OWNER´S MANUAL
V.0114

MODELS:
EMC120T - CMC120T  •  EMC181T - CMC181T
EMC121T - CMC121T  •  EMC261T - CMC261T

REFRIGERANT
R410

CONFORMS TO
UL STD. 1995
CERTIFIED TO
CSA STD. C22.2
NO. 236

AHRI CERTIFIED
www.ahridirectory.org

Unitary Small HP
AHRI Standard 210/240
Certification applies only when the complete system is listed with AHRI.
Please read carefully all the instructions before starting your new equipment

- Do not operate this unit under voltage fluctuations, electric components could get damage from voltages above or below normal range.

- When the unit has been installed, make sure the electric network has considered a disconnection device in order to cut off the power during emergency. Please be sure to disconnect the unit during prolonged unused periods.

- Take proper care when handling the electric power cord in the unit, if you find it defective please do not try to replace it or fix it by yourself, contact immediately professional assistant.

- Keep windows and doors closed while the air handler is working, if open they severely reduces the capacity and efficiency of the unit.

- To avoid malfunction keep the air return in the air handler free of obstructions at all times.

- Electrical setup requires a disconnection switch that obeys national regulations and product`s technical specs (check name plate for details). Never use this switch to turn the unit ON or OFF; it might damage internal components.

- If you perceive smoke or fire, please shut off the unit immediately from the energy supply

- Keep any kind of chemical agents or combustible material at least 3 feet from the air handler unit.

- Never attempt to repair the unit by yourself, you could cause it an irreversible damage, if a problem presents, please contact your closest authorised service center.

Contact the closest authorised service center to receive technical support and help.
Take proper care when handling the electric power cord in the unit, if you find it defective please do not try to replace it or fix it by yourself, contact immediately a professional assistant, avoid the use of electrical extensions at the risk of fire.

To set the desire direction of airflow properly, select the different angles from the remote control using the SWING button, the vertical deflector can be adjusted by hand.

Never put your hands into the airflow outlet while the unit is functioning or plugged to the electrical power supply.

To prevent health problems, do not allow pets or people to stay directly exposed to the airflow.

At the risk of a electric shock, never handle the unit with soaked or wet hands.

Do not use this unit for a different purpose than provide comfort or air conditioning.

Do not drop water in the frontal cover of the unit during regular user maintenance.

Never place a heat source near the air handler as this affect the performance and efficience of the unit.
Working principles and special functions on COOL ONLY units.

Principle
The interior unit uses a temperature exchanger to collect heat load from interior of the room and conduct it to exterior. This procedure is assisted by a special blower, who provides the air flow along the room and it takes the undesired heat load to the temperature exchanger producing the air circulation & decreasing ambient temperature. As result it creates a comfortable atmosphere inside the room.

Working principles and special functions on HEAT PUMP models.

Principle
The air handler provides heat using a reversing valve to revert the cooling cycle, keeping heat inside and taking cool outside the room.

Antifreezing
During heat mode, the ambient temperature can drop below 30 Fahrenheit and cause the outdoor exchanger gets frost. When this scenario has been presented an automated protection system will start heating the outdoor unit allowing to do a self defrosting cycle. At the end of this cycle, the unit go back to normal. Antifreezing cycle last around 10 minutes.

While in defrost cycle all or some of the following conditions might apply:

☐ Airflow might stop until the unit has completely defrost or after 8 to 10 minutes.
☐ LCD panel might keep blinking.

All of the above are not malfunction issued and will last until the defrost cycle is over.

NOTE: Under heat mode, the fan will not work until the unit can provide a heated airflow. This usually takes from 5 to 10 minutes.
Exploded view

For parts and replacements, please contact us at: http://www.mirageusair.com/support/

Basic Diagram

NOTE: This image may vary from the real unit.
Display Icons:

Display description:
This section will help you to get familiar with icons and symbols shown at the screen of evaporator (indoor unit) when it is operating.

- **Cooling mode:** Compressor works and indoor unit will supply cool air when operating.
- **Heating mode:** Reversing cycle is activated and indoor unit will supply hot air when operating.
- **Dehumidify mode:** This mode has been designed to remove the remaining humidity at the environment.

- **ON/OFF Indicator:** It provides information regarding the status (ON/OFF) of the equipment.
- **TEMPERATURE:** It shows the user’s setting temperature programmed by remote controller (°F or °C).
Remote Control: Proper use

Display Icons:

Operation Modes:
- AUTO
- COOL
- DRY
- FAN
- HEAT
- SLEEP

FAN ONLY OPTIONS:
- Low
- Mid
- Hi
- FAN Auto
- OPER Oper.

Change Sequence:

NOTE: To cycle between MODES, just PRESS MODE, the following is the mode sequence.

INDICATORS:
- BLOW
- TURBO
- ON/OFF TIMER
- ROOM TEMPERATURE (OPTIONAL)
- TEMPERATURE INDICATOR °C or °F.
- CLOCK
- REMOTE KEYS LOCK
- DISPLAY LIGHT
- SWING MODE
Remote Control: Proper use

Function description

Signal Transmitter

- **ON/OFF:** Turns the unit ON and OFF, SLEEP MODE cancels if air handler is off.

- **MODE:** Operating modes AUTO △ COOL ◇ DRY ◇ FAN ◇ HEAT ◇

  During AUTO mode, temperature will not be shown in display. The temperature during this mode is preset to 77°F for Cooling and 82°F for Heating.

- **SLEEP:** This is a special function to increase comfort and decrease energy consumption. By automatically adjusting temperature setting while you sleep.

- **FAN:** It allows you to set fan speed LOW, MED, HIGH, AUTO. Auto fan mode auto regulate fan speed in accordance with the room temperature.

- **CLOCK:** Sets clock time using (+) and (-) keys.

- **TEMP:** Switch temperature reading to actual room temperature (available only in some models).

- **BLOW:** This function is designed to avoid fungus and bacteria. If set, when the user turn the uni off the air handler will work in fan mode only for no more than 10 minutes, eliminating humidity and cleaning the system. (only available in COOL and DRY modes)

- **TURBO:** Only available in COOL and HEAT modes, sets fan speed to its maximum level.

- **Teclas (+) (-):** Increase or decrease cooling or heating temperature.

- **LIGHT:** Turns on and off air handler display light.
Signal Transmitter

- **SWING**: Sets the airflow direction. 

Activate oscillating modes and change airflow direction to a variety of angles.

- **TIMER ON**: This timer works in accordance with the system clock and it can be used to automatically turn ON the unit to a desired time. Press TIMER ON and the following icon will be shown on the display: ☻

Press TIMER ON and use + and - keys to set the automatic start time.

Press TIMER ON to save the timer

The ON timer is now set.

- **TIMER OFF**: Same as above but to set an automatic shut down timer.

Once the timers are programmed you can activate or deactivate each one simply using TIMER ON or TIMER OFF keys, the timer icon will show or disappear.

Note: Partial Oscillation mode is available in some models.
Remote Control: Proper use

Basic Functions

COOL

1. PRESS ON/OFF

2. Press MODE key to set COOL MODE, this mode is represented by the following icon: ⛄

3. Using + and - keys in your remote set a desired temperature for this mode, cooling ranges from 60°F - 86°F.

4. Select a FAN Speed from one of the available options AUTO, LOW, MED, HIGH.

5. Set a desired airflow angle or use one of the oscillating airflow modes.
Remote Control: Proper use

1. PRESS ON/OFF

2. Press MODE key to set AUTO MODE, this mode is represented by the following icon:

3. During AUTO mode, temperature will not be shown in display. The temperature during this modes is preset to 77°F for Cooling and 82°F for Heating.

4. Auto fan mode regulates fan speed automatically in accordance with how far or close is the desired temperature, however the user can set on of the available fan speeds.
Remote Control: Proper use

**DRY:**

1. PRESS ON/OFF

2. Press MODE key to set DRY MODE, this mode is represented by the following icon:

3. Operating temperature for this mode is preset to 77°F but the user can change it using + or - keys, as well as the temperature, the airflow direction can be set using the respective key in the remote.

4. Fan speed for this mode is set at LOW and cannot be changed.
Remote Control: Proper use

FAN ONLY

1. PRESS ON/OFF

2. Press MODE key until FAN MODE is set, this mode is represented by the following icon: 🌬️

3. FAN MODE is room temperature air flow only, you can select a FAN Speed from one of the available options AUTO, LOW, MED, HIGH.

4. Even though temperature can be modified, there is no cooling or heating in this mode, airflow direction can be set using the respective key.
Remote Control: Proper use

NOTE: During warming stage, fan will keep OFF for around 3-5 minutes. After heat exchanger reaches a proper temperature, fan will start working in normal condition.

HEAT:

1. PRESS ON/OFF

2. Press MODE key until HEAT MODE is set, this mode is represented by the following icon:

3. Using + and - keys in your remote set a desired temperature for this mode, preset temperature is 82°F.

4. Preset fan speed for this mode is AUTO but the user can change it to LOW, MED or HIGH.

5. Set a desired airflow angle or use one of the oscillating airflow modes.
Special Functions

**SLEEP:**
This function is only available in COOL, DRY and HEAT modes.

1. **PRESS ON/OFF**

2. Press SLEEP key and the following icon should appear in the display:

3. SLEEP function is for comfort and energy saving, it basically adjusts automatically the temperature during operation. In cool mode it increases the set up temperature by 2 degrees each hour in a 2 hours cycle, same for heating but in this case the temperature is decreased.

4. At the end of the sleep cycle during cool mode the temperature ends up 4 degrees above the initial temperature set, in heat mode, it ends up 4 degrees below the initial heating temperature.
Remote Control: Proper use

AUTO FAN:
In this mode the fan speed is calculated in accordance with how far or close is the temperature set in the unit, the bigger difference the faster, as the desired temperature is closer, the fan speed changes to a lower value until it reaches LOW fan speed, this when the desired temperature is the same as the room temperature.

EXAMPLE OF AUTO FAN IN COOL MODE

<table>
<thead>
<tr>
<th>Room temperature: 89°F</th>
<th>Room temperature: 81°F</th>
<th>Room temperature: 75°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Set: 75°F</td>
<td>Temperature Set: 75°F</td>
<td>Temperature Set: 75°F</td>
</tr>
<tr>
<td>Fan Speed: HIGH</td>
<td>Fan Speed: MED</td>
<td>Fan Speed: LOW</td>
</tr>
</tbody>
</table>

To activate AUTO FAN just press FAN until AUTO shows as the fan selected mode.

BLOW:
This function is designed to avoid fungus and bacteria accumulation in the air handler coil.

When set, the air handler will keep working in fan mode only for no more than 10 minutes after the unit is turned off this function will eliminate humidity remaining in heat exchanger after cooling cycle.

This function is only available in COOL and DRY modes

To activate BLOW Function just press the BLOW key in the remote.
**Display Degrees in Fahrenheit units.**

With the remote OFF press MODE key and (-) key at the same time, the display will now show degrees in Fahrenheit, do it again and it will show Celsius degrees.

**AUTO:**

In AUTO mode, degrees will not be shown in the unit display and temperature is preset to 77°F for Cooling and 82°F for Heating, in units with heat pump it can select from HEAT or COOL by scanning actual room temperature, and if the ambience is wet above comfort it will select the DRY mode automatically.

*To activate AUTO just press MODE until △ is shown.*

**TURBO:**

If activated fan speed is above HIGH, this provides a higher airflow volume and cool down or warm up a room faster than normal, this fan mode is only available in COOL and HEAT modes.

*To activate press TURBO button once, press again to deactivate.*

**LOCK:**

To lock the remote just press (+) and (-) simultaneously, this avoid changes in the configuration from the remote control.

To unlock the remote, use the same combination (+) and (-) again.
Remote Control: Proper use

**SWING:**

SWING allows the user to select between various airflow wing positions, fixed to an angle or at an automatic cycling oscillation between all available positions.

A new preset is called for every time the user press the SWING key, the following is a graphic of this presets.

**SMART Defrost:**

This new function is only for HEAT PUMP units, it confirms that a defrost cycle has been done under any circumstance lets take a look at the next situation, When this function is active and by any reason the user turns off the unit or changes the operating mode, the air handler will first complete the defrost cycle before taking execute any other action, this means that the unit may not respond to changes in operating modes or functioning UNTIL the defrost cycle is finished.

**ACTIVATE:** With the control in "OFF" press MODE and BLOW keys at the same time until "HI" shows in the display, this indicates that the function is now active, if you turn the unit in HEAT mode the display will blink with "HI" for 5 seconds approximately.

**DEACTIVATE:** With the control in "OFF" press MODE and BLOW keys at the same time, "HI" message will disappear from the display, then this function is off.

**Battery Replacement**

1. You can find a sliding cover in the back of the remote, place your thumb in the direction shown in the arrow press gently and push.

2. Replace the batteries with AAA 1.5V only as show in the figure to the right, take especial notice of the batteries polarity.

3. Place the cover just like it's shown in the figure to the right.

**WARNING:** Use only NEW AAA 1.5V batteries, never mix a used battery with a new one.
Emergency switch

Caution

- If the remote is not going to be used for a long period of time, remove the batteries to avoid leaks that can damage remote.
- Remote control operation must be within the determined operating range.
- The remote control must be placed at a minimum distance of 3 feet from the TV set or any other remote controlled equipment.
- If by any reason the remote control stops working, remove the batteries and wait 30 seconds then put them back in, if the problem persists try changing the batteries for new ones and if this still does not make it work please contact your closest Mirage authorized service center.

EMERGENCY SWITCH

When the remote is lost or damaged beyond functioning, the user can use the emergency switch as an alternative. When this switch is used the air handler uses AUTO mode and temperature can not be adjusted.

Once the emergency switch has been pressed the unit verify ambient temperature and automatically selects a mode to operate (Heating works only on HEAT PUMP units)

Emergency Switch Operation

- Rise the front cover and locate the switch to the right
- Use this switch and the unit will start working in AUTO (Once the unit scans the temperature it will select COOL, FAN or HEAT (for heat pump units only))
- To stop the unit just press the activation switch again.
Caution

- To avoid risk of electric shock turn off the unit and disconnect it from the electric grid before starting.
- To avoid risk of electric shock never use liquids over the units
- Solvents like thinner or gasoline can damage the unit.
- Use only a slightly damped cloth to clean the exterior parts of the unit

Front Cover cleaning
(Be sure to remove the front cover before cleaning)

- Front Cover removal: Use the illustration as a reference, hold with both hands by the lower exterior ends and while pressing pull up firmly but gently.
- Cleaning, use detergent or soap and a soft sponge, never use water above 113°F to wash the panel dry it with a clean and dry cloth
- Front cover installation: Position the supports of the front cover in their slots and press firmly, to close it just pull down.

Air filter Cleaning
(Every 15 days)

NOTE: If the air handler is in a environment where a lot of dust is in the air, it's recommended o clean the air filters frequently. At risk of cutting avoid direct contact with the unit coil.
1.- AIR FILTER REMOVAL

- Locate the existing slots at both sides if the front cover and pull up to open.
- Once open, remove the air filters rising the lower end handles up and then pulling.

2.- CLEANING

- To remove dust, use a vacuum cleaner or neutral detergent. Be sure the water is below 113°F. If the filter is very dirty use the last method.

NOTE: Never use water above 113 °F to wash the air filters, dry it with a clean and dry cloth

AIR FILTER INSTALLATION

- Just insert filters as shown in the illustration using the air filter guides.
- Close the cover all the way down until you can hear a “click” sound.

RECOMMENDATIONS BEFORE USE

- Verify that nothing blocks the air return and air flow outlet.
- Verify that the electrical setup for the unit is properly grounded.
- Verify that the electrical setup is exclusively for the unit and that a thermo electrical switch is in place.
- Verify that the remote control has a new set of batteries

When not in use for a prolonged period of time

- Cut the power by setting the protection switch in OFF position
- Clean the filters and air handler body.
- Remove batteries from the remote control and place it in a safe place.
Clean and maintenance

⚠️ Note:
- Turn off the air conditioner and disconnect the power before cleaning the air conditioner to avoid electric shock.
- Do not wash the air conditioner with water to avoid electric shock.
- Do not use volatile liquid to clean the air conditioner.

Clean surface of indoor unit

When the surface of indoor unit is dirty, it is recommended to use a soft dry cloth or wet cloth to wipe it.

Note:
- Do not remove the panel when cleaning it.

Clean filter

1. Open panel
   Pull out the panel to a certain angle as shown in the fig.

2. Remove filter
   Remove the filter as indicated in the fig.

3. Clean filter
   - Use dust catcher or water to clean the filter.
   - When the filter is very dirty, use the water (below 45°C) to clean it, and then put it in a shady and cool place to dry.

4. Install filter
   Install the filter and then close the panel cover tightly.
Clean and maintenance

Note:
- The filter should be cleaned every three months. If there is much dust in the operation environment, clean frequency can be increased.
- After removing the filter, do not touch fins to avoid injury.
- Do not use fire or hair dryer to dry the filter to avoid deformation or fire hazard.

Checking before use-season
1. Check whether air inlets and air outlets are blocked.
2. Check whether circuit break, plug and socket are in good condition.
3. Check whether filter is clean.
4. Check whether mounting bracket for outdoor unit is damaged or corroded.
   If yes, please contact dealer.
5. Check whether drainage pipe is damaged.

Checking after use-season
1. Disconnect power supply.
2. Clean filter and indoor unit’s panel.
3. Check whether mounting bracket for outdoor unit is damaged or corroded.
   If yes, please contact dealer.

Notice for recovery
1. Many packing materials are recyclable materials. Please dispose them in appropriate recycling unit.
2. If you want to dispose the air conditioner, please contact local dealer or consultant service center for the correct disposal method.
# Malfunction Analysis

**General Phenomenon Analysis**

Please check below items before asking for maintenance. If the malfunction still can’t be eliminated, please contact local dealer or qualified professionals.

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Check Items</th>
<th>Solution</th>
</tr>
</thead>
</table>
| Indoor unit can’t receive remote controller’s signal or remote controller has no action. | • Whether it’s interfered severely (such as static electricity, stable voltage)?  
• Whether remote controller is within the signal receiving range?  
• Whether there are obstacles?  
• Whether remote controller is pointing at the receiving window?  
• Is sensitivity of remote controller low; fuzzy display and no display?  
• No display when operating remote controller?  
• Fluorescent lamp in room? | • Pull out the plug. Reinsert the plug after about 3min, and then turn on the unit again.  
• Signal receiving range is 8m.  
• Remove obstacles.  
• Select proper angle and point the remote controller at the receiving window on indoor unit.  
• Check the batteries. If the power of batteries is too low, please replace them.  
• Check whether remote controller appears to be damaged. If yes, replace it.  
• Take the remote controller close to indoor unit.  
• Turn off the fluorescent lamp and then try it again. |

| No air emitted from indoor unit | • Air inlet or air outlet of indoor unit is blocked?  
• Under heating mode, indoor temperature is reached to set temperature?  
• Heating mode is turned on just now? | • Eliminate obstacles.  
• After reaching to set temperature, indoor unit will stop blowing out air.  
• In order to prevent blowing out cold air, indoor unit will be started after delaying for several minutes, which is a normal phenomenon. |
## Malfunction analysis

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Check items</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air conditioner can't operate</td>
<td>● Power failure?</td>
<td>● Wait until power recovery.</td>
</tr>
<tr>
<td></td>
<td>● Is plug loose?</td>
<td>● Reinsert the plug.</td>
</tr>
<tr>
<td></td>
<td>● Circuit break trips off or fuse is burnt out?</td>
<td>● Ask professional to replace circuit break or fuse.</td>
</tr>
<tr>
<td></td>
<td>● Wiring has malfunction?</td>
<td>● Ask professional to replace it.</td>
</tr>
<tr>
<td></td>
<td>● Unit has restarted immediately after stopping operation?</td>
<td>● Wait for 3min, and then turn on the unit again.</td>
</tr>
<tr>
<td></td>
<td>● Whether the function setting for remote controller is correct?</td>
<td>● Reset the function.</td>
</tr>
<tr>
<td>Mist is emitted from indoor unit's air outlet</td>
<td>● Indoor temperature and humidity is high?</td>
<td>● Because indoor air is cooled rapidly. After a while, indoor temperature and humidity will be decrease and mist will disappear.</td>
</tr>
<tr>
<td>Set temperature can't be adjusted</td>
<td>● Unit is operating under auto mode?</td>
<td>● Temperature can't be adjusted under auto mode. Please switch the operation mode if you need to adjust temperature.</td>
</tr>
<tr>
<td></td>
<td>● Your required temperature exceeds the set temperature range?</td>
<td>● Set temperature range: 16°C~30°C.</td>
</tr>
<tr>
<td>Cooling (heating) effect is not good.</td>
<td>● Voltage is too low?</td>
<td>● Wait until the voltage resumes normal.</td>
</tr>
<tr>
<td></td>
<td>● Filter is dirty?</td>
<td>● Clean the filter.</td>
</tr>
<tr>
<td></td>
<td>● Set temperature is in proper range?</td>
<td>● Adjust temperature to proper range.</td>
</tr>
<tr>
<td></td>
<td>● Door and window are open?</td>
<td>● Close door and window.</td>
</tr>
</tbody>
</table>
## Malfunction analysis

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Check items</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odours are emitted</td>
<td>• Whether there’s odour source, such as furniture and cigarette, etc.</td>
<td>• Eliminate the odour source.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Clean the filter.</td>
</tr>
<tr>
<td>Air conditioner operates abnormally</td>
<td>• Whether there’s interference, such as thunder, wireless devices, etc.</td>
<td>• Disconnect power, put back power, and then turn on the unit again.</td>
</tr>
<tr>
<td>Outdoor unit has vapor</td>
<td>• Heating mode is turned on?</td>
<td>• During defrosting under heating mode, it may generate vapor, which is a normal phenomenon.</td>
</tr>
<tr>
<td>“Water flowing” noise</td>
<td>• Air conditioner is turned on or turned off just now?</td>
<td>• The noise is the sound of refrigerant flowing inside the unit, which is a normal phenomenon.</td>
</tr>
<tr>
<td>Cracking noise</td>
<td>• Air conditioner is turned on or turned off just now?</td>
<td>• This is the sound of friction caused by expansion and/or contraction of panel or other parts due to the change of temperature.</td>
</tr>
</tbody>
</table>
Malfunction analysis

Error Code

- When air conditioner status is abnormal, temperature indicator on indoor unit will blink to display corresponding error code. Please refer to below list for identification of error code.

<table>
<thead>
<tr>
<th>Error code</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating indicator ON 10s OFF 0.5s</td>
<td>Means defrosting status. It’s the normal phenomenon.</td>
</tr>
<tr>
<td>E5</td>
<td>It can be eliminated after restarting the unit. If not, please contact qualified professionals for service.</td>
</tr>
<tr>
<td>H6</td>
<td>It can be eliminated after restarting the unit. If not, please contact qualified professionals for service.</td>
</tr>
<tr>
<td>C5</td>
<td>Please contact qualified professionals for service.</td>
</tr>
<tr>
<td>F1</td>
<td>Please contact qualified professionals for service.</td>
</tr>
<tr>
<td>F2</td>
<td>Please contact qualified professionals for service.</td>
</tr>
<tr>
<td>E6</td>
<td>It can be eliminated after restarting the unit. If not, please contact qualified professionals for service.</td>
</tr>
</tbody>
</table>

Note: If there’re other error codes, please contact qualified professionals for service.

Warning

- When below phenomenon occurs, please turn off air conditioner and disconnect power immediately, and then contact the dealer or qualified professionals for service.
  - Power cord is overheating or damaged.
  - There’s abnormal sound during operation.
  - Circuit break trips off frequently.
  - Air conditioner gives off burning smell.
  - Indoor unit is leaking.
- Do not repair or refit the air conditioner by yourself.
- If the air conditioner operates under abnormal conditions, it may cause malfunction, electric shock or fire hazard.
Installation diagram

- At least 6" Space to the wall
- At least 10 ft. Space to the obstruction
- At least 8.5 ft. Space to the floor
- At least 12" Space to the wall
- At least 7 ft. Space to the obstruction
- At least 20° Drainage pipe

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Tools for installation

| 1 Level meter | 2 Screw driver | 3 Impact drill |
| 4 Drill head   | 5 Pipe expander| 6 Torque wrench|
| 7 Open-end wrench | 8 Pipe cutter | 9 Leakage detector |
| 10 Vacuum pump | 11 Pressure meter | 12 Universal meter |
| 13 Inner hexagon spanner | 14 Measuring tape |

**Note:**
- Please contact the local agent for installation.
- Don't use unqualified power cord.

### Selection of installation location

**Basic requirements**

Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult the local dealer:

1. The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.
2. The place with high-frequency devices (such as welding machine, medical equipment).
3. The place near coast area.
4. The place with oil or fumes in the air.
5. The place with sulfured gas.
6. Other places with special circumstances.
7. Do not use the unit in the immediate surroundings of a laundry, a bath, a shower, or a swimming pool.

**Indoor unit**

1. There should be no obstruction near air inlet and air outlet.
2. Select a location where the condensation water can be dispersed easily and won’t affect other people.
3. Select a location which is convenient to connect the outdoor unit and near the power socket.
4. Select a location which is out of reach for children.
5. The location should be able to withstand the weight of indoor unit and won't increase noise and vibration.
6. The appliance must be installed 8.5 ft above floor.
7. Don't install the indoor unit right above the electric appliance.
8. Please try your best to keep way from fluorescent lamp.

**Outdoor unit**

1. Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.
2. The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.
3. The location should be able to withstand the weight of outdoor unit.
4. Make sure that the installation follows the requirement of installation dimension diagram.
5. Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add the fence for safety purpose.
Requirements for electric connection

**Safety precaution**

1. Must follow the electric safety regulations when installing the unit.
2. According to the local safety regulations, use qualified power supply circuit and circuit break.
3. Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring or malfunction. Please install proper power supply cables before using the air conditioner.
4. Properly connect the live wire, neutral wire and grounding wire of power socket.
5. Be sure to cut off the power supply before proceeding any work related to electricity and safety.
6. Do not put through the power before finishing installation.
7. 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.
8. The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.
9. The appliance shall be installed in accordance with national wiring regulations.
10. Installation must be performed in accordance with the requirement of NEC and CEC by authorized personnel only.

**Grounding requirement**

1. The air conditioner is the first class electric appliance. It must be properly grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
2. The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.
3. The grounding resistance should comply with national electric safety regulations.
4. The appliance must be positioned so that the plug is accessible.
5. An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
6. Including an circuit break with suitable capacity, please note the following table. Air switch should be included magnet buckle and heating buckle function, it can protect the circuit-short and overload. (Caution: please do not use the fuse only for protect the circuit)

<table>
<thead>
<tr>
<th>Air-conditioner</th>
<th>Circuit break capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>12K</td>
<td>20A</td>
</tr>
<tr>
<td>18K</td>
<td>25A</td>
</tr>
<tr>
<td>24K</td>
<td>25A</td>
</tr>
</tbody>
</table>
Installation of indoor unit

Step one: choosing installation location

Recommend the installation location to the client and then confirm it with the client.

---

Step two: install wall-mounting frame

1. Hang the wall-mounting frame on the wall; adjust it in horizontal position with the level meter and then point out the screw fixing holes on the wall.
2. Drill the screw fixing holes on the wall with impact drill (the specification of drill head should be the same as the plastic expansion particle) and then fill the plastic expansion particles in the holes.
3. Fix the wall-mounting frame on the wall with tapping screws (ST4.2X25TA) and then check if the frame is firmly installed by pulling the frame. If the plastic expansion particle is loose, please drill another fixing hole nearby.

---

Step three: open piping hole

1. Choose the position of piping hole according to the direction of outlet pipe. The position of piping hole should be a little lower than the wall-mounted frame, shown as below.

   **12k-18k:**
   - Space to the wall above 6" (Rear piping hole)
   - Mark in the middle of it
   - Level meter
   - Left 2.5" (Rear piping hole)
   - Right 2.5"

   **24K:**
   - Space to the wall above 6" (Rear piping hole)
   - Mark in the middle of it
   - Level meter
   - Left 3" (Rear piping hole)
   - Right 3"

2. Open a piping hole with the diameter of Φ2.5” - Φ3” on the selected outlet pipe position. In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°.
Installation of indoor unit

Note:
- Pay attention to dust prevention and take relevant safety measures when opening the hole.
- The plastic expansion particles are not provided and should be bought locally.

Step four: outlet pipe
1. The pipe can be led out in the direction of right, rear right, left or rear left.
2. When select leading out the pipe from left to right, and pipe can not be hidden through the wall, you can cut off the bottom section of the case.

Step five: connect the pipe of indoor unit
1. Aim the pipe joint at the corresponding bellmouth.
2. Pre tightening the union nut with hand.
3. Adjust the torque force by referring to the following sheet. Place the open-end wrench on the pipe joint and place the torque wrench on the union nut. Tighten the union nut with torque wrench.
Installation of indoor unit

4. Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape.

<table>
<thead>
<tr>
<th>Hex nut diameter</th>
<th>Tightening torque (ft.lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Φ 1/4&quot;</td>
<td>11 - 14.75</td>
</tr>
<tr>
<td>Φ 3/8&quot;</td>
<td>22 - 30</td>
</tr>
<tr>
<td>Φ 1/2&quot;</td>
<td>30 - 40.5</td>
</tr>
<tr>
<td>Φ 5/8&quot;</td>
<td>45 - 48</td>
</tr>
<tr>
<td>Φ 3/4&quot;</td>
<td>52 - 55</td>
</tr>
</tbody>
</table>

Step six: install drain hose

1. Connect the drain hose to the outlet pipe of indoor unit.

2. Bind the joint with tape.

Note:
- Add insulating pipe in the indoor drain hose in order to prevent condensation.
- The plastic expansion particles are not provide

Step seven: connect wire of indoor unit

1. Open the panel, remove the screw on the wiring cover and then take down the cover.
2. Make the power connection wire go through the cable-cross hole at the back of indoor unit and then pull it out from the front side.

3. Remove the wire clip; connect the power connection wire to the wiring terminal according to the color; tighten the screw and then fix the power connection wire with wire clip.

4. Put wiring cover back and then tighten the screw.
5. Close the panel.

Note:
- All wires of indoor unit and outdoor unit should be connected by a professional.
- If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.
- For the air conditioner with plug, the plug should be reachable after finishing installation.
- For the air conditioner without plug, an circuit break must be installed in the line. The circuit break should be all-pole parting and the contact parting distance should be more than 3mm.
Installation of indoor unit

Step eight: bind up pipe

1. Bind up the connection pipe, power cord and drain hose with the band.

2. Reserve a certain length of drain hose and power cord for installation when binding them. When binding to a certain degree, separate the indoor power and then separate the drain hose.

3. Bind them evenly.

4. The liquid pipe and gas pipe should be bound separately at the end.

Note:
- The power cord and control wire can’t be crossed or winding.
- The drain hose should be bound at the bottom.

Step nine: hang the indoor unit

1. Put the bound pipes in the wall pipe and then make them pass through the wall hole.

2. Hang the indoor unit on the wall-mounting frame.

3. Stuff the gap between pipes and wall hole with sealing gum.

4. Fix the wall pipe.

5. Check if the indoor unit is installed firmly and closed to the wall.

Note:
- Do not bend the drain hose too excessively in order to prevent blocking.
Installation of outdoor unit

Step one: fix the support of outdoor unit
(select it according to the actual installation situation)

1. Select installation location according to the house structure.
2. Fix the support of outdoor unit on the selected location with expansion screws.

Note:
- Take sufficient protective measures when installing the outdoor unit.
- Make sure the support can withstand at least four times of the unit weight.
- The outdoor unit should be installed at least 2" above the floor in order to install drain joint.
- For the unit with cooling capacity of 2300 W ~ 5000 W, 6 expansion screws are needed; for the unit with cooling capacity of 6000 W ~ 8000 W, 8 expansion screws are needed; for the unit with cooling capacity of 10000 W ~ 16000 W, 10 expansion screws are needed.

Step two: install drain joint
(Only for cooling and heating unit)

1. Connect the outdoor drain joint into the hole on the chassis, as shown in the picture below.
2. Connect the drain hose into the drain vent.

Step three: fix outdoor unit

1. Place the outdoor unit on the support.
2. Fix the foot holes of outdoor unit with bolts.
Installation of outdoor unit

Step four: connect indoor and outdoor pipes

1. Remove the screw on the right handle of outdoor unit and then remove the handle.

2. Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.

3. Pre tighten the union nut with hand.

4. Tighten the union nut with torque wrench by referring to the sheet below.

<table>
<thead>
<tr>
<th>Hex nut diameter</th>
<th>Tightening torque (ft lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Φ 1/4”</td>
<td>11 - 14.75</td>
</tr>
<tr>
<td>Φ 3/8”</td>
<td>22 - 30</td>
</tr>
<tr>
<td>Φ 1/2”</td>
<td>30 - 40.5</td>
</tr>
<tr>
<td>Φ 5/8”</td>
<td>45 - 48</td>
</tr>
<tr>
<td>Φ 3/4”</td>
<td>52 - 55</td>
</tr>
</tbody>
</table>

Step five: connect outdoor electric wire

1. Remove the wire clip; connect the power connection wire and signal control wire (only for Cool and heat type) to the wiring terminal according to the color; fix them with screws.

Diagram of indoor unit connection.
2. Fix the power connection wire and signal control wire with wire clip (only for cooling and heating unit).

**Note:**
- After tighten the screw, pull the power cord slightly to check if it is firm.
- Never cut the power connection wire to prolong or shorten the distance.

---

**Step six: neaten the pipes**

1. The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 4".

2. If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room.

**Note:**
- The through-wall height of drain hose shouldn’t be higher than the outlet pipe hole of indoor unit
- Slant the drain hose slightly downwards. The drain hose can’t be curved, raised and fluctuant, etc.
- The water outlet can’t be placed in water in order to drain smoothly
- The drain hose can’t be fluctuant
- The water outlet can’t be fluctuant
Use vacuum pump

1. Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.
2. Connect the charging hose of manifold to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.
3. Open the manifold completely and operate for 10-15min to check if the pressure of manifold mains in remains in -1.45 PSI.
4. Close the vacuum pump and maintain this status for 1-2min to check if the pressure of manifold remains in -1.45 PSI. If the pressure decreases, there may be leakage.
5. Remove the manifold, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.
6. Tighten the screw caps of valves and refrigerant charging vent.
7. Reinstall the handle.

Leakage detection

1. With leakage detector:
   Check if there is leakage with leakage detector.
2. With soap water:
   If leakage detector is not available, please use soap water for leakage detection. Apply soap water at the suspected position and keep the soap water for more than 3min. If there are air bubbles coming out of this position, there's a leakage.
Check list after installation

- Check according to the following requirement after finishing installation.

<table>
<thead>
<tr>
<th>Items to be checked</th>
<th>Possible malfunction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the unit been installed firmly?</td>
<td>The unit may drop, shake or emit noise.</td>
</tr>
<tr>
<td>Have you done the refrigerant leakage test?</td>
<td>It may cause insufficient cooling (heating) capacity.</td>
</tr>
<tr>
<td>Is heat insulation of pipeline sufficient?</td>
<td>It may cause condensation and water dripping.</td>
</tr>
<tr>
<td>Is water drained well?</td>
<td>It may cause condensation and water dripping.</td>
</tr>
<tr>
<td>Is the voltage of power supply according to the voltage marked on the nameplate?</td>
<td>It may cause malfunction or damaging the parts.</td>
</tr>
<tr>
<td>Is electric wiring and pipeline installed correctly?</td>
<td>It may cause malfunction or damaging the parts.</td>
</tr>
<tr>
<td>Is the unit grounded securely?</td>
<td>It may cause electric leakage.</td>
</tr>
<tr>
<td>Does the power cord follow the specification?</td>
<td>It may cause malfunction or damaging the parts.</td>
</tr>
<tr>
<td>Is there any obstruction in the air inlet and outlet?</td>
<td>It may cause insufficient cooling (heating) capacity.</td>
</tr>
<tr>
<td>The dust and sundries caused during installation are removed?</td>
<td>It may cause malfunction or damaging the parts.</td>
</tr>
<tr>
<td>The gas valve and liquid valve of connection pipe are open completely?</td>
<td>It may cause insufficient cooling (heating) capacity.</td>
</tr>
</tbody>
</table>

Test operation

1. Preparation of test operation
   - The client approves the air conditioner.
   - Specify the important notes for air conditioner to the client.

2. Method of test operation
   - Put through the power, press ON/OFF button on the remote controller to start operation.
   - Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
   - If the ambient temperature is lower than 16°C, the air conditioner can’t start cooling.
1. Standard length of connection pipe
   - 16 ft, 24 ft or 26 ft. (note: When is included only, it does not apply to this case)

2. Min. length of connection pipe is 10 ft.

3. Max. length of connection pipe and max. high difference.

<table>
<thead>
<tr>
<th>Cooling capacity</th>
<th>Max length of connection pipe</th>
<th>Max height difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000Btu/h (1465W)</td>
<td>49 ft.</td>
<td>16 ft.</td>
</tr>
<tr>
<td>7000Btu/h (2051W)</td>
<td>49 ft.</td>
<td>16 ft.</td>
</tr>
<tr>
<td>9000Btu/h (2637W)</td>
<td>49 ft.</td>
<td>16 ft.</td>
</tr>
<tr>
<td>12000Btu/h (3516W)</td>
<td>65 ft.</td>
<td>33 ft.</td>
</tr>
<tr>
<td>18000Btu/h (5274W)</td>
<td>80 ft.</td>
<td>33 ft.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cooling capacity</th>
<th>Max length of connection pipe</th>
<th>Max height difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>24000Btu/h (7032W)</td>
<td>80 ft.</td>
<td>33 ft.</td>
</tr>
<tr>
<td>28000Btu/h (8204W)</td>
<td>98 ft.</td>
<td>33 ft.</td>
</tr>
<tr>
<td>36000Btu/h (10548W)</td>
<td>98 ft.</td>
<td>65 ft.</td>
</tr>
<tr>
<td>42000Btu/h (12306W)</td>
<td>98 ft.</td>
<td>65 ft.</td>
</tr>
<tr>
<td>48000Btu/h (14064W)</td>
<td>98 ft.</td>
<td>65 ft.</td>
</tr>
</tbody>
</table>

4. The additional refrigerant oil and refrigerant charging required after prolonging connection pipe
   - After the length of connection pipe is prolonged for 32 ft at the basis of standard length, you should add 0.16 oz of refrigerant oil for each additional 32 ft of connection pipe.
   - The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):
     Additional refrigerant charging amount = prolonged length of liquid pipe × additional refrigerant charging amount per meter
   - When the length of connection pipe is above 32 ft, add refrigerant according to the prolonged length of liquid pipe. The additional refrigerant charging amount per feet is different according to the diameter of liquid pipe. See the following sheet.
## Configuration of connection pipe

Additional refrigerant charging amount for R22, R407C, R410A and R134a

<table>
<thead>
<tr>
<th>Diameter of connection pipe</th>
<th>Outdoor unit throttle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid pipe(mm)</td>
<td>Gas pipe(mm)</td>
</tr>
<tr>
<td><strong>Φ 1/4&quot;</strong></td>
<td>Φ 3/8&quot; or Φ 1/2&quot;</td>
</tr>
<tr>
<td>Φ 1/4&quot; or Φ 3/8&quot;</td>
<td>Φ 5/8&quot; or Φ 3/4&quot;</td>
</tr>
<tr>
<td>Φ 1/2&quot;</td>
<td>Φ 3/4&quot; or Φ 7/8&quot;</td>
</tr>
<tr>
<td>Φ 5/8&quot;</td>
<td>Φ 1&quot; or Φ 1 1/4&quot;</td>
</tr>
<tr>
<td>Φ 3/4&quot;</td>
<td>_</td>
</tr>
<tr>
<td>Φ 7/8&quot;</td>
<td>_</td>
</tr>
</tbody>
</table>
Pipe expanding method

Note:
Improper pipe expanding is the main cause of refrigerant leakage. Please expand the pipe according to the following steps:

A: Cut the pipe
- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.

B: Remove the burrs
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.

C: Put on suitable insulating pipe
D: Put on the Union nut
- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.

E: Expand the port
- Expand the port with expander.

Note:
- "A" is different according to the diameter, please refer to the sheet below:

<table>
<thead>
<tr>
<th>Outer diameter (mm)</th>
<th>A (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max</td>
</tr>
<tr>
<td>Φ 6 or 6.35 (1/4&quot;)</td>
<td>3/64&quot;</td>
</tr>
<tr>
<td>Φ 9.52 (3/8&quot;)</td>
<td>1/16&quot;</td>
</tr>
<tr>
<td>Φ 12-12.7 (1/2&quot;)</td>
<td>5/64&quot;</td>
</tr>
<tr>
<td>Φ 15.8-16 (5/8&quot;)</td>
<td>3/32&quot;</td>
</tr>
</tbody>
</table>

F: Inspection
- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.