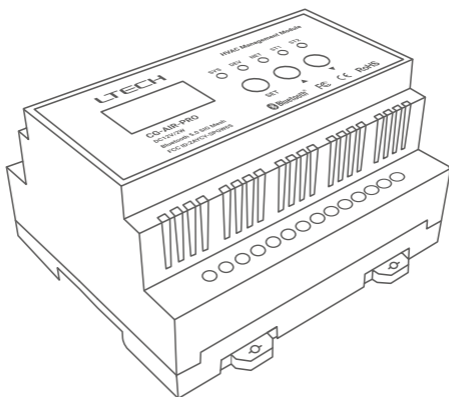


LTECH

CG-AIR-PRO

HVAC Management Module



Manual

www.ltech-led.com

Product Introduction

HVAC management module adopts Bluetooth 5.0 SIG Mesh. Multiple AC units can be recognized and controlled by one HVAC management module. Easily turn traditional central air conditioners, fresh air devices and floor heating devices into smart ones 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 the smart linkage makes central air conditioners, fresh air and floor heating be integrated into the smart system.

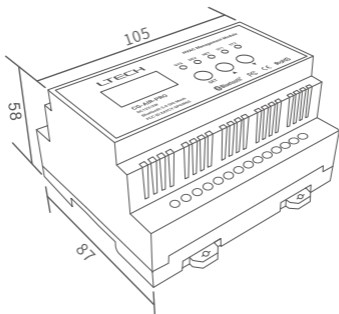
Note: Before purchasing the compatible fresh air/floor heating products, please communicate with the manufacturer and provide us with their corresponding communication protocols. After our confirmation and development in them, they can be used.

Technical Specs

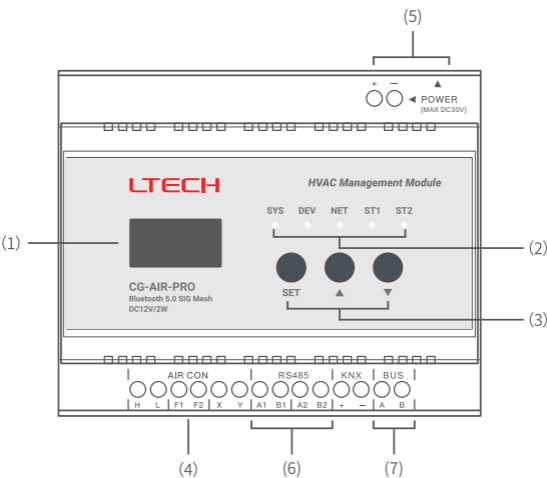
| | |
|-------------------------------|--------------------------|
| Product Name | HVAC Management Module |
| Product Model | CG-AIR-PRO |
| Wireless Type | Bluetooth 5.0 SIG Mesh |
| Input Voltage | DC 12V |
| Power Consumption | 2W |
| Working Temperature | -20°C~55°C |
| Working Humidity | 10~90% (no condensation) |
| AC Communication Line Voltage | AC 5V |
| Mounting rail | TS-35/7.5 or TS-35/15 |

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: ▲ button: Short press it to scroll the page up. ▼ button: Short press it to scroll the page down. Set up the parameters and 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) POWER port: Connect to either a power supply port, a jack socket or a power supply terminal (The power supply specification is DC12V. If the power supply does not match, the product may be damaged).
- 6) RS485 port: An port for connecting to 485 protocol based environmental control systems with fresh air /floor heating included.
- 7) BUS port: An port for connecting to 485 communication based smart home systems and air conditioning systems.

Product Installation

1. Installation Steps

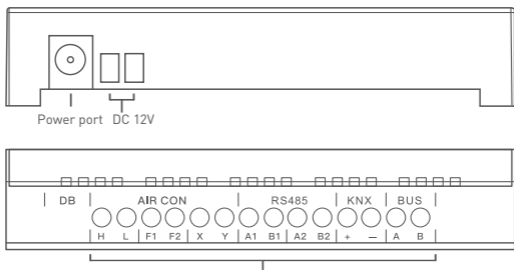
- ① Make sure air conditioning system is powered, and check whether all the indoor and outdoor AC units connected for centralized control are powered.
- ② Make sure that the AC system commissioning has been successfully completed by the AC manufacturer, and no any alarm or abnormal situation occurs.
- 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 4 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 7 in this manual for more details).

The RS485 port is for fresh air/floor heating wiring. On how to wire fresh air/ floor heating devices, please refer to the manufacturer's manuals.

Hardware ports are shown as below:



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 |
| | 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 |

For the specific air conditioning brand and model list, please see attachment on Page 15 of this manual.

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.

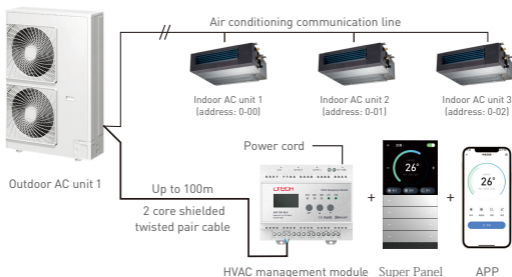
2. Wire Connections and Attentions

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.

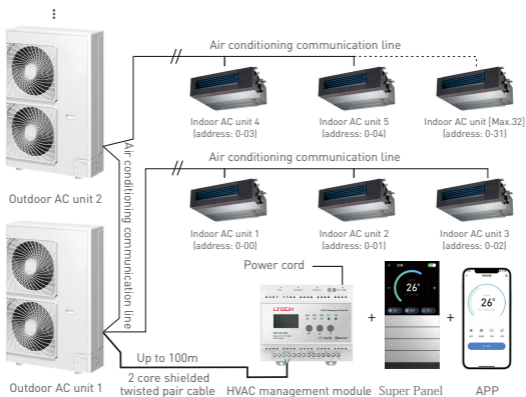
Note: One module only supports one single outdoor AC unit from the domestic AC brands like Midea, Mitsubishi Heavy Industries and Gree.

Bluetooth connection diagram (taking a Daikin air conditioning for example)

Single outdoor AC unit

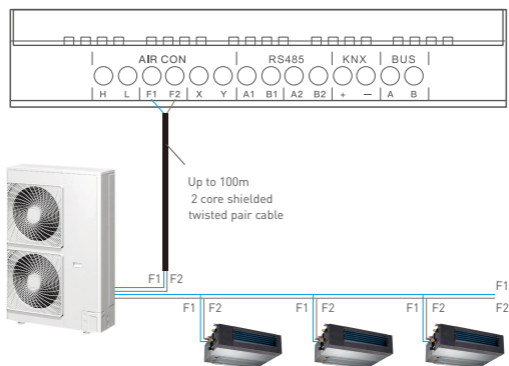


Multiple outdoor AC units



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 0.75mm^2 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 ceiling maintenance access door).

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:

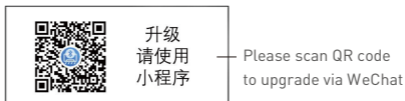
- ① Input terminal and connection terminal for different control modes are different.
- ② Please use the power supply that comes with the module or use DC 12V power supplies produced by regular manufacturers.
- ③ Please power off this module and air conditioning before you do the wiring.
- ④ Please do 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.
- ⑤ 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. Brand selection for air conditioning/fresh air device/floor heating device

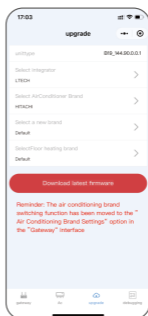
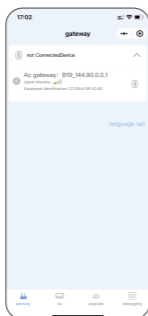
- ① Connect the HVAC management module to a power source, then the screen will display the QR code for switching brand and upgrading on the mini program. Use WeChat to scan the QR code to enter the mini program.

Note: The QR code only lasts for 5 seconds after the device is powered on.

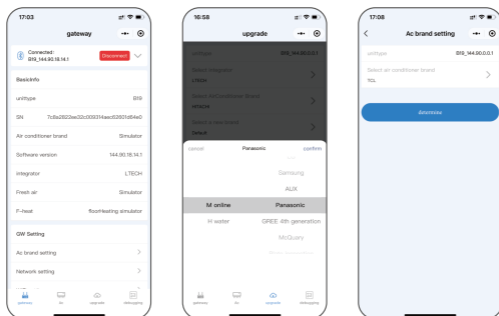
If the page jumps, please power off the device and then power it on again.



② Make sure Bluetooth is enabled on your phone. Click "Unconnected device" and wait for searching to finish. Find and connect the device starting with "Air Conditioning Gateway B19". Then switch to the **【Upgrade】** page and select the integrator "LTECH". Select the corresponding air conditioning/fresh air/floor heating brand according to the actual application (the rest are default options). Click "Download the latest firmware". After the firmware download is completed, a pop-up window will prompt "Firmware download is successful and gateway is restarting". After the gateway is restarted, the upgrade is successful. Next, refresh the mini program page on your phone and the "Download the latest firmware" button will turn gray.



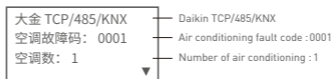
③ Switch air conditioning brand: Click the **【AC brand setting】** button in the "Gateway" interface.



④ After the upgrade is done, start to search air conditioning, fresh air device and floor heating device. For example, when the number of air conditioning is 0, the screen will display "Searching air conditioning.." and the wait time is around 5 min.



⑤ 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. After the device fault is removed, "This device is running" will be displayed.



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/fresh air device/floor heating device run normally and the module is well connected to the air conditioning/fresh air device/floor heating device. If the AC module has not been configured to the network yet, the screen will display "Network unavailable".

Before purchasing the corresponding fresh air device/floor heating device, please communicate with its manufacturer and provide the corresponding communication protocol to us for confirmation and development before use.

1. Register a L-Home account and log in

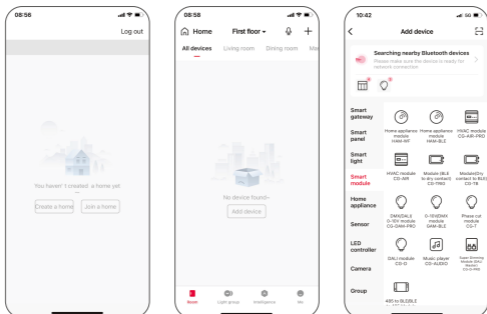
Scan the QR code below with you mobile phone and follow the prompts to complete the app installation, then you can register or log in.



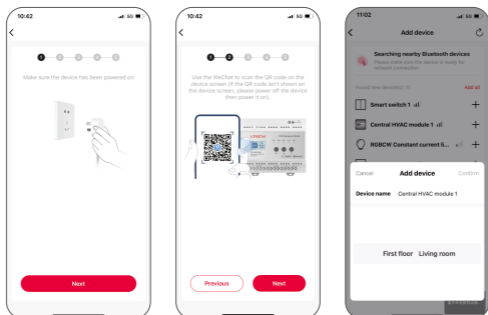
2. Configure the module to the network

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

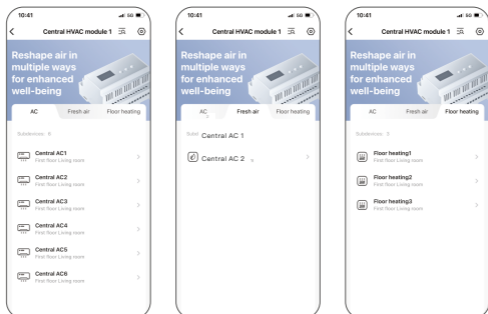
2.2 Create a home if you are a new L-Home app user. In the "Room" interface, click 【+】 icon in the upper right corner and pick "HVAC management module CG-AIR-PRO" from the device page.



2.3 Follow the interface prompts to search the module. When it is found, click **【+】** button to add it. Then set the name and the room it belongs to, and save it, which means the network has been configured successfully.



2.4 In “Room” interface, click “Search” icon or **【Search sub device】** to automatically search central air conditioning/fresh air device/floor heating device. When searching is done, you can control them with the mobile app and start to enjoy smart life.



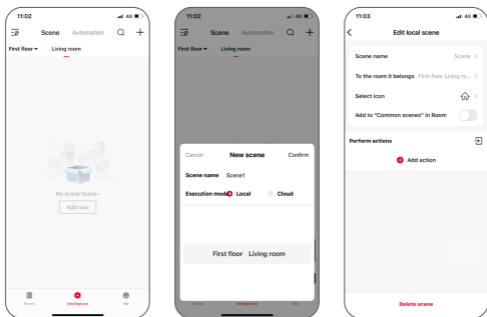
3. Control interface settings

Click the **【...】** button on the upper right corner of the added air conditioner/new air/floor heating to enter the device control interface, where you can adjust the temperature and speed, turn on/off the device. Click the **【⚙️】** icon on the upper right corner to change the device name and the room it belongs to.



4. Local scene

Switch to the "Intelligence" interface, click **【+】** icon in the upper right corner to create a local scene. Set the execution action to link it with the HVAC management module and save the scene. When clicking the set scene in the **【Intelligence】** interface, it can be executed successfully to achieve local linkage with central air conditioning/fresh air device /floor heating device.



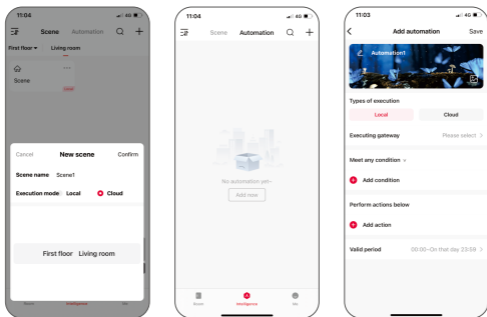
5. Cloud scene and automation

Make sure a smart gateway has been added to your home, such as Super Panel 6S.

Cloud scene:

Switch to the "Intelligence" interface and click **[+]** to create a cloud scene.

After setting the execution action, remote linkage can be achieved.



Automation:

Select **【 Automation 】** in the "Intelligence" interface and click **【 + 】** to create automation. Local/cloud execution mode is optional. Set trigger conditions and execution actions. When the set trigger conditions are met, a series of device actions can be automatically triggered to achieve remote linkage.

Remove the module from the network

Method 1: In "Room" interface on APP, click the added module to access the device control interface. Click "🔗" icon in the upper right corner and click "Delete" in the setting interface.

Method 2: Long press "▲" button on the module for 5s until the device beeps, which means it has been removed from the network.

Firmware upgrade

1. In order to ensure the practicality, convenience and changeability of the module, you need to access the Bluetooth mini program on WeChat and click upgrade to carry out firmware upgrade related operations[For details, please refer to Page 7 of this manual].
2. To add or optimize module functions, you need to click the **【 Firmware upgrade 】** button in the "Me" interface of the mobile APP. Select the module and click **【 Upgrade now 】** , and wait for the upgrade to be completed.

Attentions

- Product installation and commissioning should be done 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.