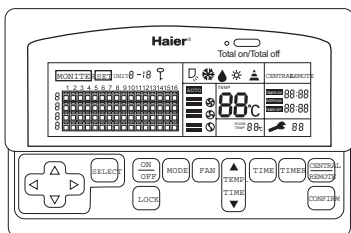


Air conditioner central controller

YCZ-A001



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No.0010570688

- To ensure safe and correct operation of the central controller, please read this operational instruction manual carefully before using for thoroughly understanding the information therein.
- Please keep this manual appropriately.

Safety Precautions

Below are four kinds of safety precautions and suggestions:

⚠ WARNING: Improper use may result in severe consequences of death or serious injuries.

⚠ CAUTION: Improper use may result in injuries or machine damages; in some cases may cause serious consequences

⊘ : It must be strictly prohibited where marked with **⊘ Prohibited ⊘**, otherwise may result in machine damages or endanger the user's personal safety.





❗ : It must be strictly followed where marked with **❗ To be followed ❗**, otherwise may result in machine damages or endanger the user's personal safety.

Instructions: This information can ensure correct operation of the machine.

Be sure to follow the following important safety precautions.

These precautions should be at hand to be checked at any time when needed.

If air conditioner is transferred to a new user, this manual should be as well transferred to the new user.

⚠ WARNING	
<p>• Entrusting Installation Installation should be entrusted to after service staff; self-installation may result in electric shock, fire and the similar because of improper installation.</p> <p>If any abnormal phenomena are found (e.g. smell of burning), please stop running and cut off power supply, and contact after service staff to find out treatment method.</p> <p>If keep using under this situation, may result in accident of electric and fire.</p> 	<ul style="list-style-type: none"> • When intend to move and reset controller, ask after service staff for responsibility. Improper installation may result in electric shock and fire. • Absolutely not to alter without authorization. Improper alteration may result in accident of electric shock, fire and the similar. • When repair needed, ask after service staff to handle it. Improper maintenance and repair may result in electric shock and fire. 
⚠ WIRING	<ul style="list-style-type: none"> • Not be allowed to spray flammable spraying agent directly to controller. Otherwise may result in fire. • Not be allowed to operate switch with damp hands, and not to spray controller with water. Otherwise may result in electric shock. • Not be allowed to press switch with matter having sharp tip. Otherwise may result in malfunction or electric shock. 
Maintenance	
<ul style="list-style-type: none"> • When maintenance or abnormality appeared, be sure to cut off manual operation power. • It will cause color change or paint-fading if wipe appearance of operation portion with gasoline, thinner or chemical wiping cloth; be careful. <p>If operation portion is heavily soiled, shall immerse cloth in diluted neutral detergent, and wipe that portion after wring the cloth, and wipe cleanly with dry cloth.</p> 	

Brief description on functions

The remote central controller (hereunder as □central controller□) is a necessary part at the option of the user for Haier commercial air conditioner remote monitoring system group control functional network . A remote control monitor(or detector) is used to transform standard digital interface and realize bus code address communication.Connecting the air conditioner directly,it undertakes local processing and gathering of air conditioner control and operation information,transmitting control and information data to the central controller.A network air conditioner (hereunder as □air conditioner□) is defined as an air conditioner having an indoor computer board with remote control interface, only which could combine with parts such as the monitors and central controller to form a remote monitoring system □ group control network , fulfilling the function of data exchange and monitoring . The central controller could consult through the monitors as well as display through the LCD the main work status of the air conditioner. With it the work status of main functions of the air conditioner could be set through key input and LCD display . It can also monitor the basic working status of all air conditioners in the network . In addition, the central controller is equipped with a 24 hours real-time clock system for centrally control the clocks in the network . Brief descriptions are given as follows :

1. Communication function

Communicate with the monitors in the group control network

To communicate with the monitors through the R S-485 bus (A, B). The central controller sends commands to and receives response from the monitor; communication by address enables sending and receiving control information, work information and fault information between the monitors and the central controller.

2. LCD display function:

The LCD could display the fundamental status of air conditioning units (are the units existing? On/off? Fault? Are units group selected? Cursor and the current unit no.);

The LCD can display the working status of the air conditioning unit with the current number (mode, fan speed, temperature setting, room temperature,timer, error code, central/remote control status);

The working status of the central controller (monitor/set status, panel locking status, signaling status).

3. Key input function:

The keys for moving the current unit number cursor and for group selection:

⬅, ⬆, ⬇, ⬅, SELECT;

The keys for setting working status of the air conditioning unit and control conditions: ON/OFF, MODE, FAN SPEED, TEMP, TIME ⬅, ⬆, ⬇, ⬅, CLOCK, TIMER, CENT/REM, SET;

The key for locking key function of the central controller: LOCK.

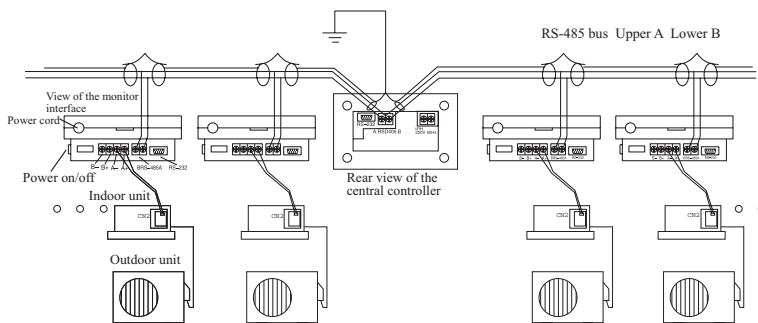
4. Unit number setting function:

To enrich the control functions of Haier commercial air conditioner remote monitoring system, multiple controllers could be set to work together for a combination of multiple functions. For this, the central controller is provided with a two-digit digital switch for setting controller address.

System general information

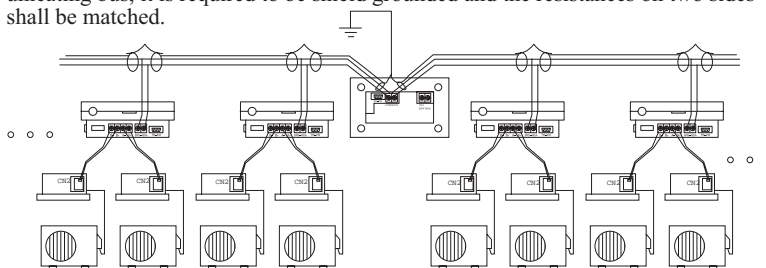
1. Realizing group control function with the central controller

A monitor is connected with an air conditioner through A+, A- of the 4-wire screw terminals on the interface for air conditioner, meanwhile the monitor dial switch shall be set as single unit working mode and the address unit number shall be set according to the planned scheme, see "Setting of the Dial Switch" for detailed setting and corresponding addresses. For realizing group control function through the central controller, the system still needs to connect the monitors. Each monitor shall be connected with the twin twisted shielded communicating bus through the two-wire screw terminals (A, B) on the RS-485 interface. For the communicating bus, it is required to be shield grounded and the resistances on two sides shall be matched.

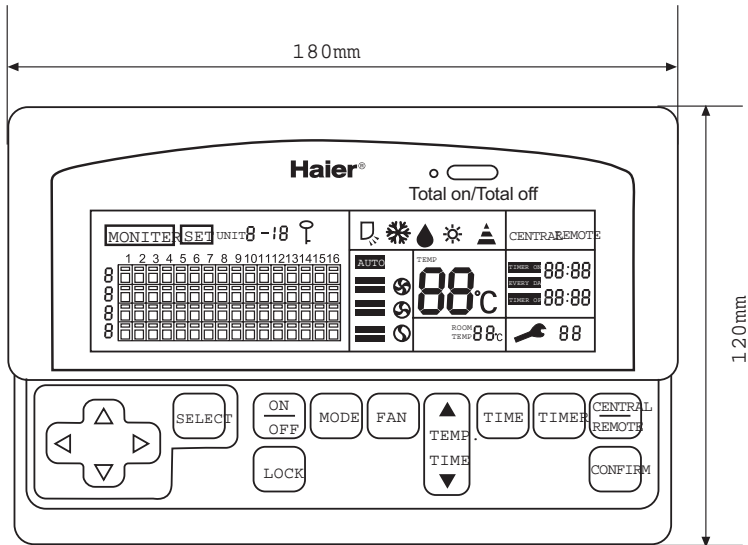


2. Realizing double unit switch-over group control function with the central controller

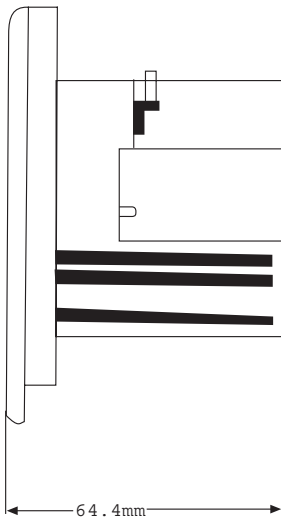
A monitor is connected with two air conditioners with the same model through the 4-wire screw terminals on the interface for air conditioner, meanwhile the monitor dial switch shall be set as double unit switch-over working mode with the default switch-over time of 24 hours, and the address unit number shall be set according to the planned scheme, see □Setting of the Dial Switch□ for detailed setting and corresponding addresses. For realizing double unit switch-over group control function through the central controller, the system still needs to connect the monitors. Each monitor shall be connected with the twin twisted shielded communicating bus through the two-wire screw terminals (A, B) on the RS-485 interface. For the communicating bus, it is required to be shield grounded and the resistances on two sides shall be matched.



Outside view and dimensions of the central controller



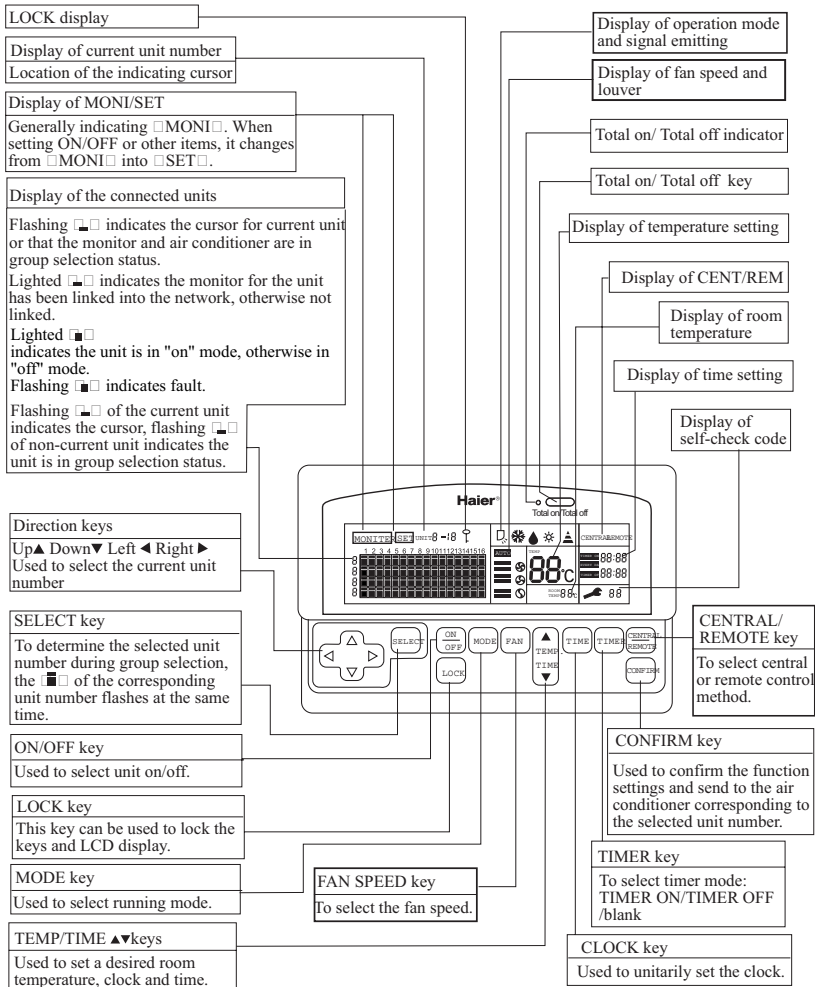
(Fig.1)



As illustrated:
(Figure 1 is the front view and Figure 2 is the side view) The central controller is 180mm long, 120mm wide and 64.4 mm thick.

(Fig.2)

Description and function of keys on the controller

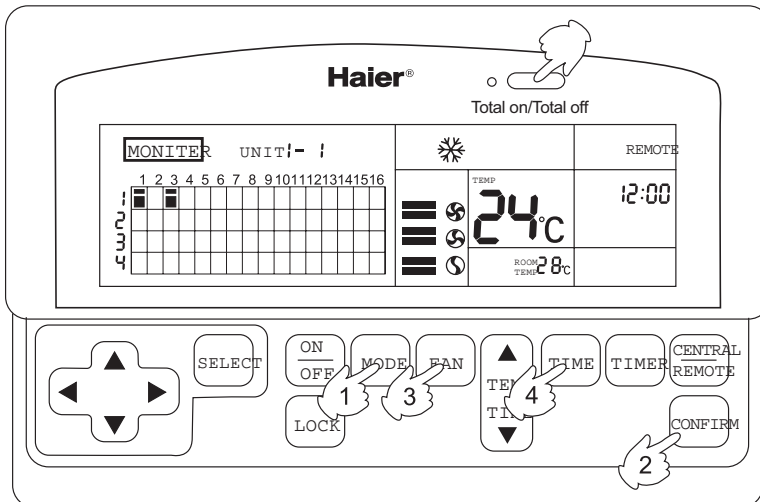


Note: In MONI mode, pressing SEL, MODE, FAN SPEED, TEMP TIME keys may change the MONI mode into SET mode. If SET key or other keys hasn't been pressed within 10s, it will automatically return to MONI mode.
Press the key of under ground color with blue can send order information to monitor or detector.

Operational guide

Total on and Total off

Pressing the Total on and Total off key could turn on or off all connected indoor units.



1. Press the Total on and Total off key to send all on/all off instruction. There is indication for signaling and the working status changes.

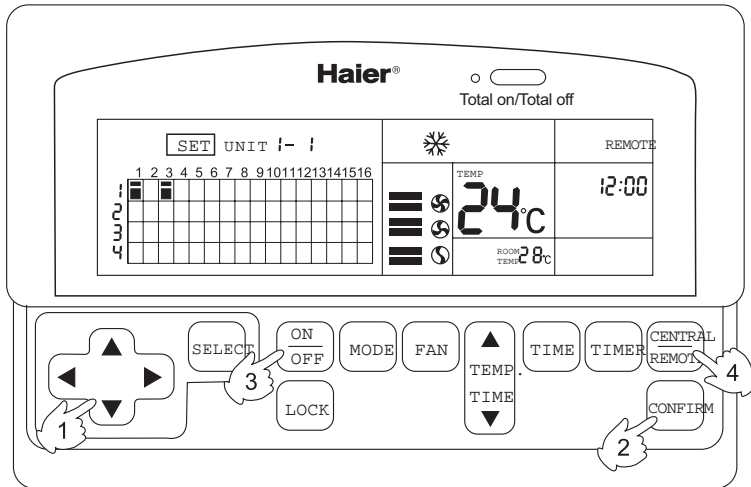
In all on status, pressing this key could turn all indoor units off and the indicator turns off.

In all off status, pressing this key could get all indoor units entering on and operation mode, and the indicator turns on.

- Note:
1. After a single unit is turned on, this key enters all on mode.
 2. The default operation mode is AUTO mode. If the remote control monitor connecting with the air conditioner hasn't power failure resumption function, the air conditioner will operate in the mode memorized by the remote control monitor.

Operational guide

Unit selection and group selection control



The central controller provides three control modes:

1. Unitary control mode: See Total on/Total off Unitarily Control Function .
2. Unit selection control mode:

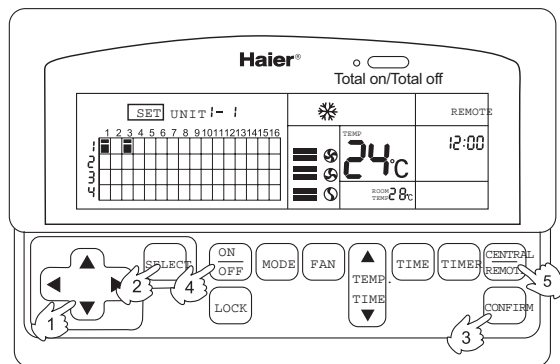
- ① The cursor flashes at of the current unit. Using the direction keys may change the flashing location of the cursor and the current unit number (the cursor will flash even if the unit does not exist.). The controller takes the current unit with the flashing cursor as unit selection mode;
- ② After completion of selection, parameters of mode, fan speed, temperature and timer could be changed;
- ③ After setting the parameters, press CONFIRM key to send the settings to the air conditioner and thus the unit selection control is completed.
- ④ After step ②, directly press the ON/OFF key and CENTRAL/REMOTE key, the requirement settings could also be transmitted to the air conditioner and then the unit selection control is completed.

Remarks:

Within 10s if no parameter (mode, fan speed, temperature) setting keys haven't be pressed or the CONFIRM key hasn't be pressed to send instruction to the air conditioner, the time-out control will automatically cancel the just made settings, and the system will automatically restore central control and cyclic monitor status.

Operational guide

Unit selection and group selection control

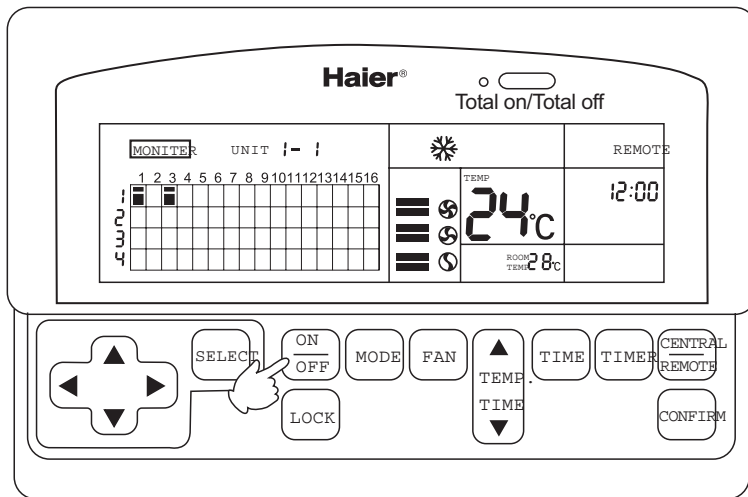


3. Group selection control mode:

- ① Move the cursor to the unit to be group selected and press SELECT key to enter group selection mode. Then use the ▲▼◀▶ keys to move the cursor to the next unit number to be selected and press SELECT key again. Repeat until selection is completed. After group selection is fulfilled, set the working status of the central controller;
Keep the cursor at a unit already group selected and press SELECT key again, the original selection will be canceled; afterwards the current unit display condition will not change because the cursor keep flashing, whereas after removing the cursor you will find the result of group selection or canceling of group selection;
- ② After completion of selection, parameters of mode, fan speed, temperature and timer etc. could be changed;
- ③ After parameter setting, press SET key sending the desired settings to the air conditioner and thus the group selection control is completed.
- ④ After step ③, directly press the ON/OFF key and CENTRAL/REMOTE key, therequirement settings could also be transmitted to the air conditioner and then the group selection control is completed.

Remarks:

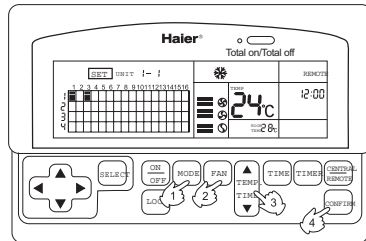
1. Within 10s if no parameter (mode, fan speed, temperature) setting keys haven't be pressed or the CONFIRM key hasn't be pressed to send instruction to the air conditioner, the time-out control will automatically cancel the just made settings, and the system will automatically restore central control and cyclic monitor status.
2. During group selection, the first selected air conditioner will be defined as the first unit, which will be taken as the control reference, i.e. if no mode has been set, after pressing CONFIRM key, all air conditioners under group selection control will operate in the same mode as that of the first air conditioner.



Using the ON/OFF key:

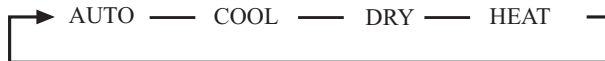
1. Carry out unit selection or group selection to select the units to be controlled;
Press ON/OFF key to send control orders;
2. If the units are in on status before unit or group selection, pressing this key will send turning off order to get units stop;
3. If the units are in off status before unit or group selection, pressing this key will send turning on order to get units start.

Operational guide AUTO, COOL, DRY, HEAT, FAN SPEED, TEMP, CLOCK



1. Conduct unit selection or group selection to select the units to be controlled.
2. Operation mode

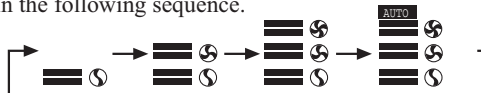
Press MODE key to select the operation mode. Each pressing will change the working mode in the following sequence:



Select the working mode you desire.

3. Fan speed shift

Press FAN SPEED key to select fan speed. Each pressing will change the fan speed in the following sequence.



Select the desired fan speed.

4. Temperature setting

Press TEMP TIME key.

- ▲ Each pressing will increase the temperature by 1 ; ; keep pressing will increase the value rapidly.
- ▼ Each pressing will decrease the temperature by 1 ; ; keep pressing will decrease the value rapidly.

The temperature could be set at your desire between 16 ; and 30 ; , which will be displayed by the LCD.

Note: These keys will also be used in clock setting and timer setting. See the related description for details.

5. Setting confirmation

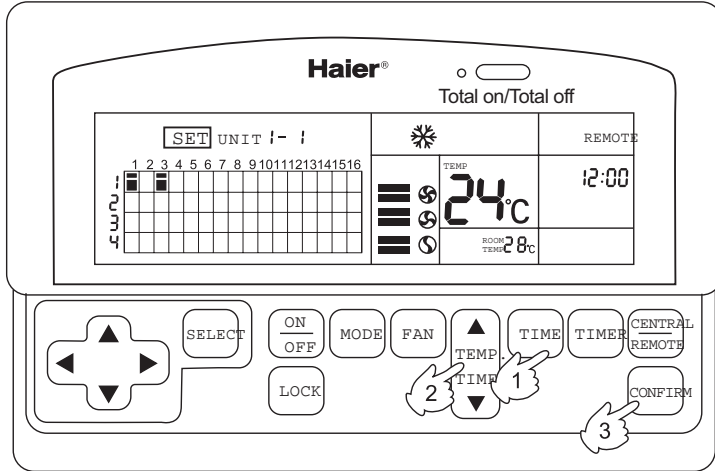
In CONFIRM mode, pressing CONFIRM key to send control orders to air conditioners, after which the central controller will change into cyclic monitoring status.

Note: Within 10s if no parameter (mode, fan speed, temperature) setting keys haven't been pressed or the CONFIRM key hasn't been pressed to send instruction to the air conditioner, the time-out control will automatically cancel the just made settings, and the central controller will restore cyclic monitoring status.

Operational guide

Clock setting

To adjust the settings and unify the system clocks



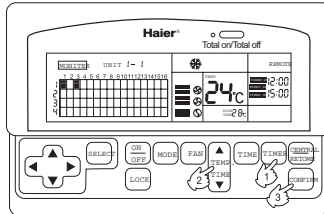
1. Press TIMER key
 - ▲ Each pressing of the TEMP TIME▲ key, the time setting will increase by 1 min; keep pressing will increase the value rapidly.
 - ▼ Each pressing of the TEMP TIME▼ key, the time setting will decrease by 1 min, keep pressing will decrease the value rapidly.
2. In CONFIRM mode, press the CONFIRM key to send control orders for controlling the air conditioner central control system. After confirmation of sending orders, the central controller will change to cyclic monitoring status.

Note:

Within 10s if the CONFIRM key hasn't been pressed to confirm order sending, the time-out control will automatically cancel the just made settings, and the central controller will restore cyclic monitoring status.

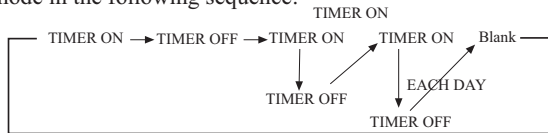
Operational guide

Timer setting method



1. Conduct unit selection or group selection procedure to select the units to be controlled;
2. Set the working parameters such as operation mode, fan speed, temperature etc.;
3. Timer mode setting

Press TIMER key to select timer mode. Each pressing will change the timer mode in the following sequence:



Then determine the timer mode as your desire.

At this moment, the display of TIMER ON or TIMER OFF flashes, which indicating you can set the corresponding time.

4. Time setting

Press TEMP. TIME key

Each pressing the TEMP. TIME key, the time setting will increase by 1 min, keep pressing will increase the value rapidly.

Each pressing the TEMP. TIME key, the time setting will decrease by 1 min, keep pressing will decrease the value rapidly.

5. After the time is set, in CONFIRM mode, press CONFIRM key to send control orders for controlling air conditioner. After the orders have been sent, the central controller will change to cyclic monitoring status.

6. Cancel timer

Press TIMER key several times to eliminate the display of timer mode. Then just press the CONFIRM key to complete.

Note: Within 10s if no detailed parameter (mode, fan speed, temperature) setting keys haven't been pressed or CONFIRM key hasn't been pressed to send orders, the time-out control will automatically cancel timer setting, and the central controller restore cyclic monitoring status.

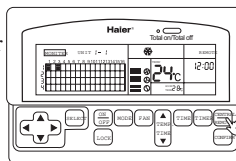
Hints:

After power failure, the time should be reset.

The controller possesses memory function, when use timer mode next time, just press CONFIRM key after timer mode selecting if time setting is the same as previous one.

Operational guide Central/Remote setting, keypad locking, setting confirmation and reset function

1. Central/remote setting function is applicable only for those air conditioners with wire remote controller or panel, but not for models with wireless remote controller. It deals with management of air conditioners inside the central control system. Once the air conditioner has been set as central status, it could be controlled only through the remote control interface.



- ϕ Carry out unit selection or group selection procedure to select the units to be controlled.
- ϕ Press CENTRAL/REMOTE key.
If the unit is in remote mode before selection, pressing this key will send orders getting the unit in central mode;
If the unit is in central mode before selection, pressing this key will send orders enabling the unit in remote status.
- ϕ In central status, the air conditioner does not accept instructions from the wire controller but only those from the central controller; whereas in remote mode, the air conditioner accepts orders from both the wire controller and the central controller.

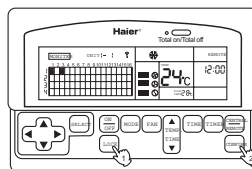
2. Locking, setting confirmation and reset function setting method

- ϕ Central controller keypad locking:

This function is used to control if the keypad of the central controller is valid, avoiding random operation by unrelated persons.

Keep pressing LOCK key until the key symbol is displayed, which means the keypad (other keys) is locked;

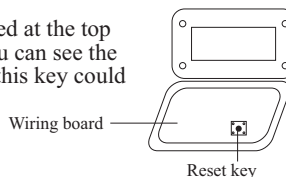
Keep pressing LOCK key again for a while, the key symbol disappears, it indicates the keypad could be regularly used;



- ϕ CONFIRM key:
It is used to confirm the settings of air conditioner running mode, fan speed, temperature and timer. This key is invalid in monitor status.
- ϕ Reset key:

It is installed inside the central controller for reset operation. In case the central controller operation is invalid or dead for a long time (not including over long control time, and self-locking of the keypad), press reset key to restart the central controller. The location of the reset key is as shown in the following figure:


Open the controller at the two clasps located at the top front side of the central controller, then you can see the reset key as shown in the figure. Pressing this key could restore the controller to normal conditions.



Failure diagnosis

Upon abnormal operation:

Please read the □ User□s Manual□ attached with the indoor unit before asking for repairing. You may contact the after-sales technicians after careful checkup.

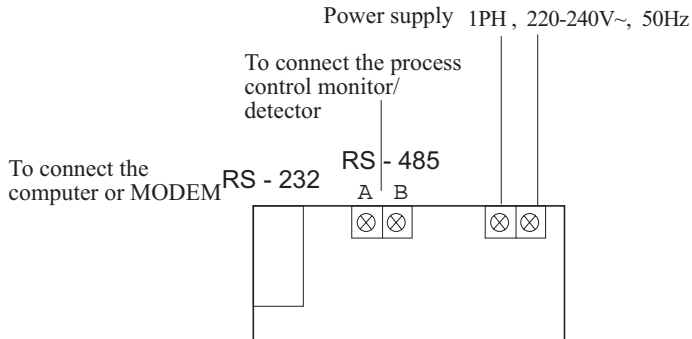
When faults arise, the symbol □  □ appears along with the error code.

The central controller faults corresponding to error codes are given in the following list (including air conditioner faults and group control network faults):

Code	Meaning
Blank	None (normal operation)
1	Fault with indoor ambient temperature sensor
2	Fault with indoor tube temperature sensor
3	Indoor heating overload protection
4	Indoor cooling icing (overload) protection
5	Indoor & outdoor communication error
6	Communication fault between panel (wire controller) and indoor unit (air conditioner indication, central controller shows 30)
7	Module fault (PFC protection □ DC)
8	No load
9	Compressor overheating
10	Abnormal CT current
11	Fault with outdoor ambient temperature sensor
12	Fault with outdoor heat exchanger (tube temperature) sensor
13	Protection of supply overvoltage or undervoltage
14	High voltage protection
15	--- Fault with outdoor evaporator sensor
16	--- Cooling overload
17	EEPROM fault
18	Fault with outdoor return gas sensor
19	Fault with compressor sensor
20	--- Fault with indoor evaporator sensor
21	Drain system failure
22	Power supply 3-phase fault (phase lack or mistake)
23	Humidity sensor malfunction
24	Indoor fan failure (fan overcurrent, fan IPM protection, fan Holtz (?» ¶½) element fault)
25	Outdoor fan failure (fan overcurrent, fan IPM protection, fan Holtz £ ¤ £ ¤ » ¶½ £ ¤ ' element fault)
26	Low voltage protection
27	--- Electronic expansion valve failure
28	--- Dust remover screen needs cleaning
29	Insufficient refrigerant
30	Abnormal communication between monitor and air conditioner
31	Abnormal communication between monitor and bus

Installation procedure

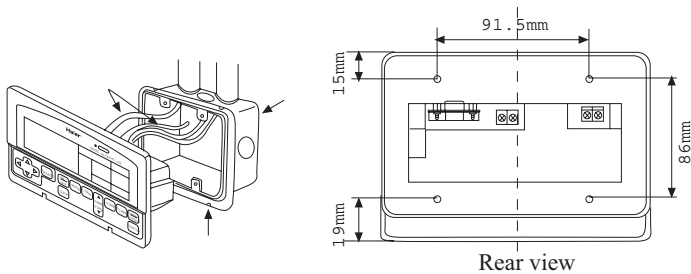
1. Wire connecting



2. Installation method

A wiring box cover must be used.

The central controller shall be installed into the installation box built in the wall fastening with 4 screws (as shown).



Note: Please confirm the supply voltage of AC220-240V and correct wiring. In application environment with intense electromagnetic interference, the central controller should be shielded, while the connecting wire between the monitor and the central controller should be shielded twin twisted wire.

Installation and debugging

1. It must form a complete set of documents (project layout for group control net, installation and construction records for group control net, debugging records for group control net, maintenance and repair records for group control net) for group control net of Haier commercial air conditioner long distance system (hereinafter for short as: group control net) from layout design, installation, debugging to after service, and file all for future reference.
2. Layout design of group control net shall be finished in advance, including:
 - (1) compositions of group control net system and quantities controlled;
 - (2) selection type of air conditioner, installation place, power distribution and wiring manner and connection to detector;
 - (3) installation place of detector, allocation of unit address code, power distribution and wiring manner and connection to group control bus;
 - (4) installation and wiring of group control bus, length limitation of bus, resistance matching of two ends of bus, and single point earth of bus shielding layer;
 - (5) installation place of central controller, allocation of unit address code, power distribution and wiring manner.
3. Principles of layout design of group control net:
 - (1) detector is essential part, to keep proper responding speed and communication reliability, detector quantities carried by one central controller shall not more than 64;
 - (2) air conditioner must be a net air conditioner, installation must strictly follow the installation and operation instructions shipped with the unit, and confirm that power blackout compensation function of local air conditioner has been cancelled when debugging;
 - (3) suggest that do not use two-unit switchover function of detector in the case of high load, i.e. suggest that do not use one detector to load two air conditioners when detector forming group control net, otherwise temperature difference control may be affected. If it is necessary to install two-unit switchover function for group control net, air conditioners with same type and half installation distance of that of normal installation are required;
 - (4) installation place of detector shall not too far away from air conditioner, not exceed the wiring length;
 - (5) unit address code of detector shall be strictly allocated in a sequence from small one to big one, and set continuous unit number;
 - (6) for power distribution of detector, the power distribution line and communication line shall not be too close from each other or in the same wiring channel, and no other special requirements;
 - (7) for connection between detector and group control bus, not allowed to connect branch line from the group control bus;
 - (8) shielding line of communication line between detector and air conditioner and the shielding line of communication bus between detector and central controller shall be shorted;
 - (9) wiring and power distribution line of the group control bus shall not be too

Installation and debugging

- close from each other or in the same wiring channel, and others may refer to wiring requirements of building autocontrol system;
- (10) limit the total length of group control bus to 1000 meters;
 - (11) at both ends between Bus A and Bus B connect a metallic membrane precision resistance of 100ohm respectively;
 - (12) single point earth for bus shielding line, suggest to be arranged in the middle of communication bus, close to central controller;
 - (13) in principle, installation place of central controller shall be arranged in the middle of communication bus, close to shielding earth line of communication bus;
 - (14) unit address codes of central controller adopt the default settings;
 - (15) central controller has its own power distribution line, the power distribution line and communication line shall not be too close from each other or in the same wiring channel, and no other special requirements.
4. Installation and construction of wiring of group control net shall be processed together with installation and debugging of net air conditioner, pay attention to commissioning before installation.
 5. Connection between detector and air conditioner: detector working mode and unit address code shall be strictly set according to planned layout; detector makes wire communication with at most two air conditioners (A, B) through 4-post screw-fixing terminal at air conditioner interface (A₊, A₋, B₊, B₋); connection between detector and air conditioner use uniform wiring; use uniform wiring for connection between detector and air conditioner, one plug in type terminal of wiring connected to long distance control interface on the computer board of air conditioner, and cores of another terminal respectively connected to A₊ and A₋ (B₊ and B₋); connection has polarity, and generally white wire connected to A₊/B₊ and black/red wire connected to A₋/B₋; if detector cannot work normally when debugging, then can check and remove malfunction by changing positive and negative polarity. During debugging also can judge whether communication interface to air conditioner is normal according to the running status indicated by operation indicator (green LED).
 6. Connect detector and communication bus after finish the wiring of communication bus: connect several detectors to communication bus in parallel, all terminal port A (including central controller) on one bus, and all terminal port B (including central controller) on another bus, at both ends of the communication bus - A terminal port line and B terminal port line shall paralleling connect a metal membrane precision resistance of 100ohm respectively. Earth one point of the shielding line of communication bus, which is at the middle position of the communication bus, and the total length of communication bus shall be limited within 1000m.
 7. Connect central controller and communication bus after finish installation and connection of detector: central controller is connected to communication bus through the 2-post screw-fixing terminal (A and B) of interface RS-485, locating in the middle of the communication bus, with position close to the earth point of the shielding line of communication bus.

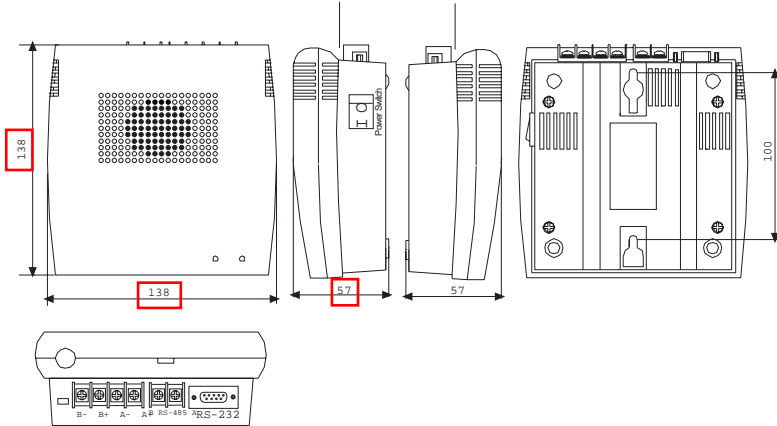
Installation and debugging

8. Power on and debugging: after power on, central controller periodically monitors the detector and air conditioner groups on the communication bus, and after inquiring for a period of time the unit number shall display as expected, check and debug if having any difference.
9. Set the dialing switch of detector: OFF means 0 and ON means 1 see the table below for detail setting check list.

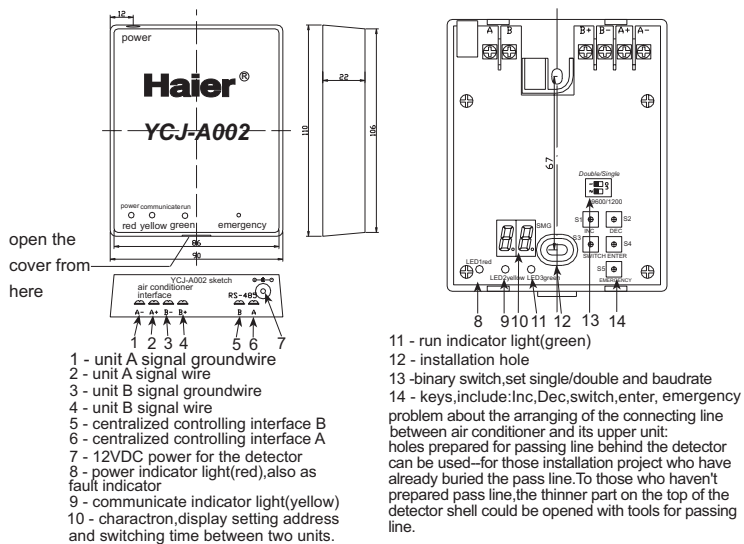
No .	D2 ; ϕ D1		Address
1	0	0	FCH
2	0	1	FDH
3	1	0	FEH
4	1	1	FFH

Model of monitor/detector

1. Remote control detector



2. Group control detector



Performance parameters and spare parts

1. Performance parameters and spare parts

Power supply	1PH AC220-240V 50Hz
Power consumption	3W
Maximum dimension	180X120X64.4mm
Weight	0.39kg
Spare parts	no

Note: The company focuses on technological innovation and reserves right to modify the parameters without further notification.

2. User self-provided parts:

- a. Power cord: copper core wire with the conductor diameter not less than 1.0mm², the plug is not less than 5A250V.
- b. Group control bus: Recommended type: UL2547 or equivalent model twin twisted shielded wire, the specification not lower than AWG20 (UL2547-202).
- c. Installation mechanical box for the central controller: 4 holes installation location dimension: 91.5*86 bilaterally symmetric in the whole, vertically symmetric with the upper variation of 2 (the hole is 15+ apart from the upper edge and 19 apart from the lower edge). See the dimensions shown in the figure on Page 15.