-5	-6

MODES OF OPERATION, FUNCTIONS AND FEATURES



COOL Cools, dehumidifies and filters the room air. Maintains desired room temperature.



HEAT Heats and filters the room air. Maintains desired room temperature.



AUTO Automatically switches from COOLING to HEATING or from HEATING to COOLING, maintaining the desired temperature according to the room conditions.



DRY Dehumidifies and softly cools the room. In DRY Mode, the air conditioner operates at an increased dehumidifying power. This function is recommended to be used when temperature is rather low but the humidity is high.



FAN Recirculates and filters the room air. Maintains constant air movement in the room.



AUTO FAN The air conditioner automatically selects the FAN speed in accordance with the room temperature. At the start, the unit operates at high fan speed. As the room air approaches the desired temperature, the fan switches to a lower speed for quieter operation.



I FEEL Switches the temperature sensing point to the place where the remote control is located. (Generally the temperature sensor is located behind the intake grille of the air conditioner). This function is designed to provide a personalized environment by transmitting the temperature control command from the location next to you. The communication between the Remote Control and the unit is done by infra-red signal. Therefore, in using this function, the Remote Control should always be aimed, without obstructions, at the air conditioner.



TIMER Real time control and display, automatically turns the air conditioner ON and OFF according to the time of day setting, ensuring comfort conditions before returning home, without wasting electricity. It turns the air conditioner off automatically when sleeping.



SLEEP Designed to create comfortable sleeping conditions. When in COOLING mode, the temperature rises one degree centigrade after each consecutive hour, up to three hours, from the start of the mode. The temperature rise prevents the feeling of over-cooling while sleeping (when your body is at rest). In HEATING mode the reverse occurs; the air conditioner lowers its temperature one degree every hour. When in SLEEP mode, the air conditioner will be automatically turned off after seven hours. The result is a more comfortable and invigorating sleep, which leaves you feeling fresh and energetic in the morning.

MODES OF OPERATION, FUNCTIONS AND FEATURES

%RH HUMIDITY MEASUREMENT (OPTIONAL)

Measures and displays relative humidity between 30% and 90% at a temperature range of 15°C to 45°C.



ROOM TEMPERATURE

Measures and displays room temperature.

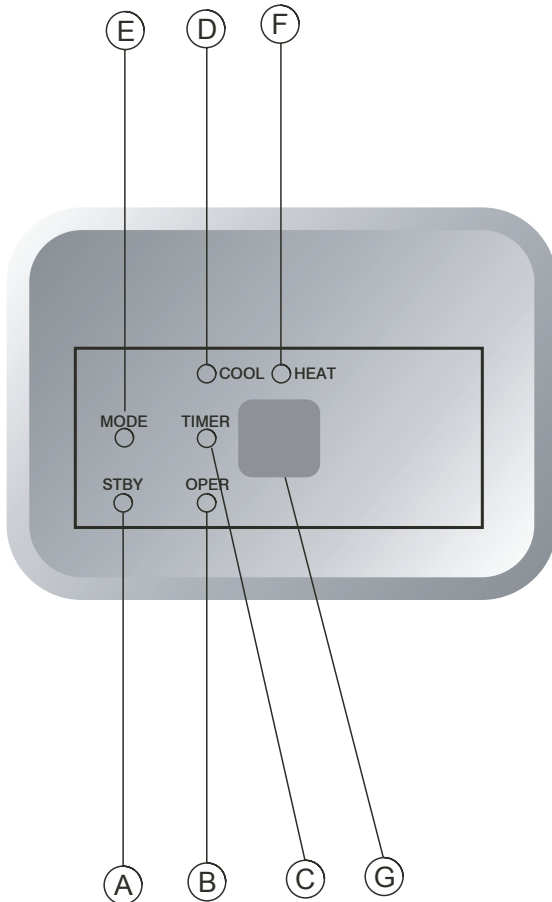
LOCK

Freezes the last operation setting on the remote control. When LOCK is activated, the remote control will not be able to control the air-conditioner.

ILLUMINATED KEYPAD AND LCD DISPLAY (optional)

By pressing any button in dark environment, the keypad and the LCD display will be illuminated.

CENTRAL CONTROL DISPLAY PANEL



A. STAND-BY INDICATOR

Lights up when the air conditioner is connected to power and ready to receive the remote control commands.

B. OPERATION INDICATOR

Lights up during operation. Blinks to announce that the remote control infrared signal has been received and stored.

C. TIMER INDICATOR

Lights up during TIMER and SLEEP operation.

D. COOLING INDICATOR

Lights up only when button(E) is pressed.

E. MODE - COOL/HEAT/ON/OFF - UNIT

OPERATION BUTTON

Used to switch the unit to positions: OFF, ON, COOLING or HEATING without the use of the remote control. The button can be activated by a plastic rod or splinter.

F. HEATING INDICATOR

Lights up only when button(E) is pressed.

G. SIGNAL RECEIVER

Receives IR signals from the remote control.

PROTECTION MODES

Your air conditioner includes several automatic protection modes, which enables you to use it virtually at any time and in any season, regardless of the outdoor temperature. Some of the protection modes are listed below:

Mode	Operation conditions	Protection from	Controlled remedy
Cooling and Dry	Low outdoor temperature	Indoor coil freezing up	Stops outdoor fan and compressor when approaching freezing conditions Resumes operation automatically.
	High outdoor temperature	Outdoor coil overheating	Stops compressor when approaching over heating conditions. Resumes operation automatically. Operating indicator (B) blinks.
Heating	Low outdoor temperature	Outdoor coil ice build up	Reverses operation from heating to cooling for short periods to de-ice outdoor coil. Operating indicator (B) blinks.
	High indoor or outdoor temperature	Indoor coil overheating	Stops outdoor fan and compressor when approaching high indoor coil temperature. Resumes operation automatically.

CARE AND MAINTENANCE

CAUTION

Before performing any maintenance procedure, make sure to disconnect the air conditioner from the power supply.

CLEANING THE CONTROL UNIT

Wipe off the control unit with a dry soft cloth. Avoid using hot water or volatile materials which could damage the surface.

AT THE BEGINNING OF THE SEASON

Make sure no obstacles exist that block the flow of inlet or outlet air of the outdoor unit. Make sure the power supply is properly connected and power switch is in its ON position.

REMOTE CONTROL BATTERY CHANGE

Batteries should be replaced when the LCD operation information is no longer displayed. Remove the batteries from the remote control unit. Replace with two 1.5 Volt size AAA batteries.

OPERATING TIPS

- Set a suitable room temperature; excessively low room temperature is not good for your health and wastes electricity. Avoid frequent setting of the temperature.
- During cooling, avoid direct sun. Keep curtains and blinds closed. Close doors and windows to keep the cool air in the room.
- Avoid generating heat or use heating appliances while using the air conditioning in cooling.
- During prolonged operation, ventilate the room occasionally by opening a window from time to time.
- After power failure: Operation of the unit will be resumed in the last mode of operation, as before the power failure.
- After tuning on, allow more than 3 minutes for cooling, heating or dry operation to start.
- When DRY mode is used, make sure that the room temperature is between 20 to 27°C. When used out of this range, the unit may protect itself and become inoperative.
- When COOL or DRY mode are used, make sure that the room relative humidity is below 78%. If the unit is used for a prolonged time in high humidity, moisture may form on the air outlets and drip down.

BEFORECALLING FOR SERVICE

Before calling for service, please check the following malfunctions and correct as needed.

PROBLEM	CAUSE	REMEDY
● Unit does not operate. operation indicator does not light up.	◆ Unit not connected to power.	<input type="checkbox"/> Set the power supply switch to ON.
	◆ Power failure.	<input type="checkbox"/> Check main fuse.
● Operator indicator blinks Continuously.	◆ Unit failure.	<input type="checkbox"/> Call for service.
● Remote control Information is not displayed.	◆ Battery failure(discharged)	<input type="checkbox"/> Replace batteries.
● Air does not blow out from Indoor unit.	◆ De-icing protection mode is activated.	<input type="checkbox"/> Normal operation in HEATING mode.
	◆ Unit is in AUTO FAN mode.	<input type="checkbox"/> Normal operation in AUTO FAN mode.
	◆ Over cooling in DRY mode.	<input type="checkbox"/> Normal operation in DRY mode.
● COOLING, DRY or HEATING will not start Immediately.	◆ 3-min.compressor delayed start.	<input type="checkbox"/> Normal operation for these mode.
● Unit functions but is not up to Its performance.	◆ Improper temperature setting.	<input type="checkbox"/> Rest temperature or clean air filter.
	◆ Air filters are not clean.	<input type="checkbox"/> Clean the filters.
	◆ Unit capacity is insufficient for load or room size.	<input type="checkbox"/> Consult your service center.
● Unit does not operate. STAND-BY indicator lights.	◆ Remote control malfunctions.	<input type="checkbox"/> Check remote control batteries <input type="checkbox"/> Try to operate from a closer distance. <input type="checkbox"/> Start from Central Control Unit. <input type="checkbox"/> Perform reset operation by pressing buttons on remote control.
● Unit does not respond properly to remote control Command.	◆ IR signal does not reach unit.	<input type="checkbox"/> Check for obstruction between unit and clear if needed.
	◆ Distance between remote control and central control display is too great, or aiming is from improper angle.	<input type="checkbox"/> Get closer to central control display.
	◆ IR receiver is exposed too much to strong lights, especially fluorescents.	<input type="checkbox"/> Dim lights.

INSTALLATION

INSTALLATION INSTRUCTION	1
1. General	1
2. UNIT LOCATION CREIERIA	1
DIMENSION OF OUTLINE	2
● INDOOR MODEL	2
● OUTDOOR MODEL	3
INDOOR UNIT INSTALLATION	6
1. General	6
2. Ductwork & attenuation	6
3. Ventilation air	7
OUTDOOR UNIT INSTALLATION	7
INSTALLATION INTERCONNECTING TUBING	8
1. General	8
2. Recommendation for interconnection tubing installation	10
3. Setting in operation	11
3.1 Flare preparation	11
3.2 Connecting the tubes	11
3.3 Evacuation and setting in operation	11
DRAIN LINE INSTALLATION	13
ELECTRCAL CONNECTIONS	13
1. Power supply	13
2. Interconnecting cable	18
3. Display control unit	18
3.1 Location criterial	18
3.2 Installation of display control unit wall	18
3.3 Consideration in locating the remote control unit	18
3.4 Remote control mounting	20

INSTALLATION INSTRUCTION

1. General

The air - conditioner includes two separate units - Indoor and Outdoor Unit. The two units are interconnected by refrigerant tubes and an electric cable. Unit functions are controlled by a Display Control Unit and a wireless Remote Control. For outline dimensions, see the pages following.

WARNING

The air conditioner must be installed by authorized technicians, according to company specifications and using company standard tubing, electric cables and proper installation tools. Failure to comply with the above may invalidate your warranty!

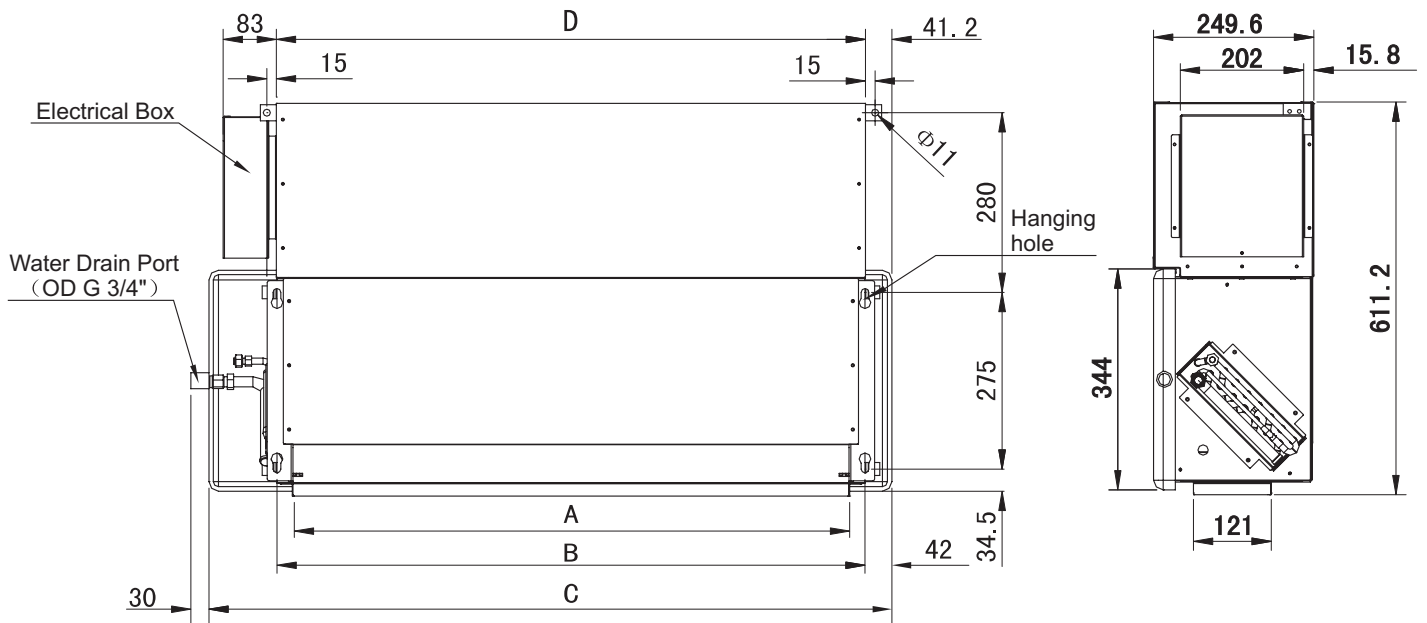
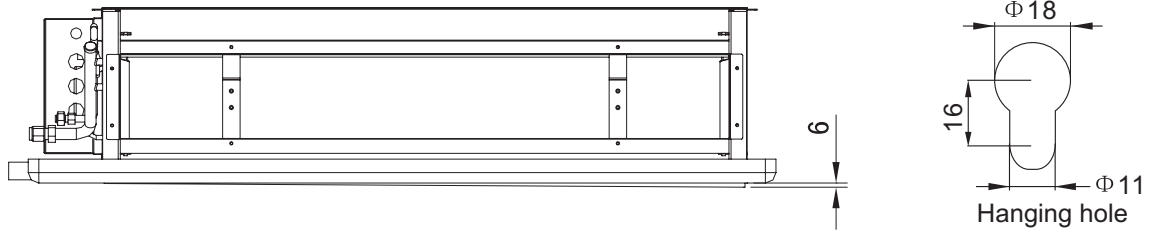
2. Unit location criteria

In selecting proper location, the following criteria must be considered:

- a) The outdoor unit and the indoor unit must be installed as close to each other as possible. For tubing length and diameters - see Table No.1 and No.2.
- b) Outdoor unit installation should provided for.
 - Easy service access.
 - Minimum disturbance to the owner and nearby neighbors.
 - If installed in a closed place (balcony, attic, etc.), outdoor air vent must be provided to prevent hot/cold air from recirculating through the outdoor unit.
 - If several outdoor units are installed in the same area, make sure that the hot air outlet from one outdoor unit does not enter another outdoor unit.
 - Verify that any wall on which the outdoor unit is installed is capable of carrying the unit's weight. Do not install on a light unstable structure susceptible to vibration.
 - When installing on a balcony above the first floor, make sure that the outdoor unit location allows easy access for removal of the top cover and/or the entire unit, if necessary
 - Do not install the unit in a highly polluted area in which the air is contaminated by oil mist, salt or sulfuric gas.

DIMENSIONS OF OUTLINE

INDOOR MODEL: EDS 25 EDS 73
 EDS 35 EDS 100
 EDS 52 EDS 120

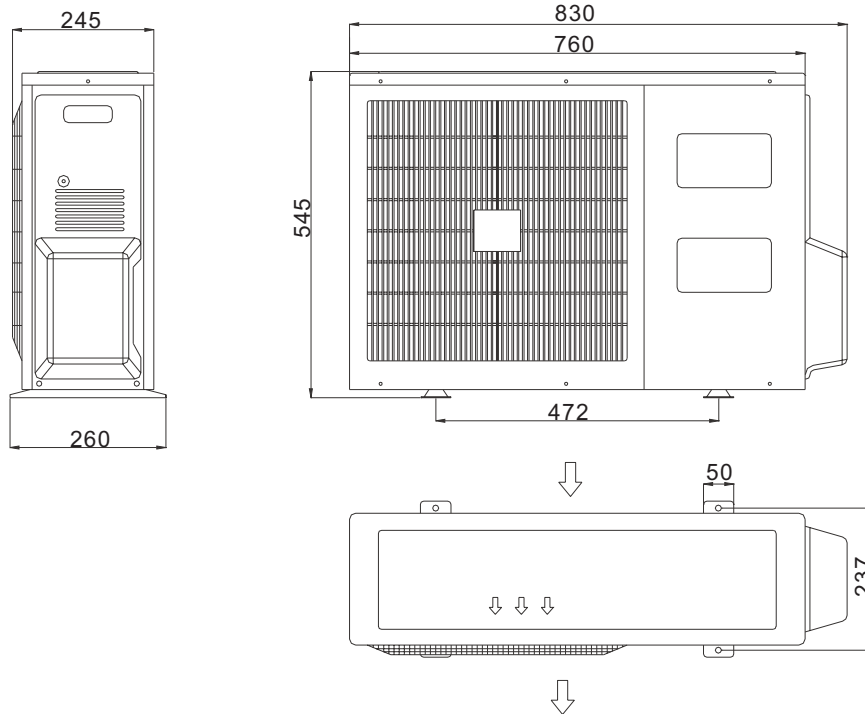


Model	Dimensions(mm)				Quantity	
	A	B	C	D	Fan	Moter
EDS25	480	530	665	533	1	1
EDS35	730	780	915	783	2	1
EDS52	865	915	1050	918	2	1
EDS73	1150	1200	1335	1203	2	1
EDS100	1320	1370	1505	1373	3	2
EDS120	1570	1620	1755	1623	4	2

Unit:mm

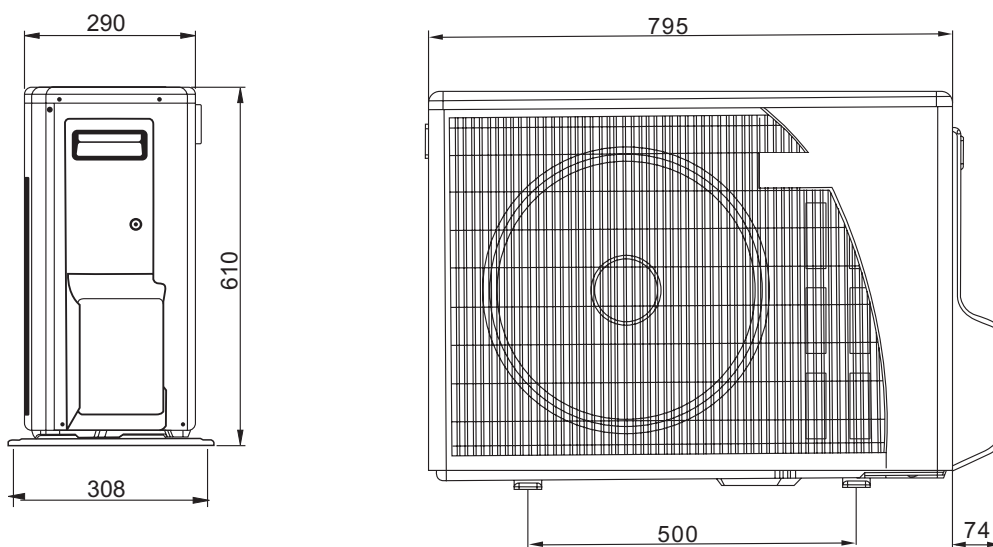
DIMENSIONS OF OUTLINE

OUTDOOR MODEL: GCN 9
GCN 12



Unit: mm

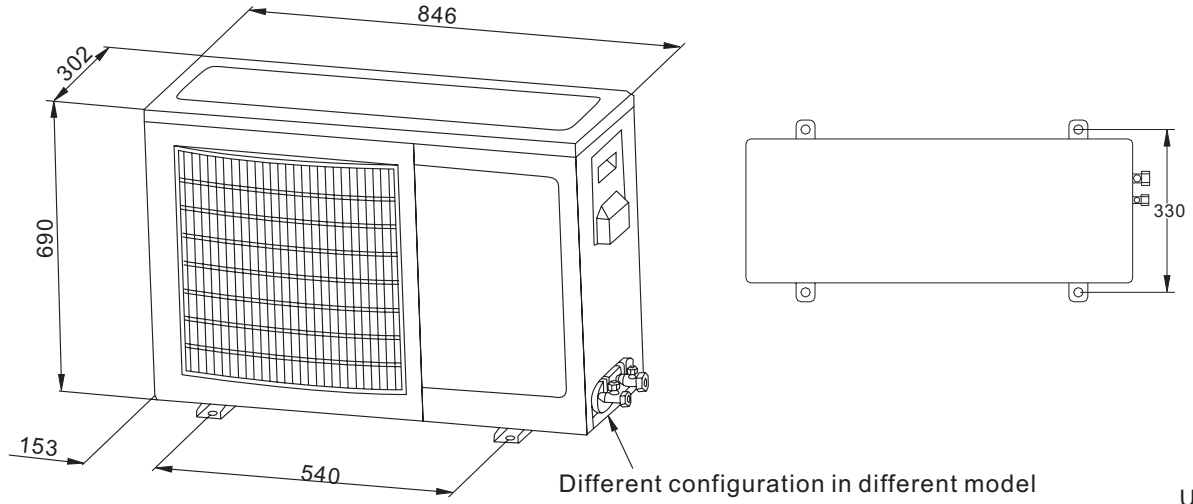
OUTDOOR MODEL: ONG3-17



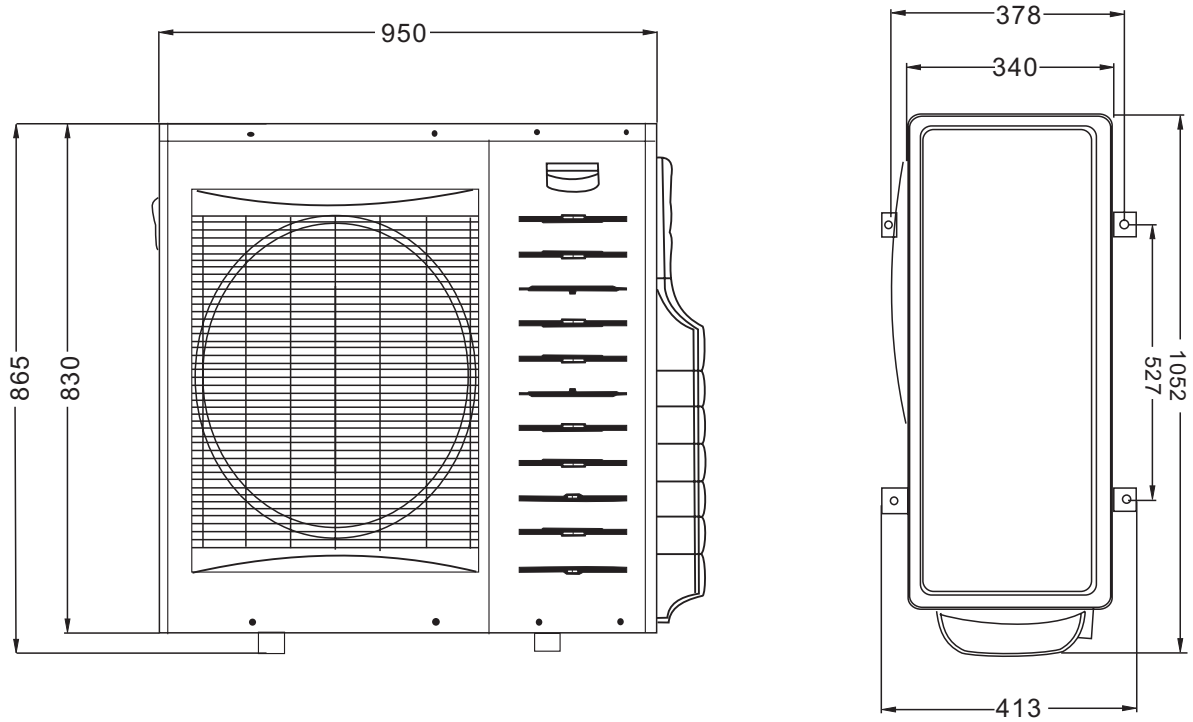
Unit: mm

DIMENSIONS OF OUTLINE

OUTDOOR MODEL: GC 22 GC 9+9
 GC 12+12

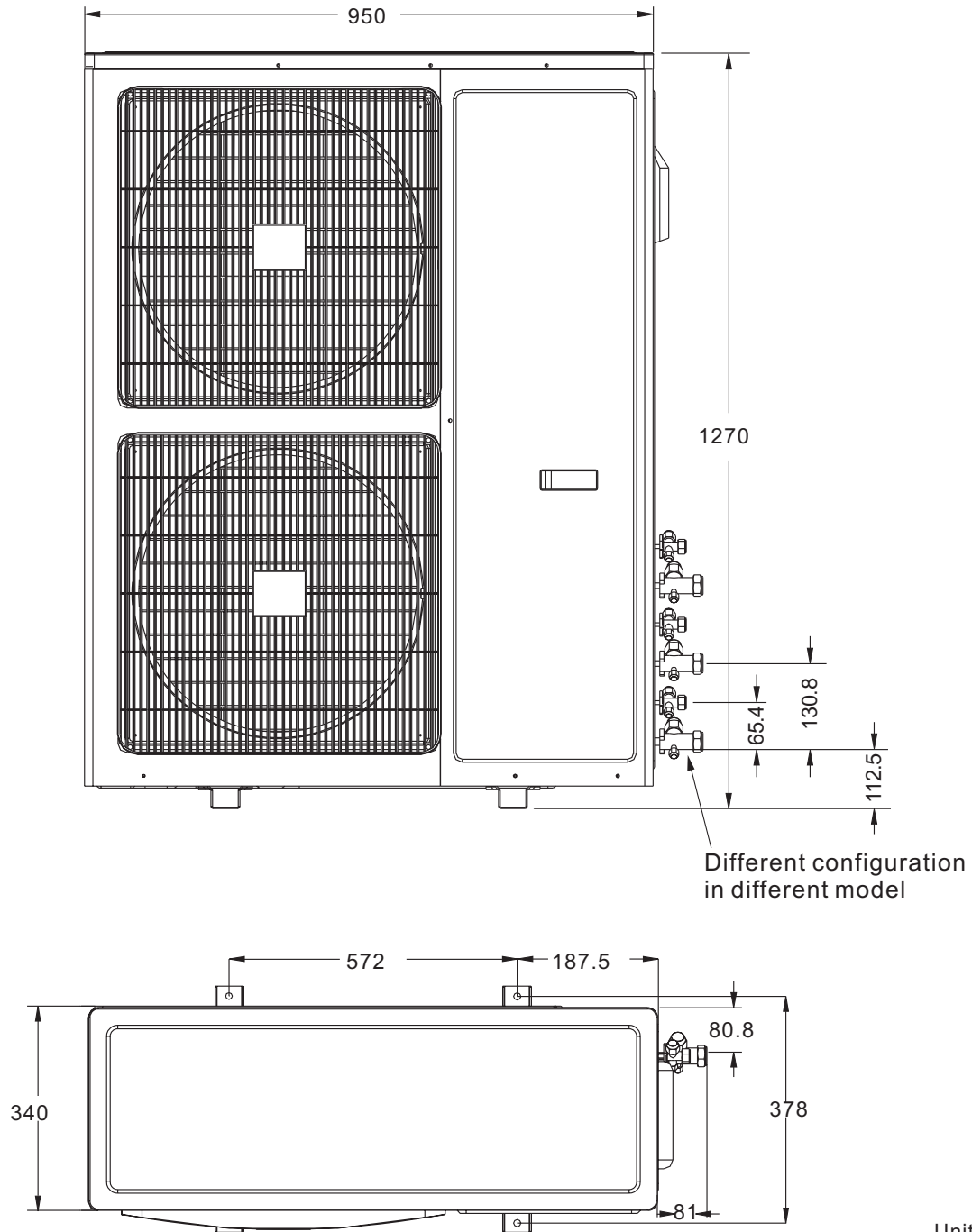


OUTDOOR MODEL: GC 34



DIMENSIONS OF OUTLINE

OUTDOOR MODEL: GC 45
GC 17+17
GC 9+9+12
GC 9+9+17
GC 9+12+17
GC 12+12+12



Unit: mm

INDOOR UNIT INSTALLATION

1. General

The contractor should make sure that adequate ceiling panel access exists, including clearance for hanger racks, duct collars and electrical connections. Allow adequate room below the unit for a condensate trap and do not locate unit above pipes. Assure free flow of the return air into the unit without interference and allow good air circulation.

The unit should be pitched towards the drain to facilitate condensate removal.

Notice: For indoor unit with supplementary heaters, the minimum clearance from the appliance to combustible surface is 300mm.

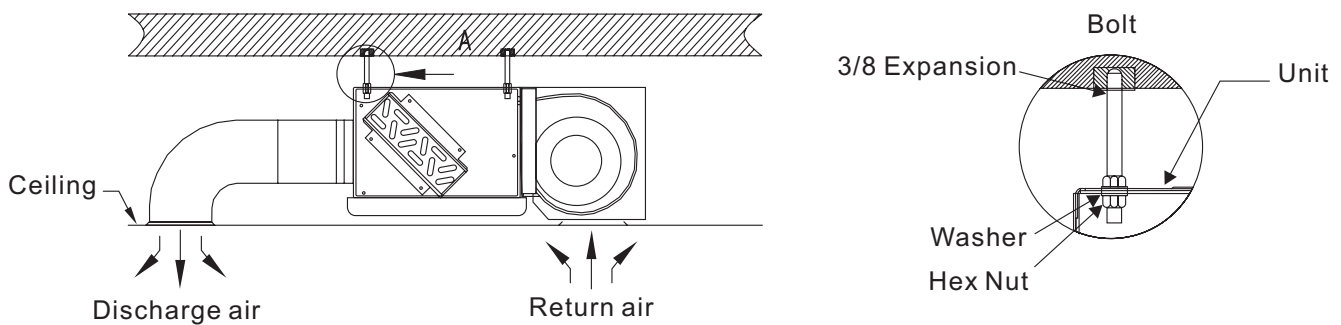


Figure 1. Indoor Unit Installation

2. Ductwork & attenuation

1) Discharge ductwork is normally used with these conditioners. Return air ductwork may also be required. All ductwork should conform to industry standards of good practice as described in the ASHRAE Systems Guide.

2) The discharge duct system will normally consist of a flexible connector at the unit, a transition piece to the full duct size, a short run of duct, an elbow without vanes, and a trunk duct teeing into a branch duct with discharge diffusers as shown in Figure 2.

3) The transition piece must not have angles totalling more than 30 or severe loss of air performance can result. Do not connect the full duct size to the unit without using a transition piece down to the size of the discharge collar on the unit. With metal duct material, the sides only of the elbow and entire branch duct should be internally lined with acoustic fibrous insulation for sound attenuation. **Glass fiber duct board material is more absorbing and may permit omission of the canvas connector.**

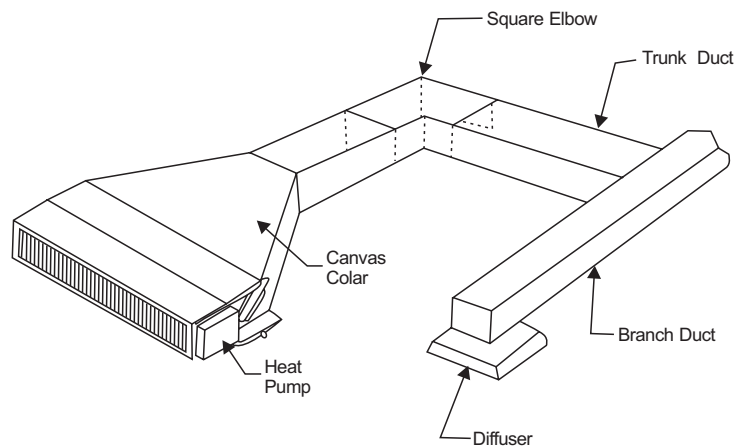


Figure 2 Suggested Duct Layout For Multiple Diffuser Application

INDOOR UNIT INSTALLATION

3. Ventilation Air

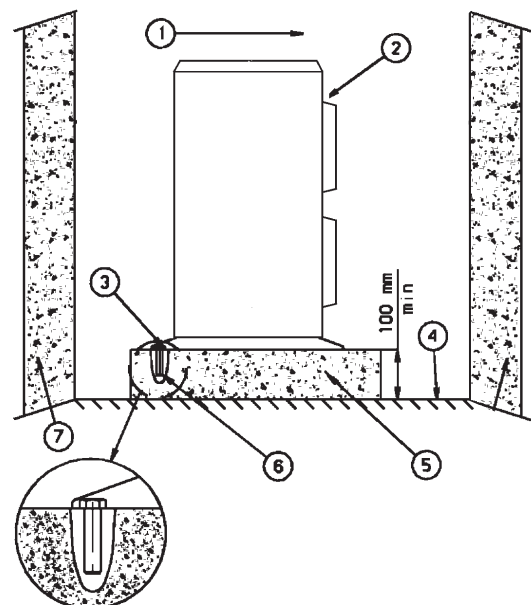
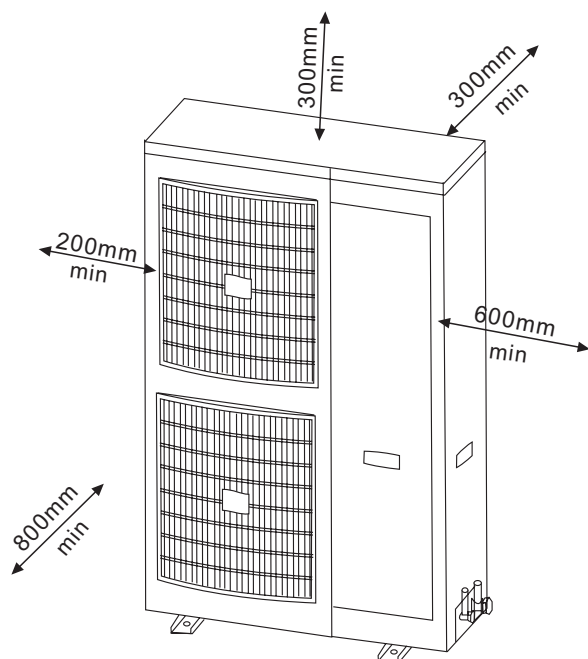
Ventilation may require outside air. The temperature of the ventilation air must be controlled so that mixture of outside air and return air entering the conditioner does not exceed conditioner application limits. It is also typical to close off the ventilation air system during unoccupied periods (night setback).

The ventilation air system is generally a separate building subsystem with distribution ductwork. Simple introduction of the outside air into each return air plenum chamber reasonably close to the conditioner air inlet is not only adequate. But recommended. Do not duct outside air directly to the conditioner inlet. Provide sufficient distance for thorough mixing of outside and return air.

OUTDOOR UNIT INSTALLATION

INSTALLATION ON FLAT SURFACE (ROOF, GROND, ETC.)

Install outdoor unit support in a position elevated at least 100 mm on a concrete pad, concrete block or wooden beams, in order to allow free water flow underneath keep enough place for airflow and service access. (See Figure 3)



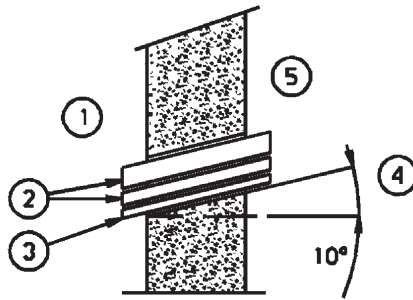
1. Outside the building
2. Outdoor Unit
3. Serrated Rubber 40x80 mm
4. Floor
5. Concrete base or floor tiles
6. Anchor Screws
7. Wall

Figure 3. Outdoor Unit Installation Criteria

INSTALLATION OF INTERCONNECTING TUBING

1. General (See Figure 4)

The tubing between the indoor and outdoor units consist of two copper tubes and an electric cable routed through a 60-mm wall opening. In addition, a drainage hose is installed between the indoor unit and the closest drainage point. Connect both sections, taking the shortest, most direct route.



1. To Outdoor Unit
2. Interconnecting Tubing
3. Electric Cable
4. Inclination Angle
5. To Indoor Unit

Figure 4. Interconnecting Tubing and Cable

WARNING!

When laying the tubing for the installation, make sure that the ends are sealed to prevent penetration of dirt, moisture etc. To prevent dust or moisture from entering the tubes, seal them with caps or masking tape. It is recommended to clean the inside space of the tubes with nitrogen before connecting them to the unit.

Whenever possible, avoid passing tubes through hot zones, such as walls next to ovens, chimneys, etc. In such cases, additional insulation or other means of protection should be employed.

Tubing route shall be kept in straight lines as much as possible. When installing, keep the number of tube bends to a minimum. Do not make more than 12 bends over the complete length of the link. If bends are necessary, perform them only by using professional tube benders and not manually.

Make sure that tubing is insulated on its entire length, including tube ends and quick-connectors, or flare-nuts, to avoid tube "sweating" and water dripping from it.

Tubing shall be of the "L" type, without any damage. Tube inside walls must be kept absolutely clean prior to and during installation operations.

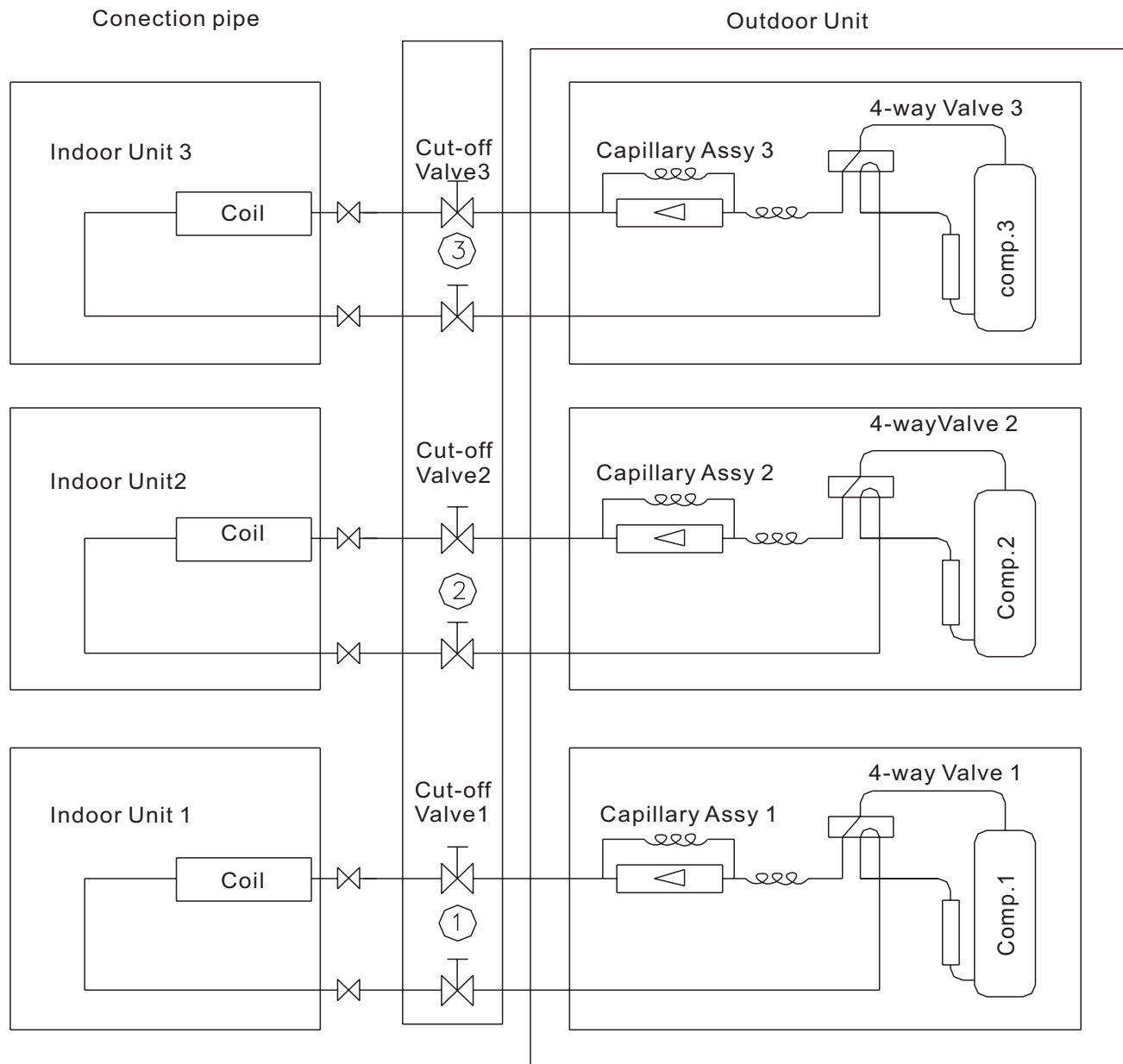
Each tube shall be individually insulate as follow. until 5/8" O.D. with 6 mm wall thickness sleeve - above 3/4" O.D. with 9 mm wall thickness sleeve.

For diameters, length of liquid and suction lines, and height difference, see the Table No. 1 for each model. If the liquid or suction tube diameters differs from the corresponding flare connector diameter (mounted on the unit), use a suitable reducing union (it is forbidden to insert a tube into another tube) between the flare connector and the requested size.

		EDS25 GCN9	EDS35 GCN12	EDS52 ONG3-17	EDS73 GC22	EDS100 GC34	EDS120 GC45
Connection Port	Suction	3/8"	1/2"	1/2"	5/8"	3/4"	3/4"
	Liquid	1/4"	1/4"	1/4"	3/8"	3/8"	3/8"
Max. Length	m	15	15	15	15	30	50
Max. Height	m	7	7	7	10	20	10
Refrigerant Charge		see the nameplate					

Table No.1: Unit Interconnecting Tubing And Refrigerant Charge

INSTALLATION OF INTERCONNECTING TUBING



Type	Outdoor unit	Indoor unit						Refrigerant Charge
		Unit 1	Unit 2	Unit 3	EDS25	EDS35	EDS52	
Dual	GC 9+9	EDS25	EDS25		A/B			See the nameplate
	GC 12+12	EDS35	EDS35			A/C		
	GC 17+17	EDS52	EDS52				A/C	
Trio	GC 9+9+12	EDS25	EDS25	EDS35	A/B	A/C		
	GC 9+9+17	EDS25	EDS25	EDS52	A/B		A/C	
	GC 9+12+17	EDS25	EDS35	EDS52	A/B	A/C	A/C	
	GC 12+12+12	EDS35	EDS35	EDS35		A/C		

A-1/4" B-3/8" C-1/2" Liquid/Suction

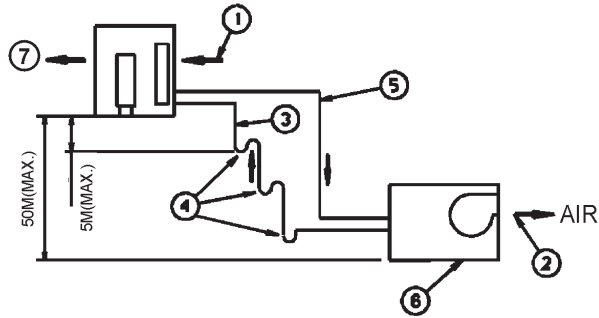
Table No.2: Unit Interconnecting Tubing And Refrigerant Charge.

INSTALLATION OF INTERCONNECTING TUBING

2. Recommendation For Interconnection Tubing Installation

Three possible versions are schematically illustrated:

- 1) The outdoor unit installed above the indoor unit (Figure 5) - such installation requires an oil trap in the suction line at the lowest point of the riser. The radius of the oil trap should be as short as possible (See Figure 6). Horizontal runs for suction line should have a 0.5% minimum pitch toward the outdoor unit. Liquid line should follow the suction line (except for trap). In case the insulation must be partially removed for installation purposes, it is imperative that lines be fully insulated with Armaflex, or equivalent insulation, after installation has been completed.



1. Air
2. Air
3. Suction Line
4. Oil trap every 3 m.
5. Liquid Line
6. Indoor Unit
7. Outdoor Unit

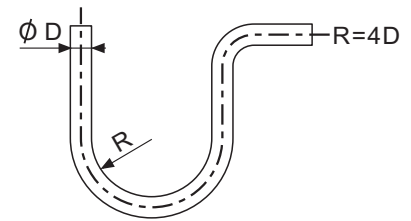
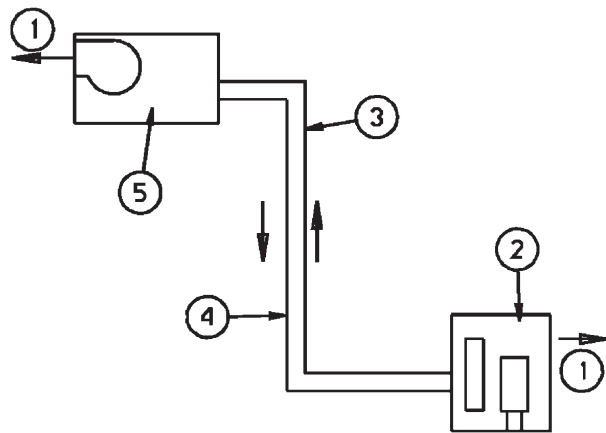


Figure 6. Tube Bending

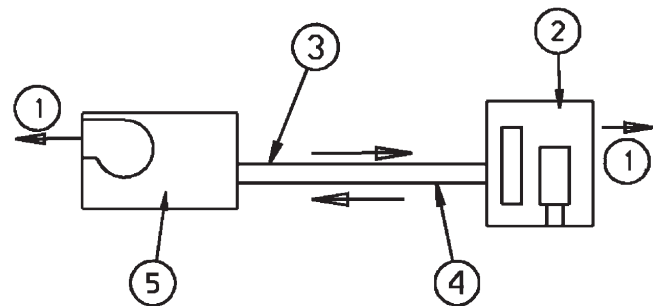
Figure 5. Interconnecting Tubing - Outdoor Unit above Indoor Unit

- 2) The outdoor unit installed below the indoor unit (Figure 7) - no trap is required in such installation. Besides it, the same applies as above.
- 3) The units are installed at the same level (Figure 8) - no trap is required in such installation. Besides it, the same applies as above.



1. Air
2. Outdoor Unit
3. Liquid Line
4. Suction Line
5. Indoor Unit

Figure 7. Interconnecting Tubing - Outdoor Unit Below Indoor Unit



1. Air
2. Outdoor Unit
3. Suction Line
4. Liquid Line
5. Indoor Unit

Figure 8. Interconnecting Tubing - Outdoor Unit and Indoor Unit at the Same Level

INSTALLATION OF INTERCONNECTING TUBING

3. Setting in Operation

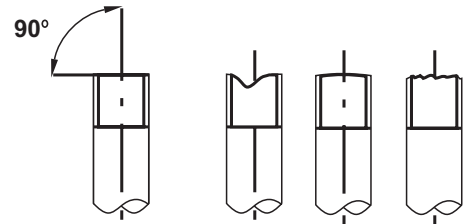
WARNING

This paragraph describes the necessary steps for setting the unit into operation; be sure to follow the instructions, to assure proper functioning of the air-conditioner.

The outdoor unit is recharged with the correct amount of refrigerant. In extended runs, for additional refrigerant charge please refer to the outdoor unit name plate. This process shall be performed only by qualified refrigeration technicians with a professional charging set.

3.1 Flare preparation

- a. Cut the tube, using a tube cutter. Make sure that the cut is perpendicular to the tube axis and free of metal shavings (See Figure 9).
- b. Slip the flare-nut over the tube, secure the tube in the flaring tool, as shown in Figure 10 and perform the flare on the tube end. The tube projection length (a) from the flaring block varies with tube diameter and shall be set as indicated in the table. Apply few drops of refrigeration oil to the tube before flaring.



CORRECT **INCORRECT**

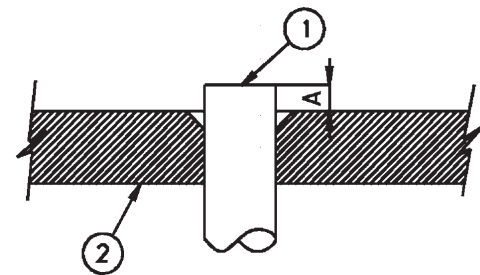
Figure 9. Tube Cutting

3.2 Connecting the tubes (See Figure 11)

Connect and tighten the flare nuts to the refrigeration valves on the outdoor unit and to the male connectors of the indoor unit. Coat the flared surfaces lightly with refrigeration oil to improve sealing.

Note: First tighten manually the flare nuts, then use a wrench. See Table No.3 for tightening torque values.

A (mm)	TUBE OD
1.3	1.3
1.6	1.6
1.9	1.9
2.1	2.1



1. Copper Tube
2. Flaring Tool

Figure 10. Tube Flaring

3.3 Evacuation and setting in operation

- a) Connect two charging hoses equipped with a push-pin on one side, as shown in Figure 11. Connect the two hose ends without the push-pin to the LOW (suction) and HIGH (liquid) sides of the charging set; remove the guard caps from the service ports of the tree-way suction and liquid valves and connect the hose with the push-pins to the service ports (See Figure 12) on units without service valve on the liquid port, connect only the tube to the suction 3-way valve.
- b) Connect the center hose of the charging set to a vacuum pump.

CAUTION

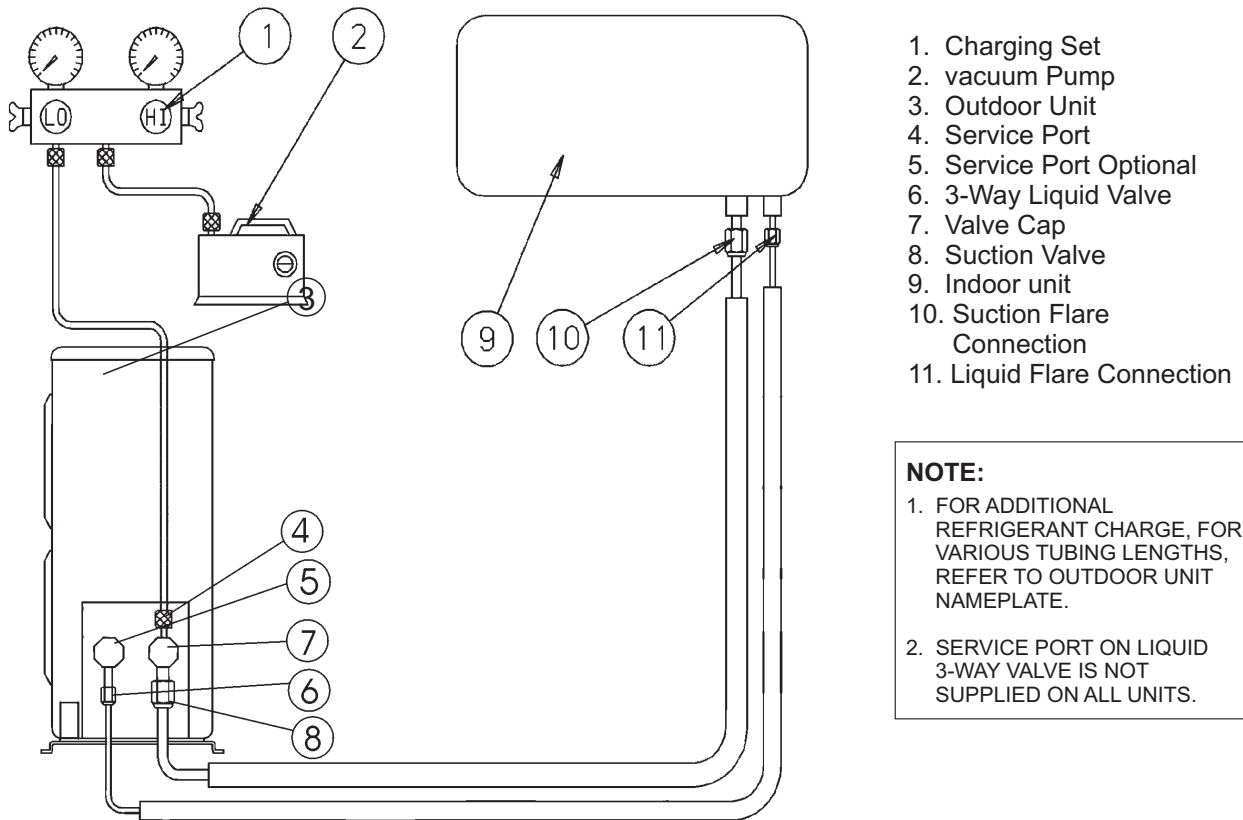
- c) Turn on the vacuum pump and make sure that the low pressure gauge reading moves from 0 cm Hg to 76 cm Hg; the evacuate the system for 10 minutes.
If gauge needle does not move from 0 cm Hg to 76 cm Hg, this indicate a leak. Take the following measures; tighten all connections; if leaking stops when the tubing connections are tightened, proceed from step c. If leaking persist even after connections are tighten, detect the leak and repair it; be sure to proceed only after all leaks have been eliminated.
- d) Close the valves of both the suction and liquid sides of the charging set and turn off the vacuum pump. Make sure that the gauge needle does not move for about 5 minutes.
- e) Disconnect the charging hoses from the vacuum pump and from the service ports of both the tree-way valves.
- f) Replace the service port and valve caps of both tree-way valves and tighten them with a torque wrench; see table of torque values in Figure 11.

INSTALLATION OF INTERCONNECTING TUBING

CAUTION

When performing the following steps, avoid any exposure to the service valve ports; remember that the system is under pressure.

- g) Remove the valve caps from the three-way valves. Position both valves to "open" using an hexagonal wrench (See Figure 12).
- h) Replace valve caps of both three-way valves. Check for gas leakage with a leak detector or soapy water.



NOTE:

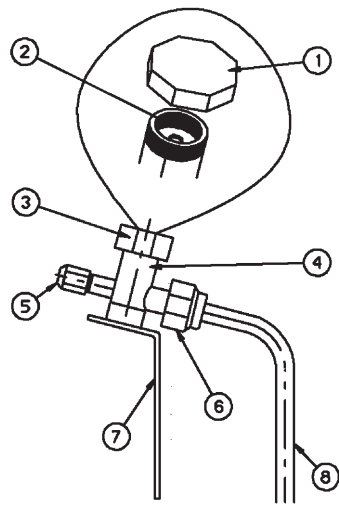
- 1. FOR ADDITIONAL REFRIGERANT CHARGE, FOR VARIOUS TUBING LENGTHS, REFER TO OUTDOOR UNIT NAMEPLATE.
- 2. SERVICE PORT ON LIQUID 3-WAY VALVE IS NOT SUPPLIED ON ALL UNITS.

Figure 11. Refrigerant Tube Service Connection

Tube (Inch)	1/4"	3/8"	1/2"	5/8"	3/4"
TORQUE (N.m.)					
FLARE NUTS	11-13	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

Table No. 3: Tightening Torque Values

INSTALLATION OF INTERCONNECTING TUBING

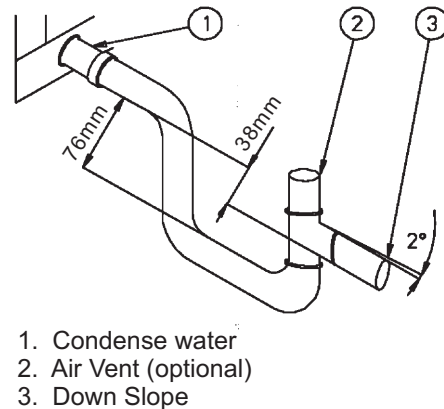


1. Valve Protection Plug
2. Insert Allen Wrench to open/close the Refrigerant Valve
3. Valve Protection Cap
4. Refrigerant Valve
5. Service Port Cap
6. Flare Nut
7. Unit Back Side
8. Copper Tube

Figure 12. Three-way Refrigeration Valve

DRAIN LINE INSTALLATION

- a. It is recommended to prepare a drainage point with rigid PVC \varnothing 32 mm tube by a professional technician.
- b. The drain hose must be installed with a constant minimum down slope of 2% and equipped with a trap to prevent air suction into the unit (see figure 13).
- c. Use a transparent \varnothing 16 mm hose or equivalent.
- d. To check the system, fill the condense tray with water and verify its free flow through the drain line. Verify also absence of any water leakage underneath the unit.



1. Condense water
2. Air Vent (optional)
3. Down Slope

Figure 13. Drain Trap

ELECTRICAL CONNECTIONS

1. Power Supply

WARNING

Electrical connection shall be made only by authorized electricians and in accordance with local electrical requirements and codes. The system must be grounded. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.

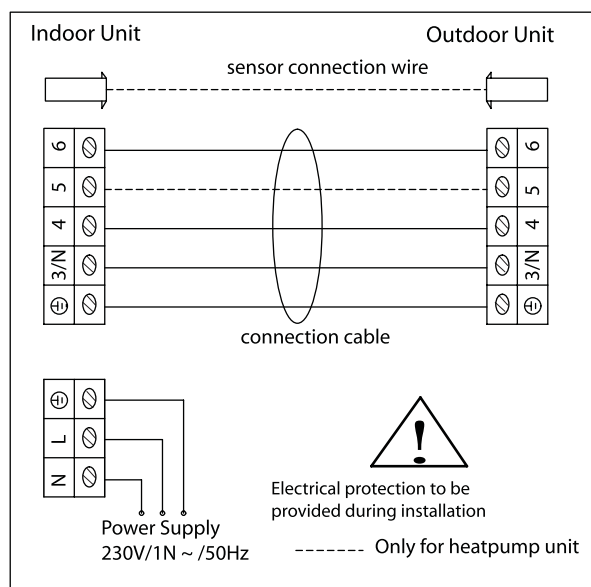
Single phase models and three phase models are available; for each of them, the necessary wiring diagram is shown. Connect the unit to the main power supply as for its applicable wiring diagram. An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

Use supply wire sizes as per local electrical codes and regulations.

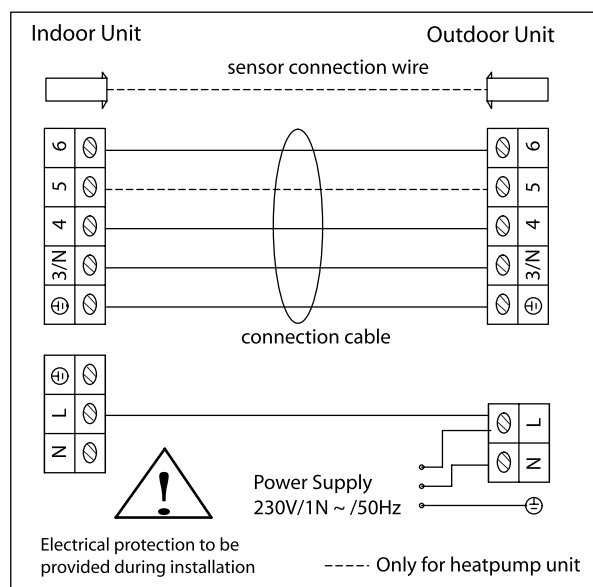
ELECTRICAL CONNECTIONS

MODEL: EDS 25/ GCN9 EDS 35/ GCN12 EDS 52/ ONG3-17
 EDS 73/ GC22 EDS 100/ GC34

1) CONNECTION DIAGRAM



Inside supply cord
 EDS 25/GCN9 EDS 35/GCN12 EDS 52/ONG3-17 EDS 73/GC22



Outside supply cord
 EDS 25/GCN9 EDS 35/GCN12 EDS 52/ONG3-17 EDS 73/GC22 EDS 100/GC34

2) ELECTRICAL DATA

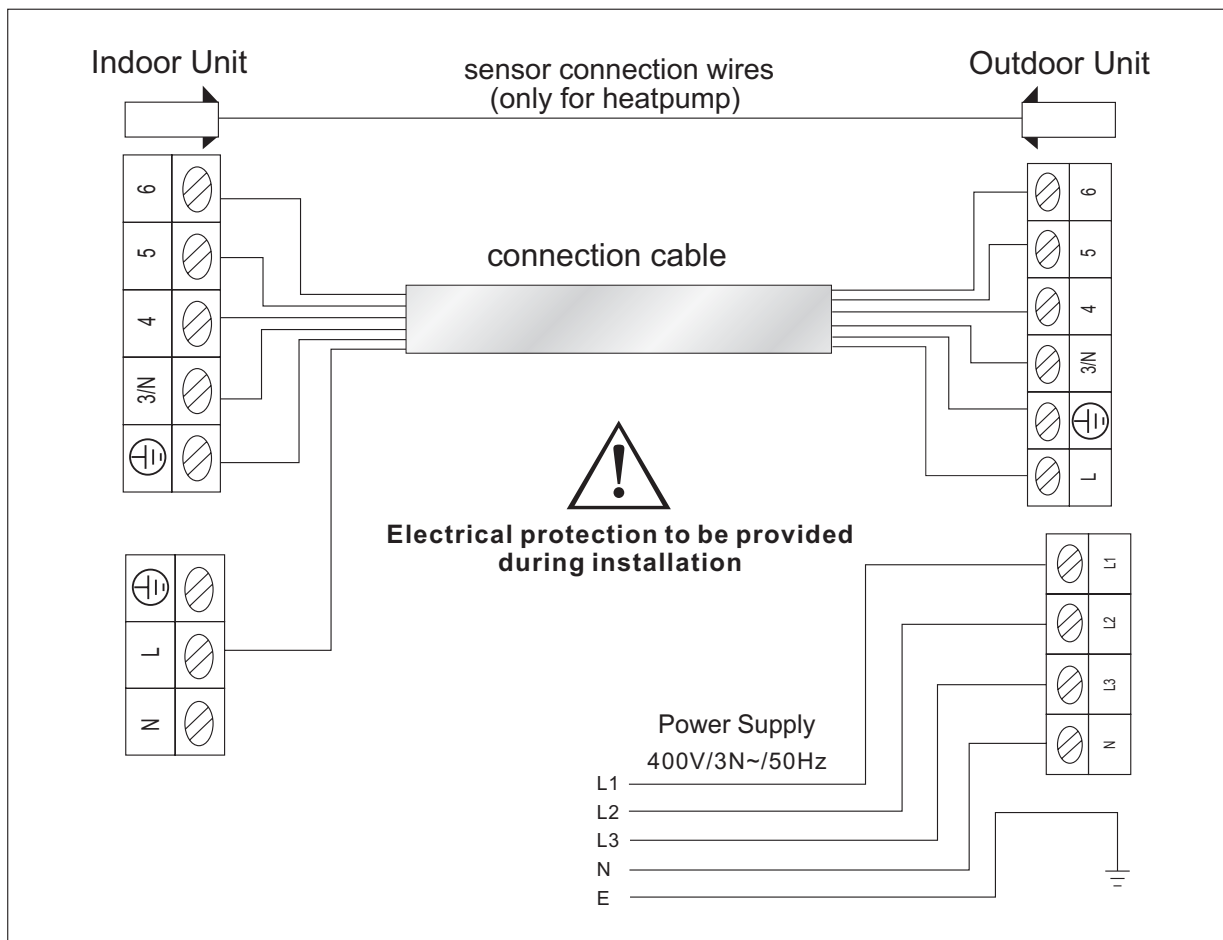
Model	Indoor Unit	EDS25	EDS35	EDS52	EDS73	EDS100
	Outdoor Unit	GCN9	GCN12	ONG3-17	GC22	GC34
Power Supply	1N~230V-50Hz					
Max. Current	A	7.1	8.2	12.9	18.7	25.8
Power Supply	mm ²	3G, 1.0	3G, 1.5	3G, 1.5	3G, 2.5	3G, 4.0
Indoor And Outdoor Unit Connections						
Connections cable	mm ²	5(6)G, 1.0	5(6)G, 1.5	5(6)G, 1.5	5(6)G, 2.5	5(6)G, 4.0

1. If there is a additional electric-heater, the cable must be thicked one grade.
2. Use supply wire sizes as per local electrical codes and regulations.

ELECTRICAL CONNECTIONS

MODEL: EDS120/ GC45

1) CONNECTION DIAGRAM



2) ELECTRICAL DATA

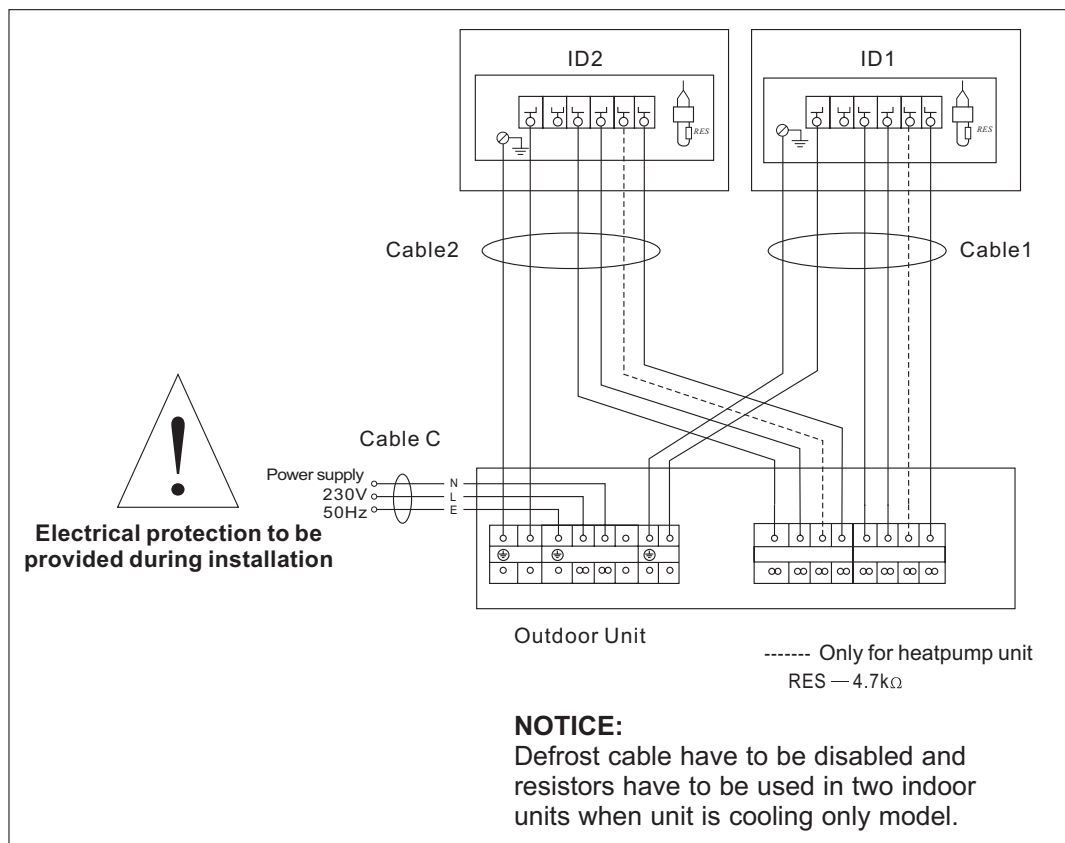
Model	Indoor Unit	EDS120
	Outdoor Unit	GC45
Power Supply	3N~400V-50Hz	
Max. Current	A	11.3
Power Supply	mm ²	5G, 4.0
Indoor And Outdoor Unit Connections		
Connections cable	mm ²	6G, 2.5

Use supply wire sizes as per local electrical codes and regulations.

ELECTRICAL CONNECTIONS

MODEL : 2×EDS25/GC9+9
2×EDS35/GC12+12

1) CONNECTION DIAGRAM



2) ELECTRICAL DATA

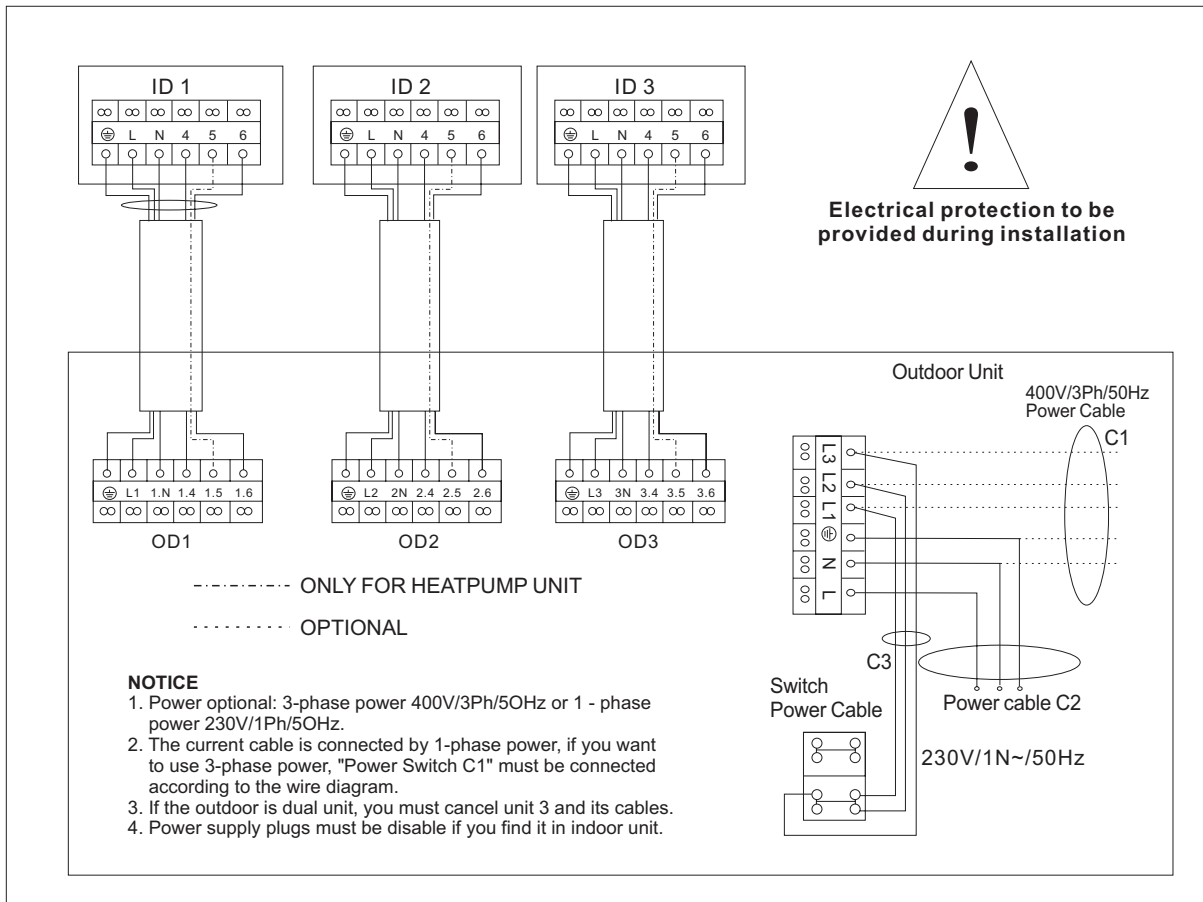
Model	Indoor Unit	2×EDS25	2×EDS35
	Outdoor Unit	GC9+9	GC12+12
Power Supply	1N~230V-50Hz		
Max. Current	A	12.8	17.6
Power Supply	mm ²	3G, 1.5	3G, 2.5
Indoor And Outdoor Unit Connections			
Connections cable	mm ²	6G, 1.0	6G, 1.5

1. If there is a additional electric-heater, the cable must be thicken one grade.
2. Use supply wire sizes as per local electrical codes and regulations.

ELECTRICAL CONNECTIONS

MODEL: EDS 52+52 / GC17+17
 EDS25X2+EDS35 / GC9+9+12
 EDS25×2+EDS52 / GC9+9+17
 EDS25+EDS35+EDS52/ GC9+12+17
 EDS35X3 / GC12+12+12

1) CONNECTION DIAGRAM



2) ELECTRICAL DATA

Model	Indoor Unit	2×EDS52	2×EDS25+EDS35	2×EDS25+EDS52	EDS25+EDS35+EDS52	3×EDS35
	Outdoor Unit	GC17+17	GC9+9+12	GC9+9+17	GC9+12+17	GC12+12+12
Power Supply	1N~230V-50Hz					
Max. Current	A	23.7	19.5	24.1	27.3	24.7
Power Supply	mm ²	3G, 4.0	3G, 2.5	3G, 4.0	3G, 4.0	3G, 4.0
Indoor And Outdoor Unit Connections						
Connections cable	mm ²	6G, 1.5	6G, 1.5	6G, 1.5	6G, 1.5	6G, 1.5

1. If there is a additional electric-heater, the cable must thicken one grade.
2. Use supply wire sizes as per local electrical codes and regulations.

2. Interconnecting cable

The electrical cable between the indoor and outdoor units power supply, for all models, must be HO5RN-F. Conductors shall be of size and quantity as indicated in Page before. The electrical cable must be one integral piece, without any joints. When installing the cable under the floor, it must be protected and isolated from any possible contact with water. When the cable path runs inside the wall or an acoustic ceiling, it will be protected with a fire-retardant tubing system. See applicable wiring diagram in Pages before.

3. Display control unit

3.1 Location criteria

It is recommended to install the Display Control Unit close to a ceiling in a central and neutral zone at typical conditions. In addition, the aesthetic aspect should be considered. The Display Control Unit is connected to the main control board on the air conditioner (the indoor unit) by a communication cable. The cable is connected to the Display Control Unit by a quick-connector. (8 pin plug)

3.2 Installation of Display Control Unit on Wall

Drill a 12 mm diameter hole on the wall, for routing the communication cable (See figure 15). Open the unit cover, drill 3 holes in the wall to match the holes in the Display Control Unit, install the inserts and fasten the unit to the wall with 3 screws.

The Display Control Unit (4) is provided of a special communication cable (3), 7 meters long, terminated by a plug, connected in the housing itself to a distribution box (2), which enables the control of the air conditioner from several different rooms, each one from its own Display Control Unit. Connect the quick connector to the appropriate socket on the main control board in the indoor unit electrical box (1). Should it not be possible to route the communication cable plug (2) through the wall to the display board (4), the cable end may be cut off and connected to the terminal board on the display unit.

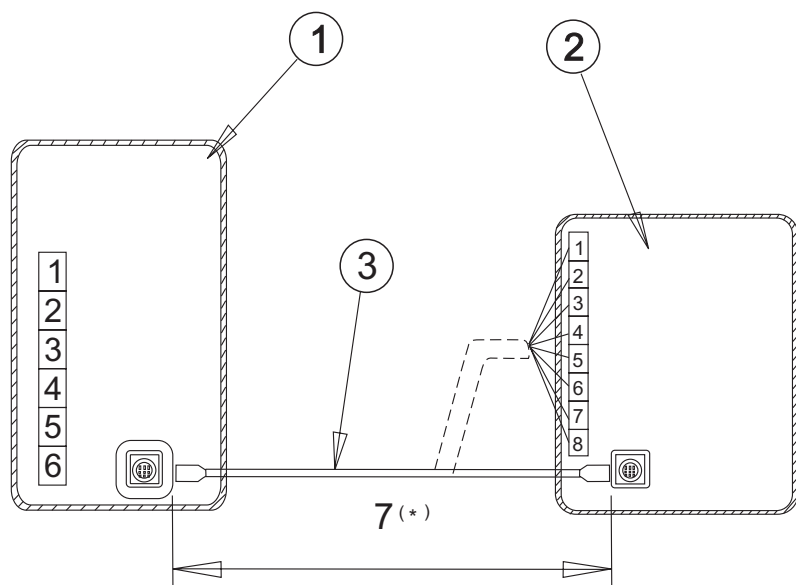
WARNING

The plug should not be cut off the communication cable if the cable length is insufficient. In such case , a 5-meter extension cable may be added.

3.3 Considerations in locating the Remote Control Unit

- a) Locate the Remote control Unit in such a way that when mounted on its support on the wall, it will be in line sight with the Display Control Unit (at less than 8 m).
- b) It is recommended to establish the final location of the Remote Control Unit only after the first operation, assuring proper transmission and reception between the Remote Control Unit and the Display Control Unit.

ELECTRICAL CONNECTIONS

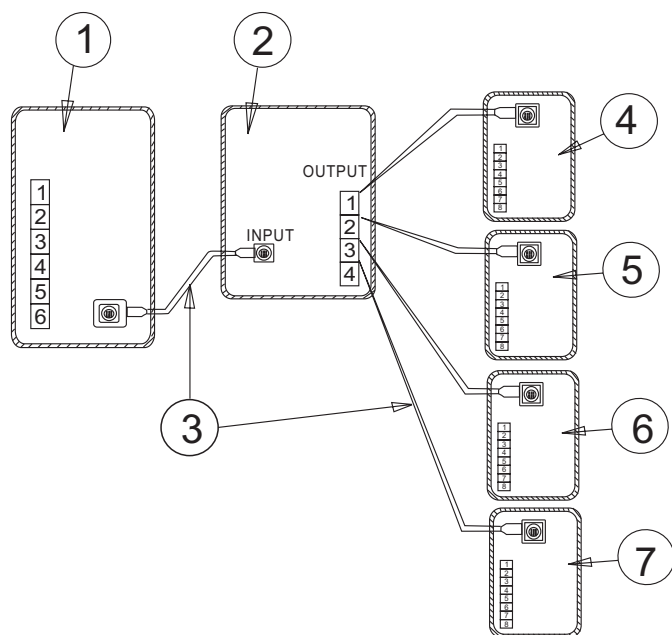


- 1. Main Control Board on Indoor Unit
- 2. Control Display Unit
- 3. Connection Wire

*Option:
Connecting the cable to control display terminal

COLOR CHART	
Conn. Point	Wire Color
1	Gold
2	Orange
3	Yellow
4	Brown
5	Green
6	White
7	Grey
8	Red

Figure 14. Connection to a single Display Control Unit



- 1. Main Control Board on Indoor Unit, Cat. N. 402616 and 402676
- 2. Distribution Board, Cat N. 402729
- 3. Communication cable Cat. N. 402730
- 4. Communication cable Unit N. 1 Cat. N. 402713
- 5. Communication cable Unit N. 2 Cat. N. 402713
- 6. Communication cable Unit N. 3 Cat. N. 402713
- 7. Communication cable Unit N. 4 Cat. N. 402713

Figure 15. Connection to 4 Display Control Units in Parallel (optional)

ELECTRICAL CONNECTIONS

3.4 Remote Control Mounting

- a) Secure the control unit holder on the wall, using two screws with inserts (supplied with the unit) and peel the outside protection paper from the adhesive surface.
- b) Prior to operating the air conditioner, open the battery compartment cover and make sure that the red tab protecting the batteries has been removed. Close the cover and verify that the Remote Control Unit function properly.
- c) Attach the control unit to the holder with a firm movement.

NOTE

The system can measure the temperature in two alternative modes:

- by the sensor, located in the return air to the unit (before the evaporator coil).
- by the sensor, located in the Remote Control Unit in mode "I FEEL". In this mode, the temperature measuring point shifts over the location of the Remote Control Unit. This mode enables personal overriding of the Remote Control Unit temperature. Its location should therefore be determined as follows:
 - a) Avoid installation at location exposed to direct sunlight or near heat sources.
 - b) Select a location free of any obstructions such as curtains, etc.
 - c) Select a neutral zone characterized by the air conditioned space; avoid direct exposure to cool air blown out by the air conditioner.
 - d) Select a location about 1.5m above the floor, to assure accurate sensing of room temperature.
 - e) Avoid locations exposed to water splashing, dampness or humidity.
- Batteries should be replaced when the LCD operation is no longer displayed. Remove the control unit from its holder, open the battery compartment cover in the back of the unit and change the batteries.
- Use two 1.5 Volt, size AAA batteries.