



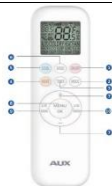
Technology leads Intelligent life

ARV Control System

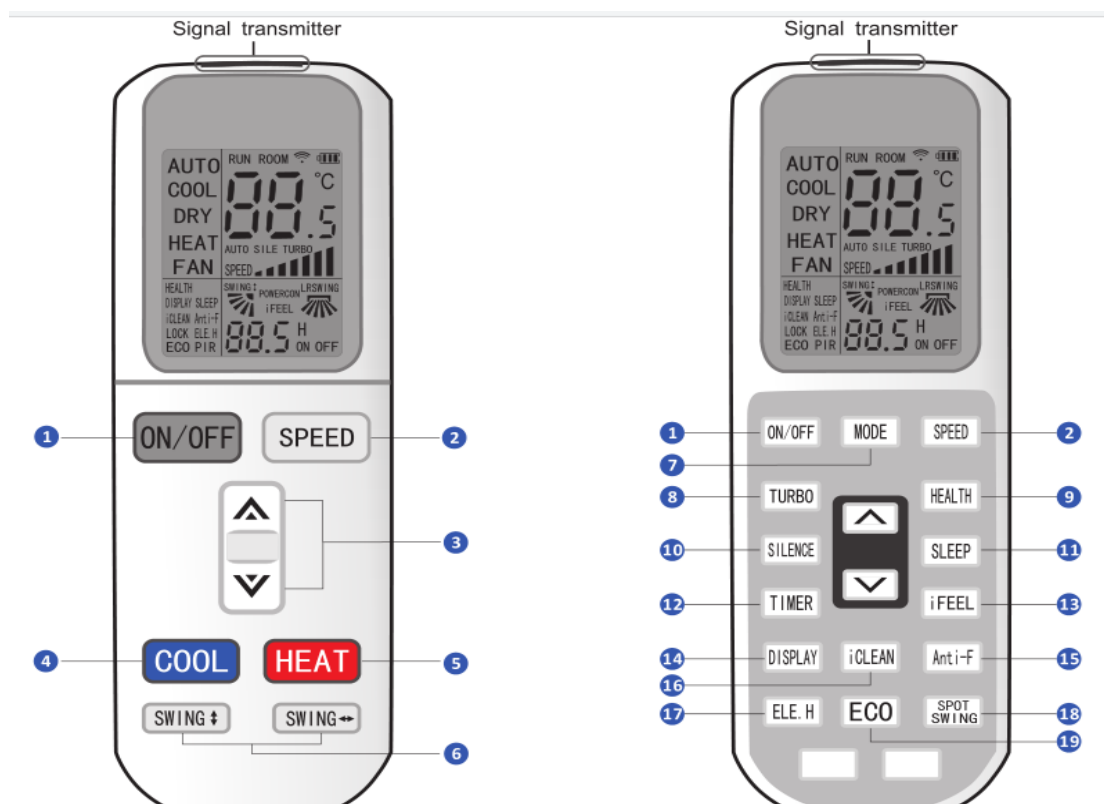
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Part1 Remote controller

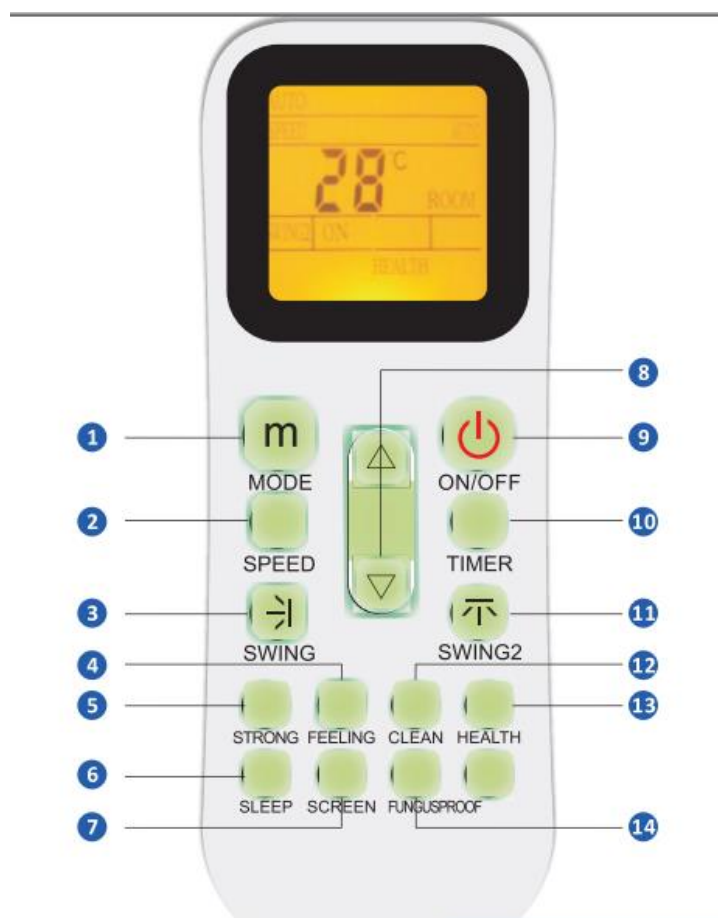
Remote Controller		
		
YK-L	YK-K	YK-T

2.1 YK-L



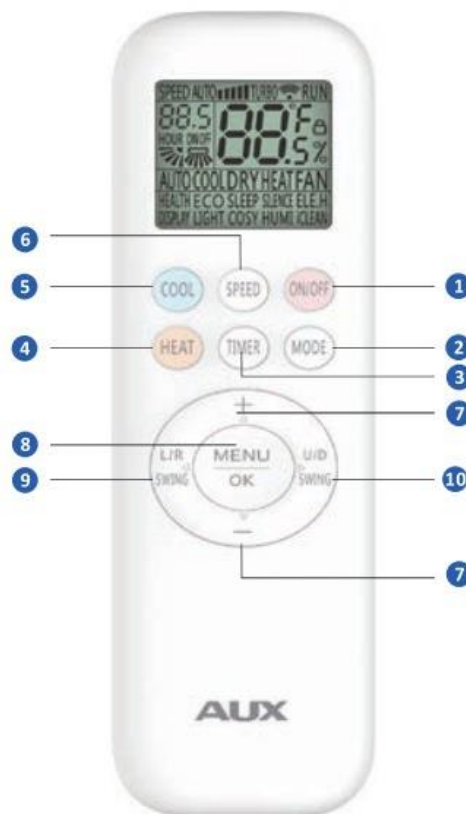
- | | |
|---|--------------------------|
| ① ON / OFF | ⑪ Sleep Function |
| ② Fan speed setting-High/Med/Low/Auto | ⑫ Timer on/off |
| ③ Temperature-Setting/Timer Range Setting | ⑬ I Feel Function |
| ④ Cooling Mode | ⑭ LED Display on/off |
| ⑤ Heating Mode | ⑮ Anti-function Function |
| ⑥ Vertical swing/Horizontal swing | ⑯ Clean Function |
| ⑦ Mode setting-Auto/cool/heat/dry/fan | ⑰ Electric Heating |
| ⑧ Turbo wind | ⑱ Spot swing |
| ⑨ Health Function | ⑲ Economic Function |
| ⑩ Silence Function | |

2.2 YK-K



- | | |
|---------------------------------------|---|
| ① Mode setting-Auto/cool/heat/dry/fan | ⑧ Temperature-setting/Timer Range setting |
| ② Fan speed setting-High/Med/Low/Auto | ⑨ ON/OFF |
| ③ Vertical swing/Timer Range Setting | ⑩ Timer on/off |
| ④ Feeling Function | ⑪ Horizontal swing |
| ⑤ Strong Wind | ⑫ Clean Function |
| ⑥ Sleep Function | ⑬ Health Function |
| ⑦ LED Display on/off | ⑭ Fungus-proof Function |

2.3 YK-T





1 “ON/OFF” button

Press this button, the unit will start or stop, which can clear the timer or sleeping function of last time.

2 “SPEED” button

Press this button, speed will change as below:

Low → Mid → High → Auto



3 “▲ / ▼” button

* When press ▲ button, the setting temperature will be increased by 0.5°C. When press ▼ button, the setting temperature will be decreased by 0.5°C.

* The temperature will be changed quickly by pressing the button continuously and setting temperature range is 16°C to 32°C.

4 “COOL” button

* Press the “COOL” button, you can directly enter cooling mode.

5 “HEAT” button

* Press the “HEAT” button, you can directly enter cooling mode.

* Note: cooling only unit has no heating function.

6 “SWING” button (SWING $\longleftrightarrow$ and SWING $\updownarrow$)

- * Up/down (left/right) setting is only valid in this mode; it will not affect louver position in other modes.
- * Up/down (left/right) swing has memory function, it can keep primary setting when turn off then turn on or switch from other modes to primary mode.

7. “HEALTH” button

- * Press this button; you can turn on or off the health function.

8. “SLEEP” button

- * Press **SLEEP** button, the sleeping indicator light of indoor unit flashes on.
- * The air-conditioner runs in sleeping mode for 10 hours and quit sleep mode, recover back to former mode.
- * The unit will turn off automatically if the timing mode is running out of time.
- * Note: press the MODE or ON/OFF button, the remote controller clears sleeping mode away.

9. “iFEEL” button

- * Press this button to set “iFEEL” function. The LCD shows the actual room temperature when the function set and it shows the setting temperature when the function cancelled.
- * This function is invalid at Fan mode.

10. “DISPLAY” button

- * In display mode, press button once, switch off “DISPLAY”, Press “DISPLAY” again, LCD will show ambient & setting temperature after flashing 5s. It's convenient for users to check ambient or setting temperature at any time in darkness.

11. “iCLEAN” button

- * When remote controller is at the off state, press “iCLEAN” button, the unit runs “iCLEAN” function .
- * The purpose of this function is to clean dust on evaporator and dry the inside water of evaporator and to prevent the evaporator going moldy due to water deposition and boasting strange smell.
- * After setting “iCLEAN” function, press “iCLEAN” button or “ON/OFF “button to quit .

* The clean function will stop working after about 30 minutes running without any operation.

12. “ELE.H” button (for auxiliary electric heating IDU)

In heating mode, press this button, auxiliary electric heating will work.

13. “Anti-FUNGUS” button

* The purpose of this function is to dry the inside of the evaporator and to prevent the evaporator from going mouldy due to water deposition and thus dispersing strange smell.

* To operate the function: under “off” status of the A/C and the remote controller, press “**Anti-FUNGUS**” button for one time, the buzzer keep beeping five times again after five times beep, indicating that this function is ready.

* To cancel the function: 1. under “OFF” status of the A/C and the remote controller, press “**Anti-FUNGUS**” button again.

14. “SPOT SWING” button

* Press this button, the horizontal wind direction vanes can swing automatically, when you have the desired vertical wind direction.

* Press “**SPOT SWING**” again, the horizontal wind direction vanes will be stopped depend on you.

15. “ECO” button

* In cooling mode, press this button, the unit will run “**ECO**” economic operation mode which takes the least power consumption.

* After running for 8h, it will automatically quit. You can press “**ECO**” button once again to quit .

* Note: The unit will turn off automatically if the timing mode is running out of time.

16. Two white button: Addressing set

* With the controller off, pressing the two white button simultaneously more than 10 seconds or more to enter address setting. This status displays only temperature and time parameters, temperature display area shows “Serial number” parameters, the range is 0-99. Time display area shows “Set value”, the range is 0-255. The initial value is 1.

* By pressing “**▲ / ▼**” to set serial number + and -.Parameters within the serial number displays from 0 to 99 in circulation.

By pressing “**ECO**” and “**iCLEAN**” to set value number + and -.Parameters within the value number displays from 0 to 255 in circulation. After setting the two numbers, press the **MODE** button to confirm sending to ODU.

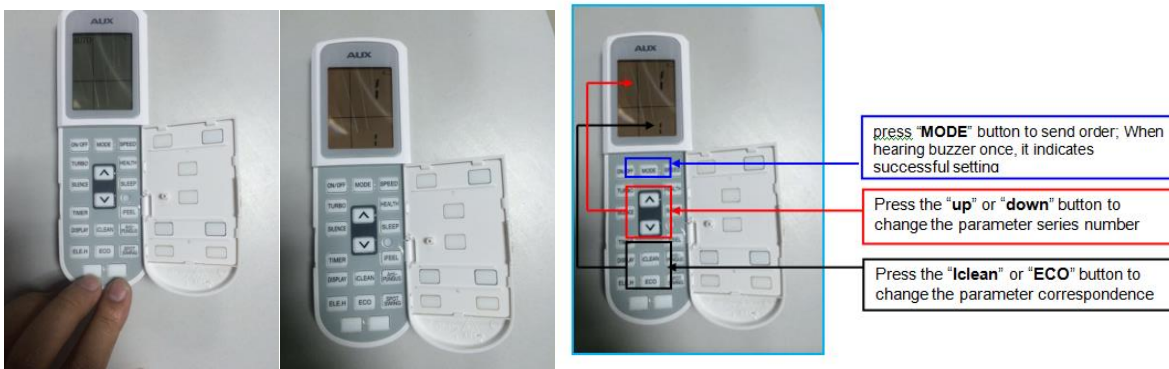
2.4 Parameter Setting by YK-L

Enter the setting interface

- ① Make sure the remote controller is **off**
- ② Press the **two white button** at the down side simultaneously **more than 10s** to enter the address setting mode.

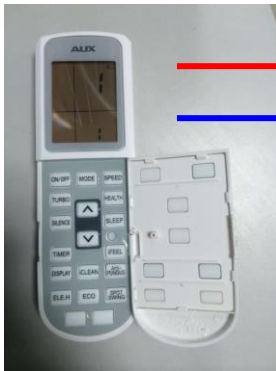
Parameter Setting

- ③ Press the [^] or [v] button to change the parameter series number
- ④ Press the [**iClean**] or [**ECO**] button to change the parameter correspondence
- ⑤ Press the [**MODE**] button to send order (Sent signal to display panels or receivers), Then can hearing buzzer once



For example:

If you changed a new PCB to 18K cassette indoor unit , then you should set the type of the unit , check the above **【Parameter Setting Items table】** --- Mode of IDU is **【04】** , 18K cassette paratmeter is **【37】**

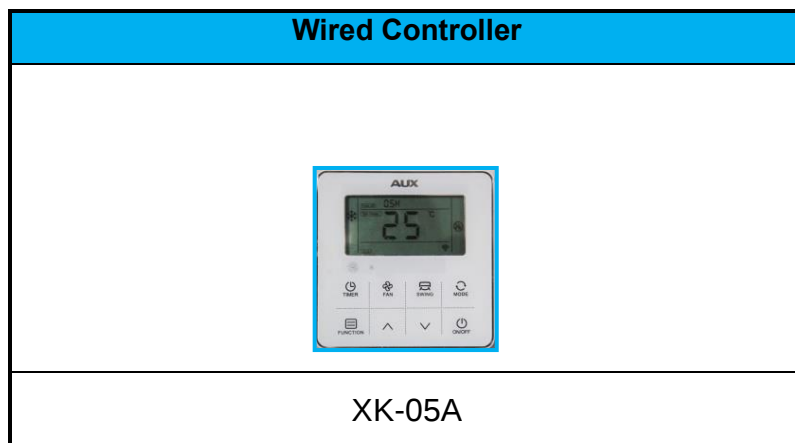


Change to

1041

Change to 【37】, then press 【Mode】 to confirm

Part2 Wired Controller



3.1 XK-05A

Light sensation	
Infrared signal	
Timing button In the state of power-on, you can set shutdown countdown time. In the state of power-off, you can set starting-up countdown time.	
Fan speed button In the state of power-on, press	

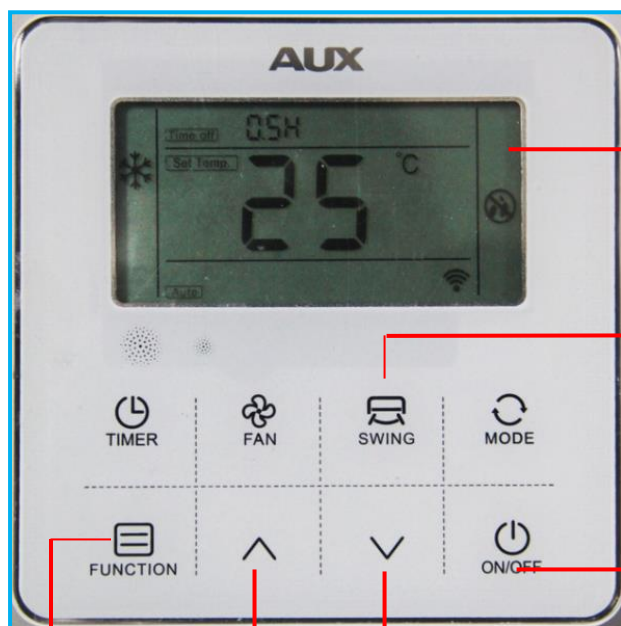
"Fan" button to adjust fan speed	
----------------------------------	--

Main functions

8-keytouch button input;
Buzzer prompt tone function
LCD+ white backlight;
Receive the signal of wireless remote controller;
Ambient temperature detection sensor;
Display the failure of main controller;

Technical indicators

Power voltage range: DC 12V;
Working ambient temperature: **0 ℃~50 ℃**;
Working ambient humidity: RH20%~RH90%;
Button: **Touch** button;
Dimensions(W*H*D):120*120*20mm;



Wire controller display

Swing button

In the state of power-on, you can setup and down swing or left and right swing function (different swing functions

On/Off control

Adjustment [^] [V] button

Increase or decrease the set temperature /humidity;

Long press both [^] [V] button to open the child lock.

Function buttons

Enter/Cancel function menu

Press [^] [V] button to select a desired function,

Press "Function" button to confirm.

Similarly, use the same steps to cancel the function operation

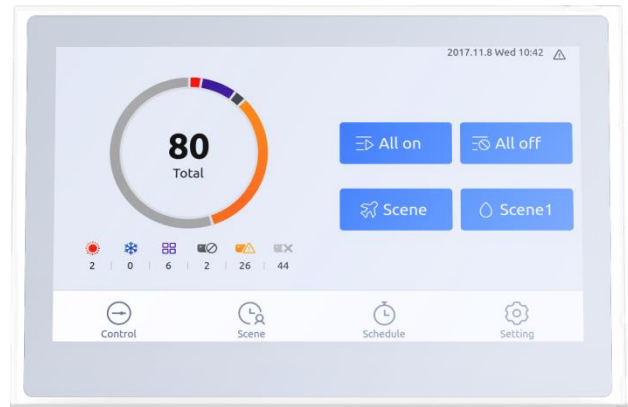
Part3 Centralized Controller

Centralized controller system		
		
CC-02	Old Adapter	MINI adapter

Type	Model	Function Description
Remote controller	YK-K	1. General wireless remote controller 2. None address setting function
	YK-L	1. Background light. 2. Indoor unit's IP address setting function.
Wired controller	XK-05A	1. Touch screw wired controller 2. Indoor unit's IP address setting function. 3. Control Max. 16 indoor units.
Centralized controller	CC-02	1. Touch screw 2. Control Max. 256 indoor units. 3. Control Max. 64 systems
Centralized controller Adapter	DCZ-ZJB-SYE2	1. Centralized controller Adapter 2. Each system should be connected a Adapter
Centralized Control Software	/	1. Control Max. 1024 indoor units. 2. Control 64 systems.
Centralized Control Software Adapter	USB to RS485	1. Accessories equipment of centralized controller software.
BMS system	MODBUS	1. Each system connect with a MODBUS gateway 2. Control Max. 64 systems
	BACNET	1. 4 systems connect with a BACNET gateway

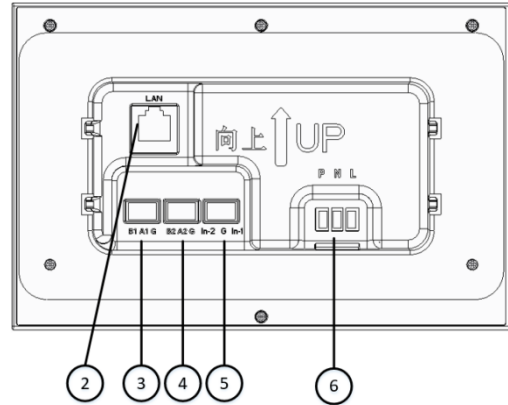
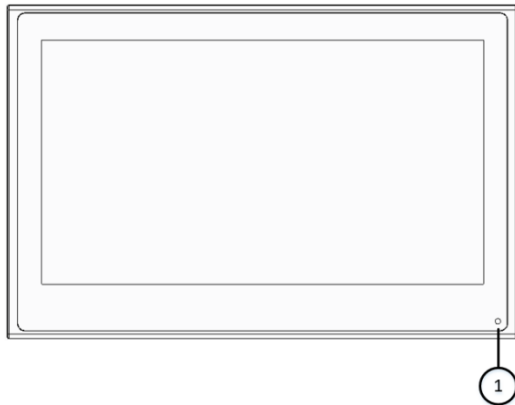
Wireless Network Control	WIFI	1. Each system connect with a WIFI module 2. Control all indoor units in the system
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4.1 Touch controller CC-02



Dimension: Front 177*116*12.5mm; behind: 120*60*26mm

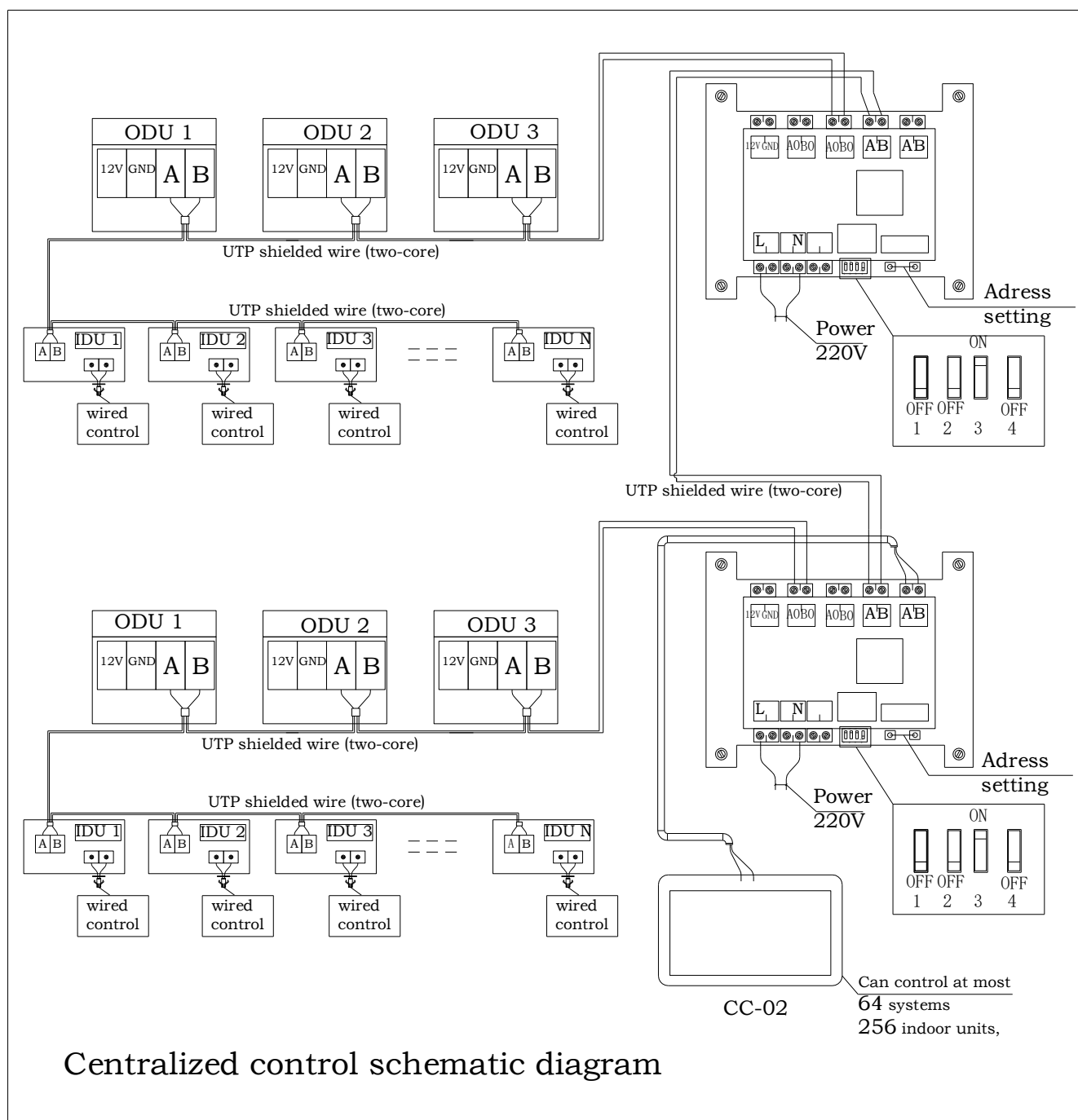
4.1.1 Interface specification



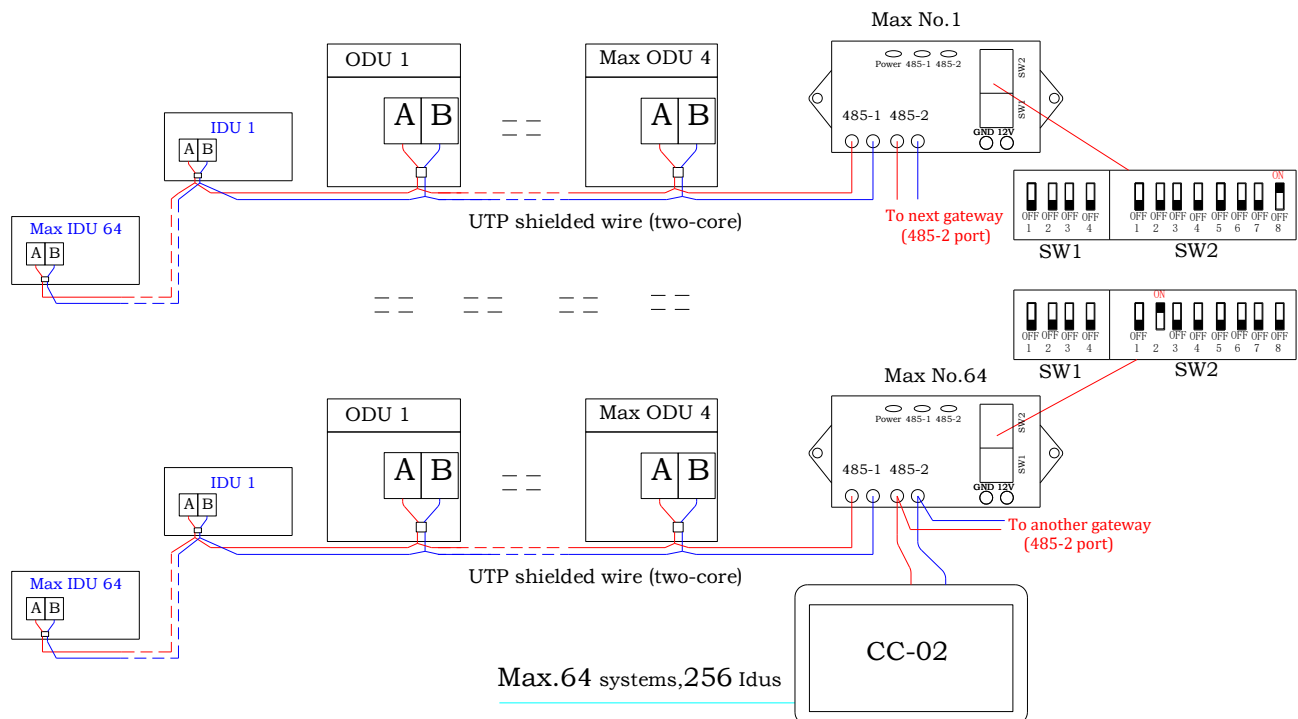
- ① Indicator light
- ② RJ45 WAN
- ③ RS485 interface 1: B1- signal line negative pole; A1- signal line positive pole; G- signal ground wire
- ④ RS485 interface 2: B2- signal line positive pole; A2- signal line positive pole; G- signal ground wire
- ⑤ 2 Way DI fire input interface: IN-1- input port; IN-2- input port; G- signal ground wire

⑥ AC~220V power input: L- FireWire; N- zero line; P- protection ground wire

4.1.2 Wiring Diagram

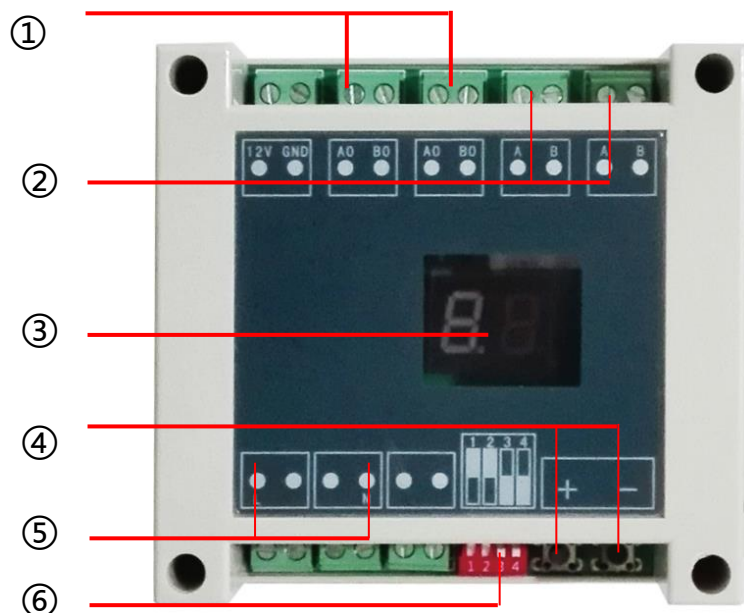


4.1.3 Wiring Diagram(MINI adapter)



4.1.4 Centralized Controller Adapter

Centralized controller Adapter is used with centralized controller together.



1. To VRF system communication terminal "A.B" (2 core wire)
2. To next Gateway and or To Centralized controller (2 core wire)
3. Display slave address "01" means the first system. "02" means the second system...
4. Setting **MODBUS-RTU** Slave Address
 - 4.1 Press "+" or "-" to activate the slave address setting functions;
 - 4.2 Press "+" and "-" at the same time for 5 seconds, then the Digital Display will be Flashing every second;
 - 4.3 Press "+" to add the Slave Address, Press "-" to decrease the Slave address;
 - 4.4 After Setting Address finish, wait 5 seconds, then the Digital Display will stop Flashing and display the Slave Address.
5. POWER L/N 220V~

6. Dip-switch setting:

ARV4,ARV5,ARV6, All DC type Min ARV	OFF/OFF/ON/OFF
Others	OFF/OFF/OFF/OFF

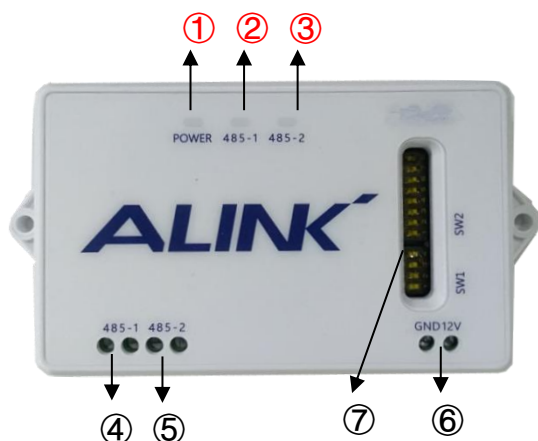
※ Indoor units' centralized ID address of all systems no need to set

7. error code :

A0: the communication failure between adapter and VRF system;

AA: the communication failure between adapter and centralized controller

4.1.4 Centralized Controller MINI Adapter

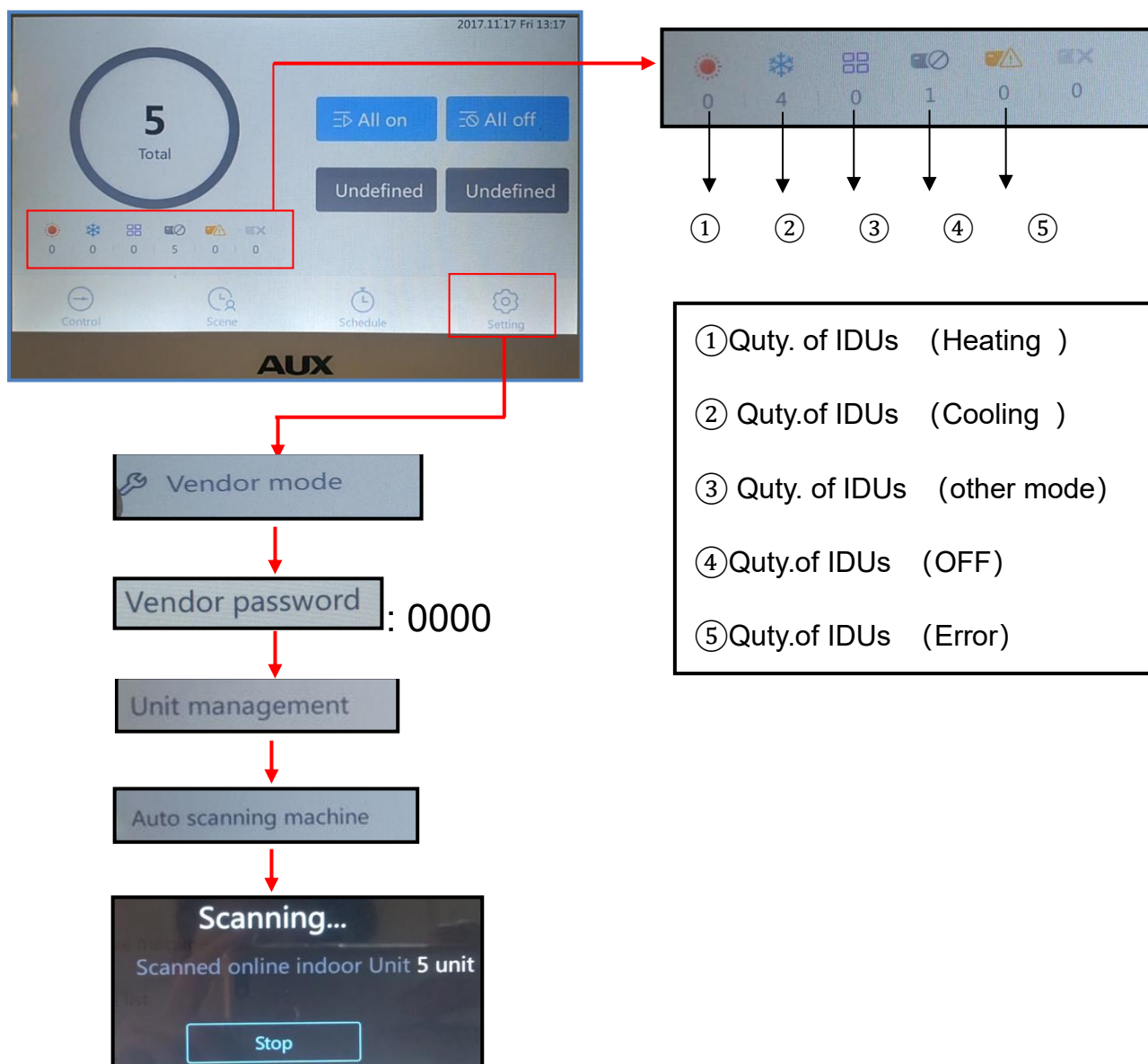


- ① . Pilot lamp power ② . Pilot lamp 485-1 ③ . Pilot lamp 485- 2
- ④ . Signal to AC ⑤ . Signal to BMS/Central controller
- ⑥ . DC 12V power supply (local market) ⑦ . IP address setting

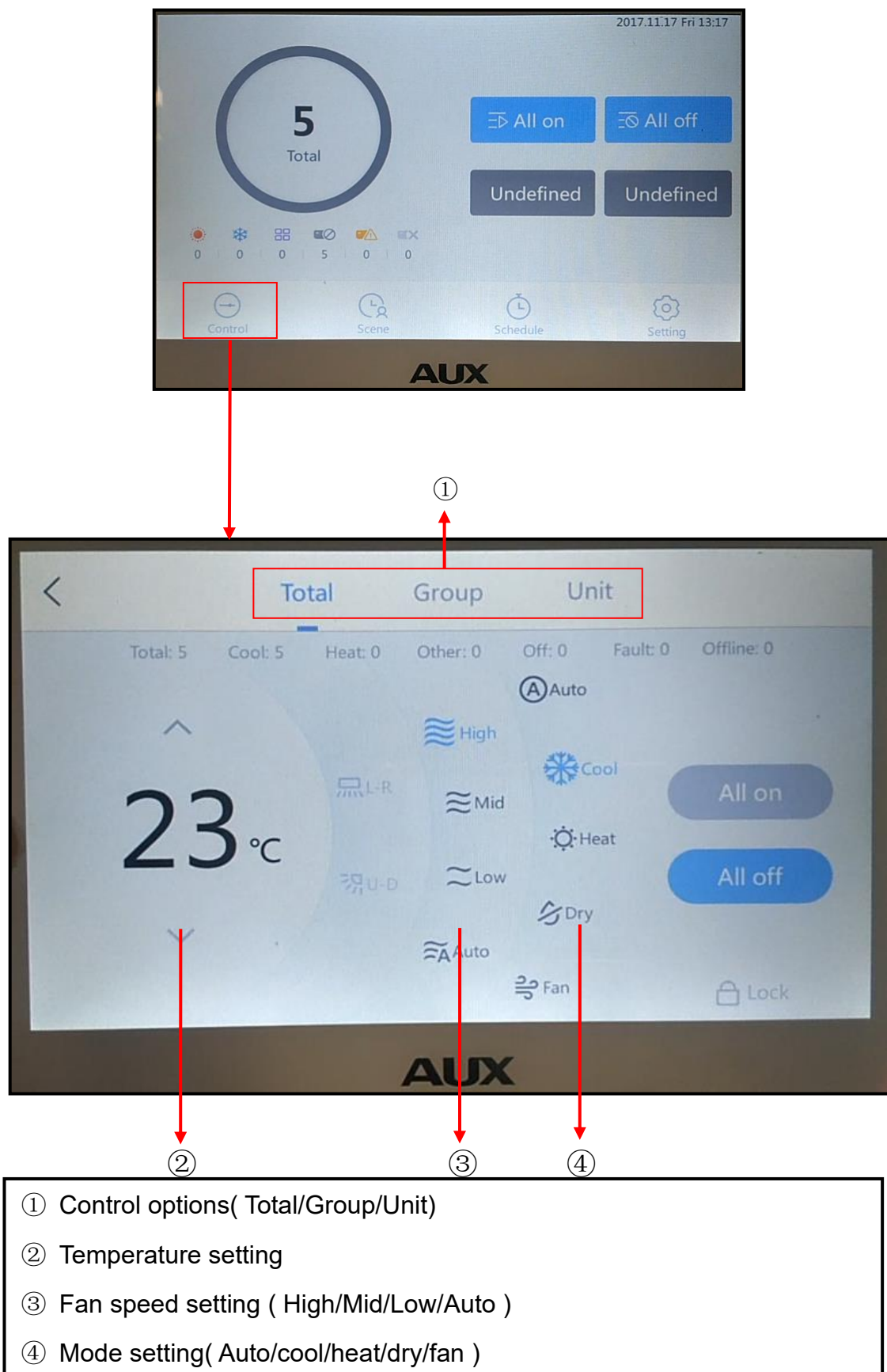
4.1.5 Centralized Controller function

AUX touch screen centralized controller is a multifunctional device that can control up to **256 indoor units / 64 systems** within a maximum connection length of **1200meters**. Users could enjoy the flexibility of either controlling multiple units as a **group** or controlling **each** unit individually.

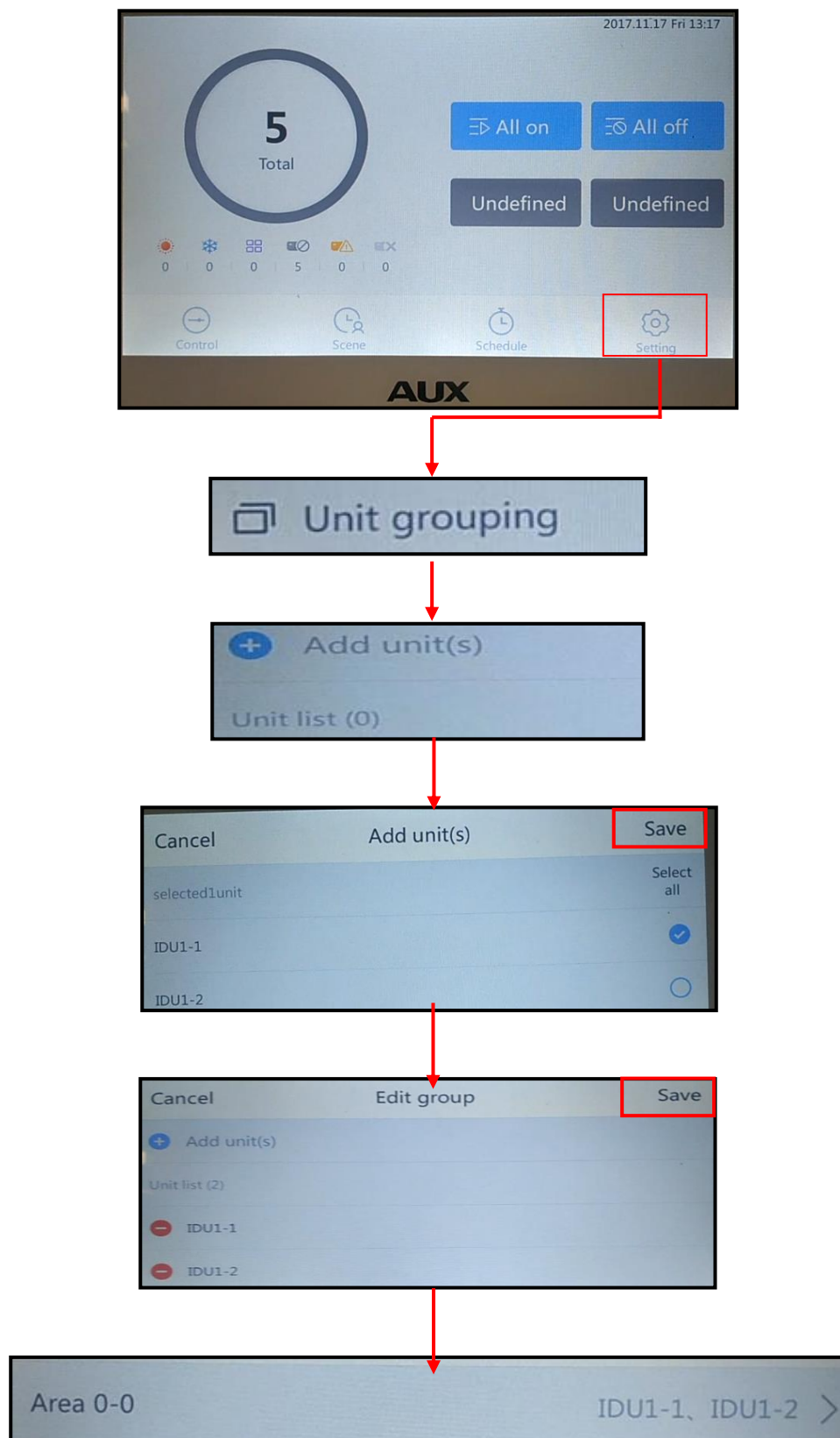
4.1.5.1 Auto scanning indoor units



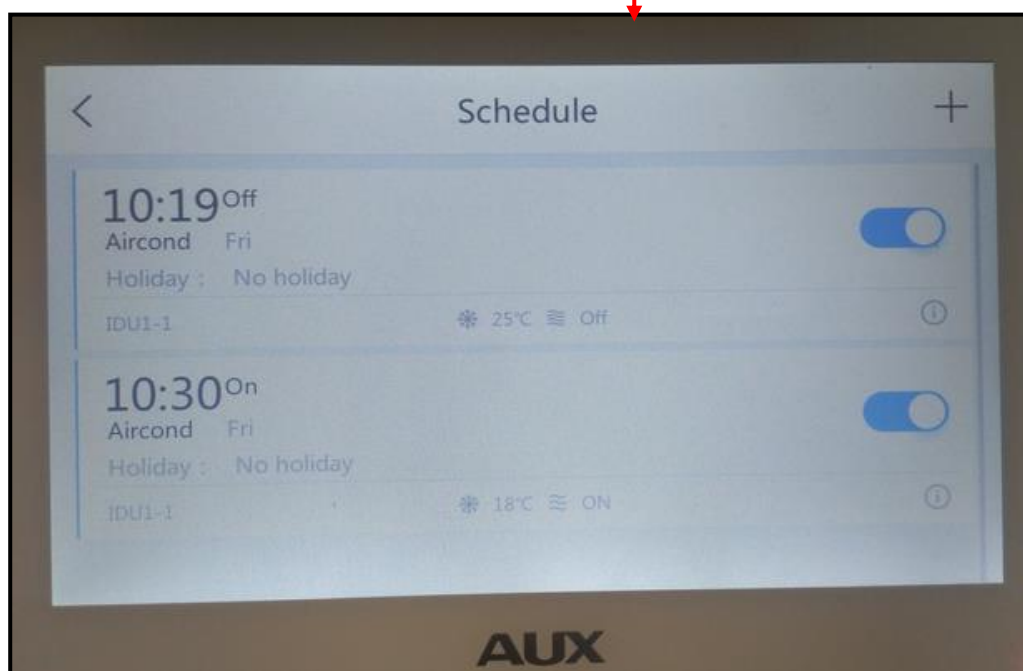
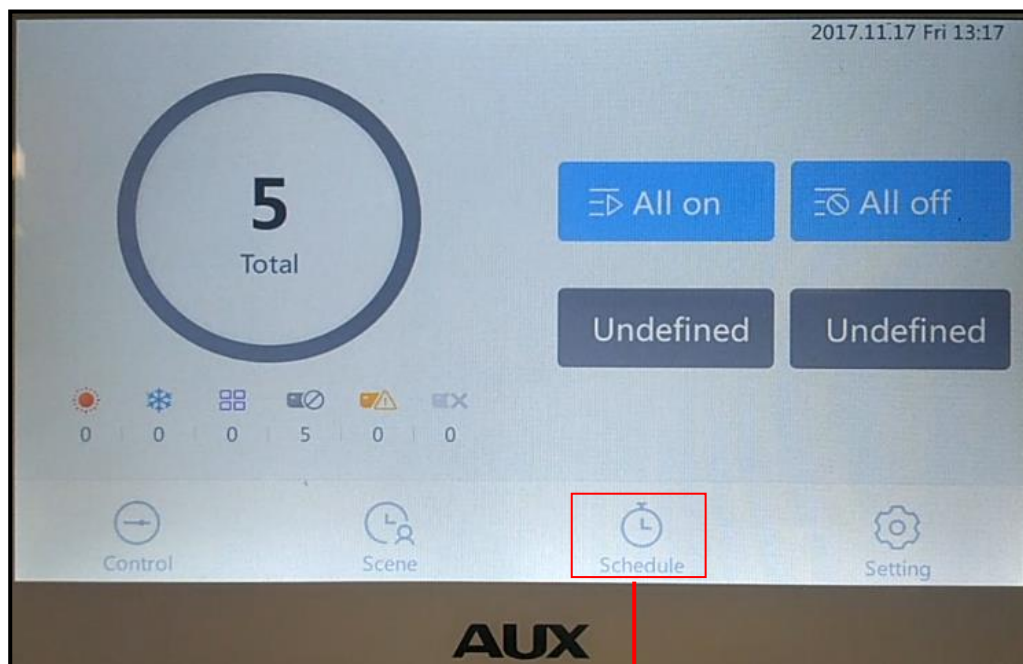
4. 1.5.2 Indoor units operation



4. 1.5.3 Grouping / region setting



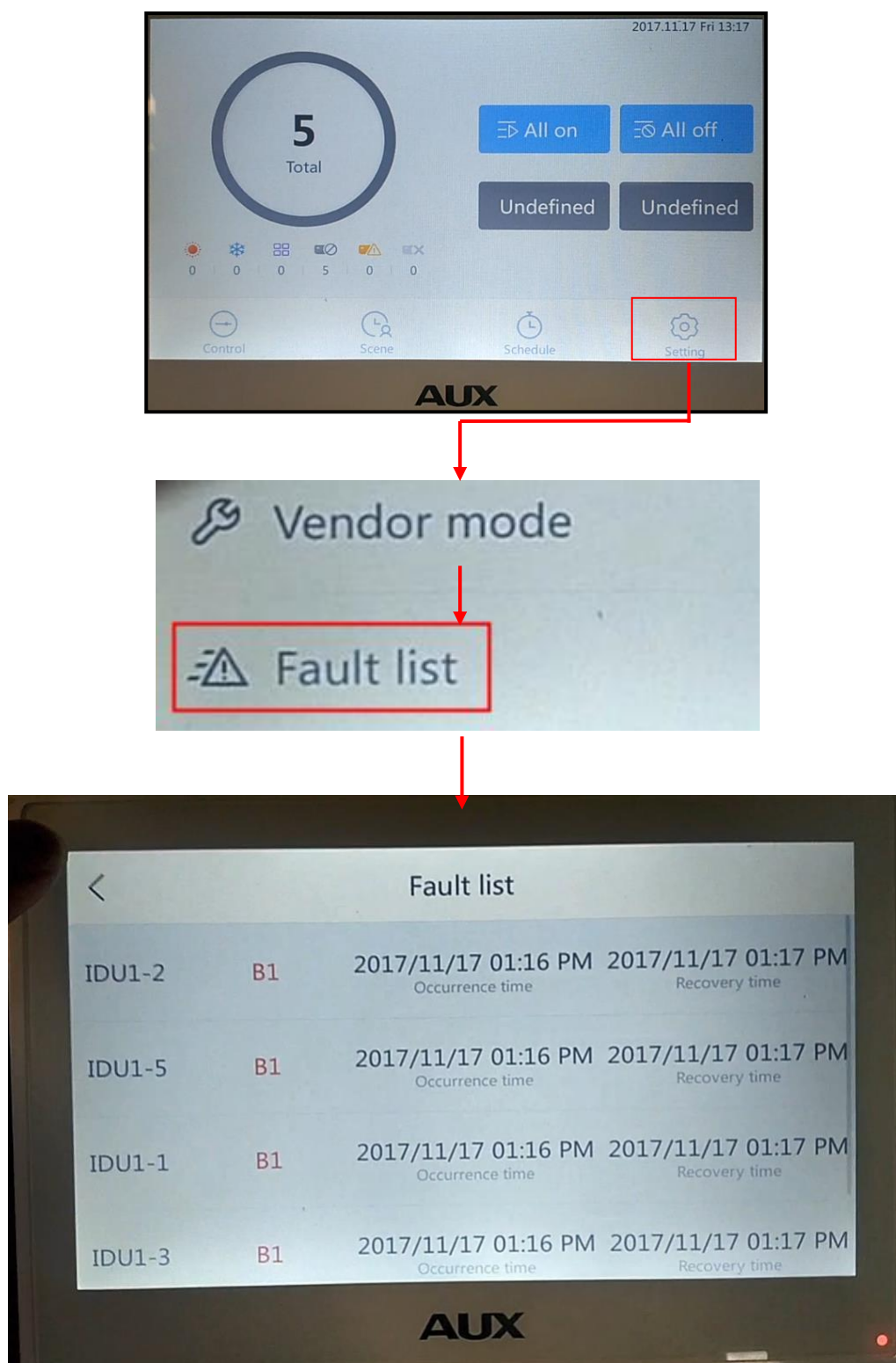
4. 1.5.4 Weekly Schedule Control



4. 1.5.5 Multiple Lock function

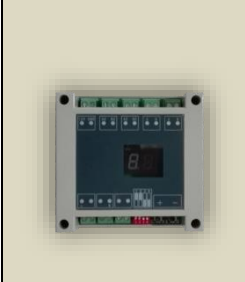


4. 1.5.6 Setting / Fault list

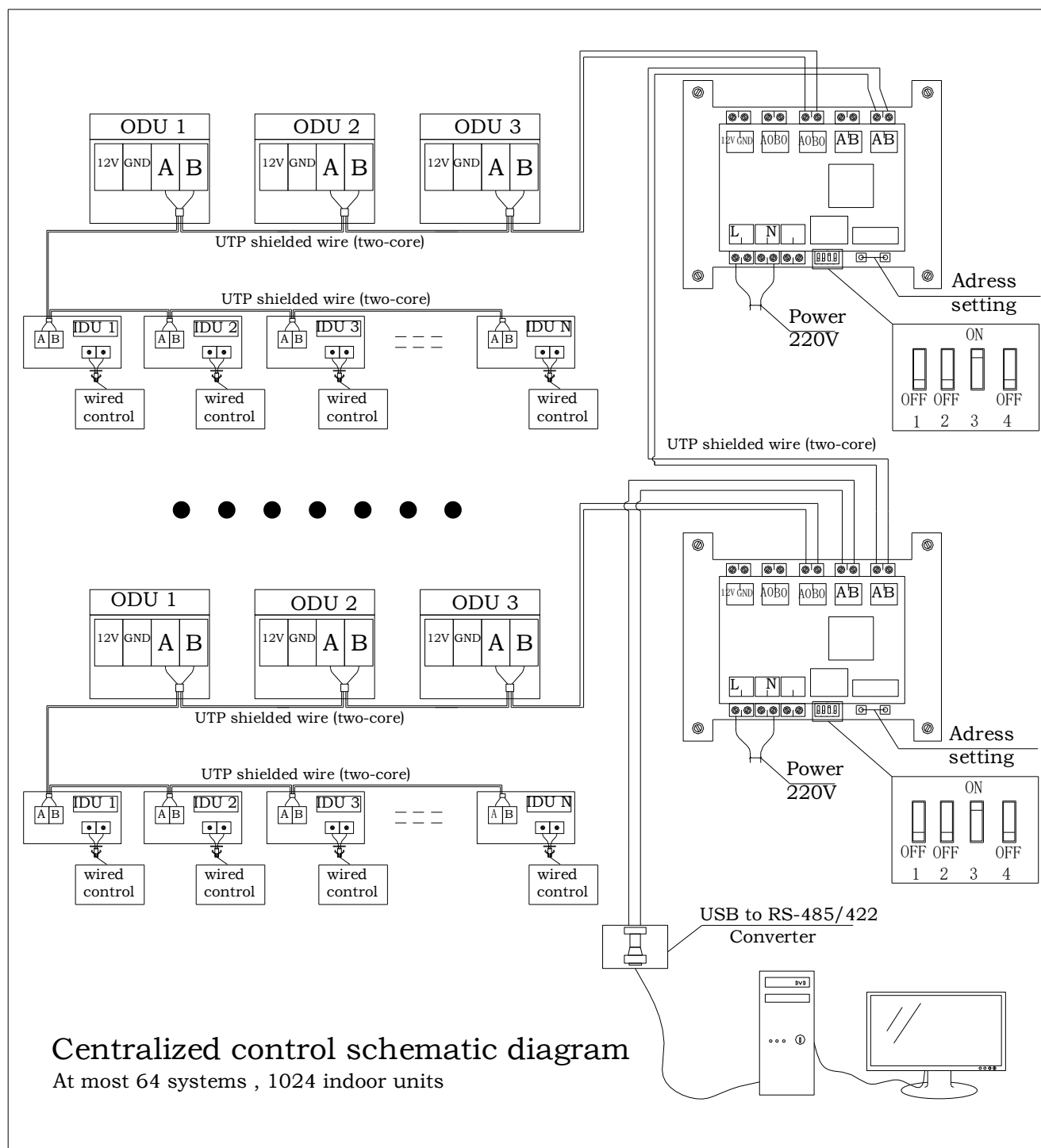


CC02 can record indoor units error code information and list these error codes on the Fault list ,there is not any time or quantity limitation

Part4 Centralized Control Software

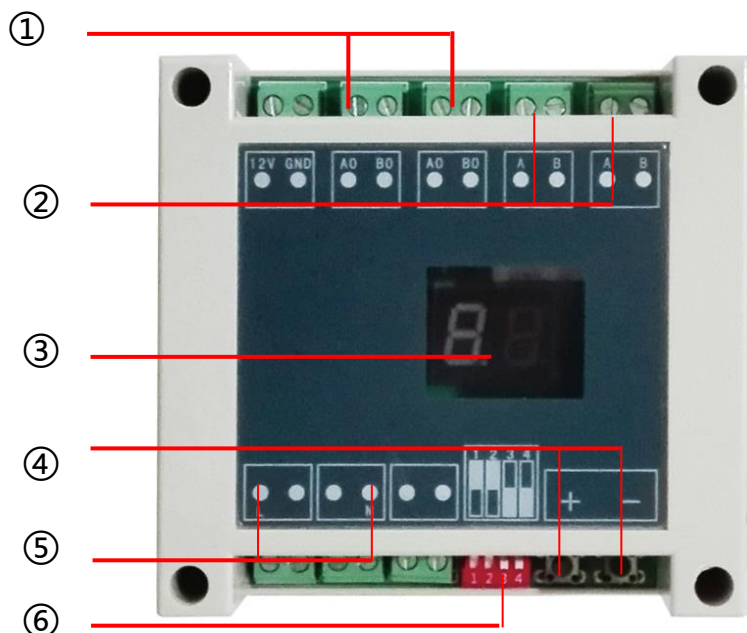
Centralized control software system				
				
RS-232 to RS485	RS-485/422 Repeater	Old Adapter	USB to RS485	software

5.1 System overview



5.2 Centralized Control Adapter

Centralized controller Adapter is used with centralized controller together.



② To VRF system communication terminal "A.B" (2 core wire)

② To next **adapter** or Centralized controller (2 core wire)

③ Display slave address "01" means the first system. "02" means the second system...

④ Setting MODBUS-RTU Slave Address

1. Press "+" or "-" to activate the slave address setting functions;
2. Press "+" and "-" at the same time for 5 seconds, then the Digital Display will be Flashing every second;
3. Press "+" to add the Slave Address, Press "-" to decrease the Slave address;
4. After Setting Address finish, wait 5 seconds, then the Digital Display will stop Flashing and display the Slave Address.

⑤ POWER L/N 220V~

⑥ Dip-switch setting:

ARV4, ARV5, ARV6, All DC type Min ARV	OFF/OFF/ON/OFF
Others	OFF/OFF/OFF/OFF

⑦ error code :

A0: the communication failure between adapter and VRF system;

AA: the communication failure between adapter and centralized control software

5.3 Features

Users do not need to arrive the harsh environment of the site, they can **monitor** the function of units **just through computer**. These greatly improve convenience of **daily management** and the efficiency of **central** air conditioners;

Centralized control can **improve** the **efficiency** of air conditioners. It is more **energy-efficient** and environmental

Timely find the fault and save the maintenance cost of air conditioner units, **minimize losses**

Timer function with multi-period week, fully **automated schedule** planning of unit;

This system is suitable for **all DC inverter ARV** types of AUX;

This **system** can access at most **64** ARV outdoor systems, it need to access **repeater** to increase **RS485** network equipment if the outdoor systems are **more** than 64. The way of wiring is instructed in Engineering installation and wiring description;

Every ARV unit need to **configured** a **communication adapter** plate;

If PC has **RS-485 interface**, there is no need to configuration **RS-232 to RS-485/422** Optically isolator.

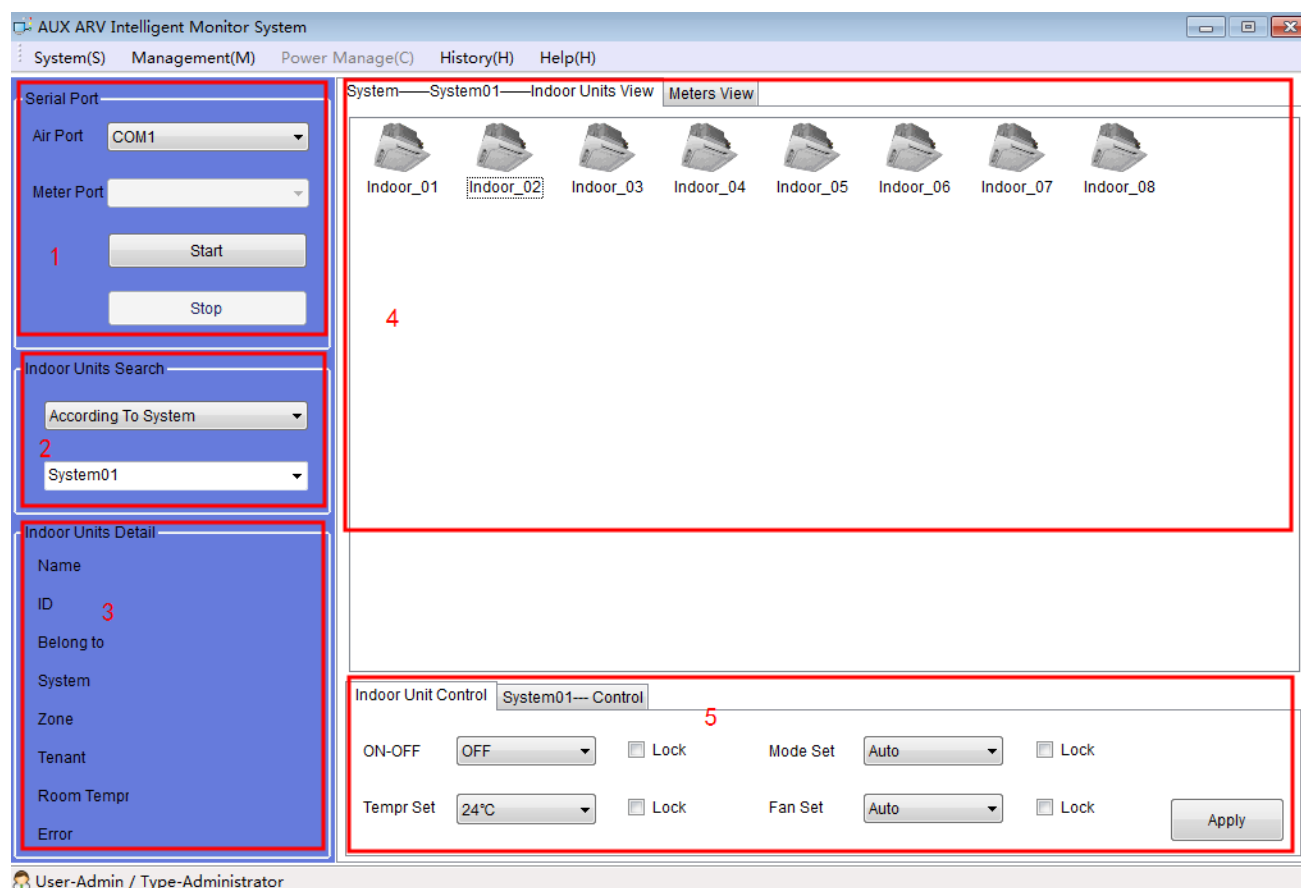
5.4 Main components of Centralized Controller System

NO.	Main Components	Requirement & Function
1	Host computer 	Operation system: Windows XP SP32 and above, Windows 7
2	Adapter plate 	Computer and communication protocol and unit end communication protocol are incompatible with each other, must add communication adapter plate to <i>make both communicate</i> . Each ARV system matches 1 adapter plate.
3	RS-232 to RS-485/422 	The centralized control system RS485 network signal conversion for RS232 serial signal to achieve the <i>interconnection of computers</i> with centralized control system.
4	USB to RS-485/422 	The centralized control system RS485 network signal conversion for USB to achieve the interconnection of laptops with centralized control system.
5	RS-485/422 Repeater 	<i>Extend the communication distance and increase the number</i> of RS-485 bus network. The repeater is not required, only when there is more than 30 systems or communication distance is more than 800 meters.

5.5 Software install and uninstall

1. Run setup exe in CD to **install**;
2. If operation system has not installed Windows Install 3.1 and Windows .NET Framework 3.5, the installation program will install the two program first; when programs installation is completed, system installation will be continue, the default installation path is D:\Program Files\Aux Group\AUX_ARV_Setup
3. **uninstall**: select [Control Panel- Add or Remove Programs - AUX_ARV_Setup], click "Cancel" to uninstall.

5.6 Software introduction Main interface



Area 1--Serial *setting* area, choose the serial and press “Start Working” button, system will in operation, press “Stop Working” button, system will stop working;

Area 2--The *inquire* area for air conditioner unit, it can be divided into the system inquire and user-defined group inquire, the inquired unit will be displayed in area 4.

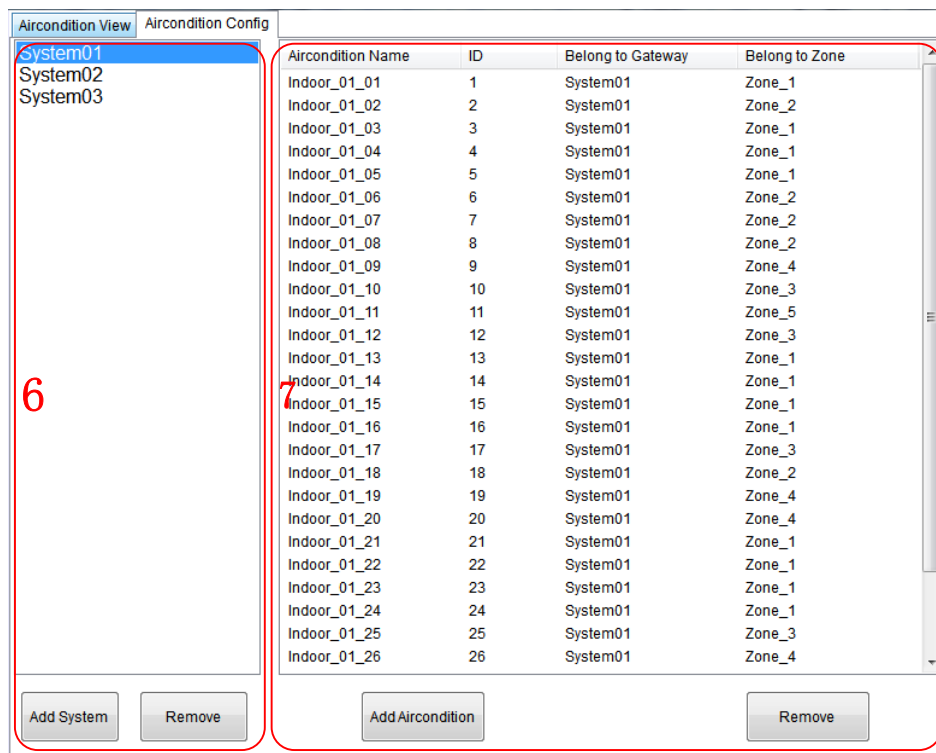
Area 3--Display area of single air conditioner *indoor unit*, select one of indoor units in area 4, then the area will display the name, ID (address of indoor unit), system belonged, group belonged, current condition, the room temperature of indoor unit, failure etc.

Area 4--Display area of air conditioner *group*, as shown in above picture, it displayed all the indoor unit in the group System01.

Area 5--Control area of air conditioner, it can control one single air conditioner and some air conditioner group, this will be described in detail later.

5.7 System initial setting

Click “**Air condition Config**” in area 4, it will enter the interface of system initial setting. Initial setting is divided into 3 parts: added/removed outdoor unit system, added/modified/removed air conditioner, add/changed user-defined group.



Added/removed outdoor unit system

Area 6 shown in the **figure** above is the operation area of added/removed outdoor unit system. The **quantity** of outdoor unit system of the whole project must match with the added one in figure 6, and the centralized control **address** (the address displayed on communication adapter plate)of every system must correspond with the system serial number.

Note:

If the outdoor unit system deleted, the indoor unit belonged in it will also be delete! Please handle with care.

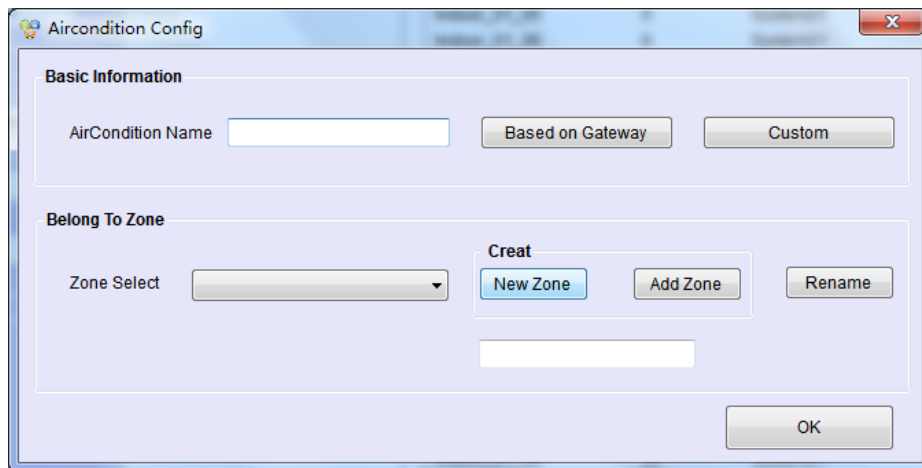
Added/deleted indoor unit

Area 7 shown in the figure above is the operation area of added/deleted indoor unit. Before added, user need to select one option in area 6 shows that he would add indoor unit

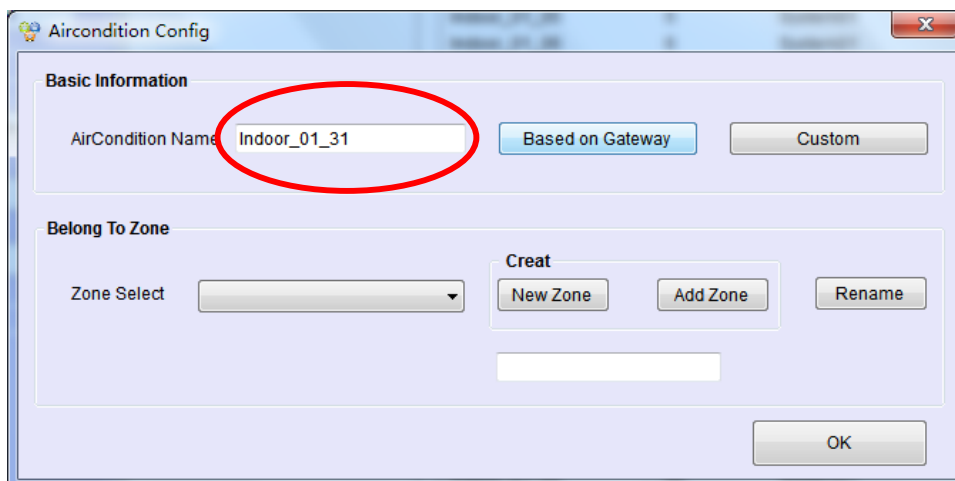
in that outdoor system(the added quantity of indoor unit system must match with the actual quantity in the outdoor system).

5.8 Concrete operation

Click "**Add air condition**" button, the following dialog box will pop up

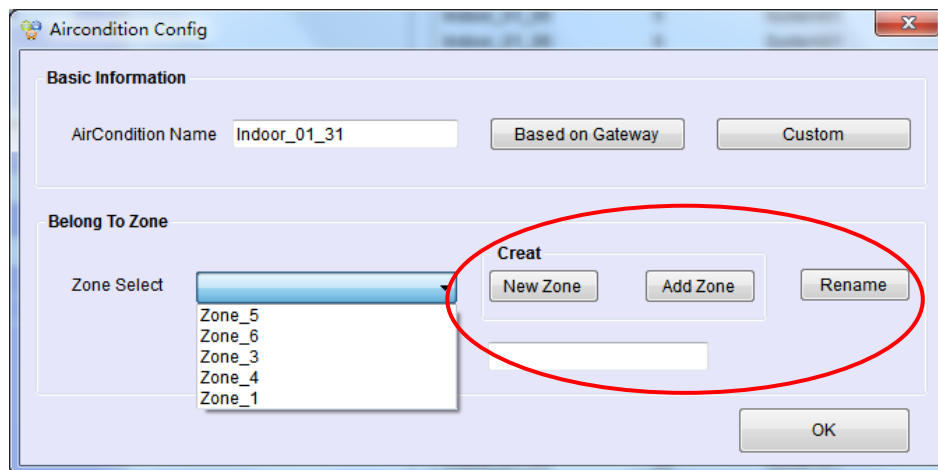


Click Based On Gateway button, there will **generate** a **name** (the red circle part in the figure below) according to indoor unit address and the system it belongs; click Custom button, user need to set a name by himself.



Then is to **choose** the **group** the air conditioners belong. User can choose a group defined by himself in Area Select. If there has not user-defined group, user can establish a user-defined group in Create nodule, detail explanation in Added/changed user-defined group. Click "**OK**" to complete new group addition after the completion of the new group added.

5.9 Added/changed user-defined group



The red circle part in the figure above is the added and changed operation area.

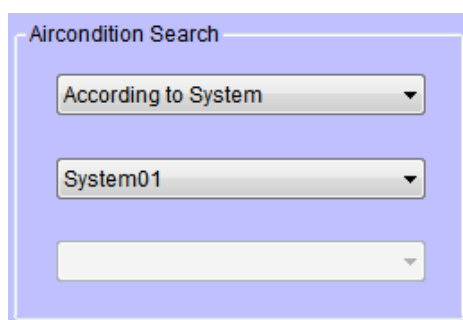
If user need to **add new group**, first, click New Zone button and input the name of user-defined group, then click Add Zone button, here will show the name inputted just now , establishment complete;

If user need to **modify the name of group**, select the group in Zone Select , input the new name, then click the Rename button, modification complete when the new name show in Zone Select

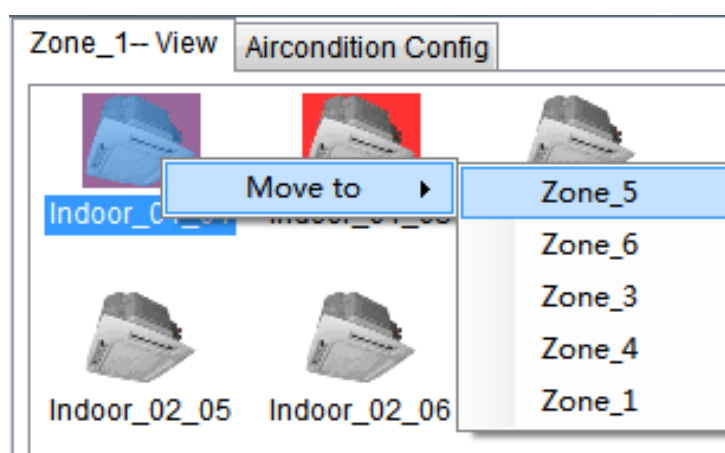
Note: Group deletion does not support now, be **careful** when **adding**.

5.10 System query operation

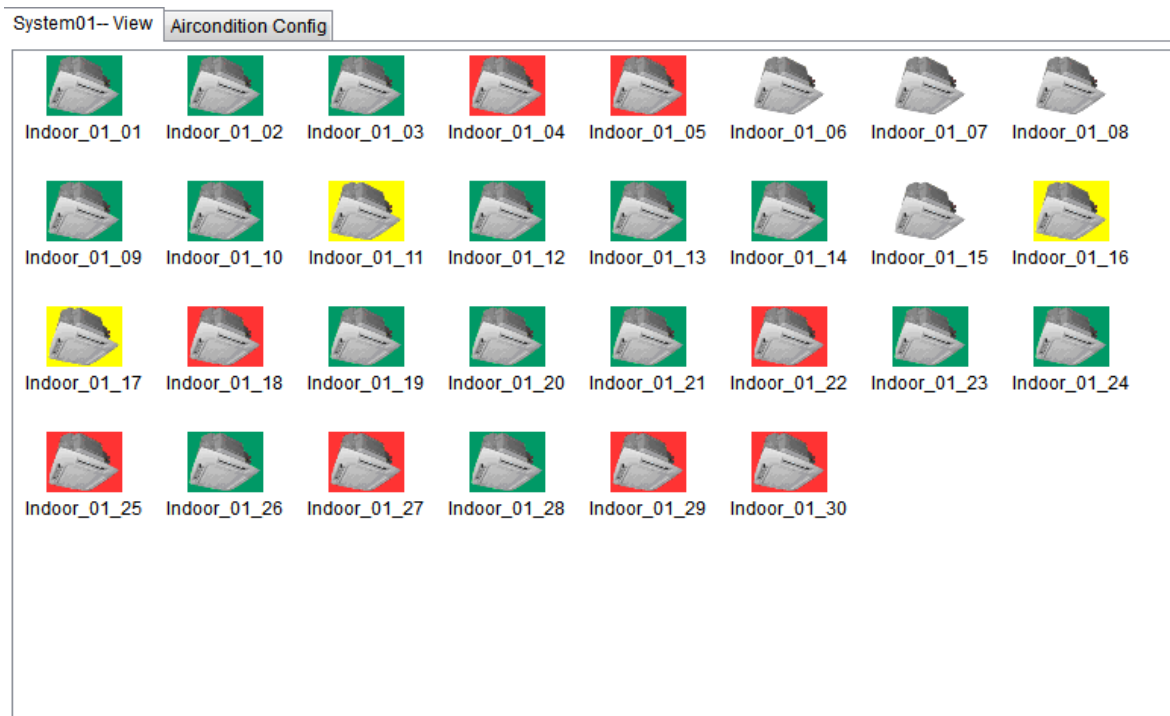
System query operation includes system query and user-defined group query. Query ways can be chosen as the figure below:



- ◇ If the chosen group is in According to System, then all the unit condition of the group will be displayed in area 4(area 4 will display the condition of all the indoor unit in System01 as the above picture shows).
- ◇ If user chooses one of the group in According to Zone, area 4 will display the condition of all the units in it. In addition, user can move the indoor unit to other groups arbitrarily under the state of user-defined group query, its operation as follow figure:



When system is working(click Start Working in area 1), area 4 will display all the working condition if Indoor unit, as shown in the following figure



- ◇ No background is turned *off*;
- ◇ *Green* background is turned *on*;
- ◇ *Red* background is system *failure*;
- ◇ *Yellow* background is *communication failure* or *electrical failure*.

5.11 System control operation

System control can be divided into single unit control; group control and weekly group timing control 3 parts. Single unit control achieves the controlling of one indoor unit; group control achieves the controlling of System group and Zone group; weekly group timing control achieves the weekly timing control of Zone group (user-defined group).

1) Single unit control

Besides on/off, **temperature** setting, **mode** setting, **indoor speed** setting, single unit control **added** the **lock** function (lock the 4 function above). If one function is locked, user cannot use it. For example, if ON/OFF is lock(choose Lock in ON/OFF), user cannot turn on/off the locked unit by remote or wired controller.

Indoor unit will executive command when click Apply after setting completed.

2) Group control

Group control achieves the unified control of one group, setting interface is shown as following figure:

Besides the **general control** and **locking control** of single unit control, group control is added the Active function. The matching state of indoor unit will change only when choose Apply function, unselected ones stay unchanged. For example, choose ON and Active, all the indoor units will be turned on, but the temperature, mode, speed will not be changed like the setting of group.

Indoor unit will executive command when click Apply after setting completed.

3) Weekly group timing control

Weekly group time control is one of the control function in **user-defined Zone**, system group has no this function, setting can be chosen only when the user-defined **region** is **selected** in **query**. Shown as figure below:

The screenshot shows a control interface for 'Aircondition Control' under the 'Zone_1-Control' tab. It includes several settings: 'ON/OFF' is set to 'OFF', 'Temp Set' is '24°C', 'Work Mode' is 'Auto', and 'Indoor Fan Set' is 'Auto'. There are checkboxes for 'Lock' and 'Active' for both the main settings and the 'Week Plan' option, which is currently checked. An 'Apply' button is located at the bottom right of the dialog.

Then setting dialog box will pop out when Week Plan is selected, shown as figure below, after **completion** of set, click the "OK" button to finish the setting.

The screenshot shows the 'Week Plan' dialog box with two tabs: 'Week Plan 1' and 'Week Plan 2'. It contains three sections for time ranges: 'First Range' (01:00 to 02:00), 'Second Range' (03:00 to 04:00), and 'Third Range' (05:00 to 06:00). Each range has settings for 'Indoor Temp' (24°C), 'Indoor Fan' (Auto), and 'Indoor Mode' (Auto). There are 'Apply' checkboxes for each range. At the bottom, days of the week are selected: Monday, Tuesday, Wednesday, and Thursday. An 'OK' button is at the bottom right. A note at the bottom reads: 'Note: Fst Start Time>Fst Stop Time>Snd Start Time>Snd Stop Time>Third Start Time>Third Stop Time'.

Notes:

1. All the related intellectual property rights as System patent right, software copyright etc. ownership belongs to Ningbo AUX Electrical Company Ltd. Any unit or individual shall not copy, assignment, transact or use related production in other ways without permission. Otherwise Ningbo AUX Electrical Company Ltd. will have the right to pursue legal responsibilities.
2. If system is damaged by suffering a natural force majeure (such as earthquake fire typhoon, etc.), all losses should be responsible for system investors.
3. The user should use legal copy of Windows XP or Windows 7 and other legal copy of related software and antivirus software, make sure the computer is virus free and the Computer Independent Connecting Billing System is unaffected by other network or external port (**USB port etc.**), otherwise it is the users' responsibilities if there is any lost or

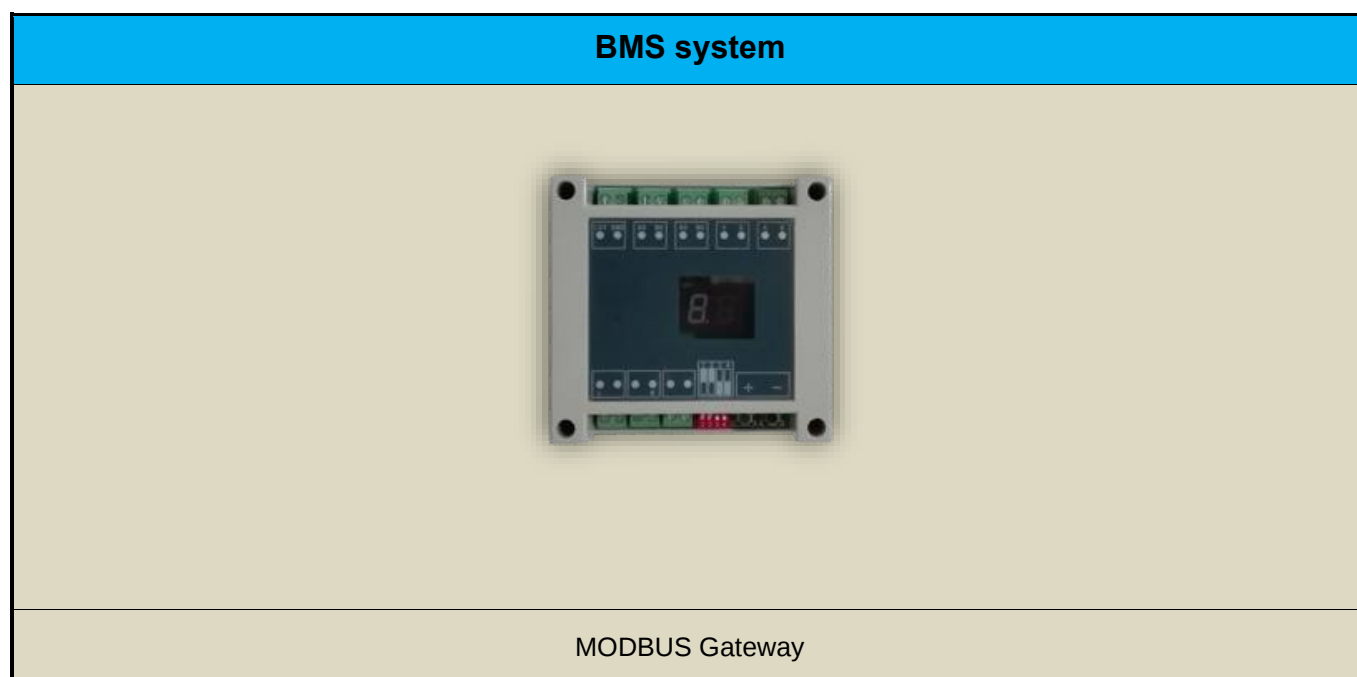
damage.

3. The user should use authorized **computers** along with **UPS**, the UPS should use the standard that it can keep the computer working for at least one hour if the power is suddenly cut off, and during this one hour the administrator would take care of the computer. It is users' responsibilities if any accident or **data loss** happened because of a **sudden power failure**.

4. The user must make sure that the Photoelectric isolating **converter** is placed in a **safe place** that the converter is not easily damaged by people, make sure the wiring terminal is not loose leading to poor contact, and make sure the power is NOT easily cut off, otherwise it is the users' responsibilities if there is any lost or damage.

5. To make sure the system work for a long time, the user should **regularly check** and **repair** it, **reboot** the **computer** at a fixed time **every day**, so that the computer could run in a good environment, ensure the reliability of the system, release the computer resource. Here is what users should do, **first stop** the communications of **Billing System**, then **exit** it, **reboot** the computer, open the software after the computer is **rebooted**.

Part5 BMS-MODBUS Protocol



6.1 MODBUS-RTU Parameter

6.1.1 Configuration: Provided to the BMS management

MODBUS STYTLE	MODBUS-RTU	AUX ARV MODBUS-RTU ProtocolV1.3  AUX ARV MODBUS-RTU Protoc
Baudrate	9600	
Data-Bit	8	
Stop-Bit	1	
Check	even	
Slave-ID range	1~64	
MODBUS CODE	01,02,03,04,05,06	
SUPPORT Broadcast	NO	

6.1.2 Input Register: There are 14 parameters of each indoor unit can be monitored

Input Register Address	Content	Types	Notes
0	1# Indoor State	signed word	0-OFF / 1-ON / 2-Not Exist or Not Found

1	1# Indoor Type	signed word	Indoor Type (0,1,4,5,8,9,10,14,11,15,18,19-Cassette) (2,6,20,21-ESP Duct) (3,7,13,17-Ceiling & Floor) (12,16-Wall-Mounted) (22-Fresh Air Unit)
2	1# Indoor HP	signed word	Indoor Unit HP
3	1# Indoor Energy	signed word	Indoor Unit Energy
4	1# Indoor Mode	signed word	Control Mode(0-Auto/ 1-Cool/ 2-Dehumi/ 3-Healthy dehumi / 4-Heat / 5-Dry / 6-Flow)
5	1# Temperature Set	signed word	16~32℃
6	1# Indoor Fan Speed	signed word	Fan Speed(0-Stop/ 1-High/ 2-Medium/ 3-Low)
7	1# Indoor Error Code	signed word	Error Code
8	1# Indoor Tai	signed word	Display return air temperature
9	1# Indoor Tei	signed word	Display evaporator inlet temperature
10	1# Indoor Tem	signed word	Display evaporator central temperature
11	1# Indoor Teo	signed word	Display evaporator outlet temperature
12	1# Indoor Filter	signed word	0: Disable, 1: Enable
13	1# Reserved	signed word	/

6.1.3 Coil: There are 10 parameters of each indoor unit can be write / set (value is 0/1)

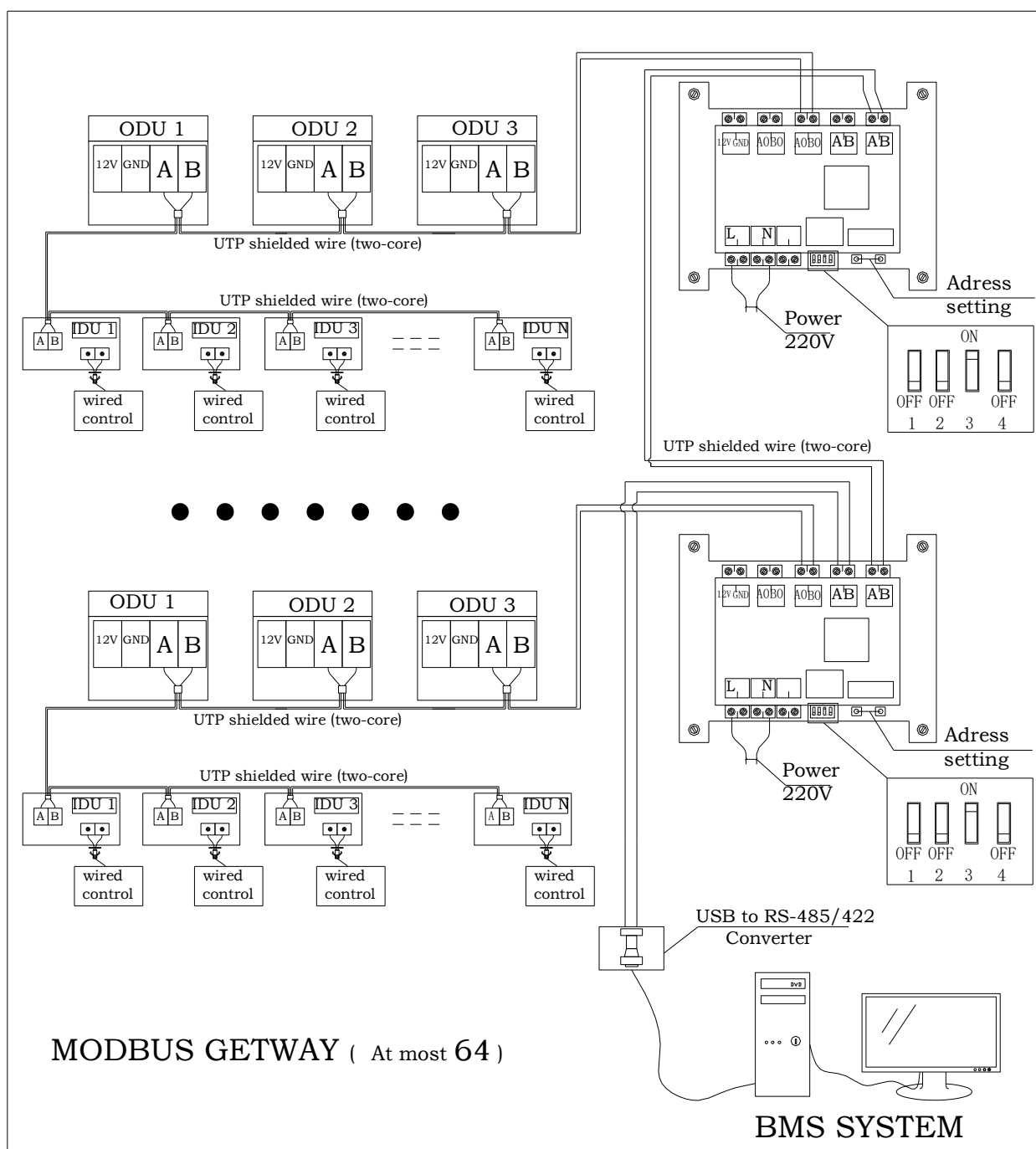
Coil Address	Content	Value/W	Data Type
0	1# Indoor ON/OFF	0	BOOL
1	1# Indoor ON/OFF Lock	0	BOOL
2	1# Indoor Control Mode Lock	0	BOOL
3	1# Indoor Temperature Set Lock	0	BOOL
4	1# Indoor Fan Speed Lock	0	BOOL
5	1# Indoor Up/Down Fixation	0	BOOL
6	1# Indoor Left/Right Fixation	0	BOOL
7	1# Indoor Sleep	0	BOOL
8	1# Indoor Healthy	0	BOOL
9	1# Indoor Filter	0	BOOL

6.1.4 Holding registers: There are 4 parameters of each indoor unit can be write / set

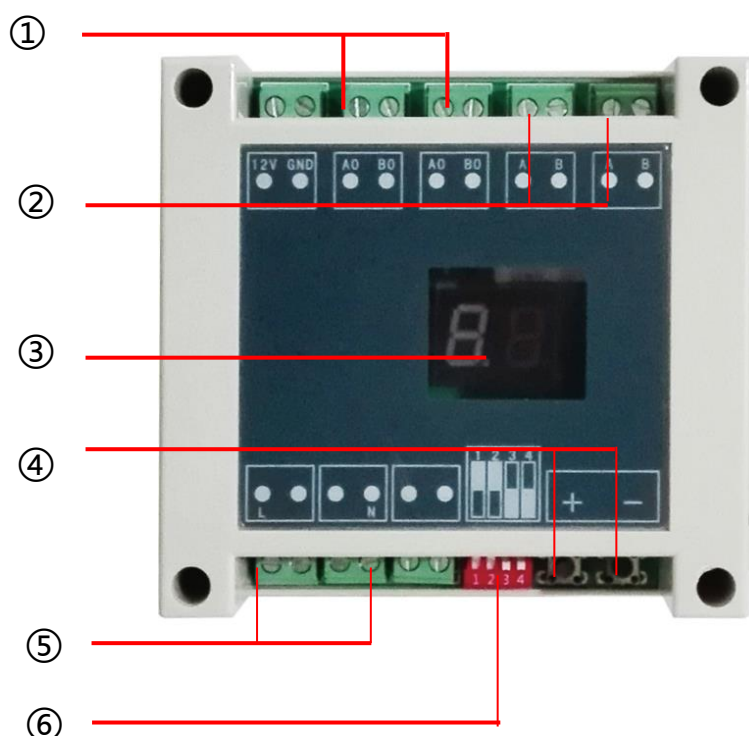
Holding Register address	Content	MIN_Value	Default Value	MAX_Value	Data Type	Unit	Remark
0	1# Indoor Control Mode	0	0	6	SIGNED WORD	/	0-Auto/ 1-Cool/ 2-Dry /4-Heat / 6-Fan
1	1# Indoor Temperature Set	16	24	32	SIGNED WORD	℃	16~32
2	1# Indoor Fan Speed	0	0	6	SIGNED WORD	/	1-High/ 2-Medium/ 3-Low/ 5-Auto
3	1# Indoor Reserved	0	0	6	SIGNED WORD	/	/

6.2 Overall structure

Each MODBUS Gateway support 1 ARV system



6.3 Hardware Features (at most 64)



- ① To VRF system communication terminal "A.B" (2 core wire)
- ② To next Gateway & Network work-station (2 core wire)
- ③ Display slave address/ "01" means the first system."02" means the second system...
- ④ Setting MODBUS-RTU Slave Address/
 - 1. Press "+" or "-" to activate the slave address setting functions;
 - 2. Press "+" and "-" at the same time for 5 seconds, then the Digital Display will be Flashing every second;
 - 3. Press "+" to add the Slave Address, Press "-" to decrease the Slave address;
 - 4. After Setting Address finish, wait 5 seconds, then the Digital Display will stop Flashing and display the Slave Address.
- ⑤ Power supply 220V
- ⑥ Dip-switch setting: OFF/OFF/ON/OFF

⑦ error code :

A0: The communication failure between gateway and VRF system;
 AA: The communication failure between gateway and BMS system

6.4 Project Commissioning

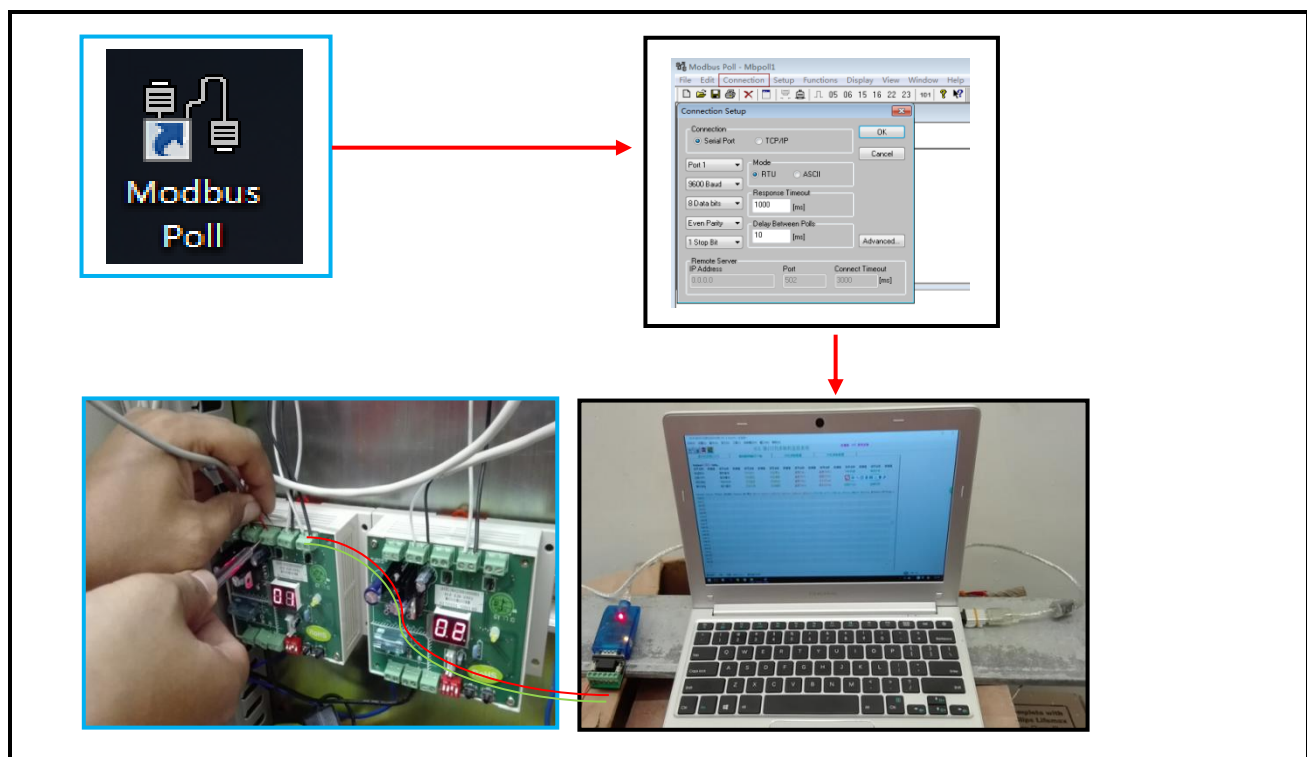
6.4.1 Make sure ARV system was **commissioning** successful

6.4.2 Make sure **MODBUS Gateway** was **connected** correct



Note:

1. Each Gateway should be set **address**, For example : 4 systems , address from 01 ~ 04
 2. Each Gateway (16422001000001) should be **Refresh program**(Factory setting)
- 6.4.3 **Check** if Gateway is working normal or not, test by a software (MODBUS Poll)



6.4.4 Last, we can deliver the project to the BMS administrator, they will according "**AUX ARV MODBUS-RTU ProtocolV1.3**"table to do management

Part6 BMS-MODBUS Protocol (MINI gateway)



Function	Centralized Control Gateway			MODBUS Gateway			
Applicable Products	ARV	LCAC	FCU	ARV	LCAC	FCU	Chiller
	✓	✓	✓	✓	✓	✓	✗
	Distinguish by update different program						
	✓	✓	✓	✓	✓	✓	✓
	Distinguish by dip switch setting, convenient and reliable						

※ More information about MODBUS protocol (MINI gateway) please check the instruction manual

Part7 BMS - BACNET Protocol

BMS system	
	
BACNET Gateway	

7.1 BACNET Parameter Variable

There are 9 parameters of each indoor unit can be monitored or set.

Idx	Function	Note
1	ON/OFF	Indoor Units' ON/OFF state command and feedback.
2	Mode	Indoor Units' Mode (AUTO/COOL/DEHUMI/FAN/HEAT) command and feedback.
3	Temperature. Set	Indoor Units' ambient temperature command(range: 16℃ ~32℃) and feedback.
4	Fan Set	Indoor Units' fan command (High/Medium/Low/Auto) and feedback.
5	Ambient Temperature	Indoor Units' ambient temperature.
6	Error	Indoor and outdoor Units' error.
7	ON/OFF Lock	A type of command used for forbidden users operating ON/OFF command by remote controller and wire controller.
8	Mode Lock	A type of command used for forbidden users operating Mode command by remote controller and wire controller.
9	Temperature. Lock	A type of command used for forbidden users operating Tempr. Set by remote controller and wire controller.

Note:

The **ON/OFF Lock**, **Mode Lock**, **Temperature Lock** is inactive after indoor units' Power-Off.

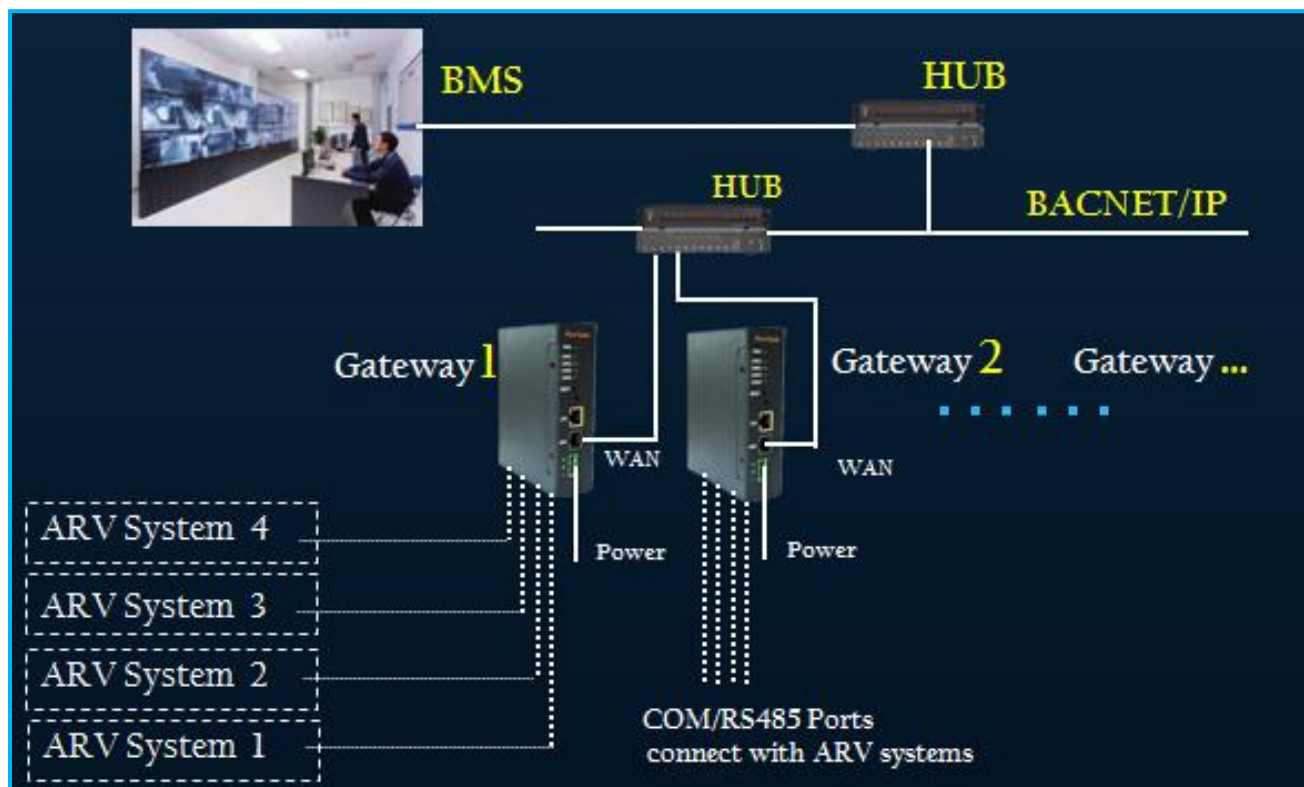
Index	Function	Object Name	Object Type	Unit	Note
1	ON/OFF	Indoor(YY_XX) On/Off	BV		1: ON 0: OFF

2	Mode	Indoor(YY_XX) Mode Setting	AV		0: Auto Mode 1: Cool Mode 2: Dehumi Mode 3: / 4: Heat Mode 5: / 6: Fan Mode
3	Temp. Set	Indoor(YY_XX) Temp. Set	AV	℃	Range: 16~32
4	Fan Set	Indoor(YY_XX) Fan Set	AV		1: High Fan 2: Medium Fan 3: Low Fan 4: / 5: Auto Fan
5	Ambient Temp	Indoor(YY_XX) Tai	AV	℃	
6	Error	Indoor(YY_XX) Error	AV		Error Code
7	ON/OFF Lock	Indoor(YY_XX) On/Off Lock	BV		1: Lock 0: Unlock
8	Mode Lock	Indoor(YY_XX) Mode Lock	BV		1: Lock 0: Unlock
9	Temp. Lock	Indoor(YY_XX) Temp Lock	BV		1: Lock 0: Unlock

Note:

YY: ARV System Address(Range: 01~04); **XX:** ARV indoor units Address(Range: 01~64);

7.2 Overall structure



7.3 Hardware Features



Power

DC24, 7W

Convenient Wiring

LAN(Reserve)、WAN、4 RS485 Ports

Dimension

115×35×135 mm

Installation Type

Slide-way Type

7.4 Web Configure

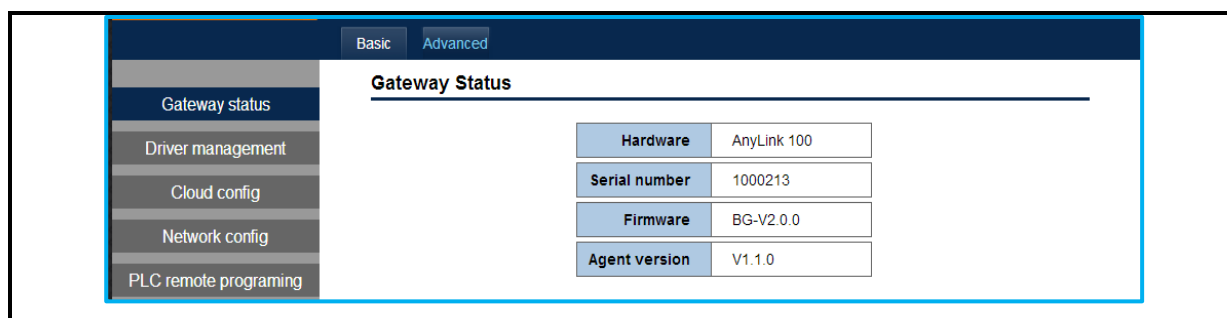
7.4.1 The BACNET Gateway IP and Computer IP should in the same network Segment

1. Power on, connect the RJ45 Port at the computer with the 'WAN' Port at BACNET Gateway.
2. Set the computer IP at Internet Protocol (TCP/IPv4):
IP Address: 192.168.100.x (x range: 2~252);
Subnet Mask: 255.255.255.0;
Default Gateway: 192.168.100.1;
Click 'OK'.
3. Open the Google Chrome or Firefox explorer, input '**192.168.100.126**', then the '**login**' Page will be shown. Input name: admin, password: admin, click 'Login', then go into the Configure Page.



7.4.2 Configure the Driver Management

1. Go into the '**Driver Management**' Page. Click '**Advanced**'—'Driver Management':



2. Add ARV Driver

1. Click Add Driver

2. Input Driver name

3. Click Add

3. When finish these steps, the content is shown as follows.

If you want to remove the driver information, then click .

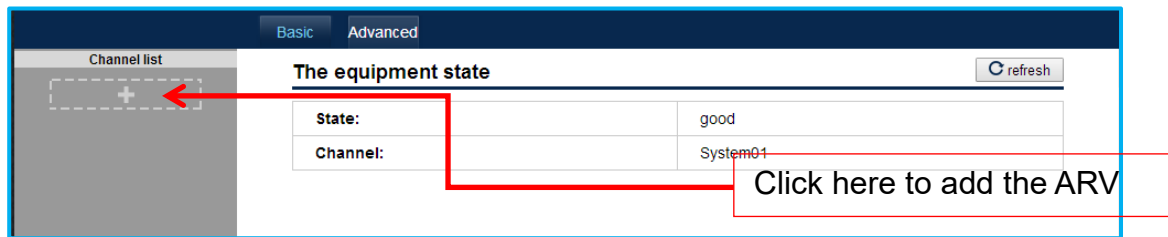
Driver type	Device name	Driver name	Operation
VRF	ARV	AUX	[edit icon] [delete icon]

Total: 1

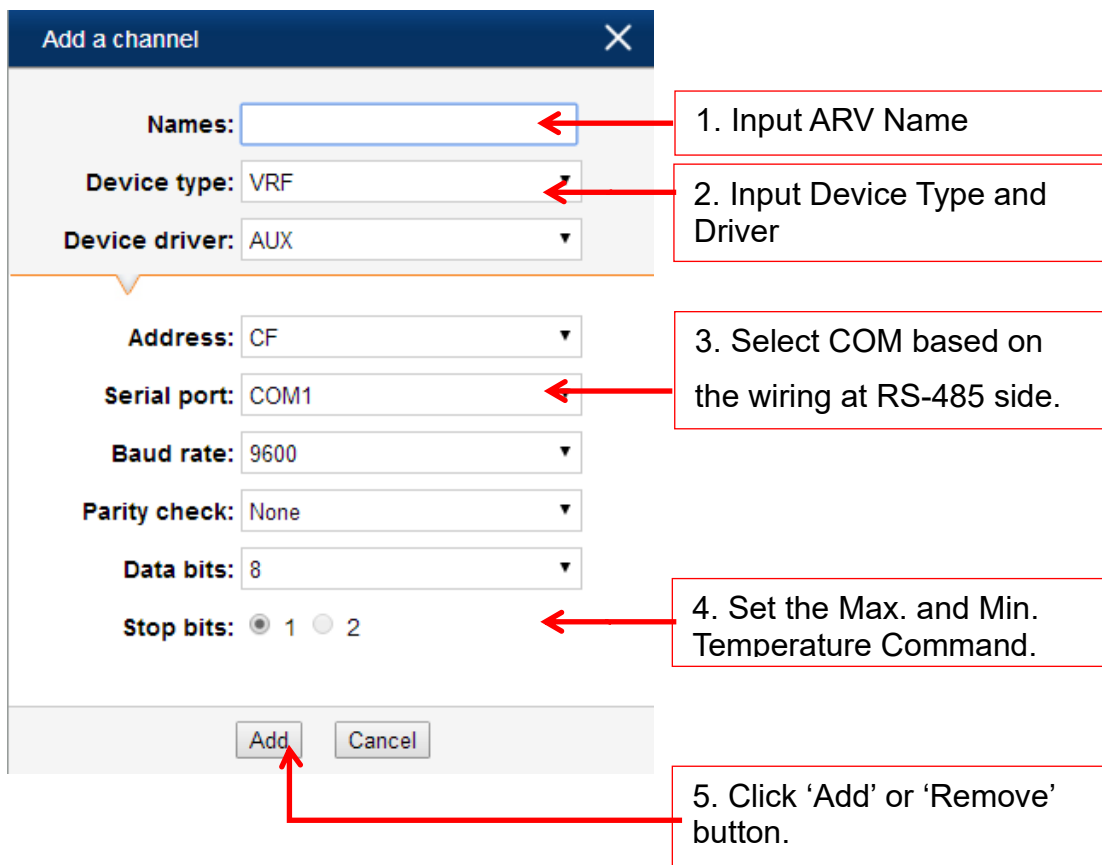
Before removing the driver information, you should make sure all of the indoor/outdoor information has been removed.

7.4.3 Add ARV System Information

1. Click 'Basic', then click the  at channel list to add the ARV system.



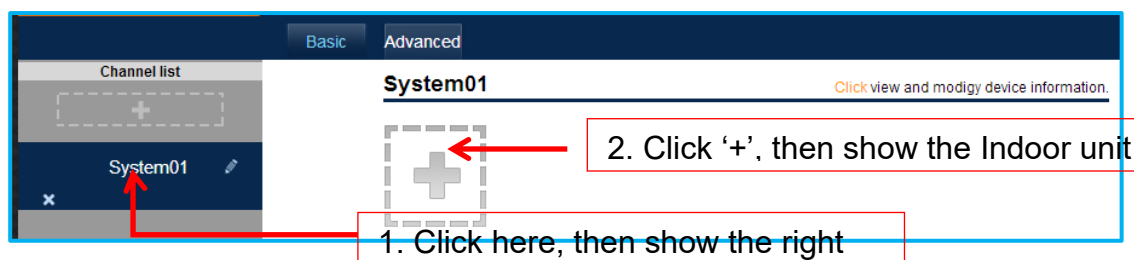
2. A dialogue will be shown



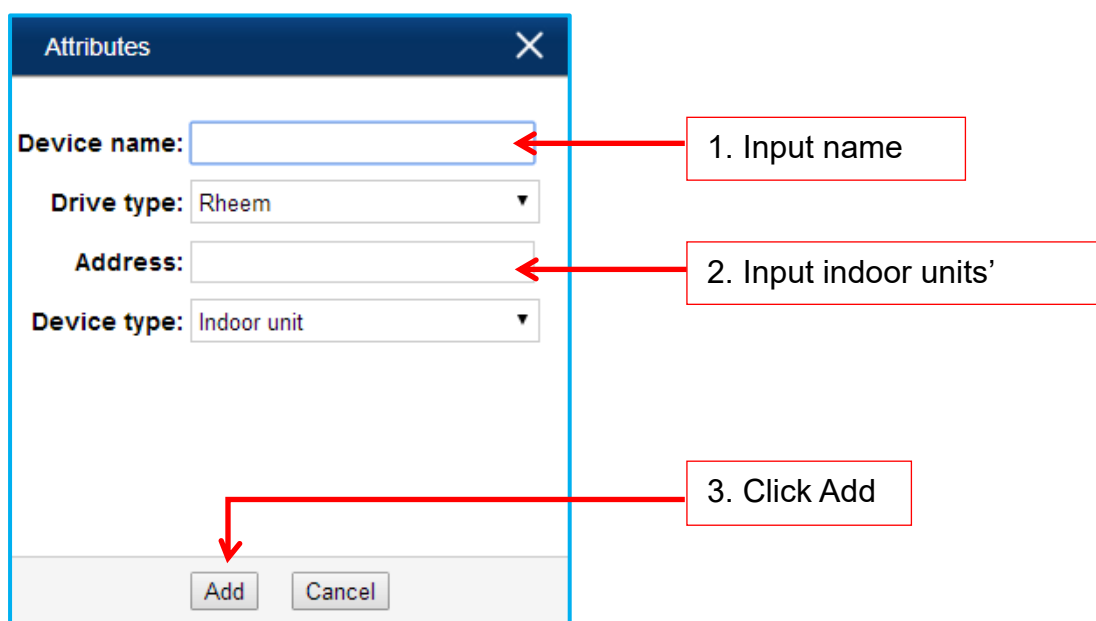
7.4.4 Add indoor units' information

We should select the ARV system before Add the indoor unit,

1. Select the ARV System.



2. Add indoor units as follows.



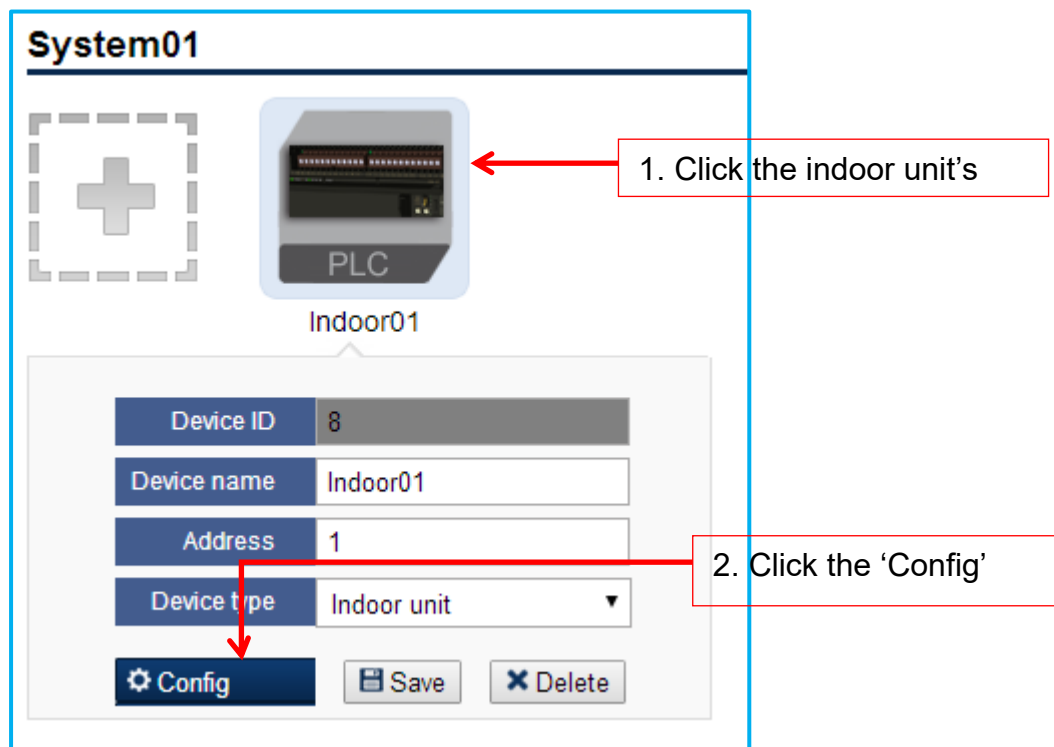
3. After finished, it is shown as follows.



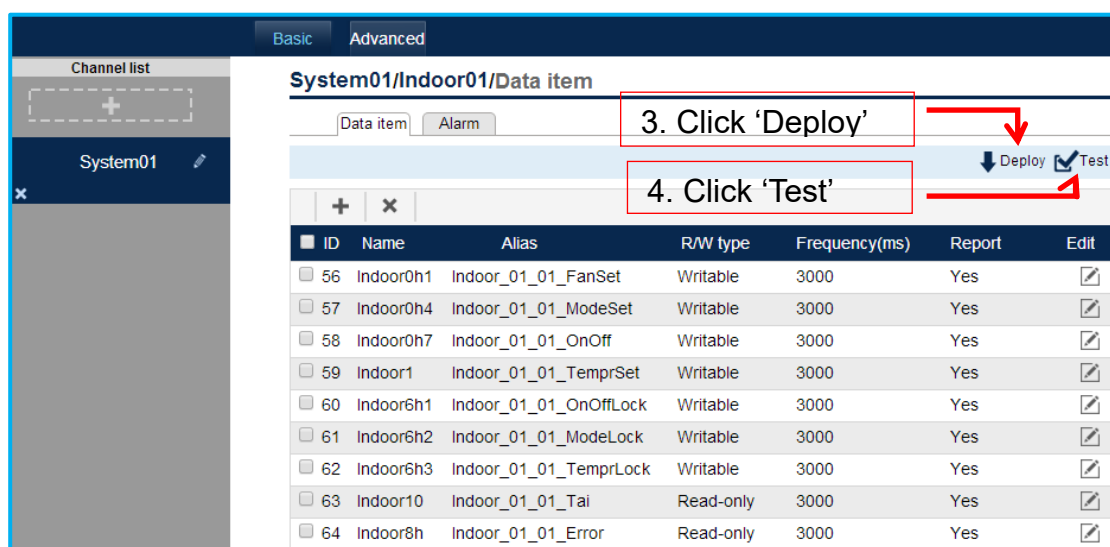
7.4.5 Download the Indoor units' information

After finish adding the indoor units' information, we should **download** the information to **activate** the BACNET side.

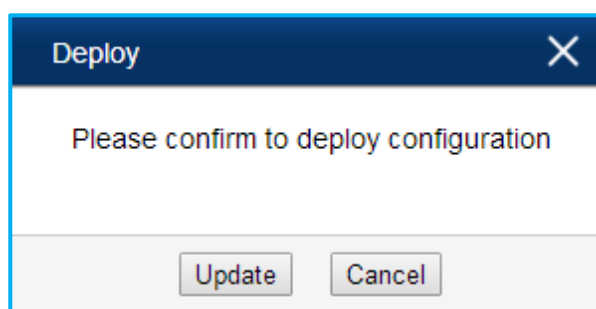
1. Click the indoor unit's icon, then shown the dialogue as follows;



2. Click the 'Config' button, the BACNET information will be shown as follows,



3. Click 'Deploy' button, then shown the dialogue as follows. Click 'Update'.



4. After Update, click the '**Test**' Button to make sure all the indoor units' BACNET information is right

名称	别名	设备ID	数据项ID	值	状态
Indoor0h1	Indoor_01_01_FanSet	0	undefined	1	good
Indoor0h4	Indoor_01_01_ModeSel	0	undefined	1	good
Indoor0h7	Indoor_01_01_OnOff	0	undefined	0	good
Indoor1	Indoor_01_01_TempRSe	0	undefined	16	good
Indoor6h1	Indoor_01_01_OnOffLo	0	undefined	0	good
Indoor6h2	Indoor_01_01_ModeLoc	0	undefined	0	good
Indoor6h3	Indoor_01_01_TempRLc	0	undefined	0	good
Indoor10	Indoor_01_01_Tai	0	undefined	21.4	good
Indoor8h	Indoor_01_01_Error	0	undefined	0	good

Note, if the indoor unit's state is Bad, it will be shown as follow.

Test					
This section displays the acquisition data of the device, which is used to verify that the configured data item is correct.					
Name	Alias	Device ID	Data item ID	Value	State
Indoor0h1	Indoor_01_01_FanSet	0	undefined	-1	bad
Indoor0h4	Indoor_01_01_ModeSel	0	undefined	-1	bad
Indoor0h7	Indoor_01_01_OnOff	0	undefined	0	bad
Indoor1	Indoor_01_01_TempRSe	0	undefined	-1	bad
Indoor6h1	Indoor_01_01_OnOffLo	0	undefined	0	bad
Indoor6h2	Indoor_01_01_ModeLoc	0	undefined	0	bad
Indoor6h3	Indoor_01_01_TempRLc	0	undefined	0	bad
Indoor10	Indoor_01_01_Tai	0	undefined	-1	bad
Indoor8h	Indoor_01_01_Error	0	undefined	-1	bad

For the bad state, we can solve it by follow steps:

- **Check** if the indoor unit set in the **BACNET** Gateway is **exist**. In other words, the indoor unit's address must **match** with the exist one, Or the indoor unit setting in the

BACNET Gateway doesn't make sense.

- **Communication** error between the Indoor unit and Outdoor unit side at RS-485 port.

7.4.6 Download the BACNET Gateway Configure

1. Click 'Advanced'—'**BACnetConfig**', select '**IP**', click '**Deploy**'.

The screenshot shows the 'BACnet config' interface. On the left is a sidebar menu with options: Gateway status, Driver management, Cloud config, Network config, PLC remote programing, Agent config, BACnet config (highlighted), Modbus data publish, Set the time, and Change password. The main area has two tabs: 'Basic' and 'Advanced' (selected). Below the tabs is the 'BACnet config' section. It contains a 'Deploy' button with a downward arrow. Below this is a text box: 'This section is used to for BACnet configuration'. There are two radio buttons: 'IP' (selected) and 'MS/TP'. Below these are input fields for 'Device ID' (260001), 'Timeout (ms) : ' (3000), 'Port: ' (47808), 'Nic: ' (None), and 'Encoding: ' (Using utf-8 encoding). There is a 'save' button. Below the configuration fields is a section titled 'Remove BACnet driver' with the text 'This section is used to delete the device's BACnet driver'. Red callout boxes with arrows point to: 1. 'Advanced' tab, 2. 'BACnet config' menu item, 3. 'IP' radio button, 4. 'save' button, and 5. 'Deploy' button.

2. After Finished, all configuration success.

7.4.7 Set BACnet Gateway WANIP Address

The last work is set BACnet WAN IP address, so it can be accessed by other BACnet devices.

Suppose the Network Segment is 192.168.1.x, and the BACnet gateway WANIP Address is Set as 192.168.1.4, the default gateway is 192.168.1.1. It will be set as follows:

a. Click 'Advanced'

Basic Advanced

Gateway Status

1. Click Advanced

Hardware	AnyLink 100
Serial number	1400162
Firmware	BG-V1.3.34
Agent version	V3.1.0

b. Click 'Network Config'

Basic Advanced

Network config

2. Click Network

Hostname: id0162

WAN: ☒ Static IP ☐ Dynamic IP

IP address: 192.168.100.126

Subnet mask: 255.255.255.0

Default gateway: 192.168.100.1

DNS server: 114.114.114.114

LAN: ☒ Static IP ☐ Dynamic IP

IP address: 192.168.101.204

Subnet mask: 255.255.255.0

Default gateway: 192.168.101.1

DNS server: 114.114.114.114

Save Reset

* need to reboot to take effect after save

Network mode

☒ Wired

Save

* need to reboot after a switch to take effect

c. Set WAN IP;

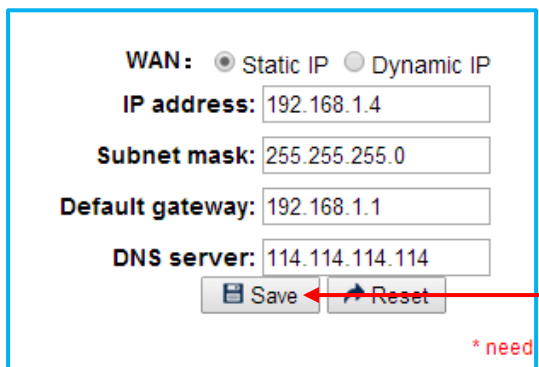
'IP address' set as 192.168.1.4;

'Subnet mask' set as 255.255.255.0;

'Default Gateway' set as 192.168.1.1;

'DNS Server' should be the same as the DNS server IP in the project;

After finished Setting IP Address above, click '**Save**' button.



WAN: ☒ Static IP ☐ Dynamic IP

IP address: 192.168.1.4

Subnet mask: 255.255.255.0

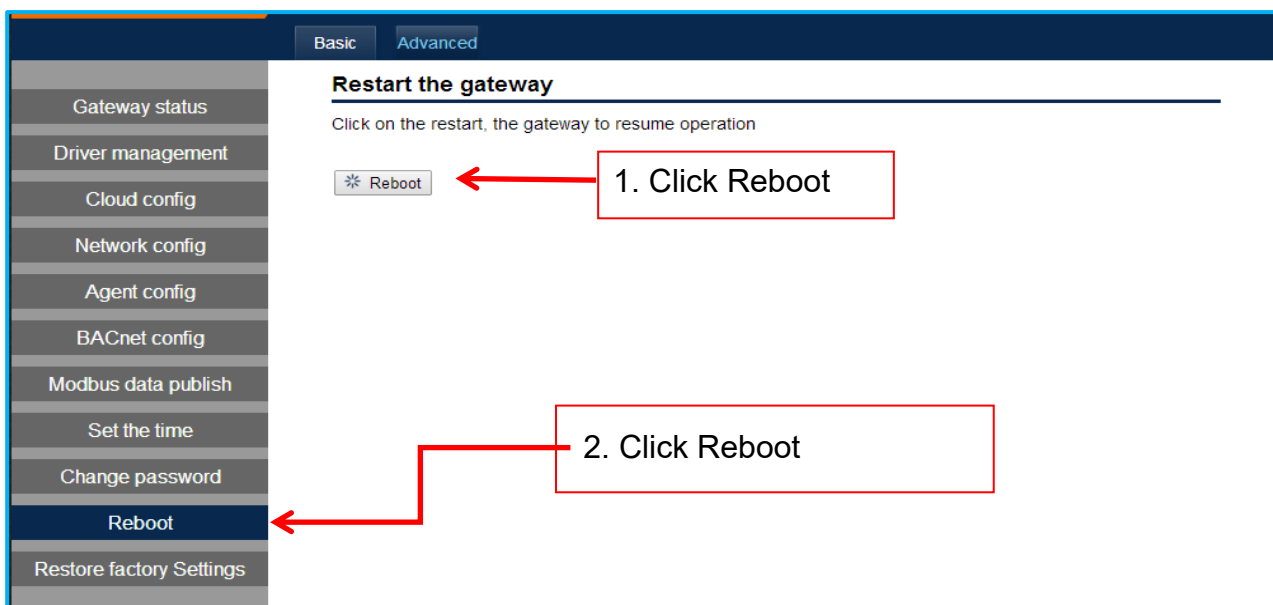
Default gateway: 192.168.1.1

DNS server: 114.114.114.114

* need

1. Click Save

d. Restart the BACnet gateway, enable the new IP address



Basic Advanced

Restart the gateway

Click on the restart, the gateway to resume operation

1. Click Reboot

2. Click Reboot

Gateway status

Driver management

Cloud config

Network config

Agent config

BACnet config

Modbus data publish

Set the time

Change password

Reboot

Restore factory Settings

Note:

Now the final IP address is 192.168.1.4. If you want to access the gateway web page, we should use 192.168.1.4 replace of 192.168.100.126.

Part8 WIFI function

Wireless Network Control	
	
WIFI Modular	Software

8.1 Overall Structure



8.2 Operating Method

1) Install the specialized control software to mobile terminal

- For Android system, install the following specialized software



- For iPhone device

Pls. download at the following website

a) <http://www.logicsolutions.com.cn/store/auxapp.php>

b) <http://www.logicsolutions.com.cn/store/auxiphone.php>

※ More information about installation&operation can check the WIFI control PPT

Part9. Monitoring Software

9.1 General Information

9.1.1 Main Function

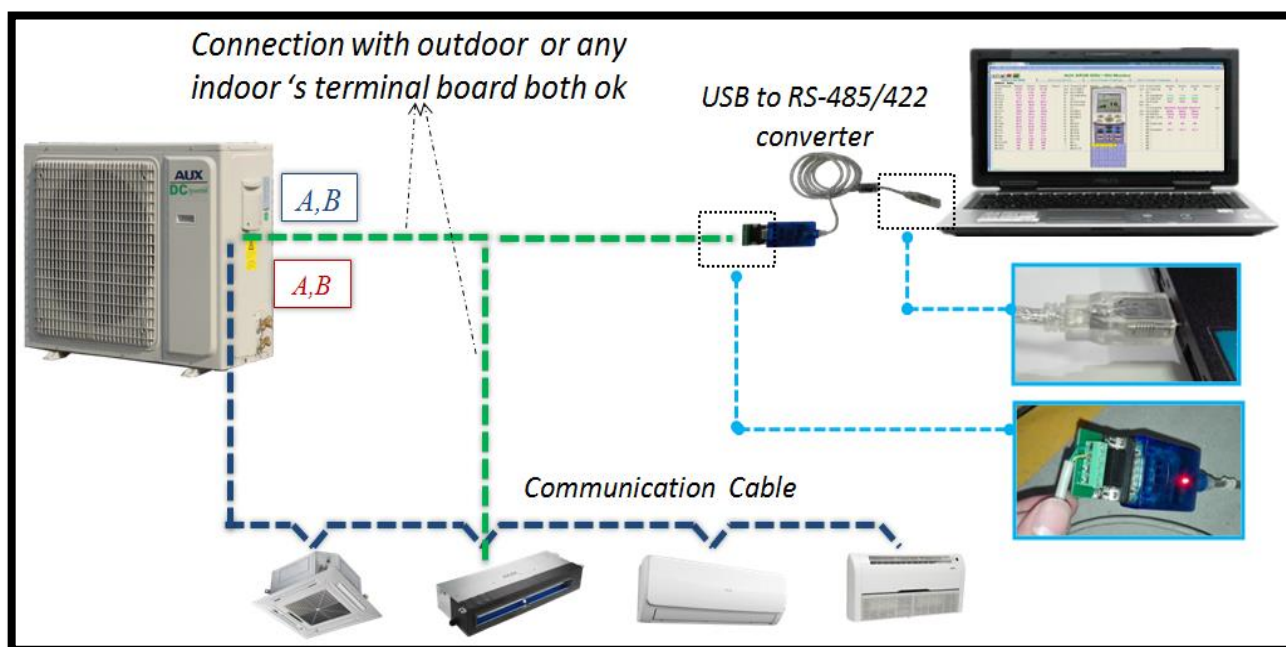
1.1 Used for **monitoring** indoor and outdoor units' **operation parameters**, check the refrigerant system is normal or not

1.2 **Control** indoor units' **operation state** (temperature setting, fan speed, ON/OFF, operation mode...)

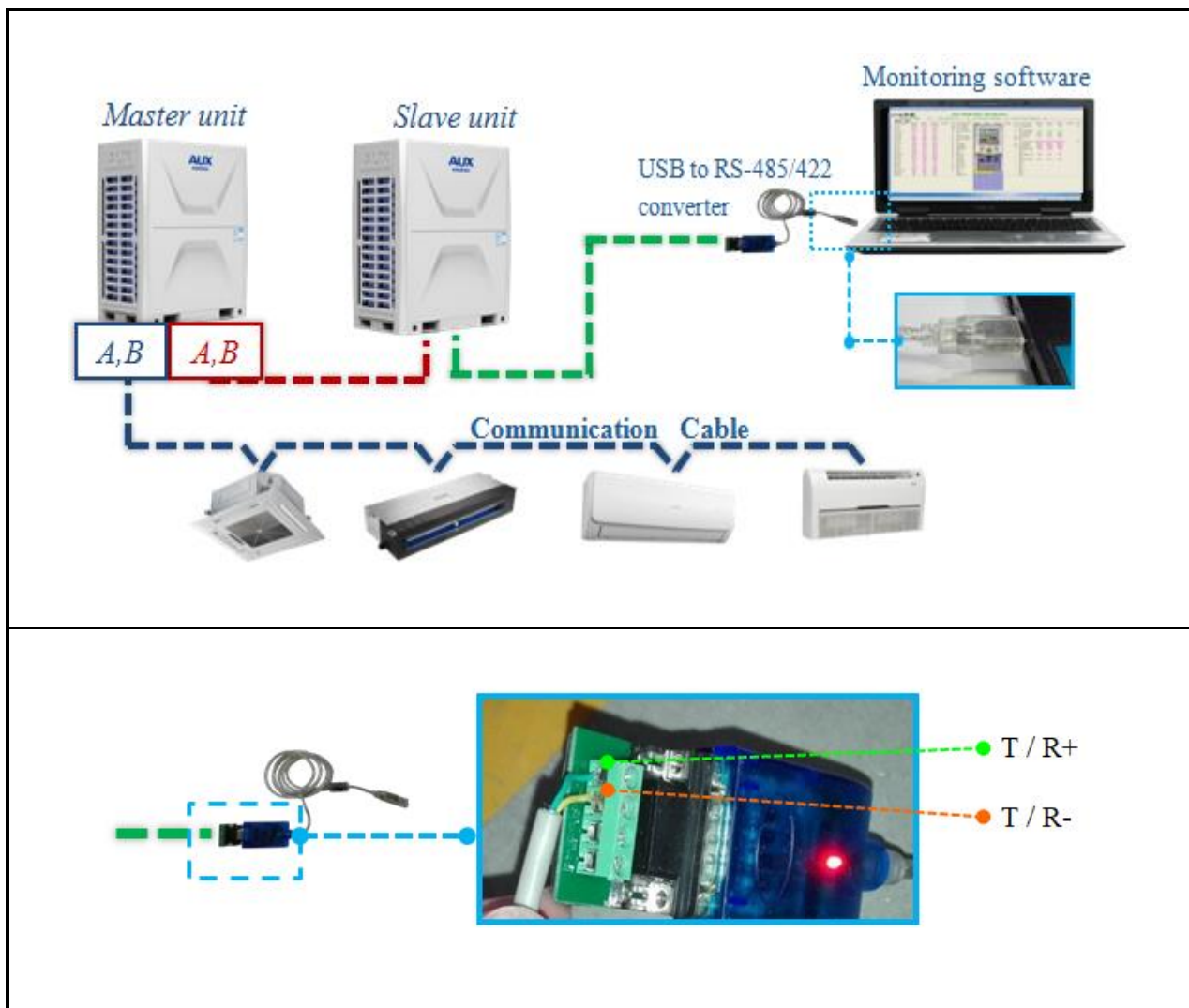
1.3 Operation parameters and curve can **be saved** as a *data base file*

9.1.2 Installation Diagram

MINI ARV



MODULAR ARV

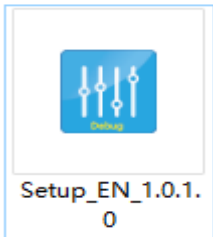
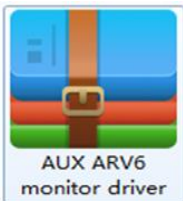


9.2 Accessory

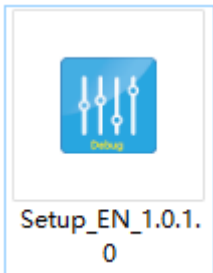
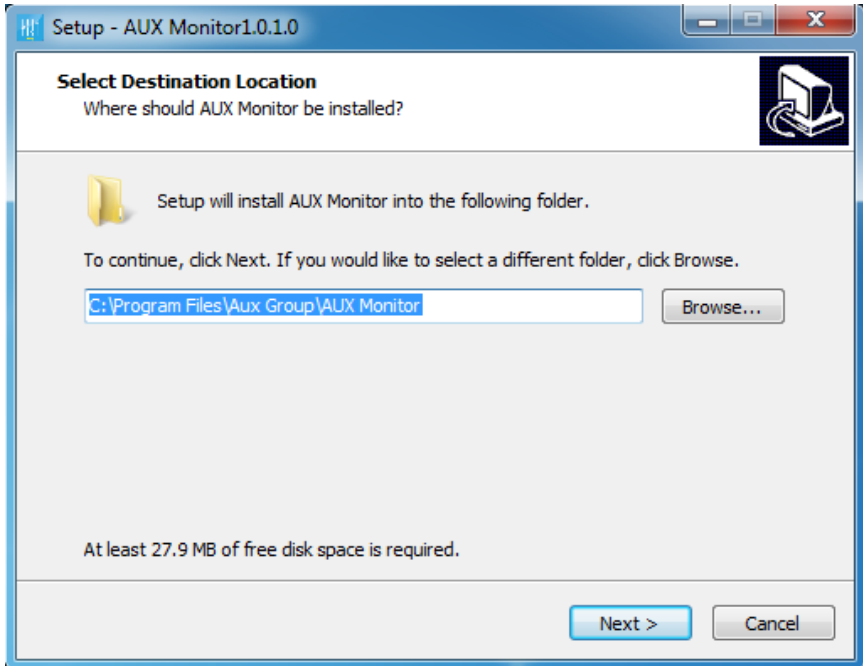
9.2.1 Hardware

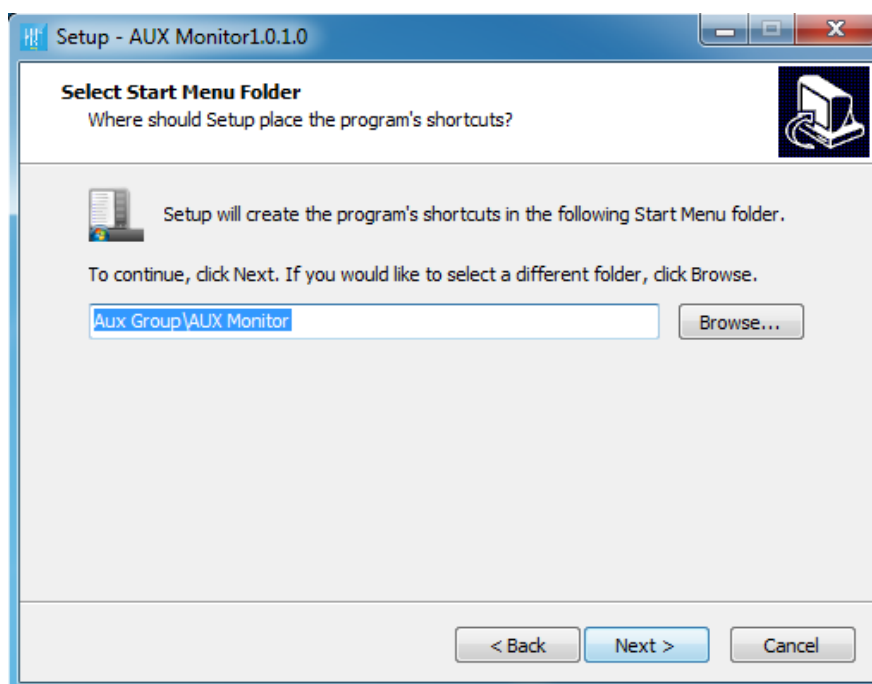
Laptop	USB to RS485 converter
	

9.2.2 Software

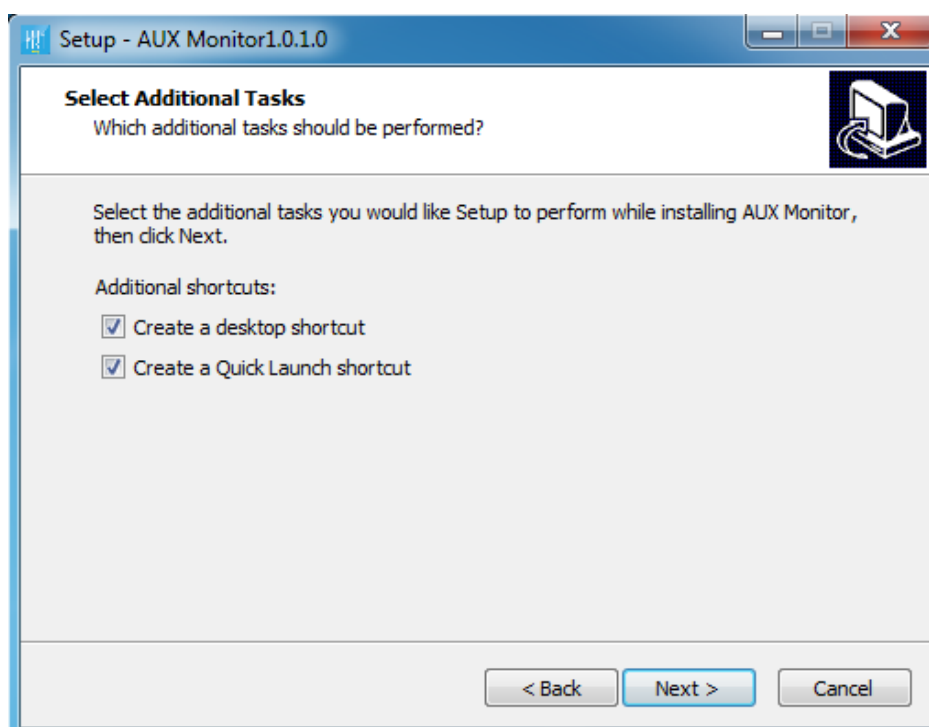
Monitoring Software	Driver Program
 Setup_EN_1.0.1. 0	 AUX ARV6 monitor driver

9.3 Installation of software

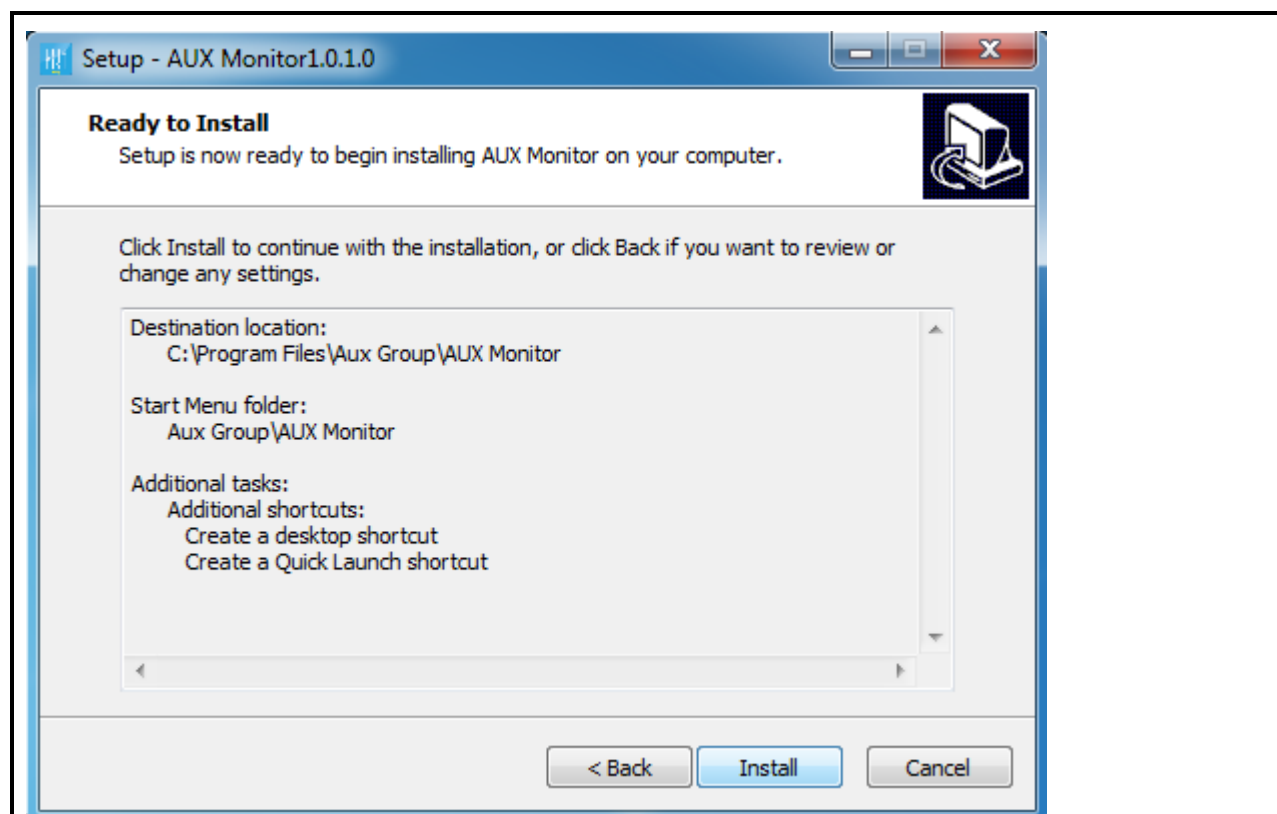
1. Double click	2. Choose the installation path, then click “ <u>Next</u> ”
 Setup_EN_1.0.1. 0	
3. Confirm the installation path, then click “ <u>Next</u> ”	



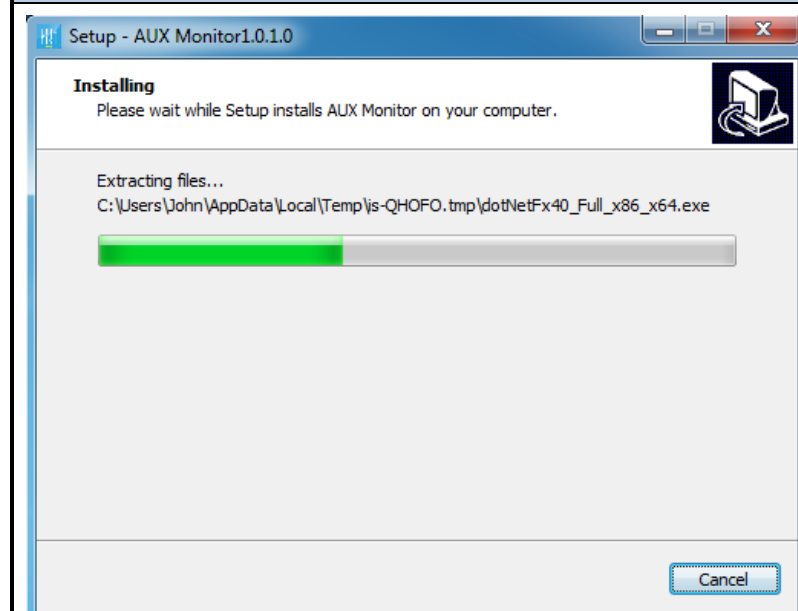
4. Choose "**Create a desktop shortcut**" and "**Create a quick launch shortcut**", then click "**Next**"



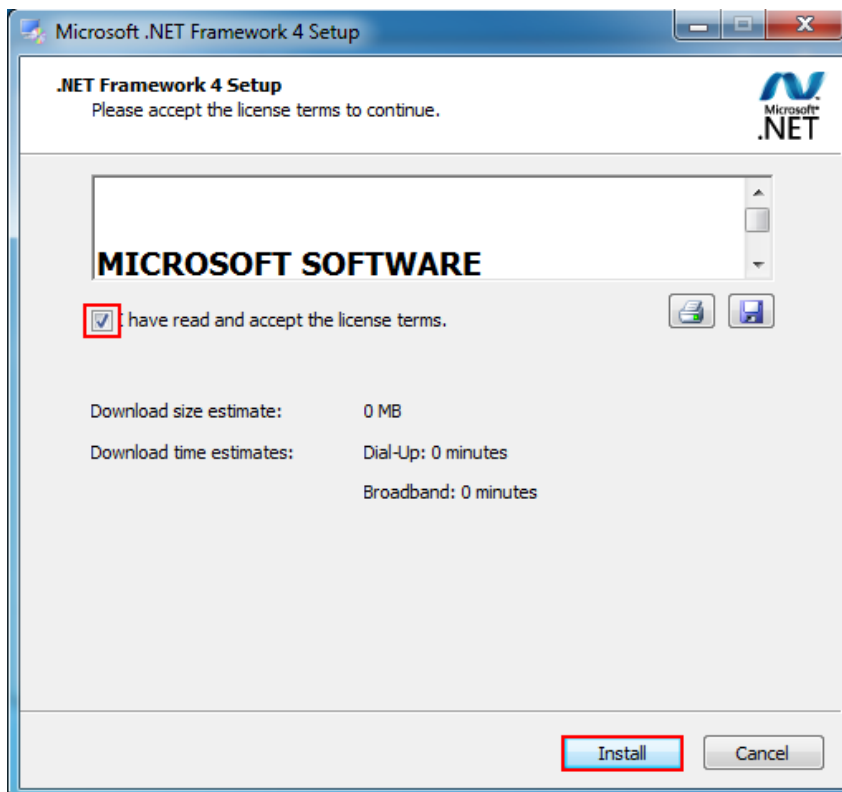
5. Confirm, click "**Install**"



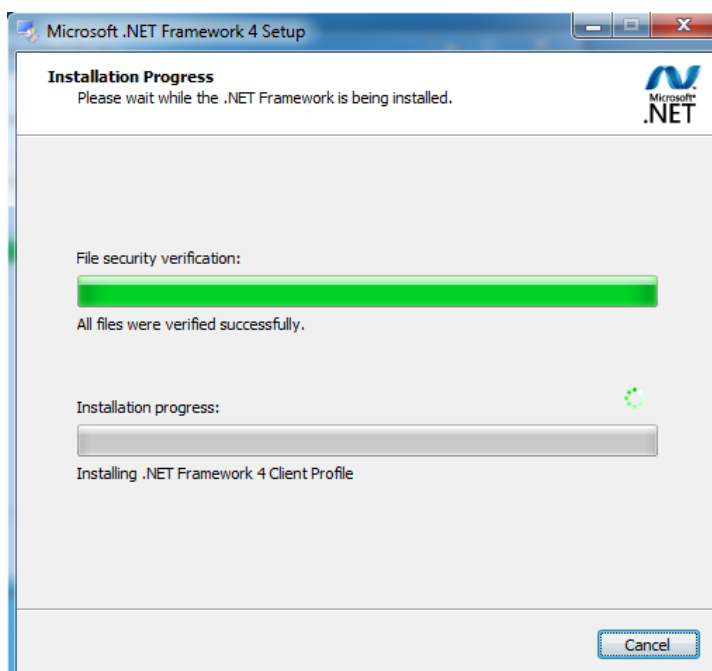
6. Install... waiting



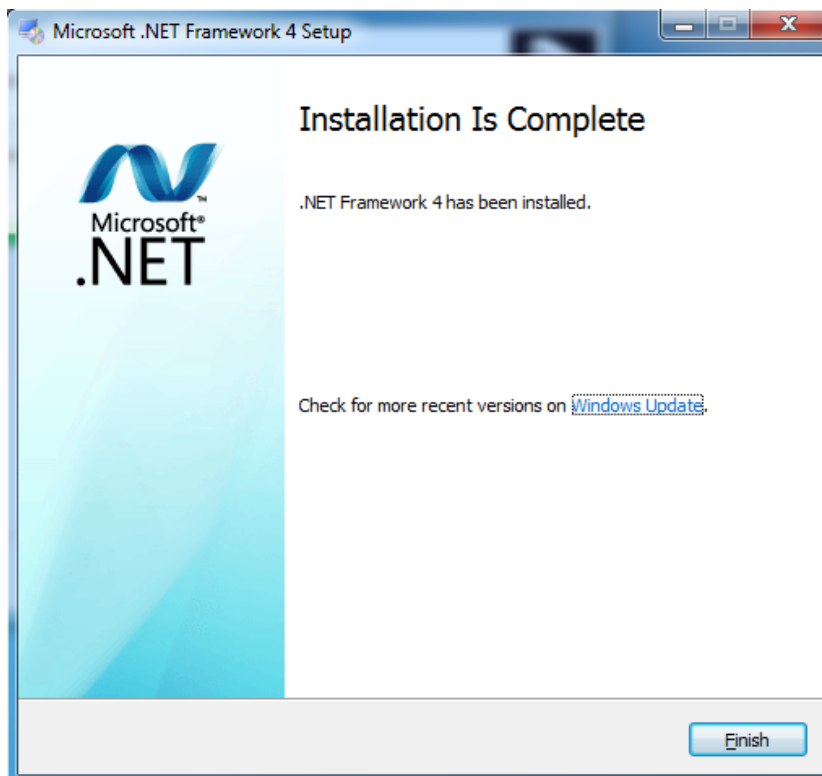
7. Automatic judge install "Microsoft .net Framework 4.0" or not, If it should be installed, please choose ***"I have read and accept the license terms."*** then click ***"Install"***



8. Install “Microsoft .net Framework 4.0”, waiting...



9. Finishing



10. Finish the installation

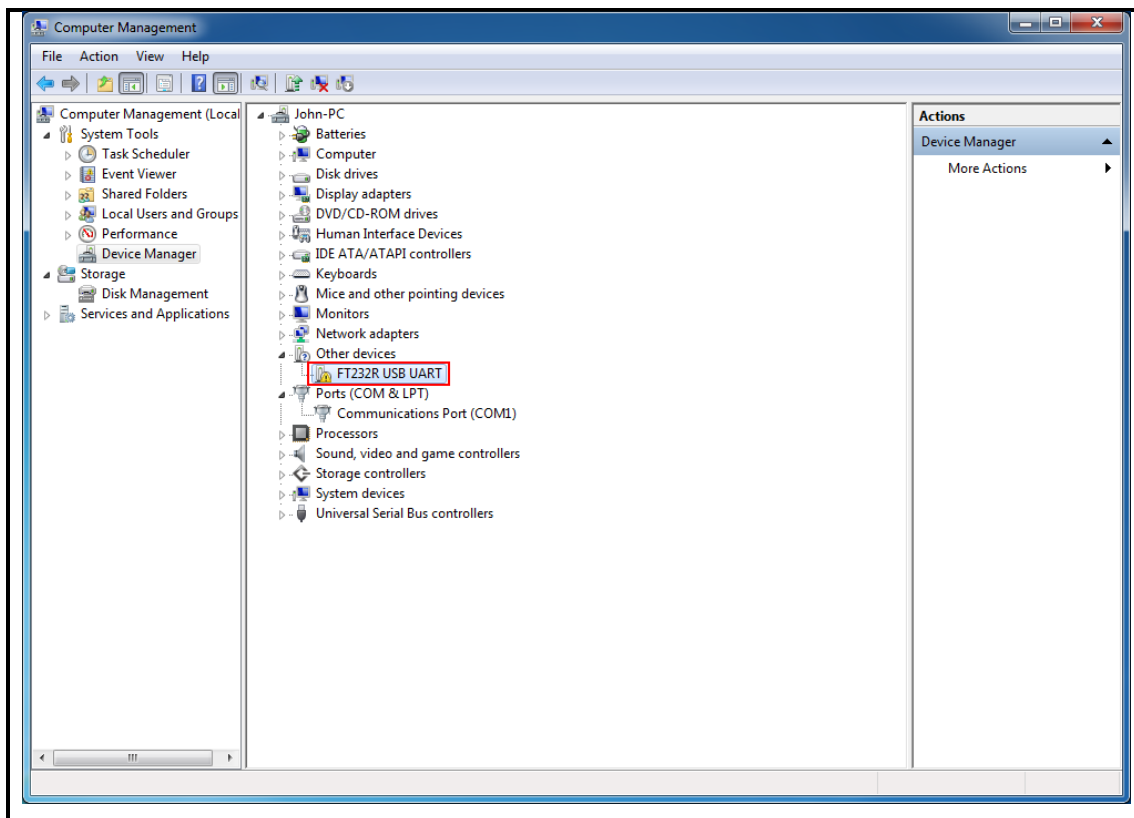
Desktop Icon



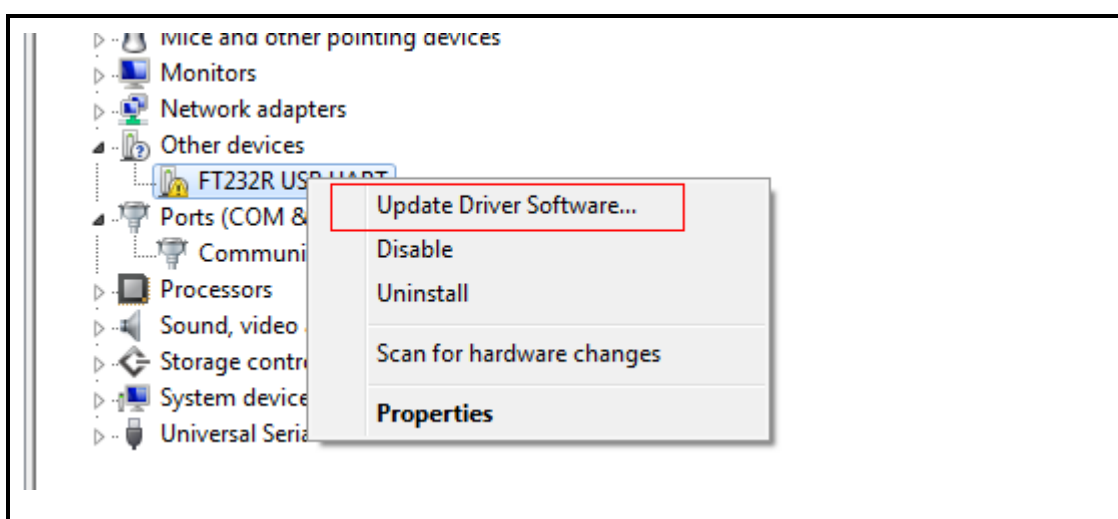
9.4 Installation of Driver

9.4.1 Installation steps

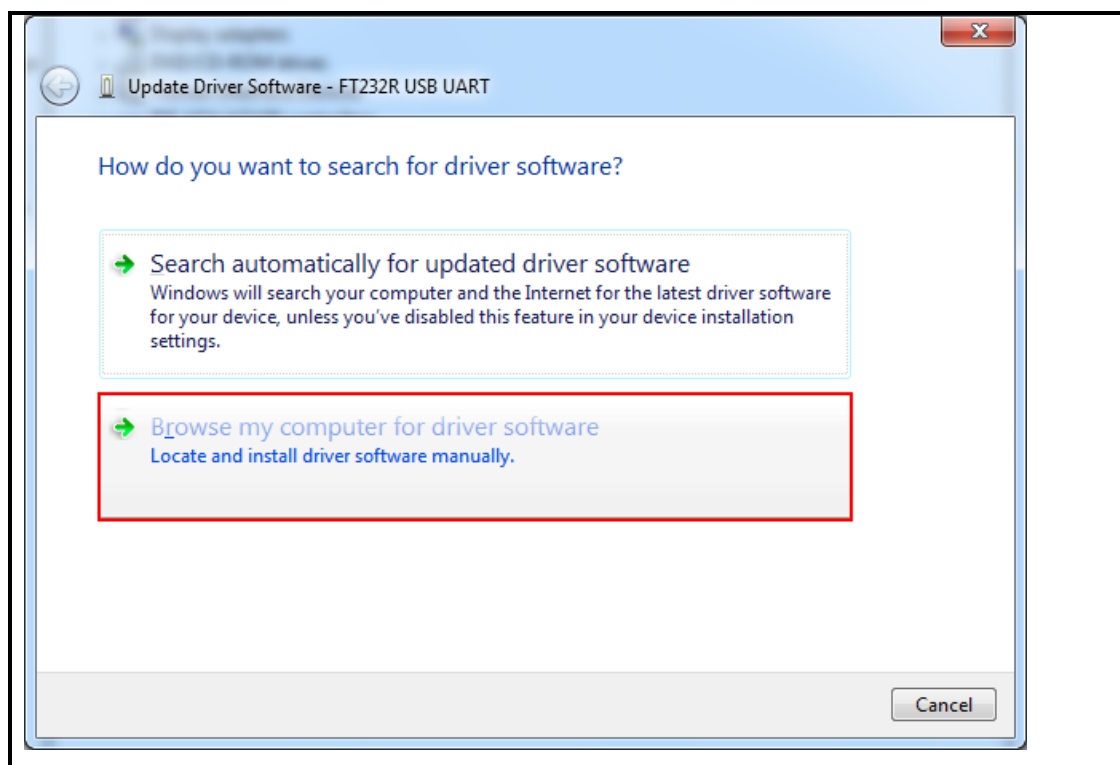
1. After USB to RS485 converter be connect to laptop's "**USB port**", Open Management->Other devices-> "**FT232R_USB_UART**".



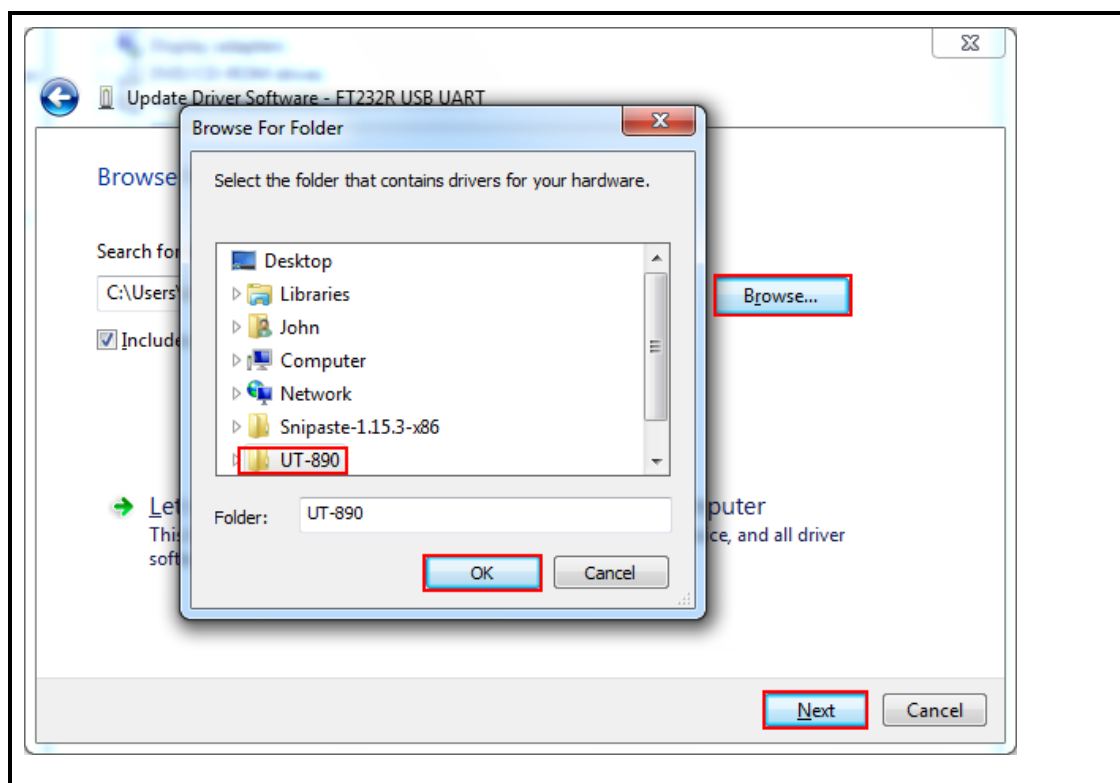
2、Choose "**FT232R_USB_UART**" right click, then choose "**Update Driver Software**"



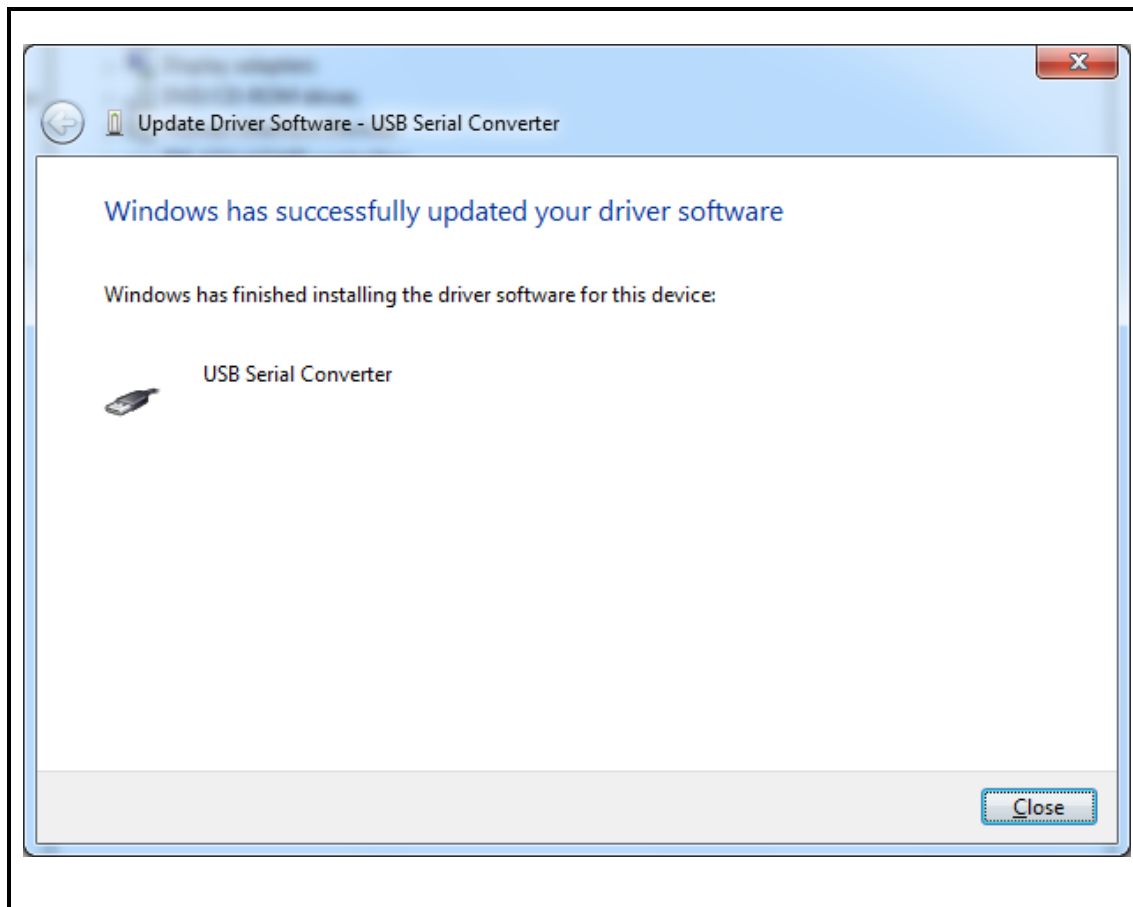
3、Choose and click "**Browse my compute for driver software**"



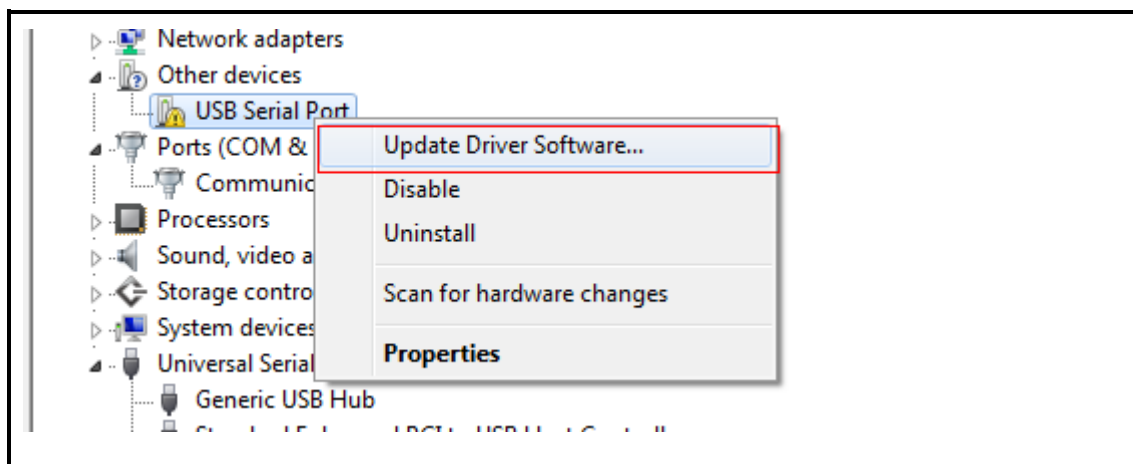
4、Choose the position of the Driver program, Click "**OK**", then "**Next**"



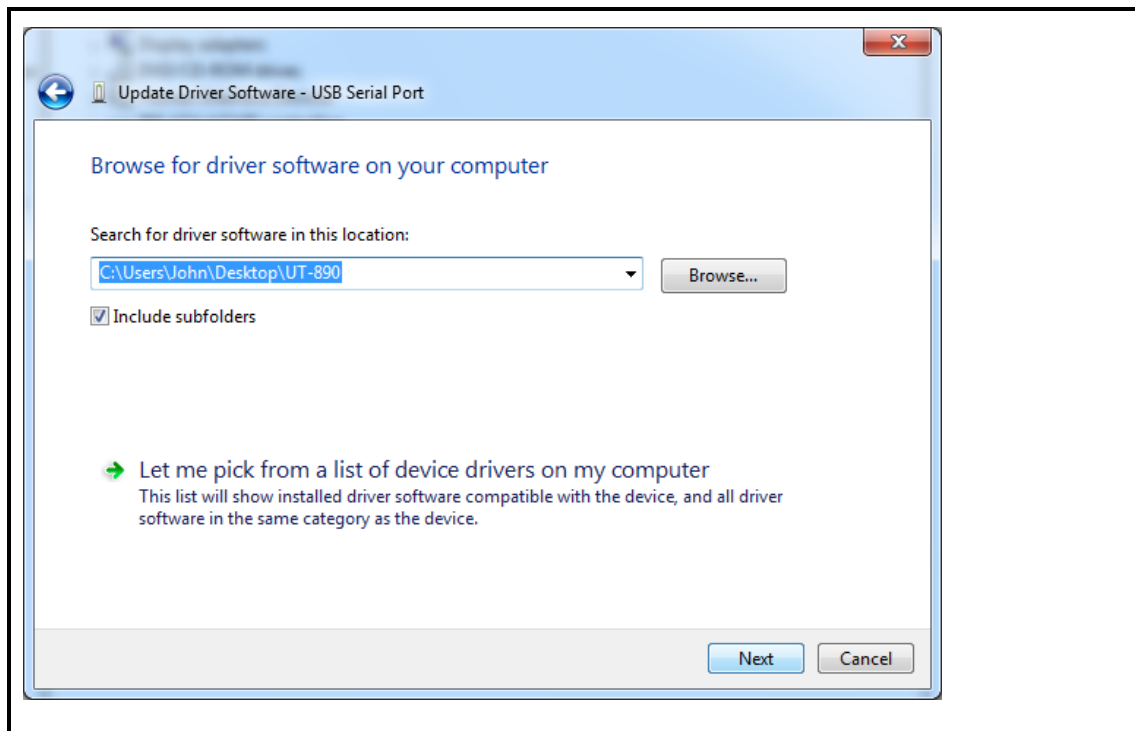
5、Finish installation of the first part



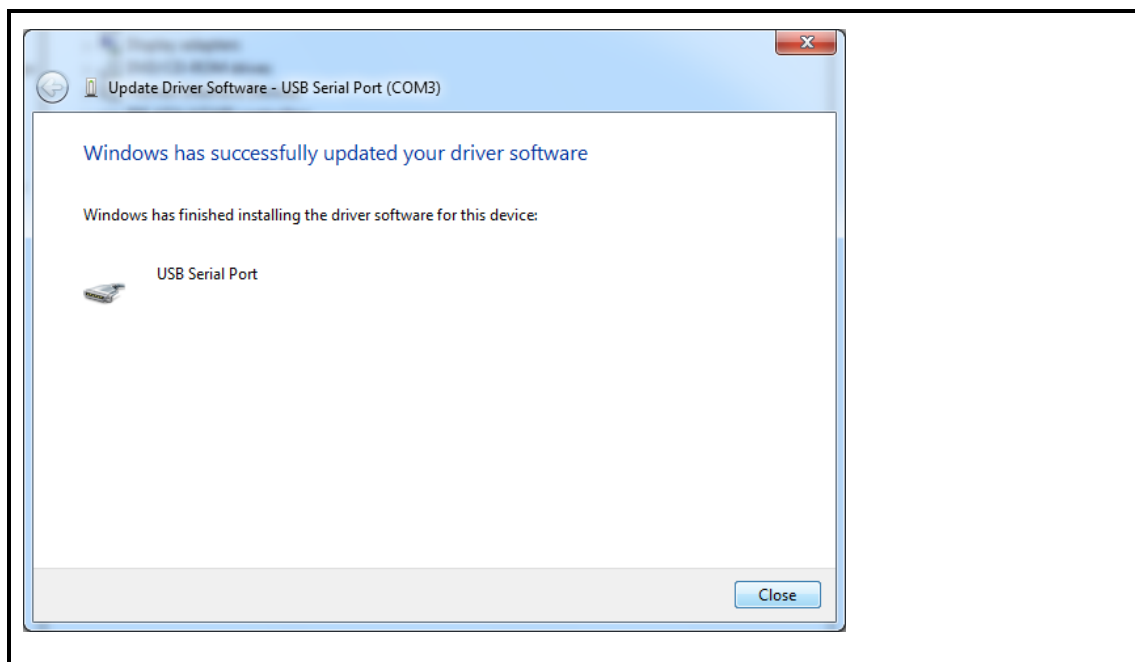
6、Open Management->Other devices-> **“USB Serial Port”** right click, then choose **“Update Driver Software”**



7、 Choose the position of the Driver program, Click “**OK**”, then “**Next**”



8、 Finishing installation

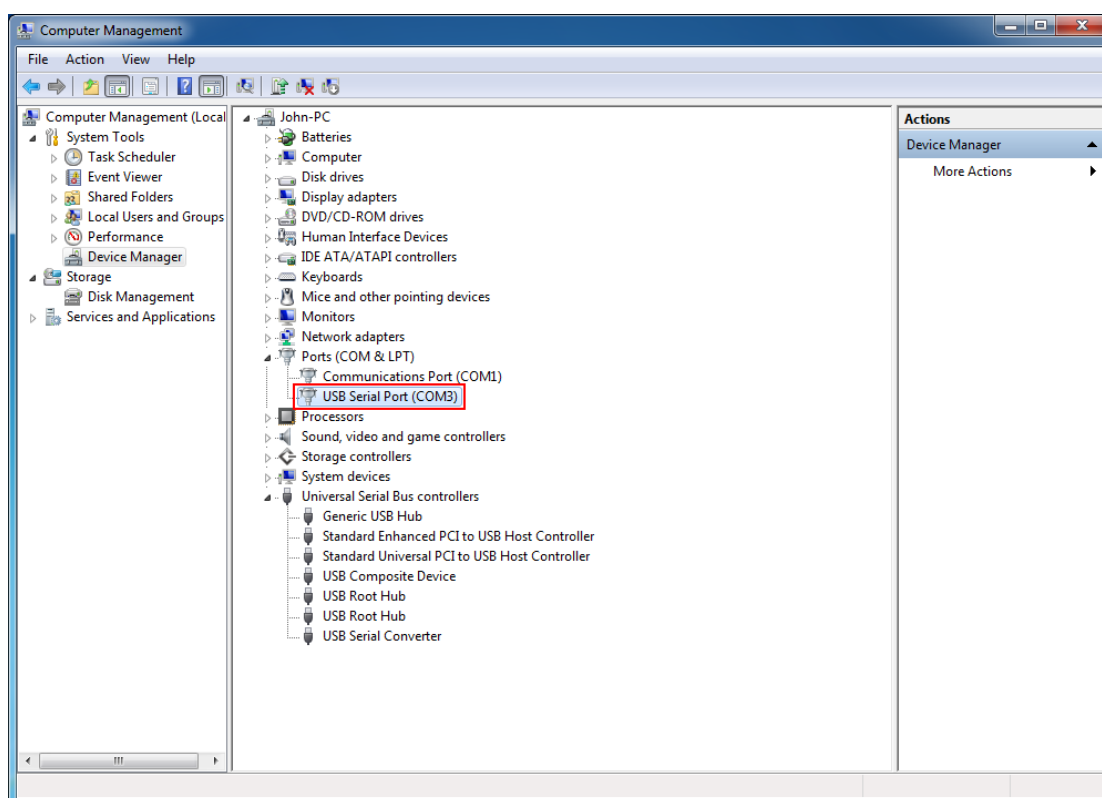


9.4.2 Check USB-485 COM

1. Open the device manager

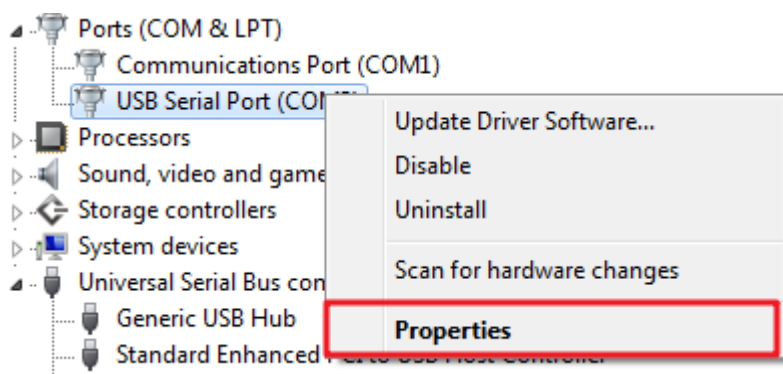
(*Win 7 path is:* Control Panel > device manager; *Win XP path is:* Control Panel > management tool > Computer Management > device manager. The following Win 7 system is taken as an example)

2. Click“ **COM**”can check the USB-485 port “USB Serial Port(**COM x**) ”

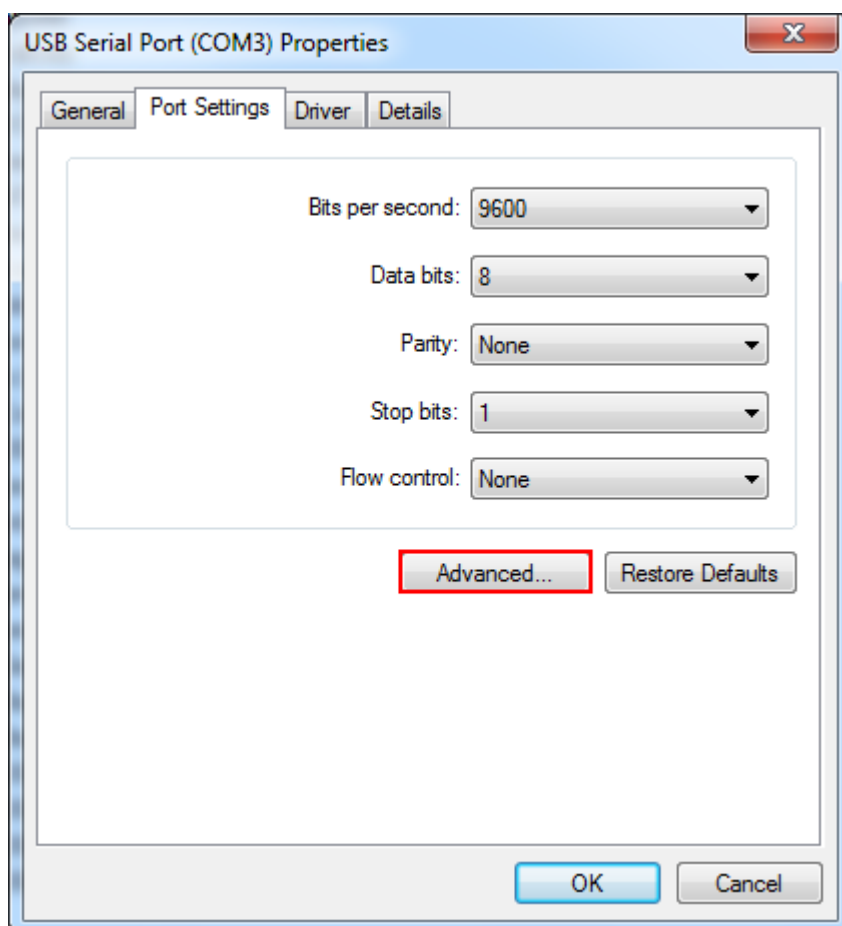


9.4.3 Change USB-485 COM

1. Choose the "**USB serial port**", Choose "**attribute**" by right mouse button



2. Click "**port setting**", then choose "**Advanced**" by left mouse button



3. Through “**COM port**” choose a “**COM x**”, then click “**OK**” to finish change

Advanced Settings for COM3

COM Port Number: **COM3**

OK

Cancel

Defaults

USB Transfer Sizes

Select lower settings to correct performance problems at low baud rates.

Select higher settings for faster performance.

Receive (Bytes): 4096

Transmit (Bytes): 4096

BM Options

Select lower settings to correct response problems.

Latency Timer (msec): 16

Timeouts

Minimum Read Timeout (msec): 0

Minimum Write Timeout (msec): 0

Miscellaneous Options

Serial Enumerator ☒

Serial Printer ☐

Cancel If Power Off ☐

Event On Surprise Removal ☐

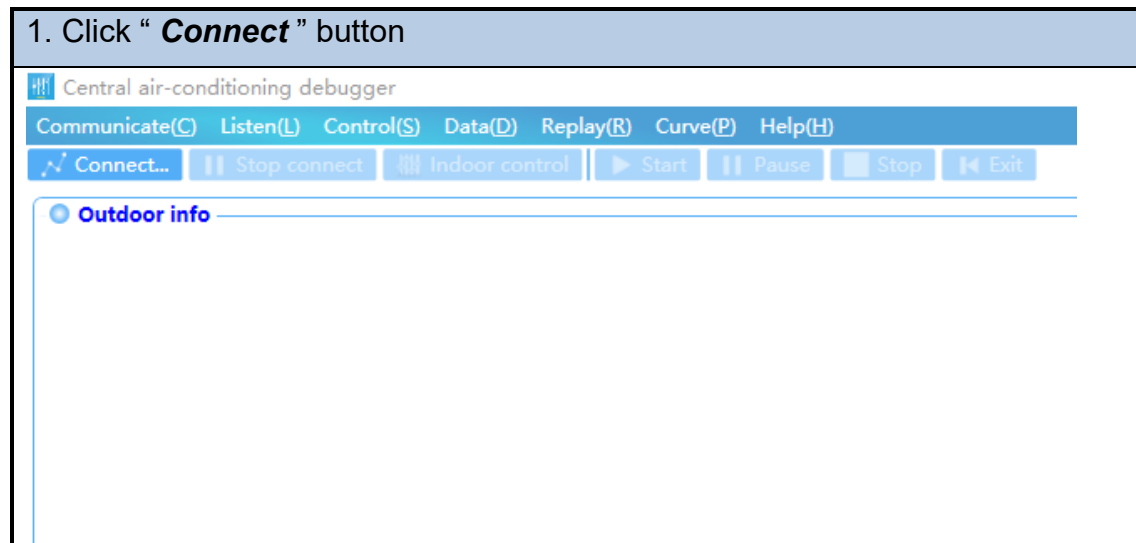
Set RTS On Close ☐

Disable Modem Ctrl At Startup ☐

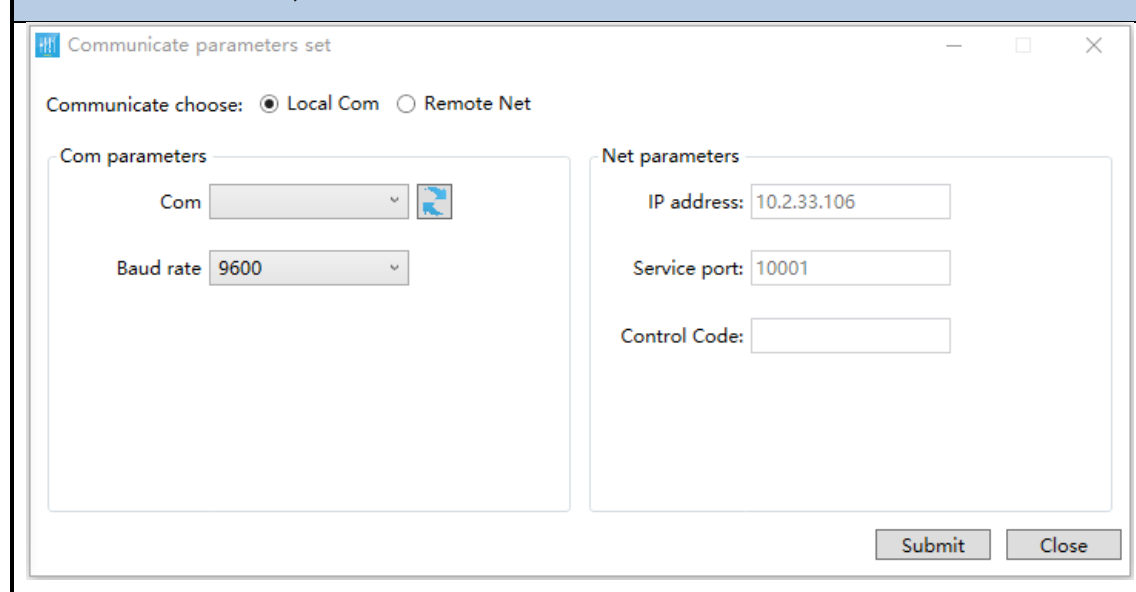
9.5 Function

9.5.1 Communication Port

1. Click “**Connect**” button

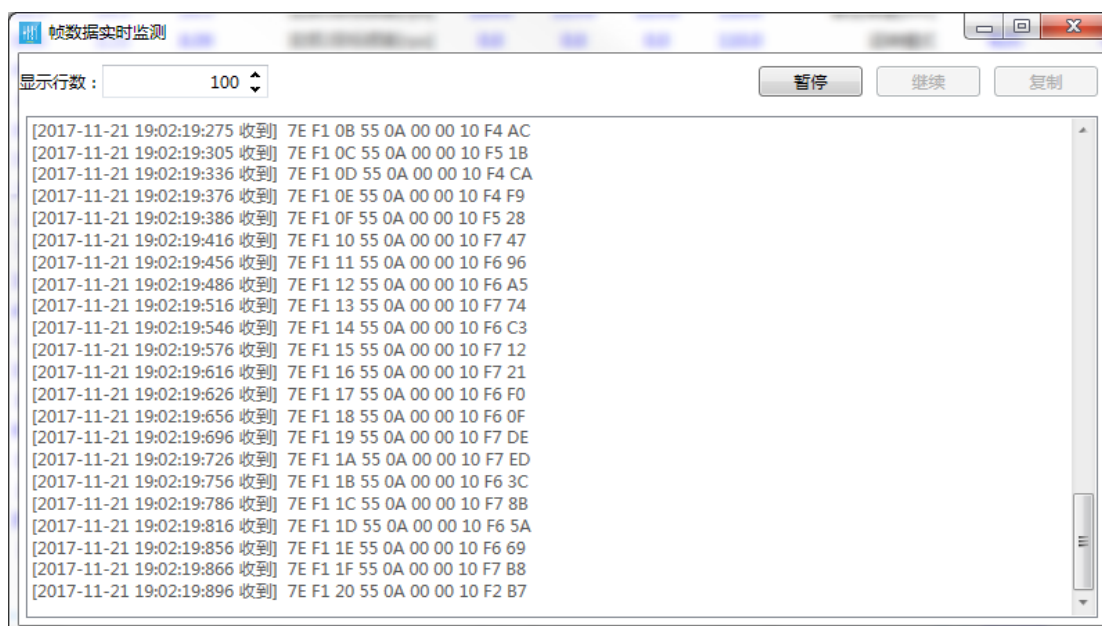
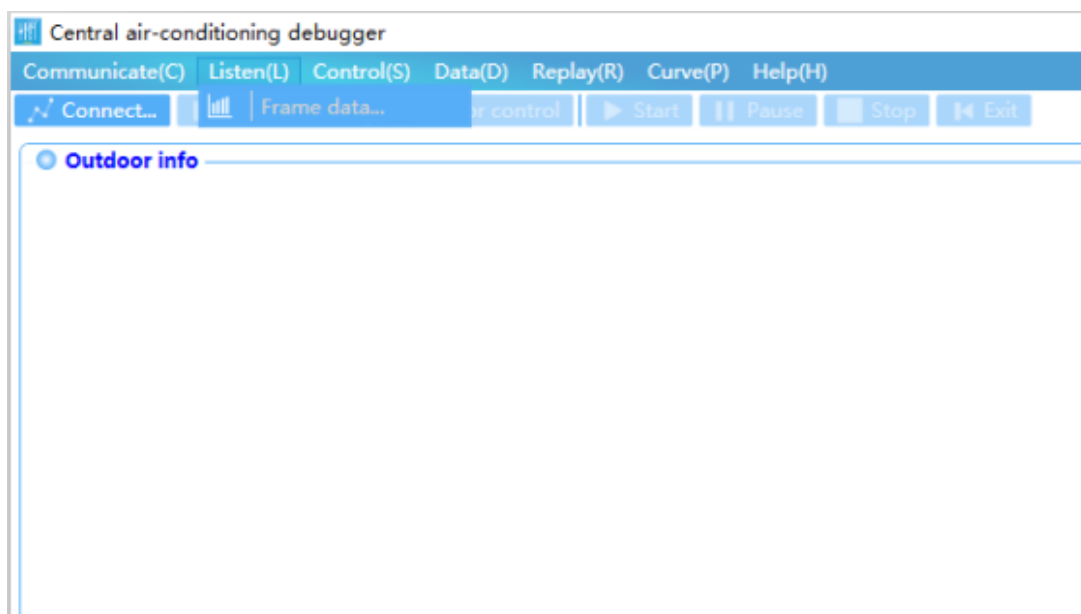


2. Choose “**Com**”, then click “**Submit**” to start



9.5.2 Data Frame

1. Click “**Listen(L)**” button, Choose “**Frame date**”



9.5.3 Control Indoor Unit

Click “**indoor control**” button, Pop-up the following window

Central air-conditioning debugger

Communicate(C) Listen(L) Control(S) Data(D) Replay(R) Curve(P) Help(H)

Connect... Stop connect Indoor control Start Pause Stop Exit

Address: 8 DriveCmd: Cooling ON_OFF: ON SwingCmd: ON Tai: 26.4
 Unit mode: Ducted unit-2 CapReq: Off ModeCmd: Cooling HealthCmd: OFF Te2: 24.4
 Capacity: 5.0 Cap(%): 0 Settemp: 16.0 HeaterCmd: OFF Tem: 25.0
 FirmwVer: V3.7 PC Ctrl: YES FanCmd: Auto SleepCmd: OFF Te1: -55.0

Address	Capacity	ON_OFF	ModeCmd	Settemp	FanCmd	DriveCmd	CapReq	Cap(%)	Tai	Te2	Tem	Te1
1	4.0	ON	Ventilation	28.0	Low	Stop	Off	0	25.5	21.3	21.6	2

Wired controller

Indoor units'IP address

Indoor control

Choose all Cancel all

High

Sleep Fan Swing Mode

Func OFF Health

1 2 3 4 5 6 7 8

9 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 48

49 50 51 52 53 54 55 56

57 58 59 60 61 62 63 64

9.5.4 Operation Parameter Information

1. “**Outdoor data(1/2)**” means: The system had **2 ODU**s, **1 unit was running** and **another unit was standby**

“**Indoor data(3/11)**” means: The system had **11 IDU**s, **3 units were running** and **8 units were standby**

Outdoor data(1/2)			Indoor data (3/11)		
Variable name	Master	Slave1			
RatedCap[kW]	61.5	45.0			
OperMode	Cooling	Cooling			
OperProc	Stop	Common			
Priority	1	0			

2. Whole outdoor data interface

Central air-conditioning debugger

Communicate(C) Listen(L) Control(S) Data(D) Replay(R) Curve(P) Help(H)

Connect Stop connect Indoor control Start Pause Stop Exit

Outdoor data(1/2) Indoor data (3/11)

Variable name	Master	Slave1
Pd[bar]	20.54	25.61
Ps[bar]	8.24	8.06
Pd_t[°C]	35.2	43.9
Ps_t[°C]	4.6	4.0
Tda[°C]	65.1	80.1
Tdb[°C]	64.8	-50.0
Toil[°C]	35.8	65.2
Ts[°C]	35.1	18.2
Tao[°C]	34.7	34.2
Tci[°C]	35.5	73.8
Tdef1[°C]	35.5	37.9
Tgi[°C]	33.0	8.9
Tgo[°C]	33.9	14.6
Tlo[°C]	32.2	31.4
Tfin1[°C]	40.0	54.0
Tfin2[°C]	40.0	0.0
SCS[SHS[°C]	0.0	0.0
HPS 1	Close	Close
PC control	Disable	Disable

Variable name	Master	Slave1
INV1[rps]	0.0	67.0
INV2[rps]	0.0	0.0
alNV1[rps]	0.0	67.0
alNV2[rps]	0.0	0.0
Fan1Tar[rpm]	0	1005
Fan2Tar[rpm]	0	1005
Fan1Spd[rpm/grade]	0	1005
Fan2Spd[rpm/grade]	0	1005
Pulse_EXV 1[pls]	0	480
Pulse_EXV 2[pls]	0	480
Pulse_EXV 3[pls]	0	87
4WV	Close	Close
SV1	Close	Close
SV2	Close	Close
SV3	Close	Open
SV5	Close	Close
SV6	Close	Close
SV7	Close	Close
E-heater 1	Close	Close

Variable name	Master	Slave1
RatedCap[kW]	61.5	45.0
OperMode	Cooling	Cooling
OperProc	Stop	Common
Priority	1	0
TarCap[kW]	0.0	24.2
RunCap[kW]	0.0	24.1
OutRatio[%]	0.000	53.600
Run[stop time[s]	01:08:37	01:05:17
ErrorCode	00	00
V_Inverter 1[V]	512	502
ACI1[A]	0.0	0.0
Icompa[A]	0.0	24.2
V_Inverter 2[V]	513	0
ACI2[A]	0.0	0.0
Icompb[A]	0.0	0.0
Ifan1[A]	0.0	2.0
Ifan2[A]	0.0	1.8
INV info	0	0
FirmwVer	V1.1	V1.1

Unit mode: ARV 6 SysCT: 44.0 Cap.output: 24.2 Connected ODUs: 2 Running time: 01:05:08

OperMode: Cooling SysET: 3.0 Running ratio[%]: 28 Connected IDUs: 11 Time_oil: 02:05:19

OperProc: Common TarUp: 7.0 ProjDebug: Done Install ratio[%]: 106 Time_defrost: 00:00:00

RunSer: 0 TarDown: 4.0 RefriState: Normal Cap.demand: 30.4 Sys error: 00

Communicate data

[2018-06-28 17:23:43:134 Received] 7E F1 CF 55 0A 00 00 11 25 E8

[2018-06-28 17:23:43:384 Received] 7E F1 F0 A5 1D C8 0A 01 40 00 46 00 00 28 00 00 00 40 00 1C 1D 5F 00 00 00 00 90 78

Status: Realtime monitor Remote IP: 10.2.116.12 , Port: 10001 Database path: C:\AuxData\

NO. ①	Name	Detailed information	Reference																																																												
Central air-conditioning debugger Communicate(C) Listen(L) Control(S) Data(D) Connect... Stop connect Ind Outdoor info <table><thead><tr><th>Variable name</th><th>Master</th><th>Slave1</th></tr></thead><tbody><tr><td>Pd[bar]</td><td>20.54</td><td>25.61</td></tr><tr><td>Ps[bar]</td><td>8.24</td><td>8.06</td></tr><tr><td>Pd_t[°C]</td><td>35.2</td><td>43.9</td></tr><tr><td>Ps_t[°C]</td><td>4.6</td><td>4.0</td></tr><tr><td>Tda[°C]</td><td>65.1</td><td>80.1</td></tr><tr><td>Tdb[°C]</td><td>64.8</td><td>-50.0</td></tr><tr><td>Toil[°C]</td><td>35.8</td><td>65.2</td></tr><tr><td>Ts[°C]</td><td>35.1</td><td>18.2</td></tr><tr><td>Tao[°C]</td><td>34.7</td><td>34.2</td></tr><tr><td>Tci[°C]</td><td>35.5</td><td>73.8</td></tr><tr><td>Tdef1[°C]</td><td>35.5</td><td>37.9</td></tr><tr><td>Tgi[°C]</td><td>33.0</td><td>8.9</td></tr><tr><td>Tgo[°C]</td><td>33.9</td><td>14.6</td></tr><tr><td>Tlo[°C]</td><td>32.2</td><td>31.4</td></tr><tr><td>Tfin1[°C]</td><td>40.0</td><td>54.0</td></tr><tr><td>Tfin2[°C]</td><td>40.0</td><td>0.0</td></tr><tr><td>SCS[SHS[°C]</td><td>0.0</td><td>0.0</td></tr><tr><td>HPS 1</td><td>Close</td><td>Close</td></tr><tr><td>PC control</td><td>Disable</td><td>Disable</td></tr></tbody></table> Main machine info	Variable name	Master	Slave1	Pd[bar]	20.54	25.61	Ps[bar]	8.24	8.06	Pd_t[°C]	35.2	43.9	Ps_t[°C]	4.6	4.0	Tda[°C]	65.1	80.1	Tdb[°C]	64.8	-50.0	Toil[°C]	35.8	65.2	Ts[°C]	35.1	18.2	Tao[°C]	34.7	34.2	Tci[°C]	35.5	73.8	Tdef1[°C]	35.5	37.9	Tgi[°C]	33.0	8.9	Tgo[°C]	33.9	14.6	Tlo[°C]	32.2	31.4	Tfin1[°C]	40.0	54.0	Tfin2[°C]	40.0	0.0	SCS[SHS[°C]	0.0	0.0	HPS 1	Close	Close	PC control	Disable	Disable	Pd [bar]	Discharge pressure (1bar=0.1Mpa)	< 32bar
	Variable name	Master	Slave1																																																												
	Pd[bar]	20.54	25.61																																																												
	Ps[bar]	8.24	8.06																																																												
	Pd_t[°C]	35.2	43.9																																																												
	Ps_t[°C]	4.6	4.0																																																												
	Tda[°C]	65.1	80.1																																																												
	Tdb[°C]	64.8	-50.0																																																												
	Toil[°C]	35.8	65.2																																																												
	Ts[°C]	35.1	18.2																																																												
	Tao[°C]	34.7	34.2																																																												
	Tci[°C]	35.5	73.8																																																												
	Tdef1[°C]	35.5	37.9																																																												
	Tgi[°C]	33.0	8.9																																																												
	Tgo[°C]	33.9	14.6																																																												
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	Tfin1[°C]	40.0	54.0																																																												
	Tfin2[°C]	40.0	0.0																																																												
	SCS[SHS[°C]	0.0	0.0																																																												
	HPS 1	Close	Close																																																												
PC control	Disable	Disable																																																													
Ps [bar]	Suction pressure (1bar=0.1Mpa)	< 10bar																																																													
Pd_t [°C]	Saturation temp. (discharge pressure)	/																																																													
Ps_t [°C]	Saturation temp. (suction pressure)	/																																																													
Tda [°C]	Discharge temp. (1# Compressor)	< 92℃																																																													
Tdb [°C]	Discharge temp. (2# Compressor)	< 92℃																																																													
Toil [°C]	Oil temp.	/																																																													
Ts [°C]	Suction temp.	< 22℃																																																													
Tao [°C]	Outdoor ambient temp.	/																																																													
Tci1[°C]	Outlet temp. of condenser	< 45℃																																																													
Tdef1[°C]	Defrost temp.	< 45℃																																																													
Tgi[°C]	Inlet temp. of PMV3	/																																																													
Tgo[°C]	Outlet temp. of PMV3	/																																																													
Tlo[°C]	Outlet temp. of sub-cooler	< Tci1[°C]																																																													
Tfin1[°C]	Temp. of 1# driver module	/																																																													
Tfin2[°C]	Temp. of 2# driver module	/																																																													
SCS[°C]	/	/																																																													
HPS1	High pressure switch state	Close																																																													
PC control	/	/																																																													

NO. ②			Name	Detailed information	Reference
Variable name	Master	Slave1	INV1[rps]	Target frequency (1# Compressor)	/
INV1[rps]	0.0	67.0	INV2[rps]	Target frequency (2# Compressor)	/
INV2[rps]	0.0	0.0	alNV1[rps]	Running frequency (1# Compressor)	/
alNV1[rps]	0.0	67.0	alNV2[rps]	Running frequency (2# Compressor)	/
alNV2[rps]	0.0	0.0	Fan1Tar	Target rpm (1# motor)	/
Fan1Tar[rpm]	0	1005	Fan2Tar	Target rpm (2# motor)	/
Fan2Tar[rpm]	0	1005	Fan1Spd	Running rpm (1# motor)	/
Fan1Spd[rpm/grade]	0	1005	Fan2Spd	Running rpm (2# motor)	/
Fan2Spd[rpm/grade]	0	1005	Pluse_EXV1	Pluse_EXV1 (heating)	480(cooling)
Pulse_EXV 1[pls]	0	480	Pluse_EXV2	Pluse_EXV2 (heating)	480(cooling)
Pulse_EXV 2[pls]	0	480	Pluse_EXV3	Pluse_EXV3(sub-cooling)	/
Pulse_EXV 3[pls]	0	87	4WV	4-way valve (heating)	Close(cooling)
4WV	Close	Close	SV1	Unloading valve	/
SV1	Close	Close	SV2	/	/
SV2	Close	Close	SV3	Sub-cooling valve	Open(cooling)
SV3	Close	Open	SV5	Vapor injection valve (1# Comp.)	Open(heating)
SV5	Close	Close	SV6	Vapor injection valve (2# Comp.)	Open(heating)
SV6	Close	Close	SV7	/	/
SV7	Close	Close	E-heater1	Preheating (1# Compressor)	/
E-heater 1	Close	Close	E-heater1	Preheating (2# Compressor)	/

NO. ③			Name	Detailed information	Reference
			RateCap[kW]	Outdoor capacity	Nameplate
Variable name	Master	Slave1	OperMode	Operating Mode	/
RatedCap[kW]	61.5	45.0	OperProc	Operating process state	/
OperMode	Cooling	Cooling	Priority	Priority	1/0
OperProc	Stop	Common	TarCap	Target output capacity	0~100
Priority	1	0	RunCap	Running output capacity	0~100
TarCap[kW]	0.0	24.2	OutRatio	Target output capacity/ Outdoor capacity	/
RunCap[kW]	0.0	24.1	Run/Stop	Running time	/
OutRatio[%]	0.000	53.600	Error Code	Error Code	/
Run stop time[s]	01:08:37	01:05:17	V_Inverter1	Busbar voltage (1# Compressor)	
ErrorCode	00	00	ACI1[A]	1# Drive module current input	
V_Inverter 1[V]	512	502	Icompa[A]	Current (1# Compressor)	Nameplate
ACI1[A]	0.0	0.0	V_Inverter2	Busbar voltage (2# Compressor)	
Icompa[A]	0.0	24.2	ACI2A]	2# Drive module current input	
V_Inverter 2[V]	513	0	IcompbA]	Current (2# Compressor)	Nameplate
ACI2[A]	0.0	0.0	Ifan1[A]	Current (1# Fan Motor)	Nameplate
Icompb[A]	0.0	0.0	Ifan2A]	Current (2# Fan Motor)	Nameplate
Ifan1[A]	0.0	2.0	INV info	/	/
Ifan2[A]	0.0	1.8	FirmwVer	/	/
INV info	0	0			
FirmwVer	V1.1	V1.1			

3. Whole Indoor data interface

Central air-conditioning debugger

Communicate(C) Listen(L) Control(S) Data(D) Replay(R) Curve(P) Help(H)

Connect... Stop connect Indoor control Start Pause Stop Exit

Outdoor data(1/1) Indoor data (4/6)

Address 1 DriveCmd: Cooling ON_OFF: ON SwingCmd: OFF Tai: 24 SHS: 4 Pump: NO FloatSW: Open WCAddr: 1
 Unit mode: Ducted unit-2 CapReq: On ModeCmd: Cooling HealthCmd: OFF Te2: 18 SCS: 0 Heater: NO Room card: Open CCAddr: 64
 Capacity: 0.8 Cap(%): 13 Settemp: 16 HeaterCmd: OFF Tem: 14 Pulse_EXV: 40 Health: NO Switch: Close Prot_C&H: NO
 FirmwVer: V1.3 PC Ctrl: YES FanCmd: High SleepCmd: OFF Te1: 19 Fan speed: High Swing: NO Slient: NO Errorcode: 00

Address	Capacity	ON OFF	ModeCmd	Settemp	FanCmd	DriveCmd	CapReq	Cap(%)	Tai	Te2	Tem	Te1	SHS	SCS	Pulse_EXV	Fan speed	ErrorCode	Pump	Heater	Health	Swing	Room
1	0.8	ON	Cooling	16	High	Cooling	On	13	24	18	14	19	4	0	40	High	00	NO	NO	NO	NO	NO
2	2.5	ON	Cooling	16	High	Cooling	On	13	24	18	14	19	4	0	60	High	00	NO	NO	NO	NO	NO
3	0.8	ON	Cooling	16	High	Cooling	On	13	25.5	18	14	21	2	0	480	High	00	YES	NO	NO	NO	NO
4	0.8	ON	Cooling	16	High	Cooling	On	13	25.5	18	14	21	2	0	480	High	00	YES	NO	NO	NO	NO
5	0.8	OFF	Cooling	16	High	Stop	Off	0	24	18	14	19	0	0	0	Stop	00	NO	NO	NO	NO	NO
6	2	OFF	Cooling	27	Medium	Stop	Off	0	24	18	14	19	0	0	0	Stop	00	NO	NO	NO	NO	NO

Choose a line(one of the indoor unit),

the **detailed information** of this indoor unit **will be displayed** above this line (① & ②)

Central air-conditioning debugger

Communicate(C) Listen(L) Control(S) Data(D) Replay(R) Curve(P) Help(H)

Connect... Stop connect Indoor control Start Pause Stop Exit

Outdoor data(1/1) Indoor data (4/6)

Address 4 DriveCmd: Cooling ON_OFF: ON SwingCmd: OFF Tai: 25.5 ①
 Unit mode: Ducted unit-2 CapReq: On ModeCmd: Cooling HealthCmd: OFF Te2: 18
 Capacity: 0.8 Cap(%): 13 Settemp: 16 HeaterCmd: OFF Tem: 14
 FirmwVer: V4.5 PC Ctrl: NO FanCmd: High SleepCmd: OFF Te1: 21

SHS: 2 ② Pump: YES FloatSW: Close WCAddr: 1
 SCS: 0 Heater: NO Room card: Open CCAddr: 64
 Pulse_EXV: 480 Health: NO Switch: Close Prot_C&H: NO
 Fan speed: High Swing: NO Slient: NO Errorcode: 00

Address	Capacity	ON OFF	ModeCmd	Settemp	FanCmd	DriveCmd	CapReq	Cap(%)	Tai	Te2	Tem	Te1	SHS	SCS	Pulse_EXV	Fan speed	ErrorCode	Pump	Heater	Health	Swing	Room
1	0.8	ON	Cooling	16	High	Cooling	On	13	24	18	14	19	4	0	40	High	00	NO	NO	NO	NO	NO
2	2.5	ON	Cooling	16	High	Cooling	On	13	24	18	14	19	4	0	60	High	00	NO	NO	NO	NO	NO
3	0.8	ON	Cooling	16	High	Cooling	On	13	25.5	18	14	21	2	0	480	High	00	YES	NO	NO	NO	NO
4	0.8	ON	Cooling	16	High	Cooling	On	13	25.5	18	14	21	2	0	480	High	00	YES	NO	NO	NO	NO
5	0.8	OFF	Cooling	16	High	Stop	Off	0	24	18	14	19	0	0	0	Stop	00	NO	NO	NO	NO	NO
6	2	OFF	Cooling	27	Medium	Stop	Off	0	24	18	14	19	0	0	0	Stop	00	NO	NO	NO	NO	NO

NO. ①

Central air-conditioning debugger

Communicate(C) Listen(L) Control(S) Data(D) Replay(R) Curve(P) Help(H)

Connect... Stop connect Indoor control Start Pause Stop Exit

Address 4 DriveCmd: Cooling ON_OFF: ON SwingCmd: OFF Tai: 25.5
 Unit mode: Ducted unit-2 CapReq: On ModeCmd: Cooling HealthCmd: OFF Te2: 18
 Capacity: 0.8 Cap(%): 13 Settemp: 16 HeaterCmd: OFF Tem: 14
 FirmwVer: V4.5 PC Ctrl: NO FanCmd: High SleepCmd: OFF Te1: 21

Name	Detailed information	Reference
Address	Indoor unit IP address	
Unit Mode	Type of indoor unit	
Capacity	Indoor unit's capacity	Nameplate
FirmwVer	/	
DriveCmd	Drive mode state	
CapRed	Demand state	
Cap(%)	Capacity ration	
PC Ctrl	/	
ON_OFF	ON/OFF state	
ModeCmd	Setting Mode	
Settemp	Setting temperature	
FanCmd	Setting fan speed	
SwingCmd	Setting swing mode	
HealthCmd	Health mode	
HeaterCmd	Electric auxiliary heat mode	
SleepCmd	Sleep mode	
Tai	Room temperature	
Te2	Inlet temperature of evaporator	
Tem	Mid temperature of evaporator	
Te1	Outlet temperature of evaporator	

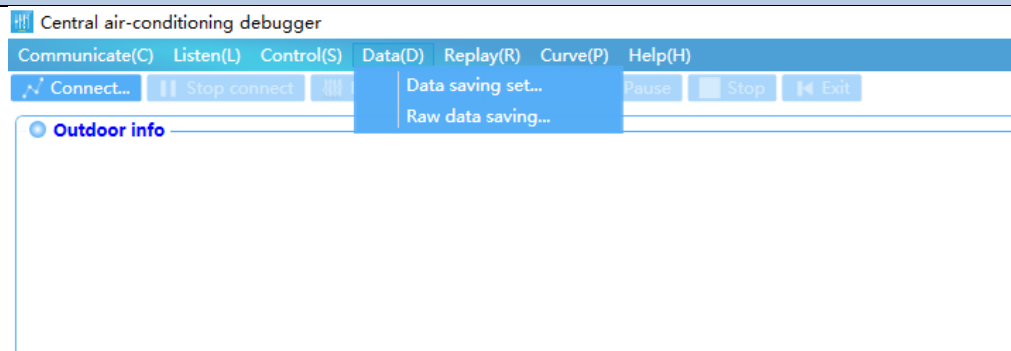
NO. ②

					Outdoor data(1/1)		Indoor data (4/6)			
SHS: 2					Pump: YES		FloatSW: Close		WCAddr: 1	
SCS: 0					Heater: NO		Room card: Open		CCAddr: 64	
Pulse_EXV: 480					Health: NO		Switch: Close		Prot_C&H: NO	
Fan speed: High					Swing: NO		Slient: NO		ErrorCode: 00	
SHS	SCS	Pulse_EXV	Fan speed	ErrorCode	Pump	Heater	Health	Swing	Room card	WCAddr
4	0	40	High	00	NO	NO	NO	NO	NO	0
4	0	60	High	00	NO	NO	NO	NO	NO	0
2	0	480	High	00	YES	NO	NO	NO	NO	0
2	0	480	High	00	YES	NO	NO	NO	NO	0
0	0	0	Stop	00	NO	NO	NO	NO	NO	0
0	0	0	Stop	00	NO	NO	NO	NO	NO	0

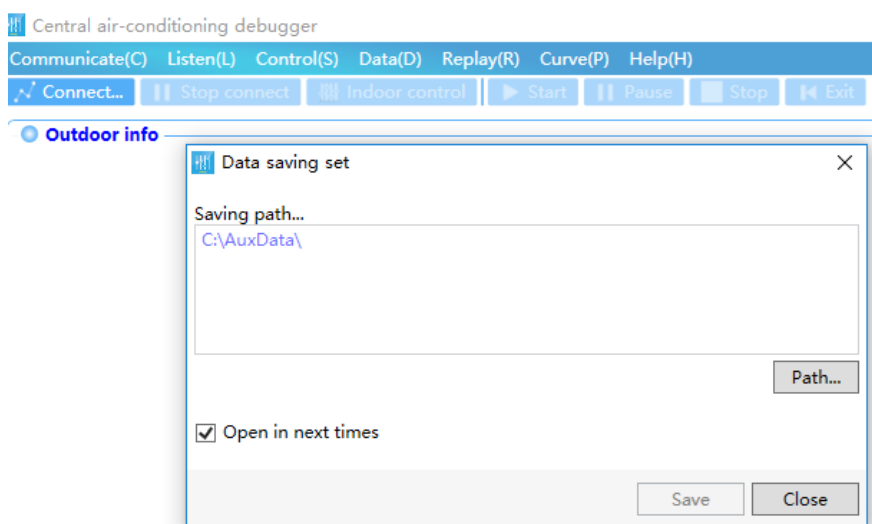
Name	Detailed information	Reference
SHS	Super-heat	
SCS	Sub-cooled	
Pulse_EXV	Pulse_EXV	100~300
Fan speed	Fan speed state	
Pump	Pump	
Heater	Electric auxiliary heat	
Health	Health	
Swing	Swing	
FloatSW	Float switch state	
Room card	Room card state	
Switch	/	
Slient	Slient mode	
WCAddr	Wired controller address	
CCAddr	Central controller address	
Prot_C&H	Protect of super-heat state	
Error code	Error code	

9.5.5 Operation Parameter Save

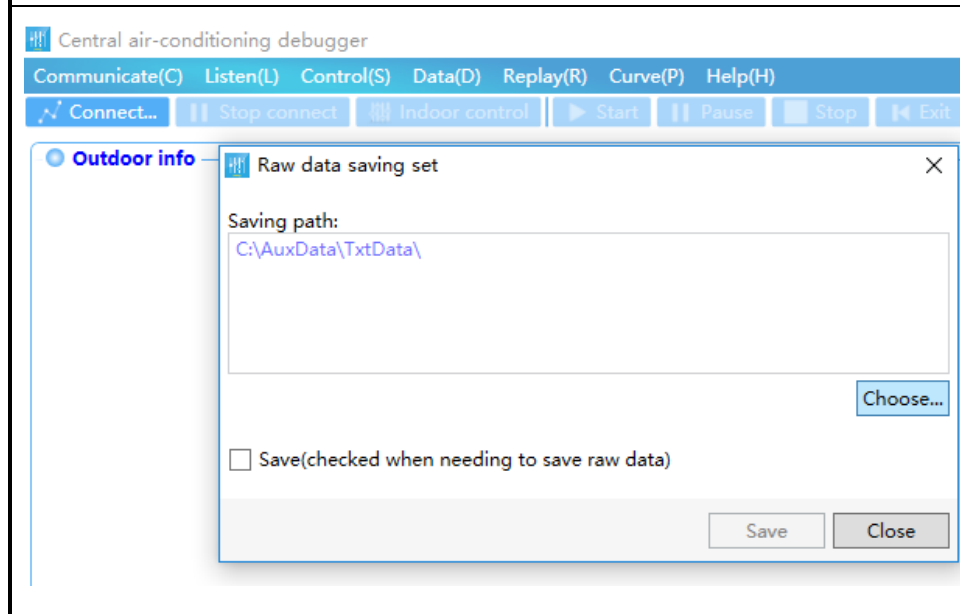
1. Click “**Data**” button



2. Choose “**Data save setting**” button

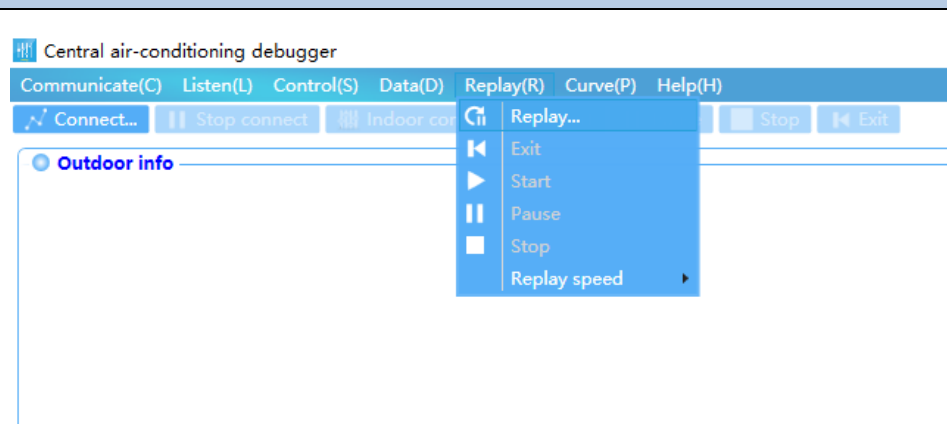


3. Choose “**Raw Data save setting**” button

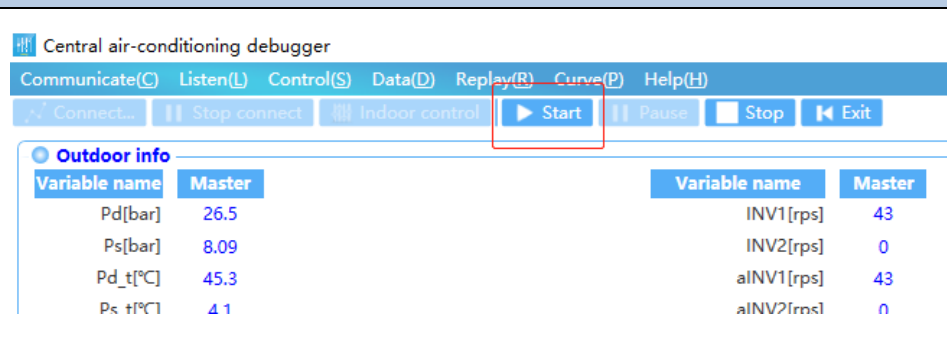


9.5.6 Operation Parameter Replay

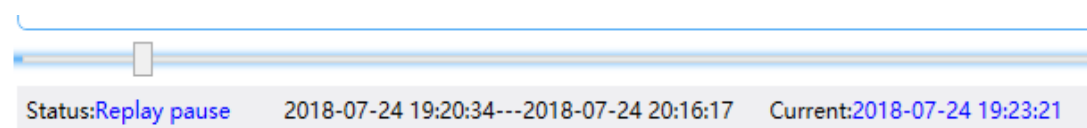
1. Click “**Replay(R)**” button, choose a data file to replay



2. Click “**Start**” button to replay

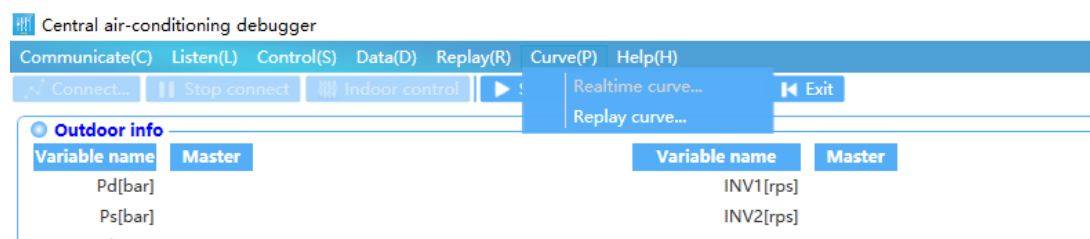


3. Replay progress, replay time, data path were displayed at the bottom.



9.5.7 Operation Parameter Curve

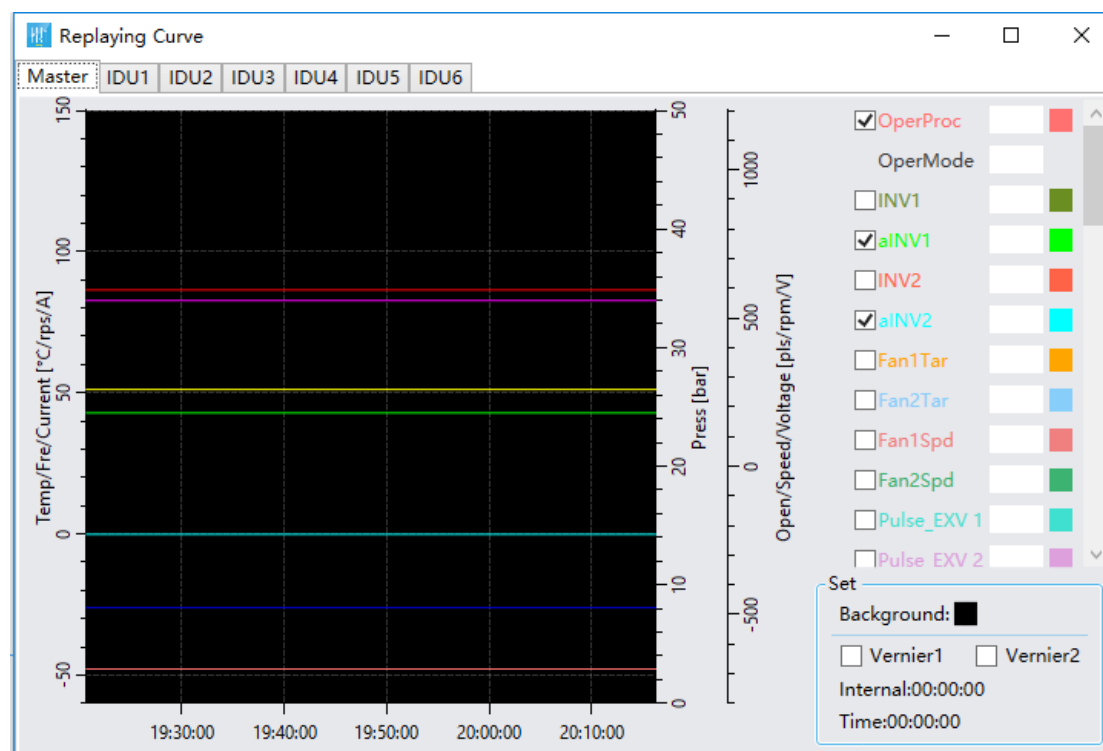
1. Click “**Curve(P)**” button



2. **The curve**

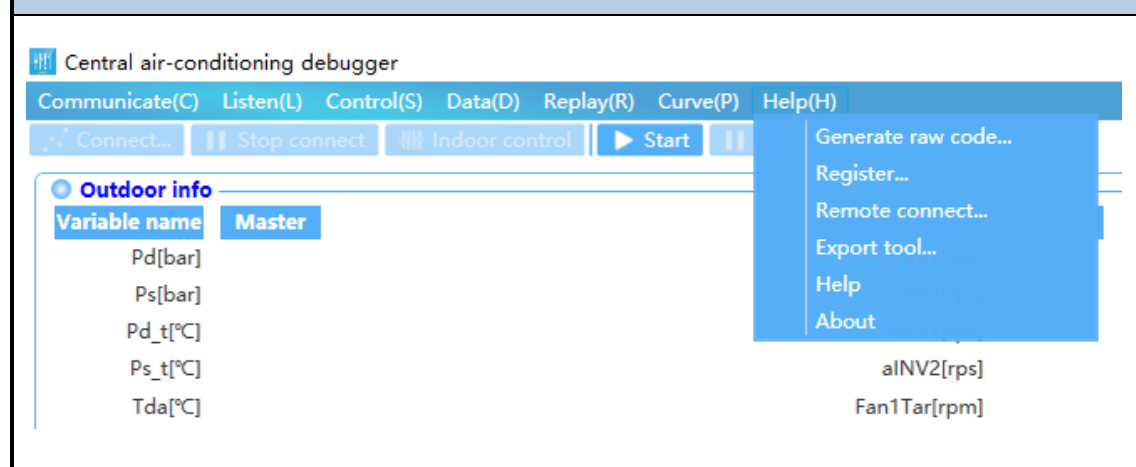
Can show all parameters which changing according the time

Can read the real time parameters within recent 30 min



9.5.8 Operation Manual

1. Click “**Help(H)**” button ,then choose “**Help**” to open the operation manual



9.6 Registration

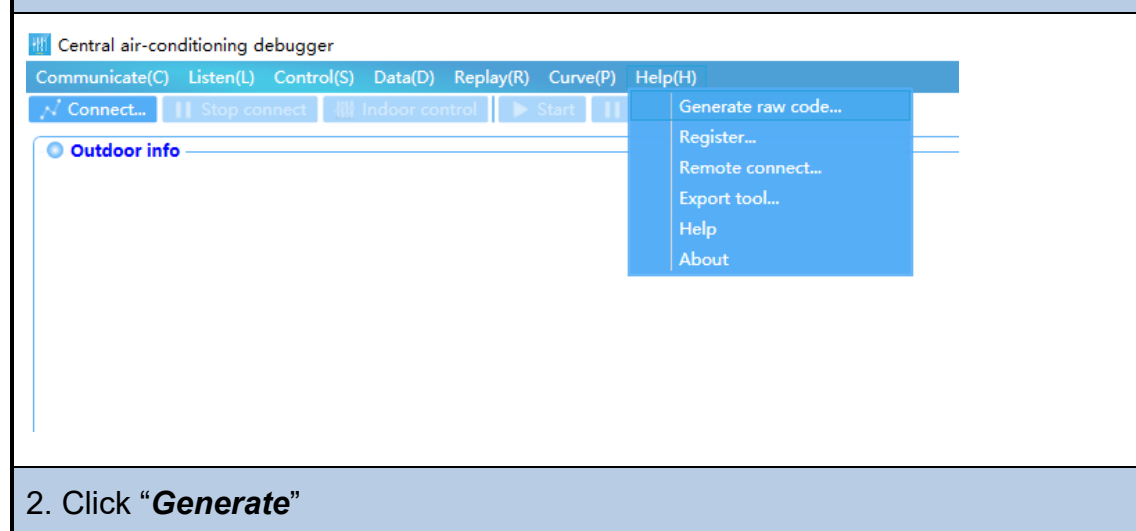
1. Permission Description

The software's default state is the unregistered which can **read real-time parameter**, **operation data's save**, **indoor units' control**, **operation parameter's curve**

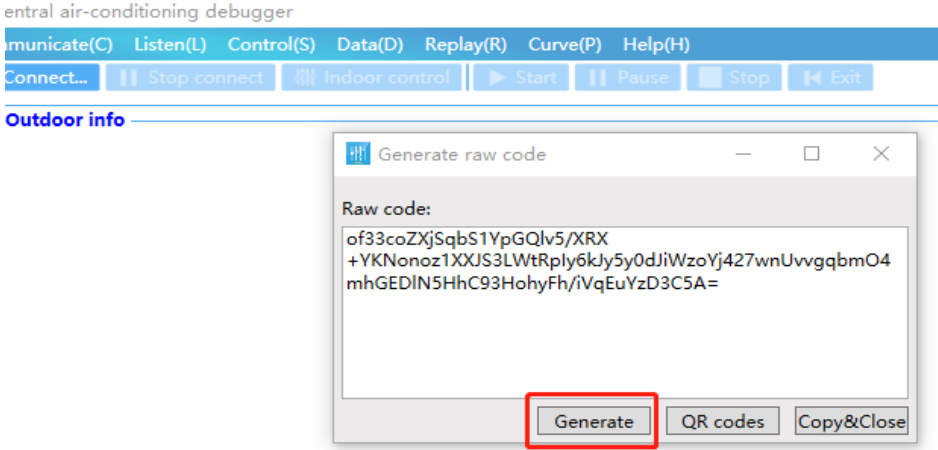
Parameter data **replay** function **need to be registered**, otherwise, cannot replay data

2. Registration Steps

1. Click “**Help(H)**” button to choose “**Generate raw code**”,



2. Click “**Generate**”



entral air-conditioning debugger

Communicate(C) Listen(L) Control(S) Data(D) Replay(R) Curve(P) Help(H)

Connect... Stop connect Indoor control Start Pause Stop Exit

Outdoor info

Generate raw code

Raw code:

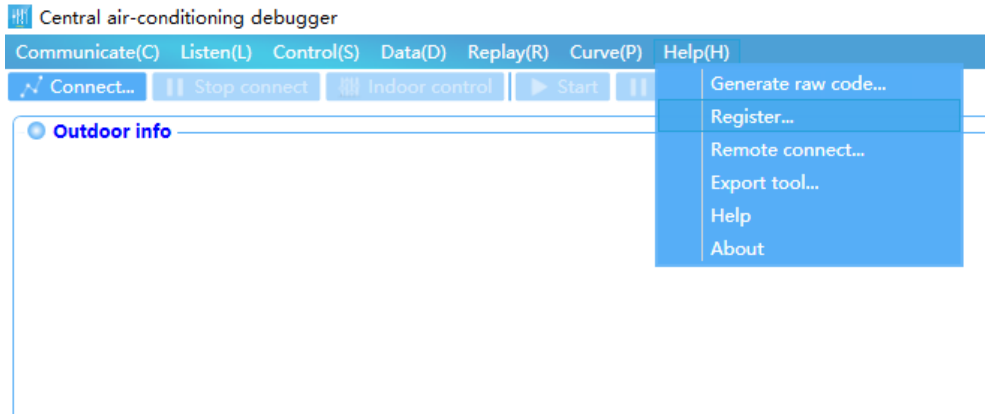
```
of33coZXjSqbS1YpGQlv5/XRX
+YKNonoz1XXJS3LWtRply6kJy5y0dJiWzoYj427wnUvvgqbmO4
mhGEDIN5HhC93HohyFh/iVqEuYzD3C5A=
```

Generate QR codes Copy&Close

3. **Copy raw code**, then **send to technical** support engineer

4. Technical support engineer **provide registration code**

5. Click “**Help(H)**” button to choose “**Register**”



Central air-conditioning debugger

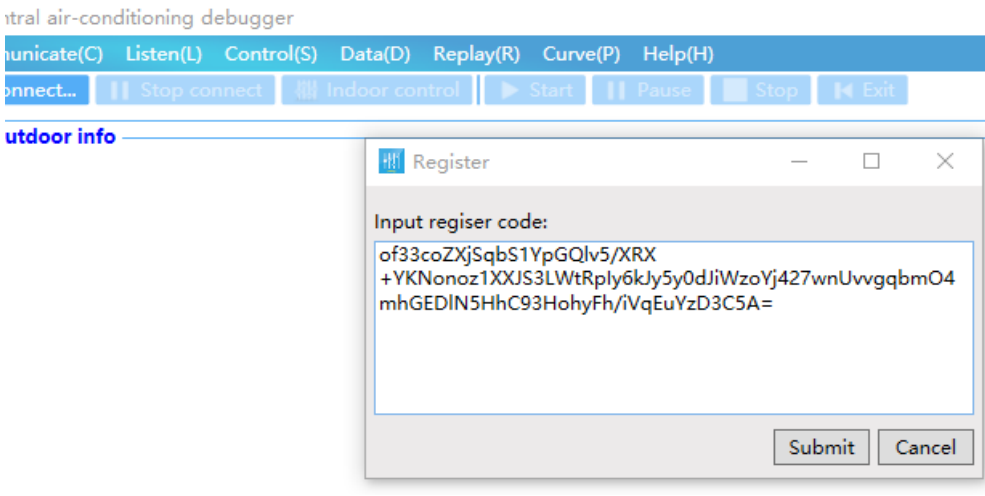
Communicate(C) Listen(L) Control(S) Data(D) Replay(R) Curve(P) Help(H)

Connect... Stop connect Indoor control Start Pause Stop Exit

Outdoor info

Generate raw code... Register... Remote connect... Export tool... Help About

5. Input the Register and finish



entral air-conditioning debugger

Communicate(C) Listen(L) Control(S) Data(D) Replay(R) Curve(P) Help(H)

Connect... Stop connect Indoor control Start Pause Stop Exit

Outdoor info

Register

Input register code:

```
of33coZXjSqbS1YpGQlv5/XRX
+YKNonoz1XXJS3LWtRply6kJy5y0dJiWzoYj427wnUvvgqbmO4
mhGEDIN5HhC93HohyFh/iVqEuYzD3C5A=
```

Submit Cancel

NINGBO AUX ELECTRIC CO.,LTD

Add: NO. 1166 North Mingguang Road, Jiangshan, Ningbo, Zhejinag, PR. China

E-mail:auxcac@mail.auxgroup.com

[Http://auxcac.cn](http://auxcac.cn)

Tel:+86-574-88220564

The above designs and specifications are subject to charge without prior notice. Final specifications please refer to latest technical specification provided by sales representative.



NINGBO AUX ELECTRIC CO.,LTD

更新记录表

更新时间	更新人	更新内容
2020.03.28	阳 露	1.删除 XK02A 老的翻盖线控器 2.删除 CC01 按键集控器 3.增加 MINI 网关说明 4.修改 WIFI 控制界面图片 5.增加监控软件操作部分
2020.04.15	尹春梅	1.增加 A0、AA 故障代码描述(集控, modbus 部分)
2020.05.15	张 标	1.增加 CC02 故障代码列表查询操作
2020.06.05	阳 露	1.修改 CC02 接线图同集控说明书一致
2021.07.26	阳 露	1.增加选型软件
2022.03.01	阳露	1.增加分户计费资料, 2.增加 T 款遥控器 3、删除选型软件