OptiXaccess EA5801E

# Quick Installation Guide

Issue 05
Date 2023-08-29

HUAWEI TECHNOLOGIES CO., LTD.

# About This Document

## Intended Audience

This topic describes how to install the EA5801E, including routing cables, and powering on the system. This section uses the EA5801E-GP16 as an example.

The intended audience is hardware installation engineers.

## Symbol Conventions

The symbols that may be found in this document are defined as follows:

| Symbol | Description |
| --- | --- |
| DANGER | Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury. |
| WARNING | Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury. |
| CAUTION | Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. |
| NOTICE | Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results.<br>NOTICE is used to address practices not related to personal injury. |
| NOTE | Supplements the important information in the main text.<br>NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration. |

## Change History

Updates between document issues are cumulative. Therefore, the latest document issue contains all updates made in previous issues.

### Updates in Issue 05 (2023-08-29)

Optimized the document.

### Updates in Issue 04 (2022-05-15)

Added the EA5801E-GP04-H2, EA5801E-GP08-H3, EA5801E-GP16-H2 and EA5801E-FL16-H1.

### Updates in Issue 03 (2022-01-20)

Added the EA5801E-GP04-H1.

### Updates in Issue 02 (2021-11-15)

Added the EA5801E-GP08-H2.

# Contents

# 1 Precautions

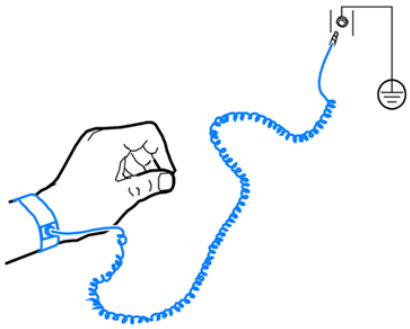
NOTE

- This document aims to provide simple and distinctive guidelines for hardware installation.
- This document does not describe operations for the pre-delivery installation of the internal cables and so on. Instead, this document describes only the operations for on-site installation.

## Electrostatic Discharge

Before touching the device, or holding the boards and IC chips, wear the ESD gloves or the ESD wrist strap to prevent the electrostatic discharge of the human body from damaging the sensitive components. Ensure that the other end of the ESD wrist strap is properly grounded.

ESD gloves



ESD wrist strap

## Bundling cables

- The distance between cable ties or binding straps inside the cabinet must be within 250 mm. (For user cable, the distance must be within 200 mm.)
- Use diagonal pliers to cut off the extra part of the cable tie to the end, and ensure that the cable tie is neat without sharp edges to prevent hand injury.

## Affixing labels / tags

- After routing the cable, attach the label or fasten the tag to the cable 20 mm away from the connector.
- After the label for the signal cable is attached to the signal cable, the rectangular text area of the label must face rightwards or downwards.
- After the identification plate for the power cable is attached to the power cable, the text area of the plate must face rightwards or upwards. Ensure that the side attached with the label faces outwards.

# 2 Tools and Meters

Before you begin, get the following tools ready.

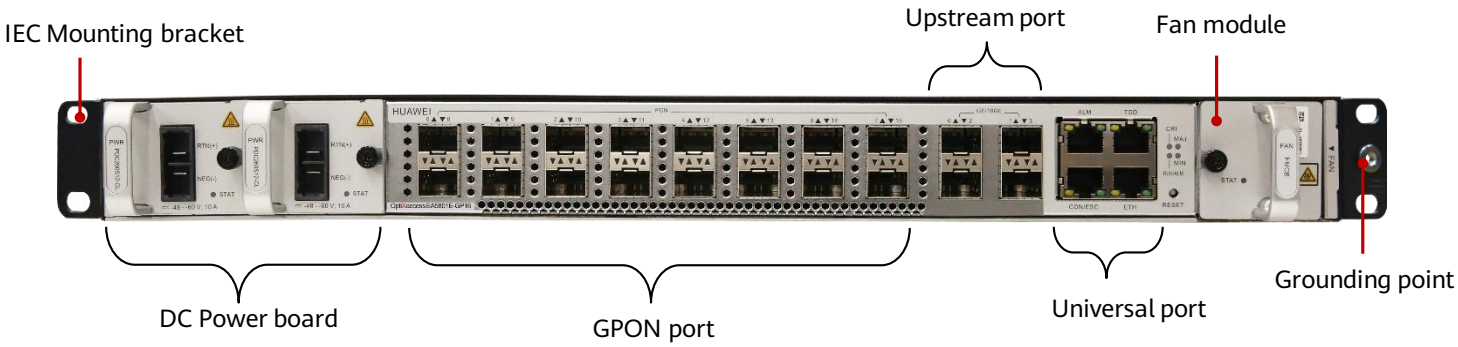
| | | | |
|---|---|---|---|
|  Marker pen |  Flat-head screwdriver |  Phillips screwdriver |  Diagonal pliers |
|  Wire clipper |  Wire stripper |  ESD wrist strap |  ESD gloves |
|  Network cable tester |  Optical power meter |  Optical attenuator |  Multimeter |

# 3 Appearance and Structure (EA5801E-GP16)

**NOTE**

In a living environment, the product may cause radio interference, in which case the user may need to take measures to counteract the interference.

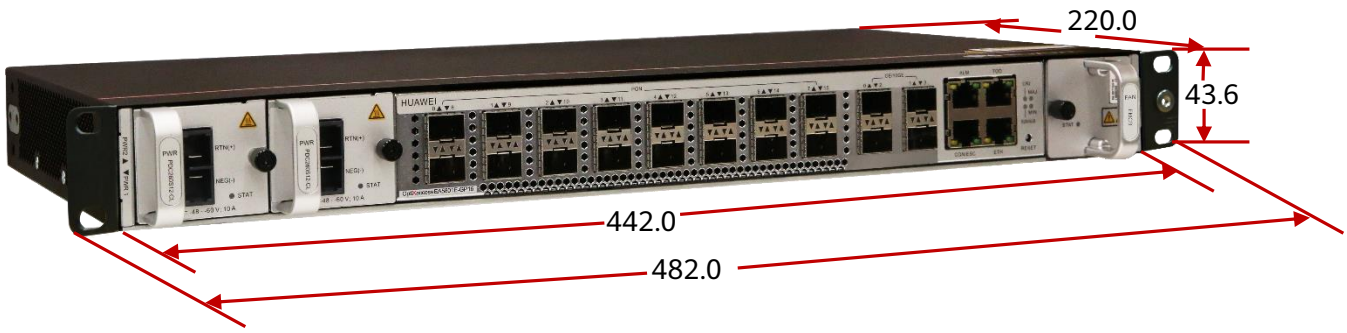
## EA5801E-GP16 Front Panel Structure (DC input)




## EA5801E-GP16 Front Panel Structure (AC input)


## EA5801E-GP16 (with IEC mounting bracket)

Unit: mm

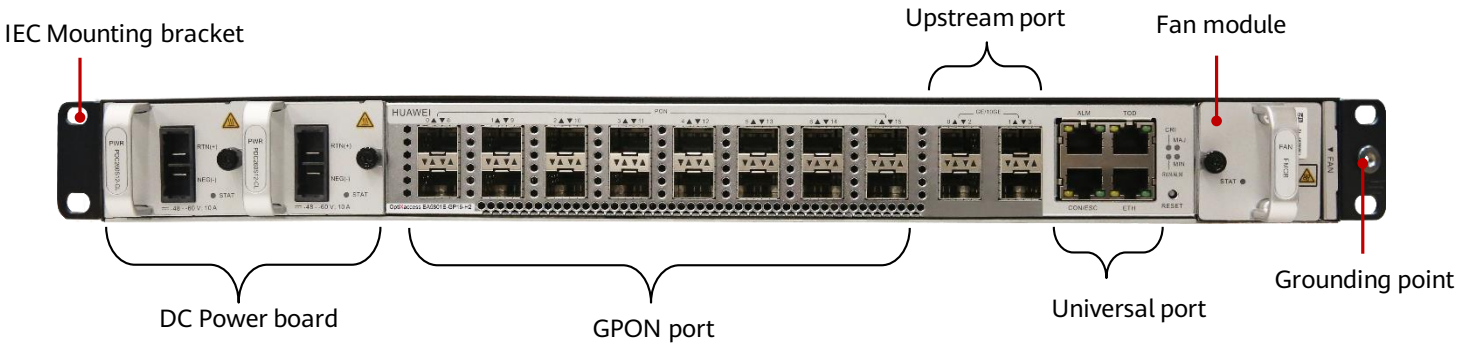


# 3 Appearance and Structure (EA5801E-GP16-H2)

**NOTE**

In a living environment, the product may cause radio interference, in which case the user may need to take measures to counteract the interference.

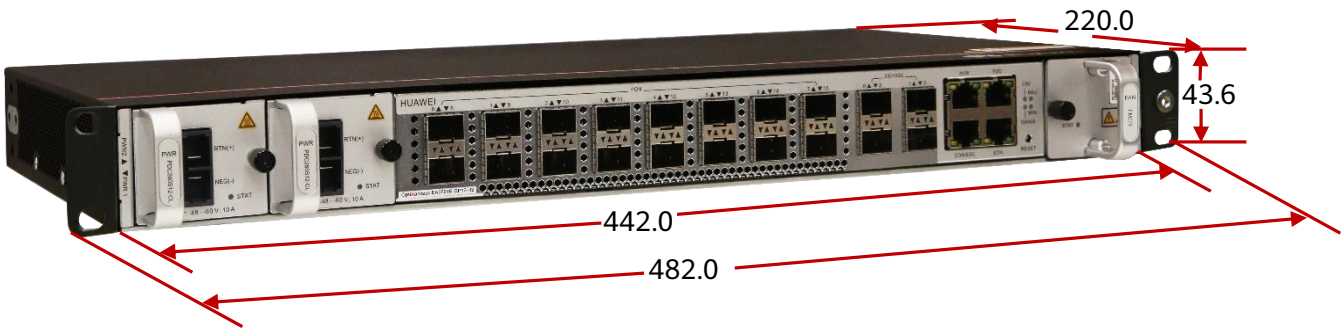
## EA5801E-GP16-H2 Front Panel Structure (DC input)




## EA5801E-GP16-H2 Front Panel Structure (AC input)


## EA5801E-GP16-H2 (with IEC mounting bracket)

Unit: mm

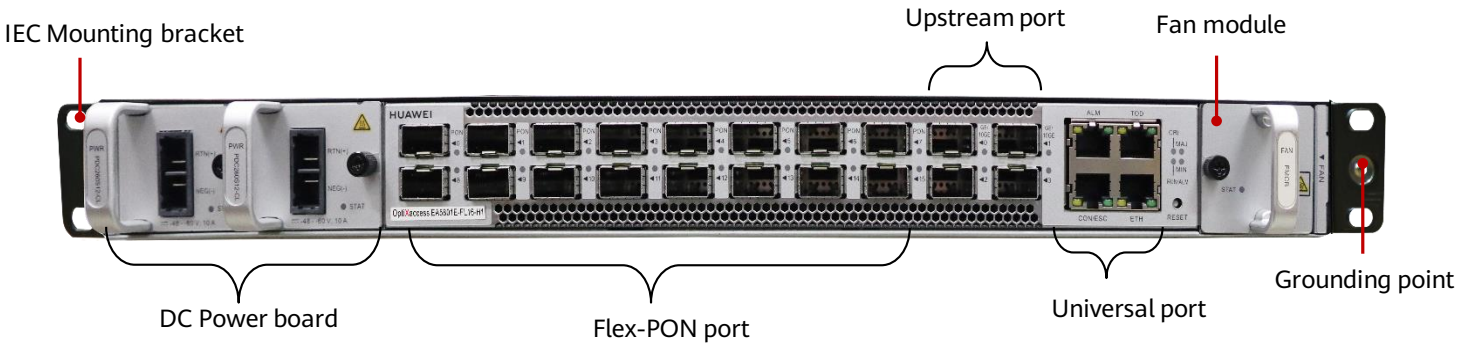


# 3 Appearance and Structure (EA5801E-FL16-H1)

**NOTE**

In a living environment, the product may cause radio interference, in which case the user may need to take measures to counteract the interference.

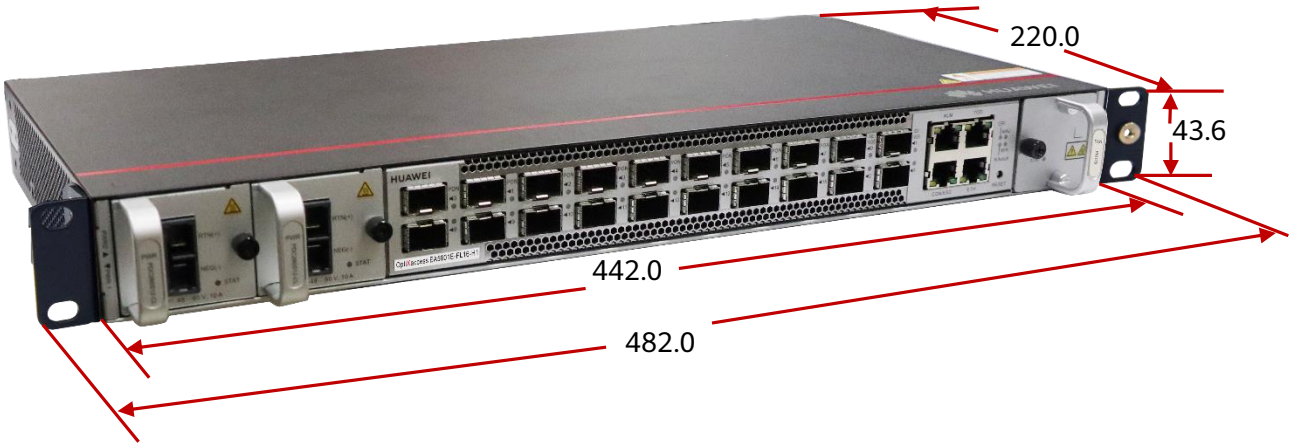
## EA5801E-FL16-H1 Front Panel Structure (DC input)




## EA5801E-FL16-H1 Front Panel Structure (AC input)


## EA5801E-FL16-H1 (with IEC mounting bracket)

Unit: mm

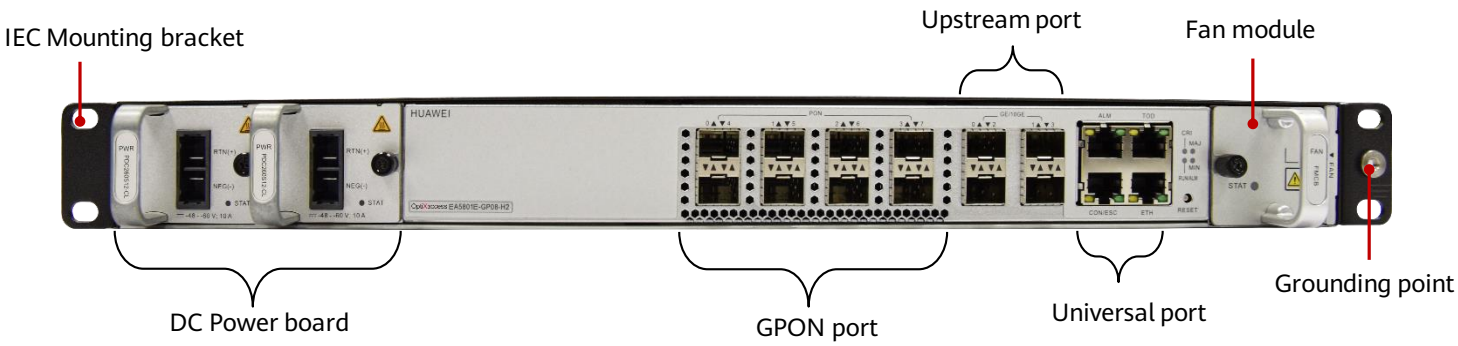


# 3 Appearance and Structure (EA5801E-GP08-H2)

**NOTE**

In a living environment, the product may cause radio interference, in which case the user may need to take measures to counteract the interference.

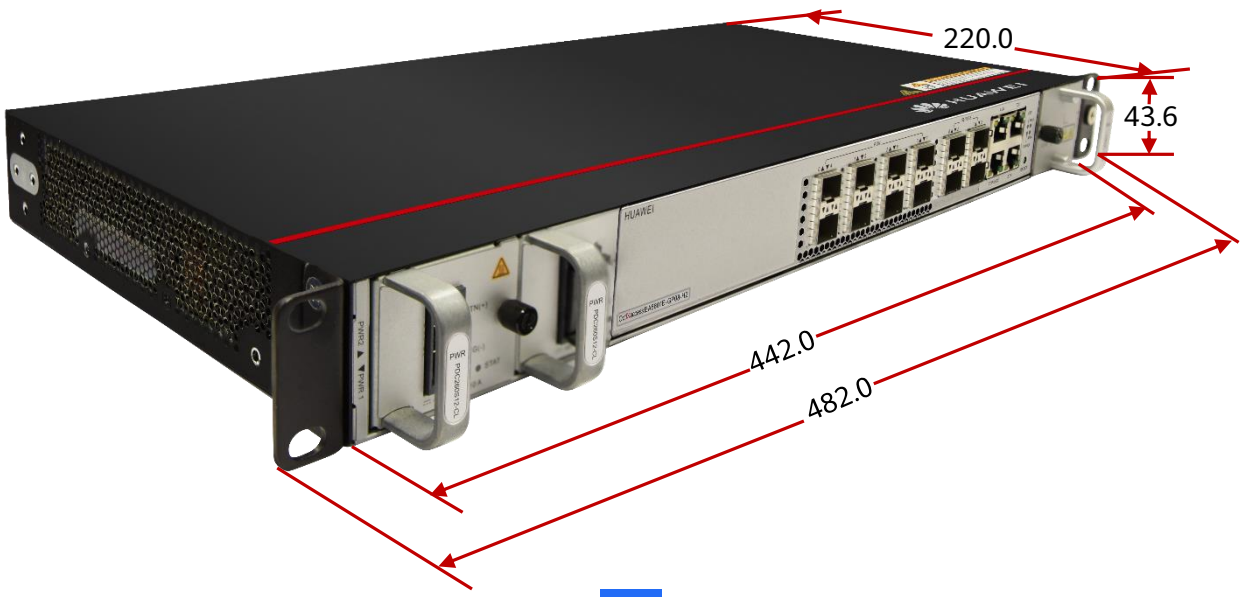
## EA5801E-GP08-H2 Front Panel Structure (DC input)




## EA5801E-GP08-H2 Front Panel Structure (AC input)


## EA5801E-GP08-H2 (with IEC mounting bracket)

Unit: mm

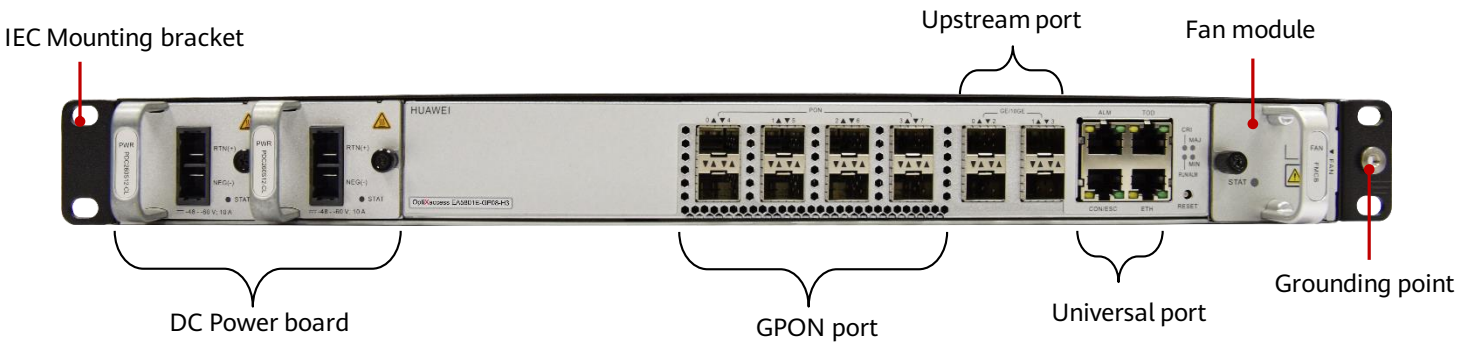


# 3 Appearance and Structure (EA5801E-GP08-H3)

**NOTE**

In a living environment, the product may cause radio interference, in which case the user may need to take measures to counteract the interference.

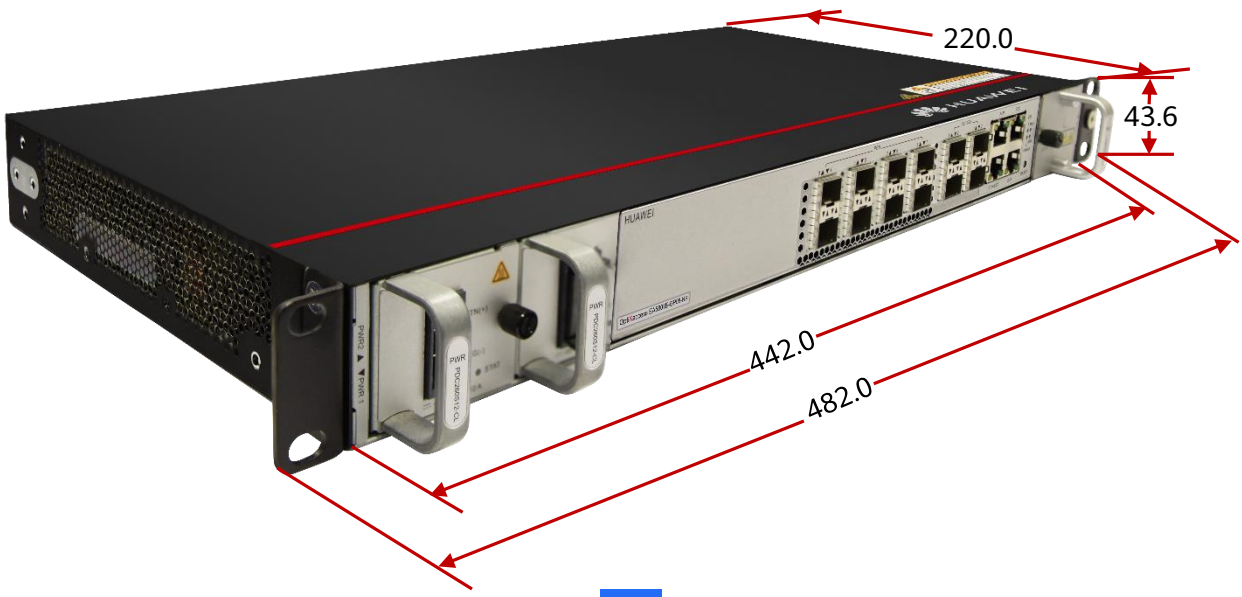
## EA5801E-GP08-H3 Front Panel Structure (DC input)




## EA5801E-GP08-H3 Front Panel Structure (AC input)


## EA5801E-GP08-H3 (with IEC mounting bracket)

Unit: mm

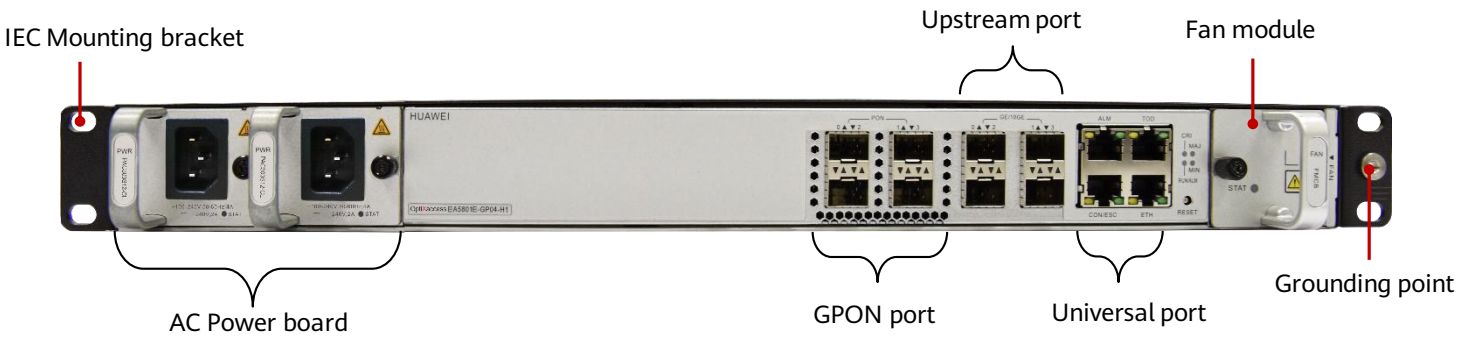


# 3 Appearance and Structure (EA5801E-GP04-H1)

**NOTE**

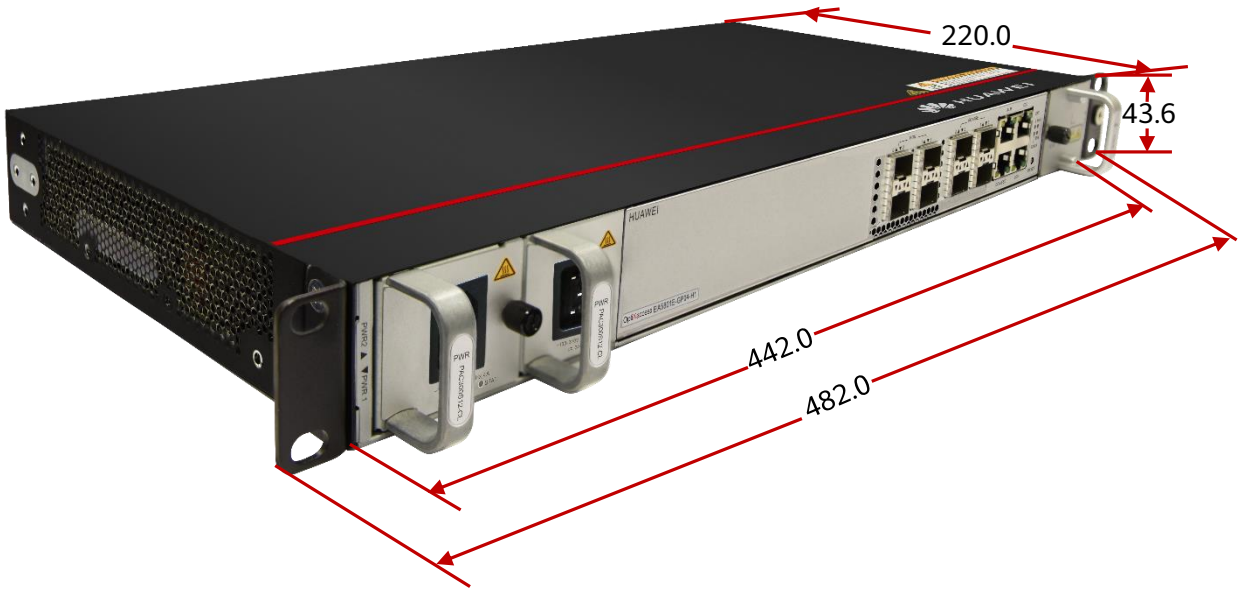
In a living environment, the product may cause radio interference, in which case the user may need to take measures to counteract the interference.

## EA5801E-GP04-H1 Front Panel Structure




## EA5801E-GP04-H1 (with IEC mounting bracket)

Unit: mm

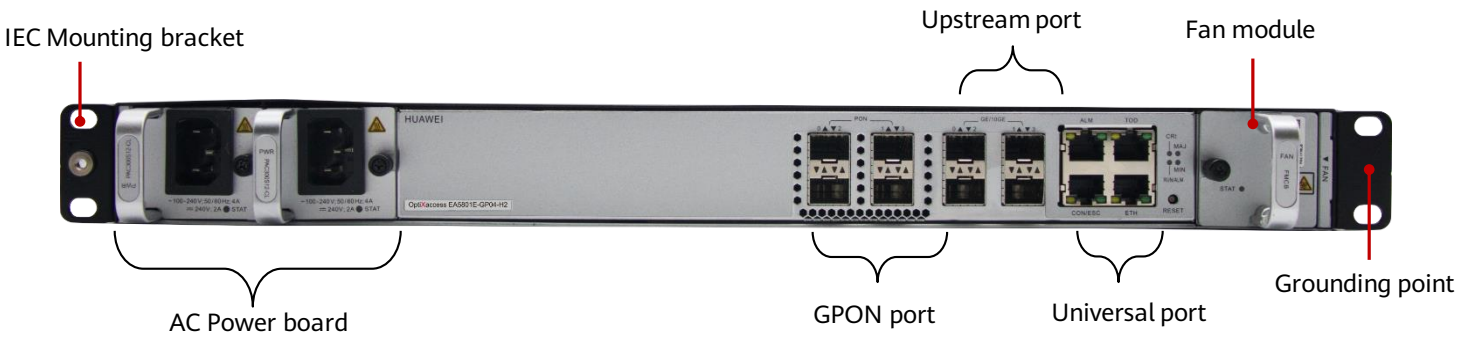


# 3 Appearance and Structure (EA5801E-GP04-H2)

**NOTE**

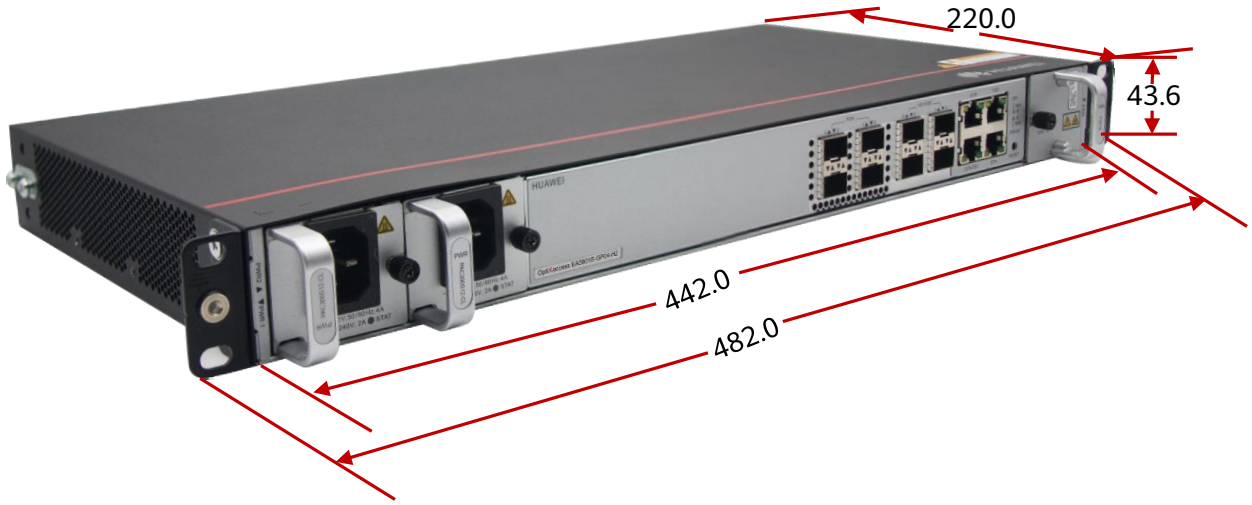
In a living environment, the product may cause radio interference, in which case the user may need to take measures to counteract the interference.

## EA5801E-GP04-H2 Front Panel Structure




## EA5801E-GP04-H2 (with IEC mounting bracket)

Unit: mm



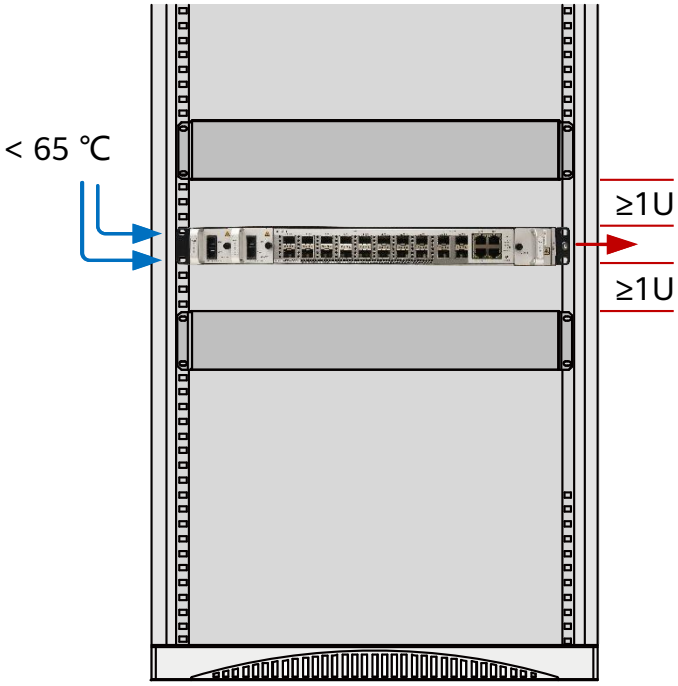
## Space Requirements

- **Cabinet requirements:**

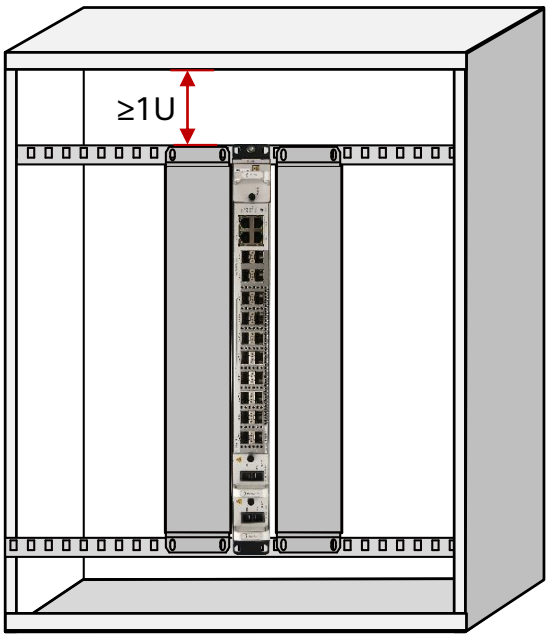
  For the EA5801E service subrack, select an IEC-compliant cabinet with a depth of 300 mm or more so that a space with a depth of 70 mm or more can be reserved for cable/fiber routing after boards are installed.
- **Cabinet door requirement**: When devices are operating, keep the cabinet door closed.

## Heat Dissipation Requirements

- The EA5801E is a device with left-to-right ventilation channels and must be deployed in a cabinet with non-blocking air intake vents on the cabinet door.
- When the device is installed together with other active devices in an indoor cabinet, you are advised to reserve 1 U space for heat dissipation above and under the device respectively to reduce the impact on other components in the cabinet, and the working temperature must be less than 65℃.
- When installing in an outdoor cabinet, the working environment temperature requirement is less than 65 ℃.




Indoor cabinet




Outdoor cabinet

## Power Distribution Requirements

Ensure that an over-current protection mechanism has been deployed on the upper-level device. A less than or equal to 20 A over-current protection mechanism are recommended for the EA5801E. Ensure that the circuit breaker trip value of the upper-level device is greater than or equal to the rated value on the device nameplate.

## Dustproof Requirement

The EA5801E subrack is not dustproof, so select dustproof cabinets that support dust filter maintenance.

# 5 Installing the Equipment

## 5.1 Installation in a Cabinet or a Rack

**NOTE**

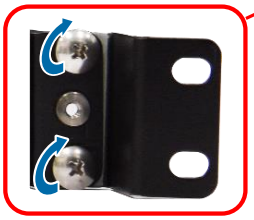
- The EA5801E is equipped with IEC mounting ears by default, so you do not need to install them in an IEC cabinet.
- When you install the EA5801E in an ETSI cabinet or rack, install ETSI mounting ears to the IEC mounting ears.

### 1 Installing mounting ear

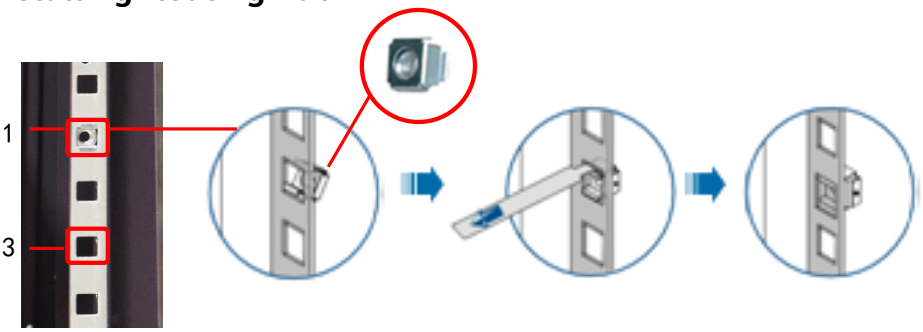
IEC mounting ears

Determine whether to install ETSI mounting ears based on the application scenario.

ETSI mounting ears



### 2 Installing floating nut




Mounting bar

**NOTE**

A flat-head screwdriver can be used as a floating nut mounting bar.

### 3 Installing in the cabinet

Phillips screwdriver

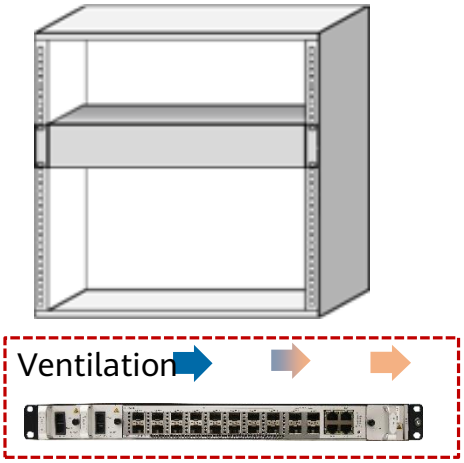
## 5.2 Installation in the Outdoor Cabinet or Network Cabinet

**NOTICE**

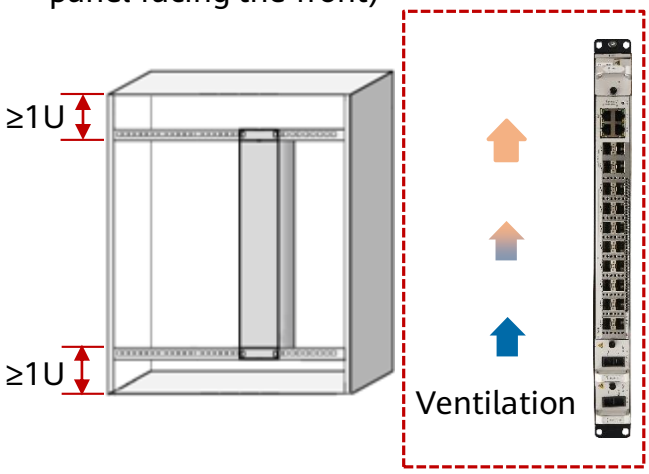
- For better heat dissipation, when installing the EA5801E in the network cabinet, avoid the short circuit of airflow inside the EA5801E and maximize the vent area.
- If the network cabinet is installed outdoors or in a corridor that is exposed to rain, the network cabinet must meet the requirements of IP55 class protection. ("IP" refers to International Protection. The first number "5" refers to the class for preventing the solid particle from entering the device. That is, the network cabinet cannot completely prevent dust from entering the device, but the amount of dust that enters the network cabinet does not damage the device. The second number "5" refers to the class for preventing water from entering the network cabinet. That is, the water sprayed from different directions to the network cabinet does not damage the device.)
- If the network cabinet is installed indoors or in a corridor that is out of rain, the network cabinet must meet the requirements of IP31 class protection. (The first number "3" means the solid particle with a diameter equal to or larger than 2.5 mm can be prevented from entering the cabinet. The second number "1" means the drips fallen vertically cannot damage the device.)

The modes of installing the EA5801E in the outdoor cabinet or network cabinet vary with the specifications for the customer. The following section describes the common modes to be taken for installing the EA5801E in the outdoor cabinet or network cabinet.

1. EA5801E horizontally installed (with the panel facing the front)

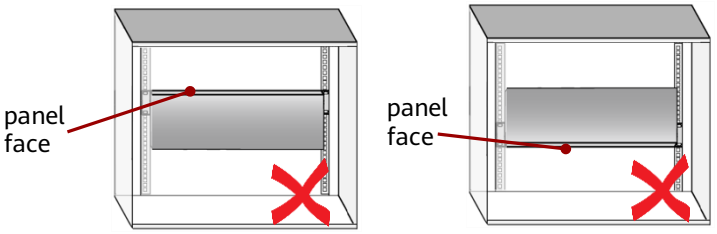



2. EA5801E vertically installed (with the panel facing the front)




**NOTICE**

To avoid dusts accumulating on the board or the board dropping off, do not install the EA5801E vertically in the network cabinet, regardless of the front panel facing upward or downward.



## Guide for Grounding the Network Cabinet of the Customer

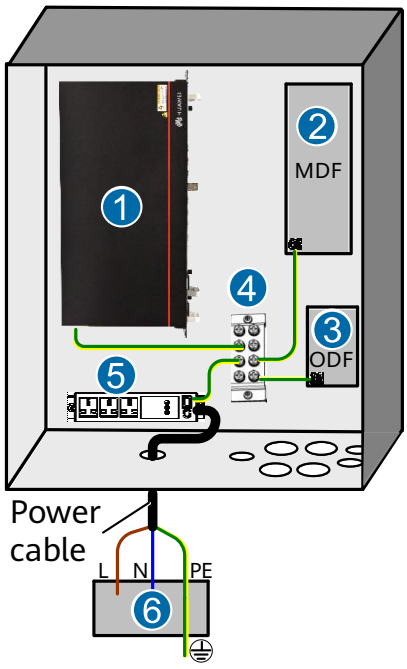
- **TN-S and TN-C-S power distribution system**

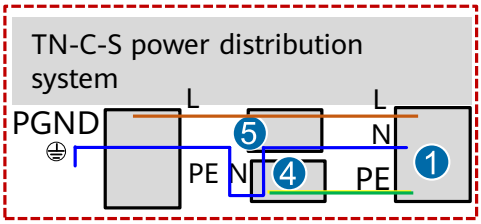
**DANGER**

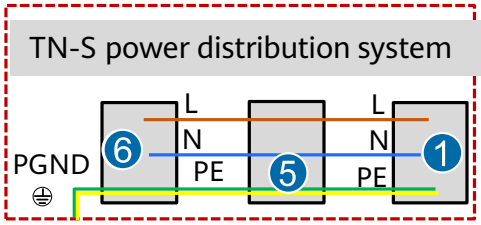
- The network cabinet must be grounded through an external ground cable (PGND cable).
- When the PE line of the AC power cable in the building of the corridor does not meet the grounding requirement, the network cabinet must be grounded through an external ground cable (PGND cable), ensure that the reinforcing rib of the optical fiber is disconnected from the device.
- A power cable with 3-5 m must be used for decoupling between the surge protector and ONU power supply.

**NOTE**

- In the case of the TN-C-S and TN-S AC power distribution systems, it is recommended that you use the PE wire of the AC power cable for the MDU grounding connection. The prerequisite is that the PE wire of the AC power cable for the corridor of the building is already grounded properly.
- Use the ground cable (the cross-sectional area of the ground cable must be greater than or equal to 6 $mm^2$) to connect the ground bar and all the internal devices, and the ground bar to the network cabinet in an equipotential manner through a metallic structure.
- Connect the grounding point of the reinforcing rib of the optical fiber to the ground bar through a ground cable, or connect this grounding point to the network cabinet in an equipotential manner through a metallic structure.



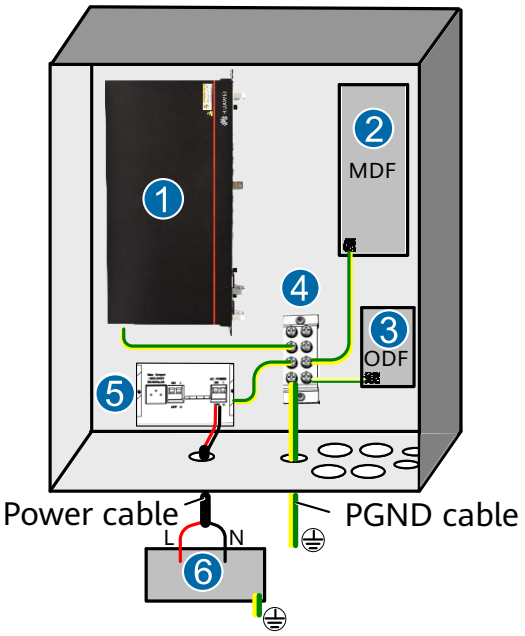

1 EA5801E
2 MDF
3 ODF
4 Ground bar
5 AC lightning protection bar
6 AC power distribution cabinet

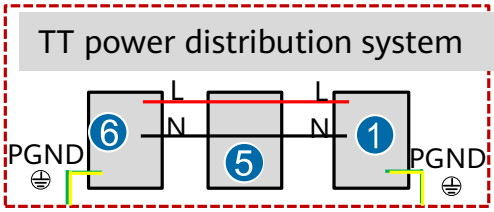
## Guide for Grounding the Network Cabinet of the Customer

- **TT power distribution system**

**NOTE**

- In the case of the TT power distribution system, it is recommended that an external grounding device be adopted. For example, use the dedicated grounding device of the building (such as the grounding flat steel sheet, grounding stud, and ground bar) or the base steel bar of the reinforcement concrete of the building, or deploy a new earth screen.
- Use the ground cable (the cross-sectional area of the ground cable must be greater than or equal to 6 $mm^2$) to connect the ground bar and all the internal devices, and the ground bar to the network cabinet in an equipotential manner through a metallic structure.
- Connect the external ground cable (PGND cable) of the network cabinet to the external grounding device. As specified by the national grounding standard, the cross-sectional area of the external ground cable must be greater than or equal to 16 $mm^2$.




1 EA5801E 2 MDF 3 ODF 4 Ground bar

5 AC PDU 6 AC power distribution cabinet

# 6 Routing Cables

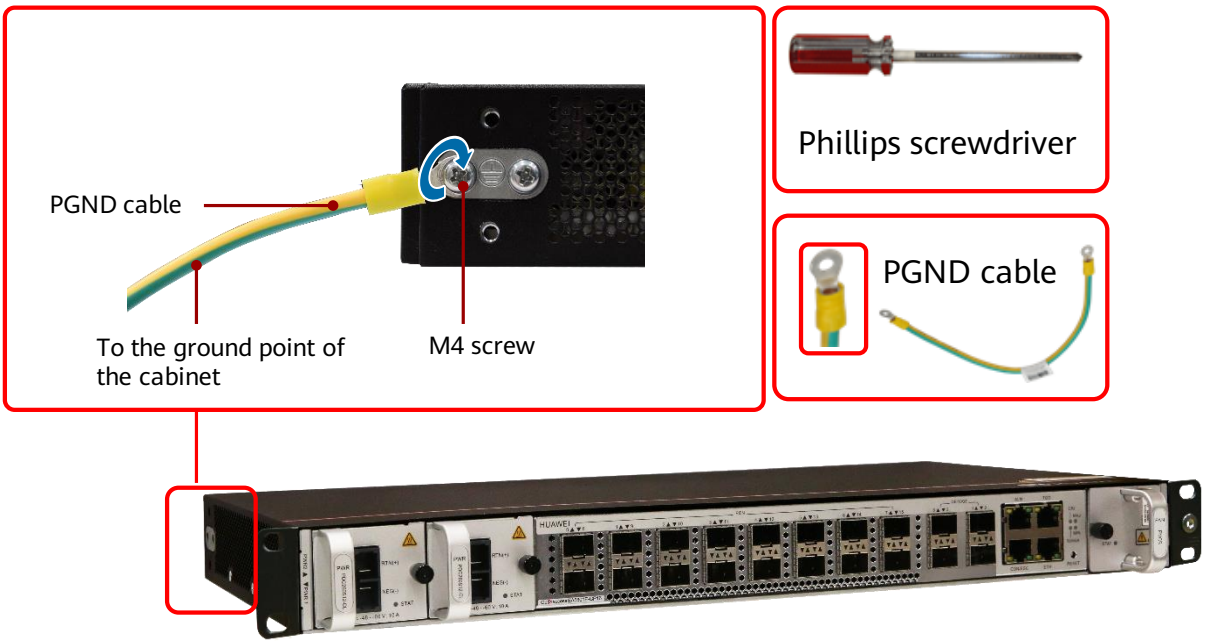
## 6.1 Routing the PGND Cable

**DANGER**

Connect the PGND cable properly to ensure that the service subrack is protected from the lightning and other interferences.

**NOTE**

- When the device is installed in a Huawei cabinet, the mounting ears at both ends can be grounded. No additional ground cable is required.
- Two ground points are designed for the EA5801E. One is at the left rear of the device, and the other is at the mounting ear position. You can select either one during installation.



# 6 Routing Cables

## 6.2 Routing the External Power Cables

**DANGER**

Before routing the power cable, turn off the output switch of the power system.

**NOTE**

- The EA5801E uses customized DC power cables. To ensure the normal operation of the device, do not replace the power cables without permission.
- The two power cables need to be controlled by independent circuit breakers when being connected to the DC PDU.
- The PDU must support two –48 V DC or –60 V DC power supplies. The rated current of a single circuit breaker must be less than or equal to 20 A.

### DC input

DC power supply

To the DC PDU

DC power cable

### AC input

AC power supply

To the AC PDU

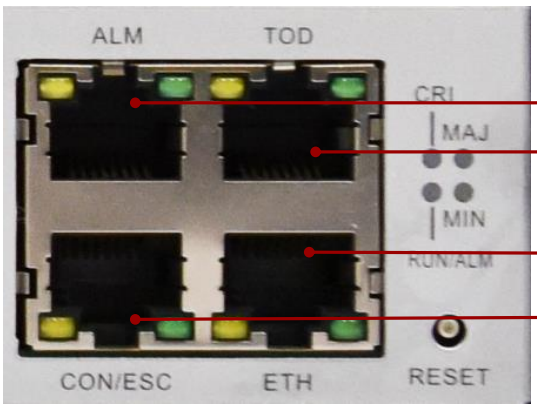
AC power cable

## 6.3 Routing Network Cables

**NOTICE**

- In scenarios complying with the EN 61000-6-5 and IEC 61850-3 standards in the electric power industry, the ETH, ALM, CON/ESC, and TOD ports on the EA5801E-GP16-H2 must be connected using shielded cables. Otherwise, data transmission may be unstable.

Route general interface cable




Boolean alarm port

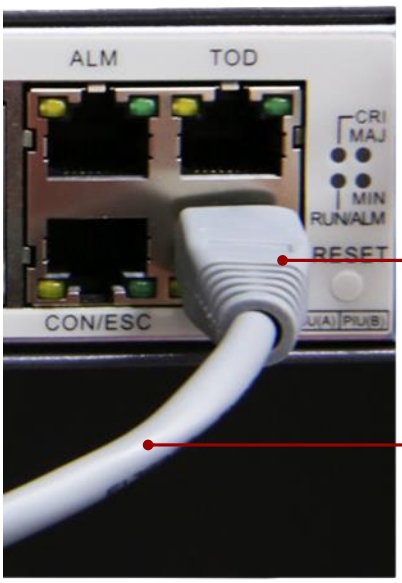
TOD clock port

ETH debugging port

Commissioning serial port and environment monitoring serial port

All the preceding ports are connected to the maintenance terminal or transmission device.

Network cable




Network cable

To the maintenance device

**NOTE**

This figure is for reference only. Connect the network cable based on actual service requirements.

# 6 Routing Cables

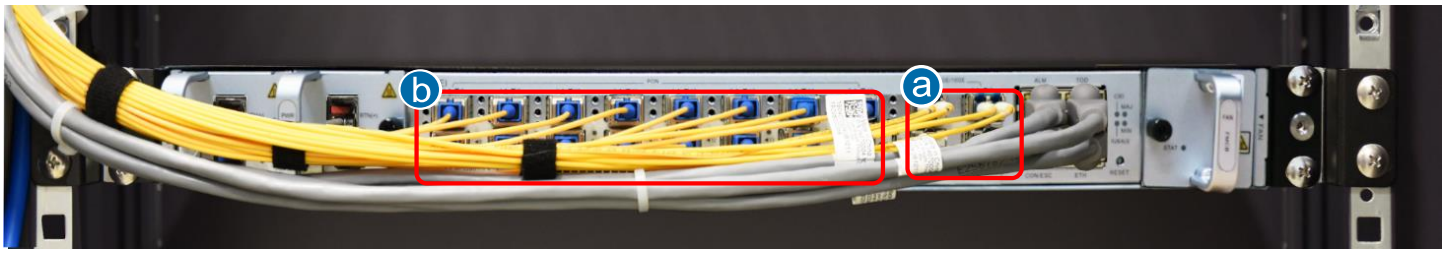
## 6.4 Routing Optical Fibers

**DANGER**

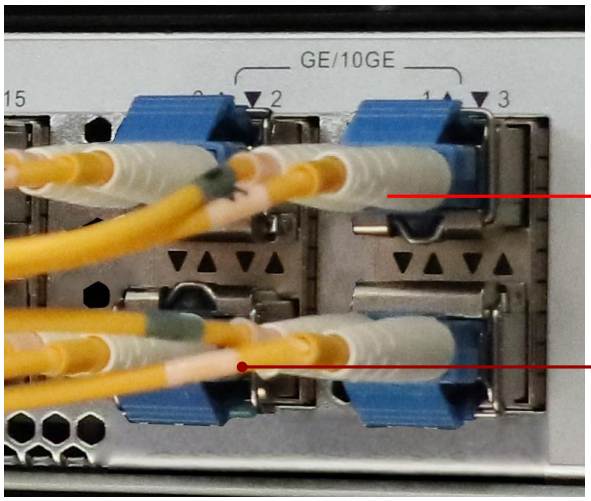
When handling optical fibers, do not stand close to or look into the optical fiber outlet directly with naked eyes.

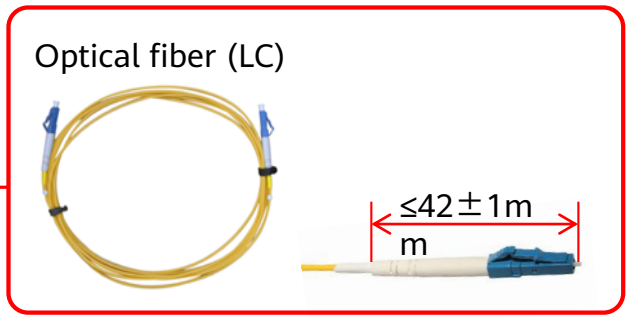
**NOTICE**

- The bending radius of the optical fiber should be more than 20 times the fiber diameter. In general, the bending radius of the optical fiber is more than or equal to 40 mm.
- Check whether the optical connector is dirty before the installation. If the optical connector is dirty, clean the connector with a piece of dust-free cotton cloth or a fiber cleaning box.
- Determine whether optical fibers need to be spliced based on local standards and customer requirements. Only qualified personnel are allowed to splice optical fibers.




**ⓐ Fiber for uplink**



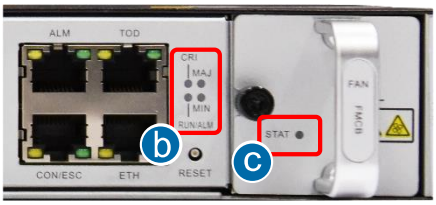

**ⓑ Fiber for service**


# 7 Powering On the System

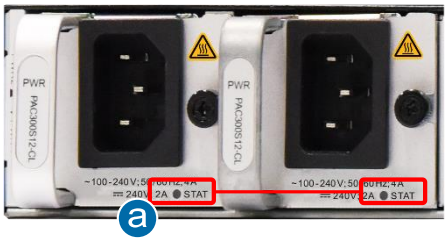
**NOTICE**

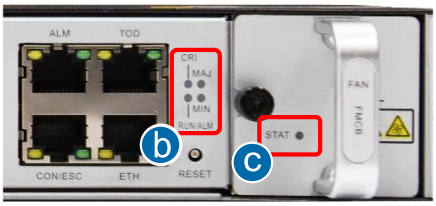
- Power on the device only when the input voltage is in the normal range.
- Use the multimeter to test the voltage between NEG(-) and RTN(+) on the DC PDU for the EA5801E powered by the -48 VDC. The voltage should range from -38.4 V to -57.6 V.
- Use the multimeter to test the voltage between NEG(-) and RTN(+) on the DC PDU for the EA5801E powered by the -60 VDC. The voltage should range from -50 V to -72 V.

DC power supply

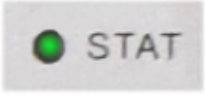

AC power supply




When the device runs properly, the status of each indicator is as follows:

a

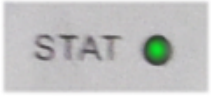



Steady green

b


On for 1s and off for 1s repeatedly

c




Blinking green

# Checking the Cabinet Installing

| NO. | Description | Method |
|---|---|---|
| 1 | Do not place any materials on the service subrack. | Observe |
| 2 | All the cables are bound with proper tightness. The space between the cable ties is even, and the remaining parts of the cable ties are cut off neatly. All cable ties face the same direction, keeping the overall appearance nice. | Observe |
| 3 | The cross sectional area of the power cable and ground cable complies with the engineering design, and satisfy the requirements of equipment running. | Observe |
| 4 | The power cable and ground cable adopt a whole segment of copper core. The cable has no connection in the middle or scratch on the skin. | Observe |
| 5 | The power cable and ground cable must be routed horizontally and vertically without crossover. Proper margins must be reserved at the turning. | Observe |
| 6 | The power cable and ground cable must be connected correctly and reliably. | Observe |
| 7 | The identifiers on the power cable and ground cable must be correct, legible, and neat. | Observe |
| 8 | The power cables, ground cables, and signal cables must be routed separately. | Observe |
| 9 | Signal cables must be long enough, and must not be damaged or broken, without joint in the cable. | Observe |
| 10 | The connectors of the signal cables must be neat and intact. The connectors must be connected correctly and firmly. The tips must be connected securely. | Observe |
| 11 | Labels at both ends of the signal cables must be marked correctly, clearly and neatly. | Observe |
| 12 | If the fibers must be routed outside the cabinet, protection measures must be taken, such as using corrugated pipes or guide troughs. | Observe |
| 13 | Place the optical fiber pairs in order and bind them carefully with optical binders. No sharp edge is allowed. | Observe |