

kolin
air conditioner

works
for
years
●●●

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OWNER'S MANUAL

QUAD

series

FULL DC
INVERTER
WINDOW TYPE AIR CONDITIONER

 with
SMART CONTROLLER

Thank you for choosing our air conditioner. Please read this owner's manual before operation and retain it for future reference. If you have lost this manual, please contact our nearest service center or visit our website.

MODELS:

KAG-75WCINV

KAG-100WCINV

KAG-145WCINV

KAG-200WCINV

KAG-250WCINV

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Thank you for choosing our air conditioner. Our design is based on the best efficiency, lowest noise operation and keeping the room more comfortable. Please read this operating manual carefully before operating the unit and keep it for reference.

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Please read this operating manual carefully before operating the unit.



Appliance filled with flammable gas R32.



Before using the appliance, read the owner's manual first.



Before installing the appliance, read the installation manual first.



Before repairing the appliance, read the service manual first.

Illustrations on this manual may be different from the actual appearance of the actual material or object.

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 supervised or instructed by a person responsible for their safety.





● The Refrigerant

- To realize the function of the air conditioner unit, a special refrigerant circulates in the system. The used refrigerant is the fluoride R32, which is specially cleaned. The refrigerant is flammable and inodorous. Furthermore, it can lead to explosion under certain conditions. But the flammability of the refrigerant is very low. It can be ignited only by fire.
- Compared to common refrigerants, R32 is a nonpolluting refrigerant with no harm to the ozone layer. The influence upon the greenhouse effect is also lower. R32 has a better thermodynamic features which leads to a high energy efficiency. The units therefore need a less filling.

⚠ **WARNINGS (for using R290/R32 refrigerant only):**

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that the refrigerants may not contain an odour.
- Appliance should be installed, operated and stored in a room with a floor area larger than 4 m².
- Compliance with national gas regulations shall be observed.
- Keep ventilation openings clear of obstruction.
- The appliance shall be stored so as to prevent mechanical damage from occurring.
- A warning that the appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.
- Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.

Explanation of symbols displayed on the unit (For the unit adopts R32/R290 Refrigerant only):

	WARNING	This symbol shows that this appliance used a flammable refrigerant.
	CAUTION	This symbol shows that the operation manual should be read carefully.
	CAUTION	This symbol shows that a service personnel should be handling this equipment with reference to installation manual.
	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.

● The Refrigerant

- The following checks shall be applied to installations using flammable refrigerants:
 - The charge size is in accordance with the room size within which the refrigerant containing parts are installed;
 - The ventilation machinery and outlets are operating adequately and are not obstructed;
 - If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
 - Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
 - Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.
- Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.
- **Initial safety checks shall include:**
 - that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
 - that no live electrical components and wiring are exposed while charging, recovering or purging the system;
 - that there is continuity of earth bonding.
- **Checking for presence of refrigerant**

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

● The Refrigerant

● Qualification requirement for installation and maintenance man

1. All the work men who are engaging in the refrigeration system should bear the valid certification awarded by the authoritative organization and the qualification for dealing with the refrigeration system recognized by this industry. If it needs other technician to maintain and repair the appliance, they should be supervised by the person who bears the qualification for using the flammable refrigerant.
2. It can only be repaired by the method suggested by the equipment's manufacturer.

● Installation notes

1. The air conditioner is not allowed to use in a room that has running fire (such as fire source, working coal gas ware, operating heater).
2. The air conditioner must be installed in a room that is larger than the minimum room area. The minimum room area is shown on the nameplate or following table.
3. Leak test is a must after installation.

table- Minimum room area (m²)

Minimum room area(m ²)	Charge amount (kg)	≤1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5
	floor location	/	14.5	16.8	19.3	22	24.8	27.8	31	34.3	37.8	41.5	45.4	49.4	53.6
	window mounted	/	5.2	6.1	7	7.9	8.9	10	11.2	12.4	13.6	15	16.3	17.8	19.3
	wall mounted	/	1.6	1.9	2.1	2.4	2.8	3.1	3.4	3.8	4.2	4.6	5	5.5	6
	ceiling mounted	/	1.1	1.3	1.4	1.6	1.8	2.1	2.3	2.6	2.8	3.1	3.4	3.7	4

● Maintenance notes

1. Check whether the maintenance area or the room area meet the requirements of the nameplate.
 - It's only allowed to be operated in the rooms that meet the requirements of the nameplate.
2. Check whether the maintenance area is well-ventilated.
 - The continuous ventilation status should be kept during the operation process.
3. Check whether there is fire source or potential fire source in the maintenance area.
4. Check whether the appliance mark is in good condition.
 - Replace the vague or damaged warning mark.

● The Refrigerant

● The refrigeration equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturers maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer technical department for assistance.

● Relation to electrical devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures.

Initial safety checks shall include:

- That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- That no live electrical components and wiring are exposed while charging, recovering or purging the system;
- That there is continuity of earth bonding

● Precautions

Warning

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. Also, children should be prohibited from playing with the appliance.

Cleaning and troubleshooting shall not be made by children without supervision. The air conditioner should be installed in accordance with national wiring regulation. Air Conditioner should be properly grounded. Incorrect grounding may cause electric shock.

- Do not connect the air conditioner to multi-purpose socket otherwise, it may cause fire hazard.
- Do install an air switch. If not, it may cause malfunction.
- Do not spill water on the remote controller, otherwise it may result control failure
- Do not spray water on air conditioner. It may cause electric shock or malfunction.
- Do not extend fingers or any objects into air inlet or air outlet. It may cause damage or injury.
- Do not step on or put heavy objects on the air conditioner. It may cause damage or personal injury.
- Do not block the air outlet or air inlet. It may cause malfunction.
- Disconnect the power supply when cleaning air conditioner. Otherwise, it may cause electric shock.
- Do not repair the air conditioner by yourself. It may cause electric shock or damage. Please contact your nearest authorized service center to repair your air conditioner.
- Maintenance must be performed by qualified professionals otherwise, it may cause injury or damage.

Please install the devices for short-circuit protection and electrical leakage protection when installing the air conditioner.

According to the local safety regulations, use qualified power supply circuit and circuit breaker.

For installation and maintenance of the air conditioner, please contact your dealer or any authorized service center to conduct it at first. The air conditioner must be installed, moved or maintained by an authorized personnel, otherwise it may cause serious damage, personal injury or death.

When refrigerant leaks or requires discharge during installation, maintenance, or disassembly, it should be handled by certified professionals or otherwise in compliance with local laws and regulations.

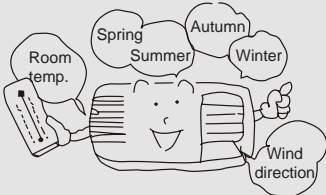
Working temperature range

※ Operating Temperature Range	Indoor side DB/WB(°C)	Outdoor side DB/WB(°C)
Maximum cooling	32/23	43/-

The operating temperature range (outdoor temperature) for cooling is 18°C~ 43°C.

● Function

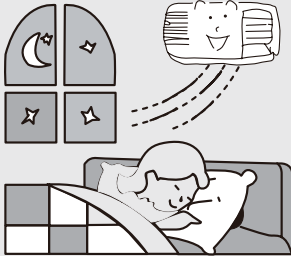
Introduction



Window type room air conditioners can regulate the room temperature and dry the room. It is convenient for your work, study and life. It can be widely used in residences, shops, hotels, offices, libraries and laboratories and so on.

Cooling in summer

In hot summer, Air conditioner can cool down the room air by transferring the heat out.



Dehumidifying in rainy or humid season

Without reducing the room temp., air conditioner can dehumidify and make the room air dry and comfortable.

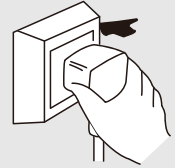


● Power requirement

Rated voltage : 230V~ 60Hz



- The electric components will be damaged when the voltage is too high. If the voltage is too low, the compressor will vibrate violently which may damage the refrigerant system and easily cause the compressor and electric components not work.



The ground must be connected.



- A special socket must be used. Furthermore, the socket and wiring must conform to the wiring regulations and the earthing method must be reliable.

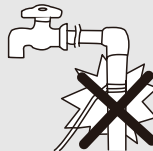


- In fixed circuit, there must be electricity leakage protection switch of enough power capacity and air switch with enough space.

Earth wire

To ensure the reliable earthing, please do not connect earth wire to the following places:

Water pipe



Installation

Installation precaution:

Improper installation for window type air conditioner can cause a lot of damage.

Please contact Kolin Service Hotlines or Kolin Authorized Service Center near you to install the unit and don't install it by yourself. Otherwise, the company will not be responsible for the possible damage on the unit.



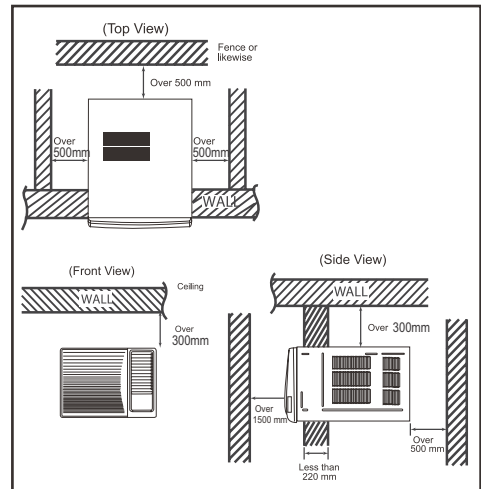
Location:

- The condensation water must be drained away conveniently.
- Install the air conditioner unit far away from TV set or radio etc. to avoid video or voice disturbance.
- In salty and coastal areas or places near from thermal springs and polluted by sulphurous gas, or any special areas, please contact the seller before using
- Avoid a place where it is possible for inflammable gas to leak out.
- Avoid other heat sources or direct sun light.
- Avoid a place where it is easy for children to reach.
- Don't use the unit in the immediate surroundings of a laundry, a bath, a shower or a swimming pool.
- For window type air conditioner with remote control, install in a location that is far away from electromagnetic disturbance. Contact the seller in advance to avoid the unit from malfunctioning.

How to install:

- Choose a location where there are no any obstacle surrounding the unit, and the plug is accessible.
- Prepare the installation hole slightly bigger than the unit size.
- Choose the installation space according to the following diagram.

The distance between the air conditioner and the obstacles should meet the requirement as below: over 300mm(upper side), over 500mm (left side), over 500mm (right side), over 1500mm (front side) and over 500mm (rear side).



Installation procedure:

- 1) Remove the sticker from the front panel.
- 2) Put the unit into the installation hole.
 - When installing the unit, it should slant down to the back to make sure the condensation water can be drained away conveniently. (Slant about $3^{\circ} \pm 1^{\circ}$) (Shown at right figure.)
 - The installation place should be strong enough to avoid the enlargement of noise or vibration.
- 3) Fill up the sews in the cabinet with sponge or foam.

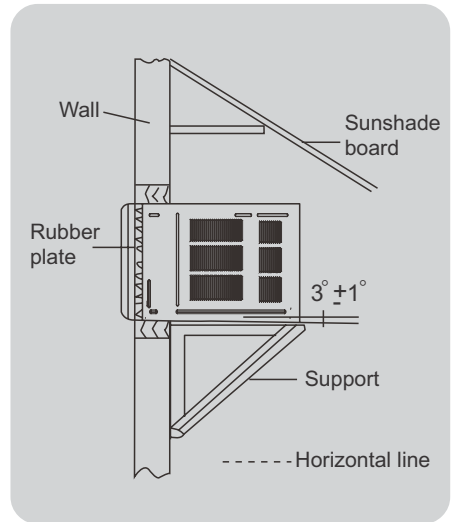
Installation assistance:

•Use Iron Support

The installation hole should be strong enough to support the air conditioner. if not, iron support / bracket has to be used outdoors then the iron support should be fixed on the building (shown at the right figure). Using an iron support / bracket is mandatory

• Use Sunshade Board

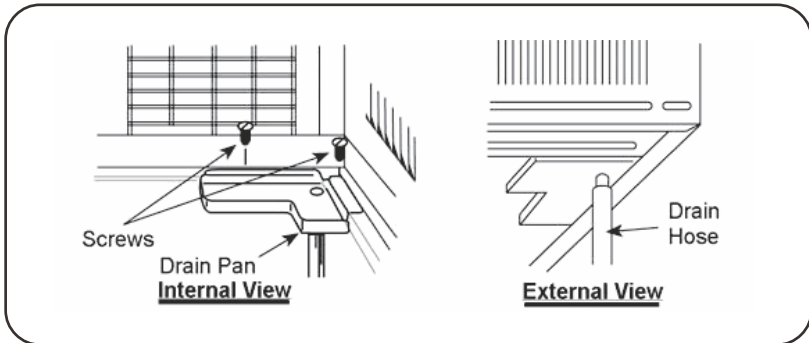
Using a sunshade board is optional though an air conditioner should avoid anything to be dropped into it and avoid direct sunlight. When installing the sunshade board, don't let it block the air inlet at the side grille.



Drain water :

Drain pan and drain hose need to be installed before using. If drain hose is not included in the product, you need to purchase it locally to satisfy your particular needs. Use the following procedure to install drain pan and drain hose.

1. Slide out the chassis from the cabinet.
2. Install the drain pan to the corner of the cabinet with 2 screws.
3. Connect the drain hose to the outlet on the drain pan bottom.
4. Slide the chassis into its original place in the cabinet.

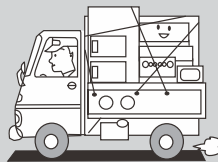


To obtain maximum cooling efficiency, the air conditioner is designed to splash the condensation water on the condenser coil. If the splashing sound annoys you, you can remove the rubber plug from the chassis to lower the noise, which also causes a bit of loss of performance.

● Notes for installation

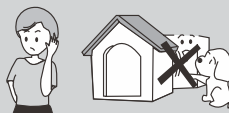
Relocate

Before relocating the air conditioner, you should contact the seller first. Then it must be done under the direction of an Authorized Kolin Technician. In addition, charges to this must be paid.



Noise

- Install in a location where it is strong enough to avoid increase of noise and vibration.
- Don't put anything in front of the outlet of the unit to avoid increasing of noise.
- Be sure that the hot air or noise will not cause inconvenience to the neighbors.
- Please contact the seller as soon as there is strange noise during operation.
- Please use the safety support.



Electric wiring

- Must be connected with ground reliably.
- Use correct power outlet for air conditioner. Do not use plug adaptor because it can overheat and cause fire.
- Don't pull the power cord forcibly.
- In fixed circuit, there must be electricity leakage protection switch and leakage current should be less than 30mA.
- Connecting method between air conditioners and power cord and interconnecting method of each individual element with one another should accord with wiring diagram on the unit.
- The air conditioner should be installed in accordance with national wiring regulation.
- An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
- Air switch (thermal-magnetic breaker) should be installed in the circuit.
- If the supply cord is damaged, it must be replaced by the manufacturer or your dealer or a qualified person to avoid a hazard.
- All the electrical work must be done according to the local wiring regulations.



● Part identification

Panel outlook picture, just for reference, please take the real unit as standard.



Air direction adjustment

Horizontal Louver

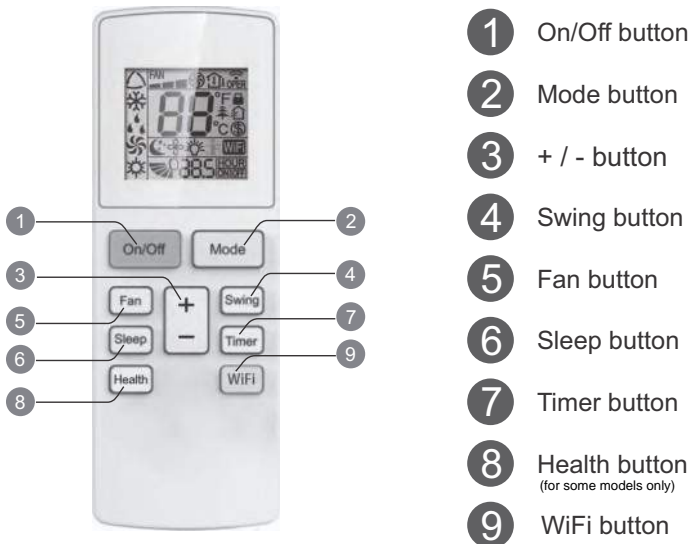
(Airflow direction adjustment up and down).

The Horizontal Louver is controlled by positioning manually the louver to discharge the air upwards, downwards or straight out.



Remote control operation procedure

Note: This is a general use remote controller for air conditioners. For some function, which the model doesn't have, if the corresponding button on the remote controller was pressed the unit will just keep its original running status.

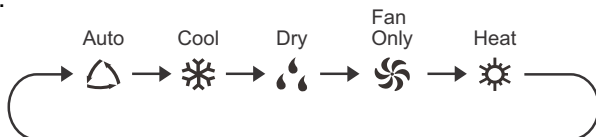


1 On/Off button

Press this button to turn on the unit.
Press this button again to turn off the unit.

2 Mode Button

You can select your preferred operation mode on the following illustration below. A corresponding icon will appear on the remote display after selecting.



- **Auto:** Under this mode, the unit will operate automatically according to the ambient temperature. In this case, set temperature cannot be adjusted.
- **Cool:** Under this mode, air conditioner operates under cooling mode. Cooling indicator will be on. Press "Fan Speed" button can adjust the fan speed.

- **Dry:** Under this mode, the unit will run in low fan speed for dehumidification and the corresponding indicator is on; under dry mode, the fan speed cannot be adjusted.
- **Fan Only:** Under this mode, air conditioner will not cool or heat, only the fan will run to circulate the air. Fan indicator will be on. Press “Fan” button to adjust the fan settings.
- **Heat:** Under this mode, the air conditioner will operate under heating mode. Fan speed can be adjusted under this mode. If the unit was turned off while under heat mode, the unit will not start. Under ON status, change the mode setting on the remote controller or manually press the ON/OFF button to start the unit again. Note: This mode is applicable in some units only.




3 + / - button

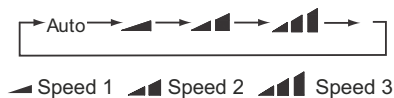
- Pressing “+” or “-” button once will increase or decrease set temperature by 1°F(°C).
Hold “+” or “-” button for 2s, set temperature on remote controller will change quickly. Release the button after your required set temperature is reached.
- Under timer setting status, after each press of “+” or “-” button, time will increase or decrease by 0.5h (30 minutes) . Hold the “+” or “-” button, 2s then later, the time displayed on dual-8 nixie tube will change quickly. Release the button once the set time is reached..

4 Swing button

Press this button to turn “ON” & “OFF” swing.

5 Fan button

This button is used for setting Fan Speed in the sequence that goes from AUTO, , , to  then back to Auto.



NOTE: There are 3 speed levels of fan mode for this model.

6 Sleep button

Press this button to go into the Sleep operation mode. Press it again to cancel this function. This function is available in COOL, HEAT (Only for models with heating function) mode to maintain the most comfortable temperature for you.

7 Timer button

Under ON status, press this button to set timer OFF; Under OFF status, press this button to set timer ON.

Press this button once and the characters of HOUR ON (OFF) will flash on the remote display. Meanwhile, press "+" button or "-" button to adjust timer setting (time will change quickly if holding "+" or "-" button). Time setting range is 0.5~24 hours. Press this button again to confirm timer setting and the characters of HOUR ON(OFF) will stop flashing.

If the characters are flashing but you haven't press the timer button, timer setting status will disengage after 5s. If timer is confirmed, press this button again to cancel timer.

8 Health button

Press this button to turn on or turn off the health and scavenging functions in operation status. Press this button for the first time to start scavenging function; LCD displays "🏠". Press the button for the second time to start health and scavenging functions simultaneously; LCD displays "🏠" and "🌳". Press this button for the third time to quit health and scavenging functions simultaneously. Press the button for the fourth time to start health function; LCD display "🌳". Press this button again to repeat the operation above.

- This function is only available for some models.

9 WiFi button

Press "WiFi" button to turn on WiFi function, "WiFi" icon will be displayed on the remote controller;

Hold "WiFi" button for 5s to turn off WiFi function and "WiFi" icon will disappear. Under off status, press "MODE" and "WiFi" buttons simultaneously for 1s, WiFi module will restore factory settings.

Function introduction for combination buttons


Temperature display switchover function

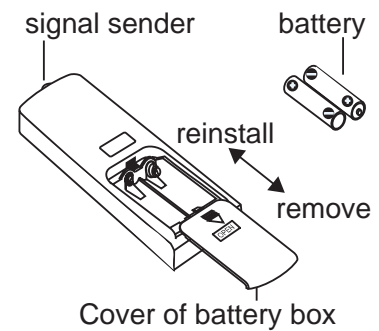
Under OFF status, press "-" and "Mode" buttons simultaneously to switch temperature display between °C and °F.

Light function

Under switch-on or switch-off state, you may hold "+" and "FAN" buttons simultaneously to set the lamp on or off and send the code. After being energized the lamp is defaulted on.

Replacement of batteries in remote controller

1. Press the back side of remote controller marked with "  ", as shown in the fig, and then push out the cover of battery box along the arrow direction.
2. Replace two 7# (AAA 1.5V) dry batteries, and make sure the position of "+" polar and "-" polar are correct.
3. Reinstall the cover of battery box.

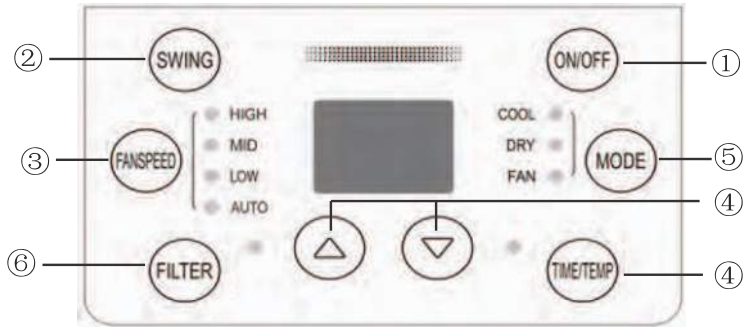


NOTICE

- The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.
- As the signal will be interfered in the room with electronic fluorescent lamp, conversion fluorescent lamp or wireless phone, please get closer to the air conditioner when using the remote controller.
- Replace new batteries of the same model when replacement is required.
- When you don't use the remote controller for a long time, please take out the batteries.

Control panel

Note: If wireless remote control is lost or broken, unit can be manually operated using its surface display panel.



- 1 ON/OFF BUTTON
Operation starts when pressing this button, and stops when pressing this button again.
- 2 SWING BUTTON
Activates the automatic air swing function
- 3 FAN SPEED BUTTON
Select the fan speed LOW, MID, HIGH and AUTO in sequence.
- 4 TEMP/TIMER BUTTON
Press the ▲ keypad to increase the set (operating) temperature of the unit. and Press the ▼ keypad to decrease the set (operating) temperature of the unit. The temperature setting range is from 16~30°C.
Timer can be set by pressing ▲/▼ button. Timer can be set in 0.5hour increments between 1 and 10 hours, or in 1 hour increments for 10 hours or above after each push on ▲ or ▼ button.
- 5 MODE BUTTON
Select the operation mode, COOL, DRY, FAN (for reverse cycle model)
- 6 FILTER BUTTON
This feature is a reminder to clean the Air Filter (See Care and Cleaning) for more efficient operation and cooling. The LED (light) will illuminate after 250 hours of operation. To reset after cleaning the filter, press the "Filter" button and the light function will go off.

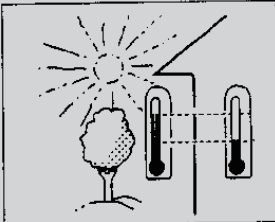
● Operation Tips

※ Operating Temperature Range		
	Indoor side DB/WB(°C)	Outdoor side DB/WB(°C)
Maximum cooling	32/23	43/-

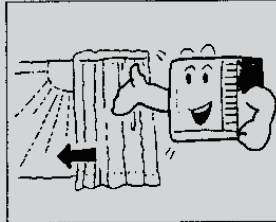
The operating temperature range (outdoor temperature) for cooling only unit is 18°C~ 43°C.

Operation for comfort and economy

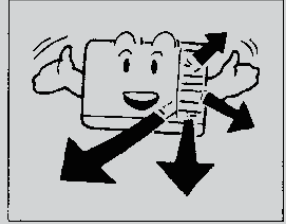
Do not overcool the room temperature. This is not good for health and wastes electricity.



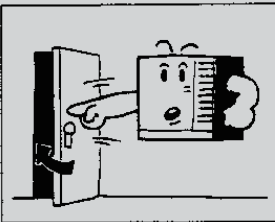
Keep blind or curtains closed. Do not let sunshine enter the room directly when the air conditioner is in operation.



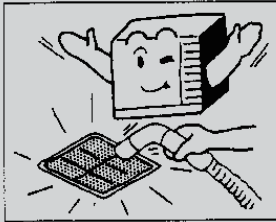
Keep the room temp uniform. Adjust the vertical and horizontal airflow direction to ensure a uniform temperature in the room. Air can't be discharged to the direction of air-in.



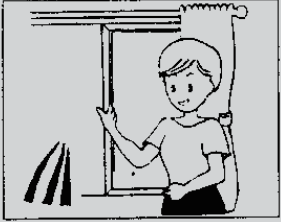
Make sure that the doors and windows are tightly closed. Avoid opening doors and windows as much as possible to keep the cooled air in the room.



Clean the air filter regularly. Blockages in the air filter reduce dehumidifying effects. Clean the air filter at least once every two weeks.



Ventilate the room occasionally. Since windows are kept closed, it is a good idea to open them and ventilate the room now and then. When starting the unit, curtains or windows should be closed to prevent the heat/cool leakage.

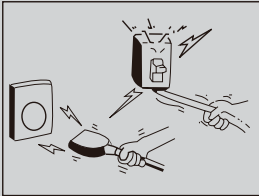


● Caution

Operations for safety and health

- 1) The plug must be accessible after the appliance is positioned.
- 2) Do not use this appliance in the laundry.
- 3) If the power cord is damaged, it must be replaced by the manufacturer or its service agent to avoid any hazard.

- Do not pull out the power cord.
- Damage to the cord may result in serious electric shocks



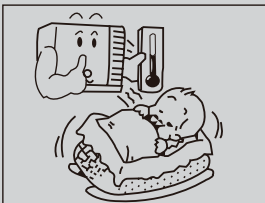
- Do not use the air conditioner for other purposes except for cooling the room.
- Do not use the air conditioner for other purposes such as drying clothes, preserving foods, or cultivating vegetables.



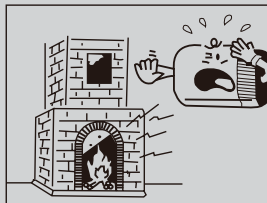
- Do not block the air intake and outlet vents. This causes lowered performance and irregular operation.
- Do not insert sticks or other objects into these vents as it is dangerous to touch the electric components and the fan.



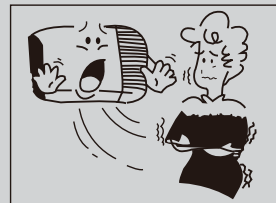
Select the most appropriate temperature. Pay attention to adjust the temperature to suit the conditions. Rooms occupied by infants, the elderly, or the sick should be kept at an appropriate temperature.



Do not use heating apparatuses in the vicinity. The air conditioner's plastic parts will melt if exposed to excessive heat.



Avoid exposing the body directly to a continuous unidirectional air flow for long periods. This is not recommended for health reasons.



Always wait at least 3 minutes before switching the air conditioner on again after you have switched it off during cooling.



Please notice that the unit is filled with flammable gas R32. Inappropriate treatment of the unit involves the risk of severe damages of people and material. Details to this refrigerant are found in chapter "Safety Operation of flammable refrigerant".

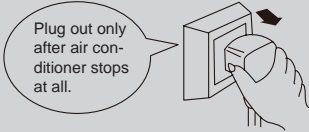
Appliance shall be installed, operated and stored in a room with a floor area larger than $X \text{ m}^2$. (Please refer to table "a" in section of "The Refrigerant" for Space X.)

Care and maintenance

Always turn off the air conditioner and the main power supply before cleaning to ensure safety.

Cleaning the Unit

1. Shut the power off before cleaning.



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 gas, benzene, solvent, wash, chemical solvent, etc. for cleaning.



4. Do not splash water directly into the unit, in which there are micro-computer and circuit plate, they must not be drenched with water.



- * Check earth wire

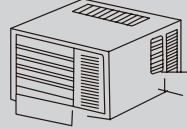


Air filter

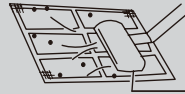
The air filter behind the intake grille should be washed at least once every two weeks or as often as it needs cleaning.

How to clean the air filter:

1. To remove the air intake grille, grasp the tab on the filter and pull to take out.



2. Vacuum the filter on the dusty side to remove light dust.



Vacuum cleaner

3. Wash the filter gently with flowing water to wash out accumulated dust and dirt.



4. If the filter is very dirty, use a mild household detergent in the wash water.



Let the filter dry thoroughly before reinstalling it. If necessary, please ask the professional personnel to clean it.





- * Check if the air inlet and outlet of the unit is blocked or not.

Air lock could result in bad efficiency.



● Troubleshooting guide

Please check the following items before asking for repair, it saves your time and money.

Fault phenomenon	Troubleshooting
<p>Air conditioner does not operate at all.</p> 	<ul style="list-style-type: none"> • Is there a power failure? • Is it unplugged? • Is the switch or circuit breaker off? • Whether the voltage is too high or too low?
<p>Cool efficiency is not good.</p> 	<ul style="list-style-type: none"> • Is the air inlet or outlet blocked? • Is there any other heat source in room? • Are the air filters dirty? • Is the indoor fan speed set at LOW? • Maybe the room is too hot when the unit is started.
<p>Foggy air flows out.</p> 	<ul style="list-style-type: none"> • At COOL mode operation, sometimes there is foggy air flowing out of the unit, this is because the room humid air has been cooling rapidly. • The unit is normal while the indoor outlet is sending out some odor, because the inlet air may be mixed with the smell of furniture and smoke.
<p>The air conditioner operation is noisy.</p> 	<ul style="list-style-type: none"> • For a noise that sounds like water flowing: This is the sound of freon flowing inside the air conditioner unit. • For a noise that sounds like a shower: This is the sound of the dehumidifying water being processed inside the air conditioner unit.
<p>It seems that condensation is leaking from air conditioner.</p>	<ul style="list-style-type: none"> • Condensation occurs when the airflow from the air conditioner cools the warm room air.
<p>Air conditioner does not operate for about 3 minutes when restart.</p>	<ul style="list-style-type: none"> • This is to protect the mechanism. • Wait about 3 minutes and operation will begin.

Malfunction code	Solution
H1	Means defrosting status. It's the normal phenomenon.
E2	Please contact professional person to deal with it.
H5	Please contact professional person to deal with it.
E5	Please contact professional person to deal with it.
H4	Please contact professional person to deal with it.
E4	Please contact professional person to deal with it.
H3	Please contact professional person to deal with it.
L9	Please contact professional person to deal with it.
H5	Please contact professional person to deal with it.
PL	Please contact professional person to deal with it.
PH	Please contact professional person to deal with it.
HC	Please contact professional person to deal with it.
LP	Please contact professional person to deal with it.
Fo	Please contact professional person to deal with it.
F3	Please contact professional person to deal with it.
F4	Please contact professional person to deal with it.
F5	Please contact professional person to deal with it.
F0	Please contact professional person to deal with it.
E6	Please contact professional person to deal with it.
F1	Please contact professional person to deal with it.
F2	Please contact professional person to deal with it.
U7	Please contact professional person to deal with it.

Note: If there're other malfunction codes, please contact qualified professionals for service.

If the following situation occurs please contact your dealer and immediately stop all operation and unplug the unit.

- Operation starts or stops abnormally.
- Power fuse or switch often breaks.
- Carelessly splash water or something into air conditioner.
- Electrical lines are much hot or lines cover breaks.
- Other strange situations.



Others

- The connection between AC and power cord or among other elements independently shall be subject to wiring diagram on the unit.
- Model and rated value of fuse shall be subject to screen print on corresponding controller or protective bushing.

After service

- If the quality of the after service of your air conditioner is questionable and not satisfying, please contact the service center.

● Safety operation of flammable refrigerant

1. Transport of equipment containing flammable refrigerants

See transport regulations

2. Marking of equipment using signs

See local regulations

3. Disposal of equipment using flammable refrigerants

See national regulations

4. Storage of equipment applications

The storage of equipment should be in accordance with the manufacturer's instructions.

5. Storage of packed (unsold) equipment

Storage package protection should be constructed such that mechanical damage to the equipment inside the package will not cause a leak of the refrigerant charge.

The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

6. Information on servicing

Checks for the area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the refrigerating system, the following precautions shall be compiled with prior to conducting work on the system.

- *Work procedure*

Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas vapour being present while the work is being performed.

- *General work area*

All maintenance staff and others working in the local area shall be instructed on the nature of workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

- *Checking for presence of refrigerant*

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmosphere. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

- *Presence of fire extinguisher*

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO₂ fire extinguisher adjacent to the charging area.

- *No ignition sources*

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking,

SAFETY OPERATION OF FLAMMABLE REFRIGERANT

should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. No smoking signs shall be displayed.

- *Ventilated area*

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely dispense any released refrigerant and preferably expel it externally into the atmosphere.

- *Checks to the refrigeration equipment*

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guideline shall be followed. If in doubt consult the manufacturer's technical department for assistance.

The following checks shall be applied to installations using flammable refrigerants: The ventilation machinery and outlets are operating adequately and are not obstructed;

If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;

Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;

Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

- *Checks to electrical devices*

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactory dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised. Initial safety checks shall include:

That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;

That there no live electrical components and wiring are exposed while charging, recovering or purging the system;

That there is continuity of earth bonding.

7. Repairs to sealed components

- During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon to any removal of sealed

SAFETY OPERATION OF FLAMMABLE REFRIGERANT

covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

- Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc. Ensure that apparatus is mounted securely. Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

Note: The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

8. Repair to intrinsically safe components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use. Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating. Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

9. Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

10. Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

11. Leak detection methods

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants. Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25% maximum) is confirmed. Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing the chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work. If a leak is suspected, all naked flames shall be removed/ extinguished. If a leakage of refrigerant is found which requires brazing, all of the

SAFETY OPERATION OF FLAMMABLE REFRIGERANT

refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

12. Removal and evacuation

When breaking into the refrigerant circuit to make repairs or for any other purpose conventional procedures shall be used. However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

- Remove the refrigerant;
- Purge the circuit with inert gas;
- Evacuate;
- Purge again with inert gas;
- Open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. The system shall be flushed with OFN to render the unit safe. This process may need to be repeated several times. Compressed air oxygen shall not be used for this task. Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place. Ensure that the outlet for the vacuum pump is not close to any ignition sources and there is ventilation available.

13. Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed. Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.

Cylinders shall be kept upright.

Ensure that the refrigeration system is earthed prior to charging the system with refrigerant. Label the system when charging is complete (if not already).

Extreme care shall be taken not to overfill the refrigeration system.

Prior to recharging the system it shall be pressure tested with OFN. The system shall be leak tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

14. Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

SAFETY OPERATION OF FLAMMABLE REFRIGERANT

- Become familiar with the equipment and its operation.
- Isolate system electrically.
- Before attempting the procedure ensure that:
 - Mechanical handling equipment is available, if required, for handling refrigerant cylinders;
 - All personal protective equipment is available and being used correctly;
 - The recovery process is supervised at all times by a competent person;
 - Recovery equipment and cylinders conform to the appropriate standards;
- Pump down refrigerant system, if possible.
- If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- Make sure that cylinder is situated in the scales before recovery takes place.
- Start the recovery machine and operate in accordance with manufacturer's instructions.
- Do not overfill cylinders. (No more than 80% volume liquid charge).
- Do not exceed the maximum working pressure of the cylinder, even temporarily.
- When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from the site promptly and all isolation valves on the equipment are closed off.
- Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

15. Labelling

Equipment shall be labelled stating that it has been de-commissioned and emptied of the refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

16. Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of the refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs. The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect coupling and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

SAFETY OPERATION OF FLAMMABLE REFRIGERANT

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged. Do not mix refrigerants in recovery units and especially not in cylinders. If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

KOLIN PHILIPPINES INT'L., INC. SERVICE CENTERS

BRANCH	ADDRESS	TEL. NO.
Bacolod	Door A2 and A3 UTC Building, Alunan St., Barangay Singcang, Bacolod City	(034) 433 -0031
Cagayan De Oro	Door No. 3 De Oro Land Building, Julio Pacana St., Puntod, Cagayan De Oro City	(088) 856 -4672
Cebu	Unit 6A, Geson Building, D.Jakosalem corner F. Ramos St., Cebu City	(032) 253 -9997
Dagupan	107 Caranglaan District, Dagupan City, Pangasinan	(075) 523 -2832
Davao	Door No. 5 Belle Fran Arcade, E. Palma Gil St., Barrio Obrero, Davao City	(082) 227 -7063
Iloilo	Door 4 TDK Realty Development Corporation Building, South Fundedor St., Barangay Fundedor, Molo, Iloilo City	(033) 336 -1970
Pampanga	Mexico Gold Commercial and Residential Building, Jose Abad Avenue, Lagundi, Mexico, Pampanga	(045) 455 -2934

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