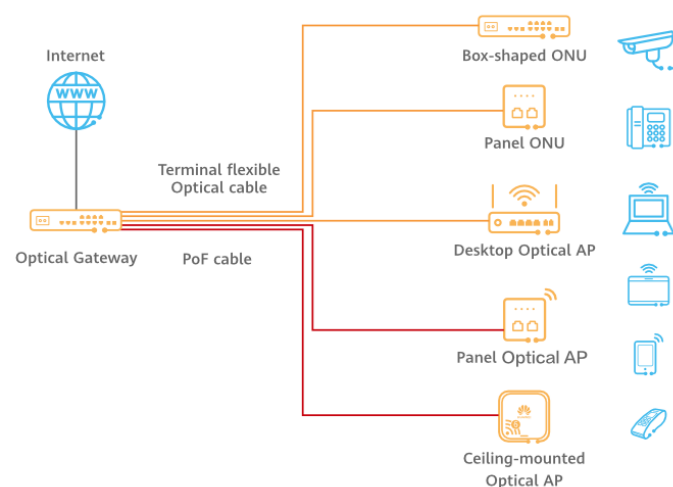


2 Typical Application

The following figure shows the networking of the Huawei MiniFTTO solution.

- The Optical Gateway F1001-AC connects to downstream optical APs and provides remote power supply through PoF cables. A maximum of eight optical APs can be connected.
- The Optical Gateway F1001-AC connects to downstream ONUs through terminal flexible optical cables. A maximum of 16 ONUs can be connected.

Figure 2-1 MiniFTTO networking scenario



Device Installation

The F1001-AC can be installed horizontally on an indoor desktop, in a 19-inch cabinet, or in a network box.

NOTICE

- All diagrams in this document may be different from the actual product. These differences do not affect the product functions.
 - In the following, F1001-AC is referred to as a Optical Gateway.
 - Do not stack Optical Gateways in horizontal deployment mode.
 - To ensure proper grounding of devices, it is recommended that the ground cables be deployed by professionals.
 - To avoid electromagnetic compatibility (EMC) risks, it is recommended that the Optical Gateway be used with shielded network cables.
-

Installation on the Desktop

NOTICE

Do not stack Optical Gateways on the desktop. Ensure that they are properly grounded before power-on.

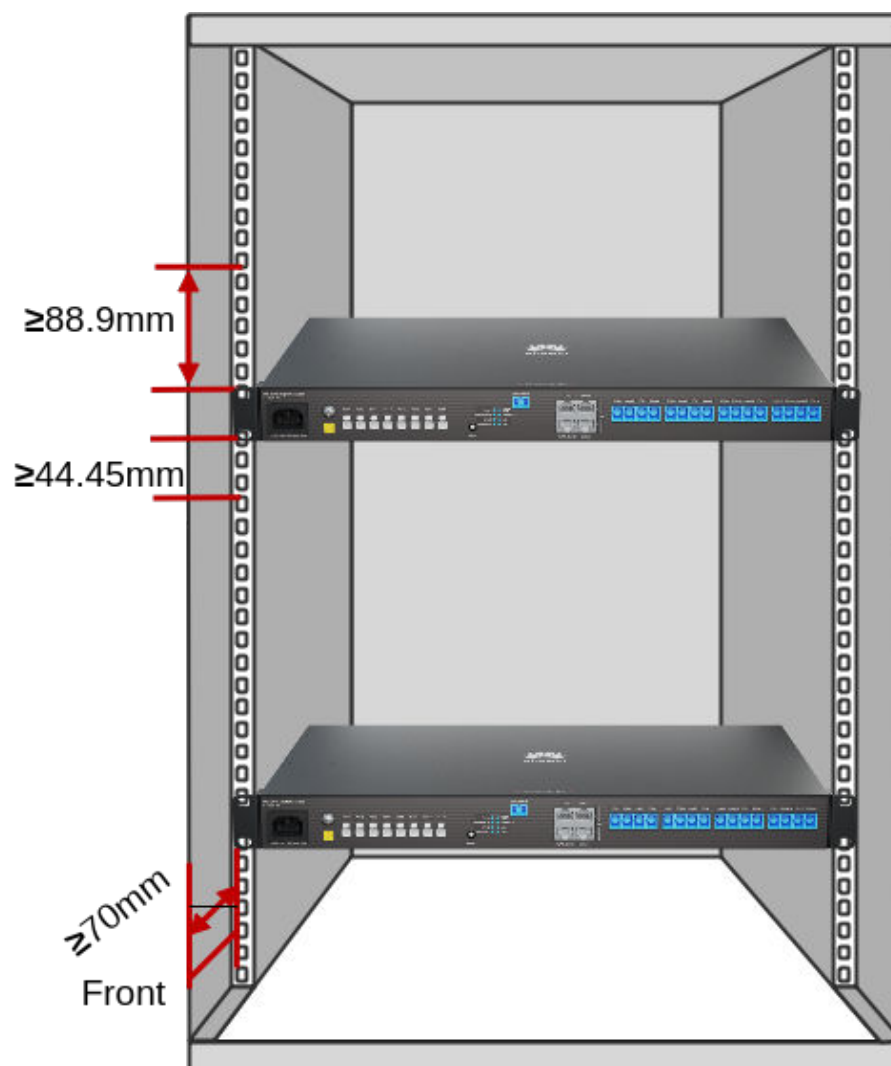


Installation in a 19-inch Cabinet

Install mounting ears when deploying the Optical Gateway in a cabinet, as shown in the following figure.

NOTICE

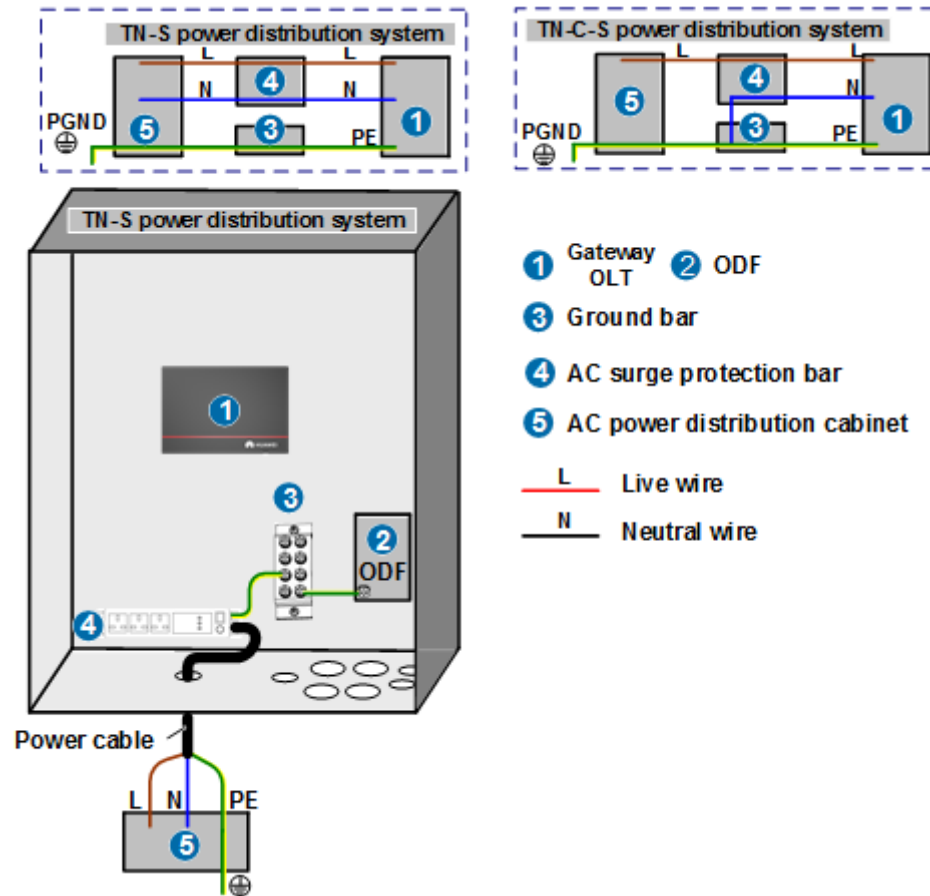
- Do not stack Optical Gateways in a cabinet. Ensure that they are properly grounded before power-on.
 - For better heat dissipation, it is recommended that at least 88.9 mm (2 U), 44.45 mm (1 U), and 70 mm space be reserved at the top, bottom, and front of a Optical Gateway, respectively.
-



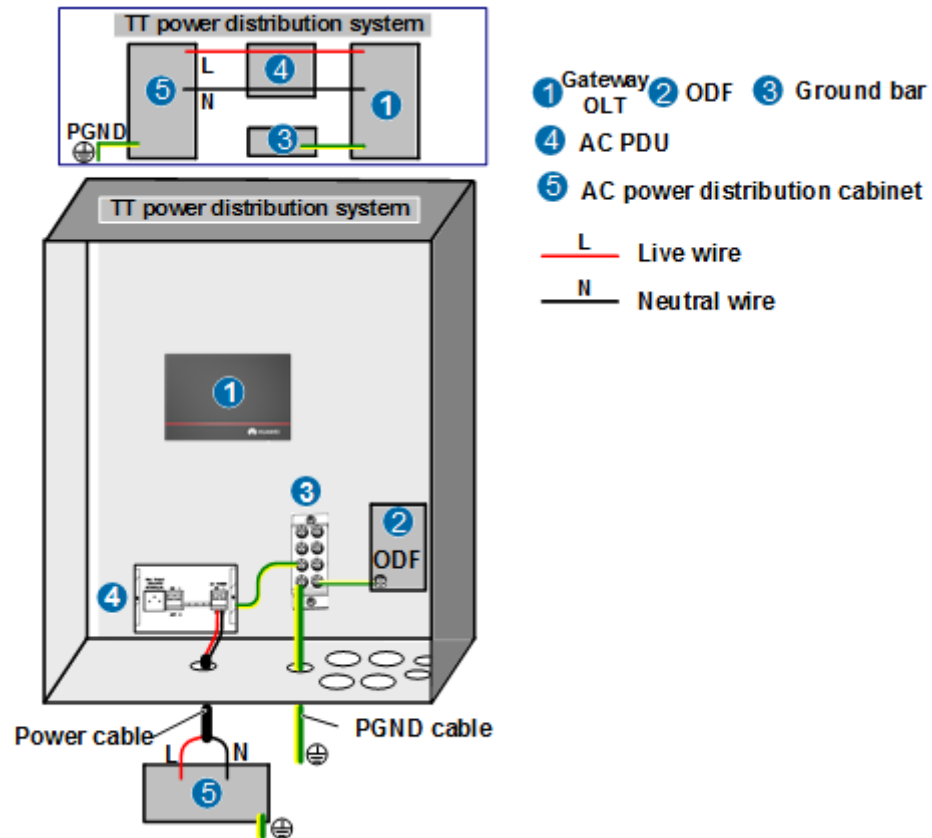
Installation in a Network Box

NOTICE

- Do not install a Optical Gateway in an enclosed network box and verify that the air intake and exhaust vents are not blocked to ensure proper heat dissipation.
 - IPxx indicates the international protection level. The first digit indicates the protection level against external solid particles, and the second digit indicates the protection level against water intrusion.
 - A network box installed indoors or in a corridor free from rain must reach the IP31 protection level. Digit 3 means foreign matters with a diameter of 2.5 mm or larger cannot enter the box, and digit 1 means vertical water drops will not cause damages to the device.
 - A network box installed outdoors or in a corridor exposed to rain must reach the IP55 protection level. The first digit 5 indicates that dust entering the box will not cause damages to devices inside. The second digit 5 indicates that water dropped from every direction onto the box will not cause damages to devices inside.
 - The method for installing a Optical Gateway in a non-Huawei network box varies with the box specifications, but you need to meet the preceding space requirements for heat dissipation.
-
- **Guide for grounding the network box of the TN-S and TN-C-S power distribution systems**



- For the TN-C-S and TN-S AC power distribution systems, it is recommended that the PE wire of the AC power cable be used to ground the Optical Gateway. Ensure that the PE wire of the AC power cable in the corridor is grounded properly.
 - Verify that all devices in the network box are connected to the ground bar by ground cables (with a cross-sectional area of at least 6 mm²), and that the ground bar is equipotentially connected to the network box by a metal structure.
 - Connect the grounding point of the fiber strength members to the ground bar using a ground cable, or connect the grounding point to the network box in an equipotential manner using a metal structure.
 - If the PE wire of the AC power cable of the corridor is not properly grounded, the network box must be grounded using an external ground cable (PGND cable). In addition, the fiber strength member must be disconnected from the device grounding system.
 - Connect a surge protector and the power supply of a Optical Gateway using a power cable of 3-5 m for decoupling.
- **Guide for grounding the network box of the TT power distribution system**



- For the TT power distribution system, it is recommended that an external grounding device be used. For example, use the dedicated grounding device of the building (ground flat steel, ground rod, or ground bar), use steel ribs in the concrete base, or deploy a new ground grid.
 - Verify that all devices in the network box are connected to the ground bar by ground cables (with a cross-sectional area of at least 6 mm²), and that the ground bar is equipotentially connected to the network box by a metal structure.
 - Connect the external ground cable (PGND cable) of the network box to an external grounding device. The cross-sectional area of the external ground cable must be greater than or equal to 16 mm² (referring to the country-specific standards).
- **Guide for grounding the fiber strength member of the network box provided by the customer**

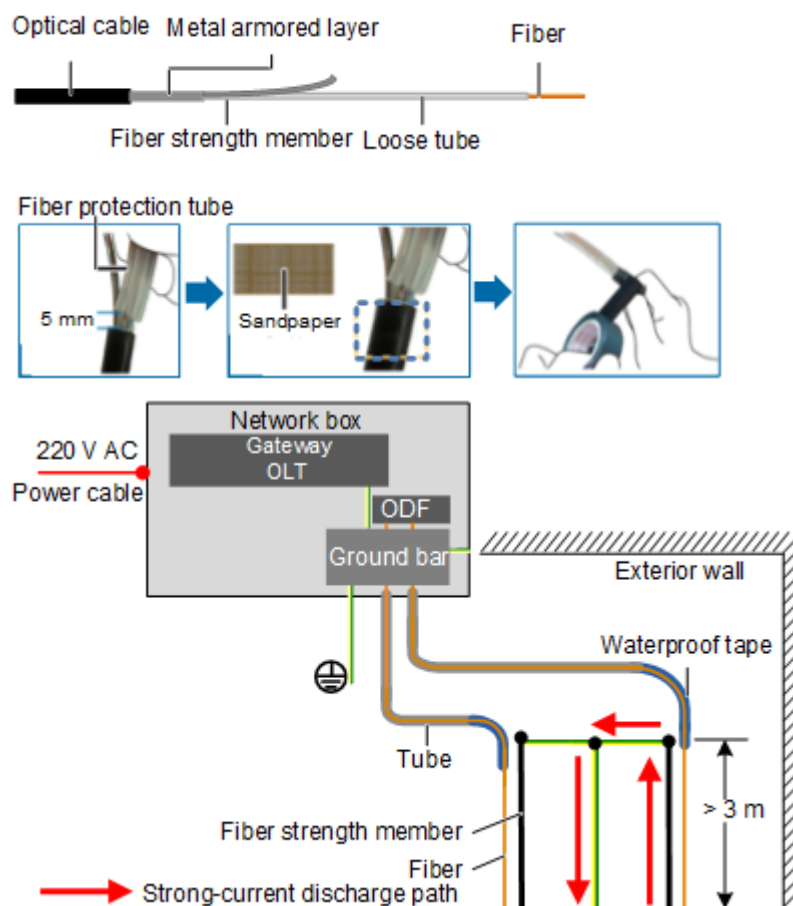
Table 2-1 Construction responsibilities

Optical Cable Provider	Construction Owner	Recommended Method	Remarks
Huawei	Huawei	Method 1 is preferred. If method 1 cannot be implemented, communicate with the customer about construction risks and sign a memorandum with the customer before using method 2.	If method 1 is used, the construction quality must strictly comply with construction specifications. If method 2 is used, the network box must be securely grounded. In addition, a metal protective cover must be installed between the fiber strength member and network box fixing points to prevent fire from spreading if a fiber strength member makes contact with a high-voltage power line.
	Customer	Method 1	If the construction does not comply with method 1, the customer bears the responsibility for consequences.
Customer	Huawei	Requirements: During construction, do not route fiber strength members into the network box. Ground the fiber strength members and the network box separately. Install the network box and Optical Gateway according to the installation guide in this document.	The customer must ensure that the fiber strength members are not routed into the network box. Otherwise, the customer bears the responsibility for consequences.

a. **Grounding method 1: Fiber strength members are isolated from a network box and grounded outside the network box separately.**

This method prevents a power surge from entering the network box, thereby protecting the device inside the network box. (A long-distance armored optical cable may direct a power surge into the network box if the outer insulation layer is broken and any metal part makes contact with a high-voltage power line.) Method 1 is implemented as follows:

- i. Strip the outer insulation layer and armored tube from the fiber strength members at the ground point. Then, clean bare fibers and use a bare fiber protection tube to protect them. (In outdoor scenarios, use an outdoor tube. In indoor or corridor scenarios, use a common tube. It is recommended that you use the 3M or COTRAN waterproof tape.)
- ii. Use sandpaper to remove burrs at optical cable stripping points, and wrap the stripping points properly with waterproof tape. When wrapping waterproof tape, ensure that the fiber cores are not wrapped too tightly.
- iii. Cut excess fiber strength members and reserve a proper length for grounding.



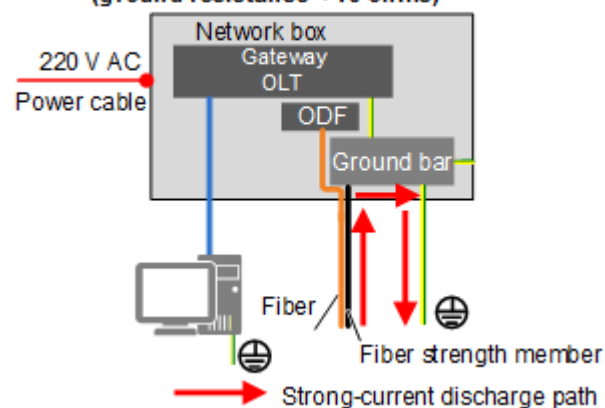
NOTICE

- Ensure that fibers are free from stress and the bending radius is greater than 40 mm. Otherwise, services may become abnormal or even fail due to degraded signal transmission.
- Fiber strength members must be securely grounded. A ground point must be at least 3 m above the ground to avoid accidental contact, and must not be within 0.3 m of combustible materials. If fiber strength members cannot be grounded, take proper insulation measures; otherwise, electric shocks may occur if the fiber strength members make contact with high-voltage power lines.

b. **Grounding method 2: Fiber strength members are grounded inside a network box.**

Connect the grounding point of the fiber strength members to the ground bar using a ground cable, or connect the grounding point to the network box in an equipotential manner using a metal structure. If a fiber strength member makes contact with a high-voltage power line, the current is discharged through the ground point in the network box. In this case, the contact point between the strength member and the ground bar may catch fire and damage devices inside the network box. Therefore, grounding method 1 is recommended.

Securely ground the network box and device
(ground resistance < 10 ohms)

**NOTICE**

If the ground bar of the network box cannot be securely grounded, ensure that the fiber strength members are disconnected from the ground bar and properly insulated. Otherwise, strong currents may be discharged through network ports on the local and peer devices, which may damage these network ports.