
Product Features

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1. Operation Modes and Functions

1.1 Abbreviation

Unit element abbreviations

Abbreviation	Element
T1	Indoor room temperature
T2	Coil temperature of evaporator
T3	Coil temperature of condenser
T4	Outdoor ambient temperature
T5	Compressor discharge temperature

1.2 Safety Features

Compressor three-minute delay at restart

Compressor functions are delayed for up to one minute upon the first startup of the unit, and are delayed for up to three minutes upon subsequent unit restarts.

Low Pressure Check Function(For 36K~55K)

The low pressure switch should be always closed. If it is open, the system will stop until the fault is cleared. During defrosting procedure , 4 minutes after defrosting ends and 5 minutes after compressor is on in heating mode, low pressure switch won't be checked.

Note: The system will not check if the protection could be cleared in 30 seconds after the protection occurs. If this protection occurs 3 times, it won't recover automatically until the main power is cut off.

Over-current protection

When compressor is running, if the current is over twice of the rated for 3 seconds, the compressor will stop and an error code will be displayed on the outdoor PCB. If the current becomes normal, the indoor sends signal to the outdoor, the outdoor will display normally.

Open Circuit/Disconnection Sensor Protection

Fan Speed Malfunction

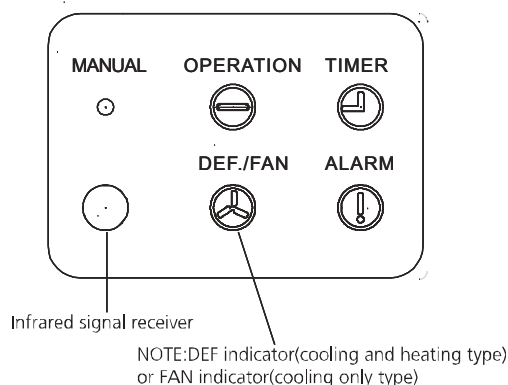
If a fault occurs on the air volume regulator or the regulator enters protection mode, it sends the error message CF and an instruction to reduce fan speed to the master. The message and the instruction can be inquired with the remote controller or the wired controller. (Fault and protection information are displayed for one minute). After a fault occurs, the master unit shows the error code E3 and the fault count for one minute.

If the fault occurs three times, then the fan is unable to resolve the problem independently. External shutdown by a remote controller, wired controller, or central controller

must be used to clear the fan fault and fault count. The fan runs normally for 5 minutes while clearing fault count.

1.3 Display Function

Unit display functions



1.4 Fan

When fan mode is activated:

- The outdoor fan and compressor are stopped.
- Temperature control is disabled and no temperature setting is displayed.
- The indoor fan speed can be set to high, medium, low, or auto.
- The louver operations are identical to those in cooling mode.

1.5 Cooling Mode

1.5.1 Compressor Control

- When $T1-Ts-\Delta T$ is lower than setting value, the compressor ceases operation.
- When $T1-Ts-\Delta T$ is higher than setting value, the compressor continues operation.

1.5.2 Indoor Fan Control

- In cooling mode, the indoor fan operates continuously. The fan speed can be set to high, medium, low or auto.
- The auto fan acts according to the value of $T1-TS$.

1.5.3 Outdoor Fan Control

- The outdoor fan is controlled by $T4$ and compressor frequency.

1.5.4 Evaporator Temperature Protection

When evaporator temperature drops below a configured value for some time, the compressor ceases operation, the outdoor fan motor ceases operation 30 seconds later.

1.5.5 Condenser Temperature Protection

When condenser temperature is more than setting value, the compressor ceases operations.

1.6 Heating Mode(Heat pump models)

1.6.1 Indoor Fan Control:

- When the compressor is on, the fan speed can be set to high, medium, low, or auto. And the anti-cold wind function has the priority.
- The auto fan acts according to the value of T1-Ts.

1.6.2 Outdoor Fan Control:

- The outdoor fan is controlled by T4 and compressor frequency.

1.6.3 Defrosting mode

- The unit enters defrosting mode according to the value of temperature of T3 and the value range of temperature change of T3 and also the compressor running time.
- If any one of the following items is satisfied, the defrosting will finish and the machine will turn to normal heating mode.
 - T3 rises to be higher than TCDE1°C.
 - T3 keeps to be higher than TCDE2°C for 80 seconds.
 - The machine has run for 10 minutes (36~55k) in defrosting mode.

1.6.4 Evaporator Temperature Protection

When the evaporator temperature exceeds a preset protection value, the compressor and outdoor fan cease operations, the outdoor fan motor ceases operation 30 seconds later.

1.7 Auto Mode

- This mode can be selected with the remote controller and the temperature setting can be adjusted between 17°C ~30°C
- In auto mode, the machine selects cooling, heating, or fan-only mode on the basis of ΔT ($\Delta T = T1 - T_s$).

ΔT	Running mode
$\Delta T > 2^\circ\text{C}$	Cooling
$-2^\circ\text{C} \leq \Delta T \leq 2^\circ\text{C}$	Fan-only
$\Delta T < -2^\circ\text{C}$	Heating*

Heating*: In auto mode, cooling only models run the fan.

- Indoor fans run at the auto fan speed of the relevant mode.

- The louver operates the same as in relevant mode.
- If the machine switches mode between heating and cooling, the compressor pauses for a certain period of time intermittently and then selects a mode based on T1-Ts.
- If the setting temperature is modified, the machine selects a new running function.

1.8 Drying Mode

- Indoor fan speed is fixed at low and cannot be changed.
- All protections are activated and operate the same as they do in cooling mode.
- The louver operates the same as in cooling mode.

1.9 Timer Function

- The timing range is 24 hours.
- Timer On. The machine turns on automatically at the preset time.
- Timer Off. The machine turns off automatically at the preset time.
- Timer On/Off. The machine turns on automatically at the preset On Time, and then turns off automatically at the preset Off Time.
- Timer Off/On. The machine turns on automatically at the preset Off Time and then turns off automatically at the preset On Time.
- The timer does not change the unit operation mode. If the unit is off now, it does not start up immediately after the "timer off" function is set. When the setting time is reached, the timer LED switches ioff and the unit running mode remains unchanged.
- The timer uses relative time, not clock time

1.10 Sleep Function

- The sleep function is available in cooling, heating, or auto mode.
- The operational process for sleep mode is as follows:
- When cooling, the temperature rises 1°C (to not higher than 30°C) every hour. After 2 hours, the temperature stops rising and the indoor fan is fixed to auto speed.
- When heating, the temperature decreases 1°C (to not lower than 17°C) every hour. After 2 hours, the temperature stops decreasing and the indoor fan is fixed at auto speed. Anti-cold wind function takes priority.
- The operating time for sleep mode is 7 hours, after

which, the unit exits this mode and switches off.

- The timer setting is available in this mode.

1.11 Auto-Restart

- The indoor unit has an auto-restart module that allows the unit to restart automatically. The module automatically stores the current settings (not including sleep mode) and, in the case of a sudden power failure, will restore those setting automatically within 3 minutes after power returns.
- If the unit was in forced cooling mode, it will run in this mode for 30 minutes and turn to auto mode with temperature set to 24 °C .
- If there is a power failure while the unit is running, the compressor starts 3 minutes after the unit restarts. If the unit was already off before the power failure, the compressor starts 1 minute after the unit restarts.

1.12 Follow Me (Optional)

- If you press "Follow Me" on the remote, the indoor unit will beep. This indicates the follow me function is active.
- Once active, the remote control will send a signal every 3 minutes, with no beeps. The unit automatically sets the temperature according to the measurements from the remote control.
- The unit will only change modes if the information from the remote control makes it necessary, not from the unit's temperature setting.

1.13 Drain Pump Control (Optional)

- Use the water-level switch to control drain pump.
- The system checks the water level every 5 seconds.
 - When the A/C operates in cooling (including auto cooling) or forced cooling mode, the pump begins running immediately and continuously until cooling stops.
 - If the water level increases up to the control point, the LED displays an alarm code and the drain pump opens and continually monitors the water level. If the water level falls and LED alarm code is no longer displayed (drain pump close delay is 1 minute), the unit goes back into its last mode. Otherwise, the entire system (including the pump) stops and the LED displays an alarm again after 3 minutes.

2. Remote Controller Functions

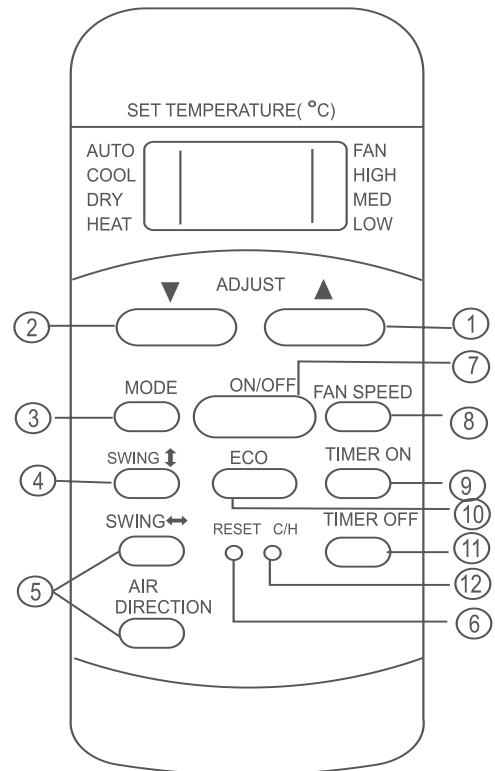
2.1 Infrared Wireless Remote Controller

2.1.1 RG51Q1/BGE(Standard)

Remote Controller Specifications

Model	RG51Q1/BGE
Rated Voltage	3.0V (Dry batteries R03/LR03×2)
Reaching Distance	8m (when using 3.0 voltage, it Gets 11m)
Environment Temperature Range	-5 °C ~60 °C (23 °F ~140 °F)

Buttons and Functions



1. TEMP UP ▲ : Push this button to increase the indoor temperature setting in 1 °C increments to 30 °C
2. TEMP DOWN ▼ : Push this button to decrease the indoor temperature setting in 1 °C increments to 17 °C .
3. MODE: Once pressing, running mode will be selected in the following sequence:



NOTE: No heating mode for cool only type unit.

4. VERT SWING: Used to stop or start horizontal louver movement. The louver will swing up and down automatically if push this button.

5. HORIZ SWING: Used to stop or start vertical louver movement.

AIR DIRECTION: Used to set the desired up/down air flow direction. The louver changes 6 degree in angle for each press.

6. RESET (inner located): Once the recessed RESET button is pressed, all of the current settings will be cancelled and the controller will return to the initial settings..

7. ON/OFF: For turning on or turning off the air conditioner.

8. FAN SPEED: Fan speed will be selected in following sequence once pressing this button:

→ AUTO → LOW → MED → HIGH →

9. TIME ON: For time ON setting. Press this button to activate the Auto-on time setting. Each press will increase the time setting in 30 minutes increments, up to 10 hours, then at 1 hour increments up to 24 hours. To cancel the Auto-on time setting, just press the button until the time setting is 0.0.

10. ECO: Select this function during the sleeping time. It can maintain the most comfortable temperature and save energy. This function is available on COOL, HEAT or AUTO mode only .

NOTE: While the unit is running under Energy-saving mode, it would be cancelled if press MODE, FAN SPEED or ON/OFF button.

11. TIME OFF: For time OFF setting. Press this button to activate the Auto-off time setting. Each press will increase the time setting in 30 minutes increments, up to 10 hours, then at 1 hour increments up to 24 hours. To cancel the Auto-off time setting, just press the button until the time setting is 0.0.

12. C/H (inner located): Press this recessed button to shift the mode between Cooling only and Cooling & Heating

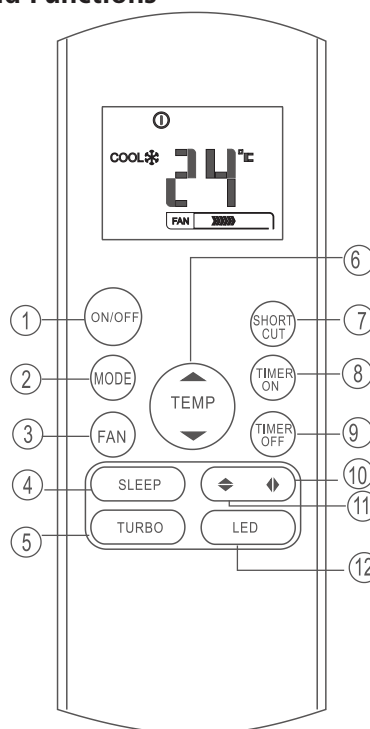
according to the feature of the machine. The factory default setting mode is Cooling & Heating. For example, the unit you purchased is Cooling only models, please press this recessed button with a needle of 1mm to shift the operation mode.

2.1.2 RG57B2/BGE(Optional)

Remote Controller Specifications

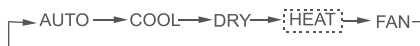
Model	RG57B2/BGE
Rated Voltage	3.0V (Dry batteries R03/LR03×2)
Lowest Voltage of CPU Emitting Signal	2.0V
Reaching Distance	8m (when using 3.0 voltage, it can get 11m)
Environment Temperature Range	-5℃ ~60℃ (23℉ ~140℉)

Buttons and Functions



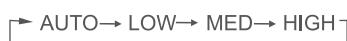
1. ON/OFF: For turning on or turning off the air conditioner.

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



NOTE: Please do not select HEAT mode if the machine you purchased is cooling only type.

3. FAN SPEED: Fan speed will be selected in following sequence once pressing this button:



4. SLEEP: Select this function during the sleeping time. It keeps the most comfortable temperature and save energy. This function is available on COOL, HEAT or AUTO mode only.

NOTE: While the unit is running in sleep mode, it would be cancelled if MODE, FAN SPEED or ON/OFF button is pressed.

5. TURBO Button: Active/Disable Turbo function. Turbo function enables the unit to reach the preset temperature at cooling or heating operation in the shortest time (if the indoor unit does not support this function, there is no corresponding operation happened when pressing this button.)

6. UP Button(▲): Increase the set temperature. Keeping pressing will increase the temp with 1 °C per 0.5s.

DOWN Button(▼): Decrease the set temperature. Keeping pressing will decrease the temp with 1 °C per 0.5s.

NOTE: Temperature control is not available in Fan mode.

7. SHORTCUT Button

Used to restore the current settings or resume previous settings.

On the first time connecting to the power, if push the SHORTCUT button, the unit will operate on AUTO mode, 26 °C, and fan speed is Auto.

Push this button when remote controller is on, the system will automatically revert back to the previous settings including operating mode, setting temperature, fan speed level and sleep feature (if activated).

If pushing more than 2 seconds, the system will automatically restore the current operation settings including operating mode, setting temperature, fan speed level and sleep feature (if activated).

8. TIME ON: For time ON setting. Once pressing this button, the time will increase by 0.5 hour. When the

time exceeds 10 hours, pressing the button will increase the time by 1 hour. Adjust the figure to 0.00 will cancel time ON setting.

9. TIME OFF: For time OFF setting. Once pressing this button, the time will increase by 0.5 hour. When the set time exceeds 10 hours, pressing the button will increase the time by 1 hour. Adjust the figure to 0.00 will cancel time ON setting.

10. SWING ◀▶ Button

Used to stop or start vertical louver movement and set the desired left/right air flow direction. The vertical louver changes 6 degree in angle

for each press.

Used to stop or start horizontal louver auto swing feature.

11. SWING ⬥ Button

Used to stop or start horizontal louver movement or set the desired up/down air flow direction. The louver changes 6 degree in angle for each press. If keep pushing more

than 2 seconds, the louver will swing up and down automatically.

12. LED

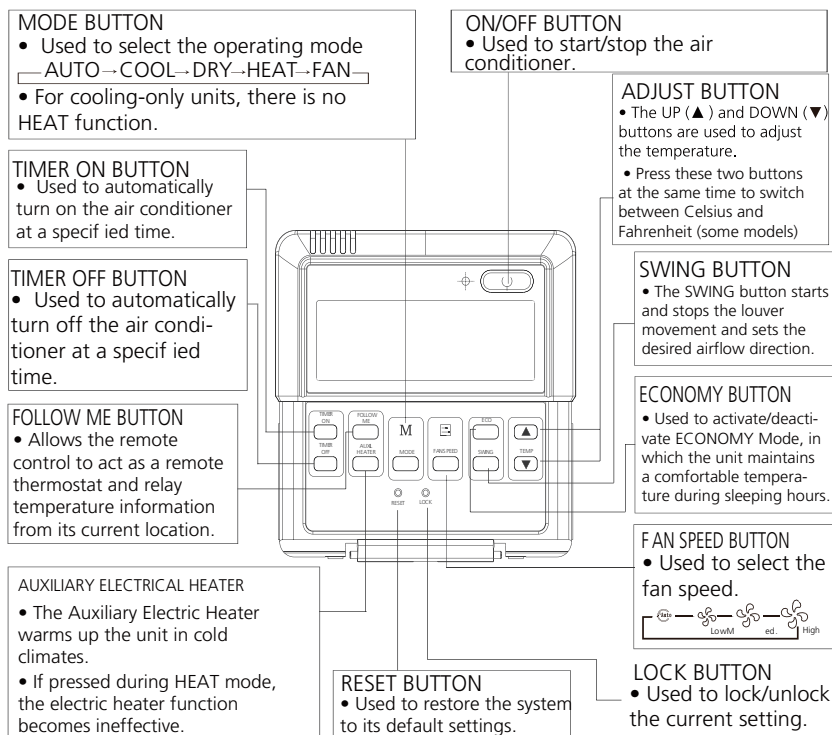
Disable/Active indoor screen Display. When pushing the button, the indoor screen display is cleared, press it again to light the display.

2.2 LCD Wired Remote Controller

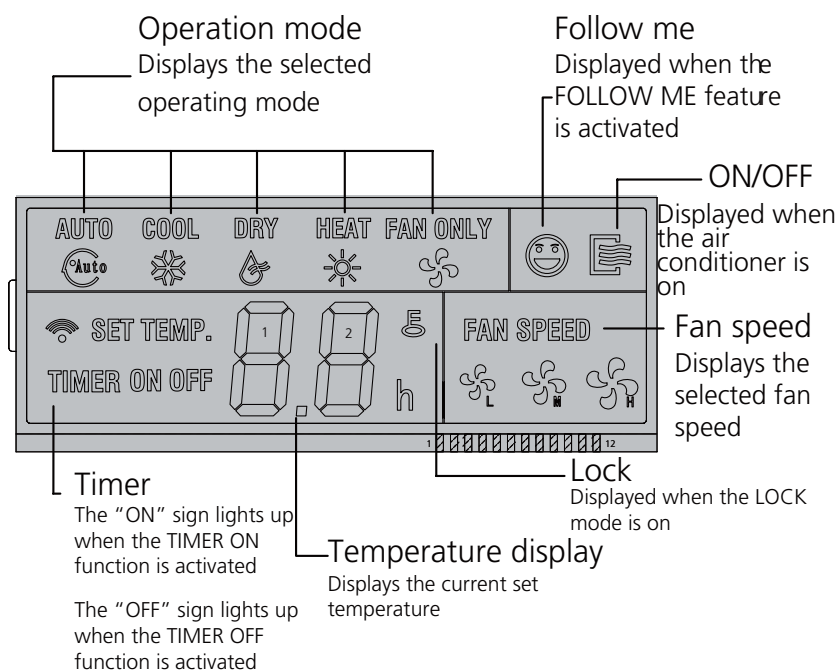
2.2.1 LCD Wired Remote Controller KJR-12B/DP(T) (Standard)

The KJR-12B/DP(T) wired remote controller is standard for Duct type.

i) Buttons and Functions

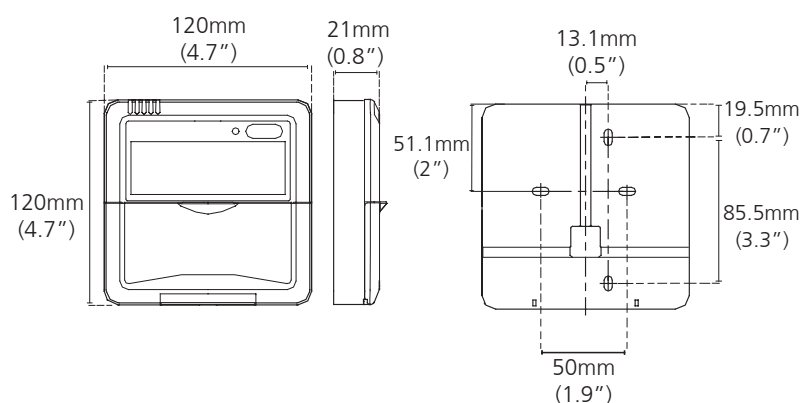


ii) LCD Screen



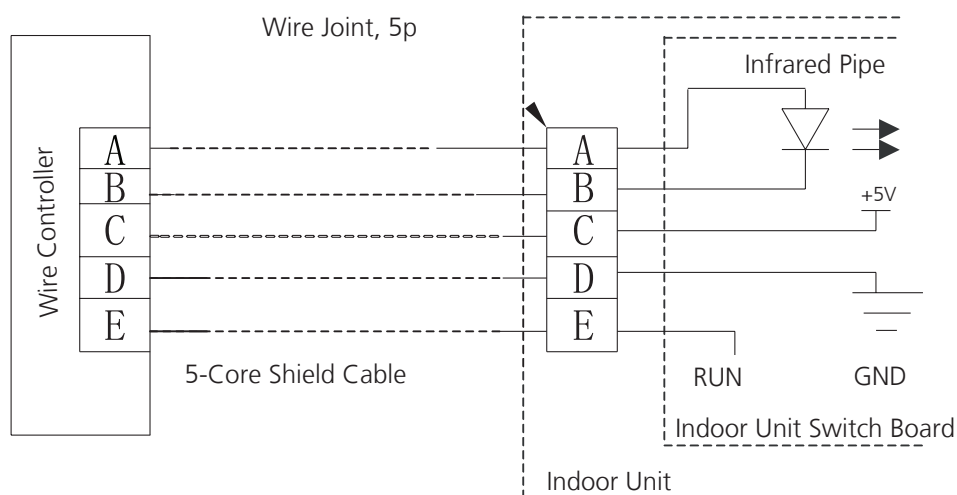
iii) Installation

- Dimensions



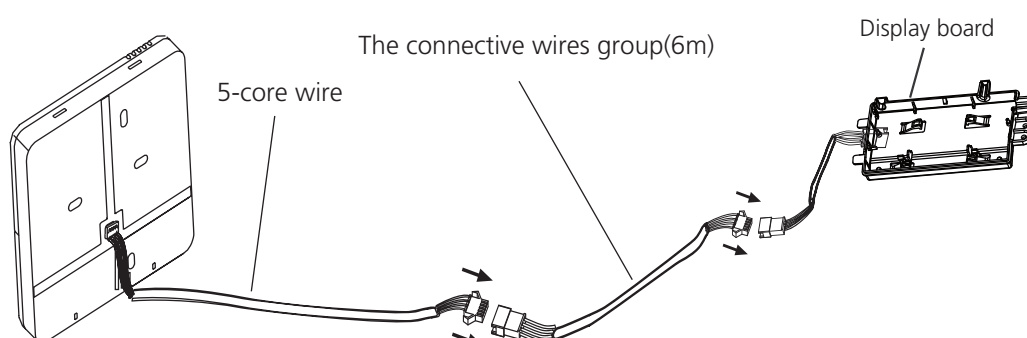
• Wiring diagram

Refer to the following diagram to wire the wall-mounted remote control to the indoor unit.

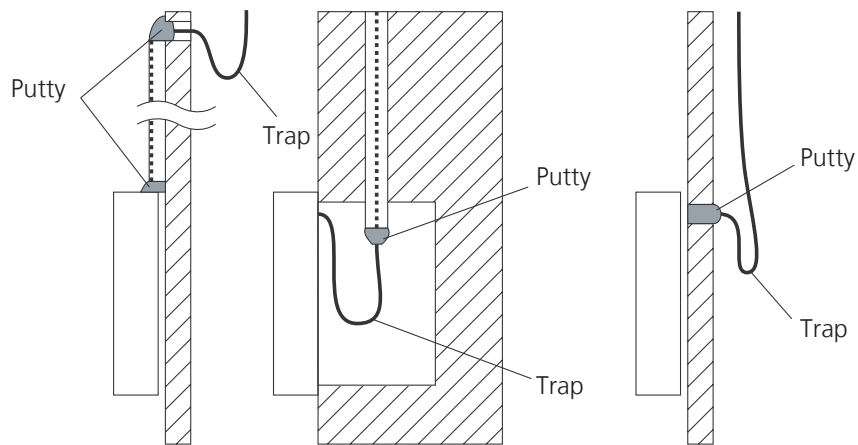


• Installation Diagram

Connect the wire from the display panel of the indoor unit to a connecting cable. Then connect the other side of the connecting cable to the remote control.

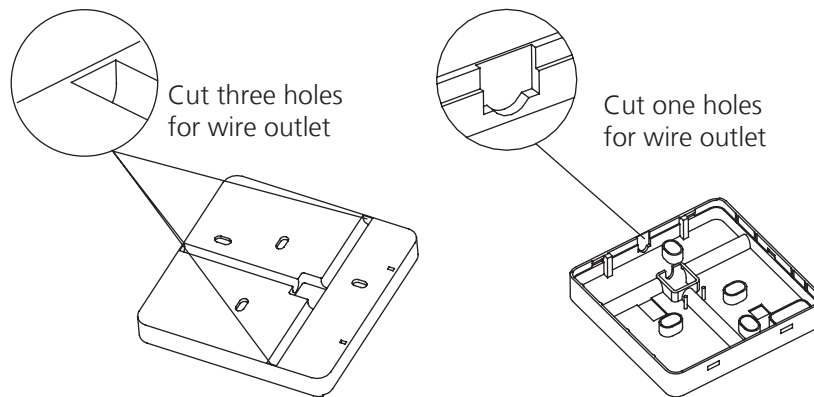


Note: Be sure to reserve a length of the connecting wire for periodic maintenance.



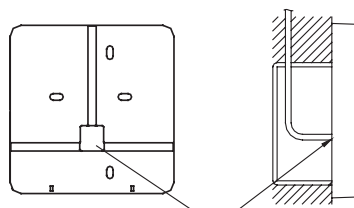
Note: DO NOT allow water to enter the remote control. Use the trap and putty to seal the wires.

- For exposed mounting, cut holes on four of the sides according to the picture below.



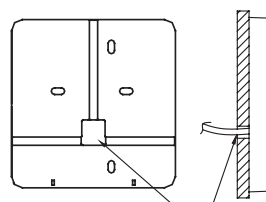
- For shielded wiring, please refer to the picture below.

Embedded switch box wiring



Wiring hole

Wiring through the wall

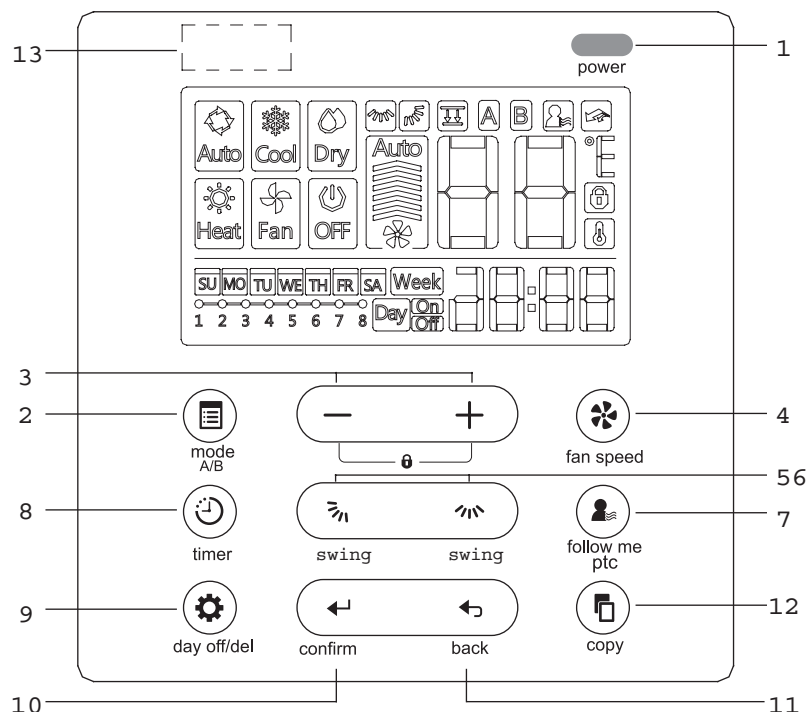


Wall hole and wiring hole
Diameter of wall hole: Φ 2cm

2.2.2 LCD Wired Remote Controller KJR-120C/TF-E(Optional)

The KJR-120C/TF-E wired remote controller is optional for all types.

i) Buttons and Functions



1. POWER button

Turn on or turn off the unit.

2. MODE(A/B) button

Used to select the operation mode: Auto / Cooling / Drying / Heating / Fan;

Hold to activate the operation of auto-lifting panel when off

3. Adjust button

To set temperature, time and timer; set up or down the auto-lifting panel

4. FAN SPEED button

Used to select the fan speed.

5. Up-down airflow direction and swing Button

Press for adjusting the angle of louver, hold for vertical swing; individual louver control for cassette panel

6. Left-right airflow swing Button

Press for activating the horizontal swing

7. FOLLOW ME(PTC) button

Allows the remote control to act as a remote thermostat and send temperature information from its current location.

8. TIMER button

To set timer on and timer off time of one day

9. DELAY/DAY OFF button

To set 1 to 2 hours delay off for each day or a whole day off in a weekly timer schedule

10. CONFIRM button

To confirm an setting or call up the menu

11. BACK button

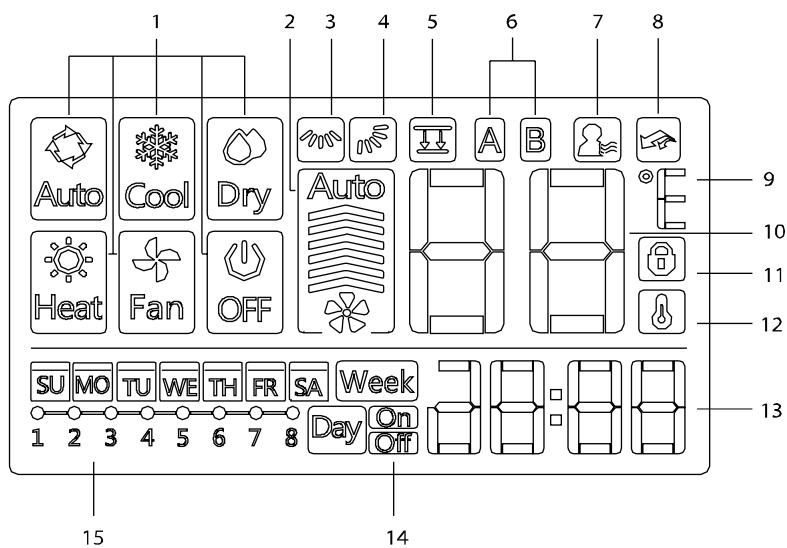
Back to previous operation or superior menu

12. COPY button

Copy timer setting of one day to another in weekly schedule setting

13 Infrared remote receiver (on some models)

ii) LCD Screen



1 Operation mode indication

2 Fan speed indication

3 Left-right swing indication

4 Up-down swing indication

5 Faceplate function indication

6 Main unit and secondary unit indication

7 Follow me function indication

8 PTC function indication

9 C° / F° indication

10 Temperature display

11 Lock indication

12 Room temperature indication

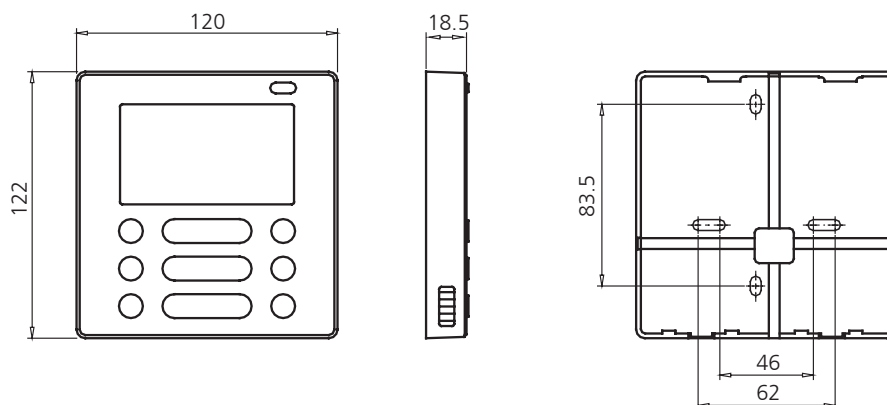
13 Clock display

14 On/Off timer

15 Timer display

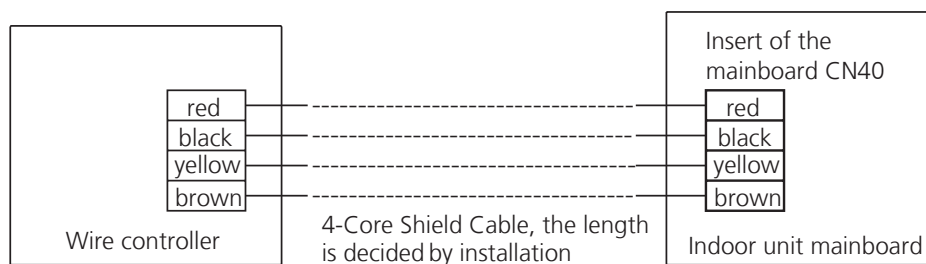
iii) Installation

- Dimensions



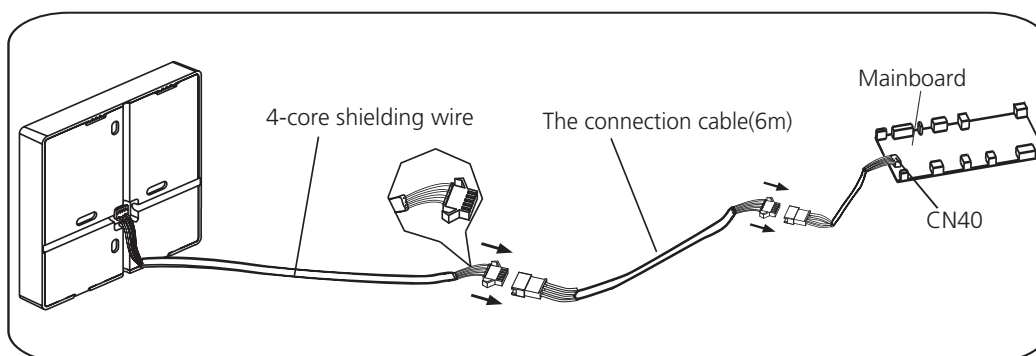
- Wiring diagram

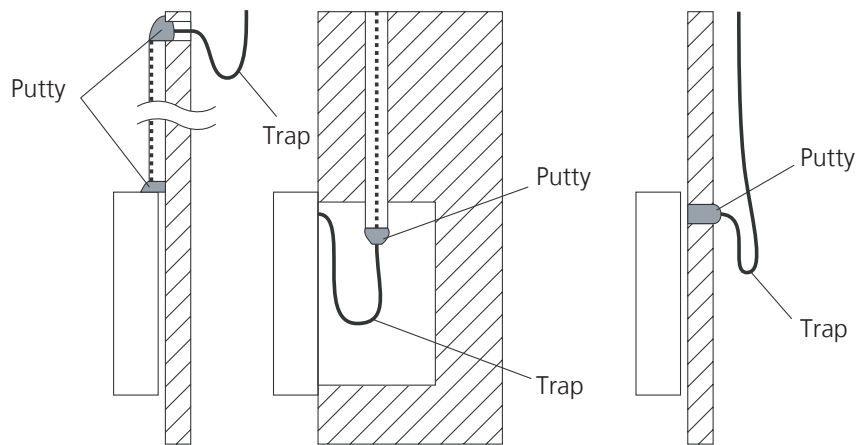
Refer to the following diagram to wire the wall-mounted remote control to the indoor unit.



- Installation Diagram

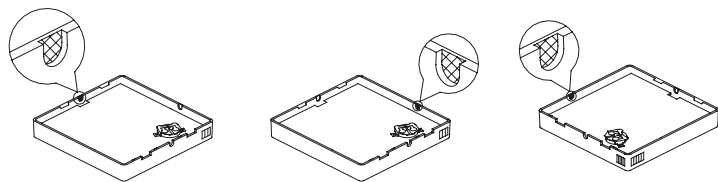
Connect the female joint of wires group from the mainboard with the male joint of connective wires group. Then connect the other side of connective wires group with the male joint of wires group leads from wire controller.





Note: DO NOT allow water to enter the remote control. Use the trap and putty to seal the wires.

- For exposed mounting, four outletting positions. There are three need cutting.



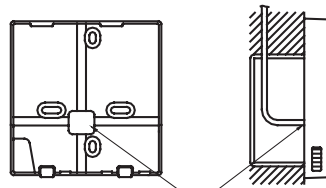
Cutting place of top
side wire outlet

Cutting place of left
side wire outlet

Cutting place of right
side wire outlet

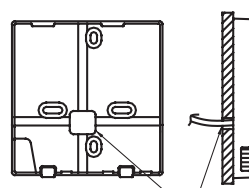
- For shielded wiring, please refer to the picture below.

Embedded switch
box wiring



Wiring
hole

Wiring through the wall

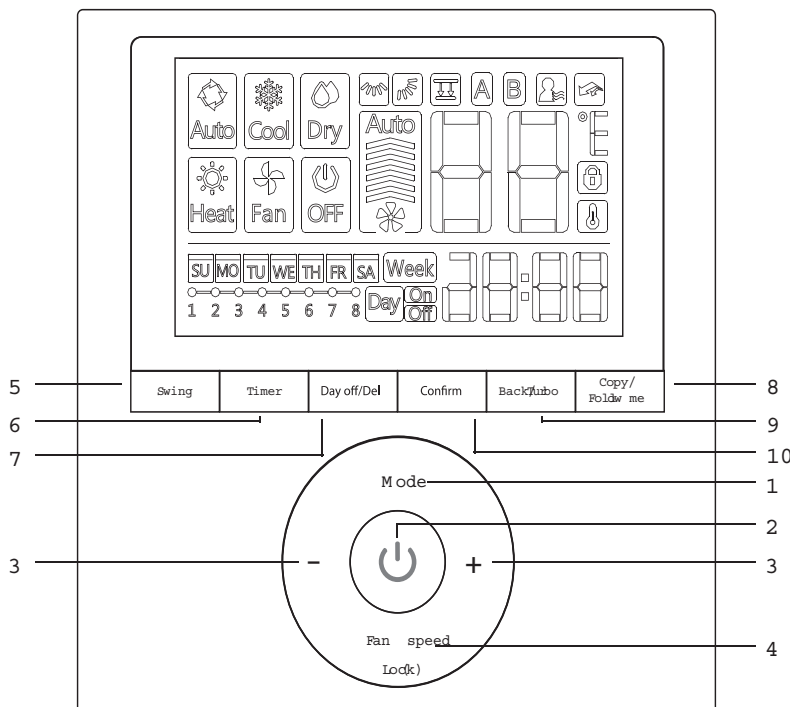


Wall hole and wiring hole
Diameter of wall hole: $\Phi 2\text{cm}$

2.2.3 LCD Wired Remote Controller KJR-120G/TF-E(Optional)

The KJR-120G/TF-E wired remote controller is optional for all types.

i) Buttons and Functions



1. MODE button

Used to select the operation mode: Auto / Cooling / Drying / Heating / Fan;

Hold to active the operation of auto-lifting panel when off

2. POWER button

Turn on or turn off the unit.

3. Adjust button

To set temperature, time and timer; set up or down the auto-lifting panel

4. FAN SPEED button

Used to select the fan speed.

5. Swing Button

Press to active vertical swing, hold for horizontal swing

6. TIMER button

To set timer on and timer off time of one day

7. DELAY/DAY OFF button

To set 1 to 2 hours delay off for each day or a whole day off in a weekly timer schedule

8. COPY/FOLLOW ME button

To copy timer setting of one day to another in weekly schedule setting;

To active the follow me function while in normal operation.

9. BACK/TURBO button

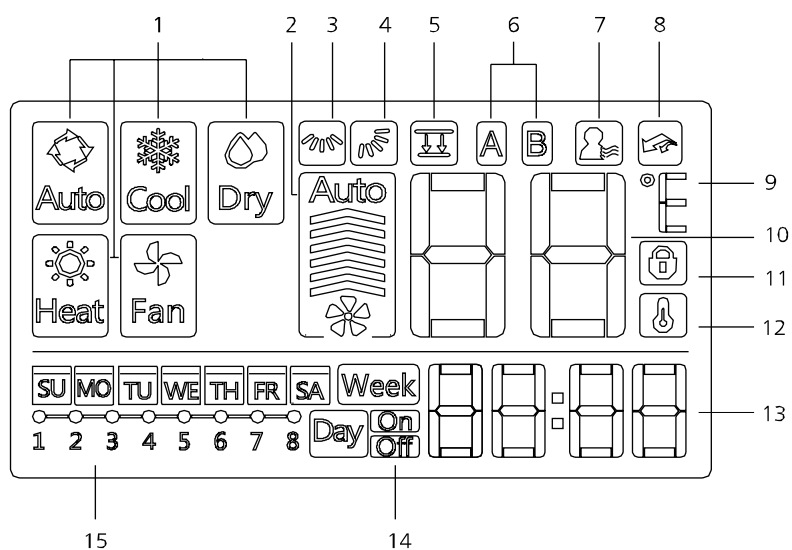
Back to previous operation or superior menu

To active turbo mode while in normal operation

10. CONFIRM button

To confirm an setting or call up the superior menu

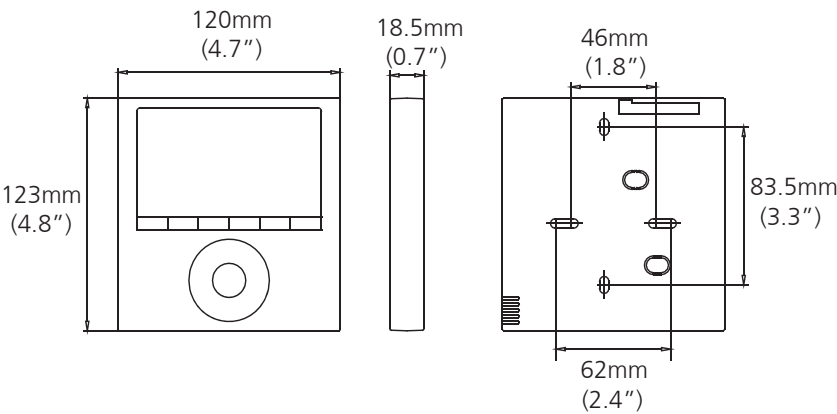
ii) LCD Screen



- | | |
|---|---------------------------------|
| 1 Operation mode indication | 8 Turbo/PTC function indication |
| 2 Fan speed indication | 9 C° / F° indication |
| 3 Left-right swing indication | 10 Temperature display |
| 4 Up-down swing indication | 11 Lock indication |
| 5 Faceplate function indication | 12 Room temperature indication |
| 6 Main unit and secondary unit indication | 13 Clock display |
| 7 Follow me function indication | 14 On/Off timer |
| | 15 Timer display |

iii) Installation

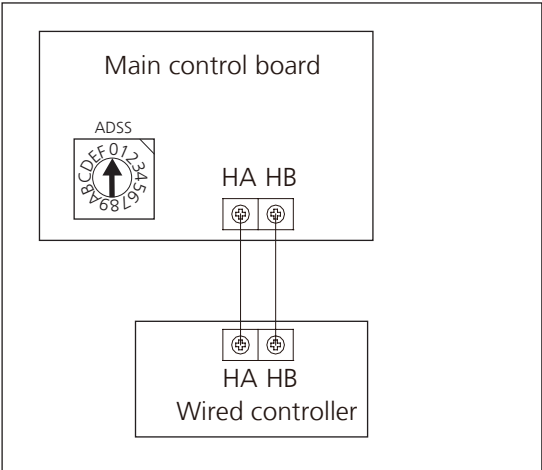
• Dimensions



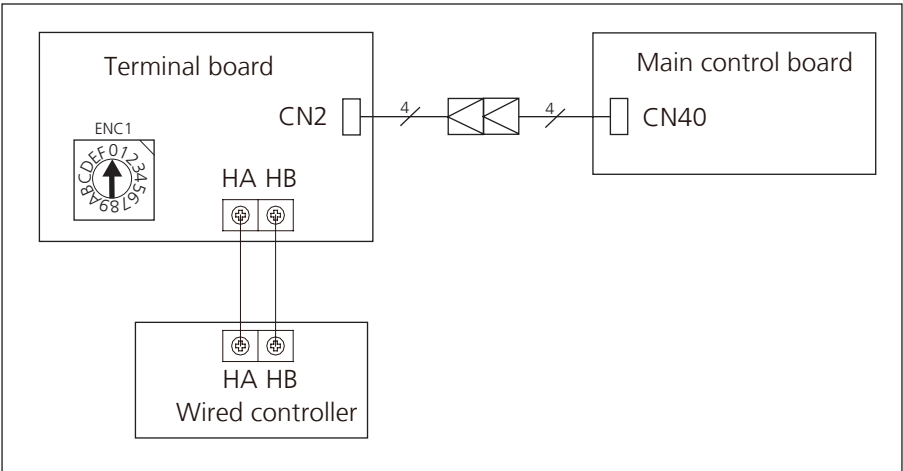
• Wiring diagram

1) Connection

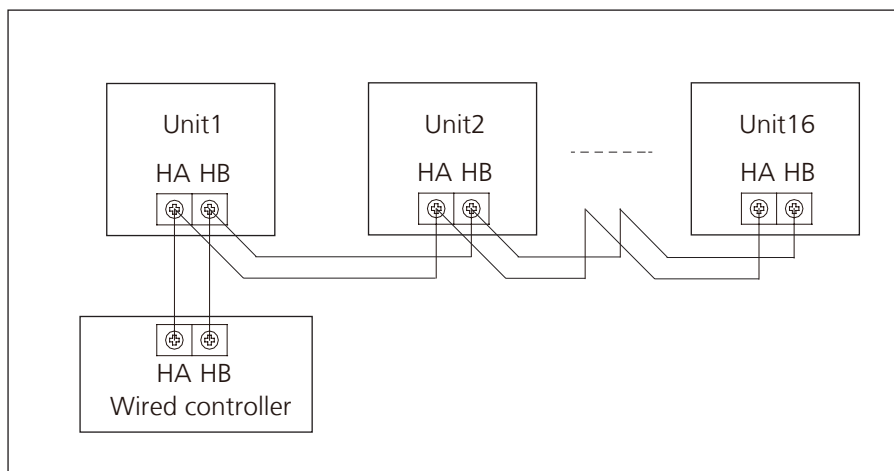
For Cassette: The wired controller connects to main control board directly.



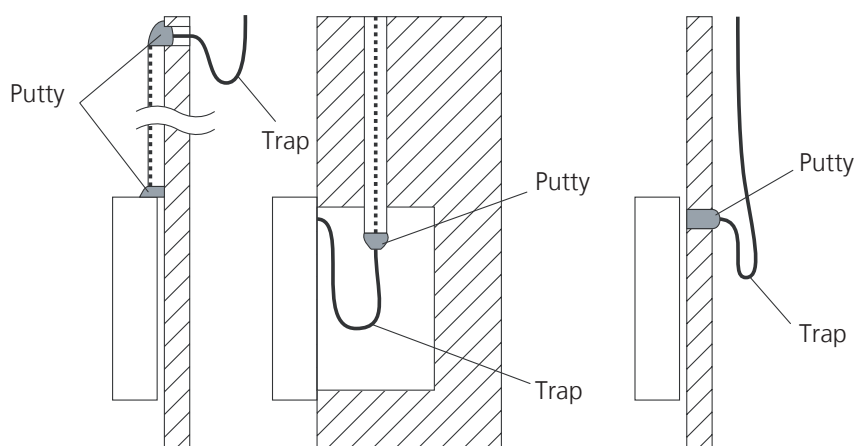
For Duct, Ceiling& floor: The wired controller connects to terminal board, terminal board connects to main control board.



2) Address setting



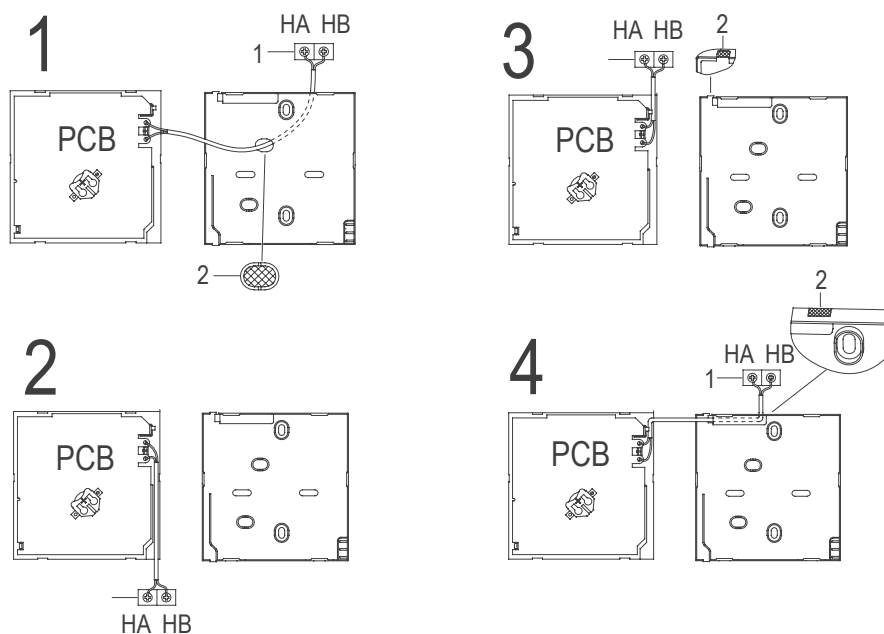
- a. One non-polarity controller can control up to 16 indoor units.
- b. When the non-polarity controller is connected to several units, every air-conditioner in network has only one network address to distinguish each other.
- c. Address code of air-conditioner in LAN is set by code switch ENC1(Duct and Ceiling& Floor) or ADSS(Cassette) of the indoor unit, and the set range is 0-15.
- d. Note: The indoor units are controlled at the same time, not independently. The purpose of setting network address is identify the unit when error occurs.



Note: DO NOT allow water to enter the remote control. Use the trap and putty to seal the wires.

• **For wiring the indoor unit, there are three methods:**

- From the rear;
- From the bottom;
- From the top;
- From the top center.

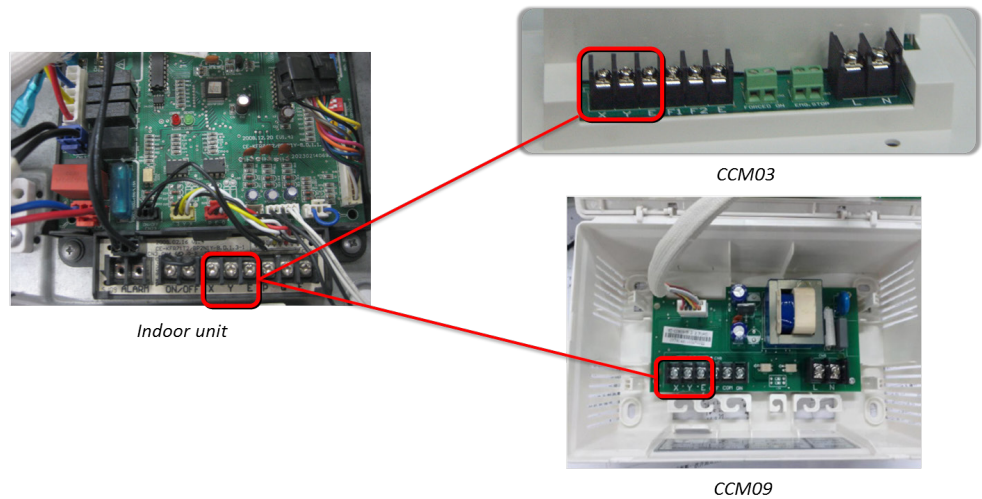


- 1: Indoor Unit.
- 2: Notch the part for the wiring to pass through with a nipper tool.
- Connect the terminals on the remote controller (HA ,HB), and the terminals of the indoor unit. (HA ,HB). (HA and HB do not have polarity.)

2.3 Centralized Controller

1) Connection

For Light commercial air conditioner with XYE port, it can be directly connected to Centralized Controller (CCM03, CCM09).



2) Address setting

When setting the address, please make sure the unit is powered off. The address can be set from 0 to 63 by the switch. Turn on the unit, then the address will be effective.

SWITCH		FOR CCM UNIT ADDRESS	
S2 + S1			
ADDRESS	0~15	16~31	
Factory Setting	✓		
S2 + S1			
ADDRESS	32~47	48~63	
Factory Setting			

Note: For light commercial air conditioner with XYE port, it can be also connected to BMS (Building Management System).

If there is any CAC (central air conditioner) connecting with the central controller at the same time, please set the address from largest (63,62,61...), since the CAC units could obtain address automatically from the smallest (00,01,02...)