VRF

Commercial Air Conditioners

Midea

Service
Manual

Data Converter

Contents

1 General

■ Safety Precautions

Read these safety precautions carefully before installing the CCM15

General

❗	**NOTICE** Improper installation or attachment of equipment or accessories could result in electric shock, short-circuit, leaks, fire or other damage to the equipment. Only use accessories, optional equipment and spare parts made or approved by Midea.
⚠	**WARNING** Make sure installation, testing and applied materials comply with the applicable legislation.
⚠	**CAUTION** Wear adequate personal protective equipment (protective gloves, safety glasses etc.) while installing, maintaining or servicing the system.
⚠	**WARNING** Tear apart and throw away plastic packaging bags so that nobody, especially children, can play with them. Possible risk: suffocation.

Installation Site

Do not install the equipment in potentially explosive environment.

Electrical

⚡	**DANGER: RISK OF ELECTROCUTION** ■ Turn OFF all power supply before connecting electric wiring or touching electric parts. ■ Disconnect the power supply for more than 1 minute and measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. The voltage must be less than 50 V DC before you can touch electrical components. For the location of the terminals refer the wiring diagram. ■ Do NOT touch electrical components with wet hands. ■ Do NOT leave the equipment unattended when the service cover is removed.
⚠	**WARNING** A main switch or other means for disconnection, having a contact separation in all poles providing full disconnection under overvoltage category III condition, shall be installed in the fixed wiring.
⚠	**WARNING** ■ Only use copper wires. ■ Make sure the field wiring complies with the applicable legislation. Do NOT touch electrical components with wet hands. ■ All field wiring must be performed in accordance with the wiring diagram supplied with the product. ■ Make sure to install earth wiring. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earth may result in electric shock. ■ Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance. ■ Make sure to install the required fuses or circuit breakers. ■ Make sure to install an earth leakage protector. Failure to do so may cause electric shock or fire.

*Note: Install the wires at least 1 meter away from televisions or radios to prevent interference. Depending on the radio waves, a distance of 1 meter may not be sufficient.
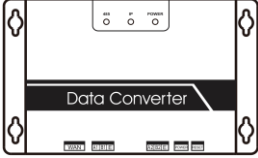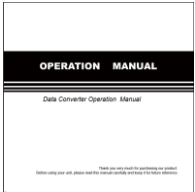
⚠	**WARNING** ■ After finishing the electrical work, confirm that each electrical component and terminal inside the electrical cabinet is securely connected. ■ Make sure all covers are closed before starting up the units.

Installation Safety

⚠	**WARNING** ■ Do not install the CCM15 near areas of electromagnetic interference or next to base station. ■ Locate the CCM15 away from sources of steams, possible flammable gas leaks, heat or sulfurous gases. ■ Reserve sufficient space for the installation, and leave adequate spacing between the device and surrounding community service network devices for heat dissipation. ■ Make sure that the installation site is indoors and theCCM15 is installed at a height that is 50 cm above the ground. ■ Make sure that the installation site is not exposed to sun and heating devices. ■ Make sure that the device is not installed in humid places or where it is easy for device to come in contact with water. ■ Make sure that the device is not installed in locations where it can be easily corroded or where there are flammable gases. ■ Please install the gateway device in strict accordance with the above instructions and do check the installation site carefully before installation.

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■ **Attachments with the Box**

The following below listed attachments are provided with the CCM-270A/WS package.

Name	Qty.	Outline
Data Converter	1	
Installation operation manual	1	
Power adaptor	1	
Wiring 3-terminal and 1 bags of fixed screws	1	

2 Product Introduction

CCM15 is a cloud server controller which enables remote control of the VRF system through the internet. Smart phones, tablets, laptops, and desktop PCs can serve as a web controller. Up to 64 indoor units can be connected to one data converter and up to 10 data converters can be connected with one account in a mobile application.
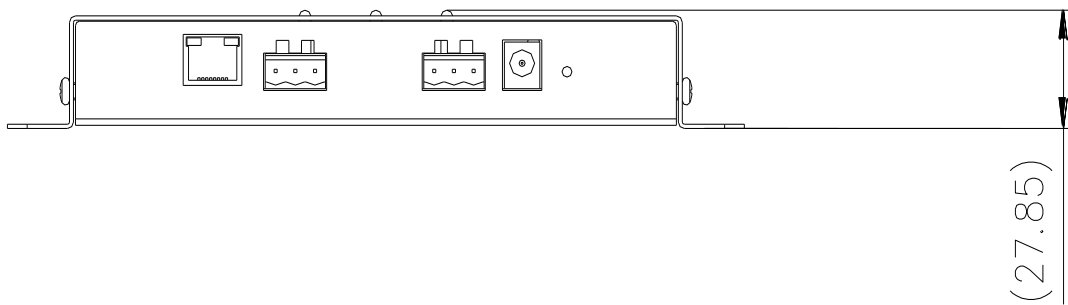
2   Dimensions (mm)

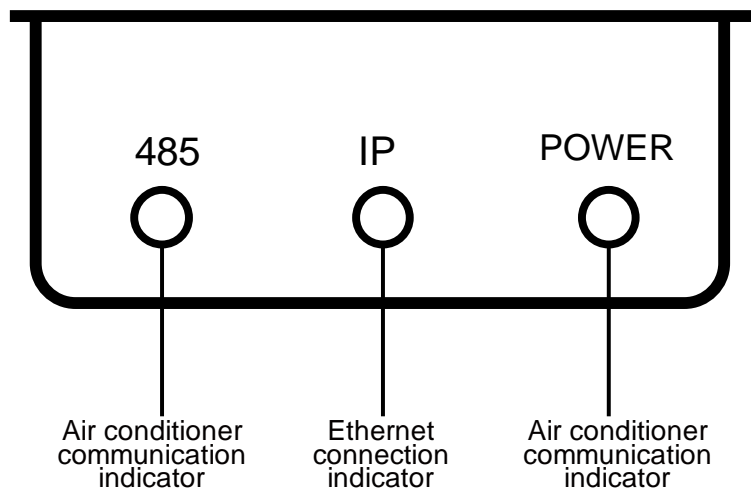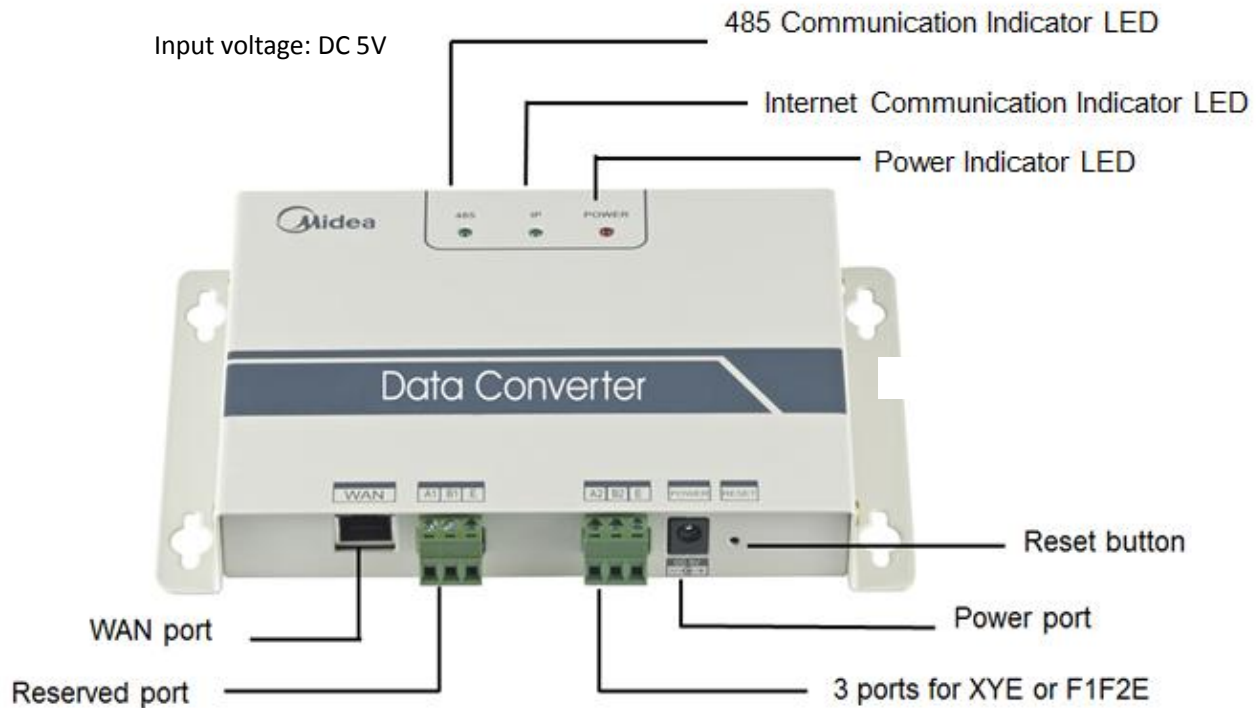The various dimensions for the CCM15 controller are as follows:

Top View:
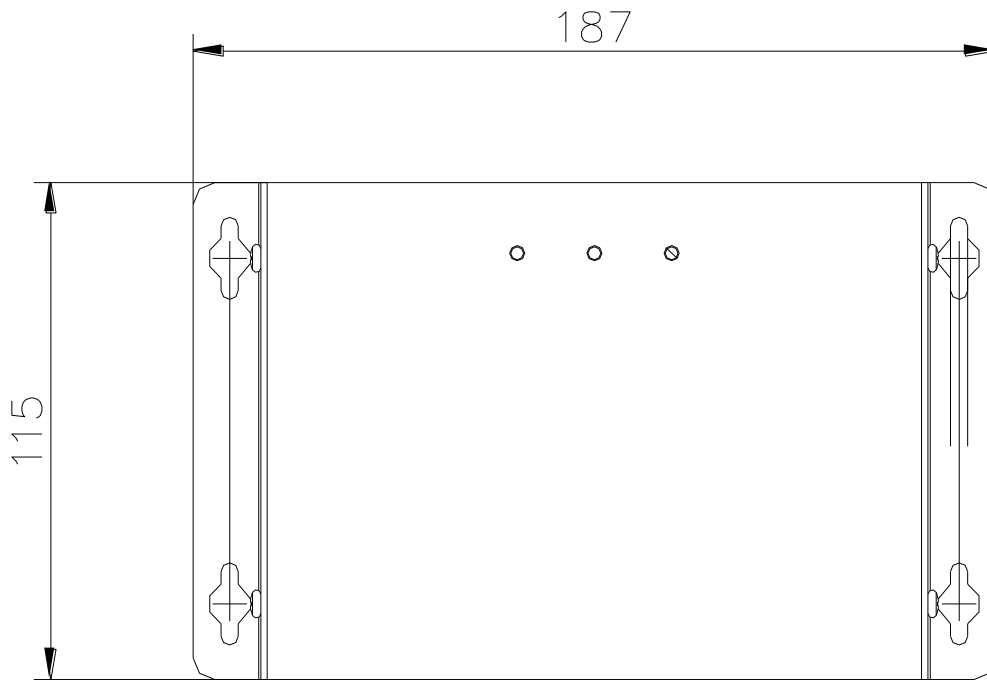
Side View:

3 Ports and Indicators

Input voltage: DC 5V

485 Communication Indicator LED

Internet Communication Indicator LED

Power Indicator LED

WAN port

Reserved port

Reset button

Power port

3 ports for XYE or F1F2E

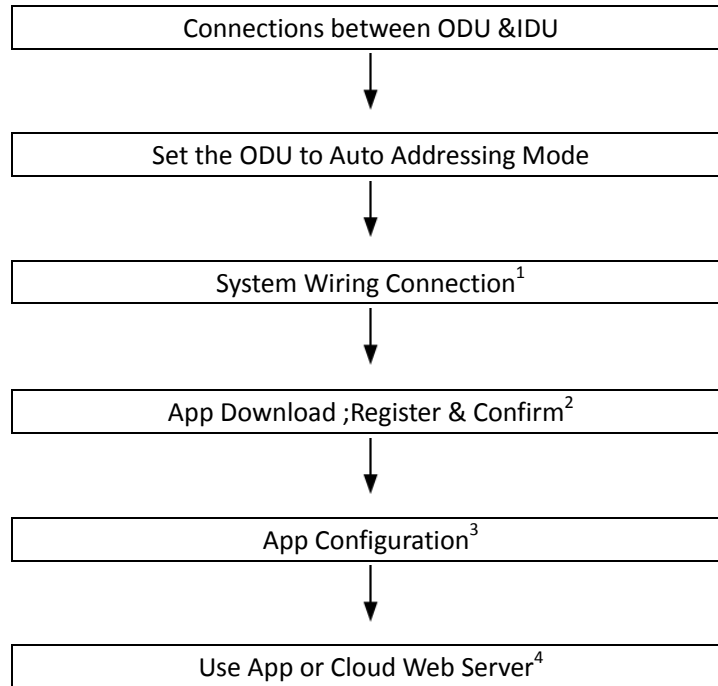| 485	IP	POWER
Air conditioner communication indicator	Ethernet connection indicator	Air conditioner communication indicator

The functions of various LEDs are as follows:

1. **Power LED:** It indicates that the power supply of the system is normal and the system is running.

2. **Internet Communication Indicator LED:** When it flashes, it indicates that the data converter is accessing the Ethernet. When it is off, it indicates that the data converter is not accessing the Ethernet. In this case, check network connection and configuration.

3. **485 Communication Indicator LED:** When it flashes, it indicates that the communication between the air conditioner and data converter is normal. When it is off, it indicates that cable connection to port 485 is wrong or port 485 is not connected to the air conditioner.

LED indicator	Colour	Operating status	Description
485	Green	Flash	When the indicator flashes, it indicates that an air conditioner is connected.
IP	Green	Flash	When it flashes, it indicates that the data converter is accessing the Ethernet.
POWER	Red	Steady on	Power supply of the system is normal.

The data converter is restarted upon detecting abnormal communication. (If port 485 does not communicate within 60s or the network port does not communicate within 3 minutes, the data converter is reset.) In this case, POWER, IP, and 485 indicators are on together.

4 Flow Chart for CCM 15 Installation

```
┌─────────────────────────────────────────┐
│     Connections between ODU &IDU         │
└─────────────────────────────────────────┘
                    │
                    ▼
┌─────────────────────────────────────────┐
│     Set the ODU to Auto Addressing Mode  │
└─────────────────────────────────────────┘
                    │
                    ▼
┌─────────────────────────────────────────┐
│     System Wiring Connection[1]          │
└─────────────────────────────────────────┘
                    │
                    ▼
┌─────────────────────────────────────────┐
│     App Download ;Register & Confirm[2]  │
└─────────────────────────────────────────┘
                    │
                    ▼
┌─────────────────────────────────────────┐
│     App Configuration[3]                 │
└─────────────────────────────────────────┘
                    │
                    ▼
┌─────────────────────────────────────────┐
│     Use App or Cloud Web Server[4]       │
└─────────────────────────────────────────┘
```

Note:

[1]Refer to 5 System Wiring Connections of this manual.

[2]Refer to 6 APP download and Web client address of this manual.

[3]Refer 8.4 App configuration of this manual.

[4]Refer to 8 App Operation of this manual.

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5 System wiring connection

There are two main methods for connection of the CCM15 with the system. The details about these two are discussed below:

5.1 Method 1: Connecting CCM15 from indoor units

This type of system mainly includes the central air conditioning system, data converter, router, App, cloud server and web client. The user can monitor the air conditioning system via App or web client. The data converter is connected to the XYE bus of the air conditioner via port 485 of the data converter. The power supply is connected to the mains supply via an adapter. For the detailed connection, refer the following figure:
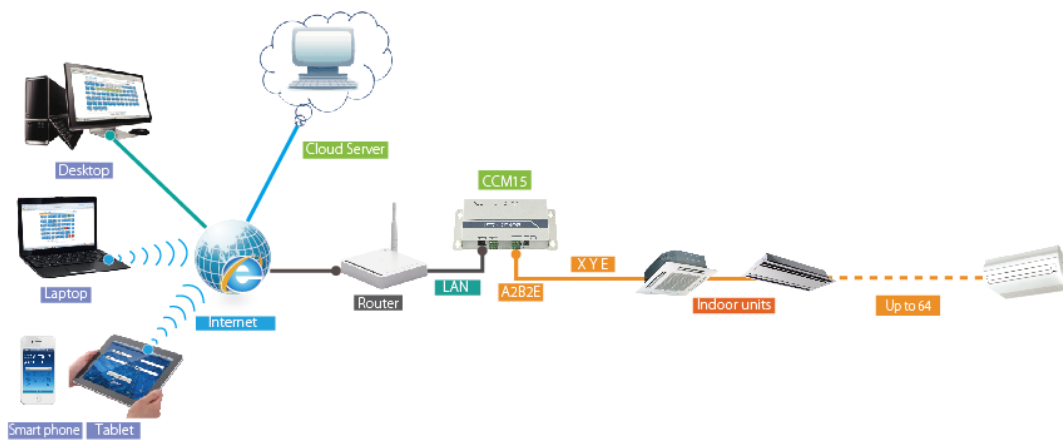
Note: The new CCM15 is compatible with all types of indoor units except the HRV and Fresh Air Processing Unit. The 2nd generation DC indoor units have no XYE port, so in this case CCM15 can only be connected from the outdoor unit XYE.

5.2 Method 2: Connecting CCM15 from outdoor unit

If the data converter can only be connected from the outdoor unit, the outdoor unit must be set to auto addressing so that the indoor unit can be located. For multiple systems, port XYE of the outdoor unit is connected to the data converter in series looping (hand in hand manner). To use one LAN cable to connect multiple CCM15 gateways, associate CCM15 gateways with one router.

Note: The new CCM15 is compatible with the V6, V6i, V5X, V4+S, V4+R, V4+K, V4+P, V4+W, V4+I and Mini VRF outdoor units. When connected with the Mini VRF, some lock functions may not be available.

6 APP download and Web client address

IOS: go to APP Store search "M-control" or type http://www.aircontrolbase.com/login.html to download the app.

Android: type http://www.aircontrolbase.com/login.html to download the app.

Remote web client address: type http://www.aircontrolbase.com/login.html to access the remote web client function.

Default local web client address: type http://192.168.1.200/ to access the local web client function.

7   Main features

- ➢ User friendly interface: Easy to get to the main functions in a glance.
- ➢ Intelligent control: Easy to control and query the air conditioner anytime and anywhere.
- ➢ App control and remote web client control are available for the air conditioner.
- ➢ Register function (only available for the App): Use an email account and password to register an account. If you want to use the remote web function, the first step is to register an account through the app.
- ➢ Virtual function (only available for the App): to experience the APP's basic function without registering an account.
- ➢ Password retrieval function: If you forget the password, you can retrieve the password through the registered email.
- ➢ Device configuration: To configure the CCM15 with the APP. It is recommended to configure the CCM15 one by one.
- ➢ Basic control function: To set the temperature, fan speed, operating mode and lock function.
- ➢ Schedule management: To set the single air conditioner or group AIR CONDITIONER daily schedule or weekly schedule.
- ➢ Group management: To divide the air conditioners into different groups and control them by group.
- ➢ User group management: to invite and remove the users in the users group and Assign them different permissions. Up to 10 users can be joined in one user group.
- ➢ Account management: to change user name and change password.
- ➢ Device status statistics and filtering: divided the AIR CONDITIONER into different operating status.
- ➢ Operation logs: device status and malfunction logs, operation records and login records.

8 App operation

8.1 Main interface functions description

The data converter supports Web, HTTP, TCP, and IP. Therefore, the user can remotely access the central air conditioning VRF system via WAN. The App client on smart phones and Web client are available.

Functions list of app client:

① CCM15 list.

② CCM15 Management.

③ Account Management.

④ Group Management.

⑤ Operation Logs.

⑥ Temperature Unit.

⑦ Log out.
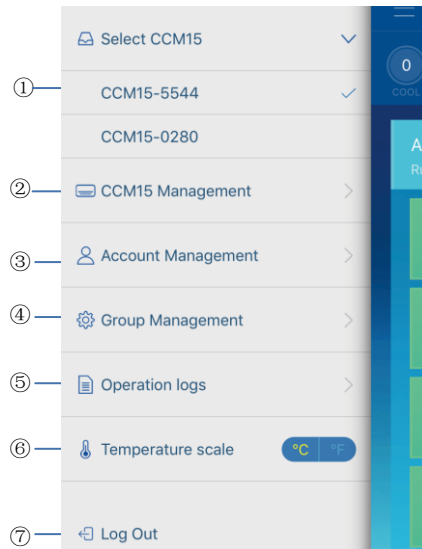
8.2 Registration function

2.2.1 Registration code

Before registering an account, the user must enter the registration code, as shown in the following figure. Open App client on the smart phone. Enter the registration code, such as Midea, which is the first step. Then, click "OK". A login interface with the specified logo is displayed. Refer the following figure:
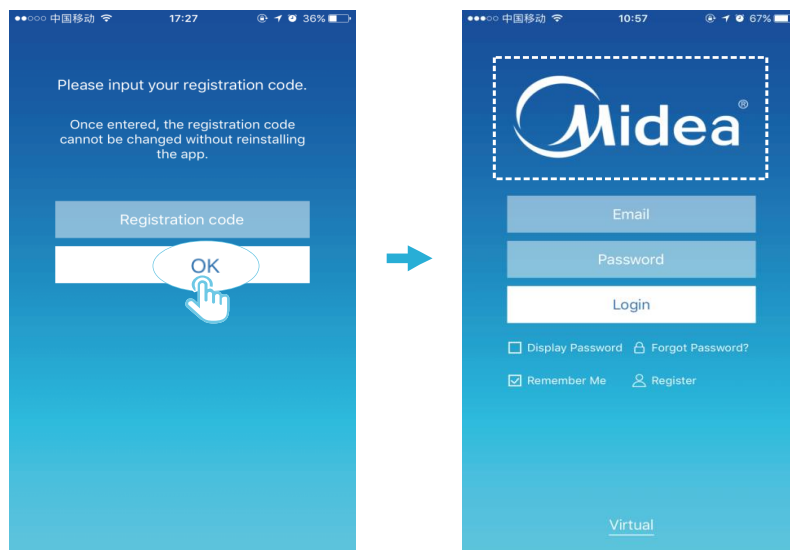
Note: Registration function is only available for app client.

2.2.2 Account registration

A registered account is used to manage devices and set management permissions. The registered account can also be used to log in to the App and remote web clients. Procedure is as follows:
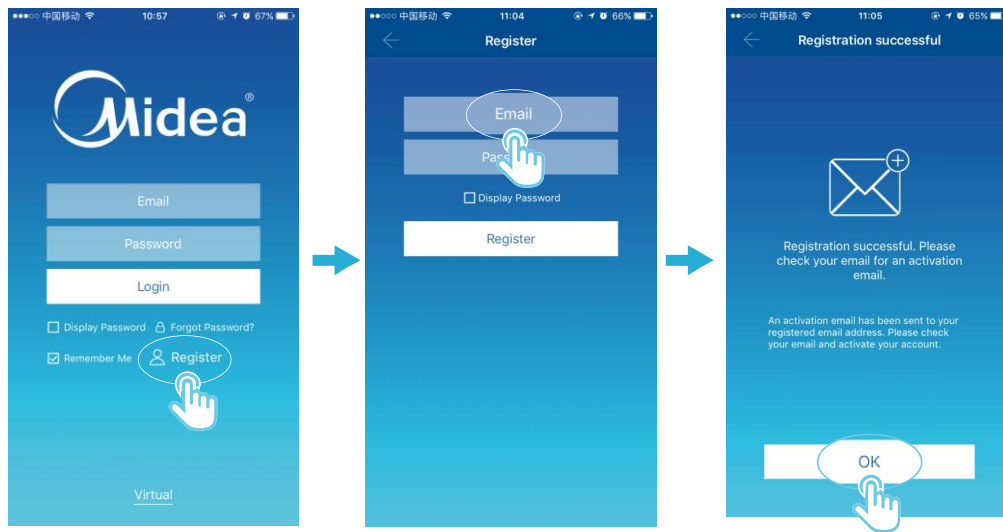
① Click "Register".

② Enter a valid email account and password. The account information is generated on the cloud platform.

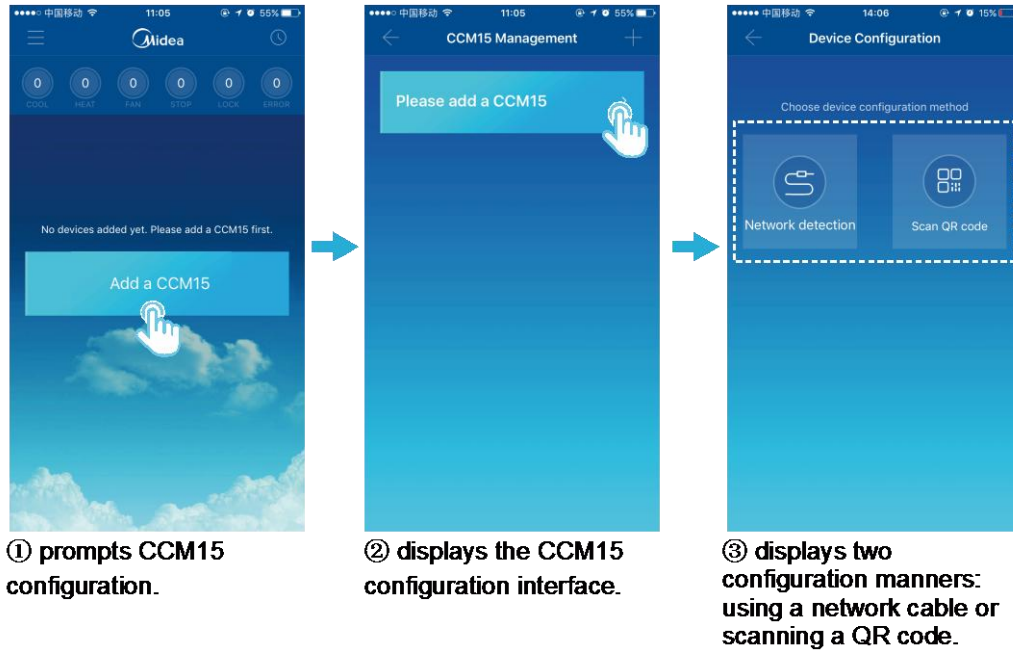③ After registration is completed, activate the account via the email. Only the activated account (Note:Email could be delayed)

8.3 Virtual function

The virtual experience function is used for showing the main interface, air conditioning control, booking control and so on.

Operation only available for choosing the unit of the temperature and setting the air conditioner, the other menu and functions are not valid in the virtual function.
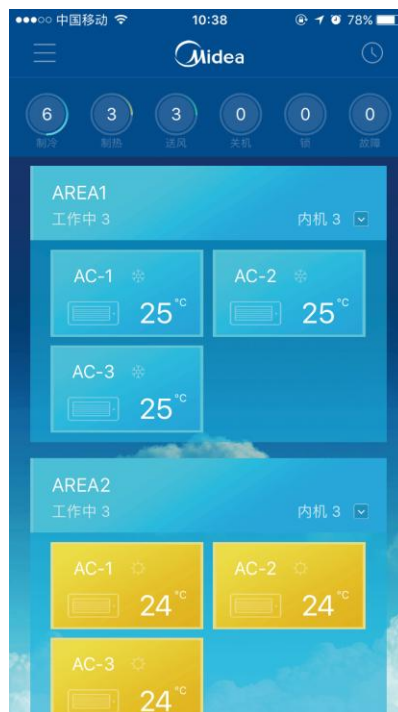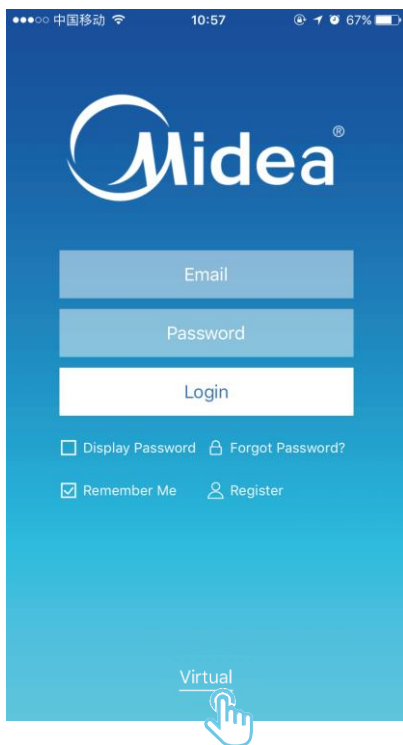
Note: Virtual function is only available for app client.

8.4 App configuration

Refer to the 1.3 system wiring connection. After login via app, the main interface prompts the user to configure the CCM15, as shown in the figure below:

① prompts CCM15 configuration.

② displays the CCM15 configuration interface.

③ displays two configuration manners: using a network cable or scanning a QR code.

Note: Always connect the CCM15 to a network with administrator level permission or not it may lead to security problems about account configuration. When the CCM15 is configured for the first time, the user must configure it via network cable.

2.4.1 Method one: Using a network cable

Only when the following conditions are met, can the user configure the CCM15 via network cable:

A.   The CCM15 must access a wireless router.

B.   The smart phone and CCM15 must be located in the same network segment and connected to the same wireless router.

C.   The wireless router must be able to access the internet.
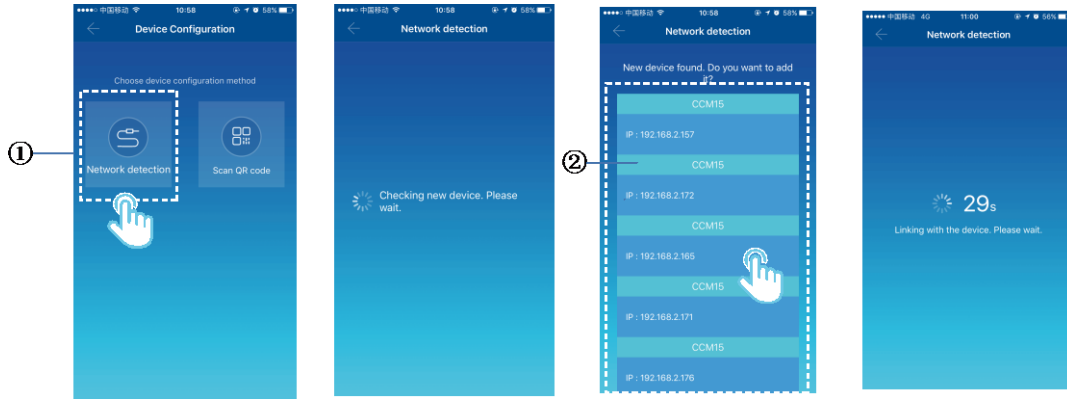
②   Select a configuration manner.

②The App will search for the CCM15 devices on its LAN and display the IP addresses of each CCM15 gateway. As shown in the figure above, ② displays multiple CCM15 devices found. Only one CCM15 device can be selected for configuration. Select one and the system counts down for 30 seconds. After configuration succeeds, it goes to the main interface for displaying the devices.

Note: When one LAN accesses multiple CCM15 gateways, IP addresses of these gateways are displayed, as shown in ②. In this case, one-to-one correspondence between the CCM15 gateways and the IP addresses cannot be achieved. It is recommended that every time when the user completes configuring a CCM15 device, the user should timely rename the CCM15 device and record its IP address.

The following figure shows how to configure multiple CCM15 gateways:
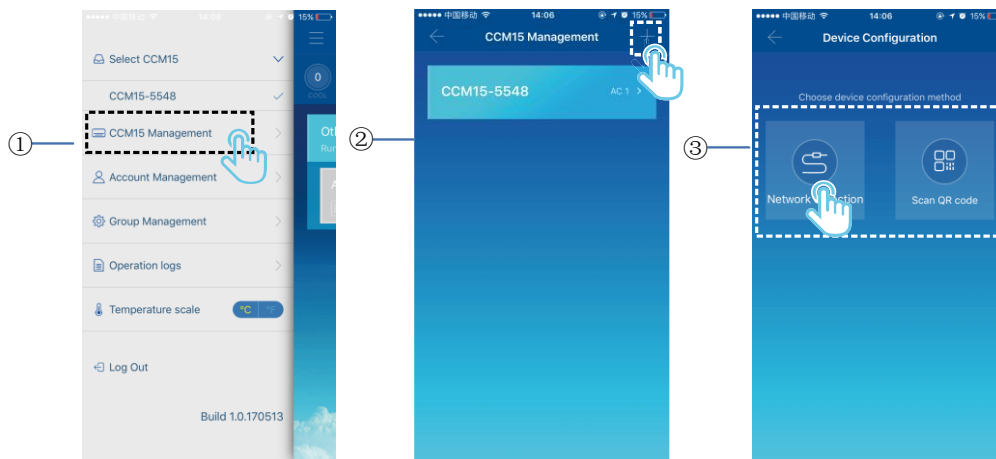
① Click "CCM15 Management".

② Click "+" at the upper right corner. The CCM15 configuration interface is displayed.

③ Select a configuration manner. The subsequent steps are the same as those for configuring the CCM15 via a network cable. Repeat the preceding steps to add multiple CCM15 devices until all the CCM15 devices are configured.
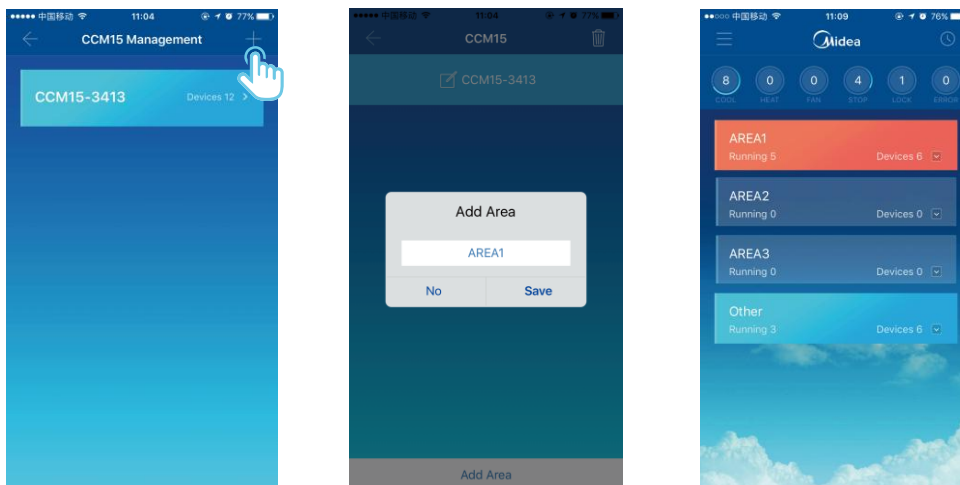
2.4.2 Method two: scanning a QR code
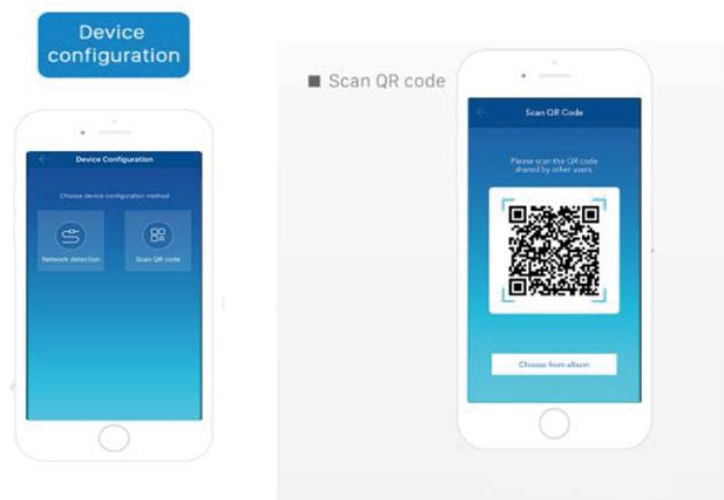
1. After registration, the new user directly goes to the device configuration interface.

2. Click "Scan QR code". It goes to the QR code scanning interface. Scan the QR code shared by other users to complete the configuration.

8.5 Editing an area

8.5.1 Adding and Deleting an Area

Adding an area: click "+", as circled in the figure above. On the displayed interface, click "Add Area". Enter the name of the new area in the text box. Click "Save".
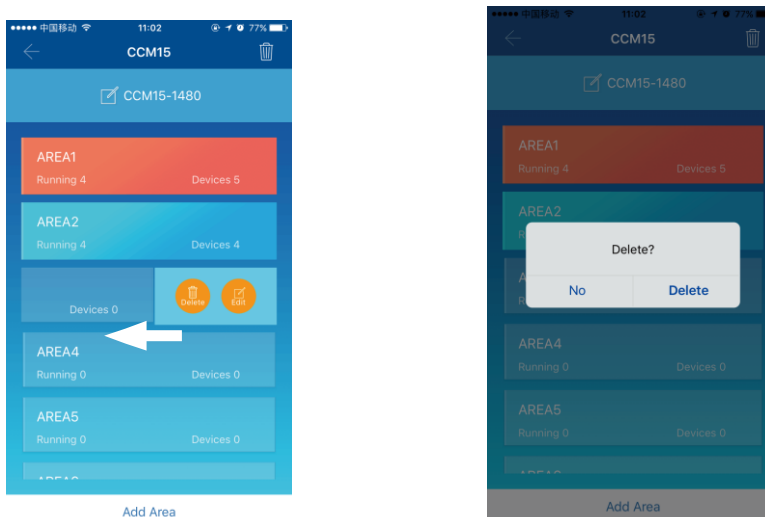
Deleting an area: Swipe left the selected area. Click "Delete" to delete the area. Click "Edit" to edit the area name.

2.5.2 Adding a device to an area
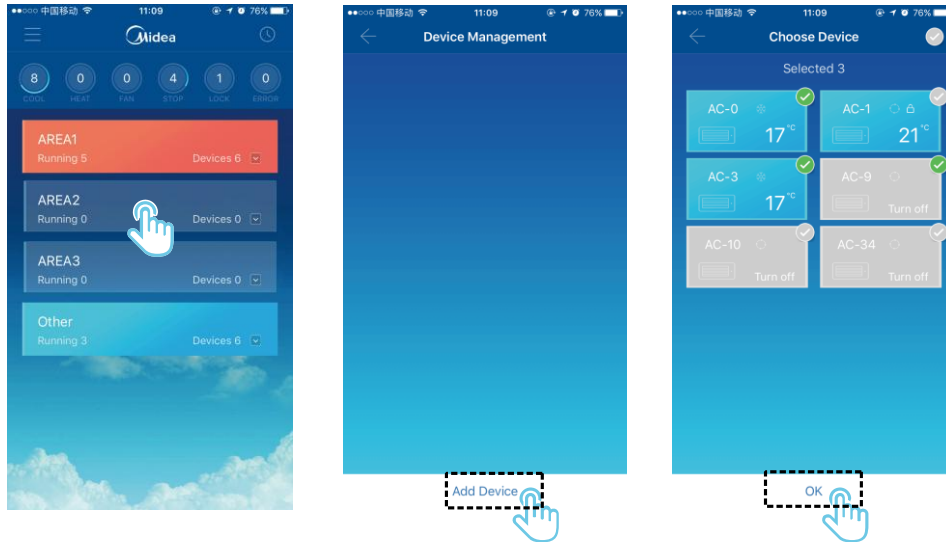
After an area is added, it goes back to the area display interface. Click the area to which a device is added. Click "Add Device". Select the device to be added. Click "OK".

2.5.3 Editing a device in an area
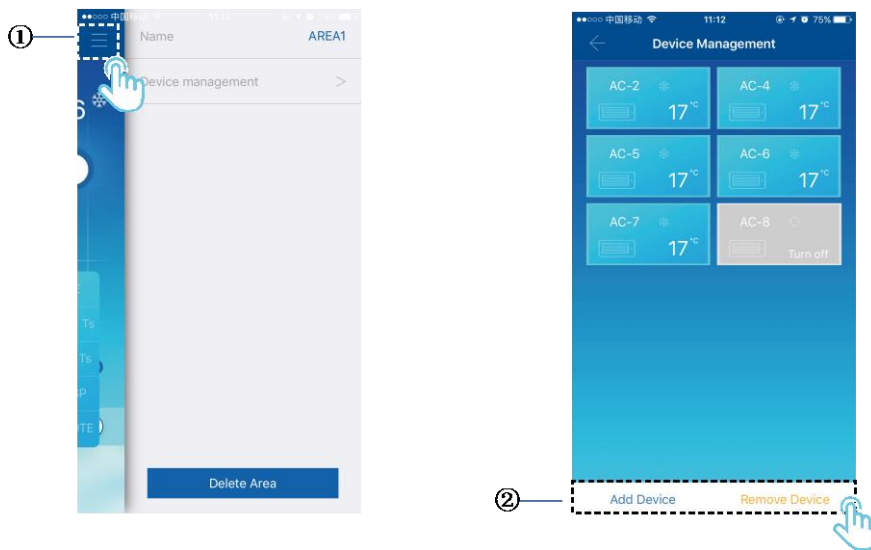
Click the icon indicated by ① at the upper right corner, as shown in the figure above. Click "Device management". The device management interface is displayed. Click "Add Device" indicated by ② to add a device or "Remove Device" to delete a device.
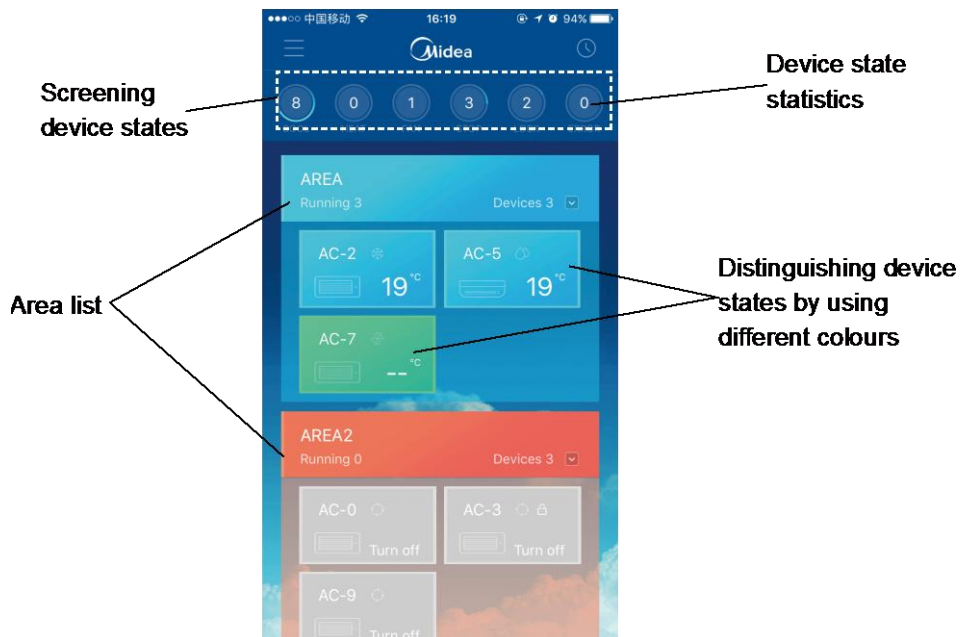
Statistics of device status: This area displays the number of air conditioners in each state.

Distinguishing device states by using different colors: This area displays the air conditioners in different states by using different colors, as shown in the following figures:

HEAT	**FAN**	**COOL**	**OFF**
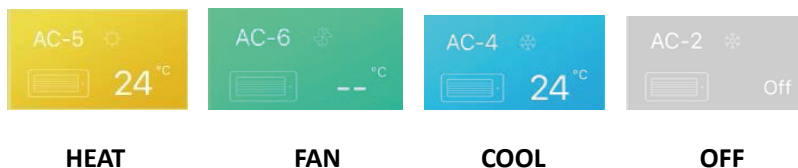
Screening device states: This area displays the air conditioners in the selected state.

2.5.4 Area control main interface

Area list   Area control-Mode   Area control-Items to be locked
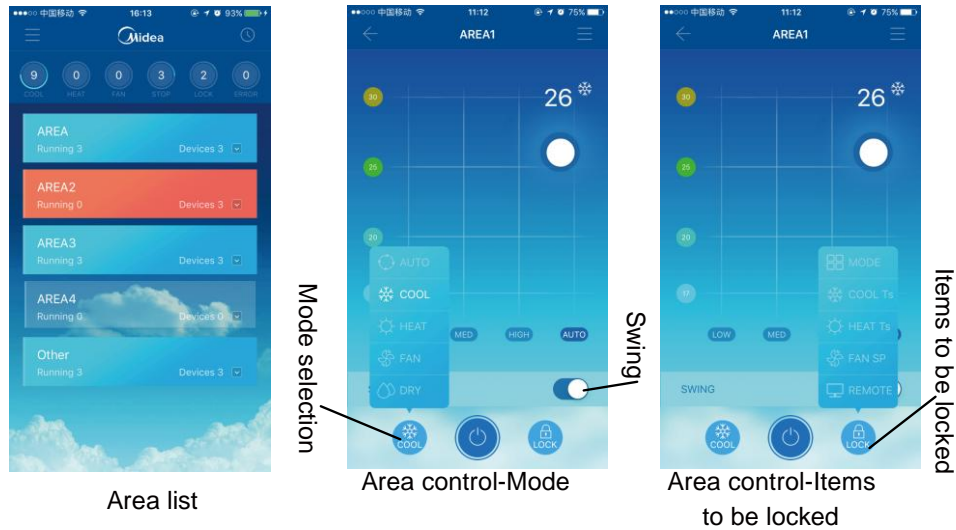
Area List: It displays area name, the number of running air conditioners in the area and the total number of the air conditioners in the area.

Area Colors: A blue area indicates that the devices in this area are running. A red area indicates that the devices in this area are not running. A transparent area indicates that no devices are located in this area. "Other" indicates grouped devices.

Area Control: On the area control interface, ambient temperature is not displayed. The user can set temperature between 17°C and 30°C (62°F and 86°F) and select a fan speed (low, medium, high, and auto).

Locking: The user can lock mode, cooling temperature, heating temperature, fan speed, and remote control.

8.6 Single control function of air conditioners

2.6.1 Air conditioner control
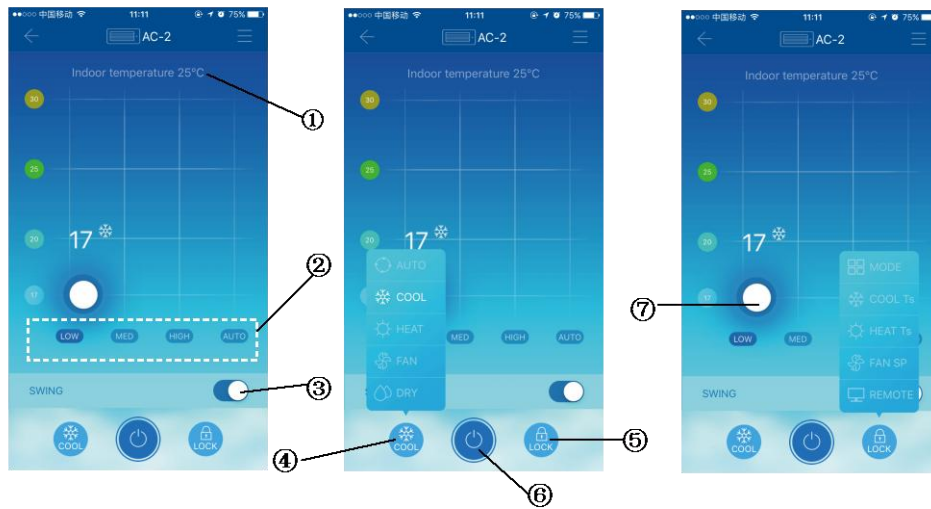
① It displays ambient temperature.

② It displays fan speed: "LOW", "MED", "HIGH", and "AUTO".

③ Swing

④ Select a mode: "AUTO", "COOL", "HEAT", "FAN", and "DRY".

⑤ Locking: The user can lock mode, cooling temperature, heating temperature, fan speed, and remote control.

⑥ Power on or off.

⑦ Set temperature between 17°C and 30°C (62°F and 86°F).

Note: If an air conditioner fails, the main interface displays the fault and the user cannot operate the interface.
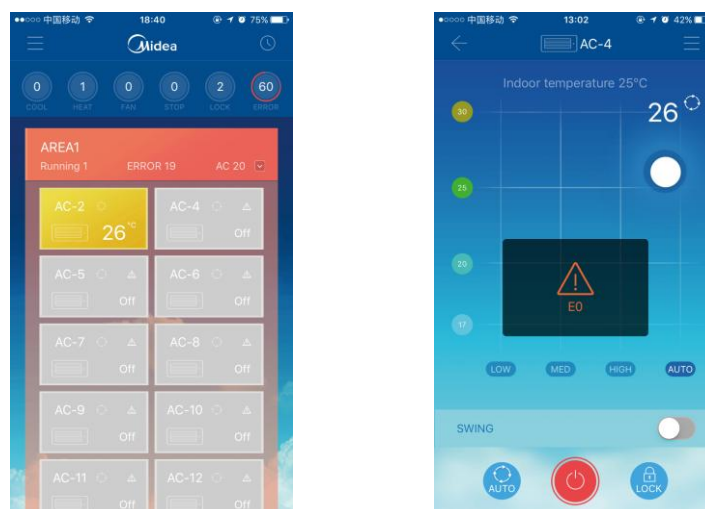
As shown in the figure above, when an air conditioner fails, the control interface displays fault information.

2.6.2 Modifying device name and model
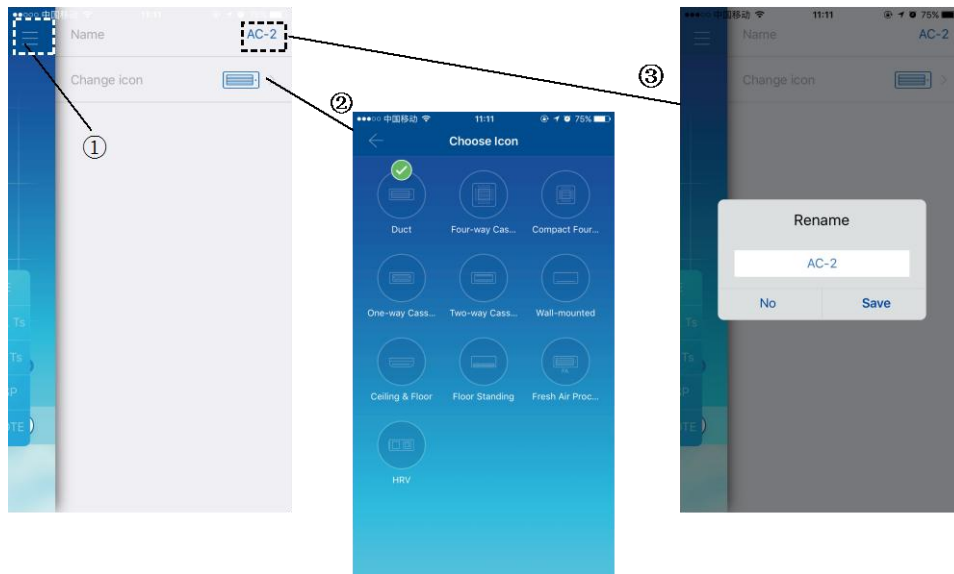
On the main control interface, click the icon indicated by ①, as shown in the figure above. The interface for modifying device names and models is displayed.

② It is an interface for modifying models. On this interface, ten models are available: "Duct", "Four-way Cassette", "Compact Four-way Cassette", "One-way Cassette", "Two-way Cassette", "Wall-mounted", "Ceiling & Floor", "Floor Standing", "Fresh Air Proc⋯" and "HRV".

③It is an interface for renaming a device.

Note: The new CCM15 is compatible with the V5X, V4+S, V4+R and Mini VRF outdoor units and all kinds of indoor units except for the HRV and the Fresh Air Processing Unit.

8.7 Schedule Control function

Displayed in a list   Displayed in a chart

Click the icon indicated by ①. The schedule operation interface is displayed. Scheduled operations can be displayed in a chart or in a list.
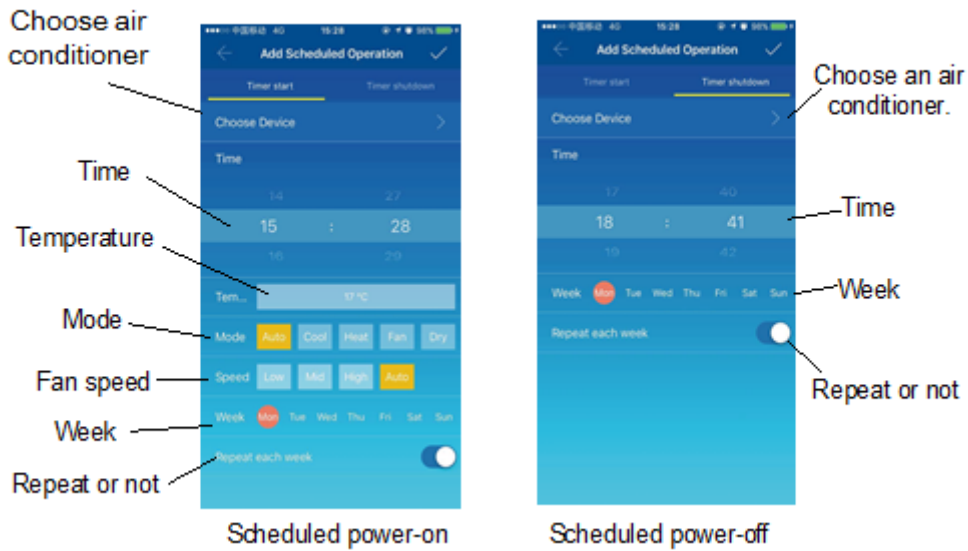
Scheduled power-on   Scheduled power-off

After parameters are set, click "Tick" at the upper right corner to save the settings.

2.8 User Group Management

2.8.1 Inviting and removing a user

Select a CCM15 device from the list and then click "Group Management". The following interface is displayed:
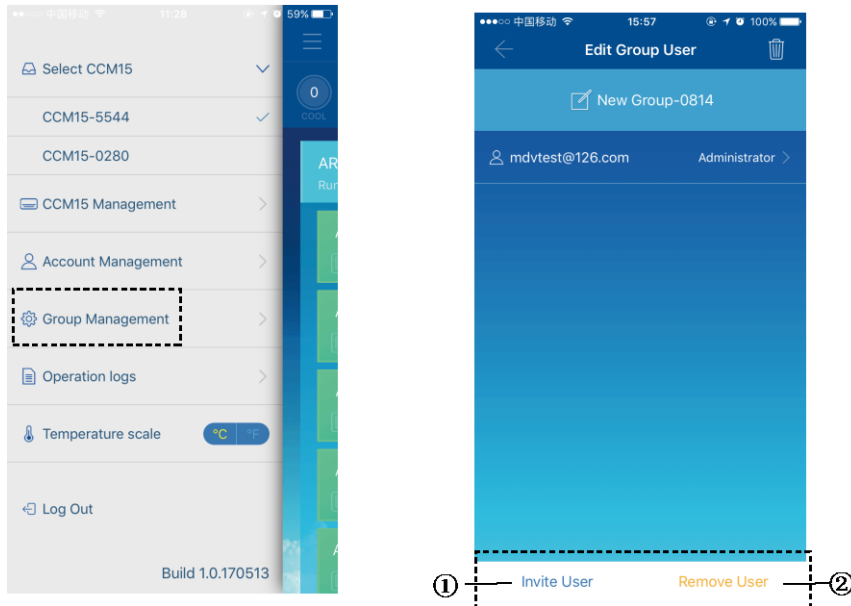
① "Invite User": If a QR code is displayed, a user can scan it to join the user group. The QR code is valid within 30 minutes.

Up to 10 users can join one user group.

② "Remove User": Click it to remove a user from a user group.

2.8.2 Permission management
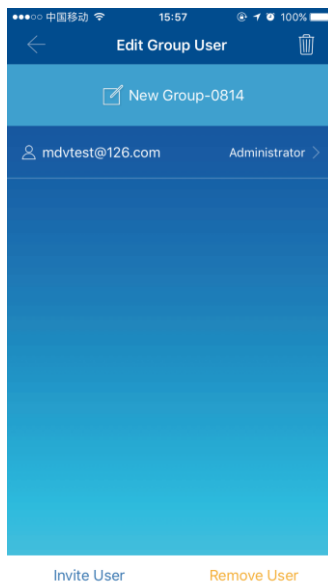
The figure above shows all the permissions of the members in a user group: "Invite/Remove users", "Change device information", "Device control", "Area control", "Lock function", and "View operation logs".

2.9 Operation logs

Click "Operation logs" on the left. The "Operation logs" interface is displayed, as shown in the following figure:
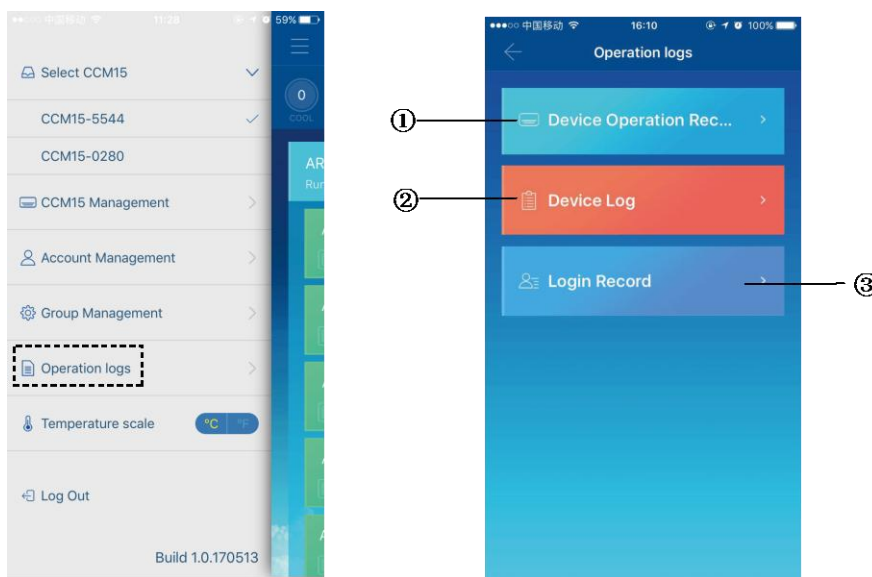
① "Device Operation Record"

② "Device Log"
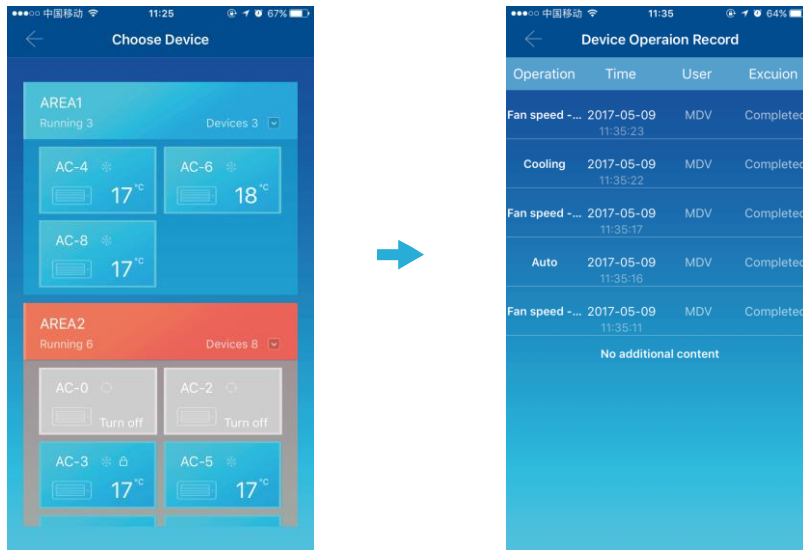
③ "Login Record"

2.9.1 Device logs
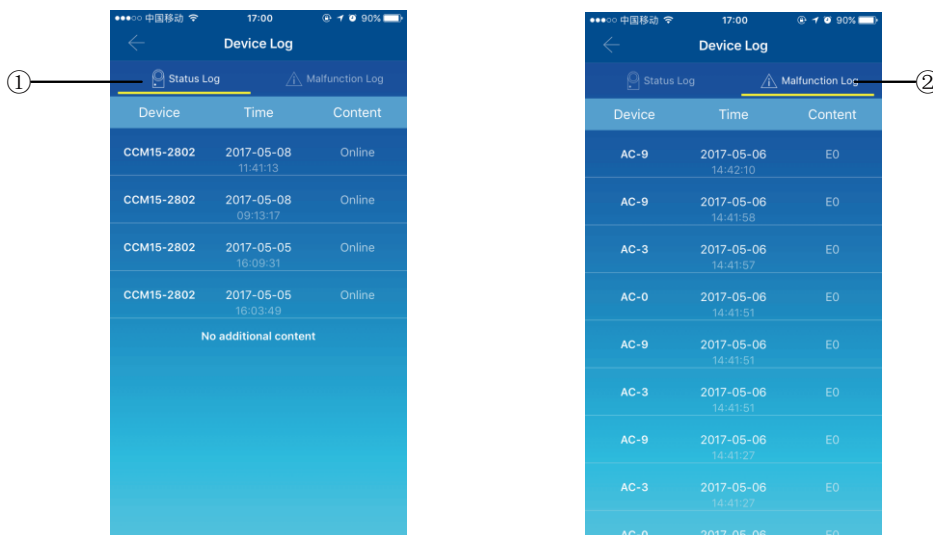
Device logs include status and malfunctioning logs:

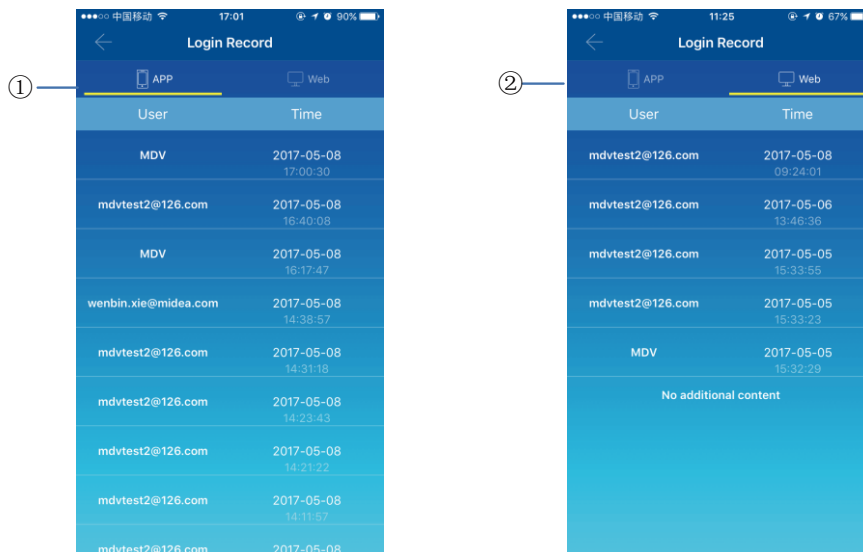① "Status Log": It displays gateway name, time, and status.

② "Malfunction Log": It displays device number, malfunction occurrence time, and error code.

2.9.2 Device Operation Records

The "Device Operation Record" displays operation records of each device including mode, operation time, user name, and execution status.

2.9.3 Login records

Login records are classified into App login records and Web login records:

① "APP": It displays login user name and login time via the App client.

② "Web": It displays login user name and login time via the Web client.

2.10 Account management

Click "Account Management". The account management interface is displayed as shown in the following figure:
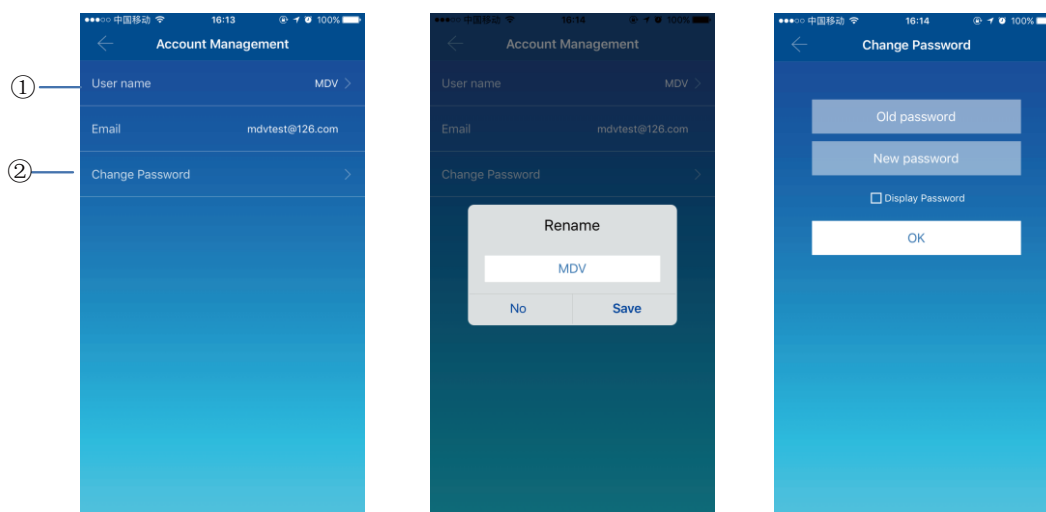
① Click the User name. The "Rename" dialog box would pop-up. Enter a new name and then click "Save".

② Click "Change Password". On the "Change Password" interface, enter the old and new passwords. Click "OK". The password must contain at least 6 characters.

# 9 Remote web client operation

9.1 Main interface function description
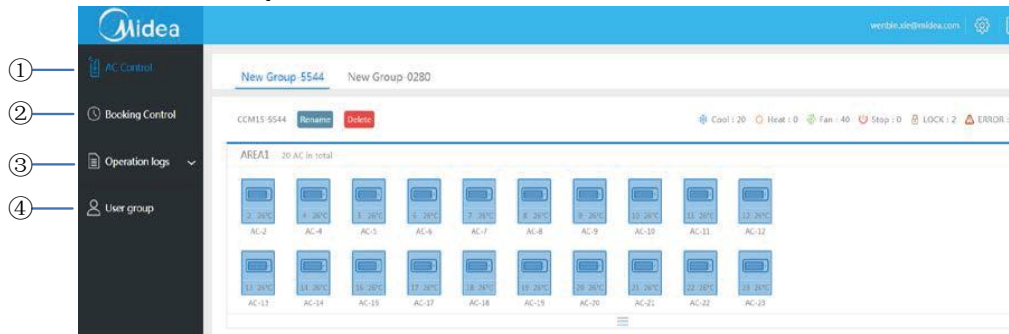
Web functions list

①   "AC Control": Air conditioner control

②   "Booking Control": Scheduled operations

③   "Operation logs": Operation logs

④   "User group": Group management

CCM15 Service Manual

3.2 Log in

Browser support: IE 10 or above, Firefox, Chrome, Safari.

Operating systems: Windows7 or above, Mac OS.

Type http://www.aircontrolbase.com/login.html into the browser's address bar.
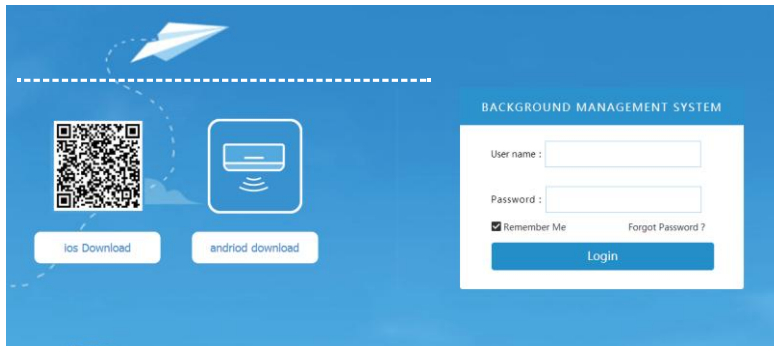
The login interface is displayed. Enter the registered email address in the "User name" text box and password in the "Password" text box. Click "Login". An account can only be registered on the App client. Only after the account is activated, it can be used for login on the web client.
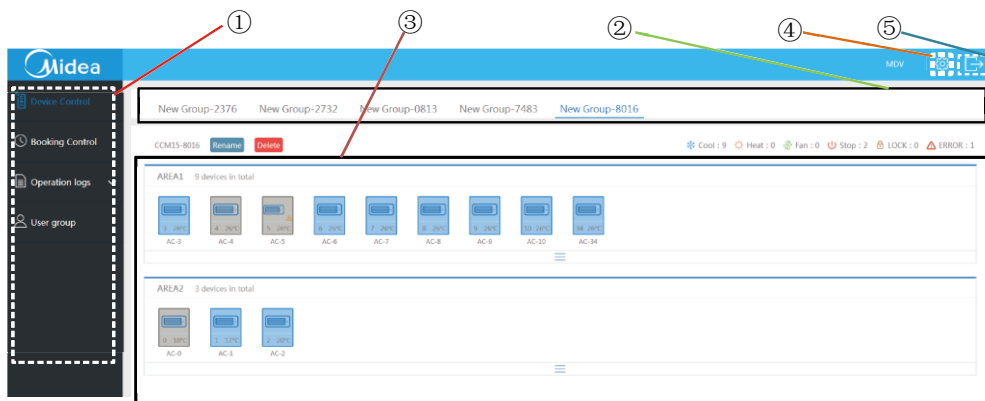
The frame selected in the above interface is a link to download the app. iOS and android versions are available.

Tick "Remember Me" to remember user account and password. When the user accesses this address next time, the user can directly log in.

Click "Forgot Password" to retrieve the password, as shown in the following figure:
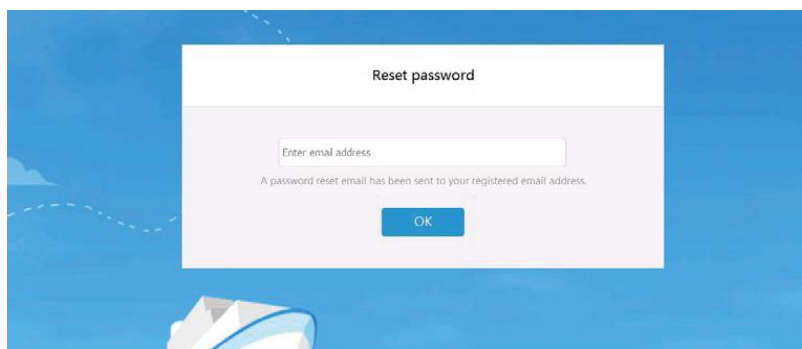
3.3 Function areas

① It is a function list. It lists "Device Control", "Booking Control", "Operation logs", and "User group".

② It is a CCM15 list. It displays a list of CCM15 gateways configured via the App client. Up to 10 gateways are supported.

③ It is an area display pane. It displays areas and the air conditioners in an area.

④ setting: include display unit of the temperature, languages select and change password.

⑤ exist account: exist account to the main interface.

3.4 Area management

3.4.1 Area control function
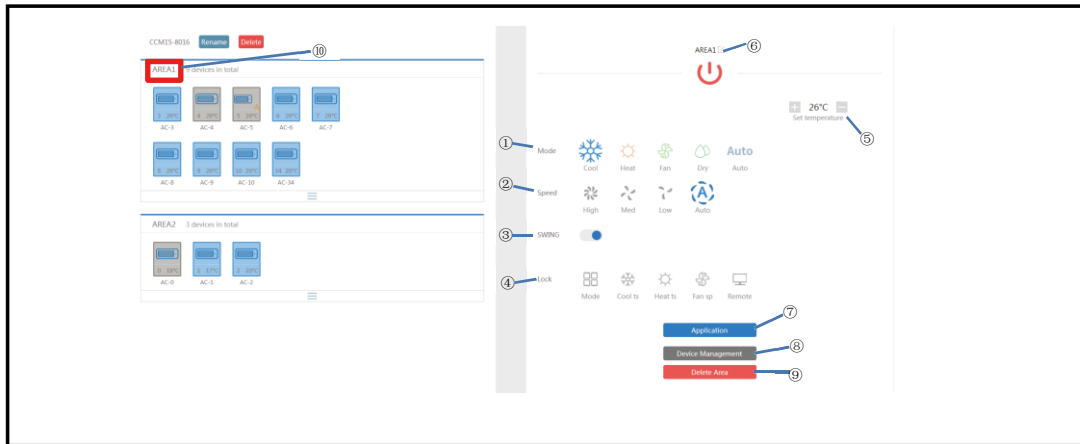
Click the area name⑩, the right area will display the control interface

① "Mode": sets mode.

② "Speed": sets fan speed.

③ "Swing": determines whether to enable swing mode.

④ "Lock": sets the item to be locked.

⑤ "Set temperature": sets temperature, ranging from 17℃ to 30℃ (62℉ to 86℉).

⑥ It displays an area name. Click the icon to rename it.

⑦ "Application": Click it to send the settings to the air conditioner.

⑧ "Device Management": Click it to add or delete a device.

⑨ "Delete Area": Click it to delete an area.

⑩ It displays the selected area.

3.4.2 Single control function of air conditioner
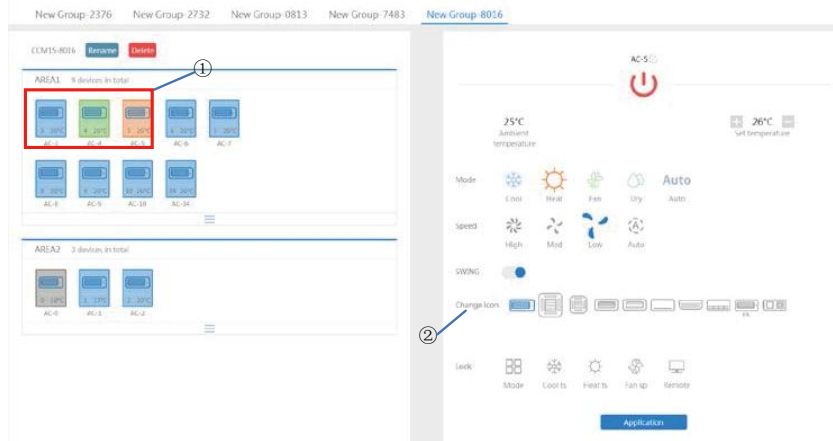
The function list is the same as that of area control. Refer to the area control function. In single control mode, the user can select the air conditioner model, indicated by ①. The area on the left displays air conditioners, indicated by ②. Mode is distinguished by different colors.

| **Heat** | **Cool** | **Fan** | **Off** |
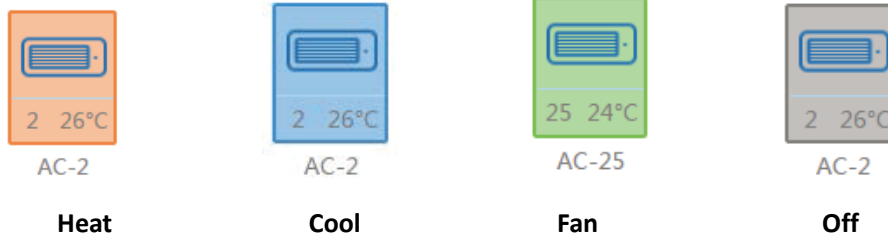
3.4.3 Air conditioning statistics and filter function

Air conditioner state statistics display: Calculate the number of air conditioners with different states in one CCM15. The available states include: cooling, heating, fan only, off, lock and error. The auto mode is included in the cooling mode.

Air conditioner states filer display: Displays the filtered air conditioners in a state, which is from air conditioner systems and different areas.
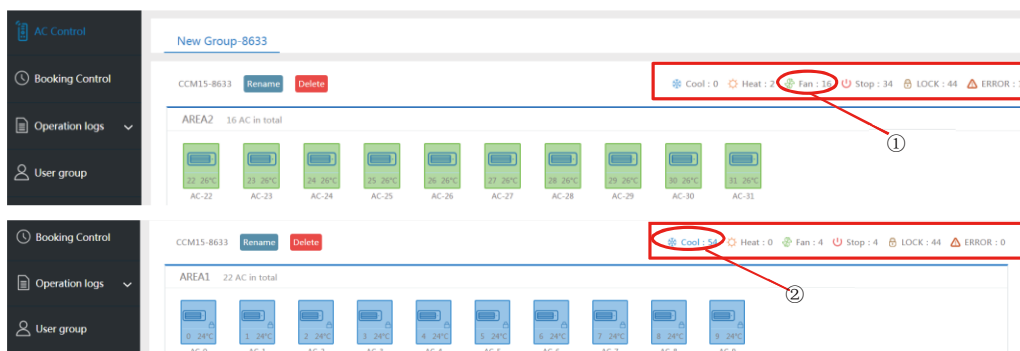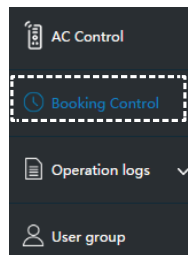

For example: Click ① Fan to filter the AC in fan mode from different area.

click ② Cool to filter the AC in cooling mode from different area.

3.5 Booking control

Choose Booking Control to enter into the schedule setting function.


3.5.1 Main interface

The main interface displays scheduled operation type, device, schedule time, mode, temperature, fan speed, week and repeated or not. Click "Delete" to delete a schedule operation. Click "Edit" to edit a schedule operation. Click "Add" to add a schedule operation.

3.5.2 Adding a Schedule Operation
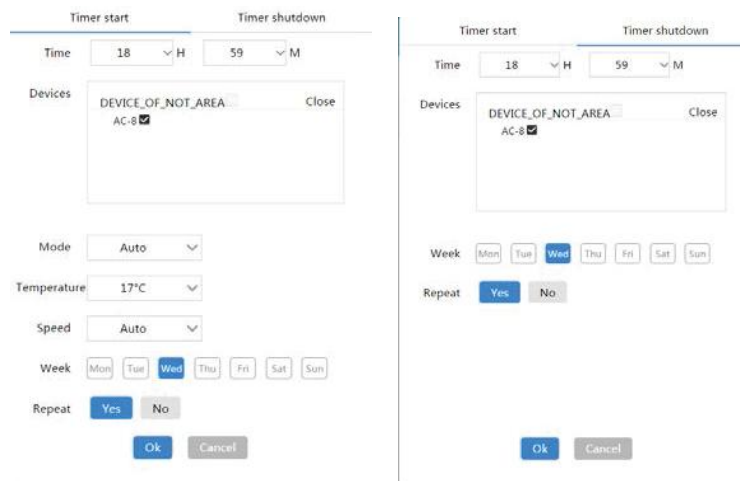
1. "Timer start": In this tab, set schedule time, device, mode, temperature, fan speed and week and select whether to repeat this schedule operation.

2. "Timer shutdown": In this tab, set schedule time, device and week and select whether to repeat this schedule operation.
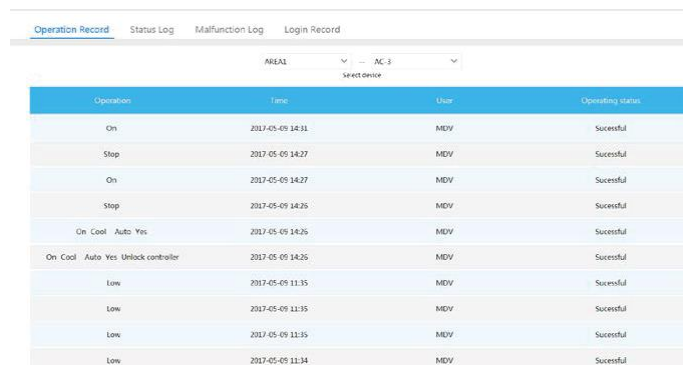
3.6 Logs
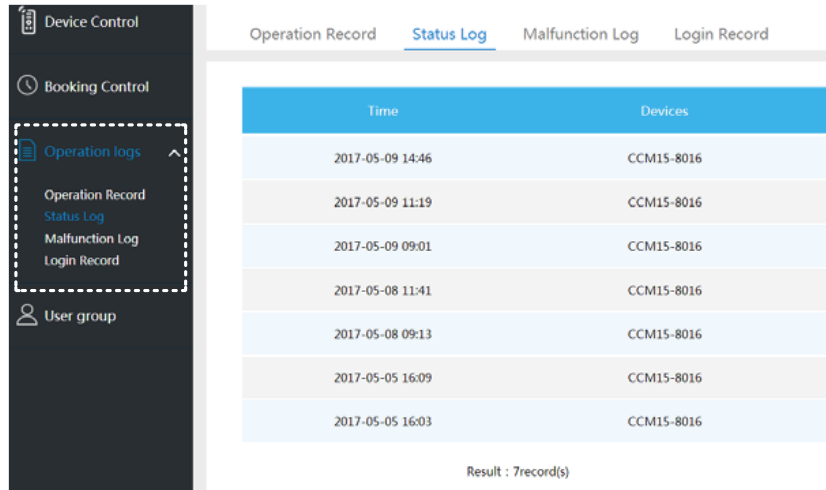
Logs include operation records, status logs, malfunction logs and login records.

Note: The error code may be inconsistent with the machine's fault code. Please refer the machine's error code as final.

3.6.1 Operation Record

The items displayed in the "Operation Record" tab page are the same as those displayed on the App client including mode,

time, username and execution results.

2.6.2 Status logs

The "Status Log" tab page displays online status of the air conditioners.

3.6.3 Malfunction logs

The "Malfunction Log" tab page displays malfunctioning information and error codes.

Note: The error code may be inconsistent with the machine's fault code. Please refer the machine's error code as final.
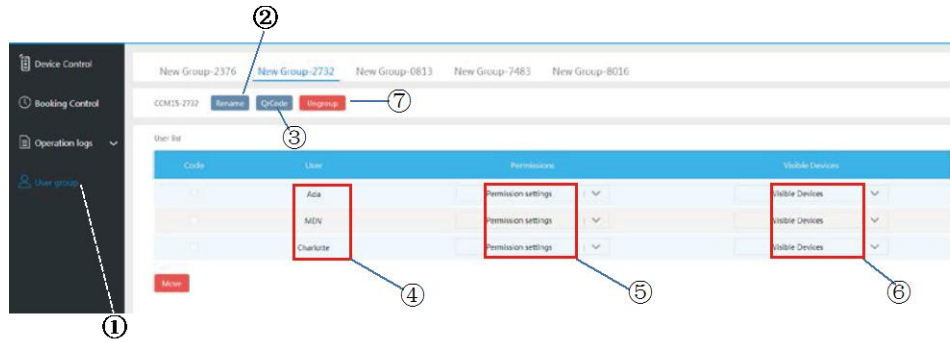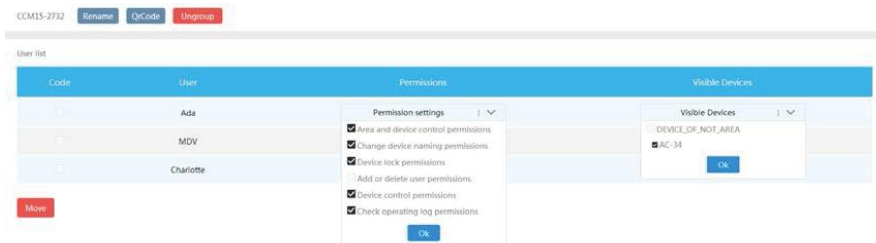
3.6.4 Login records

Both "App Login Record" and "Web Login Record" tab pages list login information.

3.7 User Group Management

① Click it to display user group management.

② Click it to rename a group.

③ Click it to share a QR code.

④ It lists users.

⑤ Click it to set permissions.

⑥ It is a device management area.

⑦ Click it to delete a user group.

3.7.1 Modifying user permissions

The administrator selects any member from a user group. Click the "Permission settings" drop-down list, and then select

permissions. Select a visible device from the "Visible Devices" drop-down list.

3.7.2 Renaming a user group
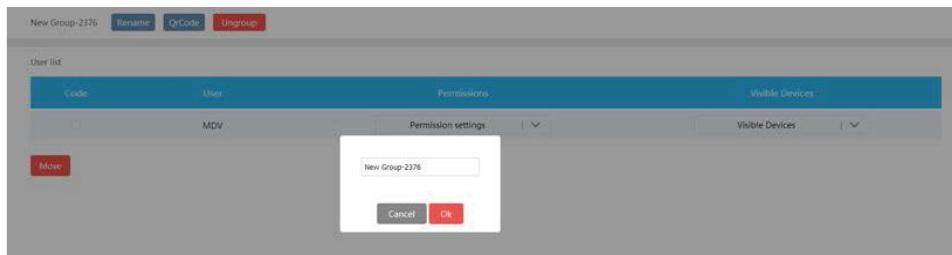
Click "Rename" to rename the selected user group.

3.7.3 Inviting a user
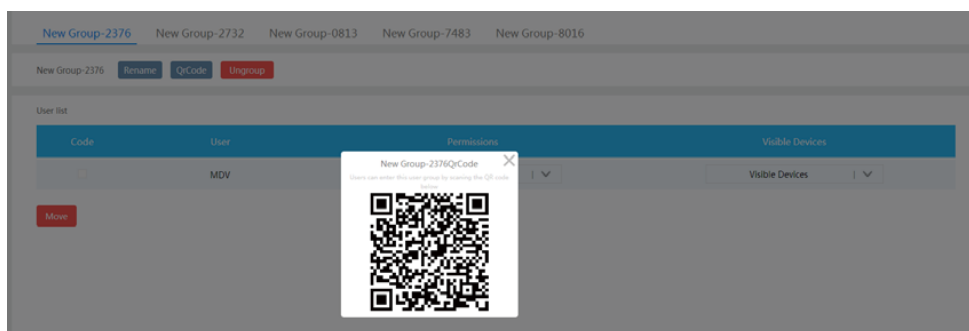
Click "Qr Code" to generate a QR code of the user group. Up to 10 users are supported.

3.7.4 Deleting a user group
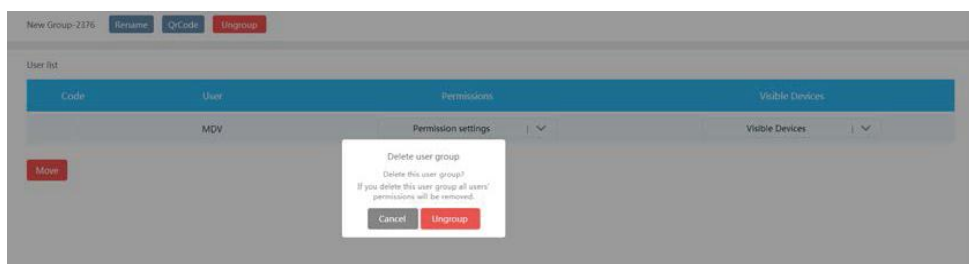
Click "Ungroup" to delete the selected user group.

3.8 Setting

Click ④ to enter into the setting interface.
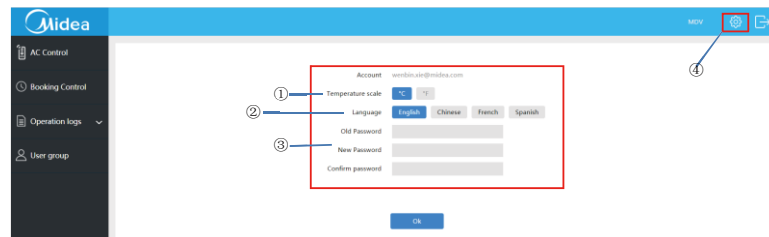
① Modify unit of temperature: Celsius, Fahrenheit.

② Set supported languages: English, French and Spanish.

③ Modify the login password.

10   Local web client operation

When the CCM15 gateway is configured on the App client, the IP address of the CCM15 gateway is displayed. On a PC located in the same network segment of the CCM15 gateway, type the IP address of the CCM15 gateway into the browser's address bar. The embedded Web page of the CCM15 gateway will display.

Note:

The local web client is reserved. Please use the app or Remote web client to control the AIR CONDITIONER.

11 Frequently Asked Questions

In this section, we will try to give answers to some of the frequently asked questions that the customers can have while using the CCM 15 data converter controller. Some of such FAQs are listed bellow

11.1   How to add multiple CCM15 to one App?

Solution: Yes, it is possible to add multiple CCM15 to one application. In fact, up to 10 CCM 15 maybe added with one mobile phone application. The detailed steps about how to add multiple CCM15 in one application are listed below:
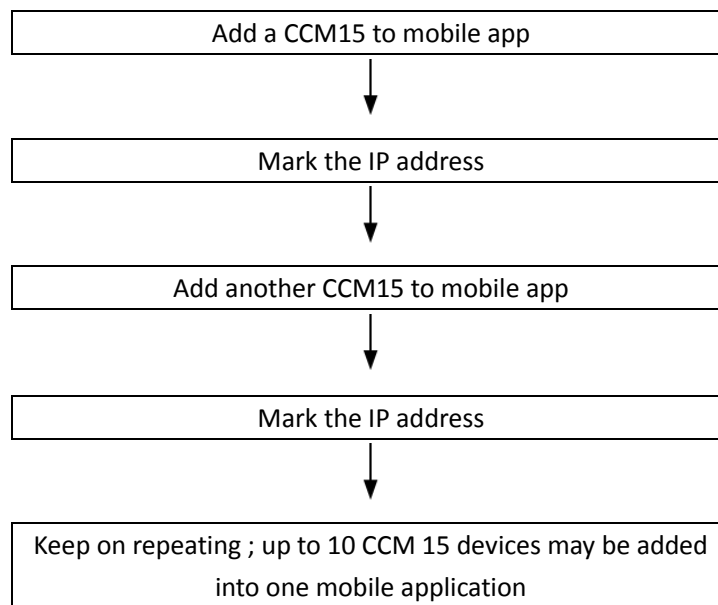
Note: It is not necessary for the various CCM15 to be in the same network.

11.2 After you register; there is no email received

Solution: Usually it can take up to 30 minutes to receive the activation email. If no email is received even after 30 minutes, try to use another email address.

11.3 Can we connect the CCM15 through the F1F2E port of CCM30?

Solution: It is forbidden to connect the CCM15 through the F1F2E connection method through the CCM30. In case you connect most of the functions of CCM15 will not work.

11.4 How to link different users with the same CCM15 application?

Solution: The other users may be added to one app by the Group invitation method as discussed in "**2.4.2 Method two: scanning a QR code**" part of this manual. However, do make sure that each of the users have got registered previously.

11.5 How to change the brand name inside the CCM15 interface?

Solution: Uninstall the app and install again. In the registration code part put the name of the other brand. For Eg. For "Midea" brand type : midea.

11.6 How to set the various permission levels for the different users?

Solution: In the add user interface, the permissions for the various users may be added in the "Permission Level" segment.

11.7 There are no indoor units after you finish the search.

Solution: Check the following installation steps one by one:

1. Check if the outdoor unit is set to auto addressing or not.
2. Check if the wiring connections are proper or not.
3. Use the LAN cable to connect the CCM15 with computer and access the web page of the CCM15.
4. If the units can be controlled from the web page ; ask the Midea Technical Support for help.

11.8 Cannot control the indoor units

Solution: The virtual function cannot control the indoor units; make sure that you have not logged in with the Virtual account.

11.9 The display on the webpage is not proper

Solution: Only use google chrome version 52.0 or above to visit the website of CCM15.

11.10 There is no option to use the new functions of second generation DC indoor units.

Solution: The new functions of the second generation DC indoor units are not available for this CCM15 ; However, a new version of CCM15 with the latest functions will be launched soon.

11.11 How to Login if you forget the password of your account?

Solution: Click on "Forget Password" on the app login page ; from there on you can reset the password by using the registered email address.

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Note: Product specifications change from time to time as product improvements and developments are released and may vary from those in this document.

ISO 9001 — Quality Assurance

ISO 14001 — Environmental Management

OHSAS 18001 — Occupational Health and Safety Assessment