

A I R C O N D I T I O N I N G S Y S T E M S

Models: RFI-66
RFO-66

Floor Standing Unit

Owner's Manual



66129903853

Thank you for choosing
INVENTOR air conditioning
system. For correct use of
this unit, please read this
manual carefully and keep it
for future reference.

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● NOTES PRIOR TO USE

Power supply requirements:

1. Capacity of power supply must be at least 10kw, cross section area of copper core wires must be at least 2.5mm². Please discuss with the local dealer or professional technician for details.
2. The air conditioner must be safely earthed! Earth wire must be connected to special device of the building instead of water pipe or gas pipe.
3. Wiring must be done by special technician according to relevant electrical safety rules and regulations.
4. In fixed circuit, there must be electricity leakage protection switch of enough power capacity and air switch with enough space.
5. Shut down power supply when not using the air conditioner.

Safety requirements:

- Please read this manual carefully prior to using the air conditioner and contact your local dealer or designated service center for help if there are any questions or problems.
- The air conditioner is only suitable for purposes described in this manual.
- NEVER use or store petrol or other inflammable gas or liquid near the air conditioner that's very dangerous!
- The air conditioner is not equipped with a device to bring in fresh air from outdoors, so when you are using a heater fueled by gas or petrol in the same room, please open the door or window regularly, as such kind of heater will consume oxygen in the air and may cause people to feel uncomfortable for lack of oxygen.

WARNING

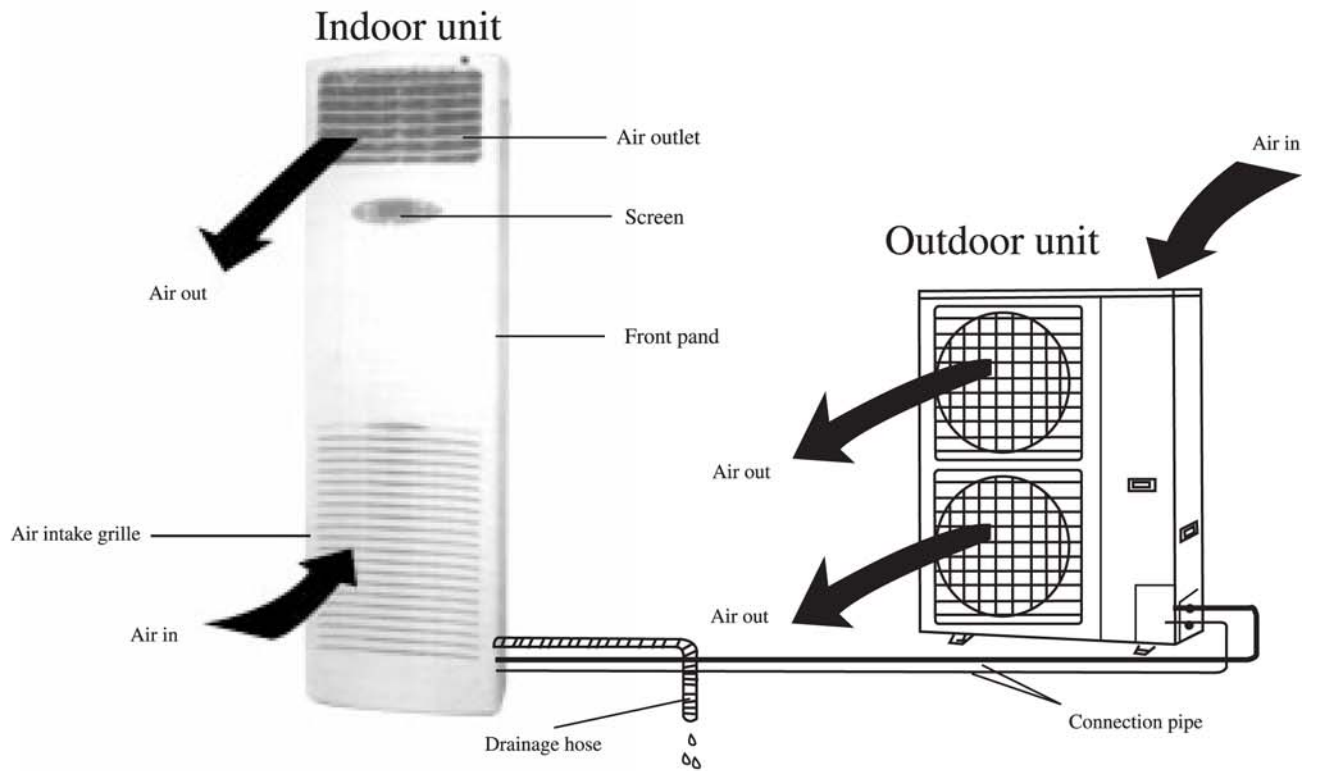
BE CAREFUL

- Don't start or stop the air conditioner by turning the power supply on or off and please press the ON/OFF key instead.
- Don't insert anything into the air intake grille or the air outlet.
- Don't let young children operate the air conditioner.
- If there are young children or sick people in the room, please readjust the set temperature accordingly.

Working temperature range

Working conditions	Temp.	Indoor temperature	Outdoor temperature
Heating	Max.	27°C dry bulb	24°C dry bulb / 18°C wet bulb
	Min.	20°C dry bulb	-5°C dry bulb / -6°C wet bulb

● STRUCTURE

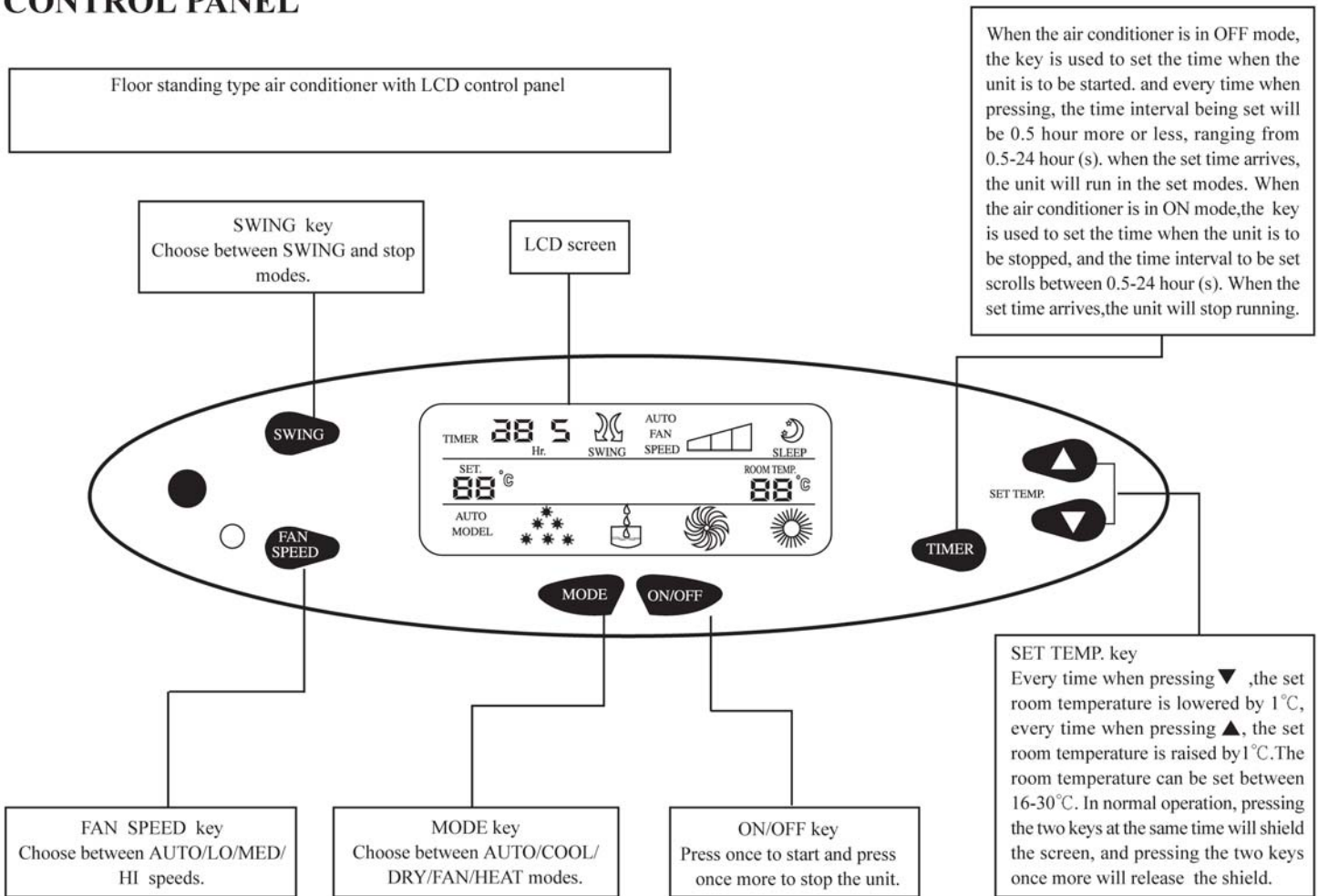


MODELS & SPECIFICATIONS

Model	RFI-66/RFO66
Functions	Cool Heat
Cooling capacity (W)	17585
Heating capacity (W)	19343+3500
Power supply	380-415V 3N~ 50Hz
Input power (W)	6400/6200(9700)
Air flow volume (m ³ /h)	2000
Refrigerant	R410A 5.0
Noise (in/out) dB(A)	58/63
Climate	T1
Water resistance level	IP24
Isolation	I
Weight (in/out) (kg)	60/115
Dimension(in/out) (W×H×D)(mm)	Indoor:540 × 1750 × 380
	Outdoor:950 × 1250 × 412

All above should be changed without notice, there are latest and accurate specifications on the nameplate of your air conditioner.

● CONTROL PANEL



SPECIAL FUNCTIONS:

Test function:

Every time when the unit is plugged on and there is not any key signal is accepted:

- (1) Press SET TEMP. key ▲ to enter forced cooling mode, the compressor starts and the unit is in auto swing mode, indoor and outdoor fans run at high speed. LCD displays all symbols. Five minutes later, the unit stops and enter normal waiting mode.
- (2) Press SET TEMP. key ▼ to enter forced heating mode, the compressor and supplementary electric heater starts and the unit is in auto swing mode, indoor and outdoor fans run at high speed. LCD displays all symbols. Five minutes later, the unit stops and enter normal waiting mode.

Compressor running protection function:

In all modes, compressor needs 3 minutes to restart once it has been stopped; if there is no changes in mode, the compressor will keep running for 6 minutes before it can be stopped. Between changes of modes, compressor will stop for 3 minutes.,

Shielded screen function:

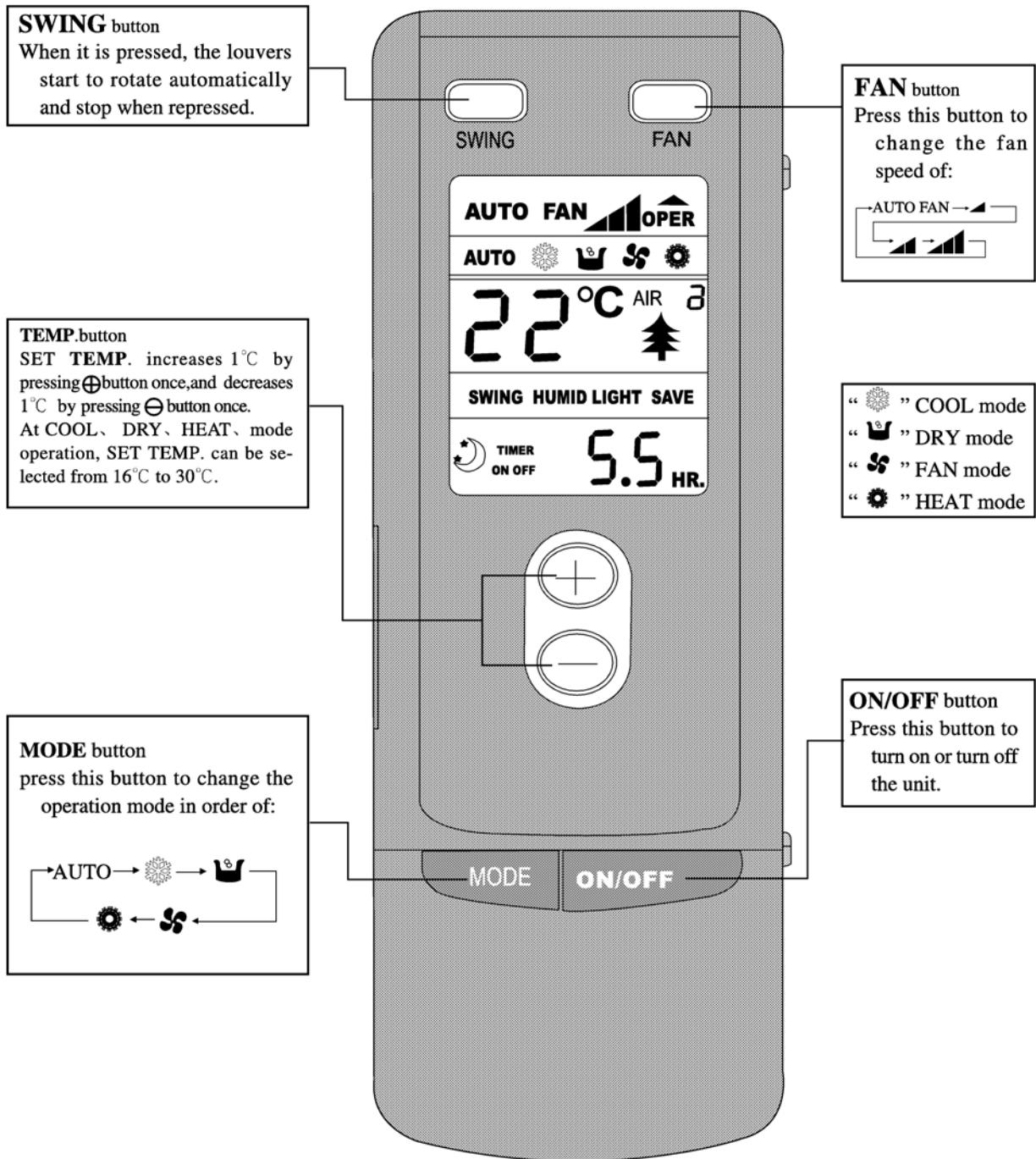
In normal running, pressing the two SET TEMP. keys ▲ and ▼ at the same time will shield all functions of keys on the screen, pressing the two key simultaneously once more will release the shield.

Remote controller for operation procedure

● Names and Functions of buttons

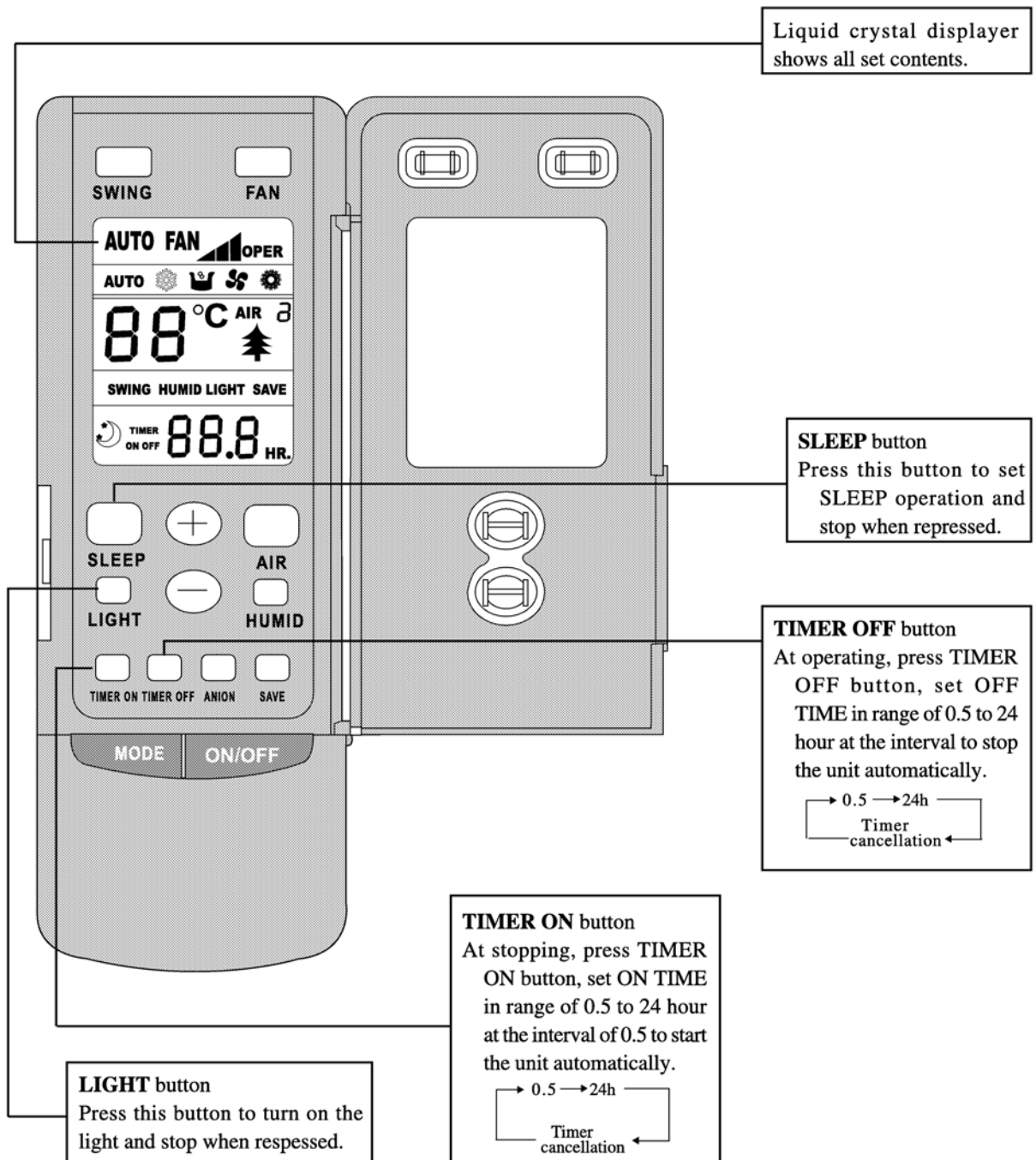
Note:

- Be sure that there are no obstructions between receiver and remote controller.
- Don't drop or throw the remote controller.
- Don't let any liquid in the remote controller and put the remote controller directly under the sunlight or any place where it is very hot.



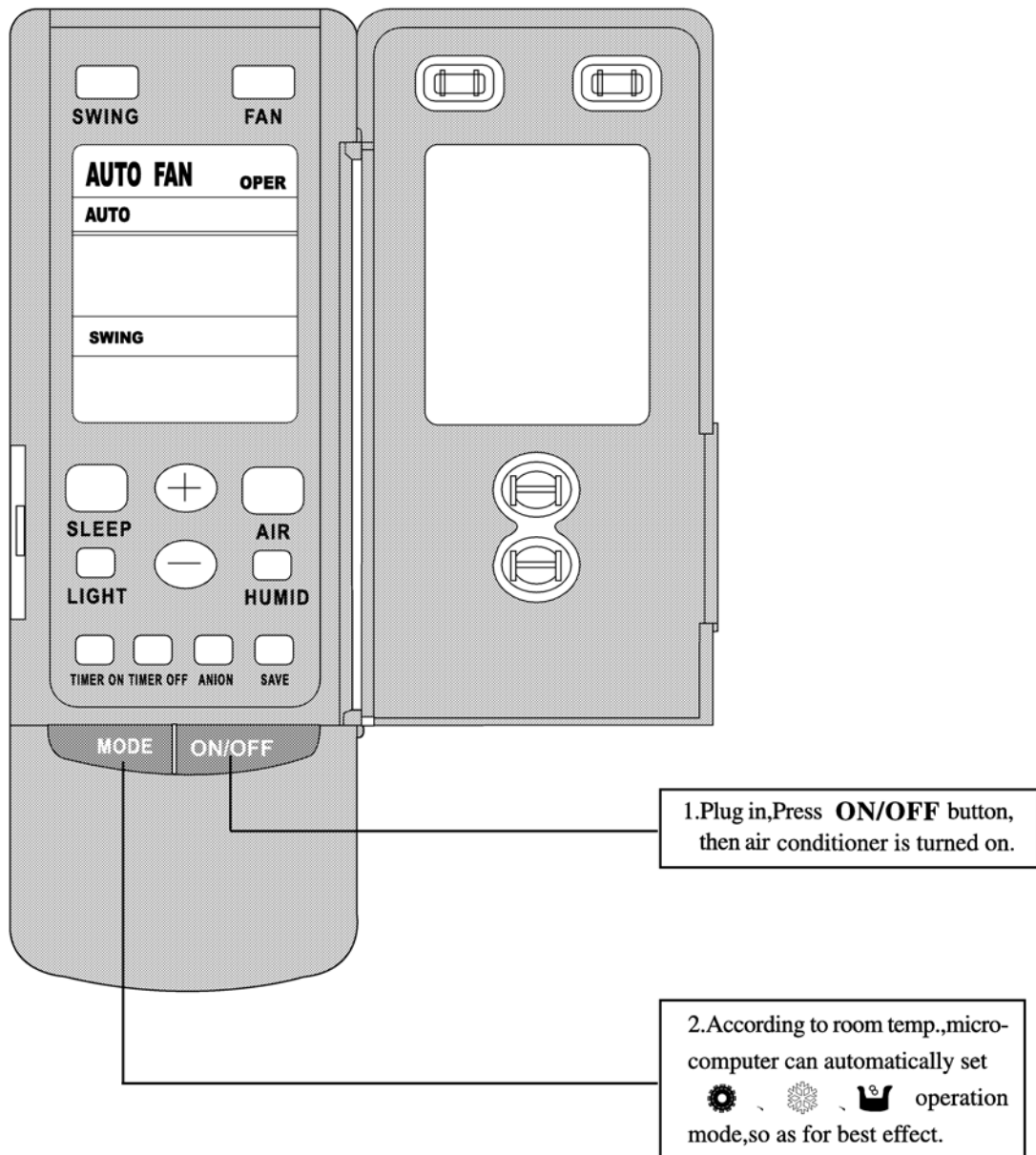
● Names and functions of buttons(with cover opened)

Note:• Functions of buttons not applicable to models described in this manual are not explained below.



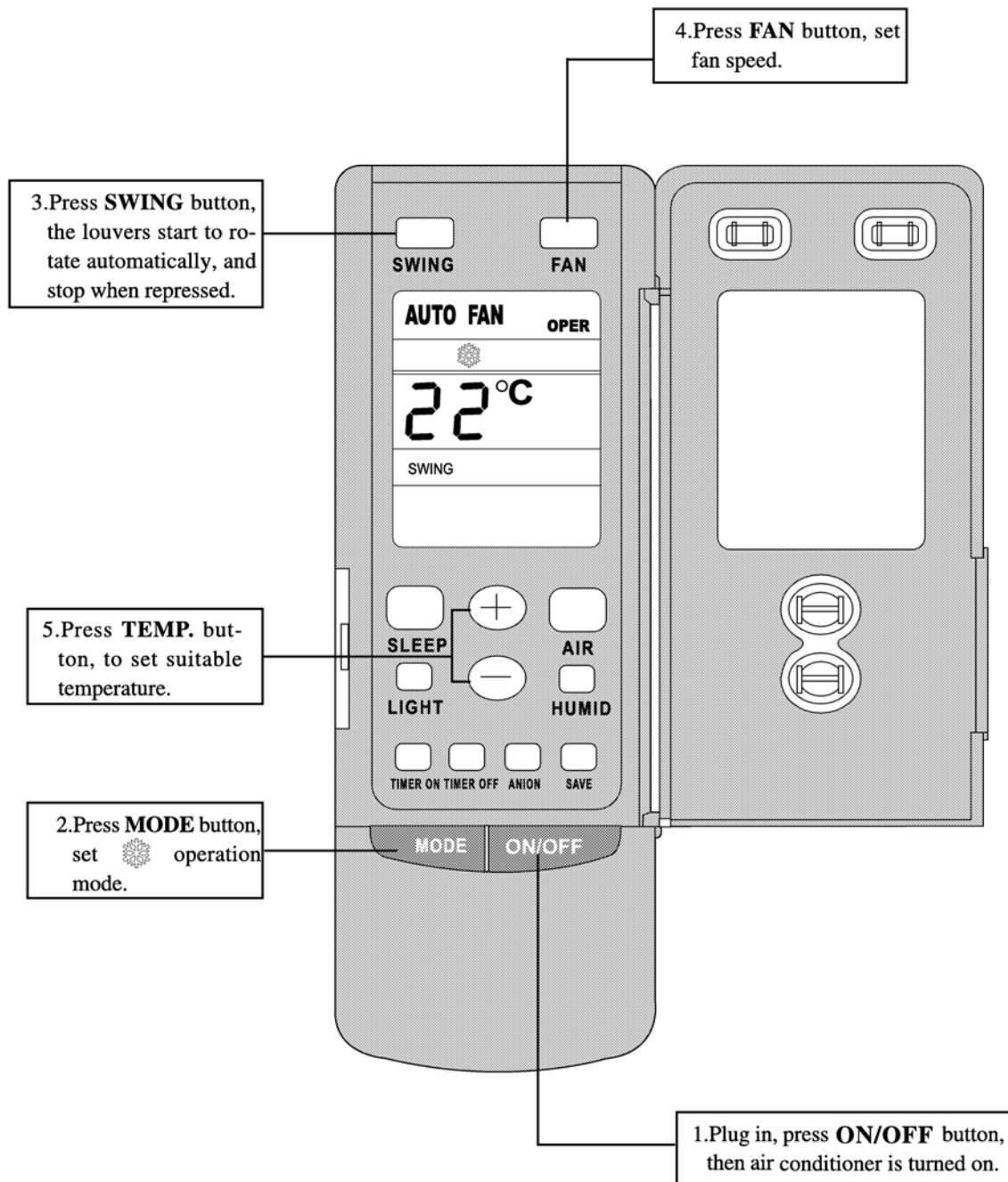
● AUTO mode operation procedure

- In Auto mode operation, standard SET TEMP. is 26°C for COOL mode, 20°C for HEAT mode and 24°C for DRY mode.



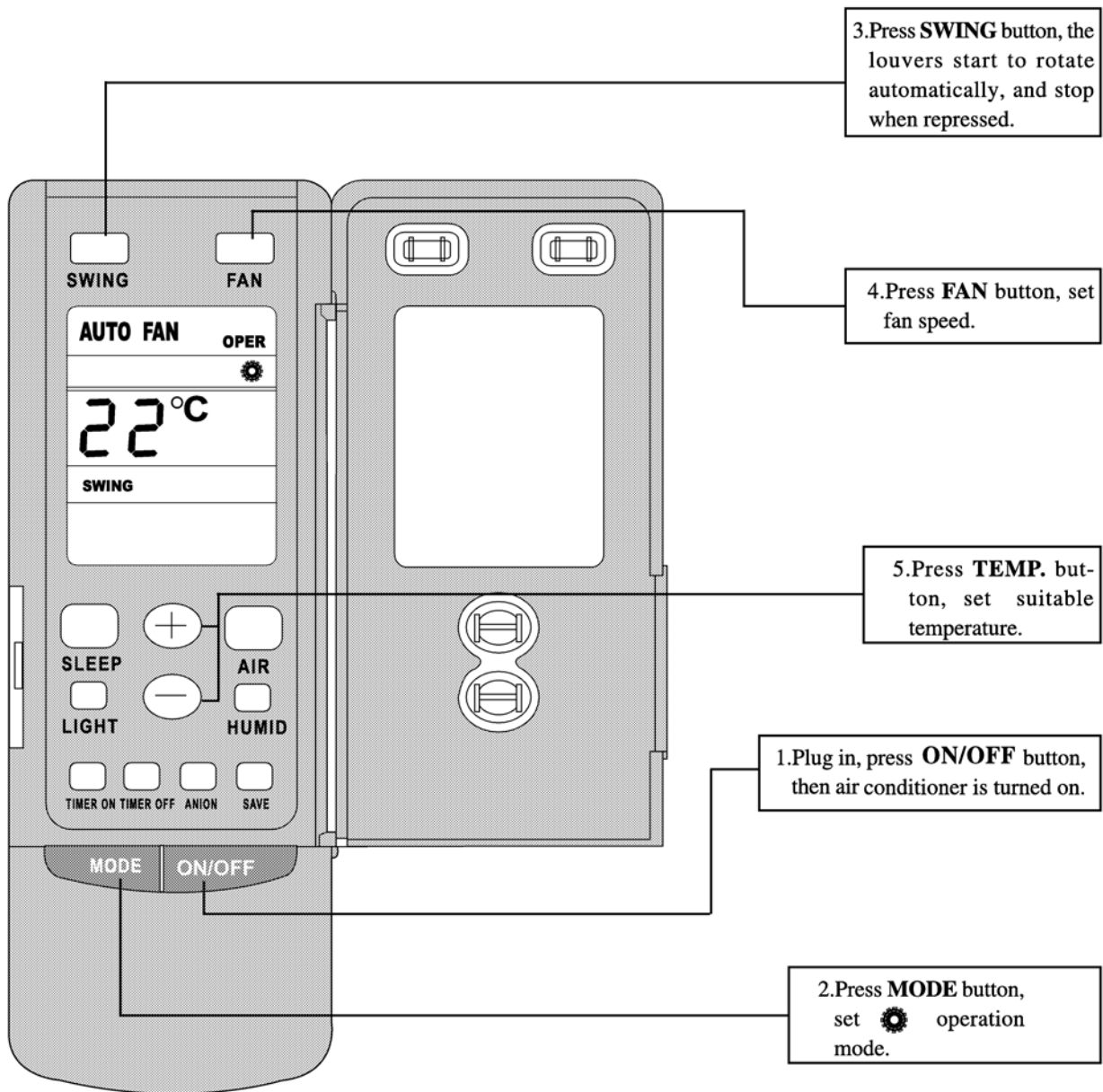
● COOL mode operation procedure

- According to difference between room temp. and set temp., microcomputer can control cooling on or not.
- If room temp. is higher than set temp.+1°C, compressor runs at COOL mode.
- If room temp. is lower than set temp.-1°C, compressor stops and only indoor fan motor runs.
- SET TEMP. should be in range of 16°C to 30°C .



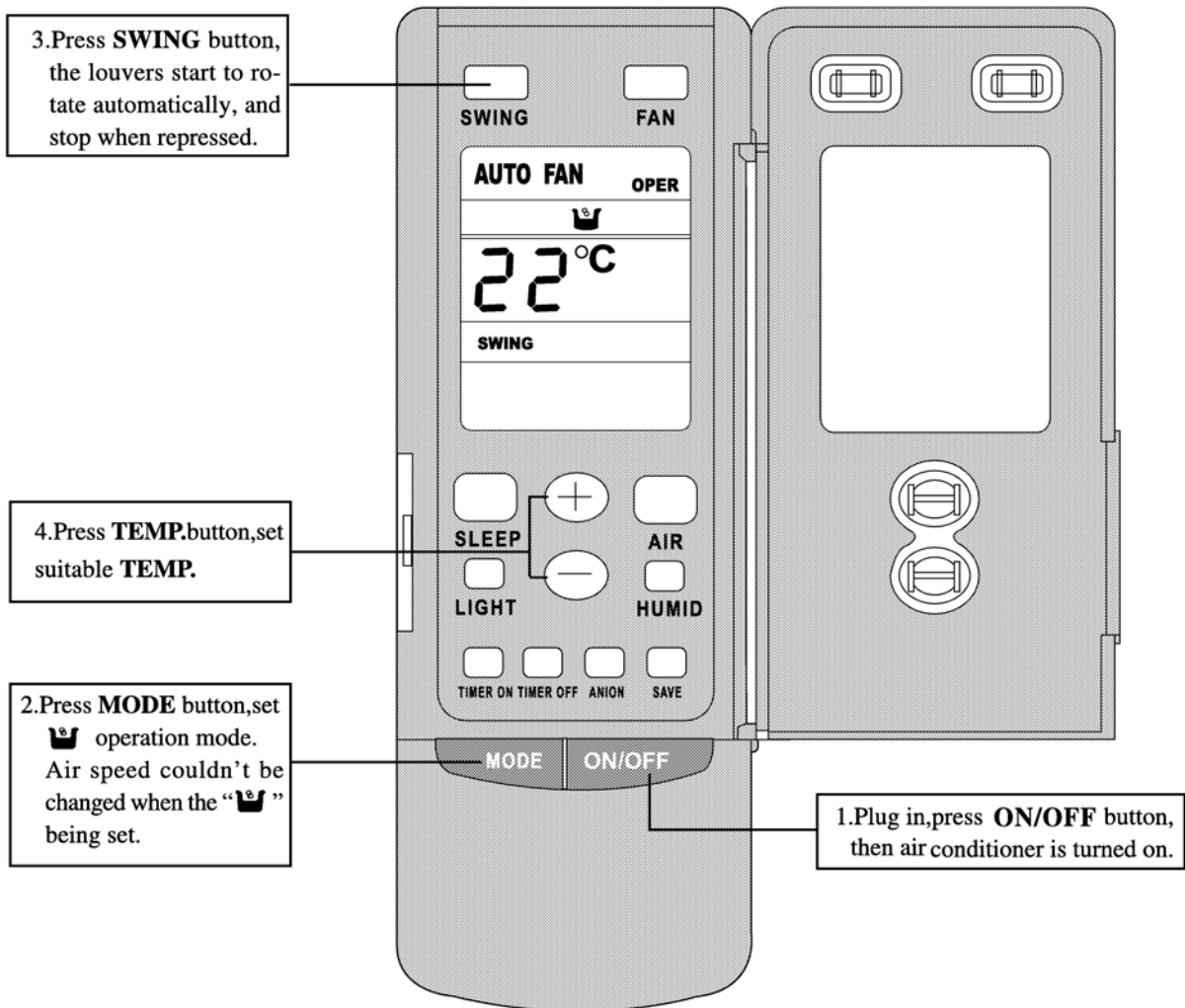
● HEAT mode operation procedure(for cooling/heating type units)

- If room temp. is lower than set temp.-1°C, compressor runs at HEAT mode;
- If room temp. is higher than set temp.+1°C, compressor, outdoor and indoor fan motors stop.
- SET TEMP. should be in range of 16°C to 30°C .

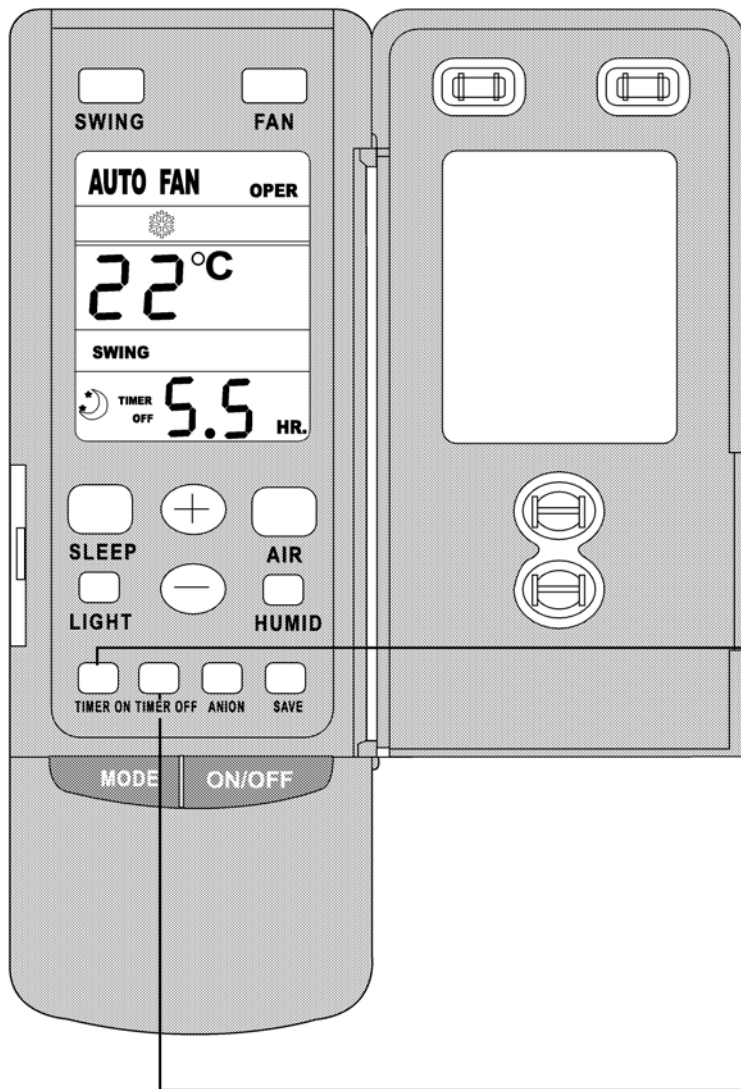


● DRY mode operation procedure

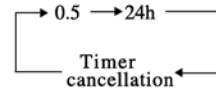
- If room temp. is lower than set temp. -2°C , compressor ,outdoor and indoor fan motors stop. If room temp. is between $\pm 2^{\circ}\text{C}$ of set temp., Air conditioner is drying.If room temp. is higher than set temp., $+2^{\circ}\text{C}$, it's at COOL mode. The indoor fan motor runs at Low fan speed.
- SET TEMP. should be in range of 16°C to 30°C .



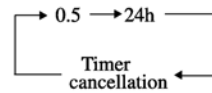
● **TIMER mode operation procedure**



TIMER ON button
At stopping, press **TIMER ON** button, set **ON TIME** in range of 0.5 to 24 hour at the interval to start the unit automatically.

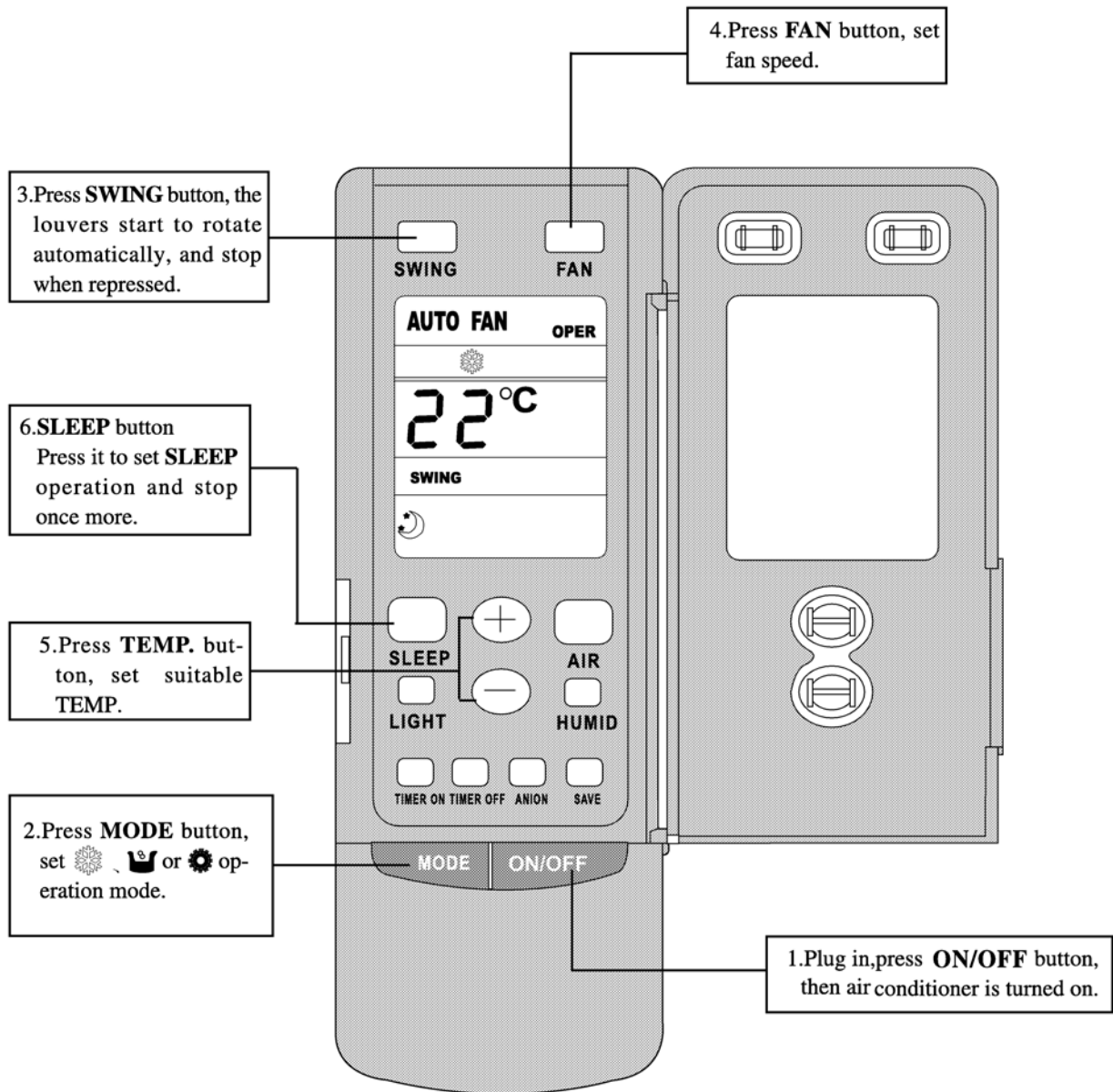


TIMER OFF button
At operating, press **TIMER OFF** button, set **OFF TIME** in range of 0.5 to 24 hour at the interval to stop the unit automatically.



● SLEEP mode operation procedure

- When the unit is cooling or drying, if SLEEP operation is set, SET TEMP. would increase 1°C in 1 hour and 2°C in 2 hours.
- When the unit is heating, if SLEEP operation is set, SET TEMP. would decrease 1°C in 1 hour and 2°C in 2 hours.

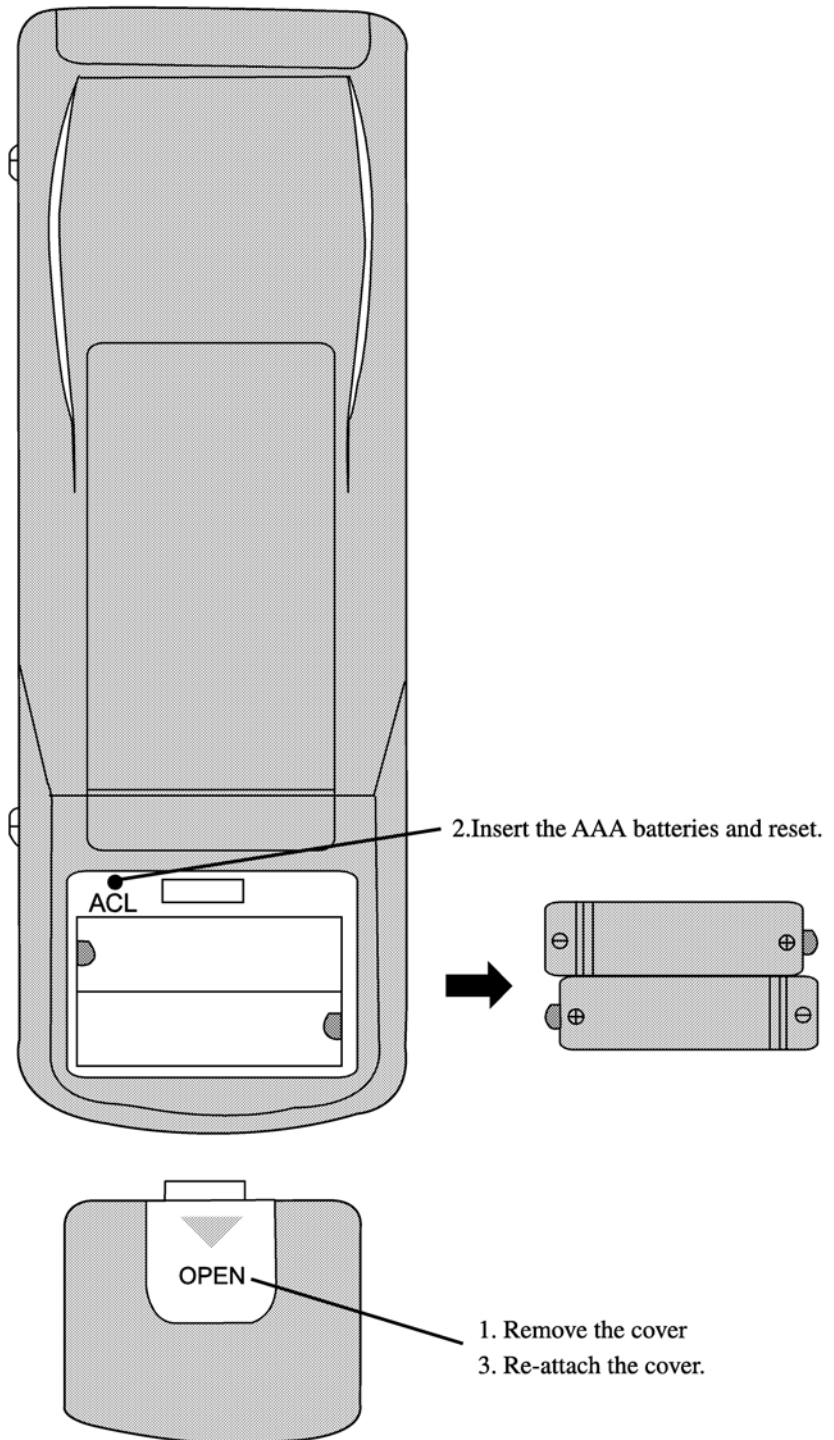


● How to insert batteries

1. Remove the cover from the back of the remote controller.
2. Insert the two batteries (Two AAA dry - cell batteries) and press button "ACL".
3. Re - attach the cover.

NOTE:

- Don't mix new and used or different types of batteries.
- Remove batteries away when the remote controller is not in use for a long time.
- The remote controller must be operated within the unit's signal receiving range.
- The remote controller should be placed about 1m or more away from a TV set.



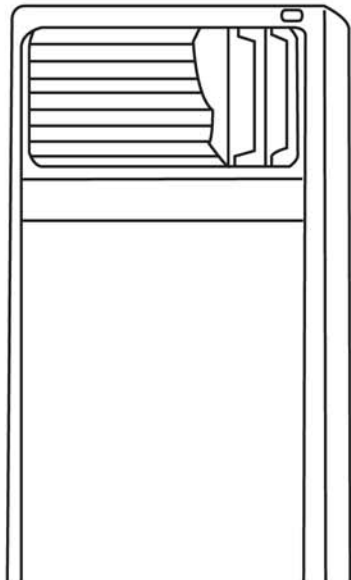
MAINTENANCE

● Breeze Guided

1. Breeze guided left and right

- * Press SWING key on control panel to choose SWING and END SWING, then the swing louvers will swing left and right or stop swinging and breeze from a fixed direction.
- * Every time when pressing SWING, "SWING" will appear on LCD, if indoor fan is already working, then swing motor will start and breeze left and right; press the key once more, "SWING" disappears from LCD, swing motor stops, the louvers stop swinging and breeze from a fixed direction.

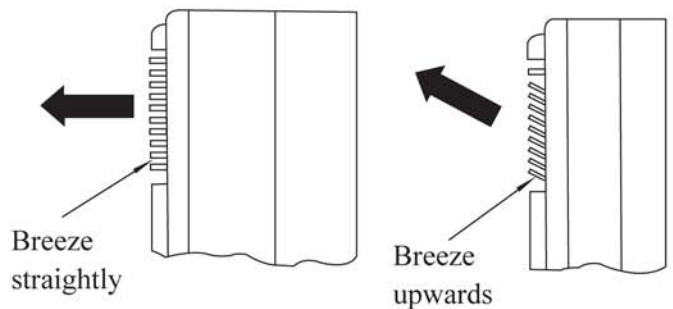
Swing louvers
(guide wind breeze
horizontally).



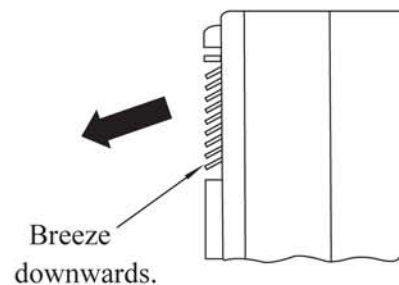
2. Breeze guided up and down

Readjust breezing angles of air louvers with hands. Hold two ends of the louvers with both hands when doing the readjustment. When cooling and drying, set to breeze straightly or upwards; when heating, set to breeze downwards.

- When cooling and drying, set to breeze straightly or upwards



- When heating, set to breeze downwards.



● Care and maintenance

Cleaning unit

1. Cut power off before cleaning

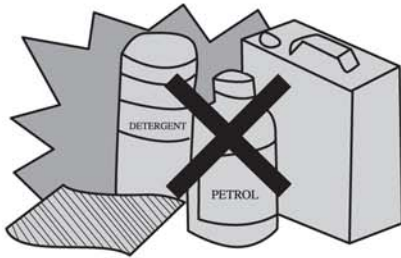
Plug out only after air conditioner stops at all.

2. Use soft cloth when cleaning cabinet.

If the cabinet is very dirty, dip cloth into warm water below 40°C, dry the cloth and then rub off the dirt.



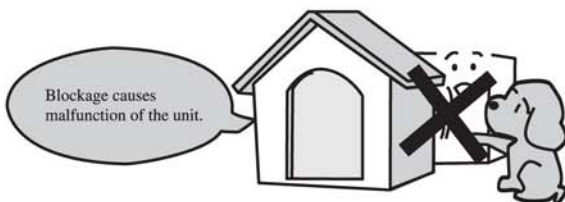
3. Don't use acid and alkaline solution to clean.



4. Don't spray water on indoor unit



* Make sure there is nothing blocking the air in and out of the outdoor unit.

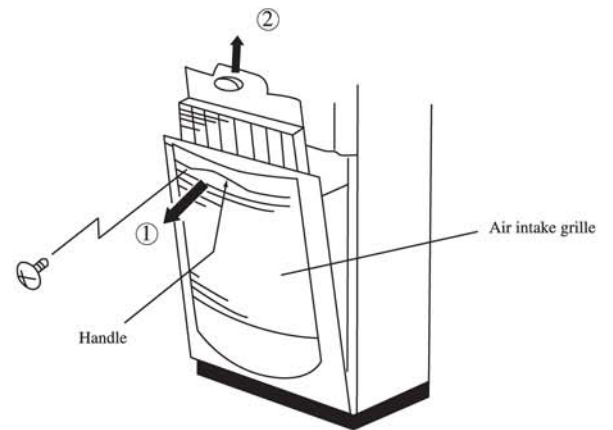


Cleaning the air filter

Air filter should be cleaned every two weeks

Removing air filter

- Make sure that the A/C has been turned off.
- Remove screw from handle of air intake grille.
- Pull out air intake grille by the handle towards direction.
- Air filter is attached to the air intake grille. Pull out the filter towards direction.



Cleaning

- Clean by patting the filter softly or use an electric vacuum. If too much accumulated on the filter, use water with containing some neutral detergent to clean, then wash with tap water. Dry after cleaning and put it back into place.

Note

- Do not dry the filter by exposing it under direct sunshine or near a heating oven, or it may get deformed.
- The filter may get deformed when it is cleaned with hot water (above 50°C).

● Trouble shooting

If your air conditioner is not working properly, please check the following before asking for help. After checking the following point and the A/C is still not working normally, please contact the nearest service center to examine it.

Troubles	Possible Causes	Solution
The A/C does not start	<ol style="list-style-type: none"> 1. No power 2. Electricity leakage switch shut down 3. Voltage too low 4. Operation key turned off 5. Controlling circuit troubles 	<ol style="list-style-type: none"> 1. Connect to power supply 2. Contact service center 3. Contact electrician or dealer 4. Press Operation key again 5. Contact service center
The A/C stops soon after started, screen displays "E1"	<ol style="list-style-type: none"> 1. Blocking in front of condenser 2. Controlling circuit troubles 3. Cooling operation when outdoor temp. is above 43°C 4. The tube pressure is too high. 	<ol style="list-style-type: none"> 1. Clear blocking 2. Contact service center 3. Put outdoor unit at shady place 4. Contact service center
The A/C stops soon after started, screen displays "E2"	<ol style="list-style-type: none"> 1. Indoor fan motor doesn't work or air outlet get blocked 2. Indoor temp. is below 18°C 3. Wire of tube temp. sensor broken 4. Tube temp. sensor not in place 5. Controlling circuit troubles 6. Electricity leakage of capacitor 	<ol style="list-style-type: none"> 1. Contact service center 2. Check if there is the need to turn on the A/C 3. Contact service center 4. Fit tube temp. sensor into place 5. Contact service center 6. Contact service center
TEMP. indicates 0°C and the COOL mode is not working	<ol style="list-style-type: none"> 1. Wire of room temp. sensor broken 2. room temp. sensor not in place 3. Electricity leakage of capacitor 	<ol style="list-style-type: none"> 1. Connect wire of room temp. sensor 2. Fit room temp. sensor into place 3. Contact service center
Poor cooling performance	<ol style="list-style-type: none"> 1. Air filter is too dirty or get clogged 2. There are too many people or heating sources in the room 3. Door or window opened 4. Air in/out is blocked 5. Set temp. too high 6. Leakage of refrigerant 7. Poor performance of room temp. sensor 	<ol style="list-style-type: none"> 1. Clean air filter 2. Clear heating sources if possible 3. Close door and window 4. Clear blocking to insure free air flow 5. Set lower temp. 6. Contact service center 7. Replace room temp. sensor
Poor heating performance	<ol style="list-style-type: none"> 1. Air filter is too dirty or get clogged 2. Door or window opened 3. Set temp. too low 4. Leakage of refrigerant 5. Outdoor temp. below -5°C 6. Controlling circuit troubles 	<ol style="list-style-type: none"> 1. Clean air filter 2. Close door and window 3. Set higher temp 4. Contact service center 5. Heating performance is affected 6. Contact service center
The A/C stops soon after started, screen displays "E3".	<ol style="list-style-type: none"> 1. Leakage of refrigerant 2. Controlling circuit troubles 	<ol style="list-style-type: none"> 1. Contact service center 2. Contact service center
The A/C stops soon after started, screen displays "E4".	<ol style="list-style-type: none"> 1. Leakage of refrigerant 2. Controlling circuit troubles 3. wire of sensor broken 4. Voltage is too low 	<ol style="list-style-type: none"> 1. Contact service center 2. Contact service center 3. Contact service center 4. Contact service center

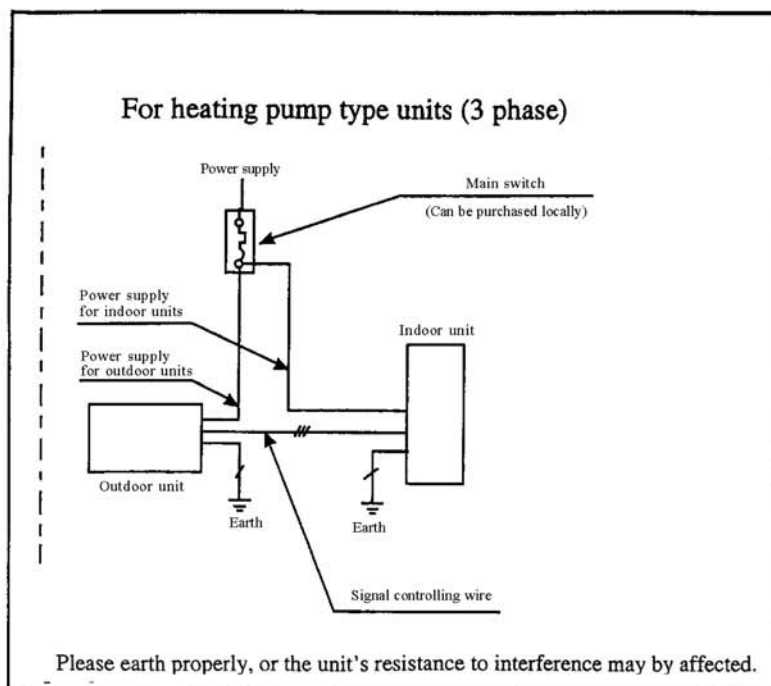
INSTALLATION

● Electric wiring

- Please read this manual carefully before installation.
- Please strictly follow the instructions of this manual when installing indoor unit and its piping.
- First install wire of outdoor unit and then wire of indoor unit. After finishing wiring and piping, connect the unit to the power supply.
- Design of the unit is subject to change without prior notice.

Wiring Example		
Model		RFI-66/RFO66
Power supply		380-415V 3N~50Hz
Input capacity	Air switch	25A
Lines	Cross section area of power cord (mm ²)	2.5/1.5
	Minimum cross section area of indoor/outdoor power connecting cable (mm ²)	/
<p>Note:</p> <ol style="list-style-type: none"> 1. Please pay attention to surrounding conditions (eg. ambient temperature, direct sun shine, rain drops etc.). 2. When the voltage declines, please use thicker power conducting wires. 3. Earth wire must be connected to both of indoor and outdoor units. 4. Data listed in this table is for reference only, and please do the wiring according to relevant government rules and regulations. 		

- Special circuit must be used for power supply.
- The circuit must be installed by special serviceman.
- Please do the wiring according to the following wiring diagram. The screws must be tightly fastened.
- Connecting wire and power conducting wire between the indoor/outdoor units must be properly arranged so that they do not touch each other.
- Please connect the power phase correctly. If the connection is wrong, the unit will stop automatically in such case, exchange the connection of two of the three phasewires and the air conditioner can work normally again.



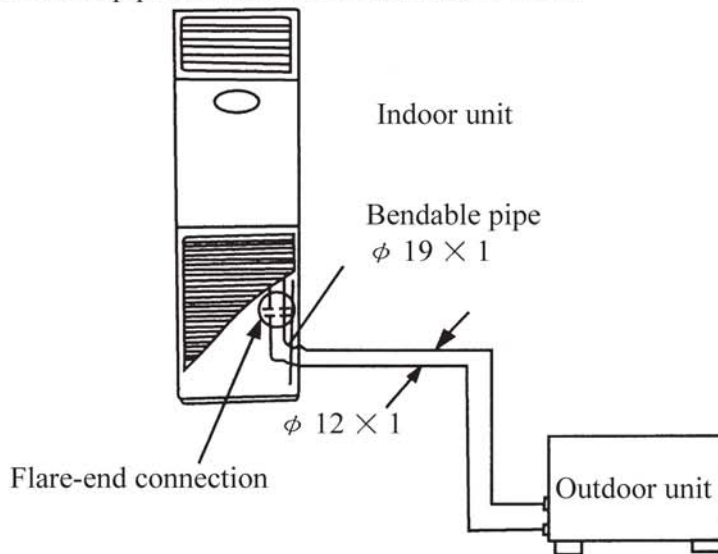
● Notes for piping

Pipes for refrigerant and drainage should be insulated to avoid frosting and dripping.

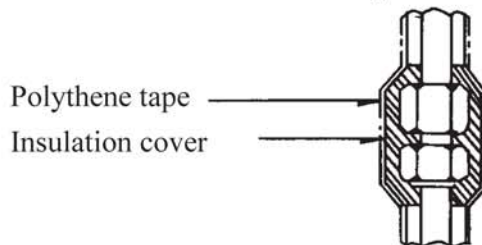
Both of the indoor and outdoor units adopt flare-end connection.

Refrigerant pipe as shown below is used to connect indoor and outdoor units.

Note: Don't bend the bendable pipe back and forth more than 3 times.



Note: Insulate all exposed parts of the flare-end connection joint and the refrigerant pipe.



1. Connecting the pipe

Check valve of the outdoor unit should be shut (like position unworking). Every time when connecting, remove bonnet from the check valve and connect to flare-end pipe immediately (within five minutes), otherwise dust, moisture and other small things may go into the pipe and cause troubles.

About the bendable pipe

- The part with bendable pipe should be used on the indoor side.
- The bending angle should not be more than 90.
- It's better for the bend to be in the middle of the pipe, and the radius of the bend is the bigger the better.
- Don't bend the bendable pipe more than three times.

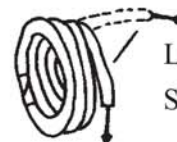
When bending the pipe

- Cut some part of the insulation pipe at the place of the bend (and wrap with polythene tape after bending)
- Make radius of the bend as big as possible so that the pipe will not get flat or broken.

Bend the pipe with thumb



Minimum radius: 100mm



Loosen the roll of pipe
Straighten end of pipe

2. When using copper pipe bought locally

Check valve of the outdoor unit should be shut (like position unworking). After the refrigerant pipe has been connected to both indoor and outdoor units, exhaust from service mouth on low-pressure check valve of the outdoor unit. After exhausting, put back nut of the service mouth and fasten.

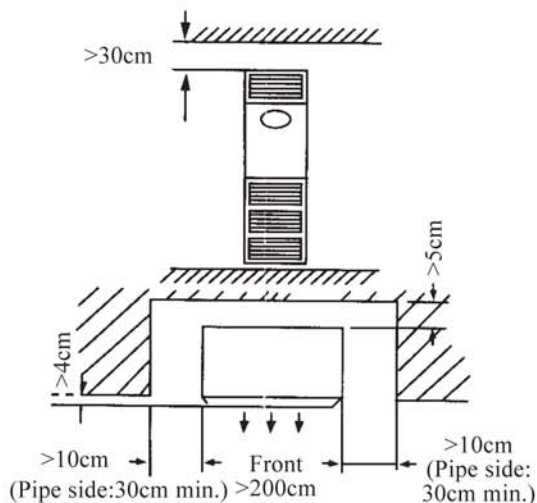
3. After finishing step 1 and 2, check valve of outdoor unit should be fully open so that there is not blockage between the indoor and outdoor refrigerant pipe.

Note: before fastening nut of the flare-end pipe, please apply some refrigerant oil to the end of the pipe and the joint.

● Installation of indoor unit

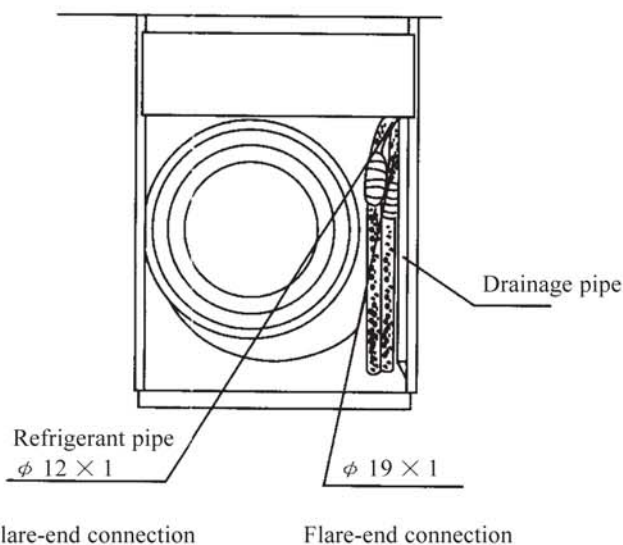
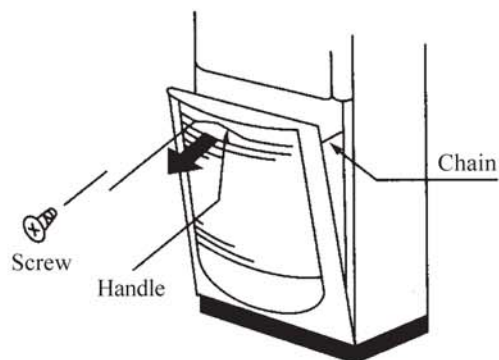
1. Choose a place

- Where it's least likely to be affected by outdoor air.
- Where free flow of air in and out of the unit will not be blocked.
- Where the refrigerant pipe can be easily lead outdoors.
- Where conditioned air can reach every corner of the room.
- Where there is not too much moisture and can not be easily splashed with oil.
- Where there inflammable gas is not likely to leak or stay.
- Choose a solid and even ground.
- Leave enough space for installation and maintenance.



2. Install pipes

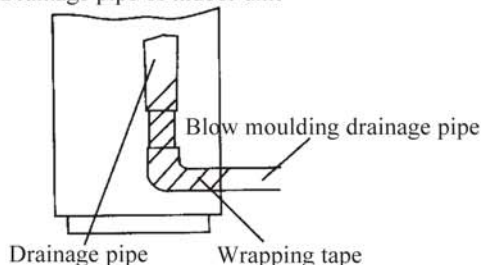
- Remove air intake grille.
- Before wiring and piping, please remove air intake grille.
- Remove screw from the grille.
- Open the grille by pulling it out by the handle.
- Remove chain and take off the whole grille.



3. Install drainage pipe

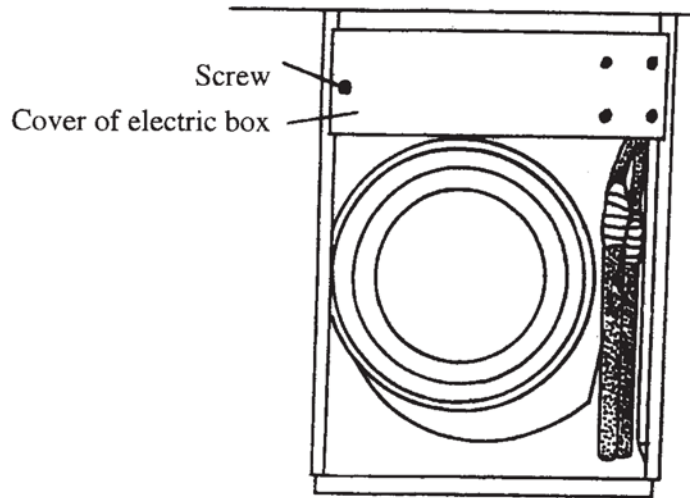
- Make sure drainage pipe is leading to the outdoor side (discharge side.)
- Joint drainage pipe with blow moulding drainage pipe and fix with tape from the accessories.
- If the drainage pipe needs to be led indoors, please wrap it with insulation material (at least 9mm thick), and then wrap with tape to prevent air from going into the pipe and cause congealing.
- After connecting, check if water can be discharged properly and if there is any leaking.

Drainage pipe of indoor unit

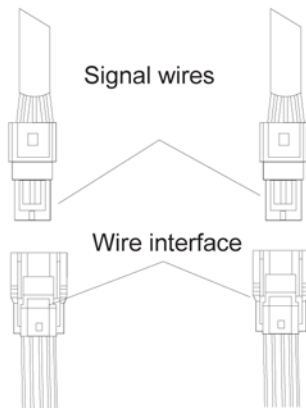


Wiring of indoor unit

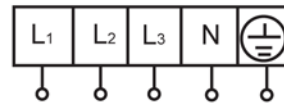
- Remove screw from cover of electric box to expose the box.
- Do the wiring as shown below and then fix with a wire binder.



(2) For heating pump type units (5 phawe)

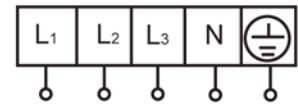


Terminal board of indoor units



Power supply

Terminal board of outdoor units



Power supply

Models	Air switch capacity
RFI-66/RFO66	25A

● Installation of outdoor unit

1. Choose a place

Note:

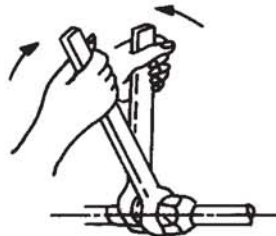
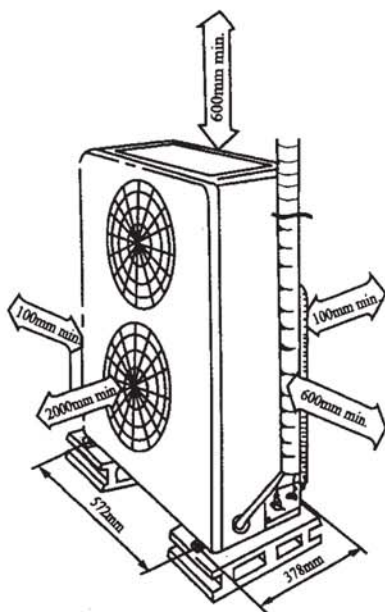
The outdoor unit must be installed on solid foundation to minimize noise and vibration.

The air outlet must not be blocked.

In coastal area, places of high altitude or strong wind, please install the unit against the wall or use wind block.

Install the unit with good ventilation instead of a sealed space.

Installation hole size: 572x327mm.



2. Connecting of refrigerant pipe

※ Tightening joint

- Match pipes
Screw nut with hand and then tighten with wrench (see figure below).
- Be careful not to twist too tightly or the nut may get damaged.

Diameter (mm)	Twisting moment (N·m)
φ 12	45-50
φ 19	70-75

※ Exhausting (with hexagon wrench)

Length of pipe	Exhausting	Value of refrigerant charge
5m	Use refrigerant of outdoor unit	As value on the nameplate
5-15m	Use vacuum pump	Nameplate value +30g/m (charge 30g more for every meter added to the pipe)

*1. See section about vacuum pump or refrigerant tank.

*2. Charge refrigerant according to value listed above. If the unit is to be moved to other place, please evacuate with vacuum pump or refrigerant tank.

■ When using refrigerant of outdoor unit:

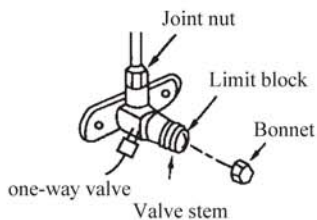
- *1. Tighten nuts A, B, C, D substantially.
- *2. Remove cover from check valve A.
- *3. Twist open core of liquid valve B with hexagon wrench, and at the same time hold screw driver against core of gas valve A to let gas out.

After 15 seconds of exhausting and refrigerant appears, close one way valve and tighten bonnet.

*4. Fully open cores of both liquid valve and gas valve, tighten bonnet, then check with soap water or leakage detector to see if there is any leaking in the joints of piping between indoor and outdoor units.

When operating the check valve, please note:

- Open valve stem until it touches limit block and don't open further.
- Tighten bonnet with wrench.



※ When using the vacuum pump

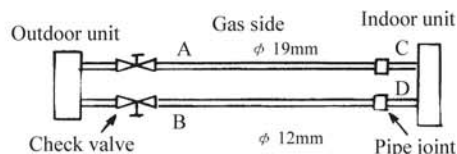
*1. Connect charging hose of manifold valve to charging end of low pressure valve (both high/low pressure valves must be tightly shut).

*2. Connect joint of charging hose to vacuum pump.

*3. Fully open handle of Lo manifold valve.

*4. Open the vacuum pump to evacuate. At the beginning, slightly loosen joint nut of low pressure valve to check if there is air coming inside. (valve of vacuum pump changes from negative to 0) Then tighten this nut.

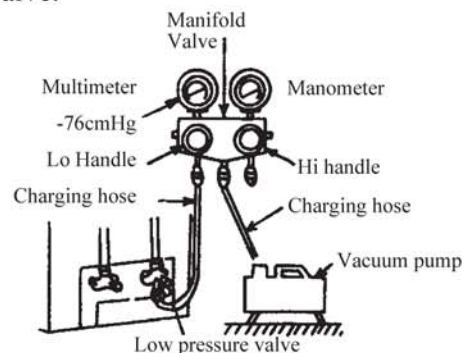
*5. After finishing evacuation, shut Lo handle of manifold valve to stop the vacuum pump. Keep evacuating for more than 15 minutes and make sure the reading of multimeter is -1.0×10^5 pa (-76cmHg).



*6. Fully open high/low pressure valves.

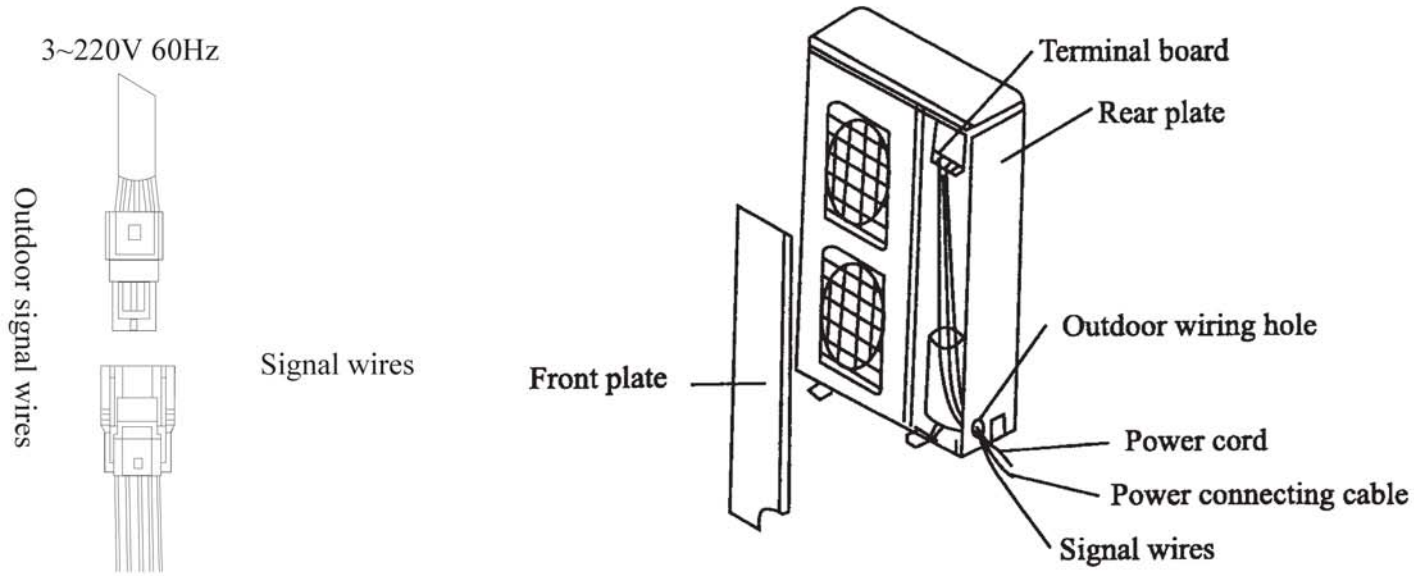
*7. Remove charging hose from charging end of low pressure valve.

*8. Tighten bonnet of low pressure valve.



3. Wiring

- Remove front plate.
- Open outdoor wiring hole and fit on ring for wiring.
- Lead connecting wire from terminal board of outdoor unit, thread it through outdoor wiring hole and indoor wiring hole, then connect to indoor terminal board.
- Connect wires as shown bellow and then fix with wire clamp.



● Trial running

After finishing leakage check, start trial running.

Cooling

- Set cooling mode.

See owner's manual for details.

3-minute protection

If the unit is stopped, it needs 3 minutes to be restarted.

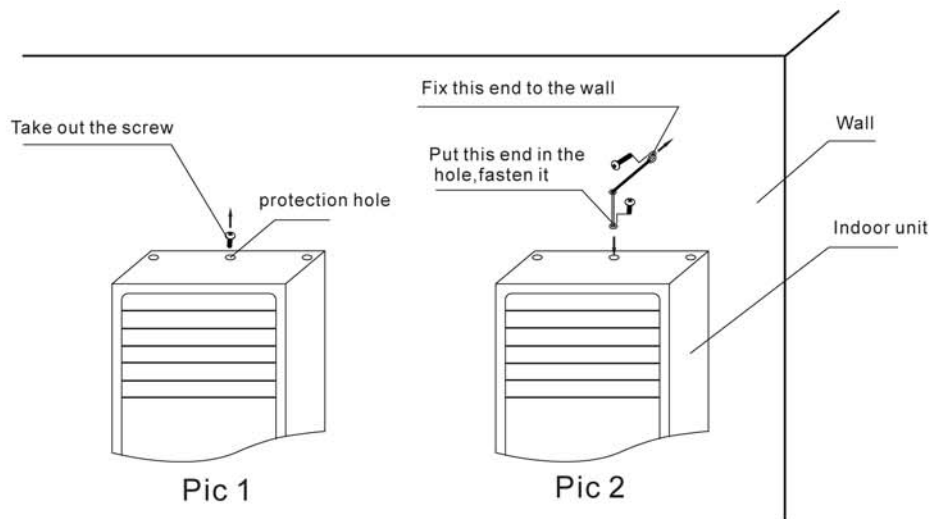
● Install slant protection cable

Note:

In order to avoid any accidental slant for outdoor unit, please install slant protection cable.

Installation steps:

1. Take out the screw from the indoor unit top cover (Pic 1)
2. Take out the slant protection cable, put it in the slant protection hole, fasten it with screws. (Pic 2)
2. Fix another end of cable to the wall by using screw (ST4.2X38)



- Above scheme for installation reference only, indoor unit may be different.

