

Outdoor LoRa Gateway Installation Quick Guide

This is a quick reference guide for ufiSpace Outdoor R1 Series LoRa Gateway installation. This gateway is designed for outdoor pole mounting installation.



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- Install GPS Antenna
- Install Rear Bracket to Gateway
- Pole Mounting
- Install Surge Protection Cable
- Install 8 dBi LoRa Antenna to Pole
- Install 11-57 VDC Port Cable
- Install SIM Card



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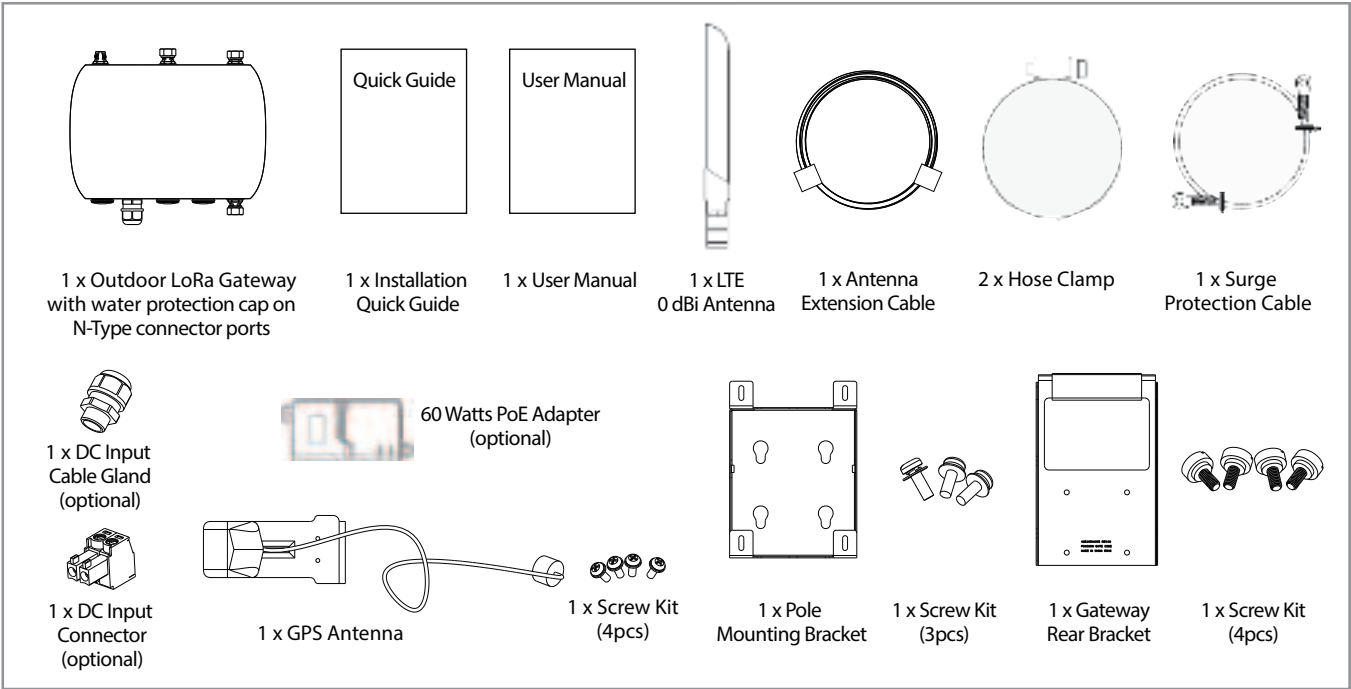
All product specifications are subject to change without notice

This Outdoor LoRa Gateway is designed with Semtech Technology to provide low power and wide area (LPWA) unlicensed band wireless connection. This gateway supports connectivity for wide range of Internet of Things (IOT) applications.

1 Contents of Delivery

Items

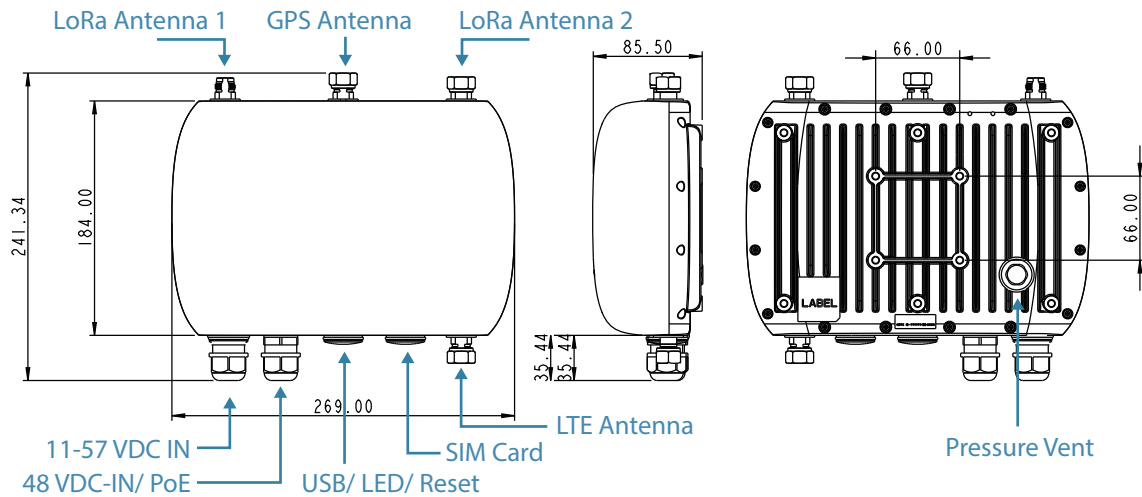
- 1 x Outdoor LoRa Gateway with water protection cap on N-Type connector ports
Metal Caps: V2.1 HW (3 for LTE version, 2 for non-LTE version)
- 1 x Outdoor LoRa Gateway User Manual and Installation Quick Guide
- 1 x LTE 0 dBi Antenna (only for model with LTE function)
- 1 x Antenna Extension Cable (for 3, 8 or 9 dBi LoRa antenna, cable length $60.96 \pm 3\text{cm}$)
- 1 x Screw Kit (4pcs) for GPS Antenna
- 1 x GPS Antenna (cable length 43.6 cm)
- 2 x Hose Clamp
- 1 x Surge Protection Cable
- 1 x Pole Mounting Bracket
- 1 x Screw Kit (3pcs) for Pole Mounting Bracket
- 1 x Gateway Rear Bracket
- 1 x Screw Kit (4pcs) for Gateway Rear Bracket
- 1 x DC Input Connector (only for model with 11-57 VDC function)
- 1 x DC Input Cable Gland (only for model with 11-57 VDC function)
- 1 x 60 Watts PoE Adapter (optional)



2 Preparing the Installation

Connectors and Interfaces

V2.1 R1 Series Gateway



Caution

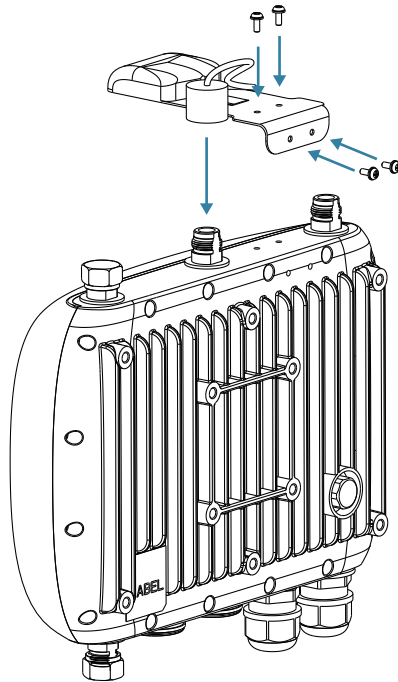
Must make sure all antennas are installed properly before apply PoE power to the gateway. For un-connected N-Type Antenna Port, MUST install a " N-Type Water Protection Cap" to prevent water leaking into the device. " N-Type Water Protection Caps" are supplied with the gateway. MUST not install or remove GPS, LoRa or LTE Antenna when DC power is applied to the Gateway. It may damage the device.

Surge Protection Cable must be properly connected to gateway housing and earth ground.

3 Installation

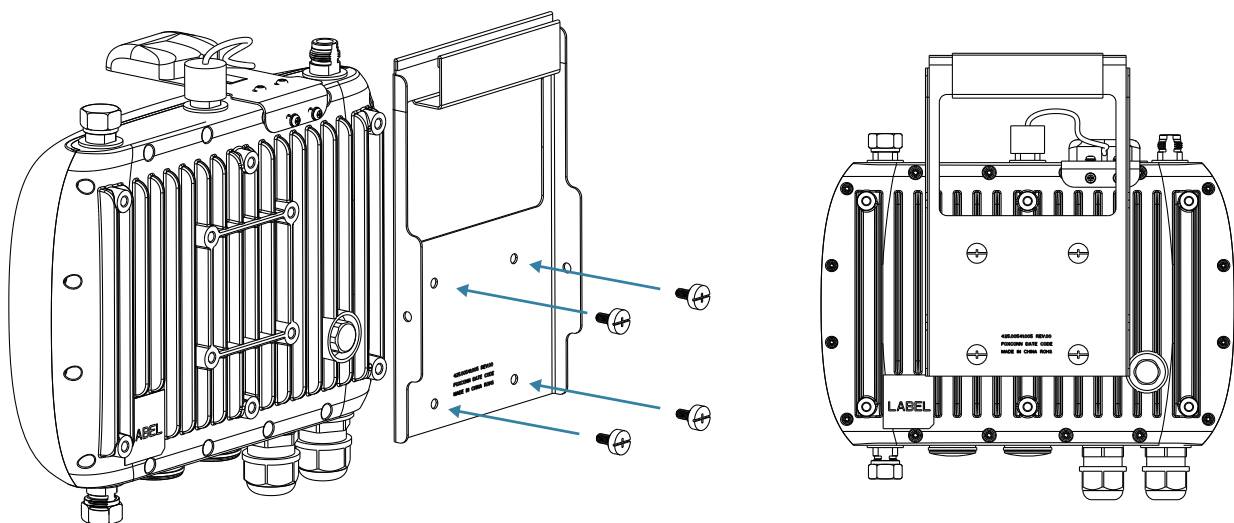
Install GPS Antenna

The GPS Antenna can be installed to top of gateway housing directly and can be remove from pole together with gateway.



Install Rear Bracket to Gateway

Install the Rear Bracket to Outdoor Gateway housing with 4 screws.

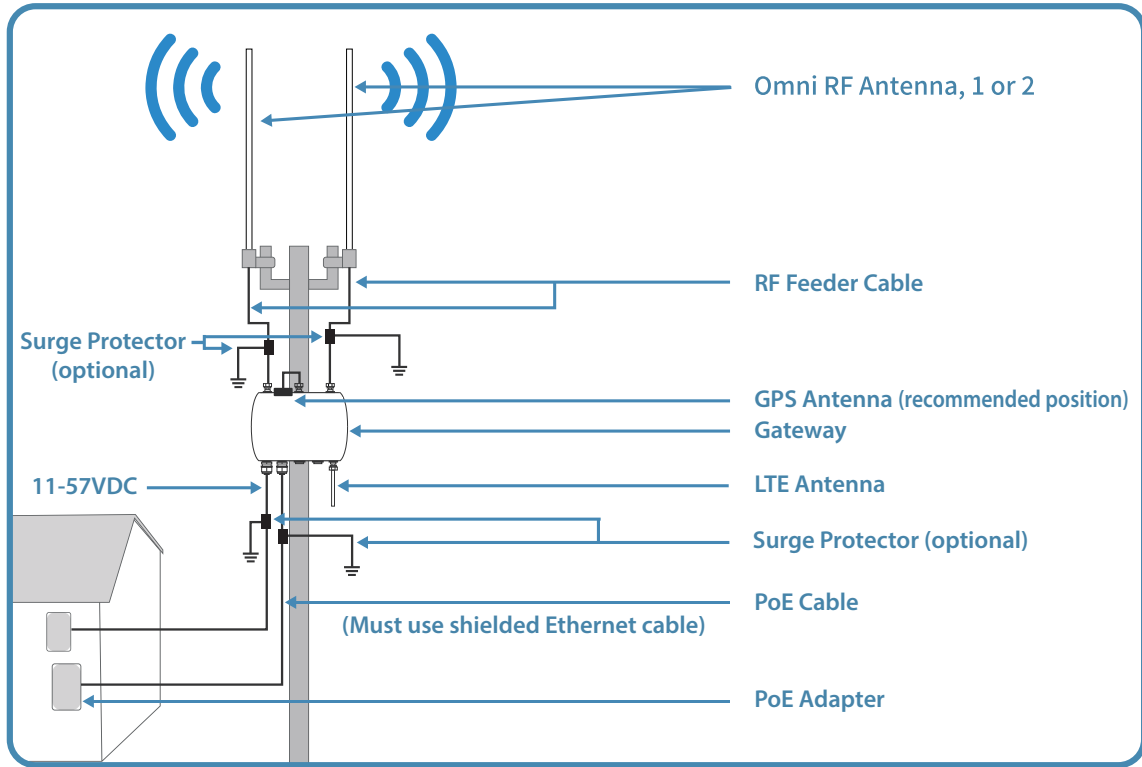


V2.1 Gateway

Pole Mounting

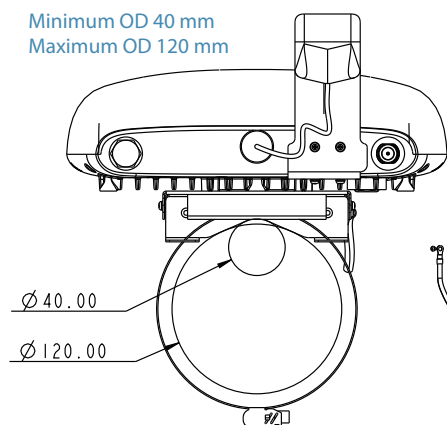
Our mounting bracket is designed for pole mount only.

V2.1 Gateway

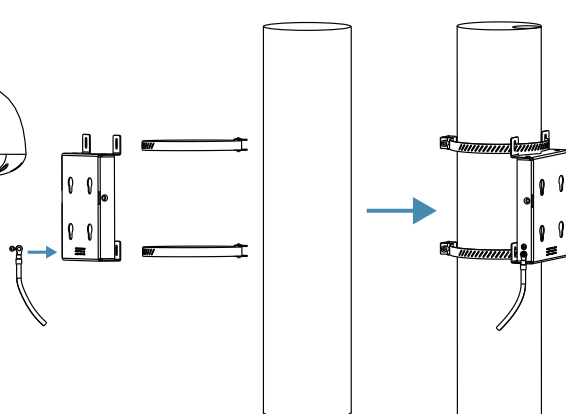


Vertical Mount

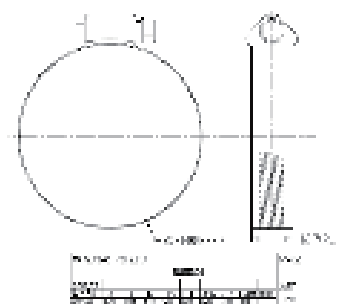
Minimum OD 40 mm
Maximum OD 120 mm



Install Hose Clamp to Pole

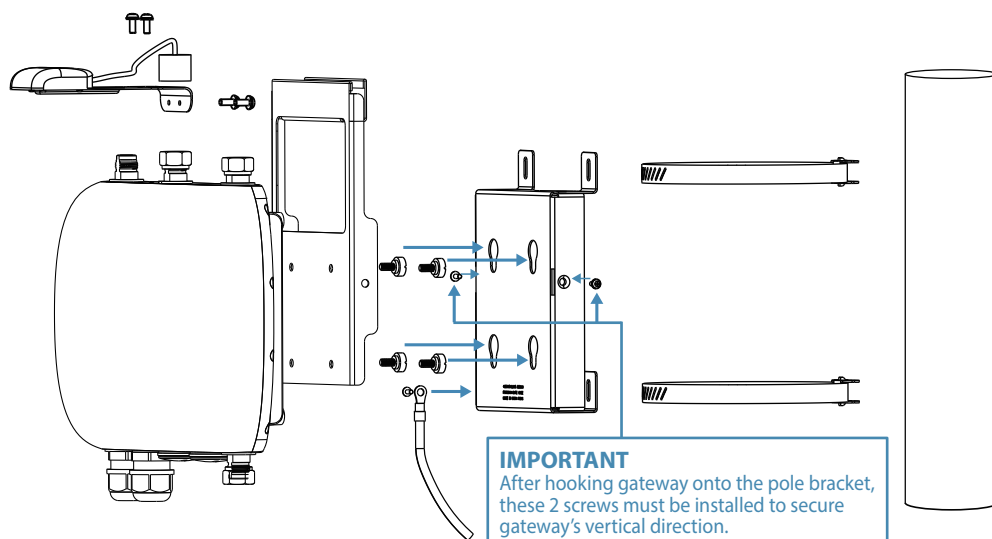


Hose Clamp



Maximum 55Kg.cm
torque for hose clamp

Hook Gateway onto the Pole Bracket



IMPORTANT
After hooking gateway onto the pole bracket,
these 2 screws must be installed to secure
gateway's vertical direction.

Connecting Earth Ground to Unit

Warning

The equipment has a separate protective earthing terminal on the chassis that must be permanently connected to earth ground to adequately ground the chassis and protect the operator from electrical hazards.

Caution

Before equipment installation begins, ensure that a service personnel has attached an appropriate grounding lug to the grounding cable that you supply.

Power installation must be performed with qualified electrician and followed with National Electrical Code, ANSI/NFPA 70 and Canadian Electrical Code, Part I, CSA C22.1.

To connect earth ground to Unit

- 1 Connect one end of the grounding cable to a proper earth ground.
- 2 Place the grounding lug attached to the grounding cable over the protective earthing terminal.
- 3 Secure the grounding lug to the protective earthing terminal with the washers and screws.
- 4 Dress the grounding cable and ensure that it does not touch or block access to other components.

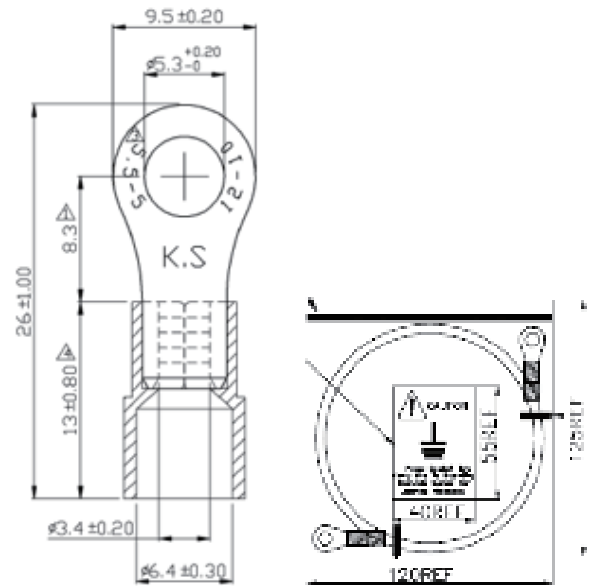
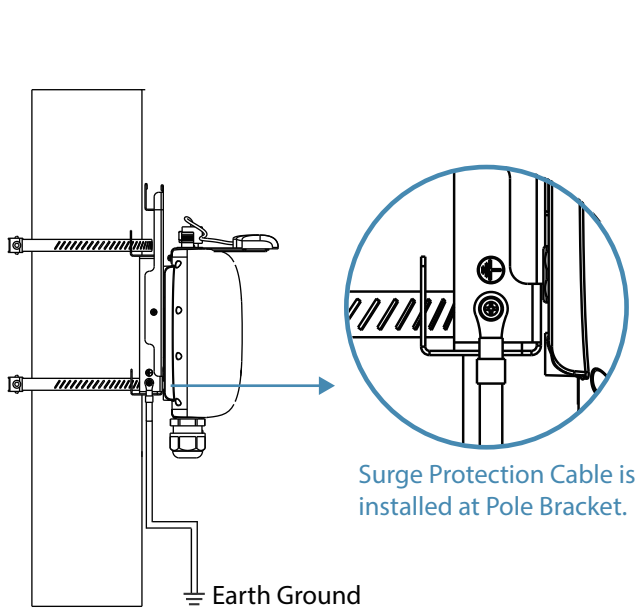
Warning

- At first before powered on, connect the frame of the unit to earth.
- For earthing wire, green-and-yellow insulation is required and the cross-sectional area of the conductor must be more than 10 AWG.

The product shall be installed by a qualified service person and the installation shall conform to all local codes.

Install Surge Protection Cable

Surge Protection Cable must be properly connected to gateway's Pole Bracket and earth ground.



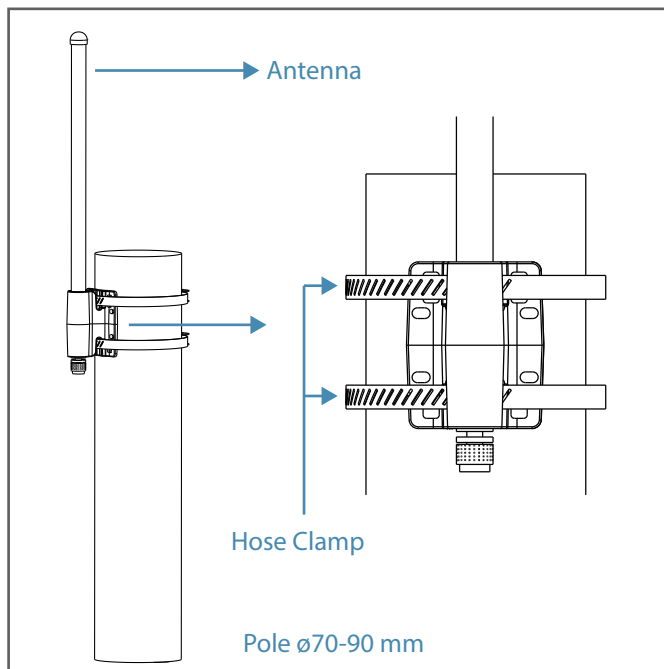
Install Coaxial Surge Protector to LoRa, LTE & GPS RF Ports

Recommend to add external RF coaxial Surge Protector to enhance protection level and must be connected to the Lighting Protection System, lighting rod to earth ground.

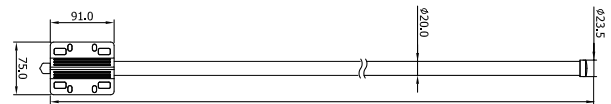


P8AX09-6G-N/MF

Install 8dBi LoRa Antenna to Pole



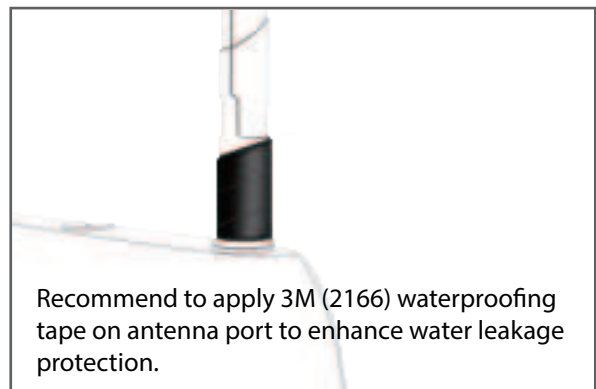
LoRa Antenna



1600 ± 5 (868MHz)

1500 ± 5 (920MHz)

Antenna port water leakage enhancement



Additional Surge Protection to PoE and DC Ports

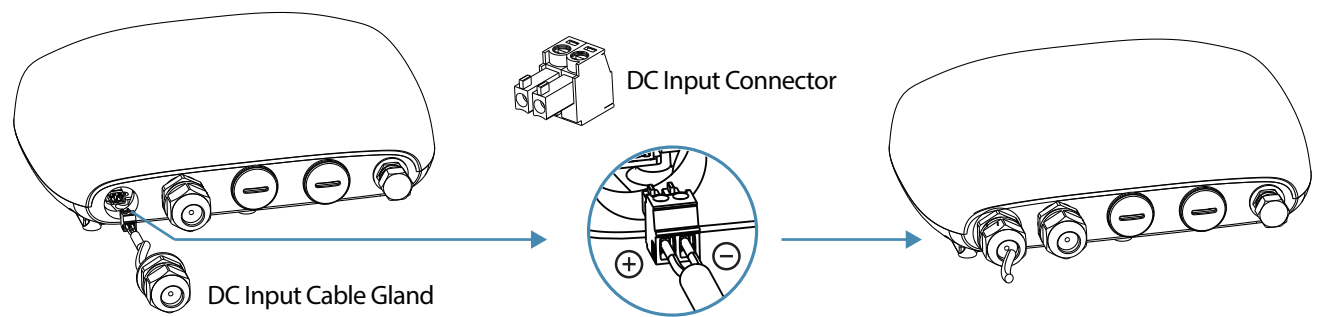
You can add external surge protector to PoE and 11-57 VDC ports to enhance its surge protection level.



PoE Port Surge Protector (Microsemi PD-OUT/SP11)

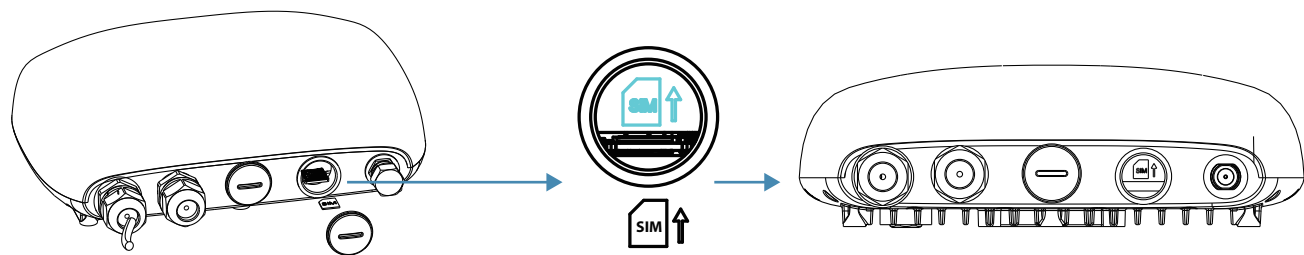
Install 11-57 VDC Port Cable

Install + & - DC wires to the green color DC Input Connector provided in the box before inserting it to gateway's 11-57 VDC port.



Install SIM Card

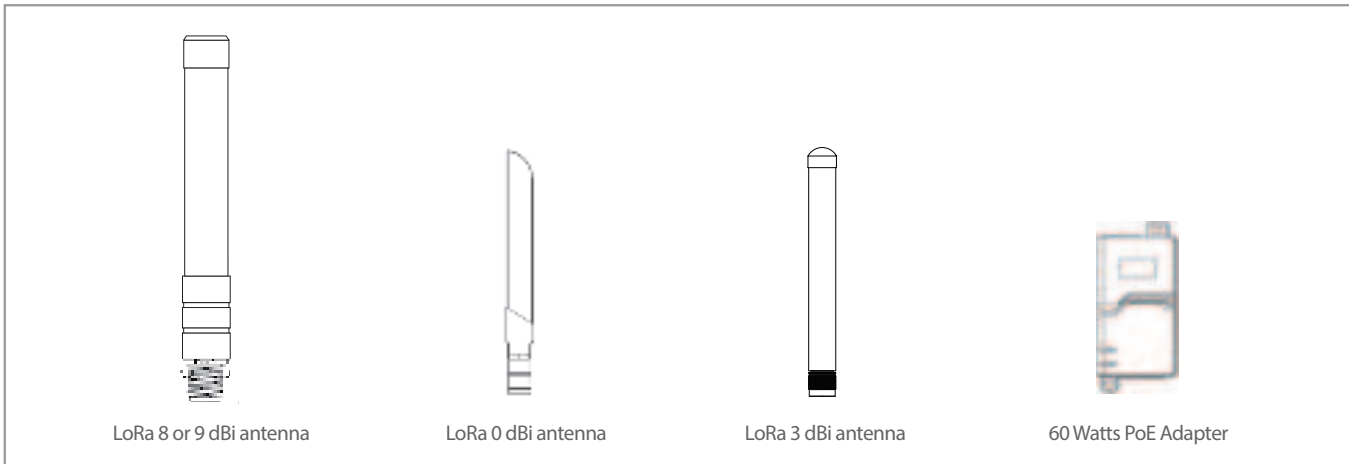
Must insert SIM card at correct direction as shown in the SIM card port mylar.



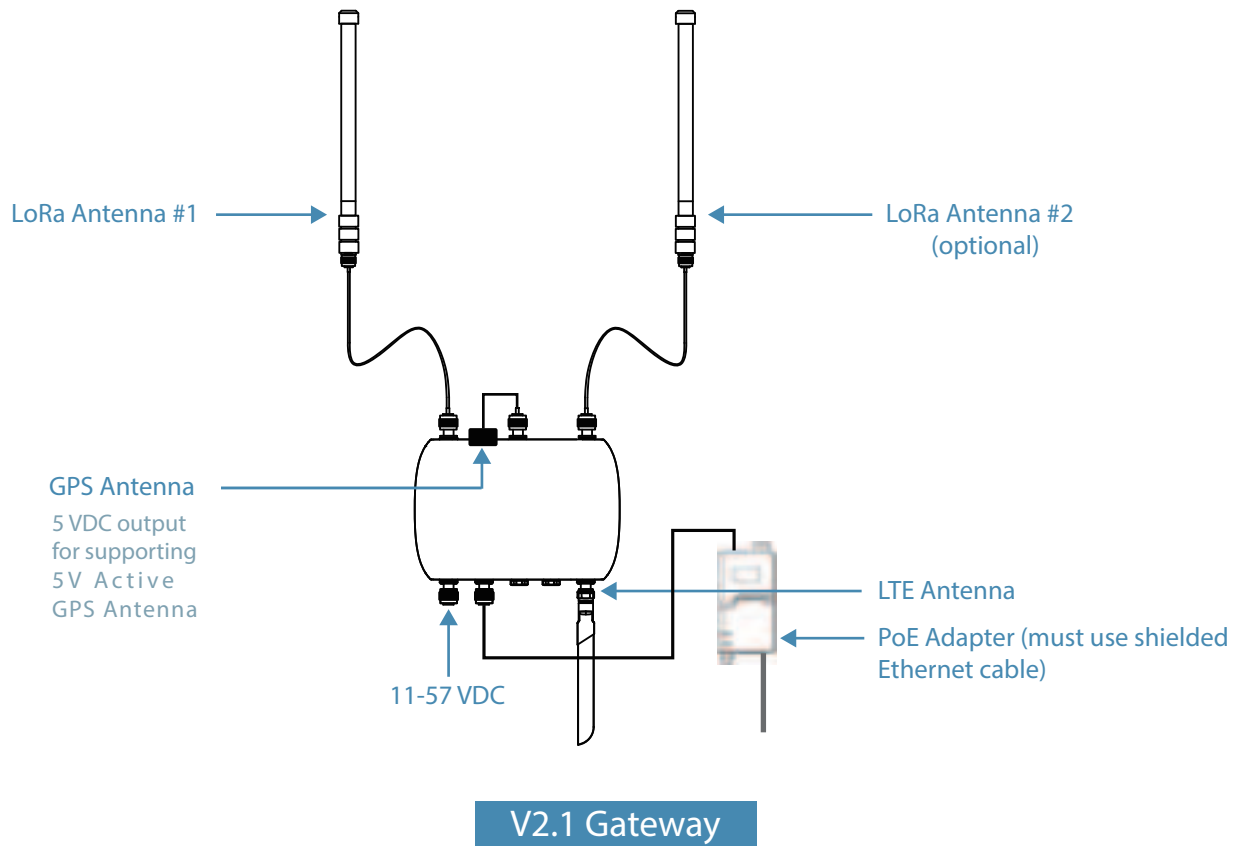
4 Optional Accessories Recommended

Items

- LoRa 8 or 9 dBi antenna
- LoRa 0 dBi antenna (optional, for direct connecting to Gateway N-Type connector application, without antenna extension cable)
- LoRa 3 dBi antenna (optional, for direct connecting to Gateway N-Type connector application, without antenna extension cable)
- PoE Adapter (60 Watts)



5 Cabling



Caution

Must make sure all antennas are installed properly before apply PoE power to the gateway. For un-connected N-Type Antenna Port, MUST install a " N-Type Water Protection Cap" to prevent water leaking into the device. " N-Type Water Protection Caps" are supplied with the gateway. MUST not install or remove GPS, LoRa or LTE Antenna when DC power is applied to the Gateway. It may damage the device.

Surge Protection Cable must be properly connected to gateway housing and earth ground.

6 Network Access

The backhaul network configuration on Outdoor LoRa Gateway supports several connection types which can be selected as primary and secondary WAN. When device power up, it tries to bring up primary WAN interface. If primary WAN is not available, the device will try to bring up the secondary WAN interface. Device still continue to try to monitor the availability of the primary WAN interface. Once primary interface is ready, device will switch to primary WAN immediately and shutdown secondary WAN.

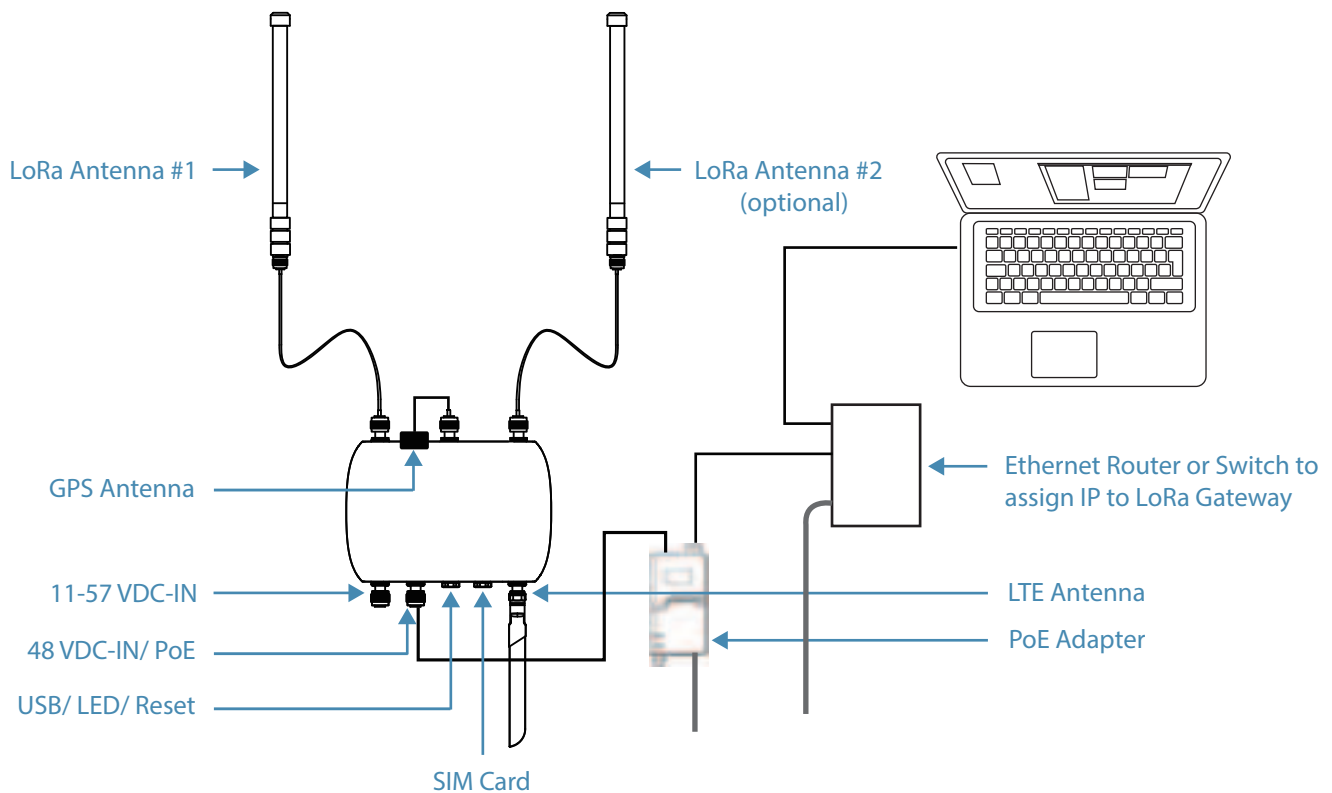
Use Default Configuration

The primary WAN is configured as Ethernet with DHCP client through the PoE connectivity. On the device with LTE support, LTE is configured as secondary WAN. In the installation environment, there is no extra configuration is needed if a DHCP server is available through Ethernet connection. For making device to have sufficient interface parameters, following information has to be supplied by DHCP server:

- [Device IP]
- [Device Netmask]
- [Default Gateway]
- [DNS server]

Changing Configuration

If default configuration does not fit the usage in installation environment, please use setup showed in following photo to change configuration. You will need a Router that have DHCP server to offer IP to Outdoor LoRa Gateway, or use a switch/ hub and running a DHCP server on PC for the same purpose. After device acquired IP, you need to use PC to access device. As for the detail of changing configuration, please refer to User Manual.



V2.1 Gateway

WAN Page

This page describes the backhaul configuration. There are three kinds of backhaul which are Ethernet over PoE, WiFi client mode and LTE (if both LTE module and SIM card are installed) and can be selected and configured through their own settings.



The screenshot displays the WAN Settings page in a web browser. The browser's address bar shows the URL 192.168.1.238. The page has a sidebar on the left with navigation links: STATUS, WAN, NTP, Management, and LRR Log. The main content area is titled "WAN Settings" and contains several sections:

- Primary WAN Type:** Radio buttons for Ethernet (selected), WiFi, and LTE.
- Secondary WAN Type:** Radio buttons for Ethernet, WiFi, LTE, and None.
- Ethernet Settings:** Ethernet IP Type with radio buttons for Static (selected) and DHCP.
- WiFi Client Settings:** WiFi IP Type with radio buttons for Static and DHCP; WiFi Security Type with radio buttons for Open (selected), WPA1-PSK, and WPA/WPA1-PSK; WiFi SSID with a text input field containing "PONG_AP"; and WiFi WPA Passphrase with a password input field and a checkbox for "Show password(8-63 characters or 64 hex digits)".
- LTE Settings:** LTE Power with radio buttons for Enable (selected) and Disable; LTE APN with a text input field containing "any"; LTE Username with a text input field containing "any"; and LTE Password with a password input field.

At the bottom right of the settings area is a "Apply" button.



WARNING :

HOT SURFACE DO NOT TOUCH !!

Before touching it, special attention or protection is necessary.

WARNING :

This equipment is intended to be used in a Restricted Access Location, with access limited to SERVICE PERSONAL and USERS authorized to be in that location.

Federal Communication Commission Interference Statement

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 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 Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

IMPORTANT NOTE

Radiation Exposure Statement:

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

Country Code selection feature to be disabled for products marketed to the US/CANADA

Professional installation instruction

Please be advised that due to the unique function supplied by this product, the device is intended for use with our interactive entertainment software and licensed third-party only. The product will be distributed through controlled distribution channel and installed by trained professional and will not be sold directly to the general public through retail store.

1. Installation personal

This product is designed for specific application and needs to be installed by a qualified personal who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.

2. Installation location

The product shall be installed at a location where the radiating antenna can be kept 40cm from nearby person in normal operation condition to meet regulatory RF exposure requirement.

3. External antenna

Use only the antennas which have been approved by the applicant. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC/IC limit and is prohibited.

4. Installation procedure

Please refer to user's manual for the detail.

5. Warning

Please carefully select the installation position and make sure that the final output power does not exceed the limit set force in relevant rules. The violation of the rule could lead to serious federal penalty.