

Manual of Weekly Timer

YCS-A001

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No.0010573289

- Please read this operation manual carefully before using the appliance.
- Keep this manual in a safe place.

Safety Precautions

The following lists four kinds of safety precautions and recommendations:

-  **Warning:** Improper use may cause death or serious injury, etc. serious consequences.
-  **Notice:** Improper use may cause body injury or unit damage; in some cases, it may cause serious consequences.
 -  * Any contents marked with this "Prohibition" symbol are the actions must be prohibited. Otherwise, it may cause unit damage or endanger the body safety of user.
 -  * Any contents marked with this "Force" symbol are the actions must be force done. Otherwise, it may cause unit damage or endanger the body safety of user.

The following safety precautions must be observed.

These safety precautions should be kept in hand to consult it when needs.

If the air conditioner is resold to a new customer, this manual also should be given to him.

Warning

- The installation work shall be done by a qualified person and what the manual specified. If installation is not proper, water leakage, electric shock, fire and other accidents will occur.

If finding abnormal phenomenon (e.g. smell of fire), please cut the power immediately and contact our after-sale service staffs for the solvent.

In this case, if you still use the unit, it will be damaged and electric shock or fire accident may be caused.



Safety Precautions

Warning

- Please let the after-sales service staffs do the job when the manual must be removed, reseted. Improper installation may cause water leakage, electric shock and fire accident.
- Do not alteration the manual by yourself, the impropriety alteration may cause electric shock and fire accident. 
- When needing repairing, please contact our after-sales service staffs to do it. Improper repairing may cause electric shock and fire accident. 
- The power supply : 220VAC

Notice

- Do not put or use any flammable spray liquid near the manual. Otherwise, electric shock may occur. 
- Do not operate the manual with wet hands. Do not use water to clean the manual. Otherwise, electric shock may occur.
- Do not press the manual and switch with acuminate object. Otherwise, electric shock may occur.

Cleaning

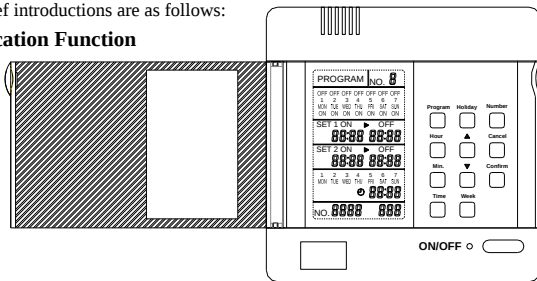
- Turn off the power supply switch before cleaning or abnormality occur
- Do not use the thinner, benzine, or chemical dishcloth cleaning the manual . Otherwise, discolourment or coating desquamation may occur. 
- If it is very dirty, dissolve neutral detergent in the lukewarm water and make the cloth wet with the water. After wiping, clean off the detergent using clean water. Clean with soft and dry dishcloth.

Function Introduction

The weekly timer is a special functional part for Haier Commercial Air Conditioner's remote monitoring system-group control function network (hereinafter abbreviated as group control network) and the user's optional part. Remote central controller (hereinafter abbreviated as central controller) achieves the coding and display of control data by its keystroke and LCD screen; connected to bus and executes the control to the air conditioner's basic functions by detector. Remote detector (hereinafter abbreviated as detector) is used to transform the standard digital interface to realize the communication of bus code sub-address; connected directly to air conditioner to execute local operation and collection to the control information and working information of air conditioner and to transmit the control and information data. Network air conditioner (hereinafter abbreviated as air conditioner) means the air conditioner, which indoor PCB possesses remote control interface. Only the network air conditioner can cooperate with detector, central controller and weekly timer, etc. parts to form the remote monitoring system-group control network and fulfill data exchange and monitoring function.

The function level of weekly timer and the central controller is the same. It can be checked by detector and displayed by LCD screen the trouble state and timing setting of air conditioner. It also can set the timing settings of the air conditioner within a week by keystroke input cooperating with LCD display. Weekly timer can be either used together with central controller or used independently (the detector is the essential part). Additionally, the weekly timer is equipped with 24-hour real-time clock system to unify the clocks in the group control network (the clocks in group control network and air conditioner are respectively independent and do not interfere with each other). The brief introductions are as follows:

1.Communication Function



Function Introduction

Communication with the detector of the group control network.
Executing communication with detector by RS-485 bus (A, B). The weekly timer sends a control command and communicates according to unified address; the execution of the command is delayed. The weekly timer can simultaneously monitors the trouble information sent from detector.

2.LCD function:

The LCD can display the weekly timing settings of the air conditioner (7 days a week and each day can set max two times of timer on and timer off),
The LCD can display the trouble code information of the air conditioner with trouble, The LCD can display the current time of the clock and weekday's information,
The LCD can display holiday setting, which is used to temporarily cancel the On function of the air conditioner.

3.Keystroke input function:

The keys used in normal state to adjust and confirm the clock and weekdays-time, Confirm, Cancel,

The key used for enter and quit from timing setting program state-program.

The keys used to switch programmed contents-Date, Hour, Minute.

The keys used to adjust the program contents-- ▲, ▼

The keys used to whether accept the programmed contents or not-tConfirm, Cancel.

The key used in normal state to temporarily cancel the special date timing function-Holiday.

4.Unit number setting function:

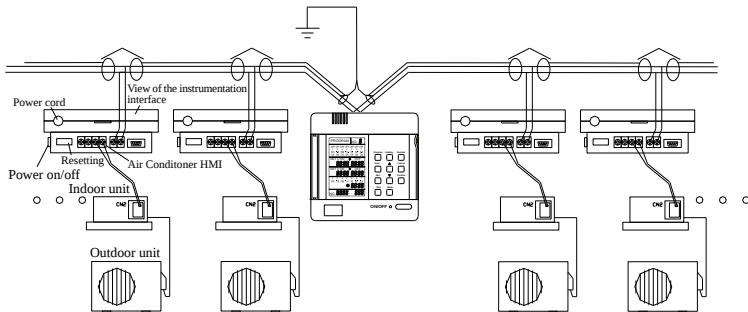
In order to rich the control function of Haier Commercial Air Conditioner's remote monitoring system and be able to set multiple controllers combined use to fulfill the combination of multiple functions, the weekly timer is configured with two dial-code switches used to set the controller's addresses (the controller's addresses cannot be repeated in the same control network).

System Outline

The weekly timer has its independent own power supply. Its communication interface is RS-485 interface, and the two-core screw fixed terminals (A, B) is connected with shielded twisted pair communication bus and set the address number different from those of other controllers.

1. Use weekly timer to realize weekly timing function:

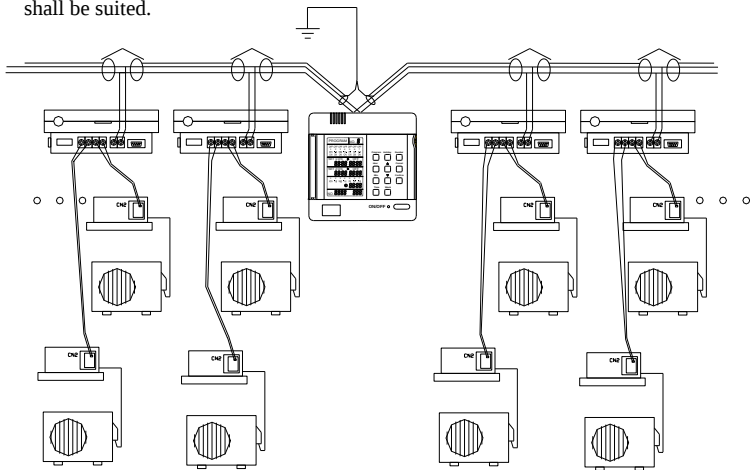
The detector is connected with one air conditioner by the 4-core screw fixed terminals A+ and A- of air conditioner interface, then accordingly set the dial-code switch of the detector in single unit working mode; the address number setting shall be performed according to the planned program, for specific setting and corresponding address, please refer to the dial-code switch setting in detector's operation manual; use weekly timer to fulfill weekly timing function, the system needs to be connected with weekly timer; each detector and weekly timer is connected with shielded twisted pair communication bus by the 2-core screw fixed terminals (A and B) of its RS-485 interface; the communication bus must be shielded and grounded, and the resistors in its two ends shall be suited.



System Outline

2. Use weekly timer to realize two units auto-changeover function:

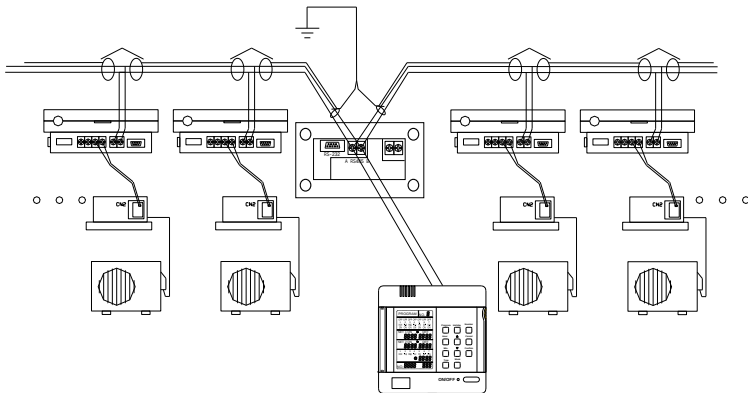
The detector is connected with two same model air conditioners by the 4-core screw fixed terminals of air conditioner interface; then accordingly set the dial-code switch of the detector in double units working mode, and the double units switch time is default 24 hours; the address number setting shall be performed according the planned program, for specific setting and corresponding address, please refer to the dial-code switch setting in detector's operation manual; use weekly timer to fulfill double units switch weekly timing function, the system needs to be connected with weekly timer; each detector and weekly timer is connected with shielded twisted pair communication bus by the 2-core screw fixed terminals (A and B) of its RS-485 interface; the communication bus must be shielded and grounded, and the resistors in its two ends shall be suited.



System Outline

3. Use central controller + weekly timer to realize the group control function + weekly timing function:

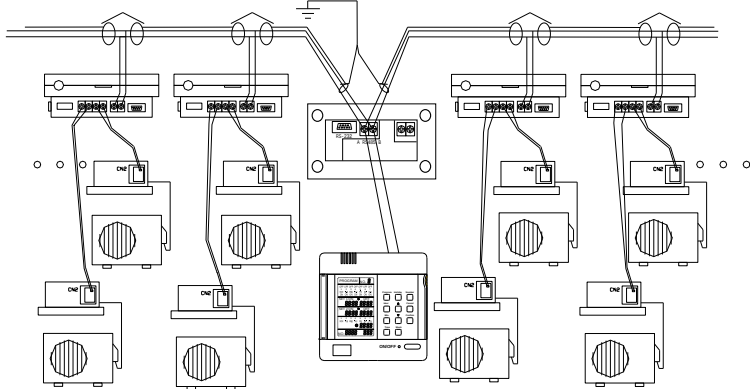
The detector is connected with one set of air conditioner by the 4-core screw fixed terminals A+ and A- of air conditioner interface, then accordingly set the dial-code switch of the detector in single unit working mode; the address number setting shall be performed according the planned program, for specific setting and corresponding address, please refer to the dial-code switch setting in detector's operation manual; use group controller and weekly timer to fulfill the group control function with weekly timing function, the system needs to be connected with group controller and weekly timer; each detector, group controller and weekly timer is connected with shielded twisted pair communication bus by the 2-core screw fixed terminals (A and B) of its RS-485 interface; the communication bus must be shielded and grounded, and the resistors in its two ends shall be suited.



System Outline

4. Use central controller and weekly timer to realize auto-changeover + group control + weekly timing function:

The detector is connected with two same model air conditioners by the 4-core screw fixed terminals of air conditioner interface; then accordingly set the dial-code switch of the detector in double units working mode, and the double units switch time is default 24 hours; the address number setting shall be performed according to the planned program, for specific setting and corresponding address, please refer to the dial-code switch setting in detector's operation manual; use central controller and weekly timer to fulfill double units switch group control function with weekly timing function, the system needs to be connected with central controller and weekly timer; each detector, central controller and weekly timer is connected with shielded twisted pair communication bus by the 2-core screw fixed terminals (A and B) of its RS-485 interface; the communication bus must be shielded and grounded, and the resistors in its two ends shall be suited.



Operation Instruction

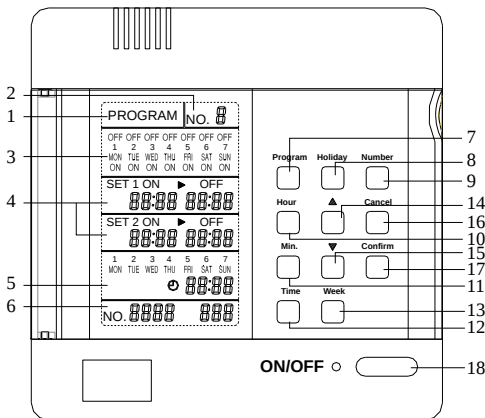
Instruction:

1 - PROGRAM-the display shows the weekly timer timing setting state, and in setting state, the timing information can be adjusted.

2 - No:8-timing group number: when it is not set timing, there is no timing group number; after setting timing, it will automatically form a group number according to each kind of setting combination, so that in the sequent timing setting, it can execute instant setting by using timing group number.

3 - Setting state and holiday functional area-1 (MON), 2 (TUE), 3 (WED), 4 (THU), 5 (FRI), 6 (SAT), 7 (SUN) are used to indicate the 7 days in a week; the symbol of this part will display after powered on; after set the corresponding weekday's timing function, the ON symbol under the corresponding symbol will display, if not set timing, there will be no display; if not set Holiday function, the OFF symbol on the upside of the indicating symbol will not display, after set Holiday function, the OFF will display and at the same time temporarily the previous timing setting and turn off the air conditioner.

4 - No. 1 group and No.2 group timing setting display area-when entering timing setting state, the contents of timing will flash; choose Date, Hour and Minute to perform increase and decrease adjustment by the adjusting key.



Operation Instruction

5 - Time display area-including display the weekday, hour and minute; before setting timing function, please calibrate the current clock.

6 - Unit number trouble code display area-when the air conditioner in the control network has trouble, the corresponding unit number and the trouble code will display in this area.

7 - Program

Enter or exit the timing setting in normal condition,

8 - Holiday

Close the units and invalid for timing in no affect on the timing setting condition.

9 - Number

Group setting and timing setting (take one day as a standard unit)

10 - Hour

Timing setting condition and time setting condition ,select the adjustment

11 - Min.

Timing setting condition and time setting condition ,select the adjustment

12 - Time

Enter and exit the at present date and time condition in normal condition

13 - Week

Timing setting condition and time setting condition ,select the adjustment

14 - ▲

Timing setting condition and time setting condition , increase the setting parameters

15 - ▼

Timing setting condition and time setting condition , decrease the setting parameters

16 - Cancel

Cancel the present setting before confirm the parameter.

17 - Confirm

Confirm the parameter.

18 - ON/OFF

Open/close the unit.

Operation Instruction

1. Time adjusting function:

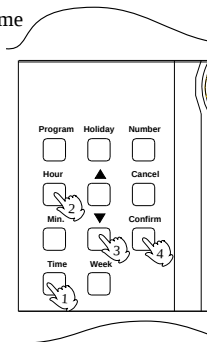
When powered on for the first time or after a long period of time

Press the Time key to enter time adjusting function;

(1) Continuously press Week key can adjust the current date (weekday);

(2) Press Hour key/Min. key to choose the contents to be adjusted, then use Increase key▲/Decrease key▼ to adjust time;

(3) Press Confirm key to confirm the above adjustment. After confirming and the time works in the adjusted time; or press Cancel key to cancel the adjustment and resume the previous state.



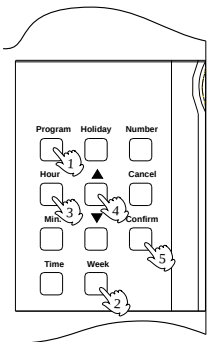
2. Timing data setting

(1) Press Program key to enter timing data setting state;

(2) Press Week key to choose the program setting date;

(3) Press Hour key/Min. key to choose the contents to be adjusted, then use Increase key▲/Decrease key▼ to adjust time;

(4) After finishing data setting, press Confirm key to confirm the setting and simultaneously switch to the next timing section; or press Cancel key to cancel the setting and resume the previous state; the weekly timer can set two groups of Timer On/Off per day;

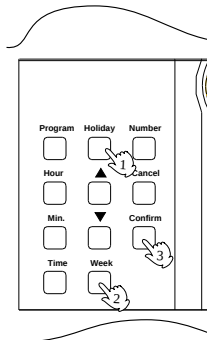


Operation Instruction

(5)After finishing the data setting for a whole day, the controller will automatically distribute a time number. In the sequent setting, if use the same timing setting data, only choose the date to be set and choose the Number key, then press Confirm key; Press Program key again to quit from the timing data setting state.

3. Holiday setting function:

- (1)Press Holiday key to enter holiday setting function state;
 - (2)Press Week key to choose the date to set as holiday;
 - (3)Press Confirm key to confirm the set holiday function, and simultaneously OFF will display on the top of the current date;
 - (4)If set multi-days as holiday, repeat the above operation till it is complied with requirements;
- Holiday setting function is only valid in timing setting function.

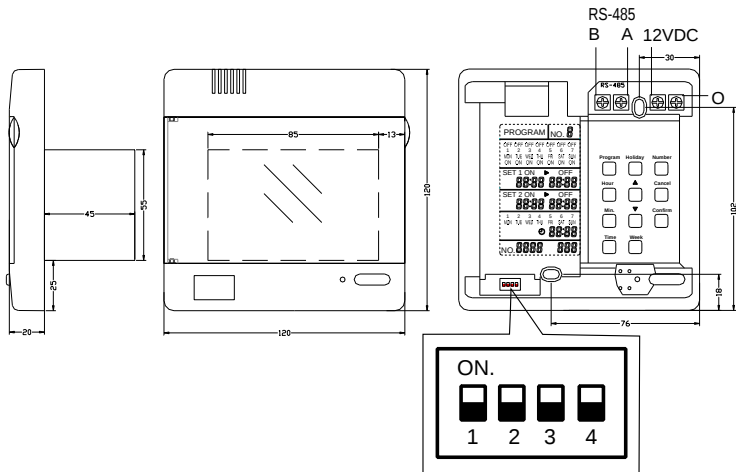


Maintenance

Weekly timer can display the malfunction unit number having trouble (the same as detector setting address number) and the following trouble code. The corresponding meaning of the trouble code are as the follow table show (including air conditioner trouble and group control network trouble):

D4 D3 D2 D1 D0	Code	Meaning
0 0 0 0 0	—	No trouble(working normally)
0 0 0 0 1	1	Indoor ambient temperature sensor abnormal
0 0 0 1 0	2	Indoor pipe temperature sensor abnormal
0 0 0 1 1	3	Indoor heating overload protection
0 0 1 0 0	4	Indoor cooling freezing (overload) protection
0 0 1 0 1	5	Indoor unit and outdoor unit communication abnormal
0 0 1 1 0	6	Panel (wire controller) and indoor unit communication trouble (air conditioner displays, central control displays 30)
0 0 1 1 1	7	Module abnormal (PFC protection-DC)
0 1 0 0 0	8	No load
0 1 0 0 1	9	Compressor overheat
0 1 0 1 0	10	CT current abnormal
0 1 0 1 1	11	Outdoor ambient temperature abnormal
0 1 1 0 0	12	Outdoor heat exchanger (pipe temperature) sensor abnormal
0 1 1 0 1	13	Power supply excess/lack voltage protection
0 1 1 1 0	14	High pressure protection
0 1 1 1 1	15	---Outdoor evaporator sensor abnormal
1 0 0 0 0	16	---Cooling overload
1 0 0 0 1	17	EEPROM abnormal
1 0 0 1 0	18	Outdoor return air sensor abnormal
1 0 0 1 1	19	Compressor sensor abnormal
1 0 1 0 0	20	---Indoor evaporator sensor abnormal
1 0 1 0 1	21	Drainage system abnormal
1 0 1 1 0	22	Power supply 3-phase abnormal (lack phase or wrong phase)
1 0 1 1 1	23	Humidity sensor abnormal
1 1 0 0 0	24	Indoor fan motor abnormal (fan motor over-current, fan motor IPM protection, fan motor Hall components abnormal)
1 1 0 0 1	25	Outdoor fan motor abnormal (fan motor over-current, fan motor IPM protection, fan motor Hall components abnormal)
1 1 0 1 0	26	Low pressure protection
1 1 0 1 1	27	---Electronic expansion valve abnormal
1 1 1 0 0	28	---Dust removing filter needs to be cleaned
1 1 1 0 1	29	Refrigerant is insufficient
1 1 1 1 0	30	Detector and air conditioner communication abnormal
1 1 1 1 1	31	Abnormal communication with the bus of detector

Appearance/Dimension/Interface



Installation and Debugging

1. The long-distance monitoring system group control network (hereinafter abbreviated as group control network) of Haier Commercial Air Conditioner must establish, from its design plan, installation and debugging to after-sale-service, a complete set of documents (group control network programming, installation record, debugging record and repair and maintenance record) and keep in the archives for future use.
2. The programming of group control network needs to finish the following works in advance, including: (1) Composition of group control network system and control number; (2) Choose the model of air conditioner, installation position, power distribution and wiring treatment and connection with detector;

Installation and Debugging

(3) Installation position of detector, address and unit number distribution, power distribution and wiring treatment, connection with group control bus; (4) Installation and wiring of group control bus, bus length limitation, the matched resistors at the two ends of bus, the shielded layer of bus shall be single-point grounded; (5) Installation position of central controller, address unit number distribution, power distribution and wiring treatment.

3. The programming principle of group control network: (1) Detector is the essential part; in order to guarantee proper response speed and reliable communication, the number of detector equipped on the central controller shall not exceed 64; (2) The air conditioner must be network air conditioner, and the installation must be performed according to the attached operation and installation manual; in test run, cancel the air conditioner's Power Failure Resume function; (3) It is recommended do not use the double units switch function of the detector in the big load circumstance, that is it must be equipped with group control network double units switch function, which requires the model of the used air conditioners must be the same and the installation space is half of the general installation space; (4) The installation position of the detector shall not be too far from the air conditioner and shall not exceed the length of the connecting wire; (5) The detector address unit number must be strictly distributed in the increasing sequence and set the successive unit number; (6) Detector power distribution: the wiring shall not be too close to the communication wire or pass through the same wire channel; no other special requirements; (7) Connection of detector and group control bus: it is not allowed to connect additional branch wire to the group control bus; (8) The shielded wire of detector's air conditioner communication wire is short connected with the shielded wire of detector's central controller communication wire; (9) The wiring of group control bus shall not be too near the connecting wire or pass through the same wire channel; the rest can refer to the wiring requirements of the storied building's auto control system; (10) The total length of group control bus limits in 1000m; (11) At the ends of the bus and between A bus and B bus shall respectively connect a 100 Ω metal film precise resistor; address unit number of central controller and weekly timer shall not be repeated;

Installation and Debugging

(12) The bus shielded wire is single-point grounded. It is recommended to arrange it in the middle part of the bus and near central controller or weekly timer; (13) The installation position of central controller or (and) weekly timer arrange in the middle part of the bus in principle and near the communication bus shielded grounding wire; (14) The address unit number of central controller is set as default; the address unit number of weekly timer is set as default; the central controller unit No. can't be the same as that of the weekly timer. (15) The central controller is in its own separate wiring circuit; the wiring circuit and the communication circuit shall not be too close or pass the same channel; no other special requirements; (16) The weekly timer uses 12VDC power supply, which can be directly connected from the neighboring detector or connected with other DC12V power supply; (17) Weekly timer can cooperatively use together with central controller as a controller, or use weekly timer separately as the only controller.

4. The wiring and installation of group control network will be done synchronously together with the installation and debugging of network air conditioner. Please perform test run before installation.

5. Connection of detector and air conditioner: The working mode and address unit number of detector shall be performed strictly in line with the planned programming; detector executes wire communication with at most two sets of air conditioners by the air conditioner interface 4-core screw fixed terminals (A+, A-, B+, B-); the connection of detector and air conditioner shall use the same wire; the inserted terminal at one end of the wire is connected with the remote control interface on the air conditioner PCB, the core wire at the other end of the wire is respectively connected with A+, A- (B+, B-); the connection has polarity: generally the white wire connects A+/B+, black wire/red wire connects A-/B-; in debugging, if the detector cannot work normally, it can be checked by exchange between + pole and - pole. In powered on debugging, it can also use the operation state displayed by the operation light (green LBD) to determine whether the air conditioner communication interface is normal.

Installation and Debugging

6. After finishing the wiring work of communication bus, perform the connection between detector bus and communication bus: multiple detectors are parallel connected with communication bus; all the A interfaces (including central controller or weekly timer) are in the same bus; all the B interfaces (including central controller or weekly timer) are in the other same bus; A interface wire and B interface wire at the end of the communication bus is respectively connected a 100Ω metal film precise resistor; the communication bus shielded wire is single point grounded in the middle part; the total length of communication bus is limited in 1000m.

7. After finishing installation and connection of detector, perform central controller or weekly timer connection with communication bus: central controller or weekly timer connects with communication bus by RS-485 interface 2-core screw fixed terminals (A, B); the connecting position is in the middle part of communication bus and near the grounded point of its shielded wire.

8. Powered on debug: after powered on, the central controller will circularly monitor the detectors and air conditioners in the communication bus. After searching a period of time, the unit number shall expectedly display. If abnormal, perform check and debug.

9. After finishing debugging of central controller, powered on weekly timer. If at this time appears disorderly communication, please check the address setting of weekly timer and central controller. If communication normal, perform clock calibration and timing setting. After the timing function achieves, finally perform Holiday function checking.

10. After debugging, record the debugging process, and after training the personnel, deliver the engineering.

11. Setting of central controller's dial-code switch: if the dial-code switch is in OFF position, indicates 0; if in ON position, indicates 1. For the address number setting, please refer to the following table:

Note: D1, D2 not used

No.	D3, D4	Address
1	0 0	F F H
2	0 1	F E H
3	1 0	F D H
4	1 1	F C H

Performance Parameter and Fittings

Power supply	1PH DC12V / AC220V
Power consumption	2W
Max dimension	120x120x68
Weight	520g
Fittings	Power supply connecting wire

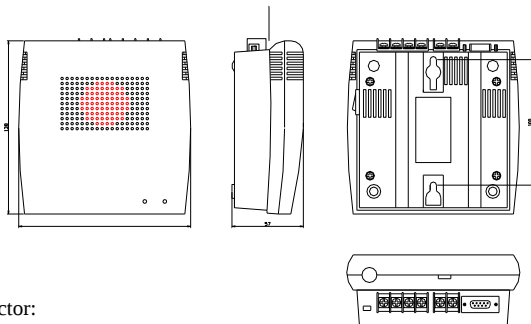
User's Self-provide Parts

User's self-provide parts:

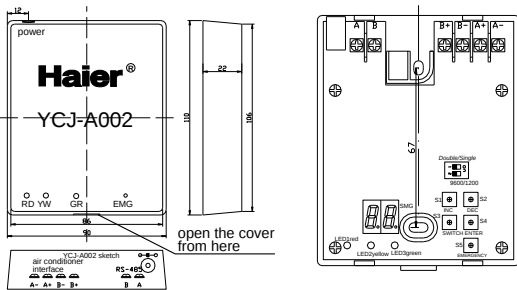
Group control bus: Recommend to use UL2547 type or equivalent type twisted-pair shielded wire, and the specification is no less than AWG20 (UL2547-202).

Detector

1. Remote detector:



2. Group Control Detector:



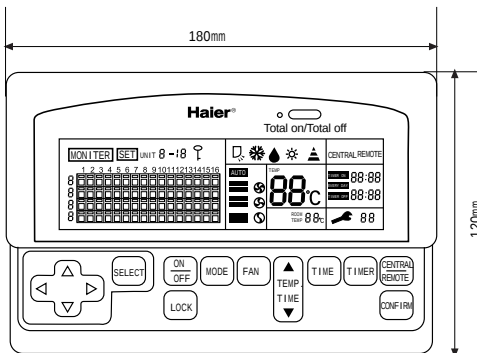
Choosing the detector type:

Remote detector is applicable to the environment with high electromagnetic disturbance, and can operate and monitor by connecting to computer and air conditioner;

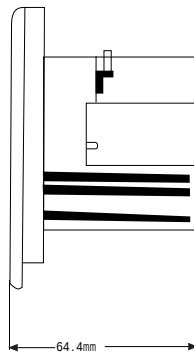
The cost of group control detector is low and applicable to the environment with low electromagnetic disturbance. It can only form group control network and is economical.

Central Controller

Central Controller



(Fig.1)



(Fig.2)

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.