UM01813

[LoRaWAN IOT Gateway RHF2S208 Installation Guide

V 0.2

Document information

Info	Content
Keyword	*RisingHF, LoRaWAN, IOT,Gateway, installation, waterproof treatment*
Abstract	This manual describes the installation and use of industrial-grade LoRaWAN gateway,which was developed by RisingHF.

Catalog

Features

1 Preface

This document is for an IOT gateway device RHF2S208.

The RHF2S208 LoRaWAN Gateway is an 8/16-channel industrial-grade intelligent gateway device which was developed by RisingHF Network (Shenzhen) Co., Ltd. based on the LoRaWAN protocol.And it is supplied by 220V AC power supply. This document is intended to help users or installers quickly implement device installation and deployment in field. Please contact us at support@risinghf.com for more details.

2 RHF2S208 appearance

Figure 2-1 Gateway device external interface

3 RHF2S208 package

The appearance of the package box is as follows:

Figure 3-1 RHF2S008 Package appearance

When you get the gateway product, please ensure that the package box is sealed by a sealing label.

Figure 3-2 RHF2S008 seal label

The following device and accessories should be included after unpacking.

Table 3- 1 Gateway package list

Name	Specification	Quantity
RHF2S208 host	RHF2S208	1
Industrial power supply	RCL-X190150C	1

LoRaWAN fiberglass antenna	RXHF-ANTxxx-GF	1
GPS fiberglass antenna	V1468-001-A-03	1
WIFI fiberglass antenna	V1437-002-A-04	1
LTE 4G fiberglass antenna	V1437-002-A-05	1
Antenna lightning arrester	N-JK-G（JC3.640.150）	1
Mounting bracket	304 bracket	1
L-type hex wrench	Specification 5mm, long side = 73.3MM, short side = 22mm, corresponding to screw thread M6	1
Screw	Install machine, stainless steel, inner hexagon, M6*8	4
Screw	Install industrial power supply, M3*8, stainless steel	4
Waterproof cap	plastic	1
Hoop	304 U-bolt M8*60mm	2
Hoop gasket	304 U-type card board	2
Hoop fixing nut	304 Locknut M8	4
Packing box	Size 640*336*122mm	1

Figure 3-4 RHF2S008 Package interior

After removing the bracket, the distribution of the gateway and its accessories is as follows:

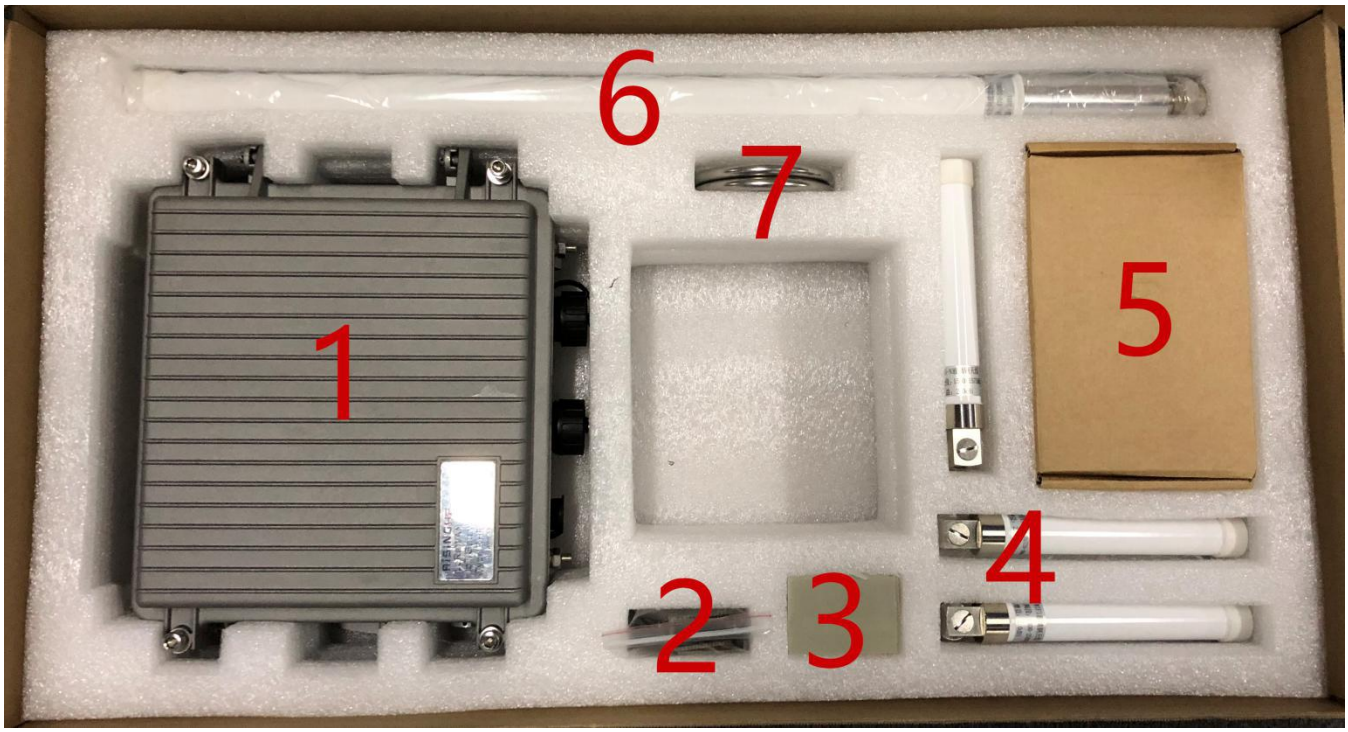


Figure 3-5 RHF2S008 Gateway and accessories

Figure 3-6 Gateway bracket

1 ► RHF2S208 gateway
2 ► Parts pocket, including screws, hoop fittings, hex wrench
3 ► Antenna lightning arrester
4 ► Elbow antenna, including wifi, 4G, GPS (no fixed order)
5 ► Power adapter
6 ► LoRaWAN antenna
7 ► Hoop
8 ► Gateway bracket

In the parts pocket, except for the hexagonal wrench, the rest are:
1 ► Hoop fixing nut

2 ► Hoop gasket
3 ► Hexagon socket head cap screws (fixing the main unit and bracket)
4 ► Stainless steel screws (fixing bracket and power supply)

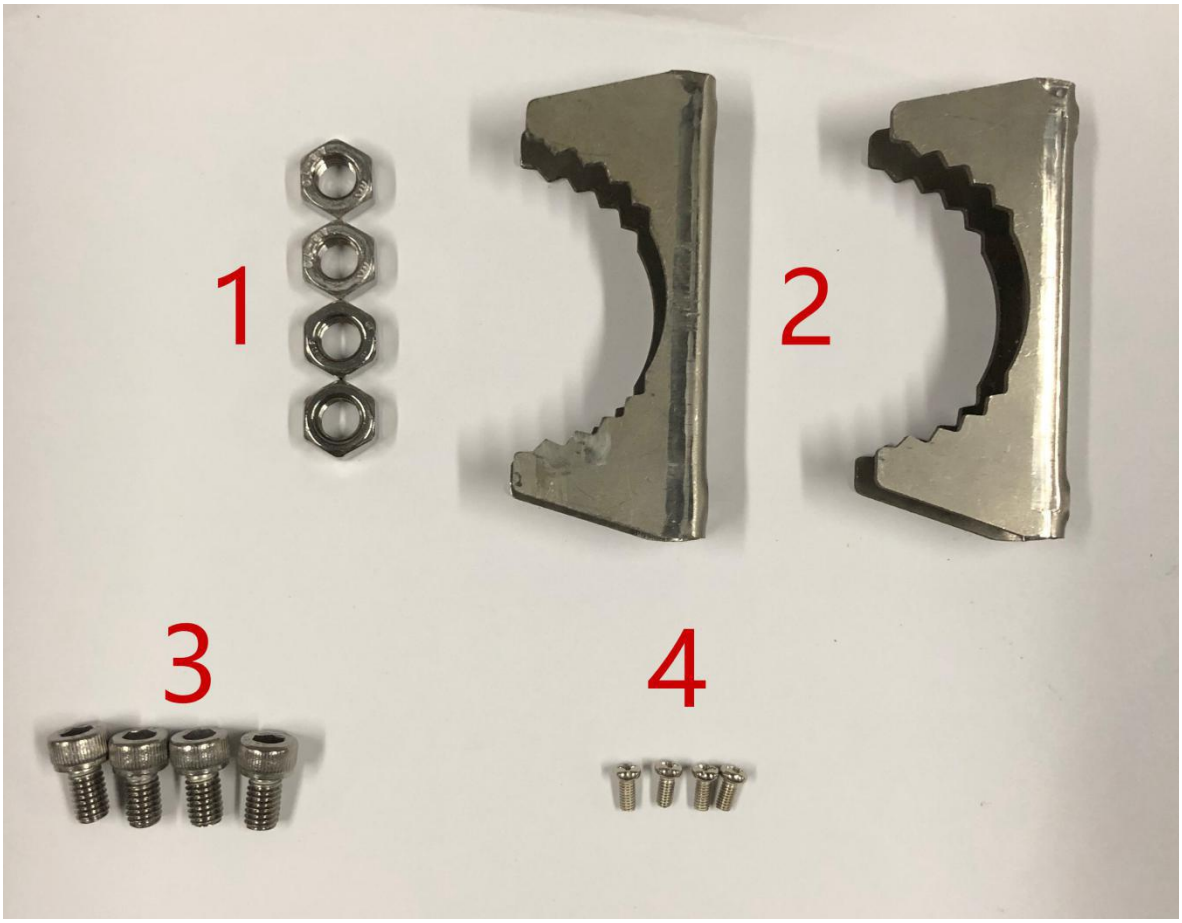


Figure 3-7 Parts pocket accessories

4 RHF2S208 installation

4.1 RHF2S208 mechanical size

Figure 4-1 RHF2S008 Host appearance

Mechanical size210*200*85 mm

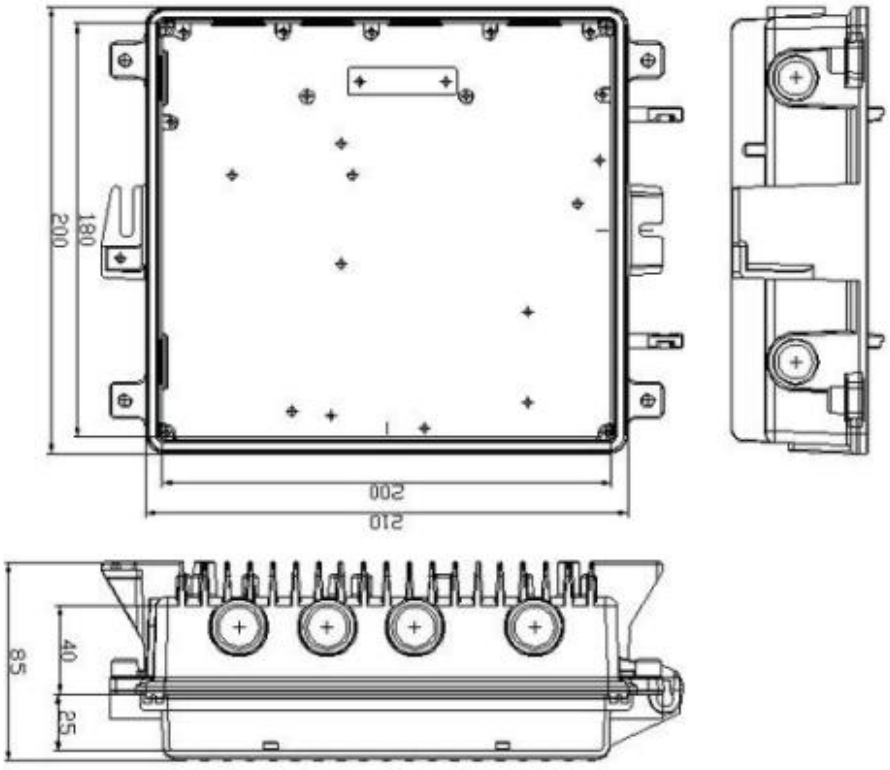


Figure 4-2 RHF2S008 mechanical size

4.2 Device installation

4.2.1 SIM card installation

If you need to use a 4G network to connect to the cloud server, install the SIM card into the device in advance and test it online.

The installation steps are as follows:

i) Use the M5's Allen key to open the gateway device;

ii) Press the yellow button to eject the SIM card slot. After installing the SIM card correctly, reinstall the card slot.

iii) Install the 4G antenna to the gateway, power on the device and test the 4G network;

iv) If the 4G network connection is successful, tighten the upper cover of the enclosure with an Allen key.

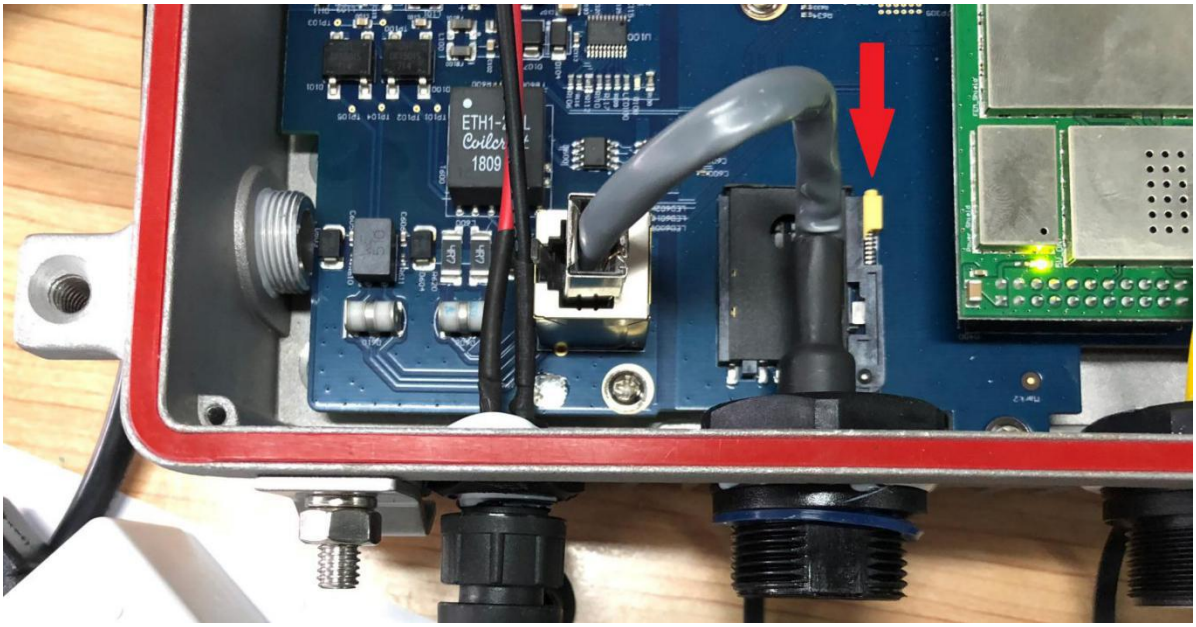


Figure 4-3 SIM Card installation operation method

4.2.2 Power on with the built-in battery (only for RHF2S208Bxx-xxx)

The built-in battery of the gateway device is OPEN in default. Please connect the terminal of the battery to battery connector inside the gateway. Specific steps are as follows:

i) Use the M5's Allen key to uncover the gateway device.

ii) The built-in battery is installed on the upper cover. Remove the cable tie and release the cable.

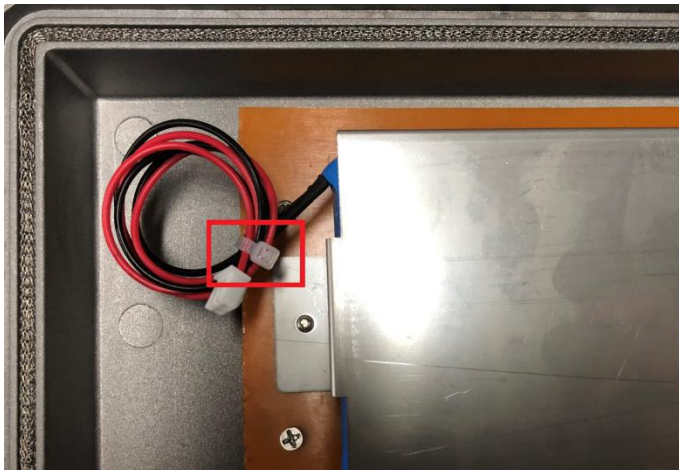


Figure 4-4 Cable tie on the built-in battery cable

iii) Connect the battery cable to the battery connector on the PCB. The terminal has a foolproof design. Please insert the terminal into the connector in the right direction.

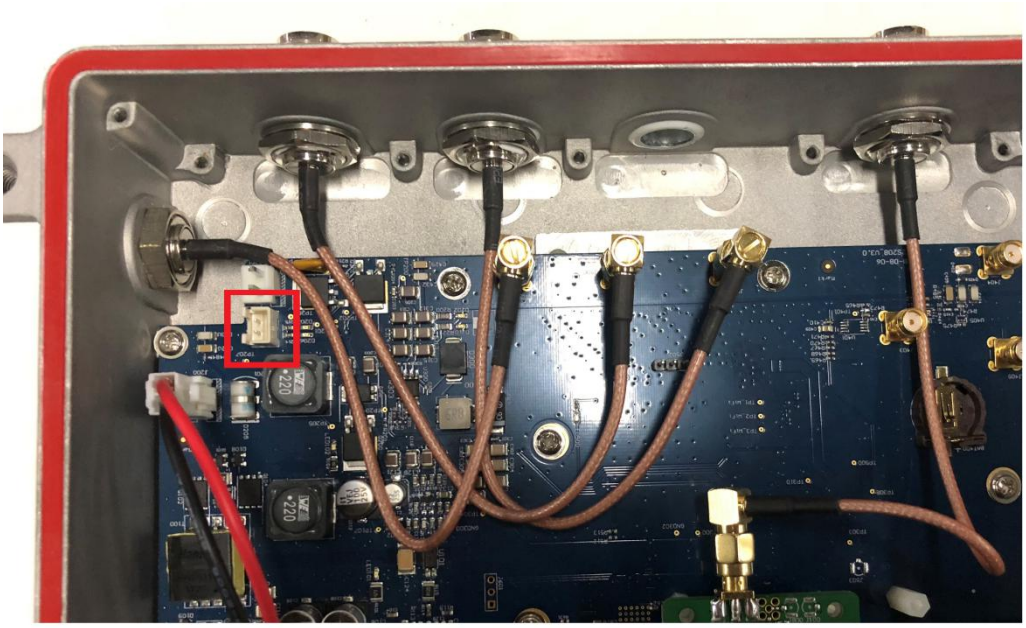


Figure 4-5 Built-in battery interface

iv) After step above, to check the status of the indicator: If there is only battery power supply, the LED D210 is ON and D202 is OFF. If there is an external power supply, Both D210 and D202 are ON. Cover the gateway and tighten it with an Allen key when it works.

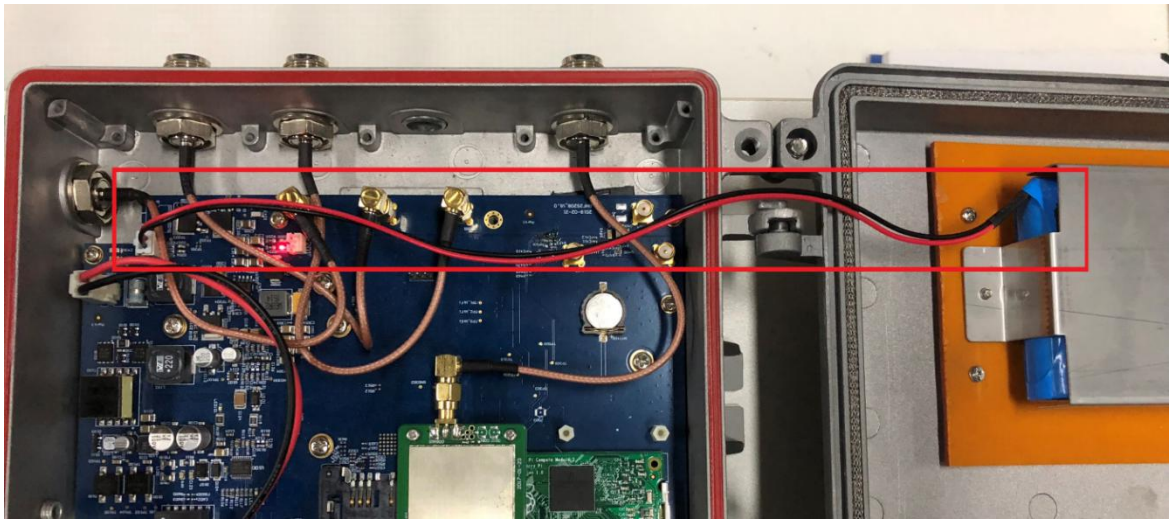


Figure 4-6 Battery installation

4.2.3 Device assembly

This section describe how to Install the gateway device on the bracket.

There are 6 through holes on the bracket for fixture, which are marked from num 1 to 6 on Figure 4-8. And 6 correspoing screw holes are on the bottom of the enclosure of the gatway. Please put the bracket on the gateway and fix them with screws and make sure each hole on both bracket and gateway enclosure are corresponding one by one.

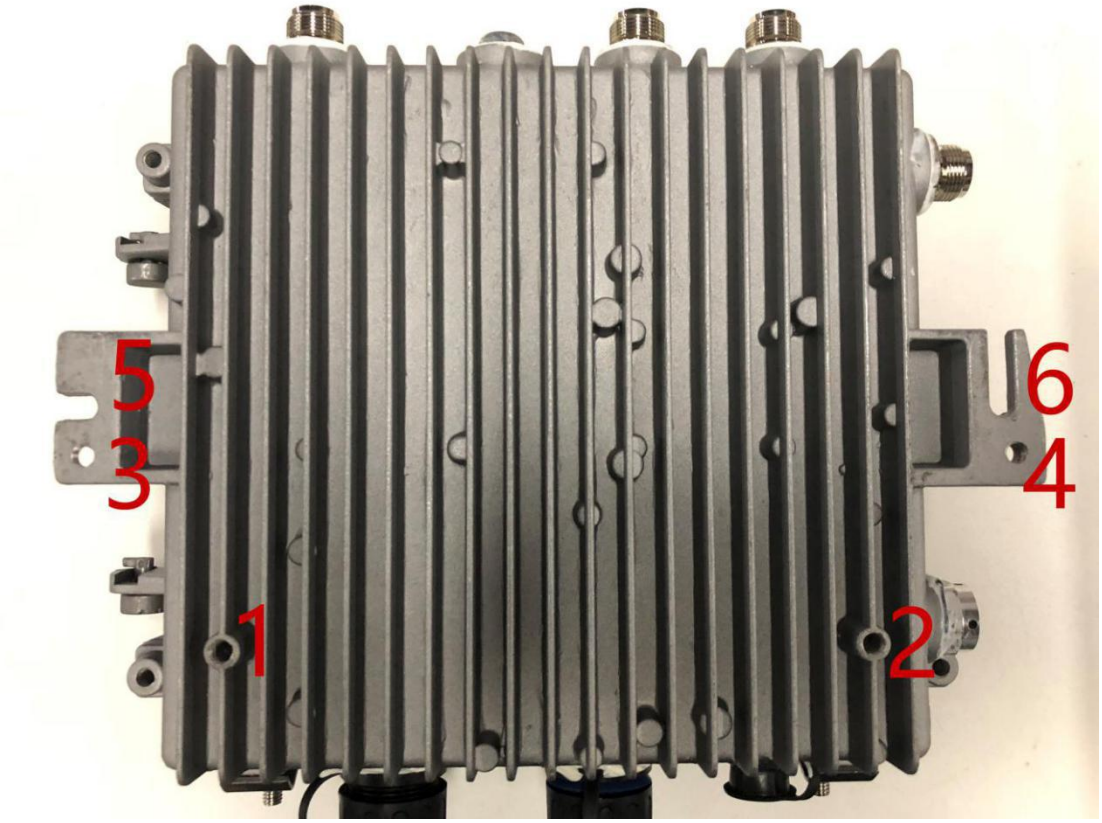


Figure 4-7 Bottom view of the gateway

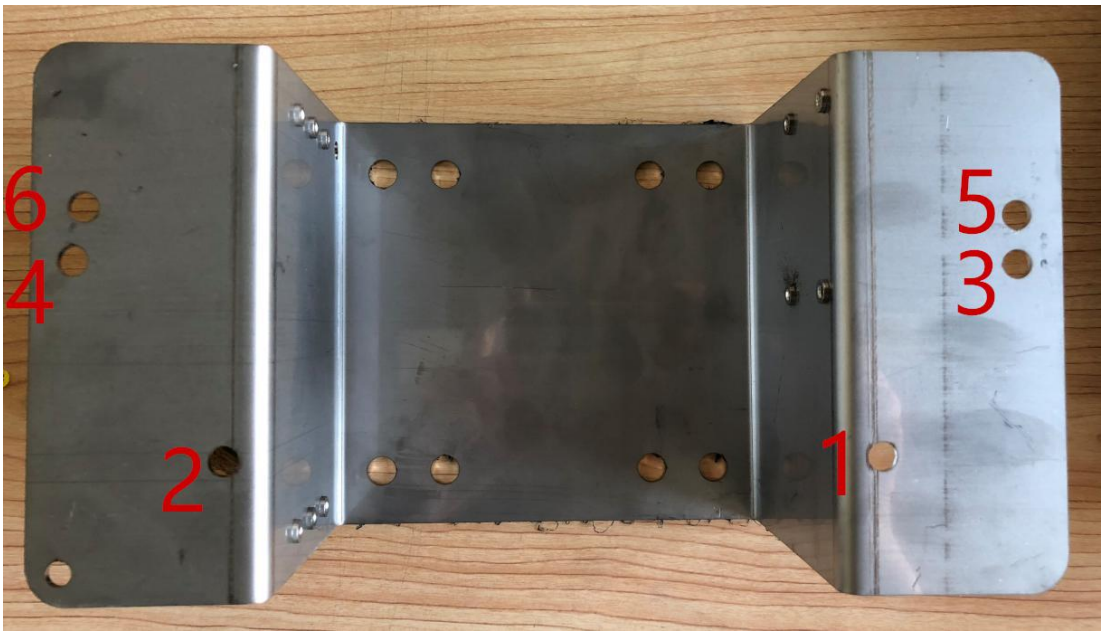


Figure 4-8 Gateway bracket

Install the hexagon socket screws, as shown in the figure (part), with two on each side.

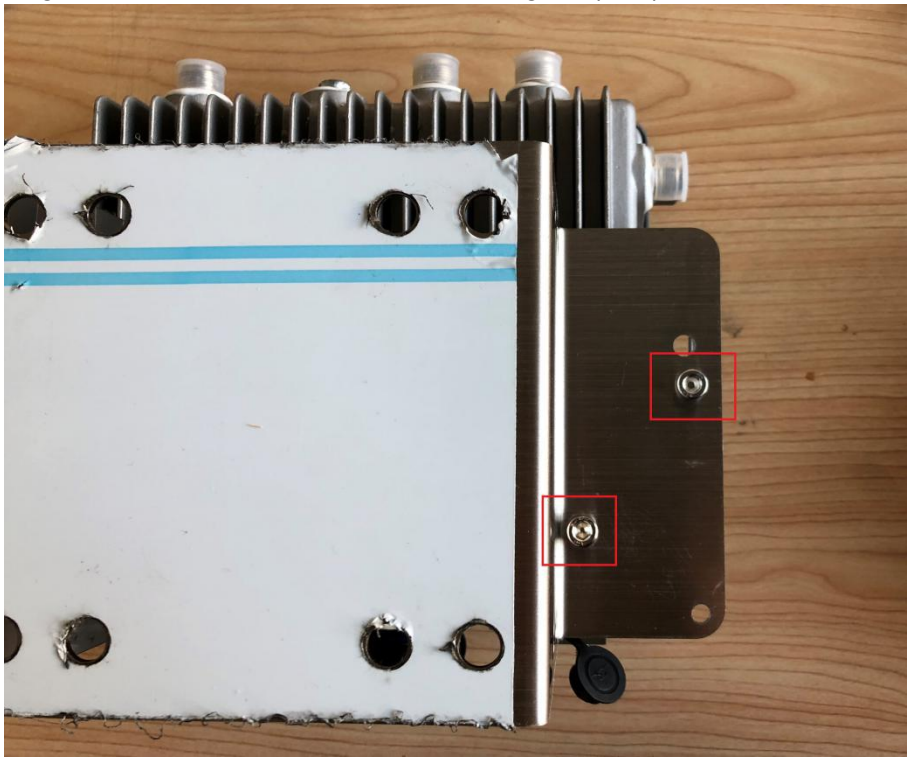


Figure 4-9 Gateway fixed on the bracket

The bracket has one side of six screw holes for mounting an industrial power adapter and another side with 4 screw holes reserved.

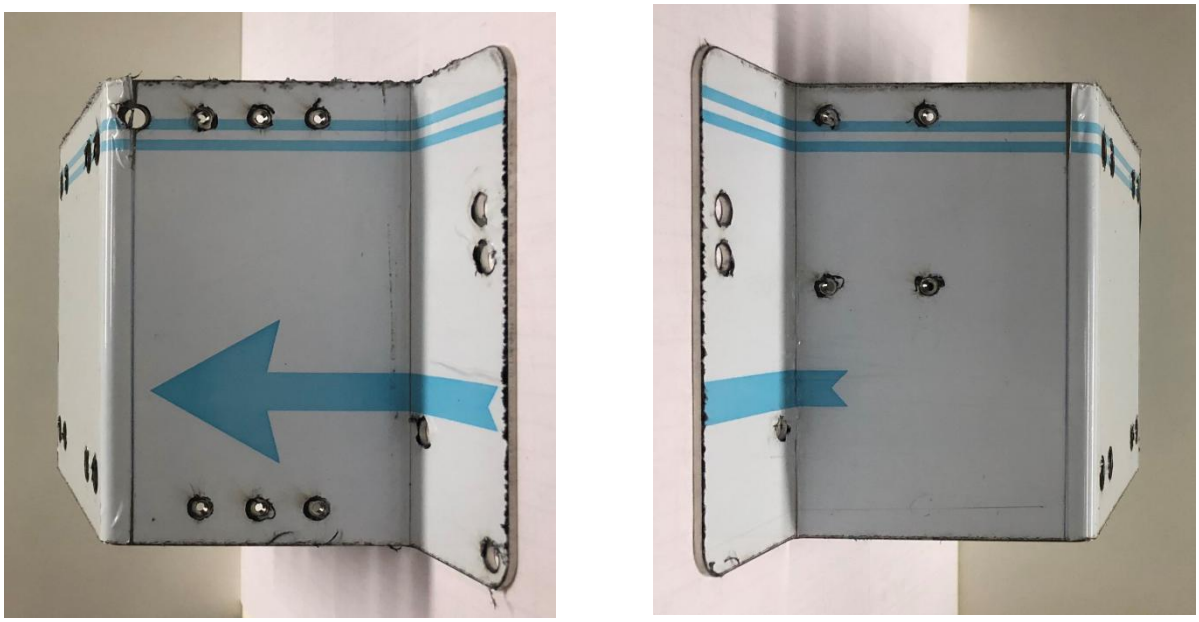


Figure 4-10 Side of the bracket

Install the industrial power adapter. The AC input port side is facing upwards (towards the LoRaWAN antenna), and the DC output port side is facing downwards (towards the power port), As shown below:

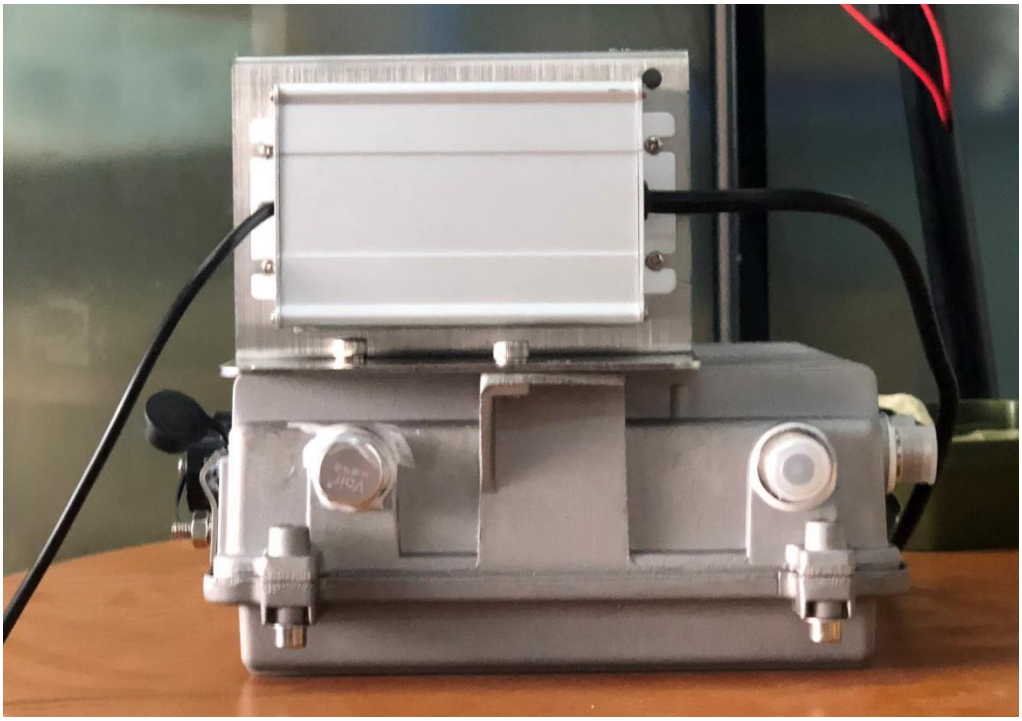


Figure 4-11 Power adapter installation

The sequence is the power interface, the Ethernet port, and the usb debugging interface from left to right shown on the Figure 4-12. Tighten the cover if no cable is extended.

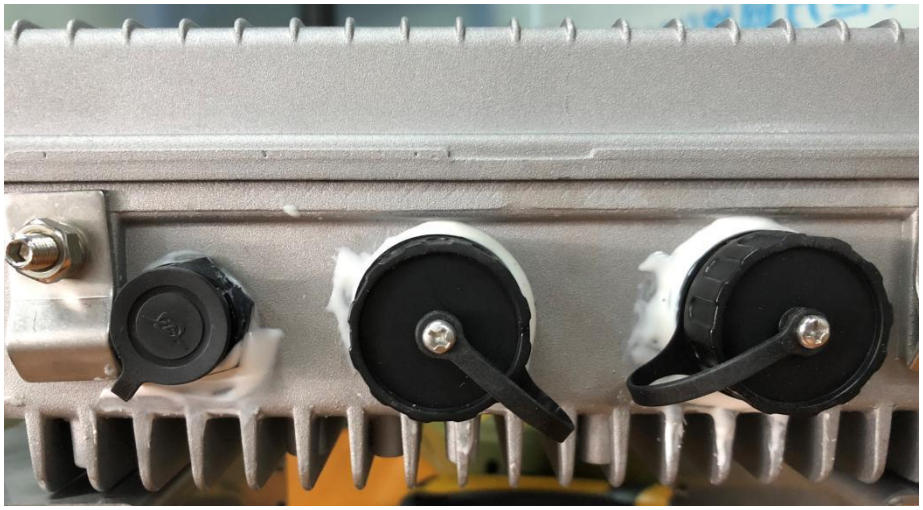


Figure 4-12 Gateway bottom interface

Remove the cover and plug into the power terminal from the power adapter. The protrusion on the interface corresponds to the groove of the power terminal plug.

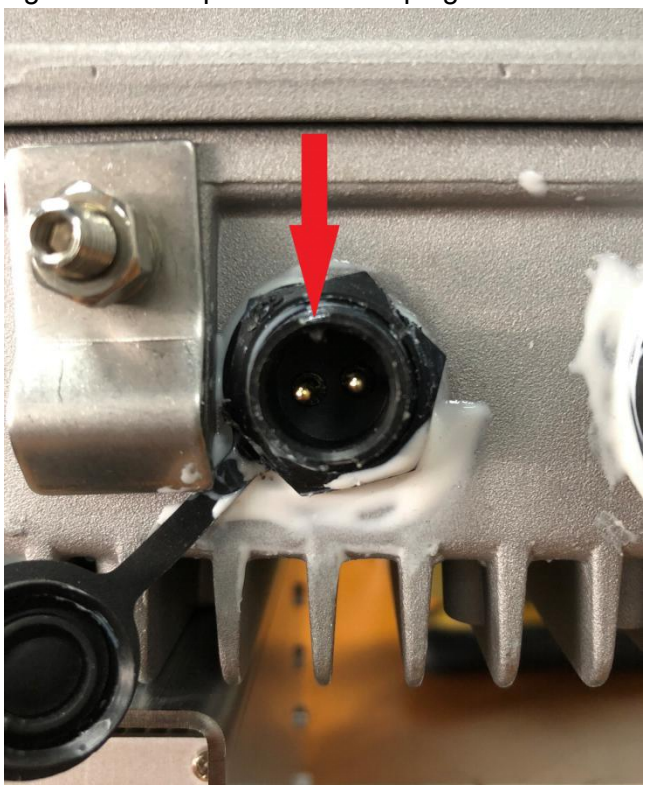


Figure 4-13 Power supply input port

Figure 4-14 Power plug of the adapter

The installation of the power cord is as shown below, and finally tighten the connector.

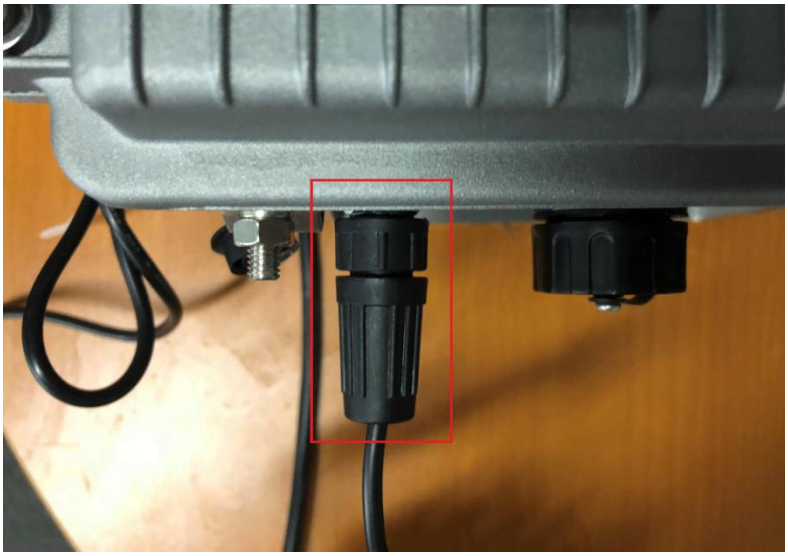


Figure 4-15 Install the power plug

Use a cable tie to fix the power cord. The 220V wire should have a certain margin to ensure that it will not be stressed too much after installation. Finally cut off the excess wire of cable tie.

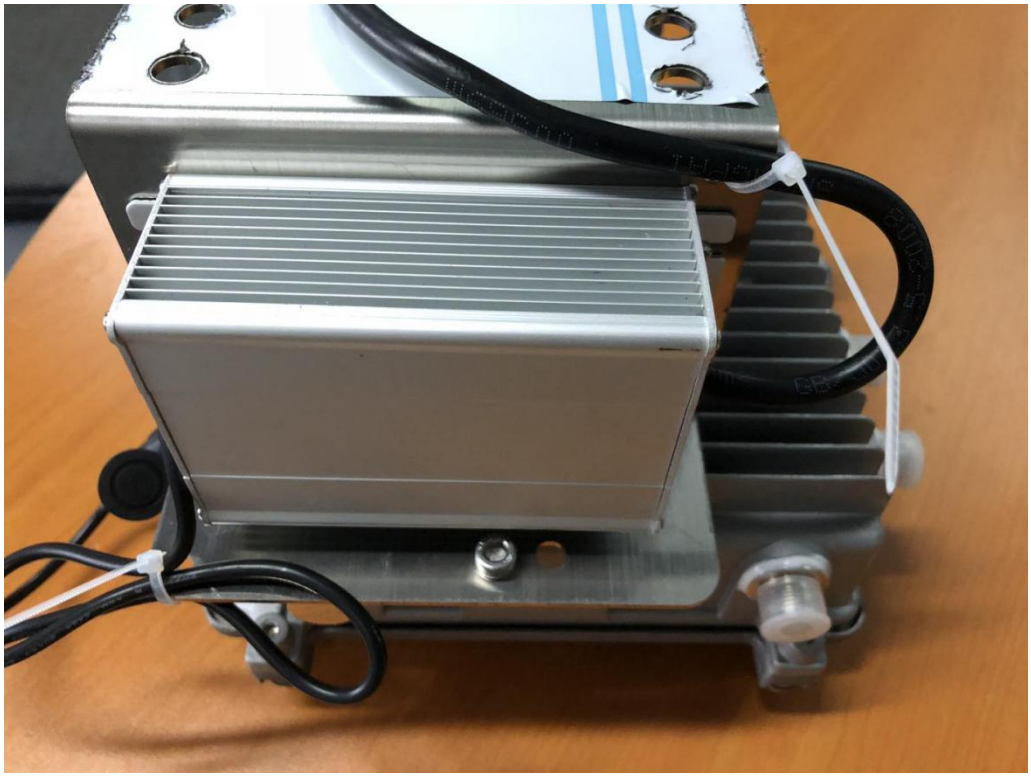


Figure 4-16 Secure the cable with a cable tie

Install antenna feeder lightning arrester and antenna.

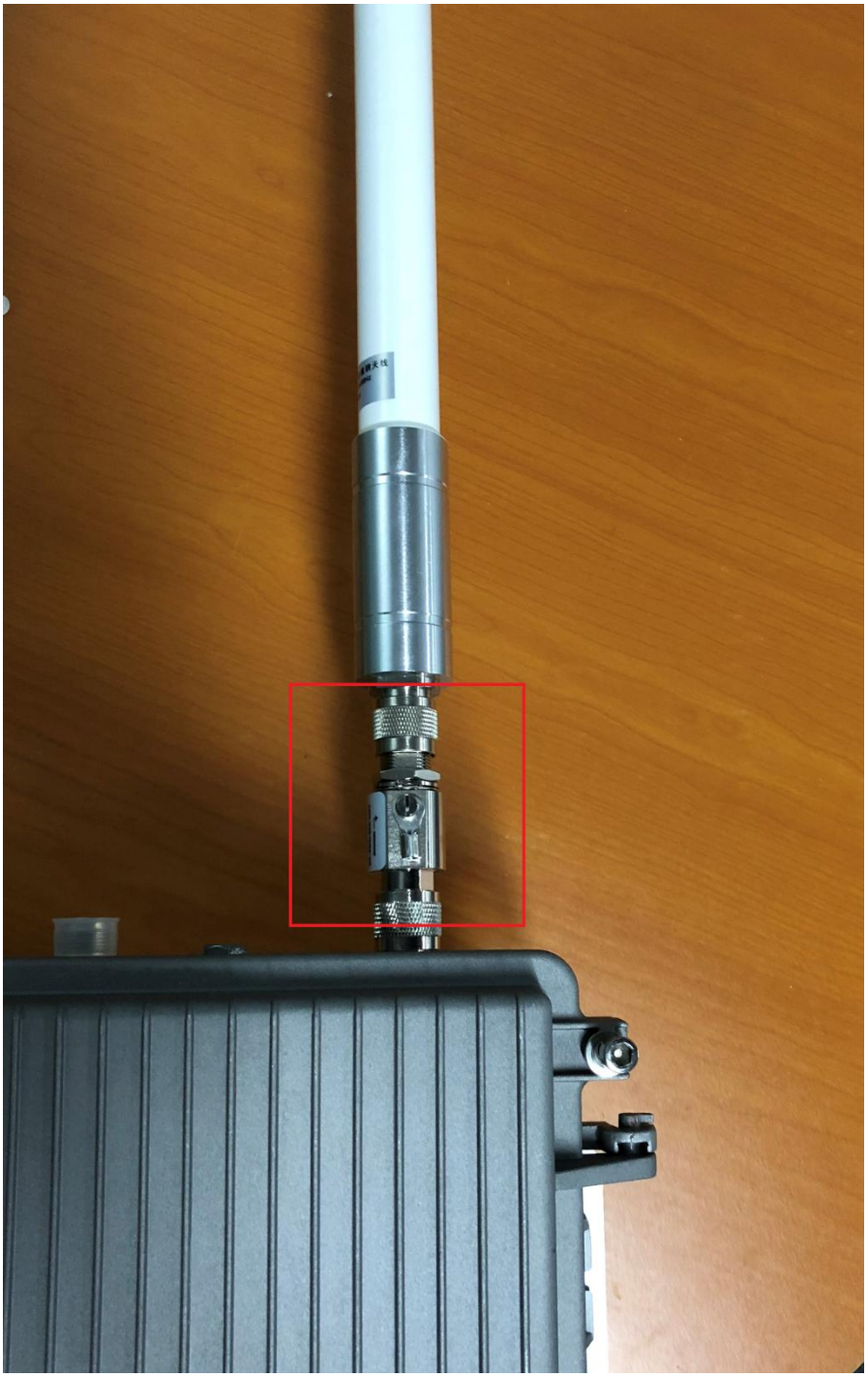


Figure 4-17 Install the antenna feeder

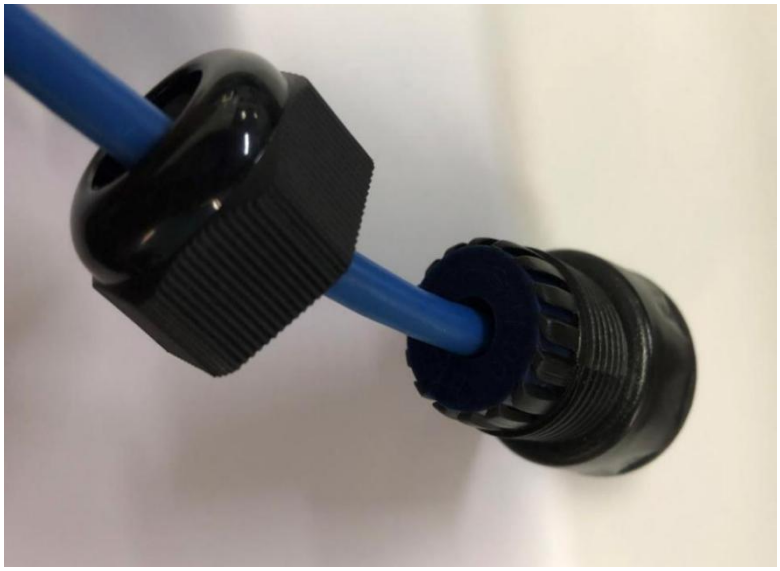
Figure 4-18 Front View of the gateway after installing the antenna

Figure 4-19 Side view of the gateway after installing the antenna

Install the waterproof connector of the network cable

(a) Disassemble the waterproof connector

(b) Access the network cable in sequence



（c）Embed the seal into the slot

（d）Adjust position and tighten

（e）Insert the cable into RJ45 port and tighten the connector

Figure 4-20 Network cable installation

4.2.4 Hoop mounting

The RHF2S208 supports both wall mounting and hoop mounting. When installing on the wall, please use expansion screws and screw nuts to fix the bracket on the wall. The diameter of the rod that can be mounted is less than 60mm when hoop mounting. If the actual mounting rod does not meet this requirement, you should prepare other specifications of the hoop by yourself.

Figure 4-21 Hoop and its accessories

Figure 4-22 Hoop mounting installation

Figure 4-22 Side view and Front view after hoop mounting

4.3 Lightning arrester installation

4.3.1 Install lightning protection

A copper wire is prepared for device ground. Please refer to Figure 4-23 to connect the lightning arrester to the ground with this wire.

Figure 4-23 Antenna lightning arrester

Figure 4-24 Copper wire to ground the arrester

Figure 4-25 Wall mounting

4.3.2 Lightening Protection Cautions

Lighting protection include direct lighting protection and indirect lighting protection. We should avoid fix the device to face the direct lighting protection. Below we just list some essential and useful methods to protect from indirect lighting, induction lighting or surge.

1. The lightning rod should be fixed above the tower with device or gateway. And the gateway should be in the protection area of the lightning rod.
2. When the gateway is fixed to the building, the gateway should be in the protection area of the lightning rod which is on the top of the building. If there is no lightning rod on the top of the

building, please make sure that the gateway would not be in the influence area of the lightning, or you must fix a lightning rod above the antenna and connect to the ground of the building or lightning protection network.
3. The small lightning rod should be made of circular steel tube with diameter more than 16mm. The lightning rod should be higher than the top of the antenna 1m or more. 4. Lightning rod ground down lead should be no less than 8 mm diameter galvanized round steel
or cross-sectional area not less than 48 mm squared multi-strand copper wire. When using multiple strands of copper wire for grounding, please make steel tube to prevent the mechanical damage.
5. When the gateway is put nearby the lightning protection area, please make sure all the device include antenna put below the lighting protection area.
6. Don't put or fix the cable to the lightning protection line or area.
7. Please ground the fixture of the gateway.

4.3.3 Power interface and lightning protection joint waterproof treatment （Only For Outdoor Installation）

It is recommended to make water proof enhancement for LoRaWAN antenna lightning protection connector industrial power connector, if the device is installed outdoor. Please follow step below for each connection:

（1）Remove the stain around the connection，
（2）tape one layer of insulating tape of PVC，
（3）then tape one layer of 3M waterproof clay，
（4）tape one more layer of insulating tape of PVC.

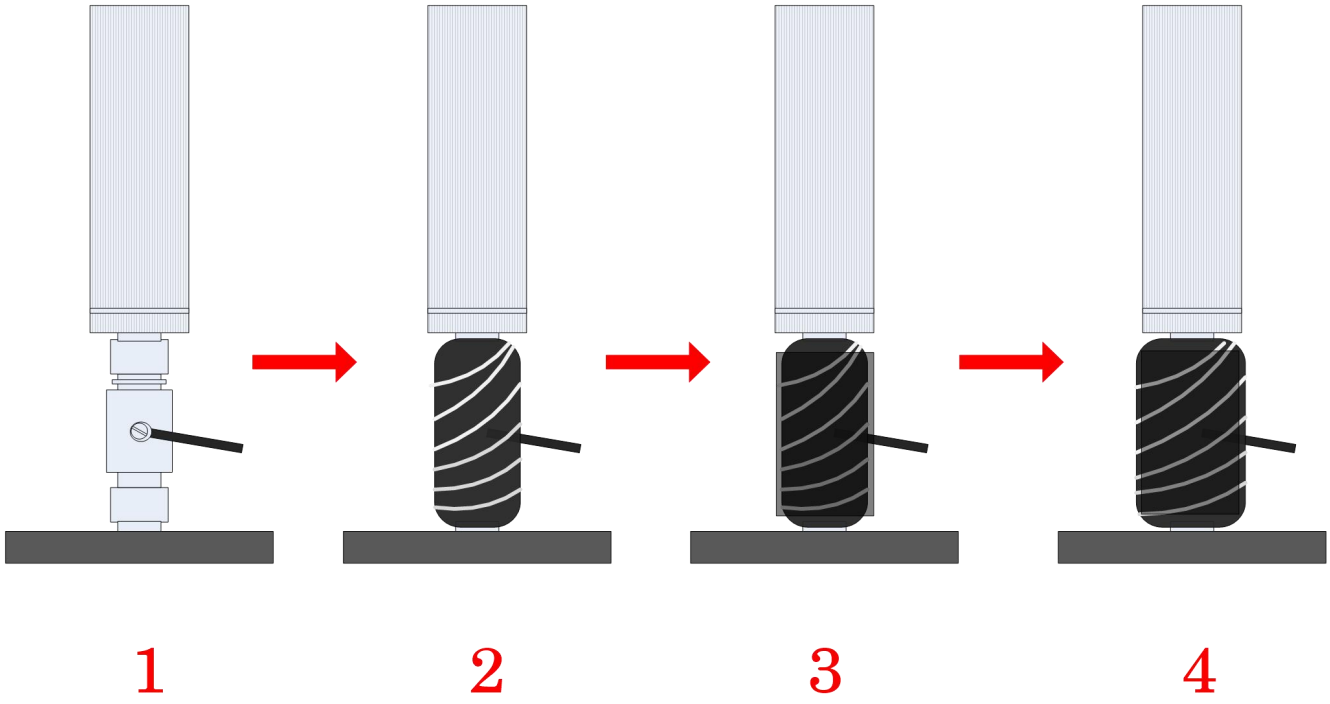


Figure 4-26 Lightning protection

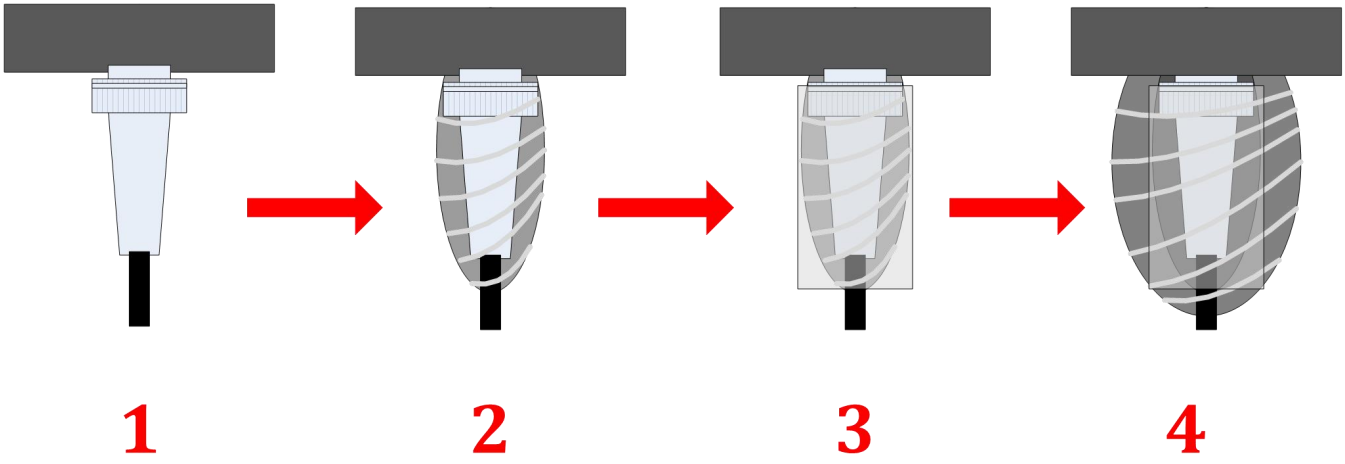


Figure 4-27 Power interface waterproof processing

Revision

V0.2 2018-10-23

+ Add the waterproof treatment of the joint
+ Add gateway specification description

V0.1 2018-09-05

+ First version

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