LSD4WN-2332XGW1　(Gateway)

User's Manual

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利尔达科技集团股份有限公司

LIERDA SCIENCE & TECHNOLOGY GROUP CO.,LTD
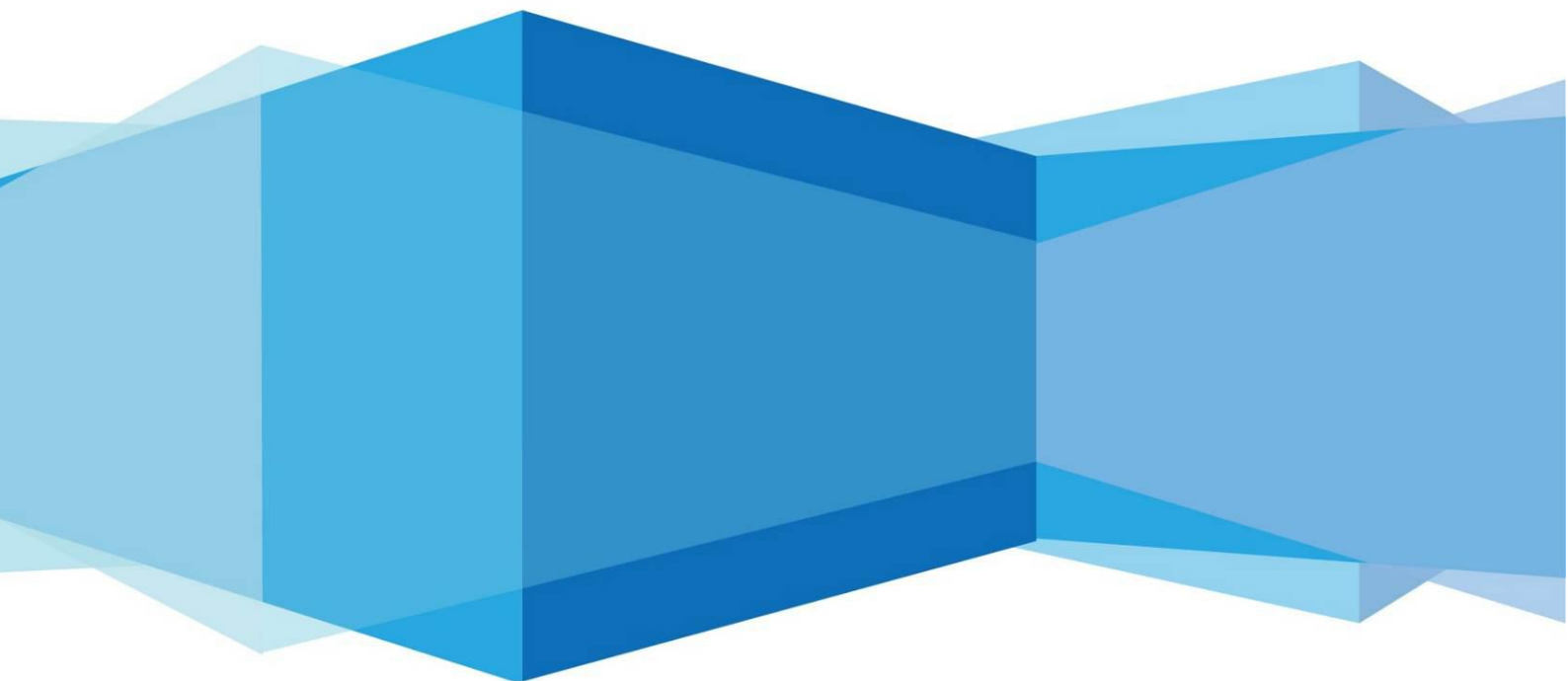
Revision History

Product name	Gateway	Product model		LSD4WN-2335XGW2	
Prepared by	Wang Yankai	Date of preparation		20180820	
No.	Change logs	Changed by	Audited by	File version	Date of change
1	Initial version	Wang Yankai		Rev01	2018-08-20
2	New bottom plate change	Chen Yongwei		Rev02	2019-05-23
3	Explanation for Adding Replacement Antenna	Chen Yongwei		Rev02.1	Sept 18, 2019-09-18

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Chapter 1 Overview

1.1 Overview

The Lierda LSD4WN-2332XGW1 (Gateway) is a TDD LoRaWAN IoT gateway that supports the 902-928MHz frequency range. The main body of the gateway is deployed in a wall-mounted manner, and the antenna can be extended to a suitable location through the feeder. It is equipped with 12VDC waterproof outdoor power supply.

Figure 1 Gateway as a whole

1.2 Accessories list

No.	Device	Qty	Unit	Remarks
①	LoRa antenna	1	/	/
②	Gateway body	1	/	/
③	GPS antenna	1	/	/
			/	
⑤	Lightning arrester	1	/	/
⑥	Ground wire	1	/	/
⑦	Power supply	1	/	/
⑧	Gateway bracket	1	/	/
⑨	Antenna holder	1	/	/

1.3 Interface description
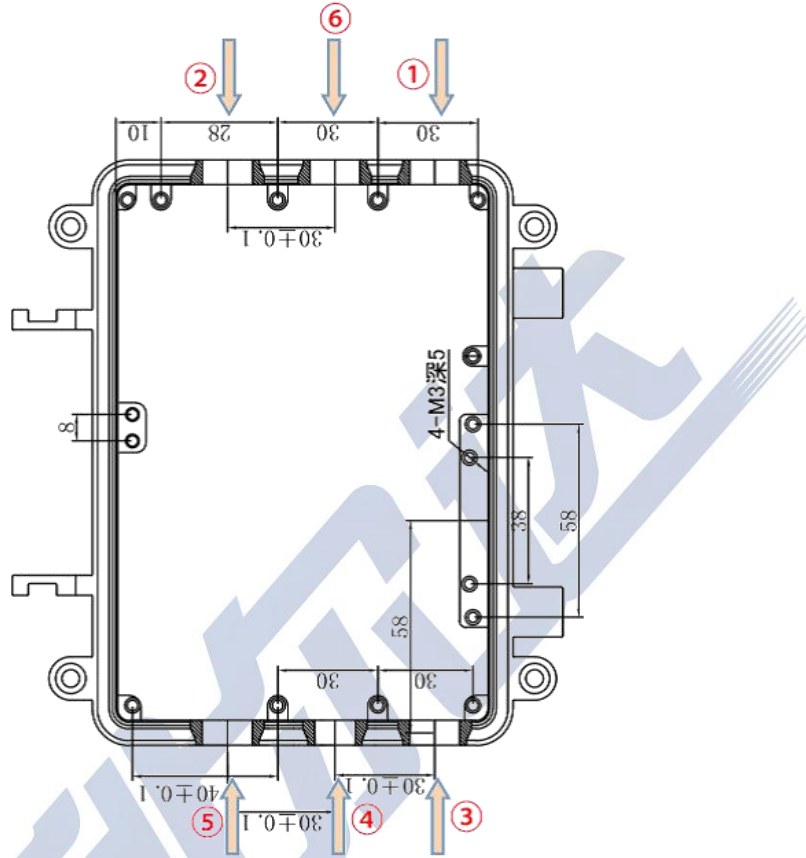
Figure 2 Gateway interface

Place	①	②	③	④	⑤	⑥
Function	GPS ANT	LoRa ANT	ETH	PWR	LTE	/

Chapter 2 Installation

2.1 Installation protection

- The installation, operation and maintenance of the gateway must be performed by professionally trained technicians.

- The installation location of the gateway must be limited and not accessible to non-maintenance personnel.

- The surface of the gateway may become hot during normal operation, affecting the surrounding environment.

- All installation operations must comply with local and national electrical codes.

- Do not operate the equipment during lightning.

- The gateway runs continuously during the life cycle, and it is necessary to ensure that it is grounded well and stably.

- Install the grounding first, and remove grounding wire last at the time of dismantling.

- It is forbidden to operate the gateway with power.

- The power supply device of the gateway must include overcurrent protection function.

2.2 Unpacking inspection

Consider the following when unpacking a new gateway:

1. Check the shipping carton and check for damage.

2. Unpacking should be carried out in a clean and dry position possible.

3. Do not discard the shipping carton or foam inserts. If it needs to be repaired or reconfigured, they needs to be used.

2.3 Installation of necessary equipment

The following tools are required during installation:

1. M4 hex screwdriver

2. flat-nose pliers (antenna interface locking)

3. Diagonal pliers

4. Wire brush

5. Clean and dry cloth

6. Antioxidant compounds

7. Electric drill with a suitable drill bit (wall mounted)

2.4 Antenna installation

2.4.1 GPS antenna installation

Figure 3 GPS antenna installation

As shown in Figure 4, the GPS antenna corresponds to the RF interface of the position marked with the GPS word on the gateway shell, aligned and tightened.

Note: GPS antenna vertical gateway facing outward

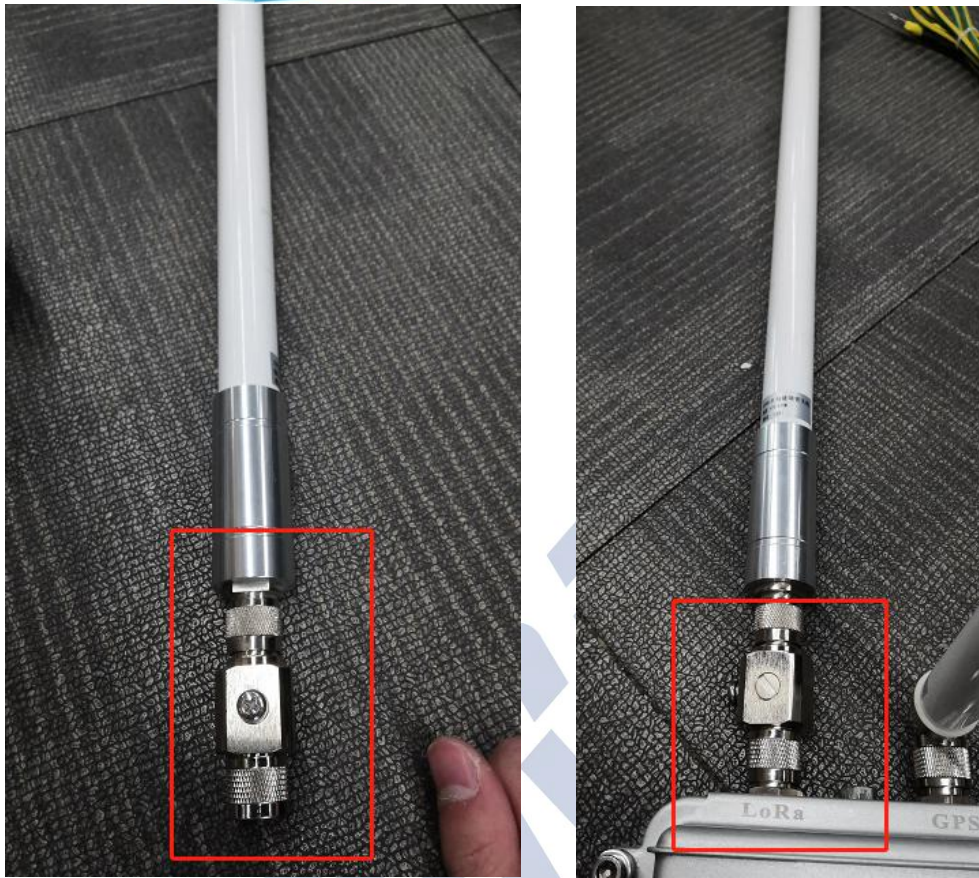### 2.4.2 LoRa (omnidirectional fiberglass) antenna installation

Figure 4 LoRa (omnidirectional fiberglass antenna) installation

(1). First install the lightning arrester at the antenna RF interface.

(2). Correspond the LoRa (omnidirectional fiberglass antenna) antenna and the lightning arrester to the interface below the position marked with the LoRa word on the gateway shell, align and tighten.

2.4.3 Antenna installation completion sketch map

Figure 5 Antenna installation completion display

Note: For the RF part of antenna connected to the inside of the gateway, its installation needs to pay attention to the external lightning protection. An antenna feed arrester should be installed between the LoRa antenna and the gateway, and the antenna must be installed within the protection area of the lightning rod.
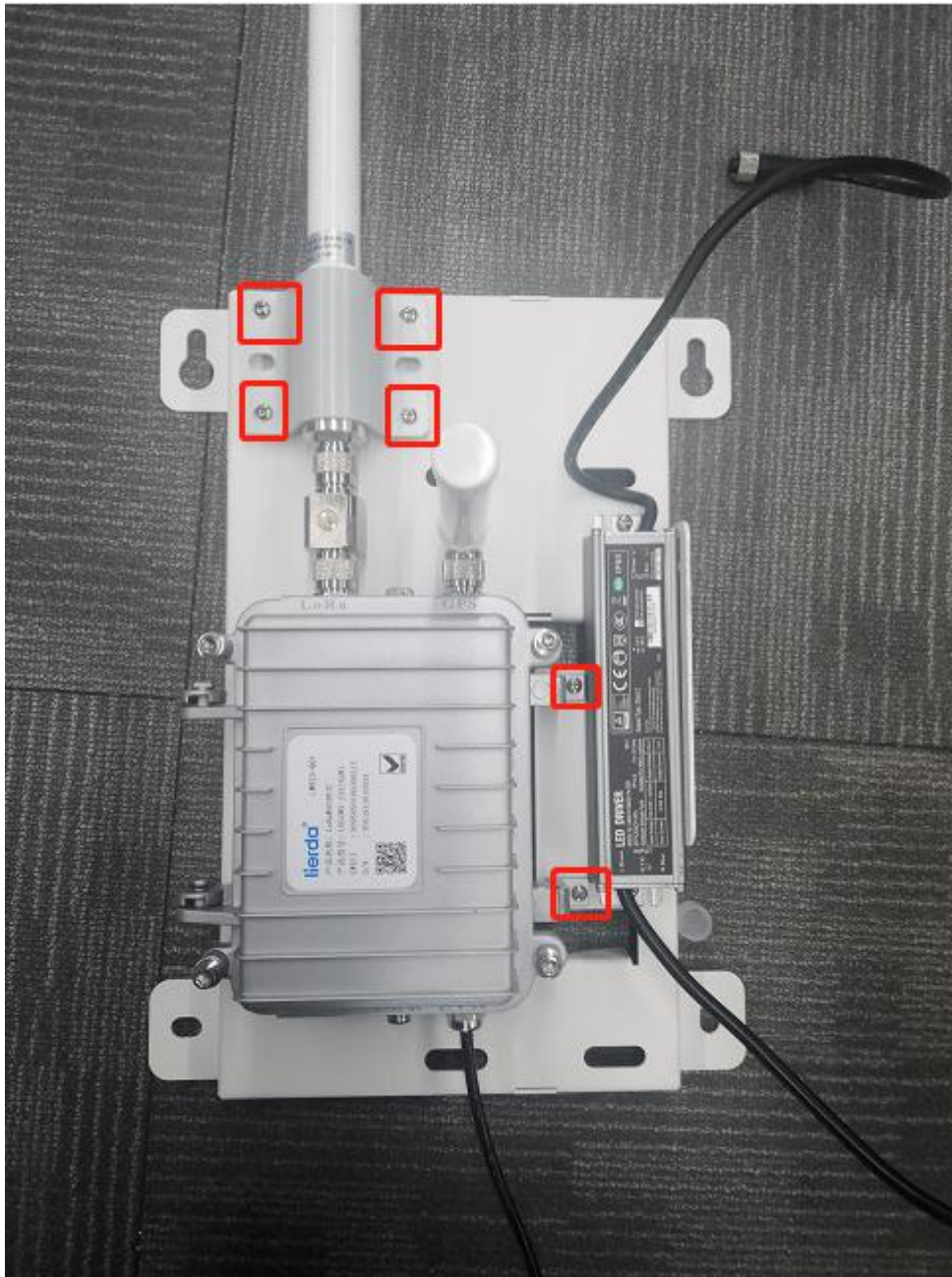
2.5 Gateway body installation

Figure 6 Gateway body installation

As shown in the figure:

(1) Place the gateway on the bottom plate, align the screw holes on the side of the gateway (marked with red box), and tighten the screws.

(2) Place the antenna holder above the lightning arrester, align the bottom plate screws (marked with red box), and tighten the screws.

Note:

1. The interface between the antenna and the gateway needs to be rotated and locked with a flat-nose pliers, otherwise it may have a certain impact on the RF performance.

2. The direction of the GPS antenna needs to be perpendicular to the plane of the bottom plate of the gateway, face outward and be parallel to the ground to ensure the quality of the GPS signal.
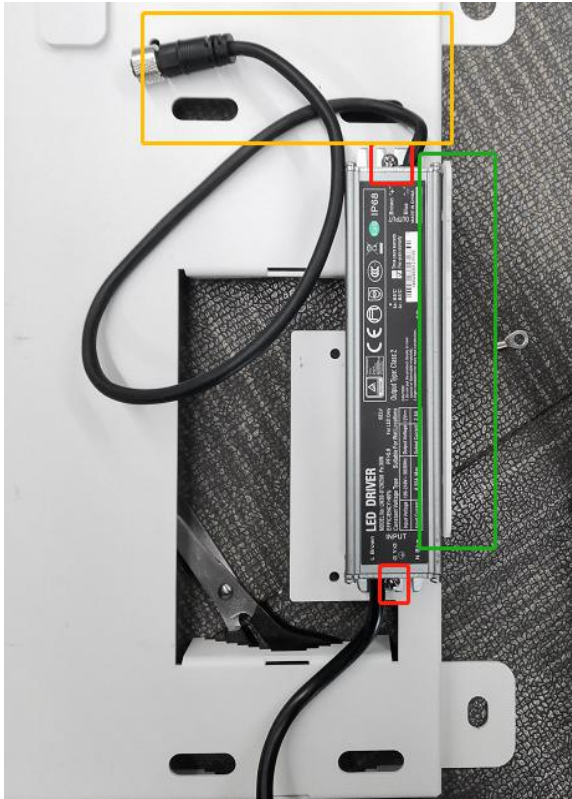
2.6 Power supply installation

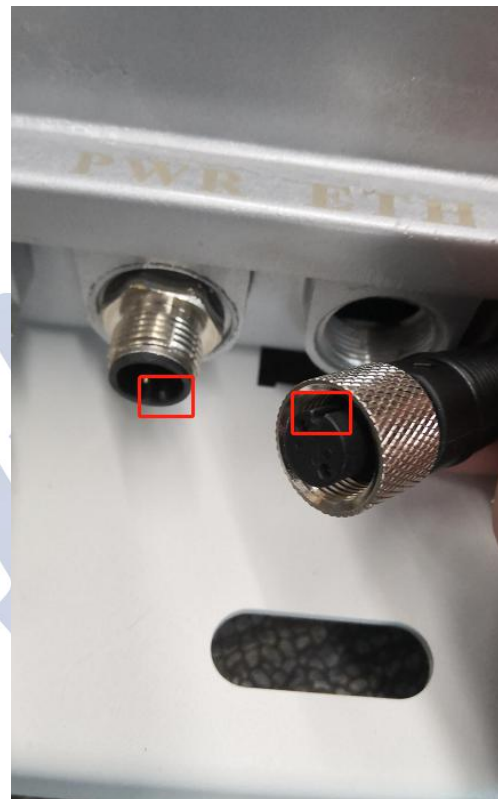Figure 7 Gateway power supply installation

Figure 8 Gateway power cord installation

2.6.1 Power supply body installation

As shown in Figure 7:

Place the output socket end of the power supply upward (marked with yellow box), make it close to the wall of the bottom plate (marked with green box), align the hole with the bottom plate screw hole (marked with red box), and tighten the screws.

2.6.2 Power cord installation

As shown in Figure 8:

Align the notch of the power cord interface with the protruding part of the gateway power connector (marked with red box), insert and tighten.

Note：Products do not provide power,For reference only
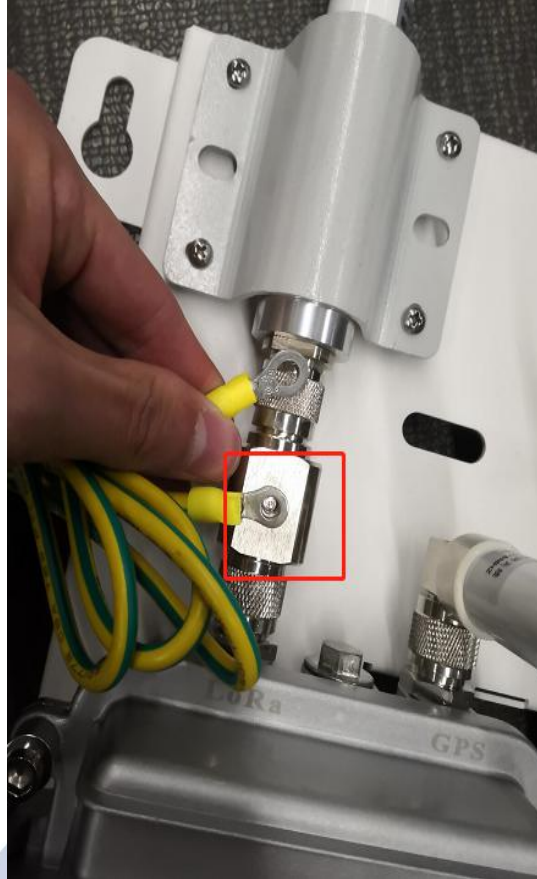
2.7 Grounding cable installation

Figure 9 Grounding wire installation

The gateway is considered a permanently connected device and requires a permanently connected protective earth (PEG) conductor. The ground connection of the protective earth is through a grounding hole of an M6 on the shell, as shown in the figure above.

The gateway grounding system should follow local and national electrical codes. The protective earth conductor of the grounding hole is mandatory. It must be the first one to be connected at the time of grounding. The proper wiring and connection of this cable is the key to strong lightning resistance. Connection inductance and ground resistance should be minimized.

The grounding cable installation steps are as follows:

1. Gently grind the surface of the antenna feeder lightning arrester with a fine steel wire brush to remove the oxide layer.

2. Use a clean cloth to remove debris from the surface.

3. Immediately coat the contact surface with a layer of antioxidant compound.

4. Use M6 screws, bolts, and washers to install the grounding cable to the antenna feeder through the grounding hole.

5. Connect the other end of the grounding cable as described above.

2.8 Antenna extension scheme

Figure 10 Antenna extension cable installation

The LoRa antenna can be mounted to the desired position via an RF extension cable (optional accessory) for a better signal coverage quality. When fixed, the antenna can be fixed to the wall or pole

by the antenna bottom plate and the antenna semi-circular pressure plate, with the help of expansion screws or U-shaped hoops, as shown in Figure 10.

Note：no external amplifier can be used.
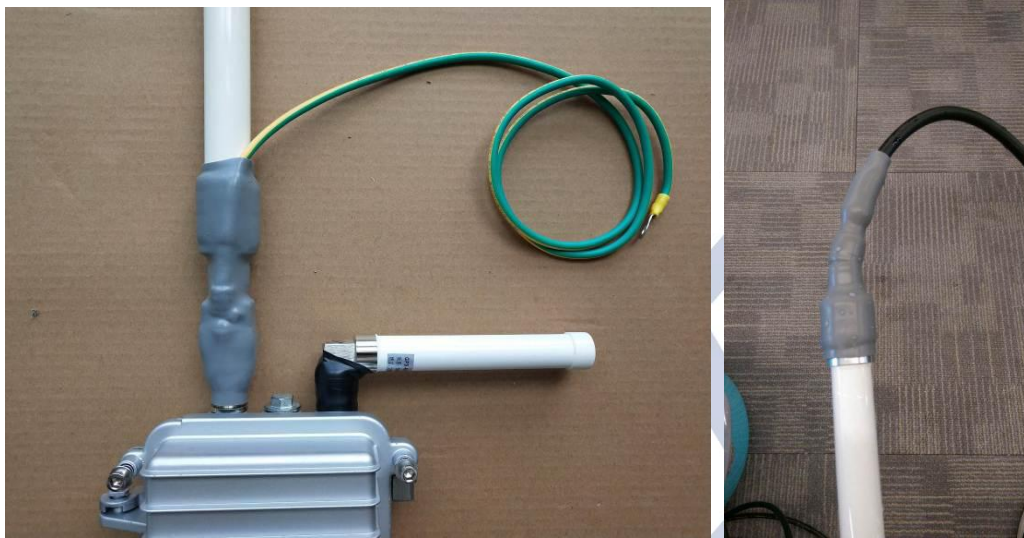
2.9 Interface waterproofing

Figure 11 interface waterproofing installation

The N-type interface of the LoRa and GPS antennas is not waterproof, so it must be protected with waterproof tape or waterproof cold-shrink tubes when used outdoors. It is recommended to use the cold-shrink sleeve protection interface produced by Shenzhen COTRAN New Material Co., Ltd.

2.10 Pole and wall mounting
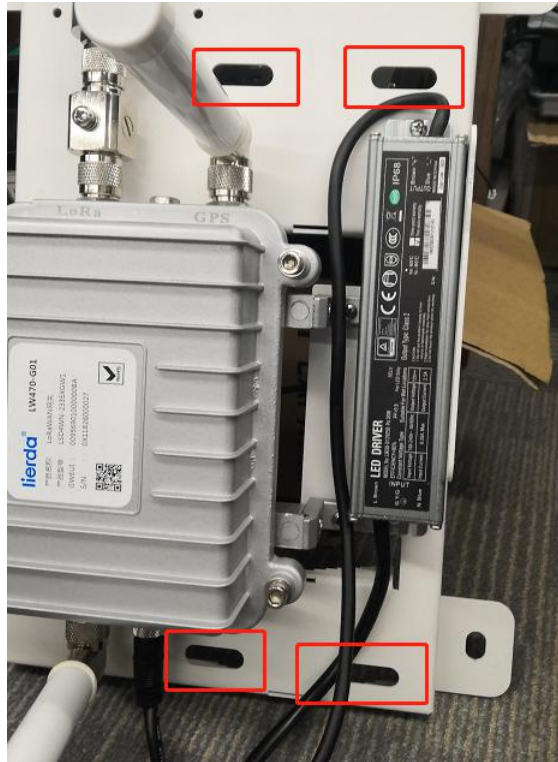
2.11.1 Pole mounting

Figure 12 Pole hole

Pass the stainless steel cable tie through the bottom hole (marked with red box) in the red box as shown in the figure and tighten it.
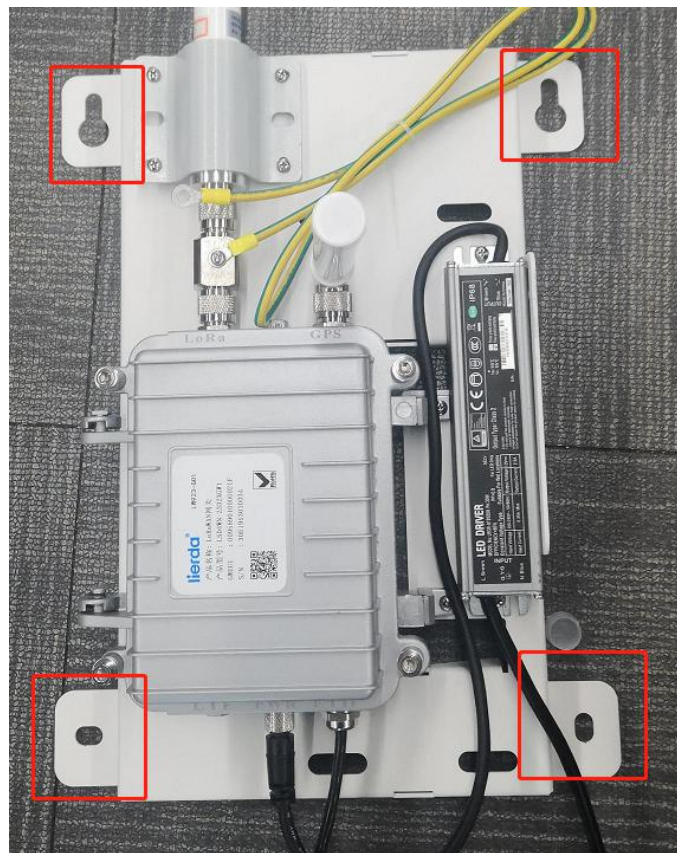
2.11.2 Wall mounting

Figure 13 Wall mounting fixing hole

As shown in Figure 13, the expansion screws have been tightened up for the wall according to the hole position of the bottom plate (marked with red box), following by fixing the gateway.

2.12 Antenna replacement

LoRa antenna replacement

Antenna must satisfy some conditions:

①Antenna transmission and reception must meet the frequency range: 902-928 MHz
②Antenna impedance: 50Ω

GPS antenna replacement

Antenna must satisfy some conditions:

①Antenna transmission and reception must meet the frequency range: 1560-1575MHz
②Antenna impedance: 50Ω

Note：Replacement step reference to **2.4 Antenna installation**

Chapter 3 Broadcast Compliance Instructions

LSD4WN-2332XGW1 supports AS923, AU915, KR923 and other frequency bands. The maximum output power of the gateway is 23dB±1dB. The transmission power is adjustable. Please follow the local radio management regulations to limit the working power of the gateway.

Chapter 4 Precautions

1. It is strictly forbidden to power on the unconnected antenna. It is strictly forbidden to replace and remove the antenna with power;

2. Before connecting the power, you must ensure that the connections are good;

3. The Ethernet connected to the gateway needs to obtain the IP automatically and can access the public network.

4. The user should not replace the power adapter at will;

5. For outdoor installation, please take lightning and rain protection measures;

Chapter 5 Troubleshooting

1. The node is unable to communicate with the gateway normally:

Solution: ① Check if the power supply and network are normal;

② Whether the connected network cable can automatically obtain IP, and does not bind the MAC address;

③Confirm that the node gateway works in the corresponding frequency table;

④ Confirm that the server is normal;

⑤ Confirm that the gateway has added a server and the parameters are the same as the server;

⑥ Confirm that the node has added the server and the parameters are the same

as the server;

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