# M1 Gateway

## Installation and Instruction Manual

MDG59

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# Safety Warning

The product itself and the Installation and Operation Instructions contain operation, per-sonal injury and property loss prevention, and correct and safe operation of the product.
Fully understand the following markings or signs, read this document, and observe the following precautions.

**⚠CAUTION**

Read this safety warning carefully before installation.
The following contents are important for safety. Do observe them.
The meaning of each part is as follows:

⚠ **Warning** It indicates that incorrect handling will result in personal injury or property loss.

⚠ **CAUTION** It is highly likely that the best operation result will not be obtained due to ignoring the contents of precautions.

After installation, have a trial run to confirm that the device runs normally, and hand over the Installation and Operation Instructions to the customer.

# Marking description

| Marking | Name | |
|---|---|---|
| ⊘ | Prohibition. The specific content to be prohibited will be represented with graphics or words in or near the marking. | |
| ⓘ | Compulsory requirement. The specific compulsory content will be represented with graphics or words in or near the marking. | |
| ⚠ Warning | Installation entrustment | Please entrust a dealer or professionals with installation. The installation personnel must have relevant professional knowledge. Incorrect operation by yourself will lead to fire, electric shock or injury. |
| ⊘ Warning in Operation | Prohibition | Do not spray flammable spray directly to the data converter. Otherwise, a fire may be caused. |
| | Prohibition | Do not operate the product with wet hands, or let water enter the product. Otherwise, you may get electric shock. |

**⚠Warning**

- This device must be installed by professional technicians, rather than by the customers. Otherwise, you and others may be injured and the controller may be damaged.
- The device must be wired by professional technicians according to the circuit diagram and in compliance with electrical safety specifications.
- Do not change the use and function of the device without permission.
- Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

## ⚠ CAUTION

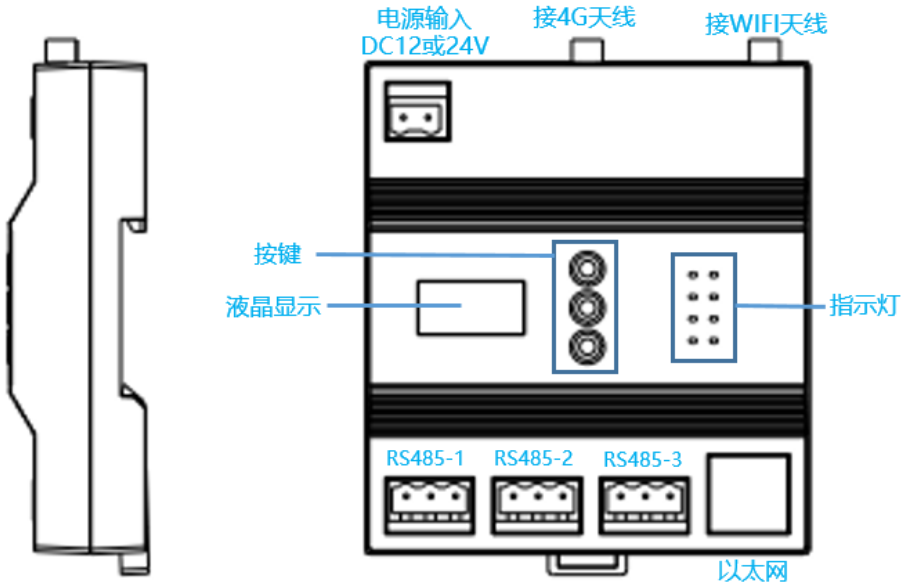
- Do not install the device in places with potential flammable gas leakage. Once flammable gas leaks and stays around the device, a fire may be caused.
- Wire the device based on the current of controller.
- Check the wiring before powering the device on. Do not install the device lively.
- In case of fault, contact professional technicians, but do not remove and repair the device by yourself.
- Do not install the device at the position where children may gather.

- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  * Reorient or relocate the receiving antenna.
  * Increase the separation between the equipment and receiver.
  * Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  * Consult the dealer or an experienced radio/TV technician for help.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

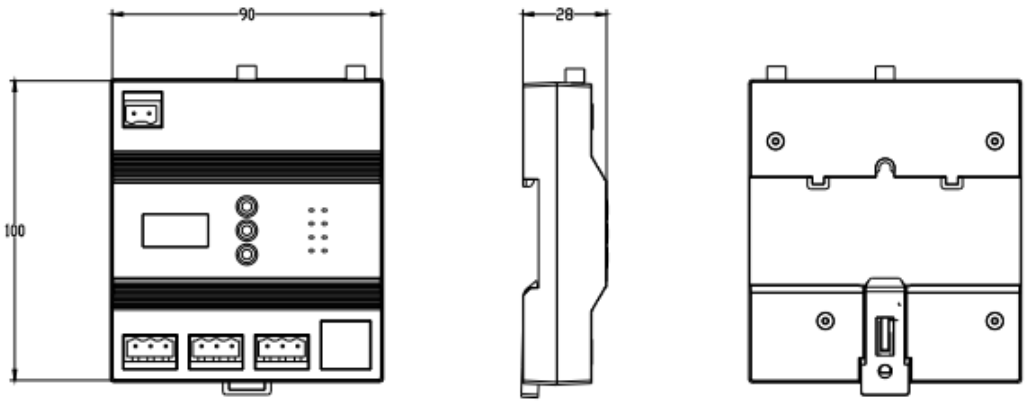
# Installation Instructions

# Product Introduction

The M1 Gateway is a powerful intelligent gateway featuring multi-form deployment, stream computing, local autonomy, and flexible development. It supports protocols such as Modbus and BAC-Net.




## Product Dimensions

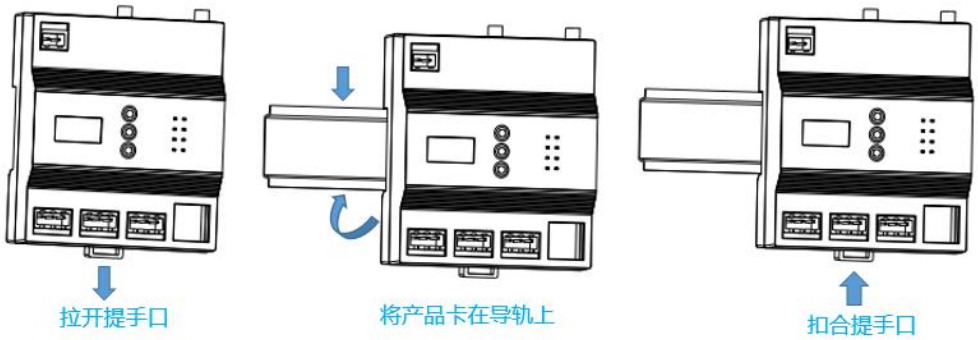


## Installation Accessories

| Number | Name | Quantity | Remarks |
|---|---|---|---|
| 1 | 3-PIN Black Terminal | 3 | For COM communication port |
| 2 | 2-PIN Black Terminal | 1 | For connecting power supply |

# Installation Method

### Rail Installation




# Professional Installation Instructions

The device must be professionally installed. Installation must be controlled and require special training.

The intended use is generally not for the general public. It is generally for industry/commercial use.

The connector is within the transmitter enclosure and can only be accessed by disassembly of the transmitter that is not normally required. The user has no access to the connector.

Must use the same type of antenna with lower or equal gain to the listing antenna as follows:

| Antenna | Frequency (MHz) | Antenna Type | MAX Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 2412 ~ 2472 | External Antenna | 2 |

| Antenna | Frequency (MHz) | Antenna Type | MAX Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 2402-2480 | External antenna | 2 |

# Usage Instructions

# 1. Hardware Introduction

### 1.1.1 Main Parameters

| | |
|---|---|
| Product Model | MDG59 |
| Rated Voltage | DC 12V±10%, 6W<br>DC 24V±10%, 6W |
| Operating Temp | -20℃～55℃ |
| Humidity | ≤93%（non-condensing） |
| Pollution Level | 3 |
| Overvoltage Category | III |
| Part Number | 17211200004681 |

### 1.1.2 Performance Parameters

| Component | Specification |
|---|---|
| CPU | Quad-core Cortex-A35 64-bit CPU，1.5 GHz |
| Memory | 128MB |
| Flash | eMMC 8 GB |
| Ethernet | 10/100 Mbps |

# 1.2 Communication Interfaces

| Interface | Identifier | Technical Parameters | Function Description |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Ethernet | LAN | ●Port: RJ485,Shielded<br>●Rate: 10/100Mbps | Wired Ethernet Port |
| RS485-1 | COM1 | ●Interface Type: RS-485 (EIA-485) Interface<br>●Signal Isolation<br>● Rate: 4800、9600、19200、38400（bps） | Can be used for Data Acquisition and Transparent Data Transmission based on serial port mode. |
| RS485-2 | COM2 | ●Interface Type: RS-485 (EIA-485) Interface<br>●Signal Isolation<br>●Rate: 4800、9600、19200、38400（bps） | Can be used for Data Acquisition and Transparent Data Transmission based on serial port mode. |
| RS485-3 | COM3 | ●Interface Type: RS-485 (EIA-485) Interface<br>●Isolation<br>●Rate: 4800、9600、19200、38400（bps） | Can be used for Data Acquisition and Transparent Data Transmission based on serial port mode. |

## 1.3 Indicators

| Type | Identifier | Status/Color | Function Description |
|---|---|---|---|
| Power | PWR | Orange | ● **On**: Indicates the gateway is powered normally.<br>● **Off**: Power supply failed. |
| Bluetooth | BT | N/A | Reserved |
| WIFI | WIFI | N/A | Reserved |
| Cloud | CLOUD | Orange | ● **On**: Cloud connection is normal.<br>● **Off**: Not connected to cloud.<br>● **Blinking**: Data upload to cloud is |

| | | | |
|---|---|---|---|
| | | | normal. |
| RS485-1 | COM1 | Orange | • **Blinking**: Normal local data acquisition. |
| RS485-2 | COM2 | Orange | • **Blinking**: Normal local data acquisition. |
| RS485-3 | COM3 | Orange | • **Blinking**: Normal local data acquisition. |

# 2. Function Description

## Default Configuration

The wired Ethernet port defaults to a static IP address:**192.168.1.185**with port number**8000**.

## 2.1 Device Access

### Initial Setup

1、When using it for the first time, with the communication cable of the terminal device connected to the gateway's serial port, the gateway itself not connected to any devices, and the gateway's wired network normally connected, power on the gateway. It will automatically discover and complete device access, allowing on-site personnel to complete device access without manually operating a computer or mobile phone.

2、Success Indicators:

（1）Cloud Server Connection: The cloud server location displayed on the gateway’s homepage matches the physical device location.

（2）CLOUD Indicator: The CLOUD LED blinks to indicate successful cloud connectivity.

3、Device access successful. Refer to the figure below for details:


（1）Devices:Indicates the ratio of online devices to total connected devices on the gateway.

- Total Connected Devices: The total number of devices currently connected to the gateway.
- Online Devices: The number of devices currently online among those connected.

（2）Network: It indicates the network mode used by the gateway for connecting to the cloud currently. The M1 Gateway for export only supports the wired network mode for data uploading to the cloud.

（3）eu: It represents the cloud server that the gateway is currently connected to. Among them, the European server is indicated by eu, the North American server is indicated by na, the domestic server is indicated by cn, and when there is no connection to the cloud service, it is shown as offline.

**Note:**

1.Prerequisites for automatic access:

(1) No devices are connected to the gateway.

(2) The communication cables of the end devices are properly connected to the

serial ports of the gateway.

(3) The wired network of the gateway is normally connected.

2.When using it for the first time, the M1 Gateway gateway will analyze the location of the gateway according to the IP address of the location where the gateway is located, and automatically select the nearest cloud server for connection. If the default connection is unsuccessful or incorrect, the user can go to the "More" - "Cloud Server" in the display menu to make manual adjustments. (The default display does not support adjustment. You need to click the upward button more than 15 times on the details page of the cloud server list to enter the adjustment state).

## 2.2 Device Access & Data Upload to the Cloud

(1) Locally connected devices:

The local gateway supports the access of end devices in the following four ways:

a. When no device is connected to the gateway, the gateway will automatically detect and access the device upon powering on. This is only applicable to standard models (large water machines).

b. Through the "Automatic Discovery" option on the display menu page, you can manually complete the device access by using the buttons. The condition for using this method is that no device should be connected to the gateway.

Otherwise, you need to manually delete the connected devices first. This is only applicable to standard models (large water machines).

c. Access the Edge Management Web system. On the "Device Management" - "Device Access" page, complete the device access according to the page guidance. This supports all types of models (large water machines). For customized models, when using this method to access devices, users need to manually adjust the device parameters on the Web page to successfully complete the device access.

d. For customized models (large water machines), devices can be accessed by using the method of "Importing the configuration package" on the background Web page.

Method for Judging Whether the Device is Locally Connected Successfully:

a. Total number of connected devices and number of online devices: The total number of connected devices displayed on the home page of the display should be consistent with the actual number of on-site devices, and the number of online devices should be equal to the total number of connected devices.

b. Local data collection: When the indicator light of the COM port of the device connected to the gateway is flashing, it indicates that the local data collection between the end device and the gateway is normal.

c. Log in to the edge management system to check whether the local data collection is normal.

(2) Data Upload to Cloud:

For the M1 Gateway for export, data upload to the cloud is only supported via a wired network. Users need to decide whether to upload data to the cloud according to the actual on-site situation.

Operation methods:

Insert the wired network into the LAN port of the gateway. Determine whether it is necessary to adjust the wired network port configuration of the gateway according to the actual on - site network situation. For detailed configuration methods, refer to the description in the "Network Settings" section of the edge management system. After the network access is completed, ensure that the local device is successfully connected, and check whether the CLOUD indicator light is flashing and whether the connection to the cloud server in the upper - right corner of the display is correct.

## Method for judging whether the data upload to the cloud is successful:

a. Check the logo in the upper right corner of the home page of the M1 Gateway display. If the connected cloud server is consistent with the local one, it indicates that the connection to the cloud server is normal.

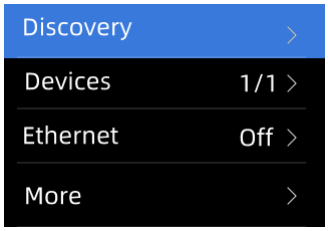
b. Check whether the CLOUD indicator light is flashing. If it is flashing, it means that the data has been successfully reported to the cloud.

c. Log in to the i-Butler cloud system and check whether the device data under the corresponding gateway SN can be read in real time.

# 3.Menu Functions

**Function Description**: The functions on the menu page include "Automatic Discovery", "Device Access", "Wired Network", "Wireless Network", and "More".

**Operation Method**: In the home page state, press the "OK" button to enter the menu page, as shown in the following figure:




## 3.1 Discovery

**Function Explanation**: The automatic discovery function allows users to manually access devices by using the keys on the M1 Gateway.

**Operation Method**: On the home page of the display, press the "OK" button to enter the menu options page, select "Automatic Discovery", and then press the "OK" button. Wait until the gateway successfully discovers the device.


**注意：**

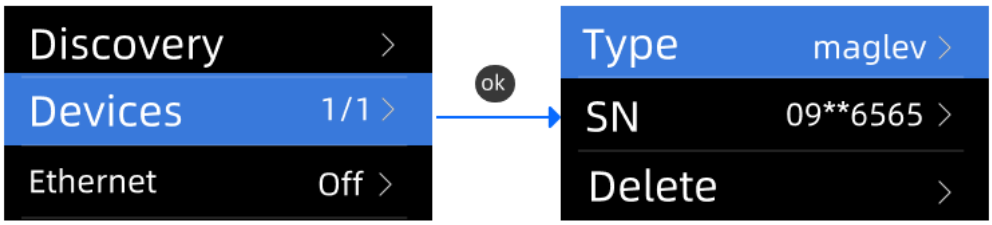
- Prerequisites for the automatic discovery function: The gateway has no devices connected, and the communication cable between the end device and the RS485 serial port of the gateway is properly connected. If there are already devices connected and you want to perform automatic discovery again, you need to manually delete the devices first and then operate again to automatically discover the devices.
- For large water machines, the V1.0.0 version supports the access of 7 types of large water machine models, namely: water-cooled screw type, water-cooled scroll type, air-cooled screw type, air-cooled scroll type, centrifuge type, magnetic levitation type, and air compressor type. Other models will be supported in subsequent version iterations.

## 3.2 Device Access

**Function Description:** Users can view the total number of devices connected to the gateway, check if the connected devices are online normally, see the number of online devices, view device details, and delete devices.

**Operation Method:** On the home screen of the display, press the 「OK」 button to enter the menu options page. Press the 「Down」 button to select 「Connected Devices」 and then press the 「OK」 button. Use the

「Down」 button to switch between options, and press the 「OK」 button to view device details, as shown in the figure below:

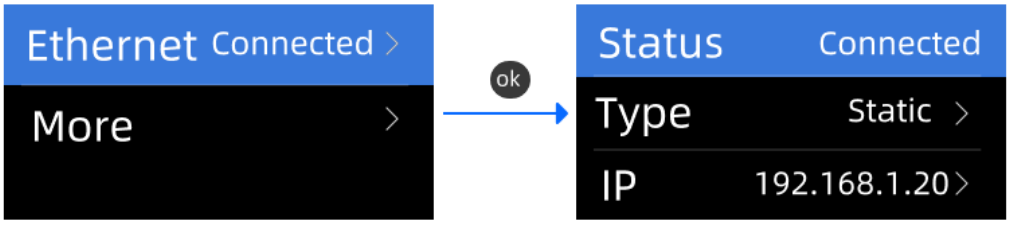



- **Type:** The type of the connected device.
- **SN**: The serial number (SN) of the connected device.
- **Delete:** Delete the end device connected to the gateway. After deleting the device, all data related to the device will be deleted, and it will also be deleted synchronously from the cloud. Please use this function with caution.

## 3.3 Wired Network

**Function Explanation:** Users can view the wired network information of the current gateway, including the wired network connection status, connection type, and IP address.

**Operation Method:** On the menu options page, press the "Down" button, select "Wired Network", press the "OK" button, and use the "Down" button to switch options to view the relevant information of the wired network, as shown in the following figure:




- **Status:** Indicates the connection status of the wired network of the current gateway.
- **Connection Type:** Indicates the connection type of the wired network of the current gateway, including three modes: Static, DHCP, and Routing Mode. The default is Static. The display supports switching the wired connection type by pressing the buttons.

  a. Dynamic IP (DHCP): On the display menu page - "Wired Network" - "Connection Type" - DHCP, press the "OK" button to complete the setting.

  b. Static IP (Static): On the display menu page - "Wired Network" - "Connection Type" - Static, press the "OK" button. When the display is switched to the Static mode, the default configuration information shall be subject to the factory settings. If changes are required, manual settings need to be made in the edge management system.

  c. Routing Mode: The display does not support switching to the routing mode. Users can set it through the edge management system.
- **IP:** Represents the IP address of the wired network of the current gateway. The default IP address of the wired network port is 192.168.1.185, and the port number is 8000.

**Note:**

When using a wired network to upload data to the cloud in some scenarios, since the default IP of the gateway is a static IP:

1. If the customer's on-site network uses DHCP, after inserting the gateway's LAN port into the customer's on-site wired network, the connection type of the wired network needs to be switched to DHCP through the display. Users can also make adjustments through the edge management system.

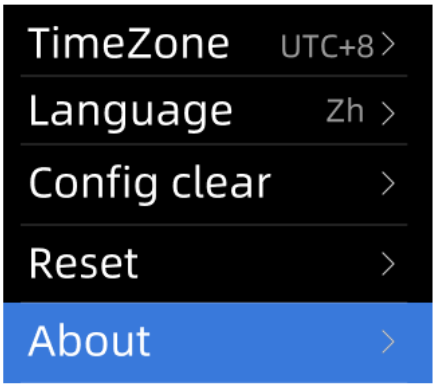
2. If the customer's on-site network uses a static IP, after inserting the gateway's LAN port into the customer's on-site wired network, the static IP segment and other configuration information of the gateway need to be adjusted according to the on-site network configuration through the edge management system to ensure that it is connected to the on-site upstream network.

## 3.4 More

**Function Explanation:** Users can view and modify the time zone of the current gateway, view and switch languages, view the cloud server connected to the current gateway, restore the factory settings, and view the details of the gateway itself.

**Operation Method:** On the menu options page, use the "Down" button to select "More", press the "OK" button, and use the "Down" button to switch

options to view information related to the gateway's time zone, multi-language settings, factory reset, and information about the device itself, as shown in the following figure:




- Time Zone:

**Function Explanation:** View and modify the time zone of the gateway. It supports modifying the time zone of the gateway through the buttons on the display.

- Multi-language:

**Function Explanation:** Switch and view the language of the display. It supports two languages, Chinese and English.

- Clear Configuration:

**Function Explanation:** Clear all configuration information other than the current software version of the gateway, including connected devices, device configuration information, historical information, gateway configuration (such as network configuration), log information, and information set by users later. After clearing, the information will be permanently deleted. Please use this function with caution.

- Restore to Factory Settings:

**Function Explanation:** Perform the operation of restoring the gateway to its factory settings. After restoring to the factory settings, all configuration information of the gateway will be permanently deleted, and the software version of the gateway will also be restored to the version at the time of leaving the factory.

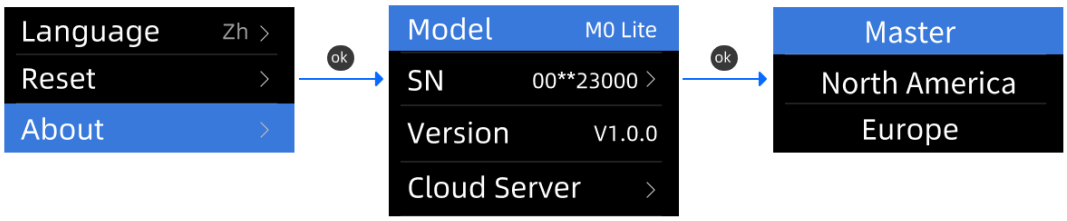
The factory reset of the gateway supports two operation methods:

1. Through the display and buttons, select "About" - "Restore to Factory Settings", press the "OK" button to confirm, and wait for the gateway to complete the factory reset.

2. Power off the gateway, press the "OK" button, power on the gateway, release the button after waiting for 5 seconds, and wait for the gateway to complete the factory reset.

➢ About This Device:

**Function Explanation:** It supports viewing the gateway model, gateway SN, gateway program version number, and the cloud server connected to the gateway.



# 4.Environmental Protection List

| Midea M1 Gateway Commercial Gateway - Hazardous Substances Survey Form | | | | | | |
|---|---|---|---|---|---|---|
| Name | hazardous substances | | | | | |
| | lead (Pb) | mercury (Hg) | cadmium (Cd) | hexavalent chromium (Gr (VI)) | polybrominated biphenyls (PBB) | Polybrominated diphenyl ethers (PBDE) |
| electronic components | ○ | ○ | ○ | ○ | ○ | ○ |
| LCD | ○ | ○ | ○ | ○ | ○ | ○ |
| antenna | ○ | ○ | ○ | ○ | ○ | ○ |
| PCBA Module Component | ○ | ○ | ○ | ○ | ○ | ○ |
| connection line | ○ | ○ | ○ | ○ | ○ | ○ |
| battery | NA | NA | NA | NA | NA | NA |
| Screws, gaskets and other fasteners | ○ | ○ | ○ | ○ | ○ | ○ |
| Rubber parts | NA | NA | NA | NA | NA | NA |
| Other metal parts | NA | NA | NA | NA | NA | NA |

| | | | | | | |
|---|---|---|---|---|---|---|
| Other plastic parts" | ○ | ○ | ○ | ○ | ○ | ○ |
| printed matter | ○ | ○ | ○ | ○ | ○ | ○ |

This form is compiled in accordance with the provisions of SJ/T 11364.

○: It indicates that the content of the hazardous substance in all homogeneous materials of this component is below the limit requirements specified in GB/T 26572.

X: It indicates that the content of the hazardous substance in at least one homogeneous material of this component exceeds the limit requirements specified in GB/T 26572. However, with the current technical conditions, it is extremely difficult to make the product parts completely free of the above-mentioned hazardous substances. With the progress of technology in the future, the design will be gradually improved.

1. After this product is discarded, it should be separated from household waste. Consumers are responsible for sending it to a qualified recycling point.
2. The recycling and treatment center will recycle and reuse the materials in the product through appropriate methods.
3. After the environmentally safe usage period expires, please promptly contact the local distributor or service provider for replacement.
4. For detailed information about the recycling and treatment of this product, please consult the local government, waste disposal center or distributor.

The model approval code is noted on the nameplate.

FCC Statement

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to

provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

FCC RF Exposure
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

## FCC Supplier′s Declaration of Conformity

Product Name：M1 Gateway
Model number: MDG59（SN）

Suppliers Name: Americas Compliance Consulting LLC dba iCertifi

Suppliers Address (USA): 2445 NE Division Street, Suite 202 Bend, OR 97707 United

States

Suppliers Website: fccagent@icertifi.com

Contact Email/Telephone: +1-866-885-4575

FCC Compliance Statement:
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that

may cause undesired operation.

TEL: 400-8899-315
Manufacturer: GD Midea Heating&Ventilating Equipment Co., Ltd.
Place of Origin: Penglai Road Industrial Zone, Beijiao Community Residents' Committee, Beijiao Town, Shunde District, Foshan City, Guangdong Province
All the content in this document has been carefully checked. In case of any printing errors or misunderstandings in the content, please feel free to consult our company.
Note: If there are any technical improvements to the product, they will be incorporated into the new version of the manual without prior notice. In case of any changes to the product's appearance and color, the actual product shall prevail.