An Expert in Optical Communications

User Manual

AN5121-4GP

PON Optical Network Unit

Version: A

Code: MN000001901

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FiberHome Telecommunication Technologies Co., Ltd.

Version

Version	Description
A	Initial version.

Contents

1 Safety Precautions

Large-power laser is dangerous to human body, especially to eyes. Do not face the pigtail fiber of the optical transmitter or the end of the fiber cable connector to eyes.

Power sockets with too heavy load or damaged cables and connectors may cause electric shock or fire. Regularly check related electric cables. If any electric cable is damaged on appearance, replace the electric cable immediately.

When inserting the power connector of the device into an external power socket, make sure that the external power socket is close enough to the device, for easy operation.

If the power cable of the device is straightly connected to an external power supply, switch off the external power supply before connecting the power cable. Hot-line operation is prohibited.

Do not fix the product on an unstable support.

Do not use the device when the grounding cable is damaged or no proper grounding cable is used. Perform regular electric inspection. If the grounding cable is damaged, replace it immediately.

Install the silicon rubber waterproof band into the recess on the lower cover of the device case to ensure water proofing.

2 Product Introduction

The following introduces the functions, network applications and technical specifications of the AN5121-4GP.

2.1 Product Overview

The AN5121-4GP is a GPON FTTB / FTTV type remote terminal specially developed for the network access at the outdoor environment, the video monitoring, the Wi-Fi hot spot deployment, etc. It has the data service access and Power over Ethernet (PoE) functions and can form a gigabit GPON system with the FiberHome GPON station central office devices.

The AN5121-4GP has one GPON uplink port, whose uplink transmission distance can reach 20 km, so as to deploy the equipment conveniently. Its four GE interfaces can act as the data and power supply interfaces at the same time, so as to provide the power supply and data services for the downlink equipment.

The PoE function for the AN5121-4GP is to provide the power supply for the remote equipment via the network cable directly. This can lower the deployment costs and difficulty of some types of remote equipment sets.

It can be used together with the assorted protection case. This device features lightning protection, water proofing, power surge prevention, high and low temperature resistance, oxidation resistance, acid, base and corrosion resistance, and high reliability. It can be installed and operates under unfavorable outdoor conditions.

Function

The AN5121-4GP supports the following functions:

- Basic PON functions:
  - Uses the GPON connection in the uplink direction, meeting the ITU-T G.984 standard.
  - Supports multiple authentication modes, including the physical ID authentication, the password authentication, and the logical SN authentication.
  - Supports the downlink data encryption through the AES128 algorithm.
- Basic Ethernet functions:
  - Supports the statistics about the Ethernet interface performance.
  - Supports the Ethernet interface working mode selection. The Ethernet interface can work under the 10 / 100 / 1000 Mbit/s, full-duplex / half-duplex status in the auto negotiation or the forced mode.
  - Supports the LAN-port-based rate control function and the MAC address limit function.
- VLAN related functions:
  - Supports the 802.1P and 802.1Q VLAN protocols.
  - Supports VLAN stacking and selective QinQ.
  - Supports the VLAN transparent transmission and VLAN translation in the 1:1 mode.
  - Supports VLAN tags carried by the multicast packets.
  - Supports the rate limiting function based on VLAN.
- Multicast related functions:
  - Supports the multicast protocols such as the IGMP Snooping and the IGMP V2 / V3.
  - Supports the IPv6 multicast protocols such as the MLD Snooping and the MLD V1 / V2.

- QoS and ACL related functions:
  - Supports the ACL function, which means traffic matching according to the ACL rules.
  - Provides powerful QoS capabilities and supports three scheduling modes: SP, WRR and SP + WRR.
  - Supports the queue mapping. The system can map to the corresponding priority queue according to the 802.1P priority and the DSCP priority.
  - Supports the flow rate control based on the flow classification rule and the re-marking of priority.
  - Supports bandwidth rate control based on the ONU, and guarantees the services with higher priorities.
- Access control functions:
  - Supports the DHCP line label function.
  - Supports the PPPoE+ function, used to identify users exactly.
  - Supports the DHCPv6 protocol (without the status information) and the PPPoEv6 protocol.
- Equipment management and maintenance functions:
  - Supports the local WEB network management function. The operators can log in via the user LAN port to view the information of the AN5121-4GP and modify the logical SN and password of the ONU.
  - Supports managing the ONU remotely in the Telnet mode, and users can view the ONU status information and print the debug information.
  - Supports the log management and status viewing functions, enabling users to obtain the equipment debugging information.
  - Supports alarm reporting and filtering functions.
- Security related functions:

- Supports limiting the quantity of MAC addresses at a certain port.
- Supports the broadcast storm restriction function for the user port and the uplink port.
- Supports protection against various network attacks (including ARP attack, ICMP attack, DOS attack, and BPDU attack).

- Layer-3 related functions:
  - Supports the NAT address translation function.
  - Supports the IPv4 / IPv6 double stacking.
- PoE functions:
  - Supports the IEEE 802.3 AF / AT standard, and the maximum power of the integrated equipment is 120 W.
  - Supports the automatic / manual feed mode.
  - Supports querying the feed status of a port.

Product Model

AN5121-4GP with four GE interfaces.

2.2 Network Application

The AN5121-4GP is mainly used in the FTTB / FTTV type access scenarios, providing the power supply for some equipment sets and the access of the data services for users.

The AN5121-4GP is characterized by its adaptability to multiple outdoor installation scenarios. Therefore, it can serve as the network access equipment in the field or at public locations.

The network of the equipment in the common application scenario is shown in Figure 2.1.

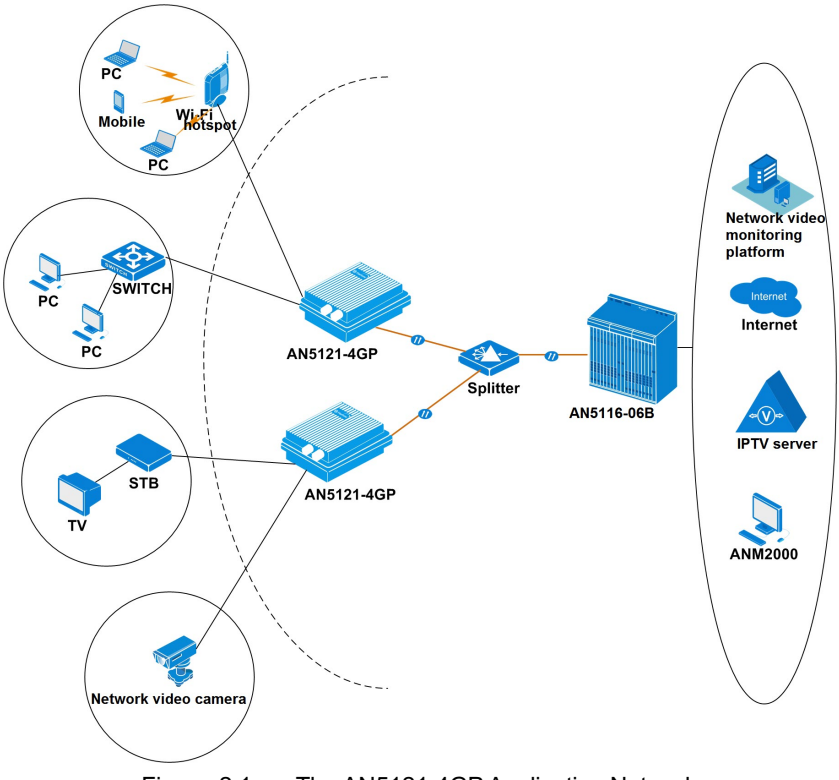


Figure 2.1 The AN5121-4GP Application Network

2.3 Technical Specifications

The technical specifications of the AN5121-4GP are listed in Table 2.1.

Table 2.1 The AN5121-4GP Technical Specifications

Type	Item	Description
Service parameters	VLAN	Supports the IEEE 802.1Q / 802.1P VLANs and VLAN-based selective QinQ. Supports 4095 VLANs at most.

Table 2.1 The AN5121-4GP Technical Specifications (Continued)

Type	Item	Description
	MAC address	The capacity of the system MAC address table is 1K.
	Layer 2 line rate forwarding	All ports support line rate forwarding.
	QoS	Supports eight priority queues at most. Supports the SP, WRR, and SP + WRR scheduling modes. The SP scheduling mode is used by default.
Network side interface	GPON interface	One GPON interface is available, which meets the ITU-T G.984 standard.
User side interface	GE interface	Four GE interfaces are available, whose type is RJ-45. They support 10 / 100 / 1000 Mbit/s full-duplex / half-duplex adaptation. Network cables are category-5 waterproof cables. Supports the PoE function, based on the IEEE 802.3AF / AT standard. For the PoE, the maximum output power of the integrated equipment is 120 (4×30) W, and the maximum output power of a single interface is 30 W.
Mechanical parameters	Waterproof shell size	80mm × 280mm × 340mm (height x width x depth).
	Equipment size	45 mm × 240 mm × 150 mm (H × W × D)
	Weight	<1.5kg
Power supply parameters	AC	AC 220 V

Table 2.1 The AN5121-4GP Technical Specifications (Continued)

Type	**Item**	**Description**
Power consumption parameters	Full load	<130W
	Empty load	<10W
Environment parameters	Operating temperature	-30℃ to 55℃
	Storage temperature	-55℃ to 125℃
	Environmental humidity	0% to 80% (no condensation).

3 Product Appearance

3.1 Appearance

The following introduces the appearance of the AN5121-4GP and the waterproof shell for it.

The AN5121-4GP

The overall appearance of the AN5121-4GP is shown in Figure 3.1.

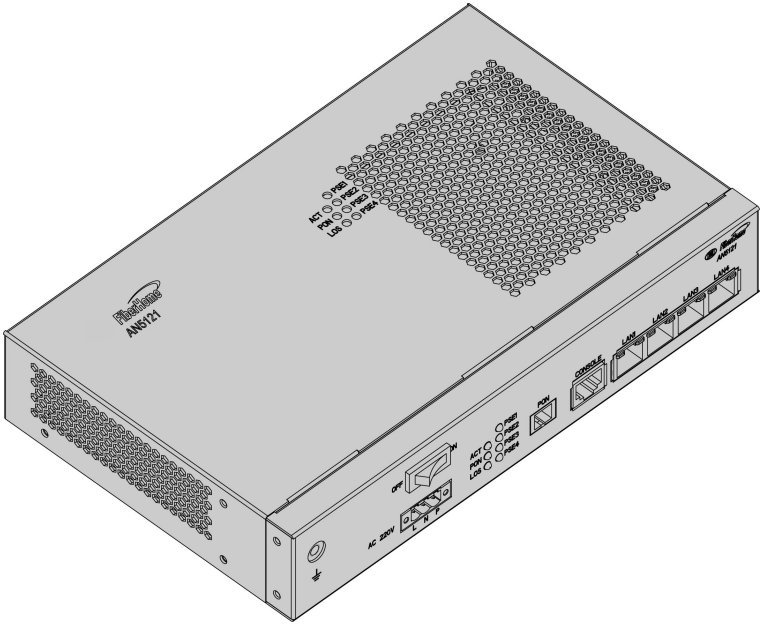


Figure 3.1 The Appearance of the AN5121-4GP

The panel of the AN5121-4GP is shown in Figure 3.2.

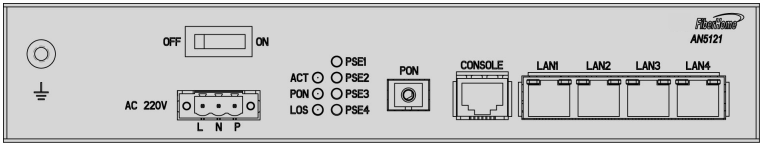
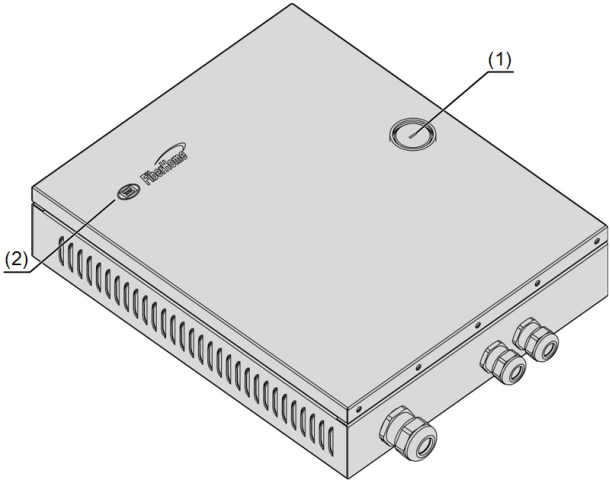


Figure 3.2 The AN5121-4GP Panel

Waterproof Shell

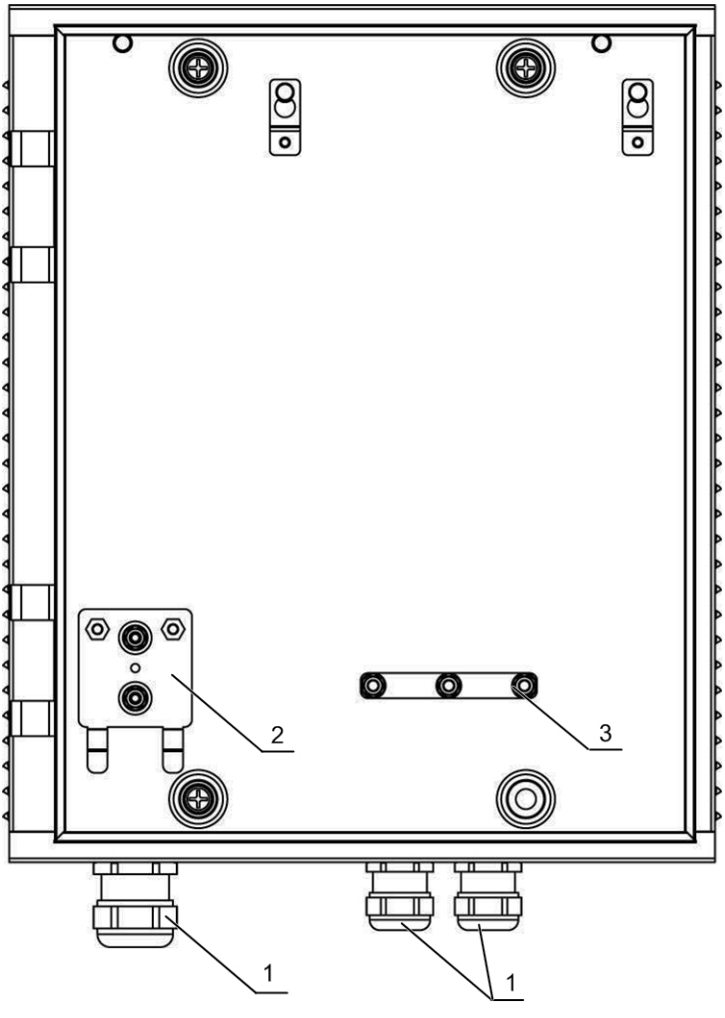
The waterproof shell can be used together with the AN5121-4GP. Its top internal side is equipped with the waterproof bumper case, which can prevent the rain from entering the shell via the gaps. The appearance of the waterproof shell is shown in Figure 3.3.



(1) Lock (2) LOGO (can be customized)

Figure 3.3 Appearance of the Waterproof Shell

The internal structure of the waterproof shell is shown in Figure 3.4.



(1) Wiring hole (optional)

(2) Earth ground component (optional)

(3) Cable fixing component (optional)

Figure 3.4 Internal Structure of the Waterproof Shell

The main components inside the waterproof shell are described in Table 3.1.

Table 3.1 The Main Components inside the Waterproof Shell

Component Name	Component Description	Component Quantity
Wiring hole (optional)	For leading the wires and cables into the equipment from the external.	3
Earth ground component (optional)	Used to provide the earth ground point for the equipment earth ground cable and the optical cable reinforced core inside the shell.	1
Cable fixing component (optional)	For securing multiple network cables from the AN5121-4GP to the external.	1

3.2 Indicator LED Description

The AN5121-4GP has multiple types of indicator LEDs on it. Except for the four indicator LEDs (ACT, PSE, PON, and LOS), the link status and duplex status indicator LEDs are located beside each LAN port. The description on each indicator LED is shown in Table 3.2.

Table 3.2 Description on Indicator LEDs of the AN5121-4GP

Silk-screen Name	Meaning	Color	Status	Indicator LED Description
ACT	Working status indicator LED	Green	Blinking	The logical link has been set up.
			OFF	The logical link has not been set up.

Table 3.2 Description on Indicator LEDs of the AN5121-4GP (Continued)

Silk-screen Name	Meaning	Color	Status	Indicator LED Description
LOS	Optical signal status indicator LED	Red	ON	The Rx optical power of the PON port is too low.
			OFF	The Rx optical power of the PON port is normal.
PON	PON status indicator LED	Green	ON	The AN5121-4GP is registered.
			OFF	The AN5121-4GP is not registered
LAN	Link status indicator LED (left)	Orange	ON	A certain equipment set is connected to the LAN port, without data transmission.
			Blinking	A certain equipment set is connected to the LAN port, with data transmission.
			OFF	No equipment set is connected to the LAN port.
	Duplex status indicator LED (right)	Green	ON	The port operates in the full-duplex mode.
			OFF	The port operates in the half-duplex mode.
PSE	Power supply status indicator LED	Green	ON	The PSE equipment has been connected to the interface and is receiving the power supply.
			OFF	The PSE equipment is not connected to the interface and is not receiving the power supply.

3.3 Interface Description

3.3.1 Interfaces of the Waterproof Shell

The interfaces on the waterproof shell are shown in Figure 3.5.

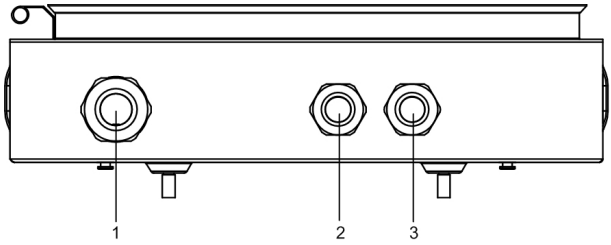


Figure 3.5 Interface of the Waterproof Shell

Table 3.3 Interfaces on the Waterproof Shell

Serial Number	Interface	Description
(1)	Wiring hole for the earth ground cable, Wiring hole for the power cable, Wiring hole for the optical cable.	The earth ground cable, the power cable and the optical cable are led into the waterproof shell through this interface.
(2), (3)	Network cable wiring hole	The network cable is led in or out of the waterproof shell through these interfaces.

3.3.2 Interface of the Equipment

The AN5121-4GP's interfaces are all located on the front panel, as shown in Figure 3.6.

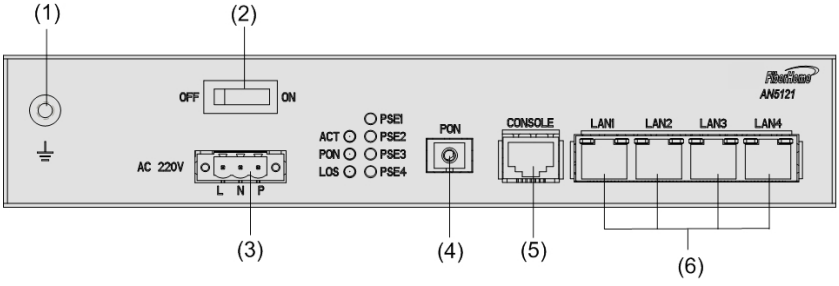


Figure 3.6 The AN5121-4GP Panel

(1) Earth ground cable interface	(2) Power switch	(3) AC power interface
(4) GPON interface	(5) Console interface	(6) Ethernet / PoE interface

See for detailed introduction to each interface.

Table 3.4 Introduction to the Equipment Interfaces

Interface	**Description**
Earth ground cable interface	Used for the earth grounding of the equipment.
Power switch	Used to switch on or off the AN5121-4GP.
AC power interface	Used to induct the 220 V AC power supply from the external.
GPON interface	The uplink PON interface, complying with the ITU-T G. 984 standard.
Console interface	The debugging serial port, used to debug the AN5121-4GP in the local connection mode.
Ethernet / PoE interface	Four GE interfaces totally, used for the PoE feed or accessing the downlink equipment via the network cable.

3.3.3 Introduction to the Pole Components

The pole components comprise the equipment base and clamp. The clamp is used to secure the equipment base on the wire pole.
Figure 3.7 shows the equipment base.

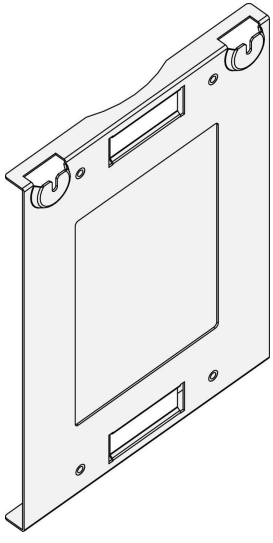


Figure 3.7 The Base

Figure 3.8 shows the clamp.

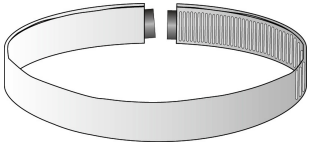


Figure 3.8 The Clamp

3.3.4 Introduction to the Cabinet Components

The cabinet components include the two mounting ears used to secure the equipment in the cabinet, as shown in Figure 3.9 and Figure 3.10.

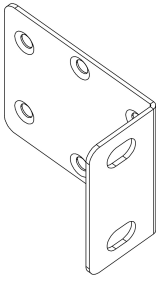


Figure 3.9 The Mounting Ear on the Left Side of the Cabinet

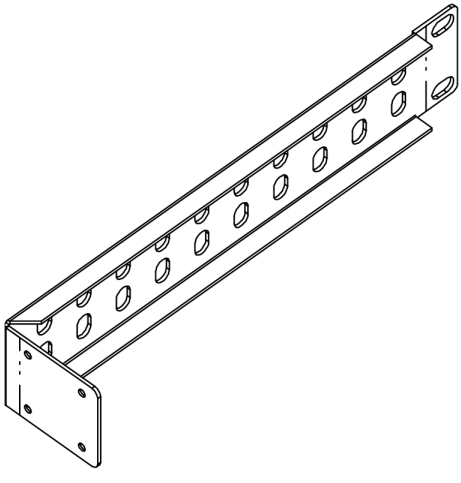


Figure 3.10 The Mounting Ear on the Right Side of the Cabinet

4 Product Installation

The following introduces the preparations prior to equipment installation, the ways of securing the equipment, cable connections, and post-installation check.

4.1 Installation Preparation

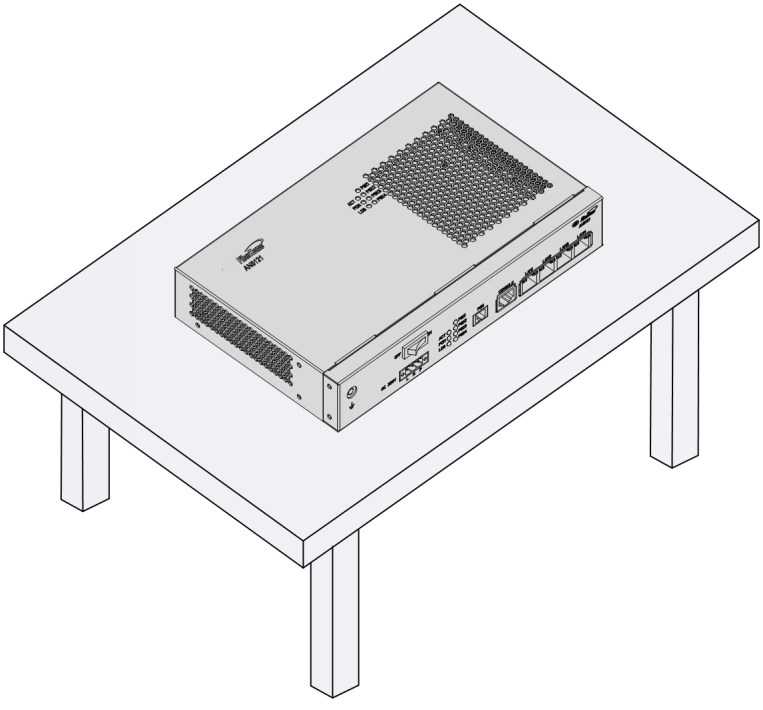
Before installing the AN5121-4GP, check whether the following conditions are met:

- The selected position is suitable for installing and operating the AN5121-4GP. For example, check whether the power cables and optical cables can be accessed.
- The installation position provides good conditions for grounding of the workbench, wall, poles, and cabinet.
- The workbench, wall, pole, and cabinet are firmly enough to bear the weight of the equipment and its accessories.

4.2 Plane Mounting Mode

The operation procedures are described as follows:

1. Take the AN5121-4GP out of the package box.
2. Lay the equipment gently on a stable plane, making sure that the protection earth ground cable interface on the front panel of the equipment is well grounded.



4.3 Pole-holding Mounting Mode

4.3.1 Installation Flow Chart

The installation flow chart for the pole-holding mode is shown in Figure 4.1.

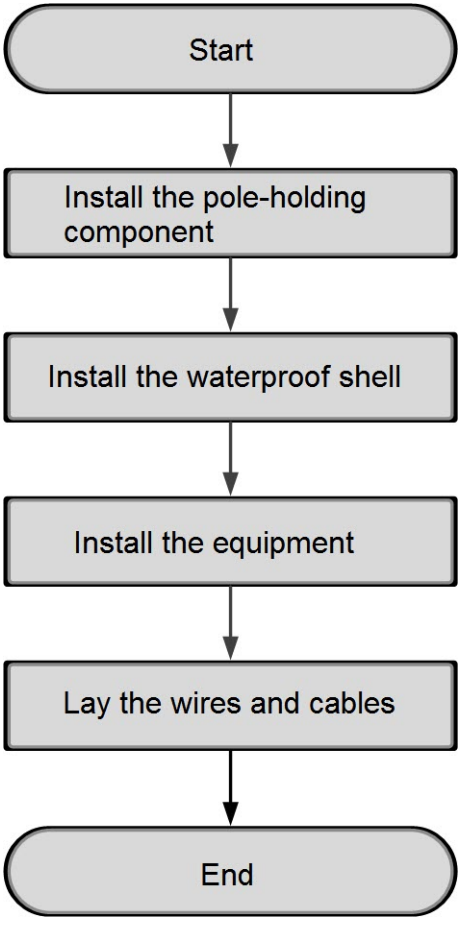


Figure 4.1 The Installation Flow Chart for the Pole-holding Mounting Mode

4.3.2 Pole Mounting Mode

The following introduces how to secure the waterproof shell on the wire pole.

Tool

Six point sockets

Procedure

1. Take out the equipment base and the clamp.
   Figure 4.2 shows the base and Figure 4.3 shows the clamp.

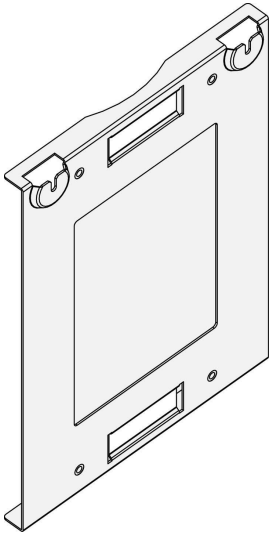


Figure 4.2 The Base

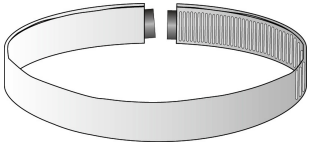


Figure 4.3 The Clamp

2. Secure the equipment base onto the wire pole with the clamp, as shown in Figure 4.4, and fasten the clamp with the six point sockets.

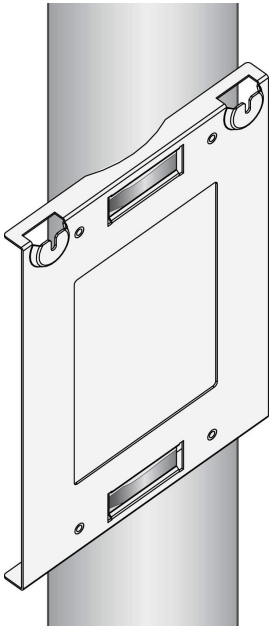
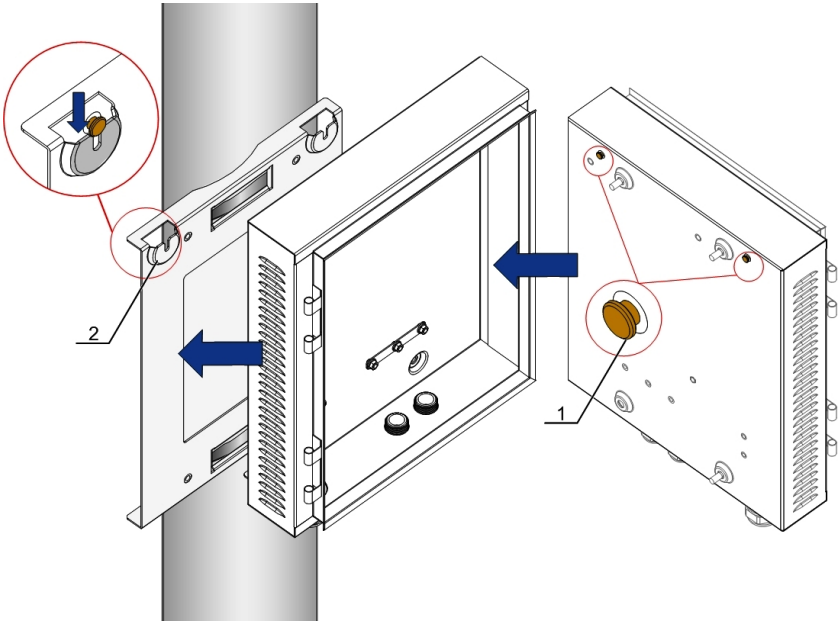


Figure 4.4 Securing the Equipment Base

3. Hang the waterproof shell on the equipment base, as shown in Figure 4.5.
   1) Find the hooks on the back of the waterproof shell, as indicated by (1) of Figure 4.5, and the gourd shaped holes on the equipment base, as indicated by (2) of Figure 4.5.
   2) Align the hooks on the waterproof shell with the gourd shaped holes on the equipment base to hang the equipment from the top down.



(1) Hook (2) Gourd shaped hole

Figure 4.5 Hanging the Waterproof Shell

4.3.3 Securing the Equipment

Tool

None

Procedure

Secure the AN5121-4GP in the waterproof shell, as illustrated in Figure 4.7.

1. Find the mounting holes at the bottom of the AN5121-4GP and the hooks inside the waterproof shell.

2. Install the sheet metal delivered together with the equipment to the bottom of the equipment, as illustrated in Figure 4.6.

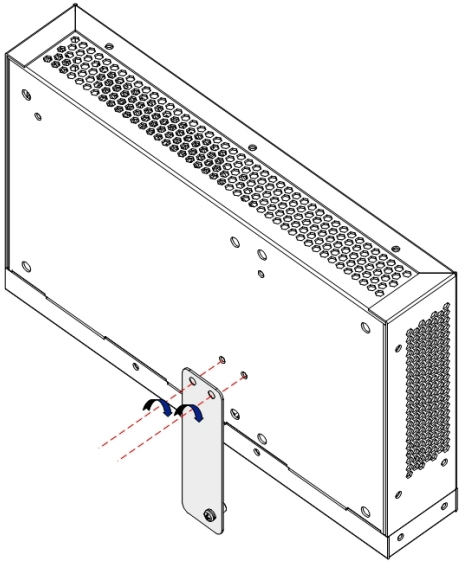
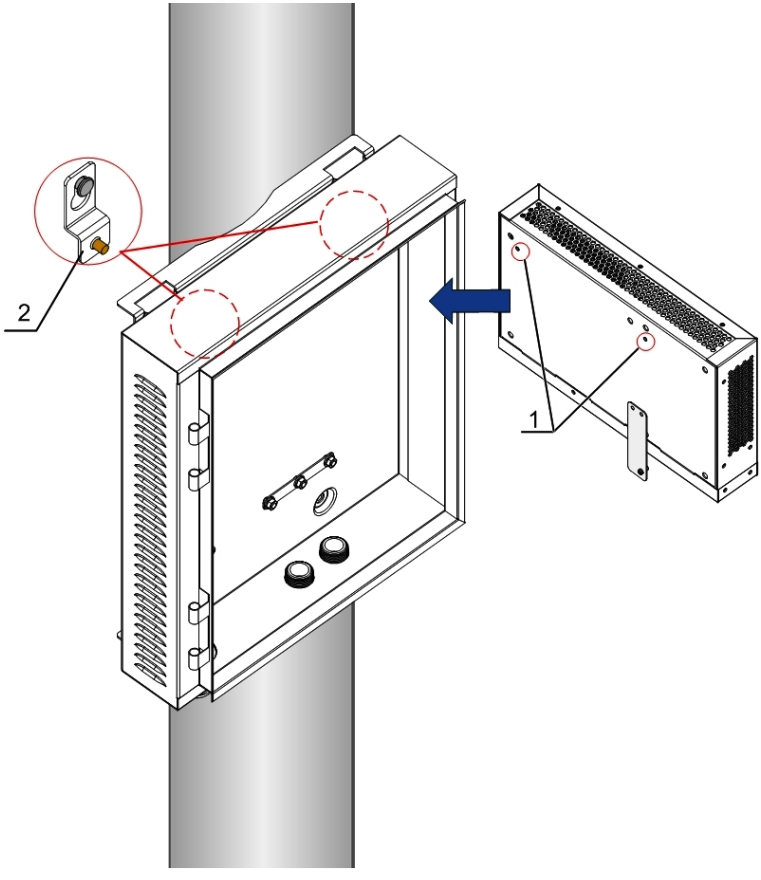


Figure 4.6 Installing the Sheet Metal

3. Align the mounting holes at the bottom of the AN5121-4GP with the hooks inside the waterproof hook to hang the equipment on the waterproof shell.



(1) Mounting hole (2) Hook

Figure 4.7 Securing the Equipment to the Waterproof Shell

4.3.4 Connecting Wires and Cables

The following introduces how to connect the wires and cables for the equipment.

The wires and cables to be connected for the equipment include

- The earth ground cable,
- The power cable,
- The optical fiber,
- The network cable.

Tip:

1. Before leading the external wires and cables into the waterproof shell, you need to loosen the waterproof connector.
2. After completing the layout of wires and cables, fasten the waterproof connector and seal the interface.

4.3.4.1 Connecting the Earth Ground Cable

The equipment earth ground cable is used to connect the equipment and the external earth ground bar.
The equipment earth ground cables comprise the external earth ground cable and the internal earth ground cable.

Tool

A cross screwdriver

Procedure

1. Loosen the waterproof connector on the wiring hole on the left side of the waterproof shell.
2. Lead one end of the external power cable into the equipment via the wiring hole on the left side of the waterproof shell, as shown in ① of Figure 4.10.
3. Fix the external earth ground cable entering the equipment onto the connector post of the earth ground component, as shown in ② of Figure 4.10. Figure 4.8 illustrates the cable connection process for the connector post.

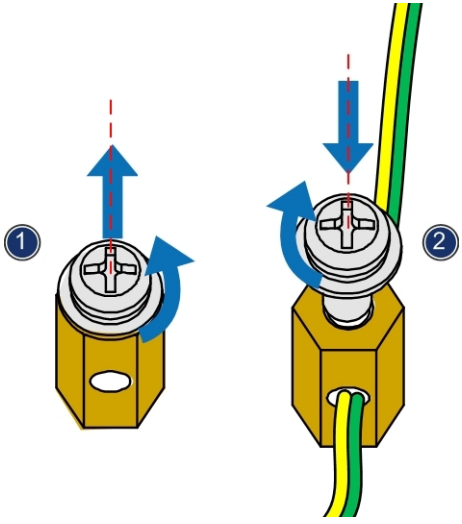


Figure 4.8 Connecting the Cable for the Connector Post

4. Connect the other end of the external earth ground cable to the external earth ground bar.
5. Fix one end of the internal earth ground cable on the earth ground point of the earth ground component, as shown in ③ of Figure 4.10. Figure 4.9 illustrates the cable connection process.

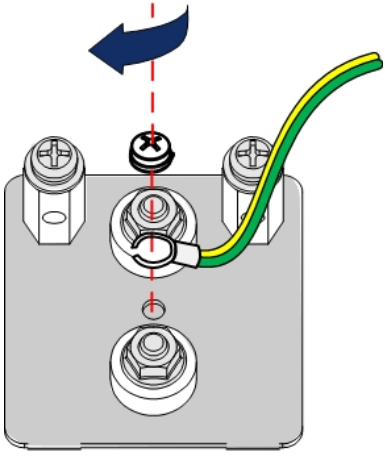
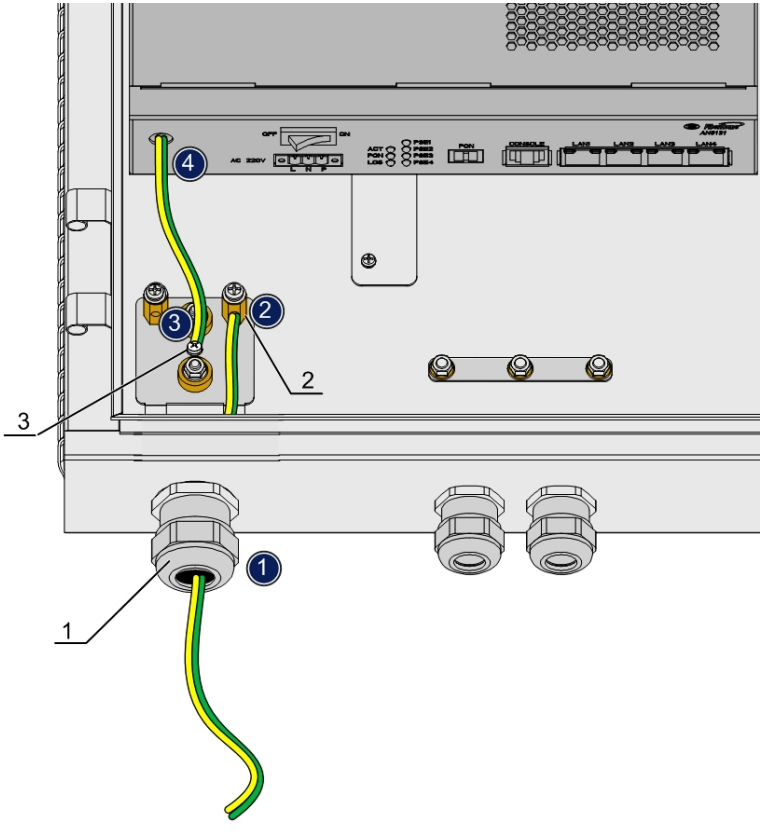


Figure 4.9 Connection to the Earth Ground Point

6. Insert the other end of the internal earth ground cable into the earth ground hole of the AN5121-4GP, as shown in ④ of Figure 4.10.



(1) Waterproof connector (2) Connector post (3) Earth ground point

Figure 4.10 Connecting the Earth Ground Cable

4.3.4.2 Connecting the Power Cable

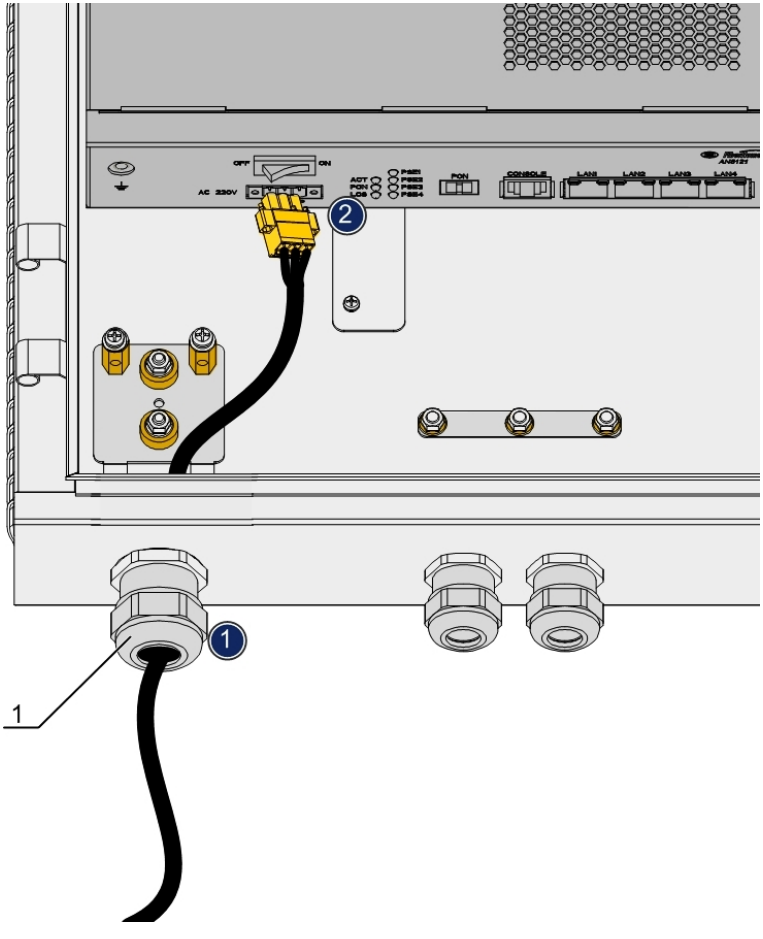
The power cable is used to connect the external power and the AN5121-4GP.

Tool

None

Procedure

1. Loosen the waterproof connector on the wiring hole on the left side of the waterproof shell.
2. Lead one end of the power cable into the equipment via the wiring hole on the left side of the waterproof shell, as shown in ① of Figure 4.11.
3. Connect the interface of the power cable to the power interface of the equipment, as shown in ② of Figure 4.11.



(1) Waterproof connector

Figure 4.11 Connecting the Power Cable

4.3.4.3 Connecting the Optical Cable

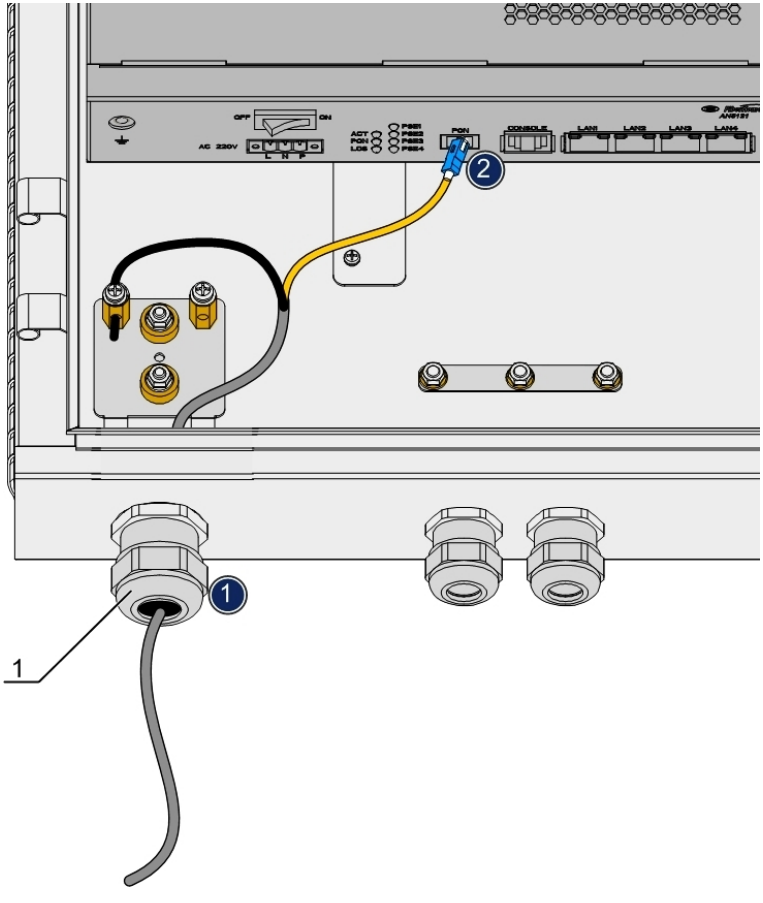
The optical cable is used to connect the equipment's optical interface and the external communication equipment.

Tool

Cutting pliers

Procedure

1. Loosen the waterproof connector on the wiring hole on the left side of the waterproof shell.
2. Lead one end of the optical cable into the equipment via the wiring hole on the left side of the waterproof shell, as shown in ① of Figure 4.12.



(1) Waterproof connector

Figure 4.12 Connecting the Optical Cable

3. Install the connector for the optical fiber of the optical cable entering the equipment.
4. Connect the reinforced core of the optical cable to the earth ground component, as shown in Figure 4.13.

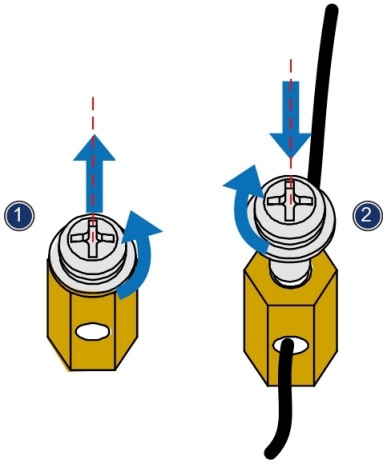


Figure 4.13 Connecting the Reinforced Core

5. Connect the optical fiber installed with the connector of the optical cable to the optical interface of the equipment, as shown in ② of Figure 4.12.

4.3.4.4 Connecting the Network Cable

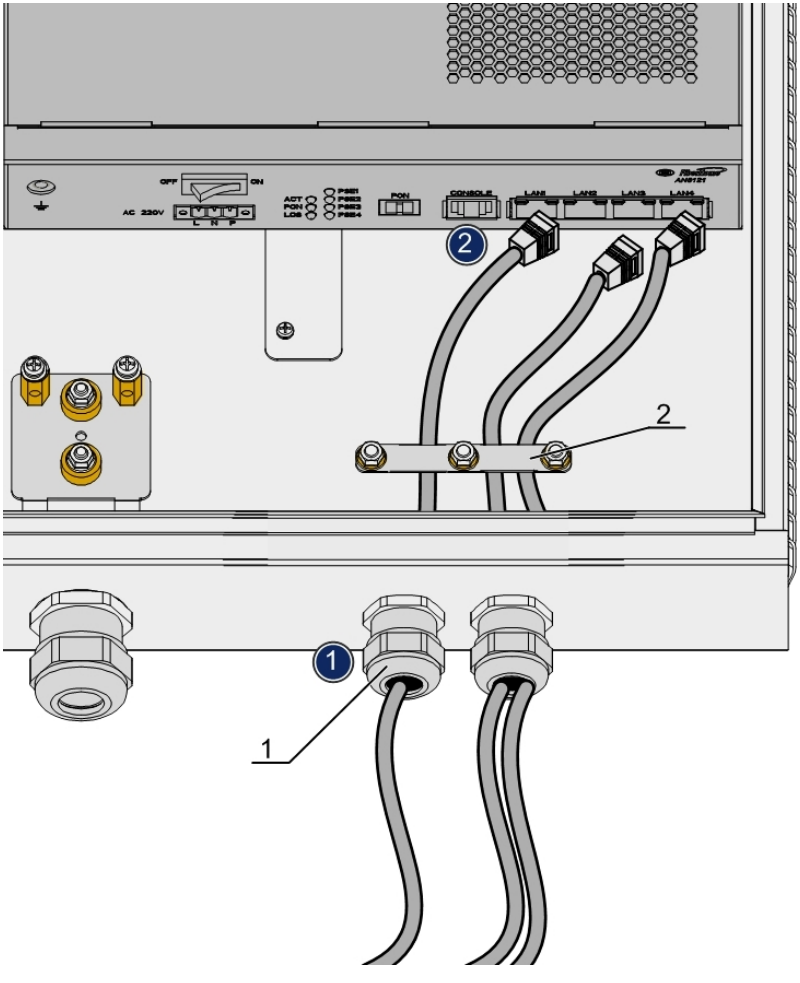
The network cable is used to connect the external communication equipment and the AN5121-4GP.

Tool

A cross screwdriver

Procedure

1. Loosen the waterproof connectors on the two wiring holes at the right side of the waterproof shell.
2. Lead the RJ-45 connector on one end of the network cable into the equipment via the wiring hole on the right side of the waterproof shell, as shown in ① of Figure 4.14.



(1) Waterproof connector (2) Cable fixing component

Figure 4.14 Connecting the Network Cable

3. Lead the network cable through the cable fixing component.

4. Insert the RJ-45 connector of the network cable into the AN5121-4GP's network interface, as shown in ② of Figure 4.14.

4.4 Wall Mounting Mode

4.4.1 Installation Flow Chart

The installation flow for the wall mounting mode is shown in Figure 4.15.

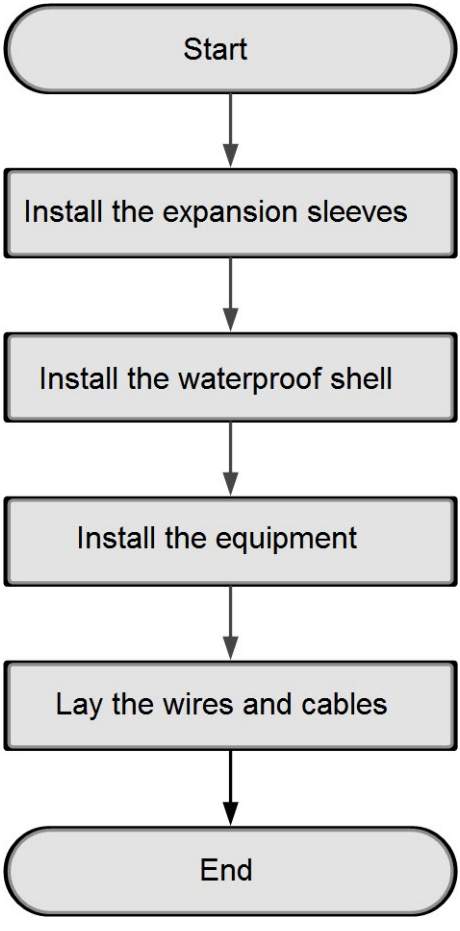


Figure 4.15 The Installation Flow Chart for the Wall Mounting Mode

4.4.2 Wall Mounting Mode

The following introduces how to mount the waterproof shell on the wall.

Tool

- An electric drill
- A hammer
- A cross screwdriver

Procedure

1. Take out the waterproof shell.
2. Drill four holes on the wall with the electric drill. See Figure 4.16 for the positions and sizes of the holes.

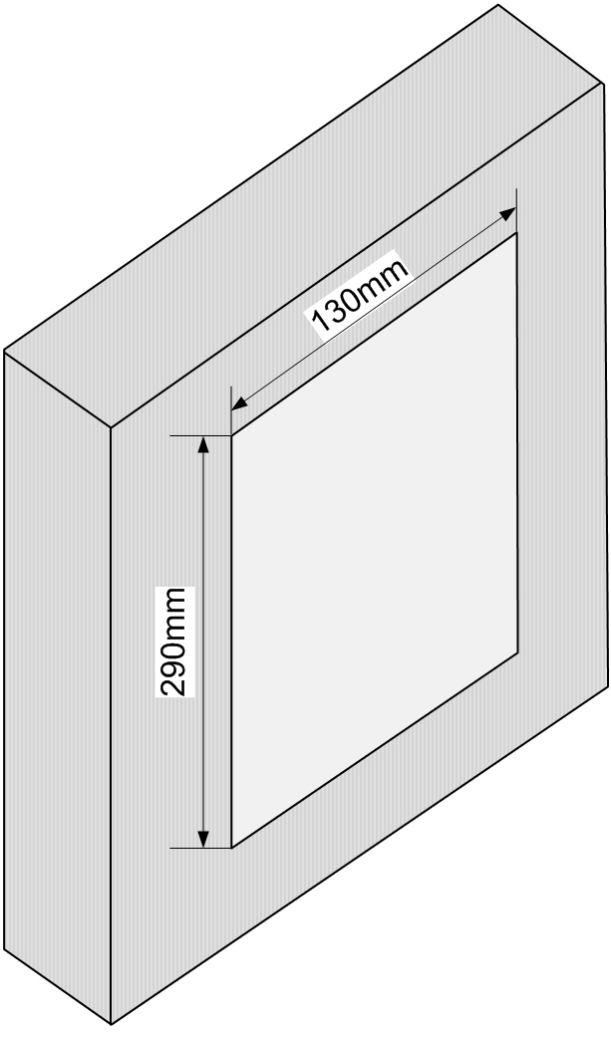
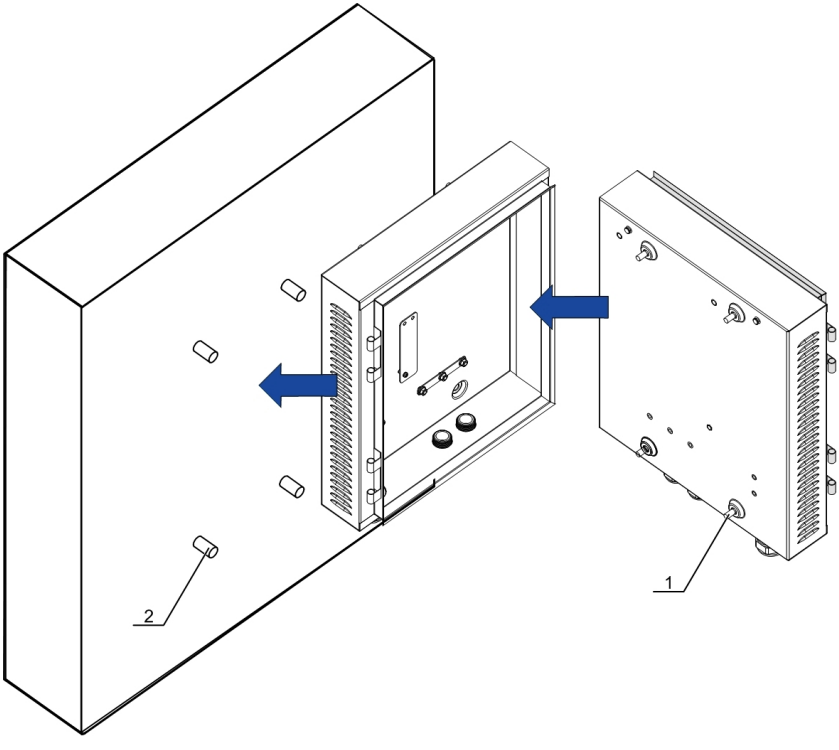


Figure 4.16 Positions and Sizes of the Holes

3. Install the expansion sleeve in the holes prepared.
4. Install the four screws on the bottom of the waterproof shell into the expansion sleeve, and fasten the screws to secure the shell, as illustrated in Figure 4.17.



(1) Screw (2) Expansion sleeve

Figure 4.17 Securing the Waterproof Shell

4.4.3 Securing the Equipment

Secure the AN5121-4GP in the waterproof shell. Refer to Securing the Equipment for the operation procedures.

4.4.4 Connecting Wires and Cables

The following introduces how to connect the wires and cables for the equipment. Refer to Connecting Wires and Cables for the procedures of connecting the wires and cables.

4.5 Cabinet Mounting Mode

4.5.1 Installation Flow Chart

The installation flow chart for the cabinet mounting mode is shown in Figure 4.18.

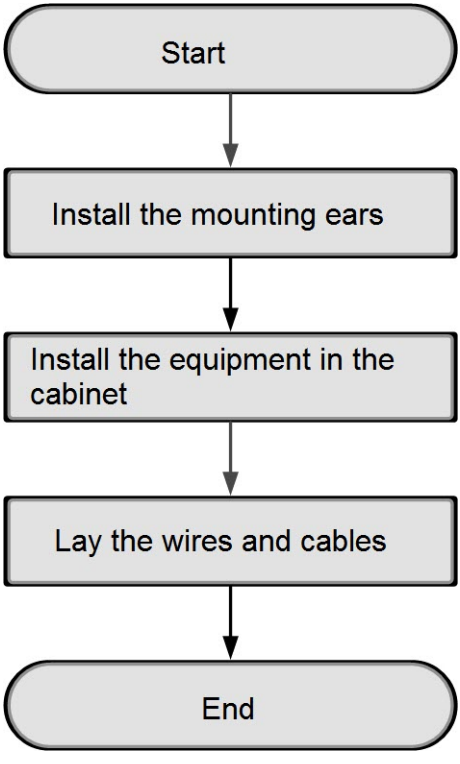


Figure 4.18 The Installation Flow Chart for the Cabinet Mounting Mode

4.5.2 Installing the Mounting Ears

The following introduces how to install the mounting ears on the equipment.

Tool

A cross screwdriver

Procedure

1. Get the mounting ears and screws delivered together with the equipment as the accessories.
2. Install the mounting ears on the left and right sides of the equipment respectively, as illustrated in Figure 4.19.

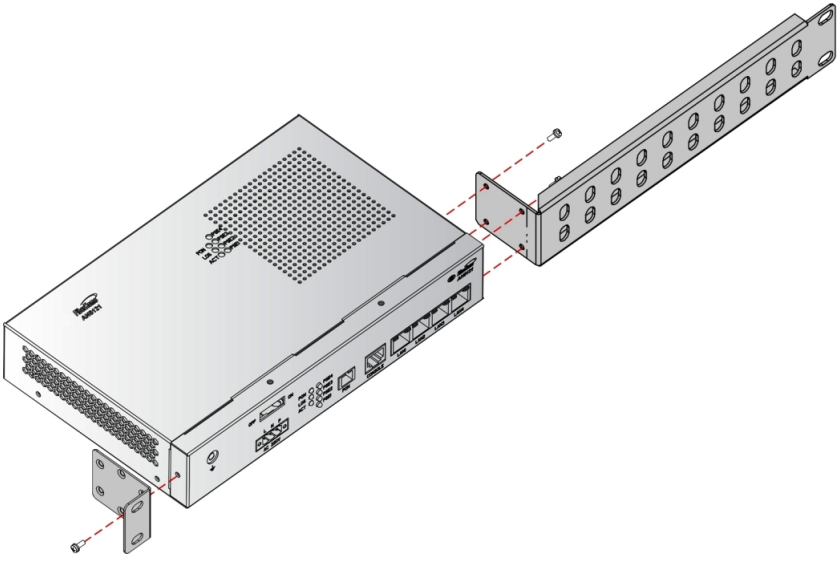


Figure 4.19 Installing the Mounting Ears

4.5.3 Cabinet Mounting Mode

Prerequisite

When the mounting ears and bent angle brackets are used, users can install the AN5121-4GP in a 19-inch cabinet.

Tool

A cross screwdriver

Procedure

1. Take out the floating nuts and screws delivered together with the equipment, and fix the floating nuts horizontally at proper positions on the cabinet.
2. Align the screw holes on the mounting ears and bent angle brackets on both sides of the AN5121-4GP. Push the mounting ears and bent angle brackets slowly toward the floating nuts until they touch closely. Then insert the screws into the screw holes on the floating nuts and tighten them, as shown in Figure 4.20.
3. Take your hands away from the equipment slowly, so that the AN5121-4GP is mounted in the cabinet with the supporting of the screws.

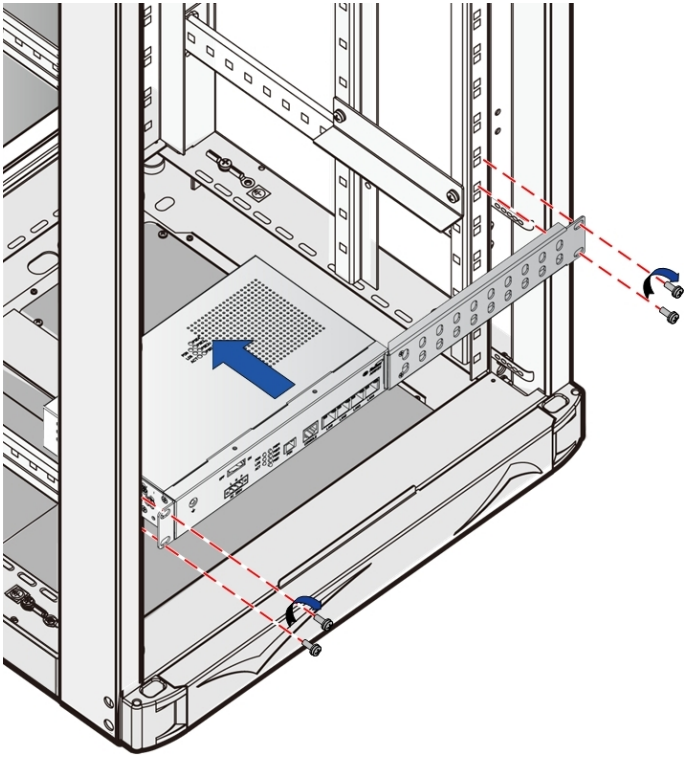


Figure 4.20 Installing the Equipment in the Cabinet

4.5.4 Connecting Wires and Cables

The following introduces how to connect the wires and cables for the equipment.

The wires and cables to be connected for the equipment include

- The earth ground cable
- The power cable
- The optical fiber
- The network cable

Procedure

1. Connect the earth ground cable for the equipment: connect one end of the earth ground cable to the earth ground point of the equipment, and the other end to the vertical mounting flange of the cabinet.
2. Connect the power cable for the equipment: lead the power cable from the external into the cabinet, and insert the power plug into the power interface.
3. Connect the optical fiber for the equipment: lead the optical fiber from the external into the cabinet, and inset the optical fiber plug into the optical fiber interface.
4. Connect the network cable for the equipment: lead the network cable from the external into the cabinet, and insert the network plug into the network interface.

4.6 Post-installation Inspection

After all cables are connected and related services are requested from the carrier, power on and check the AN5121-4GP as follows:

1. Observe the PSE indicator LED. If the PSE indicator LED is ON, the equipment is normally powered on; otherwise, check whether the power cable is correctly connected.
2. Observe the LOS indicator LED. If the LOS indicator LED is extinguished, the optical cable connection is normal; otherwise, check whether the optical cable is connected correctly and whether the optical module is working normally.
3. Observe the PON indicator LED. If the PON indicator LED is ON, the equipment is registered successfully; otherwise, check the ONU authority on the OLT side.

4. Observe the LINK indicator LED (the one on the left side of the Ethernet interface). If the LINK indicator LED is ON or blinking, the network cable is correctly connected; otherwise, check the connection of the network cable.
5. During the equipment running, ensure that it is correctly grounded to avoid failure. If any failure occurs, please contact the local office of FiberHome.

5 FAQ

FAQ1: All the indicator LEDs are extinguished after the equipment is powered on.

1. Check whether the external power supply is normal.
2. When the power cable is directly connected with the external power supply, check whether the three-conductor power cable for the equipment is correctly connected to the **neutral wire**, **live wire** and **earth wire** of the external power cable.

FAQ2: The equipment stops running after normal operation for a period of time.

1. Check whether the power cable terminal has a poor contact.
2. Check whether the power voltage is excessively high or low, i.e., out of the specified range.

FAQ3: The LOS indicator LED is ON.

1. Check whether the optical cable is damaged.
2. Check whether the optical fiber connector of the optical cable is normally connected to the ONU optical interface.
3. The Rx optical power of the ONU is excessively low.
4. The optical module of the ONU is aged or damaged.
5. The terminal equipment is faulty.

FAQ4: When the Ethernet wiring outlet port is connected to the client side PD (Powered Device), the PD can not be powered any more.

1. Check whether the power supply device is well connected to the equipment and whether it is providing power supply normally.
2. Check whether the Ethernet cable meets the requirements concerned.
3. Test whether the No.1 and No. 2 network cables are -48V ones and whether the No. 3 and No. 6 network cables are 0V ones.
4. Check whether the PD is faulty.
5. Check whether the ONU equipment is operating normally.

FAQ5: When the Ethernet wiring outlet port is connected to the client side PD (Powered Device), the PD is powered on and off intermittently.

1. Check whether the power supply device is well connected to the equipment and whether it is providing power supply normally.
2. Check whether the Ethernet cable meets the requirements concerned.
3. Test whether the No.1, 2 , 3 and 6 network cables have steady voltage.
4. Check whether the PD is faulty.
5. Check whether the ONU equipment is operating normally.

FiberHome Product Warranty

We appreciate your purchase of FiberHome product. FiberHome warrants that the equipment will be free of defects in materials and workmanship for a period of 12 months from the date of purchase. The original, dated, bill of sale should be retained as proof of purchase and must be presented to FiberHome when the equipment is to be serviced under the provisions of this warranty.

Customer Name	
Address / Zip Code	
Phone	
Model Number	
Serial Number	
Date of Purchase	
Invoice Number	
Dealer Name	
Dealer Address/Phone	

Please keep this card properly. No reissuance if lost.

Dealer: (Seal)

Warranty Description

When you purchase a product offered by FiberHome from an authorized dealer, you have a 12-month warranty as standard, except for man-made causes. The warranty period begins on the date of invoice.

For your lawful rights and interests, please notice:

1. The Warranty Card shall come into force with the seal of dealer.
2. Please keep this card properly. No reissuance will be provided if you lose it and it becomes invalid if altered.
3. In the event of a non man-made malfunction during the warranty period, FiberHome will repair or replace this product to its original operating condition free of charge.

Warranty does not cover the following circumstances:

1. Damage or malfunction caused by transporting, loading and unloading.
2. Damage or malfunction caused by man-made reasons such as opening or remodel the machine on users' own.
3. Damage or malfunction caused by unsatisfactory environment.
4. Damage or malfunction caused by force majeure incidents (such as fire, earthquake, lightning strike, war).
5. Damage or malfunction caused by failure to operate and maintain in accordance with the user's manual
6. Damage of external parts such as equipment enclosure, power connector in operation
7. The inconsistence of the Warranty Card and the product serial number, or the warranty card has been altered.

We provide paid repair and maintenance service for the products that are beyond the warranty scope. The final explanation rights of this warranty description are reserved by FiberHome.

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No. 67 Guanggu Chuangye Street, Wuhan, Hubei, China
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Product Documentation Customer Satisfaction Survey

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To help us better understand your needs, please focus your answers on a single documentation or a complete documentation set.

Documentation Name	
Code and Version	

Usage of the product documentation:

1. How often do you use the documentation?
   ☐Frequently ☐Rarely ☐Never ☐Other (please specify)_____
2. When do you use the documentation?
   ☐in starting up a project ☐in installing the product ☐in daily maintenance ☐in troubleshooting ☐Other (please specify)_____
3. What is the percentage of the operations on the product for which you can get instruction from the documentation?
   ☐100% ☐80% ☐50% ☐0% ☐Other (please specify)_____
4. Are you satisfied with the promptness with which we update the documentation?
   ☐Satisfied ☐Unsatisfied (your advice)_____
5. Which documentation form do you prefer?
   ☐Print edition ☐Electronic edition ☐Other (please specify)_____

Quality of the product documentation:

1. Is the information organized and presented clearly?
   ☐Very ☐Somewhat ☐Not at all (your advice)_____
2. How do you like the language style of the documentation?
   ☐Good ☐Normal ☐Poor (please specify)_____

3. Are any contents in the documentation inconsistent with the product?_____
4. Is the information complete in the documentation?
   □Yes
   □No (please specify)_____
5. Are the product working principles and the relevant technologies covered in the documentation sufficient for you to get known and use the product?
   □Yes
   □No (please specify)_____
6. Can you successfully implement a task following the operation steps given in the documentation?
   □Yes (please give an example)_____
   □No (please specify the reason)_____
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   _____
8. Which parts of the documentation are you unsatisfied with? Why?
   _____
9. What is your opinion on the Figures in the documentation?
   □Beautiful□Unbeautiful (your advice)_____
   □Practical□Unpractical (your advice)_____
10. What is your opinion on the layout of the documentation?
    □Beautiful□Unbeautiful (your advice)_____
11. Thinking of the documentations you have ever read offered by other companies, how would you compare our documentation to them?
    Product documentations from other companies:_____
    Satisfied (please specify)_____
    Unsatisfied (please specify)_____
12. Additional comments about our documentation or suggestions on how we can improve:
    _____
    _____

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