

1. Safety Precautions

Warning

- Antenna installation is dangerous, please read the following safety precautions before operation to avoid casualties caused by misoperation.
 - Do not install the antenna near power supplies, street lights, power supply boxes, or other places that can easily cause electric shock. Be sure not to touch the wires during installation, otherwise it may cause serious casualties.
-

(1) Please choose a safe installation location, which away from power cords and other cables, to avoid the danger of electric shock or entanglement in cables.

(2) Please do not install the antenna on your own, and try to confirm the installation location and installation procedure with other installers in advance.

(3) In the case that it is necessary to erect the pole, please pay attention to the cooperation of multiple people to avoid injury.

(4) Please be sure to pay attention to the following when installing the antenna: it is forbidden to stand on a metal ladder to install the antenna, and do not install it in wet or windy weather; Please wear appropriate clothing, shoes with insulated rubber soles, and rubber gloves when installing.

(5) If the antenna, RF cable or other mounting accessories are dropped from a height, please get out of the way as soon as possible to avoid electric shock and dropped items smashed.

(6) Please call for help immediately in the event of an emergency such as electric shock, .

2. Installation Precautions

- The TLM101 antenna is an outdoor omnidirectional MIMO overlay antenna, which is suitable for outdoor high towers with radiation around the roof, and is often installed high location. Surrounding buildings will have a loss effect on the transmission and reception of antenna signals, and the installation should be based on the specific communication quality requirements install the antenna at a certain height from the ground. At the same time, the antenna should avoid the influence of metal obstacles, wall shields, etc.
- It is recommended that the AP, outdoor antenna, and antenna arrester be grounded separately, and if the AP is already grounded, the antenna and antenna protector can also be choose not to ground separately.

3. Select the Installation Location

Generally speaking, the antenna is mainly installed with poles in outdoor high places, such as communication towers, rooftops, etc.

The higher the position, the greater the ground coverage and the better the effect. Try to use a short cable to connect the antenna to the AP.

4. Antenna Installation

The antenna is installed at a high place outdoor, and the antenna comes with all mounting accessories (please bring your own installation tools).

If you choose to install in a way other than that described in this manual, please prepare the required installation accessories.

4.1 Installation Accessories and Tools

The accessories required as follows:

- 4 x M8 bolts (fixed to the antenna)
- 2 x M8 U-shaped screws
- 4 x M8 nuts
- 8 x $\phi 8$ mm flat pads
- 8 x $\phi 8$ mm pads
- 1 x L-shaped pallet
- 2 x U-shaped clip plates

The tools required as follows:

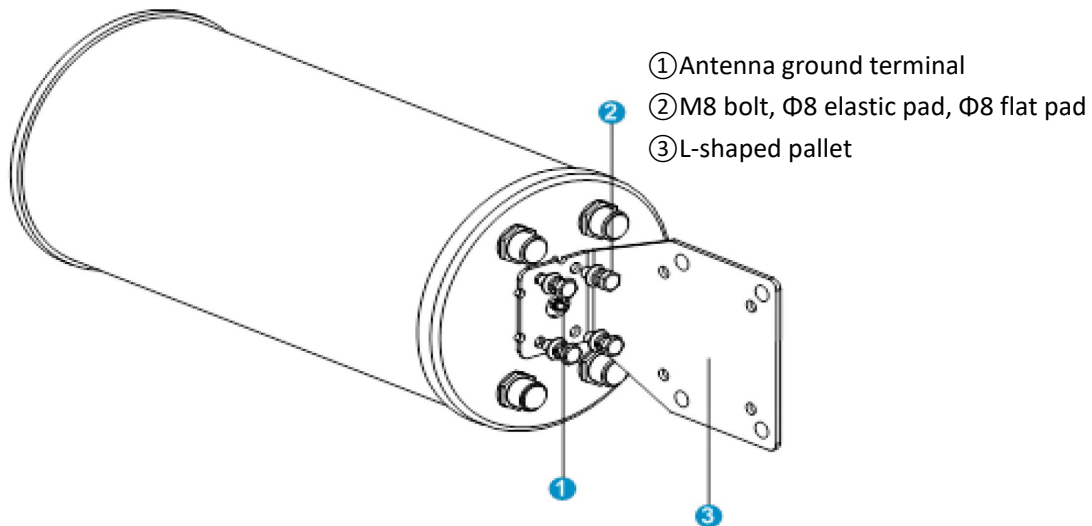
- 1 x monkey wrench (user-provided)
- 1 x cutting knife (user-provided)
- 1 x strapping strap (user-provided)
- Ground lead (user-provided)
- Several waterproof cement tapes (user-provided)
- 1 x Diameter $\phi 40 \sim \phi 70$ mm pole (user-provided)

4.2 Pole Installation

The TLM101 antenna is mounted to the pole with a clamp code.

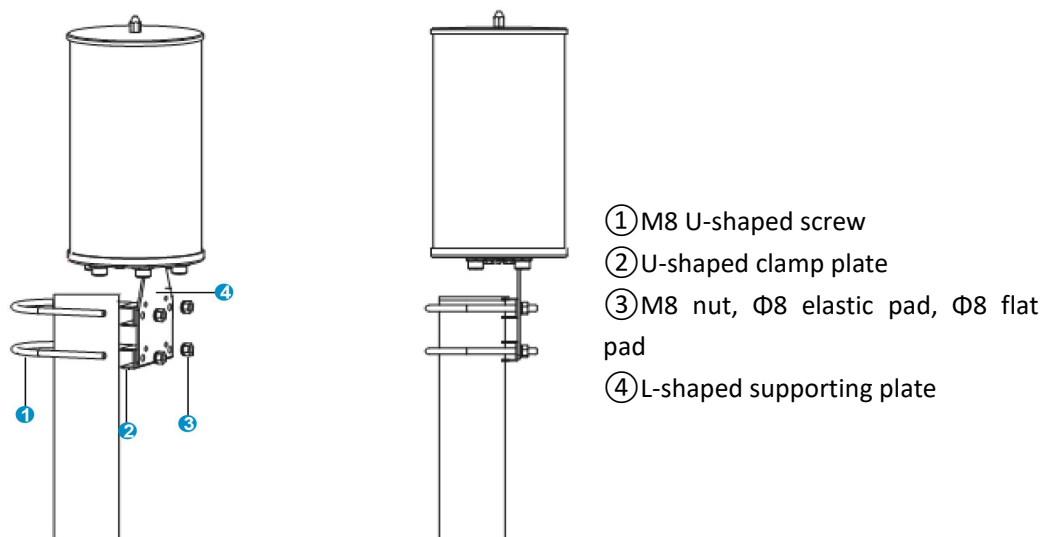
(1) Tighten the L-shaped pallet (③ in Picture 4-1) with 4xM8 bolts, 4xΦ8 bolster pads, and 4xΦ8 flat pads (② in Picture 4-1) in the screw hole of the line base-plate.

***Picture 4-1: Fixing the L-shaped pallet to the antenna**



(2) Tighten 2xM8 U-shaped screws with 2xU-shaped clamp plates and L-shaped support plates with 4xM8 nuts, 4xΦ8 elastic pads and 4xΦ8 flat pads, and pay attention to the antennas to be perpendicular to the ground.

***Picture 4-2: Antenna installation schematic plot of the TLM101**



(3) After the installation is completed, the grounding cable needs to be connected, please ensure that the grounding terminal is reliably grounded.

4.3 Install the overhead lightning protector

Disclaimer

- The lightning protector is not included, please purchase it separately.
-

Since the antenna is installed outdoor, it is necessary to install the lightning protector, and the lightning protector can be installed on the interface of the AP or antenna's connector. Then connect the RF cable. After the installation is completed, you need to connect the grounding cable, please ensure that the grounding terminal is reliably grounded.

***Picture 4-3: Installing a lightning protection device on the antenna**



4.4 RF Cable Requirements

High quality, low loss RF cables are recommended. Losses in coaxial cables will be increased as the frequency increases, which will lead to the growing of signal attenuation; And the length of the cable can be as short as possible, so as to avoid unnecessary loss.