Control System

1. Wireless remote controller

Controller	Appearance	Model	Description
Wireless remote controller		RM02A/BGE-A	General functions with backlight, follow me, setting address, keyboard locking function, 26℃ button and auto-mode (Normal).
		RM02A/BGE (T)-A	General functions with backlight, follow me, setting address, keyboard locking function, 26℃ button and auto-mode (Only for V4+R system indoor unit).
		RM05/BG(T)E-A	General functions, big screen and LCD display, with backlight display, clock function, address setting function.
		R05/BGE	General functions, big screen and LCD display, with backlight display, clock function.
		R51D/E	General functions.
		R51/E	General functions with economic mode.
		R51I4/BGE	General functions with backlight and FOLLOW ME.
		R71A/E	General functions, button quantities reduce.
		R06/BGE	General functions and only the appearance is different.
		R06/BGCE	For cooling only mode. The function is the same as R05/BGE, and only the appearance is different.

Notes:

General functions include the ON/OFF, setting mode (AUTO, COOL, HEAT, DRY and FAN), Fan speed, Temperature setting, Timer function.

1.1 RM02

Remote controller specifications

Model	RM02A/BGE-A; RM02A/BGE (T)-A
Rated Voltage	3.0 V
Lowest Voltage	2.0 V
Reaching Distance	8m～11m
Operation Condition	-5°C～+60°C

Performance features

1. Operating mode: cool, heat, dry, fan only and auto.

2. Timer setting function in 24 hours.

3. Indoor setting temperature range: 17°C ~30°C.

4. LCD (Liquid Crystal Display) of all functions.

5. Night light function

1.1.1 Parts name

Remote signal emission terminal

- ➢ **Newly design with smart appearance**
- ➢ **V4, V4+ series units applied**
- ➢ **Economic running mode**
- ➢ **Turbo running mode**
- ➢ **FOLLOW ME function inside**
- ➢ **One-key 26℃**
- ➢ **Address setting function**
- ➢ **Keyboard locking function**
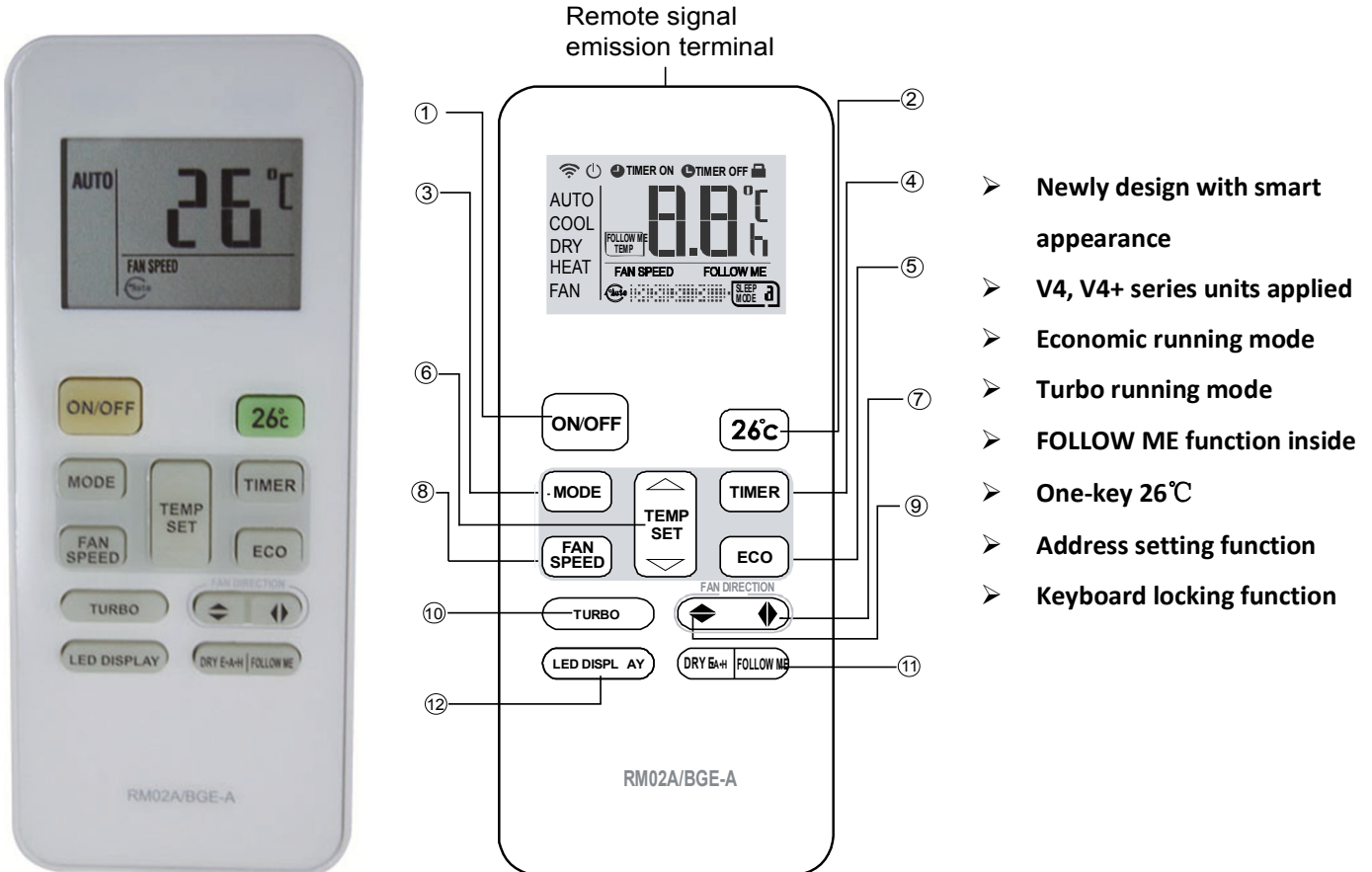
(1) ON/OFF

For turning on or turning off the air conditioner.

(2) 26℃ button

Press this button can operate the cool mode with the setting temperature 26℃. Considering about the comfort and energy saving, 26℃ is the best setting temperature.

(3) Mode select

Once pressing, running mode will be selected in the following sequence:

AUTO → COOL→ DRY → HEAT→ FAN

(4)Timer button

Under the OFF state only can set TIME ON function. If pressing the button, the time will increase by 0.5 hour. When the set time exceeds 10 hours, pressing TIMER button will increase the time by 1 hour. Adjust the TIMER ON to be "0:00", then will cancel the TIMER ON.

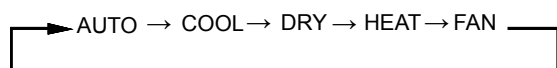Under the ON state only can set TIME OFF function. If pressing the button, the time will increase by 0.5 hour. When the set time exceeds 10 hours, pressing TIMER button will increase the time by 1 hour. Adjust the TIMER OFF to be "0:00" then will cancel the TIMER OFF.

(5) ECO button

When operating COOL, HEAT and AUTO mode, press the "ECO" button, and operate power save function; press again will cancel the function. Under the DRY/FAN mode, this function is invalid. Under power save state, press "MODE", "ON/OFF" or "FAN" button will cancel this function.

(6) Adjust button▽

Decrease the set temp. Keeping pressing will decrease the temp with 1℃ per 0.5s.

Adjust button △

Increase the set temp. Keeping pressing will increase the temp with 1℃ per 0.5s.

(7) Horiz swing

Press this button can activate or turn off wind horizontal swing function. (Only available when remote controller is used with corresponding unit.)

(8) Fan speed

Fan speed will be selected in following sequence once pressing this button: (Under the DRY and AUTO mode (except for the auto heat recycling mode), the fan speed will be fixed and cannot be adjusted. Under the auto heat recycling mode, the fan speed will be automatically and can be adjusted.)

AUTO → LOW → MED → HIGH
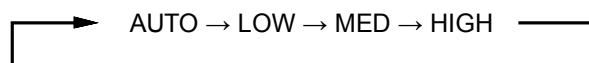
(9) Vert swing

Press this button can activate or turn off vertical swing function. Under the power off state, this button will not work (Only available when remote controller is used with corresponding unit.)

(10)TURBO button

Press this button will set the air conditioner to operate as turbo mode, and the frequency will be raised. Press TURBO button again will cancel this mode. (Only available when remote controller is used with corresponding unit.)

(11) DRY·AUXILIARY HEAT/FOLLOW ME

When it is operating the dry cleaning function, press the left of the button, will turn off the dry cleaning function; when it is operating follow me function, press the right of the button, will turn off the follow me function.(Only available when remote controller is used with corresponding unit.)

(12) LED display

When the air conditioner is the ON state, press this button, can close (open) the modules display, press again will open (close) the display. (Only available when remote controller is used with corresponding unit.)

1.1.2 LCD display
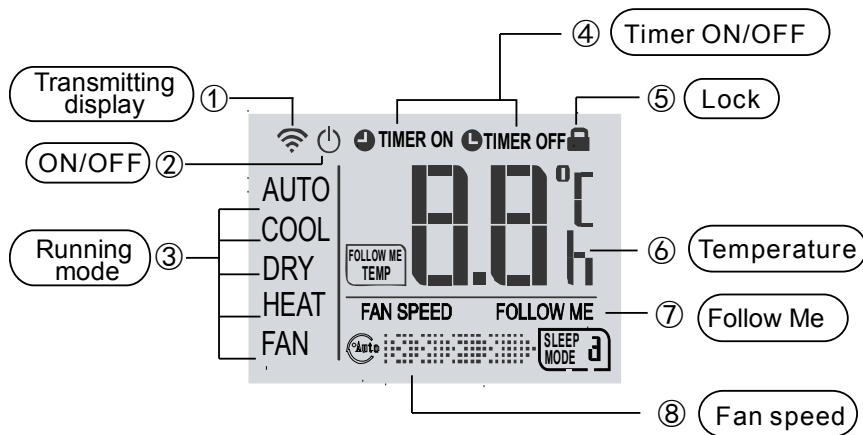
Notes: Reset or power on for the first time, all the icons will be lighted

1.1.3 Other operations

➢ **FOLLOW ME function**

● The air conditioner has FOLLOW ME function, when the function is operated, the remote controller will detect the temperature near the remote controller and compare with the temperature you set automatically, and control the operation of the air conditioner according to the contrastive result, and make the temperature near the remote controller reaches the setting temperature. This function is valid only under COOL, HEAT, AUTO mode and the unit has follow me function. This helps making the room environment more comfortable and the temperature accurate.

Notes: To carry on the FOLLOW ME function, please keep the RM02A pointing directly to the indoor unit.

● Remote controller cannot be placed near the heat source or low temperature source, otherwise will affect its temperature gathering precision and then affect the follow me function.

➢ **Setting addresses**

For the V4 plus system, the RM02A can set the indoor units' addresses. This function helps the user assign the address to the indoor units freely. V4 series do not have this function.

◆ Press the Fan speed button and ECO button simultaneously for more than 5 seconds, then the controller gets into address setting mode.

◆ Press the ON/OFF button to start transmitting signal in the address setting mode. If the transmitting signal icon has been turned on, then step can be omitted. When working in address setting mode, press ON/OFF will not turn the controller off.

◆ In the address setting mode, there are 2 main functions:

Querying address: Please point the remote controller to the indoor unit, then press MODE button, the corresponding indoor unit will display its address.

Setting address: Use the UP and DOWN buttons to choose an address you want. Then point the remote controller to the indoor unit and then press the FAN button to set the indoor unit's address. The corresponding indoor unit will display the new address and record it. After about 4 seconds, this displaying will fade out and the indoor units turn to normal display mode.

Notes: the address cannot be repeated in the same system.

◆ After setting all the addresses, users can press the Fan button and ECO button simultaneously again for 5 seconds to exit the address setting mode.

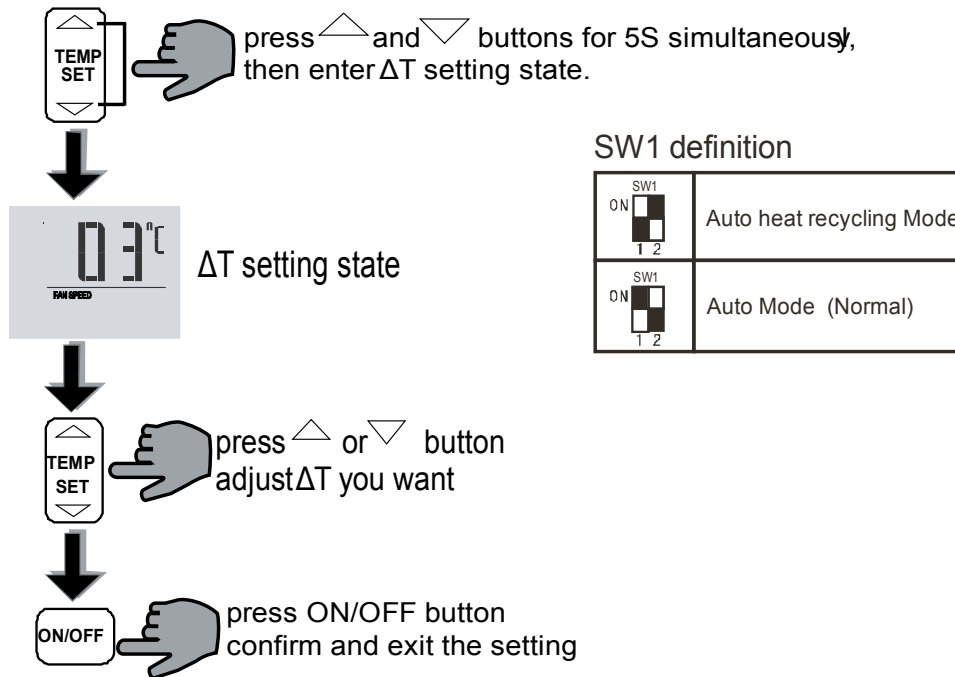➢ **Keyboard lock**

The RM02A allows users to lock the keyboard to prevent mistaken operation or keep the kids from changing the parameters randomly. Press the "MODE" and "TIMER" button simultaneously for 5s, and then can operate keyboard locking. In the locking mode, all the buttons are ineffective. Pressing the MODE and TIMER button for a period and the 🔒 on the LCD will indicate this function.

➢ **Auto heat recycling mode function**

ΔT：Temperature difference, means the different temperature between the indoor temperature (Tf) detected by the remote controller and the remote controller setting temperature (Ts). (The default difference is 3℃, the difference range is 1~4℃).

ΔT instruction：

press △ and ▽ buttons for 5S simultaneously, then enter ΔT setting state.

ΔT setting state

SW1 definition

SW1 ON [1 2]	Auto heat recycling Mode
SW1 ON [1 2]	Auto Mode (Normal)

press △ or ▽ button adjust ΔT you want

press ON/OFF button confirm and exit the setting

Notes: SW1 dial switch is on the main control board of the remote controller.

For example:

ΔT is 1°C, Ts is 25°C:

when Tf -Ts>=＋ΔT, it will operate COOL mode, the fan speed will be operated according to the setting fan speed. When Tf - Ts<= - ΔT, it will operate HEAT mode, the fan speed will be operated according to the setting fan speed.

Notes:

This function operation can be only available for the heat recycling three-pipe system. When the remote controller selects the auto heat recycling mode, the remote controller position must be placed at the signal receiving range of the air conditioner. When the remote controller detects changes of the mode (cool to heat, or heat to cool), it will send the changes to air conditioner. One beep of air conditioner changed mode signals is giving out.

➢ **Auto Operation (Normal)**

● Press MODE to select AUTO mode.

● Adjust temperature via △ and ▽ button. Generally the Temp. range is 17℃~30℃. Press ON/OFF and running indicator light on indoor unit is lightened. Air conditioner will work on AUTO mode and fan speed is AUTO, the display screen on remote controller will display "AUTO", then the fan speed is not adjustable. And press ON/OFF again, the air conditioner will be stopped.

1.2 R05 and RM05

Remote controller specifications

Model	R05/BGE; RM05/BG (T) E-A
Rated Voltage	3.0 V
Lowest Voltage	2.4 V
Reaching Distance	8m~11m
Operation Condition	-5℃~+60℃

Performance features

1. Operating mode: cool, heat, dry, fan only and auto
2. Timer setting function in 24 hours.
3. Indoor setting temperature range: 17°C ~30°C.
4. LCD (Liquid Crystal Display) of all functions.
5. Night light function

1.2.1 Parts name
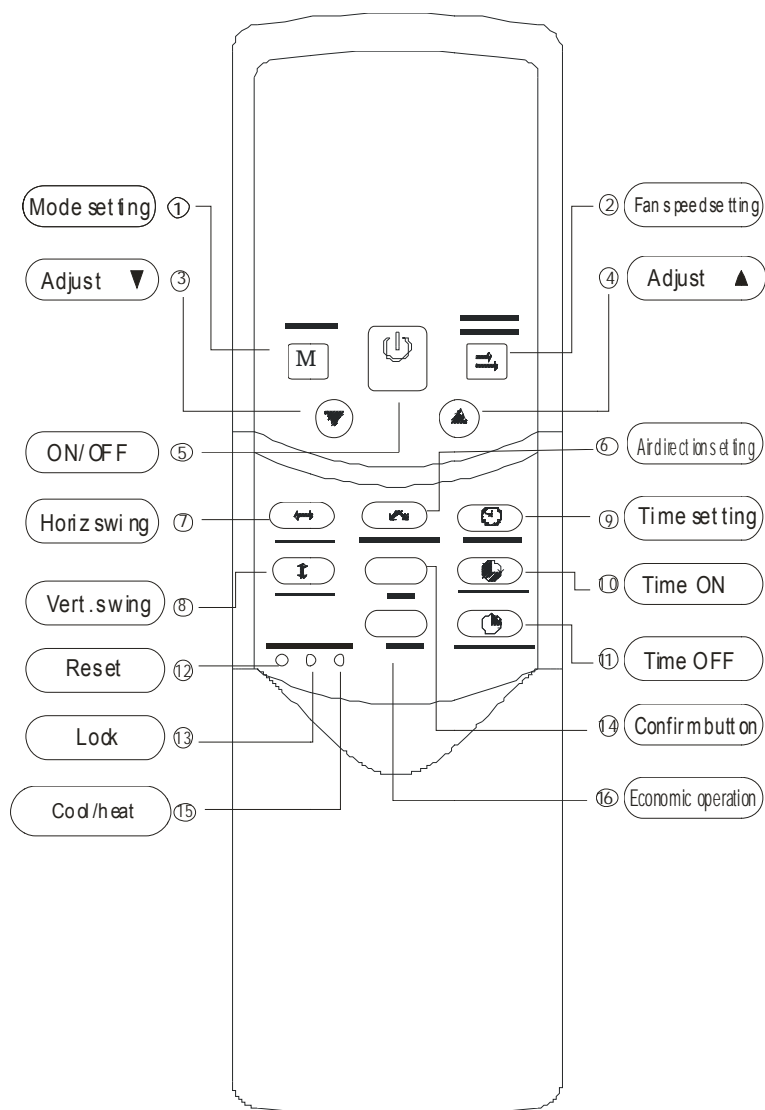
(1) Mode button

If pressing, running mode will be selected in the following sequence:

AUTO → COOL → DRY → HEAT → FAN
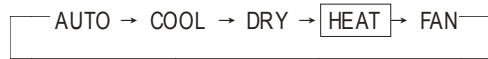
Notes: No heating mode for cooling only type unit.

(2) Fans peed

Fan speed will be selected in following sequence, if pressing this button:

AUTO → LOW → MED → HIGH
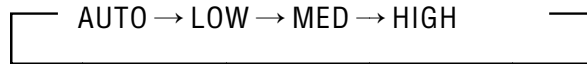
(3) Adjust button ▼

Decrease the set temp. Keeping pressing will decrease the temp with 1℃ per 0.5s.

(4) Adjust button ▲

Increase the set temp. Keeping pressing will increase the temp with 1℃ per 0.5s.

(5) ON/OFF button

For turning on or turning off the air conditioner.

(6) Air direction

Activate swing function of air deflector. Once pressing, air deflector will turn 6 digress. For normal operation and better cooling and heating effect, deflector will not turn to the degree which is the state of deflector when the unit is turned off (Only available when remote controller is used with corresponding unit.)

(7) Horiz swing

Activate or turn off horizontal swing function. (Only available when remote controller is used with corresponding unit.)

(8) Vert swing

Activate or turn off vertical swing function. (Only available when remote controller is used with corresponding unit.)

(9) Clock

Display the current time. (12:00 is displayed when resetting or electrifying for the first time.) Press CLOCK for 5s, icon indicating hour will flash with 0.5s. Press it again will flash minute and ▼ and ▲ bottun are used to adjust the figure. Setting or modification is effective onlyby pressing OK button to make confirmation.

(10) Time ON

For time ON setting. Once pressing this button, the time will increase by 0.5 hour. When the set time exceeds10 hours, pressing the button will increase the time by 1 hour. Adjusting the figure to 0.00 will cancel time ON setting.

(11) Time OFF

For time OFF setting. Once pressing this button, the time will increase by 0.5 hour. When the set time exceeds10 hours, pressing the button will increase the time by 1 hour. Adjust the figure to 0.00 will cancel time ON setting.

(12) Reset button(inner located)

Press this button with a needle of 1mm to cancel the current setting and reset remote controller.

(13) Lock button(inner located)

Press this button with a needle of 1mm to lock or unlock the current setting.

(14) OK button

Used to confirm the time setting and modification.

(15) COOL/HEAT (inner located)

Press this button with a needle of 1mm to shift mode between COOL only and COOL&HEAT.

During setting, backlight will be lightened. Factory default mode is COOL &HEAT.

(16) ECO button

Activate or turn off economic operation mode. It is suggested to turn on this function when sleeping. (Only available when remote controller is used with corresponding unit.)

1.2.2 LCD display
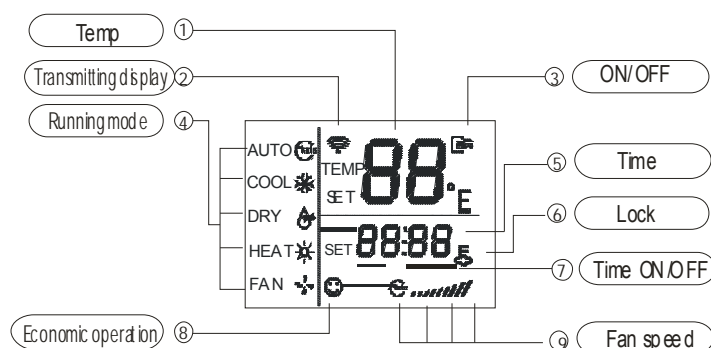
Notes:

RM05/BG(T)E-A is able to set the indoor units' addresses individually.

1.2.3 How to set address through Wireless Remote Controller RM05

● Press the LOCK button for more than 5 seconds, then the controller gets into address setting mode.

● Press the ON/OFF button to start transmitting signal in the address setting mode. If the transmitting signal icon has been turned on, then step can be omitted. When working in address setting mode, press ON/OFF will not turn the controller off.

● In the address setting mode, there are 2 main functions:

Querying address: Please point the remote controller to the indoor unit, then press MODE button, the corresponding indoor unit will display its address.

Setting address: Use the UP and DOWN buttons to choose an address you want. Then point the remote controller to the indoor unit and then press the FAN button to set the indoor unit's address. The corresponding indoor unit will display the new address and record it. After about 4 seconds, this displaying will fade out and the indoor units turn to normal display mode.

Notes: Address cannot be repeated in the same system.

● After setting all the addresses, users can press the LOCK button for 5 seconds to exit the address setting mode.

1.3 R51

Remote controller specifications

Model	R51/E,R51D/E,R51I4/BGE
Rated Voltage	3.0 V
Lowest Voltage	2.0 V
Reaching Distance	8m～11m
Operation Condition	-5°C～+60°C

Performance features

1. Operating mode: cool, heat, dry, fan only and auto.

2. Timer setting function in 24 hours.

3. Indoor setting temperature range: 17°C ~30°C.

4. LCD (Liquid Crystal Display) of all functions.

5. Night light function (Optional)

1.3.1 Parts name
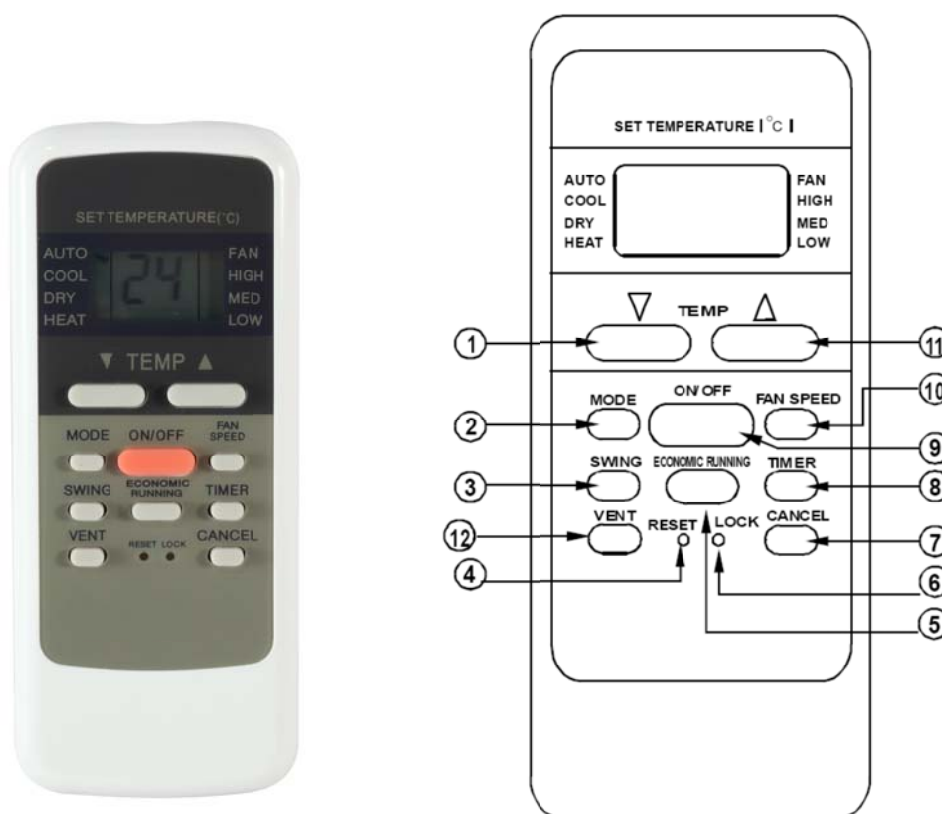
Notes:

This illustration is for explanation purposes only. The actual shape or button names of the remote controller may be slightly different.

(1) TEMP DOWN button

Press the TEMP DOWN button will decrease the indoor temperature setting or adjust the timer in a counter-clockwise direction.

(2) Mode select button

Each time you press this button, a mode is selected in a sequence that goes from AUTO, COOL, DRY, HEAT and FAN as the following figure indicates:

AUTO ⟶ COOL ⟶ DRY ⟶ HEAT ⟶ FAN

Notes: No heating mode for cool only type unit.

(3) Swing button

Press swing button to change the louver angle.

(4) Reset button

When press RESET button, all of the current settings are cancelled and the control will return to the initial settings.

(5) Economic running button

Press this button will go into the Energy-Saving operation mode. (Only available when remote controller is used with corresponding unit.)

(6) Lock button

Press this button will lock in all the current settings. To release settings, press it again.

(7) Cancel button

Press this button can cancel the TIMER settings.

(8) Timer button

This button is used to preset the time ON (start to operate) and the time OFF (turn off the operation).

(9) ON/OFF button

Press this button can start the unit operation. Press the button again will stop the unit operation.

(10) Fan speed button

This button is used for setting fan speed in the sequence that goes from AUTO, LOW, MED to HIGH, and then back to Auto.
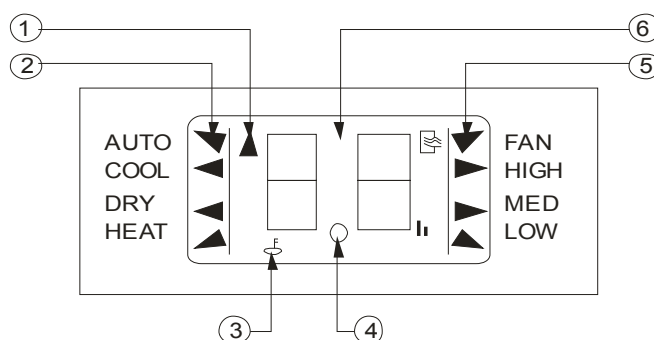
(11) Temp UP button

Press this button can increase the indoor temperature setting or adjust the timer in a counter-clockwise direction.

(12) Vent button

Press this button can set the ventilating mode. The ventilating mode will operate in the following sequence:

Continuous ⟶ Auto ⟶ Off

Ventilation Function is available for the Fresh Star Series.

1.3.2 LCD display

① **Transmitting display:** When remote controller transmits signals to indoor unit, this indicator will light.

② **Mode display:** Show the current operation modes-- AUTO, COOL, DRY and HEAT. HEAT is only available for heat pump model.

③ **Lock display:** To displayed by pressing the LOCK button. Press the LOCK button again will clear display.

④ **Timer display:** This display area shows the settings of TIMER.

That is, if only the starting time of operation is set, it will display the TIMER ON. If only the turning off time of operation is set, it will display the TIMER OFF. If both operations are set, it will show TIMER ON and TIMER OFF which indicates you have chosen to set both the starting time and off time.

⑤ **Fan speed display:** When Press the FAN button, this indicator lights.

⑥ **Digital display area:** This area will show the temperature, and if in the TIMER mode, will show the ON and OFF settings of the TIMER.

Notes:

All items are shown in the Fig-2 for the purpose of clear presentation but during the actual operation only the relative functional items are shown on the display panel.

1.3.3 Operating the remote controller

1) Install / Replace Batteries

The Remote Controller uses two alkaline dry batteries (R03/Ir03X2).

※ To install batteries, slide back the cover of the battery compartment and install the batteries according to the directions (+ and -) shown on the Remote Controller.

※ To replace the old batteries, use the same method as mentioned above.

Notes:

1. When replacing batteries do not use old batteries or a different type battery. This may cause the remote controller to malfunction.

2. If you do not use the remote controller for several weeks remove the batteries. Otherwise battery leakage may damage the remote controller.

3. The average battery life under normal use is about 6 months.

4. Replace the batteries when there is no answering beep from the indoor unit or if the Transmission Indicator light fails to appear.

2) Automatic Operation

When the air conditioner is ready for use, switch on the power and the OPERATION indicator lamp on the display panel of the indoor unit starts flashing.

※ Use the MODE select button to select AUTO. In the multi system, to avoid mode conflict, auto-mode is taken as cool mode.

※ Press the TEMP button to set the desired room temperature.

※ The most comfortable temperature settings are between 21°C and 28°C

※ Press the ON/OFF button to start the air conditioner. The OPERATION lamp on the display panel of the indoor unit will light. The operating mode of AUTO FAN SPEED is automatically set and there are no indicators shown on the display panel of the remote controller.

※ Press the ON/OFF button again to stop the unit operation.

Notes:

If the AUTO mode is not comfortable for you, the desired mode can be selected manually.

3) COOL, HEAT, and FAN ONLY Operation

※ If the AUTO mode is not comfortable, you may manually change the settings by using COOL, DRY, HEAT (HEAT PUMP units only), or FAN ONLY modes.

※ Press the TEMP button to set the desired room temperature.

※ When in COOLING mode, the most comfortable settings are 21°C or above. When in HEATING mode, the most comfortable settings are 28°C or below.

※ Press the FAN SPEED to select the FAN mode of AUTO, HIGH, MED or LOW.

※ Press the ON/OFF button. The operation lamp lights and the air conditioner start to operate per your settings. Press the ON/OFF button again to stop this unit operation.

Notes:

The FAN ONLY mode cannot be used to control the temperature. While in this mode, only steps1, 3 and 4 may be performed.

4) DRY Operation

※ Press the MODE button to select DRY.

※ Press the TEMP button to set the desired temperature from 21°C to 28°C.

※ Press the ON/OFF button. The operation lamp lights and the air conditioner start to operate in the DRY mode. Press the ON/OFF button again to stop this unit operation.

Notes: Due to the difference of the set temperature of the unit and the actual indoor temperature, the Air Conditioner when in DRY mode will automatically operate many times without running the Cool and Fan mode.

5) TIMER Operation

Press TIMER button to set the unit what time turn on or off.

a. To set the STARTING time.

※ Press the CANCEL button to cancel any former settings.

※ Press the TIMER button. The remote controller will show the TIMER and the signal "h" is shown on the display panel. The control is now ready to reset the TIMER ON to start the operation.

※ Press the TEMP button (▲ or ▼) to set desired unit START time.

※ After setting the TIMER there will be a one-half second delay before the remote controller transmits the signal to the air conditioner. Then, after approximately another 2 seconds, the set temperature will re-appear on the digital display.

b. To set the STOPPING time.

※ Press the CANCEL button to cancel any former settings.

※ Press the TIMER button and the remote controller will show the last set time for the START operation and the signal "h" will be shown on the display panel. You are now ready to readjust the TIMER OFF to stop the operation.

※ Press the TEMP button to cancel the TIMER ON setting. The digital area will show "00".

※ Press the TIMER button and the remote controller will show the last set time for the STOP operation and the signal "h" will be shown on the display panel. You are now ready to reset the time of the STOP operation.

※ Press the TEMP button (▲ or ▼) to set the time you want to stop the operation.

※ After setting the TIMER there will be a one-half second delay before the remote controller transmits the signals to the air conditioner. Then after approximately another 2 seconds, the set temperature will re-appear on the digital display.

c. Set the STARTING & STOPPING time

※ Press the CANCEL button to cancel any former settings.

※ Press the TIMER button and the remote controller will show the last set time for START operation and the signal "h" will be shown on the display panel. You are now ready to readjust the TIMER ON to start the operation.

※ Press the TEMP button (▲ or ▼) to set the time you want to start the operation.

※ Press the TIMER button and the remote controller will show the last set time for STOP operation and the signal "h" will be shown on the display panel. You are now ready to reset the time of the STOP operation.

※ Press the TEMP button (▲ or ▼) to set the time you want to stop the operation.

※ After setting the TIMER there will be a one-half second delay before the remote controller transmits the signal to the Air Conditioner. Then, after approximately another 2 seconds, the set temperature will re-appear on the digital display.

Notes:

1. Please reset the TIMER after cancelling the former time settings.

2. The setting time is relative time. That is the time set is based on the delay of the current time.

Warning

1. Be sure there are no barriers between the remote controller and the receiver of indoor unit otherwise the air conditioner will not work.

2. Keep the remote controller away from all liquids.

3. Protect the remote controller from high temperatures and exposure to radiation.

4. Keep the indoor receiver out of direct sunlight or the Air Conditioner may malfunction.

5. Keep controller away from EMI (Electro-Magnetic Interference) supplied by other household appliances.

1.4 R06

Remote controller specifications

Model	R06/BGE, R06/BGCE
Rated Voltage	3.0 V
Lowest Voltage	2.0 V
Reaching Distance	8m～11m
Operation Condition	-5°C～+60°C

Performance features

1. Operating mode: cool, heat, dry, fan only and auto.

2. Timer setting function in 24 hours.

3. Indoor setting temperature range: 17℃~30℃.

4. LCD (Liquid Crystal Display) of all functions.

5. Night light function

1.4.1 Buttons and functions description
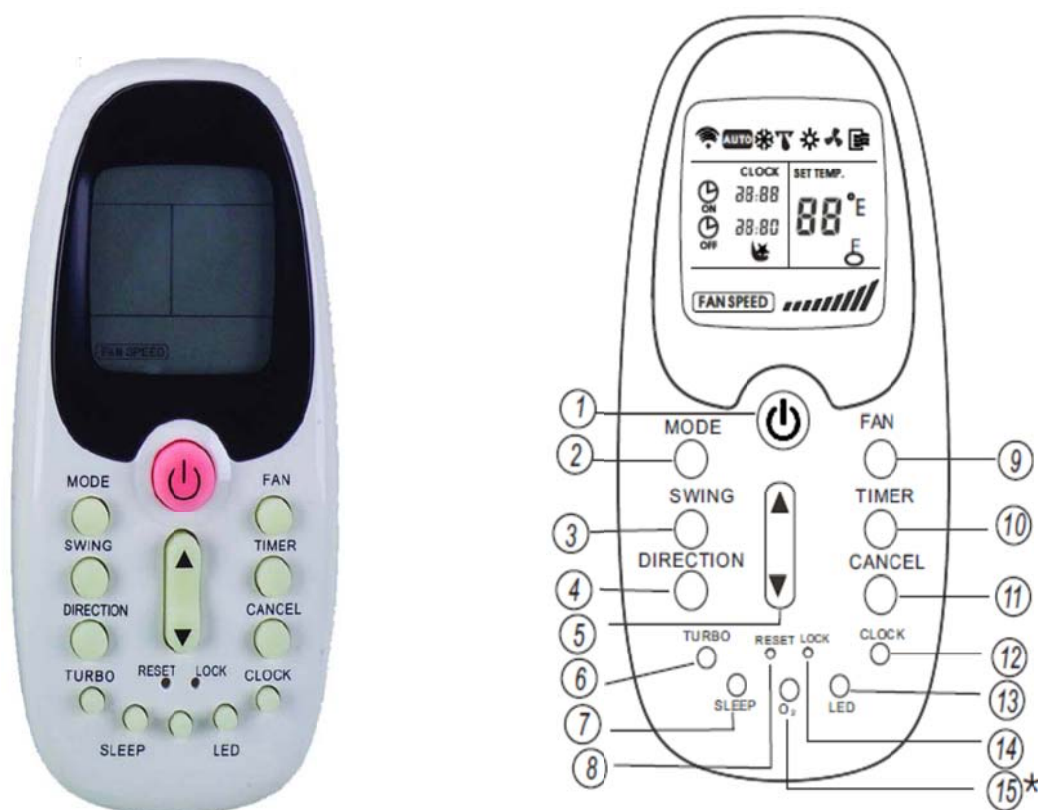
Notes:

The"*" symbol indicates an optional button.

(1) ON/OFF button

Press this button can start operation; press the button again will stop operation.

(2) Mode button

Each time you press the button, a mode is selected in a sequence that goes from AUTO, COOL, DRY, HEAT and FAN.

Notes: COOL only model has no HEAT feature.

(3) Swing button

Press the button, the louver would swing up and down automatically. Press it again will stop.

(4) Direction button

Press this button can change the swing angle of the louver. The swing angle of the louver is 6°for each press. When the louver swing at a certain angle which would affect the cooling and heating effect of the air conditioner, it would automatically change the swing direction. No symbol will appear in the display area when press this button.

(5) Temp Adjust button

Press ▲ button can increase the indoor temperature setting or adjust the TIMER in a clockwise direction. Press ▼ button can decrease the indoor temperature setting or adjust the TIMER in a counter-clockwise direction.

(6) Turbo button

Press this button on COOL mode, the air conditioner goes into powerful cooling operation. Press again will cancel the TURBO function.

(7) Sleep button

Press this button will go into the Energy-Saving operation mode. Press it again will cancel. This function is only can be used on COOL, HEAT and AUTO mode and maintain the most comfortable temperature for you.

Notes: When the unit is running under the SLEEP operation mode, it will be canceled if you press the other button. This function is only available when remote controller is used with corresponding unit.

(8) Reset button

When you press the recessed RESET button, all current settings are cancelled and the control will return to the initial settings.

(9) Fan button

Use to select the Fan speed in four steps AUTO, LOW, MED or HIGH. Each time the button is pressed, the fan speed mode is shifted.

(10) Timer button

This button is used to preset the time ON (start to operate) and the time OFF (turn off the operation).

(11) Cancel button

Press this button to cancel the TIMER ON/OFF settings.

(12) Clock button

Use to set the time.

(13) LED button

Press this button to clear the digital display in the air conditioner, press it again to activate digit display in the air conditioner. (Only available when remote controller is used with corresponding unit.)

(14) Lock button

When you press the LOCK button, all current settings are locked in and the remote controller does not accept any operation except that of the LOCK. Press it again will cancel the LOCK function.

(15) O₂ button (optional)

When indoor unit has this function, press this button to activate the oxygen generating mechanism, and the oxygen density of indoor varies. Press it again can stop the function.

1.4.2 LCD display indications
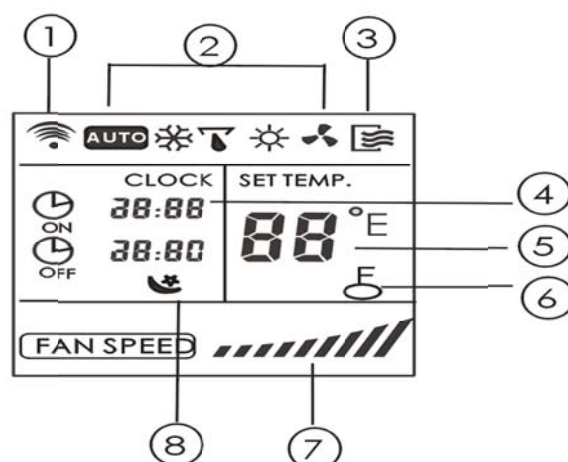
(1) Transmission Indicator

This transmission indicator light when remote controller transmits signals to the indoor unit.

(2) Mode display

Can display the current operational mode, including AUTO, COOL, DRY, HEAT (not applicable to cooling only models), FAN ONLY and back to AUTO.

(3) ON/OFF display

Can display ON/OFF state and press the ON/OFF button again the icon will disappear.

(4) Time display

Indicate Timer on/off time (0~23:50 hours) or clock time. The clock time is indicated only when no AUTO-ON/OFF timer is set. When AUTO-TIMER feature is operating, it displays the AUTO-ON/OFF time. To check the current time, press the CLOCK button, and the time will display.

(5) Temperature display

Displays the temperature setting (17℃~30℃), when you set the operating mode to FAN ONLY, no temperature setting is displayed.

(6) Fan speed display

Can display the selected fan speed, AUTO (no display) and three fan speed levels ▰▰▰ (LOW),

▰▰▰▰ (MED), ▰▰▰▰▰ (HIGH) can be indicated. The fan speed is AUTO when the operating mode is either AUTO or DRY.

(7) Lock Display

Can display LOCK icon, and press the LOCK button again the icon will disappear.

(8) Sleep Display

Can display SLEEP icon and press the SLEEP button again the icon will disappear.

Notes:

All displays on the remote controller are shown for illustration purposes only.

1.5 R71A

Remote controller specifications

Model	R71A/E
Rated Voltage	3.0 V
Lowest Voltage	2.0 V
Reaching Distance	8m ~11m
Operation Condition	-5°C～+60°C

Remote controller specifications:

General functions, button quantities reduce, but functions increase.

1. Operating mode: cool, heat, dry, fan only and auto.

2. Timer setting function in 24 hours.

3. Indoor setting temperature range: 17°C~30°C.

4. LCD (Liquid Crystal Display) of functions.

1.5.1 Parts name
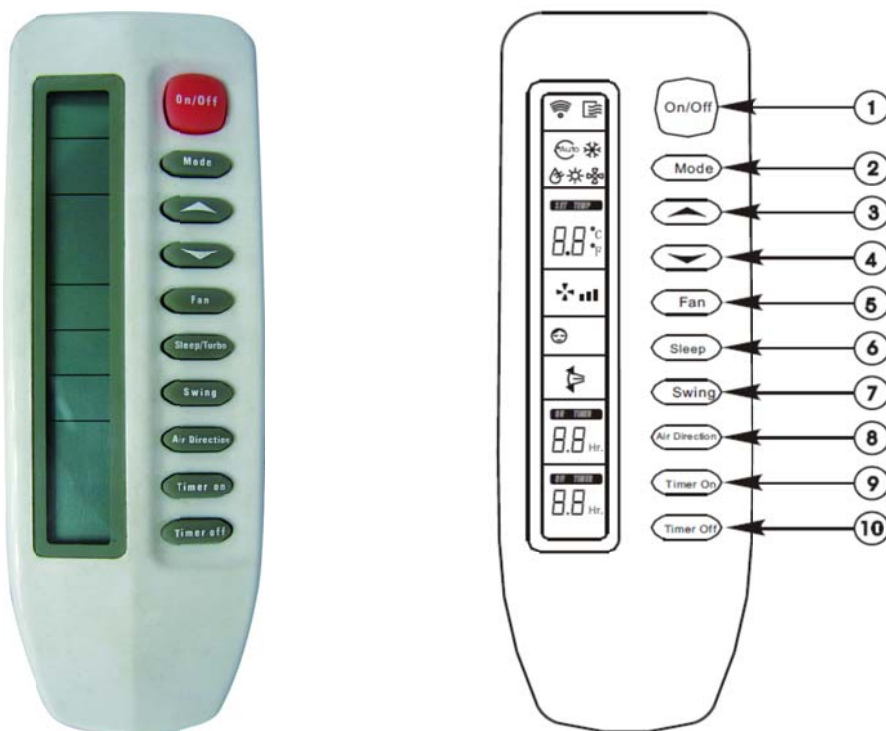
(1) ON/OFF button

Press this button can start the unit; press it again will stop the unit.

(2) Mode button

The mode is selected in a sequence as the following figure indicates

AUTO ⟶ COOL ⟶ DRY ⟶ HEAT ⟶ FAN

(3) Adjust button▲

Press the button will increase the indoor temperature to 30℃.

(4) Adjust button▼

Press the button will decrease the indoor temperature to 17℃.

(5) Fan button:

The fan speed is selected in a sequence that goes from AUTO, LOW, MED to HIGH, then back to Auto. When you select the AUTO or DRY mode, the fan speed will be automatic and you cannot set the fan speed.

(6) Sleep/Turbo button

When you press the button, the operation mode is selected in a sequence as the following figure indicates. But this function cannot be used in DRY and FAN-only mode.

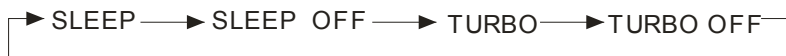$$\rightarrow SLEEP \longrightarrow SLEEP\ OFF \longrightarrow TURBO \longrightarrow TURBO\ OFF$$

Notes: Only available when remote controller is used with corresponding unit.

(7) Swing button

Press the SWING button can activate the swing function, press it again will stop.

(8) Air direction button

Press this button can change the swing angle of the louver. The swing angle of the louver is 6° for each press. When the louver swings at a certain angle, it would automatically change the swing direction. No symbol will appear in the display area when press this button. (Only available when remote controller is used with corresponding unit.)

(9) Timer on button

Press this button can initiate the auto-on time. Each press will increase the auto-on time in 30minutes increments. When the setting time displays 10Hr, each press will increase the auto-on time in 60 minutes increments. To cancel the auto-on time program, continue pressing the button until nothing displays.

(10) Timer off button

Press this button can initiate the auto-off time. Each press will increase the auto-off time in 30minutes increments. When the setting time displays 10Hr, each press will increase the auto-off time in 60 minutes increments. To cancel the auto-off time program, continue pressing the button until nothing displays.

1.5.2 LCD display
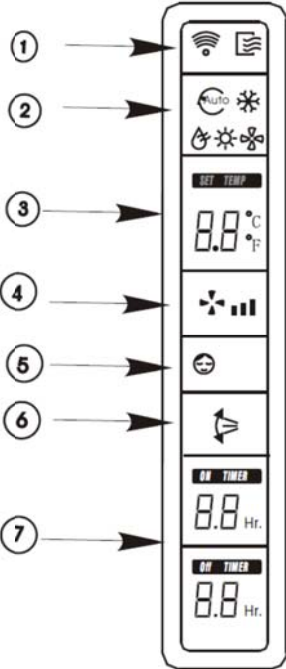
2. Wired controller

2.1 Wired controller KJR-10B

KJR-10B

Model	Description
KJR-10B/DP(T)-E	General control function and without backlight. With the air filter cleaning remind function, setting address, initialization settings and can switch Fahrenheit degree and Centigrade degree.
KJR-10B/DPC(T)-E	All basic functions, but excluding the heat mode.
KJR-10B/DP(T)-E(Korean)	A Korean Edition

Wired controller specifications

Model	KJR-10B
Power Supply Voltage	DC 5.0 V
Ambient Temperature Range	-15°C～+43°C(-5℉～109℉)
Ambient Humidity Range	RH40%~RH90%

Performance features

1. Operating mode: cool, heat, dry, fan and auto.

2. Indoor setting temperature range: 17°C ~30°C.

3. LCD (Liquid Crystal Display).

2.1.1 Parts name
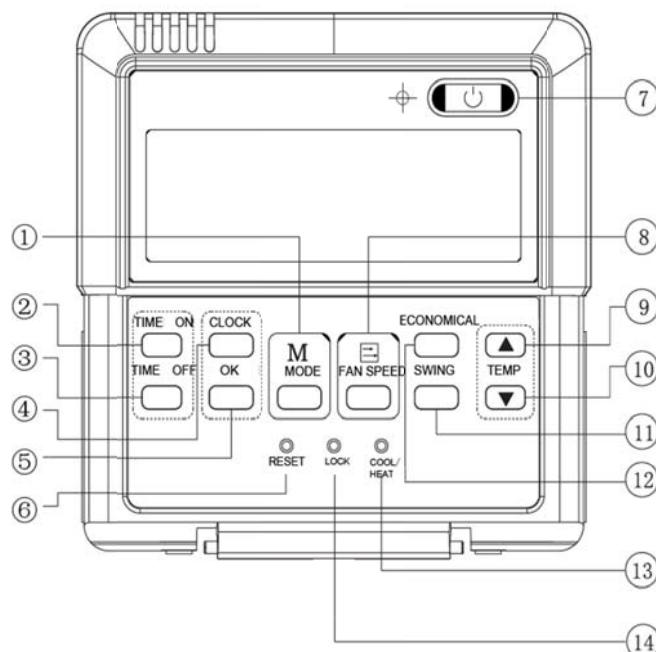
(1) Mode selection button

The mode is selected in a sequence as the following figure indicates:

```
┌──── AUTO → COOL → DRY → HEAT → FAN ────┐
```
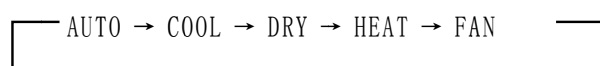
**Notes:** no heating mode if wired controller is set as cooling-only.

(2) Timer on button

Press this button to initiate the auto-on time. Each press will increase the auto-on time in 30minutes increments. When the setting time displays 10Hr, each press will increase the auto-on time in 60 minutes increments. If want to cancel the TIMER ON, then adjust the time of TIMER ON as 0.0.

(3) Timer off button

Press this button to initiate the auto-off time. Each press will increase the auto-off time in 30minutes increments. When the setting time displays 10Hr, each press will increase the auto-off time in 60 minutes increments. If want to cancel the TIMER OFF, then adjust the time of TIMER OFF as 0.0.

(4) Clock button

Normally display the clock set currently (display 12:00 for the first electrifying or resetting).When press the button for 5 seconds, the hour part on the clock display flashes every 0.5 seconds, then press ▲ and ▼ to adjust hour; press the button CLOCK again, the minute part flashes every 0.5 seconds, then press ▲ and ▼ button to adjust minute. When set clock or alter clock setting, must press the confirm button to complete the setting.

(5) OK button

The button is used at the state of CLOCK adjustment. After setting the time, press the button to confirm then exit, the current clock will display

(6) Reset button (hidden)

Use a small stick with a diameter of 1mm to press the RESET button to cancel the current settings and get into the condition of resetting.

(7) ON/OFF button

Press the button at the condition of OFF, the OPERATION lamp lights, and the wired controller enters into ON operation, simultaneously sends the setting operation information (e.g. temperature, fan speed, timer etc.) to the units. Press the button at the condition of ON, the OPERATION lamp extinguishes, simultaneously enters into OFF. If having set TIMER ON or TIMER OFF, the wired controller will cancel these settings before entering into OFF, close the relevant indicator, and then send the OFF information.

(8) Fan speed selection button

For change the fan speed from "AUTO", "LOW", "MED" to "HIGH". Each time press the button, the fan speed will change in turn as fellow.
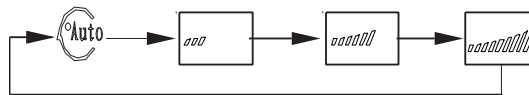
(9) Adjust button ▲

Set indoor temperature up. If press and hold on, it will increase at 1℃ per 0.5 second.

(10) Adjust button ▼

Set indoor temperature down. If press and hold on, it will decrease at 1℃ per 0.5 second.

(11) Swing button

Press this button for the first time in running time, start the swing function. Press the button for the second time, cancel the swing function. (Match to some model with swing function)

(12) Economical button

Press the button to set the economical operation mode, press again will cancel the mode. The operation mode is suitable for sleeping time.

(13) Cooling-only/cooling and heating selection button (hidden)

Use a small stick with a diameter of 1mm to press the button to switch modes. For Cooling-only type, it will be no heating mode when pressing MODE button. The factory-setting mode is COOLING and HEATING.

(14) Lock button (hidden)

Use a small stick with the diameter of 1mm to press the LOCK button can lock the current setting, press the button again then cancel the setting.

2.1.2 LCD display

② FAN speed
① MODE display

| MODE | AUTO | COOL | DRY | HEAT | FAN | LOCK |

⑤ LOCK display

FAN SET

TEMP SET 88 °C

CLOCK SET 88:88 HOUR ON OFF

⑥ CLOCK display
⑦ OFF/ON display

⑧ Temperature display

④ Filter cleaning reminding display
③ Economical operation display
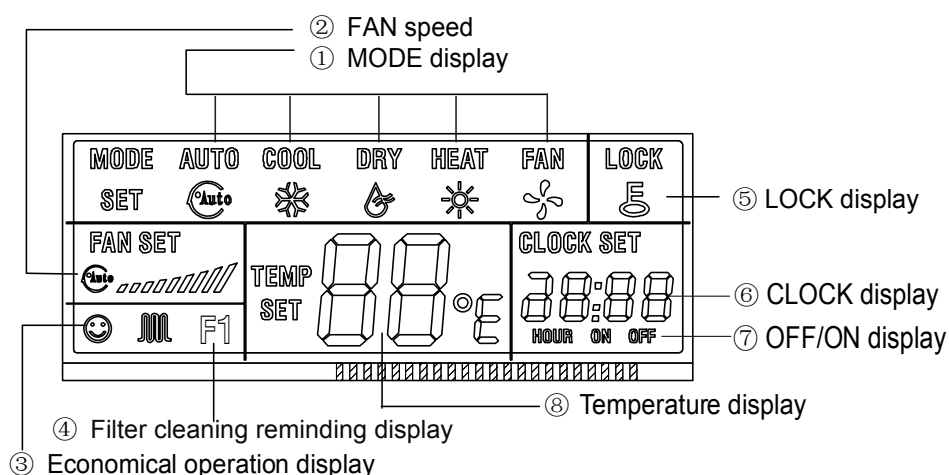
(1) Mode display

Press MODE button can select "AUTO", "COOL", "DRY", "HEAT", or "FAN" mode.(HEAT is invalid for COOL ONLY wired controller.)

(2) Fan speed display

Press FAN SPEED to select fan speed from "AUTO", "LOW"," MED" to "HIGH".

Notes: some air conditioners have no MED fan speed, and then the MED is regarded as HIGH.

(3) Economical operation display

When indoor unit has this function, under cool, heat or auto mode, press ECONOMICAL button can operate the economic mode. If press ECONOMICAL button again, then the display icon ☺ will disappear.

(4) Air filter cleaning remind display

When the calculated operating time reaches the setting filter cleaning time, the filter cleaning icon (F1) will be lighted up, to remind the user to clean the filter screen. After cleaning filter, the user can long press the "ECONOMICAL" button for 3 seconds to cancel the icon.

(5) Lock display

Press LOCK button, the LOCK icon will display. Press the button again, and then the icon of LOCK disappears. In the LOCK mode, all the buttons are invalid except for the LOCK button and RESET button.

(6) Clock display

Usually display the actual time. Press the button CLOCK for 5 seconds, the HOUR part will flash, press ▲ and ▲ to adjust HOUR. Press the CLOCK again, the minute part flash, press ▲ or ▼ to adjust MINUTE. After clock set or clock operation, it must press the OK button to complete the set.

(7) Timer ON/OFF display

When adjust setting on timer or only on timer is set, the "ON" icon is lighted. When adjust setting off timer or only off timer is set, the "OFF" icon is lighted. If timer on and timer off are both set, the "ON" and "OFF" are both lighted.

(8) Temperature display area

Usually displays the set temperature. It can be adjusted by press temperature button ▲ and ▼, under the FAN mode, there is no figure display in the area.

2.1.3 Operating the wired controller

1）AUTO operation

※　Insert the power supply of indoor unit, and operation lamp of indoor unit will flash.

※　Press MODE to select AUTO.

※　Set the desired temperature by pressing the TEMP ▲ and TEMP ▼, usually the temperature range is set from 17°C to 30°C.

※　Press ON/OFF, the operation lamp of indoor unit lights, the air conditioner starts operating at the automatic mode, and the fan speed is controlled automatically, wired controller display screen display AUTO, so the fan speed is un-adjustable.

※　Press the button ON/OFF again, and the air conditioner stops operating.

Notes: The ECONOMICAL button is available at the auto operation mode.

2) COOL/HEAT/FAN ONLY operation

※　Press the MODE button to select any one of COOL, DRY, HEAT or FAN ONLY mode.

※　Select the desired temperature by pressing the TEMP ▲ and TEMP ▼,usually the temperature range is set from 17°C to 30°C.

※　Press the button FAN SPEED to select any one of AUTO, LOW, MED or HIGH fan speed modes.

※　Press the ON/OFF, the operation lamp on indoor unit lights, the air conditioner operates according the mode selected.

※　Press the button ON/OFF again, stop the air conditioner.

Notes:

1. Under fan only mode, the temperature cannot be set.

2. The economical button is valid in cool, heat mode.

3. Cooling only unit has not heat mode.

3) DRY operation

※　Press MODE to select DRY mode.

※　Select the desired temperature by pressing the TEMP ▲ and TEMP ▼,usually the temperature range is set from 17°C to 30°C.

※　Press the ON/OFF, the operation lamp of indoor unit lights, and the air conditioner will start to dehumidify.

※ Press the ON/OFF again, stop the air conditioner.

Notes: The FAN SPEED and ECONOMICAL buttons are invalid in the dry mode.

4) Only set the Timer On

※ Press button TIME ON, the wired controller display SETTING, the icons of HOUR and ON display on the timer setting area. The wired controller enters into the setting of timer off.

※ Press button TIME ON again, and then adjust the time of timer off as desired.

※ Continuously press the button, the time of timer will increase 0.5 hours per time. After the time of timer reaches to 10 hours, the time will increase 1 hour each time.

※ 0.5 seconds later, after finishing the adjustment, the wired controller sends the information of time off, the timer off setting is completed.

5) Only set the Timer Off

※ Press button TIME OFF, the wired controller display SETTING, the icons of HOUR and OFF display on the timer setting area. The wired controller enters into the setting of timer off.

※ Press button TIME OFF again, and then adjust the time of timer off as desired.

※ Continuously press the button, the time of timer will increase 0.5 hours per time. After the time of timer reaches to 10 hours, the time will increase 1 hour each time.

※ 0.5 seconds later, after finishing the adjustment, the wired controller sends the information of time off, the timer off setting is completed.

6) Setting Timer ON and Timer OFF simultaneously

※ Press button TIME ON, the wired controller display SETTING, the icons of HOUR and ON display on the timer setting area. The wired controller enters into the setting of timer off.

※ Press button TIME ON again, and then adjust the time of timer off as desired.

※ Press button TIME OFF, the wired controller display SETTING, the icons of HOUR and OFF display on the timer setting area. The wired controller enters into the setting of timer off.

※ Press button TIME OFF again, and then adjust the time of timer off as desired.

※ When set the timer on and timer off simultaneously, if the setting times of timer on and timer off are less than 10 hours, then timer off time will always 0.5 hours later than the timer on. If the setting times of timer on and timer off is always later 1 hour than timer on.

※ 0.5 seconds later, after finishing the adjustment, the wired controller sends the information of timer, the timer off and timer on setting are completed.

7) Cancel the Timer setting

※ Press the TIME ON and TIME OFF, OK once more.

※ Adjust the time of timer on and timer off as 0.0 to cancel the timer on and timer off.

Notes: The time of timer on is the relative time; it is relative to the standard time of operating wired controller. If having setting the timer on or timer off, then the clock cannot be adjusted.

8) Cancel the filter cleaning icon

When the calculated operating time reach the setting filter cleaning time, the filter cleaning icon will be lighted up, to remind the user to clean the filter screen. After cleaning it can long press the ECONOMICIAL button for 3 seconds to cancel the icon.

9) Initialization parameters setting

For some functions of the wired controller, if the default setting in following list cannot meet the user's request, the user can select the function for setting follow the below method.

First code(Y)	First code function	Second code (X)				
		0	1	2	3	4
0	Cooling only/Cooling and heating selection setting	Cooling and heating (Default)	Cooling only	/	/	/
2	Power-off memory setting	Yes (Default)	No	/	/	/
3	Time setting for reminding to clean the filter	Cancel the function	1250 hours	2500 hours (Default)	5000 hours	10000 hours
6	Centigrade/Fahrenheit selection setting	Centigrade (Default)	Fahrenheit	/	/	/

※ Long press the FAN SPEED and MODE buttons for 5 seconds together, and enter into the initialization function setting interface.

※ After enter into the setting interface, the temperature display area will display "YX". "Y" means the first function code, and "X" means the second function code, details refer to the up table. "Y" will on all the time, "X" will flash with 1Hz frequency.

※ Press TEMP ▲ and TEMP ▼, to select the detail function under "Y" code, then press the OK button and the setting will work, and the system will automatically shift to next "Y" code setting, until all the function codes have been set, then the system will quit the setting interface automatically.

10) Query for initialization function parameters

After setting the initialization function, use the following method for query:

※ Long press FAN SPEED button for 2 seconds to enter into the query interface.

※ After enter to the interface, the LCD temperature display area, minute display area will display a series of numbers, which is the current initialization parameter value. If the current initialization function is cooling and heating (00), no power-off memory (21), the filter screen cleaning time is 5000 hours (33), centigrade display (60), their combination is 0130, and it will display 0130.

※ After enter to the interface for 3 seconds, it will automatically exit.

※ Under this interface, it will not respond any key operation.

11) Indoor unit address setting and query

※   Long press the LOCK key for 5 seconds, enter into the indoor unit address setting interface.

※   After enter into the interface, the temperature display area will display 00, means the address which is going to be set, then press TEMP ▲ and TEMP ▼ to select the address, and then press the FAN SPEED key to finish indoor unit address setting.

※   After enter into the interface, press MODE key to query the address.

※   Under the address setting interface, long press LOCK key for 5 seconds again, then it will exit the indoor unit setting interface.

2.1.4 Wired controller Installation

※   Make sure the following pasts has been prepared.

NO.	Name	QTY.	Remarks
1	wired controller	1	With Cover
2	Wood mounting screw	3	M4×20(For mounting on the wall)
3	mounting screw	3	M4×25(For mounting on the electrical switch box)
4	Installation manual	1	/
5	Owner's manual	1	/

※   Preparation before Installation:

Prepare for the following at installation site.

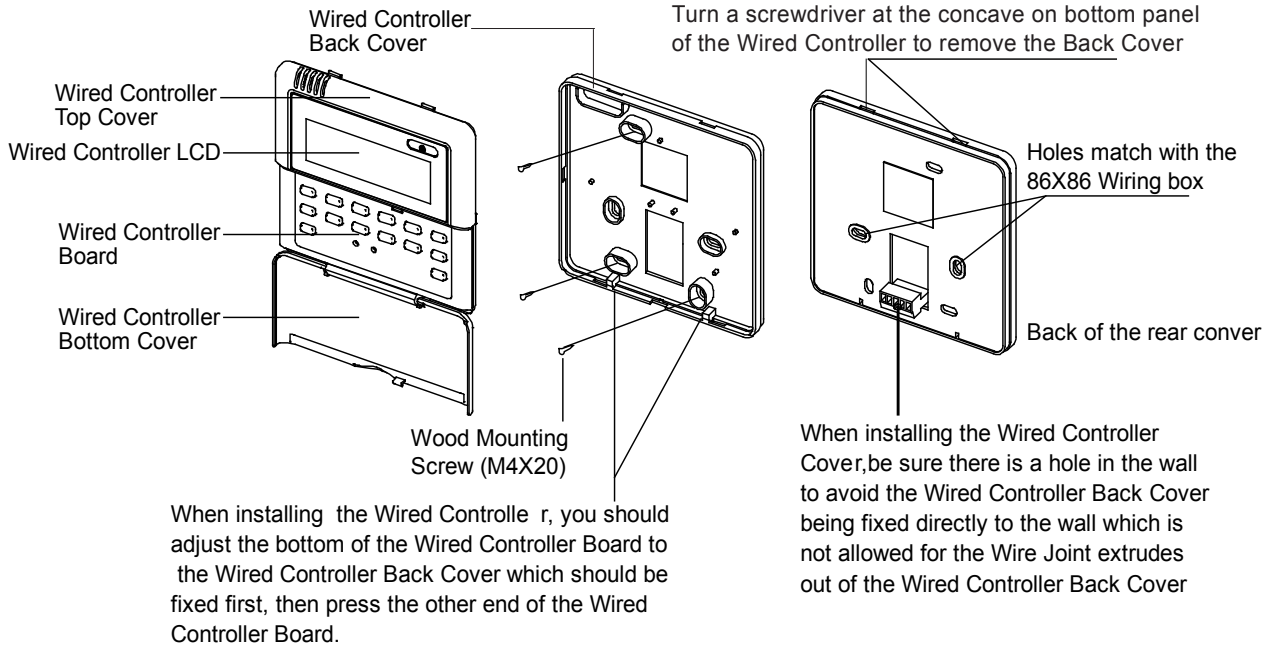| NO.	Name	QTY.		Remarks
		Install into the wall	Install on the wall	
1	5-core shield cable	1	1	$0.05mm^2×5$ Cable no more than 15m
2	Switch box	1	/	/
3	Wiring tube(insulating Sleeve and Tightening screw)	1	/	/

Notes:

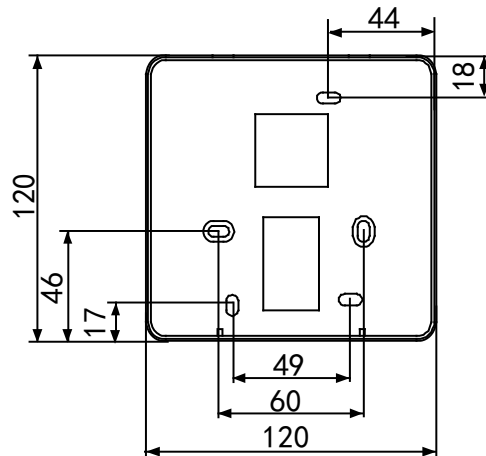Do not turn screws too tightly, or else the cover would be sunk or the Liquid Crystal may be broken.

(3) Installation procedure

※   Circuit of wired controller is low voltage circuit. Never connect it with a standard 220V/380V circuit or put it into a same wiring tube with the circuit.

※   The shield cable must be connected stable to the ground, or transmission may fail.

※   Do not attempt to extend the shield cable by cutting, if it is necessary, use terminal connection block to connect.

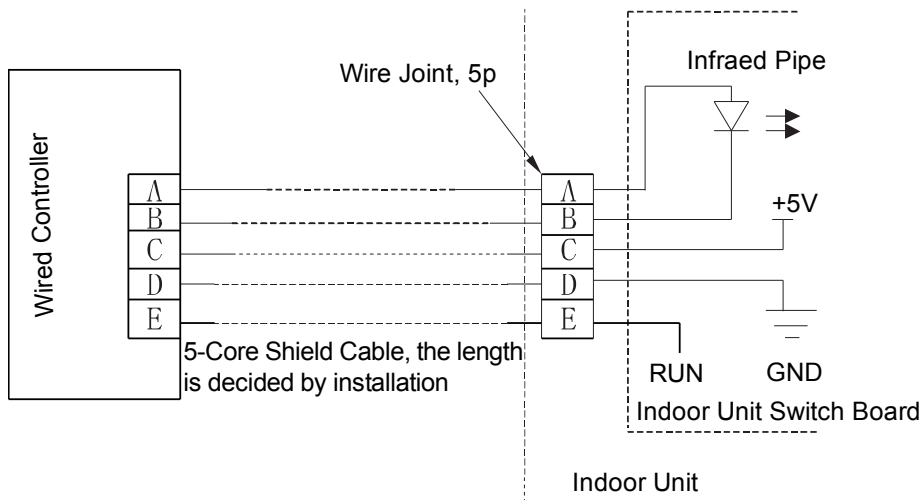※   Wired controller installation size refers to the following picture (Unit: mm):

Wired Controller
Back Cover

Turn a screwdriver at the concave on bottom panel
of the Wired Controller to remove the Back Cover

Wired Controller
Top Cover

Wired Controller LCD

Holes match with the
86X86 Wiring box

Wired Controller
Board

Wired Controller
Bottom Cover

Back of the rear conver

Wood Mounting
Screw (M4X20)

When installing the Wired Controller
Cover,be sure there is a hole in the wall
to avoid the Wired Controller Back Cover
being fixed directly to the wall which is
not allowed for the Wire Joint extrudes
out of the Wired Controller Back Cover

When installing the Wired Controlle r, you should
adjust the bottom of the Wired Controller Board to
 the Wired Controller Back Cover which should be
fixed first, then press the other end of the Wired
Controller Board.

(4) Dimensions: 120*120*15mm

(5) Wiring method

Wire Joint, 5p

Infraed Pipe

Wired Controller

A
B
C
D
E

A
B
C
D
E

+5V

5-Core Shield Cable, the length
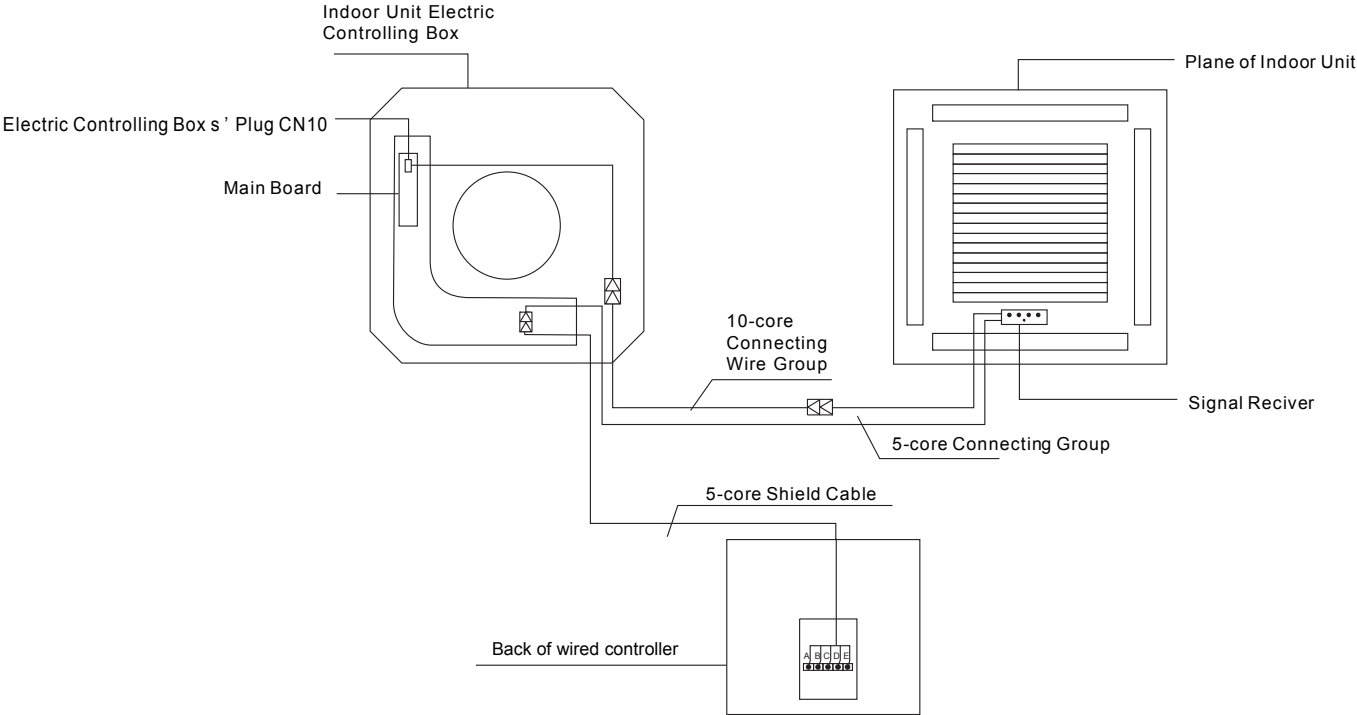is decided by installation

RUN   GND

Indoor Unit Switch Board

Indoor Unit
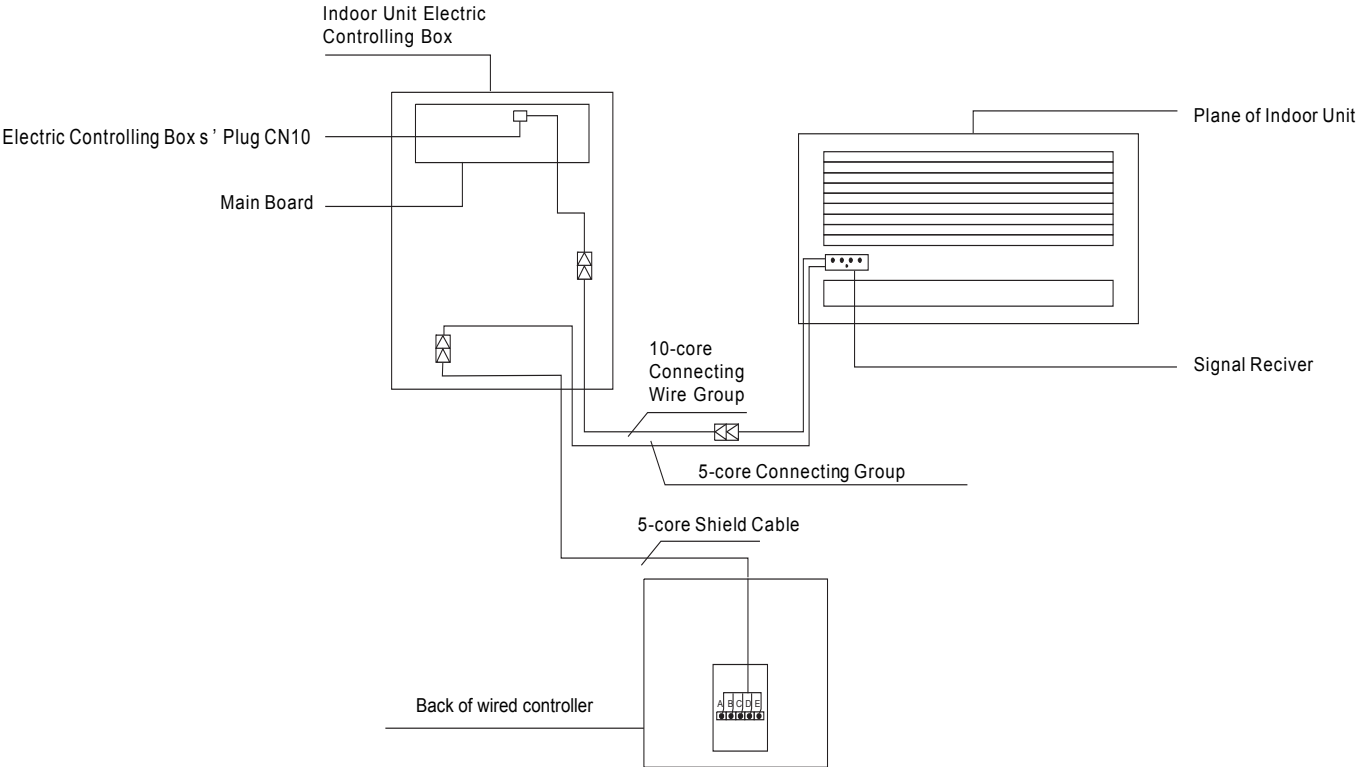
(6) Wiring diagram of wired controller

1) Wiring diagram between wired controller and four-way cassette of indoor unit:

Indoor Unit Electric
Controlling Box

Plane of Indoor Unit

Electric Controlling Box s ' Plug CN10

Main Board

10-core
Connecting
Wire Group

Signal Reciver

5-core Connecting Group

5-core Shield Cable

Back of wired controller

2) Wiring diagram between wired controller and duct type of indoor unit:

Indoor Unit Electric
Controlling Box

Plane of Indoor Unit

Electric Controlling Box s ' Plug CN10

Main Board

10-core
Connecting
Wire Group

Signal Reciver

5-core Connecting Group

5-core Shield Cable

Back of wired controller

3) Wiring diagram between wired controller and high static duct type of indoor unit:

Indoor Unit Electric
Controlling Box

Electric Controlling Box s ' Plug CN10

Signal Receiving Board

10-core
Connecting
Wire Group

Main Board

5-core Connecting Group

5-core Shield Cable

Back of wired controller

A B C D E

2.2 Wired controller KJR-12B

KJR-12B

| Model	Description
KJR-12B/DPBG(T)-E	General functions and integrates FOLLOW ME function, with backlight, vertical and level swing function.
KJR-12B/DP(T)-E	General functions and integrates FOLLOW ME function, without backlight.
KJR-12B/DPC(T)-E	The function is generally the same as the KJR-12B/DP (T)-E (D), but excluding the heat mode.

2.2.1 Wired controller specifications

Model	KJR-12B
Power Supply Voltage	DC 5.0 V
Ambient Temperature Range	-15°C～+43°C(-5℉～109℉)
Ambient Humidity Range	RH40%~RH90%

Performance Features

1. Operating mode: cool, heat, dry, fan only and auto.

2. Indoor setting temperature range: 17°C ~30°C.

3. LCD (Liquid Crystal Display).

4. Follow me function.

2.2.2 Appearance
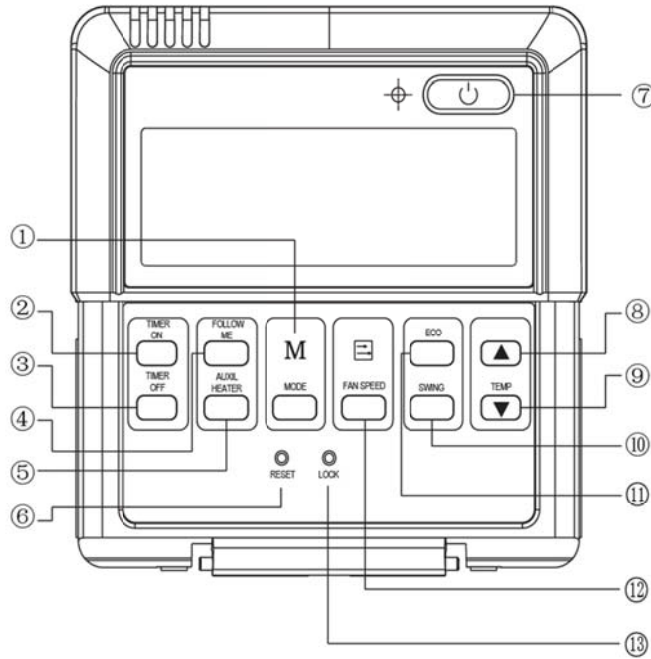
(1) Mode button

The mode is selected in a sequence as the following figure indicates

$$\text{AUTO} \longrightarrow \text{COOL} \longrightarrow \text{DRY} \longrightarrow \text{HEAT} \longrightarrow \text{FAN}$$

(HEAT is invalid for COOL ONLY wired controller.)

(2) Timer on button

Press this button to initiate the auto-on time. Each press will increase the auto-on time in 30minutes increments. When the setting time displays 10Hr, each press will increase the auto-on time in 60 minutes increments. If want to cancel the TIMER ON, then adjust the time of TIMER ON as 0.0.

(3) Timer off button

Press this button to initiate the auto-off time. Each press will increase the auto-off time in 30minutes increments. When the setting time displays 10Hr, each press will increase the auto-off time in 60 minutes increments. If want to cancel the TIMER OFF, then adjust the time of TIMER OFF as 0.0.

(4) Follow me button

When under cooling, heating and auto mode, press this button, follow me function will be active. Press again, this function will be ineffective.

(5) Electrical Heater button

If press this button in heating mode, electrical heater function become effective.

(6) Reset button (hidden)

Use a small stick with diameter of 1mm to press the RESET button to cancel the current settings and get into the condition of resetting.

(7) ON/OFF button

Press the button at the condition of OFF, the OPERATION lamp lights, and the wired controller enters into ON operation, simultaneously sends the setting operation information (e.g. temperature, fan speed, timer etc.) to the units. Press the button at the condition of ON, the OPERATION lamp extinguishes, simultaneously enters into OFF. If having set TIMER ON or TIMER OFF, the wired controller will cancel these settings before entering into OFF, close the relevant indicator, and then send the OFF information.

(8) Adjust button ▲

Set indoor temperature up. If press and hold on, it will increase at 1℃ per 0.5 second.

(9) Adjust button ▼

Set indoor temperature down. If press and hold on, it will decrease at 1℃ per 0.5 second.

(10)Swing button

Press this button for the first time in running time, start the swing function. Press the button for the second time, cancel the swing function. (Match to some model with swing function)

(11) Economical button

Press the button can set the economical operation mode. Press it again will cancel the Eco mode. The operation mode is suitable for sleeping time.

(12) Fan speed Selection button

Select the fan speed from "AUTO", "LOW", "MED", to "HIGH". Each time press the button, the fan speed will change in turn as follow.
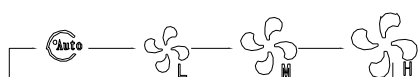
(13) Lock button (hidden)

Use a small stick with the diameter of 1mm to press the LOCK button, all current settings are locked in and the wired controller does not accept any operation except that of the LOCK button. Use the lock mode when you want to prevent setting from being changed accidentally or play fully. Press the button again then cancel the LOCK setting.

2.2.3 LCD display
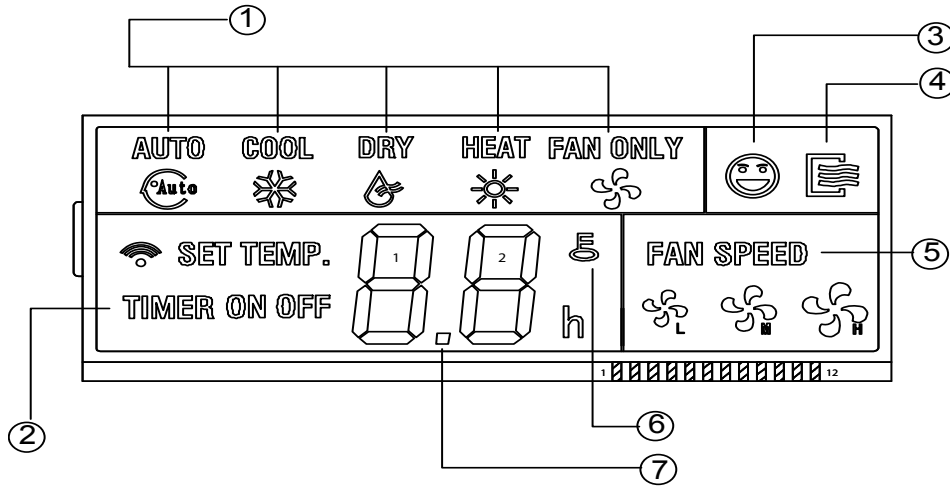
(1) Mode display

When press "MODE" button, the following mode can be selected in circle.

→ AUTO ──→ COOL ──→ DRY ──→ HEAT ──→ FAN ─

Notes: For cooling only model, heat mode is invalid.

(2) TIMER ON/OFF display

When adjust setting on timer or only on timer is set, the "ON" is lighted. When adjust setting off timer or only off timer is set, the "OFF" is lighted. If timer on and timer off are both set, the "ON" and "OFF" are both lighted.

(3) Follow Me function

There is a temperature sensor inside the wired controller, after setting temperature, it will compare the two temperatures, and the temperatures at wired controller space will be the same as setting temperature. It is available under cooling, heating, and auto mode.

(4) ON/OFF display

When it is on, the icon display, otherwise it is extinguished.

(5) Fan speed display

Press FAN SPEED can select fan speed from "AUTO", "LOW", "MED" to "HIGH".
Notes: some air conditioners without MED fan speed, and then the MED is regarded as HIGH.

(6) Lock display

Press this button will enter the LOCK mode and all the buttons are invalid except for LOCK button.

(7) Temperature display area

Display the setting temperature; it can be adjusted by press temperature button ▲ and ▼. Under FAN mode, there is no display here.

2.2.4 Wired controller installation

Preparation before Installation:

Make sure the following pasts has been prepared.

NO.	Name	QTY.	Remarks
1	Wired Controller	1	/
2	Wood mounting screw	3	M4×20(For mounting on the wall)
3	mounting screw	3	M4×25(For mounting on the electrical switch box)
4	Installation manual	1	/
5	Owner's manual	1	/
6	5-terminal group	1	RS9005E
7	Terminal installation screw	2	ST3.9×12-F-H GB845-85

Prepare for the following at installation site.

NO.	Name	QTY.	Type	Remarks
1	5-core shield cable	1	RVVP-0.5 mm^2×5	0.05mm^2×5 Cable no more than 15m
2	Switch box	1	/	/
3	Wiring tube (Insulating sleeve and tightening screw)	1	/	/

Notes:

Never turn screws too tightly, or else the cover would be sunk or the Liquid Crystal breaks.

Installation of wired controller KJR-12B/DP (T)-E is the same to KJR-10B/DP (T)-E.
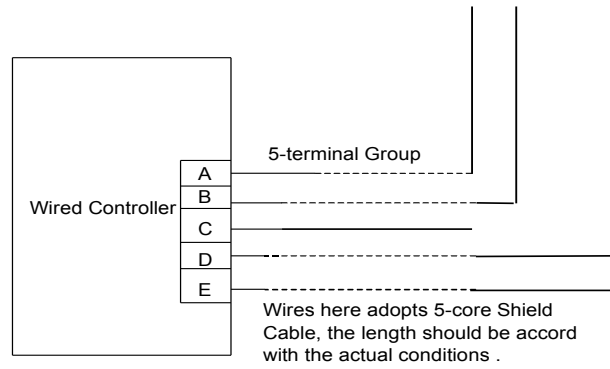
(1) Installation procedure

※ Circuit of wired controller is low voltage circuit. Never connect it with a standard 220V/380V circuit or put it into a same wiring tube with the circuit.

※ The shield cable must be connected stable to the ground, or transmission may fail.

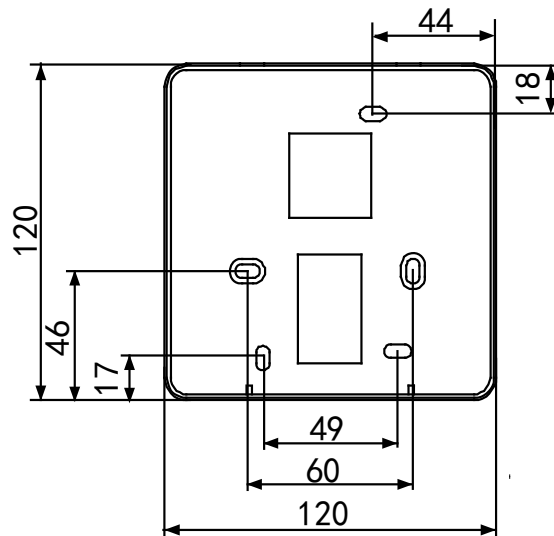※ Do not attempt to extend the shield cable by cutting, if it is necessary, use terminal connection block to connect.

Wired Controller Back Cover

Turn a screwdriver at the concave on bottom panel of the Wired Controller to remove the Back Cover

Wired Controller Top Cover

Wired Controller LCD

Wired Controller Board

Wired Controller Bottom Cover

Holes match with the 86X86 Wiring box

Back of the rear conver

Wood Mounting Screw (M4X20)

When installing the Wired Controlle r, you should adjust the bottom of the Wired Controller Board to the Wired Controller Back Cover which should be fixed first, then press the other end of the Wired Controller Board.

When installing the Wired Controller Cover,be sure there is a hole in the wall to avoid the Wired Controller Back Cover being fixed directly to the wall which is not allowed for the Wire Joint extrudes out of the Wired Controller Back Cover

※ Wiring principle sketch

Wired Controller

A

B

C

D

E

5-terminal Group

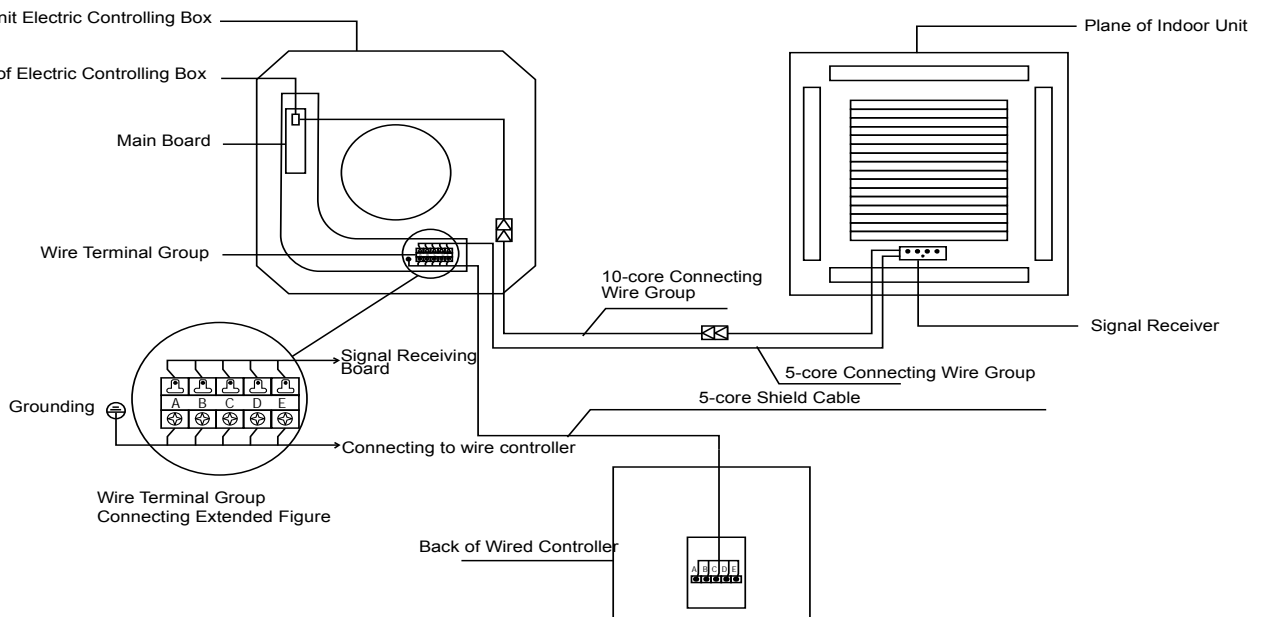Wires here adopts 5-core Shield Cable, the length should be accord with the actual conditions .

(2) Dimension: 120*120*15mm

(3) Wiring diagram

1) Wiring diagram between wired controller and four-way cassette of indoor unit:

Indoor Unit Electric Controlling Box

Plug 10 of Electric Controlling Box

Main Board

Wire Terminal Group

Signal Receiving Board

Grounding

A B C D E

Wire Terminal Group Connecting Extended Figure

Connecting to wire controller

Plane of Indoor Unit

10-core Connecting Wire Group

Signal Receiver

5-core Connecting Wire Group

5-core Shield Cable

Back of Wired Controller

2) Wiring diagram between wired controller and duct type of indoor unit:

Indoor Unit Electric Controlling Box

Plug Cn10 of Electric Controlling Box

Main Board

Plane of Indoor Unit

Wire Terminal Group

Signal Receiver

10-core Connecting Wire Group

Signal Receiving Board

5-core Connecting Group

Grounding

A B C D E

5-core Shield Cable

Connecting to wire controller

Wire Terminal Group
Connecting Extended Figure

Back of Wired Controller

A B C D E

3) Wiring diagram between wired controller and high static duct type of indoor unit:

Indoor Unit Electric Controlling Box

Plug Cn10 of Electric Controlling Box

Main Board

Signal Receiving Board

10-core Connecting Group

5-core Connecting Group

Wire Terminal Group

Signal Receiving Board

Grounding

A B C D E

5-core Shield Cable

Back of Wired Controller

A B C D E

Connecting to wire controller

Wire Terminal Group
Connecting Extended Figure

2.3 Touch key wired controller: KJR-29B

KJR-29B

Wired controller specifications

Model	KJR-29B/BK-E
Power Supply Voltage	DC 5.0 V
Ambient Temperature Range	-5°C～+43°C
Ambient Humidity Range	RH40%~RH90%

Performance features

1. Operating mode: cool, heat, dry, fan and auto.

2. Set the mode through buttons.

3. Indoor setting temperature range: 17°C ~30°C.

4. LCD (Liquid Crystal Display).

5. Touch key

6. Can switch Fahrenheit degree and Centigrade degree.

2.3.1 Function summarize

KJR-29B is the touch key wired controller.

New function	Basic function
Air filter cleaning reminding function	ON and OFF the air-conditioner
Indoor unit address setting function	Auto-restart function
Remote control receiver function	Time ON and Time OFF setting
Lock the wired controller	Clock setting
Silent mode	Setting the Operating mode, Temperature
Follow me	Fan speed and Swing functions

2.3.2 Wired controller appearance
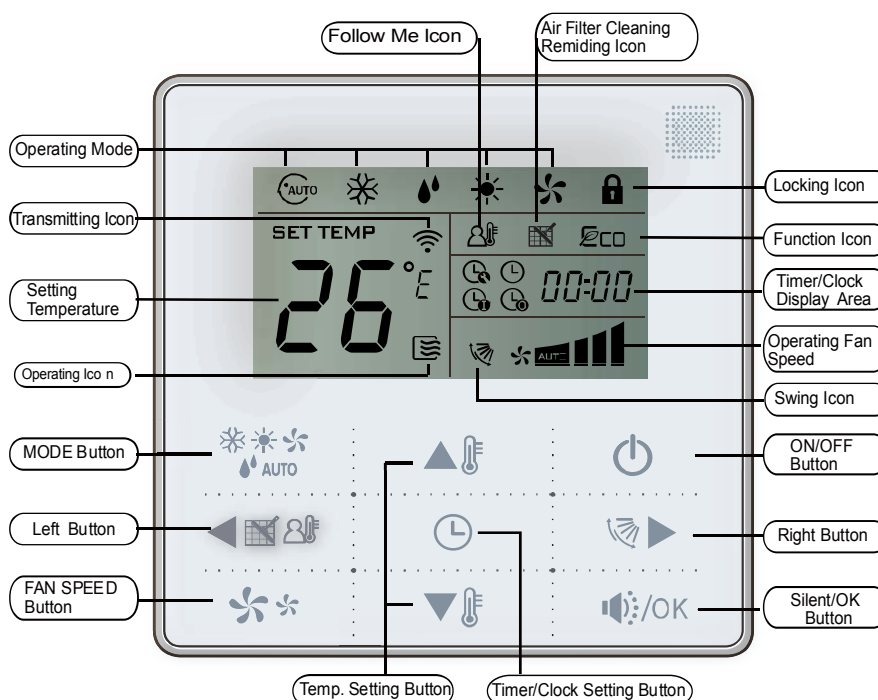
(1) Remote signal receiving function

There is the signal receiver for wireless remote controller on the KJR-29B.You can use the wireless remote controller to control the air-conditioner through the wired controller when the system has been powered on.

Notes: The wired controller will not receive the swing controlling instruction. For the indoor unit with swinging function, you can directly use the remote controller to control swinging through the display panel of the indoor unit, or use the swing button on the wired remote controller to control the indoor unit for swinging.

(2) ON/OFF button

Press the ON/OFF button to control the indoor unit on and off state. When the unit is turned off, press the ON/OFF button, the unit will be turned on and the operating icon lights up. When the unit is turned on, press the ON/OFF button, the unit will be turned off and the operating icon lights off.

(3) Mode button

Press the mode button to set the operating mode, after each button press the operation mode will circle as follow:

AUTO → COOL → DRY → HEAT → FAN

When the controller has been set to cool-only, then there is no HEAT mode.

(4) Fan speed setting

Under COOL, HEAT and FAN modes, press the fan speed button can adjust the fan speed setting. After each fan speed button press will circle as follow:

AUTO→LOW→MID→HIGH→AUTO

Under AUTO and DRY modes, the fan speed is not adjustable and the default fan speed is auto.

(5) Temperature setting

Under AUTO, COOL, DRY, HEAT modes, press the Temp adjust Up/Down buttons to set the temperature, the adjusting range is 17℃~30℃ (or 62℉~88℉). The setting temperature cannot be adjusted under FAN mode.

(6) Timer on and Timer off setting

Press the timer/clock setting button, then enter into the timer on setting state, and the screen will display timer icon and *0-0h* .

You can press Temperature setting buttons to adjust the time. When the time setting is less than 10 hours, each press the Temp setting buttons will increase or decrease 0.5 hour. When the timer setting is more than 10 hours, each press Temp setting buttons will increase or decrease 1 hour, the maximum timer setting is 24 hours. After finish adjusting the time on setting, press the Silent/OK button or wait for 5 seconds to confirm and exit the time on setting.

Notes: If the wired controller has been set timer on/ off, press the ON/OFF button to turn on/ turn off the unit then the timer will be canceled simultaneously.

(7) Clock setting

Long press the timer/clock setting button for 3 seconds, and then enter into the clock setting state. The hour position of the clock will flash, and can press Temp setting buttons to adjust the hour value.

After finish the hour setting, press left button or right button to switch to minute position setting, then the minute position will flash, press Temp setting buttons to adjust the minute value. After finish the clock setting, press the button or wait for 5seconds to confirm and exit the setting state.

(8) Silent/OK button

Under the cooling, heating and auto mode, when operate the silent mode, it can reduce the running noise through setting the fan speed to low. This will help you bring a quieter environment.

Under AUTO, DRY mode, the fan speed is auto and the Silent /OK button doesn't work.

(9) Wired controller locking

Short press the temperature adjusting UP and DOWN buttons simultaneously, the wired controller enters into locking state, and the locking icon will be lighted up. Under the locking state, the wired controller will not respond to buttons by pressing and the control instruction from the wireless remote controller. Simultaneously press temperature adjusting buttons again will cancel the locking state.

(10) Air filter cleaning reminding function

The wired controller records the total running time of the indoor unit, when the accumulated running time reaches the pre-set value, air filter cleaning reminding icon will be lighted up, to remind that the air filter of the indoor unit needs to be cleaned. Long press left button for 3 seconds, and clear the reminding icon and the wired controller will re-accumulate the total running time of the indoor unit.

Notes: The default setting value of reminding function is 2500 hours, and it can change to be 1250 hours, 5000 hours or 10000 hours.

(11) Swing function

If the indoor unit supports swing function, press the right button to adjust the air outlet direction of the indoor unit. Long press this button for 3 seconds can turn on or turn off the auto-swing function. When the auto-swing function is turned on, the swing icon will be lighted up.

(12) Follow me function

When the system is running and the operating mode is Cooling, Heating or Auto, press the left button will activate the Follow Me function. Press left button again will cancel follow me function. When the operating mode is changed, and then will cancel this function as well. When the Follow Me function is activated, the icon will be light up, and the wired controller will display room temperature read from the local sensor, and transmit the temperature value to the indoor unit every 3 minutes.

(13) Setting addresses

- Press the Temp. UP and DOWN button simultaneously for more than 8 seconds, then the controller gets into address setting mode.
- In the address setting mode, there are 2 main functions:
  Querying address: press MODE button, the corresponding indoor unit will display its address.
  Setting address: use the UP and DOWN buttons to choose an address you want. Then press the FAN button to set the indoor unit's address. The corresponding indoor unit will display the new address and record it. After about 4 seconds, this displaying will fade out and indoor units turn to normal display mode.
- After setting addresses, users can press the Silent/OK button can exit the address setting mode.
- After re-power, users can query the indoor address again: long press the UP and DOWN button simultaneously will enter the address setting page, press ON/OFF button and then press MODE button, the indoor address will be displayed on the indoor display board.
- In the address setting mode, wired controller does not respond to any command from remote controller.

2.3.3 Installations

1) Safety precaution

- Stated below are important safety issues that must be obeyed. Confirm there is no abnormal phenomena during test operation after complete.
- Installation by other persons may lead to imperfect installation, electric shock or fire. Improper installation may lead to electric shock or fire. A random disassembly may cause abnormal operation or heating, which may result in fire.
- Do not install the controller in a place vulnerable to leakage of flammable gases. Once flammable gases are leaked and left around the wired controller, fire may occur.
- The wiring should adapt to the wired controller current. Otherwise, electric leakage or heating may occur and result in fire. The specified cables shall be applied in the wiring. No external force may be applied to the terminal. Otherwise, wire cut and heating may occur and result in fire.

⬧ Don't place the wired controller near the lamps, to avoid the remote signal of the controller to be disturbed. Do not install the unit and controller in a place with much oil, steam, sulfide gas. Otherwise, the product may deform and fail.

※ **Preparation before Installation:**

Make sure the following pasts has been prepared.

Name	Qty.	Remarks
Wired controller	1	\
Cross round head wood mounting screw	3	M4×20 (For mounting on the wall.)
Cross round head mounting screw	2	M4×25 (For mounting on the electrical switch box.)
Installation manual	1	\
Owner's manual	1	\
Plastic expansion pipe	3	For mounting on the wall
Plastic screw bar	2	For fixing on the 86 electrician box.
Switching wires for signal receiving board	1	For connecting the signal receiving board and 4-core shield wire.
Switching wires for wired controller signal	1	(If needed) For connecting the main control panel and 4-core shielding wire.

※ **Prepare for the following at installation site.**

Name	Qty.(embedded into wall)	Specification remarks (only for reference)	Remarks
4-core shield cable	1	RVVP-0.5 mm^2×4	The longest is 15M
86 electrician box	1	/	/
Wiring tube (insulating sleeve and tightening screw)	1	/	/

※ **Installation procedure**

⬧ Circuit of wired controller is low voltage circuit. Never connect it with a standard 220V or 380V circuit or put it into a same wiring tube with the circuit.

⬧ The shield cable must be connected stable to the ground, or transmission may fail.

⬧ Don not attempt to extend the shield cable by cutting, if it is necessary, use terminal connection block to connect.

⬧ After finishing connection, do not use mugger to have the insulation check to the signal wire.

※ **Dimensions: 120*120*20mm**
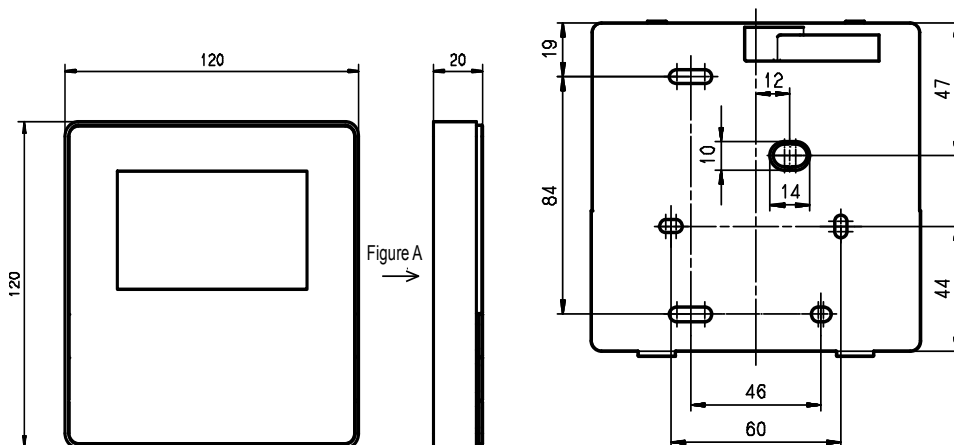
Figure A

※ **Wiring principle sketch**
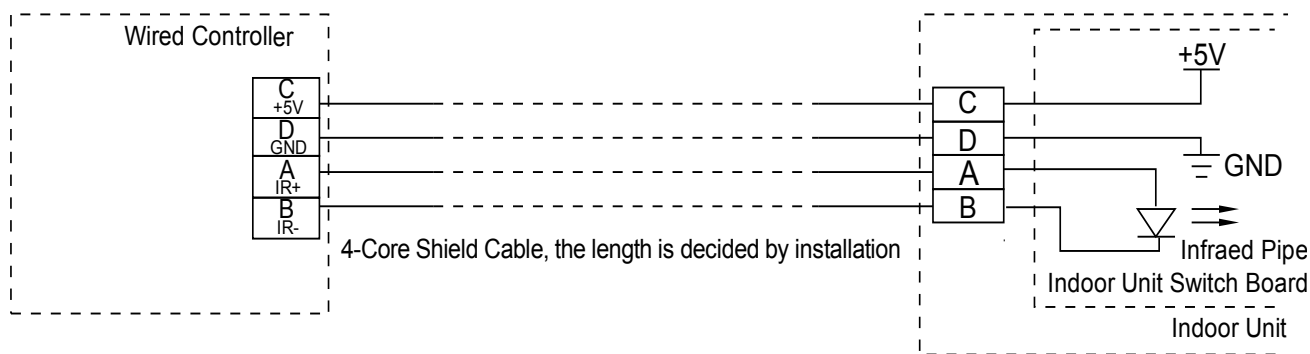
※ **Wiring figure:**

1) Connect two terminals of embedded 4-core shielding wire with the switching wires of wired remote controller and signal receiving board. Make sure the sequence of 4 terminals (A, B, C and D) should correspond to the wire sequence of signal switching wires (A, B, C and D).
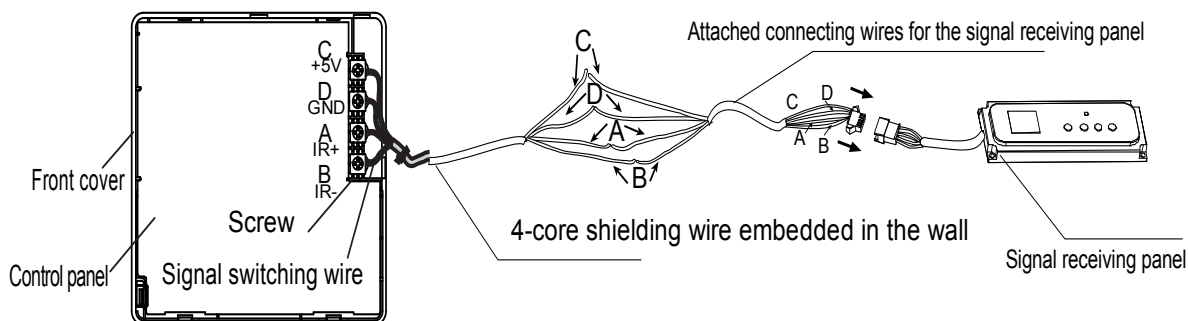
2) If embedded 4-core shielding wire cannot go through the wired controller, it can use signal switching for connection and make sure the wires are reliable and firm. The tightening torque range of the screw is 0.8~1.2N .m (8~12 kgf.cm).
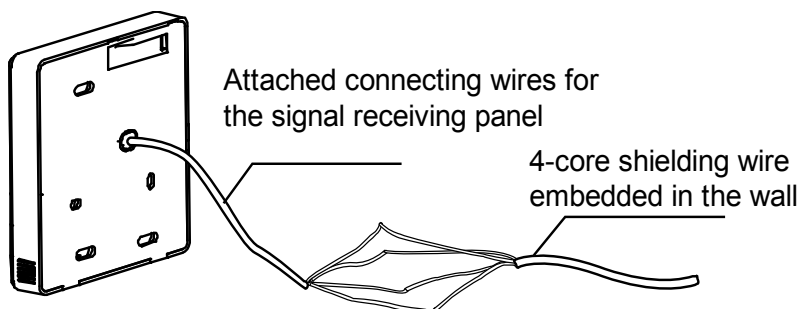
※ **Back cover installation**

1) Use straight head screwdriver to insert into the buckling position in the bottom of a wired controller, and spin the screwdriver to take down the back cover. (Pay attention to spinning direction, if not you maybe damage the back cover.)
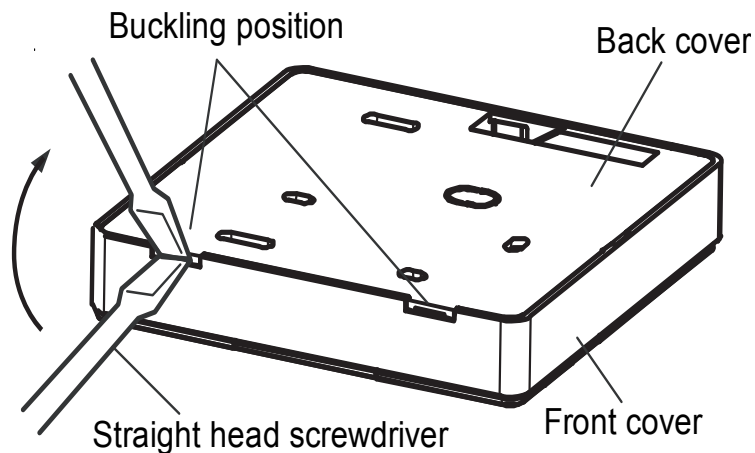
2) Use three GB950-86 M4X20 screws to directly install the back cover on the wall.
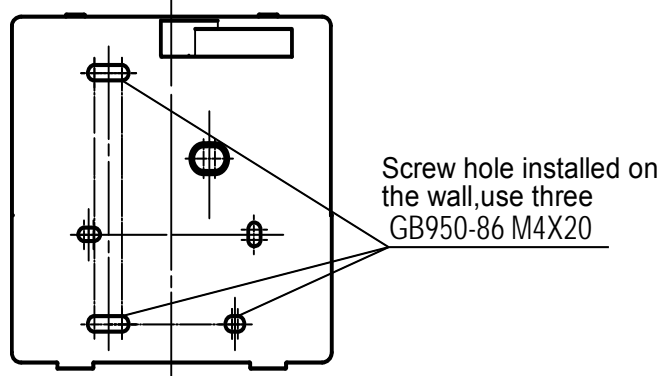
3) Use two M4X25 GB823-88screws to install the back cover on the 86 electrician box, and use one GB950-86 M4X20 screw for fixing the wall.
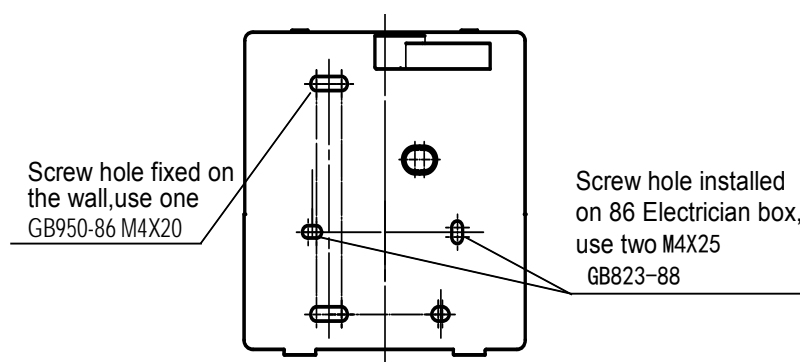
4) Adjust the length of two plastic screw bars in the accessory to be the standard length from the electrical box screw bar to the wall. Make sure when install the screw bar to the electrical box screw bar, make it as flat as the wall.
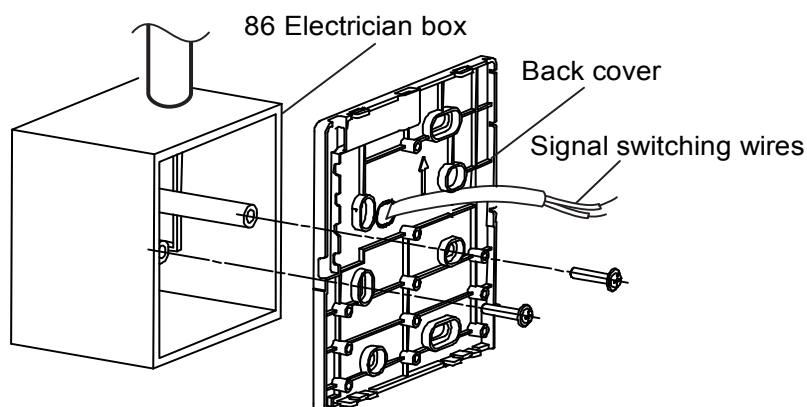
Notes:

1. Use cross head screws to fix the wired controller bottom cover in the electric control box through the screw bar. Make sure the wired controller bottom cover is on the same level after installation, and then install the wired controller back to the bottom cover.

2. Over fasten the screw will lead to deformation of the back cover.

※ **Neaten the wires**

1) There are three positions of signal wire outlet around the wired controller, when the wired controller directly is installed on the flat wall.
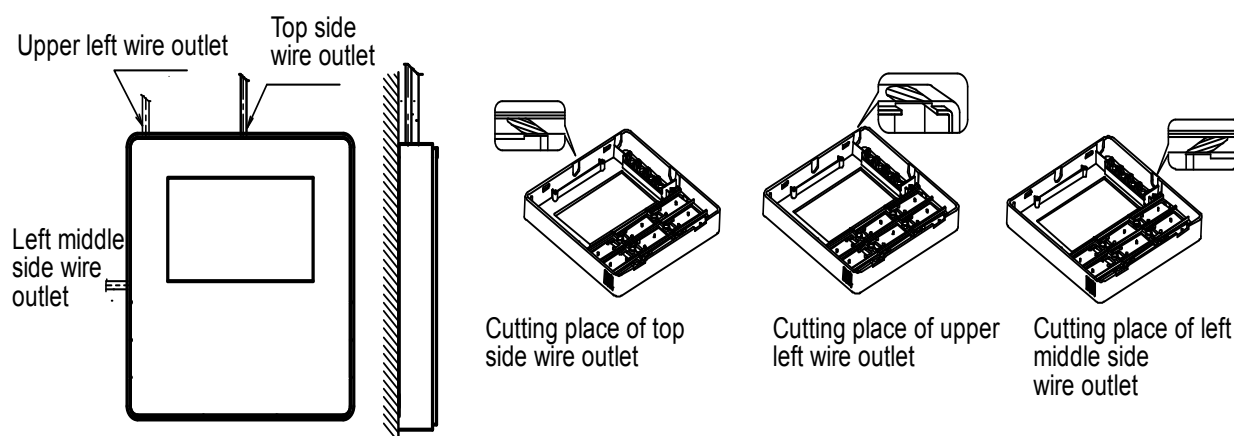
2) Shielded wiring

When the wired controller is stalled with electrician box, the back cover of wired controller is already reserved one hole for wire outlet. It is also available for the shielded wire passing by the wall.

Embedded 86 electrician box wiring

86 Electrician box

Wiring hole

Wiring through the wall

Wall hole and wiring hole
Diameter: Φ8～Φ10
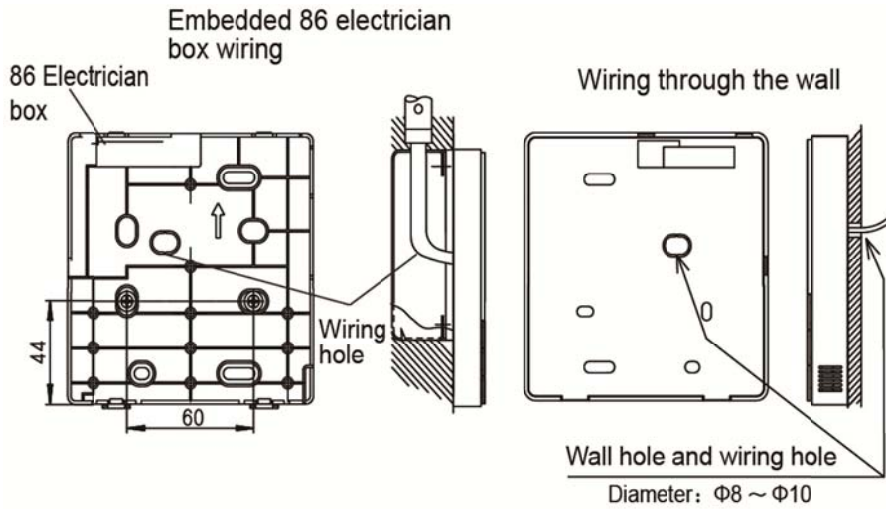
3) Avoid the water enter into the wired controller, use trap and putty to seal the connectors of wires during wiring installation. When under installation, reserve certain length of the connecting wire for convenient to take down the wired controller while during maintenance.

Putty Trap

Putty

Trap

Putty

Trap
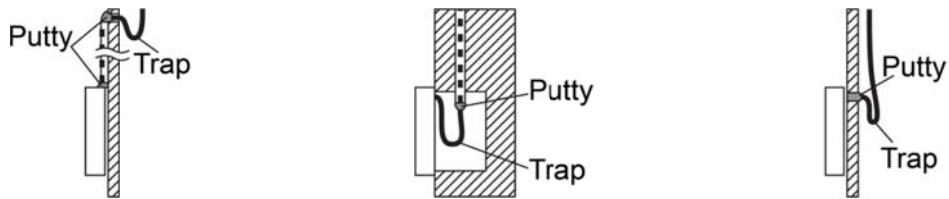
※ **Front cover installation**

1) After adjusting the front cover and then buckle the front cover; avoid clamping the communication switching wire during installation.
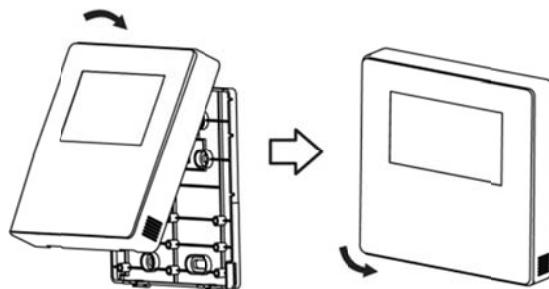
2) Correct install the back cover and firmly buckle the front cover and back cover, if not you maybe make the front cover drop off.
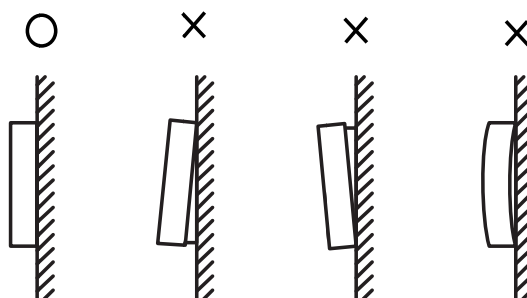
○   ×   ×   ×

※ **Wired controller initial parameters setting:**

1．Change the related functions of the controller through adjusting the initial parameters, details refer to table 1

2. The wired controller initial parameter includes two codes "XY", the first code "X" means functions class, and the second code "Y" means the detailed configuration of this function.

3. Setting method:

1) Press "Mode" and "Fan" button simultaneously for 5 seconds to enter the parameter setting state;

2) The value of this first code "X" is "0"; press the temperature setting button UP and DOWN to adjust the second code value;

3) After setting the second code value, press Silent/OK button to switch the first code to the next value;

4) When the first code value is "6", press Silent /OK button again to exit the parameters setting.

4. The parameters setting function only under the situation which needs to adjust the default functions' setting states; otherwise do not need to be set.

Table 1

First code	Functions	Second code				
		0	1	2	3	4
0	Cool-only/ Cool-Heat selection	Cool-Heat (Default)	Cool-only	/		/
1	Indoor unit communication address setting	Yes(Default)	None	/	/	/
2	Auto-restart	Yes(Default)	None	/	/	/
3	Air filter cleaning reminding function	Cancel the reminding function	1250 hours	2500 hours (Default)	5000hours	10000 hours
5	Remote receiving function	Yes(Default)	None	/	/	/
6	Centigrade/ Fahrenheit display	Centigrade	Fahrenheit	/	/	/

Notes:

The second code of the filter cleaning reminding is 2500 hours, which as default.

2.4 Wired controller: KJR-90D

KJR-90D

Wired controller specifications

Model	KJR-90D/BK-E, KJR-90D1/BK-E
Power Supply Voltage	DC 5.0 V
Ambient Temperature Range	-5°C~+43°C
Ambient Humidity Range	RH40%~RH90%

Performance features

1. Operating mode: cool, heat, dry, fan and auto.

2. Set the mode through buttons.

3. Indoor setting temperature range: 17°C ~30°C.

4. LCD (Liquid Crystal Display).

5. Can switch Fahrenheit degree and Centigrade degree.

2.4.1 Appearance
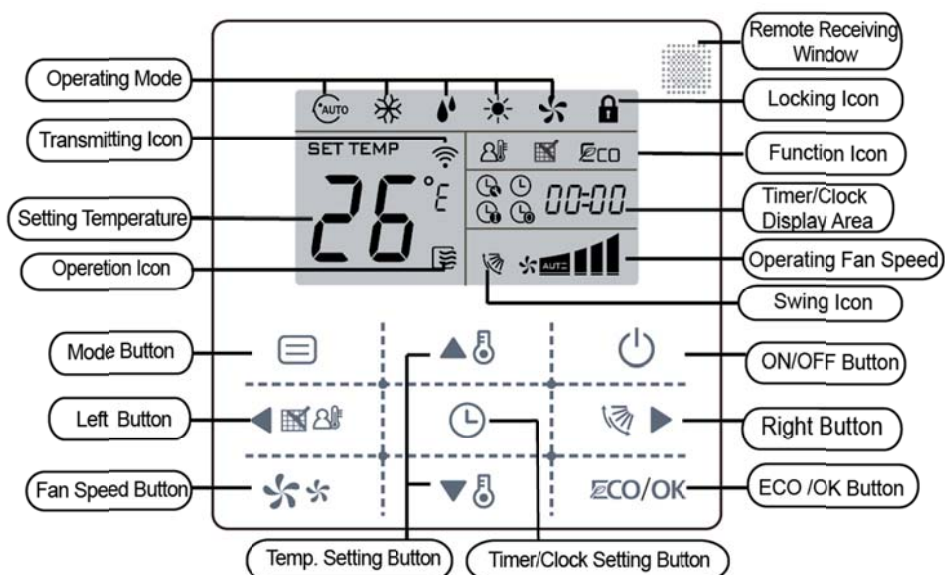
Notes: Do not peel off the buttons and liquid crystal cover to prevent electric shock.

(1) Remote signal receiving function

There is the signal receiver for wireless remote controller on the KJR-90D.You can use the wireless remote controller to control the air-conditioner through the wired controller when the system has been powered on.

Notes: The wired controller will not receive the swing controlling instruction. For the indoor unit with swinging function, you can directly use the remote controller to control swinging through the display panel of the indoor unit, or use the swing button on the wired remote controller to control the indoor unit for swinging.

(2) ON/OFF button

Press the ON/OFF button to control the indoor unit on and off state. When the unit is turned off, press the ON/OFF button, the unit will be turned on and the operating icon lights up. When the unit is turned on, press the ON/OFF button, the unit will be turned off and the operating icon lights off.

(3) Mode button

Press the mode button to set the operating mode, after each button press the operation mode will circle as follow:

AUTO ⟶ COOL ⟶ DRY ⟶ HEAT ⟶ FAN

When the controller has been set to cool-only, then there is no HEAT mode.

(4) Fan speed setting

Under COOL, HEAT and FAN modes, press the fan speed button can adjust the fan speed setting. After each fan speed button press will circle as follow:

AUTO→LOW→MID→HIGH→AUTO

Under AUTO and DRY modes, the fan speed is not adjustable and the default fan speed is auto.

(5)Temperature setting

Under AUTO, COOL, DRY, HEAT modes, press the Temp adjust Up/Down buttons to set the temperature, the adjusting range is 17℃~30℃ (or 62℉~88℉). The setting temperature cannot be adjusted under FAN mode.

(6)Timer on and Timer off setting

Press the timer/clock setting button, then enter into the timer on setting state, and the screen will display timer icon and *0.0h* .

You can press Temperature setting buttons to adjust the time. When the time setting is less than 10 hours, each press the Temp setting buttons will increase or decrease 0.5 hour. When the timer setting is more than 10 hours, each press Temp setting buttons will increase or decrease 1 hour, the maximum timer setting is 24 hours. After finish adjusting the time on setting, press the Silent/OK button or wait for 5 seconds to confirm and exit the time on setting.

Notes: If the wired controller has been set timer on/ off, press the ON/OFF button to turn on/ turn off the unit then the timer will be canceled simultaneously.

(7) Clock setting

Long press the timer/clock setting button for 3 seconds, and then enter into the clock setting state. The hour position of the clock will flash, and can press Temp setting buttons to adjust the hour value.

After finish the hour setting, press left button or right button to switch to minute position setting, then the minute position will flash, press Temp setting buttons to adjust the minute value. After finish the clock setting, press the button or wait for 5seconds to confirm and exit the setting state.

(8) ECO/OK button

Press the ECO/OK button to enter ECO operation when the unit is turned on and is cooling or heating. Under ECO operation, the initial fan speed is auto, and the setpoint is 26℃ for cooling mode, and 22℃ for heating mode.

ECO operation is available only when the IDU equipped with this function.

(9) Wired controller locking

Short press the temperature adjusting UP and DOWN buttons simultaneously, the wired controller enters into keyboard locking state, and the locking icon will be lighted up. Under the locking state, the wired controller will not respond to buttons by pressing and the control instruction from the wireless remote controller. Simultaneously press temperature adjusting buttons again will cancel the locking state.

(10) Air filter cleaning reminding function

The wired controller records the total running time of the indoor unit, when the accumulated running time reaches the pre-set value, air filter cleaning reminding icon will be lighted up, to remind that the air filter of the indoor unit needs to be cleaned. Long press left button for 3 seconds, and clear the reminding icon and the wired controller will re-accumulate the total running time of the indoor unit.

Notes: The default setting value of reminding function is 2500 hours, and it can change to be 1250 hours, 5000 hours or 10000 hours.

(11) Swing function

If the indoor unit supports swing function, press the right button to adjust the air outlet direction of the indoor unit. Long press this button for 3 seconds can turn on or turn off the auto-swing function. When the auto-swing function is turned on, the swing icon will be lighted up.

(12) Follow me function

When the system is running and the operating mode is Cooling, Heating or Auto, press the left button will activate the Follow Me function. Press left button again will cancel follow me function. When the operating mode is changed, and then will cancel this function as well. When the Follow Me function is activated, the icon will be light up, and the wired controller will display room temperature read from the local sensor, and transmit the temperature value to the indoor unit every 3 minutes.

(13) Setting addresses

- Press the Temp. UP and DOWN button simultaneously for more than 8 seconds, then the controller gets into address setting mode.
- In the address setting mode, there are 2 main functions:
  Querying address: Press MODE button, the corresponding indoor unit will display its address.
  Setting address: Use the UP and DOWN buttons to choose an address you want. Then press the FAN button to set the indoor unit's address. The corresponding indoor unit will display the new address and record it. After about 4 seconds, this displaying will fade out and indoor units turn to normal display mode.
- After setting addresses, users can press the ECO/OK button can exit the address setting mode.
- After re-power, users can query the indoor address again: long press the UP and DOWN button simultaneously will enter the address setting page, press ON/OFF button and then press MODE button, the indoor address will be displayed on the indoor display board.
- In the address setting mode, wired controller does not respond to any command from remote controller.

2.4.2 Installations

1) Safety precaution

- Please entrust the distributor or professionals to install the unit, do not install the unit by the user. Please entrust the distributor or professionals to install the unit, do not install the unit by the user.
- Do not install the unit randomly.
- The wiring should adapt to the wired controller current.
- The specified cables shall be applied in the wiring. No external force may be applied to the terminal.
- The circuit of wire controller is a low voltage circuit, do not contact to the high voltage circuit, and cannot be arranged in the same wiring pipe with the high circuit, the distance between the wiring pipes should be at least more than 300~500mm.
- Do not connect transition or extended connection in the middle of the wirings of the wired controller.

※ **Preparation before Installation:**

Make sure the following pasts has been prepared.

| Name	Qty.	Remarks
Wired controller	1	\
M4×25 cruciform slot screw	2	This accessory is used when install the wired controller inside the electric cabinet
Installation and operation manual	1	\
Plastic bolt	2	The accessory is used when install the wired controller inside the electric cabinet
The connective wires of signal received panel	1	For connect between the signal received wire and shielded 5-core cable

※ **Prepare for the following at installation site**

Name	Qty.	Remarks
Electric box	1	Universal electric cabinet specification, pre-embed it into the wall.
Shielded 5-core cable	1	Pre-embed RVVP-0.5mm 2×5 into wall.
Wire configured tube (insulated sheath)	1	Pre-embed into wall; the longest length should not exceed than 15m.
Phillips screwdriver	1	For install Cruciform slot screw.
Slotted head screwdriver	1	For unscrew the bottom cover of wired controller.

※ **Installation methods**

- Cut off the connective wires for the signal received panel (accessory) from the middle (no protecting sleeve part), divide into A and B part, and the A part has big 5-core connector as well as B part has small 5-core connector.

- Connect the big 5-core connector of the A part signal received panel connecting wire group with 5-core terminal of signal received panel.

- Please connect the other side (cut-off side) of the A part signal received panel with the wall pre-bedded 5-core cable reliability.
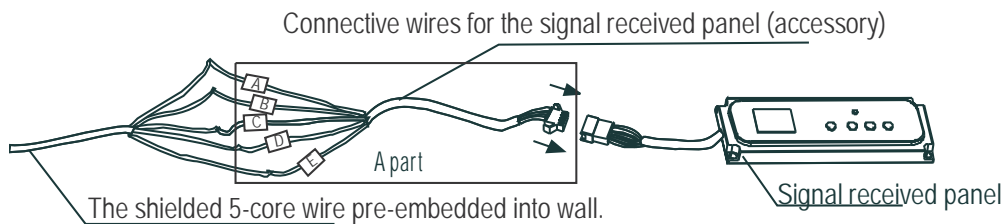
- Please connect the cut-off side of B part signal received panel with the wall pre-bedded 5-core cable reliability.
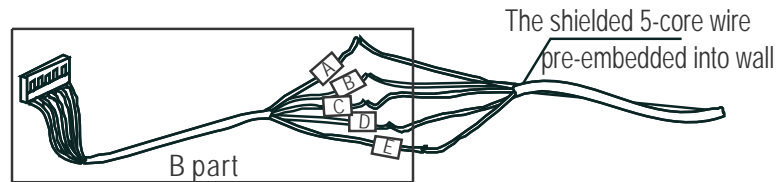
Notes:

Connecting wires of two sides in digital display pipe must be connected one to one.

- Insert to the bottom cover to the electric cabinet by the accessory slotted head screws, and take down the bottom cover.
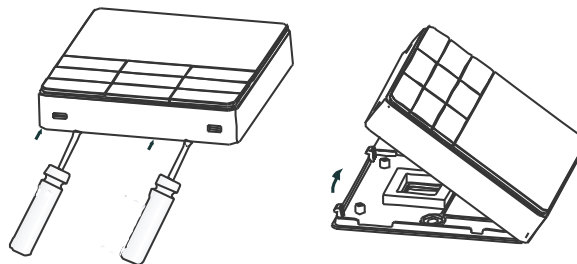
- Adjust the length of plastic screw equal to the length from electrical box screw to the wall. Make sure the plastic screw is parallel to the wall.

- Make the connecting wires of B part signal receiving panel to go through the hole of back cover, and use Make sure the back cover of wire controller in the same level.
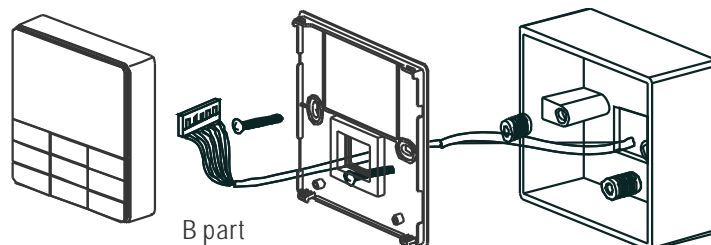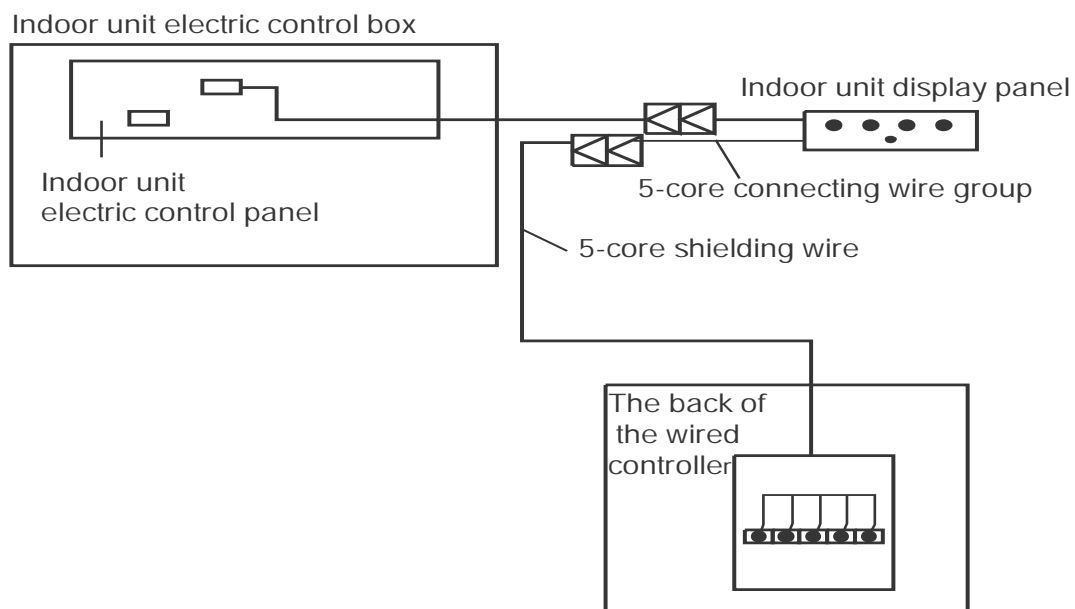
B part

🔶 Insert the small 5-core connector of the B part signal receiving panel connecting wire group with the 5-core terminal of wire controller PCB panel one to one, and then cover the wire controller with the back cover.

B part
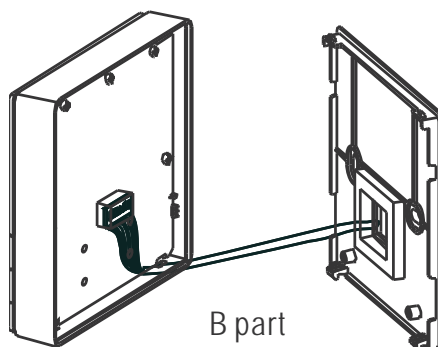
Notes:

1. If the screw too tight will cause deformation of rear cover and the LCD is broken.

2. When install the bolts, please keep the screws and wired controller in the same height level, prevent deformed.

3. When install wired controller, please reserve a certain length and connective to maintenance.

🔶 Wiring diagram

Indoor unit electric control box

Indoor unit electric control panel

Indoor unit display panel

5-core connecting wire group

5-core shielding wire

The back of the wired controller

2.5 V4 plus R wired controller: KJR-120A

KJR-120A

Wired controller specifications

Model	KJR-120A/B-E
Power Supply Voltage	5.0 V DC
Ambient Temperature Range	-5°C～+43°C
Ambient Humidity Range	RH40%~RH90%

Performance features

1. Operating mode: cool, heat, dry, fan and auto.

2. Set the mode through buttons.

3. Indoor setting temperature range: 17°C ~30°C.

4. LCD (Liquid Crystal Display).

2.5.1 Functions summary

The controller has functions as follows:

1) Can compatible with the V4 plus heat recycling 3-pipe system and V4 plus 2-pipe system.

2) Setting the mode through buttons;

3) Timer function;

4) Auto-restart function;

5) Query function;

6) Indoor unit error display function

2.5.2 Appearance
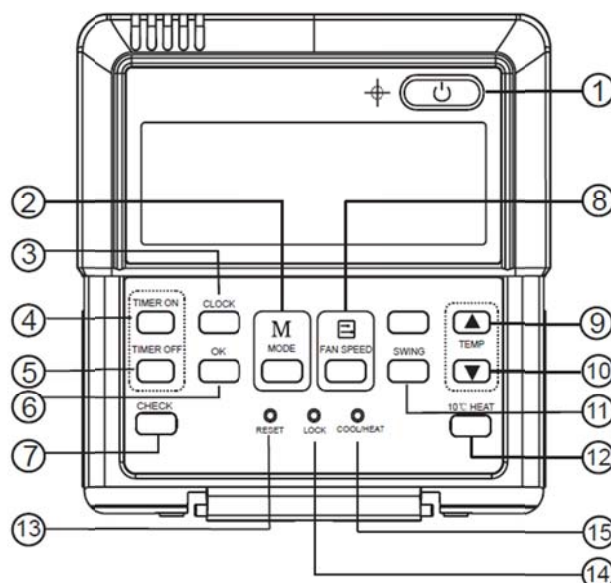
1	ON/OFF	ON/OFF the air conditioner	9	Temp ▲	Increase the setting temperature
2	Mode	Select operation mode (AUTO/COOL/DRY/HEAT/FAN)	10	Temp ▼	Decrease the setting temperature
3	Clock	Enable/disable the real time clock setting mode	11	Swing	Activate/deactivate swing control
4	Timer on	Enter timer on setting mode	12	10℃Heat	Activate/deactivate 10℃ heat operation mode
5	Timer off	Enter timer off setting mode	13	Reset (hidden)	Reset the wired controller
6	OK button	Confirm and back to main display	14	Lock (hidden)	Lock button function of wired controller
7	Check	Check the temperature and operation state of indoor unit	15	Cool/Heat (hidden)	Operation mode locking
8	Fan speed	Select fan speed			

(1) ON/OFF button

When the unit is turned off, press ON/OFF button, the unit will be turned on and the operation LED lights on.

When the unit is turned on, press ON/OFF button, the unit will be turned off and the operation LED lights off.

(2) Mode button

✧   Press the button to select the operation mode, each press will change as following order:

AUTO→COOL→DRY→ HEAT→FAN→AUTO

✧   Cool-only mode will change as following order:

COOL→DRY→FAN→COOL

Notes: Heat-only mode can only set to HEAT mode.

◆   When mode setting is in progress, the screen light the mode "set" string and display the setting mode of the wired remote controller. After the mode setting is completed, "set" strings extinguish and the screen display the actual operation mode of the indoor unit.

◆ The indoor unit has 3 different actual operation modes: COOL/HEAT/FAN. The actual operation mode of the indoor unit may be different from the setting mode of the controller. For example: if the setting mode is AUTO, the actual operation mode of the indoor unit may be COOL or HEAT. If the setting mode is DRY, the actual operation mode of the indoor unit is COOLING.

(3) Clock setting

First power on or reset the wired controller, the clock will display 12:30, pressing the CLOCK button can enter to the clock setting state. At this time, the minute position will be flashed, press ▲ or ▼ button can adjust the minute; press the CLOCK button again then the hour position will be flashed, and press ▲ or ▼ button can adjust the hour. The third time press the CLOCK button or press OK button can exit and finish the clock setting, or wait for 5s to exit the clock setting automatically.

(4) Timer setting

◆ Press "TIMER ON" or "TIMER OFF" to enter the timer setting, then press ▲ or ▼button can adjust the timer, when the timer on or off setting is less than 10 hours, each press ▲ or ▼ button will increase or decrease 0.5 hour. When the timer on or off setting is more than 10 hours, each press ▲ or ▼button will increase or decrease 1 hour, the maximum timer on or off setting is 24 hours. Press OK button or wait for 5s will exit the timer setting and back to normal display.

◆ When the timer on/off has been set, set the timer to 0.0 hour will cancel the timer.

Notes:

If the controller has been set timer on/ off, press the ON/OFF to turn on/ off the unit and the timer will be canceled simultaneously.

(5) Check button

Press the CHECK button to display room temperature (Tf) and evaporator temperature (T2 and T2b) of the unit. First press CHECK button, the screen display the room temperature (TF). Second press CHECK button, the room temperature display will switch to middle-evaporator temperature (T2), then at third press CHECK button the temperature display will switch to evaporator-outlet temperature(T2B). Press OK button or wait 5s will exit the query display and back to normal display.

(6) Fan speed

1) Press the FAN SPEED button to set the fan speed of indoor unit. The fan speed switch order as follow:

AUTO →LOW →MID →HIGH
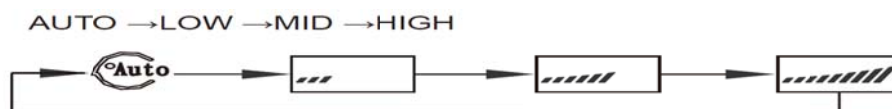
2) For no medium fan type, the wired remote controller fan speed switch order is:

AUTO →LOW →HIGH
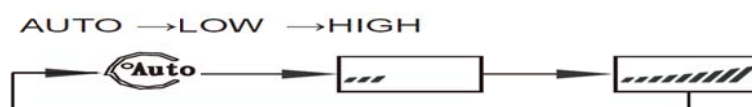
3) Setting the fan speed to AUTO then the indoor unit will actually run at LOW speed.

(7) Temperature setting

Press the temperature adjusting buttons ▲ or ▼ to increase or decrease the setting temperature. Under AUTO/COOL/DRY/HEAT operating mode can set the temperature, the setting range: 17℃-30℃(62℉-88℉).

(8) Swing function

Press the swing button to activate the swing function when the fan of indoor unit is turned on. Press this button again can deactivate the swing function (This function is effective when it is used with the relative indoor unit).

(9) 10℃ Heat mode

✧ For preventing a significant decline of the room temperature when nobody in the room and the air conditioner is turn off in cold weather, you can set the unit to operate as 10℃ Heat mode for keeping the room warm.

✧ Press the 10℃ Heat button can enter the 10℃ Heat operation mode. The screen of the wired controller will display "10℃". Press this button again or press ON/OFF button will exit 10℃ Heat mode and turn off the unit.

✧ Under 10℃ Heat operating mode, when the room temperature is lower than 10℃, then the unit will start to heat, and the wired controller operation LED will be lighted up, at the same time the "run" LED of the display panel light up and display "17" if the digital LED is available on the panel. When the room temperature is higher than 15℃ then it will stop heating and the operation LED lights off.

✧ Press the 10℃ Heat button again or ON/OFF button can exit 10℃ Heat mode.

(10) Locking (Hidden)

Use a small stick with a diameter of 1mm to press the LOCK button to lock the current setting, press the button again to unlock

(11) Cool-only/ Heat-only/ Cool-heat switching (Hidden)

The factory default of the controller is cool-heat mode. Use a small stick with a diameter of 1mm to press the cool/heat button, each press will change the mode locking as the following order:

Cool-heat mode→Cool-only mode→Heat only mode→Cool-heat mode

Notes:

1) Under cool-only mode, the wired remote controller can only be switched in 3 different operation modes: COOL→ DRY →FAN.

2) Under heat-only mode, the controller can only be set to HEAT mode.

(12) Reset (hidden)

Use a small stick with a diameter of 1mm to press the reset button to reset the chip of the controller, and all the setting state of the controller will be saved.

(13) Auto operation mode (3-pipe system)

✧ If the controller operates under 3-pipe system auto operation mode, the screen will display " ☺ " icon.

✧ 3-pipe system auto operation mode can automatically switch to COOL mode or HEAT mode depending on the temperature difference between setting temperature(Ts) and indoor temperature(Tf), and the fan speed is adjustable.

✧ The wired remote controller will set the unit to operate on heating mode when Ts-Tf is greater than △T, and changeover to cooling mode when Ts-Tf is less than △T. The minimum operating mode switching interval is 15 minutes.

✧ The default △T is 3℃, the value can be changed from 1~4℃. Press ▲ and ▼ buttons simultaneously for 5 seconds to enter the △T setting, then press ▲ or ▼button to adjust the value of △T.

※ The auto operation mode of the controller cannot be changed by other control terminals, such as wireless remote controller, central remote controller, etc.

Notes:

1) The wired remote controller can be used in a 2-pipe system; in that case the controller should be set to 2-pipe system mode.

2) For a 2-pipe system, auto operation mode will set the unit to operate on COOL mode and the fan speed is set to auto and is not adjustable.

(14) Air filter cleaning remind function

The controller records the total running time of the indoor unit, when the accumulated running time reaches the pre-set value, flashed "F1" flag will appear to remind the user the air filter of indoor unit is needed to be cleaned, the "F1" flag will auto disappear after 8s, and it will appear and flash for 8s again every time turn on the unit. Press CHECK and OK buttons simultaneously will cancel the "F1"reminding flag, and the wired remote controller will re-accumulate the total running time of the indoor unit. The air filter cleaning pre-set time can be set to 5 different time periods (defaults 2500 hours). Pressing the CHECK and CLOCK button simultaneously for 5 seconds will enter setup. Five time periods corresponding to the five codes (0,1,2,3,4), press the ▲ and ▼ keys to adjust between the different codes.

0	1	2	3	4
Disable the alarm function	1250 Hours	2500 Hours	5000 Hours	10000 Hours

2.5.3 Codes description

The wired controller KJR-120A can display the fault codes when the units malfunction or protection, the code as follow:

Codes	Description
E0	Modes confliction
E1	Communication malfunction between indoor/outdoor units
E2	T1 sensor malfunction
E3	T2 sensor malfunction
E4	T2B sensor malfunction
Ed	Outdoor unit malfunction
EF	Water level switch checking malfunction
F1	Air filter cleaning remind function
F2	Wired controller EEPROM malfunction
F3	Communication malfunction between wired controller and indoor unit
F4	Wired controller temperature sensor malfunction

2.5.4 Installation

※　Preparation before Installation:

Make sure the following pasts has been prepared.

NO.	Name	QTY.	Remarks
1	Wired Controller	1	With Cover
2	Wood mounting screw	3	M4×20(For mounting on the wall)
3	mounting screw	3	M4×25(For mounting on the electrical switch box)
4	Installation manual	1	/
5	Owner's manual	1	/
6	5-way terminal	1	RS9005E
7	Terminal Installation screw	2	ST3.9x12-F-H

※　Prepare for the following at installation site.

NO.	Name	QTY.	Remarks
1	4-core shield cable	1	The factory default length is 6m; The longest length should be less than 15m.
2	2-cores wire	1	1.5m length
3	Switch box	1	/
4	Wiring tube(insulating sleeve and tightening screw)	1	/

Notes:

1. This manual contains information about the procedure of installing the controller.

2. The circuit of the wired controller is a low voltage circuit, never connect it with a 220V/380V circuit or put it

into a same wiring tube with the circuit, and the interval must be more than 300~500mm.

3. The shield cable must be connected stable to the ground, or transmission may fail.

4. Do not to attempt to extend the shield cable by cutting, if it is necessary, use Terminal Connection Block to connect.

5. After finished connection, do not use Megger to do installation check to the signal wire.

1) Wiring method
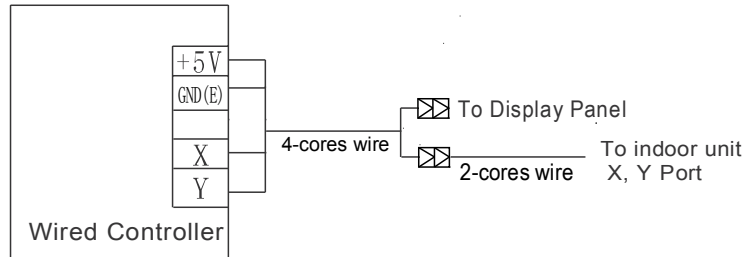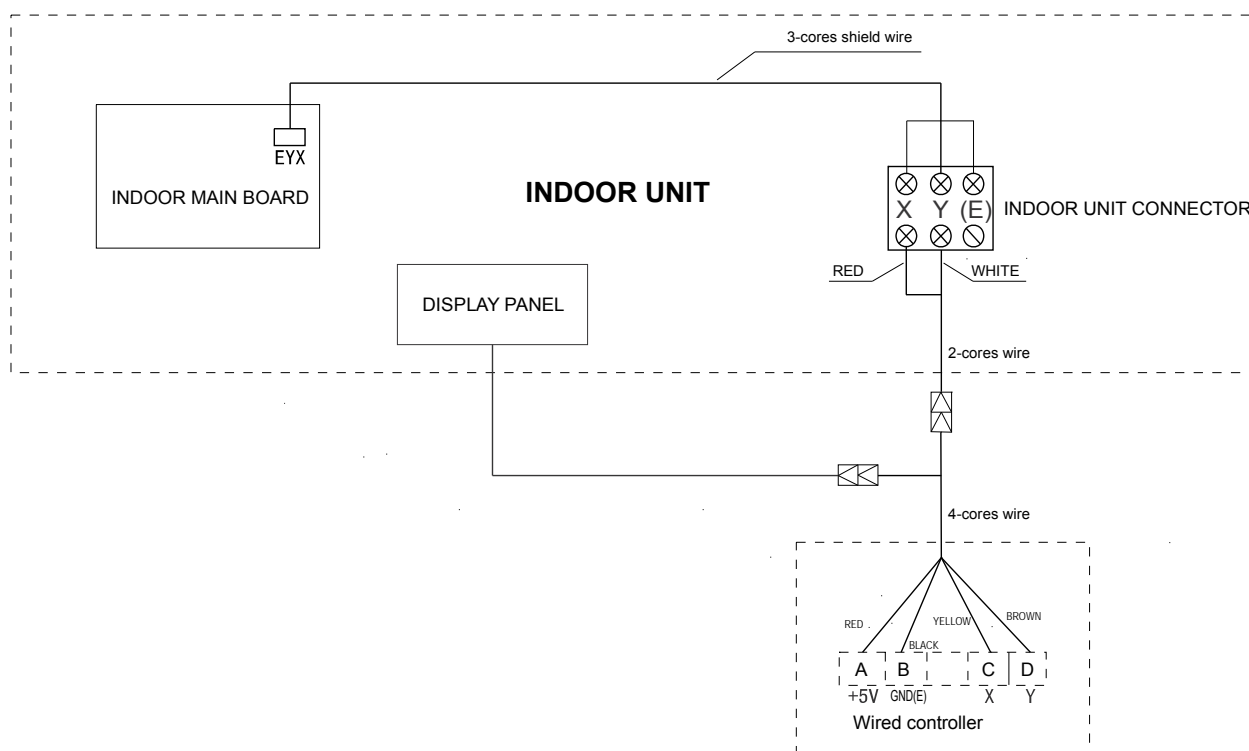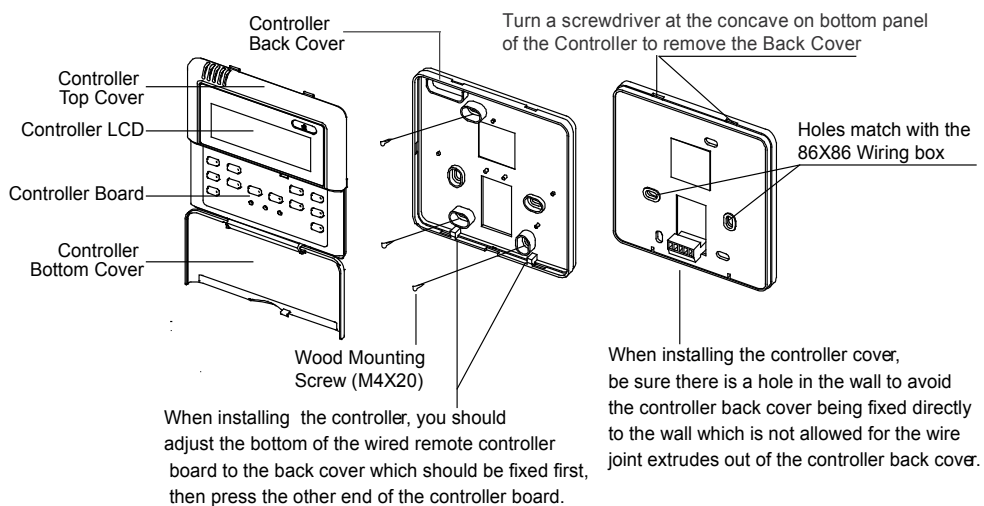

2) Wired controller mode setting:

SW1 definition:

The controller can work on 2-pipe system mode or heat recycling 3-pipe system mode. AUTO mode in a 2-pipe system is cooling operation; a 3-pipe system is real auto operation. Set the switch SW1 on the main board to select 2-pipe system mode or 3-pipe system mode. The factory default setting is 3-pipe system mode.

3) Dimension: 120*120*15mm

4) Wiring principle

Controller Back Cover

Controller Top Cover

Controller LCD

Controller Board

Controller Bottom Cover

Turn a screwdriver at the concave on bottom panel of the Controller to remove the Back Cover

Holes match with the 86X86 Wiring box

Wood Mounting Screw (M4X20)

When installing the controller, you should adjust the bottom of the wired remote controller board to the back cover which should be fixed first, then press the other end of the controller board.

When installing the controller cover, be sure there is a hole in the wall to avoid the controller back cover being fixed directly to the wall which is not allowed for the wire joint extrudes out of the controller back cover.

3-cores shield wire

EYX

INDOOR MAIN BOARD

INDOOR UNIT

X Y (E) INDOOR UNIT CONNECTOR

RED   WHITE

DISPLAY PANEL

2-cores wire

4-cores wire

RED   YELLOW   BROWN

BLACK

A | B | C | D

+5V | GND(E) | X | Y

Wired controller

Notes:

1) This wired controller is compatible with the indoor unit of V4 plus heat recycling 3-pipe system and V4+ 2-pipe system.

2) Please do not connect the wired controller and a CCM. to the same XYE port, otherwise it will lead to conflict.

2.6 V4 Plus R Series: KJR-120B

KJR-120B

Wired controller specifications

Model	KJR-120B/BKP-E
Power Supply Voltage	DC 5.0 V
Ambient Temperature Range	-5°C～+43°C
Ambient Humidity Range	RH40%~RH90%

Performance features

1. Operating mode: cool, heat, dry, fan and auto.

2. Set the mode through buttons.

3. Indoor setting temperature range: 17°C ~30°C.

4. LCD (Liquid Crystal Display).

5. Auto mode for V4 plus R series.

2.6.1 Functions summary

The controller has functions as follows:

1) Can compatible with the V4 plus heat recycling 3-pipe system and V4 plus 2-pipe system.

2) Clock and Timer function;

3) Auto-restart function;

4) Query function;

5) Indoor unit error display function

6) Auto mode and air filter cleaning reminding function

7) Can switch Fahrenheit degree and Centigrade degree.

2.6.2 Appearance
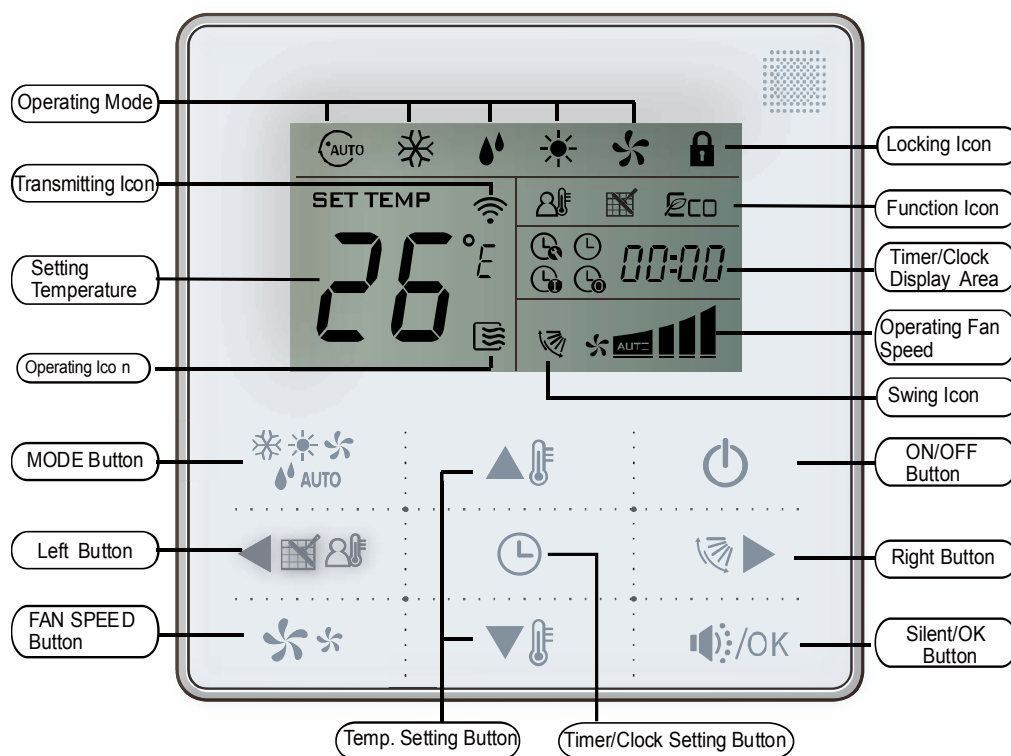
Operating Mode

Transmitting Icon

Setting Temperature

Operating Icon

MODE Button

Left Button

FAN SPEED Button

Locking Icon

Function Icon

Timer/Clock Display Area

Operating Fan Speed

Swing Icon

ON/OFF Button

Right Button

Silent/OK Button

Temp. Setting Button

Timer/Clock Setting Button

(2) ON/OFF button

Press the On/Off button to control the indoor unit on and off state.

When the unit is turned off, press this button, the unit will be turned on and the operation icon [icon] lights on.

When the unit is turned on, press this button, the unit will be turned off and the operation icon [icon] lights off.

(2) Mode button

✧ Press the button to select the operation mode, each press will change as following order:

AUTO→COOL→DRY→ HEAT→FAN→AUTO

✧ Cool-only mode will change as following order:

COOL→DRY→FAN→COOL

Notes: Heat-only mode can only set to HEAT mode.

◆ When mode setting is in progress, the screen light the mode "set" string and display the setting mode of the wired controller. After the mode setting is completed, "set" strings extinguish and the screen display the actual operation mode of the indoor unit.

◆ The indoor unit has 3 different actual operation modes: COOL/HEAT/FAN. The actual operation mode of the indoor unit may be different from the setting mode of the controller. For example: If the setting mode is AUTO, the actual operation mode of the indoor unit may be COOL or HEAT. If the setting mode is DRY, the actual operation mode of the indoor unit is COOLING.

(3) Clock setting

First power on or reset the wired controller, the clock will display 12:00. Long pressing the Timer/CLOCK button for 2 seconds can enter to the clock setting state. At this time, the minute position will be flashed; press ▲🌡 or ▼🌡 button can adjust the minute.

After finishing the hour setting, press left button ◄📧🕐 or right button 🕐► to switch to minute position setting, then the minute position will flash, press ▲🌡 and ▼🌡 to adjust the minute value.

After finish the clock setting, press the 🔊/OK button or wait for 5 seconds to confirm and exit the setting state.

(4)Timer setting

Press the timer/clock setting button to enter the timer on setting state, and the screen will display 🕐 and *0-0h*.

Press ▲🌡and ▼🌡buttons can adjust the timer. When the timer setting is less than 10 hours, each press ▲🌡 or ▼🌡 button will increase or decrease 0.5 hour. When the timer setting is more than 10 hours, each press ▲🌡 or ▲🌡will increase or decrease 1 hour, the maximum timer setting is 24 hours.

After adjusting the timer on setting, press the 🔊/OK button or wait for 5 seconds to confirm and exit the timer on setting.

Under the timer on setting state, press the timer/clock setting button, then enter into the timer off setting state, and the screen will display 🕐 and *0-0h*.

The setting method of timer off is the same as the timer on.

Under timer setting state, set the timer on and timer off to be 0.0h can cancel timer on and timer off.

Notes:

If the controller has been set timer on/ off, press the ON/OFF to turn on/ off the unit and the timer will be canceled simultaneously.

(6) Fan speed

Under COOL, HEAT and FAN modes, press the fan speed button can adjust the fan speed setting.

Under AUTO and DRY modes the fan speed is not adjustable and the fan speed defaults auto speed.

1) Press the FAN SPEED button to set the fan speed of indoor unit. The fan speed switch order as follow:

AUTO →LOW →MID →HIGH
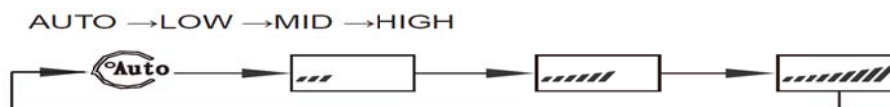
2) Under AUTO and DRY modes the fan speed is not adjustable and the fan speed defaults auto speed.

(6)Temperature setting

Press the temperature adjusting buttons ▲🌡 or ▼🌡 to increase or decrease the setting temperature. Under AUTO/COOL/DRY/HEAT operating mode can set the temperature, the setting range: 17℃-30℃(62℉-88℉).

The setting temperature cannot be adjusted under the FAN mode.

(7) Swing function

Press the swing button ▨▶ to activate the swing function when the fan of indoor unit is turned on, and the swing icon ▨ will be lighted up. Press this button again can turn off the swing function, and the swing icon ▨ lights off. This function is effective when it is used with the relative indoor unit.

(8) Silent mode

Under the COOL, HEAT, FAN modes, press the silent button ◀:/OK can enter the silent operation. It is used to reduce the running noise through setting the fan speed to low.

Under the AUTO, DRY mode, the fan speed is auto and the silent button ◀:/OK doesn't work.

(9) Locking wired controller

Press the temperature adjusting buttons ▲❄ and ▼❄simultaneously, the wired controller enters locking state, and the locking icon 🔒 will be lighted up.

Under the locking state, the wired controller will not respond from the buttons pressing and the command of the remote controller.

Press the temperature adjusting buttons ▲❄ and ▼❄ simultaneously again can cancel the locking state.

(10) Query function

Long press the FAN SPEED button and Silent /OK button will display the temperature from temperature sensor. Use ▲❄ and ▼❄ buttons can switch display of room temperature (Tf), middle evaporator temperature $t2$ and evaporator-outlet temperatureT2b. Press ◀:/OKbutton or wait 5s will exit the query function and back to normal display.

(11) Air filter cleaning reminding function

The wired controller records the total running time of the indoor unit, when the accumulated running time reaches the pre-set value, the air filter cleaning reminding icon ▨ will be lighted up to remind users need to clean the air filter of the indoor unit.

Long press ◀▨ button for 2 seconds, and reset the reminding icon ▨ and the wired controller will re-accumulate the total running time of the indoor unit.

The default setting value of the reminding function is 2500 hours, and it can change to be 1250 hours, 5000 hours or 10000 hours.

(13) Auto operation mode (3-pipe system)

1) 3-pipe system auto operation mode can automatically switch to COOL mode or HEAT mode depending on the temperature difference between setting temperature(Ts) and indoor temperature(Tf), and the fan speed is adjustable.

2) The wired controller will set the unit to operate on heating mode when Ts minus the Tf difference value is over than ΔT, and changeover to cooling mode when Ts minus the Tf difference value is less than -ΔT. The

minimum operating mode switching interval is 15 minutes.

3) Under 3-pipe system auto operation mode, the auto mode icon "(AUTO)" flashes, and the COOL or HEAT icon will be lighted up depending on the actual operation mode.

4) The default ΔT is 2°C, the value can be changed from 1~4°C. Please refer to WIRED REMOTE CONTROLLER INITIAL PARAMETER SETTING for detailed setting methods.

5) The auto operation mode of the controller cannot be changed by other control terminals, such as wireless remote controller, central remote controller, etc.

Notes:

1) The wired controller can be used in a 2-pipe system; in that case the controller should be set to 2-pipe system mode.

2) For a 2-pipe system, auto operation mode will set the unit to operate on COOL mode and the fan speed is set to auto and is not adjustable.

2.6.3 Codes description

The wired controller KJR-120A can display the fault codes when the units malfunction or protection, the code as follow:

Codes	Description
E0	Modes confliction of the indoor unit
E1	Communication malfunction between indoor/outdoor units
E2	T1 sensor malfunction
E3	T2 sensor malfunction
E4	T2B sensor malfunction
Ed	Outdoor unit malfunction
EE	Water level switch checking malfunction
F2	Wired controller EEPROM malfunction
F3	Communication malfunction between wired controller and indoor unit
F4	Wired controller temperature sensor malfunction

Notes:

1. The wired controller cannot display the EEPROM malfunction of the indoor unit

2. Under a state of fault display, wired controller does not respond to any button operation.

2.6.4 Wired controller initial parameters setting

1. Change the related functions of the controller through adjusting the initial parameters, details refer to table 1.

2. The wired remote controller initial parameter include two codes "XY", the first code "X" means function class, the second code "Y" means the detailed configuration of this function.

3. Setting method:

① Simultaneously long press "Mode" and "Fan" button of the wired remote controller for 5 seconds to enter the parameter setting state;

② The value of this first code "X" is "0", press the temperature setting button ▲🌡 and ▼🌡 to adjust the second code value;

③ After setting the second code value, press Silent/Ok button 🔇/OK to switch the first code to the next value;

④ When the first code value is "6", press Silent/Ok button 🔇/OK again will exit the parameters setting.

3. The parameters setting function only under the situation which needs to adjust the default functions' setting states; otherwise there is no need to do the setting.

Table 1

First code	Function	Second code				
		0	1	2	3	4
0	Cool-only/Cool-Heat selection	Cool-Heat (Default)	Cool-only	/	/	/
2	Power-off memory	Yes(Default)	None	/	/	/
3	Filter cleaning reminding	Cancel the reminding icon	1250 hours	2500 hours (Default)	5000 hours	10000 hours
6	Centigrade/ Fahrenheit display	Centigrade (Default)	Fahrenheit	/	/	/
7	3-pipe system/ 2-pipe system	3-pipe system (Default)	2-pipe system	/	/	/
8	Setting ΔT value	/	1°C	2°C (Default)	3°C	4°C

2.6.5 Installation

1) Safety precaution

🔸 Stated below are important safety issues that must be obeyed. Confirm there is no abnormal phenomena during test operation after complete.

🔸 Installation by other persons may lead to imperfect installation, electric shock or fire. Improper installation may lead to electric shock or fire. A random disassembly may cause abnormal operation or heating, which may result in fire.

🔸 Do not install the controller in a place vulnerable to leakage of flammable gases. Once flammable gases are leaked and left around the wired controller, fire may occur.

🔸 The wiring should adapt to the wired controller current. Otherwise, electric leakage or heating may occur and result in fire. The specified cables shall be applied in the wiring. No external force may be applied to the terminal. Otherwise, wire cut and heating may occur and result in fire.

🔸 Don't place the wired controller near the lamps, to avoid the remote signal of the controller to be disturbed. Do not install the unit and controller in a place with much oil, steam, sulfide gas. Otherwise, the product may deform and fail.

※ Preparation before Installation:

Make sure the following pasts has been prepared.

NO.	Name	QTY.	Remarks
1	Wired Controller	1	/
2	Wood mounting screw	3	M4×20(For mounting on the wall)
3	mounting screw	3	M4×25(For mounting on the electrical switch box)
4	Installation manual	1	/
5	Owner's manual	1	/
6	Plastic screw bar	2	For fixing on the 86 electrician box
7	Switching wires for signal receiving board	1	For connecting the signal receiving board and 4-core shielding wire
8	Switching wires for wire controller signal	1	For connecting the main control panel and 4-core shielding wire

※ Prepare for the following at installation site.

NO.	Name	QTY.	Remarks
1	4-core shielded cable	1	The longest length should be less than 15m.
2	86 Electrician box	1	/
3	Wiring tube(insulating sleeve and tightening screw)	1	/

2) Dimension: 120*120*20mm
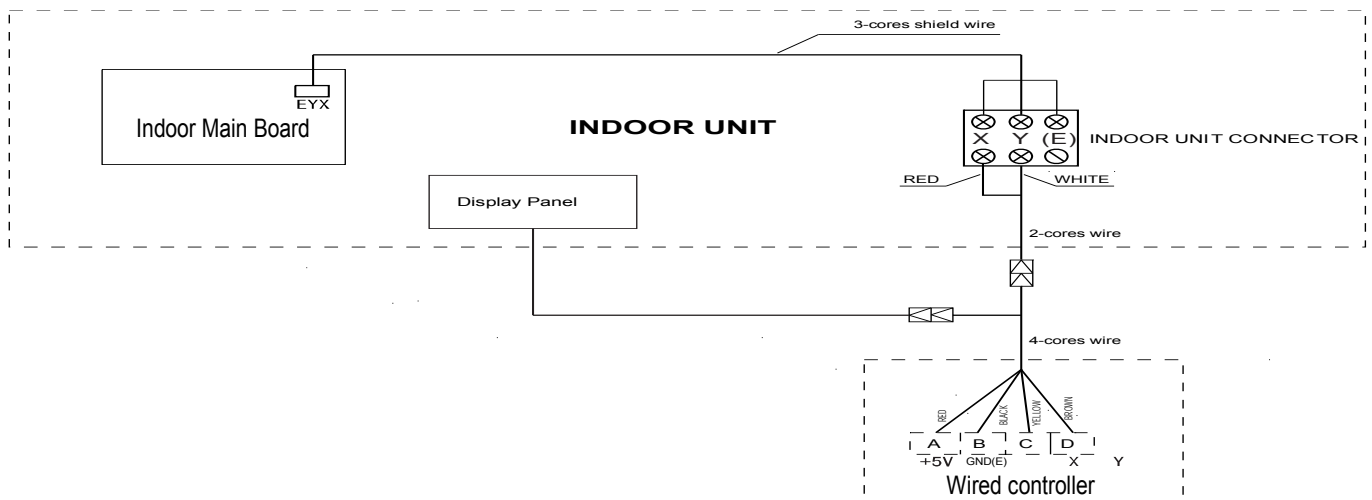
Figure A

Fig.1

3) Wiring Principle Sketch:

Notes:

1) This wired controller is compatible with the indoor unit of V4 plus heat recycling 3-pipe system and V4+

2-pipe system.

2) Please do not connect the wired controller and a CCM. to the same X, Y ,E port, otherwise it will lead to conflict.

4) Back cover installation

- Use straight head screwdriver to insert into the buckling position in the bottom of the wired controller, and spin the screwdriver to take down the back cover. (Pay attention to spinning direction, otherwise will damage the back cover!) (Fig.2)
- Use three GB950-86 M4X20 screws to directly install the back cover on the wall. (Fig.3)
- Use two M4X25 GB823-88screws to install the back cover on the 86 electrician box, and use one GB950-86 M4X20 screw for fixing on the wall. (Fig.4.1)
- Adjust the length of two plastic screw bars in the accessory to be standard length from the electrical box screw bar to the wall. Make sure when install the screw bar to the electrical box screw bar, make it as flat as the wall. (Fig.4.2)
- Use cross head screws to fix the wired controller bottom cover in the electric control box through the screw bar. Make sure the wired controller bottom cover is on the same level after installation, and then install the wired controller back to the bottom covers.
- Over fasten the screw will lead to deformation of the back cover.
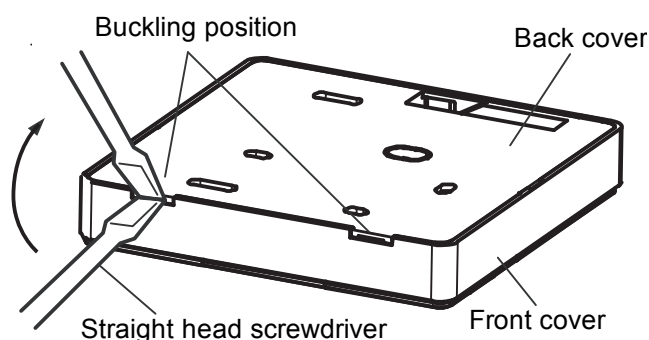
Fig.2
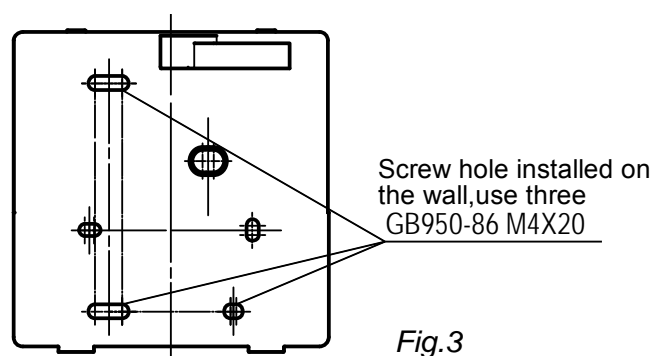
Fig.3
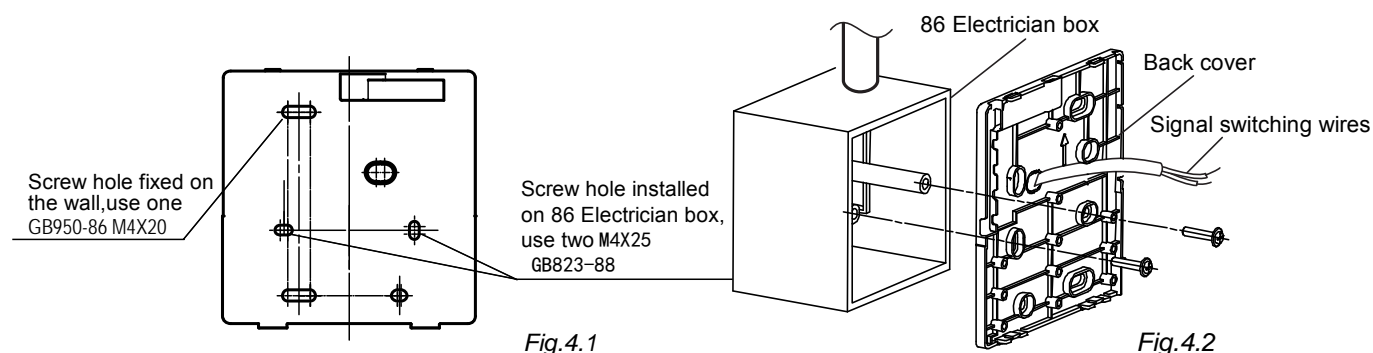
Fig.4.1

Fig.4.2

5) Wiring figure

A. Wiring, three outlet positions

Upper left wire outlet

Top side wire outlet

Left middle side wire outlet

Cutting place of top side wire outlet

Cutting place of upper left wire outlet

Cutting place of left middle side wire outlet

Fig.5

B. Shielded wiring

Embedded 86 electrician box wiring

86 Electrician box

Wiring hole

44

60

Wiring through the wall

Wall hole and wiring hole
Diameter: Φ8 — Φ10

Fig.6

Putty

Trap

Putty

Trap

Putty

Trap
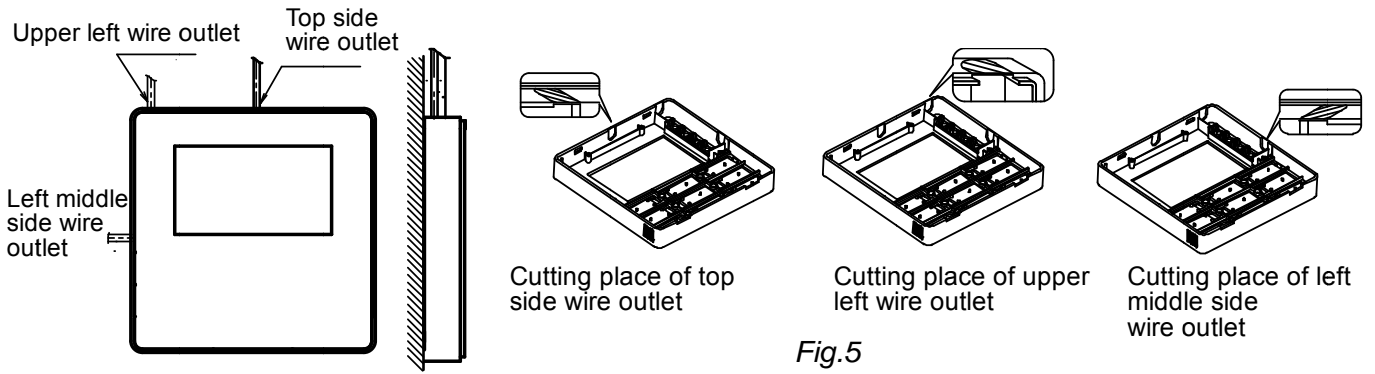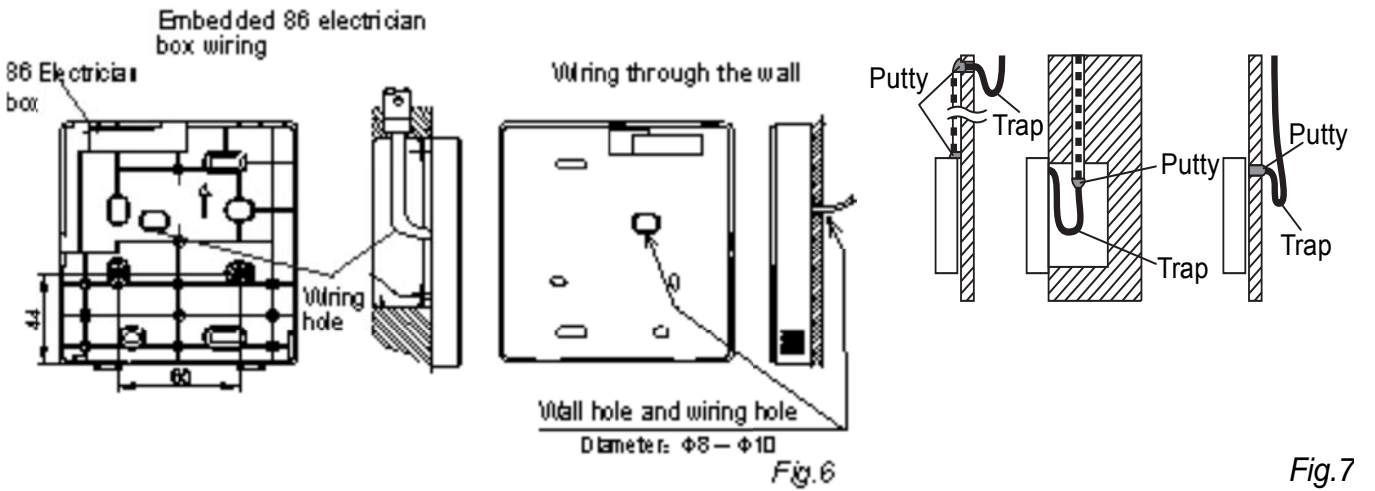
Fig.7

6).Front cover installation

Fig.9

O X X X

Fig.10
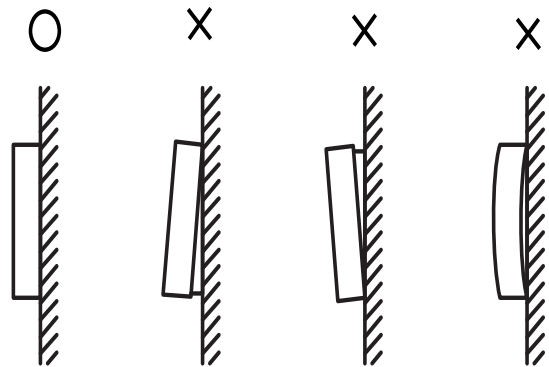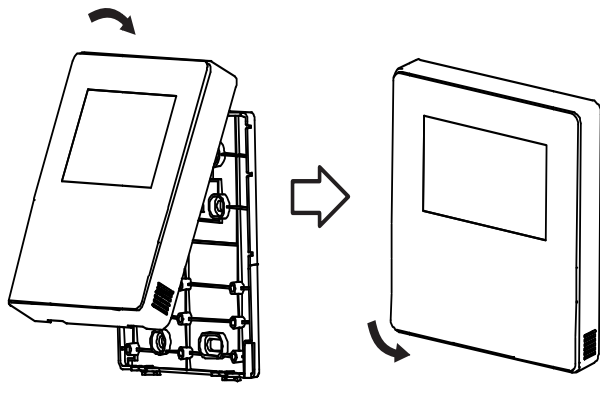
Notes:

1. After adjusting the front cover and then buckle the front cover; avoid clamping the communication switching wire during installation. (Fig.9)

2. Correct install the back cover and firmly buckle the front cover and back cover, otherwise will make the front cover drop off. (Fig. 10)

2.7 Wired controller KJR-90A

KJR-90A

Model	Description
KJR-90A-E	General control function.
KJR-90A1-E	To avoid mode confliction running mode is fixed to cool mode, other functions are the same as KJR-90A-E.

Wired controller specifications

Model	KJR-90A-E/ KJR-90A1-E
Power Supply Voltage	DC 5.0 V
Ambient Temperature Range	-5°C～+43°C
Ambient Humidity Range	RH40%~RH90%

Performance Features

1. Operating mode: cool, heat, dry, fan and auto.

2. Set the mode through buttons.

3. Indoor setting temperature range: 17°C ~30°C.

4. LCD (Liquid Crystal Display).

2.7.1 Appearance

(1) Mode Selection button

The mode is selected in a sequence as the following figure indicates

► AUTO ——► COOL ——► DRY ——► HEAT ——► FAN

(HEAT is invalid for COOL ONLY wired controller.)

(2) ON/OFF button

Press the button at the condition of OFF, the OPERATION lamp lights, and the wired controller enters into ON operation, and sends the setting operation information (e.g. mode, temperature, fan speed, timer etc.) to the units. Press the button at the condition of ON, the OPERATION lamp extinguishes, simultaneously enters into OFF. If having set TIMER ON or TIMER OFF, the wired controller will cancel these settings before entering into OFF, close the relevant indicator, and then send the OFF information.

(3) Adjust button ▲

Set indoor temperature up. If press and hold on, it will increase at 1℃ per 0.5 second.

(4) Adjust button ▼:

Set indoor temperature down. If press and hold on, it will decrease at 1℃ per 0.5 second.

(5) CLOCK button:

Press this key lasting for 4 seconds, the clock will flashing at the frequency of 0.5 Sec. by using and to adjust the time, 1 minute to be increased/decreased for every once press the ▲/▼. Long pressing the ▲/▼, it will increase/decrease 4 times/sec and10 minutes/time. Release the key when finish the clock setting, the time will stop flashing automatically.

(6) Fan speed selection button

Select the fan speed from "AUTO", "LOW", "MED" to "HIGH". Each time press the button, the fan speed will change in turn as follow. (This button is unavailable in AUTO or DRY mode)
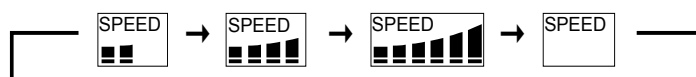
(7) Timer button

Press this button, the Timing will turn on. Set Timing ON time by ▲ and ▼. The clock will increase and decrease once every 10 minutes; long pressing the keys it will increase/decrease once 10 minutes/0.2 seconds.

(8) Swing button

Press this button for the first time in running time, start the swing function. Press the button for the second time, cancel the swing function. (Match to some model with swing function).

(9) Cancel button

Press this button to cancel the TIMER settings.

2.7.2 General function

✧ Low cost and low price, exquisite appearance and LCD display.

✧ To realize the control common indoor units

The wired controller is designed to suit for indoor units that need wired controller in standard, such as low pressure duct series. And it also suits for other kind of indoor units.

✧ Easy Installation

The KJR-90A-E is designed at the base of KJR-10B and it suit for electric cabinet, so it can be installed in the electric cabinet.

✧ More functions to choose

The KJR-90A-E has the same functions with KJR-10B. And the KJR-90AI-E cannot select running mode. There are nine function buttons.

2.7.3 LCD display
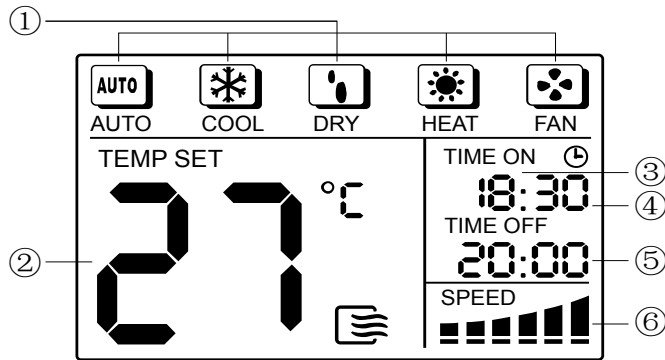
(1) Mode display; (2) Temperature display; (3) Time on display; (4) Time display; (5) Time off display; (6) Fan speed display

2.7.4 Wired controller installation

※ **Preparation before Installation:**

Make sure the following pasts has been prepared.

NO.	Name	QTY.	Remarks
1	Wired Controller	1	/
2	Cruciform slot screw M4×25	2	This accessory is used when install the wired controller inside the electric cabinet
3	Plastic bolt	2	
4	Installation and owner's manual	1	/
5	The connective wires of display panel (on some models)	1	For connect between the display panel wire and shield 5-cor cable

※ **Prepare for the following at installation site.**

NO.	Name	QTY.	Remarks
1	Electric cabinet	1	Universal electric cabinet's specification Pre-embed it into the wall.
2	Shielded 5-cores cable	1	Pre-embed RVVP-0.5 mm^2×5 into the wall
3	Wire configured tube(insulated sheath)	1	Pre-embed into the wall; the longest length should not more than 15m.
4	Phillips screwdriver	1	For install cruciform slot screw
5	Slotted head screwdriver	1	For unscrew the bottom cover of the wired controller

※ **Simplified schematic of wired controller**
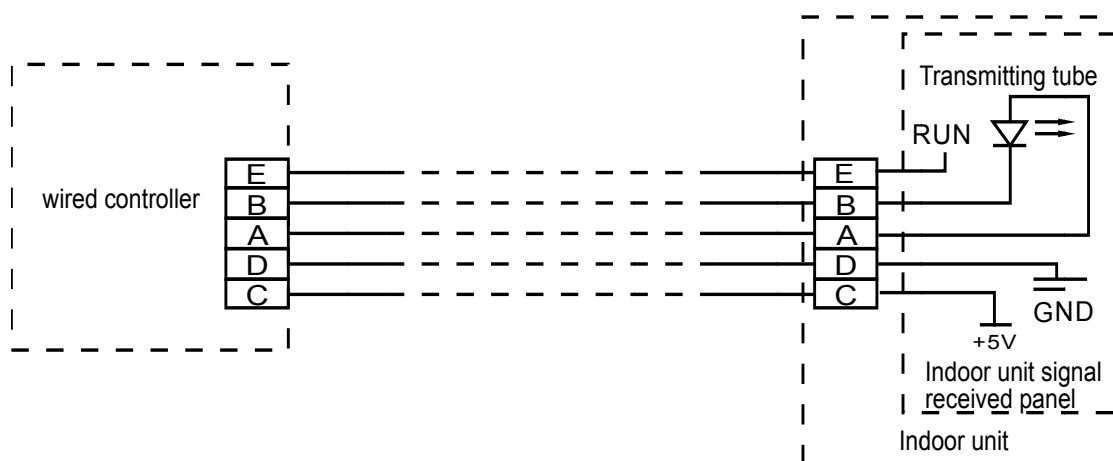
※ **Installation diagram**
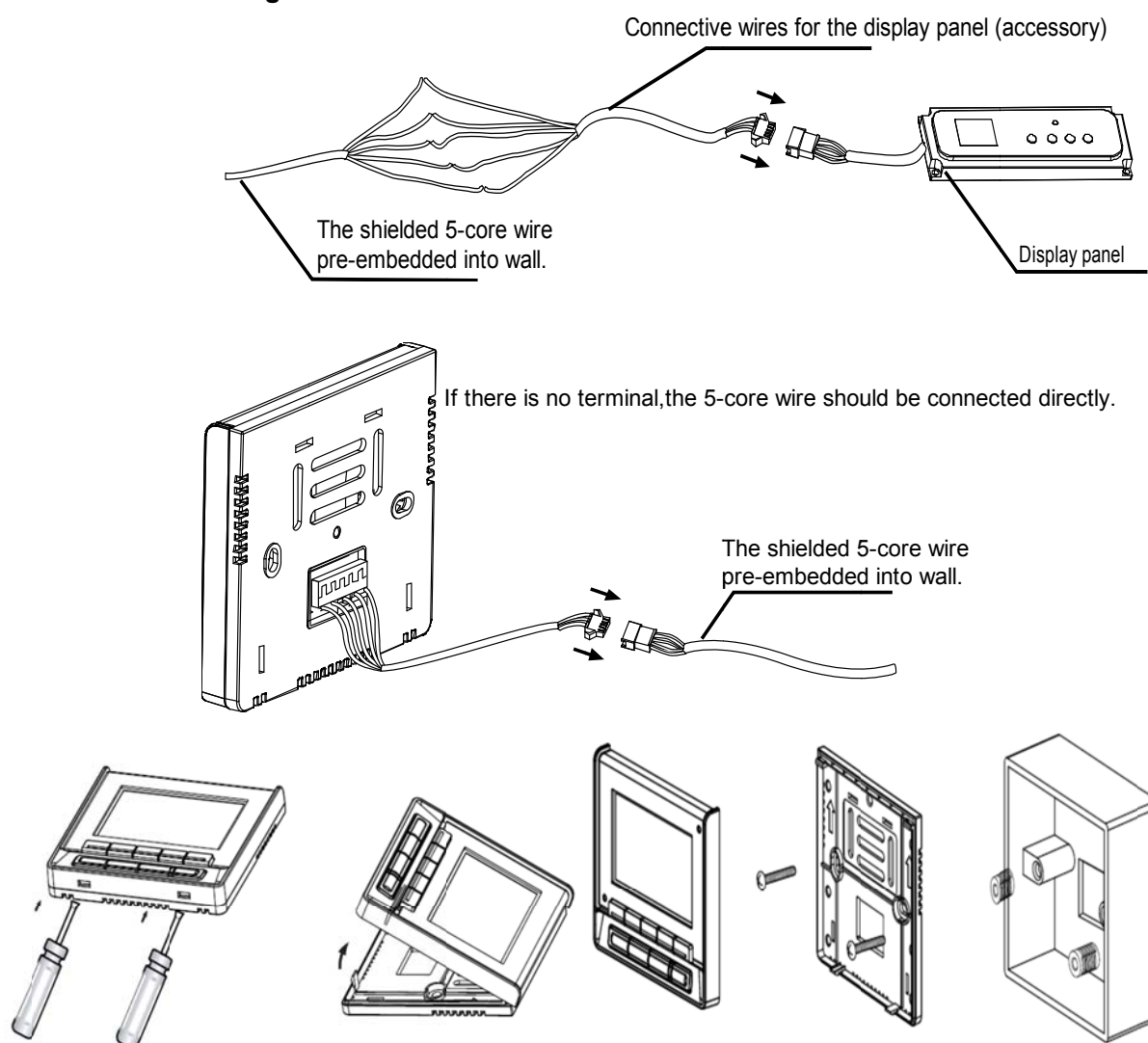
Connective wires for the display panel (accessory)

The shielded 5-core wire pre-embedded into wall.

Display panel

If there is no terminal,the 5-core wire should be connected directly.

The shielded 5-core wire pre-embedded into wall.

Notes:

1) Over tighten the screw would cause the rear covers deformed and LCD damage.

2) When installation, please maintain the screws and wired controller at the same height level without deformed.

3) When installation, please reserve a certain length of wired controller connectivity cable for future maintenance to take off the wired controller.

※ **Dimension: 90*86*13mm**
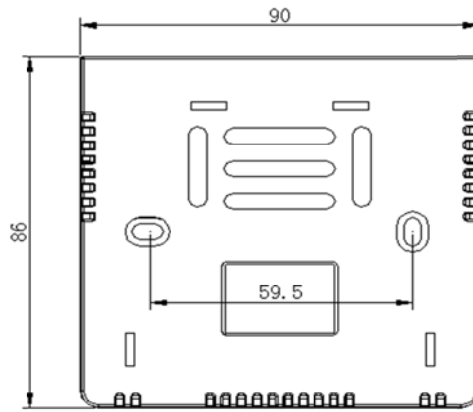
※ **Wiring diagram for wiring wired controller with air conditioner**
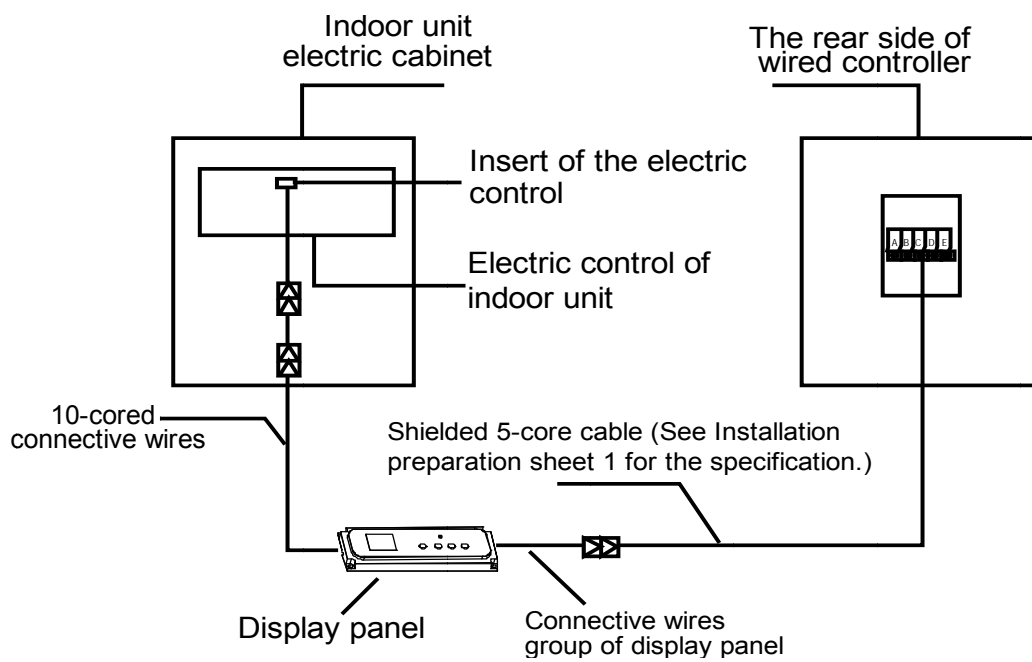
2.8 Mode-button hidden wired controller: KJR-86C

KJR-86C

Wired controller specifications

Model	KJR-86C-E
Power Supply Voltage	DC 5.0 V
Ambient Temperature Range	-5°C～+43°C
Ambient Humidity Range	RH40%~RH90%

Performance Features

1. Operating mode: cool and heat.

2. Set the mode through combination buttons.

3. Indoor setting temperature range: 17°C ~30°C.

4. LCD (Liquid Crystal Display).

2.8.1 Appearance

KJR-86C is a mode-button hidden wired controller. Designed with succinct appearance can be apply for hotel, hospital and school etc.

(1) ON/OFF button

Press the ON/OFF button can turn on or turn off air conditioner.

(2) Selecting mode

When the unit is turned on, press the temperature adjusting buttons ▲ and ▼ simultaneously for 3 seconds can select the operation mode, each press will switch the operation mode as the following order:

COOL→ HEAT→COOL

(3) Fan speed button

1) When the unit is turned on, press the FAN SPEED key to set the fan speed of the indoor unit. The fan speed switching order is:

AUTO→LOW →MID →HIGH→ AUTO

2) Setting the fan speed to AUTO when the indoor unit will actually run at LOW speed.

(4) Setting temperature

When the unit is turned on, press the temperature adjusting buttons ▲ or ▼ button can increase or decrease the setting temperature, the setting range is 17°C-30°C.

(5) 26℃ setting button

When the unit is turned on, you can press the 26°C shortcut key to quickly set the operation temperature to 26°C.

2.8.2 Installation

2.8.2.1 Installation methods

※　Principle diagram of wired controller
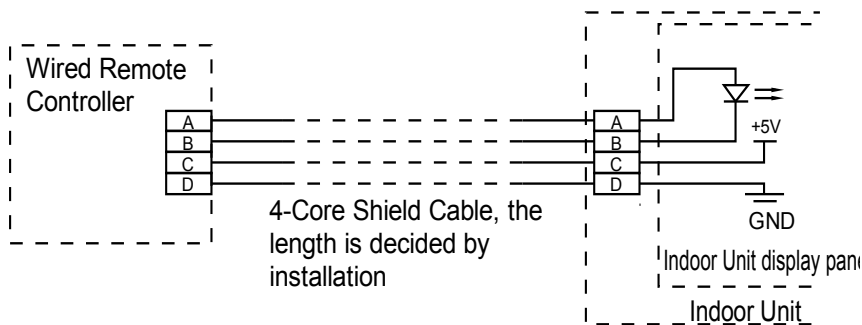
※　Installation instruction figure
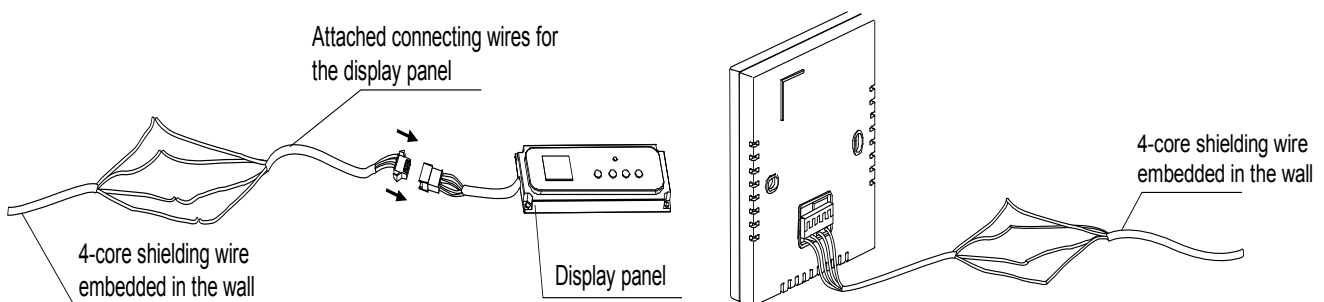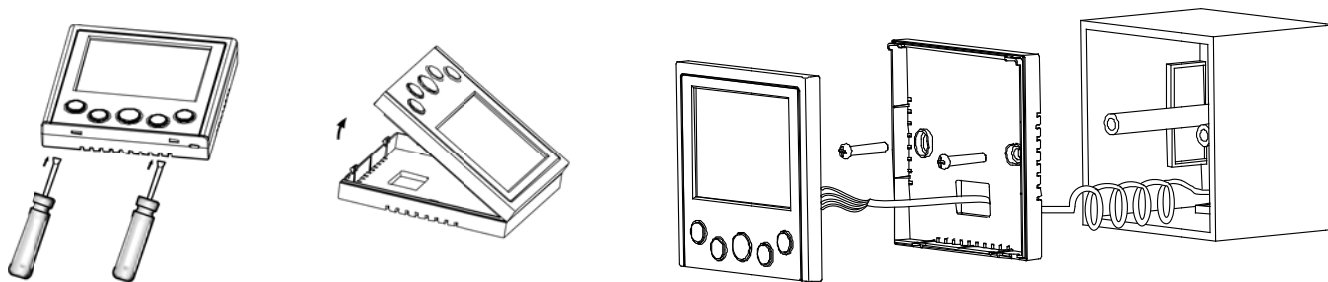
Notes:

1) Over tighten the screw would cause the rear covers deformed and LCD damage.

2) When installation, please maintain the screws and wired controller at the same height level without deformed.

3) When installation, please reserve a certain length of wired controller connectivity cable for future maintenance to take off the wired controller.

2.8.2.2 Wiring figure

1) Wiring figure of the wired controller connect with the four-way cassette type indoor unit.
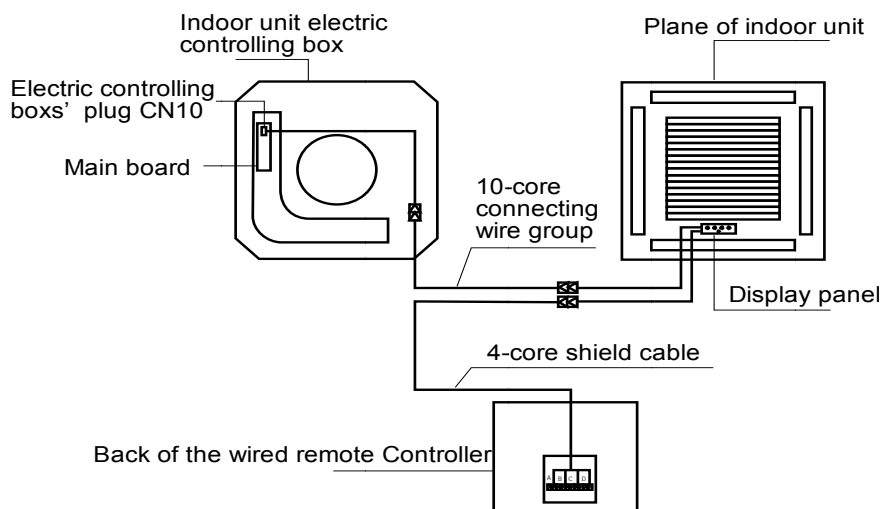
2) Wiring figure of the wired controller connect with the courtyard-style duct type indoor unit.
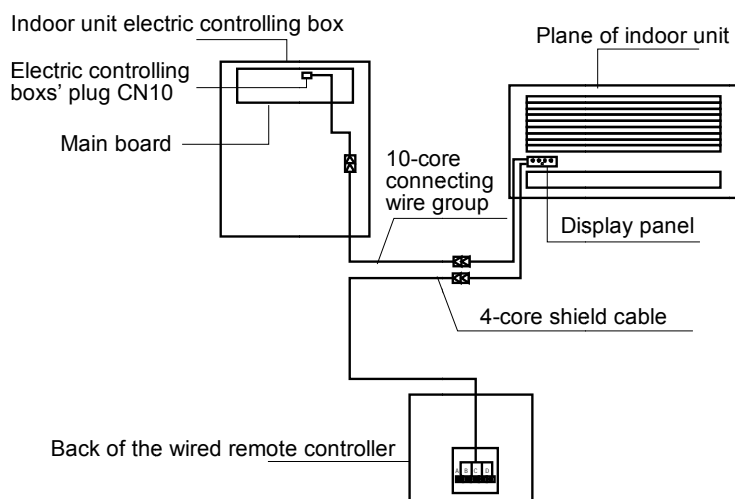
3) Wiring figure of the wired controller connect with the high-static pressure duct type indoor unit.

Indoor unit electric controlling box

Electric controlling boxs' plug CN10

Main board

Display panel

Back of the wired remote controller

4-core shield cable
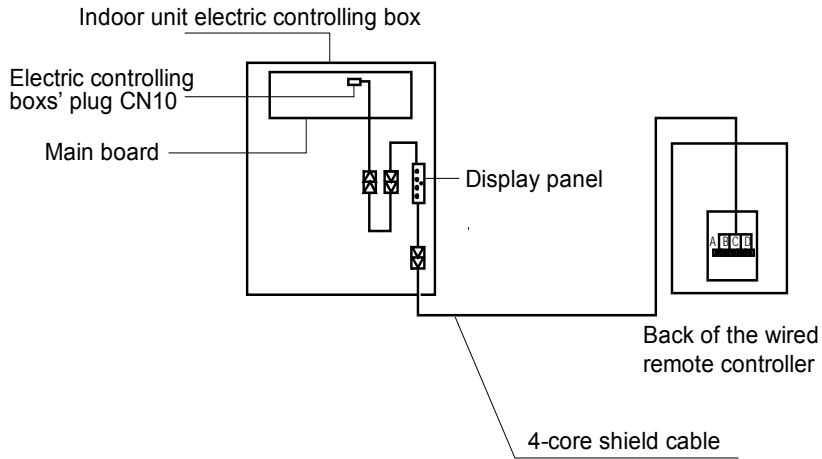
4) Wiring figure of the wired controller connect with the wall hanging type indoor unit.

Indoor unit electric controlling box

Plane of indoor unit

Electric controlling boxs' plug CN10

Main board

10-core connecting wire group

Display panel

4-core shield cable

Back of the wired remote controller
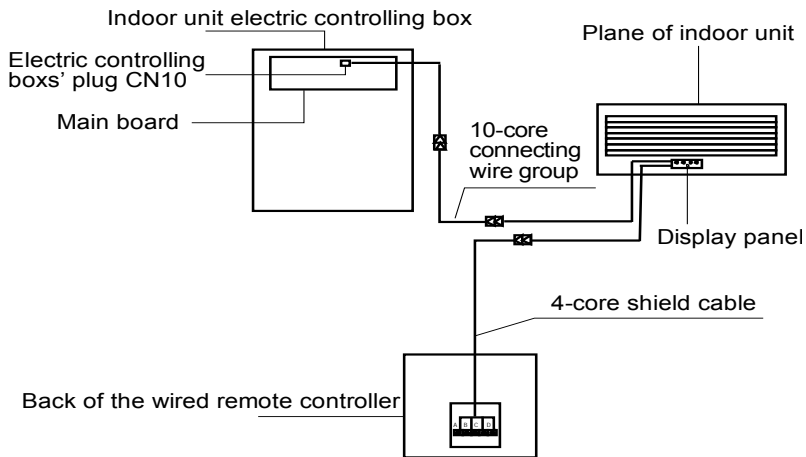
5) Wiring figure of the wired controller connect with the stand-hanging type indoor unit.
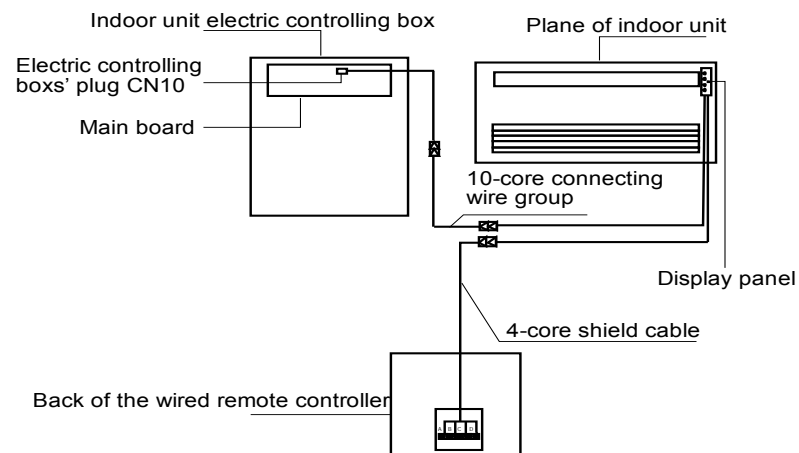
Indoor unit electric controlling box

Plane of indoor unit

Electric controlling boxs' plug CN10

Main board

10-core connecting wire group

Display panel

4-core shield cable

Back of the wired remote controller

Preparation before Installation:

Make sure the following pasts has been prepared.

NO.	Name	Qty.	Remark
1	Wired controller	1	—
2	Installation & owner's manual	2	—
3	M4×25 Cross head screwdriver	2	For installing the wired controller on the electrical box.
4	Installation and owner's manual	1	For installing the wired controller on the electrical box.
5	Connective wires to the signal receive panel.	1	For connecting the signal receiving panel with the 4-core shielding wire.

Prepare for the following at installation site.

NO.	Name	Qty.	Remark
1	Electric cabinet	1	General electrical box size, embedded in the wall in advance.
2	4-core shielding wire	1	PVVR-0.5 mm^{2}x4, embedded in the wall in advance.
3	Wiring tube(insulation casing)	1	Pre-embedded in to the wall and the length should be less than 15m.
4	Cross head screwdriver	1	For installing the cross head screw.
5	Small cross head screwdriver	1	For taking down the bottom cover of wired controller.

2.9 Weekly schedule wired controller: MD-CCM04

MD-CCM04

Wired controller specifications

Model	MD-CCM04/E
Power Supply Voltage	DC 5.0 V
Ambient Temperature Range	-15°C~ +43°C(-5°F+109°F)
Ambient Humidity Range	RH40%~RH90%

Performance Features

1. Operating mode: cool, heat, dry, fan and auto.

2. The weekly schedule wired controller.

3. With the delay shutdown function and backlight function.

4. Indoor setting temperature range: 17°C ~30°C.

2.9.1 Appearance
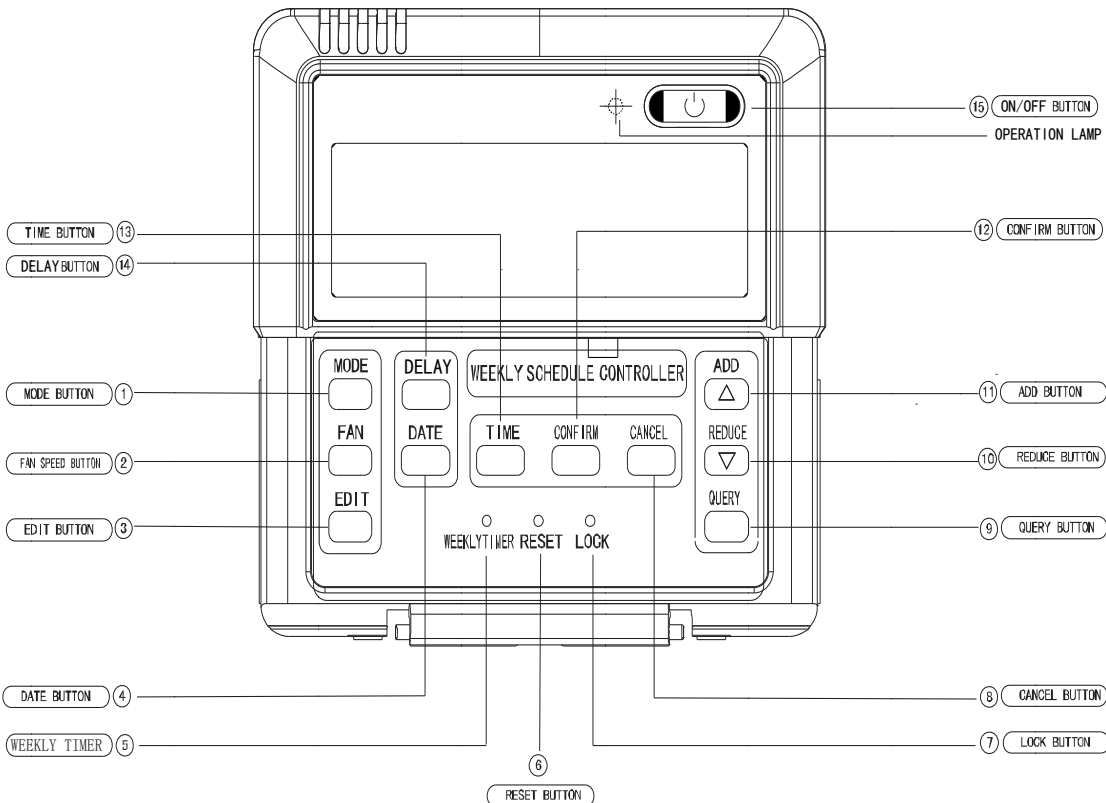
(1) Mode button

Press this button to select the operation mode; it will change in turn as follows:

COOL→HEAT→FAN→OFF

Notes: For the cooling only model, the heating mode should be skipped.

(2) Fan speed button

Press this button and the operation fan will change in turn as follows:

Auto→Low→Middle→High

(3) Edit button

Press this button and you can setup Weekly time function. (Details refer to SET PLAN_①)

(4) Date button

Press the button can enter the date of calibration, and the calibration display sequence is year--month--day--week. It will jump to the next set parameters when press the Confirm button every time. The date setting range is 1 to 31 and it will not checkout if without date here.

If you press Cancel button, it will return to the previous parameter changes.

(5) Weekly Timer button

Press this button can turn off the weekly timer function.

(6) Reset button

When press this button, the system will clear the information of weekly timer and delay function to come into normal display state and need to set some initial parameters (Details refer to SET PLAN_②).

(7) Lock button

Press this button will enter the button lock and any buttons will not work except LOCK button. Press LOCK button again can unlock the button lock. Lock mode state cannot be canceled when wired controller after interruption of power supply.

(8) Cancel button

It is for not saving and retreating, or to cancel the temporary setting.

(9) Query button

Press "Query" button, it will display present indoor temperature value:

1) Press "Cancel" button will return to the main page;

2) Press "Add" or "Reduce" button can select the day which you want to query from the "Sun" to "Sat", press "Confirm" button will enter the time period. Then press "Add" or "Reduce" to select the period you want to query from "1" to "4" period. Press the Confirm button will enter the selected parameter query time period. It can be display mode, fan speed, temperature, and set start and end time of the weekly schedule. Then press

Confirm button will return to normal display page. Press "Cancel" button will return to the main page or to select other periods.

(10) Reduce button

It is for reducing to numbers and moving left or up to the other.

(11) Add button

It is used for adding to numbers, and moving right or down to the other.

(12) Confirm button

It is used for confirm selection.

(13)Time button

Press this button, and then press "Add" or "Reduce" button can adjust the hour's value. Press "Confirm" button enter the next step to adjust minutes, and then press "Add" or "Reduce" button to adjust the minute's value, press the "Confirm" button to save and return to the normal display page.

(14) Delay button

Press this button once, it will display "⌿⌿" and if there is not any operation it will confirm automatically within 3 seconds. It means the unit will override 1 hour.

Double press this button, it will display "⌿⌿" and if there is not any operation it will confirm automatically within 3 seconds. It means the unit will override 2 hours.

Press this button three times, it will display "⌿⌿" and if there is not any operation it will confirm automatically within 3 seconds. It means to cancel the delay setting. The cycling display as follows: 1h-2h-0h-1h.

When the delay function does not go into effect, the delay time can be changed through the setting. But if the function has gone into effect, any operation for the delay button is not effective and the delay button is only for querying the delay time you set.

Notes: If the weekly schedule timer function is turn off, delay button is ineffective.

(15) ON/OFF button

If the A/C was turned off, press this button, the wire controller enters into ON operation simultaneously and sends the information of operation mode, fan speed, temperature etc. to the unit.

If the A/C was turned off, press this button will turn off the A/C and the OPERATION lamp extinguishes simultaneously. If having set DELAY, the wired controller will cancel this setting before entering into OFF, close the concern indicator, and then send the OFF information.

2.9.2 Description of LCD screen
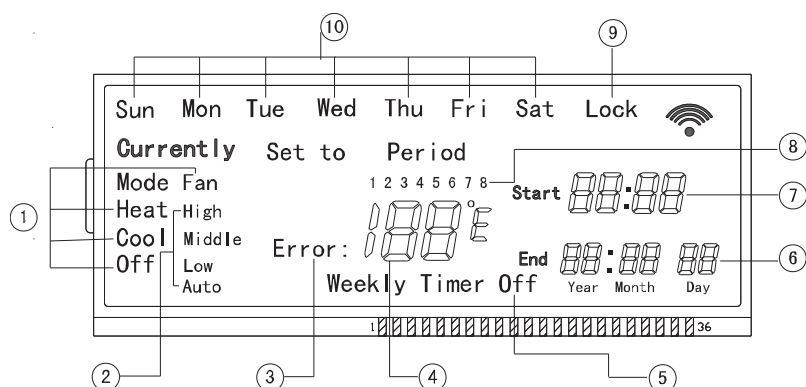
① Operation mode indication

When press "MODE" button, the following mode can be selected in circle as following: Cool→Heat→Fan→Off. For cooling only model, heat mode should be skipped.

② Fan speed indication

There are four fan speeds: auto, low, middle, high. For some air conditioners no middle fan, then the middle fan is seen as high speed.

③ Fault indication

When the unit malfunctions, it will display the "Error" icon.

④ Temperature or error code indication.

It will display the setting temperature under the normal operation. When the unit malfunctions, it will display the fault code.

⑤Weekly Schedule Controller switch indication.

⑥Date indication.

⑦Time indication.

⑧Period indication.

⑨Lock indication.

⑩Week indication.

2.9.3 Using methods

1) Time setting
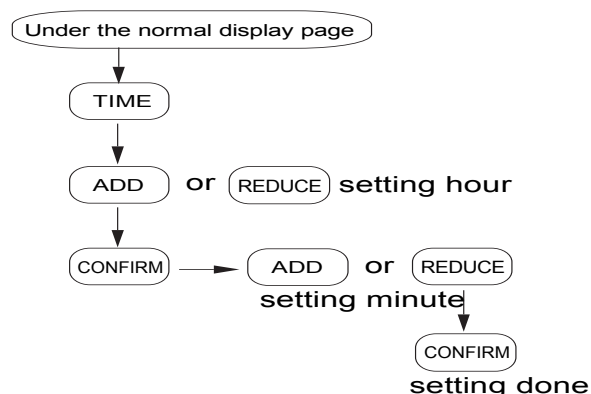
Notes: During operating, press the "CANCEL" button will return to the previous step or the normal display page.

2) Date setting

```
        ┌──────────────────────────────┐
        │  Under the normal display page│
        └──────────────────────────────┘
                      │
                   ┌──────┐
                   │ DATE │
                   └──────┘
                      │
              ┌─────┐  or  ┌────────┐
              │ ADD │      │ REDUCE │  setting year
              └─────┘      └────────┘
                 │
           ┌─────────┐
           │ CONFIRM │
           └─────────┘
                 │
              ┌─────┐  or  ┌────────┐
              │ ADD │      │ REDUCE │  setting month
              └─────┘      └────────┘
                 │
           ┌─────────┐
           │ CONFIRM │
           └─────────┘
                 │
              ┌─────┐  or  ┌────────┐
              │ ADD │      │ REDUCE │  setting date
              └─────┘      └────────┘
                 │
           ┌─────────┐
           │ CONFIRM │
           └─────────┘
                 │
              ┌─────┐  or  ┌────────┐
              │ ADD │      │ REDUCE │  setting week
              └─────┘      └────────┘
                 │
           ┌─────────┐
           │ CONFIRM │  setting done
           └─────────┘
```

3) Query operation

```
        ┌──────────────────────────────┐
        │  Under the normal display page│
        └──────────────────────────────┘
                      │
                   ┌───────┐
                   │ QUERY │
                   └───────┘
                      │
              ┌─────┐  or  ┌────────┐
              │ ADD │      │ REDUCE │  select week
              └─────┘      └────────┘
                 │
           ┌─────────┐
           │ CONFIRM │
           └─────────┘
                 │
              ┌─────┐  or  ┌────────┐
              │ ADD │      │ REDUCE │  select period
              └─────┘      └────────┘
                 │
           ┌─────────┐
           │ CONFIRM │  display various parameters
           └─────────┘  of the selected period
              │      │
              │      └──►┌─────────┐  back to the normal
              │          │ CONFIRM │      display page
              ▼          └─────────┘
           ┌────────┐
           │ CANCEL │
           └────────┘
```
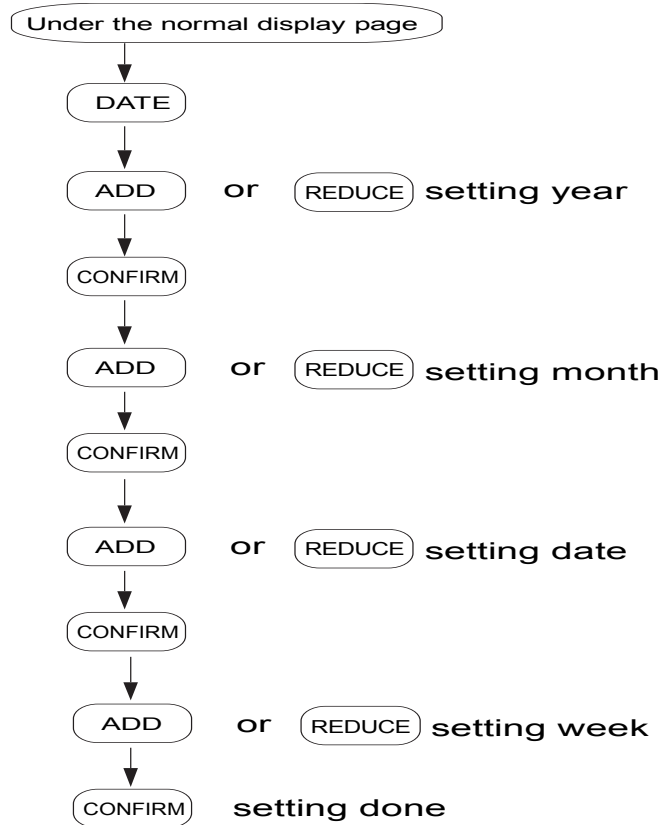
Notes: During operating, press "CANCEL" button can return to the previous step or the normal display page.

4) Setting plan

①

Under the normal display page

②

● RESET

EDIT ← CONFIRM ← ADD

select °C or °F

ADD or REDUCE select week

CONFIRM

* ADD or REDUCE select the start hour of the first period

CONFIRM

ADD or REDUCE select the start minute of the first period

CONFIRM

ADD or REDUCE select the end hour of the first period

CONFIRM

ADD or REDUCE select the end minute of the first period

CONFIRM

CONFIRM Setting of the first period is done

① Long press the button "CONFIRM" button will return to the "select week" page directly

② * ADD or REDUCE

Set various parameters of the next period from the place " * ", until the setting of parameters of all the four period is done, turn back to the "select week" interface, as this time, you can also press the key "CANCEL" back to the normal display page.

Notes: During operating, press "CANCEL" button will return to the previous step or the normal display page.

5) How to change the Centigrade "℃" to the Fahrenheit "℉", or Fahrenheit "℉" chance to Centigrade "℃"?

There are two methods:

(1) Method 1:

Reset ● → ADD → CONFIRM
select °C or °F

Notes: Pressing the "RESET" button will clear the information of weekly timer.

(2) Method 2:

EDIT **+** QUERY
Always press   select °C or °F
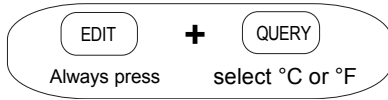
The example of DELAY:

The plan setting as follows:

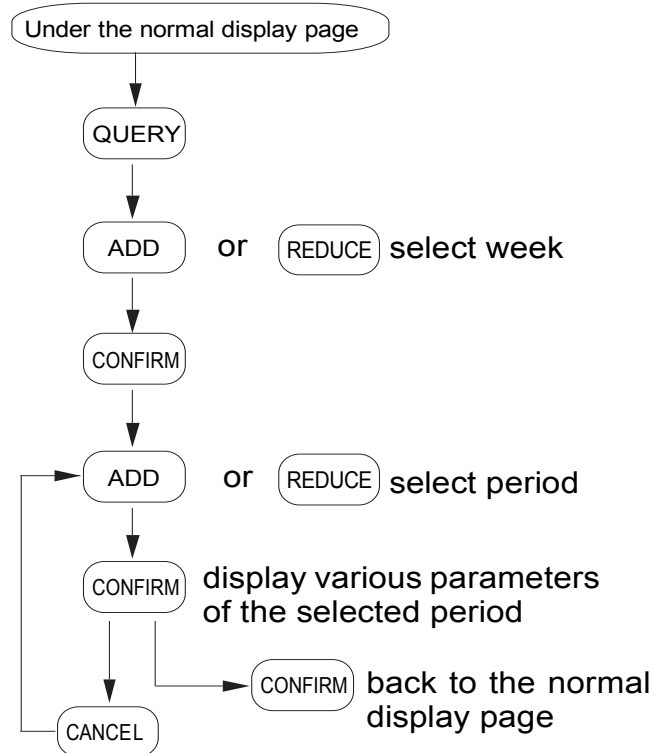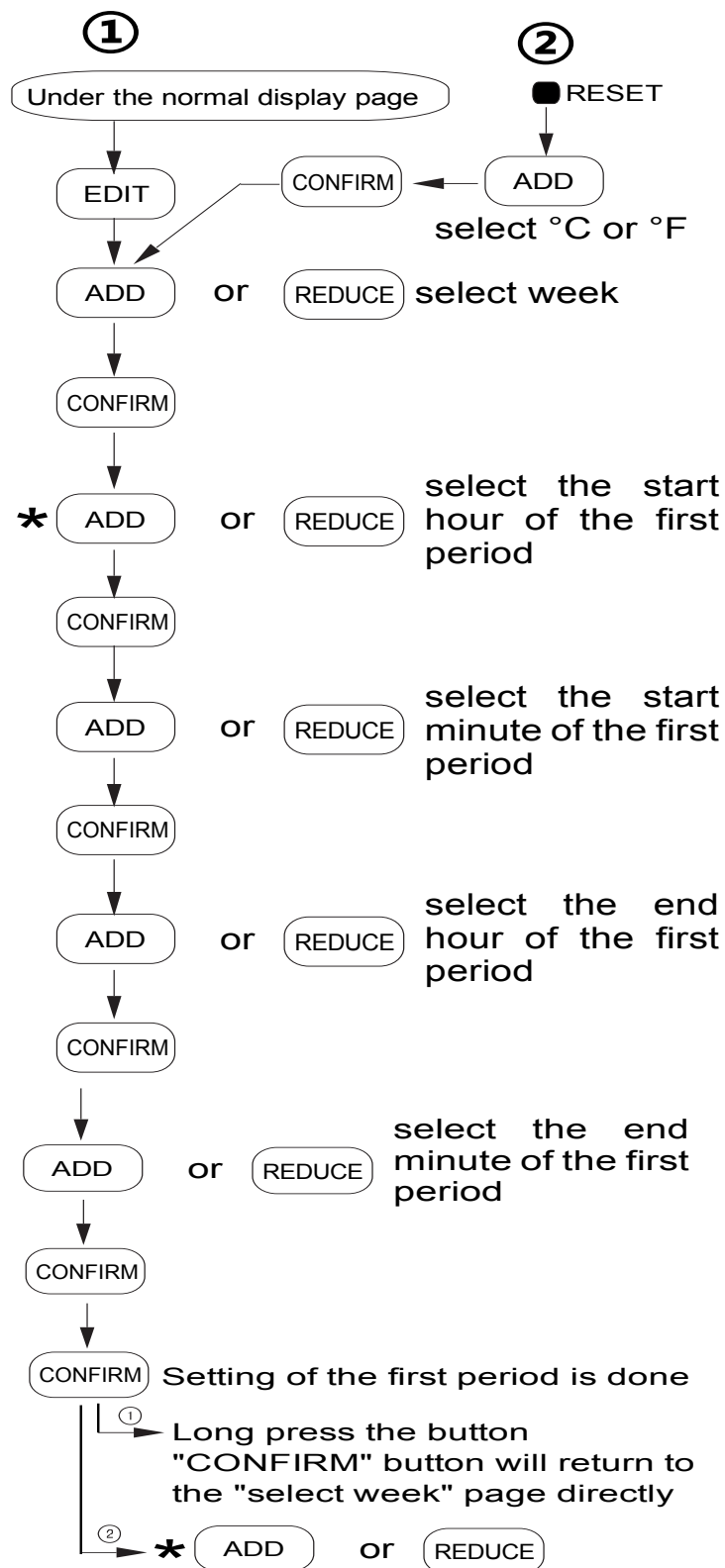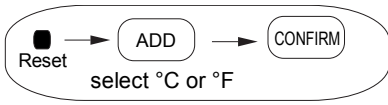| Period / Time	Period 1	Period 2	Period 3	Period 4
Start time	09:00	14:30	19:00	00:00
End time	13:30	17:30	21:30	00:00

If you want to turn off the unit delay 1 or 2 hours after period 1, then just press "Delay" button once during 09:00 to 11:30. But if you set the delay time (1 or 2 hours) out of the period you set (like during 11:31 to 14:30), the unit will override 1/2 hour at once.

Notes: When finishing the function, the unit will operate following the plan you set.

6) How to set mode/fan/temperature under the OFF state?

Firstly, press the Mode button to enter the setting. Then it will display the mode/ fan/temperature before OFF. At this time, you could set the mode/ fan/ temperature you want. And When you finish the setting, press the Confirm button to send. The air conditioner will start with the information you set.

7) What is the temporary setting?

① Weekly timer is operating:

When the unit operated with the weekly timer, any operations of mode/ fan speed/temperature are called temporary setting.

When wired controller displays currently icon, temporary setting has been effective.

Under the main interface, pressing "cancel" button will cancel the temporary setting. "Currently" icon will disappear and the mode/ fan speed/ temperature parameters of temporary setting will be saved. Then the unit operated with the weekly timer.

② Weekly timer is off Temporary setting is always effective.

8) Malfunction & protection codes

Codes	Description
E0	Phases sequence error malfunction
E1	Communication malfunction
E2	T1 Sensor malfunction
E3	T2A Sensor malfunction
E4	T2B Sensor malfunction
E5	Outdoor unit malfunction
E6	Zero-crossing detection error
E7	EEPROM error
E8	Air speed detection out of control
EA	Compressor overcurrent（4 times）
ED	Outdoor malfunction protection
EE	Water level detection malfunction
EF	Other malfunctions
F1	Temperature sensor malfunction of Weekly schedule wired controller
P0	Evaporator temperature protection
P1	Anti-cool air or defrost protection
P2	Condensate high temperature protection
P3	Compressor temperature protection
P4	Discharge pipe temperature protection
P5	Discharge high pressure protection
P6	Discharge low pressure protection
P7	Power supply over-under voltage protection
P8	Compressor overcurrent
PF	Other protection

Notes:

When the unit appears error, the corresponding error code will be displayed with the flashing OPERATION LAMP.

2.9.4 Installation methods

1) Safety precaution

🔸 Stated below are important safety issues that must be obeyed. Confirm there is no abnormal phenomena during test operation after complete.

🔸 Installation by other persons may lead to imperfect installation, electric shock or fire. Improper installation may lead to electric shock or fire. A random disassembly may cause abnormal operation or heating, which may result in fire.

🔸 Do not install the controller in a place vulnerable to leakage of flammable gases. Once flammable gases are leaked and left around the wired controller, fire may occur.

🔸 The wiring should adapt to the wired controller current. Otherwise, electric leakage or heating may occur and result in fire. The specified cables shall be applied in the wiring. No external force may be applied to the terminal. Otherwise, wire cut and heating may occur and result in fire.

🔸 Don't place the wired controller near the lamps, to avoid the remote signal of the controller to be disturbed. Do not install the unit and controller in a place with much oil, steam, sulfide gas. Otherwise, the product may deform and fail.

Preparation before Installation:

Make sure the following pasts has been prepared.

NO.	Name	QTY.	Remarks
1	Wired Controller	1	/
2	Wood mounting screw	3	M4×20(For mounting on the wall)
3	mounting screw	3	M4×25(For mounting on the electrical switch box)
4	Installation manual	1	/
5	Owner's manual	1	/
6	5-terminal Group	-	/

Prepare for the following at installation site.

No.	Name	QTY.	Type	Remarks
1	3-core shielded cable	1	RVVP-0.5mm^{2}x3	The factory scheme wire is 10m, and the longest
2	2-core shielded cable	1	RVVP-0.5mm^{2}x2	length should be less than 20m.

2) Dimension: 120*120*15mm
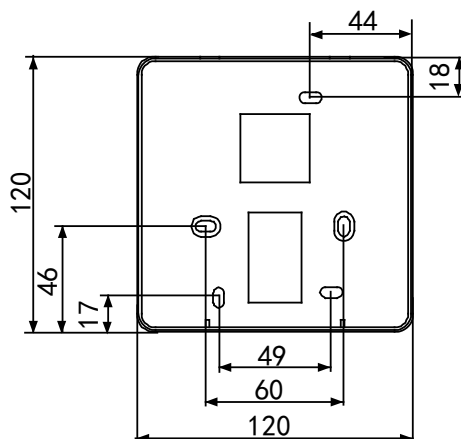
3) Wiring of MD-CCM04

When a weekly schedule controller is needed, a small 2-cores wire and 3-cores wire should be added.

Connect like the following figure.

When installing the Wired Controlle r, you should adjust the bottom of the Wired Controller Board to the Wired Controller Back Cover which should be fixed first, then press the other end of the Wired Controller Board.

When installing the Wired Controller Cover,be sure there is a hole in the wall to avoid the Wired Controller Back Cover being fixed directly to the wall which is not allowed for the Wire Joint extrudes out of the Wired Controller Back Cover

Notes:

The connecting wire should be a little longer as to take away the switch board easily for maintenance.

The connecting wire should be a little longer as to take away the controller easily for maintenance.

4) Wiring Diagram

A. Main board with External Network Module:
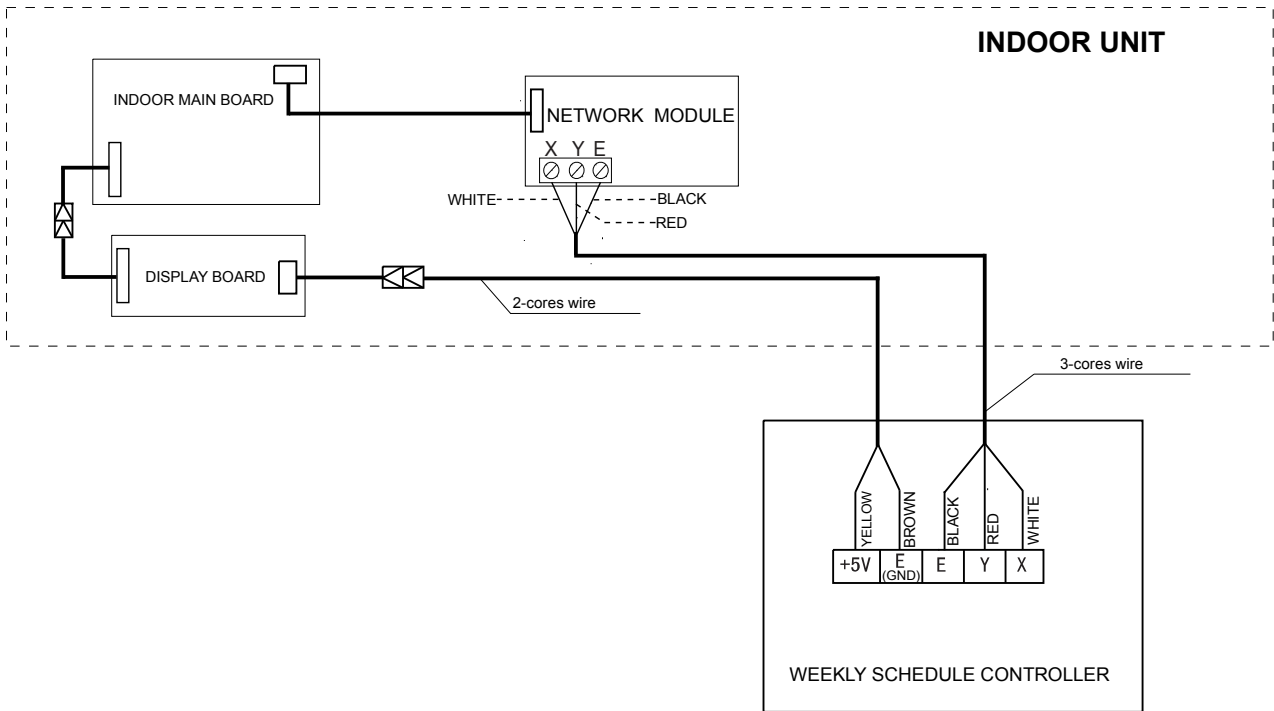
B. Main Board Integrated Network Module:
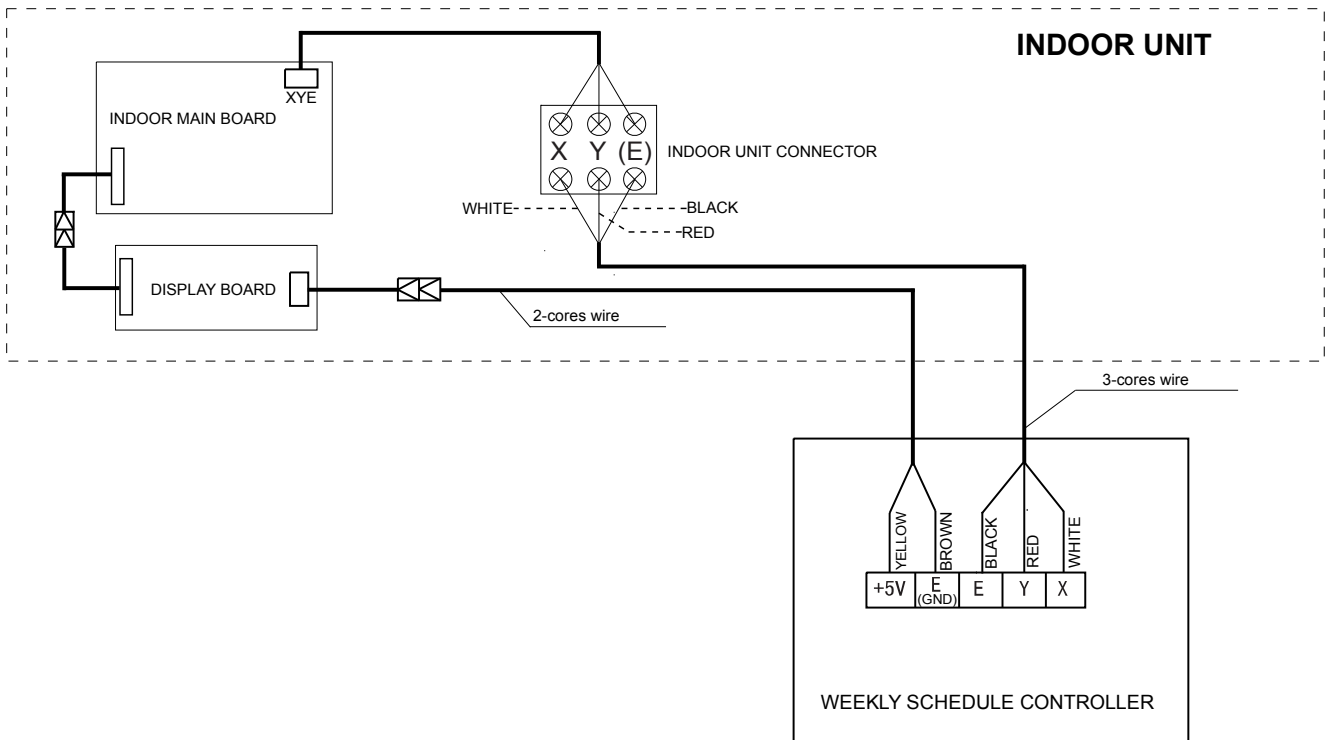
2.10 Weekly schedule wired controller: KJR-120C

KJR-120C

Wired controller specifications

Model	KJR-120C/BW-E
Power Supply Voltage	12V DC
Ambient Temperature Range	-5°C～+43°C(23~110℉)
Ambient Humidity Range	RH40%~RH90%

Performance Features

1. Operating mode: cool, heat, dry, fan and auto mode.

2. The weekly schedule wired controller.

3. With the delay shutdown function, auto restart and backlight function.

4. Indoor setting temperature range: 17°C ~30°C.

5. Can switch Fahrenheit degree and Centigrade degree.

6. Button lock

2.10.1 Parts name

✧ **Buttons introduction**
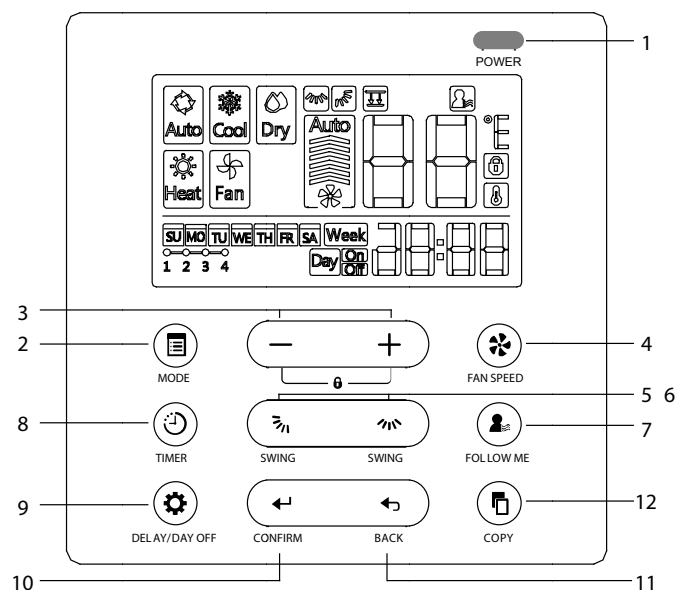
1. Power button
2. Mode button
3. Adjust button
4. Fan speed button
5. Up-down swing button (reserved)
6. left-right swing button

7. Follow me button (reserved)
8. Timer button
9. Delay/day off button
10. Confirm button
11.Back button
12.Copy button

✧ **LCD display**
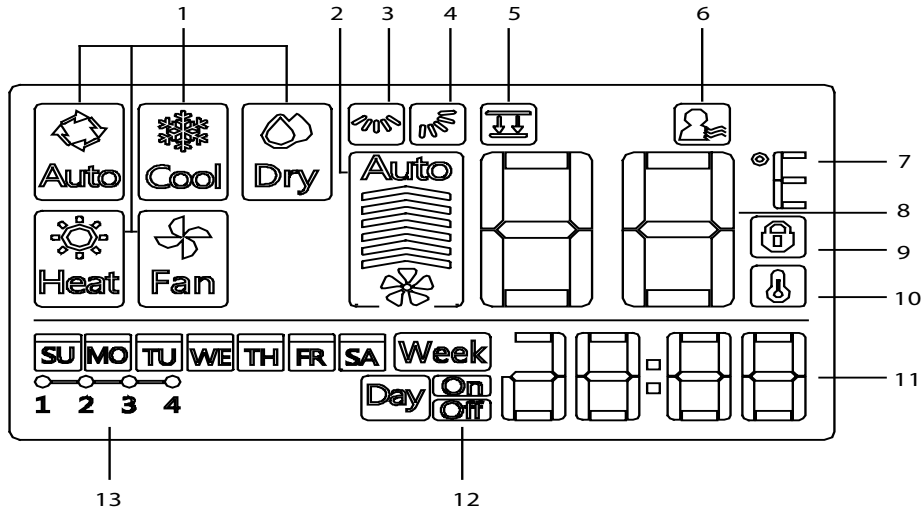
1. Operation mode indication
2. Fan speed indication
3. Left-right swing indication (reserved)
4. Up-down swing indication
5. Faceplate function indication (reserved)
6. Follow me function indication (reserved)
7. C° / F° indication

8. Temperature display
9. Lock indication
10. Room temperature indication (reserved)
11. Clock display
12. Timer on/off
13. Weekly display

2.10.2 Operation introduction

✧ **Start/stop operation**

Short press the POWER button

Press the POWER button.

Operation lamp
Air conditioner ON : lights up
Air conditioner OFF: lights off
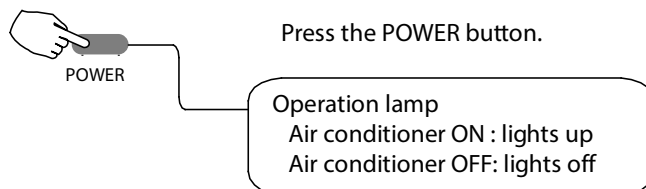
✧ **Mode button**

Press mode button can set the operation mode and the heat function is invalid for cool only type unit.

The mode is selected in a sequence as the following figure indicates:
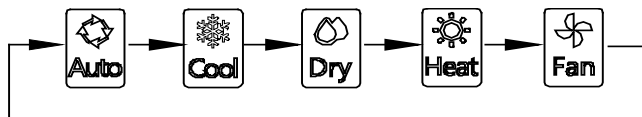
Notes:

1. When selecting the "Auto" or "Dry" mode, the fan speed is fixed and the fan speed button doesn't work and the setting temperature is adjustable.

2. When selecting "Cool" or "Heat" mode, the fan speed and temperature can be adjustable.

3. When selecting "Fan" mode, the temperature display area doesn't display the set temperature.

◇ **Temperature adjust button**

Press "-" or "+" button can decrease or increase the set temperature and the temperature setting range is 17 ~ 30℃(62~86℉/62~88℉).

◇ **Fan speed setting**

Press the FAN SPEED button can set the fan speed and the button is unavailable under the Auto or Dry mode. The fan speed is selected in a sequence as the following figure indicates: auto →low → middle → high →auto
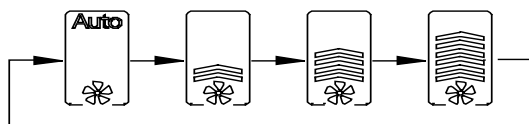
◇ **Keyboard lock function**

Press the adjust button "-" and "+" simultaneously for 3 seconds can lock the keyboard and the other buttons are invalid. The lock icon 🔒 will display. When press the adjust button "-" and "+" simultaneously again for 3 seconds can unlock the keyboard and the lock icon will disappear.
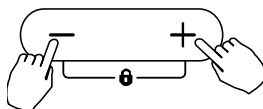
◇ **Left-right airflow direction and swing (for some models)**
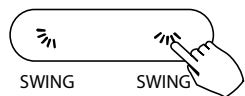
Press the button can turn on left-right swing, press it again will stop. When the left-right swing function is activated, the icon 🔛 will appear.

◇ **Button tone setting**

Press "BACK" and "COPY" buttons simultaneously for 3 seconds can open or close the button tone.

◇ **℉ & ℃ scale selection (on some models)**

Press ⤢ and ⤡ buttons simultaneously for 3 seconds can switch the temperature display between Fahrenheit degree (℉)and Centigrade degree (℃).
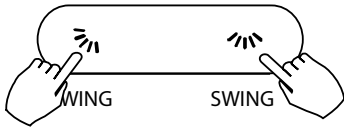
✧ **left-right airflow direction and swing (on some models)**

Press the button to turn on up-down swing, press it again will stop.

When the left-right swing function is activated, the ⬚ mark appears.
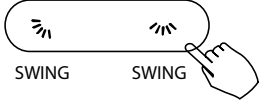
✧ **Timer function**

Weekly timer Week : Use this timer function to set operating times for each day of the week.

Day On : Use timer function to start air conditioner operation. The timer operates and air conditioner operation starts after the time has passed.

Day Off : Use this timer function to stop air conditioner operation. The timer operates and air conditioner operation stops after the time has passed.

Day On/Off : Use this timer function to start and stop air conditioner operation. The timer operates and air conditioner operation starts and stops after the time has passed.

1) Timer on and timer off

Press the TIMER button to select the Day On/Off icon, and then press the CONFIRM button and the clock icon display is fishing. Press "+" or "-" button to set the timer on, and then press the CONFIRM button to confirm the setting. Press the button "+" or " - " to set the timer off, and press the CONFIRM button to finish the settings.
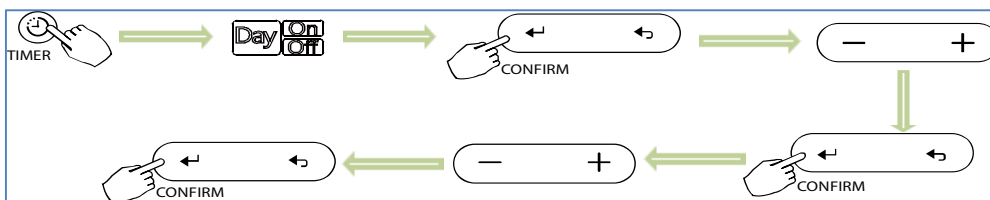
2) Timer on or Timer off

Press the TIMER button to select the timer icon Day On or Day Off can set timer on or timer off function.
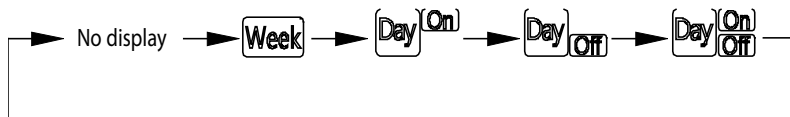
Press the CONFIRM button and the Clock display is flashing.

Press "+" or "-" button to set the time. After setting the time, the timer will start or stop automatically.

ex.Off timer set at PM 6:00

Press the CONFIRM button again will finish the settings.

✧ **Weekly timer setting**

1) Press the TIMER button to select the icon Week and then press the CONFIRM button.

2) Press "+" or " - " button to select the day of the week, and the LCD will display the days of the effective period of time. If a digital can display, it means that the period of time effective. After setting and press the CONFIRM button again will enter the daily period setting.
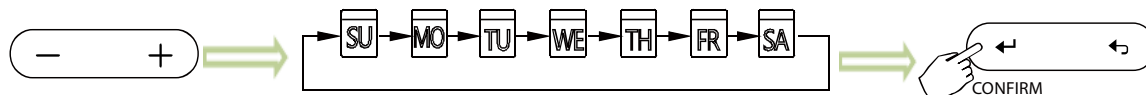
3) Press "+" or "- " button to set the time of weekly timer on and then press the CONFIRM button.

ex.Tuesday time scale 1

Up to 4 periods timer settings can be saved for each day of the week.It is convenent if the WEEKLY TIMER is set according to the user's life style.
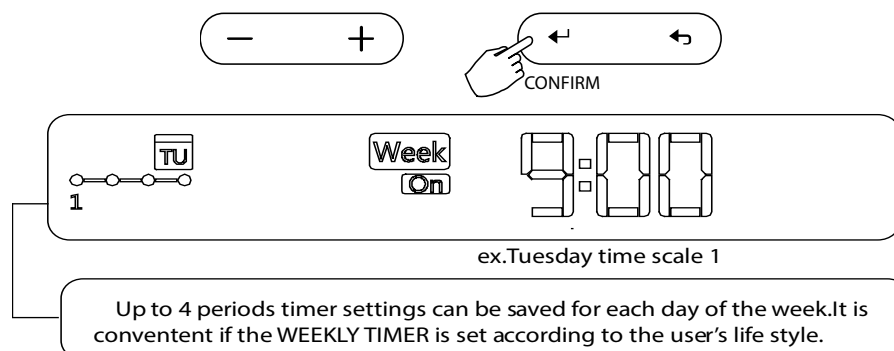
Notes: It can set up to 4 periods schedule per day and each period can be set up two timers: timer on and timer off.

4) After setting the time of weekly timer on, press the CONFIRM button to confirm the time, it will enter the time of weekly timer off.

Press "+" or "-" button to set the time of weekly timer off, and then press the CONFIRM button.

ex.Tuesday time scale 1
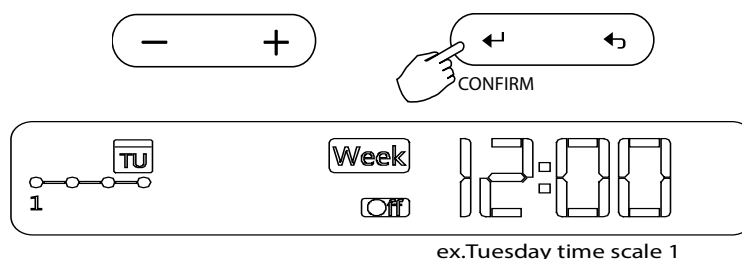
5) Different timer settings can be set by repeating step 3 to 4.

6) Other days in one week can be set by repeating step 2 to 5.

Notes:

The weekly timer setting can be returned to the previous step by pressing BACK button.

The time of timer setting can be deleted by pressing DAY OFF button

The current setting will be restored and withdrawn the weekly timer setting automatically when there is not operation for 30 seconds.

✧ **Weekly timer operation**

⊞ To activate WEEKLY TIMER operation

Press the TIMER button when the icon [Week] is displayed on the LCD.

ex.
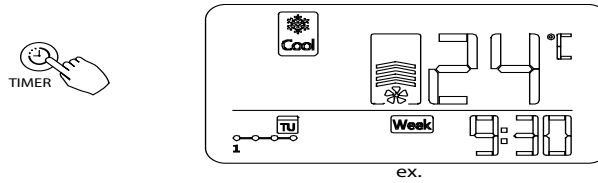
🞣 To deactivate WEEKLY TIMER operation

Under the running state, if short press the POWER button, the air conditioner will turn off temporarily. And the air conditioner will turn on automatically until the time of the weekly timer on.
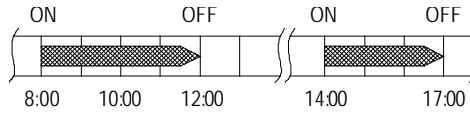
E.g. Under the running mode and weekly timer state, if short press the POWER button at 10:00; it will turn off the air conditioner and turn on the air conditioner again at 14:00.

When long press the POWER button for 2 seconds, it will turn off the air conditioner and clear weekly timer parameter settings.

🞣 To set the DAY OFF (for a holiday)

1. During the weekly timer, press the CONFIRM button.

2. Press "+" or "- " button to select the day in this week.

3. Press the DAY OFF button to set the DAY OFF.

The WE mark is hidden

ex.The DAY OFF is set for Wednesday
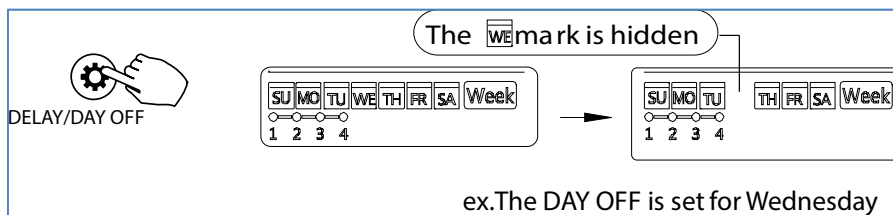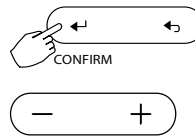
4. The DAY OFF can be set for other days by repeating the steps 2 and 3.

5. Press the BACK button to back to the weekly timer.
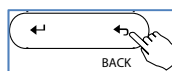
6. To cancel: follow the same procedures as those for setup

Notes: The DAY OFF setting is cancelled automatically after the set day has passed.

✧ **DELAY function**

During the weekly timer, pressing the DELAY button, it will display "0h"

Press this button twice, it will display "1h" and wait 3 seconds to confirm. It means the unit will override 1 hour.

Press this button three times, display "2h" and wait 3 seconds to confirm, it means the unit will override 2h.
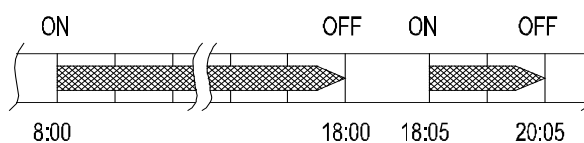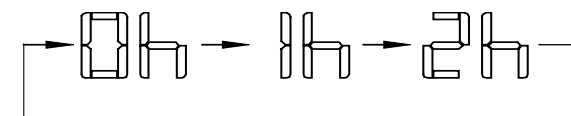
For example, if press the "Delay" button to select "2h" at 18:05, then it will turn off the air conditioner at 20:05.

◈ **Copy out the setting in one day into the other day**

Under the weekly timer setting, a reservation made once can be copied to another day of the week.

The whole reservation of the selected day of the week will be copied. The effective use of the copy mode ensures ease of making reservations.

1) During the weekly timer, press the CONFIRM button.

2) Press "+" or "-" button to select the day to copy from.

3) Press the COPY button and the letter "CY" will display on the LCD.

4) Press "+" or "-" button to select the day and copy it.

5) Press COPY button to confirm.

The WE mark flashes quickly
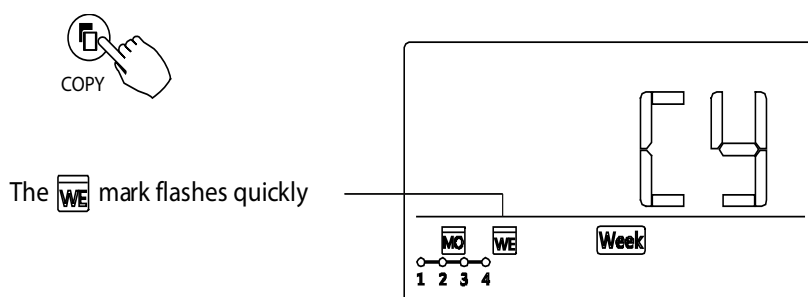
ex. Copy the setting of Monday to Wednesday

6) Other days can be copied by repeating step 4 and 5.

7) Press CONFIRM button to confirm the settings.

8) Press Back button will return to the weekly timer.

◈ **Preparatory operation**

Set the current day and time

✓ Press the TIMER button for 3 seconds or more. The timer display will flash.

✓ Press "+" or "-" button to set the date. The selected date will flash.
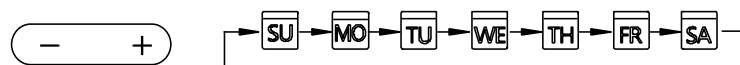
✓ The date setting is complete and the time setting is prepared after pressing TIMER button or no button is pressed for 10 seconds.

✓ Press "+" or "-" button to set the current time.

Press repeatedly to adjust the current time in 1-minute increments.

Press and hold in adjust the current time continuous.
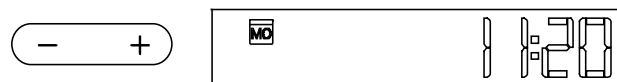
ex.Monday AM 11:20

✓ After setting and pressing TIMER button or no button is pressed in 10 seconds will exit the settings.

✧ **Fault codes**

If the system does not properly operate except the above mentioned cases or the above mentioned malfunctions are evident, investigate the system according to the following procedures.

Code	Error description
F0	Communication malfunctions between wired controller and indoor unit.
E1	Communication malfunctions between indoor and outdoor unit.
E2	T1 sensor malfunction
E3	T2 sensor malfunction.
E4	T2B sensor malfunction.
E7	Indoor unit EEPROM malfunction.
Ed	Outdoor unit malfunction.
EE	Water level switch detection malfunction.

2.10.3 Installation introduction

1) Safety precaution

Don't install at the place where cover with heavy oil, vapor or sulfureted gas, otherwise, this product would be deformed that would lead to system malfunction.

Preparation before Installation:

Make sure the following pasts has been prepared.

NO.	Name	QTY.	Remarks
1	Wired Controller	1	/
2	Lithium battery	1	/
3	Cruciform slot screw M4×25	2	This accessory is used when install the wired controller inside the electric cabinet
4	Plastic bolt	2	
5	Installation and owner's manual	1	/
6	The connective wires group(on some models)	1	/

Prepare for the following at installation site.

No.	Name	QTY.	Type	Remarks
1	Electric cabinet	1	RVVP-0.5mm2x3	Universal electric cabinet's specification. Pre-embed it into wall.
2	Wire configured tube (insulated sheath)	1	RVVP-0.5mm2x2	Pre-embed into the wall and the longest length should not exceeding than15m.
3	Phillips screwdriver	1	/	For install Cruciform slot screw.
4	Slotted head screwdriver	1	/	For unscrew the bottom cover of wired controller.

Precaution of install the wire controller

1. The manual provides the installation method of wired controller. Please refer to the wiring diagram of the wired controller with indoor unit.

2. The wired controller is working in a low voltage loop circuit. Forbid to directly contact the cable of 220V commercial electricity or of 380V high voltage, and don't wire this kind of wire in the said loop; wiring clearance between configured tubes should at the range of 300~500 or above.

3. The shielded wire of the wire controller must be grounded reliable.

4. Upon finishing connection, do not employed tramegger to detect the insulation.

5. The connective cable of wired controller should not be longer than 20 meters.

2) Installation **methods**

✛ Connect wired controller to main control board of indoor unit through 4-core shield cable and 3-terminal short wires in accessories.

4-core shield cable (accessory)　　　Main board

3-terminal short wires (accessory)
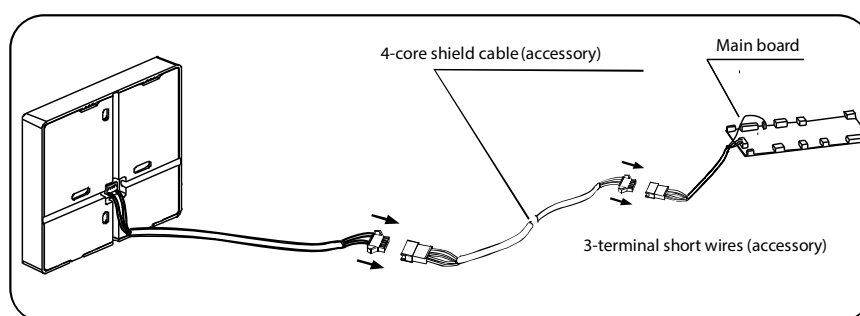
✛ There are 2 types of short wires in 3-terminal, please install according to actual model. For indoor units of duct type, four-way cassette type, two-way cassette type, one-way cassette type and ceiling and floor type, employ the short wire as following:

Connect to CN12 port of main board.

Main board of indoor unit

CN9

CN12

Connect to CN9 port of main board.

Connect to wired controller.

Type 1 of 3-terminal short wire.
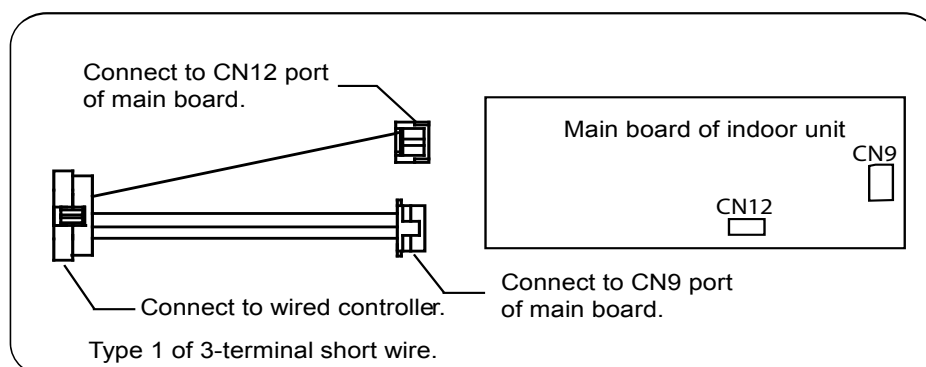
✤ For indoor units of wall mounted type employs the short wire as following:

Connect to CN13 of main board.

Connect to wired controller.

Connect to CN17 of main board.

Type 2 of 3-terminal short wire.

Main board of indoor unit

CN13

CN17
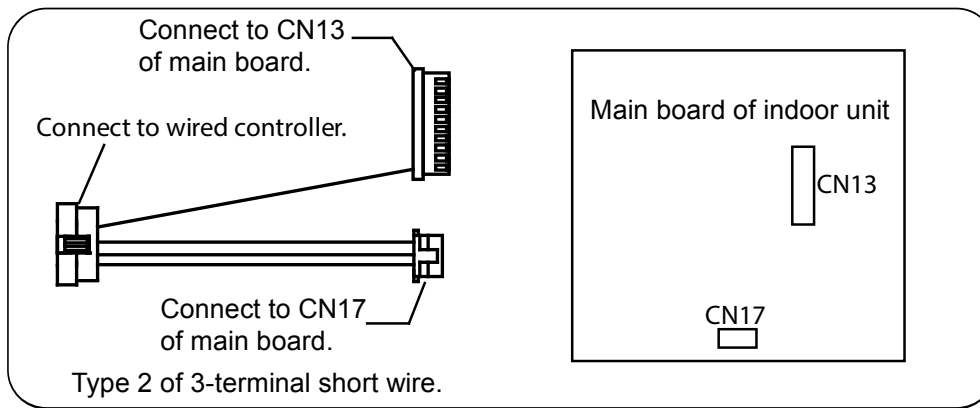
✤ Take off the cover of wired controller at the bottom with the screwdriver.
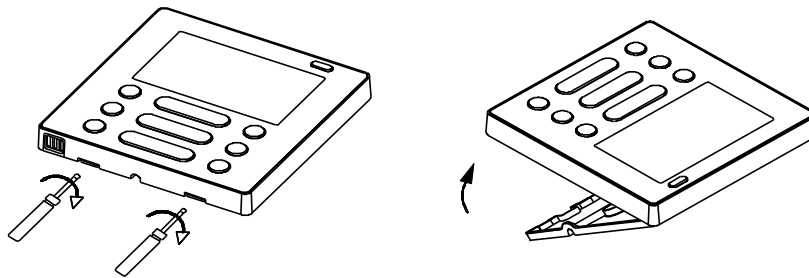
✤ Put the battery into the installation site and make sure the positive side of the battery is in accordance with the positive side of installation site.
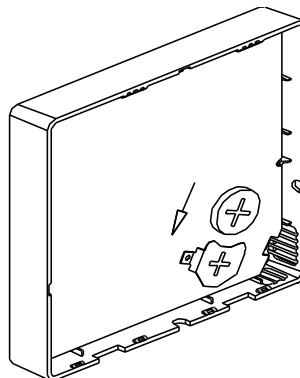
✤ Adjust the length of two plastic bolts base on the length of throughout from standard electric cabinet to the wall. Confirm the two bolts fixing in the cabinet are in the same length and vertical to the wall surface.

♣ Fix the bottom cover to the electric cabinet by the accessory slotted head screws. Confirm the bottom cover is parallel to the wall surface. And then reinstall the bottom cover to centralized controller.
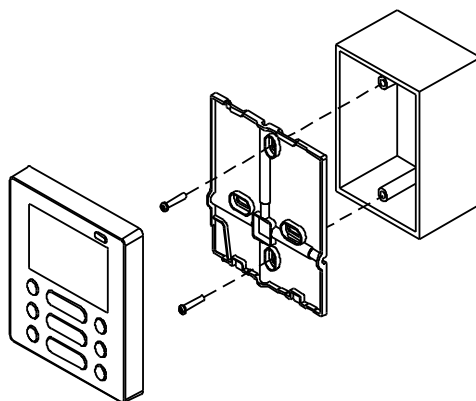
Notes:

Over tighten the screw would cause rear cover deformed and LCD damage.

When installation, please maintain the screws and wired controller at the same height level without deformed.

When installation, please reserve a certain length of wired controller connective cable for future maintenance to take off the wired controller.

3) Wiring diagram

Wiring diagram of wired controller connects with indoor unit.
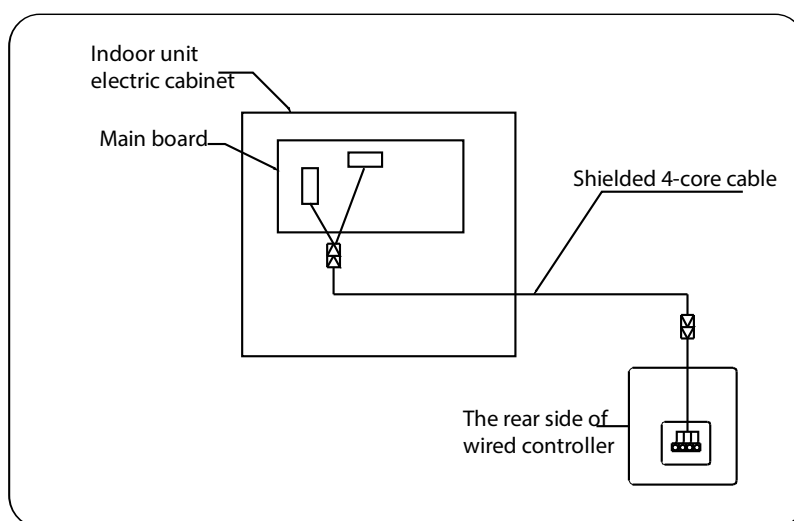
2.11 HRV wired controller: KJR-27B

KJR-27B

KJR-27B is individually designed for HRV—Heat Recovery Ventilator.

Wired controller specifications

Model	KJR-27B/BGE(A)
Power Supply Voltage	5.0 V DC
Ambient Temperature Range	-15°C～+43°C
Ambient Humidity Range	RH40%~RH90%

Performance Features

1. Operating mode: exhaust, air supply, bypass, heat exchange and auto.

2. Set the mode through buttons.

3. Indoor setting temperature range: 17°C ~30°C.

4. LCD (Liquid Crystal Display).

2.11.1 Parts name
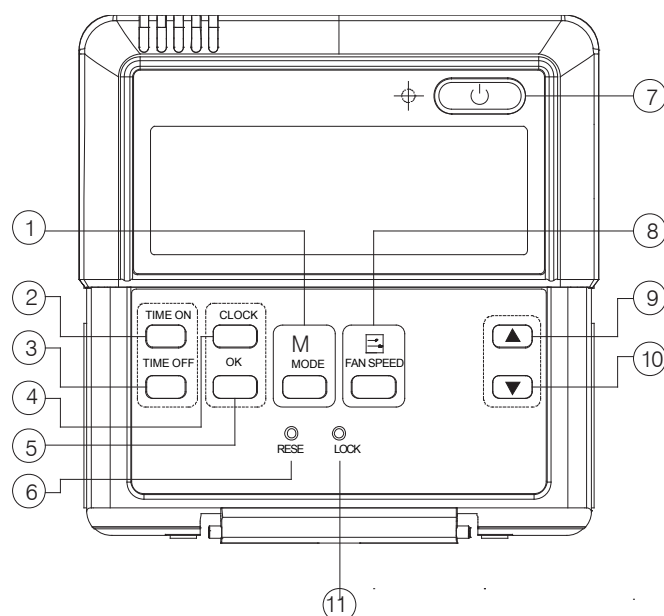
(1) Mode selection button

It is used to select mode, press this button one time, then the operation modes will change in turn as follows:

AUTO→HEAT RECOVERY→EXHAUST→BYPASS→SUPPLY

(2) Timer on button

Press this button can set TIMER ON, each time press this button, the time moves forward by o.5 hours. When the set time is over 10 hours, each time press the button to the time moves forward by 1 hour. If want to cancel the TIMER ON, then adjust the time of TIMER ON as 0.0.

(3) Timer off button

Press this button can set TIMER OFF, each time press the button, the time moves forward by o.5 hours. When the set time is over 10 hours, each time you push the button the time moves forward by 1 hour. If want to cancel the TIMER OFF, then adjust the time of TIMER OFF as 0.0.

(4) CLOCK button

Normally display the clock set currently (display 12:00 for the first electrifying or resetting). When press the button for 4 seconds, the hour part on the clock display flashes every 0.5 seconds, then press button ▲ and ▼ button to adjust hour; Press the button CLOCK again, the minute part flashes every 0.5 seconds, then press ▲ and ▼ button to adjust minute. When set clock or alter clock setting, must press the confirm button to complete the setting.

(5) Confirm button

The button is used at the state of CLOCK adjustment. After select the time, push the button to confirm then exit, the current clock will display

(6) RESET button (hidden)

Use a small stick with a diameter of 1mm to press the RESET button will cancel the current settings and get into the condition of resetting.

(7) ON/OFF button

Press this button at the condition of OFF, the OPERATION lamp lights, and the wired controller enters into ON operation, simultaneously sends the information of operation mode set currently, temperature, fan speed, timer etc. Press the button at the condition of ON, the OPERATION lamp extinguishes simultaneously sends the OFF. If having set TIMER ON or TIMER OFF, the wired controller will cancel these settings before entering into OFF, close the concern indicator, and then send the OFF information.

(8) Fan speed selection button

Can select anyone fan speed from "☆☽", "LOW", "MED" and "HIGH". Each time press the button, the fan speed will change in turn as follow.
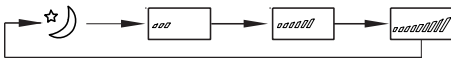
(9) Adjustment button

The button only for time adjustment, and press the ▲ button, time increases.

(10) Adjustment button

The button only for time adjustment, press the ▼ button, time decreases.

(11) LOCK button (hidden)

Use a small stick with the diameter of 1mm to press the LOCK button can lock the current setting, press the button again then cancel the setting.

2.11.2 Using the wired controller

(1) Automatic operation

Insert the power supply, operation lamp of HRV flashes.

1. Press MODE to select AUTO

2. Press ON/OFF button, the operation lamp of HRV unit lights, the HRV start operating at the auto mode, the fan speed is controlled automatically, wired controller display screen display "AUTO" the fan speed is un-adjustable. Press the button ON/OFF again, and then the HRV stops operating.

(2) The operation of heat recovery/bypass/supply

1. Press the MODE button to select any one of "HEAT RECOVERY", "BYPASS", or "SUPPLY" mode.

2. Press the button FAN SPEED to select any one of "☆☽", "LOW", "MED" or "HIGH" fan speed modes.

3. Press the button ON/OFF, the operation lamp on HRV lights, the HRV operates according to the mode selected. Press the button ON/OFF again, stop the HRV.

(3) Exhaust operation

1. Press MODE to select EXHAUST mode.

2. Press the ON/OFF button, the operation lamp of indoor unit lights, and the air conditioner will start to EXHAUST mode. Press the button ON/OFF again, stop the unit.

3. The button FAN SPEED is invalid in the mode EXHAUST.

(4)Timer setting

TIMER ON button can set the starting time. TIMER OFF button can set the stopping time.

(5)Only setting timer on

1. Press TIMER ON button, the wired controller displays SETTING, the icons of HOUR and ON display on the timer setting area. The wired controller enters into the setting of the timer on.

2. Press the TIMER ON button again, and then adjust the time of the timer on as you desired.

3. Continuously press adjusts up button. The time of the timer will increase 0.5 hours per time. After the time of timer reaches to 10 hours, the time will increase 1hour each time.

4. 0.5 seconds later, after finishing the adjustment, the wired conditioner sends the information of time on, the timer on the setting is completed.

(6) Only setting timer off

1. Press the TIMER OFF button, the wired controller display SETTING, the icons of HOUR and OFF display on the timer setting area. The wired controller enters into the setting of the timer off.

2. Press the TIMER OFF button again, and then adjust the time of time off as you desired.

3. Continuously presses adjust up button. The time of the timer will increase 0.5 hours per time. After the time of timer reaches to 10 hours, the time will increase 1hour each time.

4. 0.5 seconds later, after finishing the adjustment, the wired conditioner sends the information of time off. The timer off setting is completed.

(7) Setting time on and time off simultaneously

1. Refer to step 1 and step 2 of TIMER ON to set the TIMER ON.

2. Refer to step 1 and step 2 of TIMER OFF to set the TIMER OFF.

3. When set the TIMER ON and TIMER OFF simultaneously, if the set times of TIMER ON and TIMER OFF are all over 10 hours, then TIMER OFF is always later 1 hour than TIMER ON.

4. 0.5 seconds later, after finishing the adjustment, the wired conditioner sends the information of time on/off, the timer off and timer on setting are completed.

Alter the timer, to alter the time of TIMER ON of 1. Refer to step 1 and step 2 of TIMER ON to set the TIMER ON.

Remark:

Time of TIMER ON is the relative time; it is relative to standard time of operating wired controller. If having setting the TIMER ON or TIMER OFF, then the clock cannot be adjusted.

2.11.3 Installation

1) Safety precaution

+ Stated below are important safety issues that must be obeyed. Confirm there is no abnormal phenomena during test operation after complete.

+ Installation by other persons may lead to imperfect installation, electric shock or fire. Improper installation may lead to electric shock or fire. A random disassembly may cause abnormal operation or heating, which may result in fire.

+ Do not install the controller in a place vulnerable to leakage of flammable gases. Once flammable gases are leaked and left around the wired controller, fire may occur.

+ The wiring should adapt to the wired controller current. Otherwise, electric leakage or heating may occur and result in fire. The specified cables shall be applied in the wiring. No external force may be applied to the terminal. Otherwise, wire cut and heating may occur and result in fire.

+ Don't place the wired controller near the lamps, to avoid the remote signal of the controller to be disturbed. Do not install the unit and controller in a place with much oil, steam, sulfide gas. Otherwise, the product may deform and fail.

2) Dimensions: 120*120*15mm

3）Wiring principle sketch

HRV Electric Controlling Box

Electric Controlling Boxs' Plug CN10

Main Board

Signal Receiving Board

10-core Connecting Wire Group

Wire Terminal Group

Signal Receiving Board

5-core Connecting Group

Grounding

5-core Shield Cable

Back of wire controller

Connecting to wire controller

Wire Terminal Group Connecting Extended Figure

4) Wiring principle

Wired Controller Back Cover

Wired Controller Top Cover

Wired Controller LCD

Wired Controller Board

Wired Controller Bottom Cover

Wood Mounting Screw (M4X20)

Turn a screwdriver at the concave on bottom panel of the Wired Controller to remove the Back Cover

Holes match with the 86X86 Wiring box

Back of the rear conver

When installing the Wired Controller, you should adjust the bottom of the Wired Controller Board to the Wired Controller Back Cover which should be fixed first, then press the other end of the Wired Controller Board.

When installing the Wired Controller Cover,be sure there is a hole in the wall to avoid the Wired Controller Back Cover being fixed directly to the wall which is not allowed for the Wire Joint extrudes out of the Wired Controller Back Cover

3. Centralized controller

MD-CCM03 (A)

MD-CCM09 (A)

CCM30
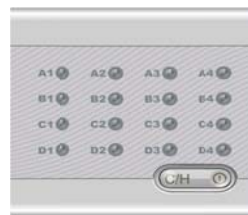
KJR-90B

3.1 MD-CCM03

MD-CCM03 is a multifunctional device which is able to control up to 64 indoor units. And the connection length can be up to 1200m. The following wiring mode centralized controller and indoor units are applicable.
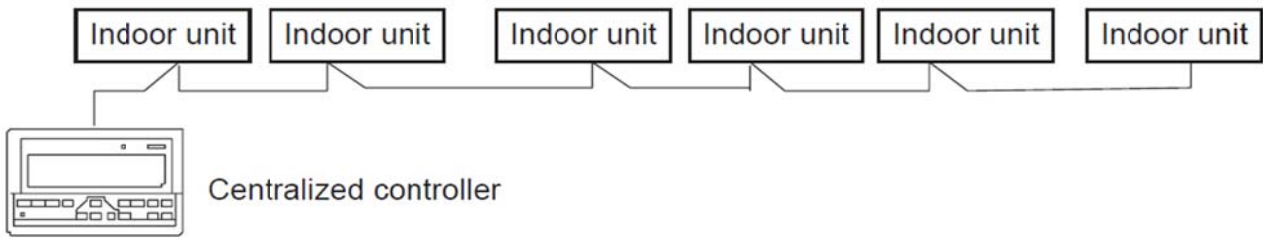
3.1.1 General function description

1) Power on or reset

When the centralized controller is powered on or reset, all display segments of the LCD are luminous for 2 seconds and then goes off. 1 second later, the system enters the normal display state. The centralized controller is in the main page display state and displays the first page, and searches the in-service air conditioners in the network. If the search is finished, the centralized controller enters the mode setting page, and sets the first in-service air conditioner by default.

2) Network area address of centralized controller

The local computer or gateway can be up to connect with 16 centralized controllers for communication. Each centralized controller serves as an area of the air conditioner network. The centralized controllers are differentiated by bit selection address. The configurable range is 0~15.

3) State indications

If any local keypad operation is setting the operation state of the air conditioner, the indicator is on when the signals are sent. Upon completion of the setting process, the indicator goes off. If an in-service air conditioner in the network is faulty, or the centralized controller network itself is faulty, the indicator will blink at 2Hz.

If one or more in-service air conditioners in the network are running, including under setting of timing start/shutdown, the indicator will be luminous. Otherwise, the indicator is off.

4) Locking of centralized controller

After receiving the centralized controller locking command sent from the computer, the centralized controller disables the startup/shutdown and setting of the air conditioner, and sends commands to lock remote controllers of all air conditioners in the network of the centralized controller. After receiving the unlocking command, the centralized controller enables the startup/shutdown operation, and sends commands to unlock the remote controller of all air conditioners.

The locking state of the remote controller can be locked or unlocked by the computer or centralized controller separately. The locking state of the centralized controller is memorized after power failure of the centralized controller, and will not vanish after the power supply is restored, unless the command of unlocking is received.

5) Mode locking function

After the mode locking command is received, the command is forwarded to the air conditioner, and the centralized controller displays the mode locking flag. After the command of unlocking is received, the non-conflict mode can be selected freely. The centralized controller can also lock modes of all indoor units.

6) Emergent shutdown and compulsory startup

When the emergent shutdown switch of the centralized controller is shorted, all air conditioners in the network of the centralized controller will shut down compulsorily. The centralized controller and computer and all functional modules are disabled from startup and shutdown until the foregoing switch is open. When the compulsory startup switch of the centralized controller is shorted, all air conditioners in the network of the centralized controller will start up compulsorily. In default conditions, they will run in the cooling mode. The startup and shut down operations of the centralized controller and the computer and all functional modules will be disabled (only the command of startup is sent to the air conditioner, without affecting operation of the remote controller after startup) until the foregoing switch is opened.

If the foregoing two switches are shorted in the same time, the emergent shutdown switch shall have preference.

3.1.2 Buttons and Functions

Enter the air conditioner query pages.

Enter the setting page to shift between single and global units seting

In the setting page, press the "OK" key to send the setting information except the locking signal to the air conditioner.

1.In the setting page,can change the tempterature and timer increase or descrease.
2.In the setting page, press it can scroll the page to query parameters.

1. "Up" and "Down" keys: For selecting rows.
2. "Left' and "Right" keys: For selecting columns.

In the setting page, can set the operation mode.

In the setting page, press it can set fan speed.

In the setting page, shift to the timing startup/shutdown setting page.

LOCK   OK   SET   QUERY   △   ADD   MODE   FAN   TIME ON

RESET   ◁   ▽   ▷   REDUCE   SWING   TIME OFF

In the centralized controller resetetting page, press the "Reset" key.

In the setting page, the swing function is available or not

1. In the setting page, press the "lock" key to lock or unlock the remote controller.
2. In the unified setting page, press the "Up" key and then press the "Lock" key to lock or unlock the mode.
3. After pressing the "Query" key, press the "Lock" key to lock or unlock the keypad of the centralized controller.

1) Query button

Any time when you press the button, the selected operation mode is to query the operation state of the air conditioner. By default, the first in-service air conditioner will be queried. Through the Increase and Decrease keys, you can change the parameter page to be queried; through the Up, Down, Left and Right keys, you can change to query state of other in-service air conditioners.

2) Set button

In other display mode, press the button can enter the setting mode. By default, it is single setting, and the first in-service air conditioner is displayed. In setting operation mode, press the button again, and the operation will be performed for all air conditioners in the network. Press the button repeatedly to shift between single setting and global setting.

⟶   Single   →   Global   ⟶
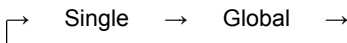
3) Mode setting

In setting operation mode, press this button to set the operation

⟶cooling → heating → supply air only → off   ⟶
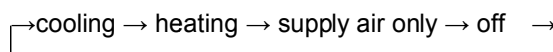
In other display mode, press the key can enter the setting mode. By default, it is single-machine setting, and the first in-service air conditioner is displayed.

4) Fan speed

In setting operation mode, press this button can set the fan of the indoor unit to run in the automatic, high, medium or low level of air:

$$\rightarrow auto \rightarrow low \rightarrow medium \rightarrow high \rightarrow$$
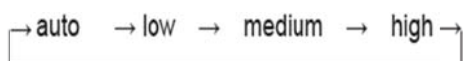
5) Time on

In setting operation mode, press this button can set the timing startup of air conditioner; press the button again will exit the timing setting, and restore the normal temperature regulation operation mode.

$$\rightarrow time\ on \rightarrow set\ temperature\ regulation \rightarrow$$
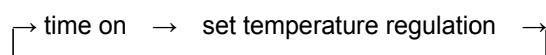
6) Time off

In setting operation mode, press this button can set the timing shutdown of air conditioner; press the button again will exit the timing setting, and restore the normal temperature regulation operation mode.

$$\rightarrow time\ off \rightarrow set\ temperature\ regulation \rightarrow$$
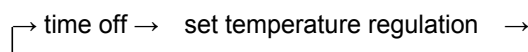
7) Swing

In setting operation mode, press this button to enable or disable the swing function. If all currently selected air conditioners without swing function, no effect will result after pressing the button.

8) Leftward button

In the query mode, every time when you press the button, the operation state data of the previous air conditioner will be displayed. If it is currently on the first machine, press the button again, and the data of the last machine will be displayed. If you hold down this button, the address will decrease one by one.

In the setting mode, every time when you press the key, if it is in single operation mode, the air conditioner of the previous in-service address number will be selected. If it is in the global operation mode, no effect will result after the button is pressed.

In the main page, press the button to enter the query mode. By default, it is the first air conditioner in-service.

9) Rightward button

In the query mode, every time when you press the button, the operation state data of the last air conditioner will be displayed. If it is currently on the last machine, press the button, and the data of the first machine will be displayed. If you hold down this key, the address will increase one by one.

In the setting mode, every time when you press the button, if it is in the single operation mode, the air conditioner of the next in-service address number will be selected. If it is in the global operation mode, no effect will result after the key is pressed.

In the main page, press the button can enter the query mode. By default, it is the first in-service air conditioner.

10) Downward button

In the query mode, every time when you press the button, the operation state data of the air conditioner corresponding to the next row of the matrix will be displayed. If it is currently in the last row, press the key, and the data of the air conditioner corresponding to the first row will be displayed. If you hold down this key, the row will increase one by one.

In the setting mode, every time when you press the key, if it is in the single operation mode, the air conditioner corresponding to the last row will be selected. If it is in the global operation mode, no effect will result after the key is pressed.

In the main page, press the button can enter the query mode. By default, it is the first in-service air conditioner.

11) Upward button

In the query mode, every time when you press the button, the operation state data of the air conditioner corresponding to the previous row of the matrix will be displayed. If it is currently in the first row, press the button, and the data of the air conditioner corresponding to the last row will be displayed. If you hold down this button, the row will decrease one by one. In the setting mode, every time when you press the button, if it is in the single operation mode, the air conditioner corresponding to the previous row will be selected. If it is in the global operation mode, no effect will result after the button is pressed.

In the main page, press the button can enter the query mode. By default, it is the first in-service air conditioner.

12) Add button

In the main page or the query mode, every time when you press the button, the data of the last page will be displayed. If it is now in the last page, press the key again, and the first page will be displayed.

In the setting mode, every time when you press the key, if it is in the temperature regulation mode, the set temperature will decrease by 1°C until the highest allowed set temperature; if it is in the timing startup/shutdown time setting mode, select the upper-level set time, if no time is set, 0.0 will be displayed, if you hold down the button, the upper-level data will be selected consecutively.

The specific change mode is as follows:

0.0→0.5→1.0→1.5→2.0→2.5→3.0→3.5→4.0→4.5→5.0→5.5→6.0→6.5→7.0→7.5→
8.0→8.5→9.0→9.5→10→11→12→13→14→15→16→17→18→19→20→21→22→23→24

13) Reduce button

In the main page or the query mode, every time when you press this button, the data of the previous page will be displayed. If it is now in the first page, press the button again, and the last page will be displayed.

In the setting mode, every time when you press the button, if it is in the temperature regulation mode, the set temperature will decrease by 1℃ until the lowest allowed set temperature; if it is in the timing startup/shutdown time setting mode, select the upper-level set time, if no time is set, 0.0 will be displayed, if you hold down the button, the upper-level data will be selected consecutively.

The specific change mode is as follows:

0.0← .5←1.0←1.5←2.0←2.5←3.0←3.5←4.0←4.5←5.0←5.5←6.0←6.5←7.0←7.5←8.0←8.5
←9.0←9.5←10←11←12←13←14←15←16←17←18←19←20←21←22←23←24

14) ON/OFF button

Any time when you press the button, the centralized startup/shutdown operation is performed for all current in-service air conditioners in the centralized controller network. If all in-service air conditioners in the network are in the power-off state, press the button to perform the startup operation.

If it is in the mode setting page currently, and the parameters such as startup mode, temperature and air speed are selected, the air conditioner will be started according to the selected parameters.

If no mode is selected currently, and the air conditioner is powered off or it is in other display page currently, and the default startup mode is: Cooling, strong air, set temperature 24°C, swing function enabled. The default startup mode is locked according to the system mode or judged according to other constraint conditions. If any conflict exists, the next conflict-free mode will apply automatically. If conflict exists for all modes, startup will be impossible. If one or more in-service air conditioners in the network (including in the timing process of timing startup/shutdown), pressing this button will shut down all air conditioners. When performing the shutdown operation, the shutdown command is issued to the air conditioners in the startup state only, and is not issued to those in the shutdown state.

15) Lock button

In the mode setting mode, press the Lock button, and the remote controller of the currently selected air conditioner will be locked/unlocked. The operation mode is: If you select single-machine setting, the operation is performed for the air conditioner of the current address only. If the remote controller of the air conditioner is locked currently, issue the lock command; otherwise, send the lock command. If you does not select the single-machine mode, and the remote controller of one or more currently selected air conditioners is locked, issue the unlock command; if the remote controllers of all currently selected air conditioners are in the non-locked state, issue the remote controller lock command. When the remote controller of the air conditioner is locked, the air conditioner does not receive remote control signals from the remote controller or wired controller until the remote controller is unlocked. Press the Query button and then press the Lock button, and the buttons of the centralized controller will be locked or unlocked. If the buttons are currently locked, press the Query and Up button concurrently again, and the buttons will be unlocked; if the buttons are currently unlocked, press the Query and Up button concurrently, and the buttons will be locked. If the buttons are locked, pressing any button will be ineffective, except unlock operation.

In the unified setting page, press the Up button and the Lock button concurrently to lock all air conditioner modes in the network. The mode locking is cancelled when the button is pressed again.

Notes: When locking or cancelling lock, the corresponding icon indication appears or disappears only after all the attached air conditioners are set completely, so it takes a time period. When there are many attached air conditioners, please wait patiently.

16) OK button

In the setting mode, press the button to send the currently selected mode state and the auxiliary function state to the selected air conditioner, and display the mode setting operation results.

After you select the operation mode and auxiliary function state information of the air conditioner, if you do not press the confirmation button, the selected information will not be sent to the air conditioner, and will not affect the current operation of the air conditioner.

The operations of remote controller locking and unlocking need no pressing of the OK key. The command information is sent directly after the LOCK key is pressed.

17) Reset button

Anytime when the reset button is pressed, the centralized controller will reset. The result is the same as the result of restoring power-on after power failure.

3.1.3 LCD display
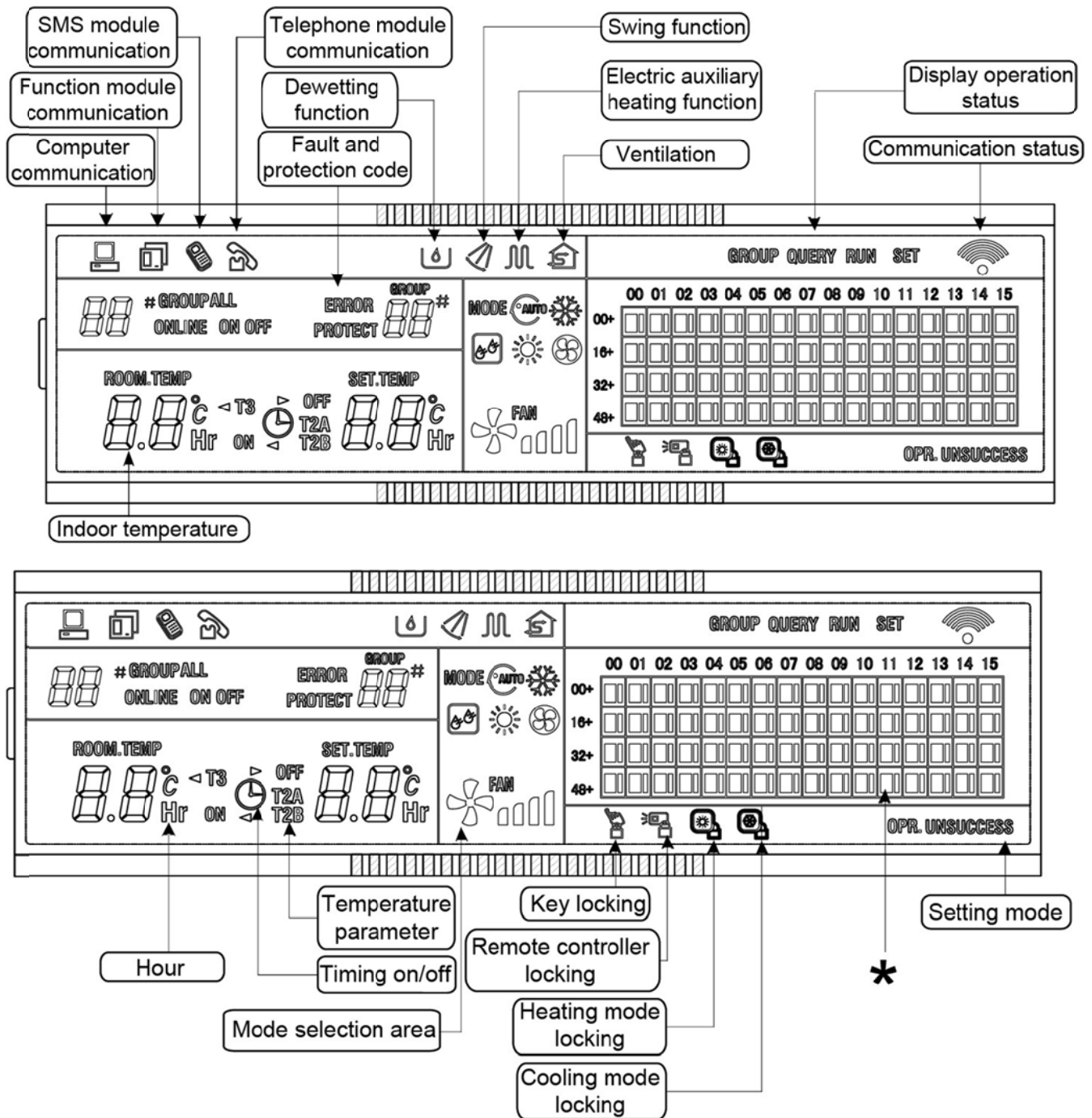
*: The matrix is composed of 4×16 grids and each grid is composed of two blocks of different sizes. The matrix include horizontal coordinates 00-15 and vertical coordinates 00+, 16+, 32+ and 48+, which indicate the address of the indoor unit. The sum of the horizontal coordinate and vertical coordinate of the grid is the address of the grid. Each grid corresponds to an indoor unit of this address.

3.1.4 General display data entries

1) General display data is displayed in all display pages.

- Under the interconnected control of the computer or gateway, the data is displayed in graphic (⌨). Otherwise, no data is displayed.

- If the centralized controller is connected with the functional module for communication, the data is displayed in graphics (⬚). Otherwise, no data is displayed.

- If the centralized controller is connected with the SMS remote control module for communication, the data is displayed in graphics (✆). Otherwise, no data is displayed.

- If the centralized controller is connected with the telephone remote control module for communication, the data is displayed in graphics (☏). Otherwise, no data is displayed.

- In normal operation of the centralized controller, the periodical cycle module communicates with the network interface module, and the data is displayed dynamically and cyclically: (blank) ◦ ⌢ ⌢.

- In the centralized control locked state or the keypad locked state, the locking icon (🔒) is displayed. After unlocking, it is not displayed. In the centralized controller locked state or the keypad locked state, the locking flag is displayed constantly. If both of them are locked concurrently, the locking flag is displayed constantly.

- In the setting page, if the selected air conditioner is in the remote controller locked state (in case of non-single machine operation, as long as one machine is in the remote controller locked state, it is deemed the locked state), the icon (🔒) is displayed constantly.

- If all indoor units lock the cooling mode, this icon (🔒) will display, and if all indoor units lock the heating mode, the icon (🔒) will display.

2) Data display handling

- Indoor unit code (address) display: display range: 00~63, and with # being luminous concurrently.

- Indoor temperature display: display range: 00~99°C. The indoor temperature is displayed concurrently. If the temperature is higher than 99°C, 99°C will be displayed. If the temperature value is invalid, '--' will be displayed.

- If timing startup or shutdown is set, the flag (🕐) is displayed.

- T3, T2A and T2B display: in the single-machine query page, display can shift between T3, T2A and T2B; by the way, the temperature value is displayed concurrently, with the corresponding °C being luminous.

- In case of air conditioner fault or protection, the corresponding fault code or protection, the corresponding fault code or protection code can be displayed.

- Liquid crystal matrix display description:

The liquid crystal matrix is composed of 4×16 grids, and each grid is composed of two blocks of different sizes. The matrix includes horizontal coordinates 00~15 on the upper side and vertical coordinates 00+, 16+, 32+ and 48+ on the left side, which indicate the address of the indoor unit. The sum of the horizontal coordinate and the vertical coordinate of the grid is the address of the grid. Each grid corresponds to an indoor unit of this address. One grid is composed of two blocks of different sizes. The state indication table is as follows;

	Constantly on	Slow blink		Fast blink
Big black block	In-service	Selected		Out of service
Small black block	Power on		Fault of indoor or outdoor unit	Power off

3) LCD display description

● Description of the standby page

The LCD displays the standby page, 60 air conditioners are in service, of which 28 are powered on and 32 off.

In the matrix, the bid dots from (16+, 00) to (32+, 15) are luminous, and the small dots are not luminous. It indicates the 32 air conditioners with the addresses from 16 to 47 are powered off.

In the matrix, the big and small dots from (48+, 09) to (48+, 12) are not luminous. It indicates the four air conditioners with the address from 57 to 60 are outside the network.

All other big and small dots in the matrix are luminous. It indicates all other air conditioners are in the network and powered on.

The address of the air conditioner is sum of the coordinates. For example, the address of (48+, 09) is 09+48=57.

The centralized controller keypad is locked, and the centralized controller communicates with the computer normally.

● Description of the query page

The LCD displays the query page, and the air conditioner with the address of 01 is being queried. Mode of the air conditioner with the address 01 is cooling, high speed fan, swing on, indoor temperature 22°C, setting temperature 20°C and cooling mode locked.

In the matrix, only the big and small black dots at (00+, 00) and (00+, 01) are luminous. It indicates the in-service and power-on state of the air conditioners with the addresses of 00 and 01.

The centralized controller communicates with the computer normally.

● Description of the setting page
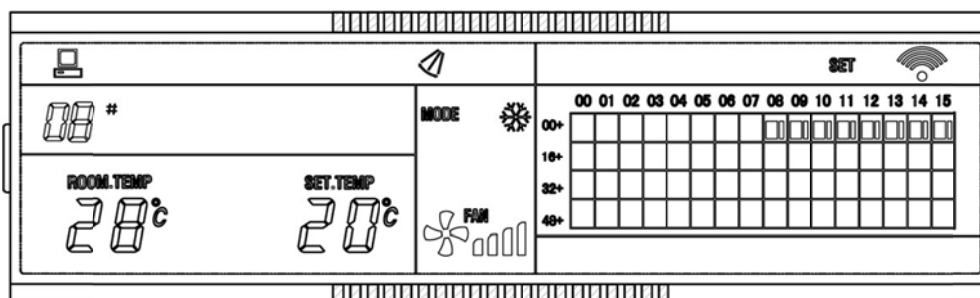
The LCD displays the setting page, and queries the air conditioner with the address of 08. The mode of the air conditioner with the address 08 is: cooling, high speed air supply, swing on, indoor temperature 28°C, setting temperature 22°C and cooling.

In the matrix, only the big black dots from (00+, 08) to (00+, 15) are luminous. It indicates the air conditioners with the addresses from 08 to 15 are in service.

The centralized controller communicates with the computer normally.

● Fault page display description
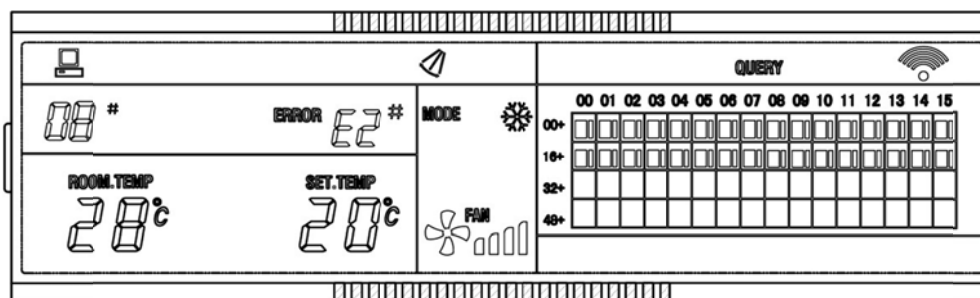
Query the air conditioner with the address of 08 in the query page. The air conditioner with the address of 08 is faulty, and the fault code is E2. The big black dot below (00+, 08) blinks.

In the matrix, only the big and small black dots from (00+, 00) to (16+, 15) illuminate. It indicates the in-service state of the air conditioners with the addresses from 00 to 31.

The centralized controller communicates with the computer normally.

3.1.5 Query and Error code

The CCM03 centralized controller offers the function of query of indoor units' running state and displays the error code when some of the indoor units fail down.
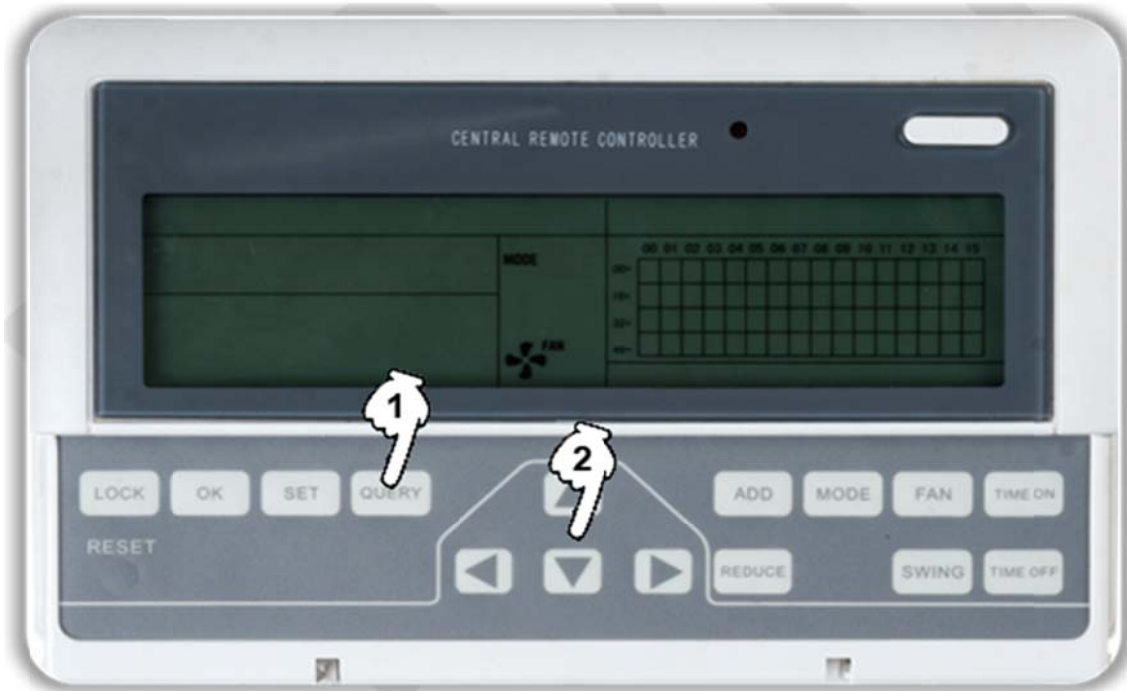
1. Press the query button to activate the query function. Firstly the display panel will display the 1st units' state.

2. Use the UP, DOWN, LEFT and RIGHT buttons to select the unit we want to query.

The indication of error codes are as the 2 tables below:

Table 1: Fault code

Fault code	Content
EF	Other faults
EE	Water level detection malfunction
ED	Outdoor unit malfunction
EC	Cleaning malfunction
EB	Inverter module protection
EA	Current of compressor is too large (4 Times)
E9	Communication malfunction between main board and display board
E8	Wind blowing speed is out of control
E7	EEPROM error
E6	Detection of current direction alternating is abnormal
E5	T3 or T4 senor of discharge of compressor fails down
E4	T2B sensor malfunction
E3	T2A sensor malfunction

E2	T1 sensor malfunction
E1	Communication malfunction
E0	Phase sequence disorder or loss of power phase
07#	/
06#	/
05#	/
04#	/
03#	Communication malfunction between centralized controller and PC(gateway)
02#	Communication malfunction between centralized controller and functional module
01#	Communication malfunction between centralized controller and network interface module
00#	Communication malfunction between network interface module and main control board

Table 2: Protection code

Protection code	Content
PF	Other protection
PE	Reserved
PD	Reserved
PC	Reserved
PB	Reserved
PA	Reserved
P9	Reserved
P8	Compressor's current is too large
P7	Voltage of power supply is too high or too low
P6	Pressure of discharge is too low
P5	Pressure of discharge is too high
P4	Temp. of discharge pipe is abnormal
P3	Temp. of compressor is abnormal
P2	Condenser high-temperature protection
P1	Anti-cool air or defrost protection
P0	Evaporator temperature protection

3.1.6 Installation

System composition:

🔩 The centralized controller is used to perform centralized control and data query for the network air conditioner. Each centralized controller can communicate with a maximum of 64 air conditioners to make up an air conditioner LAN, and implement centralized monitoring for the air conditioners in the network.

🔩 The centralized controller can be interfaced with computer or gateway to implement centralized control and state query for all air conditioners in the network. It can be connected with WAN via computer or gateway to implement remote computerized control (with support of computer software). Each local computer or gateway can be connected to 16 centralized controllers as a maximum.

🔩 The master or slave answer mode is implemented for communication between the centralized controller and the air conditioner, between the computer and the centralized controller. In the LAN composed of centralized controller and air conditioner, the centralized controller is a master, and the air conditioner is a slave. In the LAN composed of computer and centralized controller, the computer or gateway is a master, and the centralized controller is a slave.

🔩 The schematic diagram of network control system composition of air conditioner:
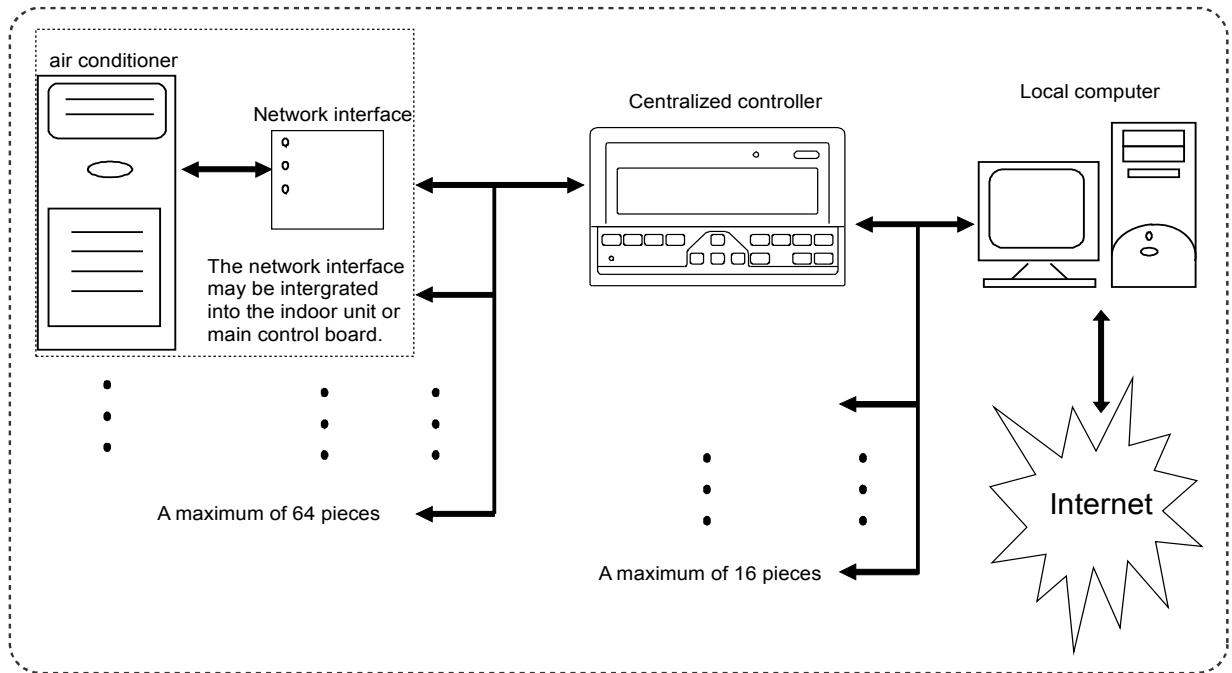
Notes: Before starting the network, please confirm that every CCM03's address is different with each other.

+ Open the front panel of the centralized controller by screwdriver as the following picture: (Unit: mm)

74
65
104
110
119
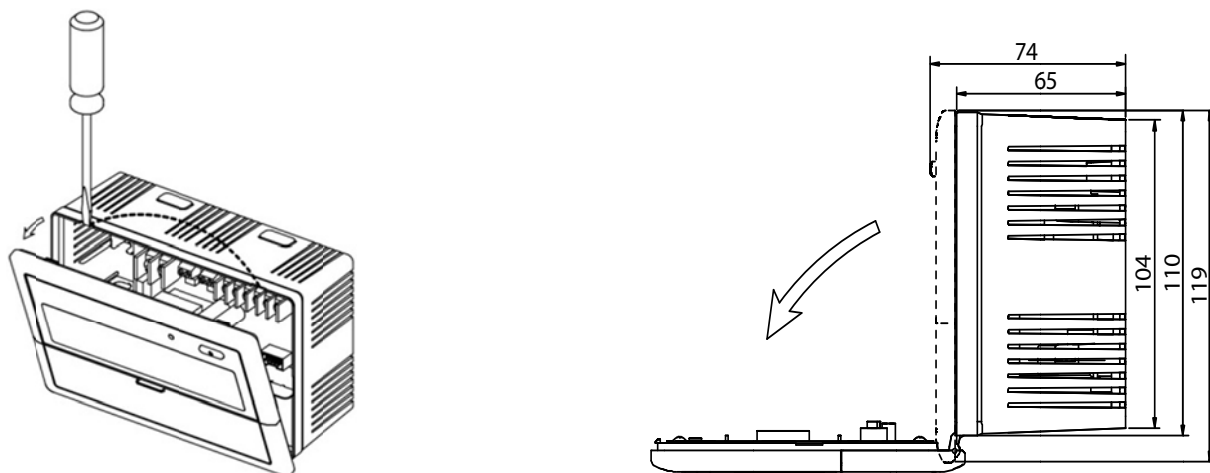
+ According to size of the hole in controller body, fix the controller on the place as needed. (Unit: mm)

179
153
78
78
148
4XR2.5

Plastic expansion tube Φ6X30
153
148
78
ST3.9X25-C-H(S)
4XØ6
Address Switch 00~15

RS232 Pin hole: for connection to computer COM port

RS485 Converted RS232 module

Emergency Open Switch,used to star up all air conditioners

Emergency Stop Switch,used to shut down all air conditioners

F₁ F₁ F₂ F₂ E

Power cable interface

Communication interface to the indoor unit

N L EMG.STOP FORCED ON E F2 F1 E Y X

Correct connection

Incorrect connection

Module   Controller

Module   Controller

Incorrect connection

Incorrect connection

Module   Controller

Module   Controller

Installation dimensions:
As shown in the figure
on the right side.

136

92

Installation screw
holes (4 holes)

70.5

83.5

48.5

Rotate the flathead screwdriver slightly
to open the upper cover (at points).

Screws for fixing the centralized
controller (GB845/ST3.9*25)
Holder

Address
bits

Bit location	Address range
⊕ ~ ⊕	00 ~ 15

Upper
cover

X Y E F1 F2 E   FORCED ON   ENG S TOP   L   N

Power cable interface
of centralized controller
198V~242V (50 / 60HZ)

Emergent stop switch

Emergent start switch

Communication interface with computer

Communication interface with indoor interface

Notes:

1. For the new series product, we can connect the indoor CCM controller via XYE ports of master outdoor unit of every refrigerant system. Notice that in this case, the outdoor unit must be set to auto addressing mode. And it will be effective after about 6 minutes.

2. To connect indoor CCM controller via XYE ports of indoor unit, this wiring method is suitable for all type of indoor units, not just for new indoor units.

3. When new indoor units and old indoor units mix connect to one refrigerant system, we can just connect the indoor CCM controller via XYE ports of indoor units. If we connect the indoor CCM controller via XYE ports of master outdoor unit, the CCM controller cannot control old indoor units.

4. If one system that connect to indoor CCM controller include 10 HP or above duct indoor unit, we recommend you set the address of every indoor unit manually.

3.2 Touch key centralized controller: CCM30

CCM30 is new designed and it is a touch key centralized controller. It can be connected up to 64 indoor units, and the connection length can be up to 1200m. The CCM30 centralized controller has the air filter cleaning reminding function and it is convenient to remind users to clean the air filter. Both of the following wiring modes centralized controller and indoor units are applicable.
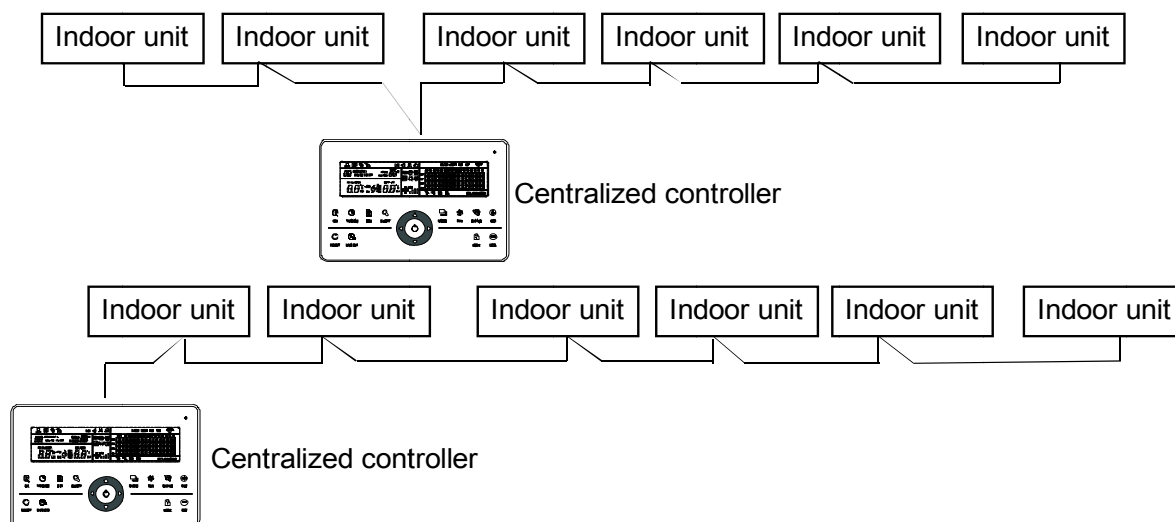
3.2.1 General functions and description

In the setting page, press the "OK" key to send the setting information except the locking signal to the air conditioner.

Enter the air conditioner seting page to shift between singlemachine seting and global seting.

Enter the air conditioner query pages.

1. "Up" and "Down" keys: For selecting rows.
2. "Left' and "Right" keys: For selecting columns.

In the setting page, set the operation mode of the air conditioner.

In the setting page, shift to the timing startup/shutdown setting page to set the fan speed of the air conditioner.

In the setting page, swing function is enabled or disabled

1. In the setting page,can change the tempterature and timer increase or descrease.
2. In the query page ,scroll page of the parameters being queried.

OK   TIME ON   SET   QUERY   MODE   FAN   SWING   INC

RESET   TIME OFF   LOCK   DEC

press the "Reset"key five seconds to reset the centralized controller

In the setting page, shift to the timing startup/shutdown setting page.

On/Off the unit

1. In the setting page, press the "lock" key to lock or unlock the remote controller.
2. In the unified setting page, press the "Up" key and the "Lock" key simultaneously to lock or unlock the mode.
3. After pressing the "Query" key and the "Lock" key simultaneously to lock or unlock the keypad of the centralized controller.

(1) Query key QUERY

Any time when you press the key, the selected operation mode is to query the operational state of the air conditioner.

By default, the first in-service air conditioner will be queried.

(3) Setting key SET

In other display modes, press this key can enter the setting mode.

By default, it is a single setting, and the first in-service air conditioner is displayed. In setting the operation mode, press this key again, and the operation will be performed for all air conditioners in the network. Press the key repeatedly to shift between a single setting and global setting.
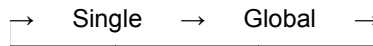
$$\rightarrow \quad \text{Single} \quad \rightarrow \quad \text{Global} \quad \rightarrow$$

(4) Mode key MODE

Under the setting operation mode, press this key to set the operation.

$$\rightarrow \text{cooling} \rightarrow \text{heating} \rightarrow \text{Fan only} \quad \rightarrow \quad \text{off} \quad \rightarrow$$

(5) Fan key FAN
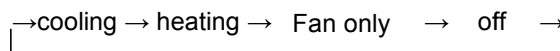
Under the setting operation mode, press this key to set the fan of the indoor unit to run in the automatic, high, medium or low level of air.

$$\rightarrow \text{auto} \quad \rightarrow \text{low} \quad \rightarrow \quad \text{medium} \quad \rightarrow \quad \text{high} \rightarrow$$
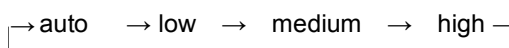
(6) Time on key ⏰ TIME ON

Under the setting operation mode, press this key can set the timing to turn on the air conditioner; press this key again can exit the timing setting, and restore the normal temperature regulation operation mode

(7) Time off key ⏰ TIME OFF

Under the setting operation mode, press this key can set the timing shutdown of air conditioner, press this key again will exit the timing setting, and restore the normal temperature regulation operation mode.

(8) Swing key SWING

Under the setting operation mode, press this key can enable or disable the swing function. If all currently selected air conditioners have no swing function, no effect will result after pressing the key.

(9) Leftward key ◄

In the query mode, if this key is pressed, the operation state data of the previous air conditioner will be displayed. If it is currently on the first machine, the data of the last machine will be displayed, when the key is pressed. If you hold down this key, the address will decrease one by one. In the setting mode, if it is in single operation mode, the air conditioner of the previous in-service address number will be selected, when this key is pressed, if it is in the global operation mode, no effect will result when this key is pressed. In the main page, press the key to enter the query mode. By default, it is the first in-service air conditioner.

(10) Rightward key ►

In the query mode, when the key is pressed, the next in-service air conditioner is selected, and its operational state data will be displayed. If it is currently on the last air conditioner, the first one is selected and its data displays, when the key is pressed. If this key is long pressed, the address will increase one by one.
In the setting mode, if it is in the single operation mode, when the key is pressed, the next in-service air conditioner will be selected. If it is in the global operation mode, no effect will result when the key is pressed.
In the main page, press the key to enter the query mode. By default, it is the first in-service air conditioner.

(11) Downward key ▽

In the main page, press this key can enter the query mode. By default, it is the first in-service air conditioner. In any other time, press this key ▽ will select the next row corresponding position air conditioner.
In the setting mode, if the global operation mode is selected, this key is invalid. If it is on the last row, press this key again to shift to the first row air conditioner. If this key is long pressed, the row will increase one by one.

(12) Upward key △

In the main page, press this key can enter the query mode. By default, it is the first in-service air conditioner. In any other time, press this key will select the previous corresponding position air conditioner.
In the setting mode, if selected all the air conditioners to operate, this key is invalid.
If it is on the first row, press this key again, and shift to the last row corresponding air conditioner.

If you hold down this key, the row will decrease one by one.

(13) Add key INC

1) Query mode:

Press this key, display the data of the last page. If it is now in the last page, press this key again and the first page will be displayed.

2) Setting operation mode

①Temperature adjusting method

Press this key; the setting temperature will increase 1℃. If you hold down the key " INC ", the setting temperature will increase one by one.

When reached the highest allowed to set temperature, it cannot increase.

② Timing on or timing off setting method

Press this key " INC ", it will select the next setting time. If you hold down this key, the next data will be selected one by one. When reached the max. allowed setting time, it cannot increase.

(14) Reduce key DEC

1) Query mode

Press this key "DEC", display the data of the previous page. If it is now in the first page, press is key again and the last page will be displayed.

2) Setting operation mode

① Temperature adjusting method

Press this key "DEC", the setting temperature will decrease 1℃. If you hold down this key, the setting temperature will decrease one by one. When reached the lowest allowed set temperature, it cannot decrease.

② Timing on or timing off setting method

Press this key "DEC", it will select the next setting time. If you hold down the key "DEC", the next data will be selected one by one. When reached the min allowed setting time, it cannot decrease.

(15) ON/OFF key

Any time when you press the key, the centralized startup/shutdown operation is performed for all current in-service air conditioners in the centralized controller network.

(16) Confirmation key OK

In the setting mode, press this key can send the currently selected mode state and the auxiliary function state to the selected air conditioner.

(17) Reset key RESET

Any time when the reset key is pressed, the centralized controller will reset. The result is the same as the result

of restoring power-on after power failure.

(18) Lock key 🔒 LOCK

Any time when this key is pressed, the selected air conditioner can be locked or unlocked.

3.2.2 LCD display

Full display of LCD

Display operation status:Query, setting, grouping, operation.

Communication status

Swing function

Electric auxiliary heating function

Ventilation

Telephone module communication

Dewetting function

Fault and protection code

SMS modeule mommunication

Function module communication

Computer communication

setting mode

OPR. UNSUCCESS

Key locking

Remote controller locking

Heating mode locking

Cooling mode locking

Temperature parameter

Timing ON/OFF mark

Mode selection: Auto, cooling,heating Fan speed

Hour

Indoor temperature

1. The matrix is composed of 4*16 grids and each grid is composed of two blooks of different sizes. 2. The matrix include horizontal coordinates 00-15 and vertical coordinates 00+, 16+,32+and 48+, which indicate the address of the indoor unit. The sum of the horizontal coordinate and the vertical coordinate of the grid is the address of the grid. Each grid corresponds to an indoor unit of this address.

3.2.3 Other operations

※ Various locking functions

1. Centralized controller locking

The centralized controller locking state will be recorded when powered off. It won't dismiss when re-power on until receiving the unlocking order.

1) Effect

① When the centralized controller is under locking state, it cannot change the air conditioner's operating state through the centralized controller (such as ON/OFF the unit, setting mode, change the setting temperature, change the fan speed, unlock the exiting locking state etc.), but it can do the query operation, until unlocking and then recover to normal.

② When the centralized controller is under the locking state, all the air conditioners in the centralized controller network will be remote controller locked.

2) Operation

① Locking

The centralized controller can be locked by the computer only.

② Unlocking

a) When the centralized controller and computer communicate normally

The centralized controller can be unlocked by the computer only. When the centralized controller is unlocked, the controller will send the order to unlock the remote controller locking of all the air conditioners.

b) When the centralized controller and computer communication abnormally

When the centralized controller is locking, the centralized controller can be unlocked by the way that the press QUERY key and holds on, then press MODE key (it should operate within one minute after centralized controller is re-powered on or the RESET key is pressed).

The remote controller locking of the air conditioner is remained.

2. Remote controller locking

1) Effect

① When the air conditioner is under remote controller locking state, it will not receive the remote signals from remote controller or wired controller, until unlocking.

② The air conditioner can be operated by the centralized controller.

2) Operation

① Can lock or unlock through the computer.

② Can operate by a centralized controller.

In the centralized controller setting interface, press LOCK key to lock or unlock.

If the current state is remote controller locking, press the key to unlock.

If there's no remote controller locking, press the key to lock.

3. Mode locking

1) Effect

Under the mode locking state, only can choose the mode which hasn't conflict with locking mode through centralized controller to operate the air conditioner,

2) Operation

Can set the heat and cool mode lock or not

Under mode locking state, if set the new mode locking, it must be unlocking first, then can operate the new mode locking.

① Can lock or unlock through the computer.

② Can operate by a centralized controller.

In the centralized controller setting interface, choose all the air conditioners of the centralized controller network as the object, press Upward key and hold on, then press LOCK key to do the mode locking or unlocking.

If the current state is mode locking, press the key to unlock.

If there isn't a mode of locking, press the key to lock.

※ Power on or reset

When the centralized controller is powered on or resets by the RESET key:

The buzzer long buzz for 2 seconds: all display segments of the LCD are luminous for 2 seconds and then goes off;

1 second later, the system enters normal display state. The centralized controller is in the main page display state and displays the first page, and searches the in-service air conditioners in the network.

Once the search is finished, the centralized controller enters the mode setting page, and sets the first in-service air conditioner by default.

※ Emergency stop and forced on

When the emergent stop switch of the centralized controller is connected, all the air conditioners in the centralized controller network will be shut down compulsorily, and the LED flashes as 0.5Hz.The centralized controller and computer and all functional modules are disabled from startup and shutdown until the emergent stop switch is broken. When the forced on the switch of the centralized controller is connected, all air conditioners in the network of the centralized controller will start up compulsorily. By default, they will run before the power failure mode.

The startup and shut down operations of the centralized controller and computer and all functional modules will be disabled (only the command of a startup is sent to the air conditioner, without affecting operation of the remote controller after startup) until the forced on the switch is broken.

If the foregoing two switches are connected concurrently, the emergent stop switch shall have preference.

※ **ON and OFF operation**

Use the "OK" key or "⏻" key can turn on and turn off the air conditioners in the centralized controller network. The ON mode will accord to the system mode locking or other limit conditions for judging, if there is conflict, it will auto adjust to the next mode without conflict; if all the modes have a conflict, then it cannot operate the unit.

※ **Use "OK" key to TURN ON and TURN OFF the unit**

Press this key can operate a single air conditioner or all the air conditioners in the centralized controller network.

1) Choose the object. Press SET key to choose a single air conditioner or all air conditioners in the centralized controller network. If choose a single air conditioner, then use the keys ◀, ▼, ◀ and

▶ can choose the air conditioner.

2) Use "MODE", "FAN", "ADD" and "Reduce" key to set the operating mode and operating parameters, such as fan speed, setting temperature etc.

3) Use " OK " key, centralized controller sends the relative order to the operating object.

After setting the operating parameter for the air conditioner, if not press the key " OK ", the setting parameter will not be sent to the air conditioner, and the current operation of the air conditioner is not affected (except locking operation).

※ **Use "⏻" key to TURN ON and TURN OFF the unit**

Only can operate all air conditioners, not for single in the centralized controller network:

Long press "⏻" key: press this key for over 2 seconds then loose.

Short press "⏻" key: press this key and then loose within 2 seconds.

According to different states and operation ways of air conditioners in the current centralized, there are following situations:

1) If there are one or more air conditioners is under ON state (include timing process of timing ON and OFF), "⏻" key only short press effective.

Only sends the shutdown order to the air conditioner which under the ON state, and if the unit is under the OFF state, the controller will not send OFF order to it.

The memory function is activated; the current state of all air conditioners is memorized.

2) All the air conditioners in the centralized controller network are OFF states.

① Short press "⏻" key

The centralized controller reads the memory contents, and sends relative order to all air conditioners.

② Long press "⏻" key

a) If current page is setting parameters, and the setting mode is not OFF, the centralized controller will send orders to all air conditioners according to parameters, such as setting mode, fan speed, setting temperature, etc.

b) If the current is under setting interface but the setting mode is OFF state or under other interfaces, the centralized controller will send the default ON order to all air conditioners. The default ON order is: cooling mode, high fan speed, setting temperature is 24℃ or 76℉, operates the swinging function.

※ **Air filter cleaning remind display description**

1) The centralized controller records the total running time of the indoor unit.

When the accumulated running time reaches the pre-set value, the reminding dual "88" (as show in c part of the Fig. A) will display "FL" to remind users that the air filter of the indoor unit need to be cleaned.

When the centralized controller displays FL, it needs to manual operation to clear the icon. Press SWING key and hold on then press QUERY key "", can clear FL reminding.

At the same time, the accumulated time of centralized controller powered on will be cleared.

a. Function selection   b. Parameter selection   c. Reminding   d. "Set successfully" reminding
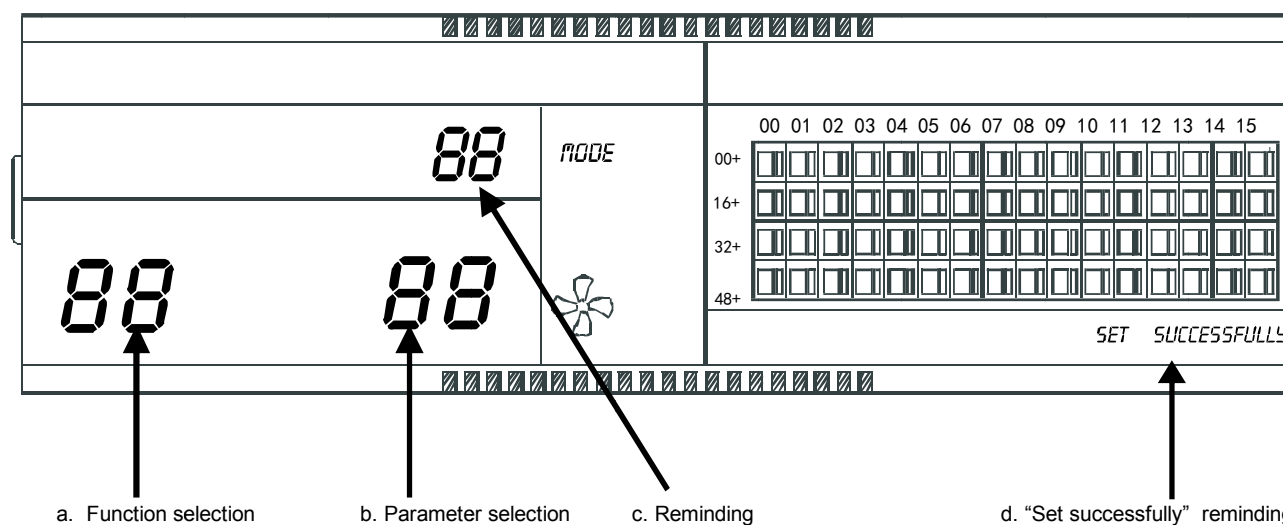
Fig. A

2) Function setting

① Dial the dial code 3 to "ON" (refer to table 2.3), and when controller power on within 1 minute, press QUERY key and FAN key together will enter the optional function setting page. The icon 88 (as show in b part of the Fig. A) will be flashed with 1Hz frequency (default display 00), and users can choose the function from table 2.2.

Press "INC" and "DEC" keys can select function, and then press "OK" key to enter parameter selection.

② After entering parameter selection, the function selection icon 88 (as show in a part of the Fig. A) will be lighted on; the parameter selection icon 88 (as show in b part of the Fig. A) will be flashed with 1Hz frequency and display optional parameter code. Through pressing "INC" and "DEC" keys can select the detailed parameter.

③ Press "OK" to confirm parameter selection (details parameter codes' corresponding time refer to table 2.3).

④ After setting successfully, the function selection icon 88 and parameter selection icon will be lighted on, the screen will display "Setting successfully" (as show in b part of the Fig. A). After 3 seconds will exit

optional function setting automatically, and the screen will be back to normal display. After entering optional function setting, no operations in 5 seconds will exit function selection automatically, the setting parameter will not change. Only press "OK" key to confirm the parameter then the setting parameter will save.

Table 2.1: The code of selecting the clear filter function

Function code	Function setting
00	Only display, no function
01	Cleaning filter screen reminding

Table 2.2: The code of different times of reminding clear filter

Parameter code	Time (hour)
00	0
01	1250
02	2500
03	5000
04	10000

※ **Dial code operation specification**

Dial code 1
Dial code 2
Dial code 3
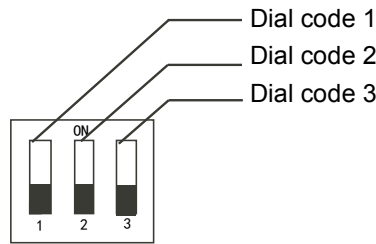
Table 2.3

	ON	OFF
Dial code 1	CCM30 for 3-pige	CCM30 for 2-pige
Dial code 2	Fahrenheit	Centigrade
Dial code 3	With the optional function	No the optional function

Notes:

1. For the new series product, we can connect the indoor CCM controller via XYE port of master outdoor unit of every refrigerant system. Notice that in this case, the outdoor unit must be set to auto addressing mode. And it will be effective after about 6 minutes.

2. To connect indoor CCM controller via XYE port of indoor unit, this wiring method is suitable for all type of indoor units, not just for new indoor units.

3. When new indoor units and old indoor units mix connect to one refrigerant system, we can just connect the indoor CCM controller via XYE port of indoor units. If we connect the indoor CCM controller via XYE port of master outdoor unit, the CCM controller cannot control old indoor units.

4. If one system that connect to indoor CCM controller include 10 HP or above duct indoor unit, we recommend you set the address of every indoor unit manually.

3.2.4 Fault and protection codes

Fault code	Content
EF	Other faults
EE	Water level detection malfunction
ED	Reserved
EC	Cleaning malfunction
EB	Inverter module protection
EA	Current of compressor is too large (4 Times)
E9	Communication malfunction between main board and display board
E8	Wind blowing speed is out of control
E7	EEPROM error
E6	Detection of current direction alternating is abnormal
E5	T3 or T4 senor of discharge of compressor fails down
E4	T2B sensor malfunction
E3	T2A sensor malfunction
E2	T1 sensor malfunction
E1	Communication malfunction
E0	Phase sequence disorder or loss of power phase
07#	/
06#	/
05#	/
04#	/
03#	Communication malfunction between centralized controller and PC(gateway)
02#	Communication malfunction between centralized controller and functional module
01#	Communication malfunction between centralized controller and network interface module
00#	Communication malfunction between network interface module and main control board

Protection code	Content
PF	Other protection
PE	Reserved
PD	Reserved
PC	Reserved
PB	Reserved
PA	Reserved
P9	Reserved
P8	Compressor's current is too large
P7	Voltage of power supply is too high or too low

P6	Pressure of discharge is too low
P5	Pressure of discharge is too high
P4	Temp. of discharge pipe is abnormal
P3	Temp. of compressor is abnormal
P2	Condenser high-temperature protection
P1	Anti-cool air or defrost protection
P0	Evaporator temperature protection

3.2.5 General display data entries

1) General display data is displayed in all display pages.

- Under the interconnected control of the computer or gateway, the data is displayed in graphic (🖥). Otherwise, no data is displayed.

- If the centralized controller is connected with the functional module for communication, the data is displayed in graphics (🖳). Otherwise, no data is displayed.

- If the centralized controller is connected with the SMS remote control module for communication, the data is displayed in graphics (📱). Otherwise, no data is displayed.

- If the centralized controller is connected with the telephone remote control module for communication, the data is displayed in graphics (☎). Otherwise, no data is displayed.

- In normal operation of the centralized controller, the periodical cycle module communicates with the network interface module, and the data is displayed dynamically and cyclically: (blank), ◦ , 📶 , 📶 .

- In the centralized control locked state or the keypad locked state, the locking flag (🔒) is displayed. After unlocking, it is not displayed. In the centralized controller locked state or the keypad locked state, the locking flag is displayed constantly. If both of them are locked concurrently, the locking flag is displayed constantly.

- In the setting page, if the selected air conditioner is in the remote controller locked state (in case of non-single unit operation, as long as one unit is in the remote controller locked state, it is deemed the locked state), the flag (🔒) is displayed constantly.

- If all indoor units lock the cooling mode, this flag (🔒) will display, and if all indoor units lock the heating mode, the flag (🔒) will display.

2) Data display handling

- Indoor unit code (address) display: display range: 00~63, and with # being luminous concurrently.

- Indoor temperature display: display range: 00~99°C (or 99℉). The indoor temperature is displayed concurrently. If the temperature is higher than 99°C (or 99℉), 99°C (or 99℉) will be displayed. If the temperature value is invalid, '--'will be displayed.

- If timing startup or shutdown is set, the flag (🕐) is displayed.

- T3, T2A and T2B display: in the single-machine query page, display can shift between T3, T2A and T2B; by the way, the temperature value is displayed concurrently, with the corresponding °C being luminous.
- In case of air conditioner fault or protection, the corresponding fault or protection code, the corresponding fault or protection code can be displayed.
- Liquid crystal matrix display description:

The liquid crystal matrix is composed of 4×16 grids, and each grid is composed of two blocks of different sizes. The matrix includes horizontal coordinates 00~15 on the upper side and vertical coordinates 00+, 16+, 32+ and 48+ on the left side, which indicate the address of the indoor unit. The sum of the horizontal coordinate and the vertical coordinate of the grid is the address of the grid. Each grid corresponds to an indoor unit of this address. One grid is composed of two blocks of different sizes. The state indication table is as follows;

	Constantly on	Slow blink		Fast blink
Big black block	In-service	Selected		Out of service
Small black block	Power on		Fault of indoor or outdoor unit	Power off

3) LCD display description

- **Description of the main page**

The LCD displays the main page, 60 air conditioners are in service, of which 28 are powered on and 32 off.

In the matrix, the bid dots from (16+, 00) to (32+, 15) are luminous, and the small dots are not luminous. It indicates the 32 air conditioners with the addresses from 16 to 47 are powered off.

In the matrix, the big and small dots from (48+, 09) to (48+, 12) are not luminous. It indicates the four air conditioners with the address from 57 to 60 are outside the network.

All other big and small dots in the matrix are luminous. It indicates all other air conditioners are in the network and powered on.

The address of the air conditioner is sum of the coordinates. For example, the address of (48+, 09) is 09+48=57.

The centralized controller keypad is locked, and the centralized controller communicates with the computer normally.

● **Description of the query page**

The LCD displays the query page, and the air conditioner with the address of 01 is being queried. Mode of the air conditioner with the address 01 is cooling, high speed air supply, swing on, indoor temperature 22°C, setting temperature 20°C and cooling mode locked.

In the matrix, only the big and small black dots at (00+, 00) and (00+, 01) are luminous. It indicates the in-service and power-on state of the air conditioners with the addresses of 00 and 01.

The centralized controller communicates with the computer normally.

● **Description of the setting page**

The LCD display displays the setting page, and queries the air conditioner with the address of 01.

The mode of the air conditioner with the address 01 is: Cooling, high fan speed, swing on, setting temperature 22°C and cooling.

In the matrix, only the big black dots at (00+, 01) to (00+, 15) are luminous. It indicates the air conditioners with the addresses 01 and 15 are in service.

The centralized controller communicates with the computer normally.

● **Fault page display description**

(display panel showing)

QUERY

08 #   ERROR 08 #   MODE ❄

ROOM.TEMP   SET.TEMP

28°C   22°C   FAN

	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
00+	▯▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯
16+	▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯ ▯
32+	
48+	
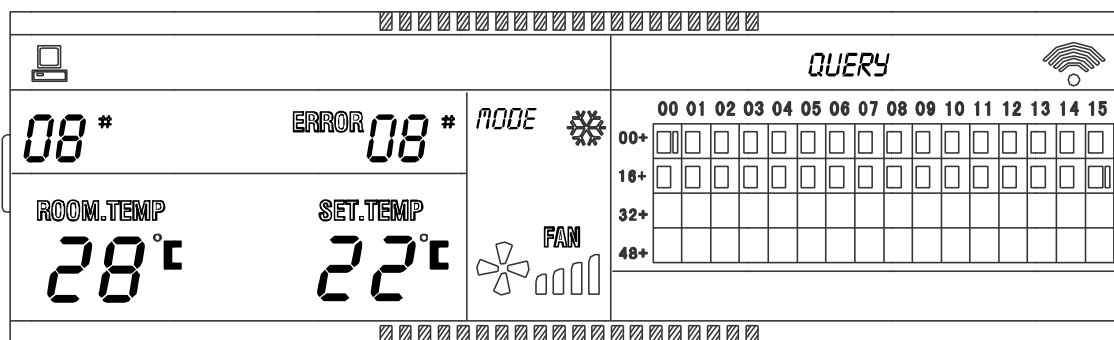
Query the air conditioner with the address of 08 in the query page.

The air conditioner with the address of 08 is faulty, and fault code is 08. The big black dot below (00+, 08) blinks.

In the matrix, only the big and small black dots at (00+, 00) and (16+, 15) illuminate. It indicates the in-service state of the air conditioner power on, with the addresses 00 and 31.

The centralized controller communicates with the computer normally.

3.2.6 Centralized controller installation

※ **Dimensions (Unit: mm)**

There are two kinds of appearance for your choice. The main difference is the controller cover and you can choose you like.

(1) The structure A must be embedded into the wall of the installation mode, taken from the walls of the interior wiring way would be more appropriate; and you must reserve a chisel installation on the wall before installation.

(2) The structure B does not need to be embedded into the wall, playing four mounting screw mounting and shape is a regular cuboid, can also like the old structure embedded in the wall mounted, connecting line from the set control above and below, and a rear leading-out.

CCM30/BKE-A   CCM30/BKE-B
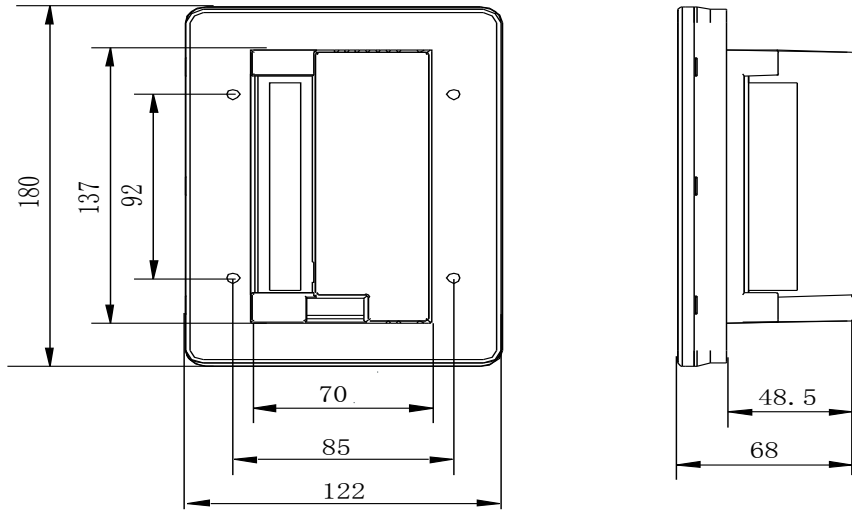
CCM30/BKE-A
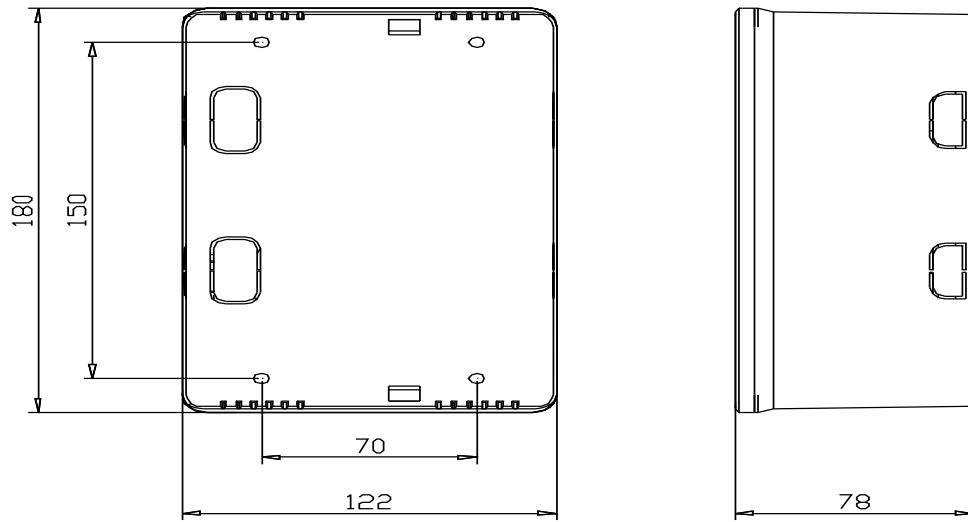
CCM30/BKE-B

※ **Installation diagram**

Insert the flathead screwdriver into the
concave on the upper side of the box,
and rotate slightly to open the upper cover(3 places).

Fix the screws of the centralized controller
（GB845/ST3. 9*25）

Base

Dial code

Address dial code

Front cover

Dial code position	Address range
~	00 ~ 15

※ **Terminal instruction**

X Y E F1 F2 E FORCED ON ENG.S TOP L N

L and N port
198V~242V (50 / 60HZ)

Emergent stop switch

Emergent start switch

Communication port with computer

Communication port with indoor unit

3.3 Weekly schedule timer centralized controller: MD-CCM09

MD-CCM09 is designed base on the CCM03, max. 64 indoor units control, weekly schedule timer function. With the function above, CCM09/E can't be connected to the network control system. And actually it does not have the port F1, F2, E, which are needed if connects to the computer.

3.3.1 System configure

MD-CCM09 is only an indoor unit centralized controller, but with this device we could set the indoor unit's functions compactly and conveniently.

1. All the indoor units and outdoor units are V4 plus series, the topology of the network can be as follows. Moreover the 2nd way of connecting is also adaptable in this condition.

2. The indoor units contain any V4 series, wiring connection method is as follows.
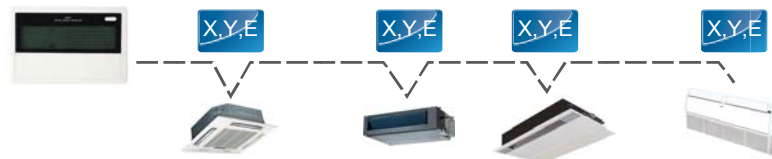
MD-CCM09 controller needs connecting it with other indoor units in a hand-in-hand way, which is the same connecting way with MD-CCM03. For the 2nd type of topology, either of the connecting ways below is available.

Notes:

1. For the new series product, we can connect the indoor CCM controller via XYE port of master outdoor unit of every refrigerant system. Notice that in this case, the outdoor unit must be set to auto addressing mode. And it will be effective after about 6 minutes.

2. To connect indoor CCM controller via XYE port of indoor unit, this wiring method is suitable for all type of indoor units, not just for new indoor units.

3. When new indoor units and old indoor units mix connect to one refrigerant system, we can just connect the indoor CCM controller via XYE port of indoor units. If we connect the indoor CCM controller via XYE port of master outdoor unit, the CCM controller cannot control old indoor units.

4. If one system that connect to indoor CCM controller include 10 HP or above duct indoor unit, we recommend you set the address of every indoor unit manually.

3.3.2 LCD display
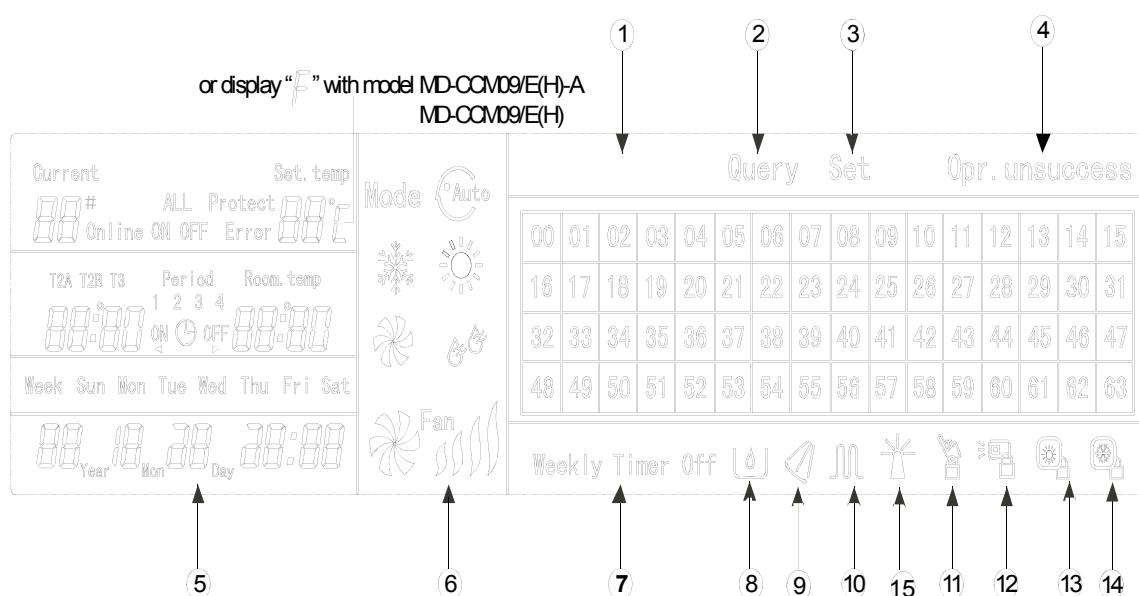
1	On-line conditioner matrix table of A/C 0-63	8	Economy run
2	Query	9	Swing
3	Set	10	Electric auxiliary heater
4	Operate result	11	Locking keyboard
5	Date time	12	Remote controller locking: does not respond signal from remote controller.
6	Run mode	13	Heating mode locking: only heating mode is effective.
7	Weekly-timer off	14	Cooling mode locking: only cooling mode is effective
15	Indoor unit malfunction		

3.3.3 LCD icon description

Icon	Meaning	Icon	Meaning
Auto	Auto mode	❀	Fan only mode
❄	Cooling mode	Dry	Dry mode
☀	Heating mode	Fan	Fan speed
⌇⌇⌇	Electric auxiliary heating	🔒	Lock heat mode
🔒	Lock cool mode	🔒	Wireless controller lock
🔒	Lock keyboard	Set	Set mode
Query	Query mode	Opr. unsuccess	Operating result
Weekly Timer Off	Weekly timer off	ALL	All units are selected
Online	Online state	Protect	Protection code follows
Error	Error code follows	Set. temp	Set temperature
Period 1 2 3 4	Corresponding period	Room. temp	Room temperature
T2A	Temp. of the middle of evaporator	T2B	Temp. of the outlet of the condenser
T3	Temp. Of outdoor pipe	Mon	Monday
Tue	Tuesday	Wed	Wednesday
Thu	Thursday	Fri	Friday
Sat	Saturday	Sun	Sunday

● The main interface of the weekly-timer central controller (user interface)

1) Under the other pages, press `Cancel` to return to the main interface.

2) Under the other pages, automatically return to the main interface when no operation for a period of time.

3) The main interface displays the on-line condition of the indoor unit.
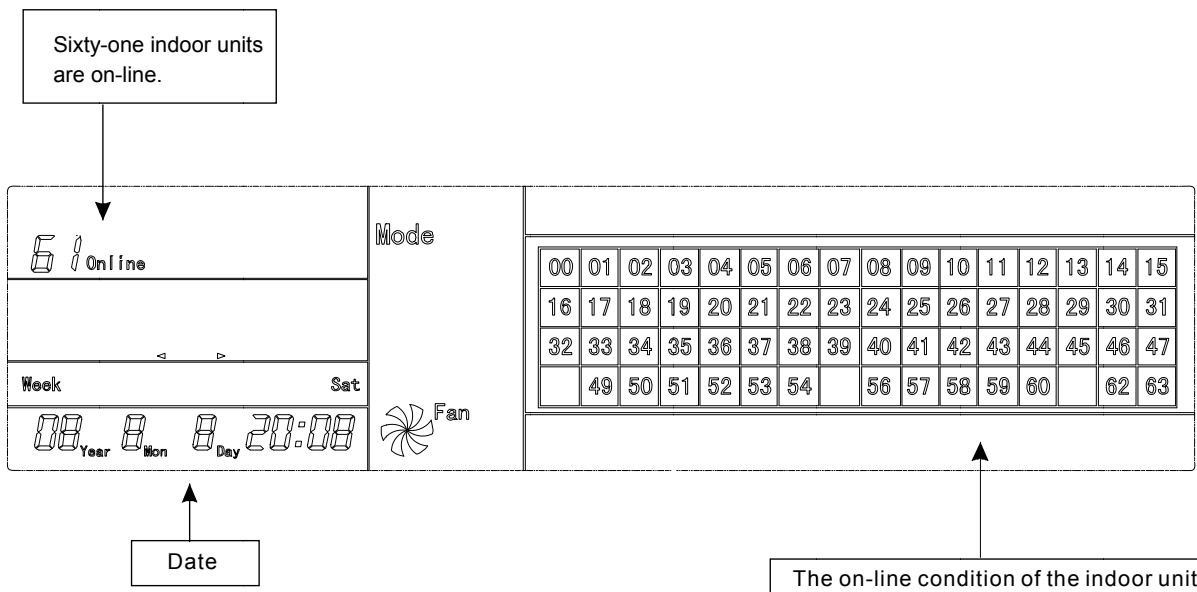
Sixty-one indoor units are on-line.

```
61 Online                    Mode
                                   ┌────────────────────────────────────────────────┐
                                   │00│01│02│03│04│05│06│07│08│09│10│11│12│13│14│15│
                                   │16│17│18│19│20│21│22│23│24│25│26│27│28│29│30│31│
          ◁    ▷                   │32│33│34│35│36│37│38│39│40│41│42│43│44│45│46│47│
Week              Sat              │  │49│50│51│52│53│54│  │56│57│58│59│60│  │62│63│
                         Fan       └────────────────────────────────────────────────┘
08 Year 8 Mon 8 Day 20:08
```

Date

The on-line condition of the indoor unit

● Setting interface of single weekly-timer central controller

1) Under the main interface, press `Set` ect to the single setting interface.

2) Automatically return to the main interface when no operation for a period of time.

3) Set the running state of single air conditioner under this page.

Indoor Net-address

Set temprature 20 degree

Cool

Setting

Set Successfully

```
                              Set. temp                    Set    Opr.   success
08 #                          20℃      Mode
                              Room. temp ❄       ┌────────────────────────────────────────────────┐
                              28℃                │00│01│02│03│04│05│06│07│08│09│10│11│12│13│14│15│
          ◁    ▷                               │16│17│18│19│20│21│22│23│24│25│26│27│28│29│30│31│
Week              Sat                          │32│33│34│35│36│37│38│39│40│41│42│43│44│45│46│47│
08 Year 8 Mon 8 Day 20:08    Fan              │48│49│50│51│52│53│54│55│56│57│58│59│60│61│62│63│
                                               └────────────────────────────────────────────────┘
```

Room Temprature 28 degree

High Speed
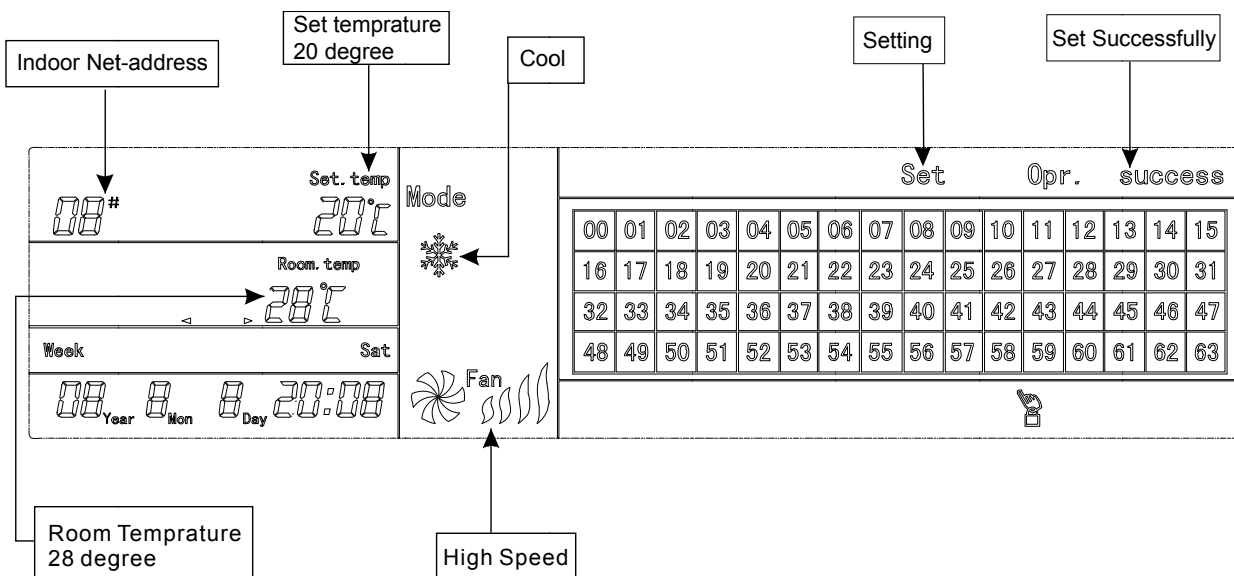
● Setting interface of weekly timer parameters of single weekly-timer central controller

1) Under the main interface, press [Program] to display the parameter setting interface of single weekly timer.

2) Automatically return to the main interface if no operation is performed for a period of time.

3) Under this page, set the weekly timer parameters of single air conditioner, including startup time, shutdown time, the running mode of this period, temperature and wind speed.

4) One air conditioner can be at most set with four periods in one day from Monday to Sunday.
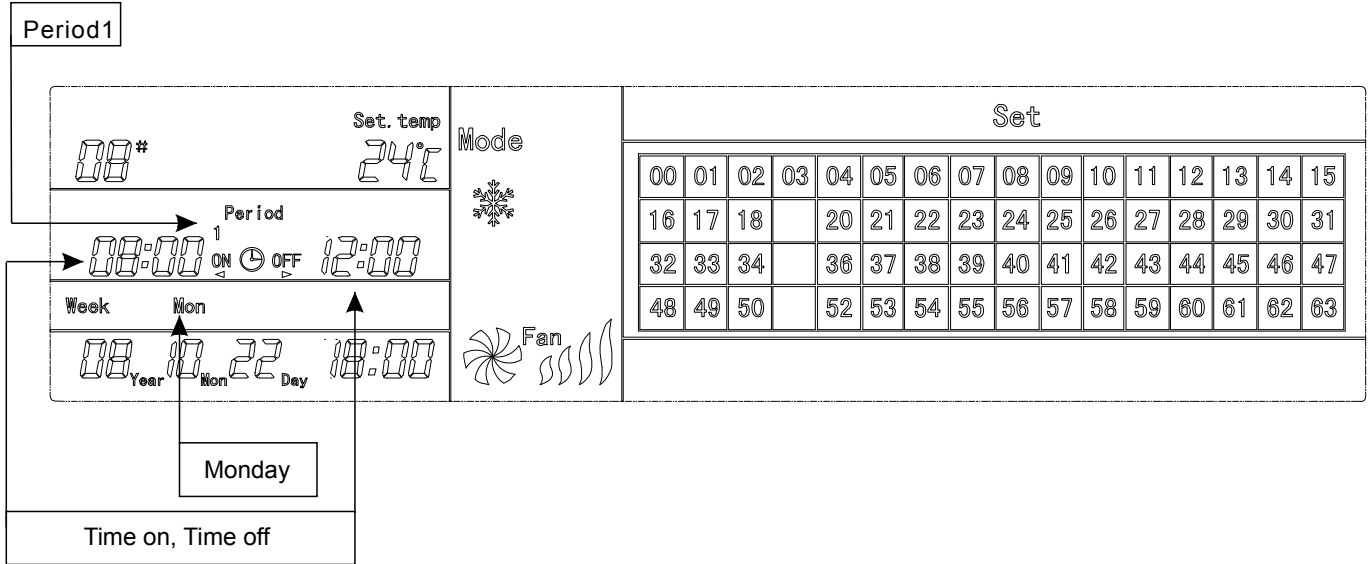
● Unified setting interface of the weekly-timer central controller

1) Under the main interface, press [Set] to display the unified setting interface.

2) Automatically return to the main interface if no operation is performed for a period of time.

3) Set the running mode of all air conditioners under this page, including mode, temperature and Fan speed.
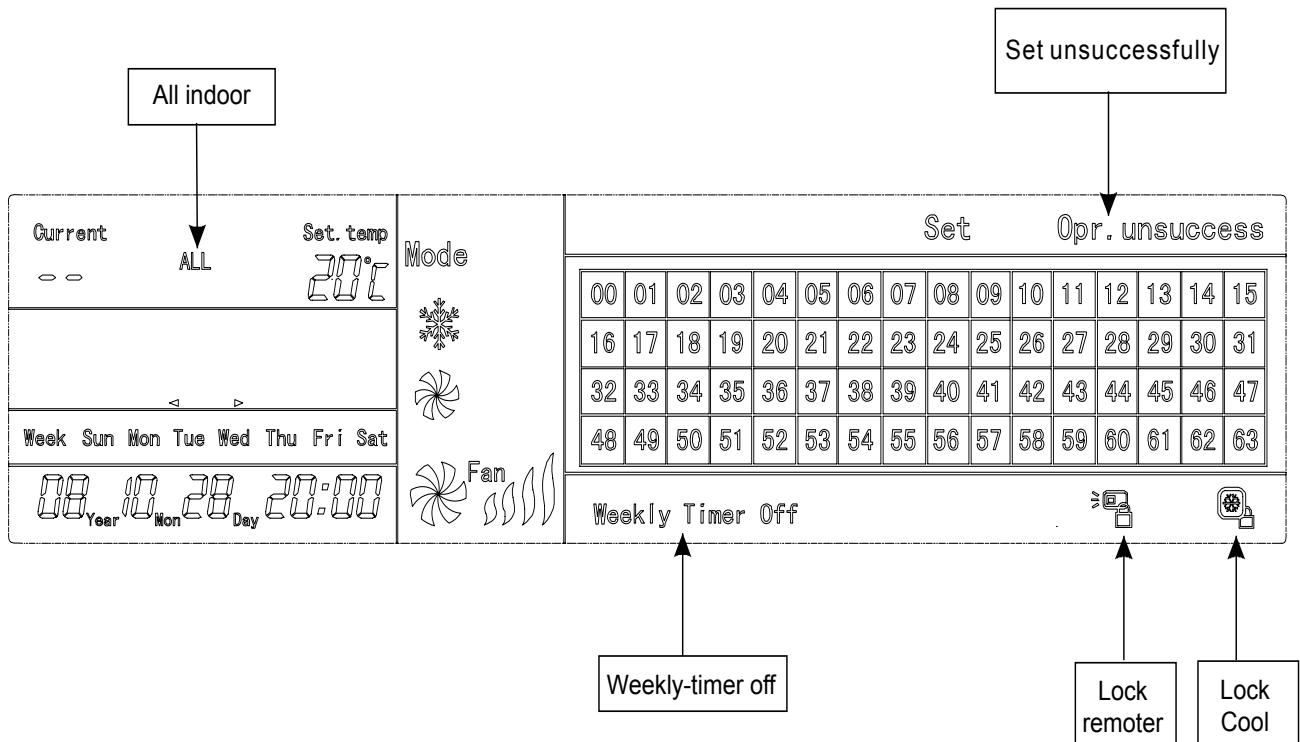
3.3.4 Button names
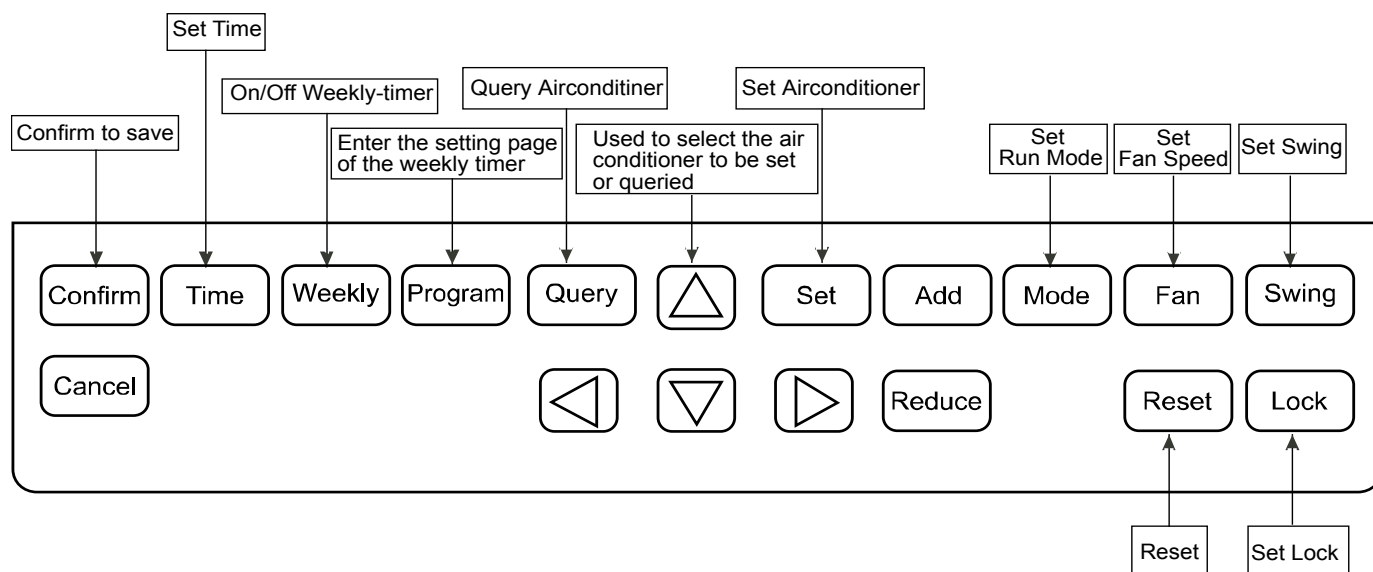
1) On/Off button

Press the ON/OFF button. All air conditioners will be shut down if they are running; on the contrary, they will be started up. If you press the button for less than 5 seconds, the startup mode is the last running mode of the air conditioner. If you press the button for more than 5 seconds, the startup mode is cooling, fan runs at high speed, and the set temp. is 24 degrees.

2) SET button

Press the SET button, and then select set single or set all. Set single indicates to set the parameter (such as mode/ temperature/fan speed/ weekly timer) of a single selected air conditioner. Set all indicates to set the parameter of all air conditioners controlled by the central controller.

3) Query button

Press the Query button can query the running condition of the unit, such as on or off, temperature setting, indoor temperature, fan speed and running mode. Press direction buttons (Up, Down, Left and Right button) can select the unit which you want to query.

4) Up, Down, Left, Right buttons (Direction buttons)

When querying or setting the indoor units, press these four buttons to select the indoor units that we need to set or queried. When setting the weekly timer, it is used for selecting the day of the week and the time of startup and shutdown.

5) Add button

When querying the indoor unit, press the Add button can query more parameter of the indoor unit. When setting the indoor unit, it is for adjust the setting temperature. When setting the weekly timer, it is for adjust the time of startup and shutdown.

6) Reduce button

When querying the indoor unit, press the "Reduce" button to query more parameter of the indoor unit. When setting the indoor unit, it is for modifying the setting temperature. When setting the weekly timer, it is for modifying the time of startup and shutdown.

7) Mode button

When setting the indoor unit, it is used for setting the running mode of the indoor unit which includes auto, cooling, heating, fan mode, dry and shutting down.

8) Fan button

When setting the indoor unit, it is for setting the wind speed of the indoor unit which includes high speed, middle speed, low speed and automatic speed.

9) Swing button

In setting the indoor unit, it is for setting the swing function of the indoor unit.

10) Lock button

When setting, press the Lock button to lock the remote controller of all or single indoor unit. Press the Query button and hold under the main page, then repress the Lock button again to lock the keyboard of the central controller; press the Mode button and then press the Lock button again will lock the running mode.

11) Reset button

The central controller re-scans the indoor unit in the network as recharging after power off.

12) Program button

Under the main page, press the Program button can set the weekly timer of single or all indoor units. Press the Query button and hold, and then press the Program button to query the weekly timer parameters.

13) Weekly button

Under the main page, press the Weekly button can start up or shut down the weekly timer function.

14) Time button

Under the main page, press the Time button for 5 seconds can enter the time-modifying state, and then press Add or Reduce button will change the setting time. Press Left or Right can select minute/ hour/ day/ month/ year. Finally, press the Confirm button to save the modification.

15) Confirm button

Save data and send the command required to the indoor unit, such as setting the mode of the air conditioner.

16) Cancel button

Cancel the last operation and return to the last interface.

3.3.5 Operating the centralized controller

(1) How to set the running state of the air conditioner?

Under the main interface

1. Press ⌐Set⌐ to enter the setting status interface of single air conditioner. Press the button repeatedly to select Single and All alternately, display "Set".　　　　⌐△⌐
If you select Single, press ⌐◁⌐ ⌐▽⌐ ⌐▷⌐ to select one.

2. Selecting "All" indicates to set the running status of all air conditioners, and "All" is displayed. Selecting "Single" displays the address of the air conditioner; for example, if the air conditioner whose address is 12 is selected, "12#" is displayed.

3. Press ⌐Mode⌐ to select running mode: automatic, cooling, heating, air supply, dehumidification, or shutdown. If you select "Shutdown" mode, press ⌐Confirm⌐ to send shutdown command, finishing shutdown setting.

4. If you select the cooling or heating mode, press ⌐Add⌐ ⌐Reduce⌐ to adjust the temperature (the scope is within 17-30 degree). No temperature adjustment for other modes.

5. Press ⌐Fan⌐ to regulate wind speed, which can be selected among automatic speed, low speed, middle speed and high speed.

6. Press ⌐Swing⌐ to open or close swing。

7. Press ⌐Confirm⌐ to save the above setting and send to the corresponding air conditioner, finally finish setting.

(2) How to query the running state of the air conditioner?

(Under the main interface)

1.Press [Query] to enter the query status of single air conditioner, display "Query";
Press [△] to select one air conditioner.
[◁] [▽] [▷]

2. Press [Add] [Reduce] to view more parameters of the air conditioner.
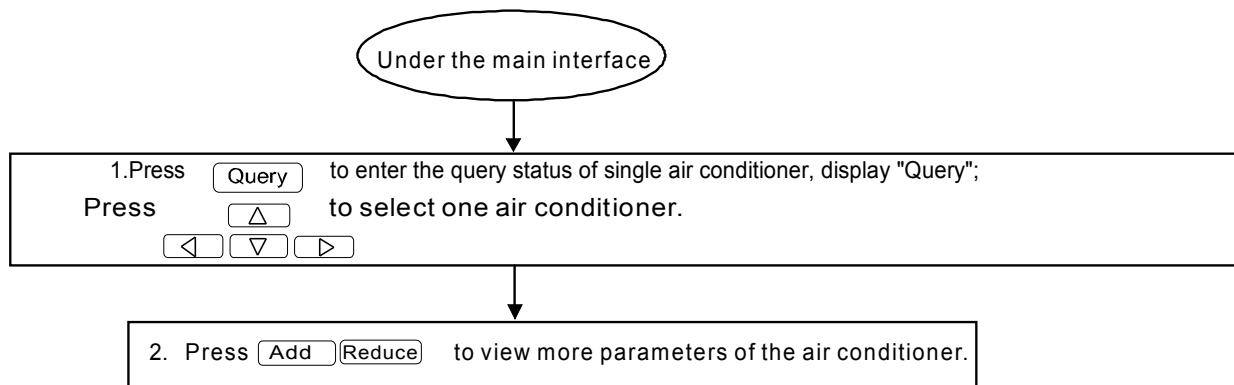
(3) How to lock and unlock the remote controller of the air conditioner?

(Under the main interface)

1. Press [Set] to enter the setting status interface of single air conditioner, press the button repeatedly to select "Single" and "All" alternately, displaying "Set" . If you select "Single" , press [△] to select one.
[◁] [▽] [▷]

2. Selecting "All" indicates to set the running status of all air conditioners, and "All" is displayed. Selecting "Single" displays the address of the air conditioner; for example, if the air conditioner whose address is 12 is selected, "12#" is displayed.

3. Press [Lock] to send the lock or unlock command of the remote controller to the corresponding air conditioner and finish setting.

(4) How to lock and unlock the mode of the air conditioner?

(Under the main interface)

1. Press and hold [Mode], then press [Lock], enter the setting interface of the mode-locking.

2. press [◁] [▷] to select cooling-locking or heating-locking,press [Confirm] to send mode-locking command.

3. If the air conditioner is in the mode of locking, press [◁] [▷] to select cooling-locking and heating-locking indicating,press [Confirm] to send the selected unlock command to all air conditioners

(5) How to lock and unlock the key board of the weekly-timer central controller?

Under the main interface

↓

1. Press and hold [Query] , and then press [Lock] .

↓

2. The keyboard will be locked if it is unlocked.
   If it is locked, it will be unlocked.

(6) How to set the function and relevant parameters of the weekly timer of the air conditioner?

Under the main interface

↓

1. Press [Program] to enter the setting status interface of single air conditioner, press the button repeatedly to select "Single" and "All" alternately, displaying "Set" ;if select "sigle" , press [△] to select one.
[◁] [▽] [▷]

Press[Confirm]to select air conditioner to the next step   Press [Cancel] to cancel the selection and return to the last step.

↓

2. Selecting "All" indicates to set the weekly timer parameters of all air conditioners, and "All" is displayed. Selecting "Single" displays the address of the air conditioner; for example, if the air conditioner whose address is 12 is selected, "12$^{\#}$ " is displayed.

↓

3. Press [◁] [▷] to select the day of the week

Press[Confirm]to select the day of the week to the next step   Press [Cancel] to cancel the selection and return to the last step.

↓

4. Set the parameter of period 1, including shutdown time, startup time, running mode, Fan speed and temperature. First of all, set the startup and shutdown time. Press [◁] [▷] to select the startup time and shutdown time. Press [Add][Reduce] to modify the startup and shutdown time.

Press[Confirm]to save the parameter of the period 1 to the next step   Press [Cancel] to cancel the set of period 1 and return to the last step.

↓

5. Press [Mode] to select running mode: automatic, cool, heat, Fan-only , Dry, or Off. If you select the cool , automatic or heat mode, press [Add] [Reduce] to adjust the temperature (the scope is within 17 - 30 degree). Press [Fan] to regulate Fan speed, which can be selected among automatic speed,low Speed,middle speed and high speed

Press [Confirm] to save the parameter of the period 1 to the next step

Press [Cancel] to cancel the set of period 1 and return to the last step.

6. Finish the weekly timer parameter setting of the air conditioner within period 1 of the day of the week.

7. Continually set periods 2, 3, 4 according to the above operation.

8. After finishing the setting of the periods, continually select the day of the week needed to be set, to set the weekly timer parameter from Monday to Sunday, seven days in total.

Finish setting

(7) How to turn off the weekly timer setting of a period of an air conditioner?

Under the main interface

1. Press [Program] to enter the setting status interface of single air conditioner, press the button repeatedly to select "Single" and "All" alternately, displaying "Set" ;if select "sigle" , press [△] to select one.
[◁] [▽] [▷]

Press [Confirm] to select air conditioner to the next step

Press [Cancel] to cancel the selection and return to the last step.

2. Selecting "All" indicates to set the weekly timer parameters of all air conditioners, and "All" is displayed. Selecting "Single" displays the address of the air conditioner; for example, if the air conditioner whose address is 12 is selected, "12# " is displayed.

3. Press [◁] [▷] to select the day of the week

Press [Confirm] to select the day of the week to the next step

Press [Cancel] to cancel the selection and return to the last step.

4. Set the parameter of period 1, including shutdown time, startup time, running mode, Fan speed and temperature. First of all, set the startup and shutdown time. Press ◁ ▷ to select the startup time and shutdown time. Press Add Reduce to modify the startup and shutdown time.

Press Confirm to save the parameter of the period 1 to the next step

Press Cancel to cancel the set of period 1 and return to the last step.

5. Press Mode to select running mode: automatic, cool, heat, Fan-only , Dry, or Off. select "Off" mode.

Press Confirm to save the parameter of the period 1 to the next step

Press Cancel to cancel the set of period 1 and return to the last step.

6. Finish shutting down the weekly timer function of the air conditioner within period 1 of the day of the week.

7. Continually shut down the timer during periods 2, 3, 4 according to the above operation.

Finish setting

（8）**How to query the weekly timer setting parameter of the air conditioner?**

Under the main interface

1. Press and hold Query , then press Program in two second to enter the query status of single air conditioner, Press △ to select the air conditioner that needs to be queried. ◁ ▽ ▷

Press Confirm to select air conditioner to the next step

Press Cancel to cancel the selection and return to the last step.

2. Press ◁ ▷ to select the day of the week

Press Confirm to select the day of the week to the next step

Press Cancel to cancel the selection and return to the last step.

3. Press ◁ ▷ to select the weekly timer setting parameter of the queried periods 1, 2, 3, 4.

Query the weekly timer parameters of any indoor unit within any time according to the above operation.

（**9**）**How to start up or shut down the weekly timer function of all air conditioners?**

Under the main interface

↓

1. Press Weekly

↓

2. If the weekly timer function is shut down, then start up it;
    if the weekly timer function is started up, and then shut down it.

↓

3. If the weekly timer function is shut down, idsplay "Weekly Timer Off"

（**10**）**How to modify the system time?**

Under the main interface

↓

1. Press Time for 5 seconds, enter the time-setting interface.

↓

2. Press ◁ ▷ for a long time to select the minute/ hour/ day/ month/ year that need to be modified.

↓

3. First, press ◁ ▷ to select the Year that needs to be modified

↓

4. Press Add Reduce modify "Year"

↓

5. then Press ◁ ▷ to select the "Month" that needs to be modified.

↓

6. Press Add Reduce modify "Month"

↓

7. Press ◁ ▷ again to select the "Day" that needs to be modified

8. Press Add Reduce modify "Day"

9. Press ◁ ▷ to select the "Hour" that needs to be modified.

10. Press Add Reduce to modify "Hour"

11. Press ◁ ▷ again to select the "Minute" that need to be modified.

12. Press Add Reduce to modify "Minute"

13. Press Confirm to save the modification

Notes:

There is always a time interval between 2 periods. This means the period's off time should not be the same as the stating time of nest work period. The least time interval should be 10 minutes, or else the units cannot work as our interval.

(11) Fault and protection codes

Fault code	Content
EF	Other faults
EE	Water level detection malfunction
ED	Reserved
EC	Cleaning malfunction
EB	Inverter module protection
EA	Current of compressor is too large (4 Times)
E9	Communication malfunction between main board and display board
E8	Wind blowing speed is out of control
E7	EEPROM error
E6	Detection of current direction alternating is abnormal
E5	T3 or T4 senor of discharge of compressor fails down
E4	T2B sensor malfunction
E3	T2A sensor malfunction
E2	T1 sensor malfunction
E1	Communication malfunction

E0	Phase sequence disorder or loss of power phase
07#	/
06#	/
05#	/
04#	/
03#	Communication malfunction between centralized controller and PC(gateway)
02#	Communication malfunction between centralized controller and functional module
01#	Communication malfunction between centralized controller and network interface module
00#	Communication malfunction between network interface module and main control board

Protection code	Content
PF	Other protection
PE	Reserved
PD	Reserved
PC	Reserved
PB	Reserved
PA	Reserved
P9	Reserved
P8	Compressor's current is too large
P7	Voltage of power supply is too high or too low
P6	Pressure of discharge is too low
P5	Pressure of discharge is too high
P4	Temp. of discharge pipe is abnormal
P3	Temp. of compressor is abnormal
P2	Condenser high-temperature protection
P1	Anti-cool air or defrost protection
P0	Evaporator temperature protection

3.3.6 Installation

The thickness of the central controller cable shall be adjusted according to the length of the cable. A proper cable tube shall be used to install the cable of the central controller.

Insert the flat tip screwdriver into the recess on the top panel of the case and slightly turn to open the top cover of the central controller.
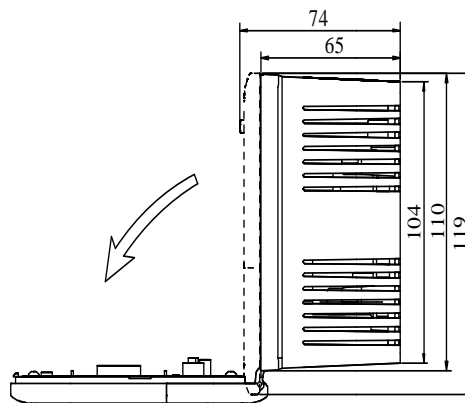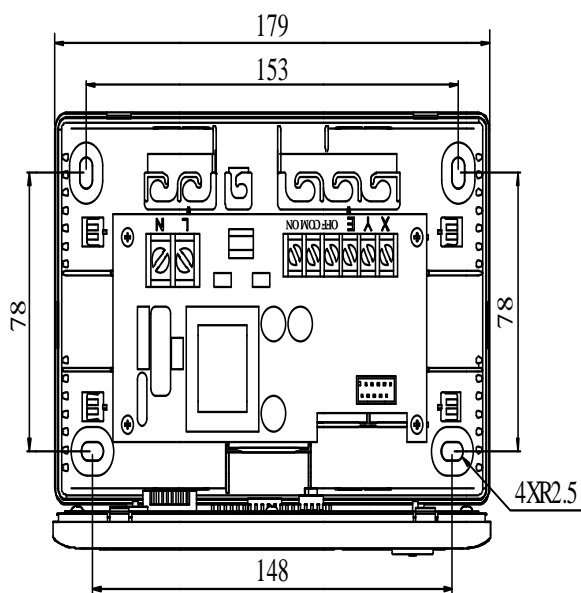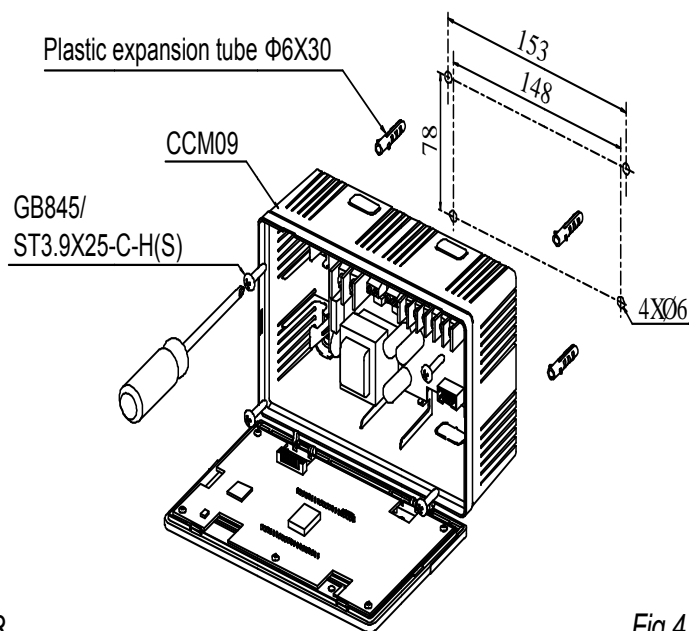
Fig.1

Fig.2

Fig.3

Fig.4

Emergency Open Swich,used to start up all air conditioners

Emergency Stop Swich,used to shut down all air conditioners

Communication interface to the indoor unit

Power AC 220V
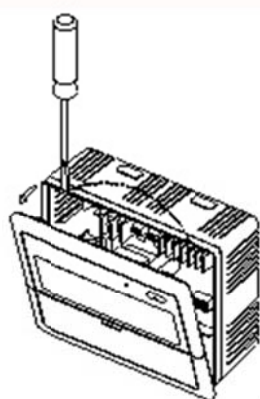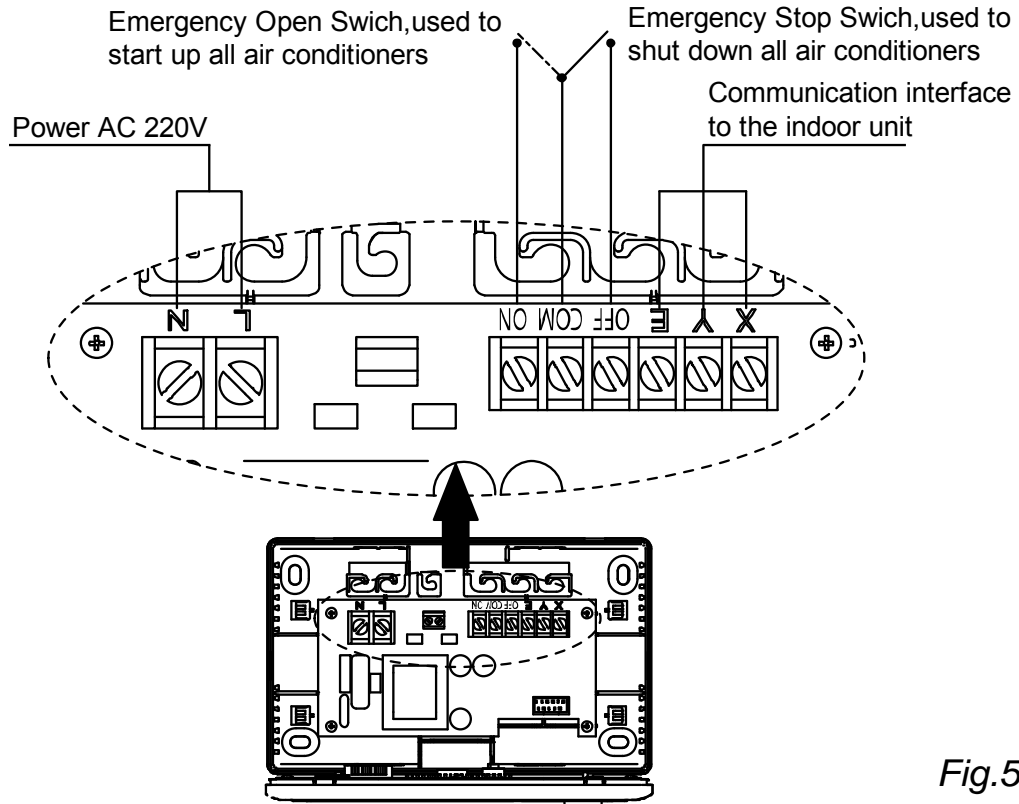
Fig.5

Installation dimensions: As shown in the figure on the right side.

Installation screw holes (4 holes)

136

92

70.5

83.5

48.5

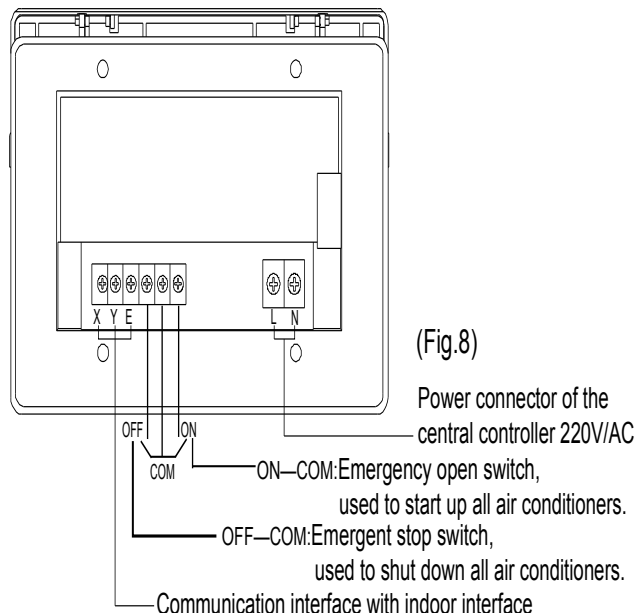Fig.6

Rotate the flathead screwdriver slightly to open the upper cover (at points).

Screws for fixing the centralized controller (GB845/ST3.9*25) Holder

Address bits

Bit location		Address range
🔄 ~ 🔄		00 ~ 15

Upper cover

Fig.7

(Fig.8)

Power connector of the central controller 220V/AC

ON—COM:Emergency open switch, used to start up all air conditioners.

OFF—COM:Emergent stop switch, used to shut down all air conditioners.

Communication interface with indoor interface

Connecting diagram of network-based air conditioning system

(There are two types of indoor units, namely indoor unit with external network interface module on the main control board or built-in network interface module in the main control board.)

The shielded wire must be reliable grounded

Matching resistance of communication end is 120Ω

Matching resistance of communication end is 120Ω

Junction Box

Indoor unit (MAX)

Junction Box

Indoor unit (32)

Junction Box

Indoor unit (10)

One centralized controller can be connected to 64 indoor units as a maximum

POWER AC220V

Junction Box

Indoor unit (0)

Junction Box

Indoor unit (1)

Centralized controller

3.4 Unified ON/OFF controller: KJR-90B

KJR-90B is a unified centralized controller, which allows us to control up to 16 indoor units simply and compactly. It commands the indoor unit to work at only 2 modes, cooling and heating. Besides this commanding, users could also modify the indoor units working mode by the remote wireless controller. This controller offers the controller functions only and is disable to bridge the units to the PC.

3.4.1 Button name
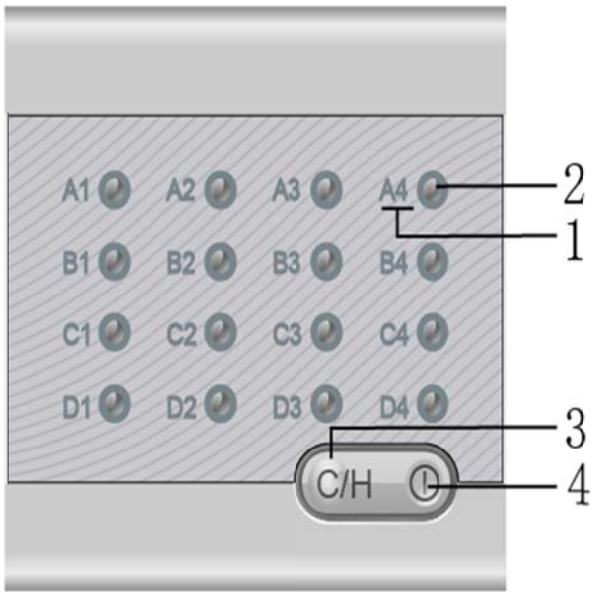
g)

er 25

cators

.

(1) Corresponding indoor unit tag

Up to 16 indoor units are controlled by one centralized controller. If more than 16 indoor units, the operation would failure. Please set the indoor unit network address codes properly before use this controller. The following table shows the relation between the tag and the corresponding network:

Air condition label	A1	A2	A3	A4	B1	B2	B3	B4
Network address	0	1	2	3	4	5	6	7
Ari condition label	C1	C2	C3	C4	D1	D2	D3	D4
Network address	8	9	10	11	12	13	14	15

The corresponding indication of the air conditioner reflects the working mode of its indoor unit, blue means cooling or air supply mode, red means heating mode.

(2) Single indoor unit On/Off key

Users could press this key to turn on or turn off the corresponding indoor unit. If the indoor units original mode is on, press this would turn it off. The interval for modes shift-over is 6 seconds, if interval less than 6 seconds, the operation would invalid.

Notes:

1. If the red light flashes quickly, it means the corresponding indoor unit malfunctions.

2. If no one presses the keys of the controller, the controller would turn itself into power saving mode, in which all the lights fade out. Press any key to stop this mode.

(3) Unified mode setting key

Press this key to set all the units' mode. Only two modes can be set by this key. They are the cooling mode and the heating mode. The details of the two modes are as follows:

Mode	Temperature	Fan speed	Key light
Cooling	20℃	Hi speed	Blue
Heating	28℃	Hi speed	Red

Notes: The interval for modes shift-over is 6 seconds, if interval less than 6 seconds, the operation would invalid. When the indoor unit's working mode is changed by other device, such as remote controller, this centralized controller could detect, and change the corresponding units tag to show the actual running mode.

(4) Unified On/Off key

This key has 2 ways to send commands:

Press for 3 seconds or more: To turn on or turn off all the indoor units those are connected to this controller.

Press for less than 3 seconds: to turn on or turn off the single unit that we ever controlled most latterly.

Notes: If this key's light flash quickly, it means that the EEPROM malfunctions.

(5) Mode select

The system consists with heating and cooling modes; shift the modes by Mode button. The fluorescent light indicating the current mode: Red is heating mode, which mode corresponding parameter have already set unallowable to modify, if necessary, the parameter could modified by remote controller.

Notes:

1. The interval for modes shift-over is 6 seconds, if interval less than 6 seconds, the operation would be invalid.

2.Default starting temperature: Cooling 20℃, High fan speed, the corresponding

LED in the indoor unit will light(Blue); Heating 28℃,high fan speed, the corresponding LED in the indoor unit will light(red). Red light flash rapidly means indoor unit malfunction.

3.4.2 Installation

※ **Dimensions: 90*86*8mm**
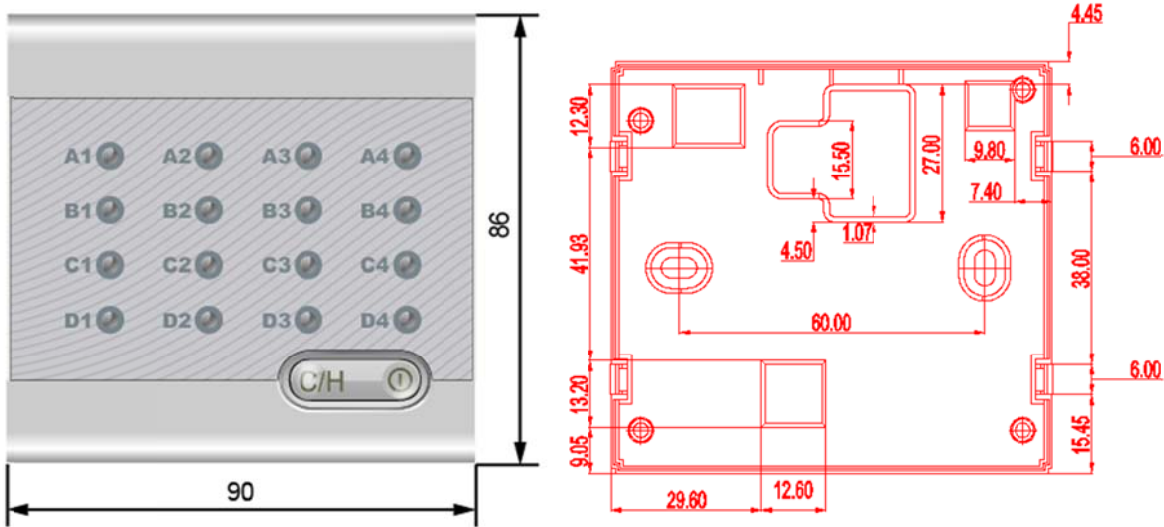
1) Please correct to connect the 2-core and 3-core shielded wire to imbed the wall.

2) When no less than 3 pieces of KJR-90B install nearly, please keep over 2m distance each other to avoid interfere.

※ KJR-90B should be connected in a hand-in-hand way to the indoor units. It does not contains power transforming function, so this controller should obtain 5V power from the indoor units display panel. In fact, the display panel usually has a port in which two of pins are the 5V and GND. These two pins can be connected to the KJR-90B/M.
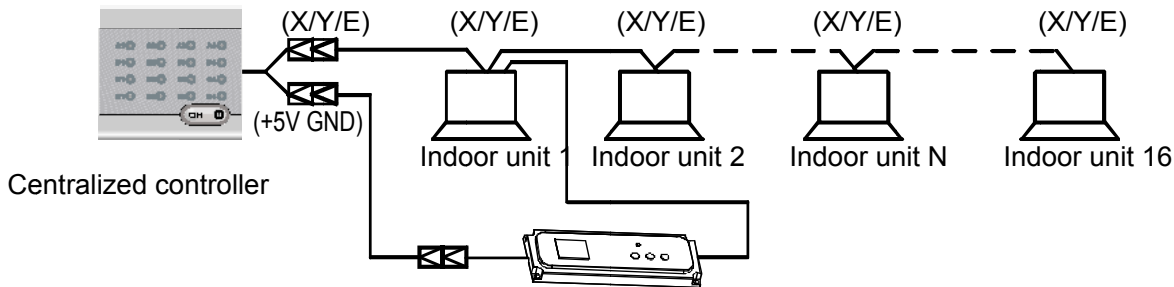
Notes:

1) KJR-90B connects max. 16 indoor units; otherwise the operation is invalid.

2) Please correctly set network address of indoor unit, and refer to the address table above.

3) Any 2 indoor units' network address cannot be same; otherwise system will detect only one of them.

4) Centralized controller could control and gets power from the displaying control cabinet in one of the sixteen indoor units. If necessary to get power from four-way cassette, the transformer has to be changed, please see the label in the back of the centralized controller.
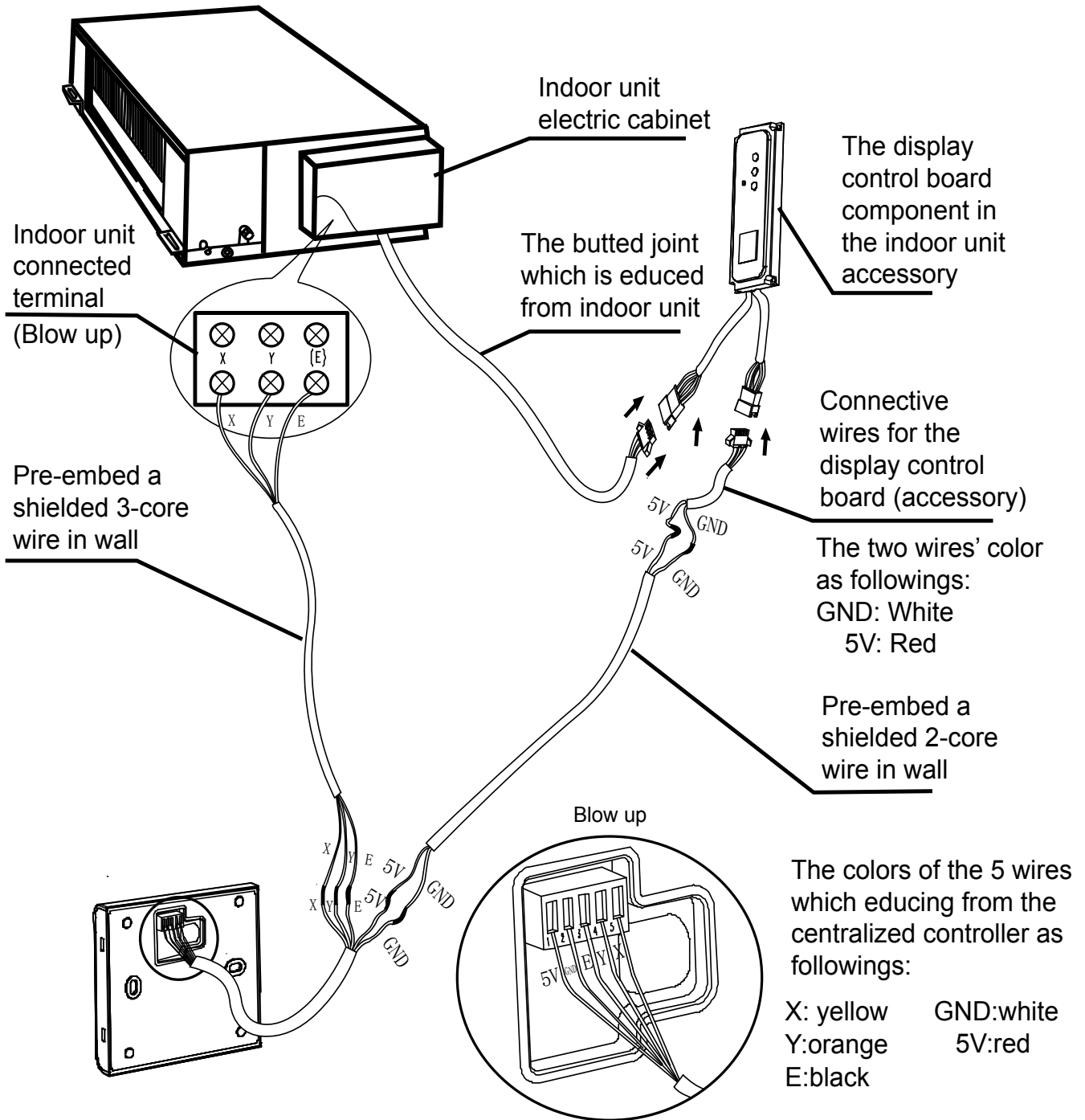
※ **Lights displays and error code**

Light	Blue	Red	Flash
Single On/Off key	Cooling/Fan	Heating	IDU Error
Unified On/Off key			EEPROM Error

※ **Installation step**
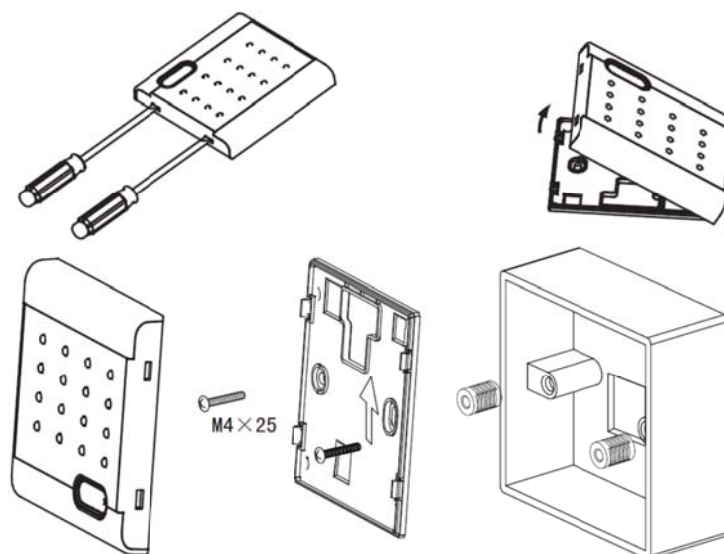
Note: use screw to unpack the bottom cover of KJR-90B/M.

Indoor unit electric cabinet

The display control board component in the indoor unit accessory

Indoor unit connected terminal (Blow up)

The butted joint which is educed from indoor unit

Connective wires for the display control board (accessory)

Pre-embed a shielded 3-core wire in wall

The two wires' color as followings:
GND: White
5V: Red

Pre-embed a shielded 2-core wire in wall

Blow up

The colors of the 5 wires which educing from the centralized controller as followings:

X: yellow   GND:white
Y:orange   5V:red
E:black

Notes:

1. KJR-90B/M uses a DC 5V power. Remember do not connect strong electricity power to KJR-90B/M, or the controller may blow.

2. Please base on the arrow direction in above to install the bottom cover.

3.5 Outdoor centralized monitor: MD-CCM02

3.5.1 Summarize of outdoor CCM

The functional only can be realized when the system is in normal operation.

1) CCM02 can realize the central control and data query to outdoor units. One outdoor CCM can connect up to 8 systems and up to 32 outdoor units by communication ports in outdoor PCB. And it adopts wire-connecting method communication to realize central control to the outdoor units in the same network.

2) CCM can communicate with PC through RS485/RS232 converter. One PC can connect up to 16 outdoor CCM and 16 indoor CCM. And one PC can be centralized control, management and state query in the same monitoring network of all outdoor CCM, indoor CCM and indoor /outdoor units.

3) The CCM and outdoor units, PC and CCM adopt main-auxiliary communication. In the network of CCM and outdoor units, CCM is the main unit and outdoor units are the auxiliary units.

3.5.2 Operation

1) Description of Names and Functions

◆ Power on or reset

After the CCM is powered on or reset, all the segments of the LCD will be displayed and last for 3 seconds. And then disappear for 2 seconds. After this, the controller's system runs the normal display mode, in which CCM would display the main page.

◆ Network Area Address Setting

Up to 16 CCM02 can be connected to the gateway or the PC. Each CCM02 can be viewed as a secondary or sub-net of the network and distinguish themselves by their unique address. The address can be set in the key panel and it ranges from 16-31.

Address setting method:

To differentiate the CCM02 and CCM03, the addresses of CCM02 range from 16-31. Every time we press the address button of a CCM02, the corresponding CCM02's address increase by 1. When the address come to the end 31, press the key again could make the address back to the starting address 16.

◆ Indicator Display

Indicator lamp will be on when the CCM is power on.

◆ CCM02 Locked

All the other buttons will not be on controlled anytime when pressing the CCM is locked. And unlock happens when receiving the lock.

◆ Electric energy consumption query

CCM02 allows user check each outdoor units' electricity consumption. To realize this function, each outdoor unit should be installed with an ammeter. The ammeter DTS634/DTS636 can be purchased from Midea Company.

2) Buttons and Functions
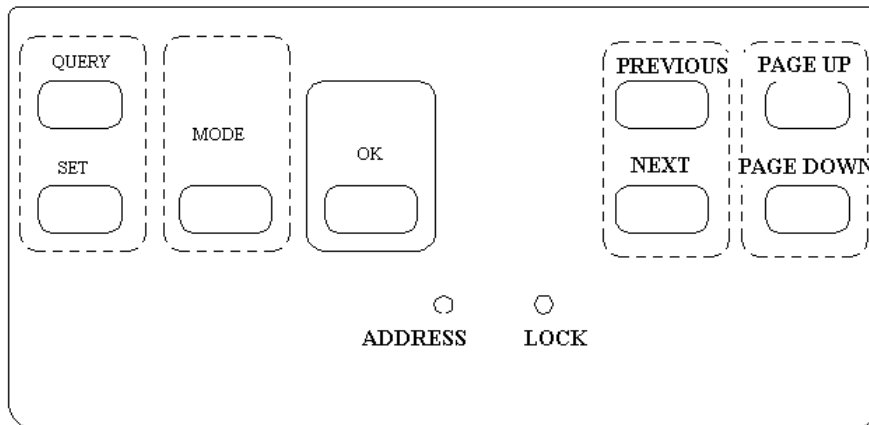
(1) Query button

Press it to enter into the query state.

(2) Previous button

On the query state, press it to query in default the running states of other online air-conditioners.

(3) Next button

On the query state, press it to query in default the running states of other online air-conditioners.

(4) Page up button

Pressing the Page Up button when choosing an online air-conditioner on the query state can display the parameters in the previous page and this can be cycled.

(5) Page down button

Press the Page Down button when choosing an online air-conditioner on the query state can display the parameters in the next page and this can be cycled.

(6) Set button

Press Set button enters the Set Page.

(7) Mode button

Press the OK button to enter the Mode setting, and select circularly between Forced Cooling and OFF state.

(8) OK button

Press the OK button to confirm all setting and send the corresponding air-conditioners.

(9) Lock button

All the other button will not be controlled anytime when pressing the button, and unlock happens when press it again.

(10) Address Set button

In Set page, press the Set button repeatedly, the address will be increased one by one. When the address is equal 31 and you press once more, the address will restart from 16.

3.5.3 Description of LCD Screen
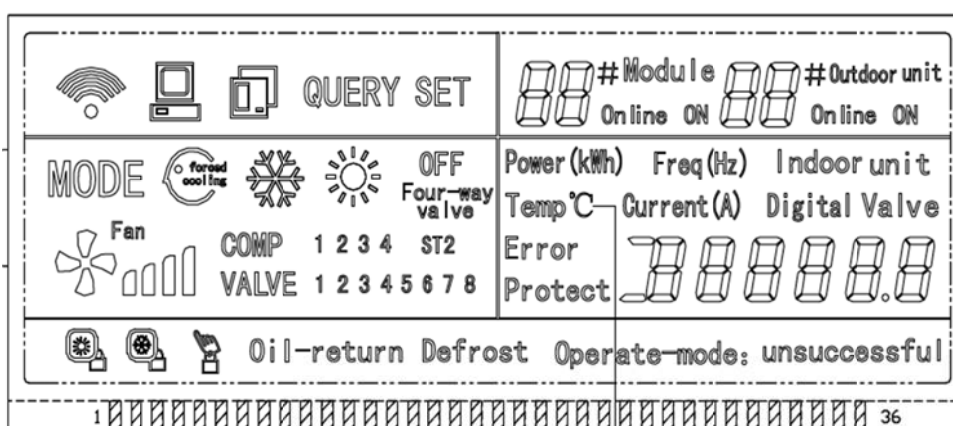
Graph 2 LCD Screen   OR display 'Temp°F' with the model:MD-CCM02/E(H)

➤ **Common Display Data:**

✦ Display [icon] means CCM is sending query order.

✦ Display [icon] means CCM is in communication with a PC, and it will be off in 20 seconds with no communication.

✦ Display [icon] means CCM is in communication connection with the outdoor unit, and it will be off in 20 seconds with no communication.

✦ Press the OK button in setting page and waiting for 4 seconds, "success" or "fail" will be shown in the operation state area.

➤ **Stand-by Page Display:**

✦ Display [icon #Module Online ON] means the total number of online modules

✦ Display [icon #Outdoor unit Online ON] means the total number of online units

✦ Stand-by Page can display the address of CCM with the address format of "Addr XX", here "XX" equals the real address of CCM plus 16, and the range of "XX" is 16-31.

➤ **Query Page Display:**

1) Query Page Display the query icon.

2) Displaying the address of selected outdoor unit with [icon #Module] and [icon #Outdoor unit]

3) Mode display: [icon] means cooling mode, [icon] means heating mode, OFF means shut off, means [icon] locking cool mode, [icon] means locking heat mode.

Notes: Locking cool mode and locking heating mode are reserved.

4) Fan speed Display: [icon Fan] means low speed, [icon Fan] means middle speed, [icon Fan] and means high speed.

5) Compressor State Display: COMP. 1 2 3 4 5 6

6) Electromagnetism Valve Display: EMV. 1 2 3 4 5 6

7) Four-Way Valve Display.

8) Defrost Display: Defrost.

9) When Oil Return will display: OIL RETURN.

10) Page 0 will display the consumption of electric energy icon "ELECTRIC ENERGY Kwh" and the number.

11) Page 1 will display the input power frequency with "Frequency Hz" and the number.

12) Page 2 will display the total number of indoor units.

13) Page 3 will display the icon "TEMP.℃", "T3" and the number.

14) Page 4 will display the icon "TEMP.℃", "T4" and the number.

15) Page 5 will display the icon "TEMP.℃", "T6" and the number.

16) Page 6 will display the discharge temperature of compressor 1 icon "TEMP.℃", "C1" and the number.

17) Page 7 will display the discharge temperature of compressor 2 icon "TEMP.℃", "C2" and the number.

18) Page 8 will display the discharge temperature of compressor symbol C3 with "TEMP.℃", "C3" and the number.

19) Page 9 will display the compressor current value 1 icon "CURRENT A","1" and the number.

20) Page 10 will display the compressor current value 2 icon "CURRENT A", "2" and the number.

21) Page 11 will display the compressor current value 3 icon "CURRENT A", "3" and the number.

22) Page 12 will display the digital capacity icon "DIGITAL CAPACITY" and the number.

23) Page 13 will display the openness of electromagnetism valve 1 icon with "VALVE OPENNESS","1" and the number.

24) Page 14 will display the openness of electromagnetism valve 2 icon "VALVE OPENNESS", "2" and the number.

25) Page 15 displays the most advanced malfunction icon "MALFUNCTION" and the code.

26) Page 16 will display the most advanced protection icon "PROTECTION" and the code.

Notes:

The page will increase or decrease by 1 every time you press "PAGE UP" or "PAGE DOWN"..

Select the online outdoor unit by Press the "previous" or "next" freely.

➢ **SET PAGE DISPLAY:**

1) Set Page Displays "Set"

2) Mode display: Pressing MODE button to enter into MODE set, and select circularly between Forced Cooling and OFF state.

3) Set page displays the address of selected outdoor units and module.

4) Press the OK button to confirm all setting and send the corresponding air conditioners.

5) "Successful" or "Unsuccessful" shown in the operation state area indicates whether the transmission is confirmed or not.

➢ **Malfunction and Protection Code Table**

| Error Code	Error Contents	Error Code	Error Contents
H3	Outdoor Adding Malfunction (Valid For Host Unit)	Pd	Oil Return
H2	Outdoor Decreasing Malfunction (Valid For Host Unit)	PA	Defrost Protection
H1	Net Communication Malfunction	P8	Compressor Current 3rd Protection
EF	Other Malfunction	P7	Compressor Current 2rd Protection
E4	T4 Temp Sensor Malfunction	P5	Condenser High Temp Protection
E3	T3 Temp Sensor Malfunction	P4	Discharge Pipe Temp Protection
E2	Communication Malfunction between indoor and outdoor unit	P3	Compressor Current 1st Protection
E1	Phase Sequence Malfunction	P2	Discharge Low-Pressure Protection
E0	Outdoor unit communication Malfunction	P1	Discharge High-Pressure Protection
PF	Other Protection	P0	Compressor High Temp Protection
PE	Oil Balance		

3.5.4 Installation

1. Basic Requirements

1) Applicable Power Voltage Range: Input Voltage 220~240V/AC.

2) AC Input Power Frequency: 50Hz/60Hz.

3) Working Ambient Temp.:-15°C -+43°C

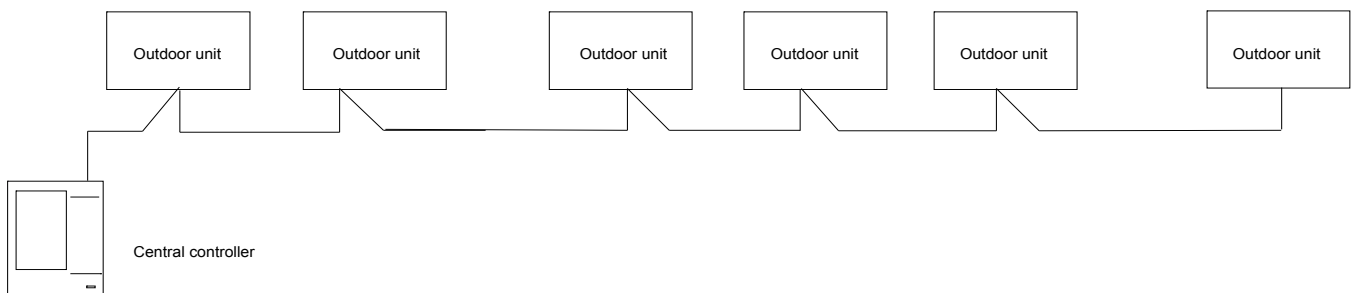4) Working Ambient Humidity: RH40%~RH90%.

2. Dimensions: 120*120*15mm
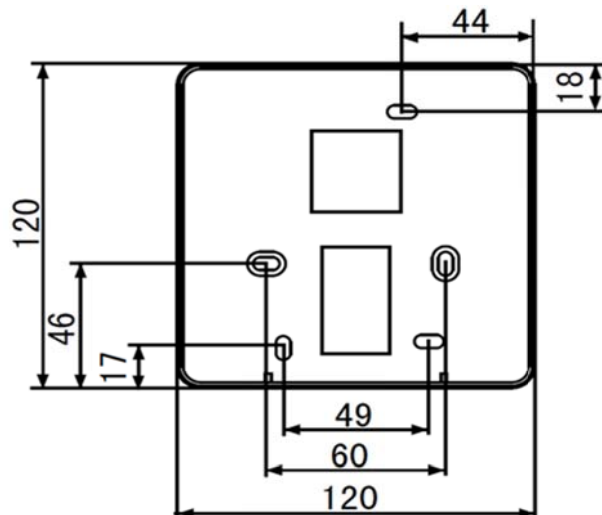
3. Wiring sketch map of MD-CCM02 and outdoor units

These 2 ways are both available and the total number of outdoor unit must be≤32 in one controller.

1st way:

Central controller

2nd way
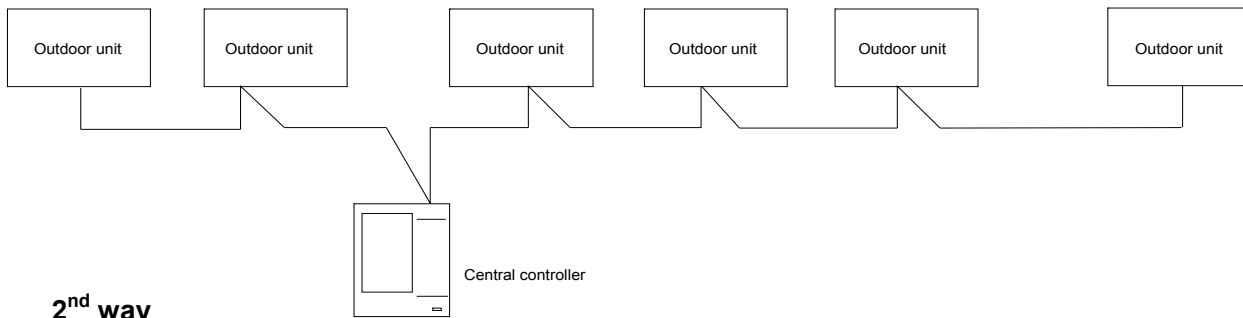
Central controller
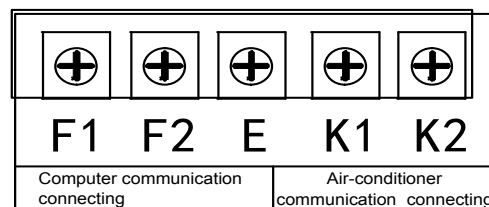
The MD-CCM02 wiring ports are as follows. F1, F2, E joints are used for PC connection. K1, K2, E joints are used for outdoor unit connections. E joint is the common terminal.

Outdoor central controller
joint sample

F1	F2	E	K1	K2
Computer communication connecting			Air-conditioner communication connecting	

4. System configure

With MD-CCM02, we could both centrally display the outdoor units' running state and bridge up to 32 outdoor units to the PC monitoring software or BMS--Building Management System. In fact, for the purpose of connecting the indoor units to the PC or the gateway, which makes the outdoor units visible on the display panel, MD-CCM02/E is necessary.

The location of CCM02 in the network is as follows.

RS232 terminal:
Plug in the COM port of computer

RS485 invert RS232

Connect to other central controller

Connect matched R120Ω in the front-end communication

Good method of peeling communcation

Connect matched R120Ω in the rear-end communication

NO.1 outdoor monitor

NO.1 outdoor unit

NO.8 outdoor unit

Masking end reliable grounding

NO.18 outdoor unit

Masking end reliable grounding

NO.32 outdoor unit

Communication between KWH meter and outdoor

Power input

KWH meter

Notice：when the KWH meter is connected to outdoor unit, you can read energy

Connect matched R120Ω in the

Connect matched R120Ω in the rear-end communication

NO.6 outdoor monitor

NO.1 outdoor unit

NO.6 outdoor unit

NO.8 outdoor unit

NO.32 outdoor unit

Connect matched R120Ω in the front-end

Connect matched R120Ω in the rear-end communication

Masking end reliable grounding

NO.16 outdoor monitor

NO.1 outdoor unit

NO.6 outdoor unit

NO.8 outdoor unit

NO.32 outdoor unit

Outdoor sample

Outdoor sample

Main control panel

K1 K2 E

Outdoor unit

Main control panel

K1 K2 E

Outdoor unit

Notes：

1. One computer can connect 16 outdoor central monitors.

2. One outdoor central monitor can connect up to 8 refrigerant systems and 32 outdoor units.

3. You need connect R120 in the front and rear of monitor system.

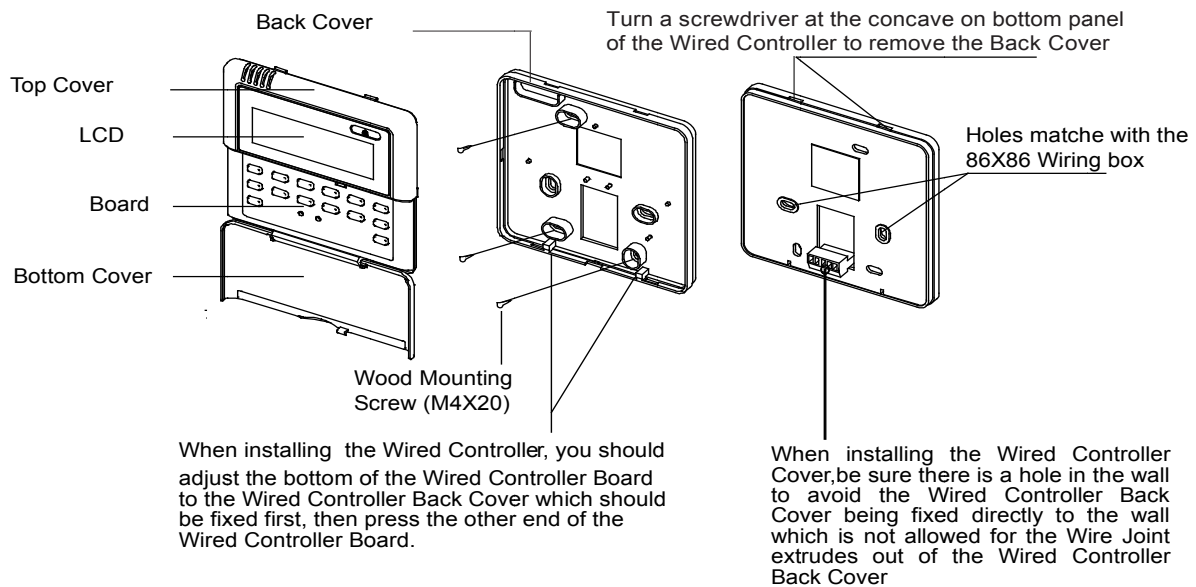4. Communication wire masking end assure reliable grounding.

Remarks

(1) In the wiring, the part from Rs485 to Rs232 is only needed when connecting with PC. And one PC can connect maximum 16 outdoor MD-CCM02 and 16 indoor MD-CCM03. The addresses of MD-CCM03 ranges

from 0 to 15, while the MD-CCM02 ones from 16 to 31. And the address of any two outdoor CCM can't be the same, or the system can't work normally.

(2) One outdoor centralized monitoring MD-CCM02 can connect maximum 32 outdoor units, while one indoor MD-CCM03/E can connect maximum 64 indoor units.

(3) The address of outdoor CCM and the address of outdoor units are set by manual.

5. Structure and composition

Top Cover

LCD

Board

Bottom Cover

Back Cover

Turn a screwdriver at the concave on bottom panel of the Wired Controller to remove the Back Cover

Holes match with the 86X86 Wiring box

Wood Mounting Screw (M4X20)

When installing the Wired Controller, you should adjust the bottom of the Wired Controller Board to the Wired Controller Back Cover which should be fixed first, then press the other end of the Wired Controller Board.

When installing the Wired Controller Cover, be sure there is a hole in the wall to avoid the Wired Controller Back Cover being fixed directly to the wall which is not allowed for the Wire Joint extrudes out of the Wired Controller Back Cover

6. Power supply

MD-CCM02 uses a power adaptor to obtain power supply from the normal AC 220V. Remenber to connect the adaptor's connector

Outdoor CCM

Power Transformer AC220V/AC8.5V

Power Supply Connector
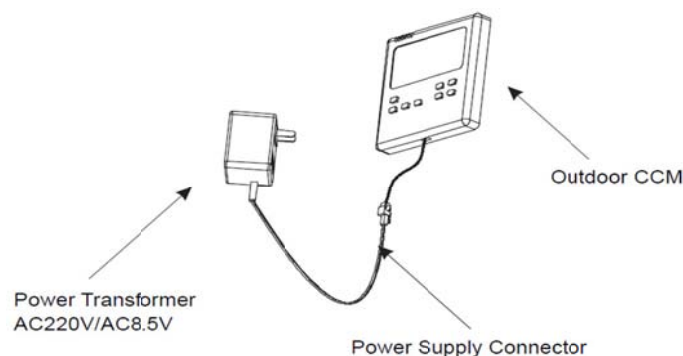
7. Query and error codes

Press QUERY button to start the query function. Then press the PREVOIS and NEXT button to select the outdoor units that want to check. Press PAGE UP button 15 times to display the corresponding outdoors's error code or 16 times to display the protection codes.

4. Gateway

| MD-LonGW64 | MD-CCM08 | CCM-18A | IMM441V4PA512 | CCM15 |

4.1 LonWorks BMS gateway: MD-LonGW64

The new LonWorks gateway MD-LonGW64/E has been compliance with LonWorks standard and can be connected up to 64 indoor units to the LonWorks network directly. It can connect multiple refrigeration systems and do not need to connect CCM03. For full V4 plus system can be connected CCM03, and it must be connected from outdoor unit's XYE, the new and the old indoor units or V4 indoor units cannot be applied to this function.

MD-LonGW64 helps other LonWorks devices gathering the information from the Midea central A/C, and help setting the indoor units' working mode.

✧ Connect Central A/C system to LonWorks network.

✧ Easily download the program on line.

✧ LonGW64 gateway applies non-polar twisted pair lines, which makes connecting to LonWorks network easily.

✧ Be able to bridge the indoor units to the BMS.

4.1.1 General function

Monitoring	Controlling
ON/OFF state report	Mode setting for single unit
Running mode state report	Mode setting for all units
Fan speed state report	Stop setting for single
Set temp. value report	Emergency stop for single unit
Indoor temp. value repot	Fan speed setting for single unit
Error state report	Fan speed setting for all units
Online/offline state report	Temp. setting for single unit
Quality of connection state report	Temp. setting for all units

4.1.2 System configure

Indoor units can be connected to the BMS system through MD-LonGW64, and we can gather all the units' information and control the indoor units. As a result, the indoor units need firstly connecting to the computer to make a central monitoring system. The composition of the whole network is as follows:

(1) Connection method 1: Suitable for all of VRF air conditioner systems and connect max.64 indoor units.

MD-LonGW64/E

RS485   X,Y,E   X,Y,E   X,Y,E   X,Y,E
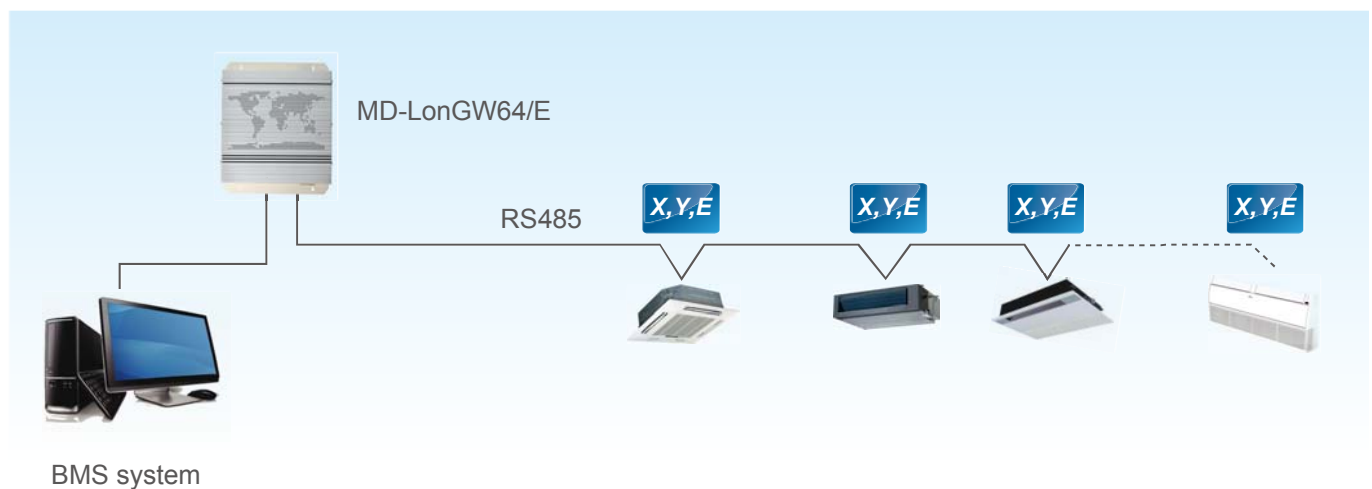
BMS system

(2) Connection method 2: Only suitable for V4 plus system and connect max.64 indoor units. The outdoor unit must be set to auto addressing mode, and it will be effective after about 6 minutes.
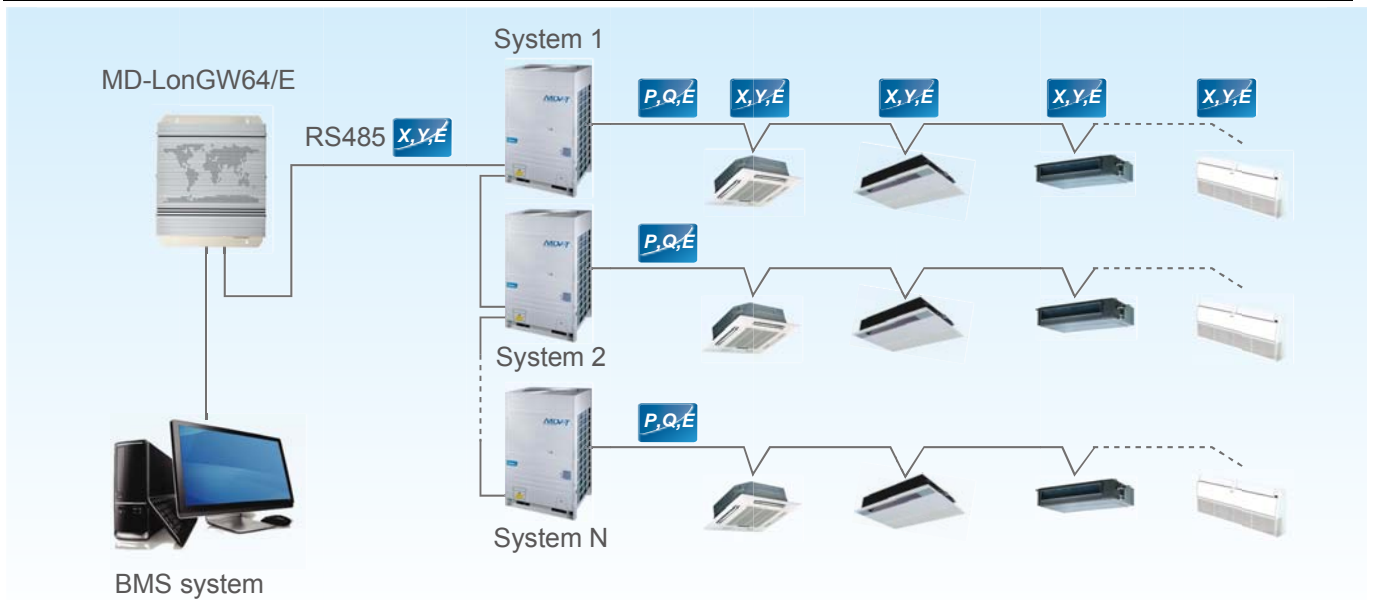
Notes:

If there are a few MD-LonGW64 devices to compose a LonWorks network, the LonWorks terminals of the MD-LonGW64 are able to be connected in the hand-in-hand way. It can be connected up to 64 indoor units to the LonWorks network no matter which system the indoor unit is from as long as the address is different
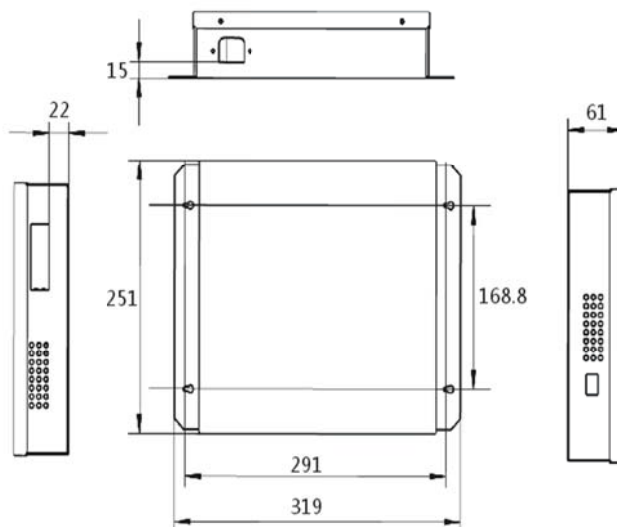
4.1.3 Connecting ports
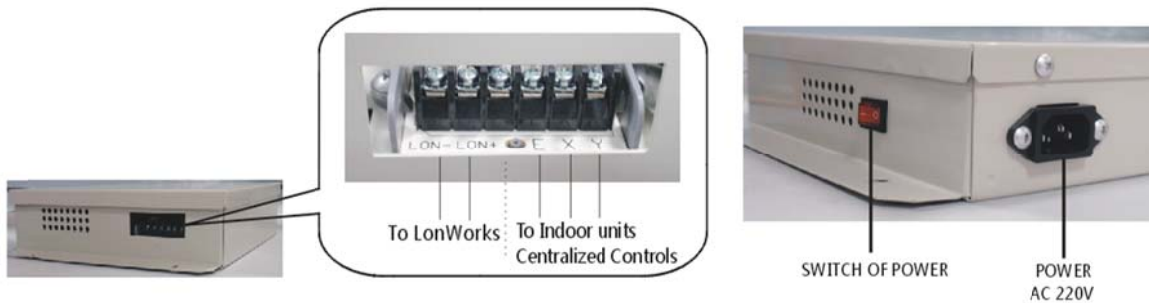
LON- and LON+ port: The ports should be connected to the computer's COM port, using the RS-232 communicative standard.

XYE ports: These ports use a removable connecting way to help user connect the LonWorks network conveniently.

POWER: This port should be connected to the AC 220V power adaptor.

4.1.4 External View

Dimensions: 319*251*61mm

Notes: There are three installation methods as the following figure. Don't install the unit in any other orientation.

4.2 BACnet® BMS gateway: MD-CCM08

MD-CCM08 is a gateway to connect the indoor units and outdoor units to the BACnet. BACnet stands for the Building Automation and Control Network. MD-CCM08 gathers the information of the IDU and ODU. Besides, MD-CCM08/E is able to send the command to the units.

✧ Be able to bridge the indoor and outdoor units to the BACnet protocol BMS.

✧ Also be able to connect the indoor and outdoor units only, without the BMS.

✧ Contains 4 groups of RS485 communication ports and able to connect up to 256 indoor units or 128 outdoor units instead.

✧ User can check the units' state and change their settings via local network.

✧ With the WEB service control.

4.2.1 Functions description

MD-CCM08 gateway provides the BACnet ports for Building Management System (BMS) and air conditioner to realize the systems integration. It also can be connected with the Midea VRF independently.

MD-CCM08 built-in the BACnet function module and WEB page services. It supports BACnet/IP access and local web browser access. It can control and monitor up to 256 indoor units or 128 outdoor units.

4.2.2 System configure

※ CCM08 and the BMS control system must be in the same IP subnet segment, and you need to set configuration before you using.

※ After IP setting, you can modify the CCM08 IP through WEB function.

※ The default administrator account is "admin" and password is "12345".

※ Default IP address: 192.168.1.8

※ MD-CCM08 is able to connect up to 4 groups of RS485 communicative network. Each port can connect up to 64 indoor units or up to 32 outdoor units and 8 refrigerant systems.

※ If there are a few MD-CCM08 applied in the system, MD-CCM08 can be connected to the HUB and then connected to the monitoring system and BMS.
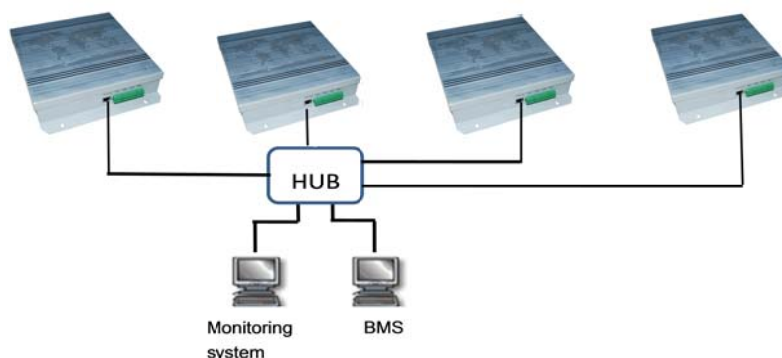
Notes: MD-CCM08 and the BMS computer must be at the same subnet address field. Or else, the device cannot work normally. The default address of CCM08 is set to be under the segment "192.168.1.*".

4.2.3 Connecting ports and functions

Power Supply(AC220V/50Hz)
Powe line（Prefabrication）

Power Switch
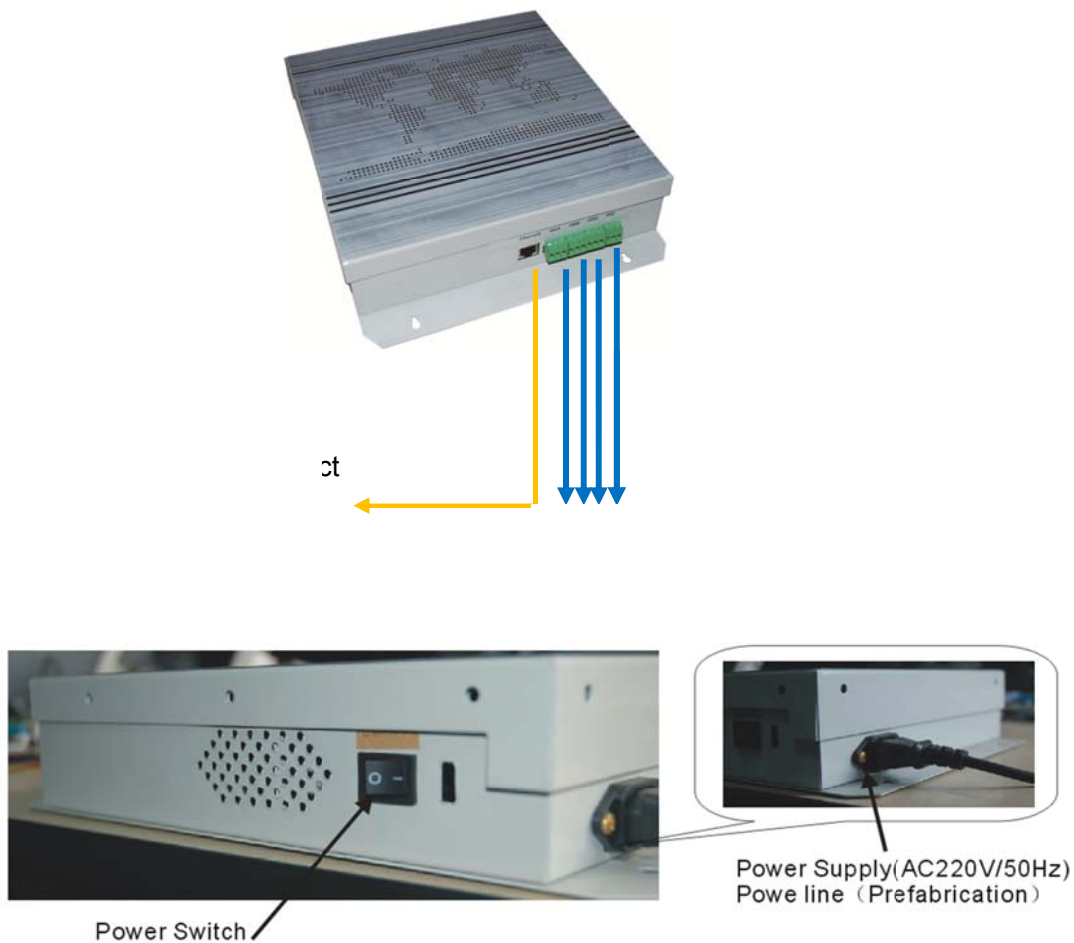
Ethernet port is an Ethernet interface base on the BACnet network protocol. Connect this port with the BACnet HUB, then the device connect to the HUB can communicate with the MD-CCM08.

Four groups of RS485 ports: Each port can be connected directly to XYE ports of indoor units or the K1K2E ports of the outdoor units; each port can also be connected to one indoor controller CCM03 or one outdoor monitor CCM02 through F1F2E ports, and the address of indoor controller CCM30 must be set to zero (0) which need to connect with MD-CCM08.
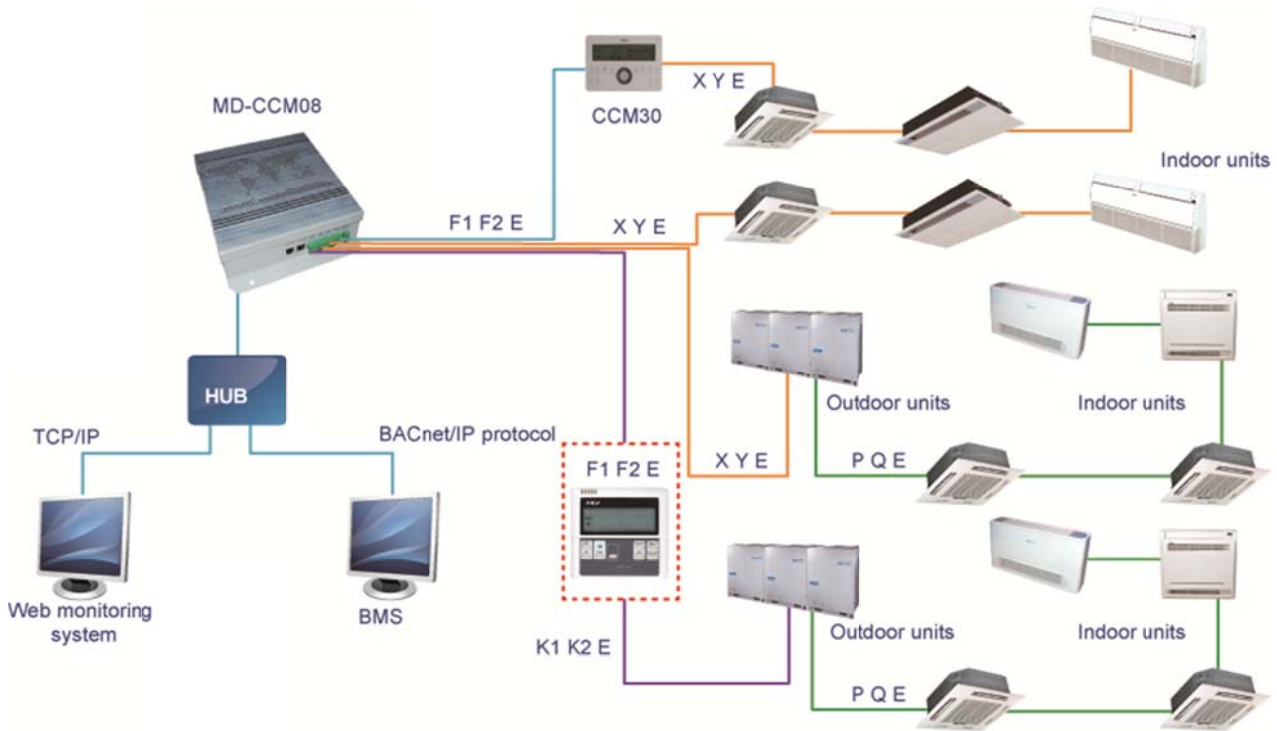
※　**Reset setting**

After power on, short connect the port 1 and port 2 can reset the gateway to the factory setting if you need. The connection method as following:

4.2.4 Network example

※ Each port can connect up to 64 indoor units or up to 32 outdoor units and 8 refrigerant systems.

※ Each port can be connected directly to XYE ports of indoor units or the K1K2E ports of the outdoor units.

※ Each port can also be connected to one indoor controller CCM03 or one outdoor monitor CCM02 through F1F2E ports, and then the address of indoor controller CCM30 must be set to zero (0) and the address of outdoor monitor CCM02 must be set to 16.

※ When connecting to the indoor CCM controller via XYE ports of master outdoor unit of every refrigerant system. Notice that in this case, the outdoor unit must be set to auto addressing mode, and it will be effective after about 6 minutes.

4.2.5 WEB access

MD-CCM08 can offer WEB service, which allows users access the gateway from the local computer network. Type the address of MD-CCM08 in the explorer's address field and users can view then MD-CCM08's connecting state or change the working state of the indoor units. The interfaces are as follows:
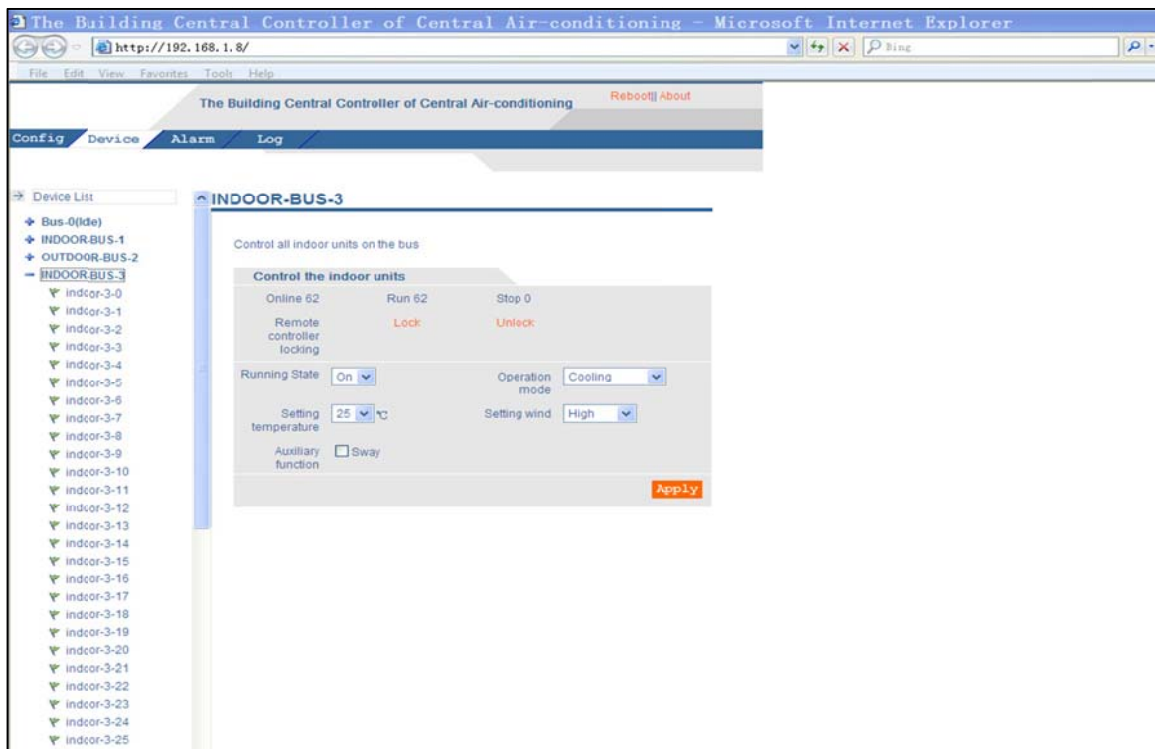

Notes:

1. To save the air conditioner's running data; an SD card is needed but not included in this product. Users can purchase one from the market. SD cards of different volume can save different periods of running data. Normally an SD card of 1 GB is able to save the data of more than 1 year.

2. Do not operate the air-conditioner frequently, for avoiding the operating state would be different from the expected state. The operation time interval between different objects in the same air-conditioner should be over 10~20 seconds and ensure that the air conditioner state can be changed timeliness and effectiveness.

4.2.6 Network setting

There is an Ethernet (Eth0) port in the controller. The Ethernet port is the network port of BACnet/IP.
IP address of Eth0 has been set "192.168.1.8" before ex-factory, please modify the address of MD-CCM08 and make sure that the address is in the same subnet with the BMS computer before used.
Moreover, the default administrator account to login the MD-CCM08 is "Admin", default password "12345".
If the gateway and PC in different network segment, you need to replace IP address 192.168.1.8 to your IP address first.
For example: the new IP address is 10.46.1.136, subnet mask 255.255.255.0 and gateway 10.46.1.1.
After configuration, must click the "Apply" and "Reboot" key to restart the CCM08.

Control System
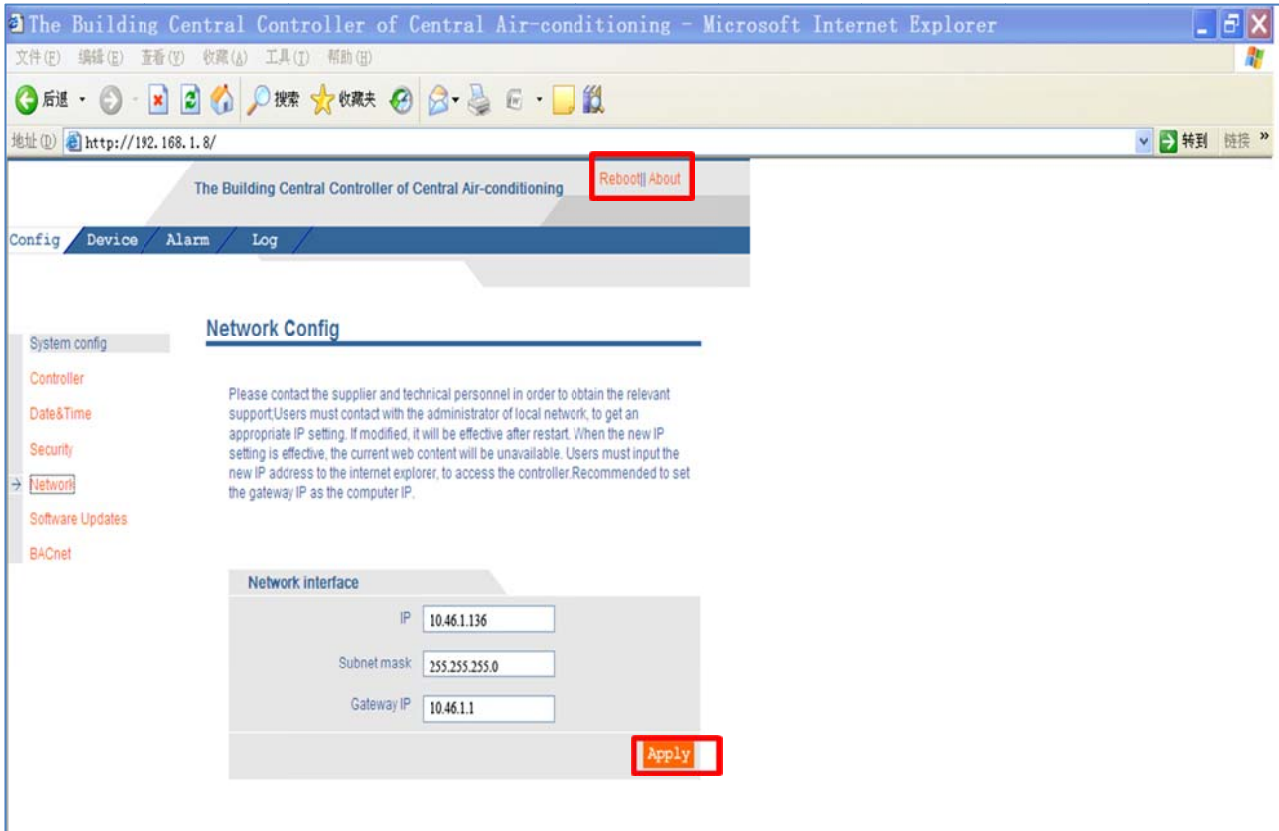
4.2.7 Available BMS

MD-CCM08 has a wonderful adaptability to the BMS. It can be connected to many company's building management system software. We can get the mainly supporting BMS information from the table below:

	Company	BMS software	Brand
1	SIMENS	APOGEE	APOGEE
2	TRANE	Tracer Summit	TRACER SUMMIT
3	Honeywell	Alerton	ALERTON
4	Schneider	Andover	Andover Controls A Balfour Beatty Company
5	Johnson	METASYS	METASYS

4.2.8 BACnet setting

The BACnet network number only represents a BACnet Centralized Controller, and in the range from 0 to 65535. After setting must be restart the device.

BACnet network No. is the BACnet network No. that belong to the BACnet device of the MDV series air conditioner which under connect with the BACnet centralized controller. For different centralized controller must be set in different BACnet network NO., which is the unique number in the system could not be used for represent the other device or BACnet centralized controller.

The calculation formula of air-conditioner indoor and outdoor unit instance number is as follow:

Device ID=BTXX;

B is the bus Number 0-3;

T means type, 0 is the indoor unit, 1is the outdoor unit;

XX is the indoor unit Number 0-63 or outdoor unit 0-31;

4.2.9 Object table

This device provides with different objects tables for the different types of outdoor units which are in using for the MDV system. System will automatically identify the in using outdoor unit and generate the BACnet object.

➢ **Indoor objects**

This equipment provides with fourteen types of BACnet object, show as the following table, for connecting with indoor unit using in the Building Management System (BMS) or other system which suitable for BACnet Protocol.

Number	Content
1	Device information
2	Operation mode
3	Fan state
4	Preset temperature
5	Indoor temperature
6	Timer on setting
7	Timer off setting
8	Swing function
9	Electric heater function
10	Malfunction state
11	Protection state
12	Mode query
13	Fan speed query
14	Temperature setting query

1. Device information

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Device + AC number	R
Object Name	CharacterString	Indoor_*_*	R
Object Type	BACnetObject Type	Device	R
Device Status	BACnetDeviceStatus	Operational	R
Producer Name	CharacterString	AC Inc	R
Producer Identifier	Unisgned16	111 (Unsigned)	R
Model Name	CharacterString	Get one of these from Protocol analysis: Wall Mounted Type Floor Type Embedded Type Duct Type Floor & ceiling Type AC Auxiliary Machine Type Digital Mutil-connection Type Frequency Conversion Type Digital Rotation Type	R
Firmware Edition	CharacterString	1.0	R
Application Software Edition	CharacterString	1.0	R
Protocol Edition	Unsigned	1	R
Protocol Correspondency Type	Unsigned	3	R
Protocol Service Support	BACnetServiceSupport	ReadProperty	R
Protocol Object Types Support	BACnetObjectTypesSupport	AnalogInput	R
Object Array	BACnetArray[n]	Array all object	R
Max length of APDU support	Unsigned	1476	R
Segmentation support	BACnetSegmentation	Segmented both(0)	R
Local Time	Time		R/W
Local Date	Date		R/W
APDU Segmentation Time over	Unsigned	2000	O
APDU Time over	Unsigned	3000	R
APDU Resend Times	Unsigned	3	R
Device Address Binding	AddressBinding	ASN.1 ''	R
Operation instruction	Select the "Object name" property of this selected object, it means "Model information" and cannot be set.		

2. Operation mode

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Multistate-output 1	R
Object Name	CharacterString	AC_OMode Setting	R
Object Type	BACnetObjectType	Multistate-output	R
Description	CharacterString	Operation mode setting	O
Current value	Unsigned		W
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
States number	Unsigned	6	R
States text	BACnet ARRAY[N] CharacterString	Auto Cool Heat Dehumidify Fan Only Stop	O
Priority Array	BACnetPriorityArra	NULL	R
Release default	Unsigned	6	R
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Feedback value	Unsigned	6	O
Event enable	BACnet Event TransitionBits	T T T	O
Affirm transform	BACnet Event TransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, and the property that is the "operation mode" state. The property is writable and can be set on the "current value" property. When "current value" property is "1" means running the Heating mode; When "current value" property is "2", means running the Cooling mode; When "current value" property is "3" means running the Dehumidify mode; When "current value" property is "4" means running the Fan only mode; When "current value" property is "5" means running the Auto mode; When "current value" property is "3" means Turn off.		

3. Fan states

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Multistate-output 2	R
Object Name	CharacterString	AC_OFan Speed	R
Object Type	BACnetObjectType	Multistate-output	R
Description	CharacterString	Fan Speed Setting	O
Current value	Unsigned		W
Status Flags	BACnetStatusFlags	F F F F	R
Status Flags	BACnet Event States	Normal	R
Event states	BOOLEAN	F	R
Out of service	Unsigned	5	R
States number	BACnet ARRAY[N] CharacterString	Stop Auto Low Middle High	O
Priority Array	BACnetPriorityArra	NULL	R
Release default	Unsigned	5	R
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Feedback value	Unsigned	5	O
Event enable	BACnetEvent TransitionBits	T T T	O
Affirm transform	BACnetEvent TransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, and the property that is the "operation fan speed" state. The property is writable and can be set on the "current value" property. When "current value" property is "1" means running the high fan; When "current value" property is "2" means running the middle fan; When "current value" property is "3" means running the low fan; When "current value" property is "4" means running the auto fan; When "current value" property is "5" means fan stop. For ensure the normal work of the air conditioner and during air conditioner operating, if the "current value" is set to "5" (the order of stopping the fan), it will be automatically ignored air conditioner system.		

4. Preset temperature

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Analog-output 1	R
Object Name	Character String	AC_OTemp Setting	R
Object Type	BACnetObjectType	Analog-output	R
Description	CharacterString	Temperature Setting	O
Current value	REAL		W
Status Flags	BACnetStatusFlags	F F F F	R
Status Flags	BACnet Event States	Normal	R
Event states	BOOLEAN	F	R
Unit	BACnet Engineering Units	Degree-Celsius	R
Minimum	REAL	16	O
Maximum	REAL	32	O
Priority array Value	BACnetPriority Arra	NULL	R
Default release	REAL	25	R
Distinguishability	REAL	1	O
COV increment	REAL	1	O
Low valve value	REAL	16	O
High valve value	REAL	32	O
Width valve value	REAL	1	O
Enable valve value	BACnet Limit Enable	T T	O
Event enable	BACnet Event Transition Bits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Publicly type	Unsigned	1701	O
Time delay	Unsigned	1	O
Affirm transform	BACnetEvent TransitionBits	T T T	O
Operation instruction	Select the object "current value" property, and the property that is the current "Setting temperature". The property is writable and can be set. The "Minimum" means the lower limit value of the setting temperature; The "Maximum" means the lower limit value of the setting temperature, and the setting temperature value cannot exceed the upper limit value and lower limit value.		

5. Room temperature

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Analog-input 1	R
Object Name	CharacterString	AC_ITempIndoor	R
Object Type	BACnetObjectType	Analog-input	R
Current value	REAL		R
Description	CharacterString	Indoor temperature	O
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Reliability	BACnetReliability	NO-FAULT-DETECTED	R
Out of service	BOOLEAN	F	R
Unit	BACnetEngineering Units	Degree-Celsius	R
Minimum	REAL	-20	O
Maximum	REAL	100	O
Distinguishability	REAL	1	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Low valve value	REAL	-20	O
High valve value	REAL	100	O
Width valve value	REAL	1	O
Enable valve value	BACnetLimitEnable	T T	O
Event enable	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	event	O
Operation instruction	Select the object "current value" property, and the property that is the current "Room temperature". The property is read only and cannot be set. The "Minimum" means the lower limit value of the temperature; The "Maximum" means the lower limit value of the temperature. When "the current value is greater than the" upper limit value "or" less than "lower limit value", the controller will automatically generate alarm warning to BMS.		

6. Timer on setting

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnet Object Identifier	Analog-input 2	R
Object Name	Character String	AC_IOnTime	R
Object Type	BACnet Object Type	Analog-input	R
Current value	REAL		R
Description	Character String	On Time	O
Status Flags	BACnet Status Flags	F F F F	R
Event states	BACnet Event States	Normal	R
Reliability	BACnet Reliability	NO-FAULT-DETECTED	R
Out of service	BOOLEAN	F	R
Unit	BACnetEngineering Units	Hours	R
Minimum	REAL	0	O
Maximum	REAL	24	O
Distinguishability	REAL	0.25	O
Reliability	BACnetReliability	NO-FAULT-DETECTED	R
Priority Array	BACnetPriorityArra	NULL	O
Default release	REAL	0	O
COV INCREMENT	REAL	0.25	O
Low valve value	REAL	24	O
High valve value	REAL	0.5	O
Enable valve value	BACnetLimitEnable	T T	O
Event enable	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Publicly type	Unsigned	1701	O
Time delay	Unsigned	1	O
Affirm transform	BACnetEventTransitionBits	T T T	O
Operation instruction	Select the object "current value" property and the property that is the current "Timer on time". The property is read only and cannot be set. "0" to "24" means no timer to 24 hours timer.		

7. Timer off setting

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Analog-input 3	R
Object Name	CharacterString	AC_IOffTime	R
Object Type	BACnetObjectType	Analog-input	R
Current value	REAL	0	R
Description	CharacterString	Off Time	O
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
Unit	BACnetEngineering Units	Hours	R
Minimum	REAL	0	0
Maximum	REAL	24	0
Distinguishability	REAL	0.25	0
Priority Array	BACnetPriorityArra	NULL	R
Default release	REAL	0	R
COV INCREMENT	REAL	0.25	O
Low valve value	REAL	0	O
High valve value	REAL	24	O
Width valve value	REAL	0.5	O
Enable valve value	BACnetLimitEnable	T T	O
Event enable	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Publicly type	Unsigned	1701	O
Time delay	Unsigned	1	O
Affirm transform	BACnetEventTransitionBits	T T T	O
Operation instruction	Select the object "current value" property and the property that is the current "Timer off time". The property is read only and cannot be set. "0" to "24" means no timer to 24 hours timer.		

8. Swing function

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Binary-output 1	R
Object Name	CharacterString	AC_OSwing	R
Object Type	BACnetObjectType	Binary-output	R
Current value	BACnetBinaryPV	inactive	W
Description	CharacterString	Swing Setting	O
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
Polarity	BACnetPolarity	Normal	R
Inactive text	CharacterString	Turn off	O
Active text	CharacterString	Turn on	O
Time delay	Unsigned	1	O
States change time	BACnetDateTime		O
States change times	Unsigned		O
Change time to 0	BACnetDateTime		O
Publicly type	Unsigned	1701	O
Feedback value	BACnetBinaryPV	inactive	O
Event enable	BACnetEventTransitionBits	T T T	R
Affirm transform	BACnetEventTransitionBits	T T T	O
Priority Array	BACnetPriorityArra	NULL	R
Default release	BACnetBinaryPV	inactive	R
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property and the property that is the "Swing function" states. "Inactive" states means the swing function is turn off, "active" states means the swing function is turn on.		

9. Electronic heater function

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Binary-output 2	R
Object Name	CharacterString	AC_OElecHeat	R
Object Type	BACnetObjectType	Binary-output	R
Current value	BACnetBinaryPV	Inactive	W
Description	CharacterString	Elecheat Setting	O
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
Polarity	BACnet Polarity	Normal	R
Inactive text	CharacterString	Turn off	O
Active text	CharacterString	Turn on	O
Time delay	Unsigned	1	O
States change time	BACnetDateTime		O
States change times	Unsigned		O
Change time to 0	BACnetDateTime		O
Publicly type	Unsigned	1701	O
Feedback value	BACnet Binary PV	inactive	O
Event enable	BACnetEvent TransitionBits	T T T	R
Affirm transform	BACnetEvent TransitionBits	T T T	O
Priority Array	BACnet Priority Arra	NULL	R
Default release	BACnetBinaryPV	inactive	R
Notify Type	BACnetNotify Type	alarm	O
Operation instruction	Select the object "current value" property and the property that is the "electric auxiliary heater function" states. "Inactive" states means the electric auxiliary heater is turn off, "active" states means the electric auxiliary heater is turn on. For ensure the normal work of the air conditioner and during air conditioner operating, if the "current value" is set to "electric auxiliary heater function" turn on command, it will be automatically ignored air conditioner system.		

10. Error states

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Multistate-input 1	R
Object Name	Character String	AC_IMalfunction	R
Object Type	BACnetObjectType	Multistate-input	R
Current value	CharacterString	Malfunction State	O
Description	Unsigned		R
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
States number	Unsigned	17	R
States text	BACnet ARRAY[N] CharacterString	No E EF EE ED EC EB EA E9 E8 E7 E6 E5 E4 E3 E2 E1 E0	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Event enable	BACnetEventTransitionBits	T T T	O
Affirm transform	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, and the property that is the current "error states", the property is read only. If the "current value" is "No E" means that no error, the other error codes means the relevant error, the details please refer to related product manual. When multiple faults occur at the same time, it will only display the smallest object number. Among them, if the "current value" is "1" means" E0 "; if the "current value" is "2" means E1; if the "current value" is "3" means E2; if the "current value" is "4" means E3; if the "current value" is "5" means E4; if the "current value" is "6" means E5; if the "current value" is "7" means E6; if the "current value" is "8" means E7; if the "current value" is "9" means E8; if the "current value" is "10" means E9; if the "current value" is "11" means EA; if the "current value" is "12" means EB; if the "current value" is "13" means EC; if the "current value" is "14" means ED; if the "current value" is "157" means EE; if the "current value" is "16" means EF; if the "current value" is "17" means no error.		

11. Protection states

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Multistate-input 2	R
Object Name	CharacterString	AC_IProtect	R
Object Type	BACnetObjectType	Multistate-input	R
Current value	CharacterString	Protect State	O
Description	Unsigned		R
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
States number	Unsigned	11	R
States text	BACnetARRAY[N] CharacterString	No P PF P8 P7 P6 P5 P4 P3 P2 P1 P0	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Event enable	BACnet Event Transition Bits	T T T	O
Affirm transform	BACnet Event Transition Bits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, and the property that is the current "protection states", the property is read only. If the "current value" is "No P" means that no protection, the other protection codes means the relevant error, the details please refer to related product manual. When multiple faults occur at the same time, it will only display the smallest object number. Among them, if the "current value" is "1" means" P0 "; if the "current value" is "2" means P1; if the "current value" is "3" means P2; if the "current value" is "4" means P3; if the "current value" is "5" means P4; if the "current value" is "6" means P5; if the "current value" is "7" means P6; if the "current value" is "8" means P7; if the "current value" is "9" means P8; if the "current value" is "10" means PF; if the "current value" is "11" means no protection.		

12. Mode query

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnet Object Identifier	Multistate-input 3	R
Object Name	Character String	AC_Query Mode	R
Object Type	BACnet Object Type	Multistate -input	R
Description	Character String	Query Mode	O
States text	BACnet ARRAY[N] CharacterString	{ "Heat", "Cool", "Dehumidify", "Fan only" ,"Auto", "Stop"}	O

13. Fan speed query

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Multistate-input 4	R
Object Name	CharacterString	AC_QueryFa nSpeed	R
Object Type	BACnetObjectType	Multistate -input	R
Description	CharacterString	Query Fan Speed	O
States text	BACnet ARRAY[N] CharacterString	{"High", "Middle", "Low", "Auto","Stop"}	O

14. Temperature setting query

Property identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Multistate-input 4	R
Object Name	CharacterString	AC_Quer Temp Setting	R
Object Type	BACnetObjectType	Multistate -input	R
Current value	REAL	0	r
Description	CharacterString	QueryTempSetting	O
Unit	BACnetEngineeringUnits	Degree-Celsius	R

➢ **Outdoor objects**

The device provides ten types of BACnet object for connecting with Inverter A/C or Digital A/C as the following table, and using in the Building Management System (BMS) or other system which suitable for BACnet Protocol.

Number	Content
1	Device Information
2	Operation mode
3	Fan state
4	Outdoor temperature
5	Indoor unit quantity
6	The current of compressor 1
7	The current of compressor 2
8	The current of compressor 3
9	Malfunction state
10	Protection state

1. Device information

Property Identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Device + ACnumber	R
Object Name	CharacterString	Outdoor_*_*_*	R
Object Type	BACnetObjectType	Device	R
System State	BACnetDeviceStatus	Operational	R
Producer Name	CharacterString	AC Inc	R
Producer Identifier	Unisgned16	111(Unsigned)	R
Model Name	CharacterString	Frequency Conversion AC or Digital rotation AC	R
Firmware Edition	CharacterString	1.0	R
Application Software Edition	CharacterString	1.0	R
Protocol Edition	Unsigned	1	R
Protocol Correspondency Type	Unsigned	3	R
Protocol Service Support	BACnetServiceSupport	Read Property etc.	R
Protocol Object Types Support	BACnetObjectTypesSupport	Analog Input etc.	R
Object Array	BACnetArray[n]	List all objects	R
Max length of APDU support	Unsigned	1476	R
Segmentation support	BACnetSegmentation	Segmented both(0)	R
Local Time	Time		R/W
Local Date	Date		R/W
APDU SEGMENTATION TIMEOVER	Unsigned	2000	O
APDU TIMEOVER	Unsigned	3000	R
APDU RESEND TIMES	Unsigned	3	R
Device Address Binding	AddressBinding	ASN.1 ''	R
Operation instruction	Select the "Object name" property of this selected object, it means "Model information" and cannot be set. Specific "model name" by the protocol specified.		

2. Operation mode

Property Identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Multistate-input 1	R
Object Name	CharacterString	AC_IOperationMode	R
Object Type	BACnetObjectType	Multistate-input	R
Description	CharacterString	Operation mode	O
Current value	Unsigned		R
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
States number	Unsigned	3	R
States text	BACnetARRAY[N] CharacterString	Stop Cool Heat	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Event enable	BACnetEventTransitionBits	T T T	O
Affirm transform	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, and the property that is the "outdoor operation mode" state. The property cannot be set. When "current value" property is "1" means running the Heating mode; When "current value" property is "2" means running the Cooling mode; When "current value" property is "3" means Turn off.		

3. Fan states

Property Identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Multistate-iutput 2	R
Object Name	CharacterString	AC_IFanSpeed	R
Object Type	BACnetObjectType	Multistate- iutput	R
Current value	Unsigned		O
Description	CharacterString	Fan speed	R
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
States number	Unsigned	4	R
States text	BACnetARRAY[N] CharacterString	Stop Low Middle High	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Event enable	BACnetEventTransitionBits	T T T	O
Affirm transform	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, and the property that is the "operation fan speed" states. The property cannot be set. When "current value" property is "1" means running the high fan; When "current value" property is "2" means running the middle fan; When "current value" property is "3" means running the low fan; When "current value" property is "4" means fan stop.		

4. Outdoor temperature

Property Identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Analog-iutput 1	R
Object Name	CharacterString	AC_ITempOutoor	R
Object Type	BACnetObjectType	Analog-iutput	R
Current value	REAL		R
Description	CharacterString	Outdoor Temperature	O
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
Unit	BACnetEngineering Units	Degree-Celsius	R
Minimum	REAL	-20	O
Maximum	REAL	100	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Low valve value	REAL	-20	O
High valve value	REAL	100	O
Width valve value	REAL	1	O
Enable valve value	BACnetLimitEnable	T T	O
Event enable	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	event	O
Operation instruction	Select the object "current value" property, and the property that is the current "outdoor temperature". The property cannot be set. The "Minimum" means the lower limit value of the temperature; The "Maximum" means the lower limit value of the temperature. When the current value is greater than the" upper limit value" or less than "lower limit value", the controller will automatically generate alarm warning to BMS.		

5. Indoor quantity

Property Identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Analog-iutput 2	R
Object Name	CharacterString	AC_ITotalACs	R
Object Type	BACnetObjectType	Analog-iutput	R
Current value	REAL		R
Description	CharacterString	Indoor unit qty	O
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
Unit	BACnetEngineering Units		R
Minimum	REAL	0	O
Maximum	REAL	250	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Low valve value	REAL	0	O
High valve value	REAL	250	O
Width valve value	REAL	1	O
Enable valve value	BACnetLimitEnable	T T	O
Event enable	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, and the property that is the current "indoor quantity". The property cannot be set.		

6. Compressor 1 current

Property Identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Analog-iutput 3	R
Object Name	CharacterString	AC_ICom1Current	R
Object Type	BACnetObjectType	Analog-iutput	R
Current value	REAL		R
Description	CharacterString	Compressor 1 current	O
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
Unit	BACnetEngineering Units	Amperes	R
Minimum	REAL	0	O
Maximum	REAL	200	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Low valve value	REAL	0	O
High valve value	REAL	200	O
Width valve value	REAL	1	O
Enable valve value	BACnetLimitEnable	T T	O
Event enable	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, the property that is the "compressor 1 current" and cannot be set. The "Minimum" means the lower limit value of the compressor 1 current; The "Maximum" means the lower limit value of the compressor 1 current. When "the current value is greater than the" upper limit value" or less than "lower limit value", the controller will automatically generate alarm warning to BMS.		

7. Compressor 2 current

Property Identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Analog-iutput 4	R
Object Name	CharacterString	AC_ICom2Current	R
Object Type	BACnetObjectType	Analog-iutput	R
Current value	REAL		R
Description	CharacterString	Compressor 2 current	O
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
Unit	BACnetEngineering Units	Amperes	R
Minimum	REAL	0	O
Maximum	REAL	200	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Low valve value	REAL	0	O
High valve value	REAL	200	O
Width valve value	REAL	1	O
Enable valve value	BACnetLimitEnable	T T	O
Event enable	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, the property that is the "compressor 2 current" and cannot be set. The "Minimum" means the lower limit value of the compressor 2 current; The "Maximum" means the lower limit value of the compressor 2 current. When "the current value is greater than the" upper limit value" or less than "lower limit value", the controller will automatically generate alarm warning to BMS.		

8. Compressor 3 current

Property Identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Analog-iutput 5	R
Object Name	CharacterString	AC_ICom3Current	R
Object Type	BACnetObjectType	Analog-iutput	R
Current value	REAL		R
Description	CharacterString	Compressor 3 current	O
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
Unit	BACnetEngineering Units	Amperes	R
Minimum	REAL	0	O
Maximum	REAL	200	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Low valve value	REAL	0	O
High valve value	REAL	200	O
Width valve value	REAL	1	O
Enable valve value	BACnetLimitEnable	T T	O
Event enable	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, the property that is the "compressor 3 current" and cannot be set. The "Minimum" means the lower limit value of the compressor 3 current; The "Maximum" means the lower limit value of the compressor 3 current. When "the current value is greater than the" upper limit value" or less than "lower limit value", the controller will automatically generate alarm warning to BMS.		

9. Error states

Property Identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Multistate-input 3	R
Object Name	CharacterString	AC_IOutfunction	R
Object Type	BACnetObjectType	Multistate-input	R
Description	CharacterString	Malfunction State	O
Current value	Unsigned		R
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
States number	Unsigned	17	R
States text	BACnetARRAY[N] CharacterString	No E EF EE ED EC EB EA E9 E8 E7 E6 E5 E4 E3 E2 E1 E0	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Event enable	BACnetEventTransitionBits	T T T	O
Affirm transform	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, and the property that is the current "error states", the property is read only. If the "current value" is "No E" means that no error, the other error codes means the relevant error, the details please refer to related product manual. When multiple faults occur at the same time, it will only display the smallest object number. Among them, if the "current value" is "1" means" E0 "; if the "current value" is "2" means E1; if the "current value" is "3" means E2; if the "current value" is "4" means E3; if the "current value" is "5" means E4; if the "current value" is "6" means E5; if the "current value" is "7" means E6; if the "current value" is "8" means E7; if the "current value" is "9" means E8; if the "current value" is "10" means E9; if the "current value" is "11" means EA; if the "current value" is "12" means EB; if the "current value" is "13" means EC; if the "current value" is "14" means ED; if the "current value" is "157" means EE; if the "current value" is "16" means EF; if the "current value" is "17" means no error.		

10. Protection states

Property Identifier	Data mode	Property value	Read/write
Object Identifier	BACnetObjectIdentifier	Multistate-input 4	R
Object Name	CharacterString	AC_IOutprotect	R
Object Type	BACnetObjectType	Multistate-input	R
Description	CharacterString	Protect State	O
Current value	Unsigned		R
Status Flags	BACnetStatusFlags	F F F F	R
Event states	BACnet EventStates	Normal	R
Out of service	BOOLEAN	F	R
States number	Unsigned	17	R
States text	BACnet ARRAY[N]CharacterString	No P PF PE PD PC PB PA P9 P8 P7 P6 P5 P4 P3 P2 P1 P0	O
Time delay	Unsigned	1	O
Publicly type	Unsigned	1701	O
Event enable	BACnetEventTransitionBits	T T T	O
Affirm transform	BACnetEventTransitionBits	T T T	O
Notify Type	BACnetNotifyType	alarm	O
Operation instruction	Select the object "current value" property, and the property that is the current "protection states", the property is read only. If the "current value" is "No P" means that no protection, the other protection codes means the relevant error, the details please refer to related product manual. When multiple faults occur at the same time, it will only display the smallest object number. Among them, if the "current value" is "1" means" P0 "; if the "current value" is "2" means P1; if the "current value" is "3" means P2; if the "current value" is "4" means P3; if the "current value" is "5" means P4; if the "current value" is "6" means P5; if the "current value" is "7" means P6; if the "current value" is "8" means P7; if the "current value" is "9" means P8; if the "current value" is "10" means PF; if the "current value" is "11" means PA; if the "current value" is "12" means PB; if the "current value" is "13" means PC; if the "current value" is "14" means PD; if the "current value" is "15" means PE; if the "current value" is "16" means PF; if the "current value" is "17" means no protection.		

4.2.10 Announce BACnet protocol realize the consistency

✓ **Mode of supportive BACnet consistency**

Mode 1	☐	Mode 4	☐
Mode 2	☐	Mode 5	☐
Mode 3	☑	Mode 6	☐

✓ **Functional group of supportive BACnet**

Clock function group ☐

Hand-operation equipment functional group ☐

Personal computer working station functional group ☐

Event start functional group ☐

Event response functional group ☐

COV event start functional group ☐

COV event response functional group ☐

File functional group ☐

Reinitialization functional group ☐

Virtual operator interface functional group ☐

Virtual terminal functional group ☐

Communication equipment functional group ☐

Time main station functional group ☐

✓ **Application services of supplied BACnet**

Application services	Request start	Request preformed
Confirm alarm	☐	☐
Confirmed COV notification	☐	☐
Confirmed event notification	☐	☐
Get Alarm Summary	☐	☐
Get Enrollment Summary	☐	☐
Unconfirmed COV Notification	☐	☐
Unconfirmed event notification	☐	☐
Atomic Read File	☐	☐
Atomic write File	☐	☐
Add List Element	☐	☐
Remove List Element	☐	☐
Create Object	☐	☐
Delete Object	☐	☐
Read Property	☐	☑
Read Property Conditional	☐	☐
Read Property Multiple	☐	☑
Write Property	☐	☑
Write Property Multiple	☐	☑
Device Communication Control	☐	☐
Confirmed Private Transfer	☐	☐
Unconfirmed Private Transfer	☐	☐
Reinitialize Device	☐	☐
Confirmed Text Message	☐	☐
Unconfirmed Text Message	☐	☐
Time Synchronization	☐	☐
Who-Has	☑	☑
I-Has	☐	☑
Who-Is	☑	☑
I-Am	☐	☑
VT –Open	☐	☐
VT –Open	☐	☐
VT –Open	☐	☐
Authentication Service	☐	☐
Request secret key service	☐	☐

✓ **Supportive object Type**

Object Type	support or not	Dynamic creatie or not	Dynamic delete or not	Optional attribute support	writable attribute
Analog Input Object Type	☑	☑	☑	——	——
Analog Output Object Type	☑	☑	☑	——	——
Analog Value Object Type	☑	☑	☑	——	——
Binary Input Object Type	☑	☑	☑	——	——
Binary Output Object Type	☑	☑	☑	——	——
Binary Value Object Type	☑	☑	☑	——	——
Calendar Object Type	☐	☐	☐	——	——
Command Object Type	☐	☐	☐	——	——
Device Object Type	☑	☑	☑	——	——
Event Enrollment Object Type	☐	☐	☐	——	——
File Object Type	☐	☐	☐	——	——
Group Object Type	☐	☐	☐	——	——
Loop Object Type	☐	☐	☐	——	——
Multi-state Input Object Type	☑	☑	☑	——	——
Multi-state Output Object Type	☑	☑	☑	——	——
Notification Class Object Type	☐	☐	☐	——	——
Program Object Type	☐	☐	☐	——	——
Schedule Object Type	☐	☐	☐	——	——

✓ **Option of Data Link Layer**

☑ ISO 8802-3,10BASE5　　　　　　　　☐ ARCNET, coax star

☑ ISO 8802-3,10BASE2　　　　　　　　☐ ARCNET, coax bus

☑ ISO 8802-3,10BASET　　　　　　　　☐ ARCNET, twisted pair star

☐ ISO 8802-3, Fiber　　　　　　　　　☐ ARCNET, twisted pair star

☐ MS/TP master, baud rate(s):＿＿＿＿　☐ ARCNET, fiber star

☐ MS/TP slave, baud rate(s):＿＿＿＿　☐ LonTalk, medium:＿＿＿

☐ Point-To-Point, EIA232, baud rate(s):＿＿＿＿　☐ other

☐ Point-To-Point, modem, baud rate(s):＿＿＿＿

✓ **Supportive character set**

☑ ANSI X3.4　　　　☑ IBM TM/Microsoft TM DBCS　　　☐ JIS C 6226

☐ ISO 10646(ICS-4)　☑ ISO 10646(UCS2)　　　　　　　☐ ISO 8859-1

✓ **Especial function**

Subsection request support　☑ yes　☐ no　　window size: 1476

Subsection responds support　☑ yes　☐ no　　window size: 1476

Notes: BACnet® is a registered trademark of America ASHARE association which registered in United State and other countries.

4.3 Modbus BMS gateway: CCM-18A

CCM-18A support the Modbus protocol network, bridge the Midea central A/C system to the BMS, and support RTU or TCP/IP mode.

✧ Support the Modbus protocol network

✧ Built-in WEB server function

✧ Each gateway can be connected up to 16 or 64 indoor units and 4 outdoor units (4 outdoor units must be in the same system)

✧ Transfer the information via the RTU mode

✧ Can directly connect with indoor/outdoor units without centralized controller CCM30/CCM03 and monitor controller CCM02

4.3.1 Main features

◆ Can check and control all indoor units through built-in Web server functions.

◆ Can directly connect with indoor/outdoor units without centralized controller CCM30/CCM03 and monitor controller CCM02.

◆ Can control indoor units, configure gateway through Web function in the LAN.

◆ Can connect to the BMS system through TCP/IP or RTU.

◆ BMS system can control and get the running real-time data of the air conditioner through CCM-18A.

◆ Two types for your choice:

For CCM-18A/N-U can be connected up to 16 indoor units.

For CCM-18A/N, if there are the V4 Plus and D4 plus series indoor unit , it can be connected up to 64 indoor units and 4 outdoor units, and then if there are the V4 and D3 series indoor units, it can be connected up to 60 indoor units and 4 outdoor units.

1) When the baud rate of the outdoor unit is 600, can be connected up to 64 indoor units and 4 outdoor units.

2) When the baud rate of the outdoor unit is 4800, can be connected up to 60 indoor units (indoor address must be from 4 to 63) and 4 outdoor units.

3) 4 outdoor units must be in the same system and the indoor units can be from different systems but address is not repeated.

4.3.2 Ports instruction

WAN port： Connect to the router by 5 Ethernet cables to ensure that PC can access to the web page.

A1B1E port：Connect to the XYE ports of the indoor unit and the K1K2E ports of the outdoor unit

A2B2E port：Connect to the terminal serial port.

POWER port: Offer DC 5V

Reset button: Can reset to the original setting.

4.3.3 Network structure

Can control the unit and configuration the gateway through WEB function in the LAN

Can be connected to the BMS system through TCP/IP or RTU mode
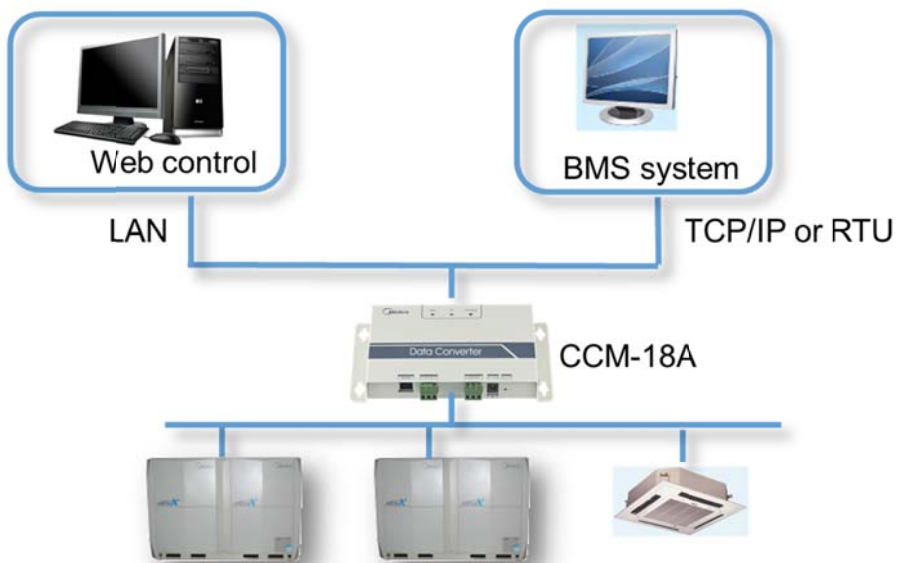
4.3.4 Network example

1. One Modbus gateway can bridge one refrigerant system with a PC or the Modbus master

2. The PC system with the Modbus protocol port can communicate with CCM-18A through RTU or TCP/IP method to control and monitor units. There are two methods for your reference.

1) TCP/IP connection method:
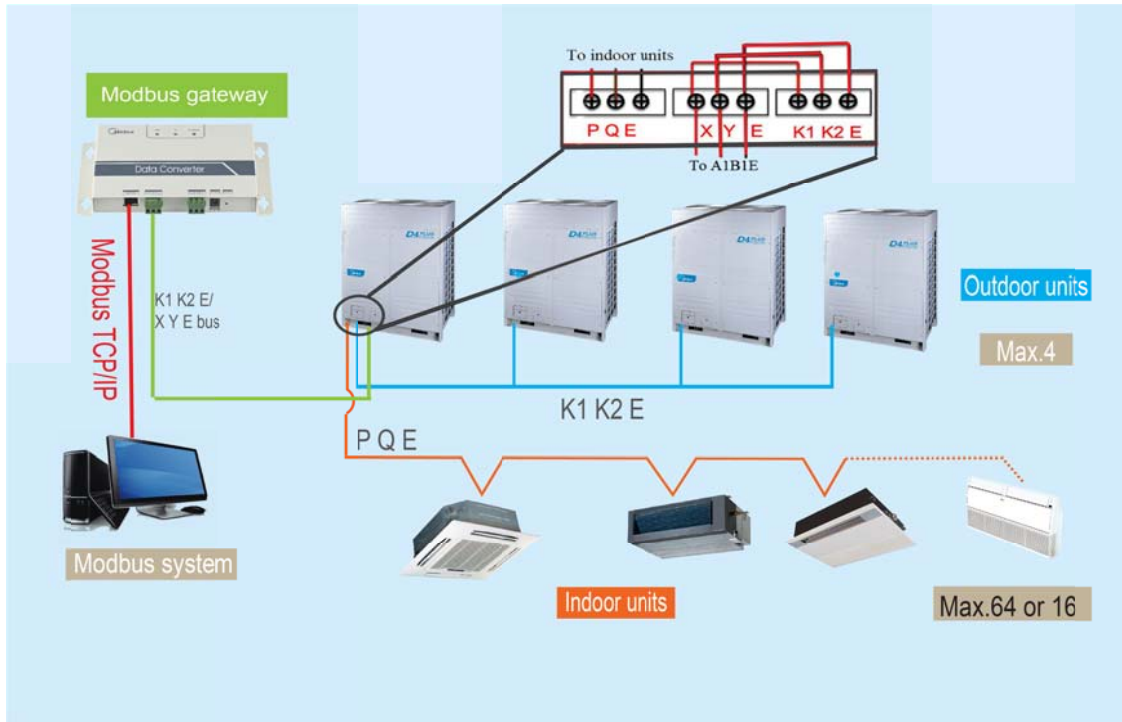
2) RTU connection method:
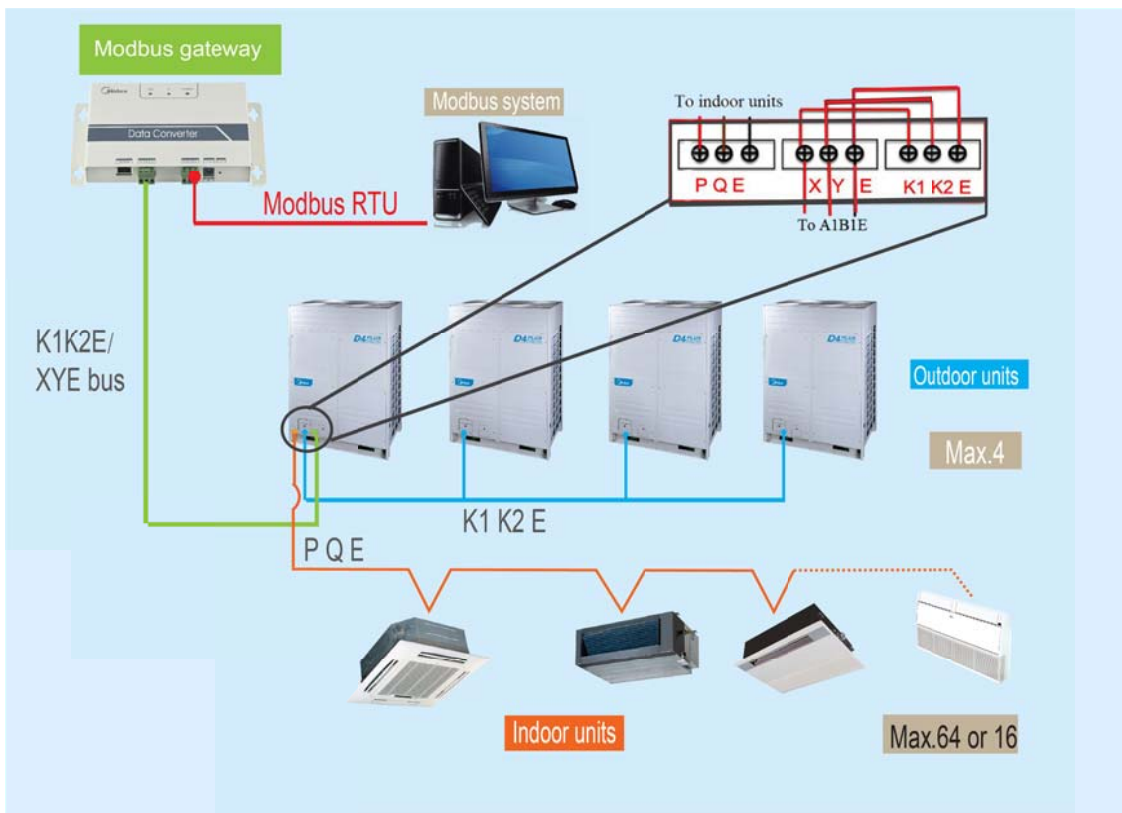
Notes：

◆ If it doesn't monitor the ODU's states, it can directly connect to the XYE ports of the indoor/outdoor units in both ways above.

◆ If it connects to XYE ports of master ODU, ODU must be set to auto addressing mode.

◆ XYE and K1K2E must be connected hand by hand.

◆ It supports two kinds of baud rates (600 and 4800) of the outdoor unit can be connected. Baud rate is 600: V4 Plus and D4 plus series; and baud rate is 4800: V4 and D3 series.

◆ One Modbus gateway can bridge one refrigerant system with a PC or the BMS system (Modbus master).

◆ When the baud rate of the outdoor unit is 600, can be connected up to 64 indoor units and 4 outdoor units.

◆ When the baud rate of the outdoor unit is 4800, can be connected up to 60 indoor units (indoor address must be from 4 to 63) and 4 outdoor units.

◆ The addresses of accessed indoor/outdoor units can't repeat; 4 outdoor units must be in the same system.

4.3.5 Operation introduction

4.3.5.1 IP Configuration

The default IP address of the Modbus gateway is 192.168.1.200. Modbus gateway and the PC which can be used for visiting the websites must be in the same subnet segment, it should be 192.168.1.xxx (xxx must be from 2 to 254). There are 2 methods to configure IP: configure single IP and configure several IP.

Configure single IP

Open protocol dialog, configure the IP address and subnet mask, for example: the IP address is 192.168.1.211, and the subnet mask is 255.255.255.0.

After setting, please click "OK" button.

Fig.4.1

Configure several IP

Before configuring several IP, it needs to configure a statistic IP address. Open the property dialog, select the "Advanced", and it will display the TCP/IP setting dialog.

Click "Add" button in the IP address bar can add an IP address which is in the same segment as "192.168.1.200", for example ,the IP address is 192.168.1.209, subnet mask is 255.255.255.0, and click "OK" button will be OK.
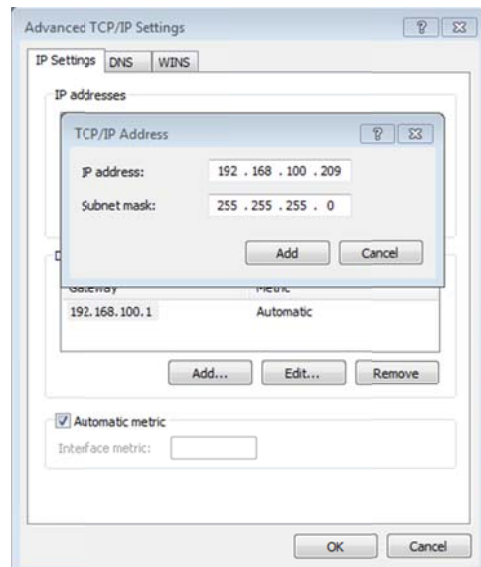
Fig.4.2

4.3.5.2 The gateway configuration

Input "http://192.168.1.200" in the address bar in IE Browser (suggest using IE Browser) and press Enter button will enter the WEB page of Modbus gateway. You can click the "Configuration" button and will display the following dialog.
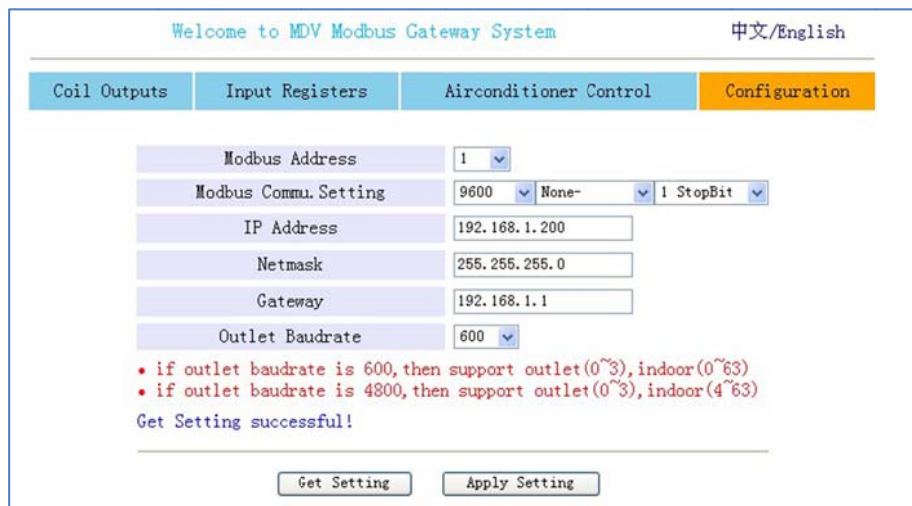
Fig.4.3

Parameters Setting:

Parameter	Description
Modbus address	Modbus ID is used to distinguish multiple gateways which with Modbus protocol in the same subnet segment. The ID must not repeat and can be modified.
Modbus communication setting	Baud rate: suggest 9600; Check bit: no checking by default Stop bit: 1 Stop Bit by default
IP address	IP address of Modbus gateway, multiple IP addresses can't repeat.
Subnet Mask	Default：255.255.255.0
Gateway	Local gateway address
Baud rate of the outdoor unit	Outdoor communication baud rate which is connected to Modbus gateway

Click "Application Settings" after changing the corresponding parameters. If you want the use the updated setting, please click "Get Settings" button.

Modbus gateway will restart automatically after changing settings, and the network will break and reconnect automatically.

4.3.5.3 A/C information query

※ Select "Power winding" or "input register" in the web page to query the information of the air conditioner unit.

When select "power winding", it will display the following dialog.
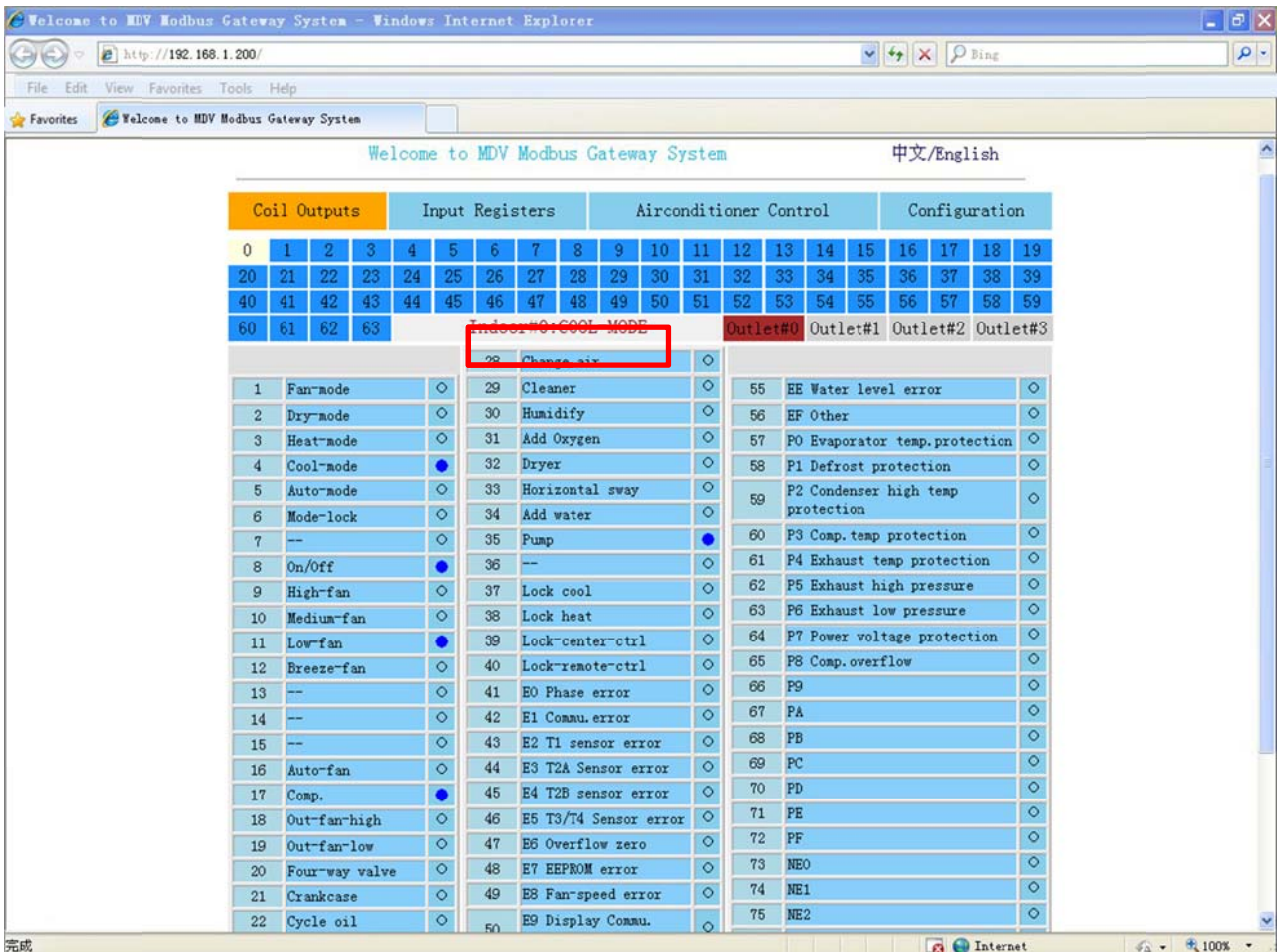
Fig.4.4

When click the address number of the indoor or outdoor unit, it will display corresponding operation information of the air conditioner. The chosen device will display in the red frame.

When click "input register", it will display as following dialog:

Fig.4.5

The first column is the address, the second is the content and the third is displayed value, e.g. 17/0011, 17 is decimal display, 0011 is hexadecimal display.

Explanation of part of the content:

For example, 0~3 outdoor unit online state is 1/0001. When 0# indoor unit is online, its value is

1/0001(decimalism /hexadecimal); when No. 0 and No.1 indoor unit are online, its value is 3/0003 (decimalism /hexadecimal).

4.3.5.4 Air Conditioner Control

※ When click "Air Conditioner Control" on the web page, it will display as following dialog:
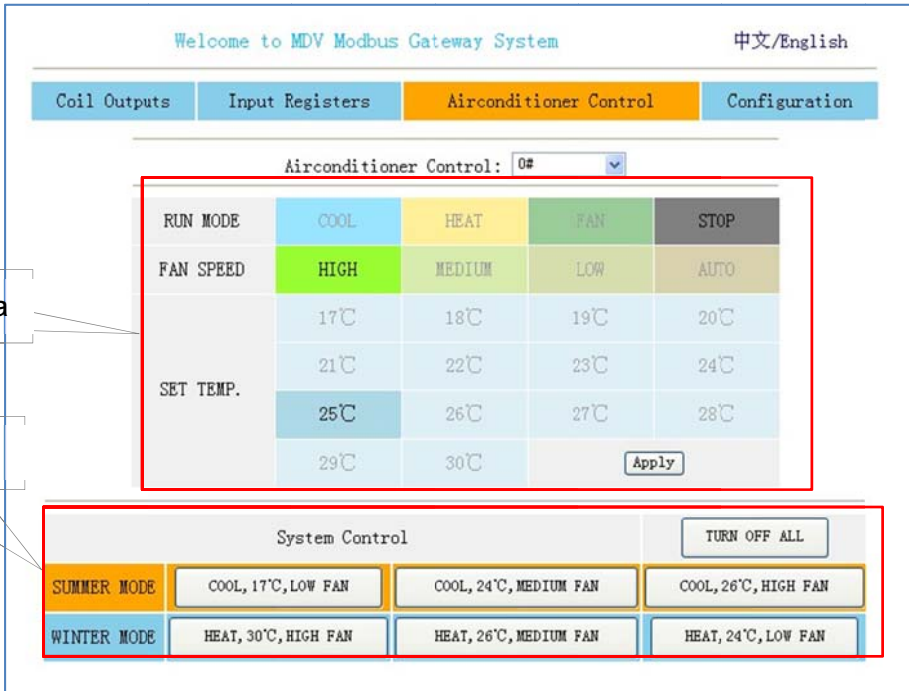
Fig.4.6

Single control area:

You can control a single air conditioner, set mode, fan speed, temperature setting and click "Apply" button to carry out a single controlling function.

Group Control area:

Choose the corresponding group control button, all the indoor units under the control of the Modbus gateway will be turn on or turn off.

4.3.5.5 Software installation and debug

※　**PC access mode**

The PC system with Modbus protocol port can communicate with the Modbus gateway through TCP/IP protocol or Modbus RTU. For detailed information, please refer to 4.3.3 Network example.

※　**Install Modbus Poll software**

Through Modbus Poll software to access debugging.

When finish installing Modbus Poll software, the home page will display as following dialog:
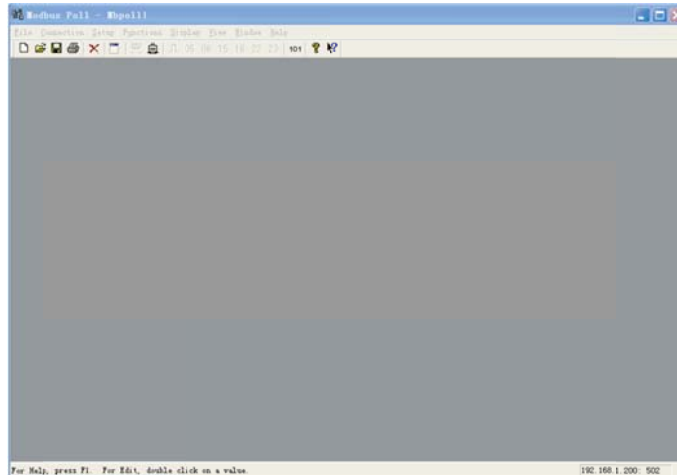
 Fig.4.7

※　**Connect Modbus Gateway**

There're 2 connection methods: TCP/IP and Modbus RTU

1) Connection through TCP/IP

Choose "Connection"->"Connection" in Fig.4.3, it will enter the following dialog, and then you can choose TCP/IP in the Pop-up window:
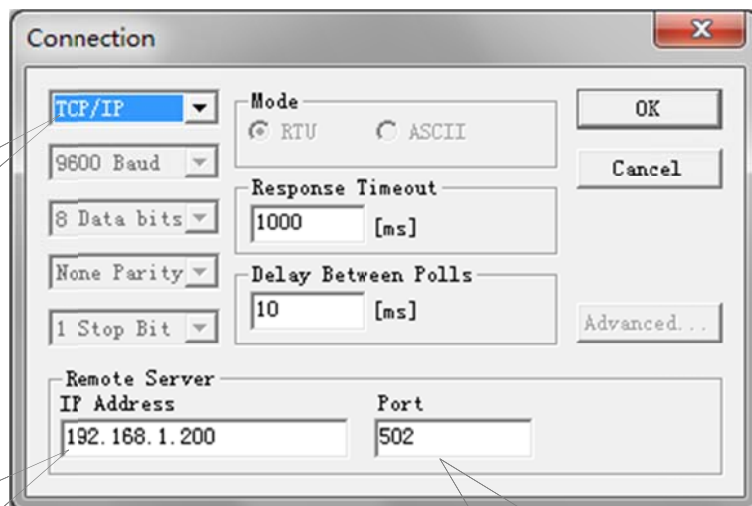
 Fig.4.8

2) Connection through Modbus/RTU

Choose RTU to connect, it will display as following dialog and you can set the corresponding parameters.

To PC port

Parameter setting must be the same as WEB page, detailed refer to Fig.4.3

Fig.4.9
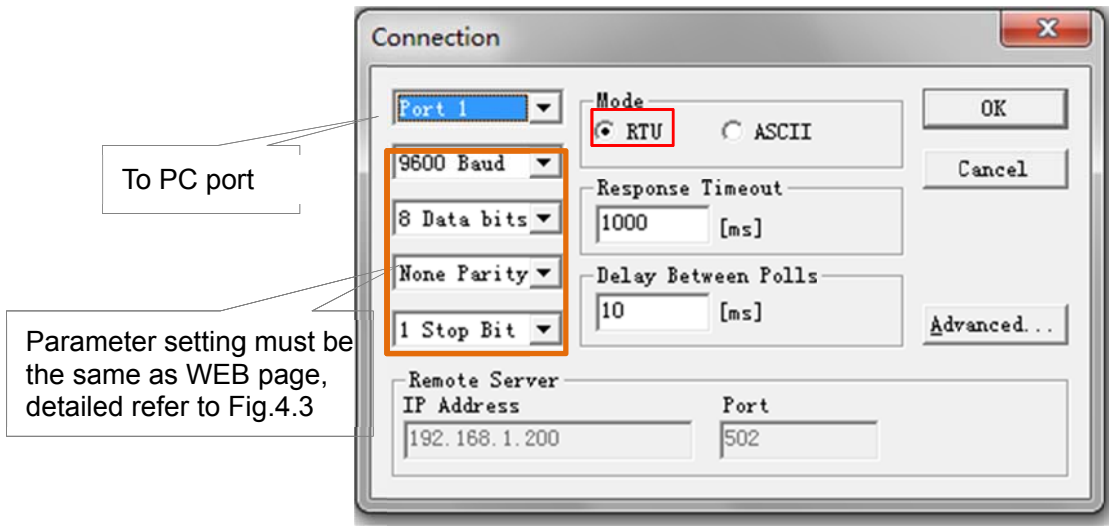
※ **Test**

Modbus Poll software can read/write the content of the corresponding address in mapping table. Take reading coil content for an example:

Choose "Poll Definition" under "Setup", it will display the following dialog.

Modbus address

Starting address need to check

Address length

Fig.4.10
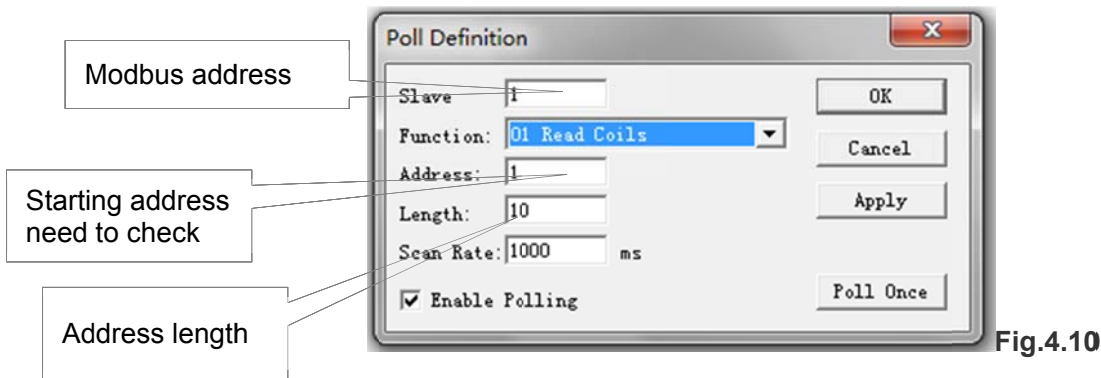
Click "OK" button, it will display the content of the reading. If the reading content is the same as the value of the web page which has the same address, it means that the software debugging success.

Take writing holding register for example:

Choose **16** button in Fig.3.7, as shown below:
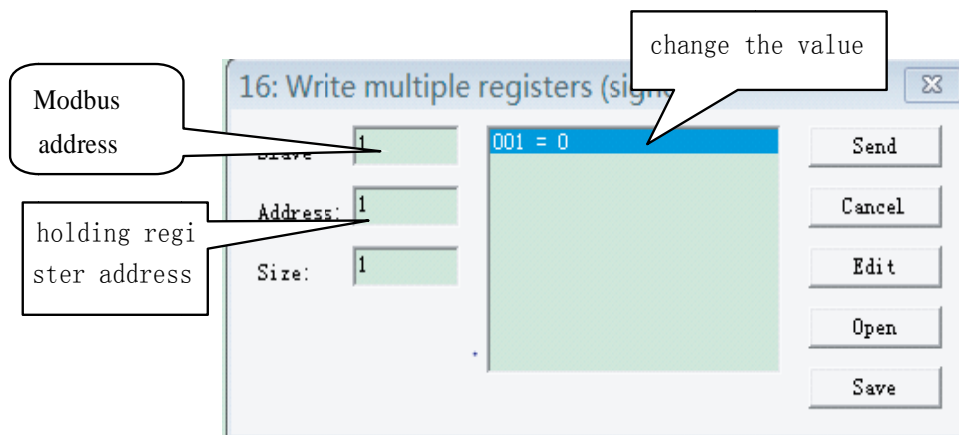
After changed the value, click "send" button to finish the writing operation.

※ **Software Reset**

Press "RESET" button on the gateway for 3 seconds and power on again, the software configuration will be back to the original setting.

4.3.6 Function Code

Function code	Function name	Function
0x01	Read Coils	Read
0x04	Read Input Register	Read
0x10	Write Holding Register	Write

4.3.7 Abnormal Reply

The master unit sends requests and waits for a reply from the slave unit. When there's no error, the slave unit will reply normally, but if the data checking error, the slave unit does not respond. When the master unit sends a wrong data (except checking error), the slave will respond abnormally.

Code	Name	Description
0x01	Illegal function code	The slave units receive a function code that can't comply.
0x02	Illegal function code	The address of received data isn't permitted by the slave units.
0x03	Illegal data	The value of query area data isn't permitted by the slave units
0x06	Slave busy	The slave unit is busy processing a long program command, and don't receive information from the main unit.

4.3.8 Mapping table

4.3.8.1 Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	0	1	Fan mode	1 Octet	1	1: Yes; 0:No
		2	Dry mode			1: Yes; 0:No
		3	Heat mode			1: Yes; 0:No
		4	Cool mode			1: Yes; 0:No
		5	Auto mode			1: Yes; 0:No
		6	Mode locking			1: Yes; 0:No
		7	Reserve			Reserve, stay 0
		8	On/Off			1= on; 0=off
		9-16	High fan speed	1 Octet	2	1= on; 0=off
			Mid fan speed			1= on; 0=off
			Low fan speed			1= on; 0=off
			Low fan speed			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Auto(fixed)fan			1= on; 0=off
		17-24	Compressor	1 Octet	3	1= on; 0=off
			ODU high fan speed			1= on; 0=off
			ODU low fan speed			1= on; 0=off
			4-way valve			1= on; 0=off
			Crankcase			1= on; 0=off
			Oil return			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	0	25-32	ECO operation	1 Octet	4	1= on; 0=off
			Electric auxiliary heating			1= on; 0=off
			Swing			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		33-40	Horizontal swing	1 Octet	5	1= on ;0=off
			Add water			1= on ;0=off
			Water drain pump			1= on ;0=off
			Reserve			Reserve, stay 0
			Locking cool mode			1: Yes; 0:No
			Locking heat mode			1: Yes; 0:No
			Centralized controller lock			1: Yes; 0:No
			Remote controller lock			1: Yes; 0:No
		41-48	E0 Phase sequence error or no phase	1 Octet	6	1:Error; 0:Normal
			E1 communication error			1:Error; 0:Normal
			E2 T1 sensor error			1:Error; 0:Normal
			E3 T2A sensor error			1:Error; 0:Normal
			E4 T2B sensor error			1:Error; 0:Normal
			E5 T3/T4/Digital compressor discharge temp. sensor error			1:Error; 0:Normal
			E6 Zero crossing detection error			1:Error; 0:Normal
			E7 EEPROM error			1:Error; 0:Normal
		49-56	E8 Fan speed detection error	1 Octet	7	1:Error; 0:Normal
			E9 Mainboard and display board communication error			1:Error; 0:Normal
			EA Compressor over current (4 times)			1:Error; 0:Normal
			EB Inverter module protection			1:Error; 0:Normal
			EC Flesh error			1:Error; 0:Normal
			ED Outdoor unit error protection			1:Error; 0:Normal
			EE Water level detection error			1:Error; 0:Normal
			EF Other errors			1:Error; 0:Normal
		57-64	P0 Evaporator temp. protection	1 Octet	8	1:Protection; 0:Normal
			P1 anti-cold or defrost protection			1:Protection; 0:Normal
			P2 Condenser high temp. protection			1:Protection; 0:Normal
			P3 Compressor temp. protection			1:Protection; 0:Normal
			P4 Discharge pipe temp. protection			1:Protection; 0:Normal
			P5 Discharge high pressure protection			1:Protection; 0:Normal
			P6 Discharge low pressure protection			1:Protection; 0:Normal
			P7 Over voltage or under voltage protection			1:Protection; 0:Normal

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	0	65-72	P8 Compressor over current protection	1 Octet	9	1:Protection; 0:Normal
			P9			Reserve, stay 0
			PA			Reserve, stay 0
			PB			Reserve, stay 0
			PC			Reserve, stay 0
			PD			Reserve, stay 0
			PE			Reserve, stay 0
			PF Other protections			1:Protection; 0:Normal
		73-80	0# Network connection module and mainboard communication error	1 Octet	10	1:Error; 0:Normal
			1# Centralized controller and network module error			1:Error; 0:Normal
			2# Centralized controller and function module communication error			1:Error; 0:Normal
			3# Centralized controller and computer (gateway) communication error			1:Error; 0:Normal
			4# Order limit execution			1:Error; 0:Normal
			5# Order timeout, not execution			1:Error; 0:Normal
			6# Destination address not exist			1:Error; 0:Normal
			7# Error (unsupported) order			1:Error; 0:Normal
		81-128	Reserve	6 Octet	11~16	Reserve, stay 0
	1	129	Fan mode	1 Octet	17	1: Yes; 0:No
		130	Dry mode			1: Yes; 0:No
		131	Heat mode			1: Yes; 0:No
		132	Cool mode			1: Yes; 0:No
		133	Auto mode			1: Yes; 0:No
		134	Mode locking state			1: Yes; 0:No
		135	Reserve			Reserve, stay 0
		136	On/Off state			1: on; 0:off
		137-144	High fan speed	1 Octet	18	1: Yes; 0:No
			Mid fan speed			1: Yes; 0:No
			Low fan speed			1: Yes; 0:No
			Low fan speed			1: Yes; 0:No
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Auto(fixed)fan			1: Yes; 0:No
		145-152	Compressor	1 Octet	19	1= on; 0=off
			ODU high fan speed			1= on; 0=off
			ODU low fan speed			1= on; 0=off
			4-way valve			1= on; 0=off
			Crankcase			1= on; 0=off
			Oil return			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	1	153-160	Eco operation	1 Octet	20	1= on; 0=off
			Electric auxiliary heating			1= on; 0=off
			Swing			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		161-168	Horizontal swing	1 Octet	21	1= on; 0=off
			Add water			1= on; 0=off
			Water drain pump			1= on; 0=off
			Reserve			Reserve, stay 0
			Locking cool mode			1: Yes; 0:No
			Locking heat mode			1: Yes; 0:No
			Centralized controller lock			1: Yes; 0:No
			Remote controller lock			1: Yes; 0:No
		169-176	E0 Phase sequence error or no phase	1 Octet	22	1:Error; 0:Normal
			E1 communication error			1:Error; 0:Normal
			E2 T1 sensor error			1:Error; 0:Normal
			E3 T2A sensor error			1:Error; 0:Normal
			E4 T2B sensor error			1:Error;0: Normal
			E5 T3/T4/Digital compressor discharge temp. sensor error			1:Error; 0:Normal
			E6 Zero crossing detection error			1:Error;0: Normal
			E7 EEPROM error			1:Error; 0:Normal
		177-184	E8 Fan speed detection error	1 Octet	23	1:Error; 0:Normal
			E9 Mainboard and display board communication error			1:Error; 0:Normal
			EA Compressor over current (4 times)			1:Error; 0:Normal
			EB Inverter module protection			1:Error; 0:Normal
			EC Flesh error			1:Error; 0:Normal
			ED Outdoor unit error protection			1:Error; 0:Normal
			EE Water level detection error			1:Error; 0:Normal
			EF Other errors			1:Error; 0:Normal
		185-192	P0 Evaporator temp. protection	1 Octet	24	1:Protection; 0:Normal
			P1 anti-cold or defrost protection			1:Protection; 0:Normal
			P2 Condenser high temp. protection			1:Protection; 0:Normal
			P3 Compressor temp. protection			1:Protection; 0:Normal
			P4 Discharge pipe temp. protection			1:Protection; 0:Normal
			P5 Discharge high pressure protection			1:Protection; 0:Normal
			P6 Discharge low pressure protection			1:Protection; 0:Normal
			P7 Power supply over or under voltage protection			1:Protection; 0:Normal

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	1	193-200	P8 Compressor over current protection	1 Octet	25	1:Protection; 0:Normal
			P9			Reserve, stay 0
			PA			Reserve, stay 0
			PB			Reserve, stay 0
			PC			Reserve, stay 0
			PD			Reserve, stay 0
			PE			Reserve, stay 0
			PF Other protections			1:Protection; 0:Normal
		201-208	0# Network connection module and mainboard communication error	1 Octet	26	1:Error; 0:Normal
			1# Centralized controller and network module error			1:Error;0: Normal
			2# Centralized controller and function module communication error			1:Error;0: Normal
			3# Centralized controller and computer or gateway communication error			1:Error;0: Normal
			4# Order limit execution			1:Error;0:Normal
			5# Order timeout, not execution			1:Error;0: Normal
			6# Destination address not exist			1:Error;0:Normal
			7# Error (unsupported) order			1:Error;0:Normal
		209-256	Reserve	6 Octet	27~32	Reserve, stay 0

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	n	(128*n+1)-(128*n+8)	The same as the 1# indoor unit	1 Octet	n*16+1	The same as the 1# indoor unit.
		(128*n+9)-(128*n+16）		1 Octet	n*16+2	
		(128*n+17)-(128*n+24)		1 Octet	n*16+3	
		(128*n+25)-(128*n+31)		1 Octet	n*16+4	
		(128*n+32)-(128*n+40)		1 Octet	n*16+5	
		(128*n+41)-(128*n+48)		1 Octet	n*16+6	
		(128*n+49)-(128*n+56)		1 Octet	n*16+7	
		(128*n+57)-(128*n+64)		1 Octet	n*16+8	
		(128*n+65)-(128*n+72)		1 Octet	n*16+9	
		(128*n+73)-(128*n+80)		1 Octet	n*16+10	
		(128*n+81)-(128*n+128）		6 Octet	(n*16+11)~(n*16+16)	
	63	8065-8072	The same as the 1# indoor unit.	1 Octet	1009	The same as the 1# indoor unit.
		8073-8080		1 Octet	1010	
		8081-8088		1 Octet	1011	
		8089-8096		1 Octet	1012	
		8097-8104		1 Octet	1013	
		8105-8112		1 Octet	1014	
		8113-8120		1 Octet	1015	
		8121-8128		1 Octet	1016	
		8129-8136		1 Octet	1017	
		8137-8144		1 Octet	1018	
		8145-8192		6 Octet	1019~1024	

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	0	30001	System state	2 Octet	bit0: the running state of the system 1:running, 0:stop; bit1: the error state of the system, 1:error,0:normal; bit2: local/remote, 1:remote, 0:local
		30002	Model message 1	2 Octet	
		30003	Model message 2	2 Octet	
		30004	Setting temp Ts	2 Octet	16~32 means the temperature range is16 to 32℃
		30005	Indoor temp T1	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30006	Evaporator pipe temp T2A	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30007	Evaporator medium pipe temp. T2B	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30008	Condenser pipe temp T3	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30009	Reserve		
		30010	Reserve		
		30011	Timer on	2 Octet	0~96 means no timer ~ 24 hours timer
		30012	Timer off	2 Octet	0~96 means no timer ~ 24 hours timer
		30013	Electric consumption power	2 Octet	Unit :0.1HP
		30014~ 30015	Reserve	4 Octet	Reserve, stay 0
		30016	Error state	2 Octet	bit0: means E0 error, 1:Yes, 0:No bit1: means E1 error, 1:Yes, 0:No ...... bit15: means EF error,1:Yes, 0:No
		30017	Protection state	2 Octet	bit0: means P0 protection, 1: Yes, 0: No bit1: means P1 protection, 1: Yes, 0: No ...... bit15: means PF protection , 1: Yes, 0: No
		30018	0~3 outdoor unit online state	2 Octet	bit0: means 0# outdoor unit online, 1: Yes, 0: No bit1: means 1# outdoor unit online, 1: Yes, 0: No bit2: means 2# outdoor unit online, 1: Yes, 0: No bit3: means 3# outdoor unit online, 1: Yes, 0: No
		30019	0~15 indoor unit online state	2 Octet	bit0: means 0# indoor unit online, 1: Yes, 0: No bit1: means 1# indoor unit online, 1: Yes, 0: No ...... bit15: means 15# indoor unit online, 1: Yes, 0: No

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	0	30020	16~31# indoor unit online state	2 Octet	bit0: means 16# indoor unit online, 1: Yes, 0: No bit1: means 17# indoor unit online, 1: Yes, 0: No ...... bit15: means 31# indoor unit online, 1: Yes, 0: No
		30021	32~47# indoor unit online state	2 Octet	bit0: means 32# indoor unit online, 1: Yes, 0: No bit1: means 33# indoor unit online, 1: Yes, 0: No ...... bit15: means 47# indoor unit online, 1: Yes, 0: No
		30022	48~63# indoor unit online state	2 Octet	bit0: means 48# indoor unit online, 1: Yes, 0: No bit1: means 49# indoor unit online, 1: Yes, 0: No ...... bit1: means 63# indoor unit online, 1: Yes, 0: No
		30023	0~3 #outdoor unit error state	2 Octet	bit0: means 0# outdoor unit error, 1: Yes, 0: No bit1: means 1# outdoor unit error, 1: Yes, 0: No bit2: means 2# outdoor unit error, 1: Yes, 0: No bit3: means 3# outdoor unit error, 1: Yes, 0: No
		30024	0~3# outdoor unit running state	2 Octet	bit0: means 0# outdoor unit running state, 1: Yes, 0: No bit1: means 1# outdoor unit running state, 1: Yes, 0: No bit2: means 2# outdoor unit running state, 1: Yes, 0: No bit3: means 3# outdoor unit running state , 1: Yes, 0: No
		30025	0~15# indoor unit error state	2 Octet	bit0:means 0# indoor unit error state, 1: Yes, 0: No bit1:means1# indoor unit error state, 1: Yes, 0: No ...... bit15:means15# indoor unit error state, 1: Yes, 0: No

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	0	30026	16~31# indoor unit error state	2 Octet	bit0: means 16# indoor unit error state, 1: Yes, 0: No bit1: means 17# indoor unit error state, 1: Yes, 0: No ...... bit15:means 31# indoor unit error state,1: Yes, 0: No
		30027	32~47# indoor unit error state	2 Octet	bit0: means 32# indoor unit error state, 1: Yes, 0: No bit1: means 33# indoor unit error state, 1: Yes, 0: No ...... bit15: means 47# indoor unit error state, 1: Yes, 0: No
		30028	48~63# indoor unit error state	2 Octet	bit0: means 48# indoor unit error state, 1: Yes, 0: No bit1: means 49# indoor unit error state, 1: Yes, 0: No ...... bit15: means 63# indoor unit error state, 1: Yes, 0: No
		30029	0~15# indoor unit running state	2 Octet	bit0:means 0# indoor unit running state, 1: Yes, 0: No bit1:means1# indoor unit running state, 1: Yes, 0: No ...... bit15:means15# indoor unit running state, 1: Yes, 0: No
		30030	16~31# indoor unit running state	2 Octet	bit0: means 16# indoor unit running state, 1: Yes, 0: No bit1: means 17# indoor unit running state, 1: Yes, 0: No ...... bit15:means 31# indoor unit running state,1: Yes, 0: No
		30031	32~47# indoor unit running state	2 Octet	bit0: means 32# indoor unit running state, 1: Yes, 0: No bit1: means 33# indoor unit running state, 1: Yes, 0: No ...... bit15: means 47# indoor unit running state, 1: Yes, 0: No
		30032	48~63# indoor unit running state	2 Octet	bit0: means 48# indoor unit error state, 1: Yes, 0: No bit1: means 49# indoor unit error state, 1: Yes, 0: No ...... bit15: means 63# indoor unit error state, 1: Yes, 0: No

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	1	30033	Reserve		Reserve, stay 0
		30034	Model message 1	2 Octet	
		30035	Model message 2	2 Octet	
		30036	Setting temp. Ts	2 Octet	16~32 means the temperature range is16 to 32℃
		30037	Indoor temp T1	2 Octet	0~240 means the temperature range is from -20 to 100℃
		30038	Evaporator pipe temp. T2A	2 Octet	0~240 means the temperature range is from -20 to 100℃
		30039	Evaporator medium pipe temp. T2B	2 Octet	0~240 means the temperature range is from -20 to 100℃
		30040	Condenser pipe temp. T3	2 Octet	0~240 means the temperature range is from -20 to 100℃
		30041	Reserve		
		30042	Reserve		
		30043	Timer on	2 Octet	0~96 means no timer ~ 24 hours timer
		30044	Timer off	2 Octet	0~96 means no timer~ 24 hours timer
		30045	Electric consumption power	2 Octet	Unit :0.1HP
		30046~30047	Reserve	4 Octet	Reserve, stay 0
		30048	Error state	2 Octet	The same as the 0# indoor unit.
		30049	Protection state	2 Octet	
		30050	0~3 outdoor unit online state	2 Octet	
		30051	0~15 indoor unit online state	2 Octet	
		30052	16~31 indoor unit online state	2 Octet	
		30053	32~47 indoor unit online state	2 Octet	
		30054	48~63 indoor unit online state	2 Octet	
		30055	0~3 outdoor unit error state	2 Octet	
		30056	0~3 outdoor unit running state	2 Octet	
		30057	0~15 indoor unit error state	2 Octet	
		30058	16~31 indoor unit error state	2 Octet	
		30059	32~47 indoor unit error state	2 Octet	
		30060	48~63 indoor unit error state	2 Octet	
		30061	0~15 indoor unit running state	2 Octet	
		30062	16~31 indoor unit running state	2 Octet	
		30063	32~47indoor unit running state	2 Octet	
		30064	48~63 indoor unit running state	2 Octet	

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	n	30000+n*32+1	Reserve		The same as the 1# indoor unit.
		30000+n*32+2	Model message 1	2 Octet	
		30000+n*32+3	Model message 2	2 Octet	
		30000+n*32+4	Setting temp. Ts	2 Octet	
		30000+n*32+5	Indoor temp T1	2 Octet	
		30000+n*32+6	Evaporator pipe temp. T2A	2 Octet	
		30000+n*32+7	Evaporator medium pipe temp. T2B	2 Octet	
		30000+n*32+8	Condenser pipe temp. T3	2 Octet	
		30000+n*32+9	Reserve		
		30000+n*32+10	Reserve		
		30000+n*32+11	Timer on	2 Octet	
		30000+n*32+12	Timer off	2 Octet	
		30000+n*32+13	Electric consumption power	2 Octet	
		(30000+n*32+14）~(30000+n*32+32	Reserve	38 Octet	
	63	32017	Reserve		The same as the 1# indoor unit.
		32018	Model message 1	2 Octet	
		32019	Model message 2	2 Octet	
		32020	Setting temp. Ts	2 Octet	
		32021	Indoor temp. T1	2 Octet	
		32022	Evaporator pipe temp. T2A	2 Octet	
		32023	Evaporator medium pipe temp. T2B	2 Octet	
		32024	Condenser pipe temp. T3	2 Octet	
		32025	Reserve		
		32026	Reserve		
		32027	Timer on	2 Octet	
		32028	Timer off	2 Octet	
		32029	Electric consumption power	2 Octet	
		32030~32048	Reserve	38 Octet	

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Holding register (W)	0	40001	Refrigerant system on/off	2 Octet	0:All-off the system 1:All-on the system – The summer mode 1: cooling,17℃,Low speed, no timer and auxiliary; 2 : All-on the system – The summer mode 2: cooling, 24℃, medium speed, no timer and auxiliary; 3: All-on the system – The summer mode 3: cooling, 26℃, high speed, no timer and auxiliary; 4: All-on the system - the winter mode 1: heat mode, 30℃, high speed, no timer and auxiliary; 5: All-on the system - the winter mode 2: heat mode, 26℃, medium speed, no timer and auxiliary; 6: All-on the system - the winter mode 3: heat mode, 24℃, low speed, no timer and auxiliary.
		40002	Setting mode	2 Octet	bit15~bit8: reserve, stay 0 bit7: turn On/Off, 1: On, 0: Off bit6: reserve, stay 0 bit5: mode lock bit4: auto mode 1: Yes, 0: No bit3: cool mode 1: Yes, 0: No bit2: heat mode 1: Yes, 0: No bit1: dry mode 1: Yes, 0: No bit0: Fan mode 1: Yes, 0: No bit6~bit0: every bit mutually exclusive.
		40003	Setting fan speed	2 Octet	bit15~bit8: reserve, stay 0 bit7: Auto fan 1: Yes, 0: No bit6~bit3: reserve, stay 0 bit2: Low fan speed 1: Yes, 0: No bit1: Medium fan speed 1: Yes, 0: No bit0: High fan speed 1: Yes, 0: No bit7~bit0: every bit mutually exclusive.
		40004	Setting temperature	2 Octet	16~32 means the temperature range is16 to 32℃
		40005	Time on	2 Octet	0~96 means no timer ~ 24 hours timer
		40006	Time off	2 Octet	0~96 means no timer ~ 24 hours timer

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Holding register (W)	0	40007	Auxiliary function state	2 Octet	bit15~bit4:Reserve, stay 0 bit3: Change of air 1:On, 0:Off bit2: Swing 1: On, 0: Off bit1: Electric auxiliary heating 1: On, 0: Off bit0: Economic operation 1: On, 0: Off
		40008-40032	Reserve	50 Octet	Reserve , cannot write.
	1	40033	Reserve	2 Octet	The same as the 0# indoor unit.
		40034	Setting mode	2 Octet	
		40035	Setting fan speed	2 Octet	
		40036	Setting temperature	2 Octet	
		40037	Time on	2 Octet	
		40038	Time off	2 Octet	
		40039	Auxiliary function state	2 Octet	
		40040~40064	Reserve	50 Octet	Reserve , cannot write.
	n	40000+n*32+1	Reserve	2 Octet	The same as the 1# indoor unit.
		40000+n*32+2	Setting mode	2 Octet	
		40000+n*32+3	Setting fan speed	2 Octet	
		40000+n*32+4	Setting temperature	2 Octet	
		40000+n*32+5	Time on	2 Octet	
		40000+n*32+6	Time off	2 Octet	
		40000+n*32+7	Auxiliary function state	2 Octet	
		(40000+n*32+8)~(40000+n*32+32）	Reserve	50 Octet	Reserve , cannot write.
	63	42017	Reserve	2 Octet	The same as the 1# indoor unit.
		42018	Setting mode	2 Octet	
		42019	Setting fan speed	2 Octet	
		42020	Setting temperature	2 Octet	
		42021	Time on	2 Octet	
		42022	Time off	2 Octet	
		42023	Auxiliary function state	2 Octet	
		42024~42048	Reserve	50 Octet	Reserve, cannot write.

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
	64	/	/	/	Can group control the 0-7# indoor units and the format is the same as the above each indoor unit.
	65	/	/	/	Can group control the 8-15# indoor units and the format is the same as the above each indoor unit.
	66	/	/	/	Can group control the 16-23# indoor units and the format is the same as the above each indoor unit.
	67	/	/	/	Can group control the 24-31# indoor units and the format is the same as the above each indoor unit.
	68	/	/	/	Can group control the 32-39# indoor units and the format is the same as the above each indoor unit.
	69	/	/	/	Can group control the 40-47# indoor units and the format is the same as the above each indoor unit.
	70	/	/	/	Can group control the 48-55# indoor units and the format is the same as the above each indoor unit.
	71	/	/	/	Can group control the 56-63# indoor units and the format is the same as the above each indoor unit.
	72	/	/	/	Can group control the 0-63# indoor units and the format is the same as the above each indoor unit.

Explain：

• For Coil

Address = (Value of Modbus address for registers) - 1

• For Input register

Address = (Value of Modbus address for registers) - 30001

• For holding register

Address = (Value of Modbus address for registers) - 40001

4.3.8.2 Outdoor unit variable mapping table

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
		8192+1	Cool mode	1: Yes, 0: No
		8194	Heat mode	1: Yes, 0: No
		8195	Reserve	Reserve, stay 0
		8196	Reserve	Reserve, stay 0
		8197	Reserve	Reserve, stay 0
		8198	Reserve	Reserve, stay 0
		8199	Lock indicator	1: Yes, 0: No
		8200	Force locking	1: Yes, 0: No
		8201	Low speed	1: Yes, 0: No
		8202	Medium speed	1: Yes, 0: No
		8203	High speed	1: Yes, 0: No
		8204	Reserve	Reserve, stay 0
		8205	Reserve	Reserve, stay 0
		8206	Reserve	Reserve, stay 0
		8207	Reserve	Reserve, stay 0
		8208	Reserve	Reserve, stay 0
		8209	4-way valveST1	1: on, 0: off
		8210	Auxiliary 4-way valve ST2	1: on, 0: off
		8211	Solenoid valve SV1	1: on, 0: off
		8212	Solenoid valve SV2	1: on, 0: off
		8213	Solenoid valve SV3	1: on, 0: off
		8214	Solenoid valve SV4	1: on, 0: off
		8215	Solenoid valve SV5	1: on, 0: off
		8216	Solenoid valve SV6	1: on, 0: off
Coils(R)	0	8217	Compressor 1	1: on, 0: off
		8218	Compressor 2	1: on, 0: off
		8219	Compressor 3	1: on, 0: off
		8220	Reserve	Reserve, stay 0
		8221	Reserve	Reserve, stay 0
		8222	Reserve	Reserve, stay 0
		8223	Reserve	Reserve, stay 0
		8224	Reserve	Reserve, stay 0
		8225	E0 Outdoor unit communication error	1:Error, 0: Normal
		8226	E1 Phase sequence error or no phase	1:Error, 0: Normal
		8227	E2 Communication error between outdoor and indoor unit	1:Error, 0: Normal
		8228	E4 Reserve	Reserve, stay 0
		8229	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		8230	E5 Reserve	Reserve, stay 0
		8231	E6 T6 sensor error	1:Error, 0: Normal
		8232	E7 Reserve	Reserve, stay 0
		8233	E8 Reserve	Reserve, stay 0
		8234	E9 Voltage error	1:Error, 0: Normal
		8235	H1 Network communication error	1:Error, 0: Normal
		8236	H0 DSP communication error	1:Error, 0: Normal
		8237	H2 Outdoor unit quantities decreasing error (Only master unit effective)	1:Error, 0: Normal
		8238	H3 Outdoor unit quantities increasing error (Only master unit effective)	Reserve, stay 0

Outdoor unit variable mapping table

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Coils(R)	0	8239	EE Reserve	Reserve, stay 0
		8240	EF Other error	
		8241	P0 Compressor top temp. protection	1:protection, 0: Normal
		8242	P1 Discharge high pressure protection	1:protection, 0: Normal
		8243	P2 Discharge low pressure protection	1:protection, 0: Normal
		8244	P3 Current protection of compressor 1	1:protection, 0: Normal
		8245	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		8246	P5 Condenser high temp protection	1:protection, 0: Normal
		8247	P6 Inverter module protection	1:protection, 0: Normal
		8248	P7 Current protection of compressor 2	1:protection, 0: Normal
		8249	P8 Current protection of compressor 3	1:protection, 0: Normal
		8250	P9 Over voltage and under voltage protections	1:protection, 0: Normal
		8251	PA Defrost protection	1:protection, 0: Normal
		8252	PB Reserve	Reserve, stay 0
		8253	PC Reserve	Reserve, stay 0
		8254	PD Oil return	1:protection, 0: Normal
		8255	PE Oil Balance	1:protection, 0: Normal
		8256	PF Other error	1:protection, 0: Normal
		8257~8320	Reserve	Reserve, stay 0
	1	8320+1	Cool mode	1: Yes, 0: No
		8322	Heat mode	1: Yes, 0: No
		8323	Reserve	Reserve, stay 0
		8324	Reserve	Reserve, stay 0
		8325	Reserve	Reserve, stay 0
		8326	Reserve	Reserve, stay 0
		8327	Lock indicator	1: Yes, 0: No
		8328	Force locking	1: Yes, 0: No
		8329	Low speed	1: Yes, 0: No
		8330	Medium speed	1: Yes, 0: No
		8331	High speed	1: Yes, 0: No
		8332	Reserve	Reserve, stay 0
		8333	Reserve	Reserve, stay 0
		8334	Reserve	Reserve, stay 0
		8335	Reserve	Reserve, stay 0
		8336	Reserve	Reserve, stay 0
		8337	4-way valveST1	1: on, 0: off
		8338	Auxiliary 4-way valve ST2	1: on, 0: off
		8339	Solenoid valve SV1	1: on, 0: off
		8340	Solenoid valve SV2	1: on, 0: off
		8341	Solenoid valve SV3	1: on, 0: off
		8342	Solenoid valve SV4	1: on, 0: off
		8343	Solenoid valve SV5	1: on, 0: off
		8344	Solenoid valve SV6	1: on, 0: off
		8345	Compressor 1	1: on, 0: off
		8346	Compressor 2	1: on, 0: off
		8347	Compressor 3	1: on, 0: off
		8348	Reserve	Reserve, stay 0
		8349	Reserve	Reserve, stay 0
		8350	Reserve	Reserve, stay 0
		8351	Reserve	Reserve, stay 0
		8352	Reserve	Reserve, stay 0

Outdoor unit variable mapping table

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
		8353	E0 Outdoor unit communication error	1:Error, 0: Normal
		8354	E1 Phase sequence error or no phase	1:Error, 0: Normal
		8355	E2 Communication error between outdoor and indoor unit	1:Error, 0: Normal
		8356	E4 Reserve	Reserve, stay 0
		8357	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		8358	E5 Reserve	Reserve, stay 0
		8359	E6 T6 sensor error	1:Error, 0: Normal
		8360	E7 Reserve	Reserve, stay 0
		8361	E8 Reserve	Reserve, stay 0
		8362	E9 Voltage error	1:Error, 0: Normal
		8363	H1 Network communication error	1:Error, 0: Normal
		8364	H0 DSP communication error	1:Error, 0: Normal
		8365	H2 Outdoor unit quantities decreasing error (Only master unit effective)	1:Error, 0: Normal
		8366	H3 Outdoor unit quantities increasing error (Only master unit effective)	Reserve, stay 0
Coils(R)	1	8367	EE Reserve	Reserve, stay 0
		8368	EF Other error	
		8369	P0 Compressor top temp. protection	1:protection, 0: Normal
		8370	P1 Discharge high pressure protection	1:protection, 0: Normal
		8371	P2 Discharge low pressure protection	1:protection, 0: Normal
		8372	P3 Current protection of compressor 1	1:protection, 0: Normal
		8373	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		8374	P5 Condenser high temp protection	1:protection, 0: Normal
		8375	P6 Inverter module protection	1:protection, 0: Normal
		8376	P7 Current protection of compressor 2	1:protection, 0: Normal
		8377	P8 Current protection of compressor 3	1:protection, 0: Normal
		8378	P9 Over voltage and under voltage protections	1:protection, 0: Normal
		8379	PA Defrost protection	1:protection, 0: Normal
		8380	PB Reserve	Reserve, stay 0
		8381	PC Reserve	Reserve, stay 0
		8382	PD Oil return	1:protection, 0: Normal
		8383	PE Oil Balance	1:protection, 0: Normal
		8384	PF Other error	1:protection, 0: Normal
		8385~8448	Reserve	Reserve, stay 0

Outdoor unit variable mapping table

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Coils(R)	n	8192+n*128+1	Cool mode	1: Yes, 0: No
		8192+n*128+2	Heat mode	1: Yes, 0: No
		8192+n*128+3	Reserve	Reserve, stay 0
		8192+n*128+4	Reserve	Reserve, stay 0
		8192+n*128+5	Reserve	Reserve, stay 0
		8192+n*128+6	Reserve	Reserve, stay 0
		8192+n*128+7	Lock indicator	1: Yes, 0: No
		8192+n*128+8	Force locking	1: Yes, 0: No
		8192+n*128+9	Low speed	1: Yes, 0: No
		8192+n*128+10	Medium speed	1: Yes, 0: No
		8192+n*128+11	High speed	1: Yes, 0: No
		8192+n*128+12	Reserve	Reserve, stay 0
		8192+n*128+13	Reserve	Reserve, stay 0
		8192+n*128+14	Reserve	Reserve, stay 0
		8192+n*128+15	Reserve	Reserve, stay 0
		8192+n*128+16	Reserve	Reserve, stay 0
		8192+n*128+17	4-way valve ST1	1: on, 0: off
		8192+n*128+18	Auxiliary 4-way valve ST2	1: on, 0: off
		8192+n*128+19	Solenoid valve SV1	1: on, 0: off
		8192+n*128+20	Solenoid valve SV2	1: on, 0: off
		8192+n*128+21	Solenoid valve SV3	1: on, 0: off
		8192+n*128+22	Solenoid valve SV4	1: on, 0: off
		8192+n*128+23	Solenoid valve SV5	1: on, 0: off
		8192+n*128+24	Solenoid valve SV6	1: on, 0: off
		8192+n*128+25	Compressor 1	1: on, 0: off
		8192+n*128+26	Compressor 2	1: on, 0: off
		8192+n*128+27	Compressor 3	1: on, 0: off
		8192+n*128+28	Reserve	Reserve, stay 0
		8192+n*128+29	Reserve	Reserve, stay 0
		8192+n*128+30	Reserve	Reserve, stay 0
		8192+n*128+31	Reserve	Reserve, stay 0
		8192+n*128+32	Reserve	Reserve, stay 0
		8192+n*128+33	E0 Outdoor unit communication error	1:Error, 0: Normal
		8192+n*128+34	E1 Phase sequence error or no phase	1:Error, 0: Normal
		8192+n*128+35	E2 Communication error between outdoor and indoor unit	1:Error, 0: Normal
		8192+n*128+36	E4 Reserve	Reserve, stay 0
		8192+n*128+37	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		8192+n*128+38	E5 Reserve	Reserve, stay 0
		8192+n*128+39	E6 T6 sensor error	1:Error, 0: Normal
		8192+n*128+40	E7 Reserve	Reserve, stay 0
		8192+n*128+41	E8 Reserve	Reserve, stay 0
		8192+n*128+42	E9 Voltage error	1:Error, 0: Normal
		8192+n*128+43	H1 Network communication error	1:Error, 0: Normal
		8192+n*128+44	H0 DSP communication error	1:Error, 0: Normal
		8192+n*128+45	H2 Outdoor unit quantities decreasing error (Only master unit effective)	1:Error, 0: Normal
		8192+n*128+46	H3 Outdoor unit quantities increasing error (Only master unit effective)	Reserve, stay 0
		8192+n*128+47	EE Reserve	Reserve, stay 0
		8192+n*128+48	EF Other error	

Outdoor unit variable mapping table

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
	n	8192+n*128+49	P0 Compressor top temp. protection	1:protection, 0:Normal
		8192+n*128+50	P1 Discharge high pressure protection	1:protection, 0: Normal
		8192+n*128+51	P2 Discharge low pressure protection	1:protection, 0: Normal
		8192+n*128+52	P3 Current protection of compressor 1	1:protection, 0: Normal
		8192+n*128+53	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		8192+n*128+54	P5 Condenser high temp protection	1:protection, 0: Normal
		8192+n*128+55	P6 Inverter module protection	1:protection, 0: Normal
		8192+n*128+56	P7 Current protection of compressor 2	1:protection, 0: Normal
		8192+n*128+57	P8 Current protection of compressor 3	1:protection, 0: Normal
		8192+n*128+58	P9 Over voltage and under voltage protections	1:protection, 0: Normal
		8192+n*128+59	PA Defrost protection	1:protection, 0: Normal
		8192+n*128+60	PB Reserve	Reserve, stay 0
		8192+n*128+61	PC Reserve	Reserve, stay 0
		8192+n*128+62	PD Oil return	1:protection, 0: Normal
		8192+n*128+63	PE Oil Balance	1:protection, 0: Normal
		8192+n*128+64	PF Other error	1:protection, 0: Normal
		(8192+n*128+65)~ (8192+n*128+128)	Reserve	Reserve, stay 0
Coils(R)	3	8577	Cool mode	1: Yes, 0: No
		8578	Heat mode	1: Yes, 0: No
		8579	Reserve	Reserve, stay 0
		8580	Reserve	Reserve, stay 0
		8581	Reserve	Reserve, stay 0
		8582	Reserve	Reserve, stay 0
		8583	Lock indicator	1: Yes, 0: No
		8584	Force locking	1: Yes, 0: No
		8585	Low speed	1: Yes, 0: No
		8586	Medium speed	1: Yes, 0: No
		8587	High speed	1: Yes, 0: No
		8588	Reserve	Reserve, stay 0
		8589	Reserve	Reserve, stay 0
		8590	Reserve	Reserve, stay 0
		8591	Reserve	Reserve, stay 0
		8592	Reserve	Reserve, stay 0
		8593	4-way valveST1	1: on, 0: off
		8594	Auxiliary 4-way valve ST2	1: on, 0: off
		8595	Solenoid valve SV1	1: on, 0: off
		8596	Solenoid valve SV2	1: on, 0: off
		8597	Solenoid valve SV3	1: on, 0: off
		8598	Solenoid valve SV4	1: on, 0: off
		8599	Solenoid valve SV5	1: on, 0: off
		8600	Solenoid valve SV6	1: on, 0: off
		8601	Compressor 1	1: on, 0: off
		8602	Compressor 2	1: on, 0: off
		8603	Compressor 3	1: on, 0: off
		8604	Reserve	Reserve, stay 0
		8605	Reserve	Reserve, stay 0
		8606	Reserve	Reserve, stay 0
		8607	Reserve	Reserve, stay 0
		8608	Reserve	Reserve, stay 0

Outdoor unit variable mapping table

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Coils(R)	3	8609	E0 Outdoor unit communication error	1:Error, 0: Normal
		8610	E1 Phase sequence error or no phase	1:Error, 0: Normal
		8611	E2 Communication error between outdoor and indoor unit	1:Error, 0: Normal
		8612	E4 Reserve	Reserve, stay 0
		8613	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		8614	E5 Reserve	Reserve, stay 0
		8615	E6 T6 sensor error	1:Error, 0: Normal
		8616	E7 Reserve	Reserve, stay 0
		8617	E8 Reserve	Reserve, stay 0
		8618	E9 Voltage error	1:Error, 0: Normal
		8619	H1 Network communication error	1:Error, 0: Normal
		8620	H0 DSP communication error	1:Error, 0: Normal
		8621	H2 Outdoor unit quantities decreasing error (Only master unit effective)	1:Error, 0: Normal
		8622	H3 Outdoor unit quantities increasing error (Only master unit effective)	Reserve, stay 0
		8623	EE Reserve	Reserve, stay 0
		8624	EF Other error	
		8625	P0 Compressor top temp. protection	1:protection, 0:Normal
		8626	P1 Discharge high pressure protection	1:protection, 0: Normal
		8627	P2 Discharge low pressure protection	1:protection, 0: Normal
		8628	P3 Current protection of compressor 1	1:protection, 0: Normal
		8629	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		8630	P5 Condenser high temp. protection	1:protection, 0: Normal
		8631	P6 Inverter module protection	1:protection, 0: Normal
		8632	P7 Current protection of compressor 2	1:protection, 0: Normal
		8633	P8 Current protection of compressor 3	1:protection, 0: Normal
		8634	P9 Over voltage and under voltage protections	1:protection, 0: Normal
		8635	PA Defrost protection	1:protection, 0: Normal
		8636	PB Reserve	Reserve, stay 0
		8637	PC Reserve	Reserve, stay 0
		8638	PD Oil return	1:protection, 0: Normal
		8639	PE Oil Balance	1:protection, 0: Normal
		8640	PF Other error	1:protection, 0: Normal
		8641~8704	Reserve	Reserve, stay 0

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
Input register (R)	0	32048+1	Reserve	Reserve, stay 0
		32050	The first byte of models message	
		32051	The second byte of model message	
		32052	Ambient temperature T4	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32053	Condenser outlet temperature T3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32054	Condenser inlet temperature T6	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32056	The discharge temperature of compressor 2	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32057	The discharge temperature of compressor 3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32058	Quantity of indoor units	0~250 means 0~250 indoor units
		32059	Current of compressor 1	0~200 means the current range from 0A to 200A
		32060	Current of compressor 2	0~200 means the current range from 0A to 200A
		32061	Current of compressor 3	0~200 means the current range from 0A to 200A
		32062	Inverter compressor frequency	0~250 means 0~250Hz
		32063	Opening degree of EXV 1	00h~07Dh means 0~1000 step open degree and resolution is 8 step; 0FFh means no the data.
		32064	Opening degree of EXV 2	
		32065	Capacity of outdoor unit	Each 1 means 1HP, and 0~250 means 0~250
		32066~32080	Reserve	Reserve, stay 0
	1	32081	Reserve	Reserve, stay 0
		32082	The first byte of models message	
		32083	The second byte of model message	
		32084	Ambient temperature T4	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32085	Condenser outlet temperature T3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32086	Condenser inlet temperature T6	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32087	The discharge temperature of compressor 2	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
Input register (R)	1	32089	Current of compressor 3	0~200 means the current range from 0A to 200A
		32090	Inverter compressor frequency	0~250 means 0~250Hz
		32091	Opening degree of EXV 1	00h~07Dh means 0~1000 step open degree and resolution is 8 step; 0FFh means no the data.
		32092	Opening degree of EXV 2	
		32093	Capacity of outdoor unit	Each 1 means 1HP, and 0~250 means 0~250
		32094	Reserve	Reserve, stay 0
	2	32113	Reserve	Reserve, stay 0
		32114	The first byte of models message	
		32115	The second byte of model message	
		32116	Ambient temperature T4	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32117	Condenser outlet temperature T3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32118	Condenser inlet temperature T6	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32119	The discharge temperature of compressor 2	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32120	The discharge temperature of compressor 3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32121	Quantity of indoor units	0~250 means 0~250 indoor units
		32122	Current of compressor 1	0~200 means the current range from 0A to 200A
		32123	Current of compressor 2	0~200 means the current range from 0A to 200A
		32124	Current of compressor 3	0~200 means the current range from 0A to 200A
		32125	Inverter compressor frequency	0~250 means 0~250Hz
		32126	Opening degree of EXV 1	00h~07Dh means 0~1000 step open degree and resolution is 8 step; 0FFh means no the data.
		32127	Opening degree of EXV 2	
		32128	Capacity of outdoor unit	Each 1 means 1HP, and 0~250 means 0~250
		32129	Reserve	Reserve, stay 0

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
Input register (R)	3	32145	Reserve	Reserve, stay 0
		32146	The first byte of models message	
		32147	The second byte of model message	
		32148	Ambient temperature T4	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32149	Condenser outlet temperature T3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32150	Condenser inlet temperature T6	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32151	The discharge temperature of compressor 2	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32152	The discharge temperature of compressor 3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32153	Quantity of indoor units	0~250 means 0~250 indoor units
		32154	Current of compressor 1	0~200 means the current range from 0A to 200A
		32155	Current of compressor 2	0~200 means the current range from 0A to 200A
		32156	Current of compressor 3	0~200 means the current range from 0A to 200A
		32157	Inverter compressor frequency	0~250 means 0~250Hz
		32158	Opening degree of EXV 1	00h~07Dh means 0~1000 step open degree and resolution is 8 step; 0FFh means no the data.
		32159	Opening degree of EXV 2	
		32160	Capacity of outdoor unit	Each 1 means 1HP, and 0~250 means 0~250
		32161	Reserve	Reserve, stay 0

Explain：

Address = (Value of Modbus address for registers) - 1

・ For Input register

Address = (Value of Modbus address for registers) - 30001

・ For Holding register

Address = (Value of Modbus address for registers) - 40001

4.4 M-interface gateway: IMM441V4PA512

M-INTERFACE gateway is used for querying and controls the air conditioning indoor unit, and transmits the state information of the indoor unit to the computer and transmits the controlling and querying orders sent by the computer to the indoor unit.
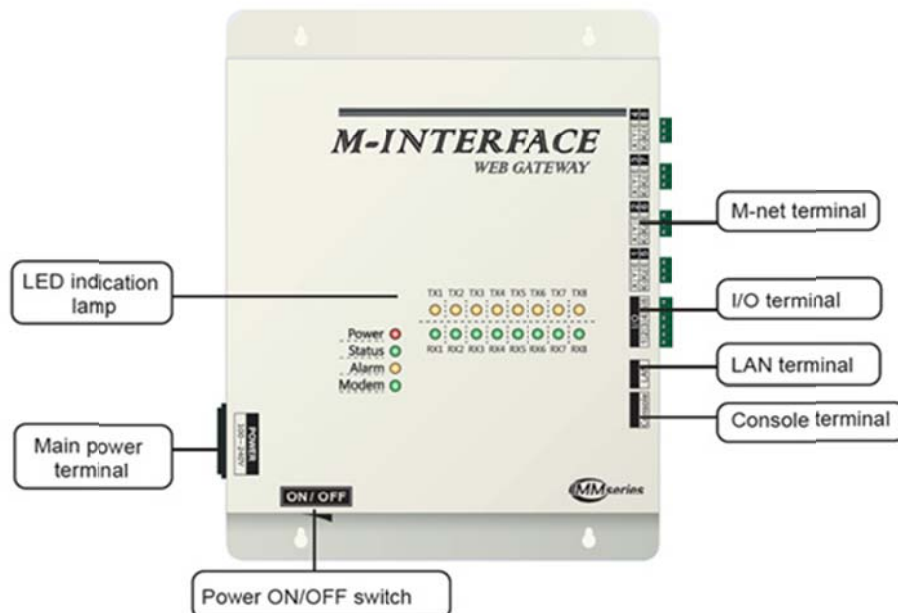
M-INTERFACE Gateway has 8 M-net terminals, 1 LAN terminal, 8 M-net terminal indication lamps, 4 state display lamps (Power, Status, Alarm, and Modem) and a power switch. Connection to the central air conditioner system through the M-net terminal, and connects the local area network or Internet network through a LAN terminal. Computer or other similar devices can visit M-INTERFACE WEB through Brower, and the local or remote control devices.

Notes: M-Interface gateway needs to be installed at the end of the XYE or K1K2E communication wire, cannot be installed in the middle of the XYE or K1K2E communication wire. Connection needs to use 0.7mm^2 ~ 1.0mm^2 three cores shielded wire.

4.4.1 Gateway structure

※   Dimensions: 319*251*66.4mm
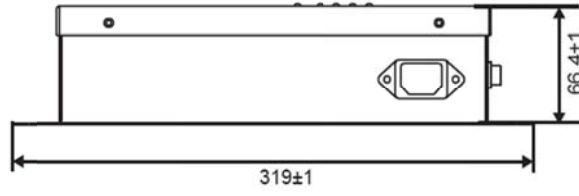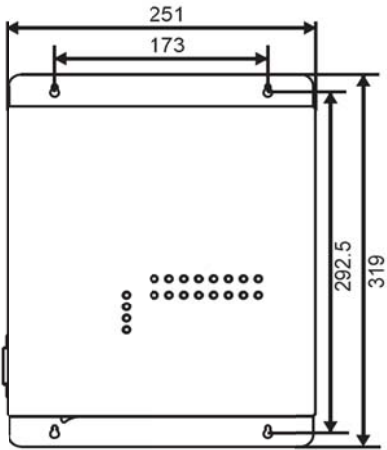
※   Detailed drawing of installation holes (Unit: mm)
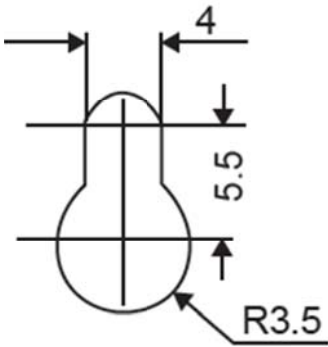
4.4.2 WEB home page of M-interface gateway

M-INTERFACE is based on WEB technology, unrelated to computer or similar devices operational systems. M-INTERFACE insert into the network then can browse the WEB page through the browser of the system platform, we suggest using IE (9.0 or above), Firefox (11.0 or above), Chrome (18.0 or above) or Safari ((5.1 or above).

4.4.3 M-INTERFACE Network

1) M-INTERFACE gateway can connect to the local area network or Internet network through a LAN terminal.

2) M-net terminals are listed to be two rows, 1 to 4 is XYE terminals, and 5 to 8 is K1, K2 and E terminals. Computer or other similar devices can visit M-INTERFACE WEB through browser, and the local or remote control devices.
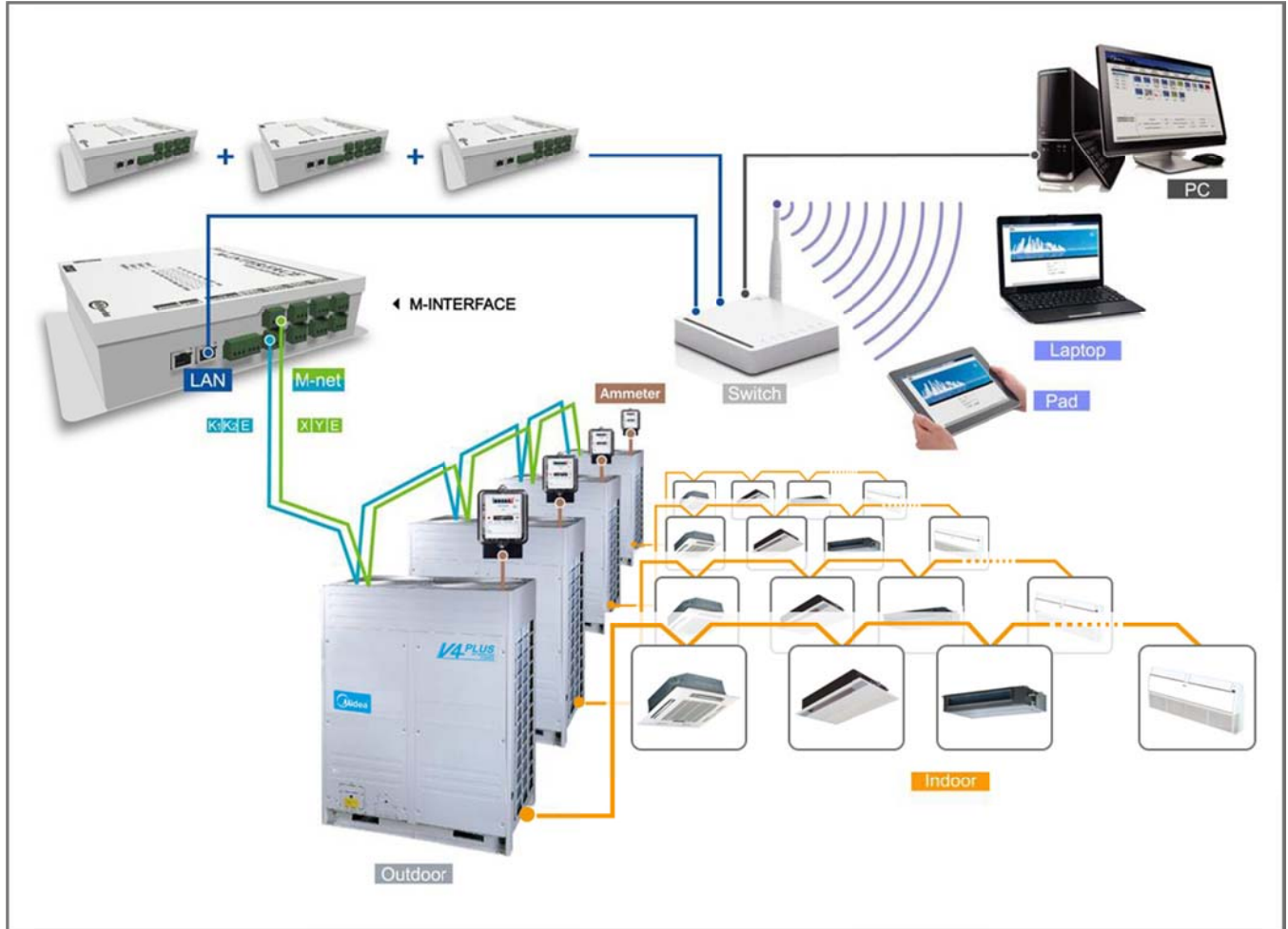
4.5 Data converter CCM15

4.5.1 Product introduction

CCM15 is a data converter which can realize data conversion between the IP protocol and the 485 protocol, providing the TCP / IP port for VRF system of Midea to achieve WEB/HTTP/TCP/IP access. Users can access Midea VRF system easily through the LAN or WAN.

WEB system functions achieve webpage visiting to the VRF system, including air-conditioner state browsing, air-conditioner control and system settings.

Users can control the A/C systems commodiously through computer, iPhone, iPad or other intelligent terminals. WEB function realizes VRF system's webpage access. You can login the web and monitor signal or ground A/C when you input **"http: // www.midea.imdv.com.cn"** (With Midea logo) or **"http: // www.imdv.com.cn"** (No brand) on the browser address.

The software has been uploaded to the APP STORE and users can input "Midea" to search, you can find the software called "Midea MDV" and download it for free.

Basic principle

1) CCM15 collected data and control VRF system through 485 bus

2) Built-in a Web server, can control the A/C and system configuration

3) Can upload the collected data to the Cloud server

4) The phone /pad get the units 'states from the Cloud server

5) The phone /pad sends the control order to the Cloud server, and the Cloud server will transmit to CCM15 and then CCM15 operate the order to units.

Integrated technology

1) 485 communication technology

2) TCP/IP communication technology

3) WEB server technology

4) Cloud server technology

5) Linux technology

6) iOS App/Android App development technology

4.5.2 Main features

- One cloud server can be connected thousands of CCM15.

- One user can control many CCM15 gateways.

- Can check the state of each A/C.

- Can control group, area or single A/C.

- With the weekly schedule control function.

- Can query operation logs and fault records.

- Intelligent control: you can control and query the A/C through iPhone, iPad or other intelligent terminals anytime and anywhere.

- Locking and unlocking function: Locking mode, fan speed, temperature and remote controller through LAN.

- Convenient operation: Large screen display, and temperature available fingers sliding adjustment and synchronous display for iPad, iPhone and the other intelligent terminal.

- WEB function: Support various intelligent terminal and PC access.

- WEB browser: IE 6.0, Safari 4.0, Chrome 18.0, UC 8.4 or over.

- Operation system: Windows/Linux/Unix/Mac/IOS and so on.

- Operation platform: PC, Laptop, iPad, iPhone, Android.

4.5.3 Software downloads

Software downloads for iPhone and iPad:

Under the App store to search "Midea", you can find software called "Midea MDV" and "Midea MDV HD", and it will display the following interface, you can download it for free.

IPhone page

Fig.0.1

iPad page
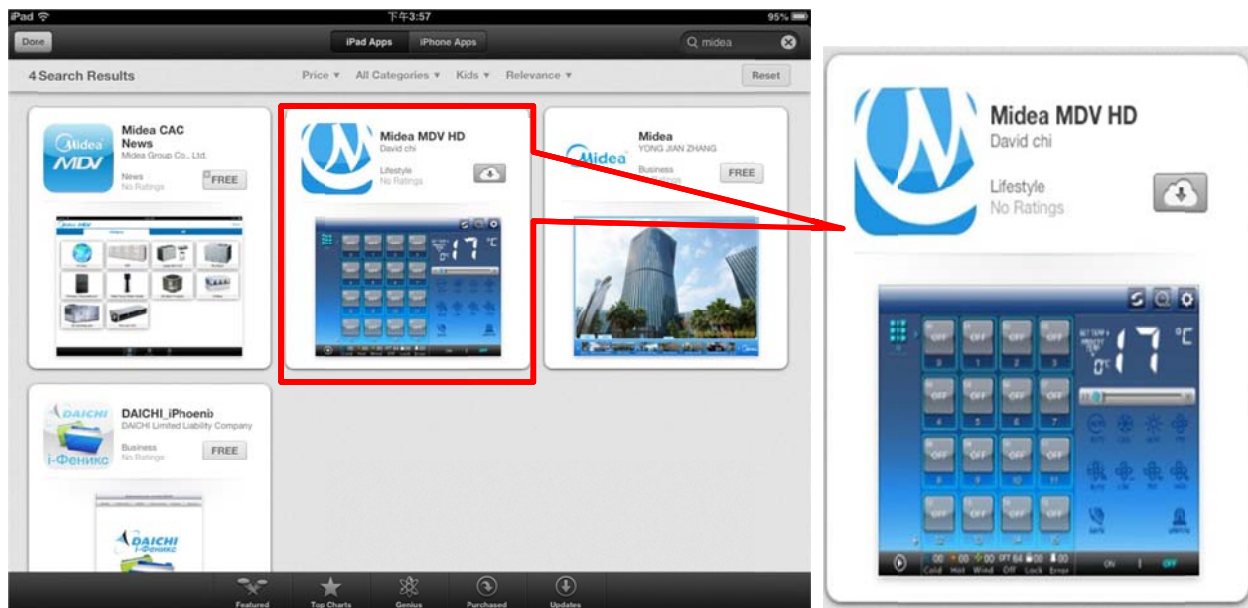
Fig.0.2

Software downloads for Android software:

1. Input **"http: // www.midea.imdv.com.cn"** or **"http: // www.imdv.com.cn"**on the browser address and enter the Web interface.

2. Click the " " icon can be downloaded.

Fig.0.3

Notes:

The download address of Midea brand Android software is "http://www.midea.imdv.com.cn"; the download address of No brand Android software is "http://www.imdv.com.cn " and the customer brand Android software can be downloaded in the corresponding customer brand address)

4.5.4 Operation & installation introduction

4.5.4.1 Sep 1: Wire connection

The system includes A/C system, data converter, router, cloud server and control terminal.

CCM15 can be directly connected with outdoor/indoor units' XYE port. If you want to use the centralized controller CCM03/CCM30, you can connect to the network bus F1F2E of CCM. It can connect up to 64 indoor units.
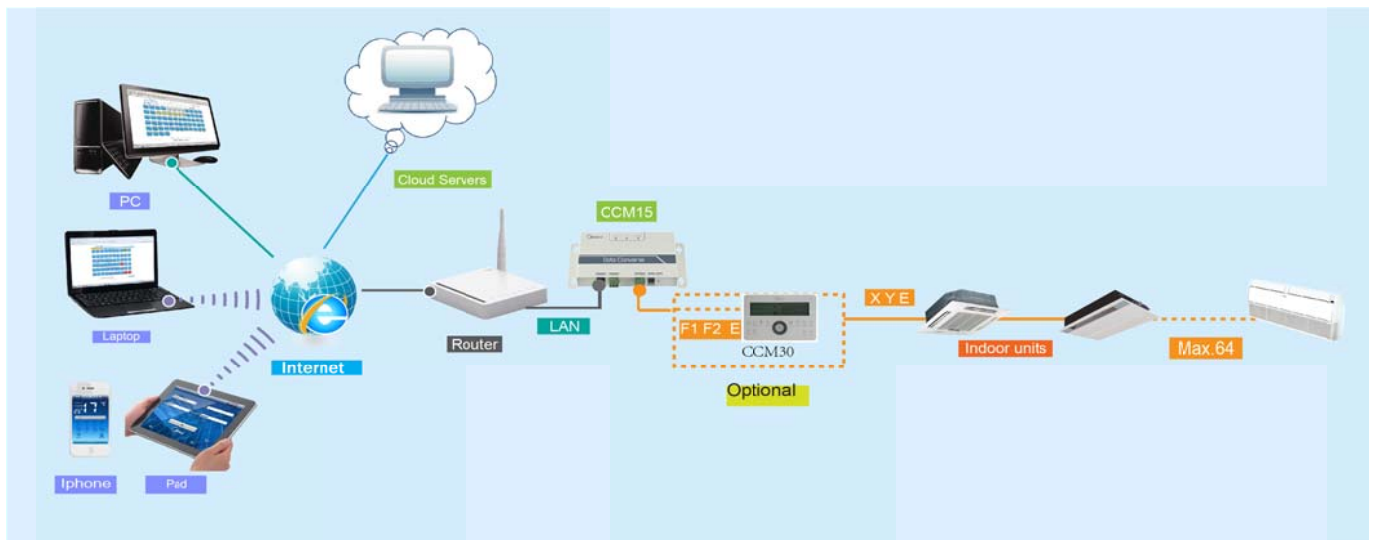
Note:

1. If it is connected to outdoor XYE port, then the master outdoor unit should be set as auto addressing.

2. The indoor units can come from different systems, but the indoor address should not the same.

3. If connected to indoor or outdoor units directly, the port is XYE. But if connected to indoor central controller, the port is F1F2E.

4. The network port is connected to router

5. Please make sure the CCM15 and the PC are under the same router

6. Please use wire connection as priority, because the IP and gateway get by wireless and connection may be in the network segment that get by wire connection.

When the wiring is correction, please operation according to the following steps strictly.

4.5.4.2 Step 2: apply an account of cloud server

(1) Please visit Midea cloud server http://www.midea.imdv.com.cn or http://www.imdv.com.cn and press "Register"

(2) Input the password and Verify Code

(3) After successfully registered, please remember the ID, password and Cloud server IP well.

4.5.4.3 Sep 3: set the network

◆ **Connect the PC and CCM15 to the same router**

① Please enter the "Control panel" or click "Open Network and Sharing Center"

② Click "Local Area Connection"

③ Click "Details"

④ Get the information:

IPV4 Address: 10.56.3.90

Subnet mask: 255.255.255.0

IPv4 Default gateway: 10.56.0.1

The default IP address of CCM15 is 192.168.1.200, and then the PC and CCM15 are not in the same network segment.

Please take PC and CCM15 to connect with the same router and the router can access the Internet. CCM15 will automatically change its IP address to the same network segment with the PC. The new IP address of the CCM15 is "aaa.bbb.ccc.200"(take 10.56.3.200 for example).

Notes: aaa.bbb.ccc.200 is the new IP address of the CCM15 gateway and **remembers it for next time login.**
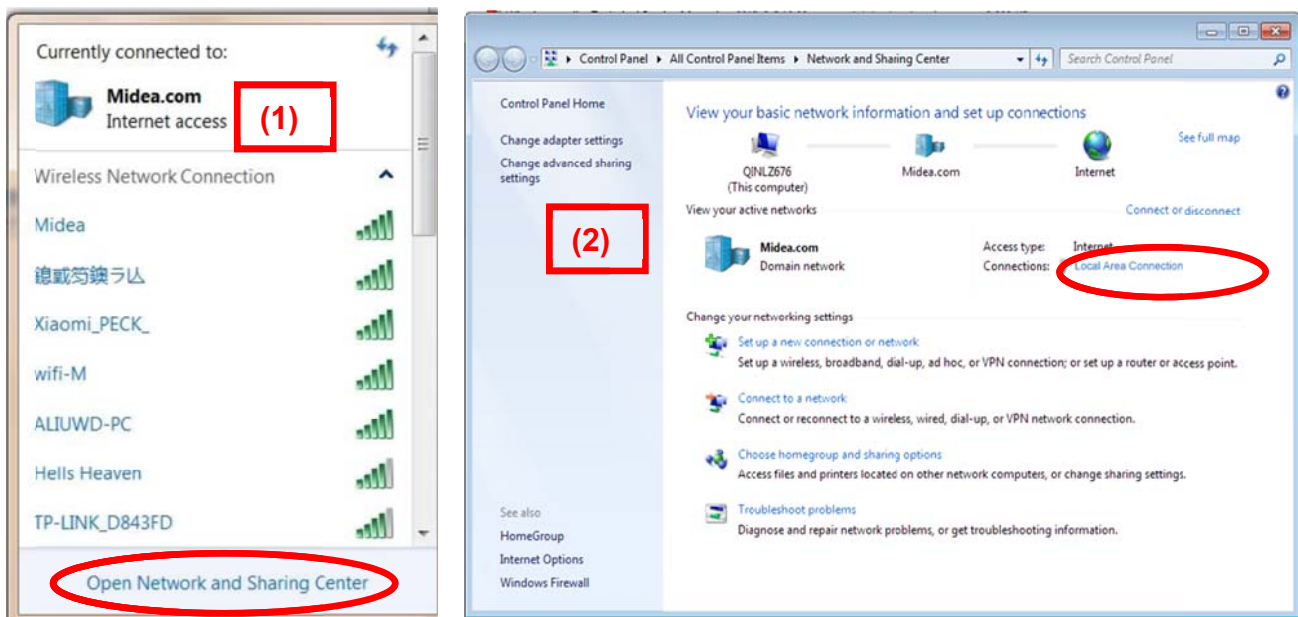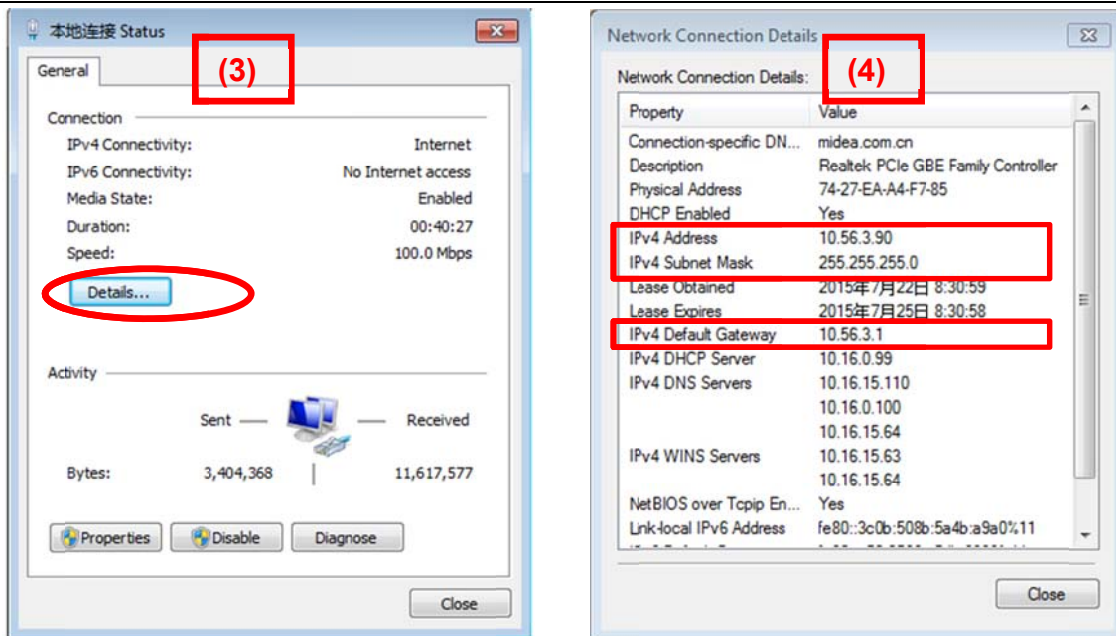
◆ **If there is no a router between CCM15 and PC, you can do it like that:**

The specific steps are as follows:

Firstly, you need to use the network cable to connect CCM15 and computer directly and don't need an exchanger or router. If the exchanger or router has been connected to the computer, please disconnect it.

The wiring diagram as following:
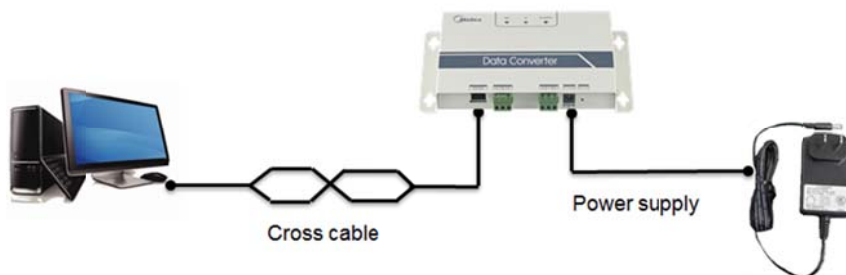
(1) Click the "Properties" on the below diagram

(2) Select ″Internet Properties Version 4(TCP/IPv4)″

(3) Click the "Properties" button

(4) Select the ″Use the following IP address″ and input the following information:

IP address: 192.168.1.xxx (take ″192.168.1.100″for example)

Subnet mask: 255.255.255.xxx (take ″255.255.255.0″for example)

Default gateway: 192.168.1.1

Notes: ″xxx″ range from 0 to 255.

Local Area Connection status

General

Connection
IPv4 Connectivity: No Internet access
IPv6 Connectivity: No Internet access
Media State: Enabled
Duration: 03:29:46
Speed: 100.0 Mbps

Details...

Activity

Sent ——— Received

Bytes: 77,996,121 | 69,442,088

Properties Disable Diagnose

Close

(1)

Local Area Connection Properties

Networking | Authentication | Sharing

Connect using:
Realtek PCIe GBE Family Controller

Configure...

This connection uses the following items:
☑ Client for Microsoft Networks
☑ Tencent Network Interface
☑ QoS Packet Scheduler
☑ File and Printer Sharing for Microsoft Networks
☐ Internet Protocol Version 6 (TCP/IPv6)
☑ Internet Protocol Version 4 (TCP/IPv4)
☐ Link-Layer Topology Discovery Mapper I/O Driver
☑ Link-Layer Topology Discovery Responder

Install... Uninstall **Properties**

Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

OK Cancel

(2)

(3)

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically
● Use the following IP address:
IP address: 192 . 168 . 1 . 100
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 1 . 1

○ Obtain DNS server address automatically
● Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server: . . .

☐ Validate settings upon exit Advanced...

OK Cancel

(4)

4.5.4.4 Step 4 Configuration for CCM15

After configuring the IP address, please open IE browser and input CCM15 IP address (aaa.bbb.ccc.200) to enter the WEB page and click "Config." button:

Take 10.56.3.200 for example:

IP: CCM15 IP address (aaa.bb.cc.200), take 10.56.3.200 for example

Netmask: 255.255.255.0.

Gateway: 10.56.3.1 (get from "IPv4 Default gateway")

Cloud Server, Cloud User ID and Password/Confirm information can get from Step 2.

Register button: automatic registration and binding cloud server.

Back button: back to the main page.

After setting and click the "Apply" button, you need to repower on the CCM15.

4.5.4.5 Cloud services webpage

♦ After successfully set CCM15, please visit cloud server, and use the ID and password which is gotten by step 2 to login into the cloud server.

  Input http://www.midea.imdv.com.cn or http://www.imdv.com.cn on the browser will login the cloud services webpage, it will display the following dialog:

Fig.2.8

Input the User ID and password, click the "Login" button will enter the WEB control page.

Notes:

1. Select "Remember it" can record the user ID and password, it is convenient for next login.

2. Select "As Group User" and one user can manage many CCM15, the specific operation as shown in "**Group control**".

♦ **Control A/C system by Cloud server**

After login successfully, can get below interface:

Control each A/C indoor unit by pressing each icon

mer

rol
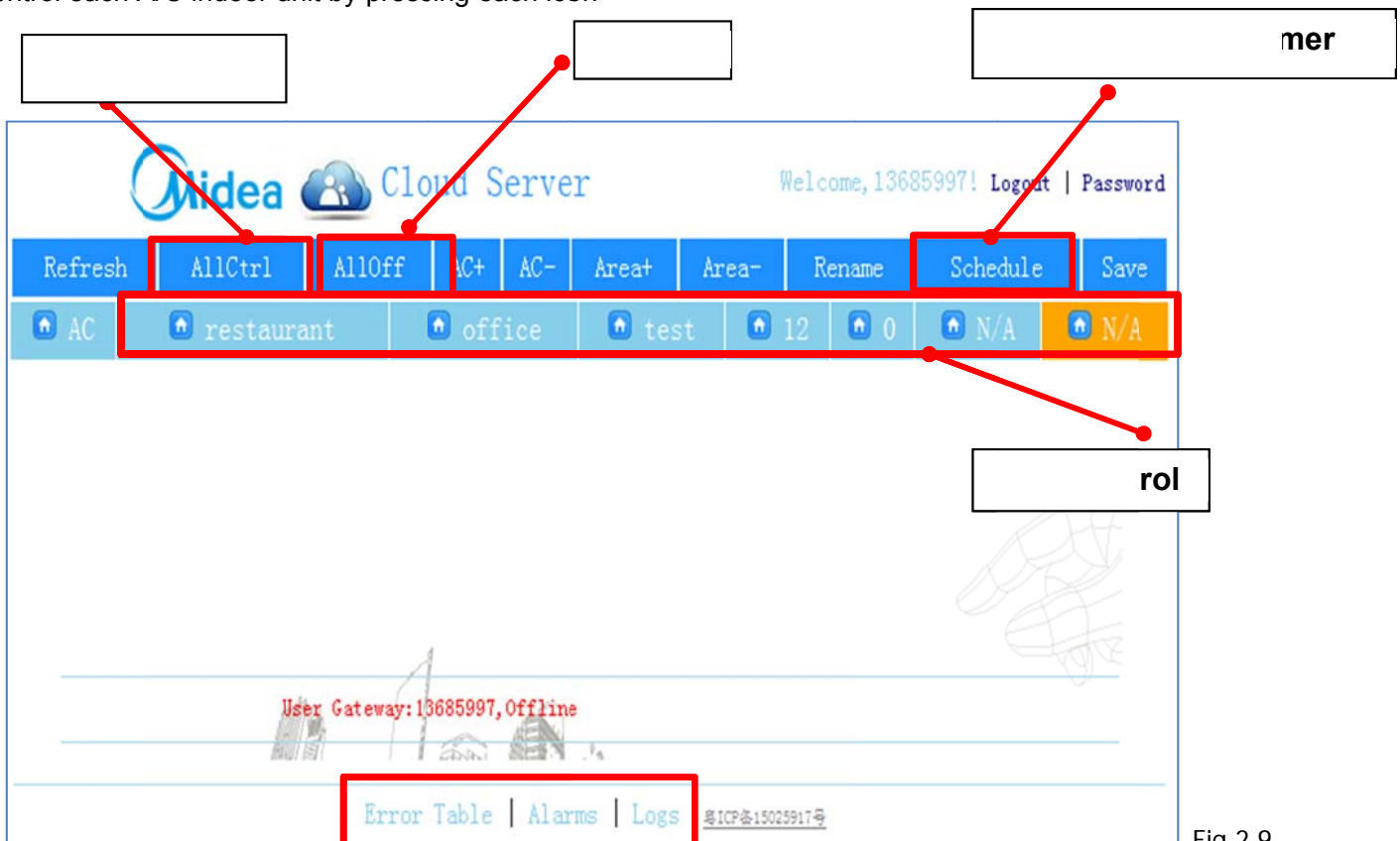
Fig.2.9

Refresh: Refresh the webpage

AllCtrl: Group control all the indoor units.

AllOff: can turn off all the indoor units.

Schedule: can set the weekly schedule timer function.

Rename: Select the region or unit before and click "Rename" button can rename.

Area +/ Area -: add a new region or delete the region.

AC+/AC-: can add indoor unit to the area or delete units from area.

Save: Click Save button after weekly schedule timer setting

Error Table: can check the error codes

Alarms: can check the fault records.

Logs: can check the operation records.

Password: can modify the user's password.

Logout: return to the main page as Fig.2.8.

✧ **Weekly schedule timer function**

Firstly click the "Schedule" button and then click the area which you want to set a week time, it can set weekly schedule timer function can for this area.

 MON - SUN means from Monday to Sunday.

Number 1-20 means 20 periods schedule.

Time zone: in order to ensure that weekly schedule time function can run normally, please select your local time zone and click "Enable" button.

And then press "Save" button to save the settings

Fig.2.9

✧ **A/C region setting**

In the initial interface of Cloud server, we can only control the A/C system by individual or by All. So if we want to control some of these indoor units, then we need to add region, and place the indoor units which we want to group control to this region. Then we can group control all the indoor units under this region.

Press "Area+" or "Area-", you will get below interface：

You can set the name of each room or region

You also can delete some region
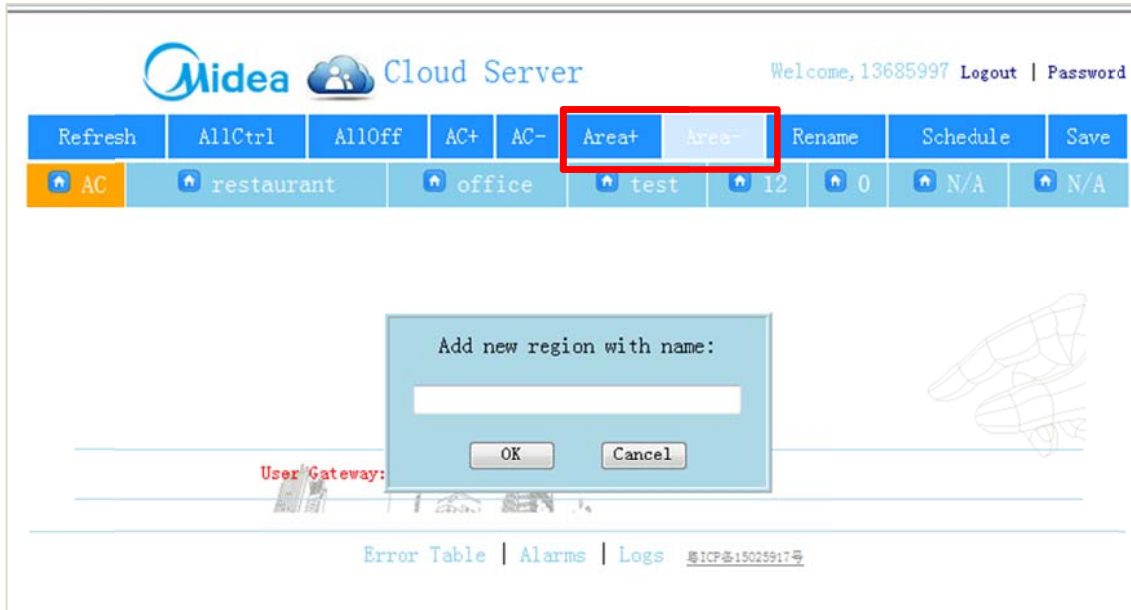
Fig.3.0

To add A/C indoor units for each region, press "AC+" or "AC-", you will get below interface:
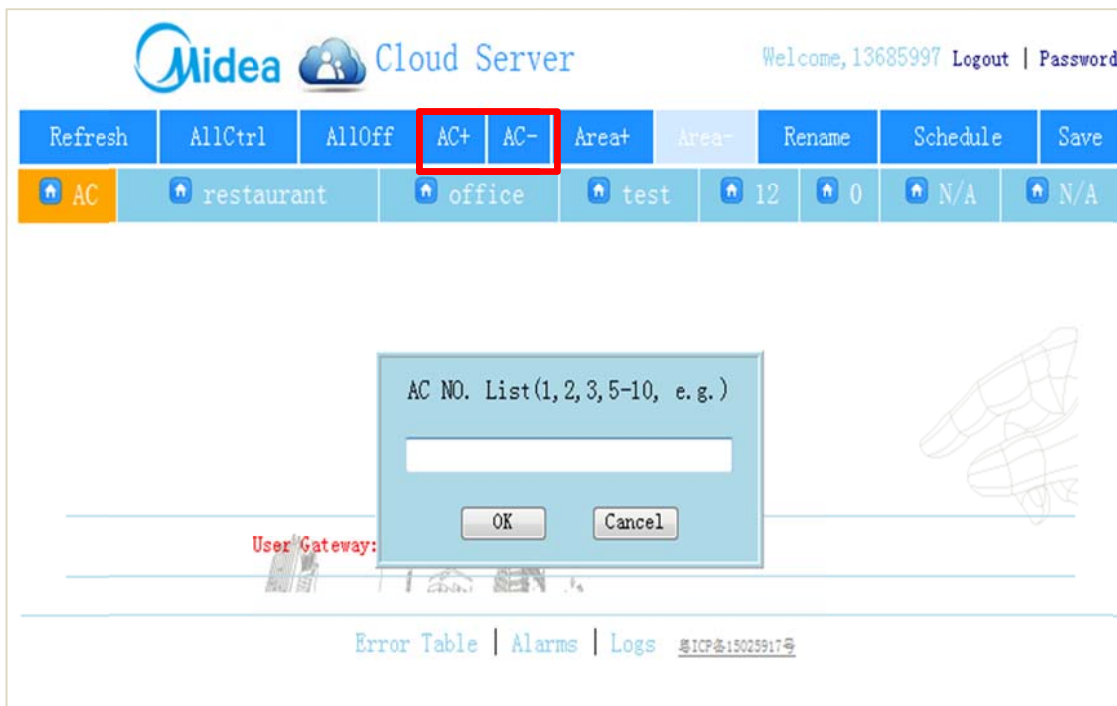
Fig.3.1

Select the corresponding address code, and press OK to add this indoor unit to this region

✧ Click the single unit can control the unit, for example, setting the operation mode, temperature and fan speed and so on. After setting and click "Apply" button to confirm.
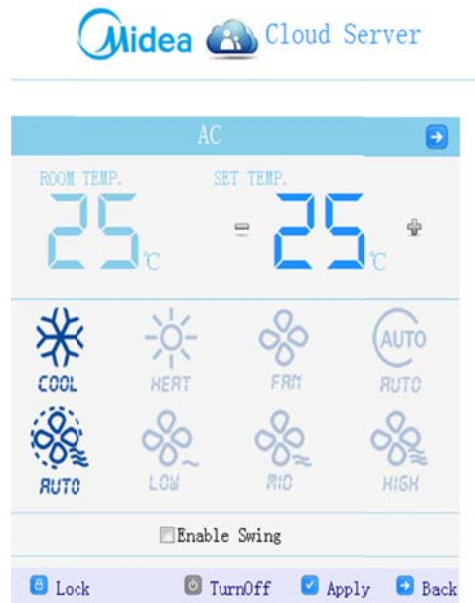
Fig.3.2

Turn off" button can turn off the air conditioners.

Click "+" or "-" button can adjust the setting temperature.

Click "Apply" button after setting the operation mode, temperature and fan speed.

✓ Click the "Lock" button, can set the operation mode, temperature, fan speed and remote controller.

Notes: Some old indoor units can lock remote controller only.

Fig3.3

Click "Back" button or [→] button will return to the main control page.

◇ **Group control**

When more than one CCM15, please select as group user, input user ID and password of master CCM15 which you can define it by yourselves, one user can manager multi CCM15.

1. Select "As Group User" when login, it will enter the group user control interface.

2. Click the "Edit" button

3. Input ID and password of other data converters.

4. Input each CCM15 ID and password, and the name can be input for free. After setting and click "Apply" button, one user can manage many CCM15.

5. The operation of each CCM15 is same as before.

✧ Error table & Alarms & Logs

ERROR/PROTECT CODE TABLE

- Applicable to some series indoor units, other may be different

EF	Other errors
EE	Water level detection error
ED	Protection of outdoor error
EC	Fresh error
EB	Protection for inverter module
EA	Compressor over current
E9	Communication error of mainboard and display board
E8	Fan speed detection is lost control
E7	Eeprom error
E6	Zero crossing detection error
E5	Air discharging temp sensor error of T3/T4 or digital compressor
E4	T2B sensor error
E3	T2A sensor error
E2	T1 sensor error
E1	Communication error/Mode Conflict
E0	Phase sequence error or no phase

PF	PF
PE	PE
PD	PD
PC	PC
PB	PB
PA	PA
P9	P9
P8	Compressor over current
P7	Power over voltage protection
P6	Low pressure protection for air discharging
P5	High pressure protection for air discharging
P4	Temp. protection for air discharging pipe
P3	Temp. protection for compressor
P2	High temp. protection for condenser
P1	Protection for anti-cold air of defrosting
P0	Temp. protection for evaporator

Alarms - 13685997

Index	Time	Source	Detail
1408	2015/7/17 00:48:22,FRI.	AC:0	1,E0,Phase sequence error or no phase
1409	2015/7/17 00:48:22,FRI.	AC:2	1,E0,Phase sequence error or no phase
1410	2015/7/17 00:48:22,FRI.	AC:4	1,E0,Phase sequence error or no phase
1411	2015/7/17 00:48:22,FRI.	AC:8	0,Error Solved
1412	2015/7/17 00:48:32,FRI.	AC:1	1,E0,Phase sequence error or no phase
1413	2015/7/17 00:49:22,FRI.	AC:1	0,Error Solved
1414	2015/7/17 00:49:33,FRI.	AC:0	0,Error Solved
1415	2015/7/17 00:50:11,FRI.	AC:2	0,Error Solved
1416	2015/7/17 00:50:24,FRI.	AC:2	1,E0,Phase sequence error or no phase
1417	2015/7/17 00:50:57,FRI.	AC:2	0,Error Solved
1418	2015/7/17 00:51:07,FRI.	AC:9	1,E0,Phase sequence error or no phase
1419	2015/7/17 00:51:14,FRI.	AC:2	1,E0,Phase sequence error or no phase
1420	2015/7/17 00:58:22,FRI.	AC:2	0,Error Solved
1421	2015/7/17 00:58:22,FRI.	AC:4	0,Error Solved
1422	2015/7/17 00:59:15,FRI.	AC:2	1,E0,Phase sequence error or no phase
1423	2015/7/17 00:59:19,FRI.	AC:2	0,Error Solved
1424	2015/7/17 01:31:16,FRI.	AC:9	0,Error Solved
1425	2015/7/17 16:50:24,FRI.	AC:41	3,E2,T1 sensor error
1426	2015/7/18 18:00:15,SAT.	AC:--	202,CCM15 Offline
1427	2015/7/18 18:01:59,SAT.	AC:--	201,CCM15 Online
1428	2015/7/20 11:12:37,MON.	AC:--	202,CCM15 Offline
1429	2015/7/21 11:31:29,TUES.	AC:--	201,CCM15 Online
1430	2015/7/21 16:16:01,TUES.	AC:0-4	0,Error Solved
1431	2015/7/21 16:16:01,TUES.	AC:7	0,Error Solved
1432	2015/7/21 16:16:01,TUES.	AC:9-11	0,Error Solved
1433	2015/7/21 16:16:01,TUES.	AC:41	3,E2,T1 sensor error
1434	2015/7/21 16:17:33,TUES.	AC:5	0,Error Solved
1435	2015/7/23 12:10:11,THURS.	AC:--	202,CCM15 Offline
1436	2015/7/24 08:57:24,FRI.	AC:--	201,CCM15 Online
1437	2015/7/24 17:10:06,FRI.	AC:--	202,CCM15 Offline

Total:1437, From: 1408 To: 1437 Timezone: GMT+08:00 ▾ View Previous Next Logs Close

Operate Logs - 13685997

Index	Time	Source	Detail
9812	2015/7/21 07:00:02,TUES.	Weixin	CLOSED, AC:0-63,
9813	2015/7/21 16:16:16,TUES.	SMART PHONE:119.145.137.53	COOL, 24℃,LOW SPEED, AC:0-63,
9814	2015/7/21 16:16:29,TUES.	SMART PHONE:119.145.137.53	COOL, 24℃,LOW SPEED, AC:0-63,
9815	2015/7/21 16:16:40,TUES.	SMART PHONE:119.145.137.53	COOL, 24℃,LOW SPEED, AC:0-63,
9816	2015/7/21 16:16:50,TUES.	SMART PHONE:119.145.137.53	COOL, 24℃,LOW SPEED, AC:0-63,
9817	2015/7/21 16:17:09,TUES.	SMART PHONE:119.145.137.53	COOL, 24℃,LOW SPEED, AC:0-63,
9818	2015/7/21 16:17:15,TUES.	SMART PHONE:119.145.137.53	COOL, 24℃,LOW SPEED, AC:0-63,
9819	2015/7/21 16:17:22,TUES.	SMART PHONE:119.145.137.53	COOL, 24℃,LOW SPEED, AC:0-63,
9820	2015/7/21 21:46:02,TUES.	Weixin	HEAT, 26℃,AUTO SPEED, AC:0-63,
9821	2015/7/22 08:35:43,WED.	WEB/Windows:60.210.112.174	COOL, 25℃,MEDIUM SPEED, AC:0-1,9,
9822	2015/7/22 08:35:59,WED.	WEB/Windows:60.210.112.174	FAN, 25℃,LOW SPEED, AC:0-1,9,
9823	2015/7/22 10:06:34,WED.	Weixin	CLOSED, AC:0-63,
9824	2015/7/22 13:10:44,WED.	Weixin	COOL, 17℃,AUTO SPEED, AC:0-63,
9825	2015/7/22 13:10:48,WED.	Weixin	COOL, 17℃,AUTO SPEED, AC:0-63,
9826	2015/7/22 13:10:53,WED.	Weixin	HEAT, 26℃,AUTO SPEED, AC:0-63,
9827	2015/7/22 15:37:20,WED.	Weixin	CLOSED, AC:0-63,
9828	2015/7/22 15:37:34,WED.	Weixin	COOL, 17℃,AUTO SPEED, AC:0-63,
9829	2015/7/24 08:57:25,FRI.	WEB/Windows:119.145.137.56	CLOSED, AC:0-1,9,
9830	2015/7/24 13:42:17,FRI.	WEB/Android:113.134.139.232	COOL, 25℃,AUTO SPEED, AC:1-2,10-19,
9831	2015/7/24 13:42:23,FRI.	WEB/Android:113.134.139.232	COOL, 25℃,AUTO SPEED, AC:1-2,10-19,
9832	2015/7/24 13:42:34,FRI.	WEB/Android:113.134.139.232	COOL, 17℃,AUTO SPEED, AC:1-2,10-19,
9833	2015/7/24 13:42:38,FRI.	WEB/Android:113.134.139.232	COOL, 17℃,AUTO SPEED, AC:1-2,10-19,
9834	2015/7/24 13:42:41,FRI.	WEB/Android:113.134.139.232	CLOSED, AC:1-2,10-19,
9835	2015/7/24 13:42:46,FRI.	WEB/Android:113.134.139.232	CLOSED, AC:1-2,10-19,
9836	2015/7/24 13:43:03,FRI.	WEB/Android:113.134.139.232	CLOSED, AC:?
9837	2015/7/24 13:43:04,FRI.	WEB/Android:113.134.139.232	CLOSED, AC:?
9838	2015/7/24 13:43:13,FRI.	WEB/Android:113.134.139.232	COOL, 25℃,AUTO SPEED, AC:?
9839	2015/7/24 13:43:28,FRI.	WEB/Android:113.134.139.232	COOL, 22℃,AUTO SPEED, AC:?
9840	2015/7/24 13:44:00,FRI.	WEB/Android:113.134.139.232	COOL, 22℃,AUTO SPEED, AC:?
9841	2015/7/24 13:56:16,FRI.	WEB/Android:113.134.139.232	COOL, 25℃,AUTO SPEED, AC:1-2,10-19,

Total:9841, From: 9812 To: 9841 Timezone: GMT+08:00 ▾ View Previous Next Alarms Close

4.5.4.6 iPhone software introduction

iPhone APP software is designed for Apple IOS to control the A/C system. Under the App store to search "Midea MDV", you can find the software called "Midea MDV", and you can download it for free.

After connecting and open the software to login, it will enter the following pages.

n

Login

al
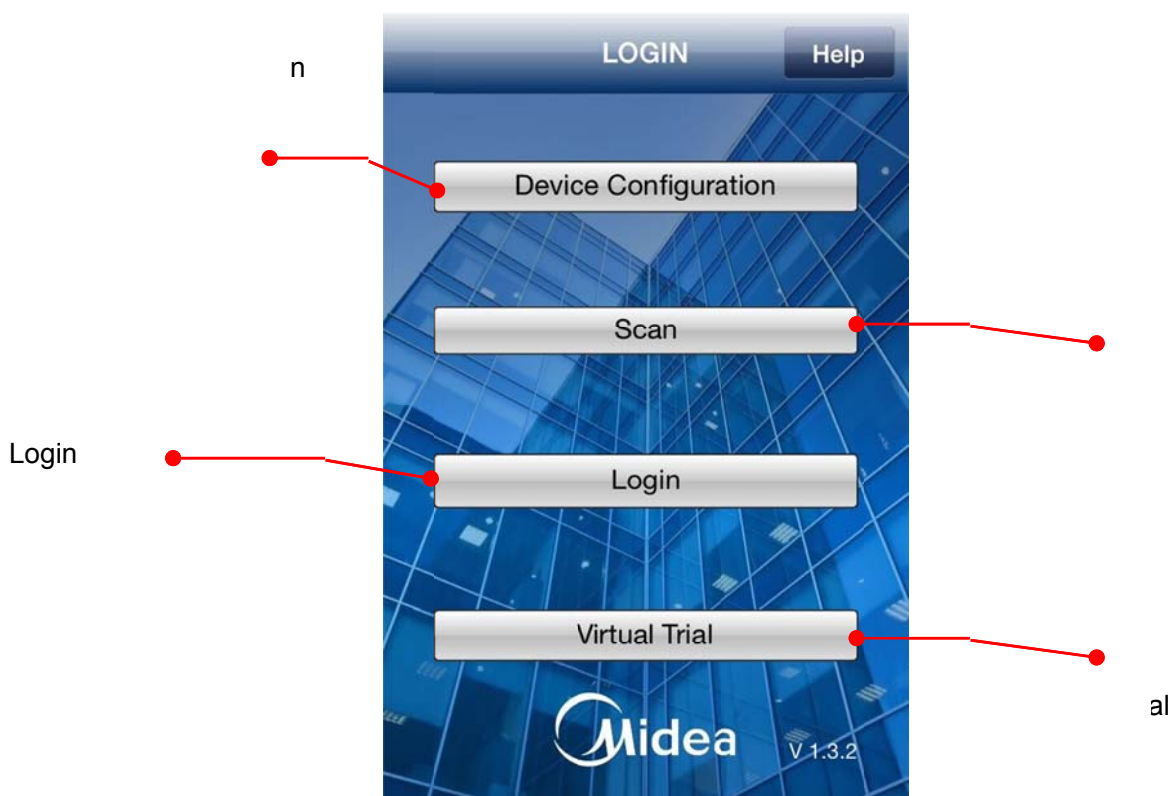
Device Configuration:

This function is available for upgrade version CCM15.

Press "Device Configuration" option to enter the following page.

The phone and CCM15 must in the same LAN networks and the router can access to the Internet normally, click "Apply to Device" option, you don't manually configure, it will be configured settings automatically. You can get a random ID number, please keep it well. If you share the following QR code to others, and then can also login CCM15 and operation.

Notes:

If you have already configured cloud account on the built-in WEB page and need not to configuration by phone software again.

If the phone and CCM15 aren't in the same LAN networks or the router can't access to the Internet normally, after clicking "Apply to Device" option, it will display the following page and please check.
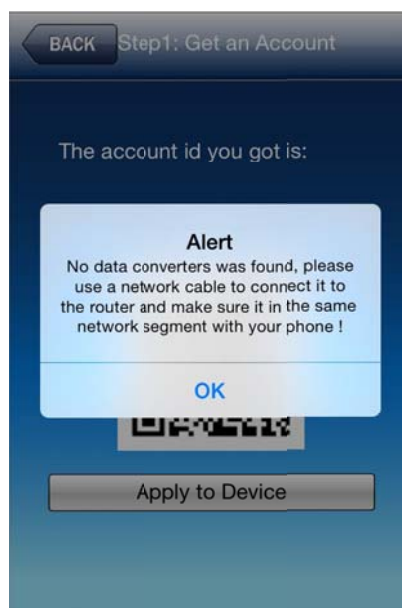
Scan option:

This function is available for upgrade version CCM15.

You can share the QR code to others and you can also scan other's QR code and login their account.

Login option:

If you have already register an account on the cloud server and manual configured the CCM15, you can input the ID account and password in the follow page, and click OK button to login.
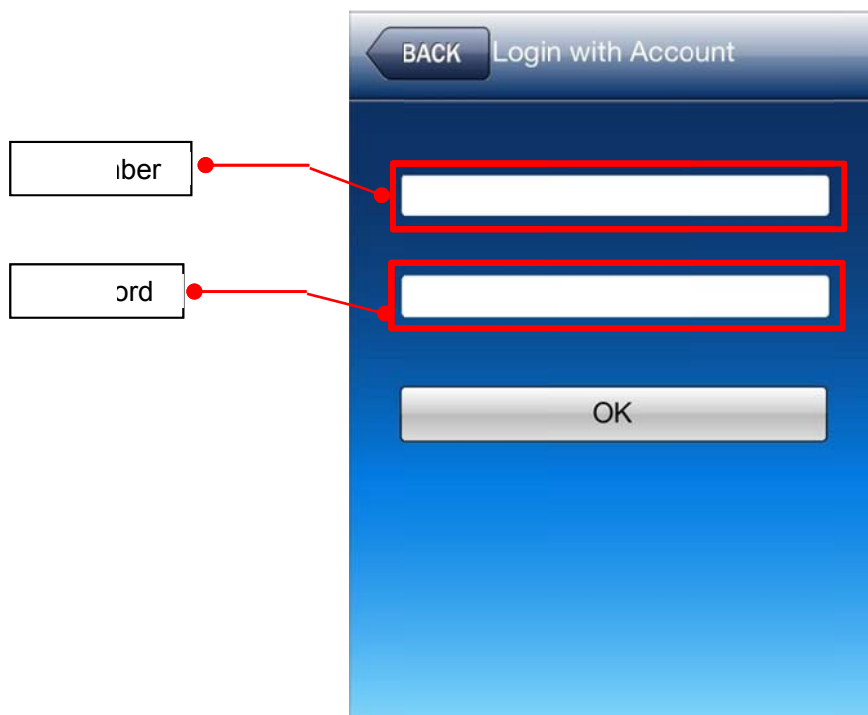
Main Page:
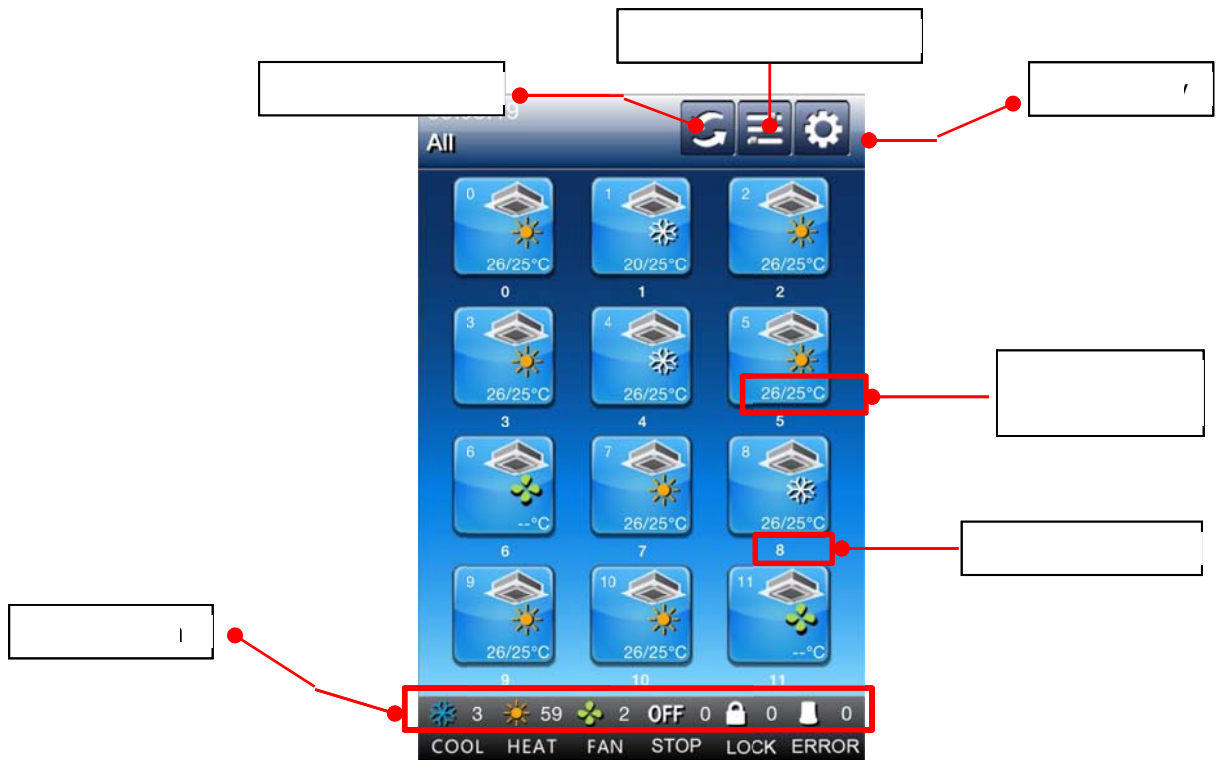
Click each statues icon, it will display all units which are under this current statues. Click the statues icon again will back to all units page.

| **Cool** | **Heat** | **Fan** | **OFF** | **Error** |

Long press unit can rename:
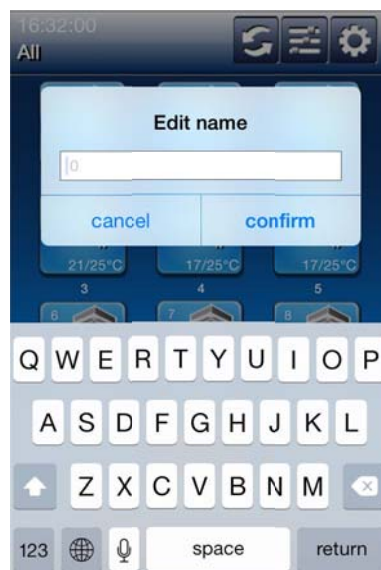
Control page

Just click the single unit can enter the single unit control page.
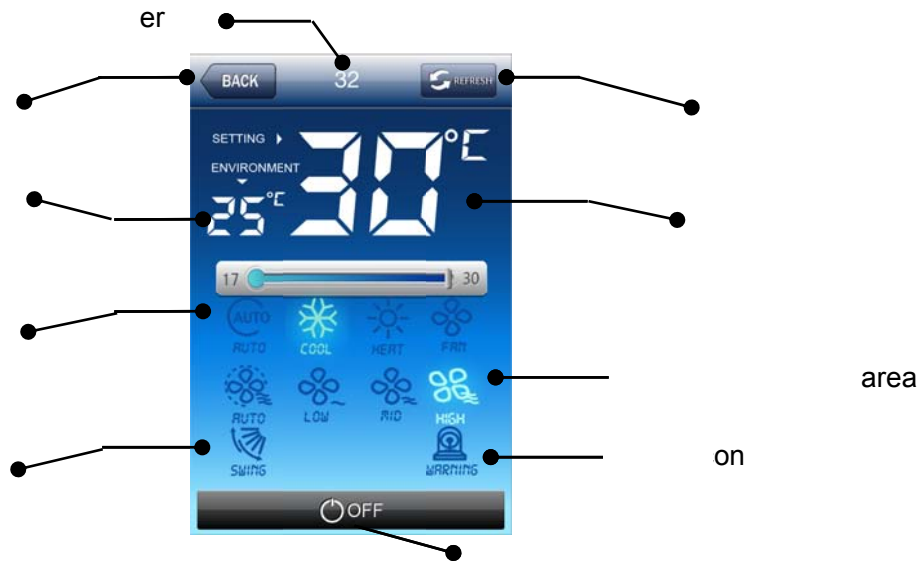
er

s

area

on

Notes:

If the swing function is operation, the swing icon will be light on and there is malfunction, the error icon will be light on.

Group control page

e
key

Setting key

Click the setting key will enter the setting page.
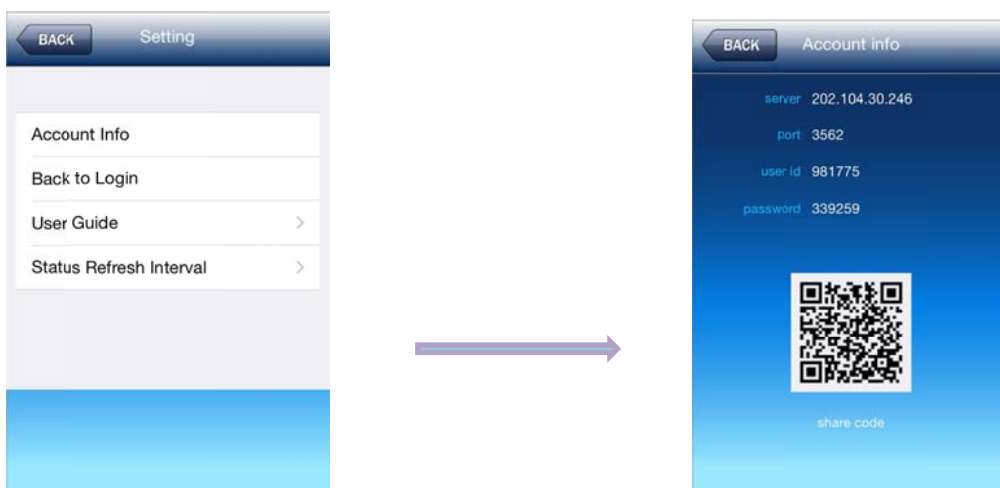
Add a new area:

1. Press "All "option

2. Press ⊕

3. Create new name and input name.

4. Press setting key

5. Choose machine configuration

6. Add new machine No by press add button

7. Input the unit address (0-63) and click Confirm button

8. Delete machine or Rename Area by bottom buttons
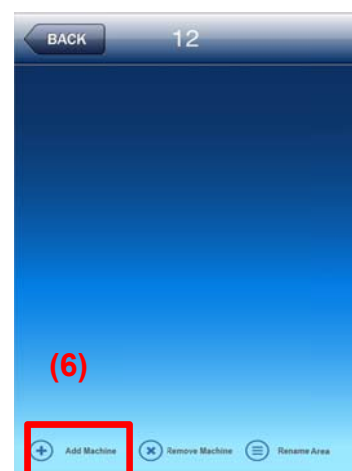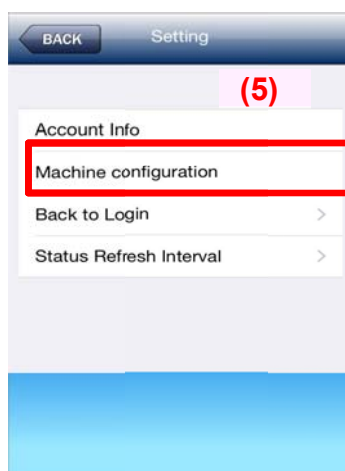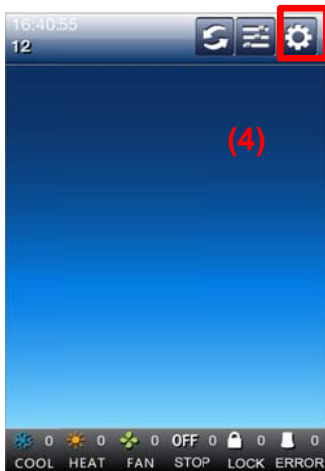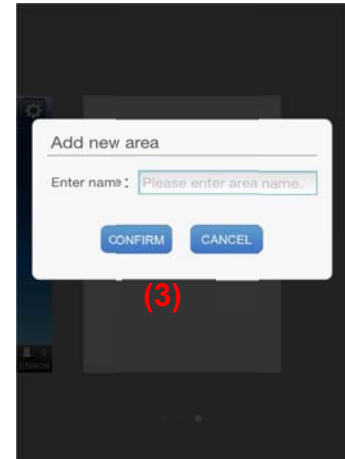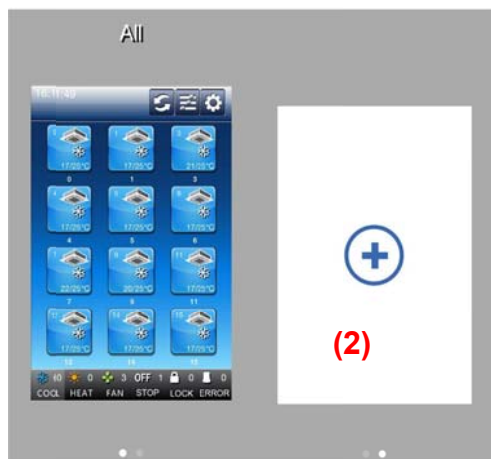
4.5.4.7 iPad software introduction

Under the App store to search "Midea MDV", you can find the software called "Midea MDV HD", and you can download it for free.

Login page:

IP: imdv.com.cn (default)

Port: 3562(default)

ID: user ID number

ID and password get from step 2.

Control main page:

status

key

e setting

Temp.

on mode

ed

on

f key

a

Notes:

If the swing function is operation, the swing icon will be light on and there is malfunction, the error icon will be light on.

Click the Setting key will enter the setting page and can change the IP address, password and so on.
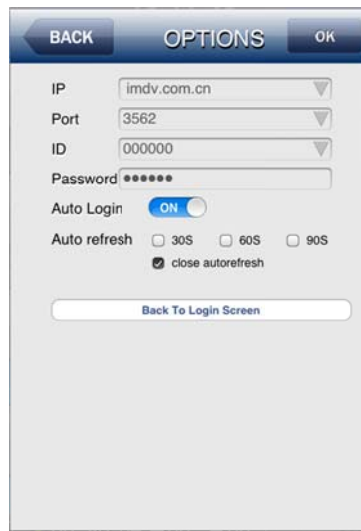
Click the weekly schedule key will enter the weekly schedule function setting. You can set multi period schedule for per day in the weekly setting page.
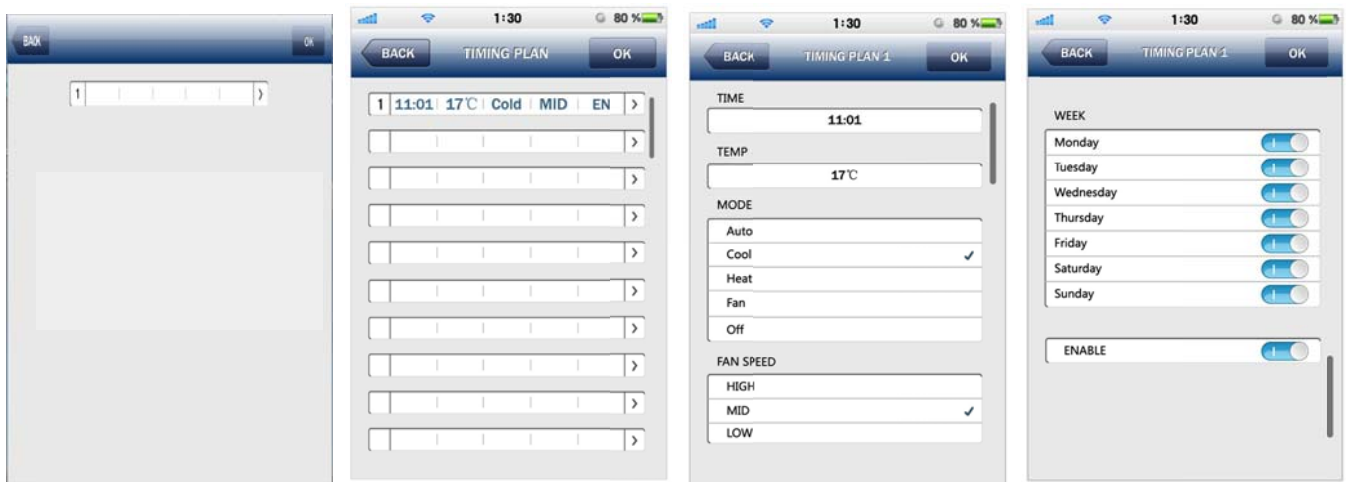
Add a new area

1. Click [icon] button to add a new area

2. Select an area name or create an area name

3. Add a new indoor unit and input indoor address (0-63).

4. Click "Done" key will finish.

5. Delete unit or Rename Area by bottom buttons.
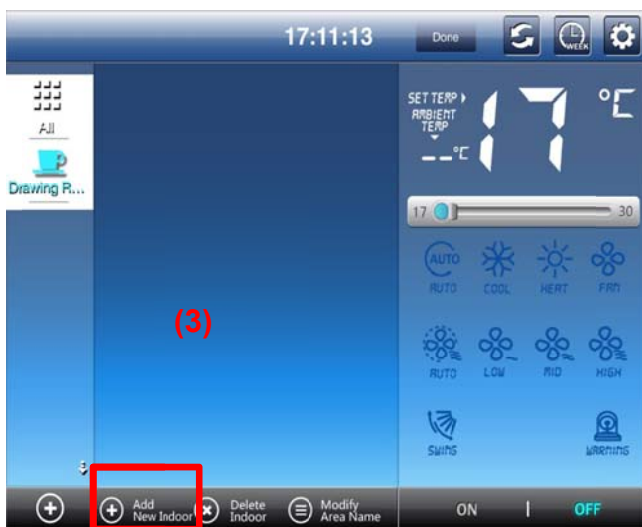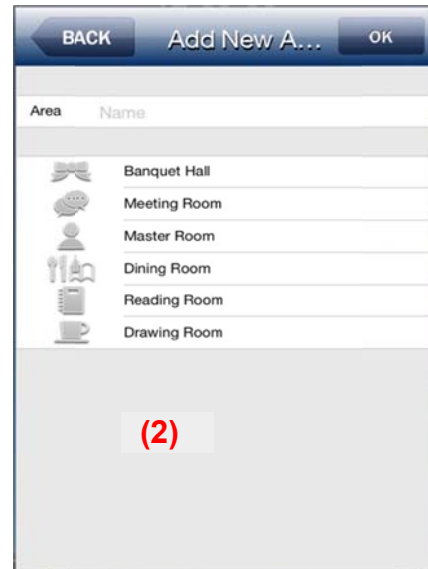
4.5.4.8 Android software introduction

Login page:

The phone and CCM15 must be in the same LAN networks and the router can access to the Internet normally.

For older version CCM15, you need to registered an account from the cloud server first, and then input user ID, password and select login key to login.
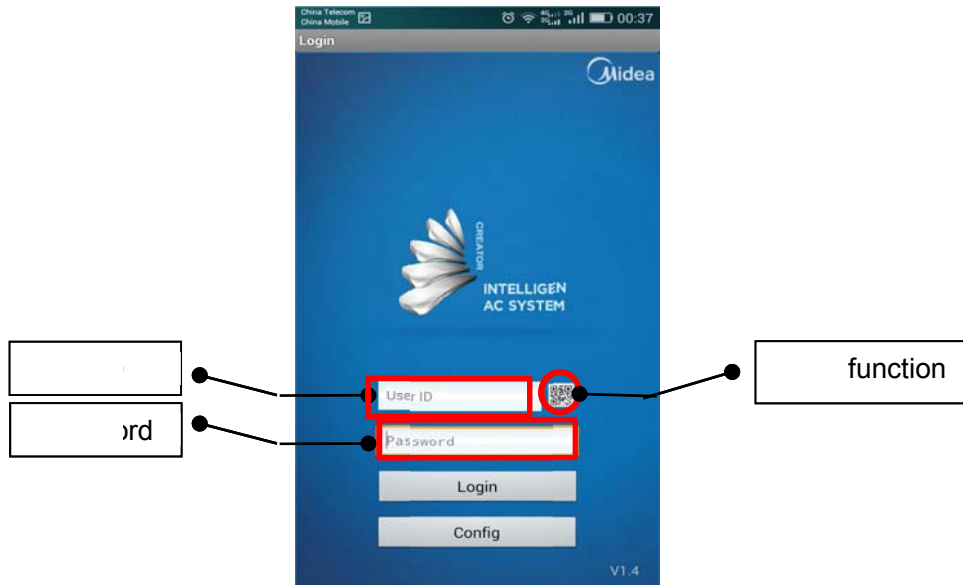
"Scan" function and "**Config**" **option is only available for upgrade version CCM15:**

If you don't have anyone ID account, you can also click the "config" option and select "Register new account", you will get a new ID account and password, please keep it well.

After register need to click "Use the account", you don't manually configure, it will be configured settings automatically.

You can share the following QR code to others, and then they can also login CCM15 and operation.
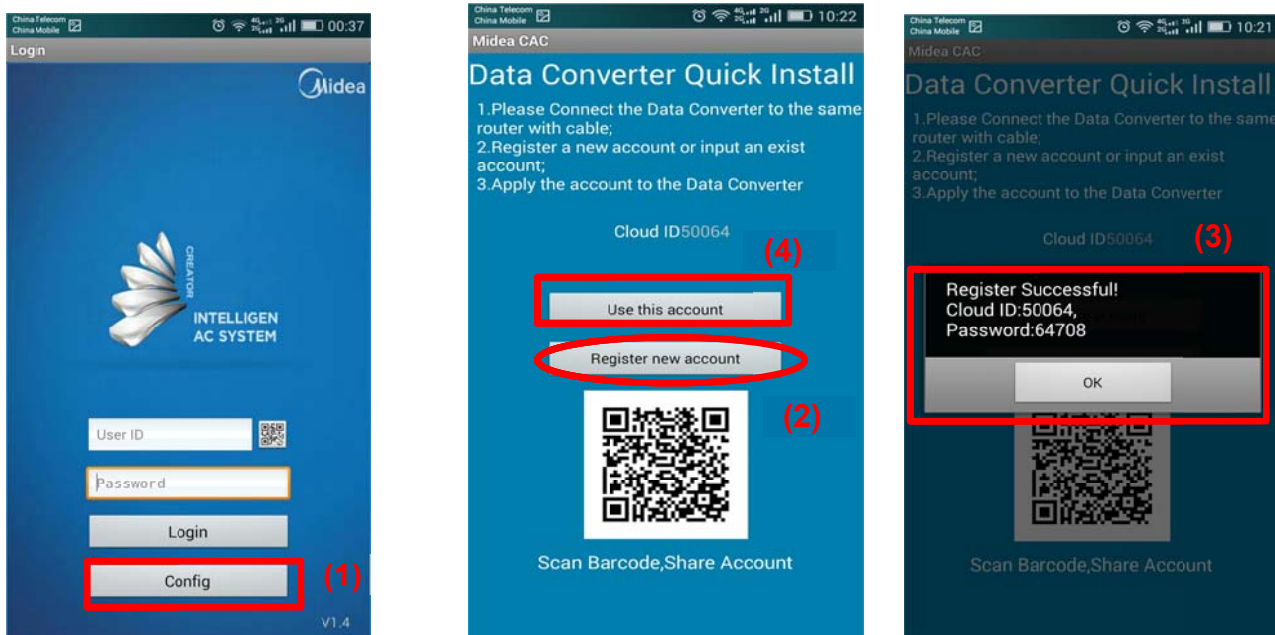
After login and click "All Devices", it will show all the units. Click on the single unit can control and query the operation mode, temperature, fan speed and turn on/off the unit. Select the All-on or All-off key can turn on or turn off all units.
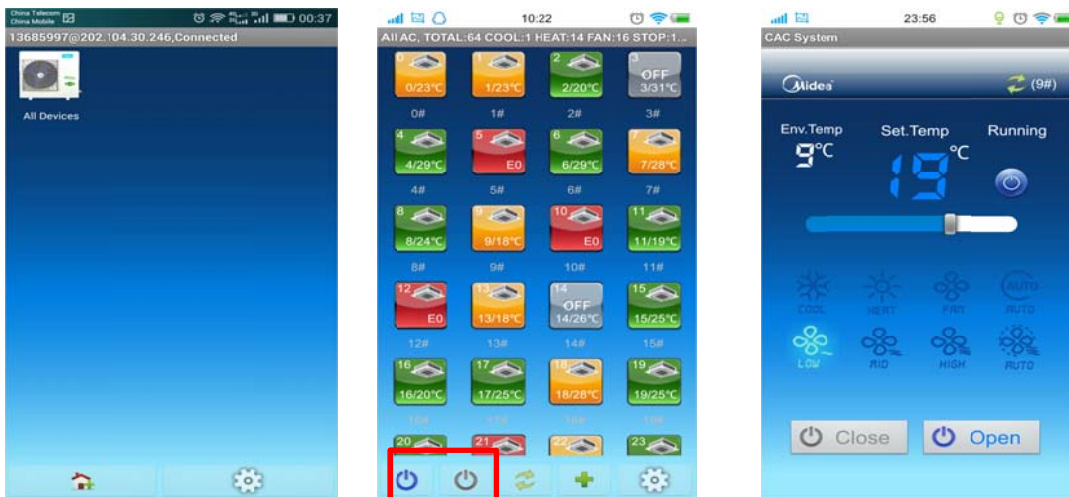
If long press "All Devices", it will display as the following page and you can operate it.

Group control: can control all units;

Add: can add a new area;

Import data from gateway:

Click this button will synchronize the name of the units and area to mobile phone when you rename the units on the cloud server.

Export data to gateway:

Click this button will synchronize the name of the units and area to the cloud server when you rename the units on mobile phone.

Add new area

1. Click Add new area button

2. Input an area name

3. Build an area successfully

4. Need to add the unit to the area

5. Input the unit's address (0-63)
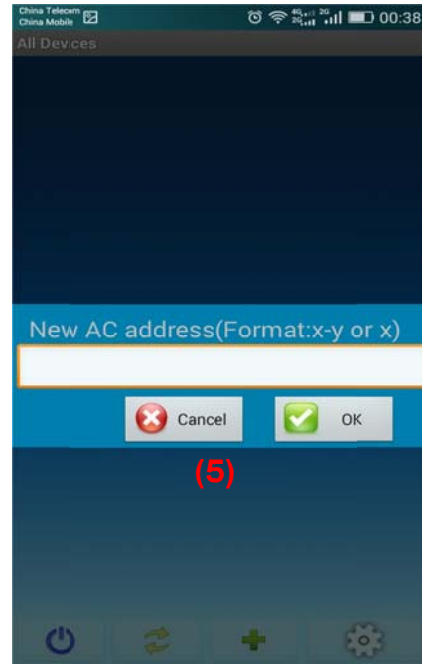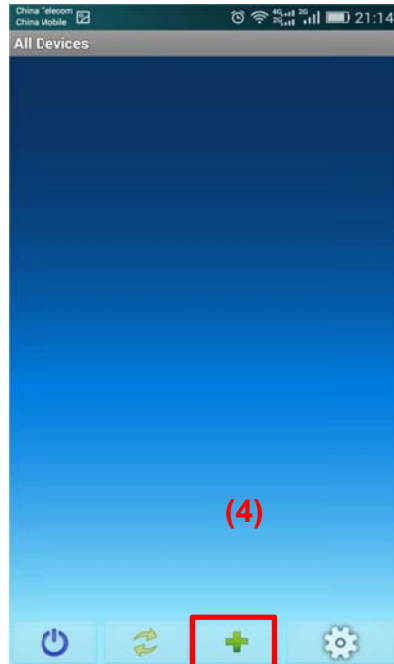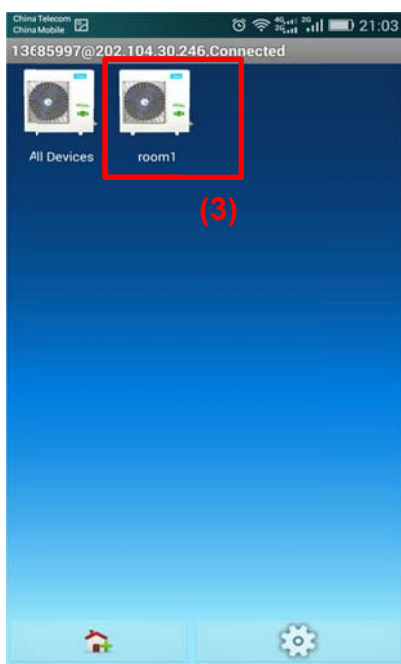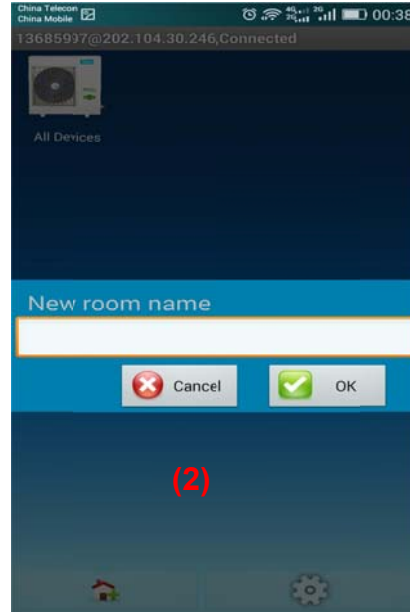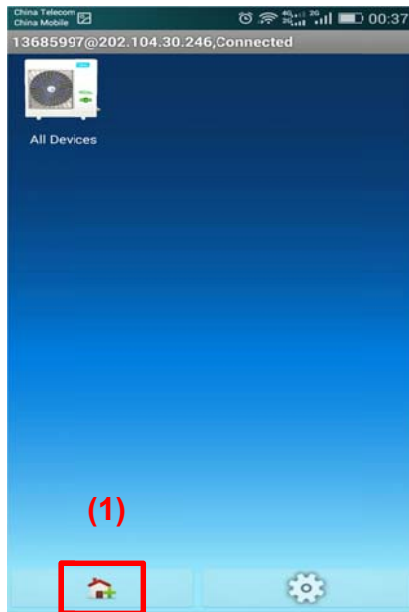
If long press the new area, it will display as the following page and you can operate it.

Group control: can control all units;

Rename: can change the area name

Delete: delete this area

Add: can add a new area;

Import data from gateway:

Click this button will synchronize the name of the units and area to mobile phone when you rename the units on the cloud server.

Export data to gateway:

Click this button will synchronize the name of the units and area to the cloud server when you rename the units on mobile phone.
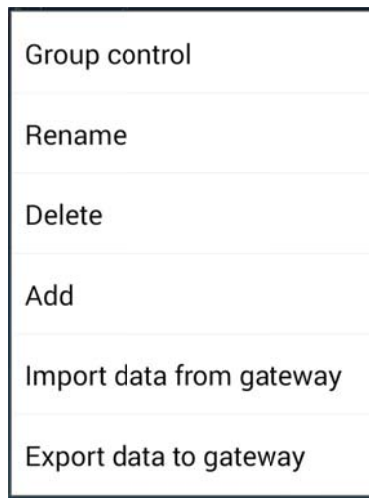
Share option:
This function is available for upgrade version CCM15.

You can scan other's QR code and login their account.

Notes:

The "advance" option is a reserved function.

(11) Dimensions
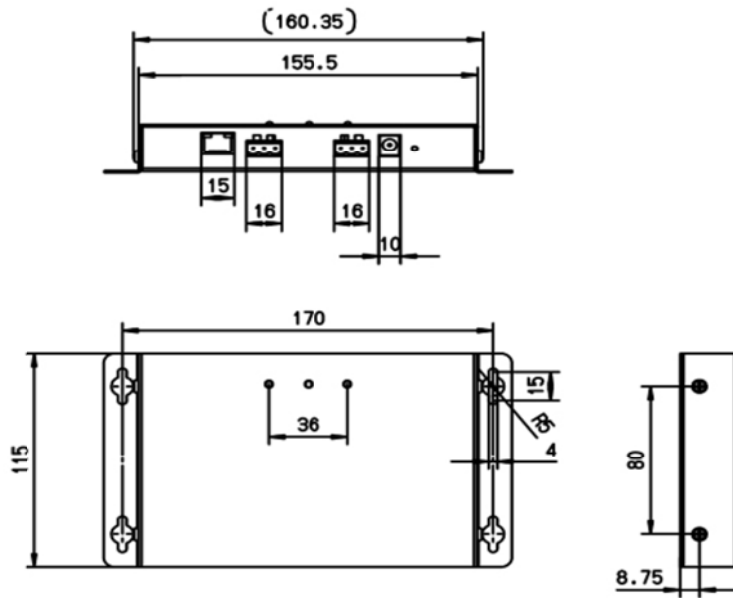
(12) Side view of CCM15
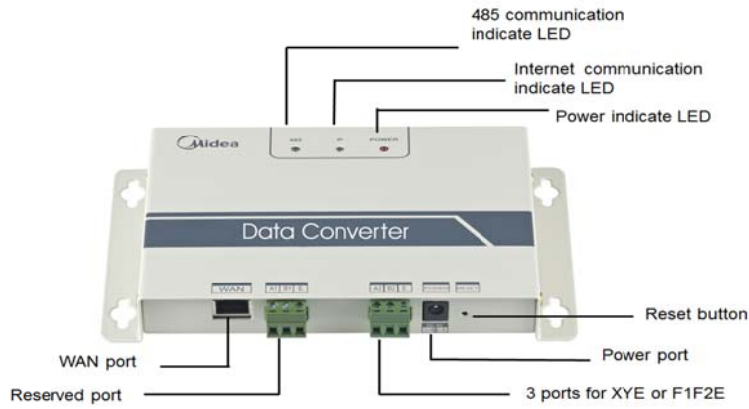
Note:

1) 485 indicate LED: when communication normally between CCM15 and indoor units, LED will flash slowly;

2) Internet communication indicates LED: when communication normally between CCM15 and Internet, LED will flash slowly;

3) Power LED: when power on, it will light on.

5. Network monitoring system

5.1 Intelligent Manager of Midea (IMM) - 4[th]generation network control system

Intelligent Manager of Midea, designed specifically to control VRF systems, is based on a centralized format and dedicated to the complete control and monitoring of all the system's functions. It can be used as a flexible multi-purpose system and applied to a variety of needs, according to the scale, purpose and control method of each building.
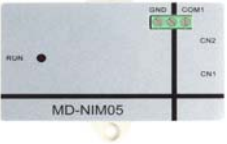
System Configuration
- AT compatible machine that runs Microsoft® windows®
- OS: XP Professional (English version)
- Windows 7 Home /Premium/Professional (Corresponds to 8 different languages.*)
- 32-bit version is supported.
- CPU: Inter® Pentium® 2.5GHz or above
- HDD:80 GB or more of free space
- Memory: 2 GB or more
- Display: 1024 x 768 dots or more
- Max.4 refrigerant systems for 1 interface. And maximum of 4 M-interfaces, 64 refrigerant systems, 1,024 indoor units, and 256 outdoor units can be controlled by one PC.

The details please refer to IMM manual.
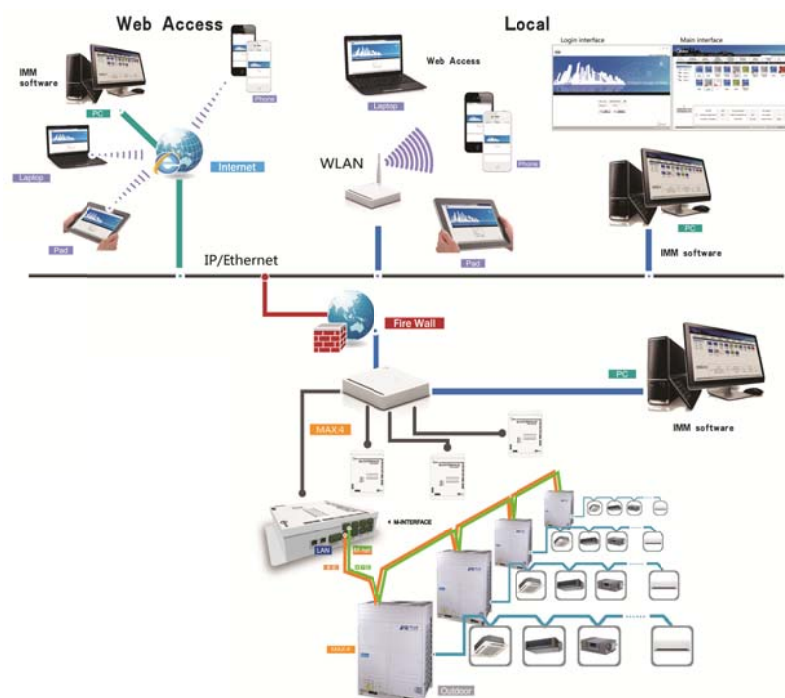
6. Accessories

Appearance	Model	Description
	DTS634/DTS636	Send the electric energy data to outdoor unit for realizing network fee charge function.
	MD-NIM05	Match hotel card system to control the air conditioner.
	MD-NIM09	Automatically turn off and turn on the indoor unit, saving energy.
	MD-NIM10	Electricity distribution module for Mini VRF
	KJR-32B/E	When outdoor unit is working abnormally, it can output the outdoor unit's fault and protection state.
	KJR-150A/M-E	Could control a group of indoor units at the same time.
	AHUKZ-01	Can be used to connect VRF outdoor units with DX AHU or other brand indoor units, but cannot connect to the heat recovery system.
	AHUKZ-02	
	AHUKZ-03	

6.1 Digital ammeter DTS634/DT636

The digital ammeter DTS634/DT636 is a device to calculate the power consumption of the outdoor unit and transmit the information when it is required.

✧ Steadily functioning and needs no adjusting.

✧ Be with great precision.

✧ Works in wide working temperature, from -35 ℃ to +55℃.

✧ Be able to be built inside the outdoor units in our factory.

6.1.1 Digital ammeter wiring

The ammeter has two kinds of ports. One is the power port used to calculate the current flow through it. The other is the signal port O, A, E used to send the signals to the other device. Both of these two kinds of port should be connected and fastened before use.

1) Three-phase four-wire system with current transformer
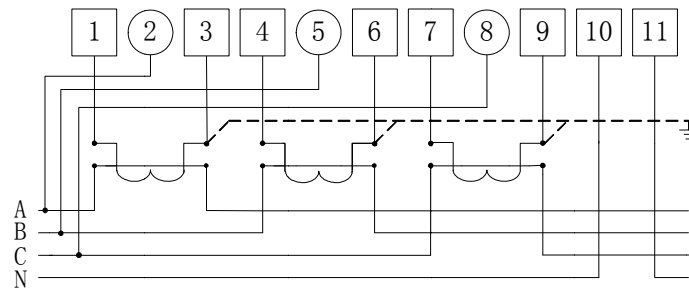
2) Three-phase three-wire system with current transformer
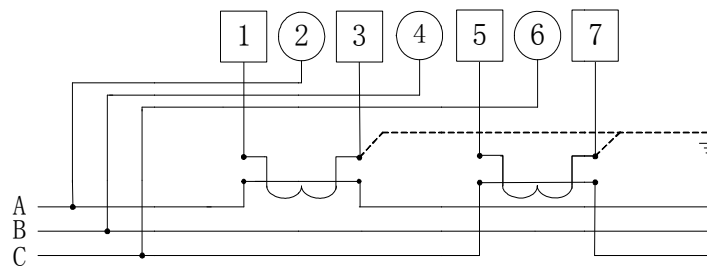
3) Three-phase four-wire system
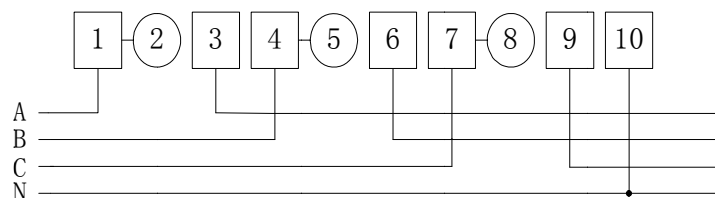
4) Three-phase three-wire system with current transformer and voltage transformer
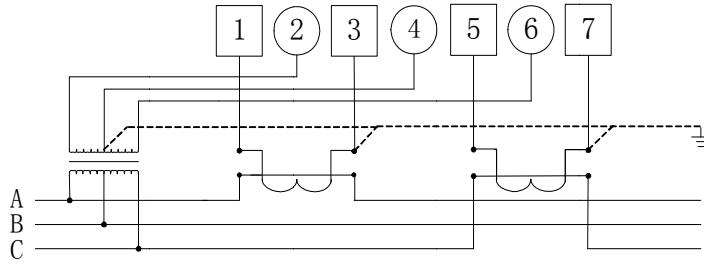
6.1.2 Installation
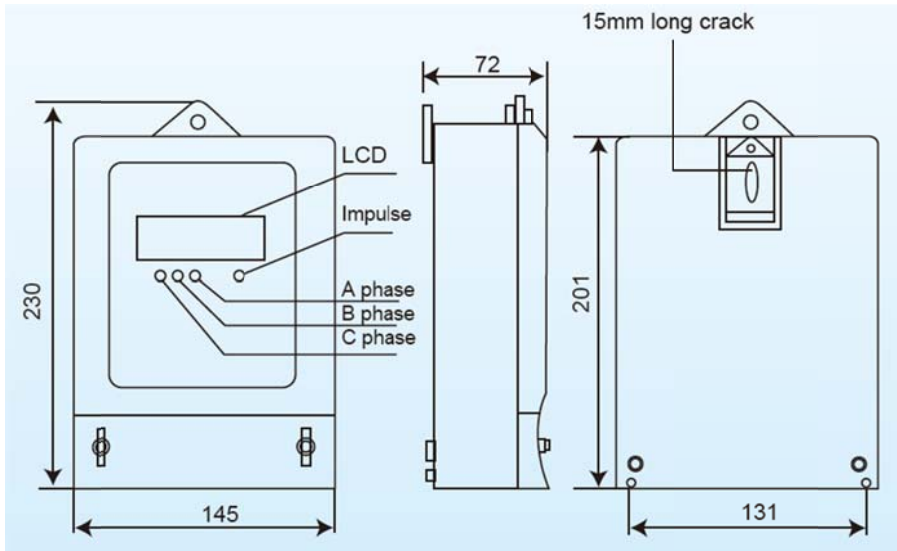
Notes: The ammeter device is an optional device. Without this device, the central AC system is also able to work normally.

If users want to realize the network fee calculating function, this device is necessary. And each outdoor unit should equip one ammeter. Do remember to fix the power line terminals and the signal line terminals before use.

6.2 Hotel card key interface module: MD-NIM05

MD-NIM05 is mainly designed for the hotel card-insert system. It offers a smart way to save energy and manage the air conditioners.
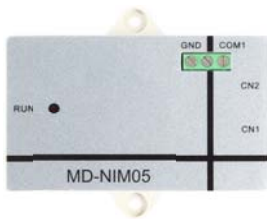
- ✧ A smart way to save energy and money.
- ✧ Cooperates with the hotel card-insert system.
- ✧ Extra power supply is unnecessary.
- ✧ Connected but insulate to the card-insert system
- ✧ Cooperate with the wired controller to automate control.
- ✧ Easy to install.

The main difference between MD-NIM05/E and MD-NIM05/E-1 is that MD-NIM05/E-1 is able to record the running state after power off and recover the unit to the previous running state. While MD-NIM05/E runs the unit to the default starting state after power off.

6.2.1 Wiring

When the card is inserted, to turn on the air conditioner, the terminal COM and GND should be connected or short. So the card-insert system should send the signal to the terminal COM and GND. When connecting the COM port and GND, it will send a turn ON signal to the indoor unit; when the COM port and GND are broken, it will send a turn OFF signal to the indoor unit.

MD-NIM05 can be connected to the network module port of the indoor unit the hotel card system can provide the DC 5V.The wiring diagram should be as follows.

Wiring diagram:

- ◆ MD-NIM05 can be cooperated with the wired controller or remote controller to automate control.
- ◆ Can use remote controller and wired controller to control A/C.
- ◆ Includes a build-in auto-restart function and NIM05 control will not affect auto-restart function of the indoor unit.
- ◆ Only need to connect to the network module port of the indoor unit and wiring is simple.
- ◆ When connecting the COM port and GND, it will send a turn ON signal to the indoor unit; when the COM port and GND are broken, it will send a turn OFF signal to the indoor unit.
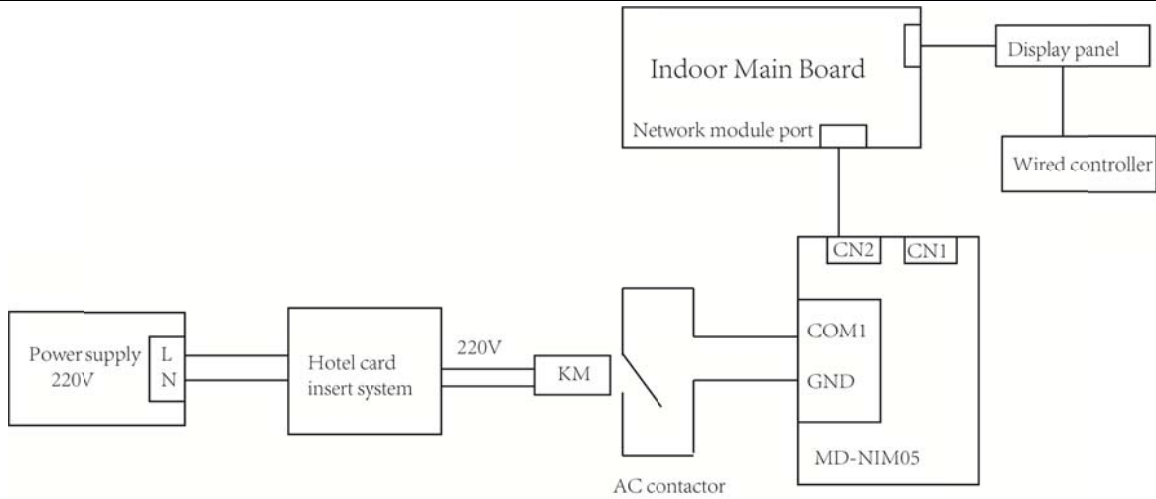
Hotel card key interface module
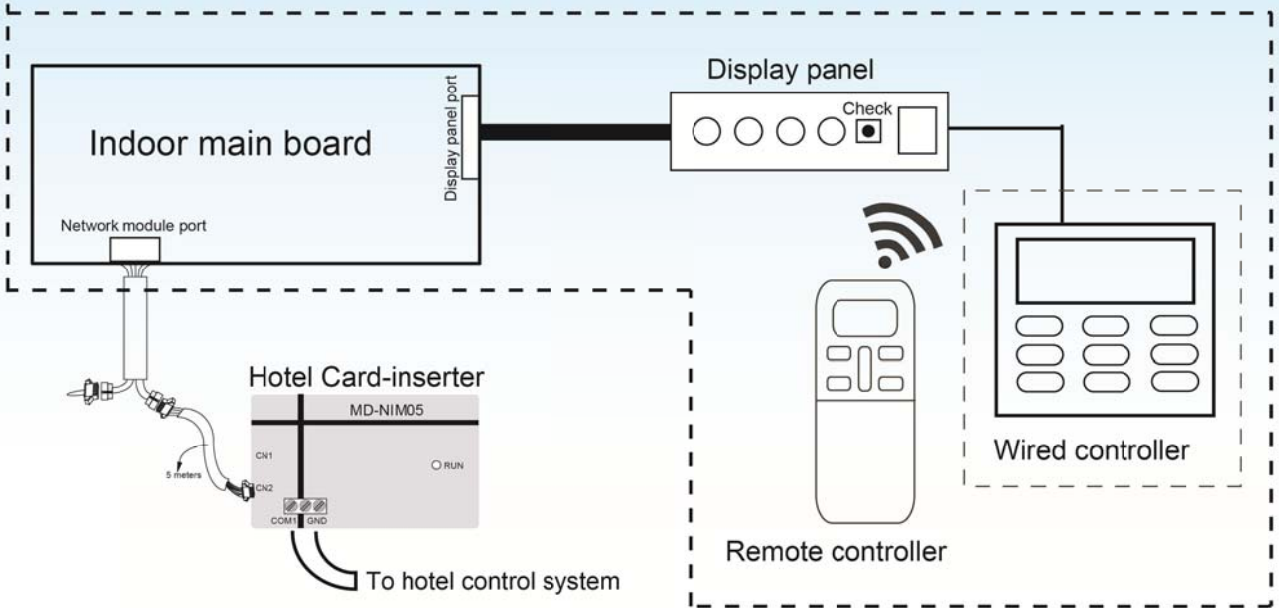
Notes:

1) An AC contactor or a delay is necessary to transform the signal.

2) Wiring assy. 2 connects the CN2 of hotel card-insert assy. to network module port of indoor main control board.

3) CN1 port reserved.
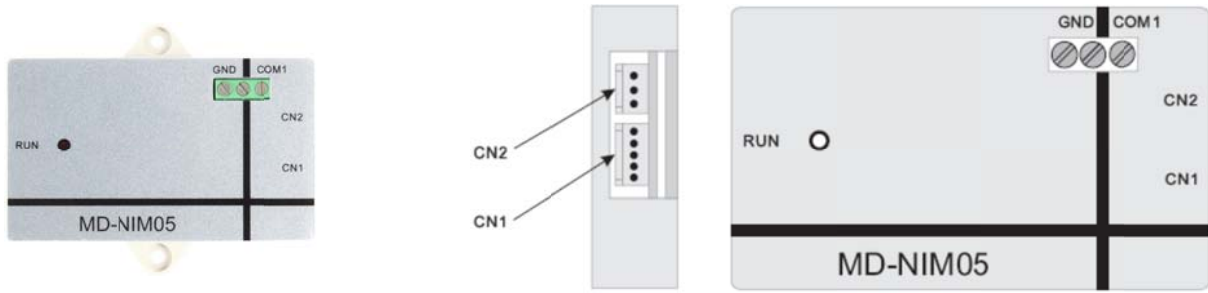
Notes: COM1 and GND terminals should be short to work and not be connected to the power. The electricity voltage over 5V will probably damage the device or get the device burnt and cause fire.

6.2.2 Installation

※ **Dimensions**
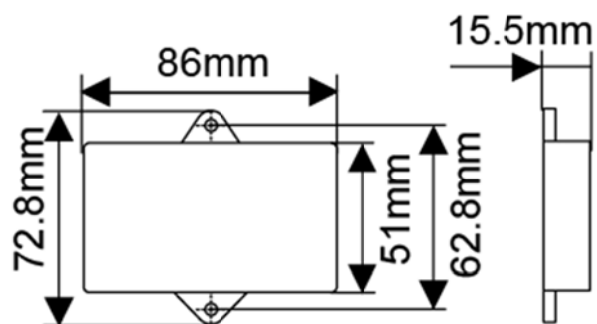
Wiring method and figure:

CN2 port needs to connect with network module port of the indoor unit.

5000mm

To CN2 of hotel card-inserter

BROWN
YELLOW
BLACK
RED

①

RED
BROWN
YELLOW
BLACK

To the network module port on the indoor main control board

②

200±mm

BALCK
GREEN
BLUE
YELLOW
RED

③

100±5mm

When installing hotel card-inserter and network module simultaneously , connect this wire group to the network module.

Note: Except the above situation, this wire group is unnecessary !
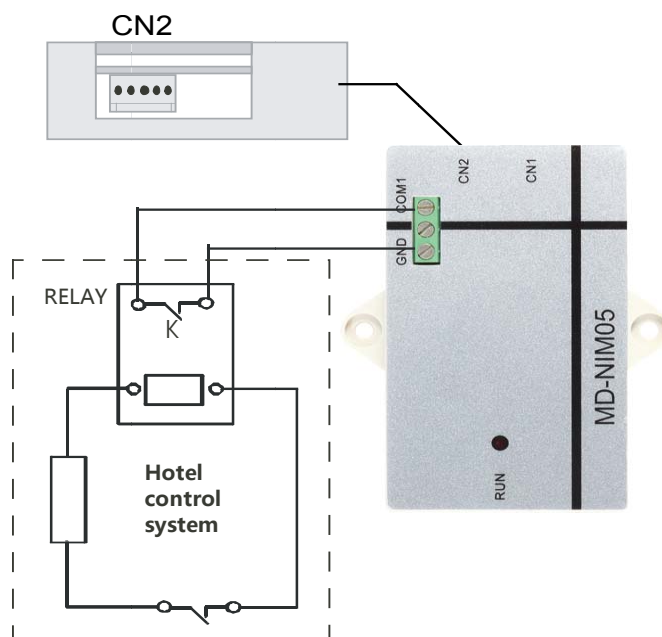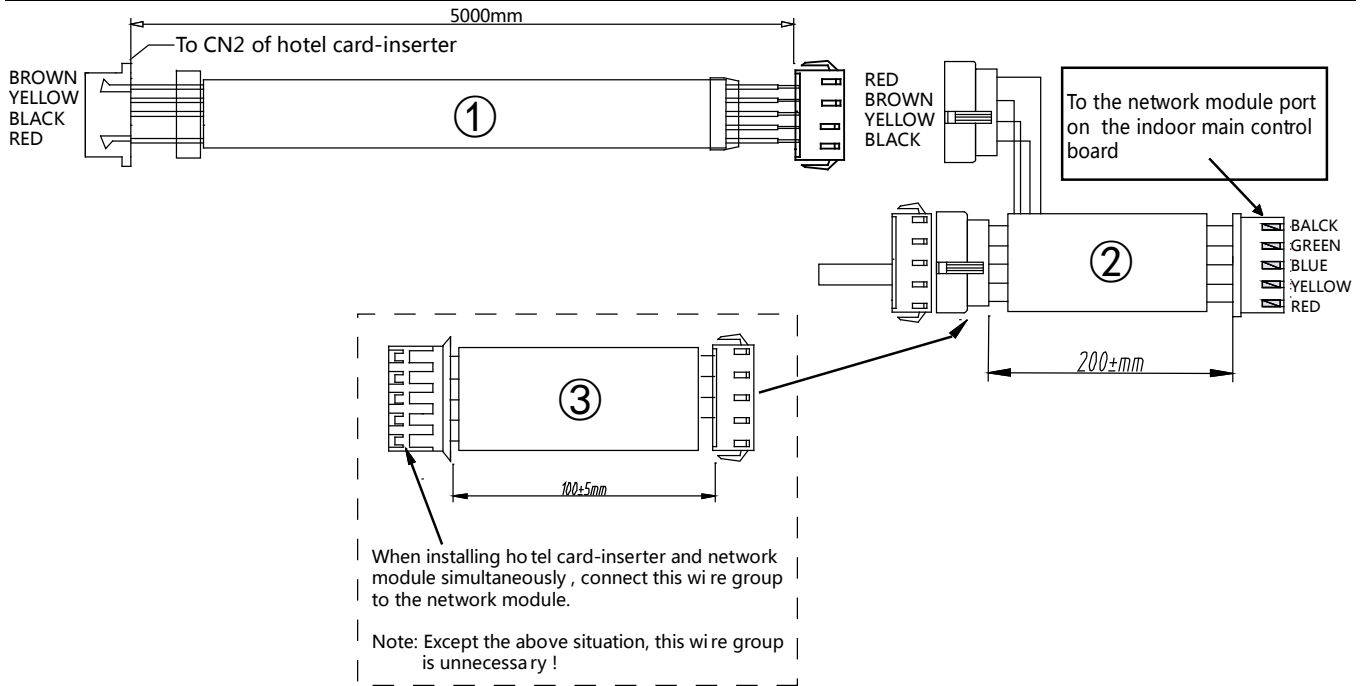
Notes:

The COM1 and GND input port of hotel card-inserter is a switch signal, which must be connected to the hotel control system through a RELAY component for controlling the ON or OFF state between COM1 and GND. When the COM1 and GND input port connect with the relay, it is unnecessary to consider the wire sequence, but the wiring length must be short as possible.

The ①②③ connecting wires are standard wires.

The ③ connecting wire is only used for the situation which you need use the hotel card-inserter and the network module at the same time

6.2.3 Operation description

1) Connect 5-place terminal at fixed rated wired controller via 5 terminals: A, B, C, D, and E.

2) Connect LCD at main control panel of indoor unit via terminals REV, C, D, and E.

3) Upon wiring according to the wiring diagram in, please power on the A/C and the indication lamp of the hotel card-inserter will be light up. When the card has been inserted between in COM1 and GND (means the relay is closed and the COM1 and GND are short connect), air conditioner is turned on and can be controlled normally.

4) When no card has been inserted between in COM1 and GND (i.e. it is broken), the ON/OFF button of remote controller or wired controller cannot start air conditioner, but two beeps of air conditioner closed down signals be giving out.

5) When power on every time, user need to use the remote controller or wired controller to turn on air conditioner and setting operation mode.

User must use the remote controller or wired controller to turn on air conditioner and set operation modes when the first start-up main unit. After then, operation modes of this performance would be memorized, although took off card and insert it on again, as long as power does not be cut off from main unit.

I.e. if the A/C does not power down, when the card is pulled out, it will turn off the A/C; when insert the card again, the system will perform as per the last setting.

6) System can receive signal delivering from remote controller or wired controller, and transits the signal to indoor unit; it can also memorizes the latest ON/OFF information sending by remote controller or wired controller (Timing, Eco and swing information can be transited but memorized.)

7) Upon powered to card-inserter, transited signal defaults as unit shutdown. Once take off the card, system will send signal of unit shut down twice; till to the next time card is inserted, system will not start unit until 3 seconds later, because of memory information delivery.

6.3 Infrared sensor controller: MD-NIM09

Infrared control box   Infrared sensor module

MD-NIM09/E is an Infrared sensor, which is able to detect whether there is people nearby and auto change the air conditioner back to running mode. This humanistic device helps making a comfortable environment for the users and the turning down the conditioner automatically.

- ✧ Easy to install on the wall or ceiling.
- ✧ With a wide detective range up to 100 digress.
- ✧ Detective distance: horizontal is at least 4M and vertical is about 3M, great sensibility.
- ✧ Optional auto-restart function.
- ✧ Automatically adjust the room environment.
- ✧ Automatically extend the shutting down time, avoiding frequent ON/OFF.
- ✧ Graceful appearance accommodates itself to different buildings.
- ✧ Be powered from the indoor unit display panel. Extra power supply is unnecessary.

6.3.1 Wiring

The Infrared sensor controller MD-NIM09/E contains a sensor and a control box. The control box helps connecting the device to the wired controller and the indoor unit.

MD-NIM09 can be connected to the network module port of the indoor unit and get the power supply DC 5V from it.

When connecting the COM port and GND, it will send a turn ON signal to the indoor unit; when the COM port and GND are broken, it will send a turn OFF signal to the indoor unit.
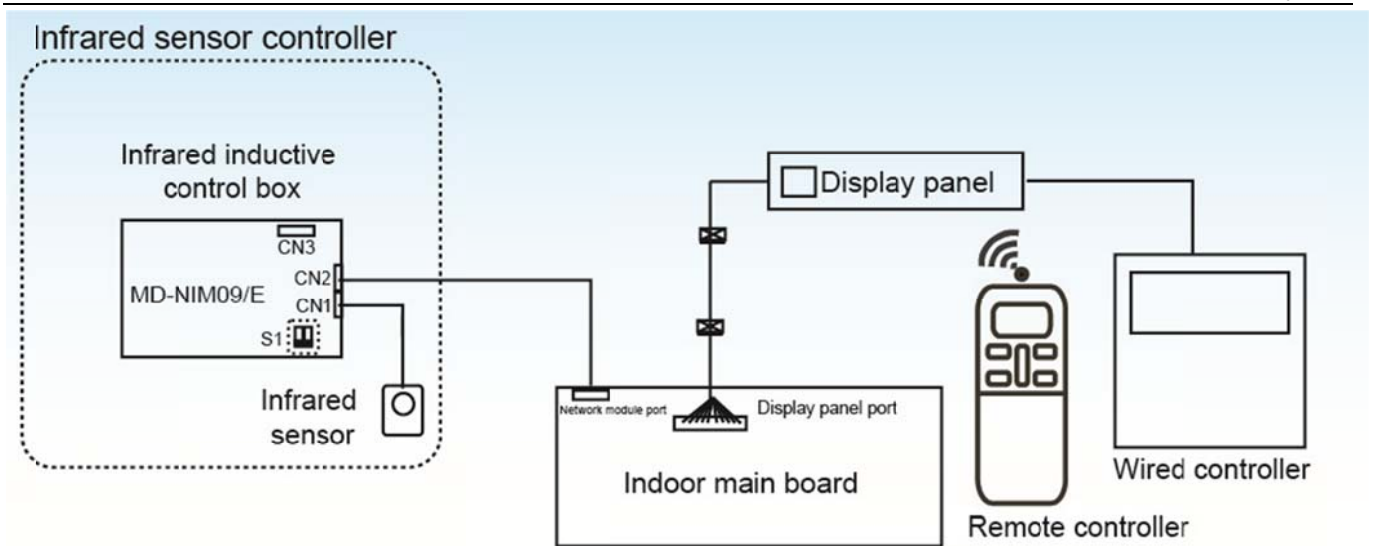
- ✧ MD-NIM09 can be work together with the remote controller or wired controller.
- ✧ CN1 is used for connecting the infrared sensor.
- ✧ CN2 is used for connecting the network module port of the indoor unit.
- ✧ CN3 port reserved.
- ✧ The switch S1 stands for:

ON 1 2	Turn off the indoor units in 0.5 hour after users leave (default).
ON 1 2	Turn off the indoor units in 1 hour after users leave.
ON 1 2	With optional auto-restart function.
ON 1 2	Without optional auto-restart function.

Infra-red sensor installation place
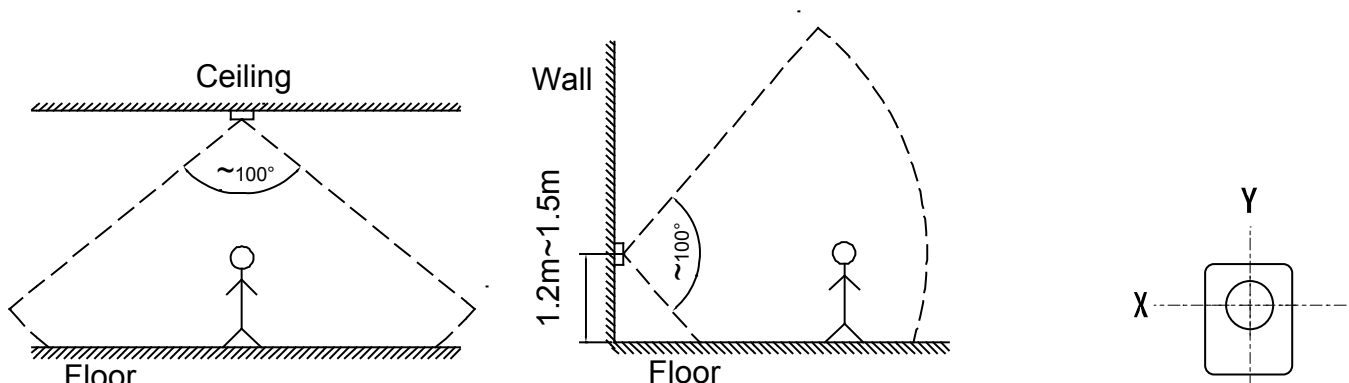
Notes:

The induction distance of X-direction is farther than the Y-direction, ensure that the X-direction of infra-red sensor parallel to the corridor direction to obtain the best induction effect.

6.3.2 How to use

The general function of MD-NIM09/E is turning down the indoor unit automatically. So users should run the indoor unit firstly and adjust the temperature, fan speed, etc, via the remote controller or wired controller. Once set, users do not need to turn down the indoor unit. The MD-NIM09 will turn it down automatically after the users leave. Once the users come to the Infrared sensor's detective area, the MD-NIM09 turns the indoor unit on and runs it at the state which is set previously.

Main parameters：

Input voltage	DC +5V
Ambient temperature	-5℃~43℃
Ambient humidity	RH40%~RH90%

6.3.3 Operation Instruction

1) Infrared sensors can induct human activities in certain area and turn off the indoor unit automatically if there is nobody activity.

The induction range and angle is shown as below:
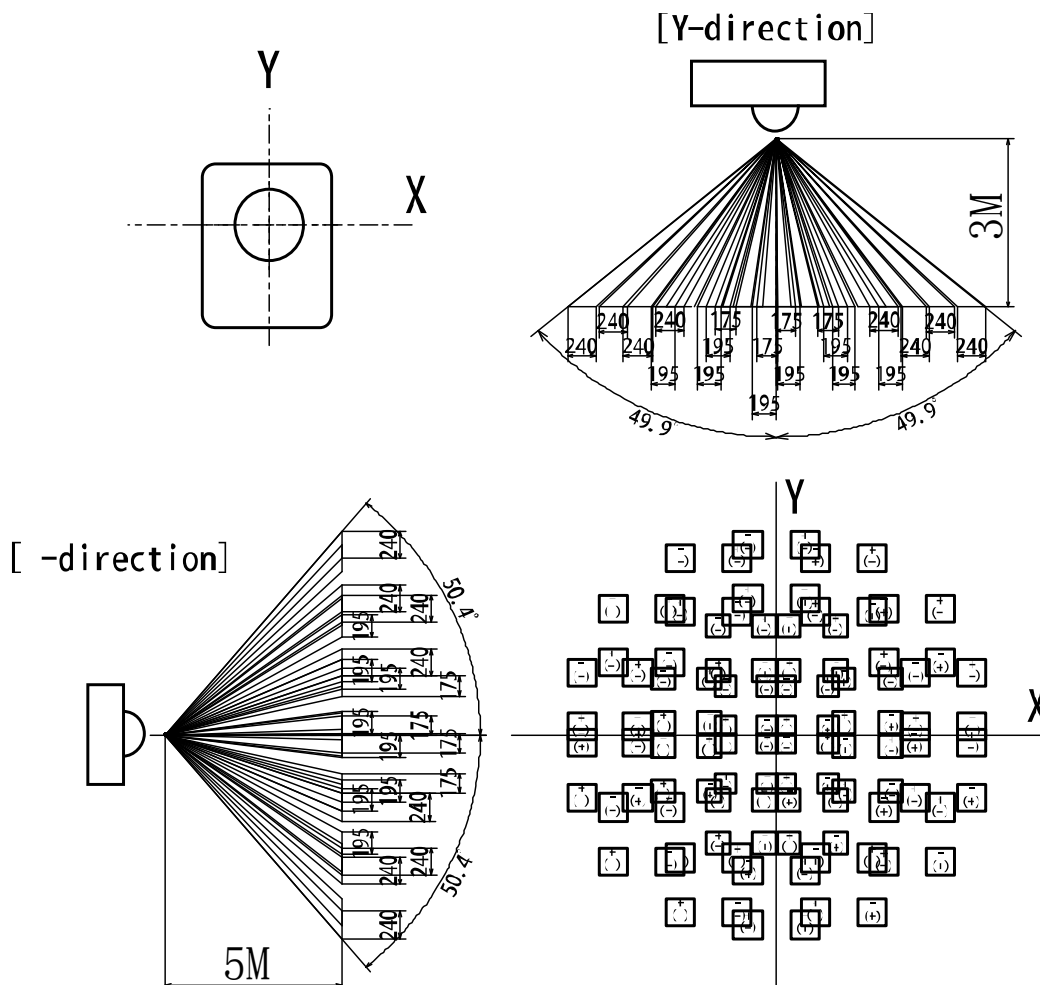
2) When the indoor unit is turned on and the infrared sensor does not induct human activities or did not receive commands from the wired or remote controller lasting for 30 minutes (or 60 minutes, according to the switch S1-1 setting on the Infrared inductive control box), then the inductive controller will turn off the indoor

unit automatically. Until next time induct human activities, the infrared inductive controller turn on the indoor unit again.

3) The inductive controller will continue inducting human activities and determine whether turn off or turn on the indoor unit when the indoor unit is turned on by the wired or remote controller, despite of timer setting, or control instructions to the indoor unit from other control terminal such as CCM.

4) It is recommended that do not use Central Control Module or other control terminals when the indoor unit is connecting the infrared inductive controller. Otherwise the operation conflict or control failure may happen.

5) Do not place the infrared sensor close to the radio frequency interference source, or it may cause a mistaken triggering on the infrared sensor.

6.3.4 Installation

※ **Dimensions**

Infrared sensor   Control box
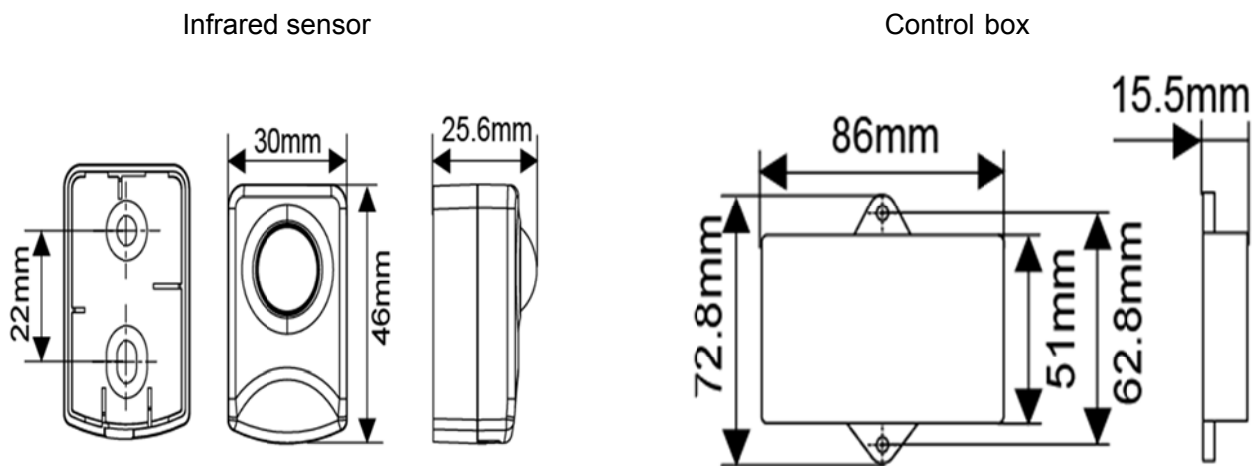
※ **Connecting and Assembly**

Step 1   Step 2   Step 3   Step 4   Step 5

Code switch position

Connect to the network module port of main board

※ **Wires methods**

To CN2 of *Infrared Inductive Controller*

5000mm

BROWN
YELLOW
BLACK
RED

①

RED
BROWN
YELLOW
BLACK

③

100±5mm

When installing infra red inductive controller and network module simultaneously , connect this wi re group to the network module.

Note: Except the above situation, this wi re group is unnecessa ry !

200±mm

②

To the net work module po rt of the indoor main cont rol board

RED
:YELLOW
BLUE
:GREEN
BALCK

Notes:

The Infrared inductive controller is a low voltage device, so it's forbidden to contact with above 220V or 380V high-voltage cable directly, and it can't be placed at the same wiring pipe with the above described loop and the interval space of the wiring pipes should be at least more than 300~500mm.

6.4 Electricity distribution module MD-NIM10

MD-NIM10 is designed specifically for Mini VRF. It provides the OAE ports and Mini VRF can be connected to the IMM network control system to realize network electricity distribution.

Wiring diagram

- OAE ports: connected to OAE port of ammeter.
- PQE ports: connected to PQE port of outdoor unit.
- Each port of M-interface gateway only can be connected with one MD-NIM10 through K1 K2 E ports.
- Can set the network address through S1 dial on the main board of MD-NIM10.
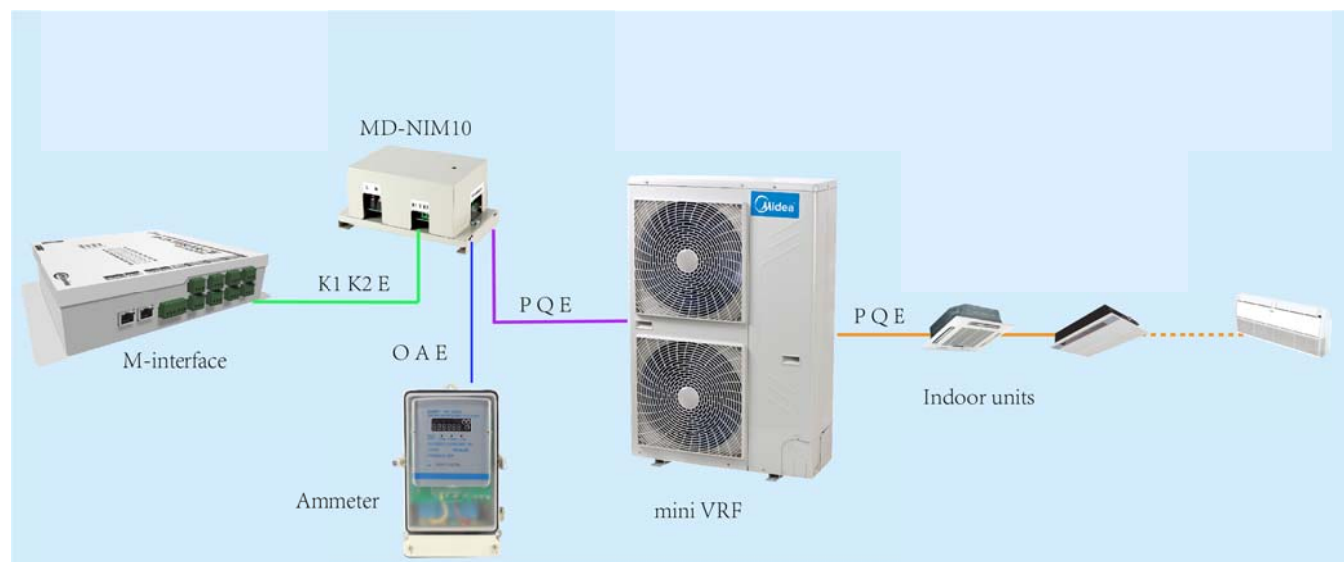
6.5 Fault alarm controller: KJR-32B

KJR-32B is specially designed for engineering applications. It does not display the outdoor unit's working parameters, but it can connect to the alarm device when outdoor unit is working abnormally, the RUN light will flash.

6.5.1 Wiring methods

There are two wiring methods can be connected for fault alarm controller. Each fault alarm controller can be connected up to 32 outdoor units and 8 refrigerant systems.
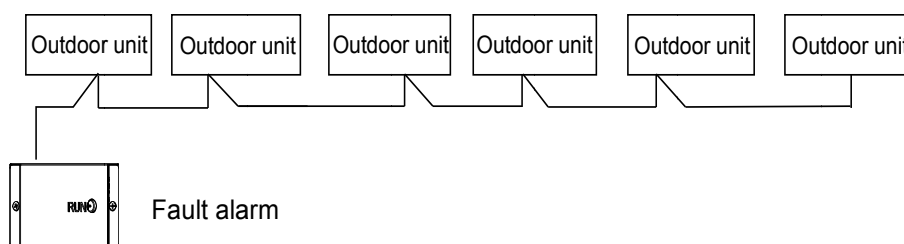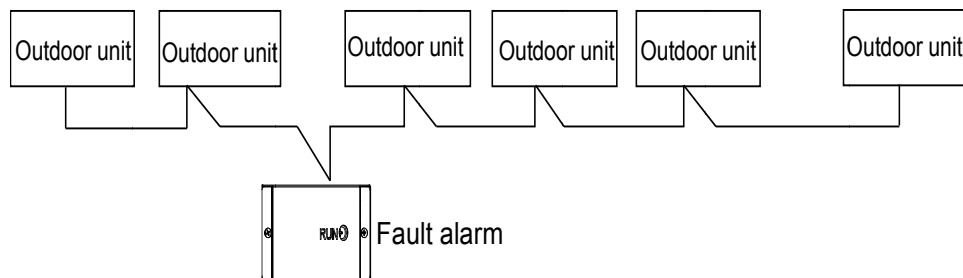
6.5.2 System wiring diagram

1) One computer can be connected only one fault alarm controller.

2) Must connect according to the follow system wiring method, if not it will not work normally.

3) You need to connect R120 to the front or rear of the monitoring system, and at the end of communication wire masking should be reliable ground.

Outdoor unit system figure

Fault alarm figure

Fault alarm wiring base figure
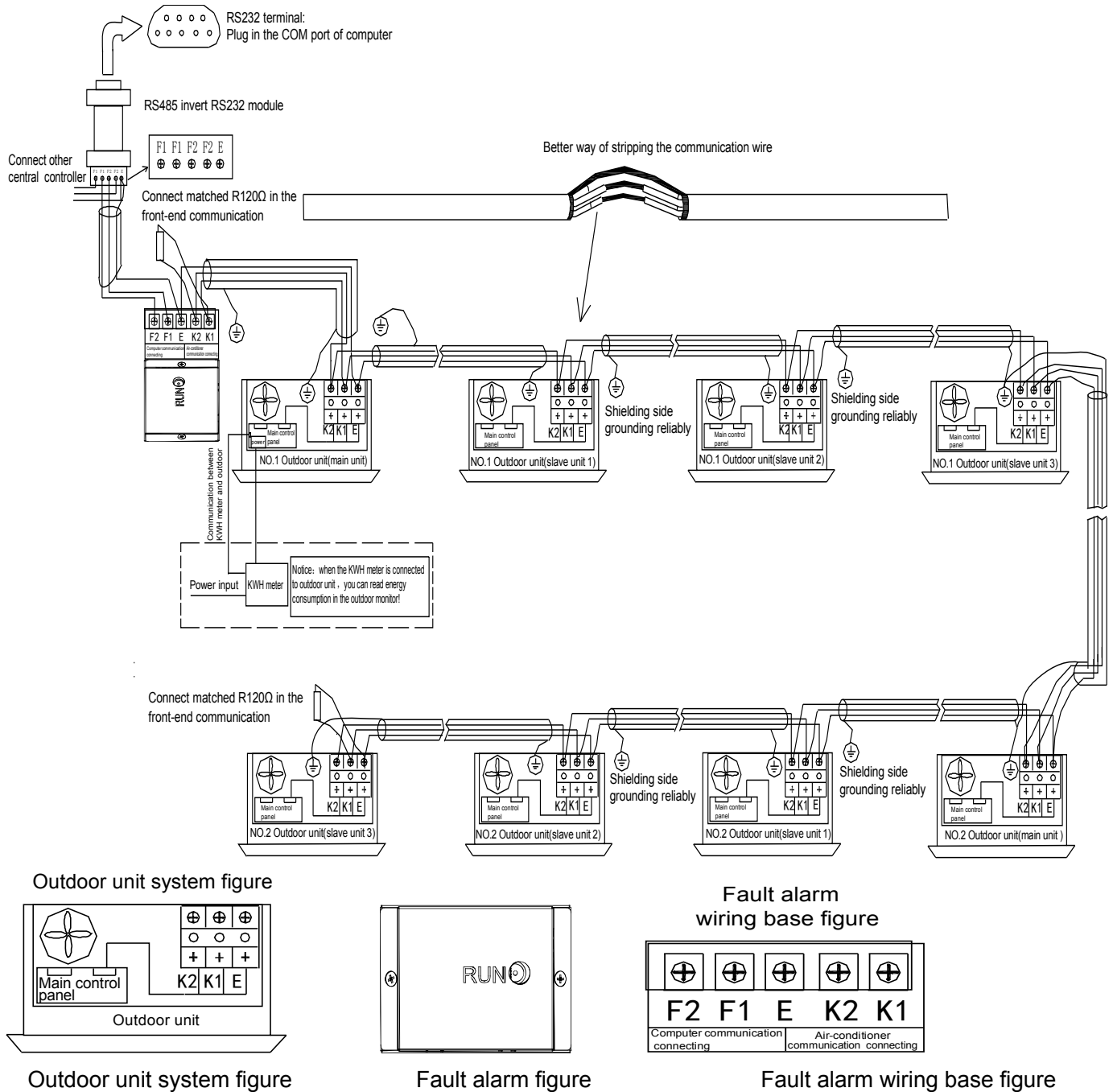
Notes:

1.First install the fault alarm controller, after setting the fault protection through the outdoor main panel 2 minutes, observe the indication lamp whether be flashed or not, then judge whether the fault alarm communication with the outdoor unit.

2. When using the fault dialarm controller, its output connected appliance requirements: all the AC220V appliances lower than 3.15 A current can be the fault alarm controller appliance, such as miniwatt lamp.

6.5.3 Installation

1. The RS485 shift RS232 module, connecting wire in the wiring figure can be used only when network monitoring need to connect the computer;

2. One computer cannot connect with one fault alarm and outdoor central controller at the same time, you must choose one for connection;

3. When connected to the computer with 3rd network control system, the default address of the alarm module is 16 and it cannot be changed. Outdoor unit addresses need to be set manually and the outdoor unit addresses cannot be repetitive, or the system cannot operate normally;

4. Power part and fault output part as follows display:

Fault alarm output module

Power input AC220V
Self-furnish power
strips2*0.75mm²

Fault alarm output AC220V
Self-furnish wire2*0.75mm²
Electrical appliance current
used for fault alarm＜3.15A

Fault alarm base

Fault alarm main control panel

Fault alarm cover

Fault alarmoperation,
fault display lamp

136mm

60mm

Fix the base at the holes,
and use the cross screwdriver
to screw the cross recessed pan
head tapping screws into the
plastic expanded tube,and fix the base.

Use electric drill to drill four holes with φ6mm
and depth are 30mm, and then put the plastic
expanded tube into the holes.

6.6 Indoor unit group controller: KJR-150A

KJR-150A is specially designed for V4 plus indoor units and its appearance is the same as KJR-32B. A group controller can connect up to 16 V4 plus indoor units through X1 Y1 E, but it cannot directly connect to the central controller. If you need to use a centralized controller or a PC, you can connect to the XYE from the outdoor unit. A group controller can control a group of indoor units simultaneously, and query the running state of each unit in the group via the display panel.

6.6.1 Wiring methods

The following two methods are accepted for the indoor unit group controller KJR-150A. One indoor unit group controller is only allowed to connect up to 16 indoor units.

When connected indoor unit to the group controller as a group, indoor units could be controlled simultaneously and enter to unique running state with the group controller. And then indoor units could be controlled separately by their standard controller, such as the remote controller, wired controller and so on.
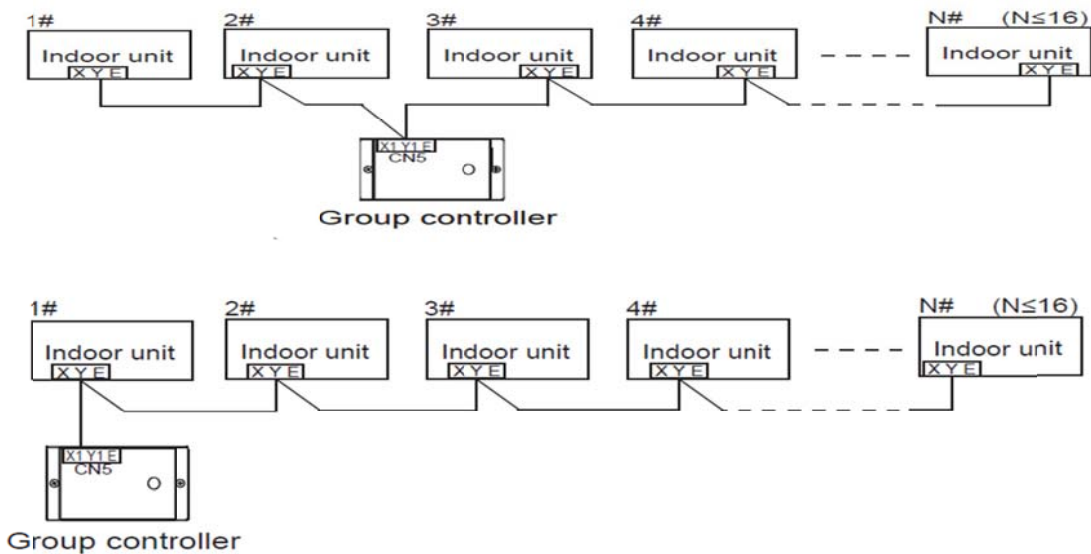
6.6.2 System wiring diagram
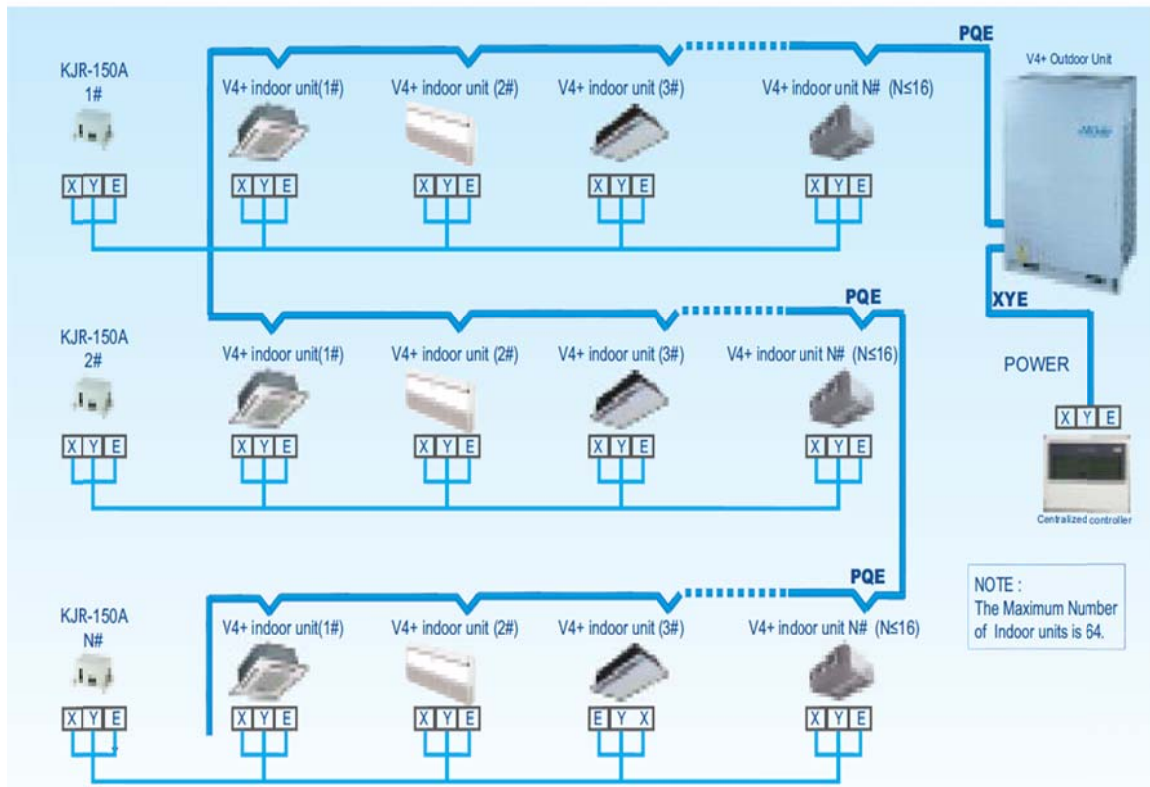
Notes:

For the same indoor unit which has the multiple board machine (such as10 HP or above duct indoor unit), cannot directly connect with the indoor group controller, if you need, please contact the technical engineer to customize.

6.6.3 Installation

1. When selecting the old display board, please dial the first bit of SW1 to ON. When selecting the new display board, please dial the first bit of SW1 to OFF.

2. In the group, anti-cold air switches of all the indoor units have to be the same with the group controller's, or some displays about this will be wrong.

3. One Group controller is only allowed to connect most of the 16 indoor units.

4. When the centralized controller is needed, you have to connect to the centralized controller from the X, Y, and E port of the outdoor unit.

5. Only with the corresponding units Group controller could work.

6. Power part and communication ports as follows display:

Reserved port

TO INDOOR COMM. BUS (X Y E)

SW1 Function

SW1 ON 1 2 3	1-ON:means old display board 1-OFF:means new display board	
SW1 ON 1 2 3	2-OFF & 3-OFF :means shutting down the unit to "stop cold air" at 15℃.	
SW1 ON 1 2 3	2-OFF & 3-ON :means shutting down the unit to "stop cold air" at 20℃.	
SW1 ON 1 2 3	2-ON & 3-OFF :means shutting down the unit to "stop cold air" at 24℃.	
SW1 ON 1 2 3	2-ON & 3-ON :means shutting down the unit to "stop cold air" at 26℃.	

Power Input: 220VAC

Self-furnish power strips 2*0.75mm²

To old display board

To new display board

Notes: Communication signal in CN5 (X1 Y1) and CN6 (E) is a low voltage signal. Do not apply high voltage, or breakdown will occur and even cause fire.

Group controller base

Group controller main control panel

Group controller cover

Fix the base at the holes, and use the cross screwdriver to screw the cross recessed pan head tapping screws into the plastic expanded tube,and fix the base.

Use electric drill to drill four holes with φ6mm and depth are 30mm, and then put the plastic expanded tube into the holes.
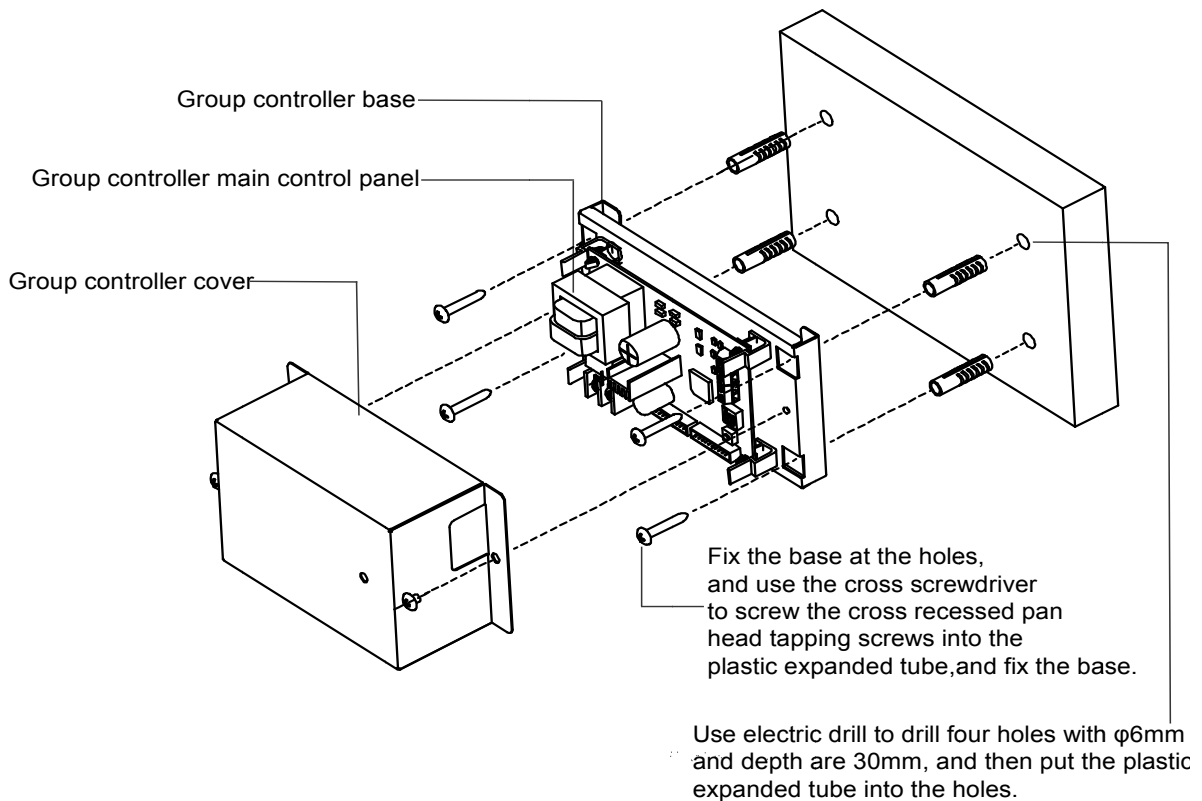
6.7 AHU control box 14&28&56kW: AHUKZ-01, AHUKZ-02, AHUKZ-03

The new AHU control boxes of 14 kW, 28 kW and 56 kW can be used to connect VRF outdoor units with DX AHU or other brand indoor units, but cannot connect to the heat recovery system. The EXV is controlled by superheat degree; one gas pipe and one liquid pipe, easy to install and maintain. The diameters of these three models are different, you can choose you need models.

6.7.1 Electric control box wiring figure

AHUKZ-01, AHUKZ-02 and AHUKZ-03 are applied one main control board, the temperature sensor T1, T2 and T2B must be connected to the main control board before first powered on.

- T1 is indoor temperature sensor, install at the air inlet of the indoor unit.
- T2 is indoor evaporator intermediate temperature sensor, install at the intermediate of temperature evaporators.
- T2B is indoor evaporator outlet sensor, install at the outlet of the evaporator.
- T2C is indoor evaporator inlet sensor, and it has been installed before the product leaves the factory.
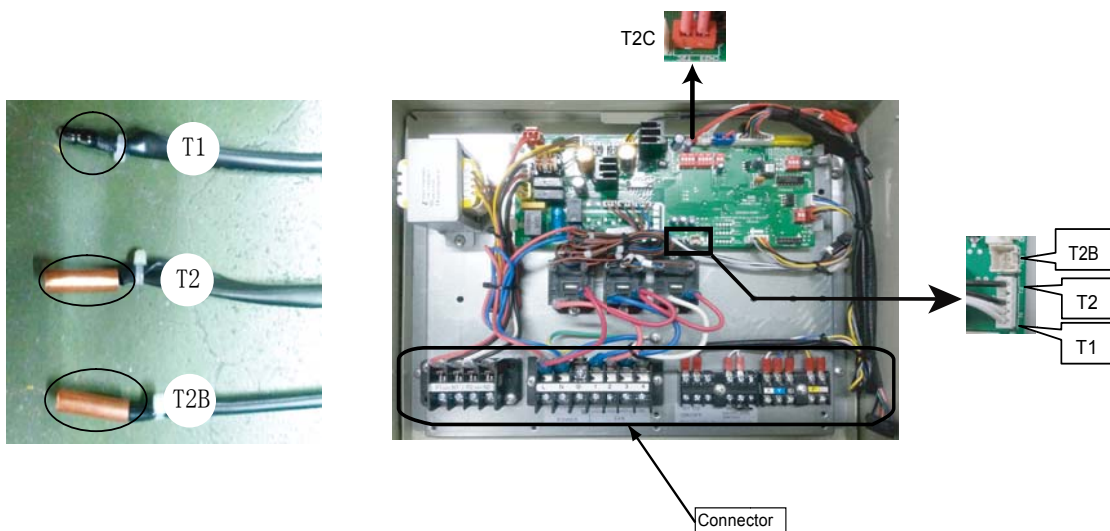
6.7.2 Error and protection codes

When the AHU control box is working abnormally, it can display the malfunction and protection codes through the new or old display panel. At the same time, you can check the temperature parameters by the LED display panel.

New display panel

Codes	Descriptions
FE	Without address when first time power on
H0	M-home not matched between MS module and control box
E0	Mode conflict
E1	Communication malfunction between indoor unit and outdoor unit
E2	T1 sensor malfunction
E3	T2 sensor malfunction
E4	T2B/T2C sensor malfunction
E7	EEPROM malfunction
Ed	Outdoor unit malfunction
EE	Water level switch malfunction

Old display panel

Definition	LED state
Without address when first time power on	Time LED and run LED flash together
M-home not matched between MS module and control box	4 LED flash together
Mode conflict	Defrost LED flashes
Communication malfunction between indoor unit and outdoor unit	Timer LED flashes
Indoor sensors error	Run LED flashes
EEPROM malfunction	Defrost LED flash slowly
Outdoor unit malfunction	Alarm LED flashes slowly
Water level switch error	Alarm LED flash

6.7.3 Query instructions

Sequence	Display contents	Remarks
0	Normal display	
1	Address of AHU control box	
2	Capacity of AHU control box	Actual address is 1~59, but check value displays 1~58.
3	Net address of AHU control box	0~63
4	Actual setting Temp.	
5	T1 actual Temp.	Minimum displays - 9 ℃
6	T1 actual Temp.	Minimum displays - 9 ℃
7	T2 actual pipe Temp.	Minimum displays - 9 ℃
8	T2B actual pipe Temp.	Minimum displays - 9 ℃
9	T2C actual pipe Temp.	Minimum displays - 9 ℃
10	Error code	
11	－－	End of check
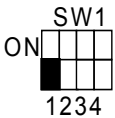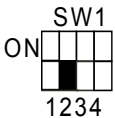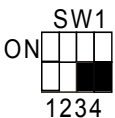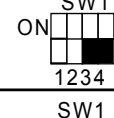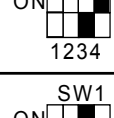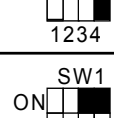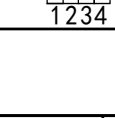
6.7.4 Basic specification

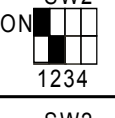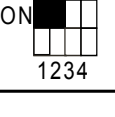| Model		AHUKZ-01	AHUKZ-02	AHUKZ-03
Power supply		220-240V~ 50Hz; 208-230V~ 60Hz		
Indoor unit capacity	kW	9~20	20.1~33	40~56
IP-class		IPX0	IPX0	IPX0
Piping size (in/out)	mm	Φ8/Φ8	Φ12.7/Φ12.7	Φ16/Φ16
Dimension	mm	375×350×150		
Packing dimension	mm	490×240×420		
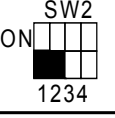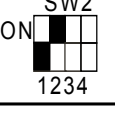
6.7.5 Dial code definition
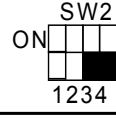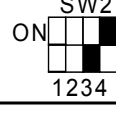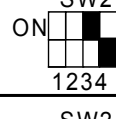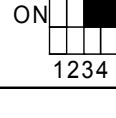
1) SW1 definition

SW1	
ON [1234]	● 1 means the factory test mode ● 0 automatic search address mode (factory default)
ON [1234]	● 1 means select DC fan(reserved) ● 0 means select AC fan
ON [1234]	● 00 means DC fan static pressure selection 0 set (reserved)
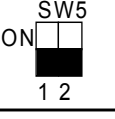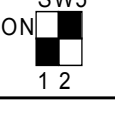
SW1	
ON [1234]	● 00 means DC fan static pressure selection 0 set (reserved)
ON [1234]	● 01 means DC fan static pressure selection 1 set (reserved)
ON [1234]	● 10 means DC fan static pressure selection 2 set (reserved)
ON [1234]	● 11 means DC fan static pressure selection 3 set (reserved)
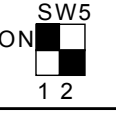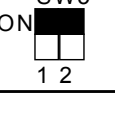
2) SW2 definition

SW2	
ON [1234]	● 00 means temperature of shut down against cool air is 15°C
ON [1234]	● 01 means temperature of shut down against cool air is 20°C
ON [1234]	● 10 means temperature of shut down against cool air is 24°C
ON [1234]	● 11 means temperature of shut down against cool air is 26°C

SW2	
ON [1234]	● 00 means the time of TERMAL stop the fan is 4 minutes
ON [1234]	● 01 means the time of TERMAL stop the fan is 8 minutes
ON [1234]	● 10 means the time of TERMAL stop the fan is 12 minutes
ON [1234]	● 11 means the time of TERMAL stop the fan is 16 minutes

3) SW5 definition

SW5	
ON [1 2]	● 00 means the temperature compensation under heating mode is 6°C
ON [1 2]	● 01 means the temperature compensation under heating mode is 2°C

SW5	
ON [1 2]	● 10 means the temperature compensation under heating mode is 4°C
ON [1 2]	● 11 means the temperature compensation under heating mode is 8°C

4) SW6 definition

ON SW6 1 2 3	• 1 means the old display panel • 0 means the new display panel
ON SW6 1 2 3	•1 means automatic mode automatic fan •0 means non-automatic mode automatic fan
ON SW6 1 2 3	Reserved

5) SW7 definition

ON SW7 1 2	Standard configuration
ON SW7 1 2	The last set of the network

6) J1, J2 definition

JI	J1 Jumperless for has power down memory function
JI	J1 Jumper for has no power down memory function
J2	Reserved

7) 0/1 definition

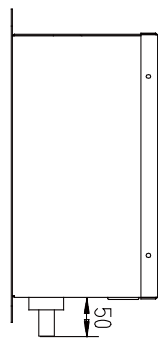|	
ON	Means 0
ON	Means 1

6.7.6 Installation methods
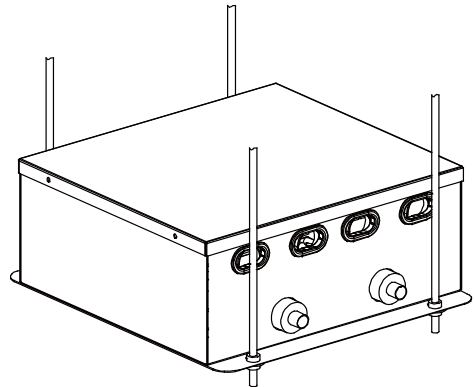
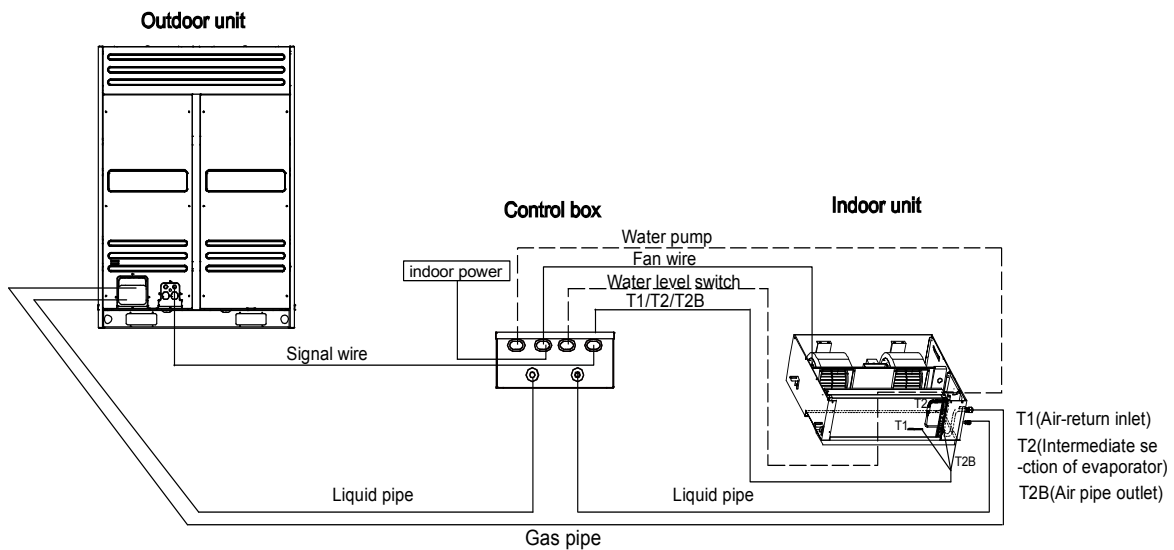1) Installation methods for vertically, and horizontal installation is invalid.
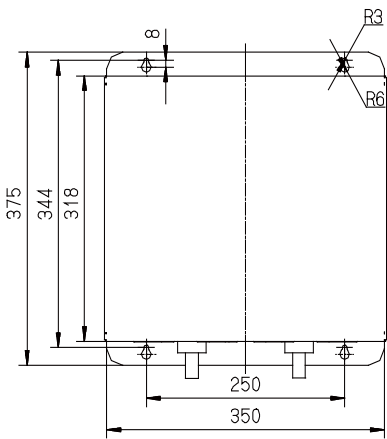
Vertically (√)   Install vertically   Wrong installation way   **Horizontally (✕)**

2) Wiring diagram between indoor and outdoor units.

Outdoor unit

Control box

Indoor unit

Water pump
indoor power
Fan wire
Water level switch
T1/T2/T2B
Signal wire
Liquid pipe
Liquid pipe
Gas pipe

T1(Air-return inlet)
T2(Intermediate se-ction of evaporator)
T2B(Air pipe outlet)

Notes: 1) If it is needed, user can select the backup function in the dotted line frame.

2) T2C has been installed before the product leaves the factory