

Operation & Installation Manual

HCM-01

Contents	
Brief Introduction	1
System Wiring Diagram.....	2
Software Installation	8

No. 0150522218

- Please read this operation manual before using the air conditioner.
- Please keep this manual carefully and safely.

Brief Introduction

BMS system transfer the data of air conditioner to the computer through the inverter protocol adapter gateway, and the user can monitor the working state and the power consumption of indoor and outdoor on real time at the computer. Set the parameter of system in time; start or stop a certain indoor individually, or in group as the request; receive the alarm and make some measures on real time; deal with the data and make some cost account tables

Appliances required for HCM-01 system

1. Gateway: convert the protocol of air conditioning system to 485 protocol.
2. Software: enable the ac parameters can be shown and controlled on the computer. Each computer can install only one set of software.
3. Adapter: USB to RS-485: convert 485 to usb.
4. Gateway: HA-MA164AD, HA-MB164AD, IGU02.

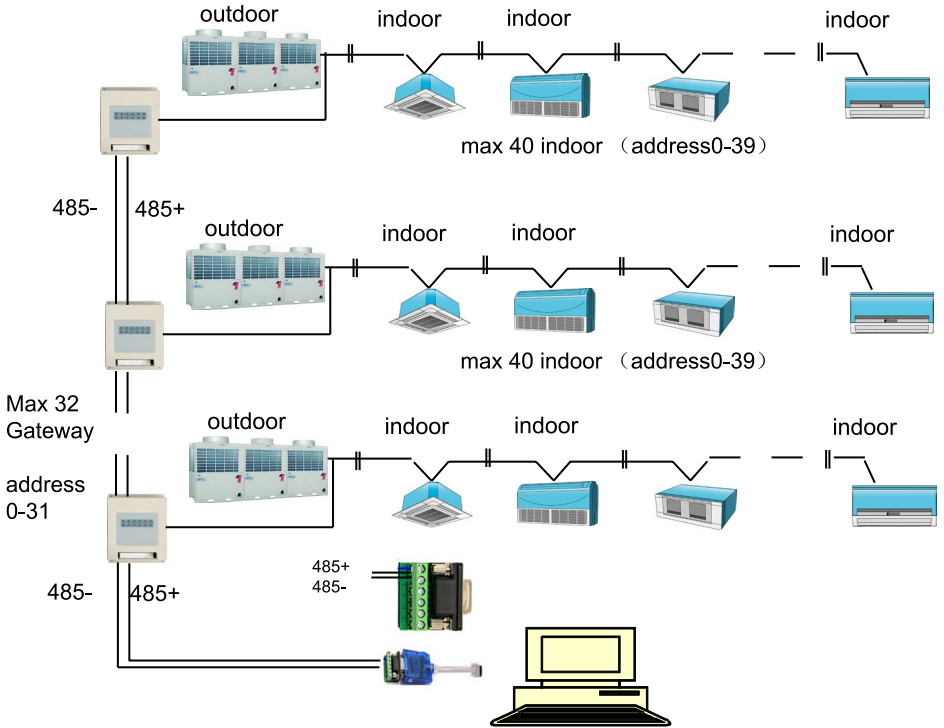
Controllable scale

1. Maximum 40 (0-39) indoor units can be connected to one cooling system.
2. Each cooling system required one protocol adapter, gateway.
3. Maximum 32 gateway can be connected to one set of software. Maximum 512 indoor units can be controlled by one set of software.
4. During the installation, there are two conditions, 32 gateway and 512 indoor units. Which condition is first reached, no more gateway or indoor units can be added.

For example,

- The software (HCM-01) has connected 32 gateway and 200 indoor units. No more gateway can be added.
- The software (HCM-01) has connected 512 indoor units and 20 gateway. No more indoor units can be added, though the software can still have 12 more gateway .

System Wiring Diagram

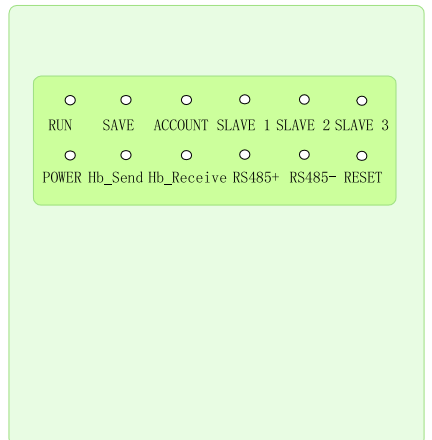


Appearance and dimension of protocol adapter

Appearance:



Dimension: 200*130*43(mm)



System Wiring Diagram

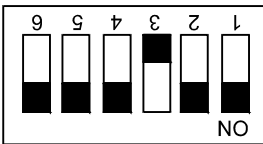
Wiring request

1. Protocol adapter needs 220V AC power supply.
2. The communication line between indoor and outdoor and the bus line 485 among the protocol adapters should be through steel wire sleeve in the H-CACSII.
3. Set the indoor central address and the indoor/outdoor unit address by hand.
4. The system with H-CACSII should not set the group function of wired controller.

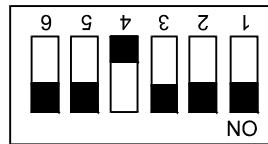
Dip switch setting:

ON: 0; OFF: 1

Left:4

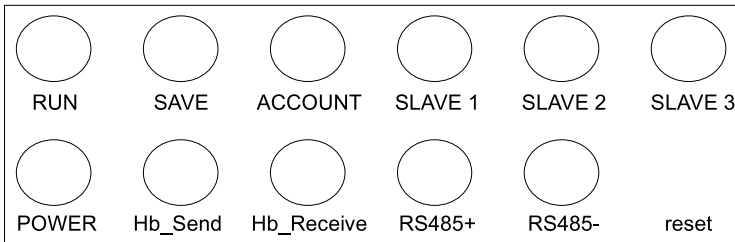


Right:8



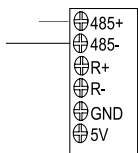
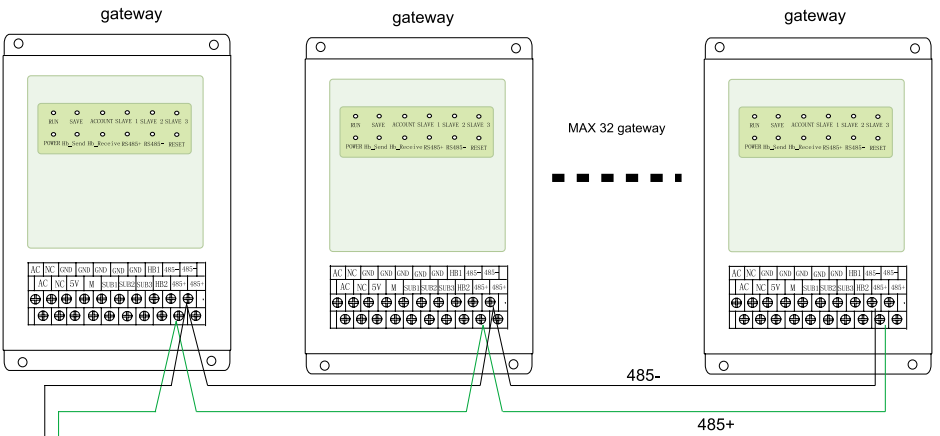
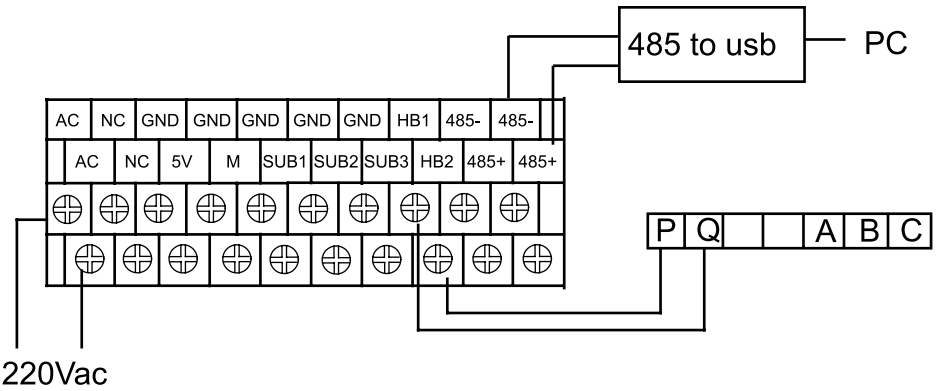
Shows address of IGU02, address range: 1-32.

Communication lamp definition:



System Wiring Diagram

Wiring diagram



Adapter: RS-485 to usb



System Wiring Diagram

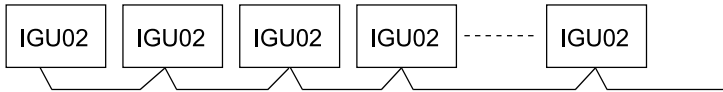
Wirings:

1. Power supply wires: 220V AC, 50Hz.

Use requested specifications and fix it firmly.

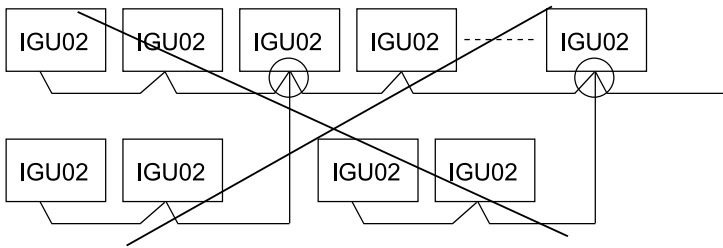
2. Communication wires:

Wires between IGU02 should use two polarity wires and loop connection.



Warning:

The following connection (have interconnection) are not allowed:



Notes:

(1) Communication wires between IGU02 & IGU02 should use twin-core shielding wires and need to connect to the earth.

(2) Iron wire sleeve should be used when install the communication wires, and should separate from power wires;

(3) Communication wires have polarity request;

(4) Maximum total communication wires length is 500m.

3. Maximum 40 sets indoor units should be used in Each outdoor system;

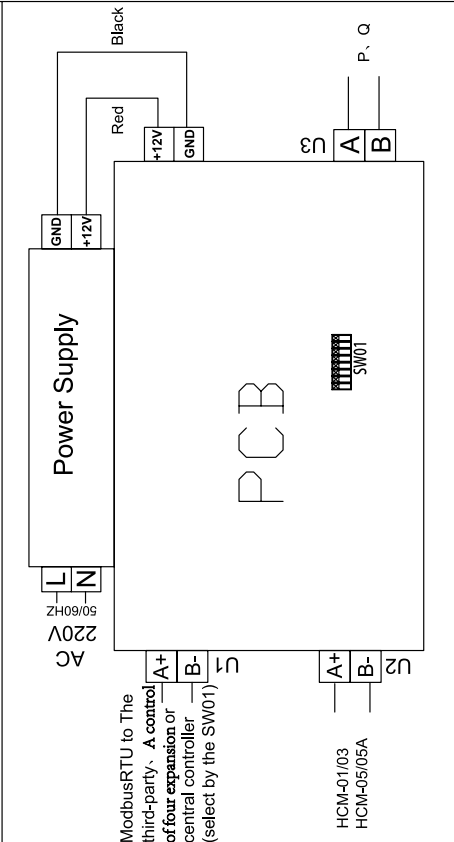
4. When use IGU02, indoor units address should be set manually, and indoor units address setting should from No.0 to the last one in each set outdoor unit system, and indoor & outdoor address (sw03) and central address (sw02) of same indoor unit should be keep the same.

5. The line between indoor and outdoor, the line between gateway and gateway, and pulse line at least 20cm away from strong electrical.

System Wiring Diagram

Wiring Diagram

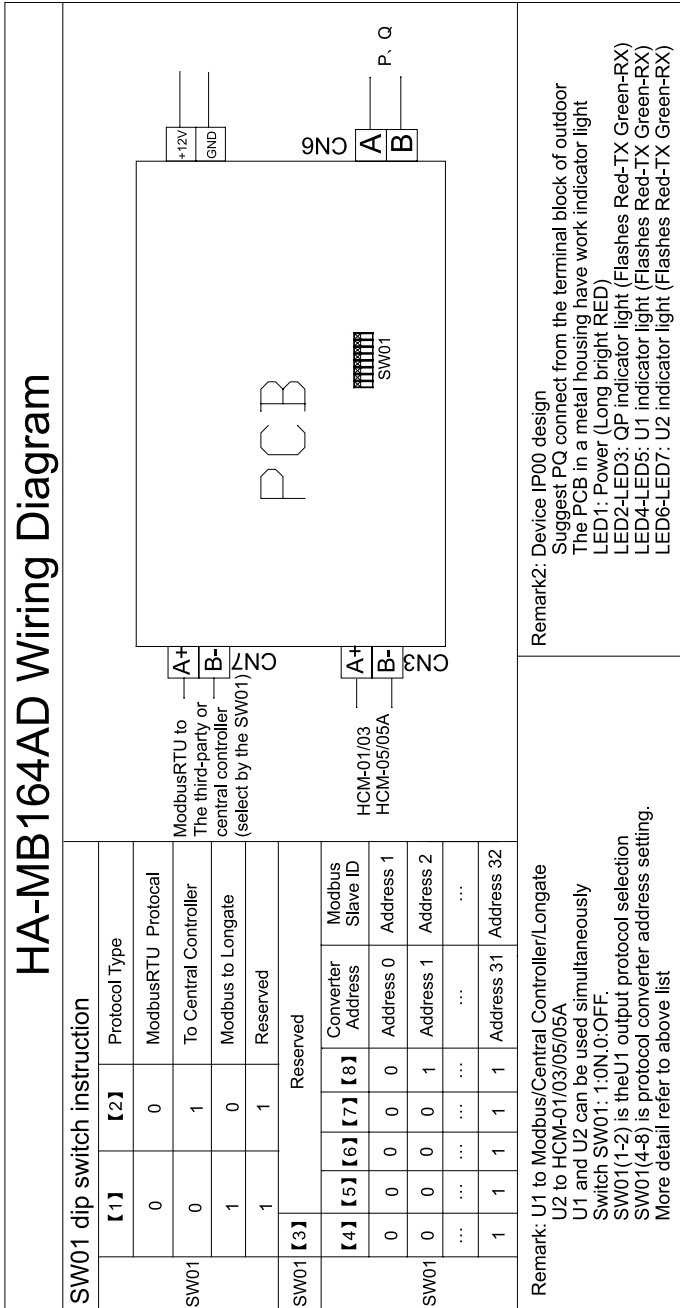
SW01 dip switch instruction																																							
SW01	<table border="1"> <tr> <th>【1】</th> <th>【2】</th> <th>Protocol Type</th> </tr> <tr> <td>0</td> <td>0</td> <td>ModbusRTU Protocol</td> </tr> <tr> <td>0</td> <td>1</td> <td>To Central Controller</td> </tr> <tr> <td>1</td> <td>0</td> <td>Modbus to Longate</td> </tr> <tr> <td>1</td> <td>1</td> <td>A control of four expansion</td> </tr> </table>	【1】	【2】	Protocol Type	0	0	ModbusRTU Protocol	0	1	To Central Controller	1	0	Modbus to Longate	1	1	A control of four expansion																							
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SW01	<table border="1"> <tr> <th>【3】</th> <th colspan="2">Reserved</th> </tr> <tr> <td>【4】</td> <td>【5】</td> <td>【6】</td> <td>【7】</td> <td>【8】</td> <th>Converter Address</th> <th>Modbus Slave ID</th> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>Address 0</td> <td>Address 1</td> </tr> <tr> <td>SW01</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>Address 1</td> <td>Address 2</td> </tr> <tr> <td></td> <td>*</td> <td>*</td> <td>*</td> <td>*</td> <td>*****</td> <td>*****</td> </tr> <tr> <td></td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>Address 31</td> <td>Address 32</td> </tr> </table>	【3】	Reserved		【4】	【5】	【6】	【7】	【8】	Converter Address	Modbus Slave ID	0	0	0	0	0	Address 0	Address 1	SW01	0	0	0	0	Address 1	Address 2		*	*	*	*	*****	*****		1	1	1	1	Address 31	Address 32
【3】	Reserved																																						
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	*	*	*	*	*****	*****																																	
	1	1	1	1	Address 31	Address 32																																	



Remark1: U1 to Modbus/Central Controller/Longate
U2 to HCM-01/03/05/05A
U1 and U2 can be used simultaneously
Switch SW01: 1:0N,0:OFF.
SW01(1-2) is theU1 output protocol selection
SW01(4-8) is protocol converter address setting.
More detail refer to above list

Remark2: Device IP00 design
Suggest PQ connect from the terminal block of outdoor
The PCB in a metal housing have work indicator light
LED1: Power (Long bright RED)
LED2-LED3: QP indicator light (Flashes Red-TX Green-RX)
LED4-LED5: U1 indicator light (Flashes Red-TX Green-RX)
LED6-LED7: U2 indicator light (Flashes Red-TX Green-RX)

System Wiring Diagram




Software Installation

Install database

1. Insert the disc into CD-ROM. Double click icon. (as follows):

Hard Disk Drives (4)



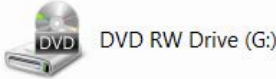
Local Disk (C:) 40.1 GB free of 80.0 GB

Disk (D:) 103 GB free of 129 GB

Disk (E:) 123 GB free of 129 GB

Local Disk (F:) 55.3 GB free of 127 GB

Devices with Removable Storage (1)



DVD RW Drive (G:)

2. The disc contains several driver files for different computer system.

Name	Date modified	Type
Linux x64 (64-bit)	2016/4/19 16:36	File folder
Linux x86 (32-bit)	2016/4/19 16:36	File folder
Linux x86_64	2016/4/19 16:36	File folder
Mac OS 8 9	2016/4/19 16:36	File folder
Mac OS X 10.9 and above	2016/4/19 16:36	File folder
uninstall software	2016/4/19 16:36	File folder
win xp server2003 2008 2012 Vista 7 8 8.1 10 32-64bit	2016/4/19 16:36	File folder
win98 ME	2016/4/19 16:36	File folder
Date created: 2016/10/9 17:28 Size: 656 KB Folders: 232, 2232	2016/4/19 16:36	File folder
PocketPC 2003 ARM XScale Processor	2016/4/19 16:36	File folder
Windows CE 4.2-5.2 Mobile 5 6 PocketPC 2003 x86 Processor	2016/4/19 16:36	File folder
Windows CE 6.0 ARM XScale Processor	2016/4/19 16:36	File folder
Windows CE 6.0 x86 Processor	2016/4/19 16:36	File folder
Windows CE 2013	2016/4/19 16:36	File folder
LINUX README.txt	2016/4/19 16:36	Text Document

3. Choose the corresponding driver to your computer. Take win7 32bits as an example. Double click

win xp server2003 2008 2012 Vista 7 8 8.1 10 32-64bit	2016/4/19 16:36	File folder
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and it will show,

Software Installation

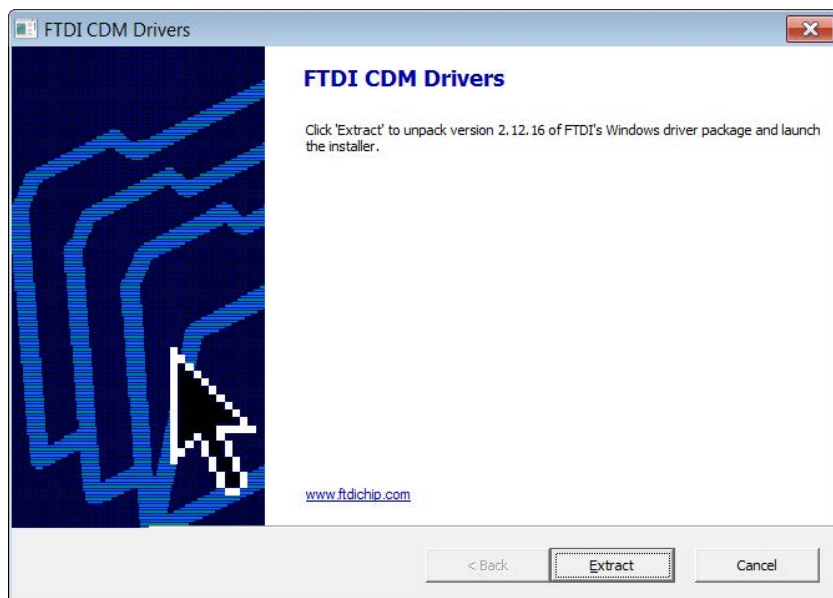
amd64	2016/4/19 16:36	File folder	
i386	2016/4/19 16:36	File folder	
Static	2016/4/19 16:36	File folder	
CDM 2 12 16 Release Info.rtf	2016/4/19 16:36	RTF 格式	216 KB
CDM v2.12.16 WHQL Certified.zip	2016/4/19 16:36	好压 ZIP 压缩文件	1,322 KB
CDM21216_Setup.exe	2016/4/19 16:36	Application	2,075 KB
CDM21216_Setup.rar	2016/4/19 16:36	好压 RAR 压缩文件	2,021 KB
ftd2xx.h	2016/4/19 16:36	H File	40 KB
ftdibus.cat	2016/4/19 16:36	Security Catalog	15 KB
ftdibus.inf	2016/4/19 16:36	Setup Information	18 KB
ftdiport.cat	2016/4/19 16:36	Security Catalog	14 KB
ftdiport.inf	2016/4/19 16:36	Setup Information	15 KB

Type: Security Catalog
Size: 13.3 KB

4. Double click

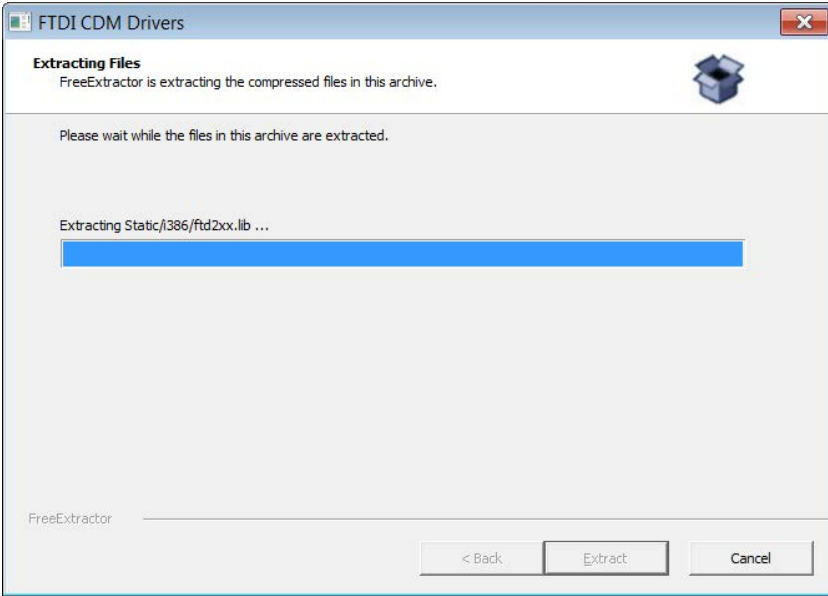
CDM21216_Setup.exe	2016/4/19 16:36	Application	2,075 KB
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5. The installation starts as follows. Click 'Extract'

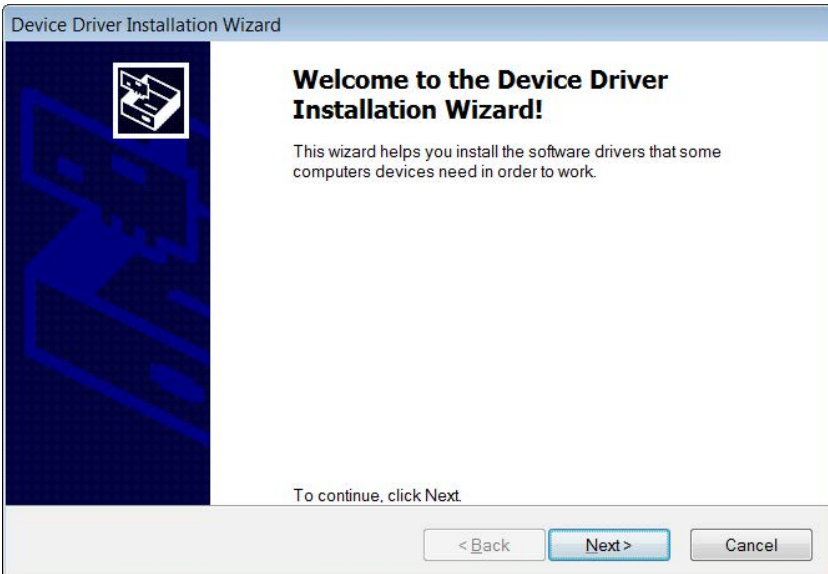


Software Installation

6. Driver installation is under progress

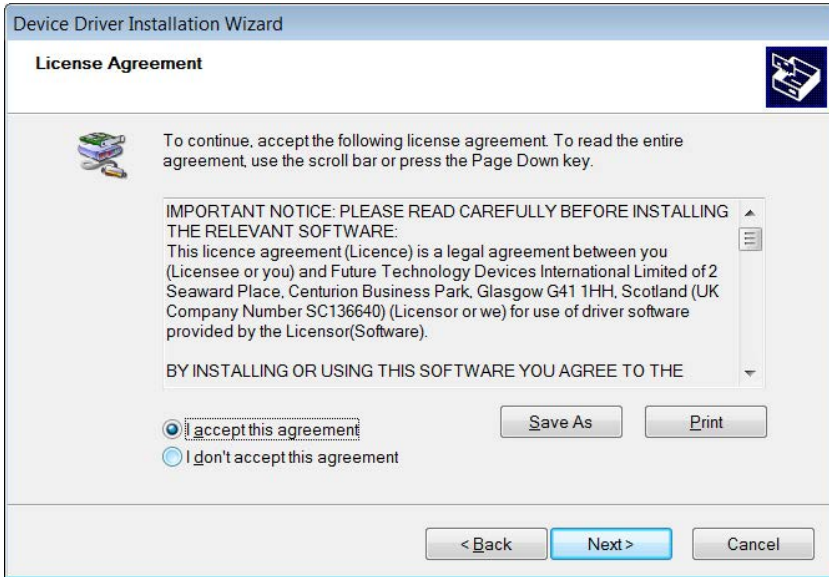


7. Click 'Next'

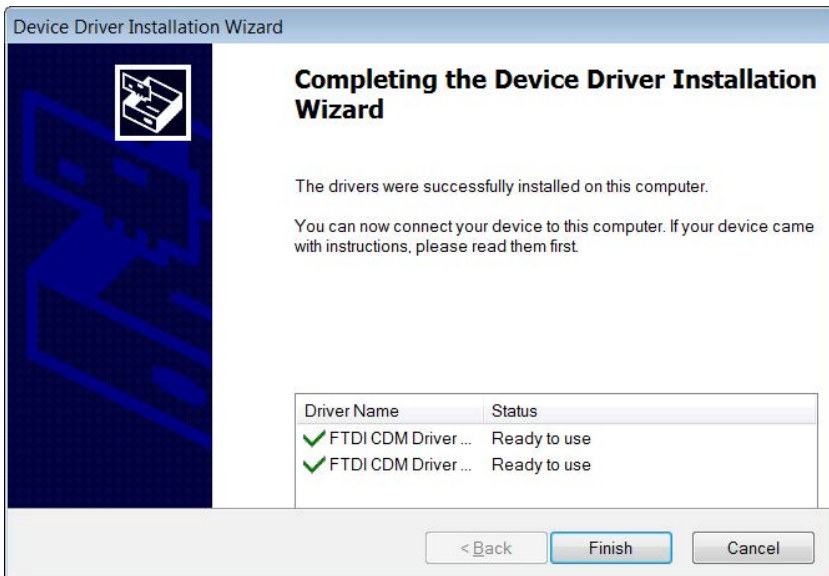


Software Installation

8. Click acept this agreement and 'Next'



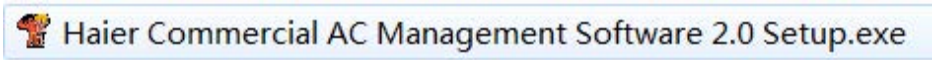
9. Click 'Finish' after finished



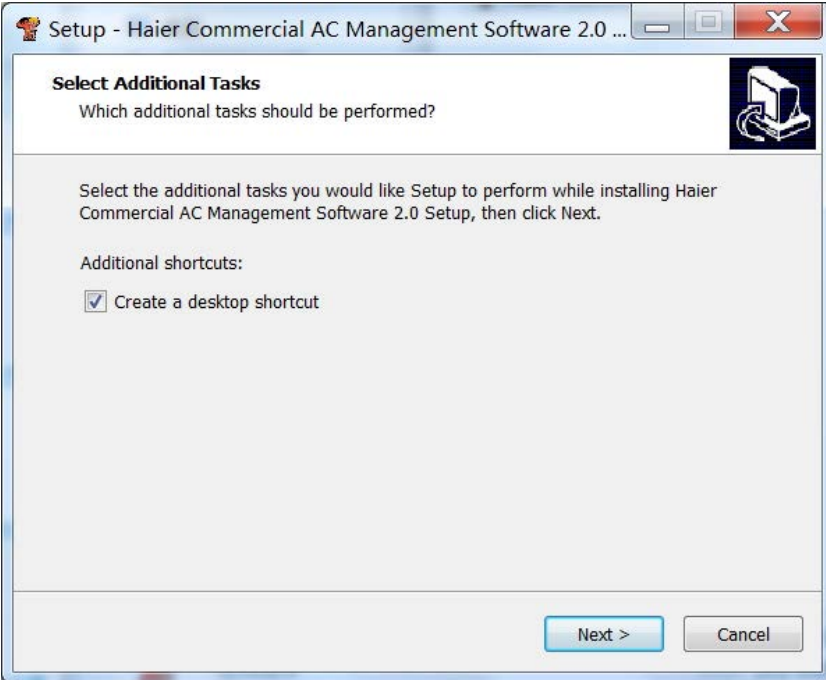
Software Installation

Management software installation and start

1. Management software installation

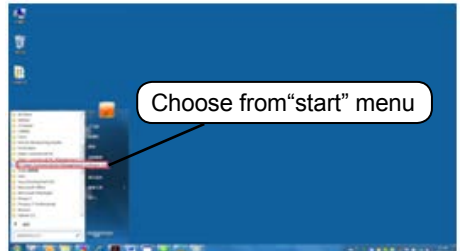
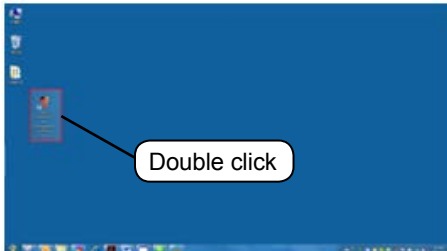


Double click to start installation, then press next step until finishing installation.



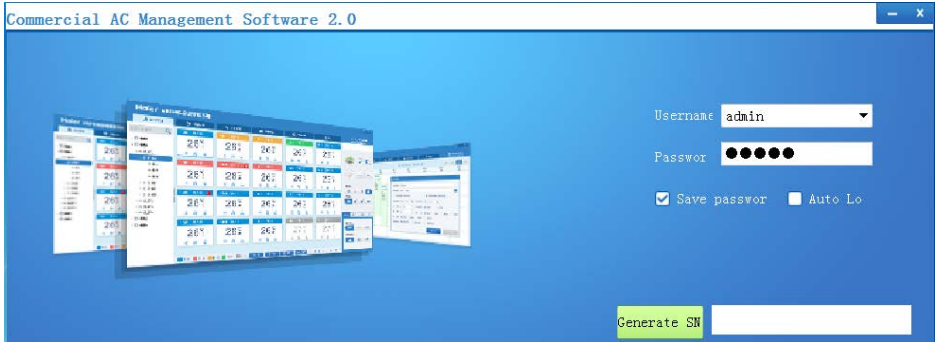
2. Start

Double click "Haier Commercial AC Management Software 2.0" icon on the desktop, or choose "Haier Commercial AC Management Software 2.0" from "start" menu



Software Installation

It is required to register for the first time running.



Click “Generate SN”, to generate the SN code, and send SN code to Haier technician to get “lisense.dat”. After getting “lisense.dat”, copy it to installation directory to cover the previous “lisense.dat”. Close the software and then reopen it, and the software will work properly.

Input user name and password in the prompt login window.

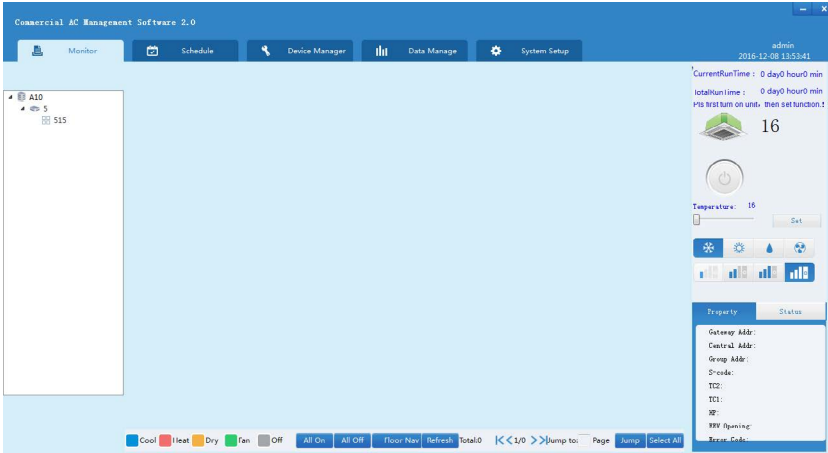
User name: admin(default)

Password: 12345(default)



After inputting user name and password, click “login” to enter main interface, as shown in following pic.

Software Installation

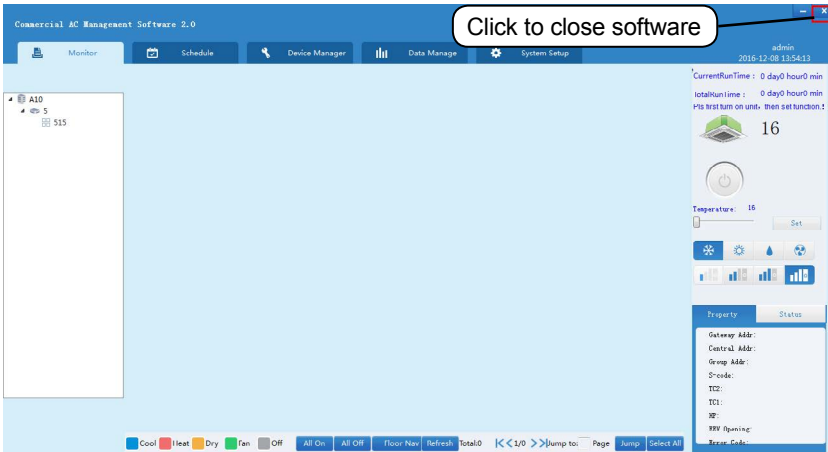


3. Stop the software

When turn off computer power, two steps are needed:

- ① exit "Haier Commercial AC Management Software 2.0"
- ② exit Windows

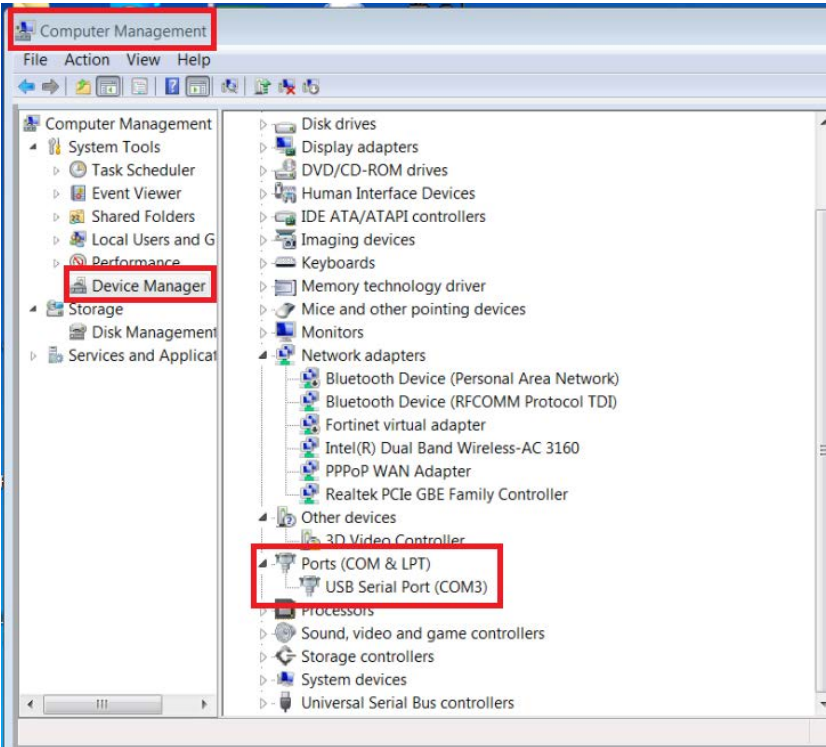
When exiting "Haier Commercial AC Management Software 2.0", click "X" on the top right corner on the main interface and then exit Windows.



Software Installation

Communication port setting

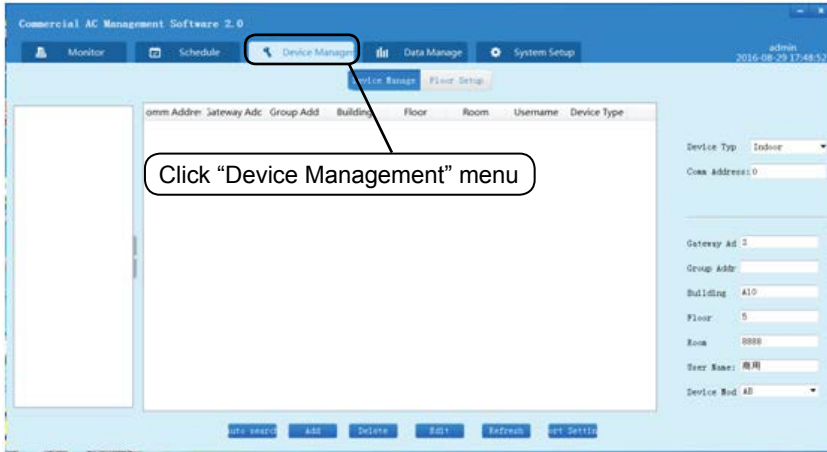
1. Set port No. according to the actual connected port. Check the actual port No. from Computer Management-Device Manager.



As shown in above picture, the port connected is COM3 and port No. is accordingly 3.

Software Installation

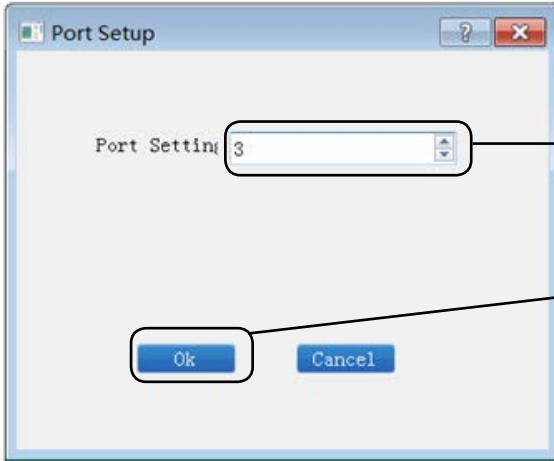
2. Click “Device Management” menu



3. Click“Port Setting” on the bottom right



Software Installation



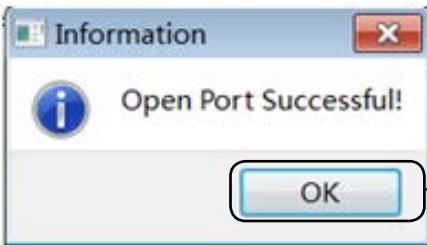
Input computer port No.
If COM3, port No. is 3.

Press "OK" to finish setting
and "Cancel" to quit setting.

4. Input port No. into the dialog box. For example, if COM3, input "3". Click "OK" and it will pop out a new... dialog box indicating serial port is open. Click "OK" and after 3s, it will Pop out a dialog box indicating serial port open successfully. Click "OK" to finish port setting.



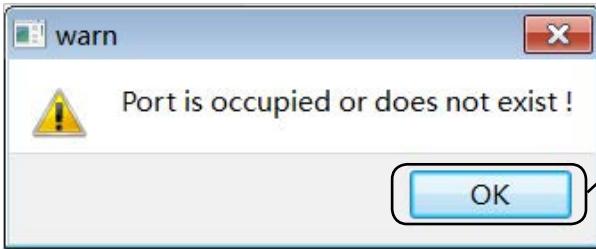
Click "OK" and after
window disappears, wait.



Click "OK" and after
window disappear, continue
to operate

Software Installation

5. If port setting is wrong, it will pop out a warning... window indicating this port is occupied or does not exist. Please set again



Click "OK" to reset the port. Please first check whether port No. is right. Please restart computer when using serial port tool for the first time.

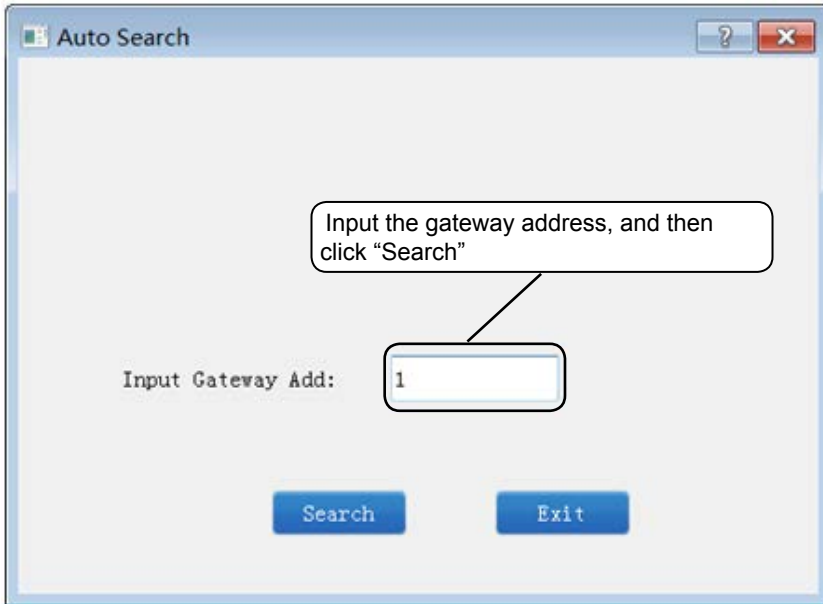
Adding/deleting device

1. Adding device by auto searching

(a) Click "auto search"

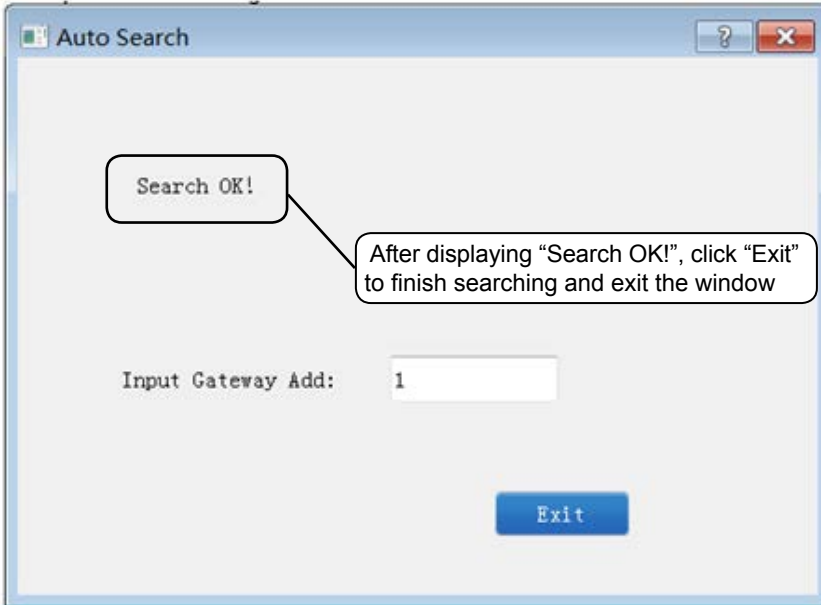


Software Installation

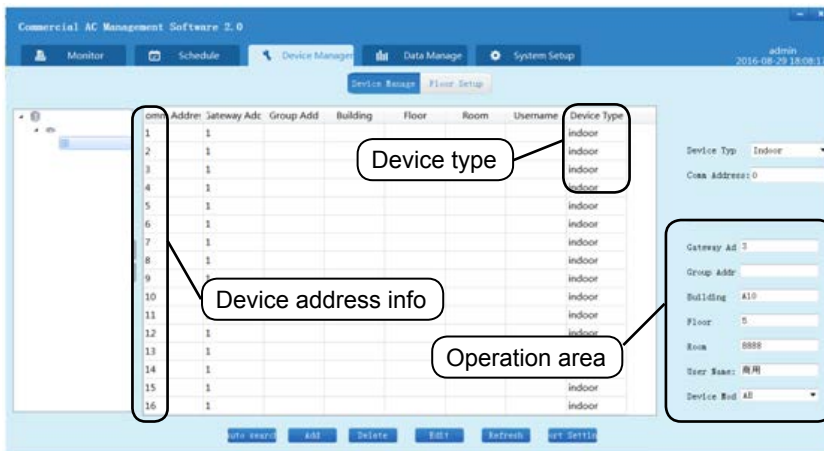


(b) Inputconverter– the gateway address (from 0 to 31) into the popping-out dialog box, and then click “search” .
After finishing searching, it will pop out “Search OK ! ”, and then click “Exit” to ... close the dialog box.

Software Installation



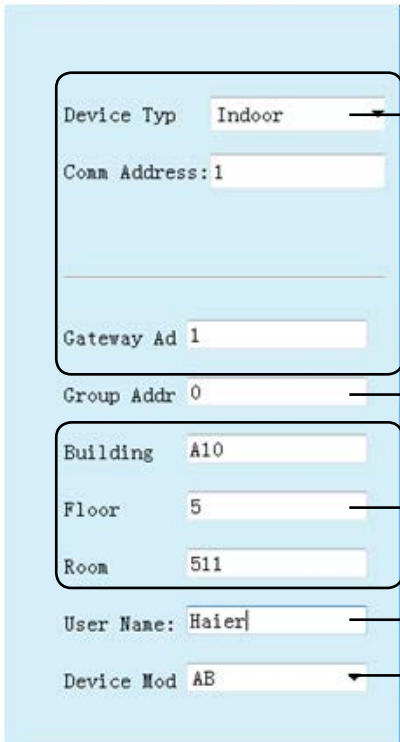
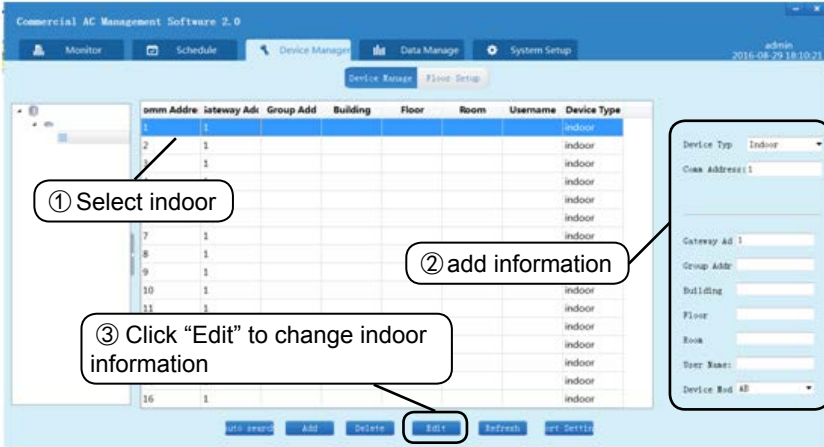
(c) The searched indoor information shown in the device management list is: Comm address, gateway address and device type. Other information needs to add from the list on the right hand.



Software Installation

(d)Indoor information adding.

Clickthe indoor that needs to add information from the device list.



When manually adding new device, it is required to manually input model/ indoor address/gateway address. When changing the already existed device's information, indoor address and gateway address can not be changed.

If this shows vacant or 0, it indicates this is master indoor in wired group controlling, while 1-15 are slave addresses. Slave indoors cannot be controlled

User defined AC location

User defined AC name

Indoor model (duct, wall, cassette, convertible)

Software Installation

Indoor information adding:

Group address: when using wired controller to control more than one indoor, master address is 0 and slave addresses are from 1 to 15.

Building: in which building the indoor unit is installed.

Floor: on which floor the indoor unit is installed.

Room: in which room the indoor unit is installed.

User name: the user of indoor.

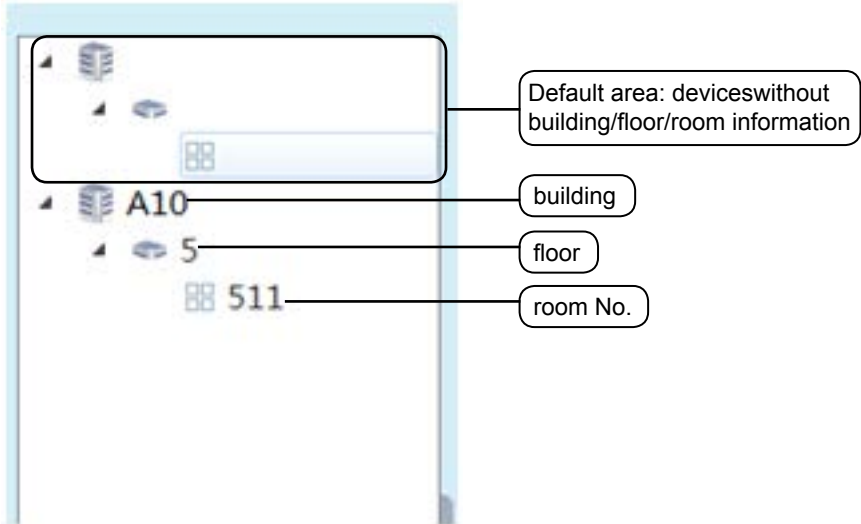
Model: indoor model : AB: Cassette; AC:Convertible; AD: duct; AS: Wall

(e) Click “Edit” to finish the ... adding information, it will update indoor information in the indoor list, and the relevant building, floor and room will be shown in the left structure.

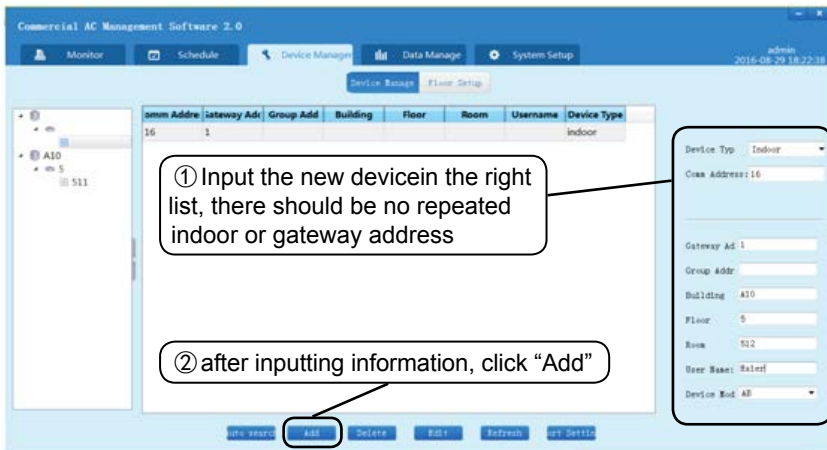
comm Address	Gateway Addr	Group Addr	Building	Floor	Room	Username	Device Type
2	1						indoor
3	1						indoor
4	1						indoor
5	1						indoor
6	1						indoor
7	1						indoor
8	1						indoor
15	1						indoor
16	1						indoor

comm Address	Gateway Addr	Group Addr	Building	Floor	Room	Username	Device Type
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Software Installation



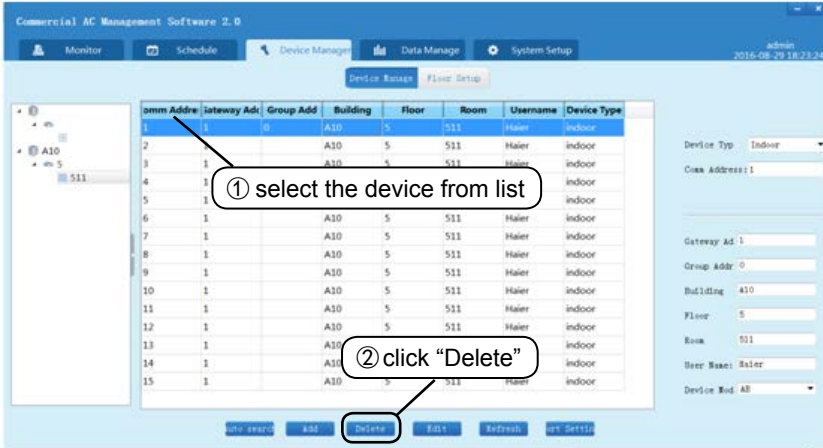
2. Manually adding



- Add indoor information in the right list, and there should be no repeated indoor or gateway address.
- Click "Add" to finish adding.
- After adding, it will display newly added indoor information in the list. Restart the software to confirm the setting.

Software Installation

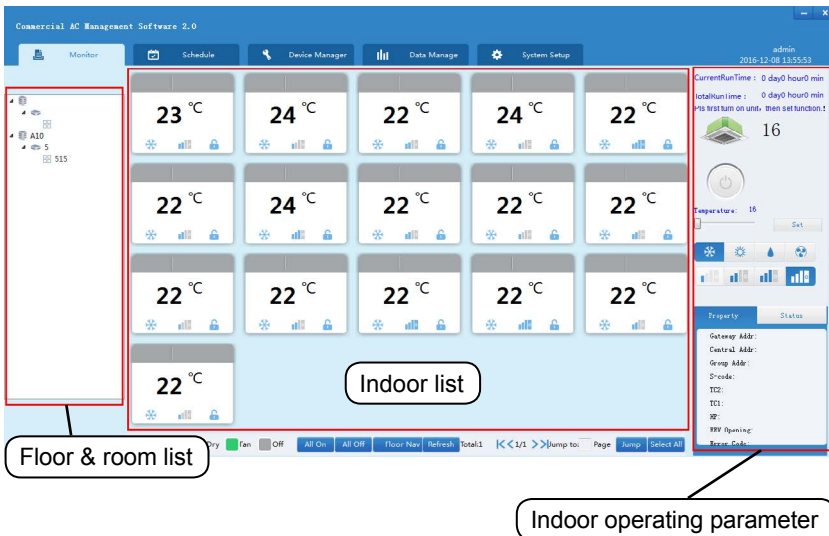
3. Deleting device



- Select the intended deleting device from list.
- Click “Delete” to finish deleting.

Device monitoring

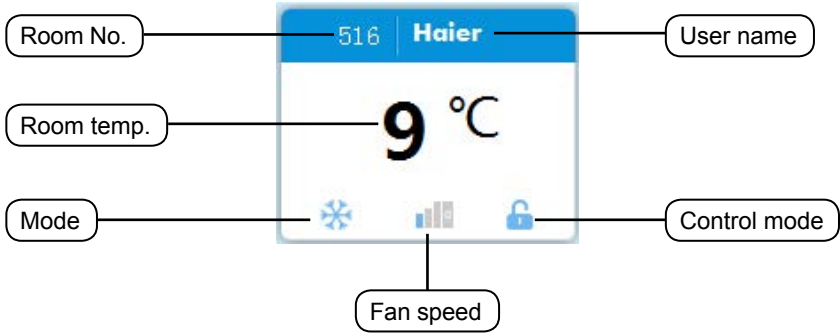
After adding device, click “Monitor ” to monitor indoor.



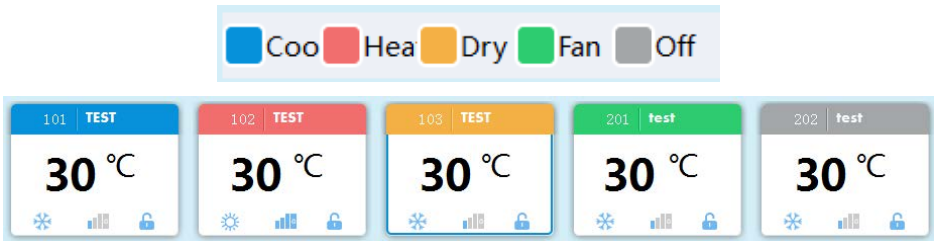
Software Installation

1. Indoor's working condition

Every icon shows current condition of indoor, as shown in following picture:



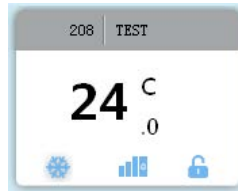
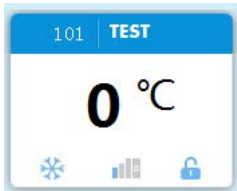
(a) Different color shows different mode



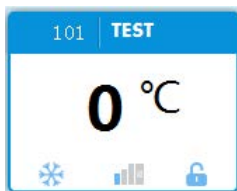
The above condition and mode are: cooling, heating, dry, fan, off;

(b) Click indoor window can select indoor. After selected, edge of window will be shown by solid line;

Indoor not selected (in ON mode). Indoor not selected (in OFF mode).



Indoor selected (in ON mode) Indoor selected (in OFF mode)



Software Installation

2. Indoor detailed condition

The screenshot displays a user interface for an indoor climate control system. It is divided into three main sections:

- Running time statistics:** Located at the top, it shows 'CurrentRunTime : 0 day0 hour0 min' and 'TotalRunTime : 0 day0 hour0 min'. Below this is a blue instruction: 'Pls first turn on unit, then set function.!'.
- control interface:** The central section features a green 3D icon of a ceiling air vent, a large digital display showing '16', a power button icon, and the text 'Temperature: 16'. Below the temperature is a slider control and a 'Set' button. At the bottom of this section are four mode icons (snowflake, sun, water drop, fan) and four bar chart icons representing different data series.
- Property and Status:** The bottom section has two tabs: 'Property' (selected) and 'Status'. The 'Property' tab lists several system parameters: Gateway Addr:, Central Addr:, Group Addr:, S-code:, TC2:, TC1:, HP:, EEV Opening:, and Error Code:.

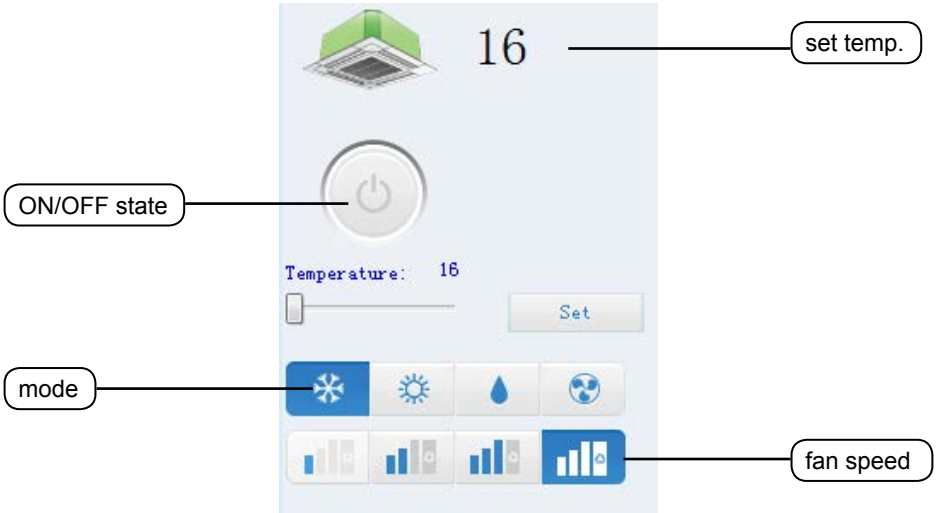
Callout boxes with lines pointing to these sections are labeled: 'Running time statistics', 'control interface', and 'Property and Status'.

Software Installation

3. Indoor control

(a) Single unit control

After selecting one indoor, all setting information of indoor will be shown on the right, and indoor control can be operated here



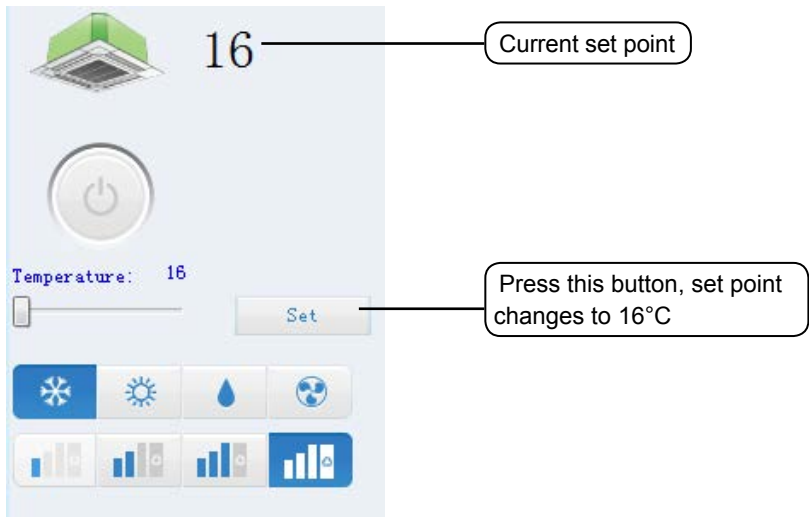
The detailed explanation of each button.

Button	Explanation
	ON
	OFF
	COOL
	HEAT
	DRY
	FAN

Button	Explanation
	LOW
	MID
	HIGH
	AUTO
	SET TEMPERATURE

Software Installation

Status of below indoor unit is: ON, Set temp.is 24°C, cool, low speed.
Press 'Set' button to changesetpoint to 16°C

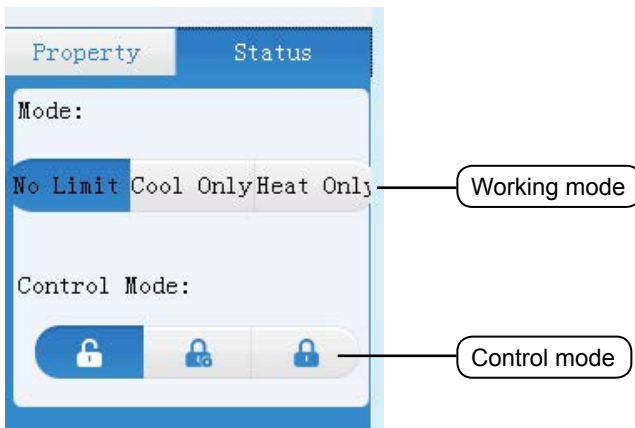


(b) Working mode/Control mode

Working mode and control mode are displayed under "status" label

Working mode: No Limit, CoolOnly, HeatOnly;

Control mode: Last in first out, central control, Lock;




Software Installation


Working mode:


No limit: All the working mode is available

Cool only: Indoor can only operate in cooling mode. No other mode is allowed to be set

Heat only: Indoor can only operate in heating mode. No other mode is allowed to be set

Last in first out  : The last input order is executed, no matter it is from HCM-01, wired controller or remote controller, for example, low speed is sent from HCM-01 first, then high speed is sent from wired controller, unit works at high speed;

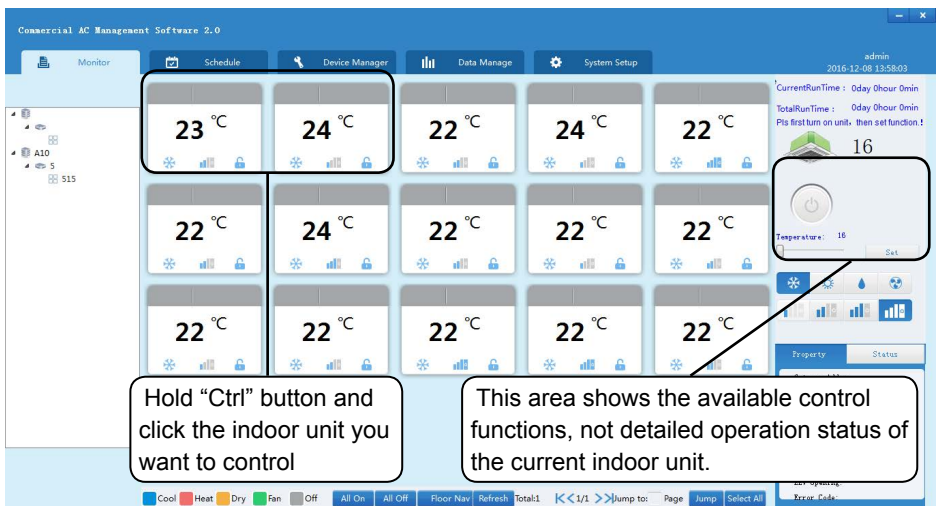
Central control  : only available by HCM-01, wired controller or remote controller can only switch on or switch off indoor unit;

Lock  : all orders can only be sent by HCM-01, wired controller or remote controller can only display the working condition.

(c) Multi indoor units control

To control several indoor units, please follow the steps listed below follow below steps:

- Hold “Ctrl” button and click the indoor unit you want to control;
- Press ON/OFF button to switch on/off indoor unit;
- Drag the slider to set temperature;
- Click the fan speed you want to set;
- Click the working mode you want to set;



Software Installation

(d) All on/off

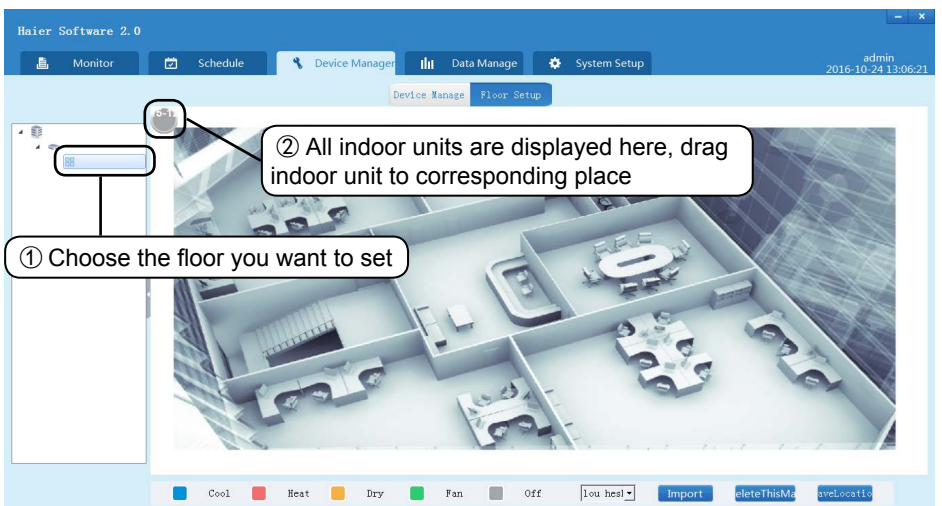
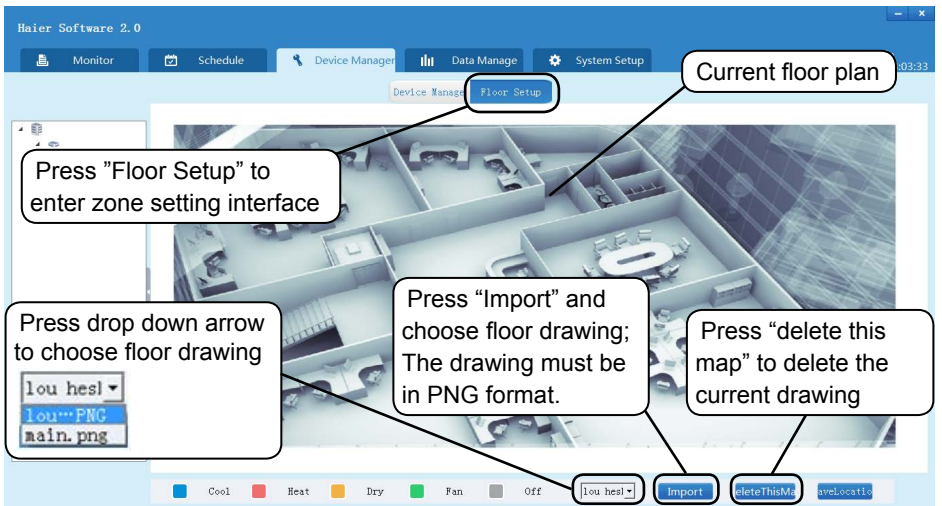


Press "All On" to switch on all indoor units


Press "All Off" to switch off all indoor units

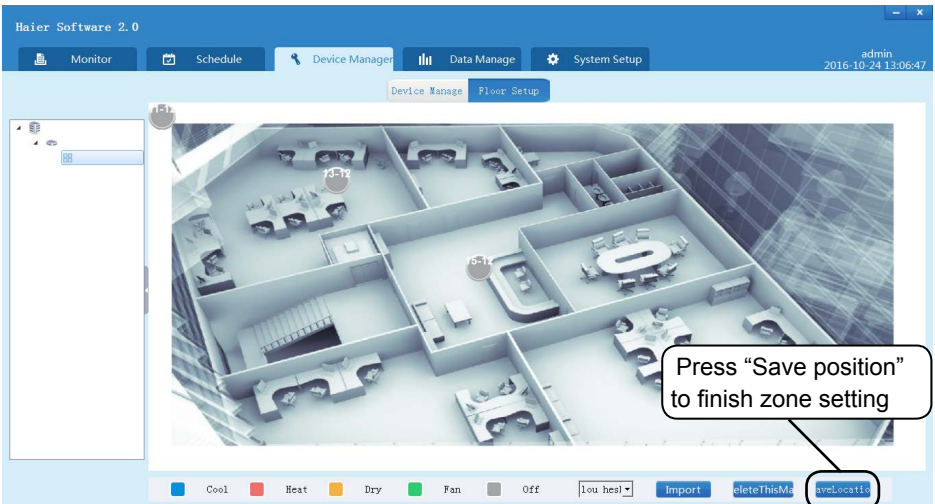
Floor setting

1. Zone setting



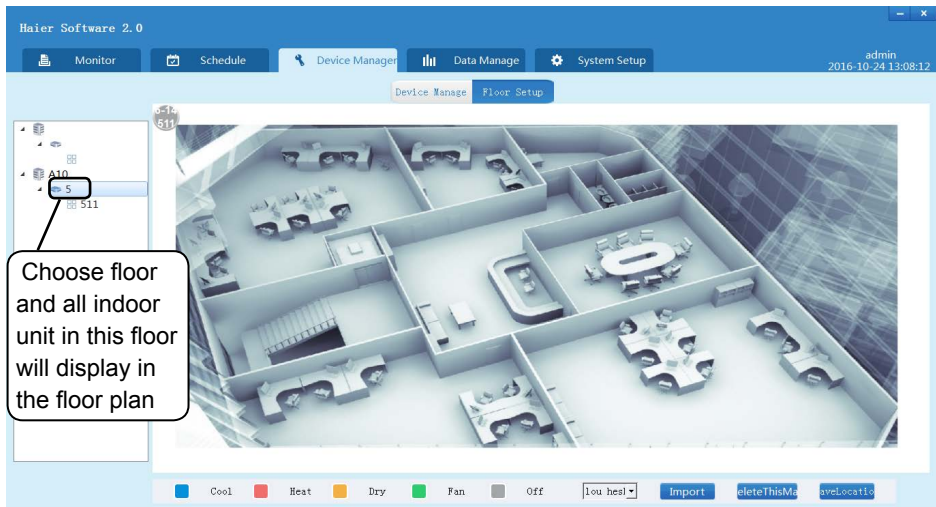
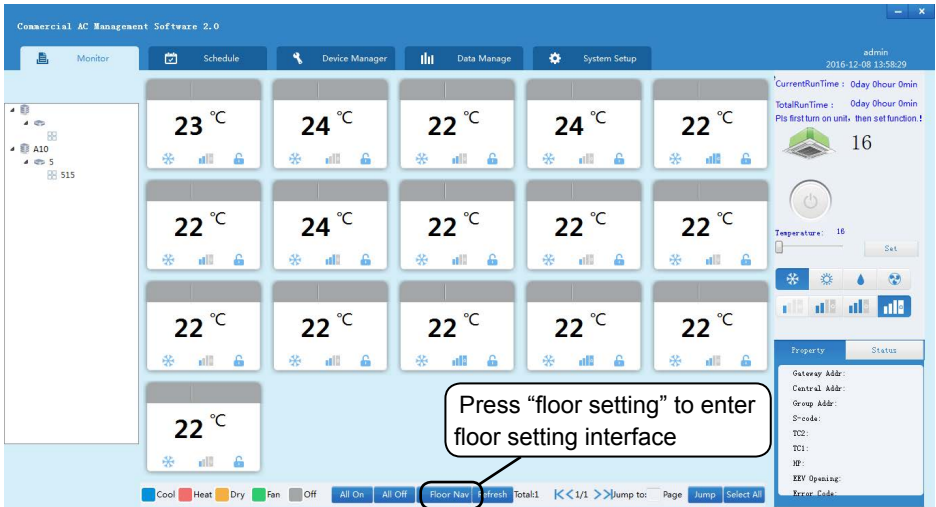
Software Installation

 : 1-2 stands for No1 indoor unit connected to No2 IGU02, 516 is room number.



Software Installation

2. Floor setting

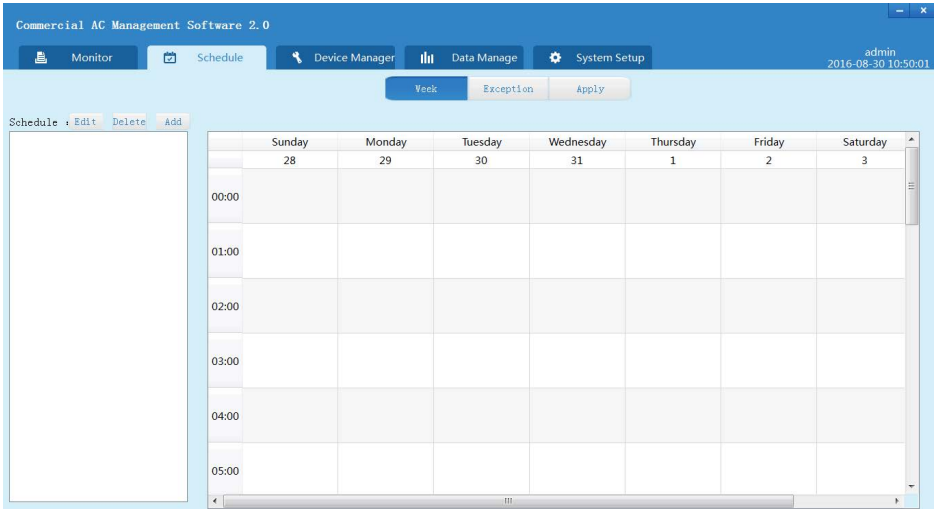


Remark: Different floor plan can be used for different floor

Software Installation

Schedule setting

Press “Schedule setting” in main page to enter schedule setting;

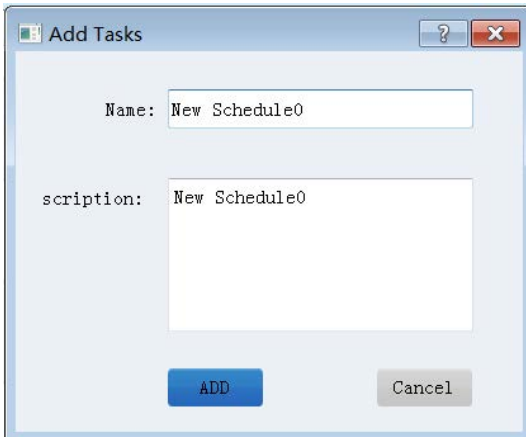


1. Weekly schedule

① Press “Add”

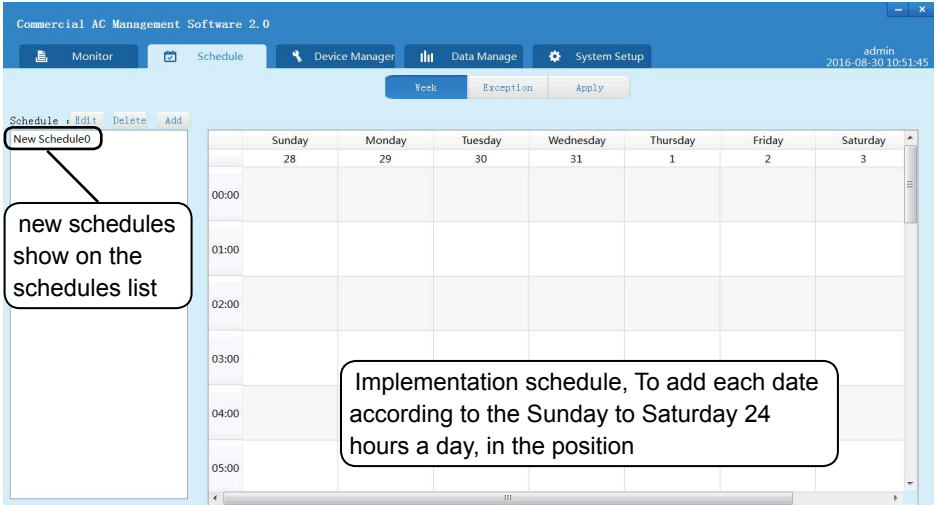


② A dialog box pops out, input schedule name, or input description;

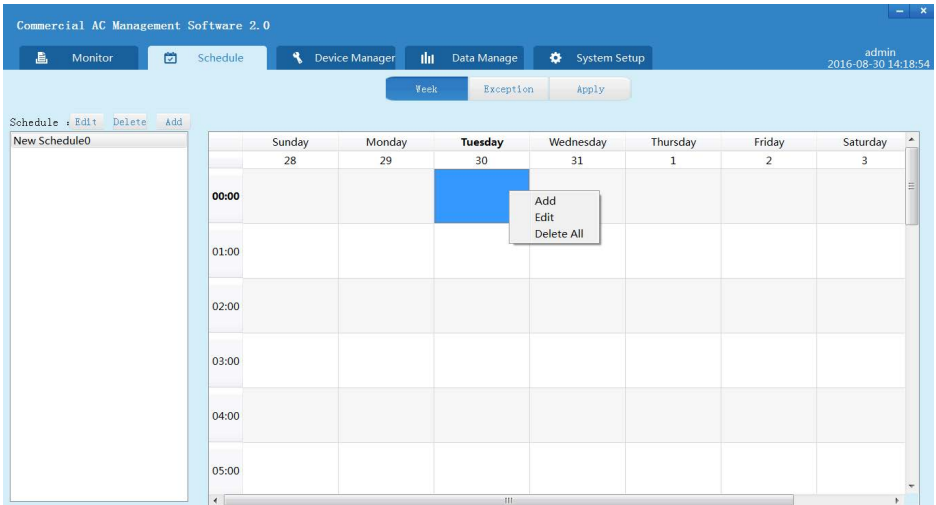


Software Installation

③ Press “ADD” button to create new schedule;

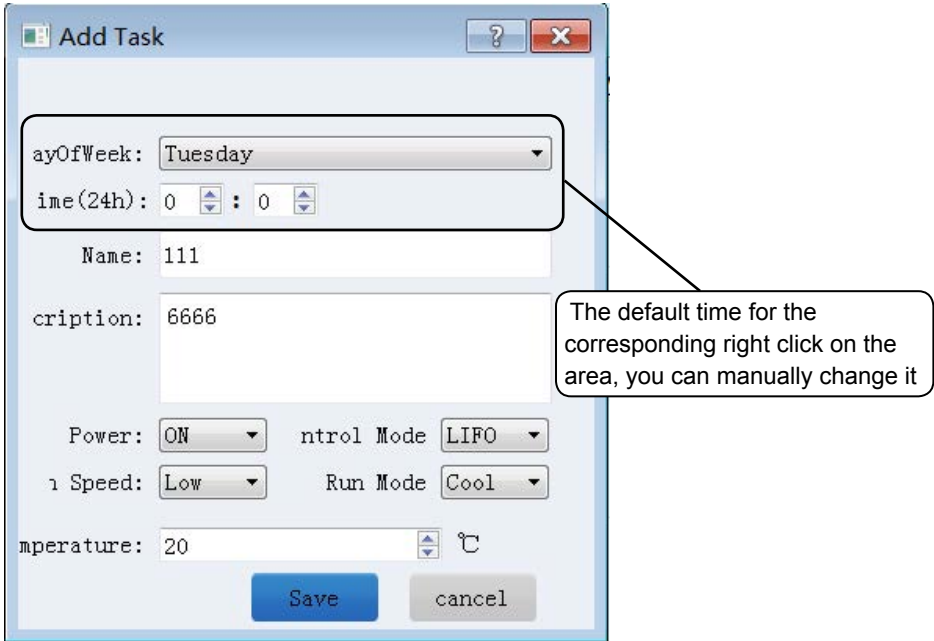


④ Into “ new schedules”, right click “Implementation schedule area”, popup menu

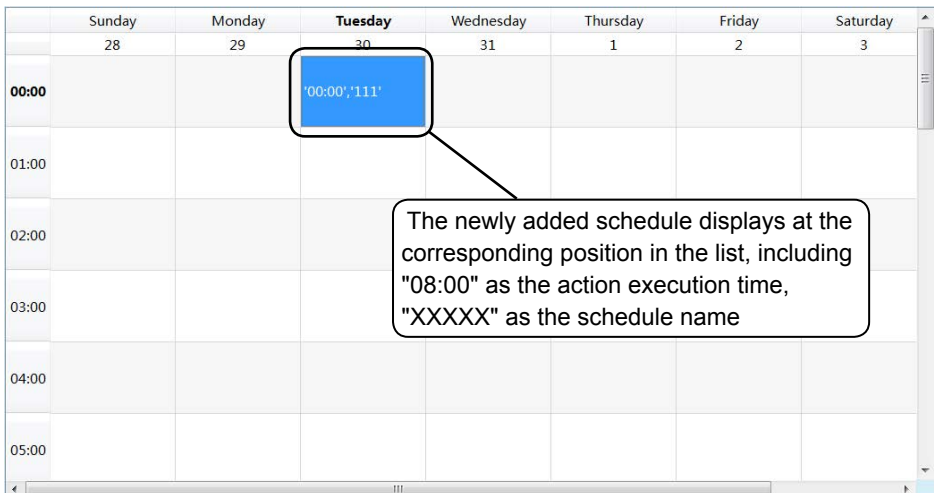


Software Installation

⑤ Click "Add", popup menu



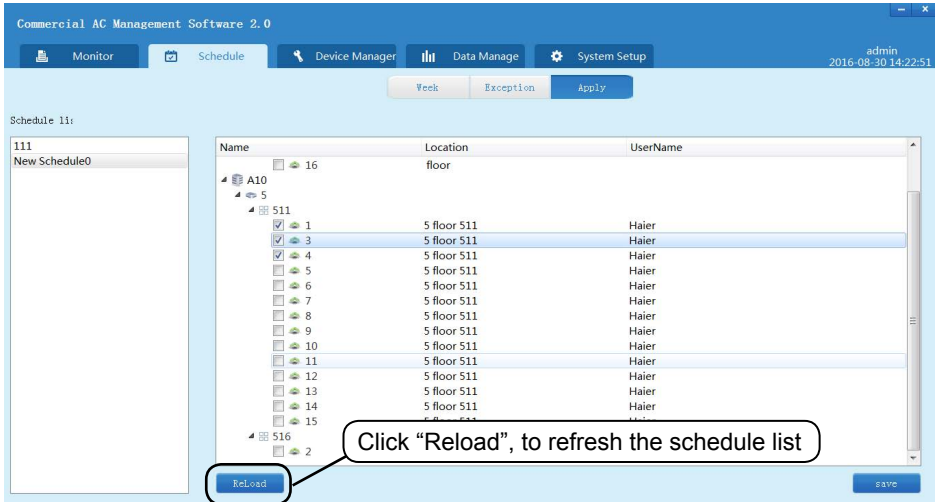
To set schedule execution time, and switches, control model, temperature, fan speed, operation model set, enter a name and description, set after the completion of the click on "save".



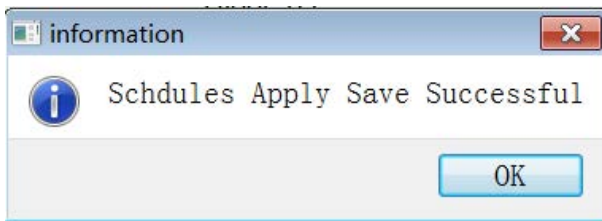
Software Installation

Back to the Schedule setting interface, you can see in the corresponding time position shows that the execution time and name of the new schedule is set. Repeat this action to add new schedules.

⑥ In the “Apply” interface, you can select schedule from schedule list on the left and select indoor unit from the list on the right side



Click "save", popping a prompt dialog box. Click “OK” and the indoor units selected will execute the selected schedule. Uncheck the indoor and save will cancel the schedule.



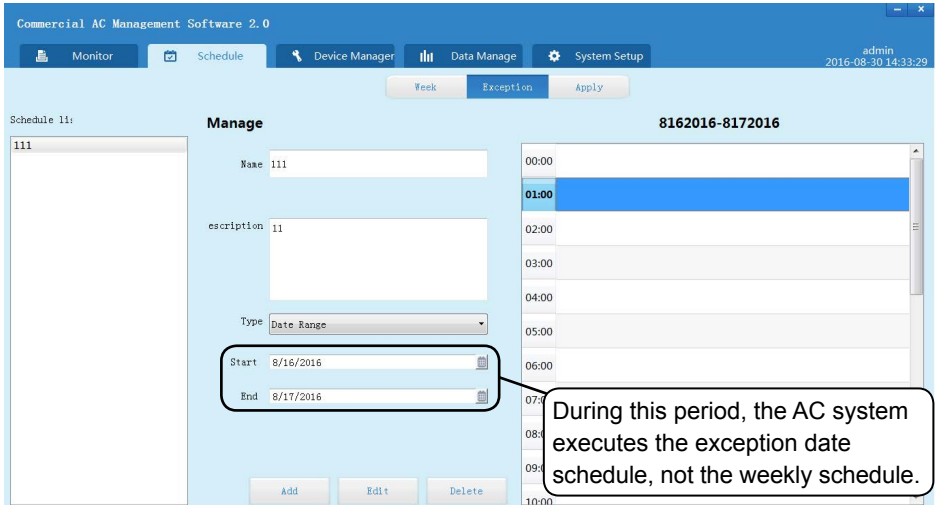
Software Installation

2. Exception date

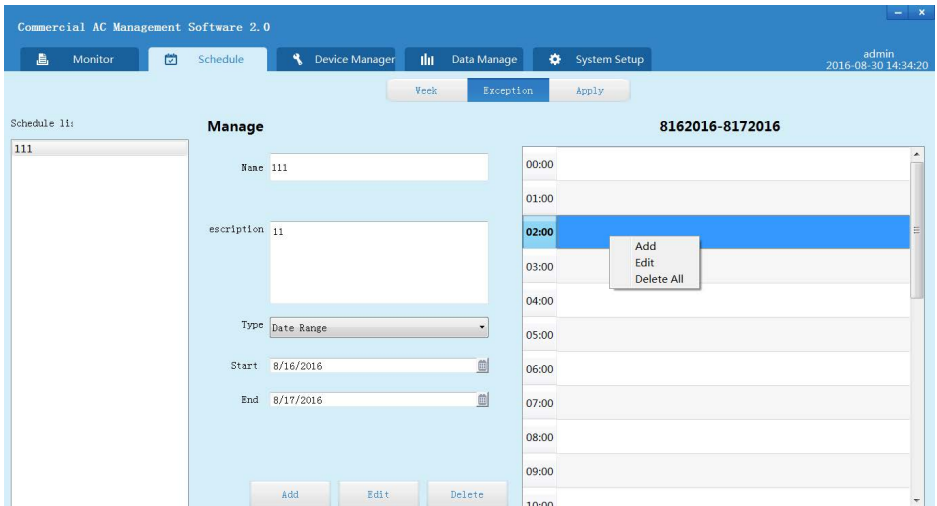
Exception date schedule means the AC system will execute a special schedule which does not follow the already-set weekly schedule.

Steps:

Click “Exception” icon, enter the name and description and select the application time range.



① Click “Add” to add new schedule. Right click in the time table will pop-up a dialog.



Software Installation

② Click "add".

Time (24h): 2 : 0

Name:

Description:

Power: ON Control Mode: LIFO

Fan Speed: Low Run Mode: Cool

Temperature: 20

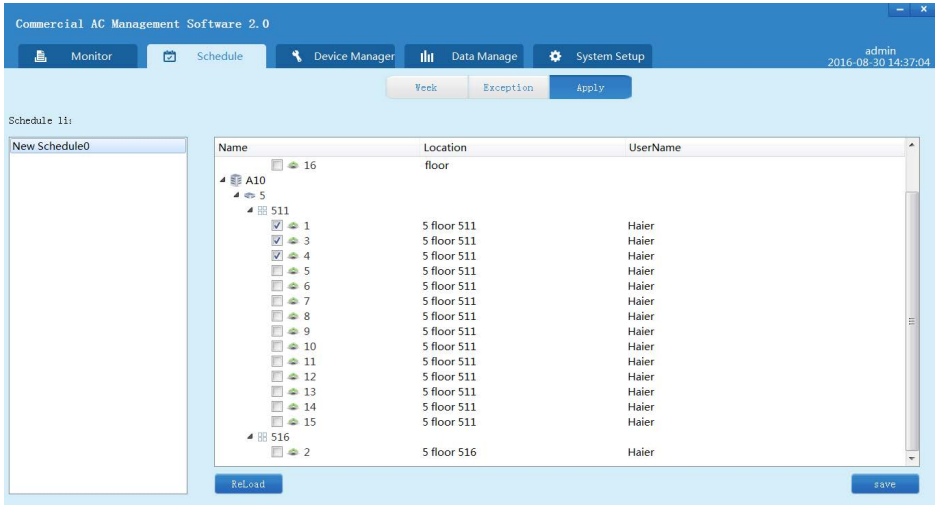
Save cancel

Set the execution time, On/Off, control mode, fan, operation mode, set temperature and schedule name and description. Click "Save" to save the setting. Back to the Schedule setting interface, in the corresponding time position shows the new schedule. Repeat this action to add new schedules.

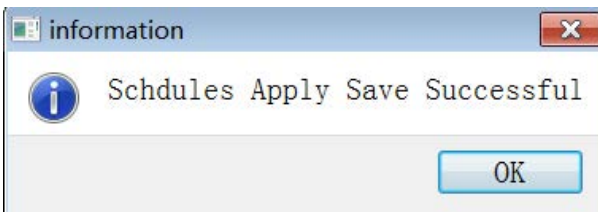
20170101-20170103	
00:00	
01:00	
02:00	
03:00	
04:00	
05:00	
06:00	'06:00','wwwwwww'
07:00	
08:00	
09:00	
10:00	

Software Installation

③ In the “Apply” interface,, you can select schedule from schedule list on the left andselectindoor unit from the list on the right side



Click "save", popping a prompt dialog box. Click “OK” and the indoor units selected will execute the selected schedule. Uncheck the indoor and save will cancel the schedule.

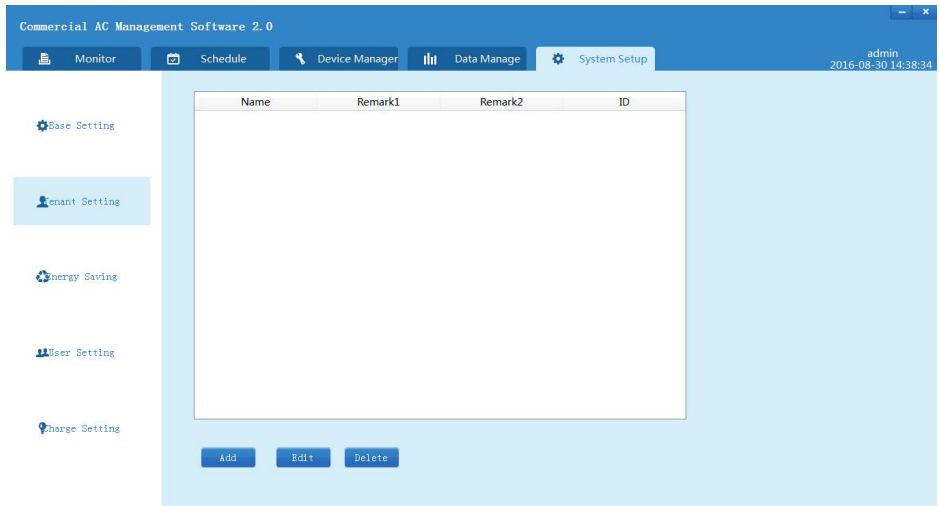


Data management

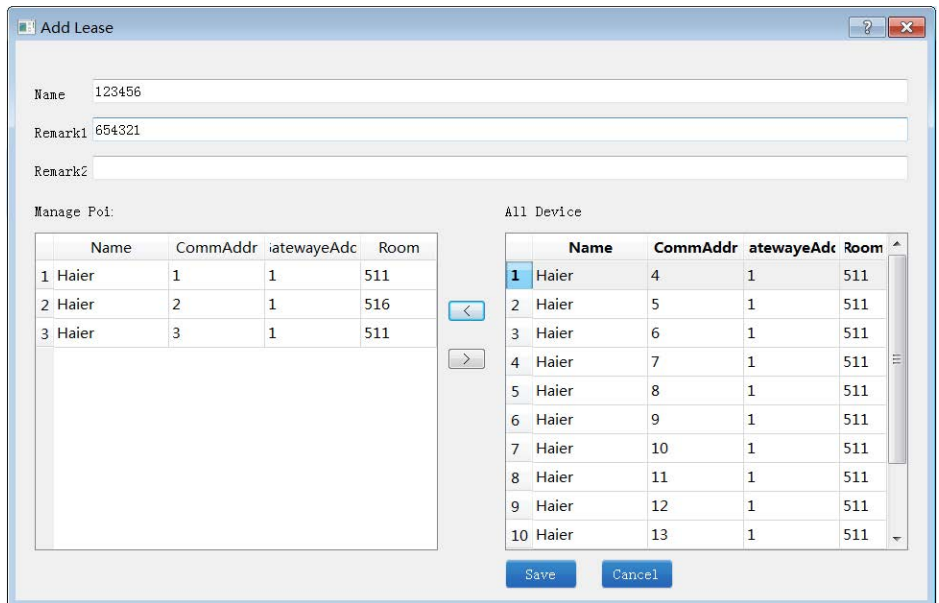
Tenant setting and electricity information setting are required before the data management.

Software Installation

8.1 Tenant setting

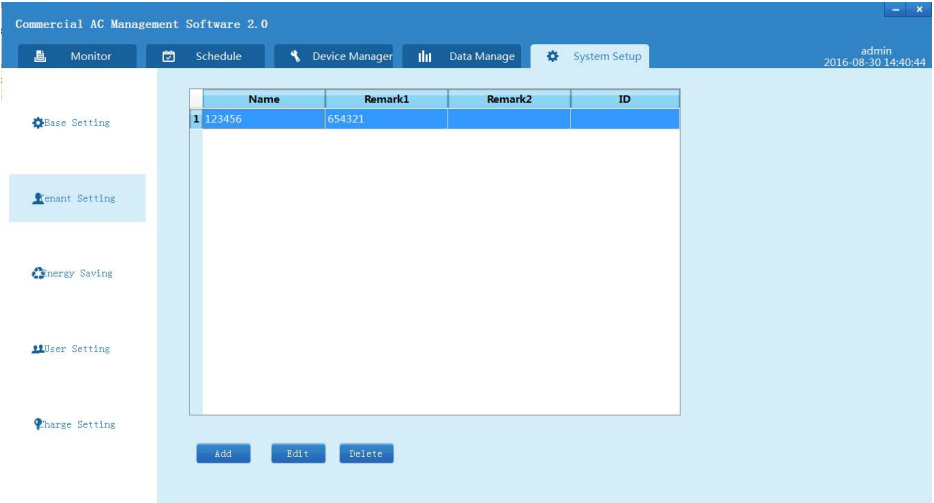


Click “Add” and then pop-up a dialog box. Input the name and remarks and add the devices from the “All Device” table to the “Manage Point” table.



Click “Save” to finish the tenant setting. The newly added tenant account will be shown in the Tenant Setting table. The accounts can be edited or deleted.

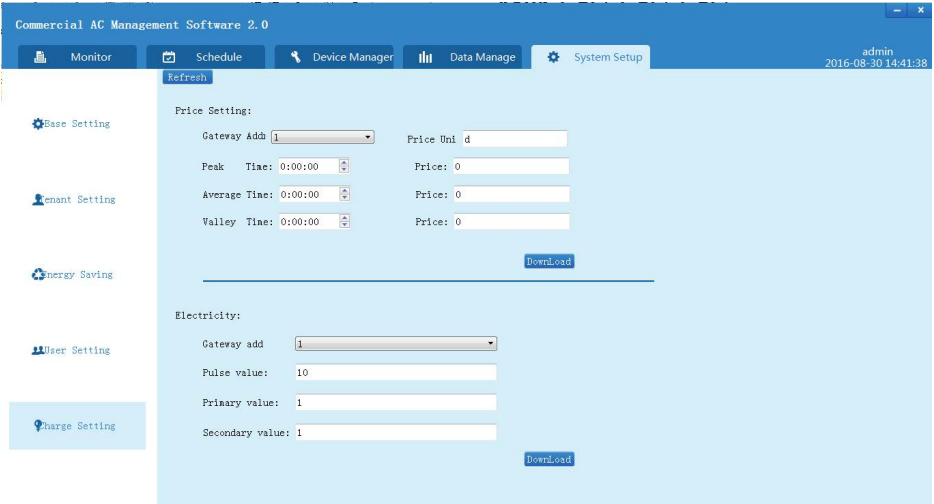
Software Installation



8.2 Electricity information setting

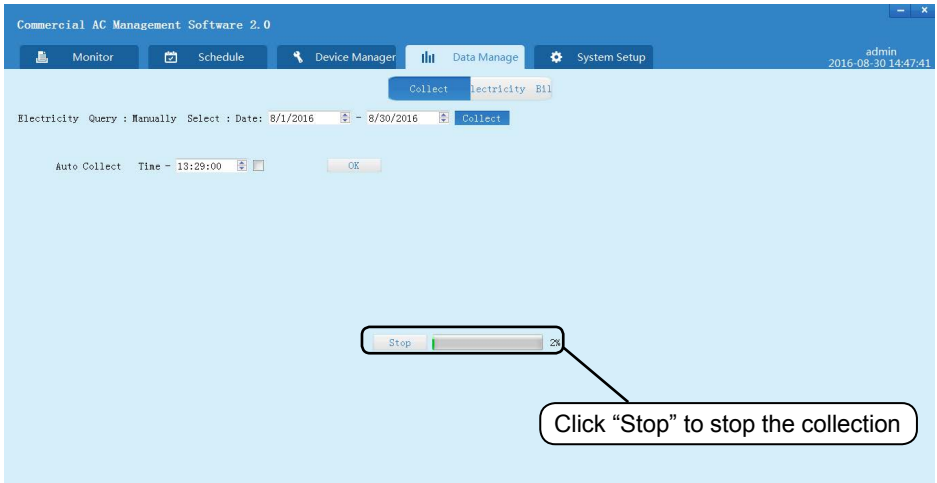
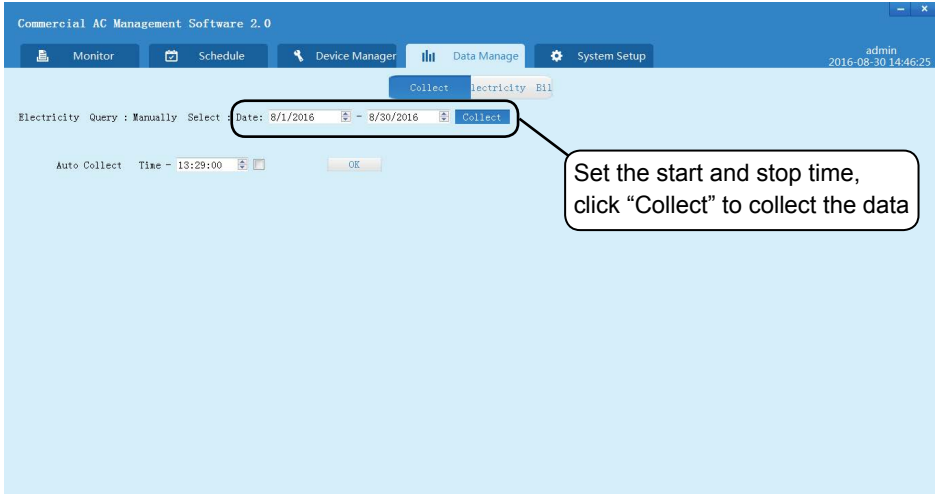
Electricity price setting: Each gateway needs set the electricity price. Set the start time, price and price unit for peak, average and valley. Click “Download” to active the setting.

Set the pulse value, primary value, secondary value for each gateway. Click “Download” to active the setting.



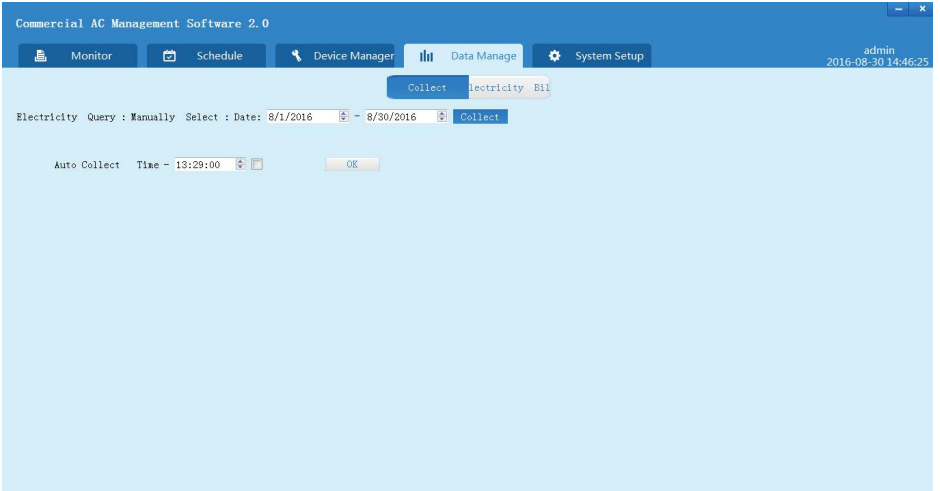
Software Installation

Collect the power consumption data in “Data Manage” interface. Set the time range and then click “Collect”. The process shows on the interface. Click “Stop” to stop the collection.

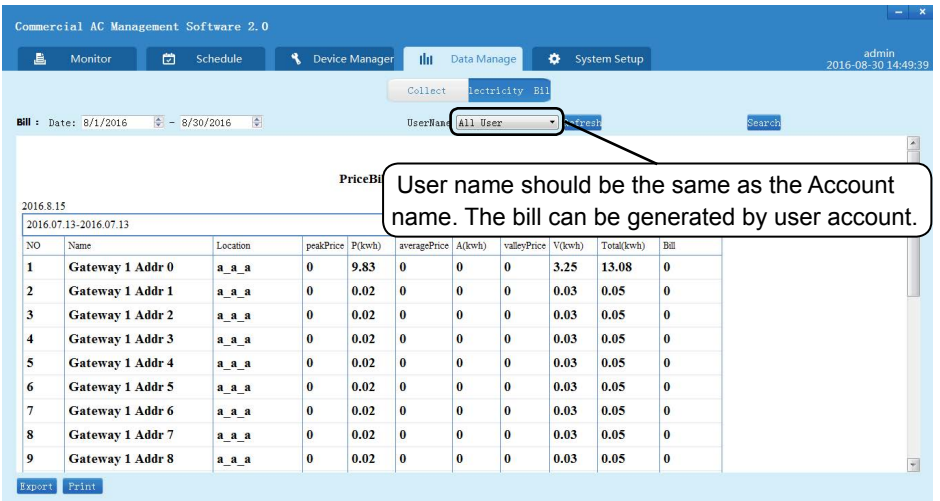


Auto Collect: set the auto collect time, check the checkbox and then click “OK”. Power consumption data will be automatically collected at the time you set. Uncheck the checkbox to cancel the auto collection. Manual collection has a higher priority and will cover the data auto collected

Software Installation



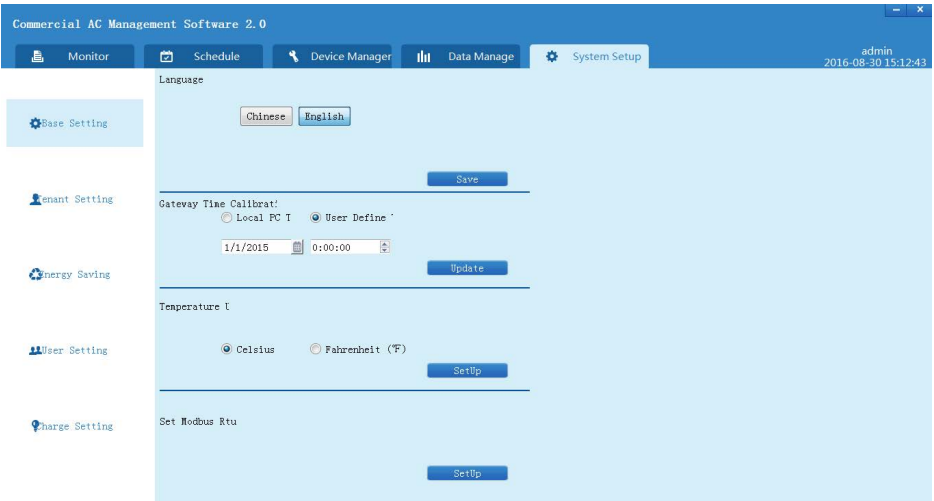
In “Electricity Bill” interface, input the time range and user name and then click “Search”, the bill will be shown on the interface. Click “Export” or “Print” to export or print the bill.



Software Installation

Systemrunning log

1. Basic setting

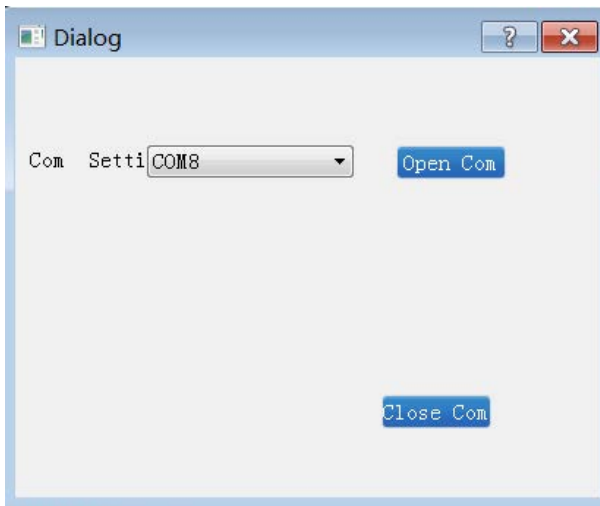


Language: English and Chinese are available

Gateway time proofreading: the gateway IGU02 records electricity consumption. “Local PC time” and “User Time” are selectable.

Temperature units: Temperature units setting for each interface. Celsius and Fahrenheit is optional.

Modbus port Setting: third-party interface is provided through the computer serial port



Software Installation

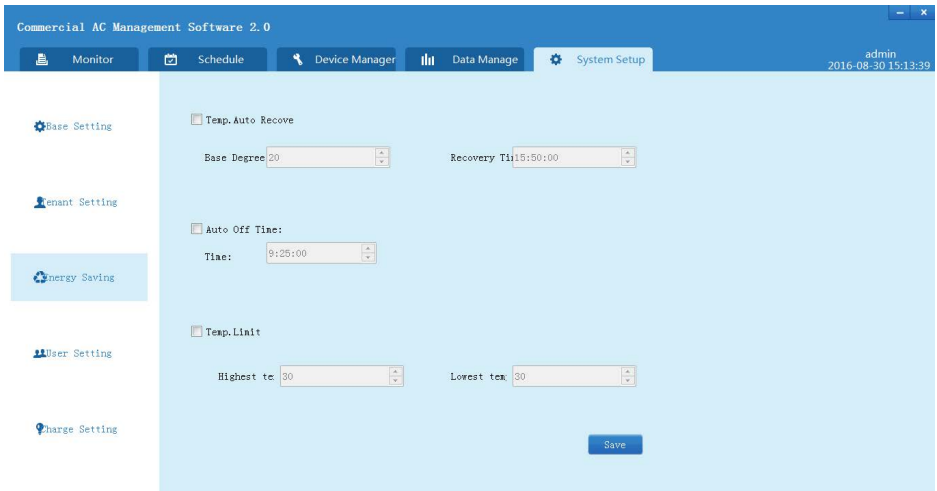
Connect 485 serial port to the computer, select the corresponding port in the port setting interface and then click "Open Com". The third-party software can query and control the Air-Con indoor units through this port.

2. Energy saving Settings

Temperature auto recovery: when reach the recovery time, the set temperature becomes the "Base degree" automatically.

Poweroff: Power off when reach the set time.

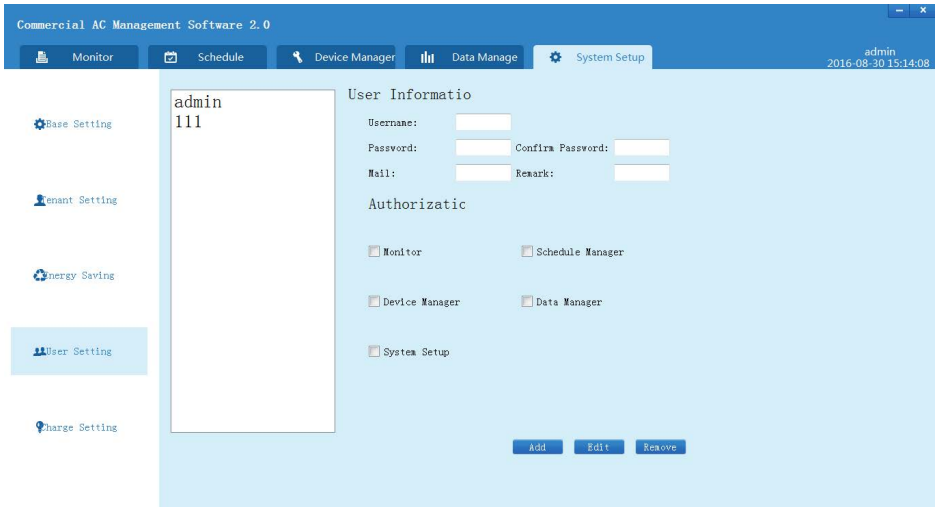
Temperature limit: Set the temperature limitation to save energy. Set temperature should not exceed the highest temperature in heating mode and should not be lower than the lowest temperature in cooling and dry mode.



Software Installation

3. User management

Add, edit and delete the user information, including username, password, email, and remark, and set the permissions for users.



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