



LITE, R1.0

Installation Guide

Revision 2, updated in May, 2014

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1 Preface

1.1 History of changes

The history of changes is shown in the following table:

TABLE 1. History of changes

Revision	Updates	Update date
1	1st revision	August, 2013
2	In Chapter 2, some warnings are added to meet the requirements.	May, 2014

1.2 Scope of the document

This document provides the guidance to install and commission the LITE system.

INFO

This document only concerns LITE system release 1.0 (LITE R1.0 in short) without specific statements in the context.

1.3 Intended audience

This document is prepared for the use of technicians who are responsible for the system installation and commissioning.

WARNING!

PERSONS HANDLING THIS EQUIPMENT MAY BE EXPOSED TO HAZARDS WHICH COULD RESULT IN PHYSICAL INJURY! IT IS THEREFORE MANDATORY TO CAREFULLY READ AND UNDERSTAND THIS DOCUMENT.

1.4 Document structure

The document is comprised of the following chapters.

TABLE 2. Document structure

Chapter	Title	Subject
Chapter 1	Preface	Provides an introduction on who and how to use this document.
Chapter 2	Before installation	Provides some information about the preparations and precautions before the installation.
Chapter 3	Mounting steps	Provides the mounting steps.
Chapter 4	Cabling	Provides the cabling guidance.

2 Before installation

2.1 Precautions

The radiation emitted by the antenna is low-power radiation and does not exceed the safety regulations. If the radio is operated without antenna, the safety limit is exceeded near the waveguide openings.

WARNING!

THE INSTALLATION MUST ONLY BE PERFORMED BY A QUALIFIED TECHNICIAN.

WARNING!

RISK OF PERSONAL INJURY. THIS PRODUCT MAY NEED TO BE INSTALLED ON A HIGH-RISE STRUCTURE SUCH AS A TOWER OR MAST. WHEN INSTALLING THE PRODUCT, WEAR A SAFETY HARNESS AND OTHER RELEVANT PROTECTIVE GEAR. IN ADDITION, FOLLOW ALL OCCUPATIONAL HEALTH AND SAFETY REGULATIONS APPLICABLE TO THE INSTALLATION.

WARNING!

HAZARDOUS ENERGY EXISTS WITHIN THE DEVICE. ALWAYS BE CAREFUL TO AVOID ELECTRIC SHOCK.

WARNING!

THE EQUIPMENT SHOULD BE LOCATED IN RESTRICTED ACCESS LOCATIONS.

WARNING!

WHEN INSTALLING THE UNIT, ALWAYS MAKE THE GROUND CONNECTION FIRST AND DISCONNECT IT LAST.

WARNING!

THE DEVICE MUST BE CONNECTED PERMANENTLY TO THE PROTECTION GROUND BEFORE AN OPERATION. THE CROSS-SECTIONAL AREA OF THE PROTECTIVE GROUND CONDUCTOR MUST BE AT LEAST 18AWG.

WARNING!

THE DEVICE MUST BE FIXED SECURELY ON RELIABLE OBJECTS.

WARNING!

REINFORCED INSULATION OR DOUBLE INSULATION MUST BE PROVIDED TO ISOLATE DC SOURCE FROM AC MAIN SUPPLY WHICH COMPLIES WITH REQUIREMENTS IN IEC 60950-1 BASED SAFETY STANDARDS.

The following restrictions must be considered before installing the equipment:

- The weather conditions must be taken into account when installing the equipment. The maximum and minimum temperatures at the installation location must remain within the acceptable range. For cable installation temperatures, refer to the cable manufacturer's specifications.
- The mounting pole structure must be stable enough to keep the antenna within its 3dB beam-width in all foreseeable wind conditions.
- Do not install the equipment at a location where an unauthorized person can have access to the antenna radiation region or to the equipment itself.

- When the equipment is installed in regions where the temperature falls below zero degree Celsius during the winter, ice can accumulate on the installation tower structure. Take precautions to avoid the breakage of antennas due to falling ice. Suitable protection can be achieved, by installing a metal grating above the antenna.

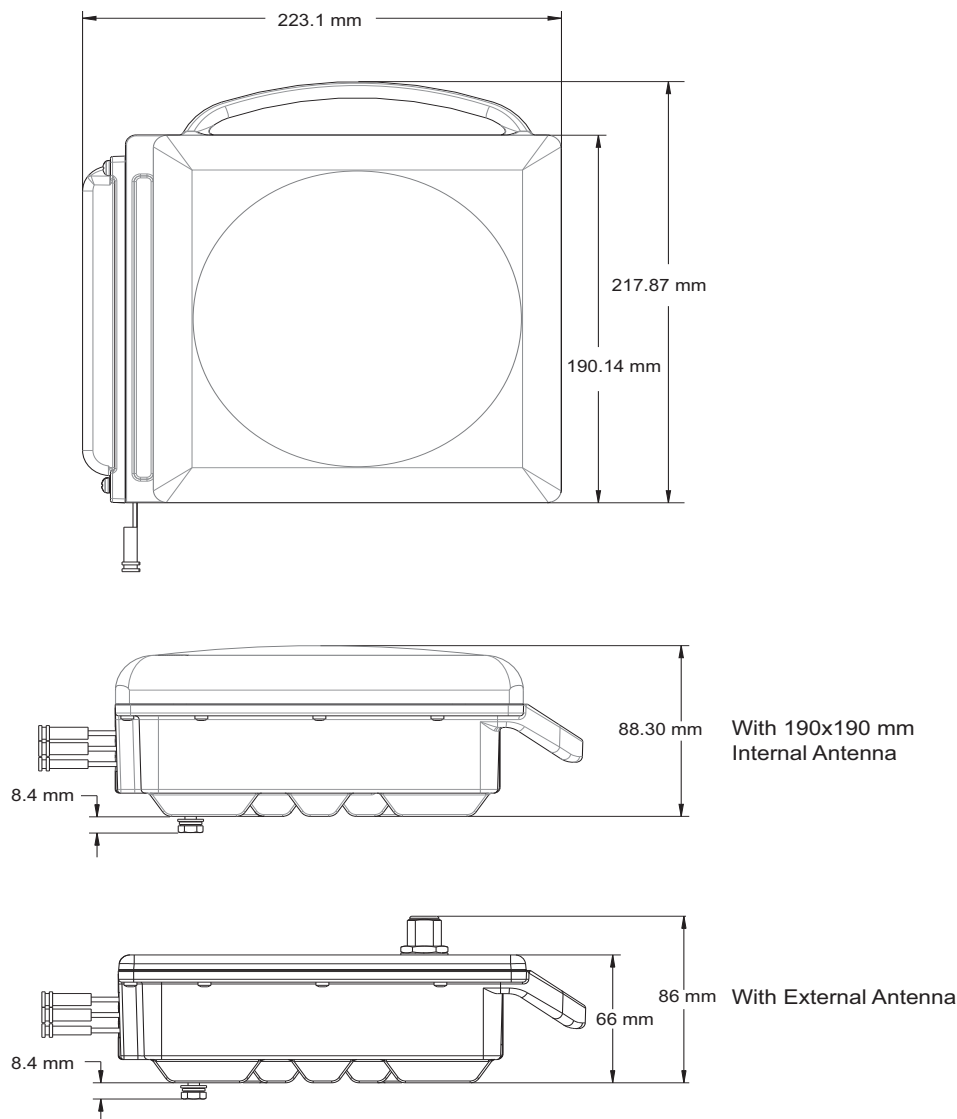
2.2 Needed parts

Before starting the installation, verify that you have the correct equipment and that the equipment has not been damaged during transportation.

The following parts are needed in the normal installation of the equipment:

- 1 X LITE equipment;

FIGURE 1. LITE appearance (with internal antenna)

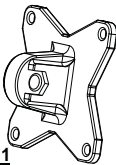


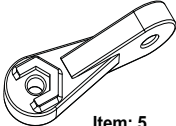


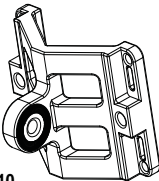


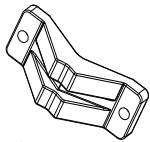
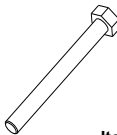



For more information on the physical design of the equipment, refer to *Volume 1, Chapter 4 Mechanical structure and interfaces*.

- 2 x pre-assembled outdoor Ethernet cables (length options: 1 m, 2 m, 5 m, 10 m, 30 m, 50 m, 70 m, 90 m);
- 1 x grounding cable;

- (Only needed when PoE+ function is required) 1 x Ethernet cable for LITE internal use (length: 0.12 m);
- (Only needed when external antenna is used) 2 x pre-assembled antenna cable for sub-6 GHz with connectors (length options: 1 m, 2 m, 3 m, 4 m, 5 m); and
- 1 set of mounting kit.

FIGURE 2. Mounting kit items

 <p>Item: 1 Antenna/enclosure base bracket Qty: 1</p>	 <p>Item: 2 Flat washer M5 Qty: 4</p>	 <p>Item: 4 Nut M5 Qty: 4</p>	 <p>Item: 5 Arm bracket Qty: 1</p>
 <p>Item: 6 Bolt M8x40 Qty: 4</p>	 <p>Item: 8 Washer spring M8 Qty: 4</p>	 <p>Item: 10 Wall/Poll bracket Qty: 1</p>	
 <p>Item: 7 Washer flat M8 Qty: 4</p>	 <p>Item: 9 Nut M8 Qty: 2</p>		
 <p>Item: 11 Clamping bracket Qty: 1 SHEET 1 OF 4</p>	 <p>Item: 12 Bolt M8x70 Qty: 2</p>	 <p>Item: 13 Bolt M5x16 Qty: 4 MT-120018/A only</p>	

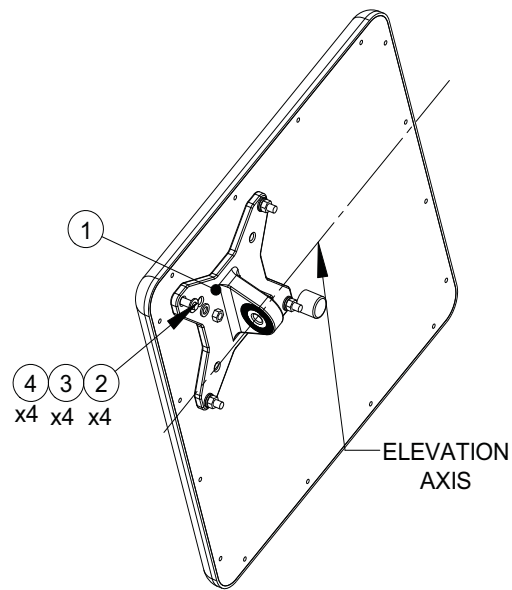
INFO

How to attach the mounting kit to the equipment? The following steps will be used in the equipment mounting steps.

Steps:

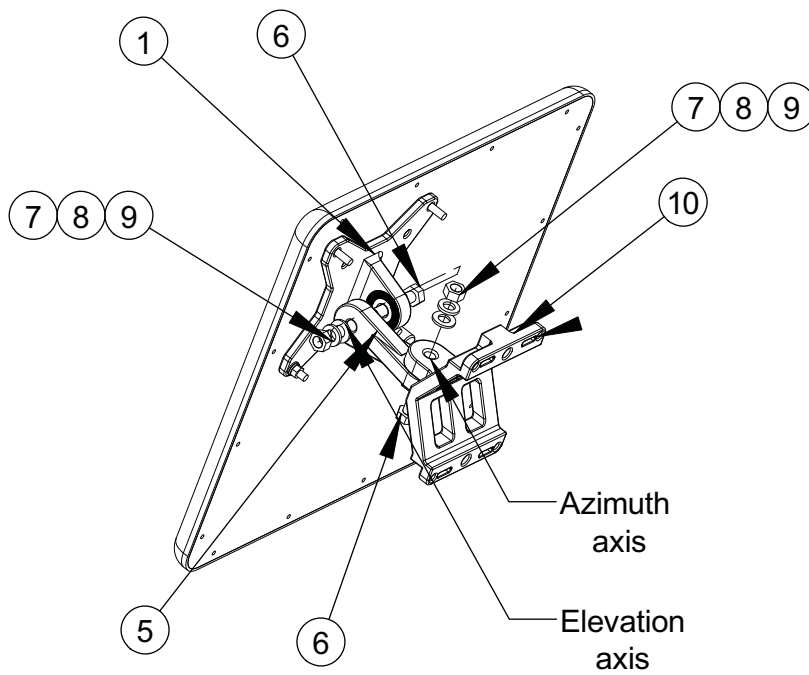
1. Attach item 1 to the back of the equipment using item 2, 3 and 4 as shown. Verify that the orientation of the hole in item 1 is aligned with the elevation axis. Using tightening torque of 5.7 N/m.

FIGURE 3. Step 1



2. Connect base bracket as shown. Connect item 5 to item 1 (mate the knurled surfaces) using item 6, 7, 8 and 9. Note that the bolt head shall be positioned in the socket of item 1. Using tightening torque of 24 N/m to the azimuth and elevation hardware.

FIGURE 4. Step 2



3 Mounting Steps

The equipment can be mounted in the following four options:

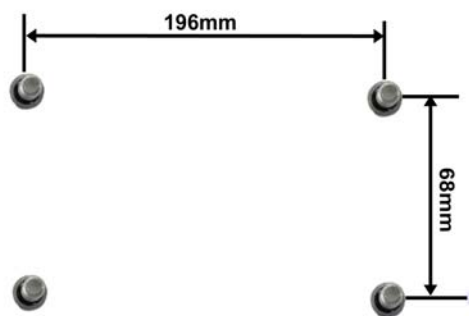
- Option 1: on the wall;
- Option 2: on the pole (1' ~ 1.75' diameter);
- Option 3: on the pole (1.75' ~ 3' diameter); or
- Option 4: on the pole (3' ~ 4.55' diameter).

3.1 Mounting on the wall

Steps:

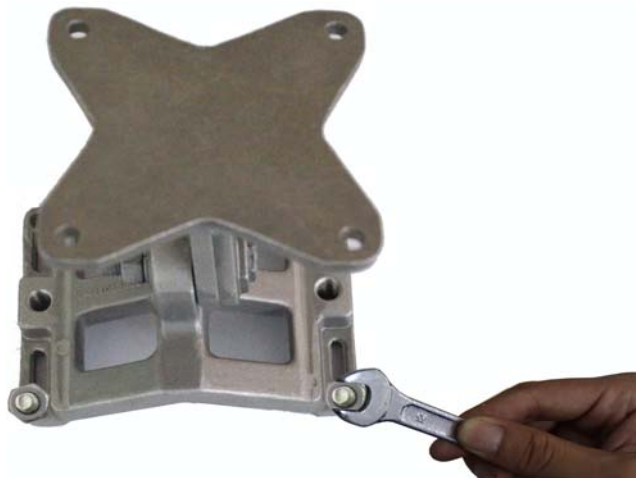
1. Install the M6 x 60 expansion bolt in the wall.

FIGURE 5. Step 1



2. Attach the mounting kits to the wall by M6 x 60 expansion bolt.

FIGURE 6. Step 2



3. Attach the mounting kits to the equipment. Refer to *Chapter 2 Before installation*.

FIGURE 7. Step 3



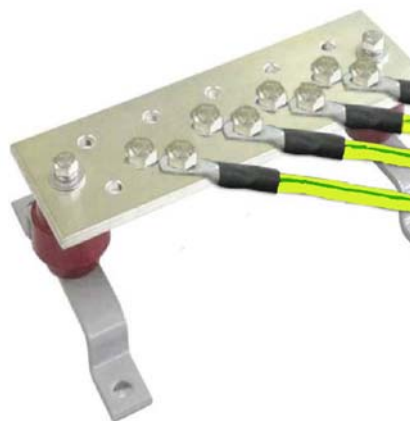
4. Tighten the grounding cable in the equipment.

FIGURE 8. Step 4



5. Install the grounding cable with the enclosed parts.

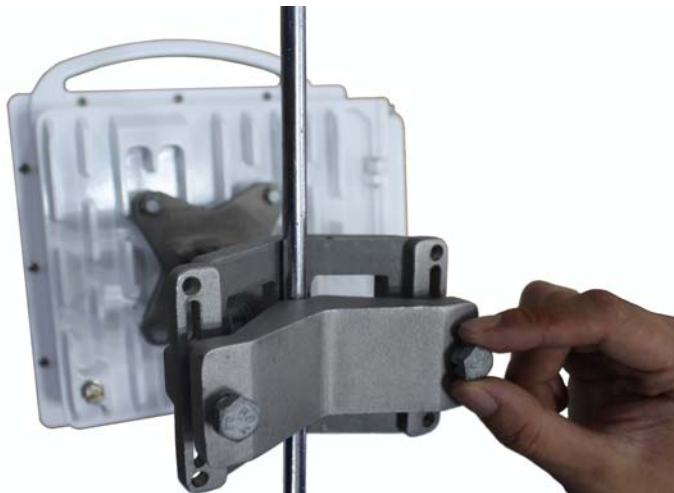
FIGURE 9. Step 5



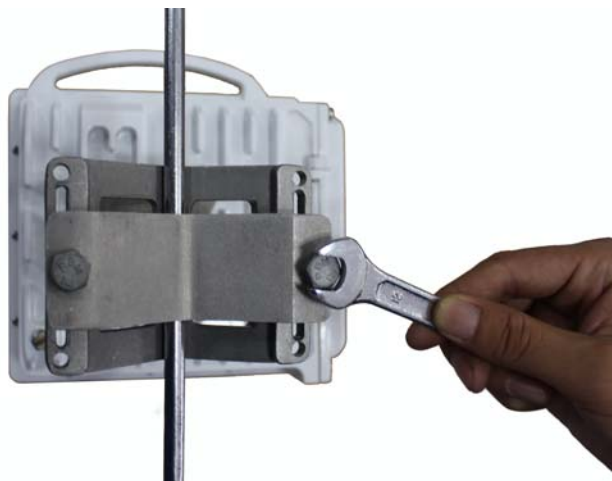
3.2 Mounting on the pole (1' ~ 1.75' diameter)

Steps:

1. Attach the mounting kits to the equipment. Refer to *Chapter 2 Before installation*.
2. Pre-assemble the mounting bracket on the pole.

FIGURE 10. Step 2

3. Tighten the nut with spanner.

FIGURE 11. Step 3

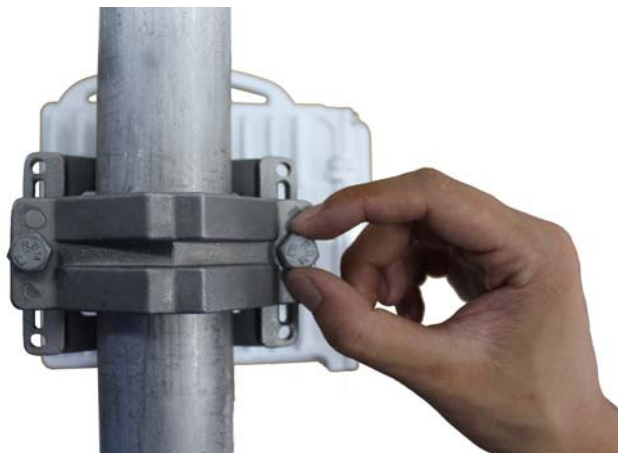
4. Tighten the grounding cable in the equipment.
5. Install the grounding cable with the enclosed parts.

3.3 Mounting on the pole (1.75' ~ 3' diameter)

Steps:

1. Attach the mounting kits to the equipment. Refer to *Chapter 2 Before installation*.
2. Pre-assemble the mounting bracket on the pole.

FIGURE 12. Step 2



3. Tighten the nut with spanner.

FIGURE 13. Step 3



4. Tighten the grounding cable in the equipment.
5. Install the grounding cable with the enclosed parts.

3.4 Mounting on the pole (3' ~ 4.55')

Steps:

1. Attach the mounting kits to the equipment. Refer to *Chapter 2 Before installation*.
2. Pre-assemble the mounting bracket on the pole.

FIGURE 14. Step 2



3. Tighten the nut with a flat blade screwdriver.

FIGURE 15. Step 3



4. Tighten the grounding cable in the equipment.
5. Install the grounding cable with the enclosed parts.

4 Cabling

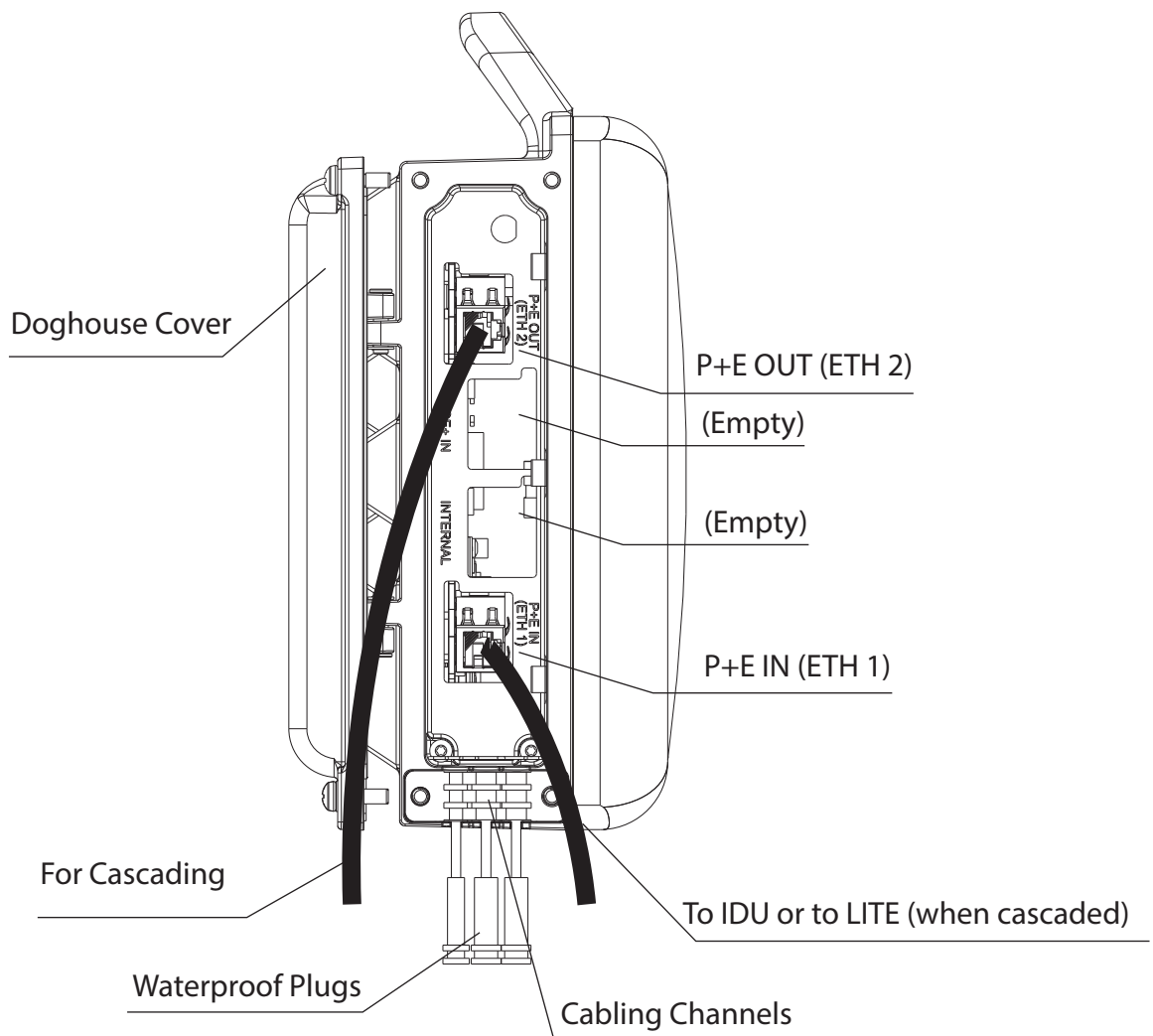
4.1 Ethernet cable connection in the doghouse

Ethernet cables are connected in two options:

- P+E
- PoE+

4.1.1 P+E connection

FIGURE 16. P+E connection



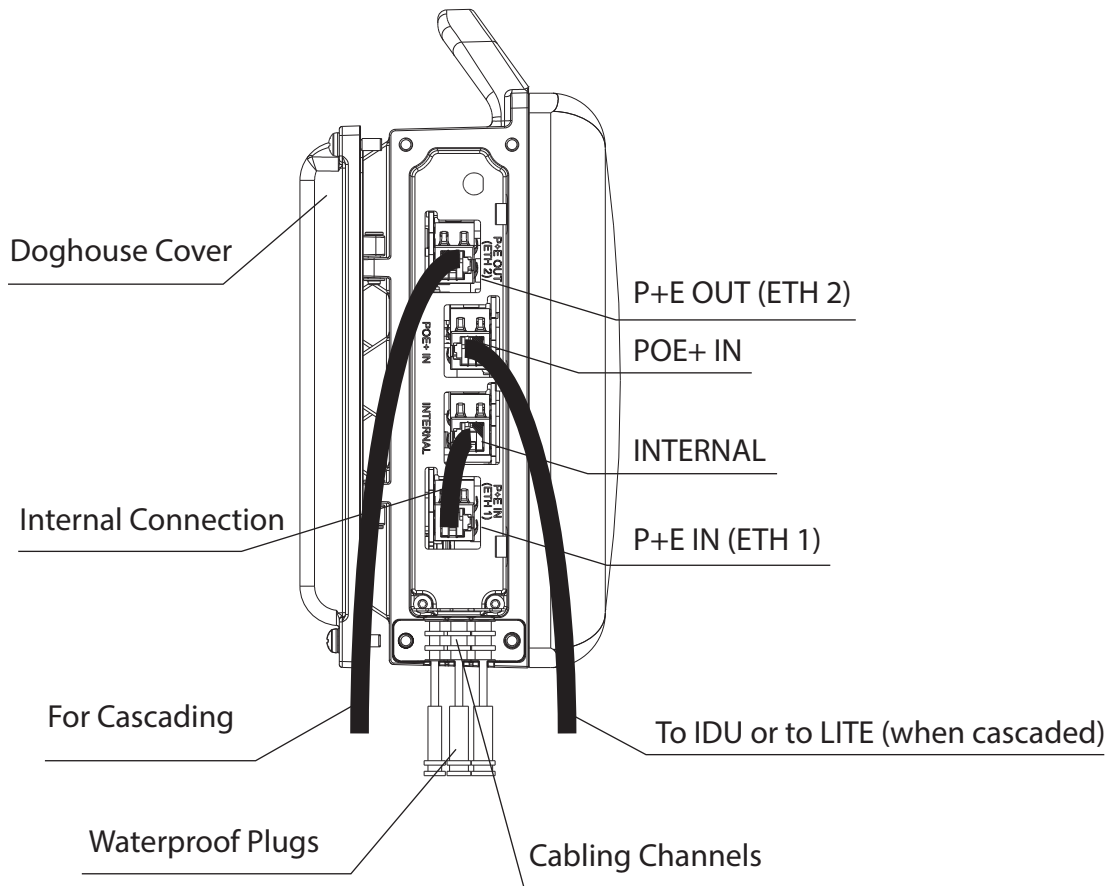
Steps:

1. Unscrew the doghouse cover and open it.
2. Unplug one of the waterproof plugs and connect the Ethernet cable from P+E IN (ETH 1) interface to an IDU outside through the cabling channel or to a LITE to which it is cascaded.

3. (Optional) Unplug another waterproof plug and connect the Ethernet cable from P+E OUT (ETH 2) interface to a LITE for cascading through the cabling channel.
4. Close the doghouse.

4.1.2 PoE+ connection

FIGURE 17. PoE+ connection



Steps:

1. Unscrew the doghouse cover and open it.
2. Connect the INTERNAL interface and P+E IN (ETH 1) interface with a short Ethernet cable.
3. Unplug one of the waterproof plugs and connect the Ethernet cable from POE+ IN interface to an IDU outside through the cabling channel or to a LITE to which it is cascaded.
4. (Optional) Unplug another waterproof plug and connect the Ethernet cable from P+E OUT (ETH 2) interface to a LITE for cascading through the cabling channel.
5. Close the doghouse.

4.2 External antenna connection

When external antenna is used, the following picture shows the connection of the antenna cables.

FIGURE 18. Antenna cable connection

