

UM01749**LoRaWAN IOT Gateway RHF2S008P4G Installation Guide**

V0.5

**Document information**

Info	Content
Keywords	<i>RisingHF, LoRaWAN, Installation, Lighting surge protection</i>
Abstract	This document describes how to install and use RisingHF RHF2S008 LoRaWAN IoT Gateway.

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1 Preface

This document (from v0.4) is the installation guide of RHF2S008P4G, an industrial LoRaWAN gateway. For the old version RHF2S008A4G, please refer to the v0.3.

RHF2S008P4G LoRaWAN gateway is designed and produced by RisingHF, which is an 8 channel industrial gateway based on LoRaWAN protocol with PoE function. This document targets to help customer or installer to install the gateway in field easily but with high reliability. Please contact with us by email support@risinghf.com for more information.

2 RHF2S008P4G appearance



Figure 2-1 RHF2S008 appearance

3 Installation

Table 3-1 package list below show the list of materials in the package.

Table 3-1 package list

Material	PN	Qty
RHF2S008P4G	RHF2S008P4G-xxx	1
PoE injector	PoE30G-AT	1
LoRaWAN Antenna	RXHF-ANTxxx-GF	1
Fixed collar for LoRaWAN antenna	-	1
Screw for collar	M3x6	4
4G Antenna	RXHF-ANT4G	1
GPS Antenna (N-type, 70cm)	RXHF-ANTGPS	1
Wire for Ground	1.5m length	2
Fixture	-	1
Screw to fix GW (Inner hexagonal M5)	Inner hexagonal M6x8	4
Screw to fix the auxiliary fixture	M5x10	4
Screw for ground	M5x10	2
Surge protector	N-JK-G-Y-6	1
RF cable (connect the antenna to GW)	N (Male) --KSR200 (80cm) --N (Female)	1
Box for package	50x26x12 cm	1

3.1 Mechanical size



Figure 3-1 RHF2S008 appearance

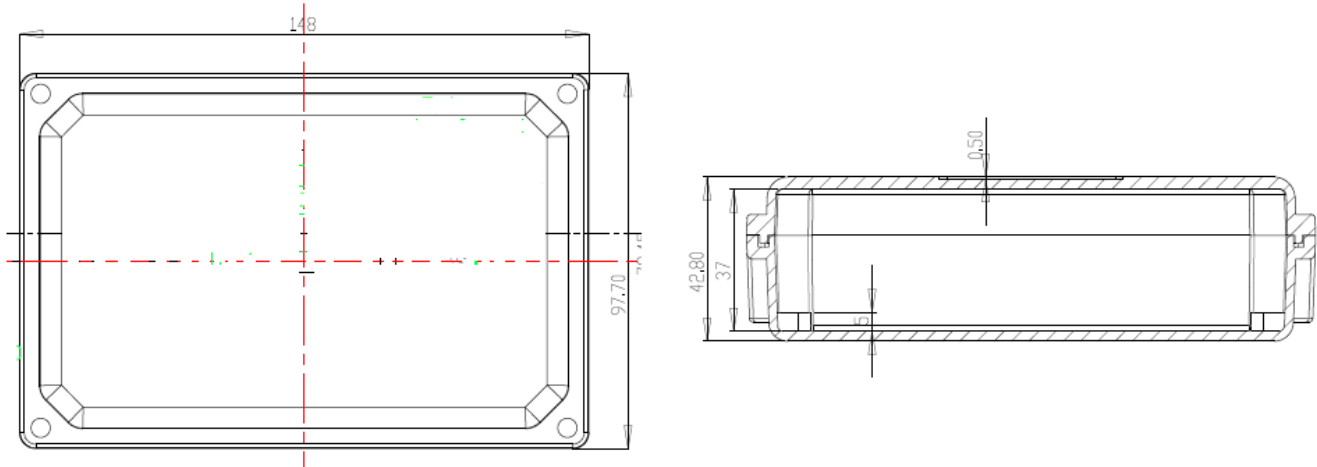


Figure 3-2 RHF2S008 Mechanical size

3.2 Install the Gateway

3.2.1 SIM Card Installation (For Mobile Cellar User Only)

If the user need use mobile cellar network, please insert the SIM card and test before go to the field. Installation procedrues:

- i) Open RHF2S008 device with M5 hex wrench;
- ii) Insert the SIM card like shown below:

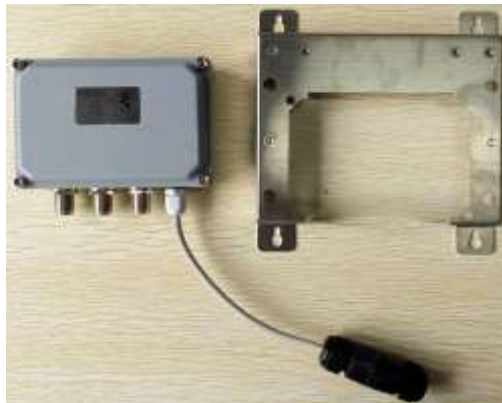


Figure 3-3 SIM card insert

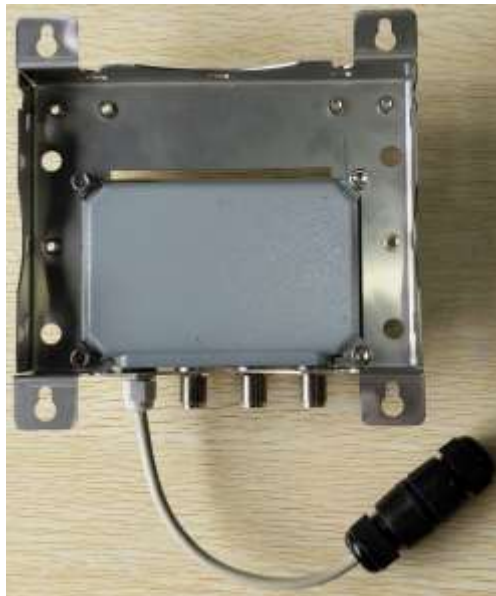
- i) Install the LTE-4G antenna, and try the network connection via LTE-4G
- ii) If test successfully, close cover of the gateway and tighten the screws with hex wrench.

3.2.2 Device Installation

Fix gateway to the main fixture, as the below picture shows:



(1)



(2)



(3)

Figure 3-4 Fix the GW to the main fixture

Fix the auxiliary fixture to the main fixture.



(1) The auxiliary fixture and main fixture



(2) auxiliary fixture to main fixture

Fix LoRaWAN antenna to the antenna fixture;



(1) LoRaWAN antenna fixture position



(2) LoRaWAN antenna fixed



(3) surge protector fixed



(4) Connect the LoRaWAN antenna to RF port with RF cable

Figure 3-5 Fix antenna to the fixture

4G antenna installation. Connect 4G antenna with RHF2S008 directly. The assembled device is as below picture:



Figure 3-6 4G antenna installed

GPS antenna installation:



(1) GPS Antenna



(2) GPS installed with cable connected

Figure 3-7 GPS antenna installation

3.2.3 RF Connector and Lightning Protection Waterproof Enhancement (Only For Outdoor Installation)

It is recommended to make water proof enhancement for LoRaWAN antenna connector, 4G antenna connector and GPS antenna, 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.

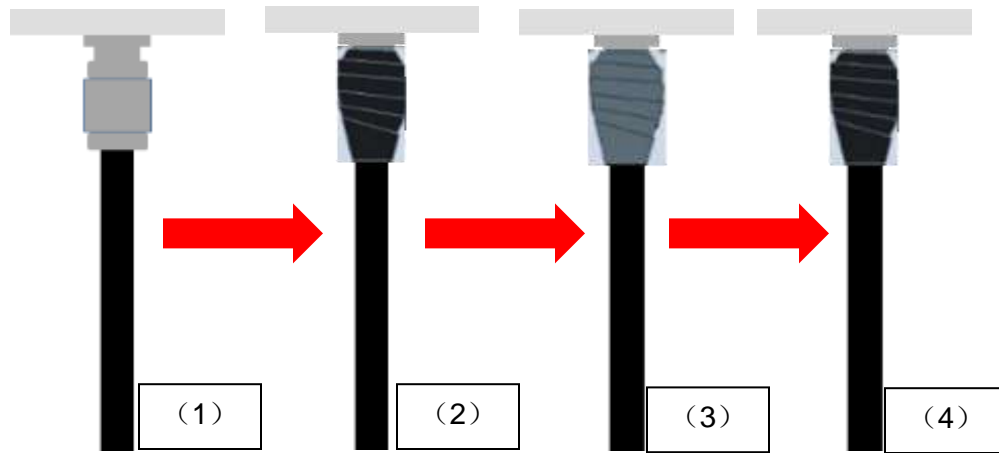
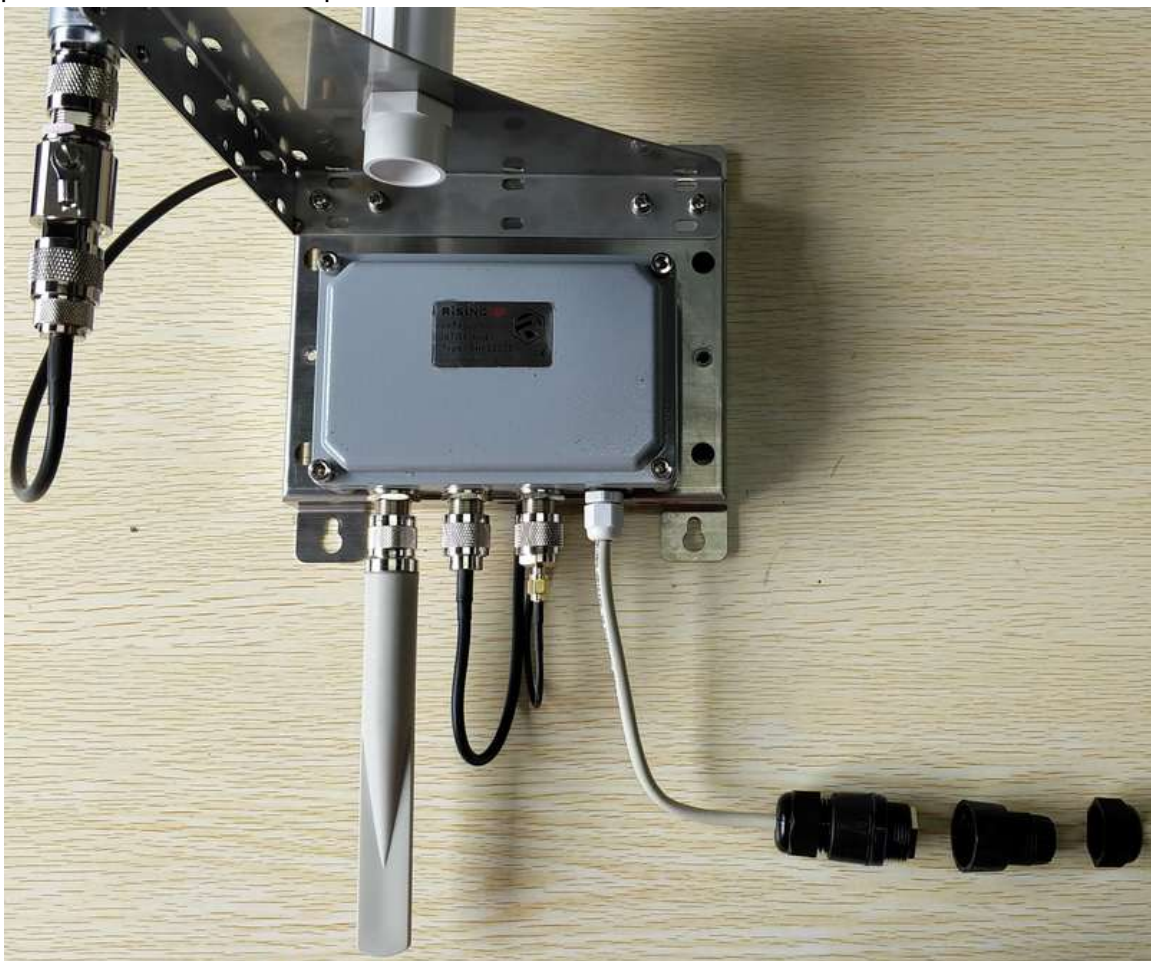


Figure 3-8 RF Connector and Lightning Protection Water Proof Enhancement

3.2.4 PoE input

Follow pic below to connect the power and Ethernet over PoE.





(1) Unscrew the RJ45 water proof joint



(2) connect to socket



(3) insert the cable to RJ45 and screw the joint



(4) PoE connected

Figure 3-9 Guide for PoE connection

Note: It is recommended to use both a shielded socket and shielded cable when the PoE cable is long and outdoor and exposed to air. It's strongly to ground the shielding cover of the cable.



Figure 3-10 RHF2S008P4G fixed in field

3.3 Lightning Protection Cautions

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

3.4 Performance enhancement when installation

When the gateway would be located in the area there is lots of interference, like nearby broadcasting station, mobile station and so on, a band pass cavity filter is strongly recommended to put between the surge protector and GW. This will be helpful for rejection and uplink receiving improvement.

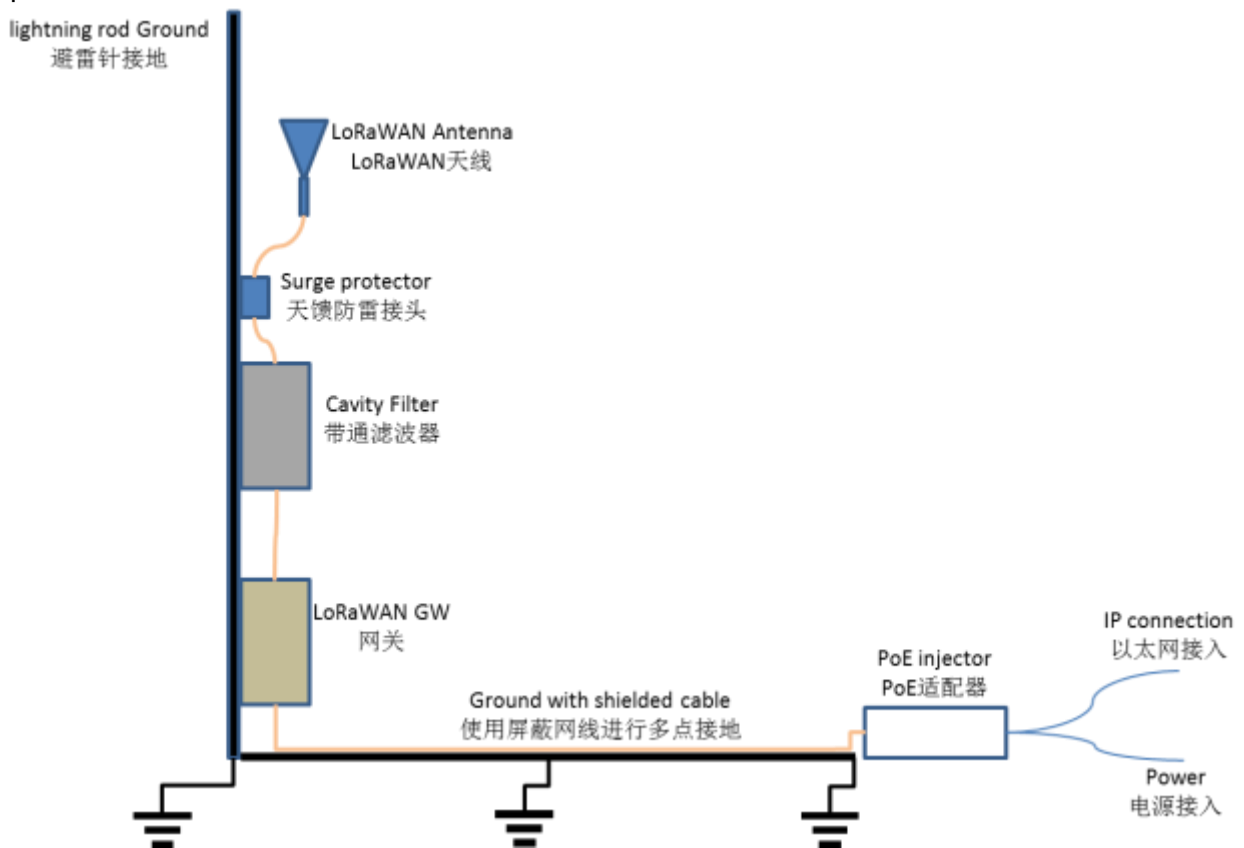


Figure 3-11 Suggested GW installation in field

Revision

V0.5 2017-04-08

+ add the part for suggested installation in field

V0.4 2017-04-06

+ update to support RHF2S008P4G. Just keep the part of installation.

V0.3 2016-06-22

+ First version

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