

HIGH PRESSURE DUCT SERIE H7

Installation and
owner's manual
and information requirements

MUCHR-96-H7T



Installation and owner's manual

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EU 2016/2281

Information requirements (for units > 12kW)

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IMPORTANT

Thank you for selecting super quality Air Conditiones. To ensure satisfactory operation for many ears to come, this manual should be read carefully before the installation and before using the air conditioner. After reading, store it a safe place. Please refer to the manual for questions on use or in the event that any irregularities occur.

This Air Conditioner should be used for hosehold use.

This unit must be installed by a professional according RD 795/2010, RD 1027/2007 and RD 238/2013.

WARNING

The power supply must be SINGLE-PHASE (one phase (L) and one neutral (N)) with his grounded power (GND)) or THREE-PHASE (three phase (L1, L2, L3) and one neutral (N) with his grounded power (GND)) and his manual switch. Any breach of these specifications involve a breach of the warranty conditions provided by the manufacturer.

NOTE

In line with the company's policy of continual product improvement, the aesthetic and dimensional characteristics, technical data and accessories of this appliance may be changed without notice.

ATTENTION

Read this manual carefully before installind or operating you new air conditioning unit. Make sure to save this manual for future reference.

INSTALLATION MANUAL

Please read this manual carefully before installing and using the unit.

INVERTER SPLIT-TYPE ROOM AIR CONDITIONER

The design and specifications are subject to change without prior notice for product improvement.

Read This Manual:

Inside you will find many helpful hints on how to use and maintain your air conditioner properly.

Just a little preventative care on your part can save you a great deal of time and money over the life of your air conditioner.

You'll find many answers to common problems in the chart of troubleshooting tips. If you review the chart of Troubleshooting Tips first, you may not need to call for service.

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PRECAUTIONS

- Keep this manual where the operator can easily find them.
- Read this manual attentively before starting up the units.
- For safety reason the operator must read the following cautions carefully.

The safety precautions listed here are divided into two categories.



WARNING

If you do not follow these instructions exactly, the unit may cause property damage, personal injury or loss of life.



CAUTION

If you do not follow these instructions exactly, the unit may cause minor or moderate property damage, personal injury.

After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it maintained. Also, inform customers that they should store this installation manual along with the owner's manual for future reference.



WARNING

Be sure only trained and qualified service personnel to install, repair or service the equipment.

Improper installation, repair, and maintenance may result in electric shocks, short-circuit, leaks, fire or other damage to the equipment.

Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock and fire.

When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage. Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.

Use the attached accessories parts and specified parts for installation. otherwise, it will cause the set to fall, water leakage, electrical shock and fire.

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 to cause injury.

The appliance must be installed 2.3m above floor.

The appliance shall not be installed in the laundry.

Before obtaining access to terminals, all supply circuits must be disconnected.

The appliance must be positioned so that the plug is accessible.

The enclosure of the appliance shall be marked by word, or by symbols, with the direction of the fluid flow.

For electrical work, follow the local national wiring standard, regulation and these installation instructions. An independent circuit and single outlet must be used.

If electrical circuit capacity is not enough or defect in electrical work, it will cause electrical shock or fire.

Use the specified cable and 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.

Wiring 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.

If the supply cord is damaged, it must be replaced by the manufacture or its service agent or a similarly qualified person in order to avoid a hazard.

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

When carrying out piping connection, take care not to let air substances go into refrigeration cycle. Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.

Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances.

Otherwise, it will cause fire or electrical shock.

If the refrigerant leaks during installation, ventilate the area immediately.
Toxic gas may be produced if the refrigerant comes into the place contacting with fire.

The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

After completing the installation work, check that the refrigerant does not leak.
Toxic gas may be produced if the refrigerant leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.



CAUTION

Ground the air conditioner.
Do not connect the ground wire to gas or water pipes, lightning rod or telephone ground wire. Inappropriate grounding may result in electric shocks.

Be sure to install an earth leakage breaker.
Failure to install an earth leakage breaker may result in electric shocks.

Connect the outdoor unit wires, then connect the indoor unit wires.
You are not allowed to connect the air conditioner with the power supply until the wiring and piping is done.

While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.
Improper drain piping may result in water leakage and property damage.

Install the indoor and outdoor units, power supply wiring and connecting wires should be at least 1 meter away from televisions or radios in order to prevent image interference or noise.
Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.

The appliance is not intended for use by young children or infirm persons without supervision.

Don't install the air conditioner in the following circumstance:

- There is petrolatum existing.
- There is salty air surrounding (near the coast).
- There is caustic gas (the sulfide, for example) existing in the air (near a hot spring).
- The Volt vibrates violently (in the factories).
- In buses or cabinets.
- In kitchen where it is full of oil gas.
- There is strong electromagnetic wave existing.

- There are inflammable materials or gas.
- There is acid or alkaline liquid evaporating.
- Other special conditions.

The appliance shall be installed in accordance with national wiring regulations.

Do not operate your air conditioner in a wet room such as a bathroom or laundry room.

An all-pole disconnection device which has at least 3mm clearances in all poles, and have a leakage current that may exceed 10mA, the residual current device (RCD) having a rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

INSTALLATION INFORMATION











- To install properly, please read this "installation manual" at first.
- The air conditioner must be installed by qualified persons.
- When installing the indoor unit or its tubing, please follow this manual as strictly as possible.
- If the air conditioner is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.
- When all the installation work is finished, please turn on the power only after a thorough check.
- Regret for no further announcement if there is any change of this manual caused by product improvement.



INSTALLATION ORDER

- Indoor unit installation;
- Outdoor unit installation;
- Install the refrigerant pipe;
- Connect the drain pipe ;
- Electric wiring work;
- Twins function
- Test operation.

ACCESSORIES

Please check whether the following fittings are of full scope. If there are some spare fittings , please restore them carefully.

Accessory name of indoor unit	Qty.	Shape	Purpose
Installation and owner's manual	1		This manual
Sealing tape	1		Sealed tube interface
Water connective pipe	2		Connect to water drainage pipe
Protective sleeve for refrigerant inlet and outlet pipes	2		_____
Wired remote controller	1		_____
Copper nut	1		Connect to liquid-side pipe
Water outlet connection pipe	1		Centralized drainage
Straight screwdriver	1		Inspection and DIP
Sealing ring	1		Centralized drainage
Waterproof chassis cover	2		Chassis auxiliary drainage plug

Accessory name of outdoor unit	Qty.	Shape	Purpose
Connection pipe	1		Connecting pipe of system
Curved connection pipe	1		

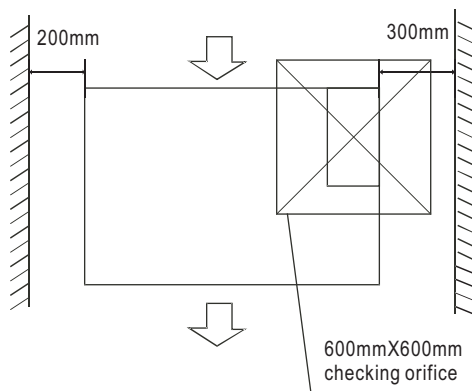
1. INDOOR UNIT INSTALLATION

1.1 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.

Maintenance roomage



CAUTION

Keep indoor unit, outdoor unit, power supply wiring and transmission wiring at least 1 meter away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 1 meter is kept.)



NOTE

All the pictures in this manual are for explanation purpose only. There may be slightly different from the air conditioner you purchased (depend on model). The actual shape shall prevail.

1.2 Install the main body

1 Installing Ø10 hanging screw bolts. (4 bolts)

- Please refer to the following figures for positioning 4 screw bolts.
- Evaluate the ceiling construction and please install with Ø10 hanging screw bolts.
- Consult the construction personnel for the specific procedures.
 - Do keep the ceiling flat. Consolidate the roof beam to avoid possible vibration.
- Carry out the pipe and line operation in the ceiling after finishing the installation of the main body. While choosing where to start the operation, determine the direction of the pipes to be drawn out. Especially in case there is a ceiling, position the refrigerant pipes, drain pipes, indoor & outdoor lines to the connection places before hanging up the machine.
- The installation of hanging screw bolts.
 - 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.

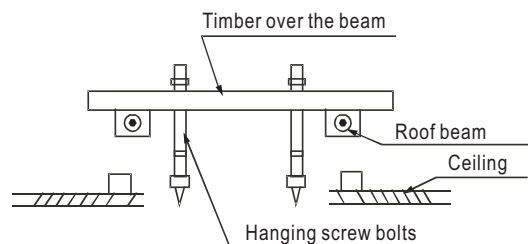


NOTE

Confirm the minimum drain tilt is 1/100 or more

1.2.1 Wooden construction

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



1.2.2 New concrete bricks

Inlaying or embedding the screw bolts.



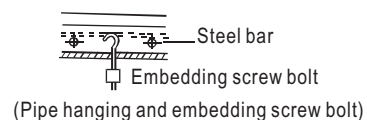
(Blade shape insertion)



(Slide insertion)

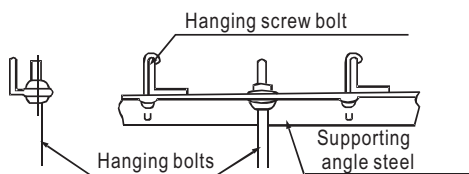
1.2.3 For Original concrete bricks

Use embedding screw bold, crock and stick harness.



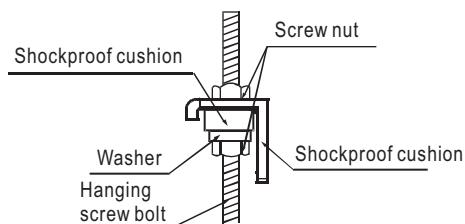
1.2.4 Steel roof beam structure

Install and use directly the supporting angle steel.



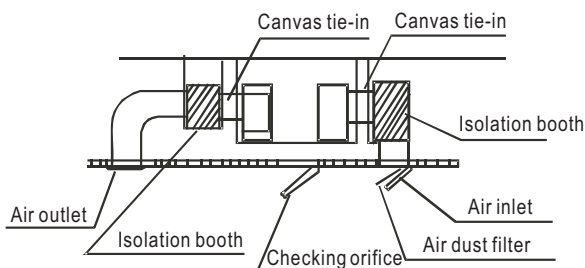
2 Overhanging the indoor unit

- (1) Overhang the indoor unit onto the hanging screw bolts with block.
- (2) Position the indoor unit in a flat level by using the level indicator, unless it may cause leakage.



1.3 Duct and accessories installation

1. Install the filter(optional) according to air inlet size.
2. Install the canvas tie-in between the body and duct.
3. Air inlet and air outlet duct should be apart far enough to avoid air passage short-circuit.
4. Recommended duct connection.



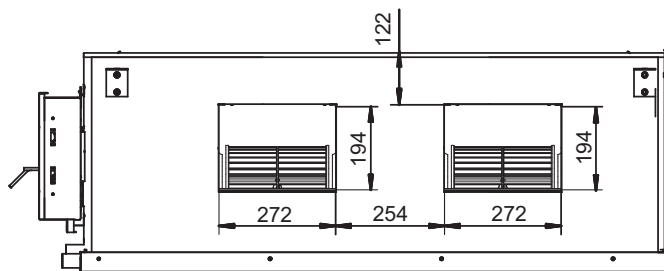
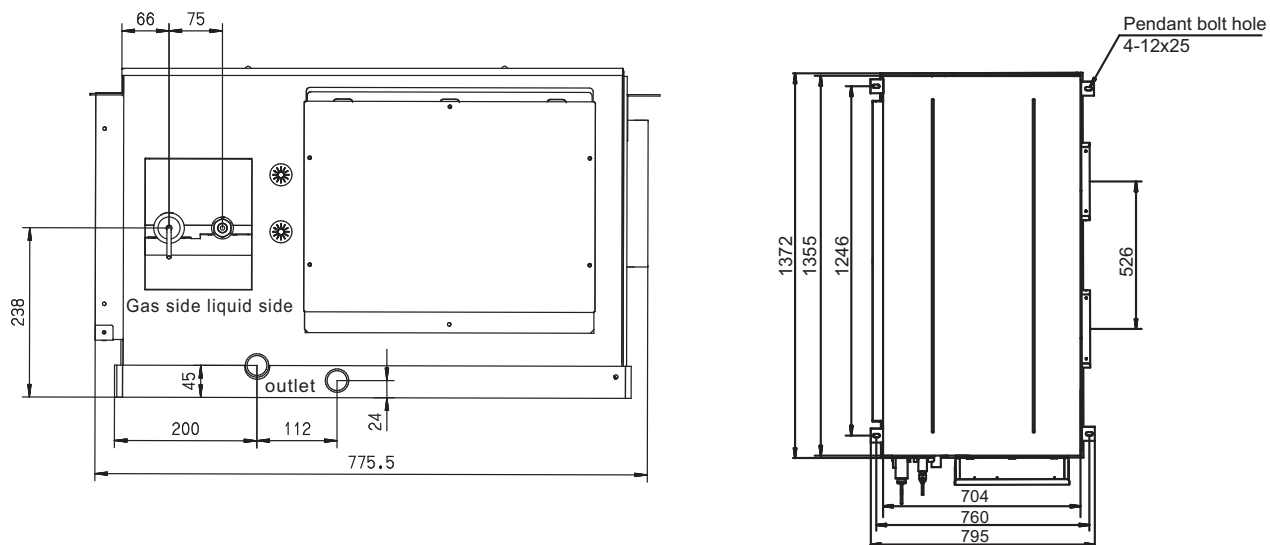
5. Please refer to the static pressure to install



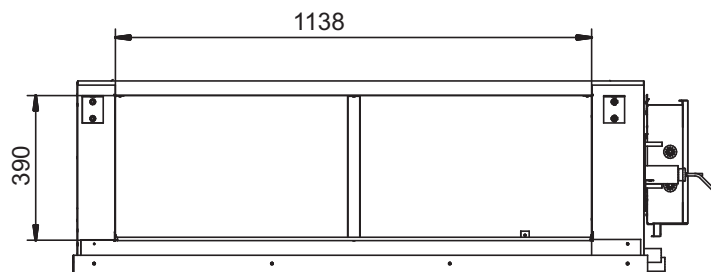
NOTE

1. Do not put the connecting duct weight on the indoor unit.
2. When connecting duct, use inflammable canvas tie-in to prevent vibrating.
3. Insulation foam should be wrapped outside the duct to avoid condensate an internal duct under layer shall be added to reduce the noise for special requirement.

The positioning of ceiling hole, indoor unit and hanging screw bolts



Air outlet duct connection screw hole location diagram







Return air duct rivet screw hole location diagram

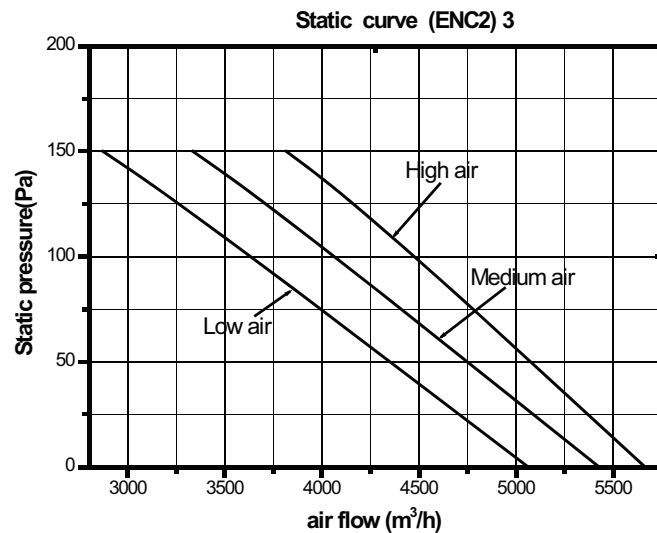
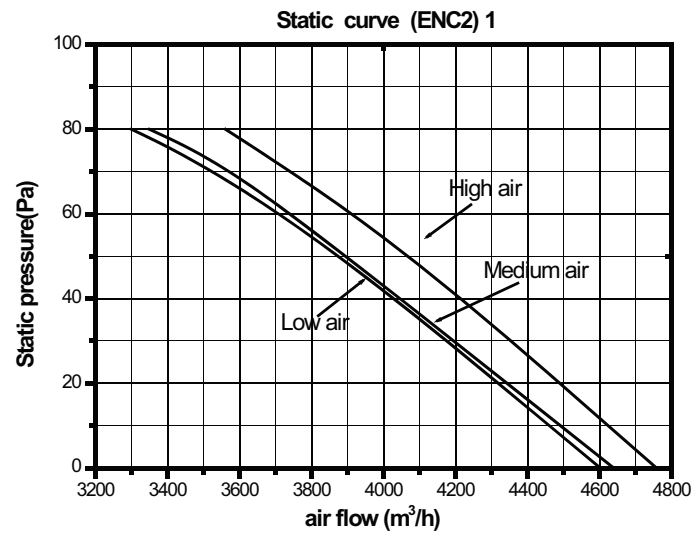
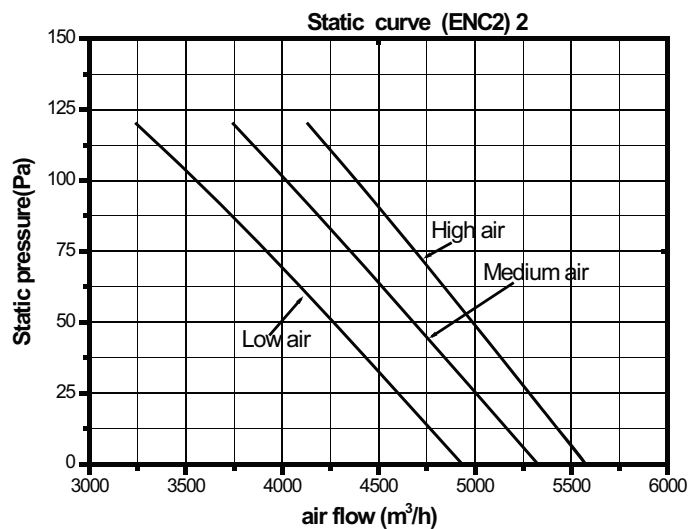
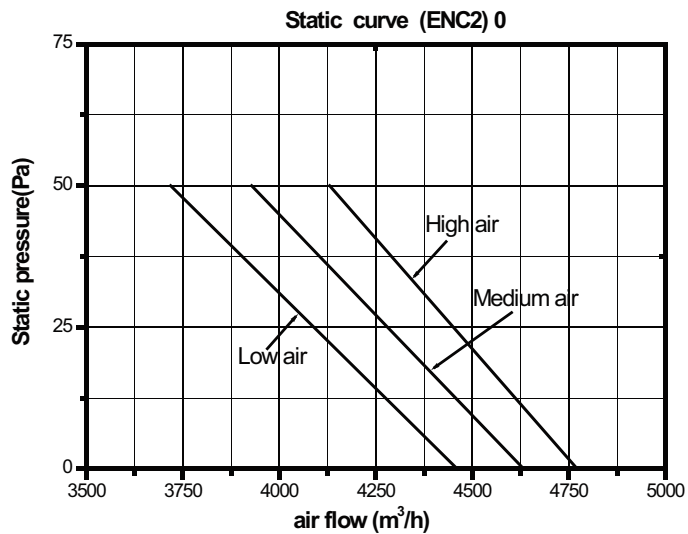
Unit: mm

NOTE

All the figures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased. The actual unit shall prevail.

Fan performances
Static pressure curve

For Setting Static pressure				
ENC2				
Code	0	1	2	3
High static pressure	0~50	51~80	81~120	121~150
Factory Setting	✓			



2. OUTDOOR UNIT INSTALLATION

2.1 Precautions for selecting the location

- 1) Choose a place solid enough to bear the weight and vibration of the unit, where the operation noise will not be amplified.
- 2) Choose a location where the hot air discharged from the unit or the operation noise will not cause a nuisance to the neighbours of the user.
- 3) Avoid places near a bedroom and the like, so that the operation noise will cause no trouble.
- 4) There must be sufficient spaces for carrying the unit into and out of the site.
- 5) There must be sufficient space for air passage and no obstructions around the air inlet and the air outlet.
- 6) The site must be free from the possibility of flammable gas leakage in a nearby place.
- 7) Install units, power cords and inter-unit wire at least 3m away from television and radio sets. This is to prevent interference to images and sounds. (Noises may be heard even if they are more than 3m away depending on radio wave conditions.)
- 8) In coastal areas or other places with salty atmosphere of sulfate gas, corrosion may shorten the life of the air conditioner.
- 9) Since drain flows out of the outdoor unit, do not place under the unit anything which must be kept away from moisture.

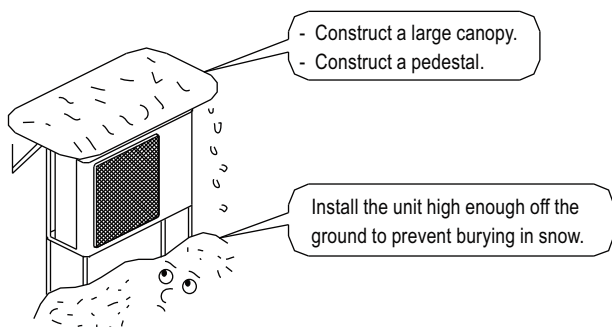
NOTE: Cannot be installed hanging from ceiling or stacked.



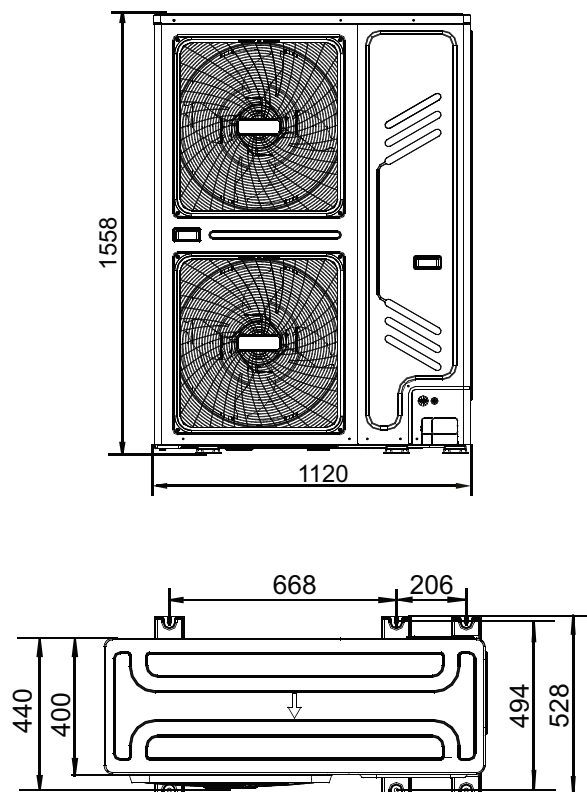
CAUTION

When operating the air conditioner in a low outdoor ambient temperature, be sure to follow the instructions described below.

- To prevent exposure to wind, install the outdoor unit with its suction side facing the wall.
- Never install the outdoor unit at a site where the suction side may be exposed directly to wind.
- To prevent exposure to wind, it is recommended to install a baffle plate on the air discharge side of the outdoor unit.
- In heavy snowfall areas, select an installation site where the snow will not affect the unit.



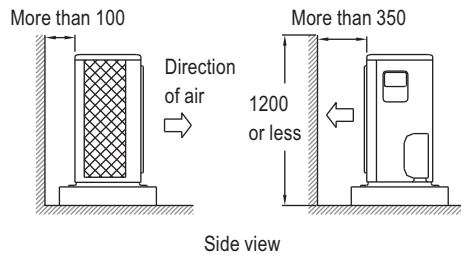
2.2 Figure of body size



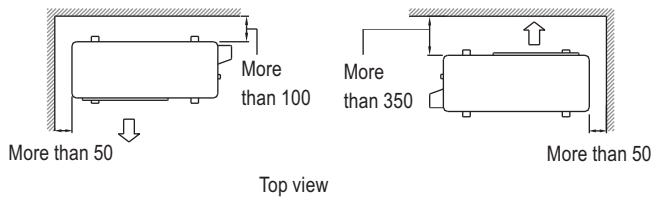
2.3 Installation guidelines

- Where a wall or other obstacle is in the path of outdoor unit's inlet or outlet airflow, follow the installation guidelines below.
- For any of the below installation patterns, the wall height on the outlet side should be 1200mm or less.

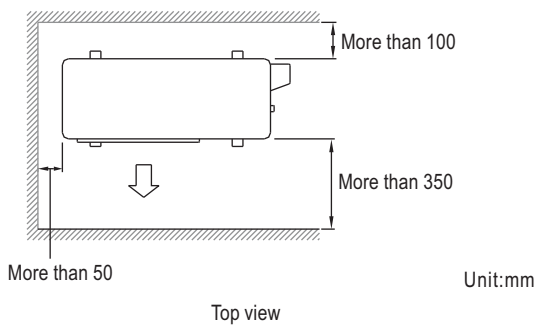
Wall facing one side



Walls facing two sides



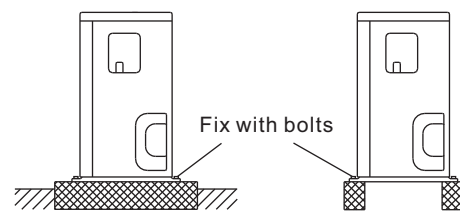
Walls facing three sides



2.4 Outdoor unit installation

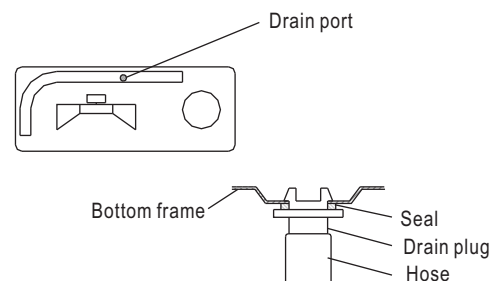
1) Installing outdoor unit

- When installing the outdoor unit, refer to "Precautions for selecting the location" .
- Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise after installed.
- Fix the unit securely by means of the foundation bolts. (Prepare 4 sets of M8 or M10 foundation bolts, nuts and washers each which are available on the market.)



2) Drain work

- If drain work is necessary, follow the procedures below.
- Use drain plug for drainage.
- If the drain port is covered by a mounting base or floor surface, place additional foot bases of at least 30mm in height under the outdoor unit's feet.
- In cold areas, do not use a drain hose with the outdoor unit. (Otherwise, drain water may freeze, impairing heating performance.)



3. INSTALL THE REFRIGERANT PIPE



All field piping must be provided by a licensed refrigeration technician and must comply with the relevant local and national codes.

Precautions

- Execute heat insulation work completely on both sides of the gas piping and liquid piping. Otherwise, this can sometimes result in water leakage.
(When using a heat pump, the temperature of the gas piping can reach up to approximately 120°C. Use insulation which is sufficiently resistant.)
- Also, in cases where the temperature and humidity of the refrigerant piping sections might exceed 30°C or Rh80%, reinforce the refrigerant insulation (20mm or thicker). Condensation may form on the surface of the insulating material.
- Before rigging tubes, check which type of refrigerant is used.
- Use a pipe cutter and flare suitable for used refrigerant.
- Only use annealed material for flare connections.
- Do not mix anything other than the specified refrigerant, such as air, etc., inside the refrigerant circuit.
- If the refrigerant gas leaks during the work, ventilate the area. A toxic gas is emitted by the refrigerant gas being exposed to a fire.
- Make sure there is no refrigerant gas leak. A toxic gas may be released by the refrigerant gas leaking indoor and being exposed to flames from an area heater, cooking stove, etc.
- Refer to the table below for the dimensions of flare nuts spaces and the appropriate tightening torque. (Over tightening may damage the flare and cause leaks.)

Pipe gauge (mm)	Tightening torque	Flare dimension A (mm)	Flare shape
Ø6.35	15~16 N.m (153~163 kgf.cm)	8.3~8.7	
Ø9.52	25~26 N.m (255~265 kgf.cm)	12.0~12.4	
Ø12.7	35~36 N.m (357~367 kgf.cm)	15.4~15.8	
Ø15.9	45~47 N.m (459~480 kgf.cm)	18.6~19.0	
Ø19.1	97.2~118.6 N.m (990~1210 kgf.cm)	22.9~23.3	

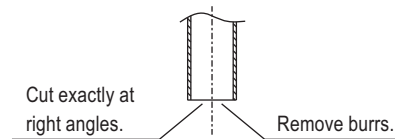
- Check whether the height drop between the indoor unit and outdoor unit, and the length of refrigerant pipe meet the following requirements:

Model	Gas side	Liquid side
MUCHR-96-H7T	φ25.4mm	φ9.5mm

			Allowed value
Max. actual length of pipe (L)			50m
Max. height difference	Height difference between indoor unit and outdoor unit (H)	Outdoor (upper)	25m
		Outdoor (lower)	30m

3.1 Flaring the pipe end

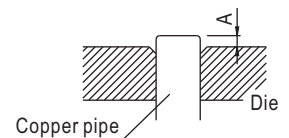
- 1) Cut the pipe end with a pipe cutter.
- 2) Remove burrs with the cut surface facing downward so that the chips do not enter the pipe.



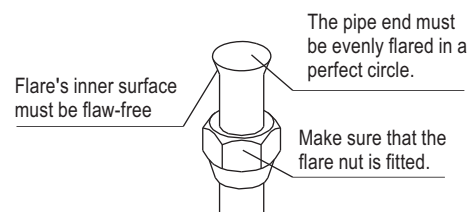
- 3) Put the flare nut on the pipe.
- 4) Flare the pipe.

Outer diam. (mm)	A (mm)	
	Max.	Min.
Ø6.35	1.3	0.7
Ø9.52	1.6	1.0
Ø12.7	1.8	1.0
Ø15.9	2.2	2.0

Set exactly at the position shown below.



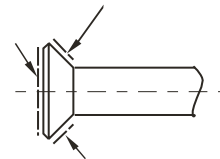
- 5) Check that the flaring is properly made.



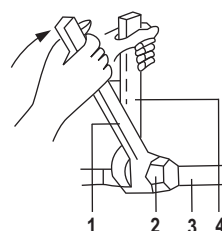
3.2 Refrigerant piping

- Coat the flare both inside and outside with ether oil or ester oil.

Coat here with ether oil or ester oil



- Align the centres of both flares and tighten the flare nuts 3 or 4 turns by hand. Then tighten them fully with the torque wrenches.



- 1 Torque wrench
- 2 Flare nut
- 3 Piping union
- 4 Spanner

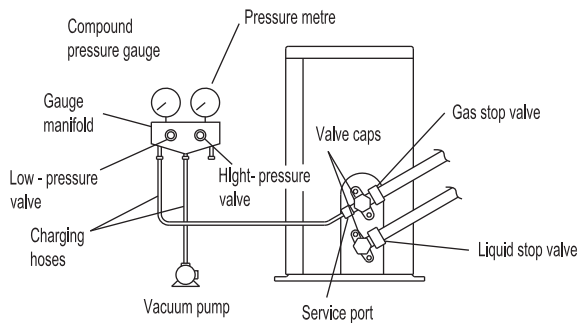
3.3 Purging air and checking gas leakage

- When piping work is completed, it is necessary to purge the air and check for gas leakage.



WARNING

- Do not mix any substance other than the specified refrigerant into the refrigeration cycle.
 - When refrigerant gas leaks occur, ventilate the room as soon as possible.
 - The specified refrigerant should always be recovered and never be released directly into the environment.
 - Use a vacuum pump for the specified refrigerant. Using the same vacuum pump for different refrigerants may damage the vacuum pump or the unit.
-
- If using additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump, then charge additional refrigerant.
 - Use a hexagonal wrench(4mm) to operate the stop valve rod.
 - All refrigerant pipe joints should be tightened with a torque wrench at the specified tightening torque.



- Connect projection side of charging hose (which comes from gauge manifold) to gas stop valve's service port.
- Full open gauge manifold's low-pressure valve (Lo) and completely close its high-pressure valve (Hi) (High-pressure valve subsequently requires no operation.)
- Do vacuum pumping and make sure that the compound pressure gauge reads -0.1MPa (-76cmHg).^{*1}
- Close gauge manifold's low-pressure valve (Lo) and stop vacuum pump. (Keep this state for a few minutes to make sure that the compound pressure gauge pointer does not swing back.)^{*2}
- Remove caps from liquid stop valve and gas stop valve.
- Turn the liquid stop valve's rod 90 degrees counterclockwise with a hexagonal wrench to open valve. Close it after 5 seconds, and check for gas leakage. Using soapy water, check for gas leakage from indoor unit's flare and outdoor unit's flare and valve rods. After the check is complete, wipe all soapy water off.
- Disconnect charging hose from gas stop valve's service port then fully open liquid and gas stop valves. (Do not attempt to turn valve rod beyond its stop.)
- Tighten valve caps and service port caps for the liquid and gas stop valves with a torque wrench at the specified torques.

^{*1}. Pipe length vs. Vacuum pump run time

Pipe length	Up to 15m	More than 15m
Run time	Not less than 10 min	Not less than 15min

- ^{*2}. If the compound pressure gauge pointer swings back, refrigerant may have water content or a loose pipe joint may exist. Check all pipe joints and retighten nuts as needed, then repeat steps 2) through 4).

3.4 Additional refrigerant charge



CAUTION

- Refrigerant may only be charged after performing the leak test and the vacuum pumping.
 - Check the type of refrigerant to be used on the machine nameplate. Charging with an unsuitable refrigerant may cause explosions and accidents, so always ensure that the appropriate refrigerant is charged.
 - Refrigerant containers shall be opened slowly.
-
- The outdoor unit is factory charged with refrigerant. Calculate the added refrigerant according to the diameter and the length of the liquid pipe of the outdoor unit/indoor unit connection.

Pipe length and refrigerant amount:

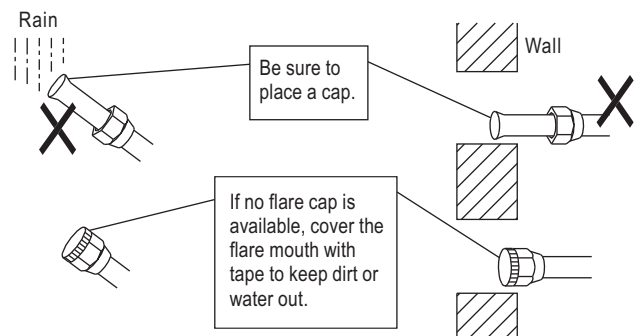
Connective pipe length	Air purging method	Additional amount of refrigerant to be charged
Less than 5m	Use vacuum pump.	_____
More than 5m	Use vacuum pump.	Liquid side: Φ 9.52mm (3/8") R410A:(L-5)x30g/m

- Be sure to add the proper amount of additional refrigerant. Failure to do so may result in reduced performance.

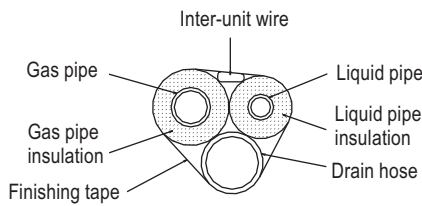
3.5 Refrigerant piping work

1) Caution on the pipe handling

- Protect the open end of the pipe against dust and moisture.
- All pipe bends should be as gentle as possible. Use a pipe bender for bending.

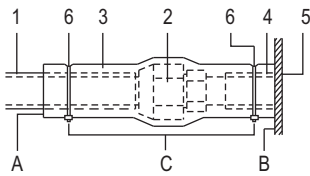


- 2) Be sure to insulate both the gas and liquid piping. Use separate thermal insulation pipes for gas and liquid refrigerant pipes. See the figure below.



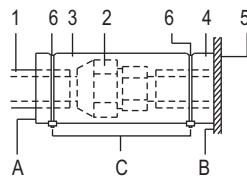
Piping insulation procedure

Gas piping



- 1 Piping insulation material(field supply)
- 2 Flare nut connection
- 3 Insulation for fitting (field supply)
- 4 Piping insulation material (main unit)
- 5 Indoor unit
- 6 Clamp (field supply)
- A Turn seams up
- B Attach to base
- C Tighten the part other than the piping insulation material

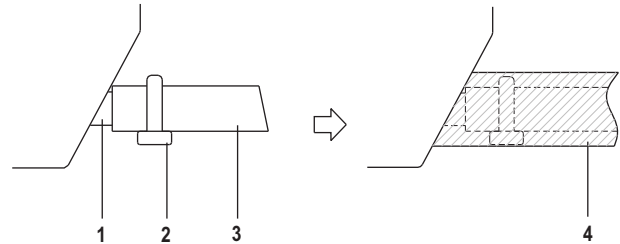
Liquid piping



4. CONNECT THE DRAIN PIPE

4.1 Install the drain pipes.

- Keep piping as short as possible and slope it downwards at a gradient of at least 1/100 so that air may not remain trapped inside the pipe.
- Keep pipe size equal to or greater than that of the connecting pipe (PVC pipe, nominal diameter 20mm in, outside diameter 25mm).
- Push the drain hose as far as possible over the drain socket, and tighten the metal clamp securely.

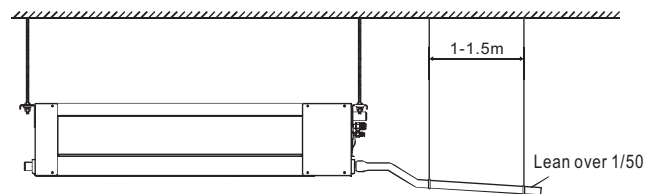


- 1 Drain socket (attached to the unit)
- 2 metal clamp
- 3 Drain hose
- 4 Insulation (field supply)

- Insulate the drain hose inside the building.
- If the drain hose cannot be sufficiently set on a slope, fit the hose with drain raising piping (field supply).
- Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.
 - 1 Indoor drain pipe.
 - 2 Drain socket.

4.2 How to perform piping

The drain pipe installation for the unit



- For local insulation, be sure to insulate local piping all the way into the pipe connections inside the unit. Exposed piping may cause condensation or may cause burns when touched.
- Make sure that no oil remains on plastic parts of the decoration panel (optional equipment). Oil may cause degradation and damage to plastic parts.

5. ELECTRIC WIRING WORK

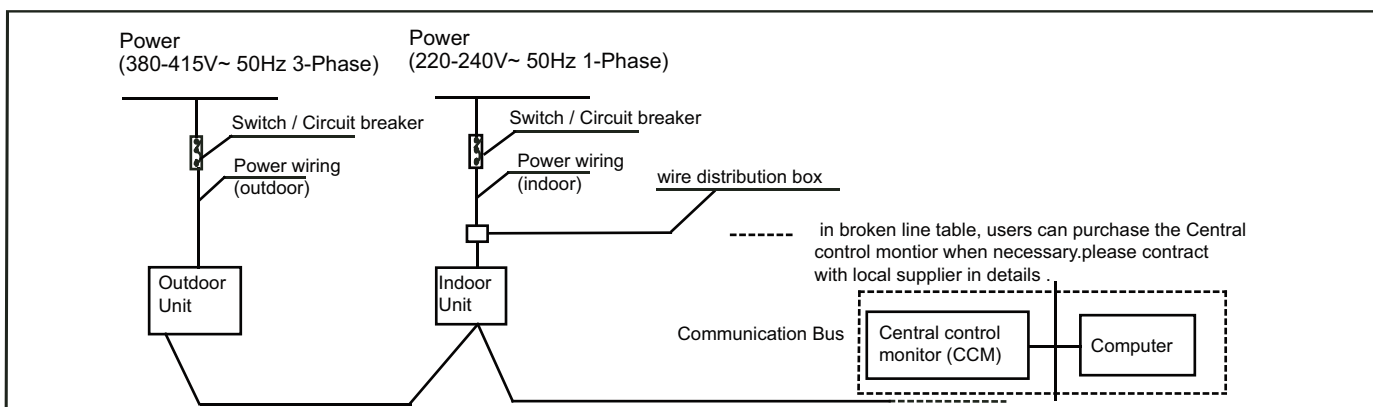
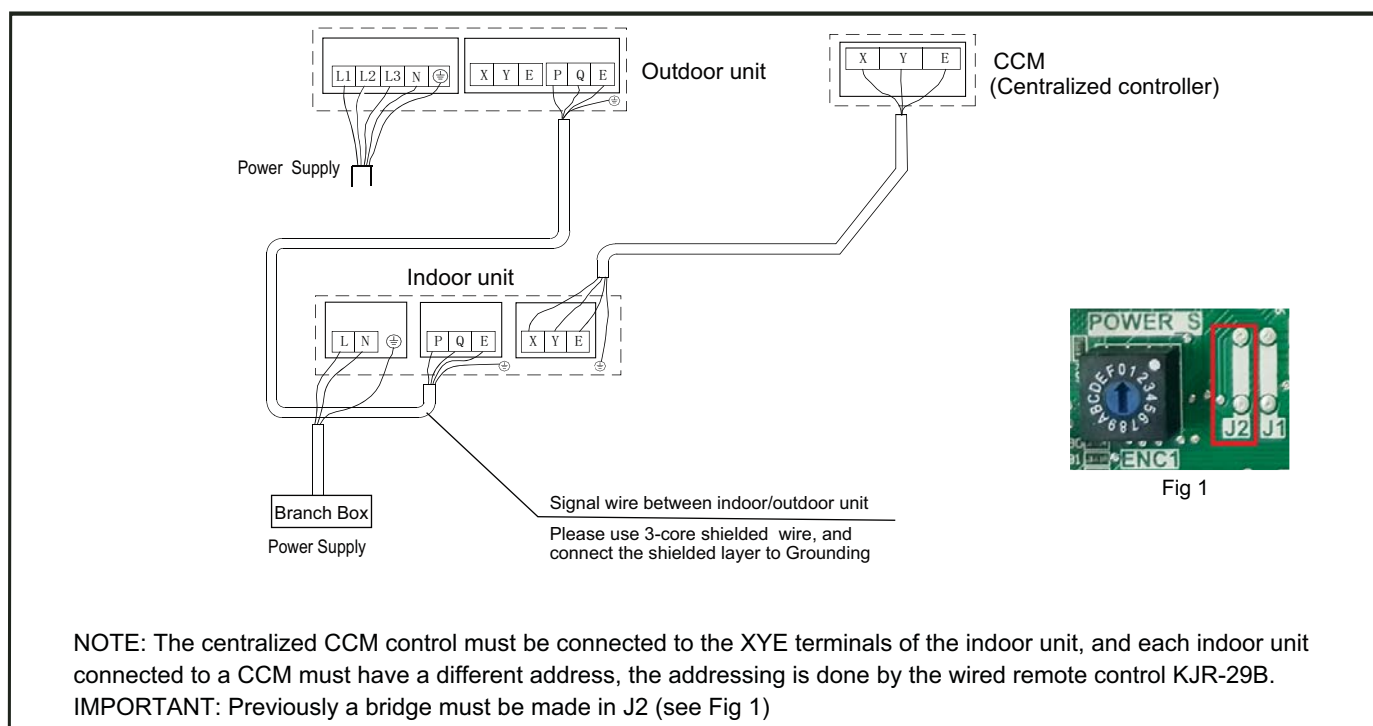
General instructions

- All field wiring and components must be installed by a licensed electrician and must comply with relevant European and national regulations.
- Use copper wire only.
- Follow the 'Wiring diagram' attached to the unit body to wire the outdoor unit, indoor units and the remote controller.
- A circuit breaker capable of shutting down power supply to the entire system must be installed.
- Note that the operation will restart automatically if the main power supply is turned off and then turned back on again.
- Be sure to ground the air conditioner.
- Do not connect the ground wire to gas pipes, water pipes, lightning rods, or telephone ground wires.
 - Gas pipes: might cause explosions or fire if gas leaks.
 - Water pipes: no grounding effect if hard vinyl piping is used.
 - Telephone ground wires or lightning rods: might cause abnormally high electric potential in the ground during lightning storms .

The specification of power

	Indoor unit	Outdoor unit
Power	220-240V~ 50Hz	380-415V 3N~ 50Hz
Switch capacity of the main power supply/fuse(A)	16A	40A
Indoor unit power cable(mm ²) includes grounded wire	3×2.5 mm ²	—
Outdoor unit power cable(mm ²) includes grounded wire	—	5×6.0 mm ²
Indoor Unit /Outdoor Unit Signal Wire (mm ²) (Weak electric signal)	3-core shielded wire 3X0.75	

Connecting wiring



6. PRECAUTIONS ON REFRIGERANT LEAKAGE

This air conditioner(A/C) adopts innocuous and nonflammable refrigerant. The locating room of the A/C should big enough that any refrigerant leakage is unable to reach critical thickness. So certain essential action can be taken on time.

- Critical thickness-----the Max. thickness of Freon without any harm to person.
- Refrigerant critical thickness: 0.30[kg/m³] for R410A.

Confirm the critical thickness through follow steps, and take necessary actions.

1. Calculate the sum of the charge volume (A[kg]) Total Refrigerant volume of 10HP=factory refrigerant volume + superaddition
2. Calculate the indoor cubage (B[m³]) (as the minimum cubage.
3. Calculate the refrigerant thickness

$$\frac{A[\text{kg}]}{B[\text{m}^3]} \leq \text{critical thickness: } 0.3 [\text{kg/m}^3]$$

Counter measure against over high thickness

1. Install mechanical under critical level. (ventilate regularly)
2. Install leak alarm facility related to mechanical ventilator if you can not regularly ventilate.

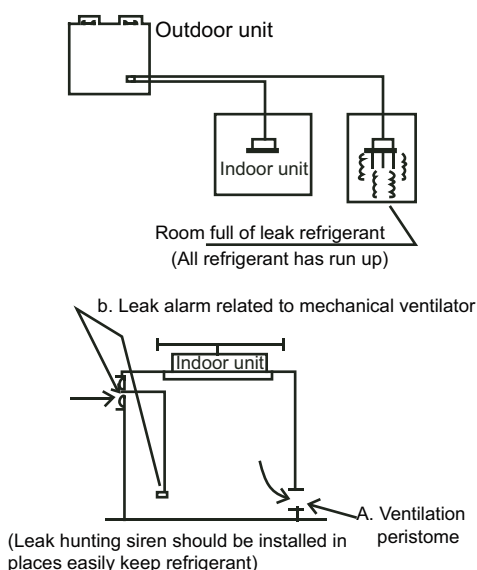


Fig. 7-1

6.1 Important information for the used refrigerant

This product has the fluorinated gas, it is forbidden to release to air.
Refrigerant type: R410A; Volume of GWP: 2088;
GWP=Global Warming Potential

Model	Factory charge	
	Refrigerant/kg	tonnes CO ₂ equivalent
28kW	7.2	15.03

Attention:

Frequency of Refrigerant Leak Checks

- 1) For equipment that contains fluorinated greenhouse gases in quantities of 5 tonnes of CO₂ equivalent or more, but of less than 50 tonnes of CO₂ equipment, at least every 12 months, or where a leakage detection system is installed, at least every 24 months.
- 2) For equipment that contains fluorinated greenhouse gases in quantities of 50 tonnes of CO₂ equivalent or more, but of less than 500 tonnes of CO₂ equipment, at least every 12 months, or where a leakage detection system is installed, at least every 12 months.
- 3) For equipment that contains fluorinated greenhouse gases in quantities of 500 tonnes of CO₂ equivalent or more, at least every three months, or where a leakage detection system is installed, at least every six months.
- 4) Non-hermetically sealed equipment charged with fluorinated greenhouse gases shall only be sold to the end user where evidence is provided that the installation is to be carried out by an undertaking certified person.
- 5) Only certificated person is allowed to do installation, operation and maintenance.

7. TURN OVER TO THE CUSTOMER

The owner's manual of indoor unit and owner's manual of outdoor unit must be turned over to the customer. Explain the contents in the owner's manual to the customers in details.



NOTE

Please press "constraint cool" button to carry out refrigerant recycling process. Keep the low pressure above 0.2MPa, otherwise compressor may be burnt out.

OWNER'S MANUAL

Please read this manual carefully before installing and using the unit.

INVERTER SPLIT-TYPE ROOM AIR CONDITIONER

The design and specifications are subject to change without prior notice for product improvement.

Read This Manual:

Inside you will find many helpful hints on how to use and maintain your air conditioner properly.

Just a little preventative care on your part can save you a great deal of time and money over the life of your air conditioner.

You'll find many answers to common problems in the chart of troubleshooting tips. If you review the chart of Troubleshooting Tips first, you may not need to call for service.

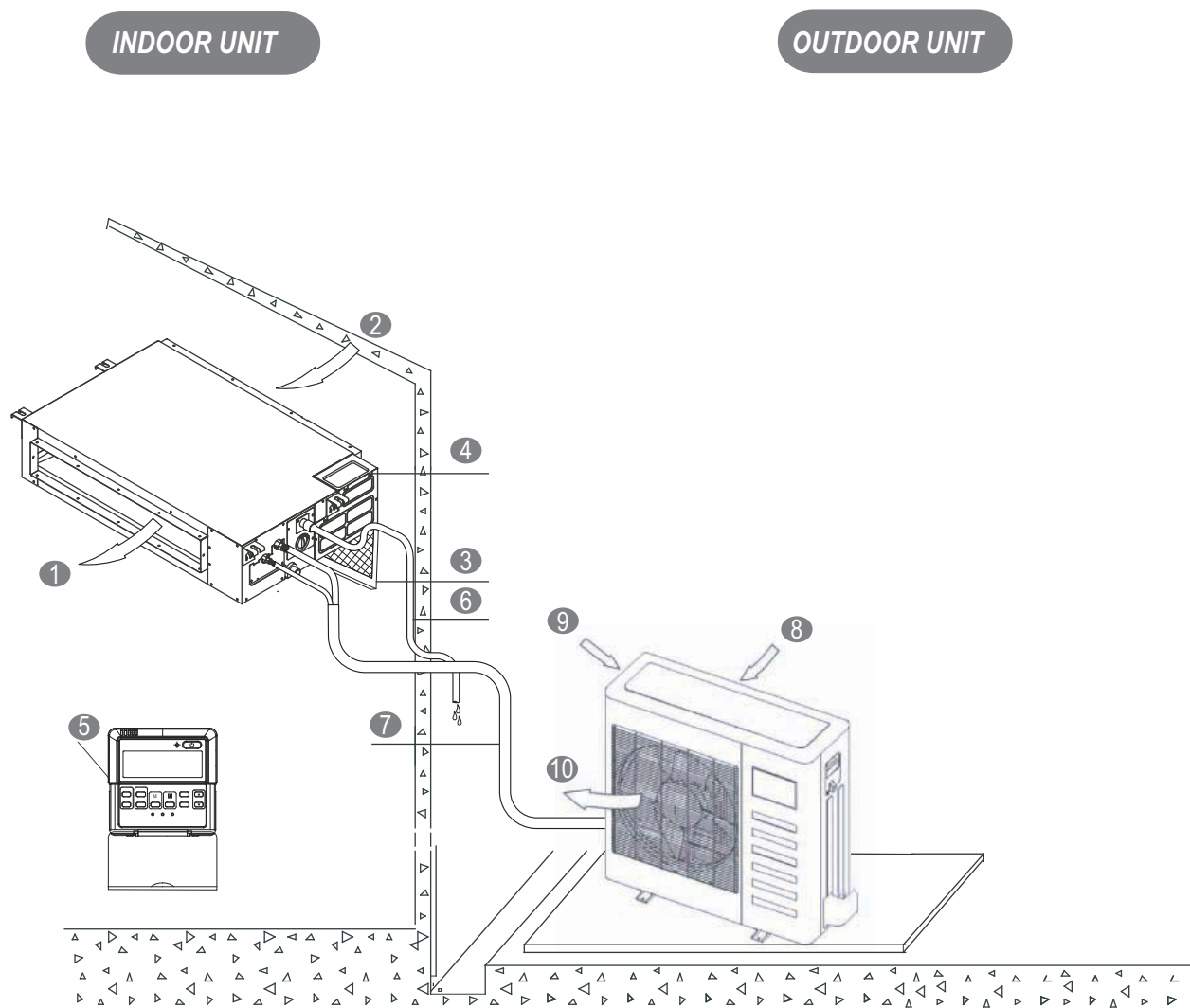


Fig.1

INDOOR UNIT

- ① Air outlet
- ② Air inlet
- ③ Air filter (on some models)
- ④ Electric control cabinet
- ⑤ Wire controller
- ⑥ Drain pipe

OUTDOOR UNIT

- ⑦ Connecting pipe
- ⑧ Air inlet
- ⑨ Air inlet (side and rear)
- ⑩ Air outlet

**NOTE**


All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model). The actual shape shall prevail.

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1. IMPORTANT SAFETY INFORMATION

To prevent injury to the user or other people and property damage, the following instructions must be followed. Incorrect operation due to ignoring of instructions may cause harm or damage.

The safety precautions listed here are divided into two categories. In either case, important safety information is listed which must be read carefully.




WARNING

The appliance shall be installed in accordance with national wiring regulations. Failure to observe a warning may result in death.



CAUTION

Failure to observe a caution may result in injury or damage to the equipment.



WARNING

Ask your dealer for installation of the air conditioner.
Incomplete installation performed by yourself may result in a water leakage, electric shock, and fire.

Ask your dealer for improvement, repair, and maintenance.
Incomplete improvement, repair, and maintenance may result in a water leakage, electric shock, and fire.

In order to avoid electric shock, fire or injury, or if you detect any abnormality such as smell of fire, turn off the power supply and call your dealer for instructions.

Never let the indoor unit or the remote controller get wet.
It may cause an electric shock or a fire.

Never press the button of the remote controller with a hard, pointed object.
The remote controller may be damaged.

Never replace a fuse with that of wrong rated current or other wires when a fuse blows out.
Use of wire or copper wire may cause the unit to break down or cause a fire.

It is not good for your health to expose your body to the air flow for a long time.

Do not insert fingers, rods or other objects into the air inlet or outlet.
When the fan is rotating at high speed, it will cause injury.

Never use a flammable spray such as hair spray, lacquer or paint near the unit.
It may cause a fire.

Never touch the air outlet or the horizontal blades while the swing flap is in operation.
Fingers may become caught or the unit may break down.

Never put any objects into the air inlet or outlet.
Objects touching the fan at high speed can be dangerous.

Never inspect or service the unit by yourself.
Ask a qualified service person to perform this work.

Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.


Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.
Contact your local government for information regarding the connection systems available.

If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the ground and get into the food chain, damaging your health and well-being

To prevent refrigerant leak, contact your dealer.
When the system is installed and runs in a small room, it is required to keep the concentration of the refrigerant, if by any chance coming out, below the limit. Otherwise, oxygen in the room may be affected, resulting in a serious accident.

The refrigerant in the air conditioner is safe and normally does not leak.
If the refrigerant leaks in the room, contact with a fire of a burner, a heater or a cooker may result in a harmful gas.

Turn off any combustible heating devices, ventilate the room, and contact the dealer where you purchased the unit.
Do not use the air conditioner until a service person confirms that the portion where the refrigerant leaks is repaired.



CAUTION

Do not use the air conditioner for other purposes.
In order to avoid any quality deterioration, do not use the unit for cooling precision instruments, food, plants, animals or works of art.

Before cleaning, be sure to stop the operation, turn the breaker off or pull out the supply cord.
Otherwise, an electric shock and injury may result.

In order to avoid electric shock or fire, make sure that an earth leak detector is installed.

Be sure the air conditioner is grounded.
In order to avoid electric shock, make sure that the unit is grounded and that the earth wire is not connected to gas or water pipe, lightning conductor or telephone earth wire.

In order to avoid injury, do not remove the fan guard of the outdoor unit.

Do not operate the air conditioner with a wet hand.
An electric shock may happen.

Do not touch the heat exchanger fins.
These fins are sharp and could result in cutting injuries.

Do not place items which might be damaged by moisture under the indoor unit.
Condensation may form if the humidity is above 80%, the drain outlet is blocked or the filter is polluted.

After a long use, check the unit stand and fitting for damage.
If damaged, the unit may fall and result in injury.

To avoid oxygen deficiency, ventilate the room sufficiently if equipment with burner is used together with the air conditioner.

Arrange the drain hose to ensure smooth drainage.
Incomplete drainage may cause wetting of the building, furniture etc.

Never touch the internal parts of the controller.
Do not remove the front panel. Some parts inside are dangerous to touch, and a machine trouble may happen.

Never expose little children, plants or animals directly to the air flow.
Adverse influence to little children, animals and plants may result.

Do not allow a child to mount on the outdoor unit or avoid placing any object on it.
Falling or tumbling may result in injury.

Do not operate the air conditioner when using a room fumigation - type insecticide.
Failure to observe could cause the chemicals to become deposited in the unit, which could endanger the health of those who are hypersensitive to chemicals.

Do not place appliances which produce open fire in places exposed to the air flow from the unit or under the indoor unit.
It may cause incomplete combustion or deformation of the unit due to the heat.

Do not install the air conditioner at any place where flammable gas may leak out.
If the gas leaks out and stays around the air conditioner, a fire may break out.

The appliance is not intended for use by young children or infirm persons without supervision.

Do not operate your air conditioner in a wet room such as a bathroom or laundry room.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

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

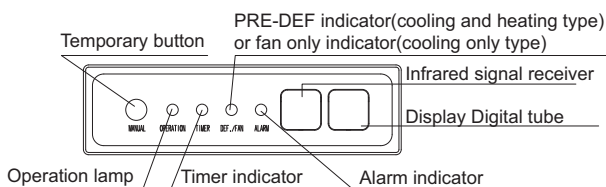
Children should be supervised to ensure that they do not play with the appliance.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

2. PARTS NAMES

The air conditioner consists of the indoor unit, the outdoor unit, the connecting pipe and the remote controller.
(Refer to Fig.2-1)

Function indicators on indoor unit display panel



Display panel

Fig.2-1

1 FORCED AUTO

The OPERATION lamp is lit, and the air conditioner will run under FORCED AUTO mode. The remote controller operation is enabled to operate according to the received signal.

2 FORCED COOL

The OPERATION lamp flashes, the air conditioner will turn to FORCED AUTO after it is enforced to cool with a wind speed of HIGH for 30 minutes. The remote controller operation is disabled.

3 OFF

The OPERATION lamp goes off. The air conditioner is OFF while the remote controller operation is enabled.

3. AIR CONDITIONER OPERATIONS AND PERFORMANCE

Use the system in the following temperature for safe and effective operation. The Max operation temperature for the air conditioner. (Cooling/Heating)

Table 2-1

Temperature Mode	Outdoor temperature	Room temperature
Cooling operation	-15°C ~ 43°C	17°C ~ 32°C
Heating operation	-15°C ~ 24°C	10°C ~ 30°C
Dry operation	17°C ~ 43°C	17°C ~ 32°C



NOTE

- 1 If air conditioner is used outside the above conditions, it may cause the unit to function abnormally.
- 2 The phenomenon is normal that the surface of air conditioning may condense water when the relative larger humidity in room, please close the door and window.
- 3 Optimum performance will be achieved within these operating temperature range.

Three-minute protection feature

A protection feature prevents the air conditioner from being activated for approximately 3 minutes when it restarts immediately after operation.

Power failure

Power failure during operation will stop the unit completely.

- The OPERATION lamp on the indoor unit will start flashing when power is restored.
- To restart operation, push the ON/OFF button on the remote controller.

4. HINTS FOR ECONOMICAL OPERATION

The following should be noticed to ensure an economical operation. (Refer to corresponding chapter for details)

- Adjust the air flow direction properly to avoid winding toward your body.
- Adjust the room temperature properly to get a comfortable situation and to avoid supercooling and superheat.
- In cooling, close the curtains to avoid direct sunlight.
- To keep cool or warm air in the room, never open doors or windows more often than necessary.
- Set the timer for the desired operating time.
- Never put obstructions near the air outlet or the air inlet. Or it will cause lower efficiency, even a sudden stop.
- Adjust the air flow direction properly to avoid winding toward your body.
- Adjust the room temperature properly to get a comfortable situation and to avoid supercooling and superheat.
- In cooling, close the curtains to avoid direct sunlight.
- To keep cool or warm air in the room, never open doors or windows more often than necessary.
- If you don't plan to use the unit for a long time, please disconnect power and remove the batteries from the remote controller. When the power switch is connected, some energy will be consumed, even if the air conditioner isn't in operation. So please disconnect the power to save energy. And please switch the power on 12 hours before you restart the unit to ensure a smooth operation.
- A clogged air filter will reduce cooling or heating efficiency, please clean it once two weeks.

5. 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 benzene, 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" for details on how to proceed and make sure to install cleaned air filters back in the same position.

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" for 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(on some models)

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 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).

- For your purchasing unit is a rear ventilated one, please remove the filter fixed screws (2 screws) and take down the filter away from the unit.

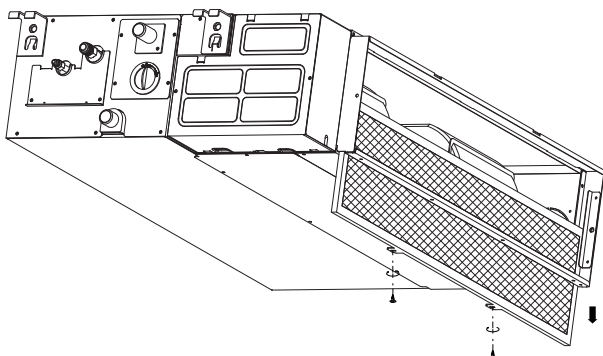


Fig.5-1

- Clean the air filter (Vacuum cleaner or pure water may be used to clean the air filter. If the dust accumulation is too heavy, please use soft brush and mild detergent to clean it and dry out in cool place).

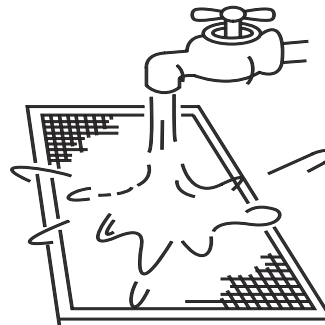


Fig.5-3

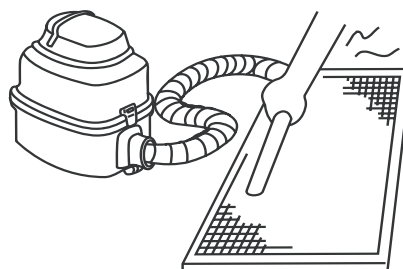


Fig.5-4

The air-in side should face up when using vacuum cleaner.
(Refer to Fig.5-4)
The air-in side should face down when using water. (Refer to Fig.5-3)



CAUTION

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

5. Re-install the air filter
6. Install and close the air-in grill in the reverse order of step 1 and 2 and connect the control box cables to the corresponding terminators of the main body .

6. FOLLOWING SYMPTOMS ARE NOT AIR CONDITIONER TROUBLES

Symptom 1: The system does not operate

- The air conditioner does not start immediately after the ON/OFF button on the remote controller is pressed.
If the operation lamp lights, the system is in normal condition. To prevent overloading of the compressor motor, the air conditioner starts 3 minutes after it is turned ON.
- If the operation lamp and the "PRE-DEF indicator(cooling and heating type) or fan only indicator(cooling only type)" light, it means you choose the heating model, When just starting, if the compressor has not started, the indoor unit appears "anti cold wind" protection because of its overflow outlet temperature.

Symptom 2: Change into the fan mode during cooling mode

- In order to prevent the indoor evaporator frosting, the system will change into fan mode automatically, restore to the cooling mode after soon.
- When the room temperature drops to the set temperature, the compressor goes off and the indoor unit changes to fan mode; when the temperature rises up, the compressor starts again. It is same in the heating mode.

Symptom 3: White mist comes out of a unit

Symptom 3.1: Indoor unit

- When humidity is high during cooling operation If the interior of an indoor unit is extremely contaminated, the temperature distribution inside a room becomes uneven. It is necessary to clean the interior of the indoor unit. Ask your dealer for details on cleaning the unit. This operation requires a qualified service person

Symptom 3.2: Indoor unit, outdoor unit

- When the system is changed over to heating operation after defrost operation Moisture generated by defrost becomes steam and is exhausted.

Sptom 4: Noise of air conditionerscooling

Symptom 4.1: Indoor unit

- A continuous low "shah" sound is heard when the system is in cooling operation or at a stop.
When the drain pump (optional accessories) is in operation, this noise is heard.
- A "pishi-pishi" squeaking sound is heard when the system stops after heating operation.
Expansion and contraction of plastic parts caused by temperature change make this noise.

Symptom 4.2: Indoor unit, outdoor unit

- A continuous low hissing sound is heard when the system is in operation.
This is the sound of refrigerant gas flowing through both indoor and outdoor units.
- A hissing sound which is heard at the start or immediately after stopping operation or defrost operation.
This is the noise of refrigerant caused by flow stop or flow change.

Symptom 4.3: Outdoor unit

- When the tone of operating noise changes.
This noise is caused by the change of frequency.

Symptom 5: Dust comes out of the unit

- When the unit is used for the first time in a long time.
This is because dust has gotten into the unit.

Symptom 6: The units can give off odours

- The unit can absorb the smell of rooms, furniture, cigarettes, etc., and then emit it again.

Symptom 7: The outdoor unit fan does not spin.

- During operation. The speed of the fan is controlled in order to optimize product operation.

7. TROUBLESHOOTING

7.1. Troubles and causes of air conditioner

If one of the following malfunctions occur, stop operation, shut off the power, and contact with your dealer.

- The operation lamp is flashing rapidly (5Hz). This lamp is still flashing rapidly after turn off the power and turn on again. (Refer to Table 7-1, Table 7-2 and Table 7-3)
- Remote controller receives malfunction or the button does not work well.
- A safety device such as a fuse, a breaker frequently actuates.
- Obstacles and water enter the unit.
- Water leaks from indoor unit.
- Other malfunctions.

If the system does not properly operate except the above mentioned cases or the above mentioned malfunctions is evident, investigate the system according to the following procedures. (Refer to Table 7-4)



CAUTION

Please cut off the power supply when appearing the above malfunction, check if the voltage provided is out of range, check if the installation of air-conditioner is correct, then electrify again after 3 minutes power off. If the problem is still existent, please contact the local service station or the equipment provider.

Table 7-1 Indoor unit error codes

No.	Display	Problem
1	Mode Conflict	Defrost_LED Flash OR Show 【E0】
2	Communication Error Between Indoor and Outdoor Unit	Time_LED Flash OR Show 【E1】
3	Temp.sensor (T1) Error	Run_LED Flash OR Show 【E2】
4	Temp.sensor (T2) Error	Run_LED Flash OR Show 【E3】
5	Temp.sensor (T2B) Error	Run_LED Flash OR Show 【E4】
6	Fan Protection	Time_LED Flash Slowly OR Show 【E6】
7	EEPROM Error	Defrost_LED Flash Slowly OR Show 【E7】
8	Outdoor Unit Error	Alarm_LED Flash Slowly OR Show 【Ed】
9	Water Level Error	Alarm_LED Flash OR Show 【EE】

Table 7-2 Outdoor unit error codes

No.	Failure or Protection Type	Recovery Mode	Fault Code
1	COMM.Fault between DSP and chip	Recoverable	H0
2	COMM.Fault between communication chip and main chip	Recoverable	H1
3	3 times of P6 protection in 30 minutes	Irrecoverable	H4
4	3 times of P2 protection in 30 minutes	Irrecoverable	H5
5	The number of indoor units decreases	Recoverable	H7
6	Reserved	Recoverable	H8
7	M-HOME for the indoor and outdoor units does not match	Irrecoverable	HF
8	Reserved	Recoverable	E1
9	Communication fault between the outdoor and indoor units	Recoverable	E2
10	T3 & T4 temperature sensor fault	Recoverable	E4
11	Voltage protection fault or a lack of Phase B , Phase N	Recoverable	E5
12	DC fan motor fault	Recoverable	E6
13	Discharge temperature sensor fault	Recoverable	E7
14	A fan in the A region run for more than 5 minutes in heat mode	Recoverable	EA
15	2 times of E6 protection in 10 minutes	Irrecoverable	EB
16	Inverter compressure top high temperature protection	Recoverable	P0
17	High pressure protection or exhaust temperature switch protection	Recoverable	P1
18	Low pressure protection	Recoverable	P2
19	Outdoor input current protection	Recoverable	P3
20	Compressor discharge high protection	Recoverable	P4
21	Outdoor condenser high temperature protection	Recoverable	P5
22	Inverter module protection	Recoverable	P6
23	Typhoon protection	Recoverable	P8
24	Evaporator high temperature protection	Recoverable	PE

Display Function Instruction

1. When stand by, LED displaying the amount of indoor units online which communicate with outdoor units.
2. When operation, LED displaying frequency value of compressor.
3. When defrost, LED displaying "dF".

Table 7-3

Symptoms	Causes	Solution
Unit does not start	<ul style="list-style-type: none"> • Power failure. • Power switch is off. • Fuse of power switch may have burned. • Batteries of remote controller exhausted or other problem of controller. 	<ul style="list-style-type: none"> • Wait for the comeback of power. • Switch on the power. • ReplLocation: • Replace the batterises or check the controller.
Air flowing normally but completely can't cooling	<ul style="list-style-type: none"> • Temperature is not set correctly. • Be in 3 minutes protection of compressor. 	<ul style="list-style-type: none"> • Set the temperature properly. • Wait.
Units start or stop frequently	<ul style="list-style-type: none"> • Refrigerant is too little or too much. • Air or no concretingc gas in the refrigerating circuit. • Compressor is malfunction. • Voltage is too high or too low. • System circuit is blocked. 	<ul style="list-style-type: none"> • Check leakage, and rightly recharge refrigerant. • Vacuum and recharge refrigerant. • Maintenance or change compressor. • Install manostat. • Find reasons and solution.
Low cooling effect	<ul style="list-style-type: none"> • Outdoor unit and indoor unit heat exchanger is dirty. • The air filter is dirty. • Inlet/outlet of indoor/outdoor units is blocked. • Doors and windows are open • Sunlight directly shine. • Too much heat resource. • Outdoor temp. is too high. • Leakage of refrigerant or lack of refrigerant. 	<ul style="list-style-type: none"> • Clean the heat exchanger. • Clean the air filter. • Eliminate all dirties and make air smooth. • Close doors and windows. • Make curtains in order to shelter from sunshine. • Reduce heat source. • AC cooling capacity reduces (normal). • Check leakage and rightly recharge refrigerant.
Low heating effect	<ul style="list-style-type: none"> • Outdoor temperature is lower than 7°C • Doors and windows not completely closed. • Leakage of refrigerant or lack of refrigerant. 	<ul style="list-style-type: none"> • Use heating device. • Close doors and windows. • Check leakage and rightly recharge refrigerant.

7.2. Troubles and causes of wire controller

Before asking for serving or repairing , check the following points. (Refer to Table 7-4)

Table 7-4

Symptoms	Solution	Causes
The fan speed can not be changed.	<ul style="list-style-type: none"> ● Check whether the MODE indicated on the display is "AUTO" 	When the automatic mode is selected, the air conditioner will automatically change the fan speed.
	<ul style="list-style-type: none"> ● Check whether the MODE indicated on the display is "DRY" 	When dry operation is selected, the air conditioner automatically change the fan speed. The fan speed can be selected during "COOL" , "FAN ONLY" , and "HEAT"
The wire controller signal is not transmitted even when the ON/OFF button is pushed.	<ul style="list-style-type: none"> ● Check whether the signal transmitter of the wire controller is properly directed to the infrared signal receiver of the indoor unit. 	The power supply is off.
The TEMP. indicator does not come on.	<ul style="list-style-type: none"> ● Check whether the MODE indicated on the display is FAN ONLY 	The temperature cannot be set during FAN mode.
The indication on the display disappears after a lapse of time.	<ul style="list-style-type: none"> ● Check whether the timer operation has come to an end when the TIMER OFF is indicated on the display. 	The air conditioner operation will stop up to the set time
The TIMER ON indicator goes off after a lapse of certain time.	<ul style="list-style-type: none"> ● Check whether the timer operation is started when the TIMER ON is indicated on the display. 	Up to the set time, the air conditioner will automatically start and the appropriate indicator will go off.
No receiving tone sounds from the indoor unit even when the ON/OFF button is pressed.	<ul style="list-style-type: none"> ● Check whether the signal transmitter of the wire controller is properly directed to the infrared signal receiver of the indoor unit when the ON/OFF button is pressed. 	Directly transmit the signal transmitter of the wire controller to the infrared signal receiver of the indoor unit, and then repeatedly push the ON/OFF button twice.

WIRED CONTROLLER



- This manual gives detailed description of the precautions that should be brought to your attention during operation.
- In order to ensure correct service of the wired controller please read this manual carefully before using the unit.
- For convenience of future reference, keep this manual after reading it.
- All the pictures in this manual are for explanation purpose only. Your wire controller may be slightly different .The actual shape shall prevail.
- The design and specifications are subject to change without prior notice for product improvement. Consult with the sales agency or manufacturer for details.

Owner's manual



Safety precautions


The following contents are stated on the product and the operation manual, including usage, precautions against personal harm and property loss, and the methods of using the product correctly and safely. After fully understanding the following contents (identifiers and icons), read the text body and observe the following rules.


■ Identifier description

Identifier	Meaning
 Warning	Means improper handling may lead to personal death or severe injury.
 Caution	Means improper handling may lead to personal injury or property loss.
[Note]: 1. "Harm" means injury, burn and electric shock which need long-term treatment but need no hospitalization. 2. "Property loss" means loss of properties and materials.	

■ Icon description

Icon	Meaning
	It indicates forbidding. The forbidden subject-matter is indicated in the icon or by images or characters aside.
	It indicates compulsory implementation. The compulsory subject-matter is indicated in the icon or by images or characters aside.

	Warning	Delegate installation	Please entrust the distributor or professionals to install the unit. The installers must have the relevant know-how. Improper installation performed by the user without permission may cause fire, electric shock, personal injury or water leakage.
---	---------	-----------------------	---

	Usage Warning	Forbid	Do not spray flammable aerosol to the wire controller directly. Otherwise, fire may occur.
		Forbid	Do not operate with wet hands or let water enter the wire controller. Otherwise, electric shock may occur.

- This manual gives detailed description of the precautions that should be brought to your attention during operation.
- In order to ensure correct service of the wired remote controller please read this manual carefully before using the unit.
- For convenience of future reference, keep this manual after reading it.

1. Model and specification

• Main parameters

Table 1-1

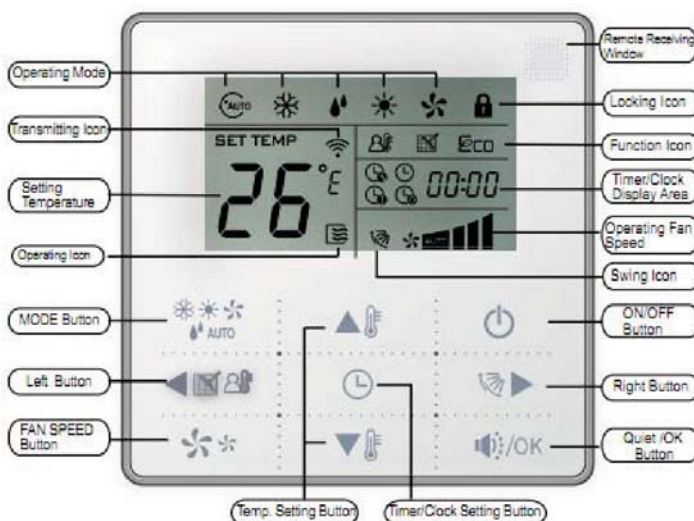
Input voltage	DC +5V
Ambient temperature	-5~43℃
Ambient humidity	RH40%~RH90%

• Functions

Main functions of this wired remote controller as follows:

- 1.Connect with indoor unit via the four ports of A, B, C, D.
- 2.Set operation mode via buttons.
- 3.Provided with LCD display function.
- 4.Provided with timing function.

2. Wired remote controller outlook



3. Operation instructions

• Remote signal receiving function

The wired remote controller can be a remote signal receiving device, you can use the wireless remote controller to control the air-conditioner through the the wired remote controller when the system have been powered on.


**CAUTION**


The wired remote controller will not receive the swing controlling instruction.

For the indoor unit with swinging function, you can directly use the wireless remote controller to control swinging through the display panel of the indoor unit, or use the swing button on the wired remote controller to control the indoor unit for swinging.

● On and Off the air-conditioner

Press the On/Off button to control the indoor unit on and off status.

When the unit is turned off, press the ON/OFF button, the unit will be turned on and the operating icon  lights up.

When the unit is turned on, press the ON/OFF button, the unit will be turned off and the operation icon  lights off.

● Set the operating mode

Press the mode button to set the operating mode, after each button press the operation mode will circle as follow:

AUTO→COOL→DRY→HEAT→FAN→AUTO

When the controller has been set to cool-only, then there is no HEAT mode.

● Fan speed setting



Under COOL, HEAT and FAN modes, press the fan speed button can adjust the fan speed setting.

After each fan speed button press will circle as follow:

AUTO→LOW→MID→HIGH→AUTO.


Under AUTO and DRY modes the fan speed is not adjustable and the default fan speed is auto.







● Temperature setting


Under AUTO, COOL, DRY, HEAT modes, press the temperature setting buttons  and  to set the temperature, the adjusting range is 17 °C ~ 30 °C


The setting temperature cannot be adjusted under FAN mode.

● Timer on and Timer off setting

Press the timer/clock setting button, then enter into the timer on setting status, and the screen will display  and 0-0h.

Press  and  buttons to adjust the timer. when the timer setting is less than 10 hours, each press  or  will increase or decrease 0.5 hour. When the timer setting is more than 10 hours, each press  or  will increase or decrease 1 hour or decrease 1 hour, the maximum timer setting is 24 hours.

After finish adjusting the timer on setting, press the  button or wait for 5 seconds to confirm and exit the timer on setting.

Under the timer on setting status, press the timer/clock setting button, then enter into the timer off setting status, and the screen will display  and 0-0h.

The setting method of timer off is the same as the timer on.



Under timer setting state, set the timer on and timer off to be 0.0h can cancel timer on and timer off.





**CAUTION**


If the wired remote controller has been set timer on/off press the ON/OFF to turn on/ turn off the unit then the timer will be canceled simultaneously.

● Clock setting


Long press the timer/clock setting button for 3 seconds, then enter into the clock setting status.


The hour position of the clock will flash, and can press  and  to adjust the hour value.

After finishing the hour setting, press left button  or right button  to switch to minute position setting, then the minute position will flash, press  and  to adjust the minute value.




After finish the clock setting, press the  button or wait for 5 seconds to confirm and exit the setting state.

● Quiet operation

Under COOL, HEAT, FAN modes, press the  button to set into the quiet operation, it is used to reduce the running noise through setting the fan speed to low.

Under AUTO, DRY mode, the fan speed is auto and the  button doesn't work.


● Lock the wired remote controller


Press the temperature adjusting buttons  and  simultaneously, the wired remote controller enters into locking state, and the lock  icon will be lighted up.

Under the locking state, the wired remote controller will not respond to the buttons pressing and the control instruction from the wireless remote controller.

Simultaneously press the  and  temperature adjusting buttons and again can cancel the locking state.

• Air filter cleaning reminding function

The wired remote controller records the total running time of the indoor unit, when the accumulated running  time reaches the pre-setted value, the air filter of the indoor unit need to be cleaned.



Long press  for 3 seconds, and reset the reminding icon and the wired remote controller will re-accumulate the total running time of the indoor unit.





CAUTION

The default setting value of the reminding function is 2500 hours, and it can change to be 1250 hours, 5000 hours or 10000 hours. The setting methods please refer to the installation manual.

• Swing Function

If the indoor unit supports swing function, press the right button  to adjust the air outlet direction of the indoor unit. Long press this button for 3 seconds can turn on or turn off the auto swing function, the auto swing function, the swing icon  will be lighted up when the auto swing function is turned on.

• Follow Me function

When the system is running and the operating mode is AUTO, COOL or HEAT, press the  button will activate the Follow Me function, press the button again to deactivate the function. Operating mode changeover will deactivate the function as well. when the Follow Me function is activated, the icon  will be light up, the wired controller will display room temperature read from the local sensor, and transmit the temperature value to the indoor unit every 3 minutes.

Installation manual

Safety precautions

- Read the safety precautions carefully before installing the unit.
- Stated below are important safety issues that must be obeyed.
- Confirm there is no abnormal phenomena during test operation after complete, then hand the manual to the user.
- Meaning of marks:

	WARNING	Means improper handling may lead to personal death or severe injury.
	CAUTION	Means improper handling may lead to personal injury or property loss.

WARNING

Please entrust the distributor or professionals to install the unit.
Installation by other persons may lead to imperfect installation, electric shock or fire.

Strictly follow this manual.
Improper installation may lead to electric shock or fire.

Reinstallation must be performed by professionals.
Improper installation may lead to electric shock or fire.

Do not disassemble your air conditioner at will.
A random disassembly may cause abnormal operation or heating, which may result in fire.

CAUTION

Do not install the unit in a place vulnerable to leakage of flammable gases.
Once flammable gases are leaked and left around the wire controller, fire may occur.

The wiring should adapt to the wire controller current.
Otherwise, electric leakage or heating may occur and result in fire.

The specified cables shall be applied in the wiring. No external force may be applied to the terminal.
Otherwise, wire cut and heating may occur and result in fire.

Do not place the wired remote controller near the lamps, to avoid the remote signal of the controller to be disturbed. (refer to the right figure)



Installation Location

Do not install the unit in a place with much oil, steam, sulfide gas. Otherwise, the product may deform and fail.

Preparation before installation

1. Check whether the following assemblies are complete.

No.	Name	Qty.	Remarks
1	Wire controller	1	_____
2	Cross round head wood mounting screw	3	GB950-86 M4X20 (For Mounting on the Wall)
3	Cross round head mounting screw	2	M4X25 GB823-88 (For Mounting on the Electrical Switch Box)
4	Installation Manual	1	_____
5	Owner's Manual	1	_____
6	Plastic expansion pipe	3	For Mounting on the Wall
7	Plastic screw bar	2	For fixing on the 86 electrician box
8	Switching wires for signal receiving board	1	For connecting the signal receiving board and 4-core shielding wire
9	Switching wires for wire controller signal	1	(If needed) For connecting the main control panel and 4-core shielding wire

2. Prepare the following assemblies on the site.

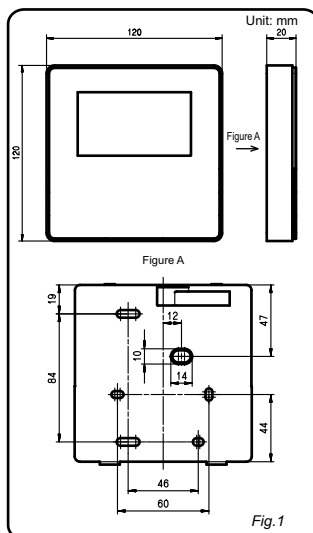
No.	Name	Qty.(embedded into wall)	Specification (only for reference)	Remarks
1	4-core shielded cable	1	RVVP-0.5mm ² x4	The longest is 15m
2	86 Electrician box	1	_____	_____
3	Wiring Tube(Insulating Sleeve and Tightening Screw)	1	_____	_____

Note to installation of wire controller:

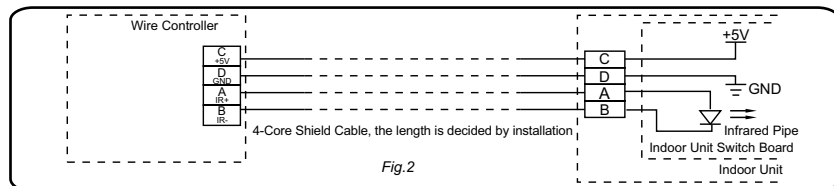
1. This installation manual contains information about the procedure of installing Wired Remote Controller. Please refer to Indoor Unit Installation Manual for connecting between Wired Remote Controller and Indoor Unit.
2. Circuit of Wired Remote Controller is low voltage circuit. Never connect it with a standard 220V/380V circuit or put it into a same Wiring Tube with the circuit.
3. The shield cable must be connected stable to the ground, or transmission may fail.
4. Do not attempt to extend the shield cable by cutting, if it is necessary, use Terminal Connection Block to connect.
5. After finishing connection, do not use Megger to have the insulation check to the signal wire.

Installation procedure

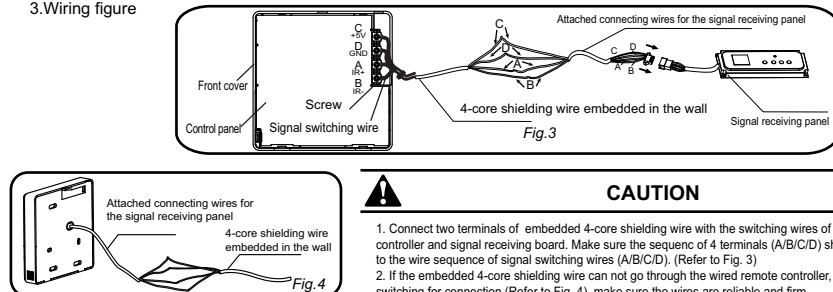
1.Wired remote controller structure size figure



2.Wiring Principle Sketch:



3.Wiring figure



CAUTION

1. Connect two terminals of embedded 4-core shielding wire with the switching wires of wired remote controller and signal receiving board. Make sure the sequence of 4 terminals (A/B/C/D) should correspond to the wire sequence of signal switching wires (A/B/C/D). (Refer to Fig. 3)
2. If the embedded 4-core shielding wire can not go through the wired remote controller, it can use signal switching for connection (Refer to Fig. 4), make sure the wires are reliable and firm.
3. The tightening torque range of screw is :0.8~1.2N·m (8~12 kgf·cm).

4.Back cover installation

Fig.5

Fig.6

Fig.7.1

Fig.7.2

CAUTION

1. Use straight head screwdriver to insert into the buckling position in the bottom of wire controller, and spin the screwdriver to take down the back cover. (Pay attention to spinning direction, otherwise will damage the back cover!) (Fig.5)
2. Use three GB950-86 M4X20 screws to directly install the back cover on the wall. (Fig.6)
3. Use two M4X25 GB823-88 screws to install the back cover on the 86 electrician box, and use one GB950-86 M4X20 screws for fixing on the wall. (Fig.7.1)
4. Adjust the length of two plastic screw bars in the accessory to be standard length from the electrical box screw bar to the wall. Make sure when install the screw bar to the electrical box screw bar, make it as flat as the wall. (Fig.7.2)
5. Use cross head screws to fix the wire controller bottom cover in the electric control box through the screw bar. Make sure the wire controller bottom cover is on the same level after installation, and then install the wire controller back to the bottom cover.
6. Over fasten the screw will lead to deformation of back cover.

5.Wiring

A.Wiring, three outletting positions

Fig.8

B.Shielded wiring

Fig.9

Fig.10

CAUTION

Avoid the water enter into the wired remote controller, use trap and putty to seal the connectors of wires during wiring installation. (Fig.10)

When under installation, reserve certain length of the connecting wire for convenient to take down the wired remote controller while during maintenance.

6.Front cover installation

Fig.11

Fig.12

CAUTION

After adjusting the front cover and then buckle the front cover; avoid clamping the communication switching wire during installation. (Fig.11)

Correct install the back cover and firmly buckle the front cover and back cover, otherwise will make the front cover drop off. (Fig.12)

Parameter setting

Wired remote controller initial parameters setting:

- 1.Change the related functions of the controller through adjusting the initial parameters, details refer to table 1.
- 2.The wired remote controller initial parameter include two codes "XY", the first code "X" means function class, the second code "Y" means detailed configuration of this function.
- 3.Setting method:
 - ① Simultaneously long press "Mode" and "Fan" button of the wired remote controller for 5 seconds to enter the parameter setting state;
 - ② The value of this first code "X" is "0", press the temperature setting button and to adjust the second code value;
 - ③ After setting the second code value, press button to switch the first code to the next value;
 - ④ When the first code value is "6", press button again to exit the parameters setting.
- 4.The parameters setting function only under the situation which need to adjust the default functions' setting states; otherwise there is no need to do the setting.

Table 1

First code	Function	Second code				
		0	1	2	3	4
0	Cool-only/ Cool-Heat selection	Cool-Heat (Default)	Cool-only	/	/	/
1	Indoor unit communication address setting	Yes (Default)	None	/	/	/
2	Power-off memory	Yes (Default)	None	/	/	/
3	Filter cleaning reminding	Cancel the reminding function	1250 hours	2500 hours (Default)	5000 hours	10000 hours
5	Remote receiving function	Yes (Default)	None	/	/	/
6	Centigrade/ Fahrenheit display	Centigrade (Default)	Fahrenheit	/	/	/



EU 2016/2281

Information requirements (for units > 12kW)

CONTENT

Information requirements for air-to-air air conditioners	35
Information requirements for heat pumps	36

INFORMATION REQUIREMENTS

Cooling - Information requirements for air-to-air air conditioners

Information requirements for air-to-air air conditioners								
Model(s): MUCHR-96-H7T								
Test matching indoor units form 1, Duct: MUCHR-96-H7T								
Outdoor side heat exchanger of air conditioner: Air								
Indoor side heat exchanger of air conditioner: Air								
Type: compressor driven vapour compression								
If applicable: driver of compressor: electric motor								
Item	Symbol	Value	Unit		Item	Symbol	Value	Unit
Rated cooling capacity	Prated,c	28,0	kW		Seasonal space cooling energy efficiency	$\eta_{s,c}$	187,8	%
Declared cooling capacity for part load at given outdoor temperatures T_j and indoor 27°/19 °C (dry/wet bulb)					Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures T_j			
$T_j = 35^\circ\text{C}$	Pdc	28,000	kW		$T_j = 35^\circ\text{C}$	EERd	2,13	—
$T_j = 30^\circ\text{C}$	Pdc	20,632	kW		$T_j = 30^\circ\text{C}$	EERd	3,92	—
$T_j = 25^\circ\text{C}$	Pdc	13,263	kW		$T_j = 25^\circ\text{C}$	EERd	5,57	—
$T_j = 20^\circ\text{C}$	Pdc	8,078	kW		$T_j = 20^\circ\text{C}$	EERd	7,80	—
Degradation co-efficient for air conditioners (*)	Cdc	0,25	—					
Power consumption in modes other than 'active mode'								
Off mode	POFF	0,04	kW		Crankcase heater mode	PCK	0,040	kW
Thermostat-off mode	PTO	0	kW		Standby mode	PSB	0,040	kW
Other items								
Capacity control	variable				For air-to-air air conditioner: air flow rate, outdoor measured	—	9800	m3/h
Sound power level outdoor	LWA	77	dB					
Emissions of nitrogen oxides (if applicable)	NO x (**)	x	mg/kWh fuel input GCV					
GWP of the refrigerant		2088	kg CO2 eq (100 years)					
Contact details	SALVADOR ESCODA SA PROVENZA 392 P2 08025 BARCELONA (SPAIN) +34 93 446 27 80							
(*) If Cdc is not determined by measurement then the default degradation coefficient of heat pumps shall be 0,25								
(**) From 26 September 2018								
Where information relates to multi-split air conditioners, the test result and performance data may be obtained on the basis of performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer								

Heating - Information requirements for heat pumps

Information requirements for heat pumps								
Model(s): MUCHR-96-H7T								
Test matching indoor units form 1, Duct: MUCHR-96-H7T								
Outdoor side heat exchanger of heat pump: Air								
Indoor side heat exchanger of heat pump: Air								
Indication if the heater is equipped with a supplementary heater: no								
If applicable: driver of compressor: electric motor								
Parameters shall be declared for the average heating season, parameters for the warmer and colder heating seasons are optional.								
Item	Symbol	Value	Unit		Item	Symbol	Value	Unit
Rated heating capacity	Prated,h	31,5	kW		Seasonal space heating energy efficiency	ηs,h	136,2	%
Declared heating capacity for part load at indoor temperature 20 °C and outdoor temperature Tj					Declared coefficient of performance or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Item	symbol	value	unit		Item	symbol	value	unit
Tj = -7°C	Pdh	13,417	kW		Tj = -7°C	COPd	2,52	—
Tj = 2°C	Pdh	8,408	kW		Tj = 2°C	COPd	3,34	—
Tj = 7°C	Pdh	5,623	kW		Tj = 7°C	COPd	4,46	—
Tj = 12°C	Pdh	6,496	kW		Tj = 12°C	COPd	5,35	—
Tbiv = bivalent temperature	Pdh	13,417	kW		Tbiv = bivalent temperature	COPd	2,52	—
TOL = operating limit	Pdh	11,070	kW		TOL = operating limit	COPd	1,88	—
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	Pdh	x,x	kW		For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	COPd	x,x	—
Bivalent temperature	Tbiv	-7	°C		For water-to-air heat pumps: Operation limit temperature	Tol	x,x	°C
Degradation co-efficient heat pumps (**)	Cdh	0,25	—					
Power consumption in modes other than 'active mode'					Supplementary heater			
Off mode	Poff	0,040	kW		Back-up heating capacity (*)	elbu	0,040	kW
Thermostat-off mode	PTO	0,040	kW		Type of energy input			
Crankcase heater mode	PCK	0,040	kW		Standby mode	Psb	0,040	kW
Other items								
Capacity control	variable				For air-to-air heat pumps: air flow rate, outdoor measured	—	9800	m3/h
Sound power level, indoor/outdoor measured	LWA	77	dB		For water/brine-to-air heat pumps: Rated brine or water flow rate, outdoor side heat exchanger	—	x	m3/h
Emissions of nitrogen oxides (if applicable)	NOx (***)	x	mg/kWh fuel input GCV					
GWP of the refrigerant		2088	kg CO2 eq (100 years)					
Contact details	SALVADOR ESCODA SA PROVENZA 392 P2 08025 BARCELONA (SPAIN) +34 93 446 27 80							
(**) If Cdc is not determined by measurement then the default degradation coefficient of heat pumps shall be 0,25								
(***) From 26 September 2018								
Where information relates to multi-split air conditioners, the test result and performance data may be obtained on the basis of performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer								

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