MUND CLIMA®

CASSETTE SERIE H6

Installation and owner's manual **MUCSR-H6**





Thank you very muchfor purchasing our products. Please read this manual carefully before installing and using the unit.

CL20230 to CL20231 English

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IMPORTANT

Thank you for selectiong 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 manyanswers 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 safty precautions listed here are divided into two categories.



WARNING

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



CAUTION

If you do not follow these instrutions 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 this 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 a 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;
- Test operation.

ACCESSORIES

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

	NAME	SHAPE	QUANTITY
	1. Soundproof / insulation sheath	0	2
Tubing & Fittings	2. Binding tape		1
	3.Seal sponge		1
Drainpipe Fittings	4. Drain joint		1
(for cooling & neating)	5. Seal ring		1
	6. Remote controller RG57		1
Remote controller & Its Frame	7. Frame	Sij	1
	8. Mounting screw(ST2.9 0-C-H)	C MARK	2
	9.Alkaline dry batteries (Am4)	C C	2
EMC & Its Fitting (for some models)	10. Magnetic ring (twist the electirc wires L and N around the magnetic ring to five circles)		1
	11.installation and Owner's manual		1
Others	12. Connecting wire for display (2M)		1 (on some models)
	13. Cord protection rubber ring		1 (on some models)

1. INDOOR UNIT INSTALLATION

1.1 Selecting installation site

When the conditions in the ceiling are exceeding 30°C and a relative humidity of 80%, or when fresh air is inducted into the ceiling, an additional insulation is required (minimum 10 mm thickness, polyethylene foam).

1) Select an installation site where the following conditions are fulfilled and that meets your customer's approval.

- Where optimum air distribution can be ensured.
- Where nothing blocks air passage.
- Where condensate water can be properly drained.
- Where the false ceiling is not noticeably on an incline.
- Where sufficient clearance for maintenance and service can be ensured.
- Where there is no risk of flammable gas leaking.
- The equipment is not intended for use in a potentially explosive atmosphere.
- Where piping between indoor and outdoor units is possible within the allowable limit.(Refer to the installation manual of the outdoor unit.)
- Keep indoor unit,outdoor unit,inter unit wiring and remote controller 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.)
- When installing the wireless remote controller kit, the distance between wireless remote controller and indoor unit might be shorter if there are fluorescent lights who are electrically started in the room. The indoor unit must be installed as far as possible away from fluorescent lights.

2) Ceiling height

Install this unit where the height of bottom panel is more than 2.5m so that the user cannot easily touch.

3) Use installation hooks for installation.Check whether the ceiling is strong enough to support the weight of the indoor unit.If there is a risk,reinforce the ceiling before installing the unit.

Space required for installation see the figure below (:air flow direction)





DANGER

Do not install the unit in an area where flammable materials are present due to risk of explosion resulting in serious injury or death.



WARNING

If the basis underneath the unit is not strong enough to support the weight of the unit, the unit could be fall out of place and cause serious injury.

1.2 Preparations before installation

1) Relation of ceiling opening to unit and suspension bolt position.



- Installation hook pitch dimensions
- 2 Indoor unit dimensions
- 3 decoration panel dimensions
- 4 Refrigerant piping
- 5 Installation hook (\times 4)
- 6 Ceiling opening dimensions
- 7 Hanger bracket
- 8 False ceiling

1

1

2

Adjust the position to ensure the gaps between the indoor unit and the four sides of false ceiling are even. The indoor unit's lower part should sink into the false ceiling for 24mm.



NOTE: Installation is possible with a ceiling dimension of 600 mm (marked with *). However,to achieve a ceiling-panel overlapping dimension of 15 mm,the spacing between the ceiling and the unit should be 20 mm or less. If the spacing between ceiling and the unit is over 20 mm,attach sealing material in the part or recover the ceiling.

2) Make the ceiling opening needed for installation where applicable.(For existing ceilings.)

- Create the ceiling opening required for installation.From the side of the opening to the casing outlet, implement the refrigerant and drain piping and wiring for remote controller (unnecessary for wireless type). Refer to each piping or wiring section.
- After making an opening in the ceiling, it may be necessary to reinforce ceiling beams to keep the ceiling level and to prevent it from vibrating. Consult the builder for details.

3) Install the installation hooks. (Use either a M8 or M10 size bolt.)

Use expansible hooks, sunken anchors or other field supplied parts to reinforce the ceiling in order to bear the weight of the unit. Adjust clearance from the ceiling before proceeding further. Installation example see figure below.



1.3 Install the indoor unit

When installing optional accessories, read also the installation manual of the optional accessories. Depending on the field conditions, it may be easier to install optional accessories before the indoor unit is installed (except for the decoration panel). However, for existing ceiling, install fresh air inlet component kit and branch duct before installing the unit.

Install the indoor unit temporarily. 1)

- Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer from the upper and lower sides of the hanger bracket.
- Securing the hanger bracket see figure below.



- Nut (field supply) 1
- 2 Washer (field supply)
- 3 Hanger bracket
- 4 Double nuts (field supply,tighten)

2) Fix the paper pattern for installation. (For new ceilings only)

- The paper pattern for installation corresponds with the measurements of the ceiling opening. Consult the builder for details.
- The centre of the ceiling opening is indicated on the paper pattern for installation.
- After removing the packaging material from the paper patten for installation, attach the paper pattern for installation to the unit with the attached screws as shown in figure below.



- Paper pattern for installation(on some models) 1
- 2 Center of the ceiling openiing
- Screws(supplied with the decoration panel) 3

3) Adjust the unit to the right position for installation.

(Refer to the chapter "Preparations before installation" on page 8.)

- 4) Check if the unit is horizontally levelled.
 - Do not install the unit tilted. The indoor unit is equipped with a built-in drain pump and float switch. (If the unit is tilted against the direction of the condensate flow (the drain piping side is raised), the float switch may malfunction and cause water to drip.)
 - Check if the unit is levelled at all four corners with a water level _ or a water-filled vinyl tube as shown in figure below.



- 1 Water level 2
- Vinyl tube
- 5) Remove the paper pattern for installation. (For new ceiling only).

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.
- 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.
- 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.
- 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.)
- In coastal areas or other places with salty atmosphere of sulfate gas, corrosion may shorten the life of the air conditioner.
- 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
0/10/10/1

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







MODEL						Unit:mm
WODEL	W	D	Н	W1	A	В
MUCSR-12/18-H6	800	333	554	870	514	340
MUCSR-24-H6	845	363	702	914	540	350
MUCSR-30/36/42-H6	946	410	810	1030	673	403







MODEL						Unit:mm
WODEL	W	D	н	W1	A	В
MUCSR-48-H6 MUCSR-48/60-H6T	952	415	1333	1045	634	404

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.



Walls facing two sides



Top view

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

reach up to approximately 120 $^\circ\!\!\mathbb{C}.$ 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 conncetions.
- 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. (Overtightening 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	90°±4
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	R0.4~0.8
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	Max.allowable piping length	Max.allowable piping height
MUCSR-12-H6	25m	10m
MUCSR-18-H6	30m	20m
MUCSR-24/30-H6	50m	25m
MUCSR-36/42/48-H6 MUCSR-48/60-H6T	65m	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.	A(m	ım)	Sat avaatly at the
(mm)	Max.	Min.	Set exactly at the
Ø6.35	1.3	0.7	
Ø9.52	1.6	1.0	
Ø12.7	1.8	1.0	Connornino
Ø15.9	2.2	2.0	<u>Cobher bibe</u>



5) Check that the flaring is properly made.



3.2 Refrigerant piping

Coat the flare both inside and ouside 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, than 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.



- 1) Connect projection side of charging hose (which comes from gauge manifold) to gas stop valve's service port.
- 2) Full open gauge manifold's low-pressure valve (Lo) and completely close its high-pressure valve (Hi)
- (High-pressure valve subsequently requires no operation.)3) Do vacuum pumping and make sure that the compound
- pressure gauge reads -0.1MPa (-76cmHg).*1
- 4) Close gauge manifold's low-pressure valve (Lo) and sop vacuum pump.(Keep this state for a few minutes to make sure that the
- compound pressure gauge pointer does not swing back.)*2
- 5) Remove caps from liquid stop valve and gas stop valve.
 6) 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.7) 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 byond its stop.)8) 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 exists. Check all pipe joints and retighten nuts as needed, then repeat steps 2) through 4).

3.4 Additional refrigerant charge

- 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: Ф 6.35mm (1/4") R410A: (L-5)x15g/m	Liquid side: Ф 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 pipig 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



- 2 Δ 5 6 С В
- 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)
- А Turn seams up
- В Attach to base
- С Tighten the part other than the piping insulation material
 - 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.

CONNECT THE DRAIN PIPE 4.

4.1 Installation of drain piping

Install the drain piping as shown in figure below and take measures against condensation. Improperly rigged piping could lead to leaks and eventually wet furniture and belongings.



- 1 Hanging bar
- 2 ≥1/100 gradient

4.2 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
- Insulation (field supply) 4
- 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.

4.3 How to perform piping



Unit: mm

- 1 Ceiling slab
- 2 Hanger bracket
- 3 Adjustable range
- 4 Drain raising pipe
- 5 Drain hose
- 6 Metal clamp
- Connect the drain hose to the drain raising pipes, and insulate them.
- Connect the drain hose to the drain outlet on the indoor unit, and tighten it with the clamp.

Precautions

- Install the drain raising pipes at a height of less than 530 mm.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 300 mm from the unit.
- To prevent air bubbles, install the drain hose level or slightly tilted up (<75 mm).
- The incline of drain hose should be 75 mm or less so that the drain socket does not have to withstand additional force.
- To ensure a downward slope of 1:100, install hanging bars every 1 to 1.5 m.
- When unifying multiple drain pipes, install the pipes as shown in figure below. Select converging drain pipes whose gauge is suitable for the operating capacity of the unit.



1 T-joint converging drain pipes



- Drain piping connections Do not connect the drain piping directly to sewage pipes that smell of ammonia. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger.
- Keep in mind that it will become the cause of getting drain pipe blocked if water collects on drain pipe.

4.4 Testing of drain piping

After the piping work is finished, check if drainage flows smoothy.

 Add approximately 1L of water gradually through the air discharge outlet.

Method of adding water (see the figure below)



- 1 Plastic watering can(tube should be about 100 mm long)
- 2 Water-receiver
- When exlectric wiring work is finished, check drainage flow during COOL running, exlplained in "Test operation" on page 20.

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 highelectric potential in the ground during lightning storms.

The specification of power

Minimum norminal cross-sectional area of conductors:

Rated current of appliance (A)	Nominal cross-sectional area (mm2)
≼6	0.75
>6 and ≤10	1.0
>10 and ≤16	1.5
>16 and ≼25	2.5
>25 and ≤32	4.0
>32 and ≼45	6.0
>45 and ≼60	10.0

NOTE:

The cable size and the current of the fuse or switch are determined by the maximum current indicated on the nameplate which located on the side panel of the unit. Please refer to the nameplate before selecting the cable, fuse and switch.

Model		MUCSR-12-H6	MUCSR-18/24-H6	MUCSR-30/36-H6	MUCSR-42/48-H6	MUCSR-48/60-H6T
INDOOR UNIT POWER	Phase		1-phase	1-phase	1-phase	1-phase
	Frequency and Voltage		220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz
	POWER WIRING (mm ²)		3×1.0	3×1.0	3×1.0	3×1.0
	CIRCUIT BREAKER/ Fuse (A)		15/10	15/10	15/10	15/10
	Phase	1-phase	1-phase	1-phase	1-phase	3-phase
	Frequency and Voltage	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	380-420V, 50Hz
UNIT POWER	POWER WIRING (mm ²)	3×2.5	3×2.5	3×4.0	3×6.0	5×2.5
	CIRCUIT BREAKER/ Fuse (A)	20/16	30/20	40/30	40/35	30/25
Indoor/Outdoor Connecting Wiring (mm ²)		4×1.5	2×0.75 (Shielded)	2×0.75 (Shielded)	2×0.75 (Shielded)	2×0.75 (Shielded)

Connecting wiring







Remote ON/OFF signal and Alarm



To use the signal ON / OFF you should cut away the jumper JR6 in indoor unit main PCB.

The operation is as follows:

- With the unit running if the contact CN23 opens unit stops and remote control is locked, CP shown in the display.

-With the unit stoped if the contact CN23 opens unit will continue stop and remote control is locked, CP shown in the display.

The alarm signal provides an output of 230Vac when the unit indicates an error code. NOTE: Only CP shown in the display if the unit has a digital display.

The wired remote control KJR-120C (optional) also shows the CP code.

Control and settings

The capacity of the unit, the address of the unit, temperature compensation, etc. it can be setting by remote control RG57 or by indoor dip-switch. For more information, please contact the after-sales service Mundoclima, with your sales man or visit www.mundoclima.com in the corresponding model section you will find the parameters setting manual.

- Note The unit capacity should not be modified without permission of the manufacturer.
 - The address setting of the unit is only necessary if centralized control CCM is connected.
 - Twin systems must be set as Master unit and the other as Slave, do the setting by RG57 control or by indoor dip-switch.
 - Setting is not allowed when the unit is running.

Network address set by indoor dip-switch:

FOR SETTING NETADDRESS

S1+S2	4 F 0 7 ON OU 0	68 L9 ON	4 F 0 7 P 3 4 0 0 8 4 6 8 1 9 1 2	QU 01 0N QU 05 8468 L9 12
CODE	0~F	0~F	0~F	0~F
NETADDRESS	0~15	16~31	32~47	48~63
FACTORY SETTING	1 -			

Every air-conditioner in network has only one network address to distinguish each other. Address code of air-conditioner in LAN is set by code switches S1 & S2 on the Main Control Board of the indoor unit, and the set range is 0-63.

The adjustment should be made with disconnected power supply unit. Note: Address setting is only required if you connect a centralized controller.

Master / Slave set by indoor dip-switch:

SW5	SWIT	CH FOR MAIN-SLAVE SETTING
ST	ΟΝ ΑΤΕ	
MO	DE	MAIN MAIN MAIN SLAVE

By default, all the units are configured for use in 1x1 systems, to set an indoor unit of a Twin system (2x1) by micro-switch on the main board, you must set the micro-switch SW5 so as It is shown in the image on the left.

There are two combinations of the micro-switch to assign the master unit (the two serve equally). The adjustment should be made with disconnected power supply unit.

How to connect wiring

- Remove the control box lid of the indoor unit.
 Remove the cover of the outdoor unit.
- Follow the "Wiring diagram label" attached to the indoor unit's control box lid to wire the outdoor unit, indoor unit and the remote controller.

Securely fix the wires with a field supplied champ.

Attach the cover of the outdoor unit.

Precautions

- 1 Observe the notes mentioned below when wiring to the power supply terminal board.
 - Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.)
 - When connecting wires of the same gauge, connect them according to the figure.



Use the specified electric wire. Connect the wire securely to the terminal. Lock the wire down without applying excessive force to the terminal. (Tightening torque: $1.31N.m \pm 10\%$).

- When attaching the control box lid, make sure not to pinch any wires.
- After all wiring connections are done, fill in any gaps in the casing wiring holes with putty or insulation material (field supply) thus to prevent small animals or dirt from entering the unit from outside and causing short circuits in the control box.
- 2 Do not connect wires of different gauge to the same grounding terminal. Looseness in the connection may deteriorate the protection.
- 3 Use only specified wires and tightly connect wires to the terminals. Be careful that wires do not place external stress on the terminals. Keep wiring in neat order so that they do not obstruct other equipment such as popping open the service cover. Make sure the cover closes tight. Incomplete connections could result in overheating, and in the worst case, electric shock or fire.



6. INSTALLATION OF THE DECORATION PANEL

- Detach the intake grille.
 - Slide the 2 grille hooks toward the middle of the decoration panel.



- 1 Intake grille
- 2 Grille hook
- Open the intake grille and remove.



Install the decoration panel

- Align the indicate " \bigtriangleup " on the decoration panel to the indicate " \bigtriangleup " on the unit .
- Attach the decoration panel to the unit with the supplied screws as shown in figure below.



- 1 Decoration panel
- 2 Screws (M5)(supplied with the panel)
- After installing the decoration panel, ensure that there is no space between the unit body and decoration panel.
 Otherwise air may leak through the gap and cause dewdrop. (See figure below)



Mount the intake grille. Ensure that the buckles at the back of the grille be properly seated in the groove of the panel.



Connect the 2 wires of the decoration panel to the mainboard of the unit.



■ Fasten the control box lid with 2 screws .



Close the intake grille, and close the 2 grille hooks.



7. REFRIGERANT PIPE (the unit with the twins function)

7.1 Length and drop height permitted of the refrigerant piping

Note: Reduced length of the branching tube is the 0.5m of the equivalent length of the pipe.

		Max valu	ie	Piping
e length	Total pipe length (Actual)	18K+18K 24K+24K 30K+30K	65m	L+L1+L2
Pip	(farthest from the line pipe branch)	15m		L1;L2
	(farthest from the line pipe branch)	10m		L1-L2
op ght	Indoor unit-outdoor unit drop height	30m		H1
Drc hei	Indoor unit to indoor unit drop height	0.5m		H2



Note The indoor units should be installed equivalently at the both side of the U type branch pipe.

The branching pipe must be installed horizontally, error angle of it should not large than 10° . Otherwise, malfunction will be caused.



7.2 Size of joint pipes for indoor unit

Size of joint pipes for indoor unit

Madal	Size of main pipe(mm)				
would	Gas side	Liquid side	Available branching pipe		
18K	Ø12.7 (1/2)	Ø6.35 (1/4)	FQZHN-01D		
24K	Ø15.9 (5/8)	Ø9.5 (3/8)	FQZHN-01D		
30K	Ø15.9 (5/8)	Ø9.5 (3/8)	FQZHN-01D		

7.3 Size of joint pipes for outdoor unit

Base on the following tables, select the diameters of the outdoor unit connective pipes. In case of the main accessory pipe large than the main pipe, take the large one for the selection.

Size of	ioint	pipes	for	outdoor	unit

Model	Size of main pipe(mm)				
modor	Gas side	Liquid side	The 1st branching pipe		
36K	Ø15.9 (5/8)	Ø9.5 (3/8)	FQZHN-01D		
48K	Ø15.9 (5/8)	Ø9.5 (3/8)	FQZHN-01D		
60K	Ø15.9 (5/8)	Ø9.5 (3/8)	FQZHN-01D		

7.4 Refrigerant amount to be added

Calculate the added refrigerant according to the diameter and the length of the liquid side pipe of the outdoor/indoor unit connection. The refrigerant is R410A.

(Refer to pag. 20)

8. TEST OPERATION

Make sure the control box lids are closed on the indoor and outdoor units.

Refer to "For the following items, take special care during construction and check after installation is finished" on page 4.

After finishing the construction of refrigerant piping, drain piping, and electric wiring, conduct test operation accordingly to protect the unit.

- 1 Open the gas side stop valve.
- 2 Open the liquid side stop valve.
- 3 Electrify crank case heater for 6 hours.
- 4 Set to cooling operation with the remote controller and start operation by pushing ON/OFF button.
- 5 Check the following points. If there is any malfunction, please resolve it according to the chapter "Troubleshooting" in the "Owner's Manual".
 - The indoor unit
 - Whether the switch on the remote controller works well.
 - Whether the buttons on the remote controller works well.
 - Whether the air flow louver moves normally.
 - Whether the room temperature is adjusted well.
 - Whether the indicator lights normally.
 - Whether the temporary buttons works well.
 - Whether there is vibration or abnormal noise during operation.
 - · Whether the drainage flows smoothly.
 - The outdoor unit
 - Whether there is vibration or abnormal noise during operation.
 - Whether the generated wind, noise, or condensed of by the air conditioner have influenced your neighborhood.
 - Whether any of the refrigerant is leaked.

6 Turn off the main power supply after operation.



A protection feature prevents the air conditioner from being activated for approximately 3 minutes when it is restarted immediately after shut off.

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 manyanswers 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.







- Air flow louver(at air outlet)
- 2 Drain pump(drain water from indoor unit)

1

- 3 Drain pipe
- 4 Air outlet
- **b** Air filter(inside air-in grill)
- 6 Air inlet

- 8 Display panel
- 9 Remote controller
- Refrigerant pipe
- Air inlet
- 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 safty precautions listed here are divided into two categories. In either case, important safty 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 you 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 groundeater 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 combuston 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



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 ~ 50°C / 5 °F~122°F	17°C~32°C (62°F ~90°F)
Heating operation	-15°C ~ 24°C / 5 °F~76°F	0°C~30°C (32°F~86°F)
Dry operation	0°C ~ 50°C / 32 °F~122°F	17°C~32°C (62°F ~90°F)

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.
- Lightning or a car wireless telephone operating nearby may cause the unit to malfunction.

4. HINTS FOR ECONOMICAL OPERATION

The following should be noticed to ensure an economical operation. (Refer to corresponding chapterfor 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. ADJUSTING AIR FLOW DIRECTION

While the unit is in operation, you can adjust the air flow louver to change the flow direction and naturalize the room temperature evenly. Thus you can enjoy it more comfortably.



Set the air flow direction.

Press the SWING button to adjust the louver to the desired position and press this button again to maintain the louver at this position.

Adjust the air flow direction automatically.

Press the SWING button, the louver will swing automatically. While this function is set, the swing fan of indoor unit runs; otherwise, the swing fan doesn't run. The swing scale of every side is 30°. When the air conditioner isn't in operation (including when TIMER ON is set), the SWING button will be invalid.

6. 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-treted duster for wiping or leave such material on the unit for long. it may damage or fade the surface of the unit.

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

These may cause the plastic surface to crack or deform.

Maintenance after a long stop period

(eg. at the beginning of the season)

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

Clean air filters and casings of indoor units.

Refer to "Cleaning the air filter" 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 he power is turned on, the remote controller displays appear.

Maintenance before a long stop period

(eg. at the end of the season)

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

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

Cleaning the air filter

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

If the air conditioner is installed in a dust place, clean the 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).

1 Open the air-in grill

Push the grill switches towards the middle simultaneously as indicated in *Fig.6-1*. Then pull down the air-in grill.

The control box cables ,which are originally connected with the main body electrical terminators must be pulled off before doing as indicated above. 2 Take out the air-in grill (together with the air filter shown in *Fig.6-1*).

Pull the air-in grill down at 45° and lift it up to take out the grill.

3 Dismantle the air filter.

4 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.

• The air-in side should face up when using vacuum cleaner. (See Fig. 6-3)

CAUTION

• The air-in side should face down when using water. (See Fig. 6-4)

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.



Fig.6-1







Fig.6-3



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

Symptom 4: Noise of air conditioners cooling

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 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.

8. TROUBLESHOOTING

8.1 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 8-1, Table 8-2 and Table 8-3)
- 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 8-4)

Table 8-1 Indoor unit error codes



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.

N⁰	Code	Timer Lamp	Run Lamp (flashes)	Description	
1	E0	OFF	1	Indoor EEPROM error	
2	E1	OFF	2	Communication malfunction beetwen indoor and outdoor units	
3	E3	OFF	4	Indoor fan speed malfunction	
4	E4	OFF	5	Indoor room temperature sensor (T1) open circuit or short circuit	
5	E5	OFF	6	Indoor coil temperature sensor (T2) open circuit or short circuit	
6	EC	OFF	7	Regfrigerante leakage detection malfunction	
7	EE	OFF	8	Water-level alarm malfunction	
8	E8	OFF	9	Communication malfunction beetwen two indoor units (for Twin systems)	
9	E9	OFF	10	Other malfunction of Twins systems	
10	Ed	OFF	11	Outdoor unit is faulty (for old comunicaction protocol)	
11	F0	ON	1	Current overload protection	
12	F1	ON	2	Outdoor room temperature sensor (T4) open circuit or short circuit	
13	F2	ON	3	Outdoor coil temperature sensor (T3) open circuit or short circuit	
14	F3	ON	4	Outdoor discharge temperature sensor (T5) open circuit or short circuit	
15	F4	ON	5	Outdoor EEPROM error	
16	F5	ON	6	Outdoor fan speed malfunction	
17	F6	ON	7	Coil temperature sensor (T2b) open circuit or short circuit (for some Multi)	
18	F7	ON	8	Lifting panel comunication checking chanel is abnormal	
19	F8	ON	9	Lifting panel malfunction	
20	F9	ON	10	Lifting panel is not closed	
21	P0	FLASH	1	Inverter module IPM protection	
22	P1	FLASH	2	High/Low voltage protection	
23	P2	FLASH	3	High temperature protection of compressor top	
24	P3	FLASH	4	Outdoor low temperature protection	
25	P4	FLASH	5	Compressor drive error	
26	P5	FLASH	6	Mode conflict (for some Multi models)	
27	P6	FLASH	7	Low pressure protection of compressor	
28	P7	FLASH	8	Sensor of outdoor IGBT is faulty	
29	СР			Remote contact OFF enabled	

 Table 8-2
 Outdoor unit error codes (Models 18 to 60)

N⁰	Code	Description					
1	E1	Communication malfunction beetwen indoor and outdoor units					
2	FO	Current overload protection					
3	F1	Outdoor room temperature sensor (T4) open circuit or short circuit					
4	F2	Outdoor coil temperature sensor (T3) open circuit or short circuit					
5	F3	Outdoor discharge temperature sensor (T5) open circuit or short circuit					
6	F4	Outdoor EEPROM error					
7	F5	Outdoor fan speed malfunction					
8	P0	Inverter module IPM protection					
9	P1	High/Low voltage protection					
10	P3	Outdoor low temperature protection					
11	P4	Rotor position protection of compressor					
12	P7	Sensor of outdoor IGBT is faulty					
13	JO	High temperature position of indoor heat exchanger in heating mode					
14	J1	High temperature position of indoor heat exchanger in cooling mode					
15	J2	High discharge temperature protection					
16	J3	PFC module protection					
17	J4	Communication error between outdoor main chip and compressor driven chip IR341					
18	J5	High pressure protection					
19	J6	Low pressure protection					
20	J8	AC voltage protection					

In low ambient cooling mode, the LED displays "LC" or alternative displays between running frequency and "LC" (each displays 0.5s)

Table 8-3

Symptoms	Causes	Solution	
Unit does not start	 Power failure. Power switch is off. Fuse of power switch may have burned. Batteries of remote controller exhausted or other problem of controller. 	 Wait for the comeback of power. Switch on the power. RepILocation: Replace the batterises or check the controller. 	
Air flowing normally but completely can't cooling	 Temperature is not set correctly. Be in 3 minutes protection of compressor. 	Set the temperature properly.Wait.	
Units start or stop frequently	 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. 	 Check leakage, and rightly recharge refrigerant. Vacuum and recharge refrigerant. Maintenance or change compressor. Install manostat. Find reasons and solution. 	
Low cooling effect	 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. 	 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	 Outdoor temperature is lower than 7°C Doors and windows not completely closed. Leakage of refrigerant or lack of refrigerant. 	 Use heating device. Close doors and windows. Check leakage and rightly recharge refrigerant. 	

8.2. Troubles and causes of wire controller

Before asking for serving or repairing , check the following points. (Refer to Table 8-4)

Table	8-4
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Symptoms Solution		Causes	
The fan speed can not be	 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.	
changed.	 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.	• 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.	 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.	 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	
 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.	• 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 repeatly push the ON/OFF button twice.	

REMOTE CONTROLLER

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



Remote Controller Specifications



Model	RG57B2/BGE
Rated Voltage	3.0V(Dry batteries R03/LR03×2)
Signal Receiving Range	8m
Environment	-5°C~60℃

NOTE:

- Buttons design is based on typical model and might be slightly different from the actual one you purchased, the
 actual shape shall prevail.
- All the functions described are accomplished by the unit. If the unit has no this feature, there is no corresponding operation happened when press the relative button on the remote controller.
- When there are wide differences between Remote controller Illustration and "Owner's manual" on on function description, the description of "Owner's manual" shall prevail.

IMPORTANT NOTE:

• This remote controller is able to set different parameters, it has a function selection. For more information, please contact with Mundoclima after sales service or with your commercial sales.

Operation of buttons



ON/OFF Button

This button turns the air conditioner ON and OFF.

MODE Button

Press this button to modify the air conditioner mode in a sequence of following:

→ AUTO → COOL→ DRY→ HEAT → FAN

FAN Button

Used to select the fan speed in four steps: \uparrow AUTO \rightarrow LOW \rightarrow MED \rightarrow HIGH \neg

NOTE: You can not switch the fan speed in AUTO or DRY mode.

SLEEP Button

- Active/Disable sleep function. It can maintain the most comfortable temperature and save energy. This function is available on COOL, HEAT or AUTO mode only.
- For the detail, see " sleep operation " in " USER'S MANUAL".

NOTE: While the unit is running under SLEEP mode, it would be cancelled if MODE, FAN SPEED or ON/OFF button is pressed.

5 TURBO Button

Active/Disable Turbo function. Turbo function enables the unit to reach the preset temperature at cooling or heating operation in the shortest time(if the indoor unit does not support this function, there is no corresponding operation happened when pressing this button.)

UP Button(🔺)

Push this button to increase the indoor temperature setting in 1°C increments to 30°C.

DOWN Button(🔶)

Push this button to decrease the indoor temperature setting in 1°C increments to 17°C. <u>NOTE:</u> Temperature contol is not available in Fan mode.

SHORTCUT Button

- Used to restore the current settings or resume previous settings.
- On the first time connecting to the power, if push the SHORTCUT button, the unit will operate on AUTO mode, 26°C, and fan speed is Auto.
- Push this button when remote controller is on, the system will automatically revert back to the previous settings including operating mode, setting temperature, fan speed level and sleep feature(if activated). If pushing more than 2 seconds, the system
- will automatically restore the current operation settings including operating mode, setting temperature, fan speed level and sleep feature(if activated).

TIMER ON Button

Press this button to initiate the auto-on time sequence. Each press will increase the auto-timed setting in 30 minutes increments. When the setting time displays 10.0, each press will increase the autotimed setting 60 minutes increments. To cancel the auto-timed program, simply adjust the auto-on time to 0.0.

IIMER OFF Button

Press this button to initiate the auto-off time sequence. Each press will increase the auto-timed setting in 30 minutes increments. When the setting time displays 10.0, each press will increase the auto-timed setting 60 minutes increments. To cancel the auto-timed program, simply adjust the auto-off time to 0.0

Swing Button

Used to stop or start vertical louver movement and set the desired left/right air flow direction. The vertical louver changes 6 degree in angle for each press. And the temperature display area of indoor unit displays ' ++ ' for one second. If keep pushing more than 2 seconds, the vertical louver swing feature is activated. And the display area of indoor unit displays (IIII), flashes four times, then the temperature setting reverts back. If the vertical louver swing feature is stopped, it displays 'LC ' and remains on for 3 seconds.

NOTE: For some units, the indoor units display '**Dn**' when the swing feature is activated, and display '**DF**' when the swing feature is stopped.

Swing Sutton

Used to stop or start horizontal louver movement or set the desired up/down air flow direction. The louver changes 6 degree in angle for each press. If keep pushing more than 2 seconds, the louver will swing up and down automatically.

LED Button

Disable/Active indoor screen Display. When pushing the button, the indoor screen display is cleared, press it again to light the display.

Indicators on LCD

Information are displayed when the remote controller is powered up.



AUTO C	COOL	*	DRY 🍐		
HEAT	🔆 FAN	含			
?	Displayed when data transmitted.				
0	Displayed when remote controller is ON.				
	Battery display(low battery detection)				
ECO	Not available for this unit				
ON ON	Displayed when TIMER ON time is set.				
C OFF	Displayed when TIMER OFF time is set.				
8.8%	Show set temperature or room temperature, or time under TIMER setting.				
Ś	Displayed in Sleep Mode operation.				
0	Not available for this unit				
ø	Not available for this unit				
áł.	Not available for this unit				
Fan speed indication					
FAN	>>>	Low spe	eed		
	}}}	Medium	speed		
FAN	*****	High sp	eed		
FAN	OTUA	Auto far	n speed		

Note:

Mode display

All indicators shown in the figure are for the purpose of clear presentation. But during the actual operation only the relative functional signs are shown on the display window.

How to use the buttons



Auto operation

Ensure the unitis plugged in and power is available. The OPERATION indicator on the display panel of the indoor unit starts flashing. 1. Press the **MODE** button to select Auto.

- Press the UP/DOWN button to set the desired temperature. The temperature can be set within a range of 17°C~ 30°C in 1°C increments.
- 3. Press the **ON/OFF**button to start the air conditioner.

NOTE

- In the Auto mode, the air conditioner can logically choose the mode of Cooling, Fan, and Heating by sensing the difference between the actual ambient room temperature and the setting temperature on the remote controller.
- 2. In the Auto mode, you can not switch the fan speed. It has already been automatically controlled.
- 3. If the Auto mode is not comfortable for you, the desired mode can be selected manually.

How to use the buttons



0 DRY FAN AUTO (2) ON/OF (3) HOR TIME MODE (1)TEMP TIME (fan -SLEEP ¢ 0 TURBO LED

Cooling /Heating/Fan operation

Ensure the unitis plugged in and power is available.

- 1. Press the **MODE** button to select COOL, HEAT(cooling & heating models only) or FAN mode.
- Press the UP/DOWN buttons to set the desired temperature. The temperature can be set within a range of 17°C~ 30°C in 1°C increments.
- Press the FAN button to select the fan speed in four steps-Auto, Low, Med,or High.
 Press the ON/OFF button to start the air
- Press the ON/OFF button to start the air conditioner.

NOTE

In the FAN mode, the setting temperature is not displayed in the remote controller and you are not able to control the room temperature either. In this case, only step 1, 3 and 4 may be performed.

Dehumidifying operation

Ensure the unit is plugged in and power is available. The OPERATION indicator on the display panel of the indoor unit starts flashing. 1. Press the **MODE** button to select DRY mode.

- Press the **UP/DOWN** buttons to settled desired temperature. The temperature can be setwithin a range of 17°C~ 30°C in 1°C increments.
- Press the ON/OFF button to start the air conditioner.

NOTE

In the Dehumidifying mode, you can not switch the fan speed. It has already been automatically controlled.

Adjusting air flow direction

Use the SWING **♦** & **♦** button to adjust the desired airflow direction.

- Up/Down direction can be adjusted with the
 button on the remote controller. Each time when you press the button, the louver moves an angle of 6 degree. If pressing more than 2 seconds ,the louver will swing up and down automatically.
- Left/Right direction can be adjusted with the ◆ button on the remote controller. Each time when you press the button, the louver moves an angle of 6 degree. If pressing more than 2 seconds ,the louver will swing up and down automatically.
- **NOTE:** When the louver swing or move to a position which would affect the cooling or heating effect of the air conditioner, it would automatically change the swing/moving direction.



Timer operation

Press the TIMER ON button can set the auto-on time of the unit. Press the TIMER OFF button can set the auto-off time of the unit.

To set the Auto-on time.

- Press the TIMER ON button. The remote controller shows TIMER ON, the last Auto-on setting time and the signal "H" will be shown on the LCD display area. Now it is ready to reset the Auto-on time to START the operation.
- 2. Push the TIMER ON button again to set desired Auto-on time. Each time you press the button, the time increases by half an hour between 0 and 10 hours and by one hour between 10 and 24 hours.
- 3. After setting the TIMER ON ,there will be a one second delay before the remote controller transmits the signal to the air conditioner. Then, after approximately another 2 seconds, the signal "h" will disappear and the set temperature will re-appear on the LCD display window.

To set the Auto-off time.

- Press the TIMER OFF button. The remote controller shows TIMER OFF, the last Auto-off setting time and the signal "H" will be shown on the LCD display area. Now it is ready to reset the Auto-off time to stop the operation.
- Push the TIMER OFF button again to set desired Auto-off time. Each time you press the button, the time increases by half an hour between 0 and 10 hours and by one hour between 10 and 24 hours.
- 3. After setting the TIMER OFF ,there will be a one second delay before the remote controller transmits the signal to the air conditioner. Then, after approximately another 2 seconds, the signal "H " will disappear and the set temperature will re-appear on the LCD display window.

ACAUTION

- When you select the timer operation, the remote controller automatically transmits the timer signal to the indoor unit for the specified time. Therefore, keep the remote controller in a location where it can transmit the signal to the indoor unit properly.
- The effective operation time set by the remote controller for the timer function is limited to the following settings: 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 and 24.

Example of timer setting



TIMER ON (Auto-on Operation)

The TIMER ON feature is useful when you want the unit to turn on automatically before you return home. The air conditioner will automatically start operating at the set time.

Example:

To start the air conditioner in 6 hours.

- Press the TIMER ON button, the last setting of starting operation time and the signal "H" will show on the display area.
- 2. Press the TIMER ON button to display "6.0H " on the TIMER ON display of the remote controller.
- 3. Wait for 3 seconds and the digital display area will show the temperature again. The "TIMER ON" indicator remains on and this function is activated.



Set 10 hours later









TIMER OFF (Auto-off Operation)

The TIMER OFF feature is useful when you want the upit to turn off automatically after you go to bed. The

unit to turn off automatically after you go to bed. The air conditioner will stop automatically at the set time.

Example:

- To stop the air conditioner in 10 hours.
- Press the TIMER OFF button, the last setting of stopping operation time and the signal "H" will show on the display area.
- 2. Press the TIMER OFF button to display "10H " on the TIMER OFF display of the remote controller.
- 3. Wait for 3 seconds and the digital display area will show the temperature again. The "TIMER OFF" indicator remains on and this function is activated.

COMBINED TIMER

(Setting both ON and OFF timers simultaneously)

TIMER OFF → TIMER ON

 $(On \rightarrow Stop \rightarrow Start operation)$

This feature is useful when you want to stop the air conditioner after you go to bed, and start it again in the morning when you wake up or when you return home.

Example:

To stop the air conditioner 2 hours after setting and start it again 10 hours after setting.

- 1. Press the TIMER OFF button.
- 2. Press the TIMER OFF button again to display 2.0H on the TIMER OFF display.
- 3. Press the TIMER ON button.
- 4. Press the TIMER ON button again to display 10H on the TIMER ON display .
- 5. Wait for 3 seconds and the digital display area will show the temperature again. The "TIMER ON OFF" indicator remains on and this function is activated.

TIMER ON → TIMER OFF

 $(Off \rightarrow Start \rightarrow Stop operation)$ This feature is useful when you want to start the air conditioner before you wake up and stop it after you leave the house.

Example:

To start the air conditioner 2 hours after setting, and stop it 5 hours after setting.

- 1. Press the TIMER ON button.
- 2. Press the TIMER ON button again to display 2.0H on the TIMER ON display.
- 3. Press the TIMER OFF button.
- 4. Press the TIMER OFF button again to display 5.0H on the TIMER OFF display .
- 5. Wait for 3 seconds and the digital display area will show the temperature again. The "TIMER ON & TIMER OFF" indicator remains on and this function is activated.

Handling the remote controller





Location of the remote controller.

• Use the remote controller within a distance of 8 meters from the appliance, pointing it towards the receiver. Reception is confirmed by a beep.

- The air conditioner will not operate if curtains, doors or other materials block the signals from the remote controller to the indoor unit.
- Prevent any liquid from falling into the remote controller. Do not expose the remote controller to direct sunlight or heat.
- If the infrared signal receiver on the indoor unit is exposed to direct sunlight, the air conditioner may not function properly. Use curtains to prevent the sunlight from falling on the receiver.
- If other electrical appliances react to the remote controller, either move these appliances or consult your local dealer.
- Do not drop the remote controller. Handle with care.
 Do not place heavy objects on the remote controller, or step on it.

Using the remote controller holder(optional)

- The remote controller can be attached to a wall or pillar by using a remote controller holder(not supplied, purchased separately).
- Before installing the remote controller, check that the air conditioner receives the signals properly.
- Install the remote controller with two screws.
- For installing or removing the remote controller, move it up or down in the holder.



Replacing batteries

The following cases signify exhausted batteries. Replace old batteries with new ones.

- Receiving beep is not emitted when a signal is transmitted.
- Indicator fades away.

The remote controller is powed by two dry batteries (R03/LR03X2) housed in the back rear part and protected by a cover.

(1) Remove the cover in the rear part of the remote controller.

(2) Remove the old batteries and insert the new batteries, placing the(+) and (-) ends correctly.(3) Install the cover back on.

NOTE: When the batteries are removed, the remote controller erases all programming. After inserting new batteries, the remote controller must be reprogrammed.

ACAUTIONS

- Do not mix old and new batteries or batteries of different types.
- Do not leave the batteries in the remote controller if they are not going to be used for 2 or 3 months.
- Do not dispose batteries as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.

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