LTECH
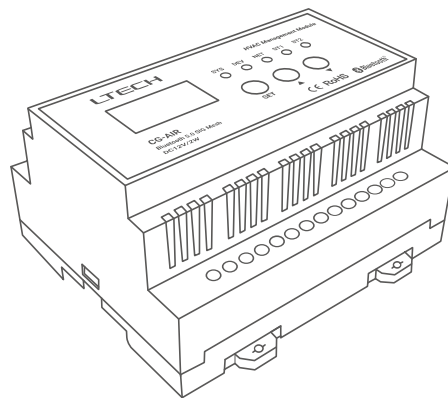
CG-AIR

HVAC Management Module

Manual

www.ltech-led.com

Product Introduction

HVAC management module adopts Bluetooth 5.0 SIG Mesh. With one HVAC management module, you can control multiple AC units. Easily turn traditional central air conditioning into smart one in just a few simple steps. It allows remote operation, timing control and scene linkage while using the app. It can be linked up with other smart devices as well and this smart linkage makes air conditioning to be integrated into the smart system.
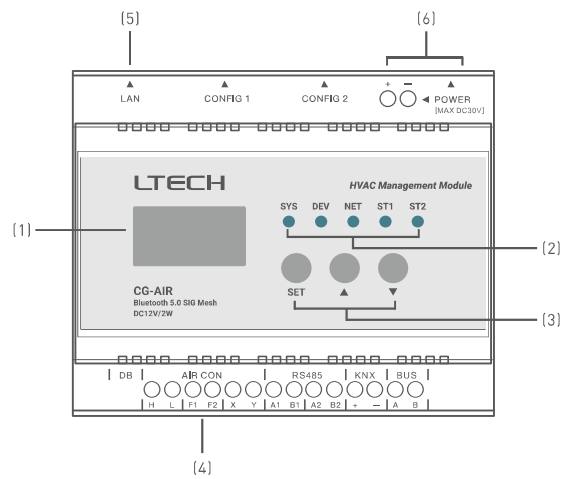
Technical Specs

Product Name	HVAC Management Module
Product Model	CG-AIR
Wireless Type	Bluetooth 5.0 SIG Mesh
Input Voltage	DC 12V
Power Consumption	2W
Working Temperature	0°C~40°C
Working Humidity	20~85% (no condensation)
AC Communication Line Voltage	AC 5V

Product Size

Unit: mm
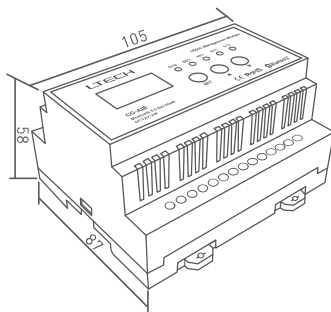
Component Description

1) LCD: Shows whether communication is taking place, and displays the brands of air conditioning you are now controlling, the number of indoor AC units that has been searched, and displays the parameters of this module as well.

2) LED indicator lights: Show the working status of the module.

3) Buttons: Press the button to scroll the page down for all the contents displayed on the screen, to set up the parameters and to realize different functions by combining with other buttons.

4) AIR CON terminals: Attach the right ports to your air conditioning based on the protocol.

5) LAN port: One RJ45 port. The module can access LAN or Ethernet by connecting to this port.

6) POWER port: Power on the module by either plugging into the jack socket or by connecting to the power supply terminal. (The power supply specification is DC12V. If the power supply does not match, the product may be damaged)
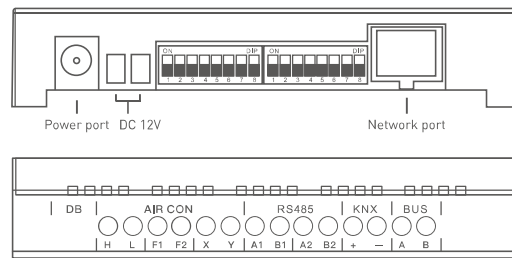
Product Installation

1. Installation Steps

① Make sure air conditioning system is powered, and check whether all the indoor and outdoor AC units connected for centralized control are powered.

② Make sure that the AC system commissioning has been successfully completed by the AC manufacturer, and no any alarm or abnormal situation occurs.

③ Confirm the addresses of the indoor and outdoor AC units and record the addresses. (For example, each indoor Daikin AC unit needs to be numbered. Give them a number starting from 00 and do not repeat continuously, such as 1-00, 1-01, 1-02, 1-03, 1-04).

④ Power off all the devices in the AC system.

⑤ Connect to the air conditioning communication line, and according to the description above attach to the corresponding port(Refer to Page 5 in this manual for more details).

⑥ Confirm the ports you select for the central air conditioning module and make sure they matches the communication parameters.

⑦ Power on the system devices and wait a while until the system is ready to be used.

Note: The default AC brand is the HITACHI that matches our AC module. If you choose other air conditioner brands, you need to upgrade the AC module (Please refer to Page 8 in this manual for more details).

Hardware ports are shown as below:

Power port   DC 12V   Network port

| DB | AIR CON | RS485 | KNX | BUS |

| H | L | F1 | F2 | X | Y | A1 | B1 | A2 | B2 | + | — | A | B |

AIR CON terminals: Attach the right ports to your air conditioning based on the protocol.

Brand	Module port	AC port	Port polarity
Daikin (Multiple outdoor AC units)	F1、F2	F1、F2 (Outdoor-Outdoor)	No
Daikin (Single outdoor AC unit)	F1、F2	F1、F2 (Indoor-Outdoor)	No
HITACHI	F1、F2	1、2	No
TOSHIBA	F1、F2	U1、U2	No
Mitsubishi Electric	F1、F2	M1、M2 (TB3/7)	No
York (new version)	F1、F2	1、2	No
Panasonic	F1、F2	U1、U2	No
Hisense	F1、F2	1、2	No
Haier	F1、F2	P、Q	No
Gree	H、L	G1、G2	Yes
Gree	H、L	D1、D2	Yes
Mitsubishi Heavy Industries	X、Y	A1、B1	No
York (old version)	X、Y	X、Y	Yes
Midea	X、Y	X、Y	Yes
AUX	X、Y	X、Y	Yes
Bosch	X、Y	X、Y	Yes
LG	X、Y	A、B (CEN.)	Yes

Outdoor is short for outdoor AC units, Indoor is short for indoor AC units

If the port polarity is marked with "No", it does not require that the wire connection between the AC module port and the AC port should be correct.

If the port polarity is marked with "Yes", it requires that you should correctly wire an AC module to an AC according to the sequences marked both beneath the AC module port and the AC port.

Take a Midea AC for example: "X,Y" are marked on the module port, "X,Y" also on the AC port and the port polarity is marked with"Yes". In this case, you have to attach the wire of AC X port to the module X port, and the wire of AC Y port to the module Y port.
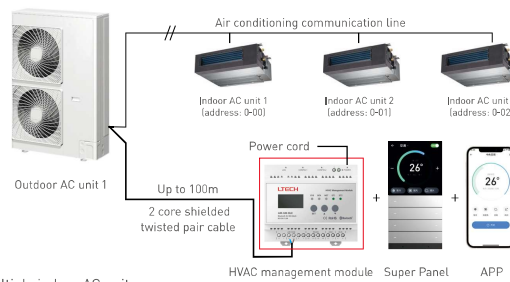
2. Wire Connections and Attentions

Construction personnel will take charge of the communication line between the indoor AC unit and outdoor AC units. Like the refrigerant copper pipe between the indoor and outdoor AC units, it is part of the air conditioning system, which is not the scope that the weak current integration side is responsible for.
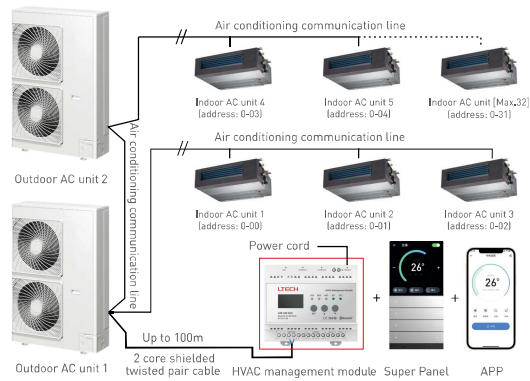
Note: One module only supports one single outdoor AC unit from the domestic AC brands like Midea, Mitsubishi Heavy Industries and Gree.

Bluetooth connection diagram (taking a Daikin air conditioning for example)
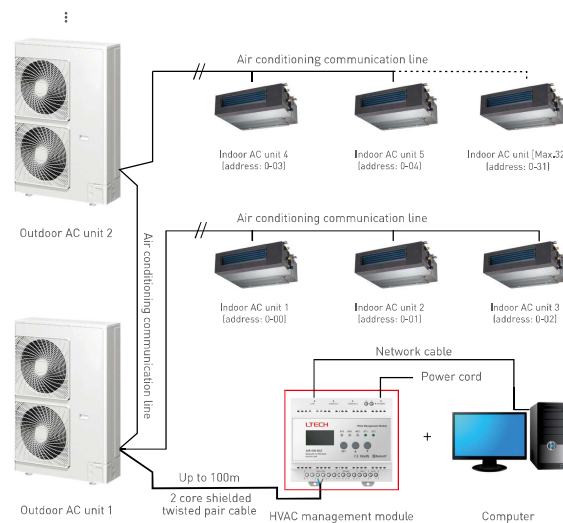
Single outdoor AC unit

Air conditioning communication line

Indoor AC unit 1
(address: 0-00)

Indoor AC unit 2
(address: 0-01)

Indoor AC unit 3
(address: 0-02)

Power cord

Outdoor AC unit 1

Up to 100m

2 core shielded
twisted pair cable

HVAC management module   Super Panel   APP

Multiple indoor AC units

Air conditioning communication line

Indoor AC unit 4
(address: 0-03)

Indoor AC unit 5
(address: 0-04)

Indoor AC unit (Max.32)
(address: 0-31)

Outdoor AC unit 2

Air conditioning communication line

Air conditioning communication line

Indoor AC unit 1
(address: 0-00)

Indoor AC unit 2
(address: 0-01)

Indoor AC unit 3
(address: 0-02)

Power cord

Up to 100m

2 core shielded
twisted pair cable

Outdoor AC unit 1

HVAC management module   Super Panel   APP

Multiple indoor AC units

This module is connected to the outdoor AC units of the AC system through 2 core shielded twisted pair cable, so it can communicate with all indoor AC units in the AC system to monitor them. The shielded twisted pair cable from the outdoor AC unit to this module requires a wire diameter of 0.75mm² or much longer, and the overall length is no more than 100m, which can be reserved by the air conditioning construction personnel or added later. The communication between this module and the weak current integrated system is also realized by twisted pair cable or network cable. The parameter requirements and construction details of the communication line should be determined by the position between the module and the weak current integrated system.

This module needs to be installed indoors. You can install it in the smart home control box or in the position near to it.

The wiring terminals on the module and air conditioning (taking a Daikin air conditioning for example) are shown as below:
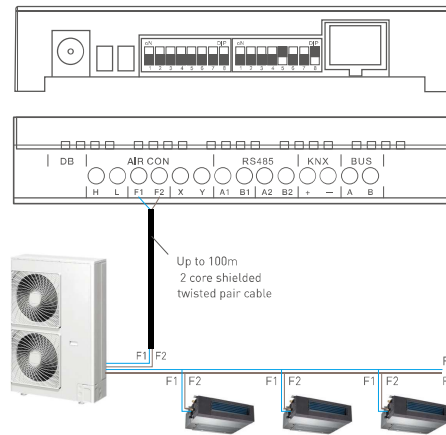
Matters Needing Attention for Operation of Wiring Connection:

① Input terminal and connection terminal for different control modes are different.

② The network cable of the LAN port should be controlled within 80 meters.

③ Please use the power supply that comes with the module or use DC 12V power supplies produced by regular manufacturers.

④ If you connect wiring while power is being supplied, it may cause failures. So please cut off the power of the module and air conditioning when you are wiring.

⑤ Please do not run all the signal cables side by side with the power line and with other signal lines, which may cause malfunctions due to interference. If you do, please keep the communication wiring distance is about 15cm between them and air conditioning, and keep the other wiring distance is 30 cm above. Or connect cables to the iron protective tube and ground one end of the protective tube. And the case must be the D type grounding.

⑥ If you mistakenly connect the power cord to the signal port, the fuse will blow out to protect the printed circuit board. In this case, please contact the manufacturer timely. It is strictly forbidden to disassemble it without permission.

3. Module upgrading and power on the device

① Scan the QR code below with WeChat, or click here to open the website, and the interface will display the button for [Scan QR Code to Upgrade Gateway].

② Connect the HVAC management module to the router that can be connected to the network normally through the network cable. When the module is powered on, the QR code is displayed on the device screen, as shown in the following figure. (This QR code only lasts for 5s after power on. If the page has jumped, please power off the device and then power on again)
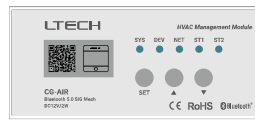
③ Click the [Scan QR Code to Upgrade Gateway] button on the mobile phone to scan the QR code displayed on the screen of the air conditioning module device. Enter the gateway upgrade page, select the corresponding air conditioner brand according to the actual application, and the other options are the default options. Click [Confirm].

Scan QR Code to Upgrade Gateway

Gateway information
Current version number
Hardware information
Gateway MAC address
Select corresponding integrator
Select air conditioner brand
Confirm

④ After clicking to confirm the upgrade, power off HVAC management module and then power on again. After the device is initialized, the NET light flashes when it enters the upgrade status. At this time, the screen displays [Local upgrade in progress], waiting for the upgrade to complete.

⑤ Start to search air conditioning and LCD displays "Searching air conditioning" The search time is related to the brand of air conditioning you connect and to the number of indoor AC units, which takes about 2-5 minutes. After the search is completed, LCD will display information pages and pressing the SET button allows you to scroll the page up and down for all the information, as shown below.

大金 TCP/485/KNX	── Daikin TCP/485/KNX
本机运行中	── This device is running
空调数： 1 ▼	── Number of air conditioning

本机IP:	▲ ── Device IP
192.168.001.251	
固件：	── Firmware
00.00.00.00.000 ▼	

远控： 有 ▲	── Remote control : YES
新风： 有	── Fresh air : YES
地暖： 有 ▼	── Radiant floor heating : YES

⑥ When the air conditioning runs abnormally, the words "This device is running" displayed on LCD will be substituted for "Air conditioning fault code and its 4 digit number". In this case, you need to provide the manufacturer with this 4 digit number to solve this fault problem.

大金 TCP/485/KNX	── Daikin TCP/485/KNX
空调故障码： 0001	── Air conditioning fault code : 0001
空调数： 1 ▼	── Number of air conditioning : 1

Remark: For the air conditioning , like Daikin and TOSHIBA AC, of which you need to manually encode the wire controller, you have to encode it first and then the air conditioning can be searched.

APP operating instructions

Before you configure the AC module to the network, please make sure the air conditioning run normally and the module is well connected to air conditioning, and LCD displays the number of AC that have been connected. If the AC module has not been configured to the network yet, the LCD will display " Network unavailable".

1. Register a L-Home account and log in

Scan the QR code below with you mobile phone and follow the prompts to complete the app installation, then you can register or log in.

2. How to configure the AC module to the network?

2.1 Long press "▲" button of the AC module for 5s to trigger the access to network, until the device beeps.

2.2 Create a home if you are a new L-Home app user. In the "Room" interface, click "+" icon in the upper right corner and pick "HVAC module" from the device list
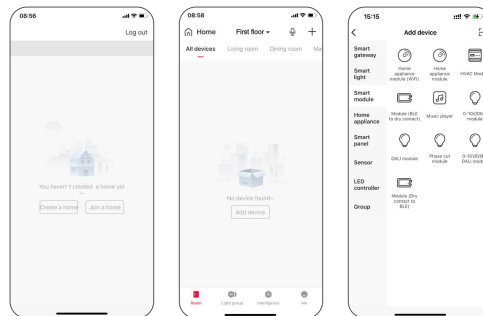
2.3 Click "Search via Bluetooth" and the app will automatically search items. When the app searches the AC module , click "+" icon to add the module. follow the on-screen prompts to add the device.
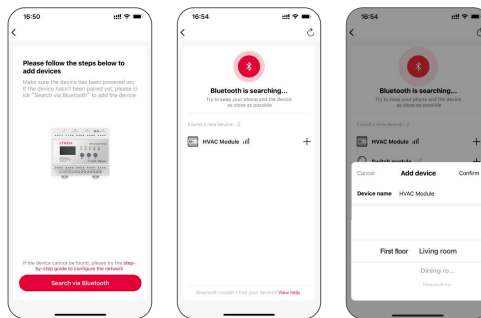

2.4 In "Room" interface, click "HVAC module" you have connected to add sub devices. Click "Search sub device" and the app will automatically search central air conditioning. When the app searches the central air conditioning, you can control it with the mobile app and start to enjoy smart life. Click "+" icon to continually search central other air conditioning.
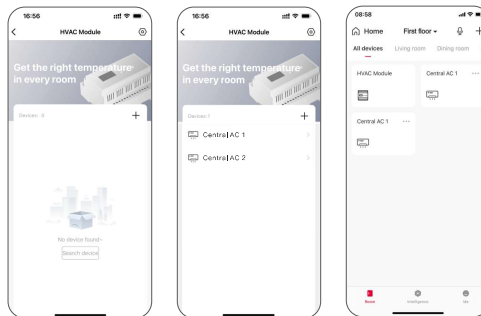
3. Enable settings for your AC

After adding the devices,click "..." icon in the upper right corner of the AC you connected to access the control interface, then you are allowed to turn on or off the AC, to adjust the temperature and fan speed. Click " ⚙ " icon in the upper right corner and you can rename the AC and change the room it belongs to.

✳ Clicking "▦" icon in the lower left corner of the AC you connected allows you to quickly adjust the AC temperature and modes.
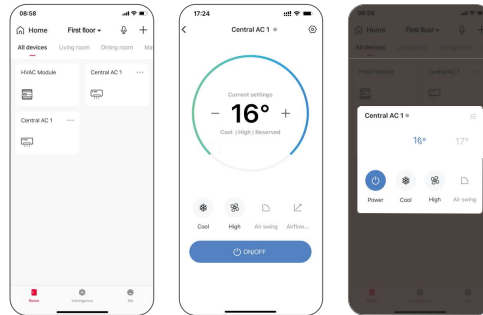

4. Remote control and automation

4.1 Make sure you have added a Super Panel to your home.

4.2 Scene: Switch to "Intelligence" interface and create scenes by clicking "+" icon in the upper right corner. After you customize the scene name and scene icon, click "Add action- Device- Air conditioning" to set up the actions (such as temperature, mode or fan speed) to execute them. You can also add other smart devices to realize linkage and click "Save". Return to "Intelligence" interface and click the scene you set up, then it can be executed successfully and be controlled remotely.
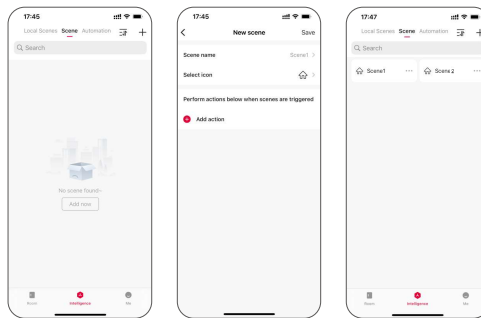
4.3 Automation: Switch to " Automation" and create automation by clicking "+" icon in the upper right corner. Click "Add condition" to set up trigger conditions (such as time, device status and location). When all conditions or any one condition are met, the automation can be realized and you can remotely control your air conditioning.
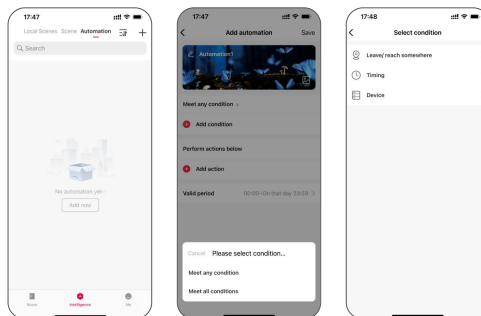
4.4 After you complete "Add condition", click "Add action" to set up actions (such as temperature and mode) to control the AC. You can also add other smart devices to realize linkage and then click " Save". When any one or all trigger conditions are met, the air conditioning will automatically execute the actions you set up.
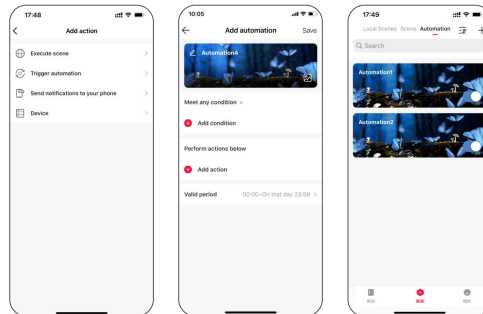
How air conditioning exits the network?

Method 1: In "Room" interface on APP, click the AC module you added to access the control interface for the device. Click "⊙" icon in the upper right corner and click "Delete" on the setting interface, then air conditioning can exit the network successfully.

Method 2: Long press "▲" button of the AC module for 5s to trigger the access to network, until the device beeps.

Firmware upgrade

Switching module upgrade

In "Me" interface on App, Click " Firmware upgrade" to check whether the module has a latest firmware version for update. If you need to upgrade it, click "Upgrade now" and wait a while for the module to finish the upgrade.

Attentions

- This product must be installed and adjusted by a qualified professional.
- Good heat dissipation will extend the life the product. Please install the product in a environment with good ventilation.
- Please check whether the working voltage used complies with the parameter requirements of the product.
- Before you power on the product, please make sure all the wiring is correct in case of incorrect connection that may cause a short circuit and damage the components, or trigger a accident.
- If a fault occurs, please do not attempt to fix the product by yourself. If you have any question, please contact the supplier.

* This manual is subject to changes without further notice. Product functions depend on the goods. Please feel free to contact our official distributors if you have any question.

Warranty Agreement

- Warranty periods from the date of delivery: 2 years.
- Free repair or replacement services for quality problems are provided within warranty periods.

Warranty exclusions below:
- Beyond warranty periods.
- Any artificial damage caused by high voltage, overload, or improper operations.
- Products with severe physical damage.
- Damage caused by natural disasters and force majeure.
- Warranty labels and barcodes have been damaged.
- No any contract signed by LTECH.

1. Repair or replacement provided is the only remedy for customers. LTECH is not liable for any incidental or consequential damage unless it is within the law.
2. LTECH has the right to amend or adjust the terms of this warranty, and release in written form shall prevail.