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# Wired Controller XK41

Owner's Manual

Commercial Air Conditioners

Thank you for choosing Commercial Air Conditioners ,please read this owner’s manual carefully before operation and retain it for future reference.

# User Notice

⚠ Please carefully read this manual before installation and use of this product

- Ensure unified power supply for each indoor unit.
- Never install wired controller in wet place or under sunlight directly.
- Shielded twisted pair line must be adopted as signal line or wiring (communication) of wired controller once the unit is installed in the place where there is electromagnetic interference.
- Make sure communication line is connected into correct port to avoid communication malfunction.
- Never knock, throw or frequently disassemble the wired controller.
- Never operate the wired controller with wet hand.

Contents

# 1 Displaying Part

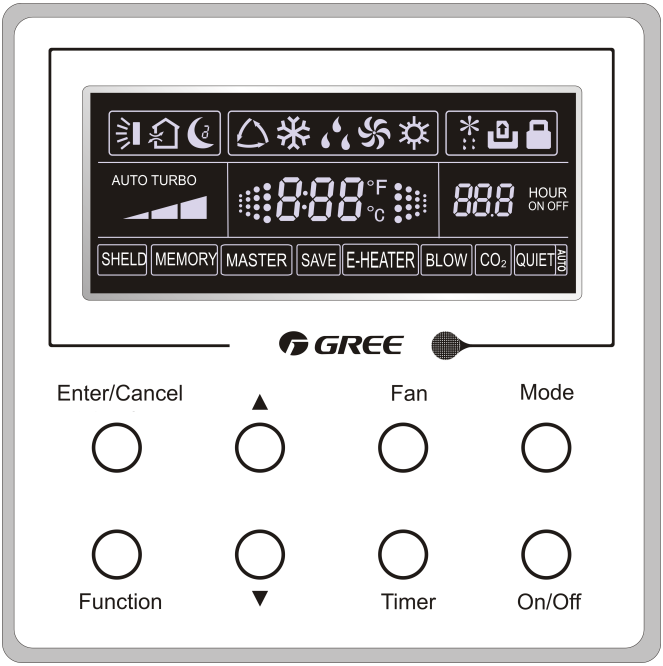



Fig1.1.1 Outline of wired controller

## 1.1 LCD Display of Wired Controller

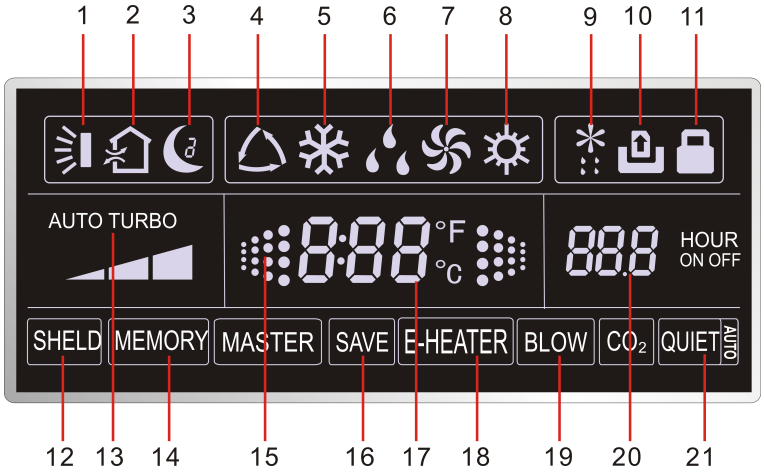



Fig.1.1.2 LCD display

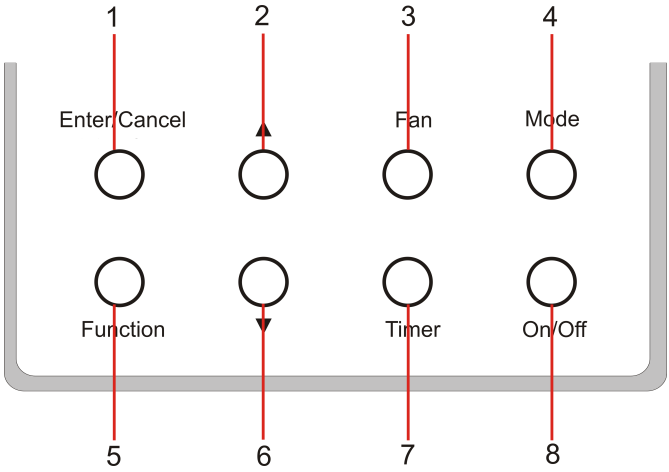
## 1.2 Instruction to LCD Display

Table 1.1

| No. | Symbols | Description |
|---|---|---|
| 1 |  | Swing function |
| 2 |  | Air exchange function (this function is yet unavailable for this unit). |
| 3 |  | Sleep function (Only sleep 1). |
| 4 |  | Each kind of running mode of indoor unit (auto mode) |
| 5 |  | Cooling mode |
| 6 |  | Dry mode |
| 7 |  | Fan mode |
| 8 |  | Heating mode |
| 9 |  | Defrosting function for the outdoor unit. |
| 10 |  | Gate-control function (this function is yet unavailable for this unit). |
| 11 |  | Lock function. |
| 12 | SHIELD | Shield functions (Button operation, temperature setting, On/Off operation, Mode setting are disabled by the remote monitoring system.) |
| 13 | Turbo | Turbo function state |
| 14 | MEMORY | Memory function (The indoor unit resumes the original setting state after power failure and then power recovery). |
| 15 |  | It blinks under on state of the unit without operation of any button. |
| 16 | SAVE | Energy-saving function (this function is yet unavailable for this unit). |
| 17 |  | Ambient/setting temperature value |
| 18 | E-HEATER | Electric auxiliary heating function. |
| 19 | BLOW | Blow function. |
| 20 |  | Timing value. |
| 21 | QUIET | Quiet function (two types: quiet and auto quiet) (this function is yet unavailable for this unit). |

# 2 Buttons

## 2.1 Layout of Buttons




## 2.2 Functions of Buttons

Table 2.1

| No. | Name | Function |
|---|---|---|
| 1 | Enter/Cancel | Function selection and cancellation. |
| 2 | ▲ | ① . Running temperature setting of the indoor unit, range:16~30°C.<br>② . Timer setting, range:0.5-24 hr. |
| 6 | ▼ | |
| 3 | Fan | Setting of the high/middle/low/auto fan speed. |
| 4 | Mode | Setting of the Cooling/Heating/Fan/Dry/Auto mode of the indoor unit. |
| 5 | Function | Switchover among the functions of Turbo/Save/E-heater/Blow etc.. |
| 7 | Timer | Timer setting. |
| 8 | On/Off | Turn on/off the indoor unit |
| 4+2 | ▲+Mode | Press them for 5s under off state of the unit to enter/cancel the Memory function(If memory is set, indoor unit after power failure and then power recovery will resume the original setting state. If not, the indoor unit is defaulted to be off after power recovery. Memory off is default before delivery.). |
| 3+6 | Fan+▼ | By pressing them at the same time under off state of the unit, ❄ will be displayed on the wired controller for the cooling only unit, while ☼ will be displayed on the wired controller for the cooling and heating unit. |
| 2+6 | ▲+▼ | Upon startup of the unit without malfunction or under off state of the unit,press them at the same time for 5s to enter the lock state, in which case,any other buttons won't respond the press. Repress them for 5s to quit this state. |
| 8+4+6 | Mode+▼ | Change °C to °F. Turn unit off. Press "Mode" and "▼" for 5 seconds |

# 3 Operation Instructions

## 3.1 On/Off

Press On/Off to turn on the unit and turn it off by another press.

Note: The state shown in Fig.3.1.1 indicates the “Off” state of the unit after power on. The state shown in Fig.3.1.2 indicates the “On” state of the unit after power on.

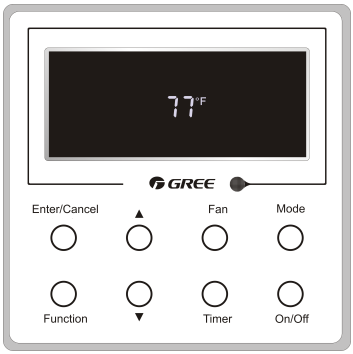



Fig.3.1.1 “Off” State

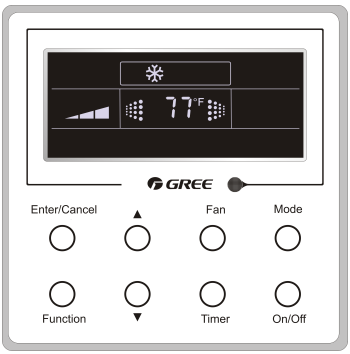
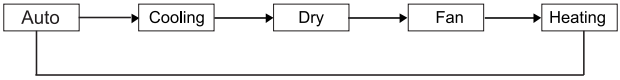



Fig.3.1.2 “On” State

## 3.2 Mode Setting

Under ON state of the unit, press the Mode to switch the operation modes as the following sequence:Auto–Cooling–Dry–Fan–Heating.




## 3.3 Temperature Setting

Press ▲or ▼ to increase/decrease the preset temperature. If pressing either of them continuously, the temperature will be increased or decreased by 1°C every 0.5s,as shown in Fig.3.3.1.

In the Cooling, Dry, Fan or Heating mode, the temperature setting range is 16°C~30°C.

In the Auto mode, the setting temperature is unadjustable.

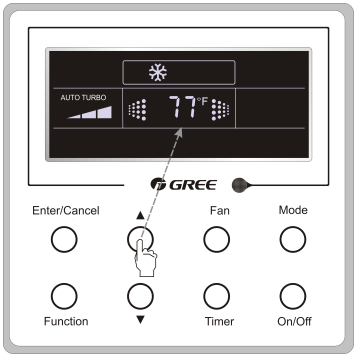



Fig.3.3.1

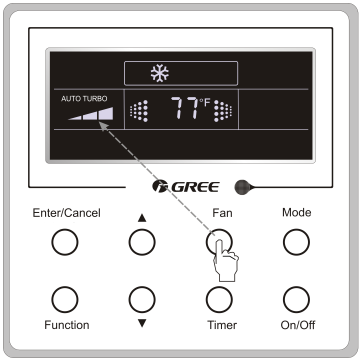
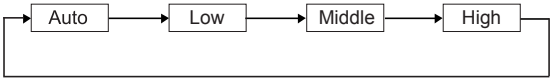



Fig.3.4.1

## 3.4 Fan Setting

Under the “On” state of the unit, press Fan and then fan speed of the indoor unit will change circularly as shown in Fig.3.4.1.




## 3.5 Timer Setting

Under on-state of the unit, Press Timer button to set timer off of the unit. Under off-state of the unit, press Timer button to set timer on of the unit in the same way.

• Timer on setting:

Under off-state of the unit without timer setting, if Timer button is pressed, LCD will display xx. Hour,with ON blinking. In this case, press▲ or ▼ button to adjust timer on and then press Timer to confirm.

• Timer off setting:

Under on-state of the unit without timer setting, if Timer button is pressed, LCD will display xx. Hour,with OFF blinking. In this case, press▲ or ▼ button to adjust timer on and then press Timer to confirm.

• Cancel timer:

After setting of timer, if Timer button is pressed, LCD won’t display xx. Hour so that timer setting is canceled.

Timer off setting under the “On” state of the unit is shown as Fig.3.5.1.

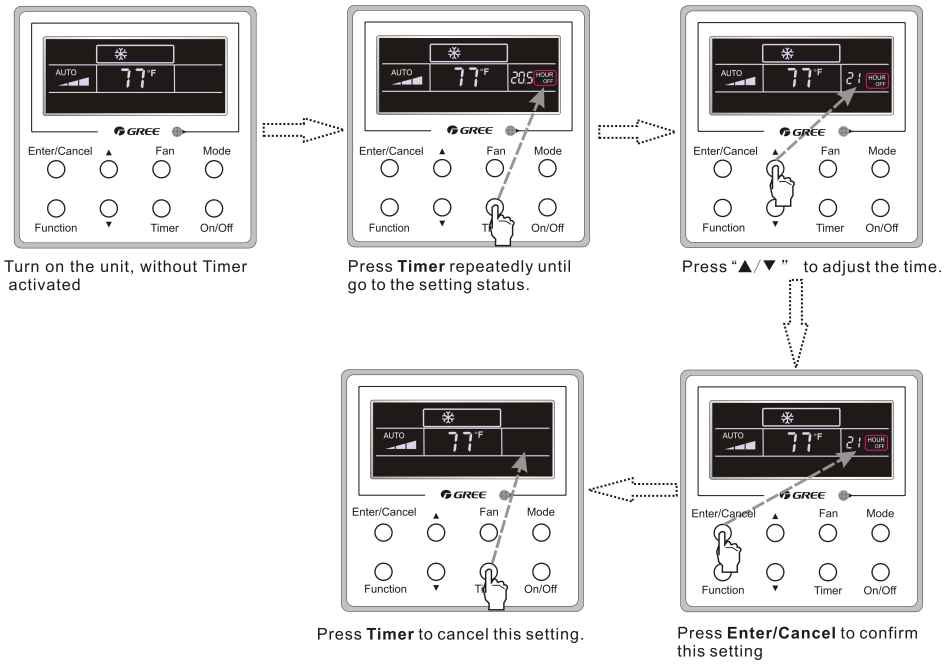



Fig.3.5.1 Timer off Setting under the “On” State of the Unit

Timer on setting under the “Off” state of the unit is shown as Fig.3.5.2.

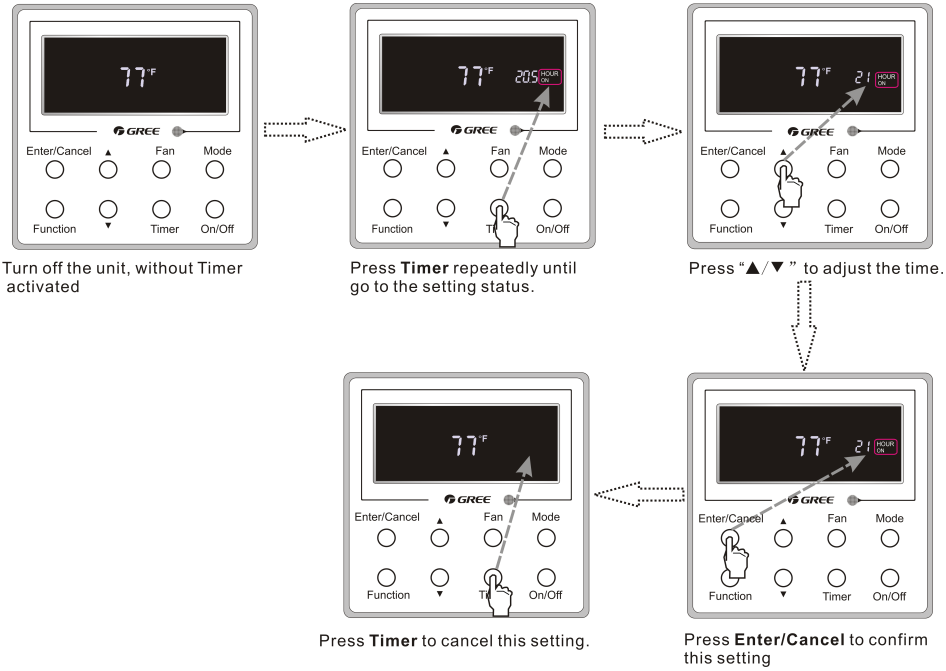



Fig.3.5.2 Timer on Setting under the “Off” State of the Unit

Timer range: 0.5-24hr. Every press of ▲or ▼ will make the set time increased or decreased by 0.5hr. If either of them is pressed continuously, the set time will increase/ decrease by 0.5hr every 0.5s.

## 3.6 Swing Setting

Swing On: Press Function under on state of the unit to activate the swing function. In this case, will blink. After that, press Enter/Cancel to make a confirmation.

Swing Off: When the Swing function is on, press Function to enter the Swing setting interface,with blinking. After that, press Enter/Cancel to cancel this function. Swing setting is shown as Fig.3.6.1.

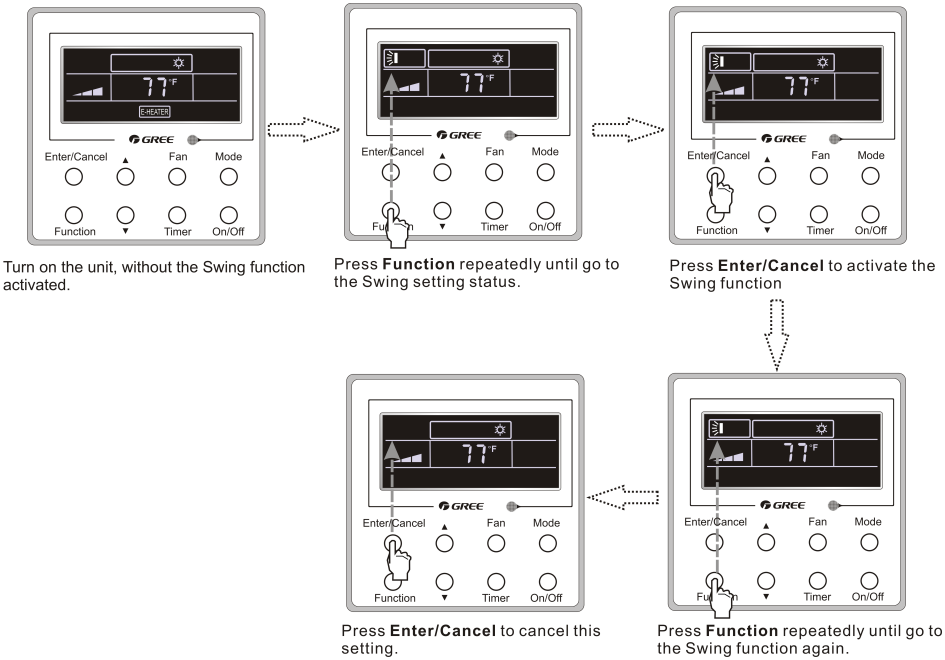



Fig.3.6.1 Swing Setting

Notes:

① . Sleep, Turbo or Blow setting is the same as the Swing setting.

② . After the setting has been done, it has to press the key “Enter/Cancel” to back to the setting status or quit automatically five seconds later.

## 3.7 Sleep Setting

Sleep on: Press Function under the On state of the unit till the unit enters the Sleep setting state. After that, press Enter/Cancel to confirm this setting.

Sleep off: When the Sleep function is activated, press Function to enter the Sleep setting status. After that, press Enter/Cancel to cancel this function.

In the Cooling or Dry mode, the temperature will increase by 1°C after the unit runs under Sleep1 for 1hr and 1°C after another 1hr.After that, the unit will run at this temperature.

In the Heating mode, the temperature will decrease by 1°C after the unit runs under Sleep 1 for 1hr and 1°C after another 1hr. After that, the unit will run at this temperature.

Sleep setting is shown as Fig.3.7.1.

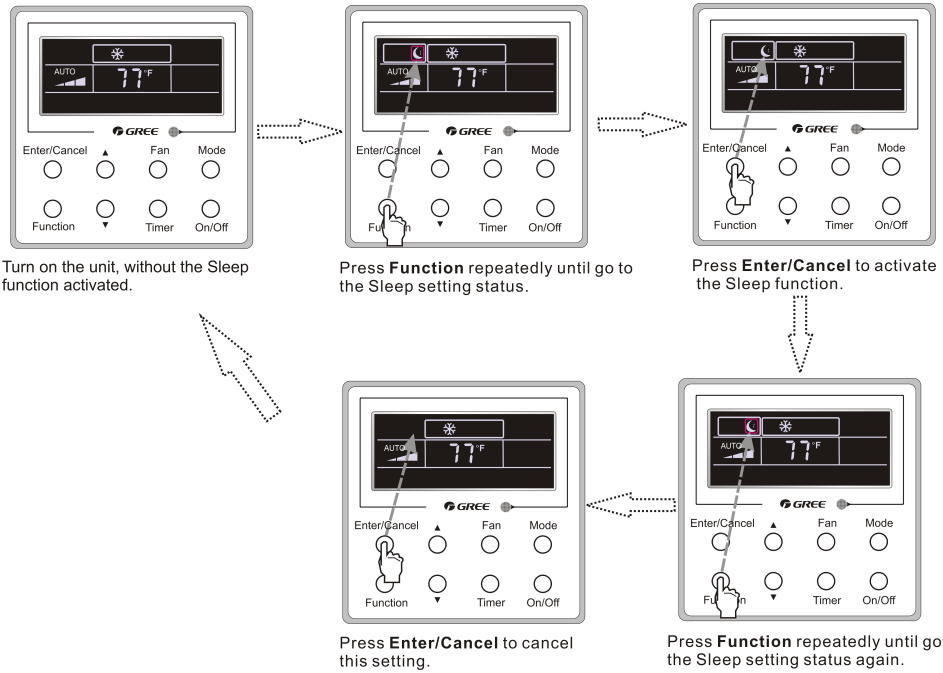



Fig.3.7.1. Sleep Setting

## 3.8 Turbo Setting

Turbo function: The unit at the high fan speed can realize quick cooling or heating so that the room temperature can quickly approach the setting value.

In the Cooling or Heating mode, press Function till the unit enters the Turbo setting status and then press Enter/Cancel to confirm the setting.

When the Turbo function is activated, press Function to enter the Turbo setting status and then press Enter/Cancel to cancel this function.

Turbo function setting is as shown in Fig.3.8.1.

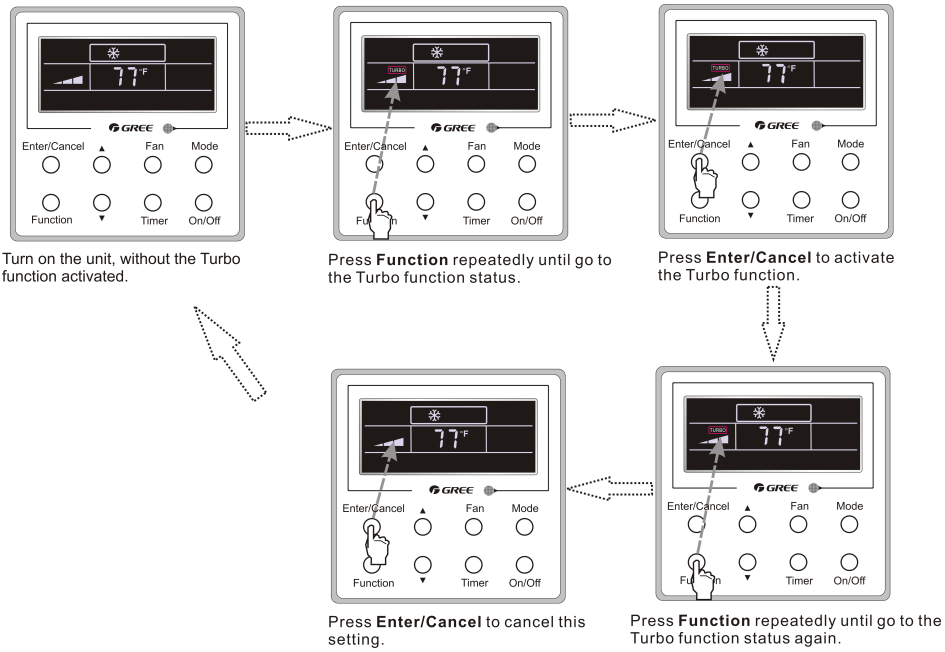



Fig.3.8.1 Turbo Setting

## 3.9 E-heater Setting

E-heater (auxiliary electric heating function): In the Heating mode, E-heater is allowed to be turned on for improvement of efficiency.

Once the wired controller or the remote controller enters the Heating mode, this function will be turned on automatically.

Press Function in the Heating mode to enter the E-heater setting interface and then press Enter/Cancel to cancel this function.

Press Function to enter the E-heater setting status, if the E-heater function is not activated, and then press Enter/Cancel to activate it.

The setting of this function is shown as Fig.3.9.1 below:

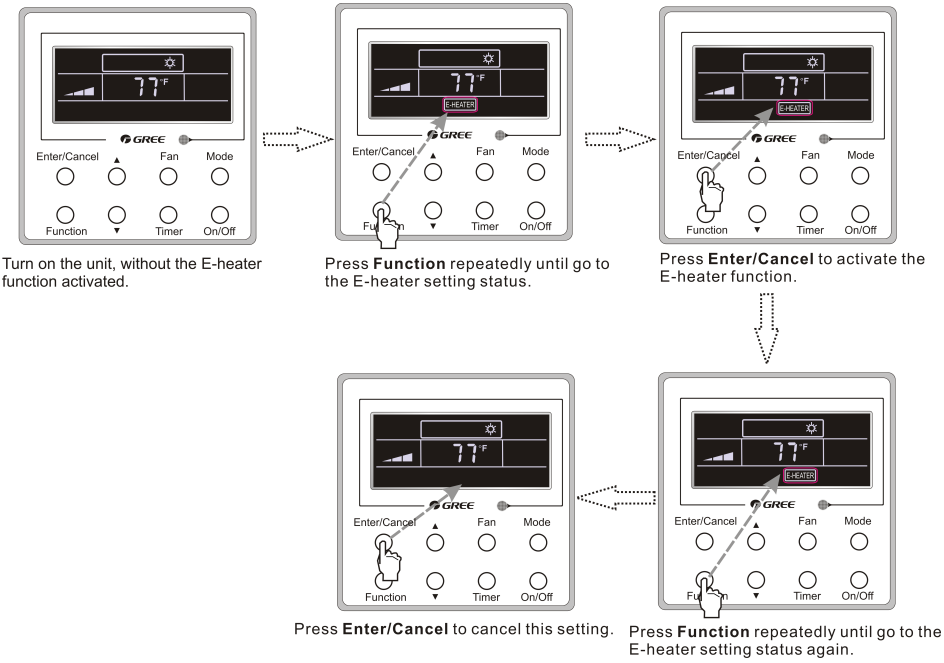



Fig.3.9.1 E-heater Setting

## 3.10 Blow Setting

Blow function: After the unit is turned off, the water in evaporator of indoor unit will be automatically evaporated to avoid mildew.

In the Cooling or Dry mode, press Function till the unit enters the Blow setting status and then press Enter/Cancel to active this function.

When the Blow function is activated, press Function to the Blow setting status and then press Enter/Cancel to cancel this function.

Blow function setting is as shown in Fig.3.10.1

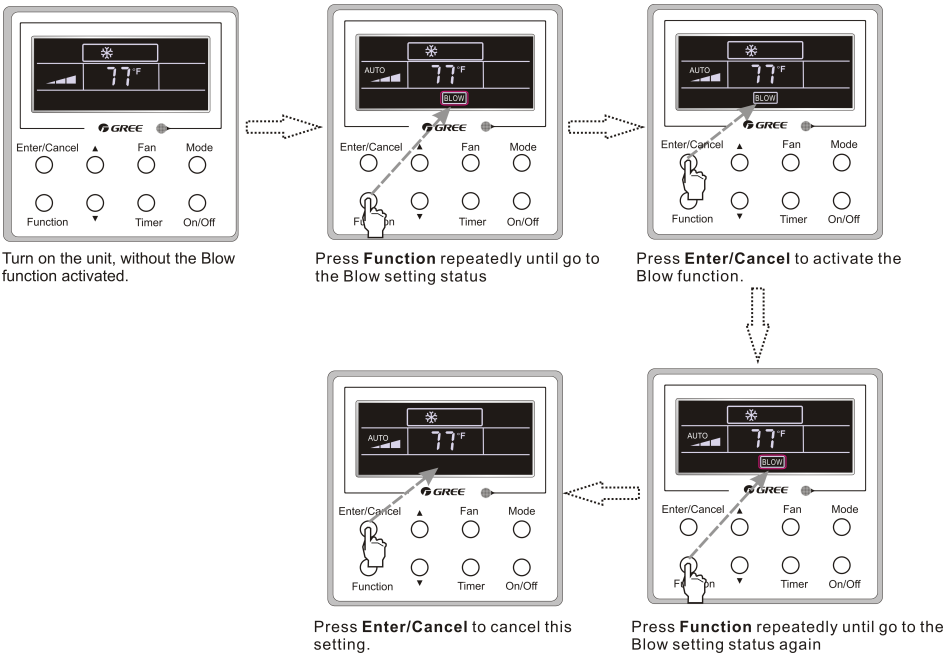



Fig.3.10.1 Blow Setting

Notes:

①. When the Blow function is activated, if turning off the unit by pressing On/Off or by the remote controller, the indoor fan will run at the low fan speed for 2 min, with “BLOW” displayed on the LCD. While, if the Blow function is deactivated, the indoor fan will be turned off directly.

②. Blow function is unavailable in the Fan or Heating mode.

### 3.11 Other Functions

**a. Lock**

Upon startup of the unit without malfunction or under the “Off” state of the unit, press ▲ and ▼ at the same time for 5s till the wired controller enters the Lock function. In this case, LCD displays .

After that, repress these two buttons at the same time for 5s to quit this function.

Under the Lock state, any other button press won’t get any response.

**b. Memory**

Memory switchover: Under the “Off” state of the unit, press Mode and ▲ at the same time for 5s to switch memory states between memory on and memory off. When this function is activated, Memory will be displayed. If this function is not set, the unit will be under the “Off” state after power failure and then power recovery.

Memory recovery: If this function has been set for the wired controller, the wired controller after power failure will resume its original running state upon power recovery. Memory contents: On/Off,Mode, set temperature, set fan speed and Lock function.

## 4 Installation and Dismantlement

### 4.1 Connection of the Signal Line of the Wired Controller

- Open the cover of the electric control box of the indoor unit.
- Let the single line of the wired controller through the rubber ring.
- Connect the signal line of the wired control to the 4-pin socket of the indoor unit PCB.
- Tighten the signal wire with ties.
- The communication distance between the main board and the wired controller can be up to 20 meters ( the standard distance is 8 meters)

### 4.2 Installation of the Wired Controller

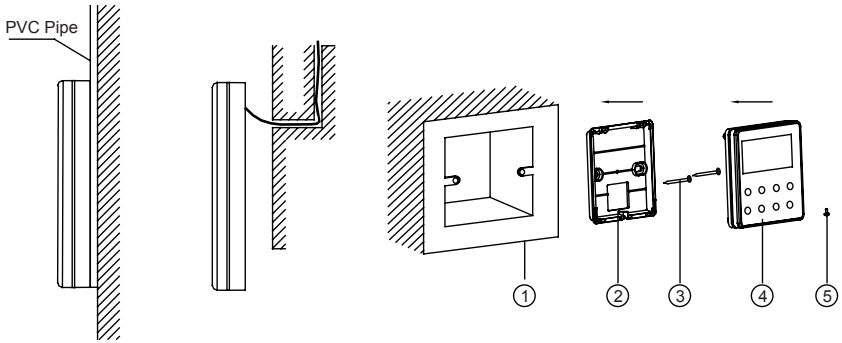



Fig.4.1 Accessories for the Installation of the Wired Controller

Table 4.1

| No. | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Name | Socket box embedded in the wall | Soleplate of the Wired Controller | Screw M4X25 | Front Panel of the Wired Controller | Screw ST 2.9X6 |

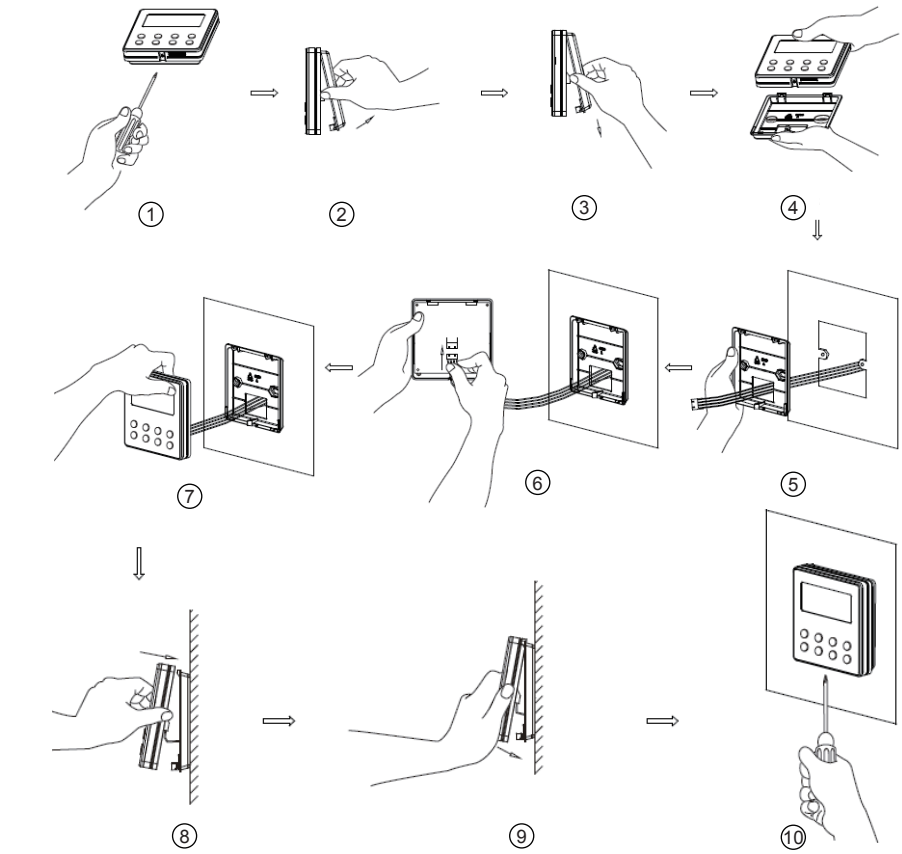



Fig.4.2

Fig.4.2 shows the installation steps of the wired controller, but there are some issues that need your attention.

1) Prior to the installation, please firstly cut off the power supply of the wire buried in the installation hole, that is, no operation is allowed with electricity during the whole installation.

2) Pull out the four-core twisted pair line from the installation holes and then let it go through the rectangular hole behind the soleplate of the wired controller.

3) Stick the soleplate of the wired controller to the wall over the installation hole and then fix it with screws M4X25.

4) Insert the four-core twisted pair line into the slot of the wired controller and then buckle the front panel and the soleplate of the wired controller together.

5) Finally, fix the front panel and the soleplate of the wired controller tightly by screws ST2.9X6.

**⚠CAUTION!**

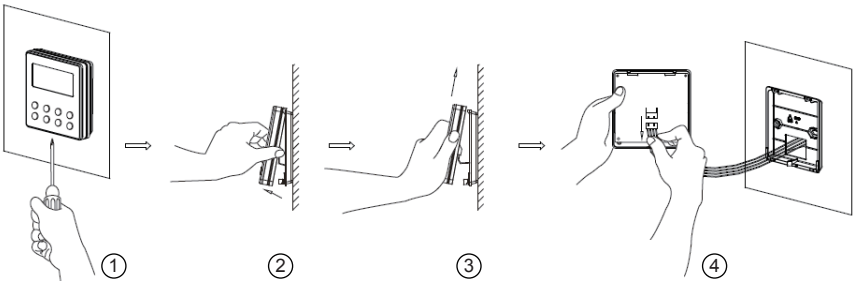
Please pay special attention to the followings during the connection to avoid the malfunction of the air conditioning unit due to electromagnetic interference.

①. Separate the signal and communication lines of the wired controller from the power cord

and connection lines between the indoor and outdoor unit, with a minimum interval of 20cm, otherwise the communication of the unit will probably work abnormally.

②. If the air conditioning unit is installed where is vulnerable to electromagnetic interference,then the signal and communication lines of the wired controller must be the shielding twisted pair lines.

### 4.3 Dismantlement of the Wired Controller




## 5 Errors Display

If there is an error occurring during the operation of the system, the error code will be displayed on the LCD, as show in Fig.5.1. If multi errors occur at the same time, their codes will be displayed circularly.

Note: In event of any error, please turn off the unit and contact the professionally skilled personnel.

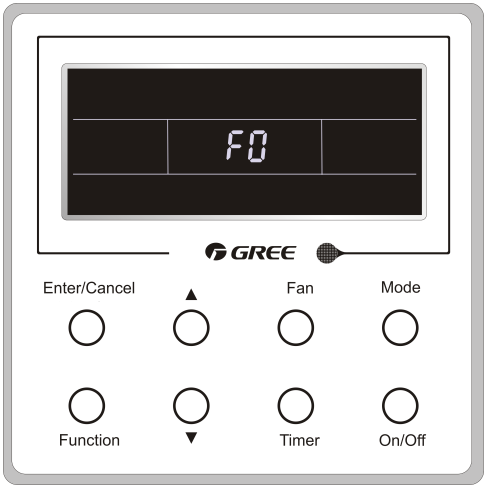



Fig.5.1

Table 5.1 Meaning of Each Error

| Error | Error Code | Error | Error Code |
|---|---|---|---|
| Return air temperature sensor open/ short circuited | F1 | Drive board communication error | P6 |
| evaporator temperature sensor open/ short circuited | F2 | Compressor overheating protection | H3 |
| Indoor unit liquid valve temperature sensor open/short circuited | b5 | Indoor and outdoor units unmatched | LP |
| Indoor gas valve temperature sensor open/ short circuited | b7 | Communication line misconnected or expansion valve error | dn |
| IPM temperature sensor open/short circuited | P7 | Running mode conflict | E7 |
| Outdoor ambient temperature sensor open/ short circuited | F3 | Pump-down | Fo |
| Outdoor unit condenser mid-tube temperature sensor open/short circuited | F4 | Jumper error | C5 |
| Discharge temperature sensor open/ short circuited | F5 | Forced defrosting | H1 |
| Indoor and outdoor communication error | E6 | Compressor startup failure | Lc |
| DC bus under-voltage protection | PL | High discharge temperature protection | E4 |
| DC bus over-voltage protection | PH | Overload protection | E8 |
| Compressor phase current sensing circuit error | U1 | Whole unit over-current protection | E5 |
| Compressor demagnetization protection | HE | Over phase current protection | P5 |
| PFC protection | Hc | Compressor desynchronizing | H7 |
| IPM Temperature Protection | P8 | IPM Current protection | H5 |
| Over-power protection | L9 | Compressor phase loss/reversal protection | Ld |
| System charge shortage or blockage protection | F0 | Frequency restricted/reduced with whole unit current protection | F8 |
| Capacitor charging error | PU | Frequency restricted/reduced with IPM current protection | En |
| High pressure protection | E1 | Frequency restricted/reduced with high discharge temperature | F9 |
| Low pressure protection | E3 | Frequency restricted/reduced with anti-freezing protection | FH |
| Compressor stalling | LE | Frequency restricted/reduced with overload protection | F6 |
| Over-speeding | LF | Frequency restricted/reduced with IPM temperature protection | EU |
| Drive board temperature sensor error | PF | Indoor unit full water error | E9 |
| AC contactor protection | P9 | Anti-freezing protection | E2 |
| Temperature drift protection | PE | AC input voltage abnormal | PP |
| Sensor connection protection | Pd | Whole unit current sensing circuit error | U5 |
| DC bus voltage drop error | U3 | 4-way valve reversing error | U7 |
| Outdoor fan 1 error protection | L3 | Motor stalling | H6 |
| Outdoor fan 2 error protection | LA | PG motor zero-crossing protection | U8 |

CAT NO: GREE_XK41_OWNERS_071718

**GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI**

Add: West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
Tel: (+86-756) 8522218 Fax: (+86-756) 8669426
E-mail: gree@gree.com.cn www.gree.com