

HUAWEI USG6000E Series

Hardware Guide

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1 About This Document

Related Version

The following table lists the product version related to this document.

Product Name	Version
<p>The USG6000E series has the following models:</p> <ul style="list-style-type: none"> ● USG6500E <ul style="list-style-type: none"> - USG6510E - USG6510E-POE - USG6515E - USG6525E - USG6530E - USG6550E - USG6555E - USG6560E - USG6565E - USG6575E-B - USG6580E - USG6585E ● USG6600E <ul style="list-style-type: none"> - USG6605E-B - USG6610E - USG6615E - USG6620E - USG6625E - USG6630E - USG6635E - USG6650E - USG6655E - USG6680E ● USG6700E <ul style="list-style-type: none"> - USG6712E - USG6716E 	<p>V600R006 V600R007</p>





Intended Audience

This document describes hardware structure, installation guide, and hardware maintenance. The content of this document includes the appearance and specifications of the product, preparation before the installation, installation, cabling, and hardware replacement.

This document is intended for installation personnel and administrators who install and maintain USG. The installation personnel or administrators must have experience in the installation and maintenance of networking devices.

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 hazard with a low level of risk which, if not avoided, could 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. NOTICE is used to address practices not related to personal injury.
 NOTE	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Command Conventions

The command conventions that may be found in this document are defined as follows.

Convention	Description
Boldface	The keywords of a command line are in boldface .
<i>Italic</i>	Command arguments are in <i>italics</i> .
[]	Items (keywords or arguments) in brackets [] are optional.
{ x y ... }	Optional items are grouped in braces and separated by vertical bars. One item is selected.
[x y ...]	Optional items are grouped in brackets and separated by vertical bars. One item is selected or no item is selected.

Convention	Description
{ x y ... } *	Optional items are grouped in braces and separated by vertical bars. A minimum of one item or a maximum of all items can be selected.
[x y ...] *	Optional items are grouped in brackets and separated by vertical bars. Several items or no item can be selected.
&<1-n>	The parameter before the & sign can be repeated 1 to n times.
#	A line starting with the # sign is comments.

GUI Conventions

The GUI conventions that may be found in this document are defined as follows.

Convention	Description
Boldface	Buttons, menus, parameters, tabs, window, and dialog titles are in boldface . For example, click OK .
>	Multi-level menus are in boldface and separated by the ">" signs. For example, choose File > Create > Folder .

Update History

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

- Updates in Issue 10 (2022-12-27) of Product Version V600R007C20SPC602**
 The tenth commercial release has the following updates:
 Added the hard disks: [SSD-SATA960G-C \(SSD-SATA960G-C-Solid State Drives,2.5inch\)](#).
- Updates in Issue 09 (2022-08-22) of Product Version V600R007C20SPC600**
 The ninth commercial release has the following updates:
 - Added the models with the BOM numbers containing "-001": [USG6605E-B](#), [USG6680E](#), [USG6712E](#), [USG6716E](#).
 - Added the models with the BOM numbers containing "-002": [USG6510E](#), [USG6525E](#), [USG6530E](#), [USG6565E](#), [USG6575E-B](#), [USG6585E](#), [USG6610E](#), [USG6620E](#), [USG6630E](#), [USG6650E](#).
 - Added the models with the BOM numbers containing "-004": [USG6555E](#).
 - Added the hard disks: [SSD-SATA240G-C \(SSD-SATA240G-C-Solid State Drives,2.5inch\)](#).
- Updates in Issue 08 (2022-04-20) of Product Version V600R007C20SPC500**

The eighth commercial release has the following updates:

- Added the models with the BOM numbers containing "-001": [USG6525E](#), [USG6555E](#), [USG6565E](#), [USG6585E](#).
- Added the [PAC600S12-EB \(600W AC Power Module\(Back to Front, Power panel side exhaust\)\)](#).
- Added the [100Mbps SFP Optical Modules](#).

- **Updates in Issue 07 (2021-08-27) of Product Version V600R007C20SPC300**

The seventh commercial release has the following updates:

- Added the models with the BOM numbers containing "-001": [USG6510E](#), [USG6530E](#), [USG6610E](#), [USG6620E](#), [USG6630E](#), [USG6650E](#).
- Added the [PAC1K2S12-CB \(1200W AC&240V DC Power Module \(Back to Front,Power panel side air-out\)\)](#).

- **Updates in Issue 06 (2020-11-28) of Product Version V600R007C20SPC100 and V600R007C20SPC200**

The sixth commercial release has the following updates:

Added the [USG6610E](#), [USG6620E](#).

- **Updates in Issue 05 (2020-08-10) of Product Version V600R007C20**

The fifth commercial release has the following updates:

- Added the [USG6575E-B](#).
- Added the [USG6605E-B](#), [USG6635E-DC](#).
- Added the [PAC150S12-R \(150W AC Power Module\)](#).
- Added the [PDC1000S12-CB \(1000W DC Power Module\(Back to Front,Power panel side exhaust\)\)](#).
- Added the [SSD-SATA960G-B \(SSD 960GB,SATA 6Gb/s,Read Intensive, 2.5inch\)](#).

- **Updates in Issue 04 (2020-02-27) of Product Version V600R007C00**

The fourth commercial release has the following updates:

Added the [PAC60S12-AR \(60W AC Power Module\)](#).

- **Updates in Issue 03 (2019-09-25) of Product Version V600R007C00**

The third commercial release has the following updates:

- Added the [USG6525E](#), [USG6555E](#), [USG6565E](#), [USG6585E](#).
- Added the [USG6615E](#), [USG6625E](#), [USG6635E-AC](#), [USG6655E](#).

- **Updates in Issue 02 (2019-05-20) of Product Version V600R007C00**

The second commercial release has the following updates:

Updated the [USG6510E](#), [USG6530E](#).

- **Updates in Issue 01 (2019-02-28) of Product Version V600R006C00**

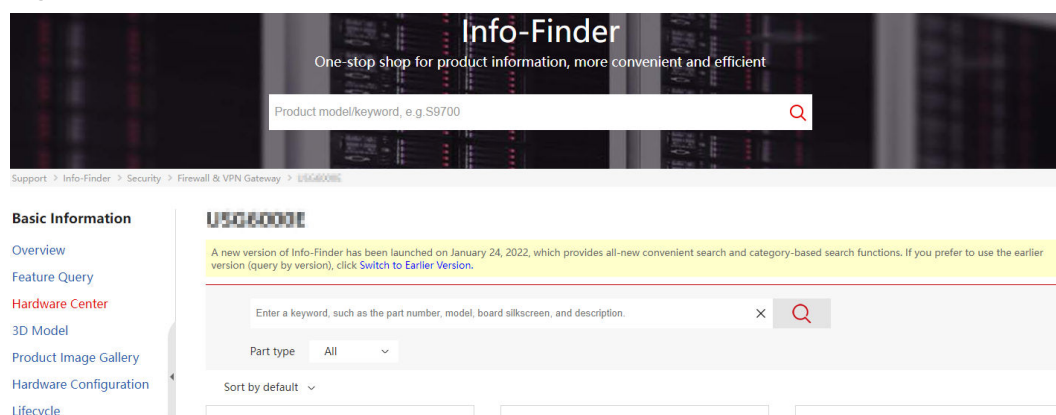
Initial commercial release.

2 Info-Finder

Info-Finder is a tool platform, as shown in [Figure 2-1](#). It allows you to search for key product information by product series and model. The key product information includes basic information such as the software specifications, life cycles, and hardware information, and operation and maintenance information such as the licenses, alarms, logs, commands, and MIBs. The hardware-related tools are as follows:

- **Product image gallery:** provides product photos, Visio-format templates, and network element icons for you to produce design drawings and networking diagrams.
- **Hardware configuration:** automatically generates hardware configuration diagrams after you select components are required and calculates the weight, power consumption, and heat consumption.
- **Hardware center:** provides the technical specifications of devices and components, as well as the mapping between devices, components, and versions.
- **3D model:** Using this function, you can query product images, product overview, and component insertion/removal videos, enabling you to quickly obtain product information in one-stop mode.

Figure 2-1 Info-Finder GUI



3 Software Versions Compatible with Hardware

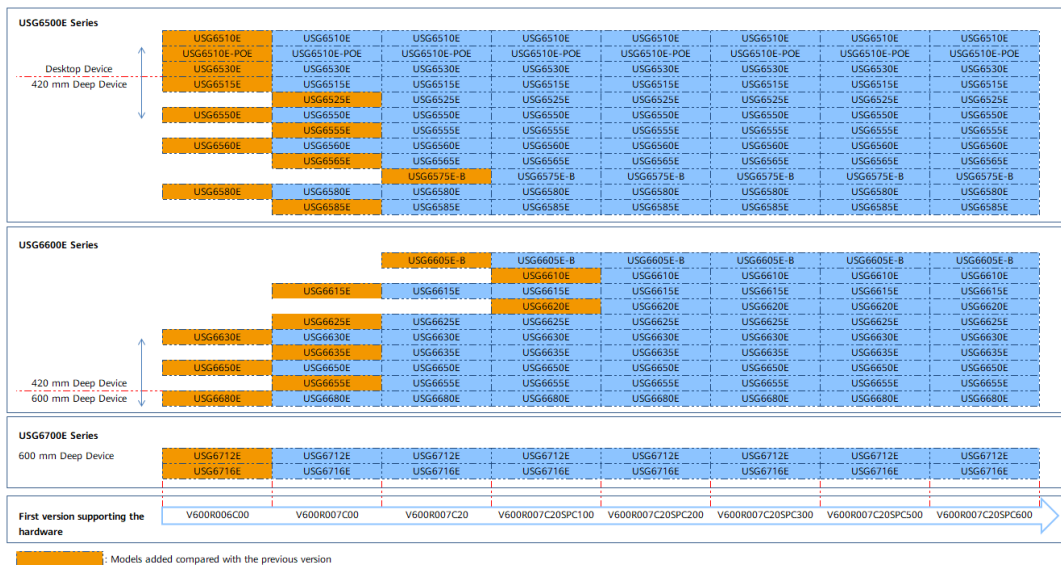
This section describes software versions compatible with the USG hardware.

The USG has its software versions constantly updated and optimized ever since its launch. **Figure 3-1** displays software versions compatible with the USG and version evolution.

NOTE

- As documentation and software versions are evolving, the *Hardware Guide* may describe a collection of all hardware of a product series, which does not mean that all hardware in this document is supported in this version. Before using hardware, carefully check the **First Supported Version** of the hardware in *Hardware Guide*.
- The *Hardware Guide* describes all the device models supported in a version, and these models may not be available for sales currently. To obtain accurate subscription information, regularly check the official <http://e.huawei.com> for product change notices (PCNs) and lifecycle management bulletins, or you can use the Info-Finder tool to query product EOX information.

Figure 3-1 Software versions compatible with hardware



4 Hardware Overview

This chapter describes hardware information for all USG6000E series and main components.

4.1 Chassis

This chapter describes hardware information for all USG6000E series, including hardware appearance, front and rear panels, power supply system, heat dissipation system, and technical specifications.

NOTE

- The model shown on the panel of the USG is the series number USG6000E. For the specific model, see the nameplate attached on the bottom of the USG.
- The device series number can be provided using laser marking on the panel or film silkscreen. The device functions are the same regardless of the series number presentation mode.

4.1.1 USG6510E

Overview

Table 4-1 Basic information about the USG6510E

Description	Part Number	Model	First supported version
USG6510E AC Host (10*GE RJ45+2*GE SFP, 1*Adapter)	02352PQH	USG6510E-AC	V600R007C00
USG6510E AC Host (10*GE RJ45+2*GE SFP, 1*Adapter)	02352PQH-001	USG6510E-AC	V600R007C20SPC300

Description	Part Number	Model	First supported version
USG6510E AC Host(10*GE RJ45+2*GE SFP, 1*Adapter)	02352PQH-002	USG6510E-AC	V600R007C20SPC 600

Appearance

NOTE

The standard USB port of the earlier-delivered models is USB 3.0, and that of the later-delivered models is USB 2.0. This document uses a model with a USB 3.0 port as an example.

Figure 4-1 Appearance of the USG6510E (front view)

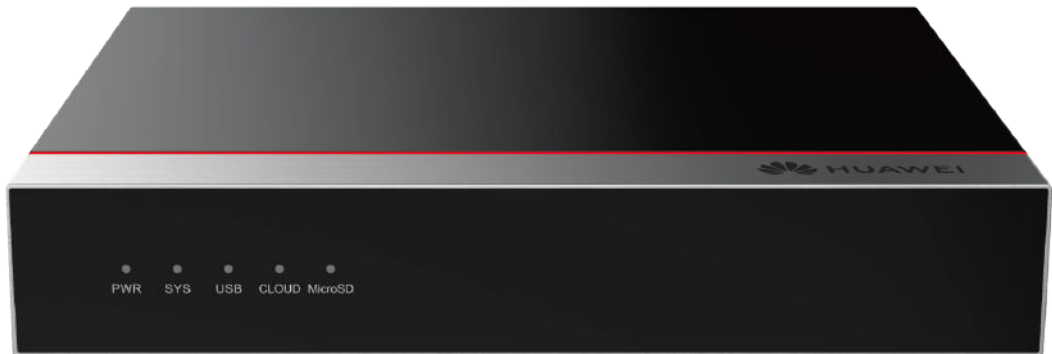
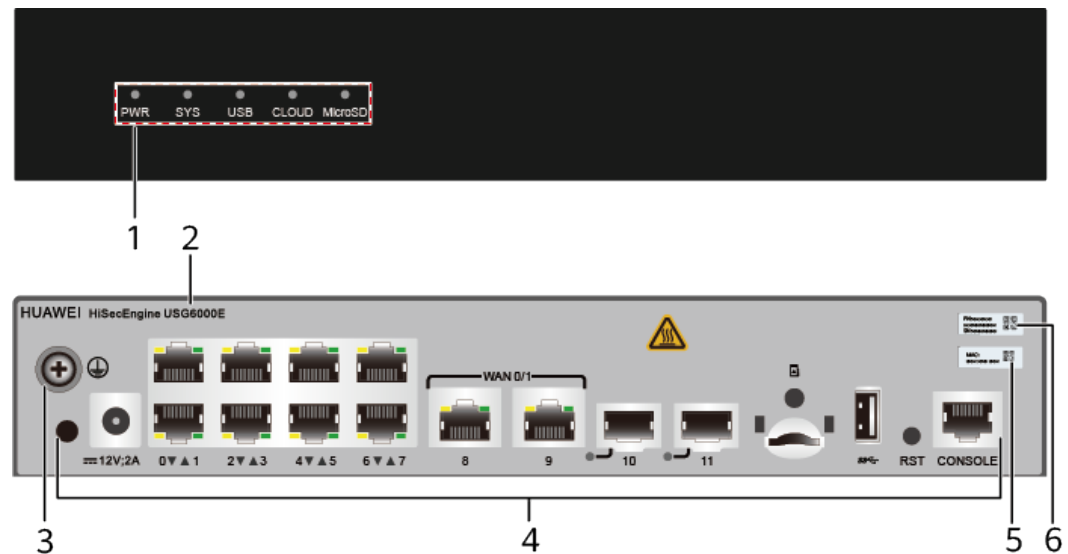


Figure 4-2 Appearance of the USG6510E (rear view)



Components

Figure 4-3 Components of the USG6510E



1. Indicator area	2. Product series ID	3. Protective ground terminal	4. Fixed interface area	5. MAC label
6. SN label	-	-	-	-

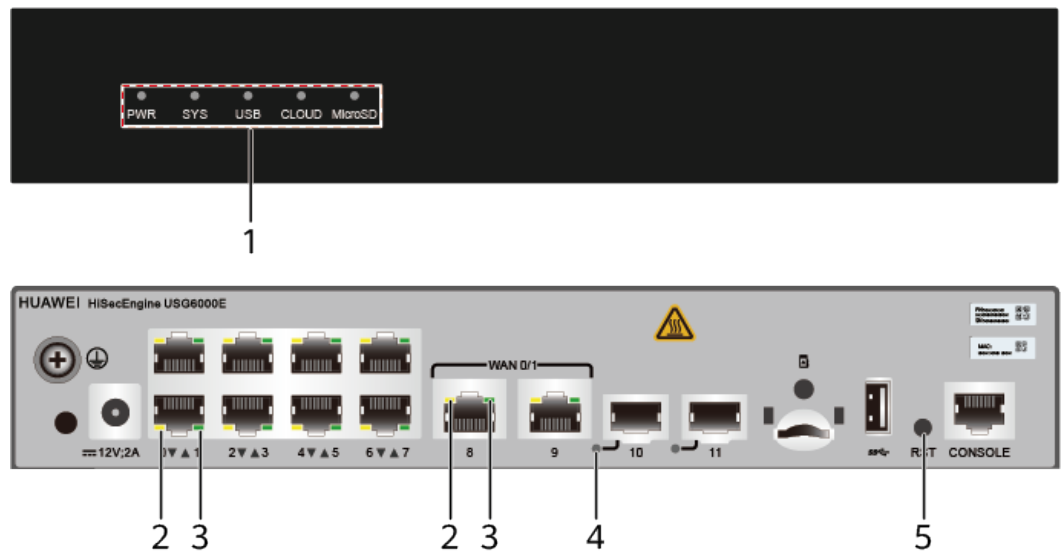
Table 4-2 Component functions

Name	Description
Indicator area	Provides various indicators to display the device running status in real time.
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
Fixed interface area	<ul style="list-style-type: none"> Provides clip hole and power receptacle. Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance. Houses a Micro SD card to store logs and reports.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.

Name	Description
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.

Indicators and Buttons

Figure 4-4 Indicators and buttons on the USG6510E



1. PWR, SYS, USB, CLOUD, and MicroSD indicators	2. GE electrical port ACT indicator	3. GE electrical port LINK indicator	4. Optical port indicator	5. RST button indicator
---	-------------------------------------	--------------------------------------	---------------------------	-------------------------

Table 4-3 Indicators on the USG6510E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.

Silkscreen	Name	Color	Status	Description
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	A system fault occurs.
		-	Off	The system is not running.
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.

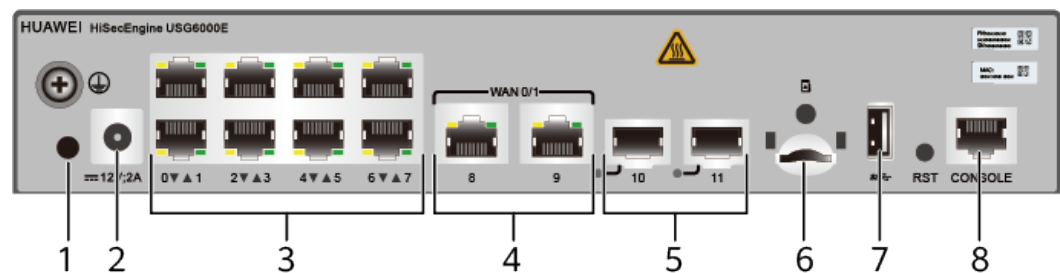
Silkscreen	Name	Color	Status	Description
		-	Off	The device is not connected to the cloud management platform.
MicroSD	Micro SD indicator	Green	Steady on	The micro SD card is present.
		-	Off	The micro SD card is not detected.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	Optical port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-4 Buttons on the USG6510E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.

Ports

Figure 4-5 Ports on the USG6510E



1. Clip hole	2. Power receptacle	3. GE electrical port	4. WAN port	5. GE optical port
6. Micro SD card slot	7. USB port NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 3.0 • Later-delivered models: USB 2.0 	8. Console port	-	-

Table 4-5 Ports on the USG6510E

Port	Connector Type	Description	Available Components
Clip hole	-	The hole is used to install the power cable clip, which is used to bind and fix the power cable.	Power cable clip
Power receptacle	-	The receptacle connects to the tuning fork plug of the power adapter.	<ul style="list-style-type: none"> • 36 W Power Adapter (02220947) • 36 W Power Adapter (02221468)

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 7)	RJ45	<p>8 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/7.</p> <p>GigabitEthernet 0/0/0 is an inband management port and its default IP address is 192.168.0.1. After this port is connected to your PC through Ethernet cables, you can log in to the device using Telnet, STelnet, or web UI to configure or manage the device.</p> <p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
WAN ports (8 to 9)	RJ45	2 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/8 to GigabitEthernet 0/0/9. The device is connected to the WAN or cloud management platform using an Ethernet cable.	Ethernet Cable
GE optical port (10 to 11)	SFP	2 GE Ethernet optical ports, numbered from GigabitEthernet 0/0/10 to GigabitEthernet 0/0/11. Compatible with GE Ethernet optical ports.	<ul style="list-style-type: none"> • 100Mbps SFP Optical Modules • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules <p>NOTE In V600R007C20SPC500 and later versions, GE optical ports support 100Mbps SFP Optical Modules.</p>

Port	Connector Type	Description	Available Components
Micro SD card slot	Micro SD	<p>The micro SD card slot allows you to insert a micro SD card to record logs and reports in real time. The micro SD card is optional. You can purchase one from Huawei if needed.</p> <p>You are advised to install an anti-theft board delivered with the device to protect the micro SD card.</p>	SDSDQAE-064G (BOM code: 06010308, capacity: 64GB, dimensions (H x W x D): 1 mm x 15.00 mm x 11.00 mm/0.04 in. x 0.59 in. x 0.43 in)
USB port	USB Type A	USB port allows you to insert an USB flash drive for system software upgrades. For details on upgrades through USB flash drives, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	Console ports allow you to locally connect a PC to the device. You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.	Console Cable

Power Supply System

- Early delivery: The device has no built-in power modules and uses a 36 W Power Adapter (02220947) or 36 W Power Adapter (02221468) for power supply.
- Later delivery: The device has no built-in power modules and uses a 36 W Power Adapter (02221468) for power supply.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-6 Technical specifications of the USG6510E

Item	Specification
Installation Type	<ul style="list-style-type: none"> • Rack • Work bench • Against the wall
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 250 mm x 210 mm (1.72 in. x 9.84 in. x 8.27 in.)

Item	Specification
Dimensions with packaging (H x W x D) [mm(in.)]	110 mm x 465 mm x 335 mm (4.33 in. x 18.31 in. x 13.19 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	2.3 kg (5.07 lb)
Weight without packaging [kg(lb)]	1.57 kg (3.46 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.2 GHz
Memory	DDR4 1 GB
NOR Flash	<ul style="list-style-type: none"> USG6510E-AC (02352PQH): 32 MB USG6510E-AC (02352PQH-001): 64 MB USG6510E-AC (02352PQH-002): 64 MB
NAND Flash	1 GB
Hard disk	Optional. Purchase one 64-GB micro SD card from Huawei as required.
Console port	RJ45
Maximum power consumption [W]	21.6 W
Maximum heat dissipation [BTU/hour]	73.7 BTU/hour
MTBF [years]	57.29 years
MTTR [hours]	2 hours
Power supply mode	Power adapter external
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current [A]	1 A
Rated output power [W]	<ul style="list-style-type: none"> USG6510E-AC (02352PQH): - USG6510E-AC (02352PQH-001): - USG6510E-AC (02352PQH-002): 36W/12V
Maximum output power [W]	36 W
Types of fans	None
Number of fan modules	0
Heat dissipation mode	Has no fan and uses natural cooling.

Item	Specification
Maximum number of GE ports	2
Maximum number of electrical ports	10
Long-term operating temperature [°C(°F)]	0°C to 45°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0 m to 5000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 **NOTE**

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.

4.1.2 USG6510E-POE

Overview

Table 4-7 Basic information about the USG6510E-POE

Description	Part Number	Model	First supported version
USG6510E-POE AC Host (10*GE RJ45 + 2*GE SFP,with the AC/DC adapter)	02352CSC	USG6510E-POE-AC	V600R006C00

Appearance

Figure 4-6 Appearance of the USG6510E-POE (front view)

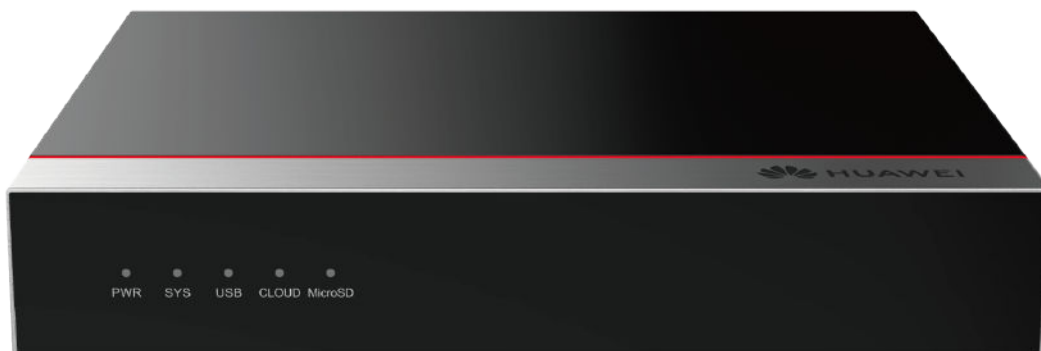
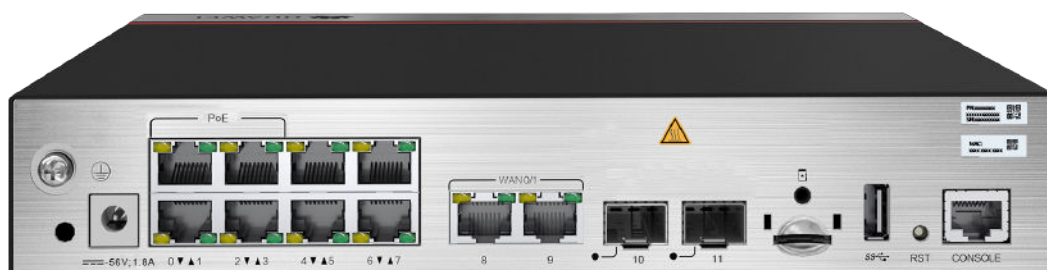


Figure 4-7 Appearance of the USG6510E-POE (rear view)



Components

Figure 4-8 Components of the USG6510E-POE

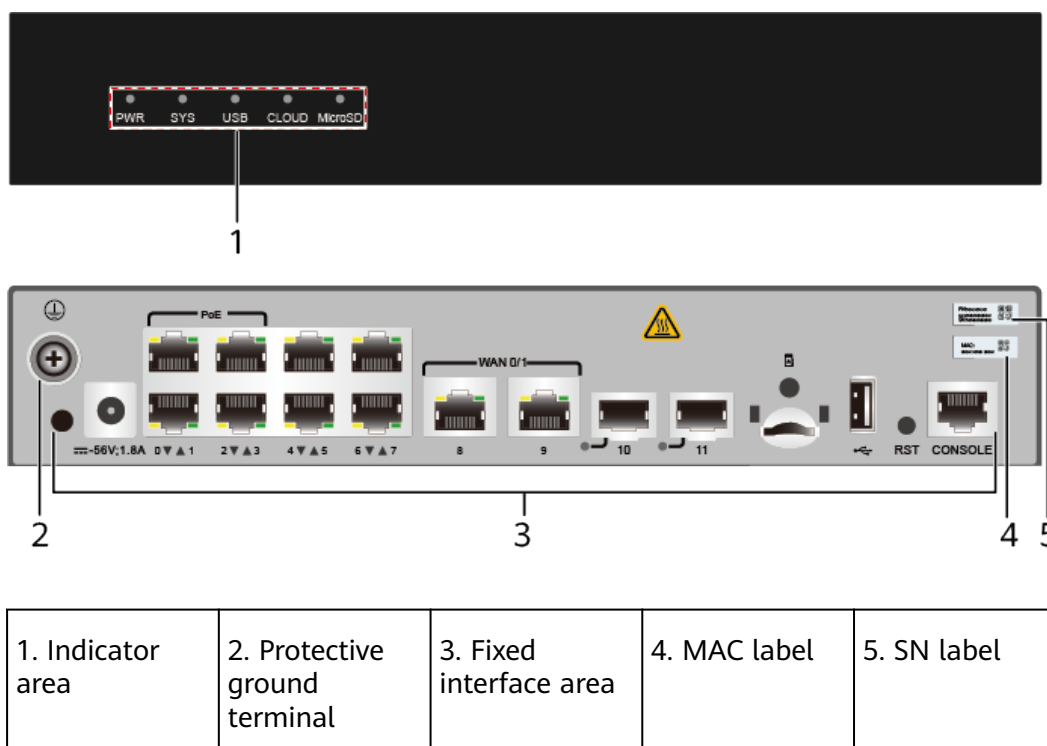


Table 4-8 Component functions

Name	Description
Indicator area	Provides various indicators to display the device running status in real time.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
Fixed interface area	<ul style="list-style-type: none"> Provides clip hole and power receptacle. Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance. Houses a Micro SD card to store logs and reports.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.

Indicators and Buttons

Figure 4-9 Indicators and buttons on the USG6510E-POE

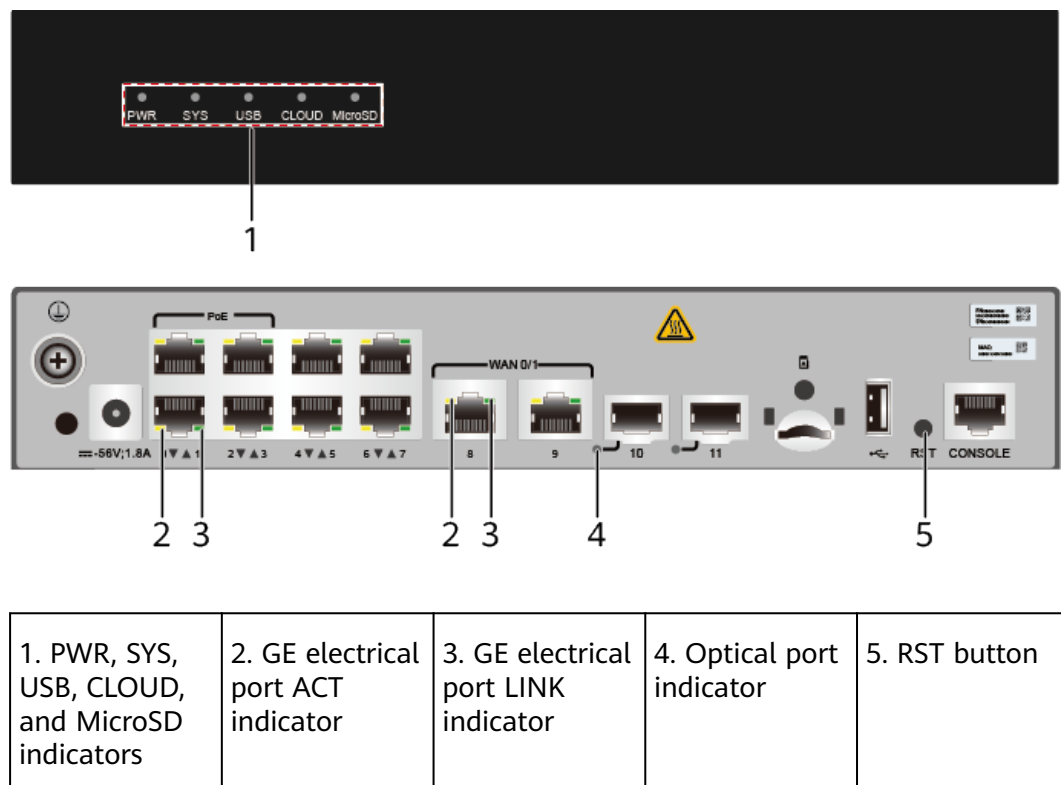


Table 4-9 Indicators on the USG6510E-POE

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	A system fault occurs.
		-	Off	The system is not running.
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).

Silkscreen	Name	Color	Status	Description
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
MicroSD	Micro SD indicator	Green	Steady on	The micro SD card is present.
		-	Off	The micro SD card is not detected.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	Optical port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.

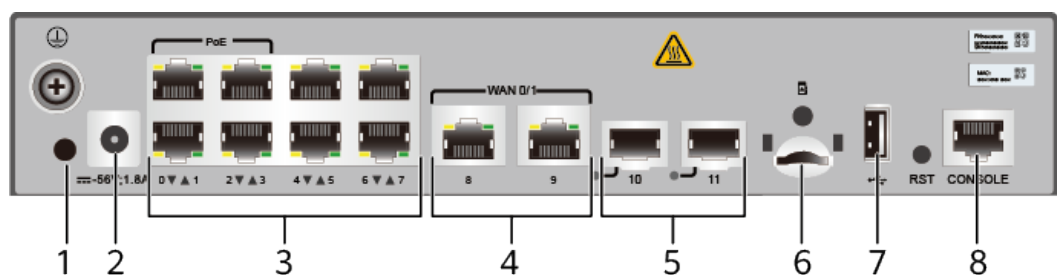
Silkscreen	Name	Color	Status	Description
		-	Off	No link is established on the port.

Table 4-10 Buttons on the USG6510E-POE

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.

Ports

Figure 4-10 Ports on the USG6510E-POE



1. Clip hole	2. Power receptacle	3. GE electrical port	4. WAN port	5. GE optical port
6. Micro SD card slot	7. USB 3.0 port	8. Console port	-	-

Table 4-11 Ports on the USG6510E-POE

Port	Connector Type	Description	Available Components
Clip hole	-	The hole is used to install the power cable clip, which is used to bind and fix the power cable.	Power cable clip
Power receptacle	-	The receptacle connects to the tuning fork plug of the power adapter.	150 W Power Adapter

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 7)	RJ45	<p>8 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/7. Among the interfaces, GigabitEthernet0/0/0 to GigabitEthernet0/0/3 support PoE output and can supply power to PDs (such as IP phones and surveillance cameras).</p> <p>GigabitEthernet 0/0/0 is an inband management port and its default IP address is 192.168.0.1. After this port is connected to your PC through network cables, you can log in to the device using Telnet, STelnet, or web UI to configure or manage the device.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
		<p>NOTE</p> <ul style="list-style-type: none"> When the device supplies power to PDs, the total power consumption of the PDs must not exceed 60 W. Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. 	
WAN ports (8 to 9)	RJ45	<p>2 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/8 to GigabitEthernet 0/0/9.</p> <p>The device is connected to the WAN or cloud management platform using a network cable.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
GE optical port (10 to 11)	SFP	2 GE Ethernet optical ports, numbered from GigabitEthernet 0/0/10 to GigabitEthernet 0/0/11. Compatible with GE Ethernet optical ports.	<ul style="list-style-type: none"> • 100Mbps SFP Optical Modules • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules <p>NOTE In V600R007C20SPC500 and later versions, GE optical ports support 100Mbps SFP Optical Modules.</p>
Micro SD card slot	Micro SD	The micro SD card slot allows you to insert a micro SD card to record logs and reports in real time. The micro SD card is optional. You can purchase one from Huawei if needed. You are advised to install an anti-theft board delivered with the device to protect the micro SD card.	SDSDQAE-064G (BOM code: 06010308, capacity: 64GB, dimensions (H x W x D): 1 mm x 15.00 mm x 11.00 mm/0.04 in. x 0.59 in. x 0.43 in)
USB 2.0 port	USB	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	Console ports allow you to locally connect a PC to the device. You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.	Console Cable

Power Supply System

The device has no built-in power modules and uses a 150 W Power Adapter for power supply.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-12 Technical specifications of the USG6510E-POE-AC

Item	Specification
Installation Type	<ul style="list-style-type: none"> • Rack • Work bench • Against the wall
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 250 mm x 210 mm (1.72 in. x 9.84 in. x 8.27 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	110 mm x 470 mm x 335 mm (4.33 in. x 18.5 in. x 13.19 in.)

Item	Specification
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	3.45 kg (7.61 lb)
Weight without packaging [kg(lb)]	1.75 kg (3.86 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.2 GHz
Memory	DDR4 1 GB
NOR Flash	32 MB
NAND Flash	1 GB
Hard disk	Optional. Purchase one 64-GB micro SD card from Huawei as required.
Console port	RJ45
Maximum power consumption [W]	85.1 W
Maximum heat dissipation [BTU/hour]	291 BTU/hour
MTBF [years]	57.29 years
MTTR [hours]	2 hours
Power supply mode	Power adapter external
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 290 V, 47 Hz to 63 Hz
Maximum input current [A]	2 A
Maximum output power [W]	150 W
Types of fans	None
Number of fan modules	0
Heat dissipation mode	Has no fan and uses natural cooling.
Maximum number of GE ports	2
Maximum number of electrical ports	10
PoE	Supported
PoE power interfaces	4
Network cable type and longest transmission	<ul style="list-style-type: none"> • IEEE 802.3af: 100 m if there is no special requirement • IEEE 802.3at: 100 m for CAT5e and higher

Item	Specification
Long-term operating temperature [°C(°F)]	0°C to 45°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0 m to 5000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.

4.1.3 USG6515E

Overview

Table 4-13 Basic information about the USG6515E

Description	Part Number	Model	First supported version
USG6515E AC Host (2*GE WAN + 8*GE Combo + 16*GE RJ45 + 2*10GE SFP+,1 AC power)	02352CBP	USG6515E-AC	V600R006C00

Appearance

Figure 4-11 Appearance of the USG6515E (front view)

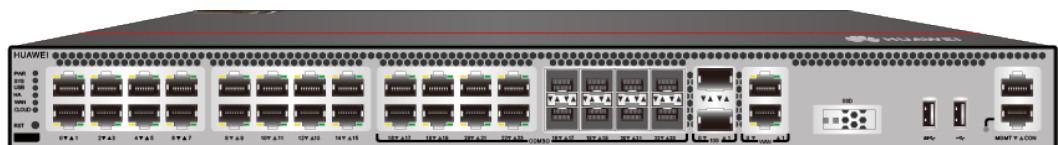
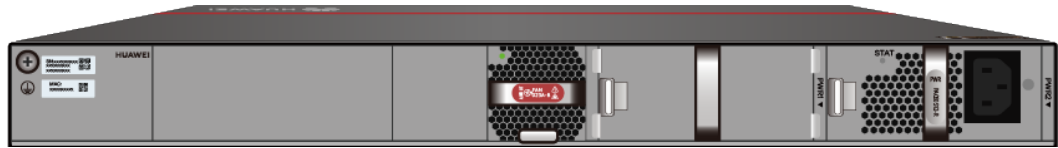
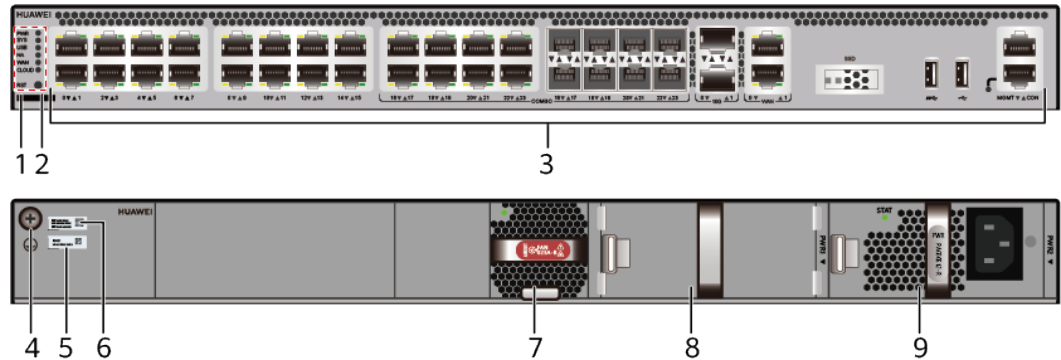


Figure 4-12 Appearance of the USG6515E (rear view)



Components

Figure 4-13 Components of the USG6515E



1. Product series ID	2. Indicator and button area	3. Fixed interface area	4. Protective ground terminal	5. MAC label
6. SN label	7. Fan module	8. Optional power module slot	9. Power module	-

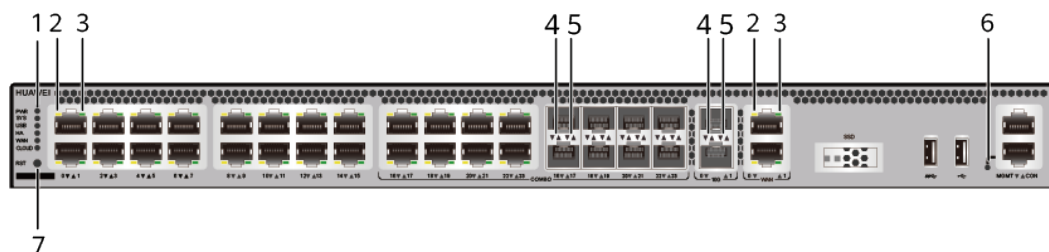
Table 4-14 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.

Name	Description
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The slot number of the fan module is 4.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-14 Indicators and buttons on the USG6515E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. GE electrical port ACT indicator	3. GE electrical port LINK indicator	4. Optical port ACT indicator	5. Optical port LINK indicator
6. MGMT port indicator	7. RST button	-	-	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-15 Indicators on the USG6515E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> • The system is faulty. • The power supply is abnormal. • The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Hot backup, managing the master device
		Green	Blinks once every 2 seconds (0.5 Hz).	Hot backup, managing the slave device
		Red	Steady on	Dual-system hot backup is faulty.
		-	Off	The dual-system hot backup function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.

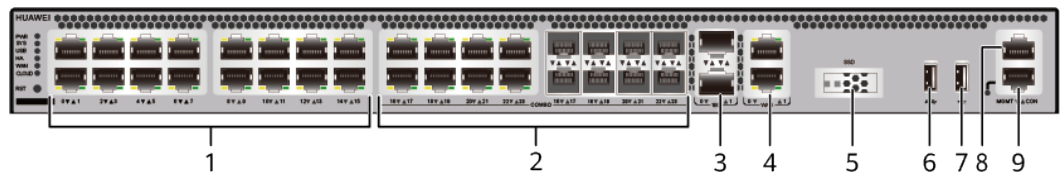
Silkscreen	Name	Color	Status	Description
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-16 Buttons on the USG6515E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.

Ports

Figure 4-15 Ports on the USG6515E



1. GE electrical port	2. Combo port	3. 10GE optical port	4. WAN port	5. SSD card slot
6. USB 3.0 port	7. USB 2.0 port	8. Console port	9. MGMT port	-

Table 4-17 Ports on the USG6515E

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 15)	RJ45	16 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/15. NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Ethernet Cable

Port	Connector Type	Description	Available Components
Combo ports (16 to 23)	RJ45 + SFP	<p>Combo ports. Combo ports are logic ports. One combo port can work as a GE electrical interface or a GE optical port. Each combo port has only one internal forwarding port. When the electrical port is enabled, the optical port is disabled. When the optical port is enabled, the electrical port is disabled. The electrical and optical ports of a combo port use the same interface view, numbered from GigabitEthernet 0/0/16 to GigabitEthernet 0/0/23. By default, the combo port is used as an electrical port. You can use the <code>combo enable { copper fiber }</code> command to set the working mode of combo ports according to network requirements.</p>	<ul style="list-style-type: none"> • Ethernet Cable • 1Gbps eSFP Optical Modules

Port	Connector Type	Description	Available Components
10GE optical ports (0 to 1)	SFP+	2 10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet 0/0/0 to XGigabitEthernet 0/0/1. Not compatible with GE optical modules.	10Gbps SFP+ Optical Modules
WAN ports (0 to 1)	RJ45	2 10/100/1000M autosensing Ethernet electrical ports, numbered from WAN 0/0/0 to WAN 0/0/1. The device is connected to the WAN or cloud management center using a network cable.	Ethernet Cable
SSD card slot	-	The M.2 module is inserted to record logs and reports in real time. The M.2 module is optional. You can purchase the M.2 module as required.	<ul style="list-style-type: none"> • Hard Disk Unit M.2-Sata64G-A • Hard Disk Unit M.2-Sata240G-A
USB 3.0 port	USB 3.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
USB 2.0 port	USB 2.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

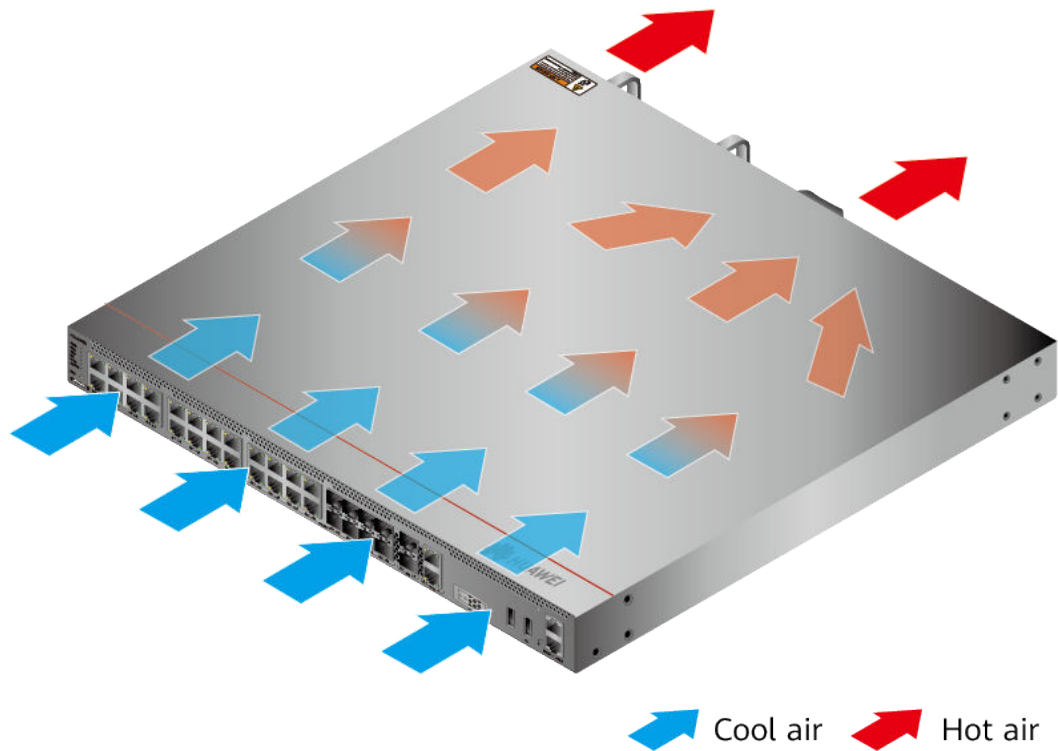
Power Supply System

The power supply system has one PAC60S12-R AC power module, but two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system uses one FAN-023A-B module to dissipate heat for the system. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-16 System air flow of the USG6515E



Technical Specifications

Table 4-18 Technical specifications of the USG6515E-AC

Item	Specification
Installation Type	<ul style="list-style-type: none"> Rack Work bench
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	220 mm x 550 mm x 530 mm (8.66 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	8.1 kg (17.86 lb)
Weight without packaging [kg(lb)]	5.71 kg (12.59 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.4 GHz
Memory	DDR4 4 GB
NOR Flash	32 MB

Item	Specification
NAND Flash	2 GB
Hard disk	Optional. M.2 SSD (64GB/240GB), hot-swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	46.4 W
Maximum heat dissipation [BTU/hour]	158.7 BTU/hour
MTBF [years]	45.56 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 264 V, 47 Hz to 63 Hz
Types of fans	Pluggable
Number of fan modules	1
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	2
Maximum number of GE ports	24
Maximum number of electrical ports	24
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Long-term operating temperature [°C(°F)]	0°C to 45°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0 m to 5000 m
Storage altitude [m(ft.)]	0 m to 5000 m

NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.

4.1.4 USG6525E

Overview

Table 4-19 Basic information about the USG6525E

Description	Part Number	Model	First supported version
USG6525E AC Host (2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353AFX	USG6525E-AC	V600R007C00
USG6525E AC Host(2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353AFX-001	USG6525E-AC	V600R007C20SPC 500
USG6525E AC Host(2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353AFX-002	USG6525E-AC	V600R007C20SPC 600

Appearance

NOTE

The two USB ports of earlier-delivered models are USB 3.0 and USB 2.0 respectively, whereas those of later-delivered models are both USB 2.0. In this document, earlier-delivered models are used as examples.

Figure 4-17 Appearance of the USG6525E (front view)

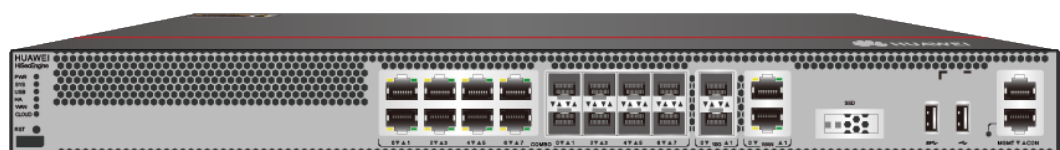
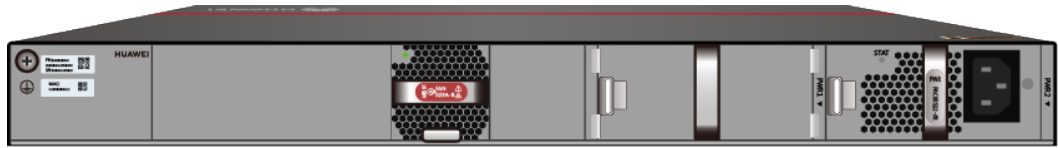
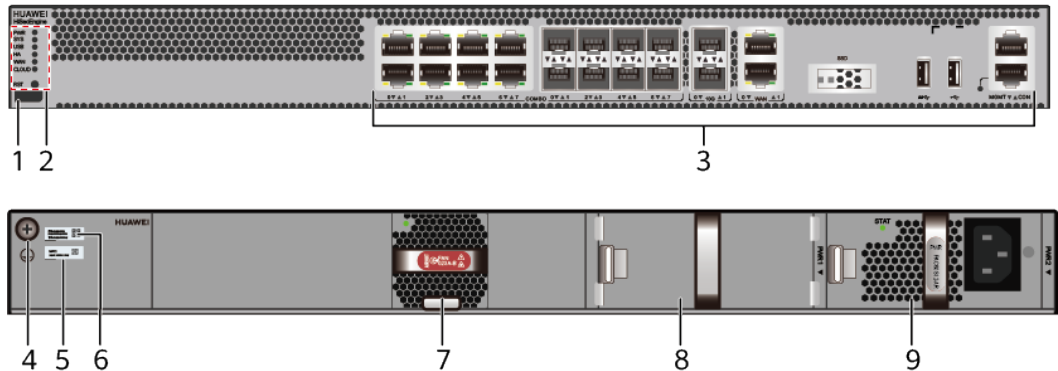


Figure 4-18 Appearance of the USG6525E (rear view)



Components

Figure 4-19 Components of the USG6525E



1. Product series ID	2. Indicator and button area	3. Fixed interface area	4. Protective ground terminal	5. MAC label
6. SN label	7. Fan module	8. Optional power module slot	9. Power module	-

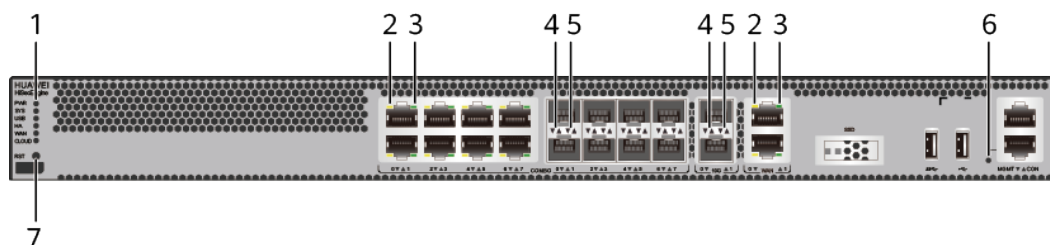
Table 4-20 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.

Name	Description
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The slot number of the fan module is 4.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-20 Indicators and buttons on the USG6525E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. GE electrical port ACT indicator	3. GE electrical port LINK indicator	4. Optical port ACT indicator	5. Optical port LINK indicator
6. MGMT port indicator	7. RST button	-	-	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-21 Indicators on the USG6525E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Hot backup, managing the master device
		Green	Blinks once every 2 seconds (0.5 Hz).	Hot backup, managing the slave device
		Red	Steady on	Dual-system hot backup is faulty.
		-	Off	The dual-system hot backup function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.

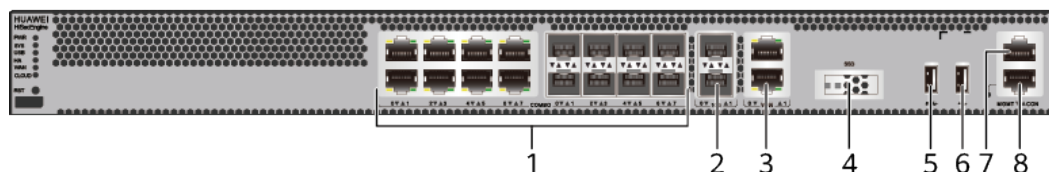
Silkscreen	Name	Color	Status	Description
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-22 Buttons on the USG6525E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.

Ports

Figure 4-21 Ports on the USG6525E



1. Combo port	2. 10GE optical port	3. WAN port	4. SSD card slot	5. USB 3.0 port or USB0 NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 3.0 • Later-delivered models: USB0 (USB 2.0)
6. USB 2.0 port or USB1 NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 2.0 • Later-delivered models: USB1 (USB 2.0) 	7. Console port	8. MGMT port	-	-

Table 4-23 Ports on the USG6525E

Port	Connector Type	Description	Available Components
Combo ports (0 to 7)	RJ45 + SFP	<p>Combo ports. Combo ports are logic ports. One combo port can work as a GE electrical interface or a GE optical port. Each combo port has only one internal forwarding port. When the electrical port is enabled, the optical port is disabled. When the optical port is enabled, the electrical port is disabled. The electrical and optical ports of a combo port use the same interface view, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/7. By default, the combo port is used as an electrical port. You can use the <code>combo enable { copper fiber }</code> command to set the working mode of combo ports according to network requirements.</p>	<ul style="list-style-type: none"> • Ethernet Cable • 100Mbps SFP Optical Modules • 1Gbps eSFP Optical Modules <p>NOTE In V600R007C20SPC500 and later versions, Combo ports support 100Mbps SFP Optical Modules.</p>

Port	Connector Type	Description	Available Components
		<p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	
10GE optical ports (0 to 1)	SFP+	<p>2 10GE optical ports, numbered from XGigabitEthernet 0/0/0 to XGigabitEthernet 0/0/1.</p> <p>NOTE In V600R007C20 and later versions, 10GE optical ports support 1Gbps SFP Copper Modules and 1Gbps eSFP Optical Modules. By default, the rate of 10GE optical ports are 10GE. You can run the set device port-config-mode [10ge ge] command to set the rate of 10GE optical ports are to 10GE or GE as required.</p>	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules
WAN ports (0 to 1)	RJ45	<p>2 10/100/1000M autosensing Ethernet electrical ports, numbered from WAN 0/0/0 to WAN 0/0/1.</p> <p>The device is connected to the WAN or cloud management center using a network cable.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
SSD card slot	-	The M.2 module is inserted to record logs and reports in real time. The M.2 module is optional. You can purchase the M.2 module as required.	<ul style="list-style-type: none"> • Hard Disk Unit M.2-Sata64G-A • Hard Disk Unit M.2-Sata240G-A
USB 3.0 port or USB0	USB Type A	USB port allows you to insert an USB flash drive for system software upgrades. For details on upgrades through USB flash drives, refer to the Upgrade Guide delivered with the device.	USB flash drive
USB 2.0 port or USB1	USB Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

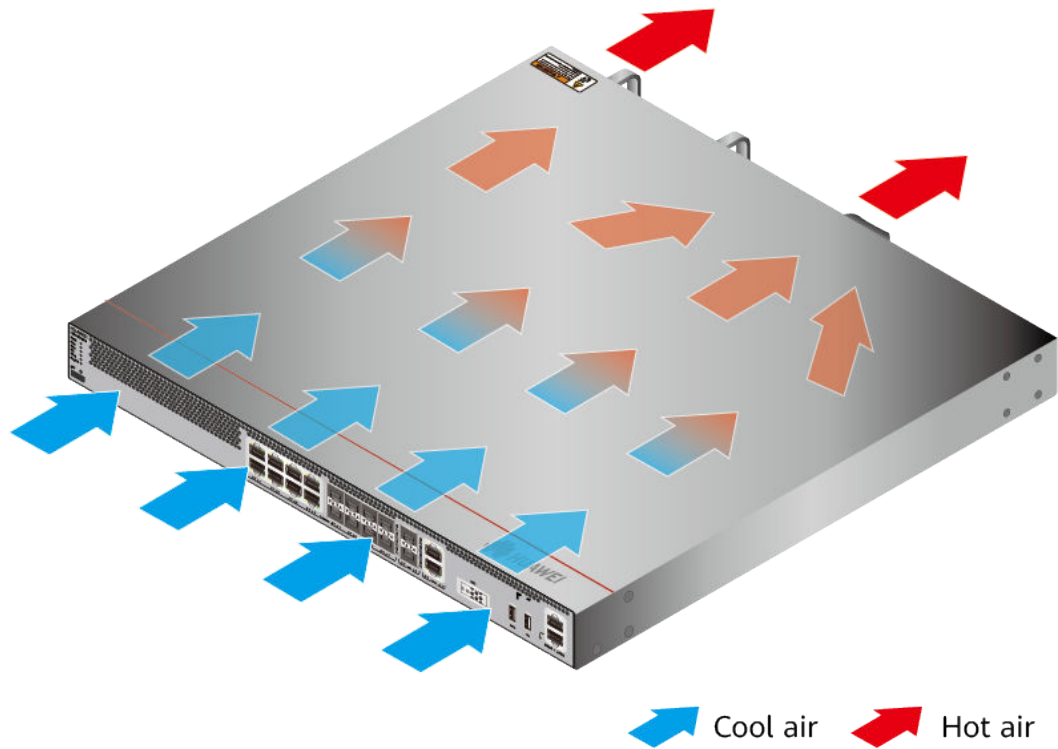
Power Supply System

- Early delivery: The power supply system has one PAC60S12-AR, PAC60S12-R, or PAC600S12-CB AC power module. Two power modules can be configured for 1+1 power redundancy.
- Later delivery: The power supply system has one PAC60S12-AR AC power module. Two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system uses one FAN-023A-B module to dissipate heat for the system. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-22 System air flow of the USG6525E



Technical Specifications

Table 4-24 Technical specifications of the USG6525E

Item	Specification
Installation Type	<ul style="list-style-type: none"> Rack Work bench
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	220 mm x 550 mm x 530 mm (8.66 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	<ul style="list-style-type: none"> USG6525E-AC (02353AFX): 8.75 kg (19.29 lb) USG6525E-AC (02353AFX-001): 7.93 kg (17.48 lb) USG6525E-AC (02353AFX-002): 7.93 kg (17.48 lb)

Item	Specification
Weight without packaging [kg(lb)]	<ul style="list-style-type: none"> ● USG6525E-AC (02353AFX): 5.8 kg (12.79 lb) ● USG6525E-AC (02353AFX-001): 5.95 kg (13.12 lb) ● USG6525E-AC (02353AFX-002): 5.95 kg (13.12 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.4 GHz
Memory	DDR4 4 GB
NOR Flash	<ul style="list-style-type: none"> ● USG6525E-AC (02353AFX): 32 MB NOTE The NOR flash memory size of devices delivered later is 64 MB. You can run the display version command to check the NOR flash memory size. ● USG6525E-AC (02353AFX-001): 32 MB NOTE The NOR flash memory size of devices delivered later is 64 MB. You can run the display version command to check the NOR flash memory size. ● USG6525E-AC (02353AFX-002): 32 MB NOTE The specification of the NOR flash of the device to be delivered is 64 MB. You can run the display version command to view the NOR flash memory specification of a device.
NAND Flash	2 GB
Hard disk	Optional. M.2 SSD (64GB/240GB), hot-swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	<ul style="list-style-type: none"> ● USG6525E-AC (02353AFX): 40 W ● USG6525E-AC (02353AFX-001): 45.3 W ● USG6525E-AC (02353AFX-002): 45.3 W

Item	Specification
Maximum heat dissipation [BTU/hour]	<ul style="list-style-type: none"> USG6525E-AC (02353AFX): 136.8 BTU/hour USG6525E-AC (02353AFX-001): 154.4 BTU/hour USG6525E-AC (02353AFX-002): 154.4 BTU/hour
MTBF [years]	68.98 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 290 V, 47 Hz to 63 Hz
Types of fans	Pluggable
Number of fan modules	1
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	2
Maximum number of GE ports	8
Maximum number of electrical ports	8
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Long-term operating temperature [°C(°F)]	0°C to 45°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0 m to 5000 m
Storage altitude [m(ft.)]	0 m to 5000 m

NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.

4.1.5 USG6530E

Overview

Table 4-25 Basic information about the USG6530E

Description	Part Number	Model	First supported version
USG6530E AC Host (10*GE RJ45 + 2*10GE SFP+, 1*Adapter)	02352QVD	USG6530E-AC	V600R007C00
USG6530E AC Host (10*GE RJ45 + 2*10GE SFP+, 1*Adapter)	02352QVD-001	USG6530E-AC	V600R007C20SPC300
USG6530E AC Host(10*GE RJ45+2*10GE SFP+,1*Adapter)	02352QVD-002	USG6530E-AC	V600R007C20SPC600

Appearance

NOTE

The standard USB port of the earlier-delivered models is USB 3.0, and that of the later-delivered models is USB 2.0. This document uses a model with a USB 3.0 port as an example.

Figure 4-23 Appearance of the USG6530E (front view)

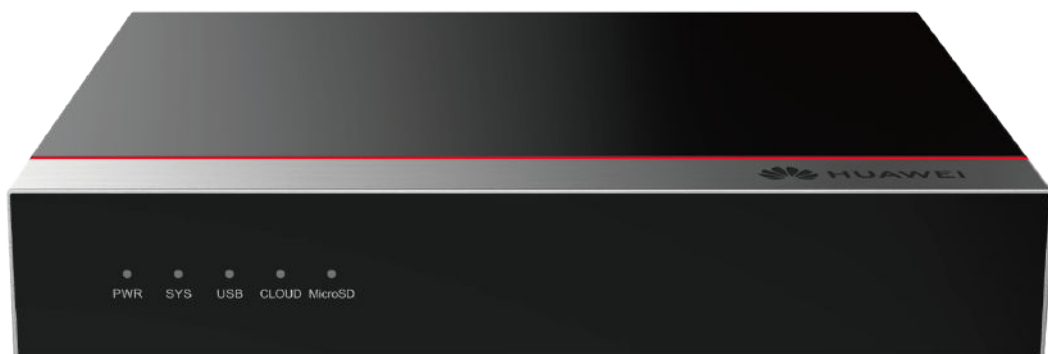
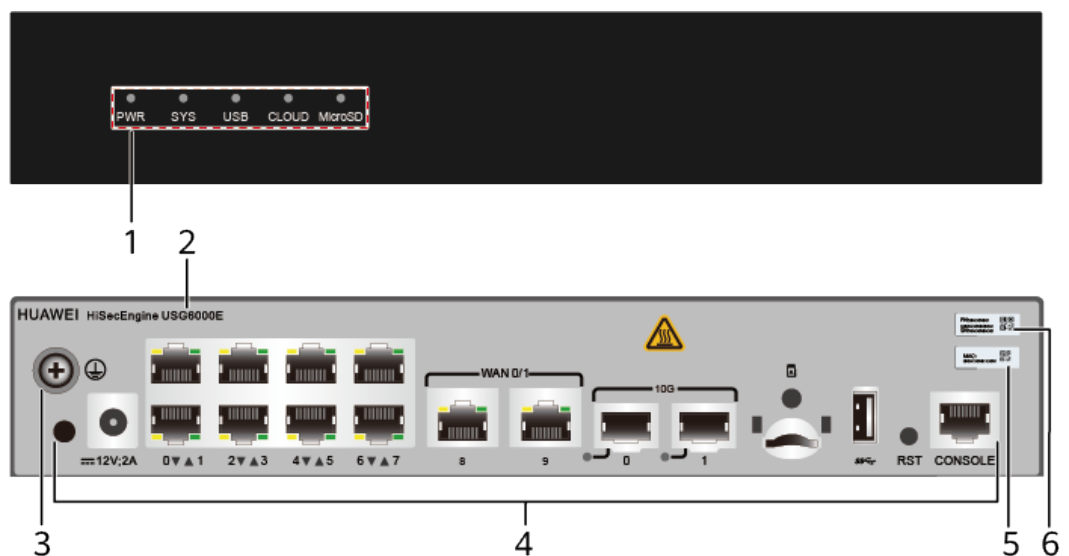


Figure 4-24 Appearance of the USG6530E (rear view)



Components

Figure 4-25 Components of the USG6530E



1. Indicator area	2. Product series ID	3. Protective ground terminal	4. Fixed interface area	5. MAC label
6. SN label	-	-	-	-

Table 4-26 Component functions

Name	Description
Indicator area	Provides various indicators to display the device running status in real time.
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.

Name	Description
Fixed interface area	<ul style="list-style-type: none"> Provides clip hole and power receptacle. Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance. Houses a Micro SD card to store logs and reports.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.

Indicators and Buttons

Figure 4-26 Indicators and buttons on the USG6530E

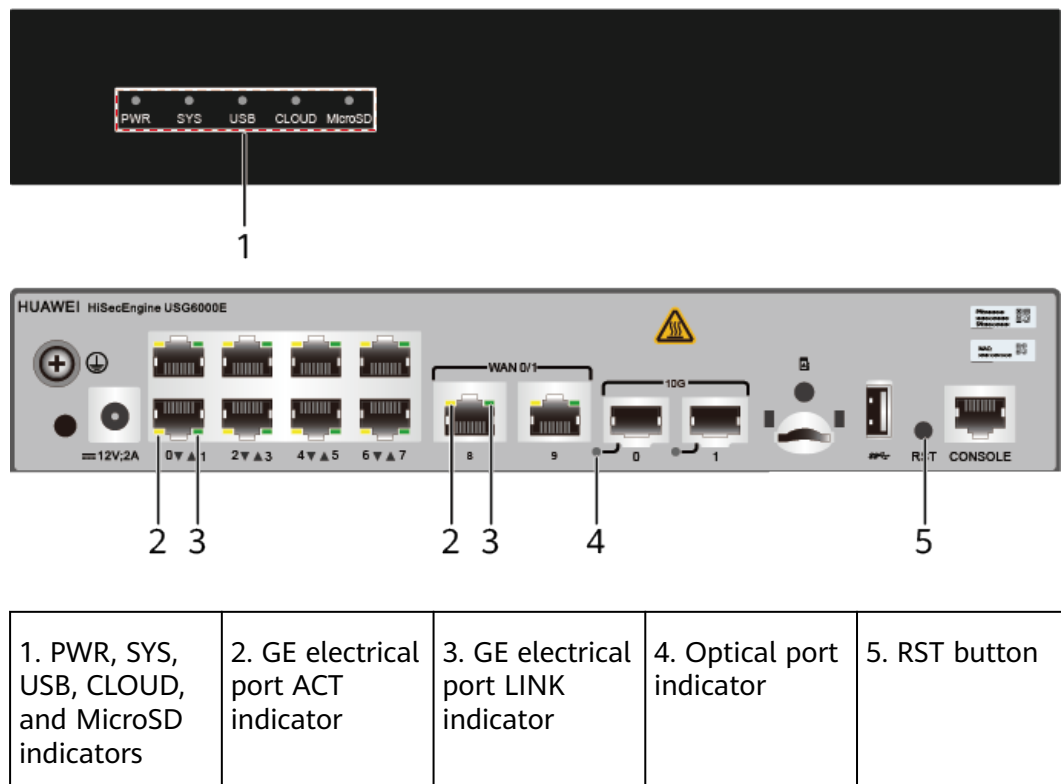


Table 4-27 Indicators on the USG6530E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	A system fault occurs.
		-	Off	The system is not running.
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).

Silkscreen	Name	Color	Status	Description
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
MicroSD	Micro SD indicator	Green	Steady on	The micro SD card is present.
		-	Off	The micro SD card is not detected.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	Optical port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.

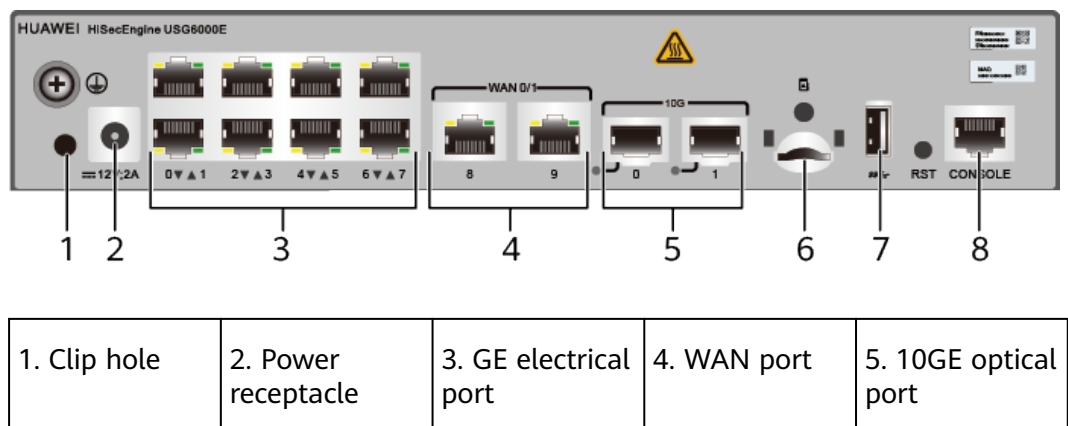
Silkscreen	Name	Color	Status	Description
		-	Off	No link is established on the port.

Table 4-28 Buttons on the USG6530E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.

Ports

Figure 4-27 Ports on the USG6530E



6. Micro SD card slot	7. USB port NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 3.0 • Later-delivered models: USB 2.0 	8. Console port	-	-
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Table 4-29 Ports on the USG6530E

Port	Connector Type	Description	Available Components
Clip hole	-	The hole is used to install the power cable clip, which is used to bind and fix the power cable.	Power cable clip
Power receptacle	-	The receptacle connects to the tuning fork plug of the power adapter.	<ul style="list-style-type: none"> • 36 W Power Adapter (02220947) • 36 W Power Adapter (02221468)

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 7)	RJ45	<p>8 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/7.</p> <p>GigabitEthernet 0/0/0 is an inband management port and its default IP address is 192.168.0.1. After this port is connected to your PC through Ethernet cables, you can log in to the device using Telnet, STelnet, or web UI to configure or manage the device.</p> <p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
WAN port (8 to 9)	RJ45	<p>2 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/8 to GigabitEthernet 0/0/9.</p> <p>The device is connected to the WAN or cloud management platform using an Ethernet cable.</p> <p>NOTE The WAN ports of the devices delivered earlier are vertically arranged, whose functions are the same as those of the WAN ports that are horizontally arranged.</p>	<p>Ethernet Cable</p>
10GE optical ports (0 to 1)	SFP+	<p>2 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet 0/0/0 to XGigabitEthernet 0/0/1.</p>	<ul style="list-style-type: none"> • 100Mbps SFP Optical Modules • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules <p>NOTE In V600R007C20SPC5 00 and later versions, 10GE optical ports support 100Mbps SFP Optical Modules.</p>

Port	Connector Type	Description	Available Components
Micro SD card slot	Micro SD	<p>The micro SD card slot allows you to insert a micro SD card to record logs and reports in real time. The micro SD card is optional. You can purchase one from Huawei if needed.</p> <p>You are advised to install an anti-theft board delivered with the device to protect the micro SD card.</p>	SDSDQAE-064G (BOM code: 06010308, capacity: 64GB, dimensions (H x W x D): 1 mm x 15.00 mm x 11.00 mm/0.04 in. x 0.59 in. x 0.43 in)
USB port	USB Type A	USB port allows you to insert an USB flash drive for system software upgrades. For details on upgrades through USB flash drives, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	Console ports allow you to locally connect a PC to the device. You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.	Console Cable

Power Supply System

- Early delivery: The device has no built-in power modules and uses a 36 W Power Adapter (02220947) or 36 W Power Adapter (02221468) for power supply.
- Later delivery: The device has no built-in power modules and uses a 36 W Power Adapter (02221468) for power supply.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-30 Technical specifications of the USG6530E

Item	Specification
Installation Type	<ul style="list-style-type: none"> • Rack • Work bench • Against the wall
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 250 mm x 210 mm (1.72 in. x 9.84 in. x 8.27 in.)

Item	Specification
Dimensions with packaging (H x W x D) [mm(in.)]	110 mm x 470 mm x 335 mm (4.33 in. x 18.5 in. x 13.19 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	2.3 kg (5.07 lb)
Weight without packaging [kg(lb)]	1.57 kg (3.46 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.2 GHz
Memory	DDR4 2 GB
NOR Flash	<ul style="list-style-type: none"> USG6530E-AC (02352QVD): 32 MB USG6530E-AC (02352QVD-001): 64 MB USG6530E-AC (02352QVD-002): 64 MB
NAND Flash	2 GB
Hard disk	Optional. Purchase one 64-GB micro SD card from Huawei as required.
Console port	RJ45
Maximum power consumption [W]	22.3 W
Maximum heat dissipation [BTU/hour]	76.08 BTU/hour
MTBF [years]	57.29 years
MTTR [hours]	2 hours
Power supply mode	Power adapter external
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current [A]	1 A
Maximum output power [W]	36 W
Types of fans	None
Number of fan modules	0
Heat dissipation mode	Has no fan and uses natural cooling.
Maximum number of 10GE ports	2
Maximum number of GE ports	2
Maximum number of electrical ports	10

Item	Specification
Long-term operating temperature [°C(°F)]	0°C to 45°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0 m to 5000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.

4.1.6 USG6550E

Overview

Table 4-31 Basic information about the USG6550E

Description	Part Number	Model	First supported version
USG6550E AC Host (2*GE WAN + 8*GE Combo + 16*GE RJ45 + 2*10GE SFP+,1 AC power)	02352CBQ	USG6550E-AC	V600R006C00

Appearance

Figure 4-28 Appearance of the USG6550E (front view)

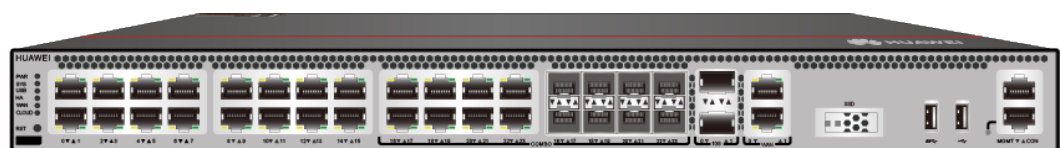
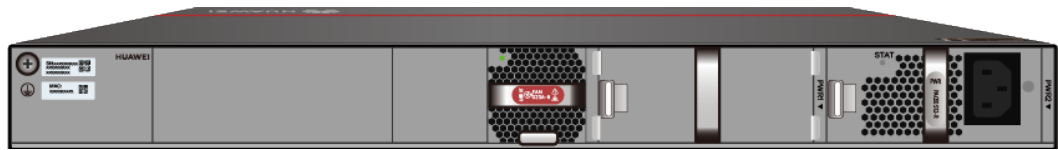
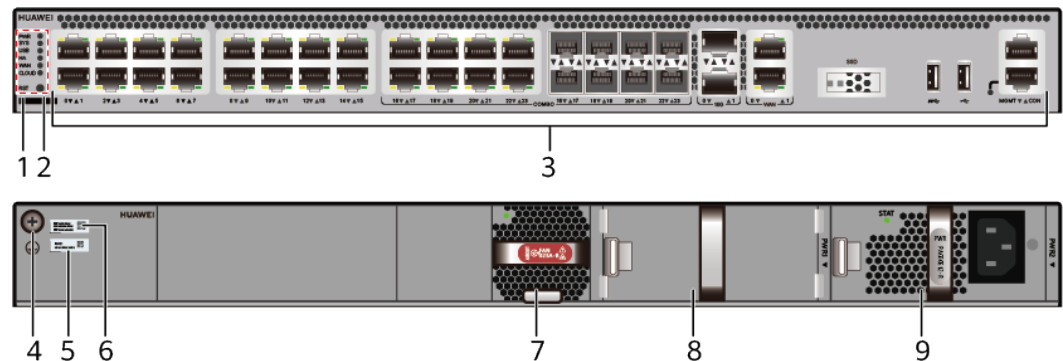


Figure 4-29 Appearance of the USG6550E (rear view)



Components

Figure 4-30 Components of the USG6550E



1. Product series ID	2. Indicator and button area	3. Fixed interface area	4. Protective ground terminal	5. MAC label
6. SN label	7. Fan module	8. Optional power module slot	9. Power module	-

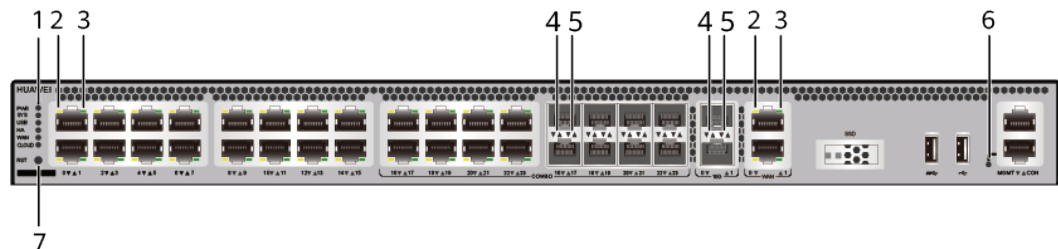
Table 4-32 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.

Name	Description
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The slot number of the fan module is 4.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-31 Indicators and buttons on the USG6550E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. GE electrical port ACT indicator	3. GE electrical port LINK indicator	4. Optical port ACT indicator	5. Optical port LINK indicator
6. MGMT port indicator	7. RST button	-	-	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-33 Indicators on the USG6550E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> • The system is faulty. • The power supply is abnormal. • The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Hot backup, managing the master device
		Green	Blinks once every 2 seconds (0.5 Hz).	Hot backup, managing the slave device
		Red	Steady on	Dual-system hot backup is faulty.
		-	Off	The dual-system hot backup function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.

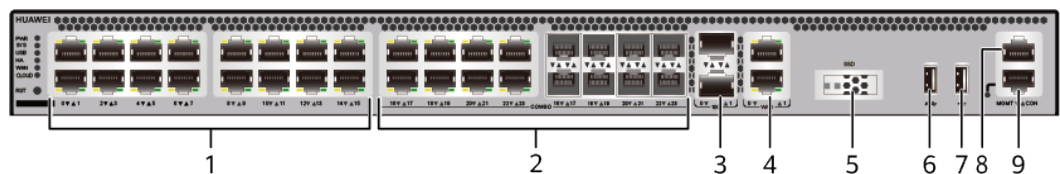
Silkscreen	Name	Color	Status	Description
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-34 Buttons on the USG6550E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.

Ports

Figure 4-32 Ports on the USG6550E



1. GE electrical port	2. Combo port	3. 10GE optical port	4. WAN port	5. SSD card slot
6. USB 3.0 port	7. USB 2.0 port	8. Console port	9. MGMT port	-

Table 4-35 Ports on the USG6550E

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 15)	RJ45	<p>16 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/15.</p> <p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
Combo ports (16 to 23)	RJ45 + SFP	<p>Combo ports. Combo ports are logic ports. One combo port can work as a GE electrical interface or a GE optical port. Each combo port has only one internal forwarding port. When the electrical port is enabled, the optical port is disabled. When the optical port is enabled, the electrical port is disabled. The electrical and optical ports of a combo port use the same interface view, numbered from GigabitEthernet 0/0/16 to GigabitEthernet 0/0/23. By default, the combo port is used as an electrical port. You can use the <code>combo enable { copper fiber }</code> command to set the working mode of combo ports according to network requirements.</p>	<ul style="list-style-type: none"> • Ethernet Cable • 1Gbps eSFP Optical Modules

Port	Connector Type	Description	Available Components
10GE optical ports (0 to 1)	SFP+	2 10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet 0/0/0 to XGigabitEthernet 0/0/1. Not compatible with GE optical modules.	10Gbps SFP+ Optical Modules
WAN ports (0 to 1)	RJ45	2 10/100/1000M autosensing Ethernet electrical ports, numbered from WAN 0/0/0 to WAN 0/0/1. The device is connected to the WAN or cloud management center using a network cable.	Ethernet Cable
SSD card slot	-	The M.2 module is inserted to record logs and reports in real time. The M.2 module is optional. You can purchase the M.2 module as required.	Hard Disk Unit M.2-Sata240G-A
USB 3.0 port	USB 3.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
USB 2.0 port	USB 2.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

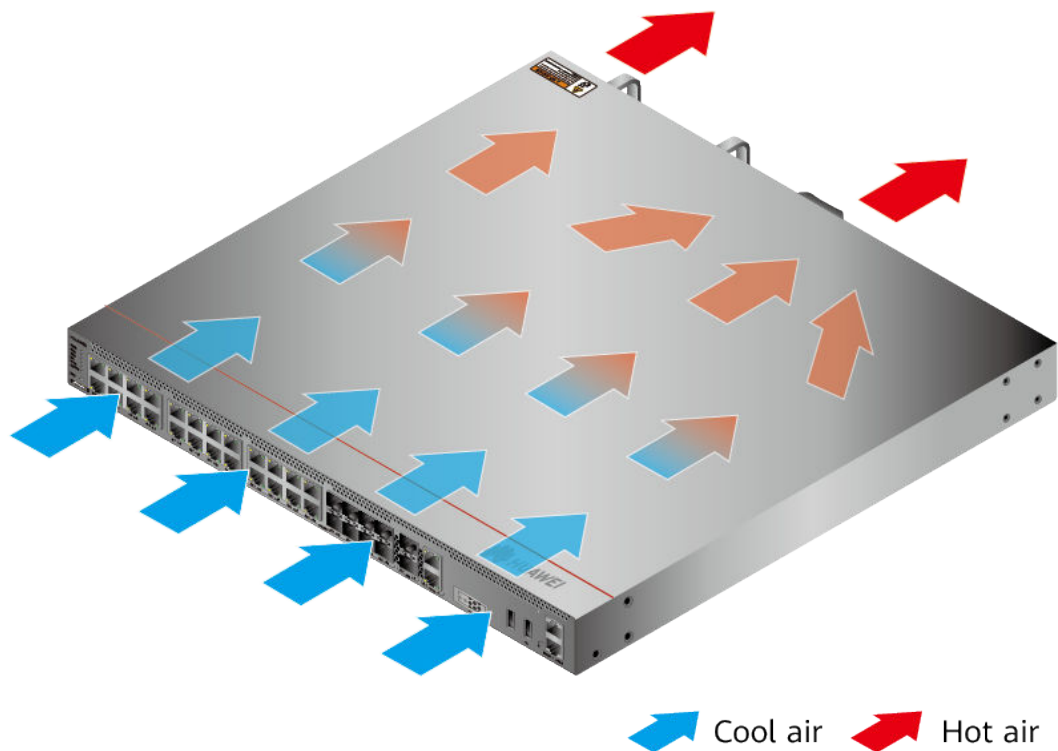
Power Supply System

The power supply system has one PAC60S12-R AC power module, but two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system uses one FAN-023A-B module to dissipate heat for the system. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-33 System air flow of the USG6550E



Technical Specifications

Table 4-36 Technical specifications of the USG6550E-AC

Item	Specification
Installation Type	<ul style="list-style-type: none"> • Rack • Work bench
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	220 mm x 550 mm x 530 mm (8.66 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	8.1 kg (17.86 lb)
Weight without packaging [kg(lb)]	5.71 kg (12.59 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.4 GHz
Memory	DDR4 4 GB
NOR Flash	32 MB

Item	Specification
NAND Flash	2 GB
Hard disk	Optional. M.2 SSD (240GB), hot-swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	46.4 W
Maximum heat dissipation [BTU/hour]	158.7 BTU/hour
MTBF [years]	45.56 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 264 V, 47 Hz to 63 Hz
Types of fans	Pluggable
Number of fan modules	1
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	2
Maximum number of GE ports	24
Maximum number of electrical ports	24
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Long-term operating temperature [°C(°F)]	0°C to 45°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0 m to 5000 m
Storage altitude [m(ft.)]	0 m to 5000 m

NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.

4.1.7 USG6555E

Overview

Table 4-37 Basic information about the USG6555E

Description	Part Number	Model	First supported version
USG6555E AC Host (2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353AEK	USG6555E-AC	V600R007C00
USG6555E AC Host(2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353AEK-001	USG6555E-AC	V600R007C20SPC 500
USG6555E AC Host(2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353AEK-004	USG6555E-AC	V600R007C20SPC 600

Appearance

NOTE

The two USB ports of earlier-delivered models are USB 3.0 and USB 2.0 respectively, whereas those of later-delivered models are both USB 2.0. In this document, earlier-delivered models are used as examples.

Figure 4-34 Appearance of the USG6555E (front view)

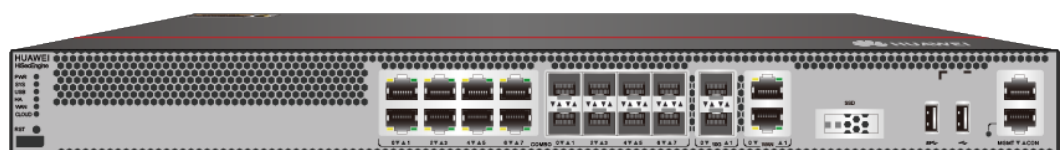
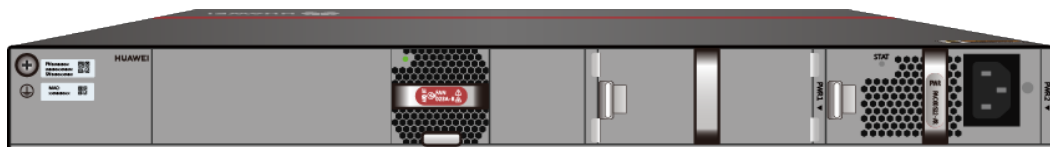
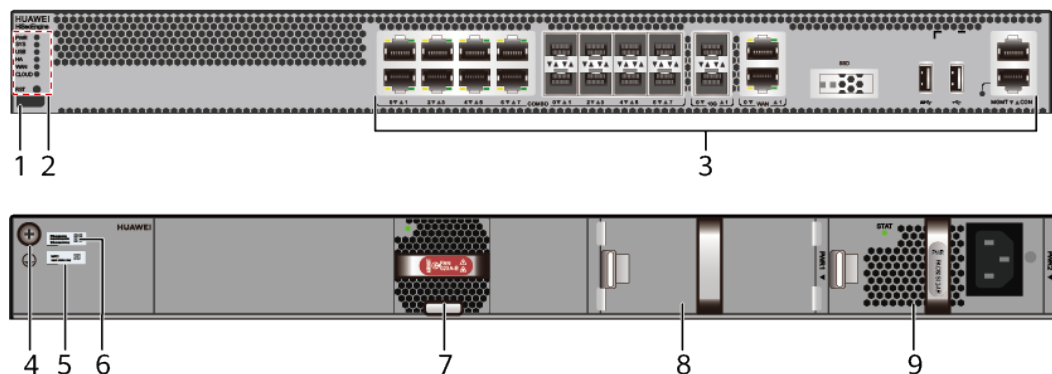


Figure 4-35 Appearance of the USG6555E (rear view)



Components

Figure 4-36 Components of the USG6555E



1. Product series ID	2. Indicator and button area	3. Fixed interface area	4. Protective ground terminal	5. MAC label
6. SN label	7. Fan module	8. Optional power module slot	9. Power module	-

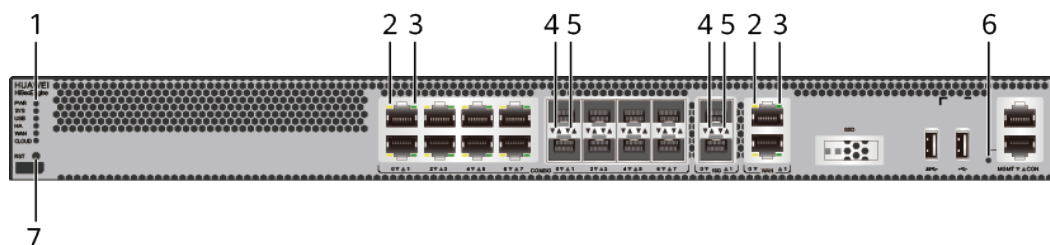
Table 4-38 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.

Name	Description
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The slot number of the fan module is 4.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-37 Indicators and buttons on the USG6555E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. GE electrical port ACT indicator	3. GE electrical port LINK indicator	4. Optical port ACT indicator	5. Optical port LINK indicator
6. MGMT port indicator	7. RST button	-	-	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-39 Indicators on the USG6555E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> • The system is faulty. • The power supply is abnormal. • The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Hot backup, managing the master device
		Green	Blinks once every 2 seconds (0.5 Hz).	Hot backup, managing the slave device
		Red	Steady on	Dual-system hot backup is faulty.
		-	Off	The dual-system hot backup function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.

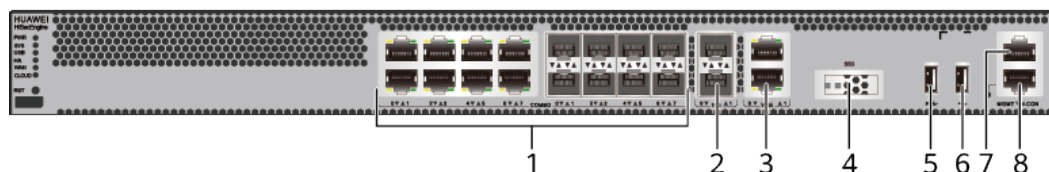
Silkscreen	Name	Color	Status	Description
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-40 Buttons on the USG6555E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.

Ports

Figure 4-38 Ports on the USG6555E



1. Combo port	2. 10GE optical port	3. WAN port	4. SSD card slot	5. USB 3.0 port or USB0 NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 3.0 • Later-delivered models: USB0 (USB 2.0)
6. USB 2.0 port or USB1 NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 2.0 • Later-delivered models: USB1 (USB 2.0) 	7. Console port	8. MGMT port	-	-

Table 4-41 Ports on the USG6555E

Port	Connector Type	Description	Available Components
Combo ports (0 to 7)	RJ45 + SFP	<p>Combo ports. Combo ports are logic ports. One combo port can work as a GE electrical interface or a GE optical port. Each combo port has only one internal forwarding port. When the electrical port is enabled, the optical port is disabled. When the optical port is enabled, the electrical port is disabled. The electrical and optical ports of a combo port use the same interface view, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/7. By default, the combo port is used as an electrical port. You can use the <code>combo enable { copper fiber }</code> command to set the working mode of combo ports according to network requirements.</p>	<ul style="list-style-type: none"> • Ethernet Cable • 100Mbps SFP Optical Modules • 1Gbps eSFP Optical Modules <p>NOTE In V600R007C20SPC500 and later versions, Combo ports support 100Mbps SFP Optical Modules.</p>

Port	Connector Type	Description	Available Components
		<p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	
10GE optical ports (0 to 1)	SFP+	<p>2 10GE optical ports, numbered from XGigabitEthernet 0/0/0 to XGigabitEthernet 0/0/1.</p> <p>NOTE In V600R007C20 and later versions, 10GE optical ports support 1Gbps SFP Copper Modules and 1Gbps eSFP Optical Modules. By default, the rate of 10GE optical ports are 10GE. You can run the set device port-config-mode [10ge ge] command to set the rate of 10GE optical ports are to 10GE or GE as required.</p>	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules
WAN ports (0 to 1)	RJ45	<p>2 10/100/1000M autosensing Ethernet electrical ports, numbered from WAN 0/0/0 to WAN 0/0/1.</p> <p>The device is connected to the WAN or cloud management center using a network cable.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
SSD card slot	-	The M.2 module is inserted to record logs and reports in real time. The M.2 module is optional. You can purchase the M.2 module as required.	Hard Disk Unit M.2-Sata240G-A
USB 3.0 port or USB0	USB Type A	USB port allows you to insert an USB flash drive for system software upgrades. For details on upgrades through USB flash drives, refer to the Upgrade Guide delivered with the device.	USB flash drive
USB 2.0 port or USB1	USB Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

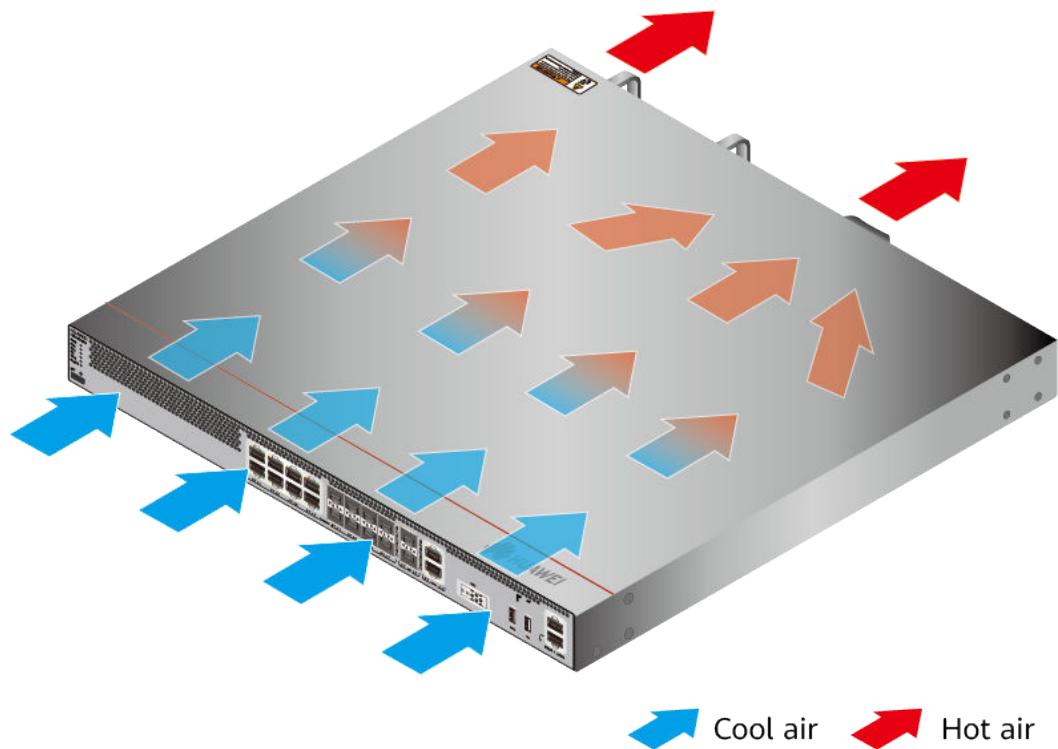
Power Supply System

- Early delivery: The power supply system has one PAC60S12-AR, PAC60S12-R, or PAC600S12-CB AC power module. Two power modules can be configured for 1+1 power redundancy.
- Later delivery: The power supply system has one PAC60S12-AR AC power module. Two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system uses one FAN-023A-B module to dissipate heat for the system. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-39 System air flow of the USG6555E



Technical Specifications

Table 4-42 Technical specifications of the USG6555E

Item	Specification
Installation Type	<ul style="list-style-type: none"> • Rack • Work bench
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	220 mm x 550 mm x 530 mm (8.66 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	<ul style="list-style-type: none"> • USG6555E-AC (02353AEK): 8.75 kg (19.29 lb) • USG6555E-AC (02353AEK-001): 7.93 kg (17.48 lb) • USG6555E-AC (02353AEK-004): 7.93 kg (17.48 lb)

Item	Specification
Weight without packaging [kg(lb)]	<ul style="list-style-type: none"> ● USG6555E-AC (02353AEK): 5.8 kg (12.79 lb) ● USG6555E-AC (02353AEK-001): 5.95 kg (13.12 lb) ● USG6555E-AC (02353AEK-004): 5.95 kg (13.12 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.4 GHz
Memory	DDR4 4 GB
NOR Flash	<ul style="list-style-type: none"> ● USG6555E-AC (02353AEK): 32 MB NOTE The NOR flash memory size of devices delivered later is 64 MB. You can run the display version command to check the NOR flash memory size. ● USG6555E-AC (02353AEK-001): 32 MB NOTE The NOR flash memory size of devices delivered later is 64 MB. You can run the display version command to check the NOR flash memory size. ● USG6555E-AC (02353AEK-004): 32 MB NOTE The specification of the NOR flash of the device to be delivered is 64 MB. You can run the display version command to view the NOR flash memory specification of a device.
NAND Flash	2 GB
Hard disk	Optional. M.2 SSD (240GB), hot-swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	<ul style="list-style-type: none"> ● USG6555E-AC (02353AEK): 40 W ● USG6555E-AC (02353AEK-001): 45.3 W ● USG6555E-AC (02353AEK-004): 45.3 W

Item	Specification
Maximum heat dissipation [BTU/hour]	<ul style="list-style-type: none"> USG6555E-AC (02353AEK): 136.8 BTU/hour USG6555E-AC (02353AEK-001): 154.4 BTU/hour USG6555E-AC (02353AEK-004): 154.4 BTU/hour
MTBF [years]	68.98 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 290 V, 47 Hz to 63 Hz
Types of fans	Pluggable
Number of fan modules	1
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	2
Maximum number of GE ports	8
Maximum number of electrical ports	8
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Long-term operating temperature [°C(°F)]	0°C to 45°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0 m to 5000 m
Storage altitude [m(ft.)]	0 m to 5000 m

NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.

4.1.8 USG6560E

Overview

Table 4-43 Basic information about the USG6560E

Description	Part Number	Model	First supported version
USG6560E AC Host (2*GE WAN + 8*GE Combo + 16*GE RJ45 + 2*10GE SFP+,1 AC power)	02352CBR	USG6560E-AC	V600R006C00

Appearance

Figure 4-40 Appearance of the USG6560E (front view)

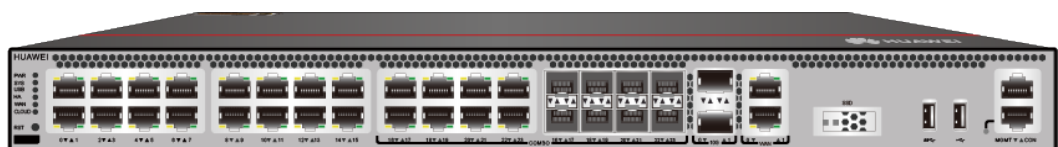
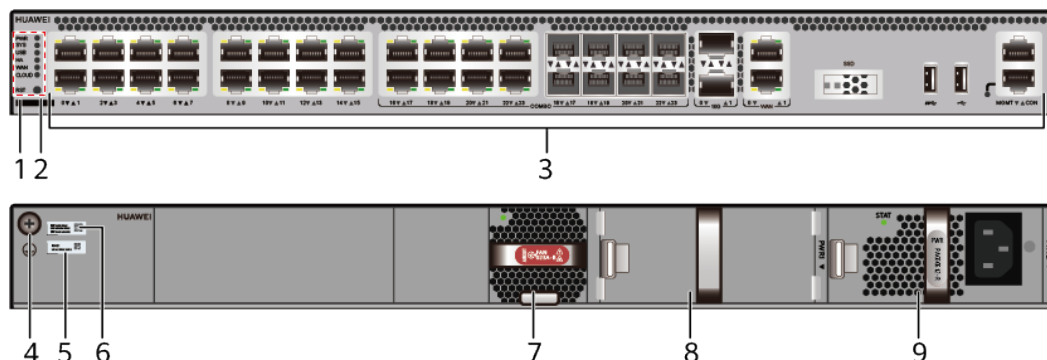


Figure 4-41 Appearance of the USG6560E (rear view)



Components

Figure 4-42 Components of the USG6560E



1. Product series ID	2. Indicator and button area	3. Fixed interface area	4. Protective ground terminal	5. MAC label
6. SN label	7. Fan module	8. Optional power module slot	9. Power module	-

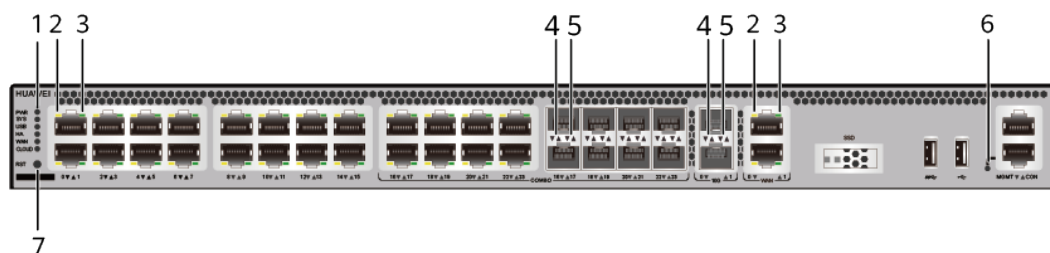
Table 4-44 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.

Name	Description
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The slot number of the fan module is 4.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-43 Indicators and buttons on the USG6560E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. GE electrical port ACT indicator	3. GE electrical port LINK indicator	4. Optical port ACT indicator	5. Optical port LINK indicator
6. MGMT port indicator	7. RST button	-	-	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-45 Indicators on the USG6560E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Hot backup, managing the master device
		Green	Blinks once every 2 seconds (0.5 Hz).	Hot backup, managing the slave device
		Red	Steady on	Dual-system hot backup is faulty.
		-	Off	The dual-system hot backup function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.

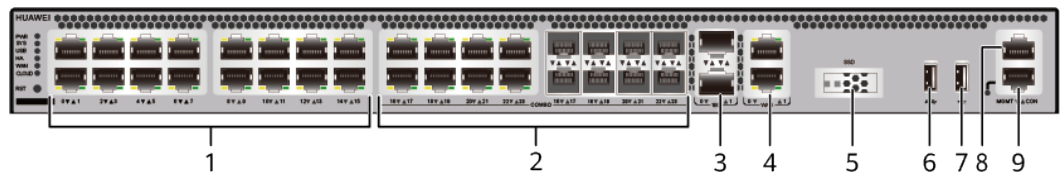
Silkscreen	Name	Color	Status	Description
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-46 Buttons on the USG6560E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.

Ports

Figure 4-44 Ports on the USG6560E



1. GE electrical port	2. Combo port	3. 10GE optical port	4. WAN port	5. SSD card slot
6. USB 3.0 port	7. USB 2.0 port	8. Console port	9. MGMT port	-

Table 4-47 Ports on the USG6560E

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 15)	RJ45	16 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/15. NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Ethernet Cable

Port	Connector Type	Description	Available Components
Combo ports (16 to 23)	RJ45 + SFP	<p>Combo ports. Combo ports are logic ports. One combo port can work as a GE electrical interface or a GE optical port. Each combo port has only one internal forwarding port. When the electrical port is enabled, the optical port is disabled. When the optical port is enabled, the electrical port is disabled. The electrical and optical ports of a combo port use the same interface view, numbered from GigabitEthernet 0/0/16 to GigabitEthernet 0/0/23. By default, the combo port is used as an electrical port. You can use the <code>combo enable { copper fiber }</code> command to set the working mode of combo ports according to network requirements.</p>	<ul style="list-style-type: none"> • Ethernet Cable • 1Gbps eSFP Optical Modules

Port	Connector Type	Description	Available Components
10GE optical ports (0 to 1)	SFP+	2 10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet 0/0/0 to XGigabitEthernet 0/0/1. Not compatible with GE optical modules.	10Gbps SFP+ Optical Modules
WAN ports (0 to 1)	RJ45	2 10/100/1000M autosensing Ethernet electrical ports, numbered from WAN 0/0/0 to WAN 0/0/1. The device is connected to the WAN or cloud management center using a network cable.	Ethernet Cable
SSD card slot	-	The M.2 module is inserted to record logs and reports in real time. The M.2 module is optional. You can purchase the M.2 module as required.	Hard Disk Unit M.2-Sata240G-A
USB 3.0 port	USB 3.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
USB 2.0 port	USB 2.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

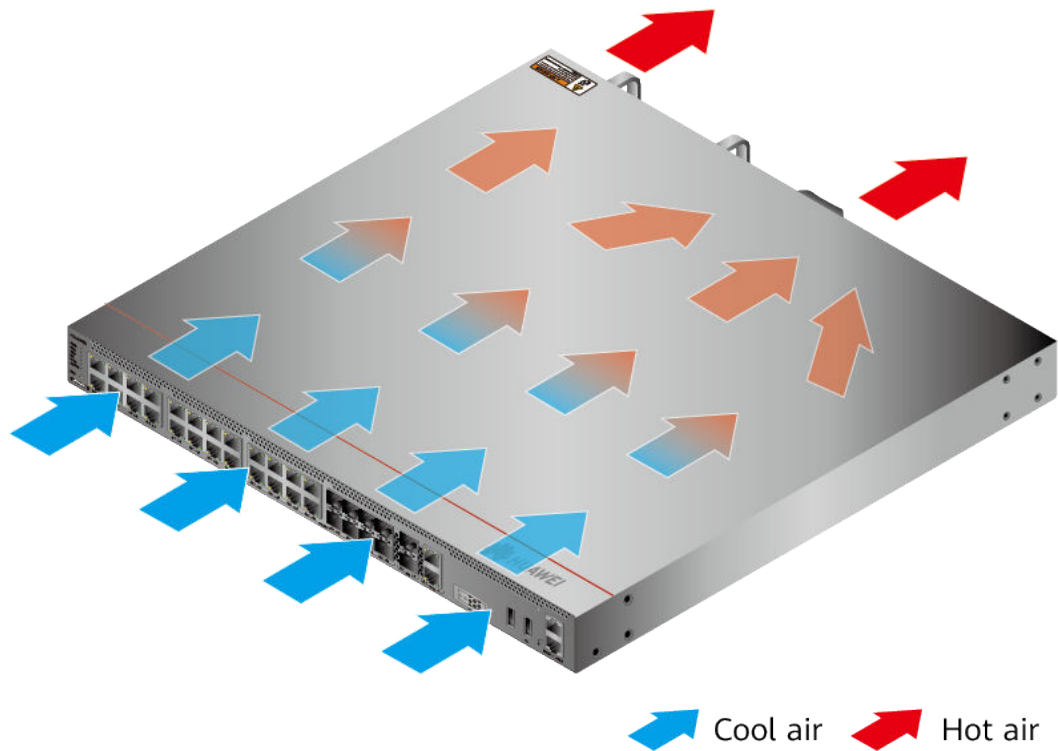
Power Supply System

The power supply system has one PAC60S12-R AC power module, but two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system uses one FAN-023A-B module to dissipate heat for the system. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-45 System air flow of the USG6560E



Technical Specifications

Table 4-48 Technical specifications of the USG6560E-AC

Item	Specification
Installation Type	<ul style="list-style-type: none"> • Rack • Work bench
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	220 mm x 550 mm x 530 mm (8.66 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	8.1 kg (17.86 lb)
Weight without packaging [kg(lb)]	5.71 kg (12.59 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.4 GHz
Memory	DDR4 4 GB
NOR Flash	32 MB

Item	Specification
NAND Flash	2 GB
Hard disk	Optional. M.2 SSD (240GB), hot-swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	46.4 W
Maximum heat dissipation [BTU/hour]	158.7 BTU/hour
MTBF [years]	45.56 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 264 V, 47 Hz to 63 Hz
Types of fans	Pluggable
Number of fan modules	1
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	2
Maximum number of GE ports	24
Maximum number of electrical ports	24
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Long-term operating temperature [°C(°F)]	0°C to 45°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0 m to 5000 m
Storage altitude [m(ft.)]	0 m to 5000 m

NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.

4.1.9 USG6565E

Overview

Table 4-49 Basic information about the USG6565E

Description	Part Number	Model	First supported version
USG6565E AC Host (2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353AEJ	USG6565E-AC	V600R007C00
USG6565E AC Host(2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353AEJ-001	USG6565E-AC	V600R007C20SPC 500
USG6565E AC Host(2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353AEJ-002	USG6565E-AC	V600R007C20SPC 600

Appearance

NOTE

The two USB ports of earlier-delivered models are USB 3.0 and USB 2.0 respectively, whereas those of later-delivered models are both USB 2.0. In this document, earlier-delivered models are used as examples.

Figure 4-46 Appearance of the USG6565E (front view)

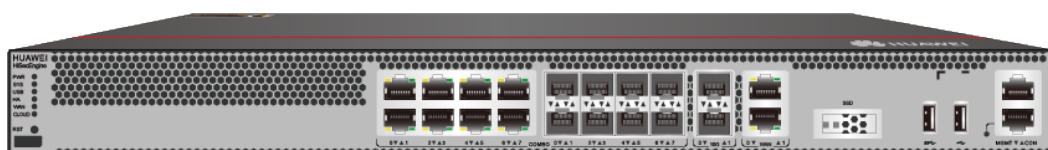
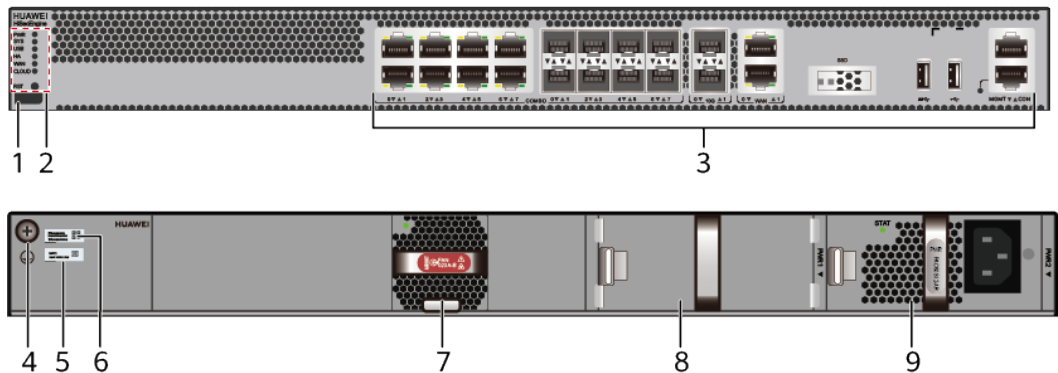


Figure 4-47 Appearance of the USG6565E (rear view)



Components

Figure 4-48 Components of the USG6565E



1. Product series ID	2. Indicator and button area	3. Fixed interface area	4. Protective ground terminal	5. MAC label
6. SN label	7. Fan module	8. Optional power module slot	9. Power module	-

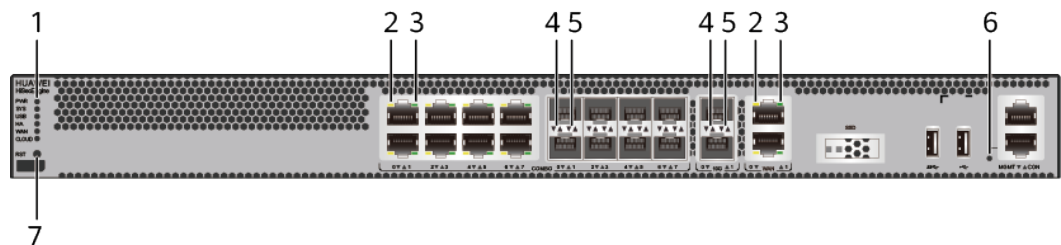
Table 4-50 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.

Name	Description
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The slot number of the fan module is 4.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-49 Indicators and buttons on the USG6565E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. GE electrical port ACT indicator	3. GE electrical port LINK indicator	4. Optical port ACT indicator	5. Optical port LINK indicator
6. MGMT port indicator	7. RST button	-	-	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-51 Indicators on the USG6565E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Hot backup, managing the master device
		Green	Blinks once every 2 seconds (0.5 Hz).	Hot backup, managing the slave device
		Red	Steady on	Dual-system hot backup is faulty.
		-	Off	The dual-system hot backup function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.

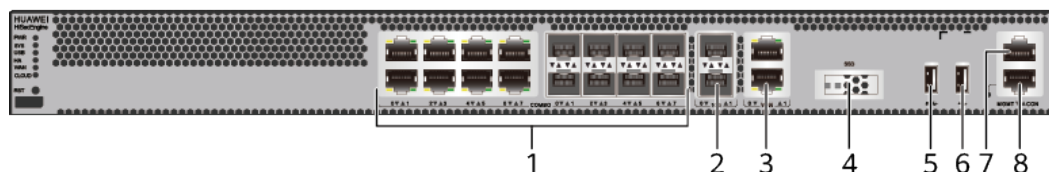
Silkscreen	Name	Color	Status	Description
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-52 Buttons on the USG6565E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.

Ports

Figure 4-50 Ports on the USG6565E



1. Combo port	2. 10GE optical port	3. WAN port	4. SSD card slot	5. USB 3.0 port or USB0 NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 3.0 • Later-delivered models: USB0 (USB 2.0)
6. USB 2.0 port or USB1 NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 2.0 • Later-delivered models: USB1 (USB 2.0) 	7. Console port	8. MGMT port	-	-

Table 4-53 Ports on the USG6565E

Port	Connector Type	Description	Available Components
Combo ports (0 to 7)	RJ45 + SFP	<p>Combo ports. Combo ports are logic ports. One combo port can work as a GE electrical interface or a GE optical port. Each combo port has only one internal forwarding port. When the electrical port is enabled, the optical port is disabled. When the optical port is enabled, the electrical port is disabled. The electrical and optical ports of a combo port use the same interface view, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/7. By default, the combo port is used as an electrical port. You can use the <code>combo enable { copper fiber }</code> command to set the working mode of combo ports according to network requirements.</p>	<ul style="list-style-type: none"> • Ethernet Cable • 100Mbps SFP Optical Modules • 1Gbps eSFP Optical Modules <p>NOTE In V600R007C20SPC500 and later versions, Combo ports support 100Mbps SFP Optical Modules.</p>

Port	Connector Type	Description	Available Components
		<p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	
10GE optical ports (0 to 1)	SFP+	<p>2 10GE optical ports, numbered from XGigabitEthernet 0/0/0 to XGigabitEthernet 0/0/1.</p> <p>NOTE In V600R007C20 and later versions, 10GE optical ports support 1Gbps SFP Copper Modules and 1Gbps eSFP Optical Modules. By default, the rate of 10GE optical ports are 10GE. You can run the set device port-config-mode [10ge ge] command to set the rate of 10GE optical ports are to 10GE or GE as required.</p>	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules
WAN ports (0 to 1)	RJ45	<p>2 10/100/1000M autosensing Ethernet electrical ports, numbered from WAN 0/0/0 to WAN 0/0/1.</p> <p>The device is connected to the WAN or cloud management center using a network cable.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
SSD card slot	-	The M.2 module is inserted to record logs and reports in real time. The M.2 module is optional. You can purchase the M.2 module as required.	Hard Disk Unit M.2-Sata240G-A
USB 3.0 port or USB0	USB Type A	USB port allows you to insert an USB flash drive for system software upgrades. For details on upgrades through USB flash drives, refer to the Upgrade Guide delivered with the device.	USB flash drive
USB 2.0 port or USB1	USB Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

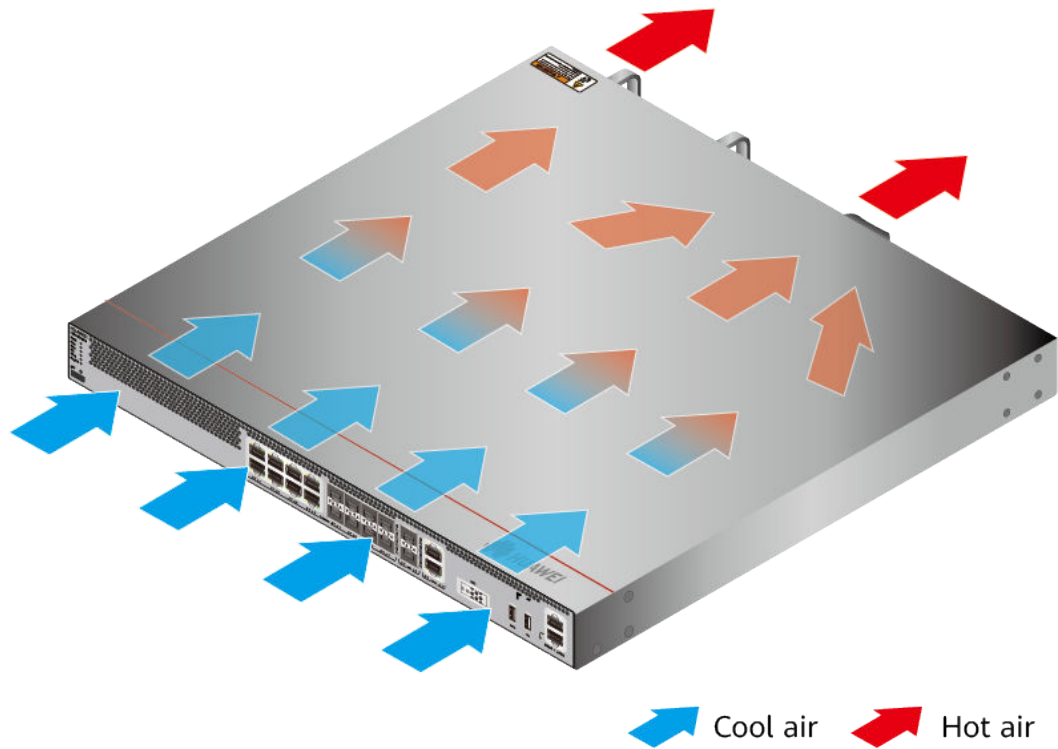
Power Supply System

- Early delivery: The power supply system has one PAC60S12-AR, PAC60S12-R, or PAC600S12-CB AC power module. Two power modules can be configured for 1+1 power redundancy.
- Later delivery: The power supply system has one PAC60S12-AR AC power module. Two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system uses one FAN-023A-B module to dissipate heat for the system. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-51 System air flow of the USG6565E



Technical Specifications

Table 4-54 Technical specifications of the USG6565E

Item	Specification
Installation Type	<ul style="list-style-type: none"> • Rack • Work bench
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	220 mm x 550 mm x 530 mm (8.66 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	<ul style="list-style-type: none"> • USG6565E-AC (02353AEJ): 8.75 kg (19.29 lb) • USG6565E-AC (02353AEJ-001): 7.93 kg (17.48 lb) • USG6565E-AC (02353AEJ-002): 7.93 kg (17.48 lb)

Item	Specification
Weight without packaging [kg(lb)]	<ul style="list-style-type: none"> USG6565E-AC (02353AEJ): 5.8 kg (12.79 lb) USG6565E-AC (02353AEJ-001): 5.95 kg (13.12 lb) USG6565E-AC (02353AEJ-002): 5.95 kg (13.12 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.4 GHz
Memory	DDR4 4 GB
NOR Flash	<ul style="list-style-type: none"> USG6565E-AC (02353AEJ): 32 MB NOTE The NOR flash memory size of devices delivered later is 64 MB. You can run the display version command to check the NOR flash memory size. USG6565E-AC (02353AEJ-001): 32 MB NOTE The NOR flash memory size of devices delivered later is 64 MB. You can run the display version command to check the NOR flash memory size. USG6565E-AC (02353AEJ-002): 32 MB NOTE The specification of the NOR flash of the device to be delivered is 64 MB. You can run the display version command to view the NOR flash memory specification of a device.
NAND Flash	2 GB
Hard disk	Optional. M.2 SSD (240GB), hot-swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	<ul style="list-style-type: none"> USG6565E-AC (02353AEJ): 40 W USG6565E-AC (02353AEJ-001): 45.3 W USG6565E-AC (02353AEJ-002): 45.3 W

Item	Specification
Maximum heat dissipation [BTU/hour]	<ul style="list-style-type: none"> USG6565E-AC (02353AEJ): 136.8 BTU/hour USG6565E-AC (02353AEJ-001): 154.4 BTU/hour USG6565E-AC (02353AEJ-002): 154.4 BTU/hour
MTBF [years]	68.98 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 290 V, 47 Hz to 63 Hz
Types of fans	Pluggable
Number of fan modules	1
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	2
Maximum number of GE ports	8
Maximum number of electrical ports	8
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Long-term operating temperature [°C(°F)]	0°C to 45°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0 m to 5000 m
Storage altitude [m(ft.)]	0 m to 5000 m

NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.

4.1.10 USG6575E-B

Overview

Table 4-55 Basic information about the USG6575E-B

Description	Part Number	Model	First supported version
USG6575E-B AC Host (16*GE RJ45+8*GE Combo +2*10GE SFP+,1 AC Power)	02353LKD	USG6575E-B-AC	V600R007C20
USG6575E-B AC Host(16*GE RJ45+8*GE Combo +2*10GE SFP+,1 AC Power)	02353LKD-002	USG6575E-B-AC	V600R007C20SPC600

Appearance

NOTE

The standard USB port of the earlier-delivered models is USB 3.0, and that of the later-delivered models is USB 2.0. This document uses a model with a USB 3.0 port as an example.

Figure 4-52 Appearance of the USG6575E-B (front view)

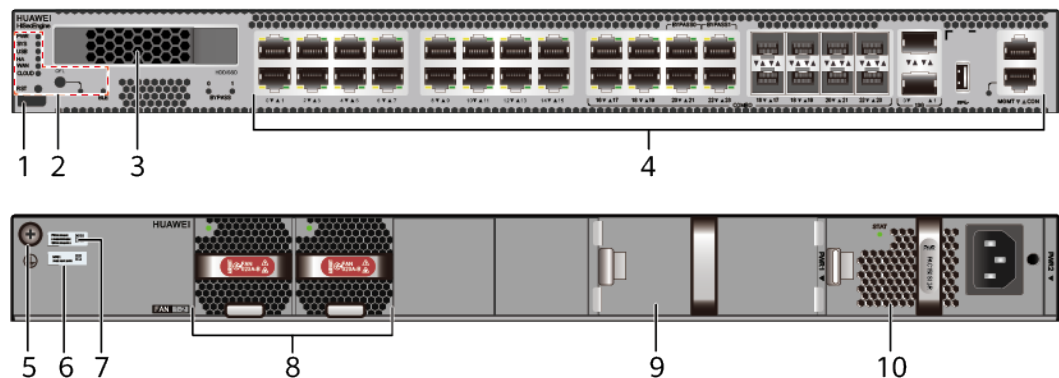


Figure 4-53 Appearance of the USG6575E-B (rear view)



Components

Figure 4-54 Components of the USG6575E-B



1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Optional power module slot	10. Power module

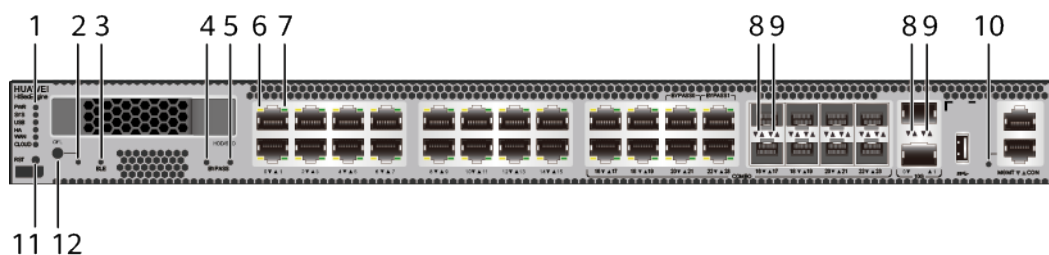
Table 4-56 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.

Name	Description
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The silkscreens of the fan module slots are FAN1 to FAN2, and the corresponding slot numbers are 4 and 5 respectively.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-55 Indicators and buttons on the USG6575E-B



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. OFL indicator	3. BLE indicator	4. BYPASS 0 indicator	5. BYPASS 1 indicator
6. GE electrical port ACT indicator	7. GE electrical port LINK indicator	8. Optical port ACT indicator	9. Optical port LINK indicator	10. MGMT port indicator
11. RST button	12. OFL button	-	-	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-57 Indicators on the USG6575E-B

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Hot backup, managing the master device
		Green	Blinks once every 2 seconds (0.5 Hz).	Hot backup, managing the slave device
		Red	Steady on	Dual-system hot backup is faulty.
		-	Off	The dual-system hot backup function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	OFL indicator	Green	Steady on	The hard disk can be removed.
		-	Off	The hard disk cannot be removed.
BLE		-	Off	Reserved function. This function is not enabled.
Bypass	Bypass indicator 0	Green	Steady on	Device is powered on. The bypass formed by GigabitEthernet et0/0/20 and GigabitEthernet et0/0/21 is in protection state.
		Green	Blinks once every 2 seconds (0.5 Hz).	Device is powered on. The bypass formed by GigabitEthernet et0/0/20 and GigabitEthernet et0/0/21 is in working state.

Silkscreen	Name	Color	Status	Description
		-	Off	Device is powered off. The bypass formed by GigabitEthernet et0/0/20 and GigabitEthernet et0/0/21 is in protection state.
Bypass	Bypass indicator 1	Green	Steady on	Device is powered on. The bypass formed by GigabitEthernet et0/0/22 and GigabitEthernet et0/0/23 is in protection state.
		Green	Blinks once every 2 seconds (0.5 Hz).	Device is powered on. The bypass formed by GigabitEthernet et0/0/22 and GigabitEthernet et0/0/23 is in working state.
		-	Off	Device is powered off. The bypass formed by GigabitEthernet et0/0/22 and GigabitEthernet et0/0/23 is in protection state.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.

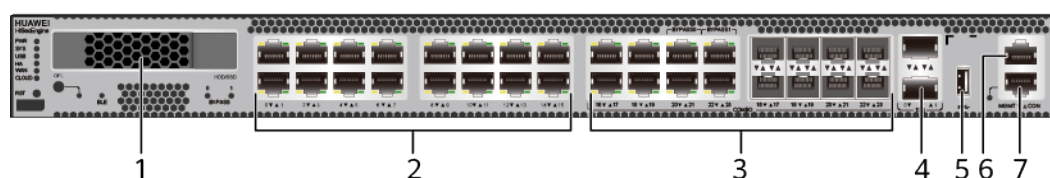
Silkscreen	Name	Color	Status	Description
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-58 Buttons on the USG6575E-B

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-56 Ports on the USG6575E-B



1. HDD/SSD slot	2. GE electrical port	3. Combo port	4. 10GE optical port	5. USB port NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 3.0 • Later-delivered models: USB 2.0
6. Console port	7. MGMT port	-	-	-

Table 4-59 Ports on the USG6575E-B

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.
GE electrical ports (0 to 15)	RJ45	<p>16 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/15.</p> <p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
Combo ports (16 to 23)	RJ45 + SFP	<p>Combo ports are logic ports. One combo port can work as a GE electrical port or a GE optical port. Each combo port has only one internal forwarding port. When the electrical port is enabled, the optical port is disabled. When the optical port is enabled, the electrical port is disabled. The electrical and optical ports of a combo port use the same interface view, numbered from GigabitEthernet 0/0/16 to GigabitEthernet 0/0/23.</p> <p>Among the four GE ports from GigabitEthernet0/0/20 to GigabitEthernet0/0/23, GigabitEthernet0/0/20 and GigabitEthernet0/0/21 are a pair of two bypass interfaces, and GigabitEthernet0/0/22 and GigabitEthernet0/0/23 are another pair. When the interfaces of each bypass interface pair work at Layer</p>	<ul style="list-style-type: none"> • Ethernet Cable • 100Mbps SFP Optical Modules • 1Gbps eSFP Optical Modules <p>NOTE In V600R007C20SPC500 and later versions, Combo ports support 100Mbps SFP Optical Modules.</p>

Port	Connector Type	Description	Available Components
		<p>2, they can form an electrical bypass link. By default, the combo port is used as an electrical port. You can use the <code>combo enable { copper fiber }</code> command to set the working mode of combo ports according to network requirements.</p> <p>NOTE A bypass link can be established only when GigabitEthernet0/0/20 to GigabitEthernet0/0/23 work as electrical ports.</p> <p>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	

Port	Connector Type	Description	Available Components
10GE optical ports (0 to 1)	SFP+	2 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/1.	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules <p>NOTE In V600R007C20SPC300 and later versions, 10GE optical ports support 1Gbps SFP Copper Modules and 1Gbps eSFP Optical Modules.</p>
USB port	USB Type A	USB port allows you to insert an USB flash drive for system software upgrades. For details on upgrades through USB flash drives, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

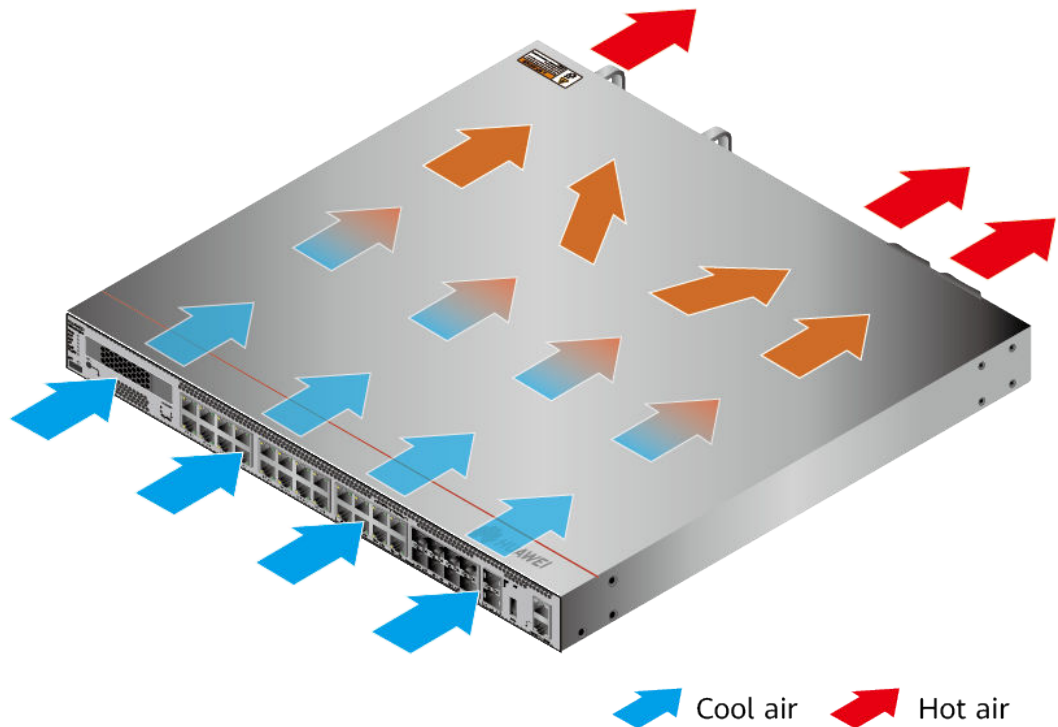
Power Supply System

The power supply system has one PAC150S12-R AC power module, but two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of two FAN-023A-B modules working in 1+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-57 System air flow of the USG6575E-B



Technical Specifications

Table 4-60 Technical specifications of the USG6575E-B

Item	Specification
Installation Type	<ul style="list-style-type: none"> • Rack • Work bench
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	8.25 kg (18.19 lb)
Weight without packaging [kg(lb)]	6.25 kg (13.78 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.4 GHz
Memory	DDR4 8 GB

Item	Specification
NOR Flash	<ul style="list-style-type: none"> USG6575E-B-AC (02353LKD): 64MB USG6575E-B-AC (02353LKD-002): 64 MB
NAND Flash	2 GB
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	76.9 W
Maximum heat dissipation [BTU/hour]	262.38 BTU/hour
MTBF [years]	41.89 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current [A]	3 A
Rated output power [W]	150W/12V
Maximum output power [W]	150 W
Types of fans	Pluggable
Number of fan modules	2
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	2
Maximum number of GE ports	8
Maximum number of electrical ports	24
Redundant power supply	Two power modules are supported for 1+1 power redundancy.

Item	Specification
Redundant fans	1+1
Noise at normal temperature (acoustic power) [db(A)]	≤55dbA
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> Without hard disk driver: 0°C to 45°C With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.11 USG6580E

Overview

Table 4-61 Basic information about the USG6580E

Description	Part Number	Model	First supported version
USG6580E AC Host (2*GE WAN + 8*GE Combo + 16*GE RJ45 + 2*10GE SFP+,1 AC power)	02352CBS	USG6580E-AC	V600R006C00

Appearance

Figure 4-58 Appearance of the USG6580E (front view)

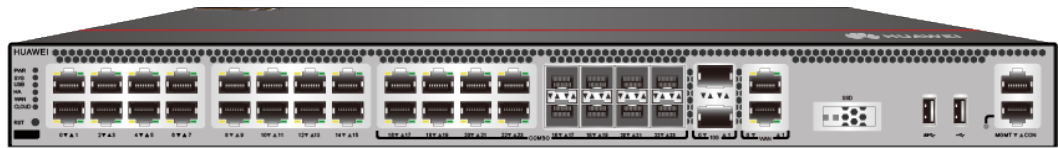
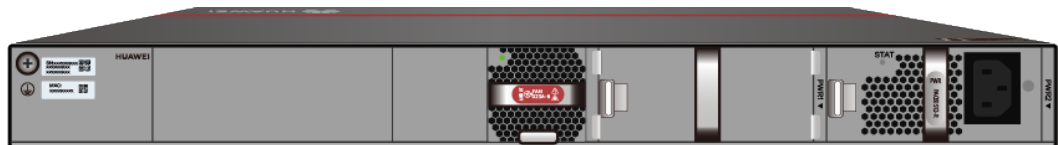
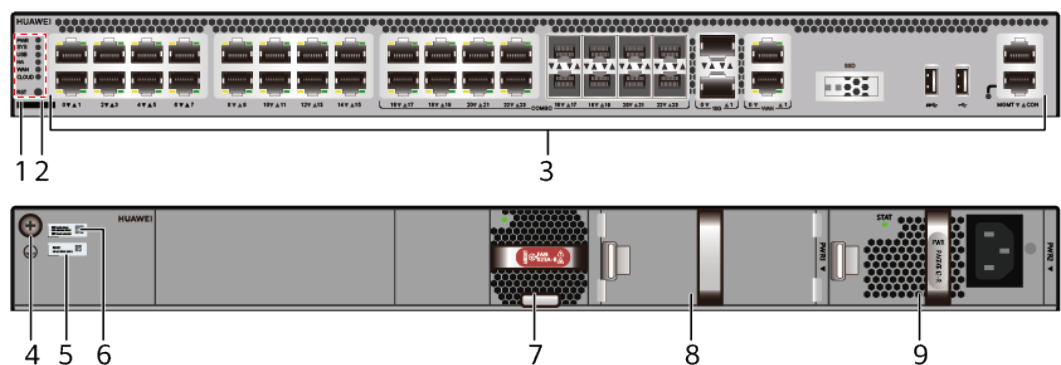


Figure 4-59 Appearance of the USG6580E (rear view)



Components

Figure 4-60 Components of the USG6580E



1. Product series ID	2. Indicator and button area	3. Fixed interface area	4. Protective ground terminal	5. MAC label
6. SN label	7. Fan module	8. Optional power module slot	9. Power module	-

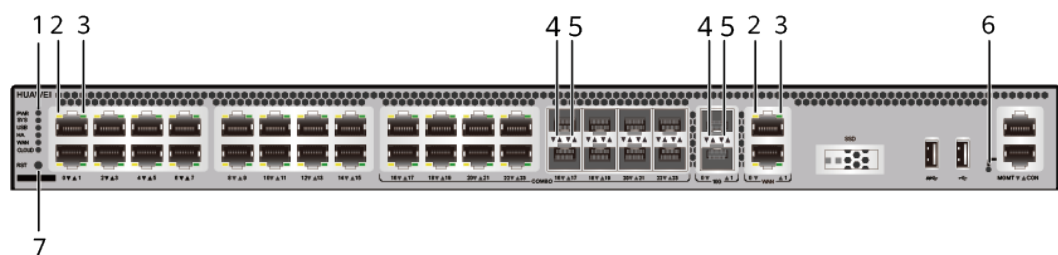
Table 4-62 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.

Name	Description
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The slot number of the fan module is 4.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-61 Indicators and buttons on the USG6580E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. GE electrical port ACT indicator	3. GE electrical port LINK indicator	4. Optical port ACT indicator	5. Optical port LINK indicator
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6. MGMT port indicator	7. RST button	-	-	-
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 **NOTE**

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-63 Indicators on the USG6580E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.

Silkscreen	Name	Color	Status	Description
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Hot backup, managing the master device

Silkscreen	Name	Color	Status	Description
		Green	Blinks once every 2 seconds (0.5 Hz).	Hot backup, managing the slave device
		Red	Steady on	Dual-system hot backup is faulty.
		-	Off	The dual-system hot backup function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.

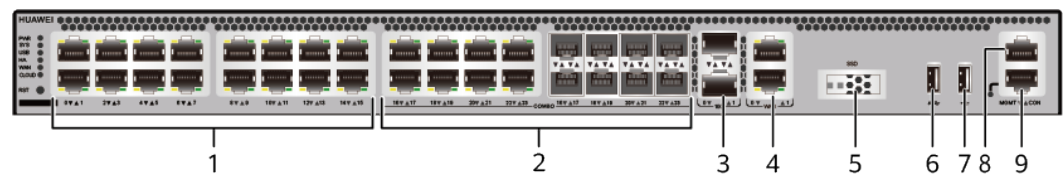
Silkscreen	Name	Color	Status	Description
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-64 Buttons on the USG6580E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.

Ports

Figure 4-62 Ports on the USG6580E



1. GE electrical port	2. Combo port	3. 10GE optical port	4. WAN port	5. SSD card slot
6. USB 3.0 port	7. USB 2.0 port	8. Console port	9. MGMT port	-

Table 4-65 Ports on the USG6580E

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 15)	RJ45	16 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/15. NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Ethernet Cable

Port	Connector Type	Description	Available Components
Combo ports (16 to 23)	RJ45 + SFP	<p>Combo ports. Combo ports are logic ports. One combo port can work as a GE electrical interface or a GE optical port. Each combo port has only one internal forwarding port. When the electrical port is enabled, the optical port is disabled. When the optical port is enabled, the electrical port is disabled. The electrical and optical ports of a combo port use the same interface view, numbered from GigabitEthernet 0/0/16 to GigabitEthernet 0/0/23. By default, the combo port is used as an electrical port. You can use the <code>combo enable { copper fiber }</code> command to set the working mode of combo ports according to network requirements.</p>	<ul style="list-style-type: none"> • Ethernet Cable • 1Gbps eSFP Optical Modules

Port	Connector Type	Description	Available Components
10GE optical ports (0 to 1)	SFP+	2 10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet 0/0/0 to XGigabitEthernet 0/0/1. Not compatible with GE optical modules.	10Gbps SFP+ Optical Modules
WAN ports (0 to 1)	RJ45	2 10/100/1000M autosensing Ethernet electrical ports, numbered from WAN 0/0/0 to WAN 0/0/1. The device is connected to the WAN or cloud management center using a network cable.	Ethernet Cable
SSD card slot	-	The M.2 module is inserted to record logs and reports in real time. The M.2 module is optional. You can purchase the M.2 module as required.	Hard Disk Unit M.2-Sata240G-A
USB 3.0 port	USB 3.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
USB 2.0 port	USB 2.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

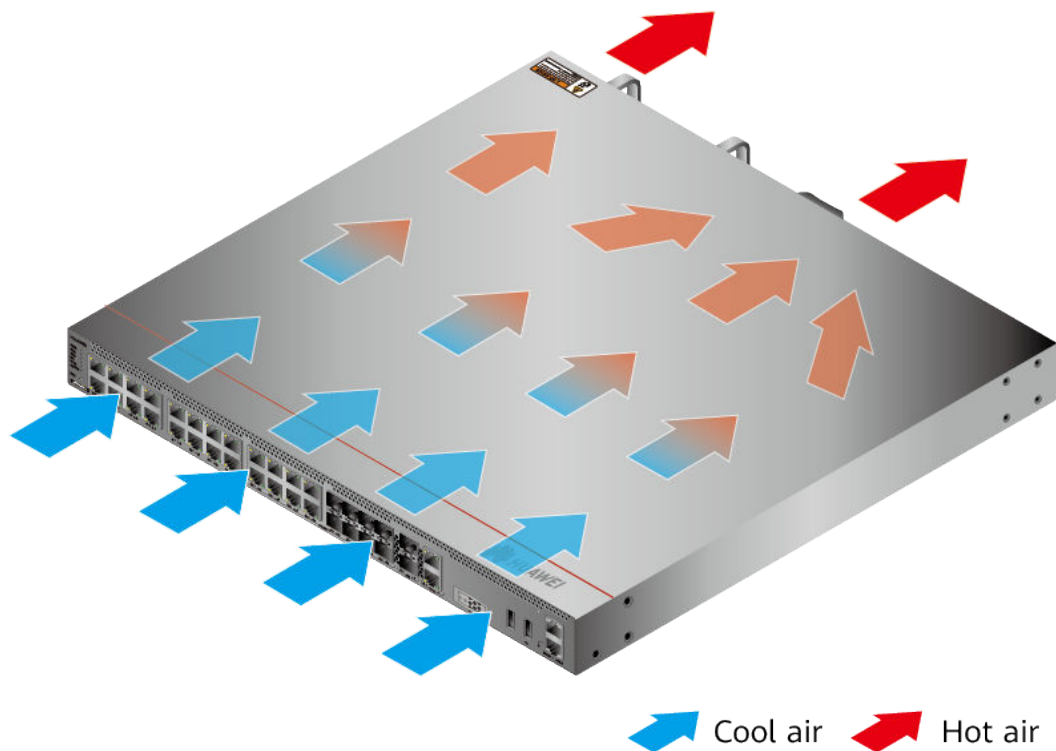
Power Supply System

The power supply system has one PAC60S12-R AC power module, but two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system uses one FAN-023A-B module to dissipate heat for the system. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-63 System air flow of the USG6580E



Technical Specifications

Table 4-66 Technical specifications of the USG6580E-AC

Item	Specification
Installation Type	<ul style="list-style-type: none"> • Rack • Work bench
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	220 mm x 550 mm x 530 mm (8.66 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	8.1 kg (17.86 lb)
Weight without packaging [kg(lb)]	5.71 kg (12.59 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.4 GHz
Memory	DDR4 4 GB
NOR Flash	32 MB

Item	Specification
NAND Flash	2 GB
Hard disk	Optional. M.2 SSD (240GB), hot-swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	46.4 W
Maximum heat dissipation [BTU/hour]	158.7 BTU/hour
MTBF [years]	45.56 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 264 V, 47 Hz to 63 Hz
Types of fans	Pluggable
Number of fan modules	1
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	2
Maximum number of GE ports	24
Maximum number of electrical ports	24
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Long-term operating temperature [°C(°F)]	0°C to 45°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0 m to 5000 m
Storage altitude [m(ft.)]	0 m to 5000 m

NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.

4.1.12 USG6585E

Overview

Table 4-67 Basic information about the USG6585E

Description	Part Number	Model	First supported version
USG6585E AC Host (2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353ADA	USG6585E-AC	V600R007C00
USG6585E AC Host(2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353ADA-001	USG6585E-AC	V600R007C20SPC 500
USG6585E AC Host(2*GE WAN +8*GE Combo +2*10GE SFP+,1 AC power)	02353ADA-002	USG6585E-AC	V600R007C20SPC 600

Appearance

NOTE

The two USB ports of earlier-delivered models are USB 3.0 and USB 2.0 respectively, whereas those of later-delivered models are both USB 2.0. In this document, earlier-delivered models are used as examples.

Figure 4-64 Appearance of the USG6585E (front view)

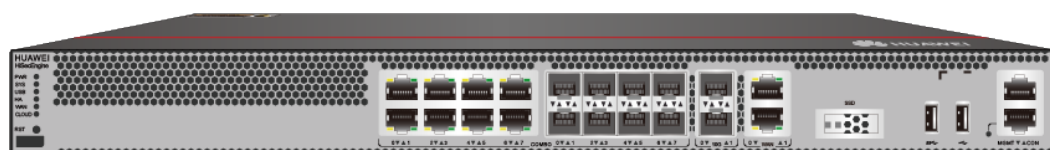
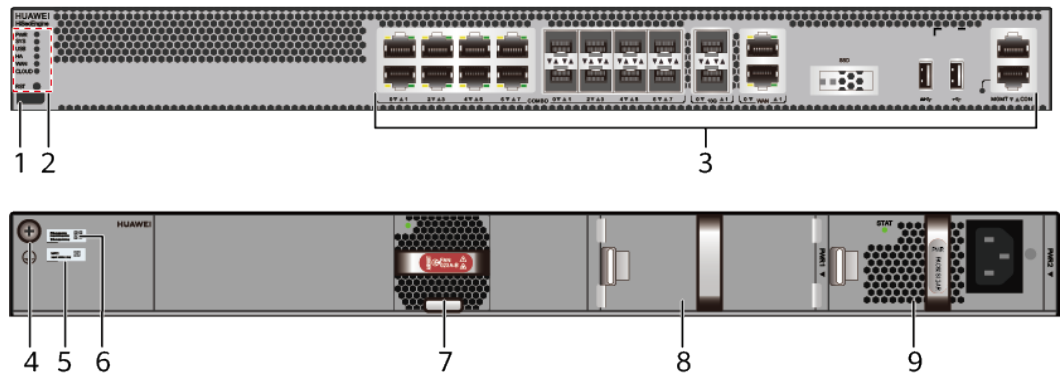


Figure 4-65 Appearance of the USG6585E (rear view)



Components

Figure 4-66 Components of the USG6585E



1. Product series ID	2. Indicator and button area	3. Fixed interface area	4. Protective ground terminal	5. MAC label
6. SN label	7. Fan module	8. Optional power module slot	9. Power module	-

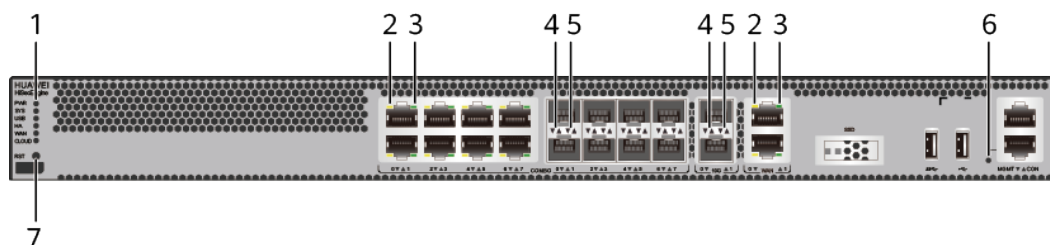
Table 4-68 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.

Name	Description
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The slot number of the fan module is 4.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-67 Indicators and buttons on the USG6585E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. GE electrical port ACT indicator	3. GE electrical port LINK indicator	4. Optical port ACT indicator	5. Optical port LINK indicator
6. MGMT port indicator	7. RST button	-	-	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-69 Indicators on the USG6585E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> • The system is faulty. • The power supply is abnormal. • The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Hot backup, managing the master device
		Green	Blinks once every 2 seconds (0.5 Hz).	Hot backup, managing the slave device
		Red	Steady on	Dual-system hot backup is faulty.
		-	Off	The dual-system hot backup function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.

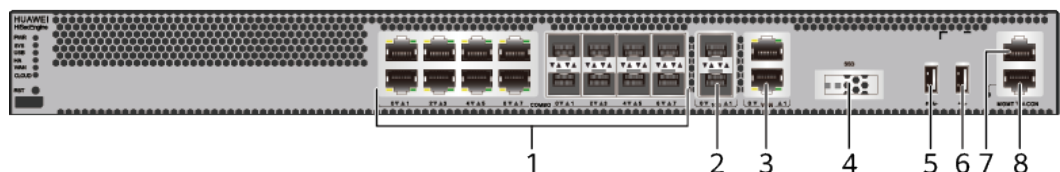
Silkscreen	Name	Color	Status	Description
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-70 Buttons on the USG6585E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.

Ports

Figure 4-68 Ports on the USG6585E



1. Combo port	2. 10GE optical port	3. WAN port	4. SSD card slot	5. USB 3.0 port or USB0 NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 3.0 • Later-delivered models: USB0 (USB 2.0)
6. USB 2.0 port or USB1 NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 2.0 • Later-delivered models: USB1 (USB 2.0) 	7. Console port	8. MGMT port	-	-

Table 4-71 Ports on the USG6585E

Port	Connector Type	Description	Available Components
Combo ports (0 to 7)	RJ45 + SFP	<p>Combo ports. Combo ports are logic ports. One combo port can work as a GE electrical interface or a GE optical port. Each combo port has only one internal forwarding port. When the electrical port is enabled, the optical port is disabled. When the optical port is enabled, the electrical port is disabled. The electrical and optical ports of a combo port use the same interface view, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/7. By default, the combo port is used as an electrical port. You can use the <code>combo enable { copper fiber }</code> command to set the working mode of combo ports according to network requirements.</p>	<ul style="list-style-type: none"> • Ethernet Cable • 100Mbps SFP Optical Modules • 1Gbps eSFP Optical Modules <p>NOTE In V600R007C20SPC500 and later versions, Combo ports support 100Mbps SFP Optical Modules.</p>

Port	Connector Type	Description	Available Components
		<p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	
10GE optical ports (0 to 1)	SFP+	<p>2 10GE optical ports, numbered from XGigabitEthernet 0/0/0 to XGigabitEthernet 0/0/1.</p> <p>NOTE In V600R007C20 and later versions, 10GE optical ports support 1Gbps SFP Copper Modules and 1Gbps eSFP Optical Modules. By default, the rate of 10GE optical ports are 10GE. You can run the set device port-config-mode [10ge ge] command to set the rate of 10GE optical ports are to 10GE or GE as required.</p>	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules
WAN ports (0 to 1)	RJ45	<p>2 10/100/1000M autosensing Ethernet electrical ports, numbered from WAN 0/0/0 to WAN 0/0/1.</p> <p>The device is connected to the WAN or cloud management center using a network cable.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
SSD card slot	-	The M.2 module is inserted to record logs and reports in real time. The M.2 module is optional. You can purchase the M.2 module as required.	Hard Disk Unit M.2-Sata240G-A
USB 3.0 port or USB0	USB Type A	USB port allows you to insert an USB flash drive for system software upgrades. For details on upgrades through USB flash drives, refer to the Upgrade Guide delivered with the device.	USB flash drive
USB 2.0 port or USB1	USB Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

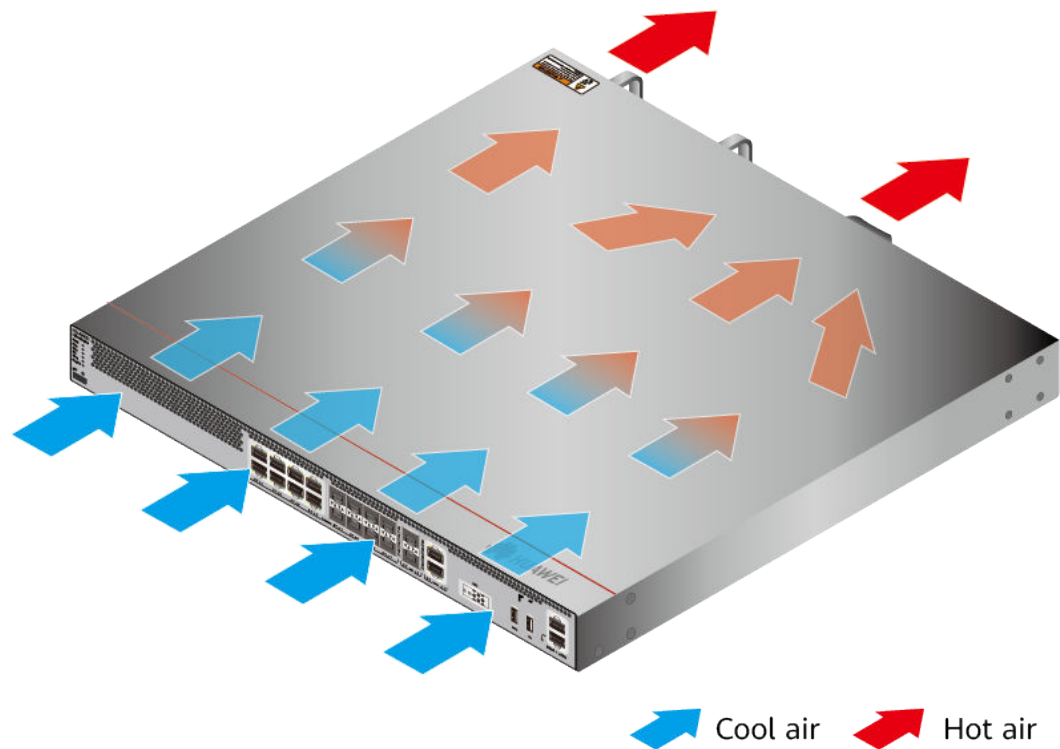
Power Supply System

- Early delivery: The power supply system has one PAC60S12-AR, PAC60S12-R, or PAC600S12-CB AC power module. Two power modules can be configured for 1+1 power redundancy.
- Later delivery: The power supply system has one PAC60S12-AR AC power module. Two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system uses one FAN-023A-B module to dissipate heat for the system. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-69 System air flow of the USG6585E



Technical Specifications

Table 4-72 Technical specifications of the USG6585E

Item	Specification
Installation Type	<ul style="list-style-type: none"> • Rack • Work bench
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	220 mm x 550 mm x 530 mm (8.66 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	<ul style="list-style-type: none"> • USG6585E-AC (02353ADA): 8.75 kg (19.29 lb) • USG6585E-AC (02353ADA-001): 7.93 kg (17.48 lb) • USG6585E-AC (02353ADA-002): 7.93 kg (17.48 lb)

Item	Specification
Weight without packaging [kg(lb)]	<ul style="list-style-type: none"> USG6585E-AC (02353ADA): 5.8 kg (12.79 lb) USG6585E-AC (02353ADA-001): 5.95 kg (13.12 lb) USG6585E-AC (02353ADA-002): 5.95 kg (13.12 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.4 GHz
Memory	DDR4 4 GB
NOR Flash	<ul style="list-style-type: none"> USG6585E-AC (02353ADA): 32 MB NOTE The NOR flash memory size of devices delivered later is 64 MB. You can run the display version command to check the NOR flash memory size. USG6585E-AC (02353ADA-001): 32 MB NOTE The NOR flash memory size of devices delivered later is 64 MB. You can run the display version command to check the NOR flash memory size. USG6585E-AC (02353ADA-002): 32 MB NOTE The specification of the NOR flash of the device to be delivered is 64 MB. You can run the display version command to view the NOR flash memory specification of a device.
NAND Flash	2 GB
Hard disk	Optional. M.2 SSD (240GB), hot-swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	<ul style="list-style-type: none"> USG6585E-AC (02353ADA): 40 W USG6585E-AC (02353ADA-001): 45.3 W USG6585E-AC (02353ADA-002): 45.3 W

Item	Specification
Maximum heat dissipation [BTU/hour]	<ul style="list-style-type: none"> USG6585E-AC (02353ADA): 136.8 BTU/hour USG6585E-AC (02353ADA-001): 154.4 BTU/hour USG6585E-AC (02353ADA-002): 154.4 BTU/hour
MTBF [years]	68.98 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 290 V, 47 Hz to 63 Hz
Types of fans	Pluggable
Number of fan modules	1
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	2
Maximum number of GE ports	8
Maximum number of electrical ports	8
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Long-term operating temperature [°C(°F)]	0°C to 45°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0 m to 5000 m
Storage altitude [m(ft.)]	0 m to 5000 m

NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.

4.1.13 USG6605E-B

Overview

Table 4-73 Basic information about the USG6605E-B

Description	Part Number	Model	First supported version
USG6605E-B AC Host (16*GE RJ45 + 8*GE Combo +2*10GE SFP+,1 AC POWER)	02353PSK	USG6605E-B-AC	V600R007C20
USG6605E-B AC Host(16*GE RJ45+8*GE Combo +2*10GE SFP+,1 AC Power)	02353PSK-001	USG6605E-B-AC	V600R007C20SPC600

Appearance

NOTE

The standard USB port of the earlier-delivered models is USB 3.0, and that of the later-delivered models is USB 2.0. This document uses a model with a USB 3.0 port as an example.

Figure 4-70 Appearance of the USG6605E-B (front view)

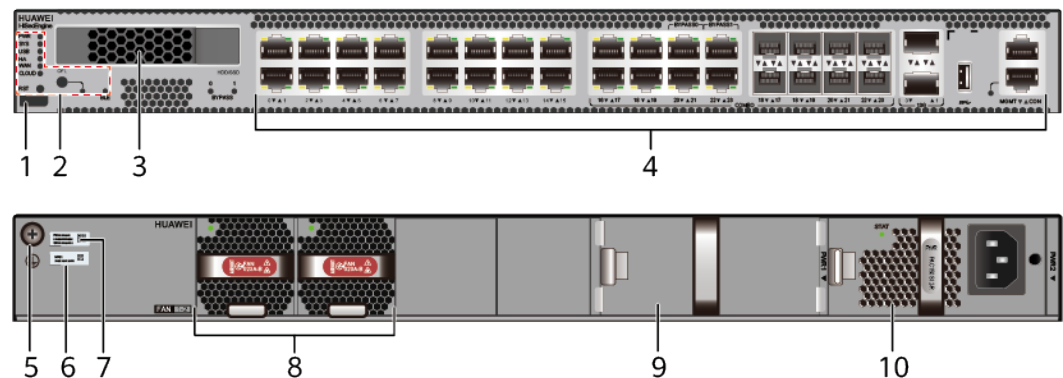


Figure 4-71 Appearance of the USG6605E-B (rear view)



Components

Figure 4-72 Components of the USG6605E-B



1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Optional power module slot	10. Power module

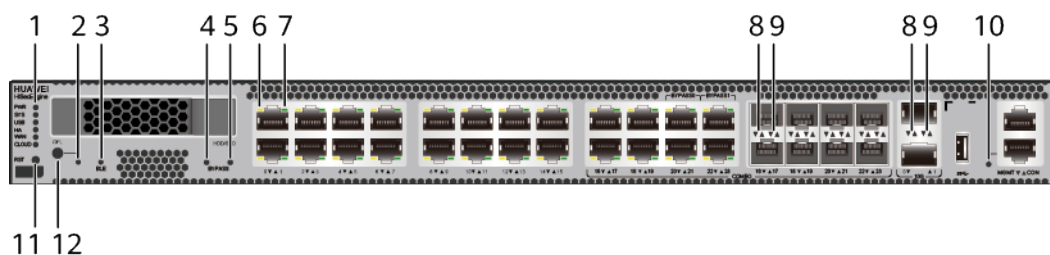
Table 4-74 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.

Name	Description
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The silkscreens of the fan module slots are FAN1 to FAN2, and the corresponding slot numbers are 4 and 5 respectively.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-73 Indicators and buttons on the USG6605E-B



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. OFL indicator	3. BLE indicator	4. BYPASS 0 indicator	5. BYPASS 1 indicator
6. GE electrical port ACT indicator	7. GE electrical port LINK indicator	8. Optical port ACT indicator	9. Optical port LINK indicator	10. MGMT port indicator
11. RST button	12. OFL button	-	-	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-75 Indicators on the USG6605E-B

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Hot backup, managing the master device
		Green	Blinks once every 2 seconds (0.5 Hz).	Hot backup, managing the slave device
		Red	Steady on	Dual-system hot backup is faulty.
		-	Off	The dual-system hot backup function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	OFL indicator	Green	Steady on	The hard disk can be removed.
		-	Off	The hard disk cannot be removed.
BLE		-	Off	Reserved function. This function is not enabled.
Bypass	Bypass indicator 0	Green	Steady on	Device is powered on. The bypass formed by GigabitEthernet et0/0/20 and GigabitEthernet et0/0/21 is in protection state.
		Green	Blinks once every 2 seconds (0.5 Hz).	Device is powered on. The bypass formed by GigabitEthernet et0/0/20 and GigabitEthernet et0/0/21 is in working state.

Silkscreen	Name	Color	Status	Description
		-	Off	Device is powered off. The bypass formed by GigabitEthernet et0/0/20 and GigabitEthernet et0/0/21 is in protection state.
Bypass	Bypass indicator 1	Green	Steady on	Device is powered on. The bypass formed by GigabitEthernet et0/0/22 and GigabitEthernet et0/0/23 is in protection state.
		Green	Blinks once every 2 seconds (0.5 Hz).	Device is powered on. The bypass formed by GigabitEthernet et0/0/22 and GigabitEthernet et0/0/23 is in working state.
		-	Off	Device is powered off. The bypass formed by GigabitEthernet et0/0/22 and GigabitEthernet et0/0/23 is in protection state.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.

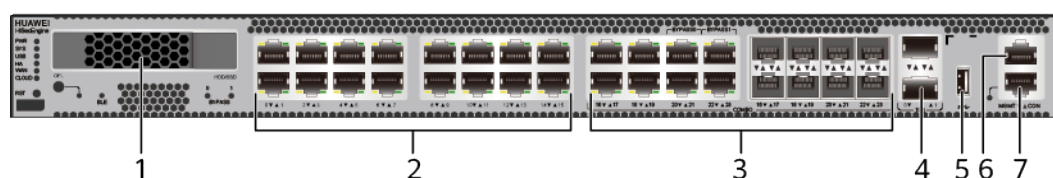
Silkscreen	Name	Color	Status	Description
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-76 Buttons on the USG6605E-B

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-74 Ports on the USG6605E-B



1. HDD/SSD slot	2. GE electrical port	3. Combo port	4. 10GE optical port	5. USB port NOTE <ul style="list-style-type: none"> • Earlier-delivered models: USB 3.0 • Later-delivered models: USB 2.0
6. Console port	7. MGMT port	-	-	-

Table 4-77 Ports on the USG6605E-B

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.
GE electrical ports (0 to 15)	RJ45	<p>16 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/15.</p> <p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
<p>Combo ports (16 to 23)</p>	<p>RJ45 + SFP</p>	<p>Combo ports are logic ports. One combo port can work as a GE electrical port or a GE optical port. Each combo port has only one internal forwarding port. When the electrical port is enabled, the optical port is disabled. When the optical port is enabled, the electrical port is disabled. The electrical and optical ports of a combo port use the same interface view, numbered from GigabitEthernet 0/0/16 to GigabitEthernet 0/0/23.</p> <p>Among the four GE ports from GigabitEthernet0/0/20 to GigabitEthernet0/0/23, GigabitEthernet0/0/20 and GigabitEthernet0/0/21 are a pair of two bypass interfaces, and GigabitEthernet0/0/22 and GigabitEthernet0/0/23 are another pair. When the interfaces of each bypass interface pair work at Layer</p>	<ul style="list-style-type: none"> • Ethernet Cable • 100Mbps SFP Optical Modules • 1Gbps eSFP Optical Modules <p>NOTE In V600R007C20SPC500 and later versions, Combo ports support 100Mbps SFP Optical Modules.</p>

Port	Connector Type	Description	Available Components
		<p>2, they can form an electrical bypass link. By default, the combo port is used as an electrical port. You can use the <code>combo enable { copper fiber }</code> command to set the working mode of combo ports according to network requirements.</p> <p>NOTE A bypass link can be established only when GigabitEthernet0/0/20 to GigabitEthernet0/0/23 work as electrical ports.</p> <p>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	

Port	Connector Type	Description	Available Components
10GE optical ports (0 to 1)	SFP+	2 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/1.	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules <p>NOTE In V600R007C20SPC300 and later versions, 10GE optical ports support 1Gbps SFP Copper Modules and 1Gbps eSFP Optical Modules.</p>
USB port	USB Type A	USB port allows you to insert an USB flash drive for system software upgrades. For details on upgrades through USB flash drives, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

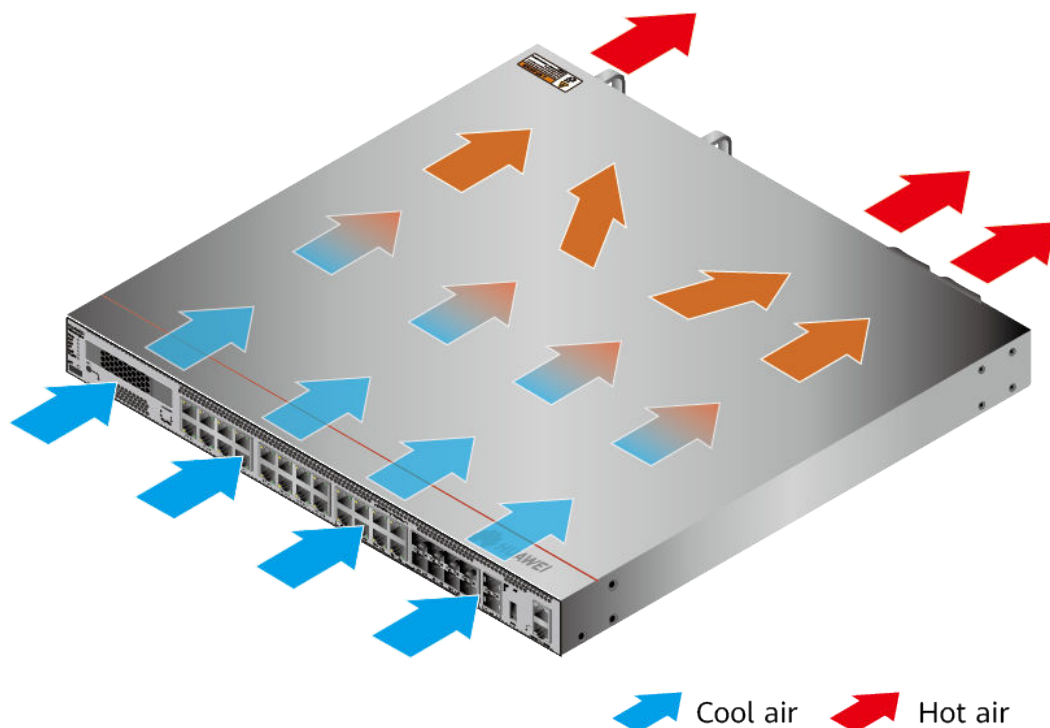
Power Supply System

The power supply system has one PAC150S12-R AC power module, but two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of two FAN-023A-B modules working in 1+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-75 System air flow of the USG6605E-B



Technical Specifications

Table 4-78 Technical specifications of the USG6605E-B

Item	Specification
Installation Type	<ul style="list-style-type: none"> • Rack • Work bench
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	8.25 kg (18.19 lb)
Weight without packaging [kg(lb)]	6.25 kg (13.78 lb)
CPU	1 CPU, 4 cores/CPU, up to 1.4 GHz
Memory	DDR4 8 GB

Item	Specification
NOR Flash	<ul style="list-style-type: none"> USG6605E-B-AC (02353PSK): 64MB USG6605E-B-AC (02353PSK-001): 64 MB
NAND Flash	2 GB
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	76.9 W
Maximum heat dissipation [BTU/hour]	262.38 BTU/hour
MTBF [years]	41.89 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current [A]	3 A
Rated output power [W]	150W/12V
Maximum output power [W]	150 W
Types of fans	Pluggable
Number of fan modules	2
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	2
Maximum number of GE ports	8
Maximum number of electrical ports	24
Redundant power supply	Two power modules are supported for 1+1 power redundancy.

Item	Specification
Redundant fans	1+1
Noise at normal temperature (acoustic power) [db(A)]	≤55dbA
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> Without hard disk driver: 0°C to 45°C With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.14 USG6610E

Overview

Table 4-79 Basic information about the USG6610E

Description	Part Number	Model	First supported version
USG6610E AC Host (12*GE RJ45 + 8*GE SFP + 4*10GE SFP+,1 AC power)	02352HMD	USG6610E-AC	V600R007C20SPC100

Description	Part Number	Model	First supported version
USG6610E AC Host (12*GE RJ45 + 8*GE SFP + 4*10GE SFP+,1 AC power)	02352HMD-001	USG6610E-AC	V600R007C20SPC 300
USG6610E AC Host(12*GE RJ45+8*GE SFP +4*10GE SFP+,1 AC power)	02352HMD-002	USG6610E-AC	V600R007C20SPC 600

Appearance

NOTE

The model with the BOM number containing "-001" and "-002" have one more OFL indicator than the model with the BOM number not containing "-001" or "-002". The silkscreen of the device contains "HiSecEngine", and the distribution of heat dissipation holes on the front of one model slightly differ from that of another model. This document uses the model whose BOM number contains "-001" as an example.

Figure 4-76 Appearance of the USG6610E (front view)

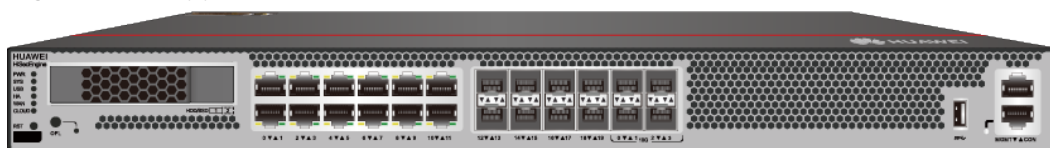
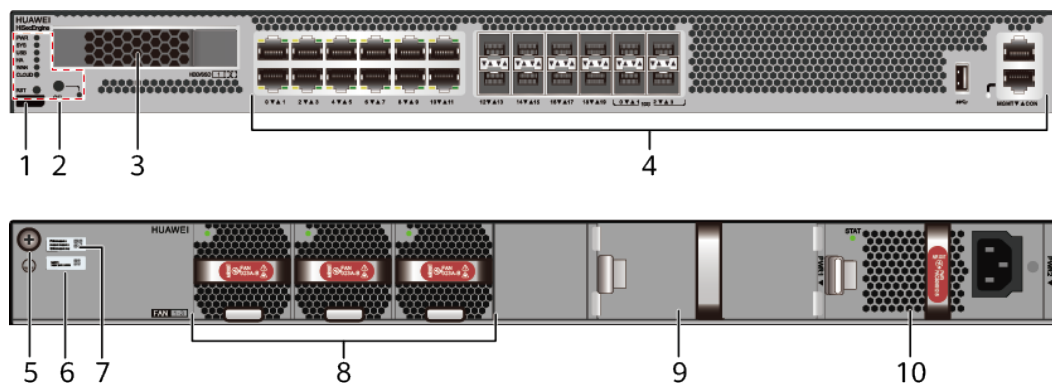


Figure 4-77 Appearance of the USG6610E (rear view)



Components

Figure 4-78 Components of the USG6610E



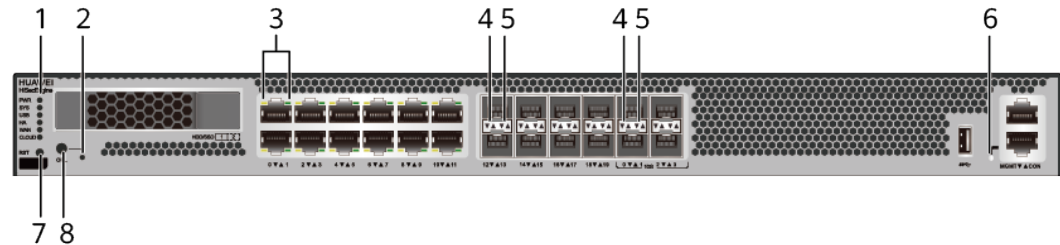
1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Optional power module slot	10. Power module

Table 4-80 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The silkscreens of the fan module slots are FAN1 to FAN3, and the corresponding slot numbers are 4, 5, and 6 respectively.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-79 Indicators and buttons on the USG6610E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. OFL indicator NOTE Only the models whose BOM number contain "-001" and "-002" support the OFL indicator.	3. GE electrical port indicator	4. Optical port ACT indicator	5. Optical port LINK indicator
6. MGMT port indicator	7. RST button	8. OFL button	-	-

NOTE

- GE electrical interface indicators from left to right correspond to GE electrical interfaces in ascending order. For example, the first indicator on the panel corresponds to GigabitEthernet0/0/0 and the second indicator corresponds to GigabitEthernet0/0/1.
- Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-81 Indicators on the USG6610E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.

Silkscreen	Name	Color	Status	Description
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.

Silkscreen	Name	Color	Status	Description
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Management master device in hot standby or clusterdeployment.
		Green	Blinks once every 2 seconds (0.5 Hz).	Management backup device in hot standby or cluster deployment.
		Red	Steady on	Hot standby or the cluster is faulty.
		-	Off	The hot standby or the cluster function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.

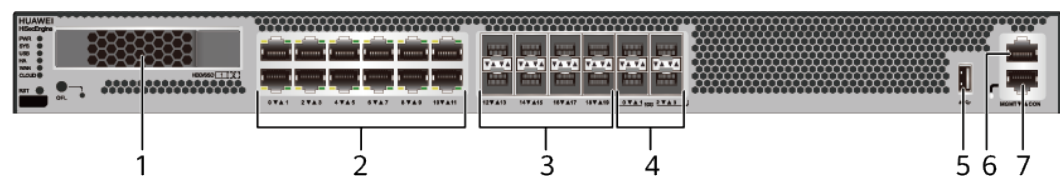
Silkscreen	Name	Color	Status	Description
-	OFL indicator	Green	Steady on	The hard disk can be removed.
		-	Off	The hard disk cannot be removed.
-	GE electrical port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-82 Buttons on the USG6610E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-80 Ports on the USG6610E



1. HDD/SSD slot	2. GE electrical port	3. GE optical port	4. 10GE optical port	5. USB 3.0 port
6. Console port	7. MGMT port	-	-	-

Table 4-83 Ports on the USG6610E

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.
GE electrical ports (0 to 11)	RJ45	<p>12 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/11.</p> <p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
GE optical ports (12 to 19)	SFP	8 GE autosensing Ethernet optical ports, numbered from GigabitEthernet0/0/12 to GigabitEthernet0/0/19.	<ul style="list-style-type: none"> • 1 Gbps SFP Copper Modules • 1 Gbps eSFP Optical Modules
10GE optical ports (0 to 3)	SFP+	4 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/11.	<ul style="list-style-type: none"> • 1 Gbps SFP Copper Modules • 1 Gbps eSFP Optical Modules • 10 Gbps SFP+ Optical Modules
USB 3.0 port	USB 3.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive
Console port	RJ45	Console ports allow you to locally connect a PC to the device. You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

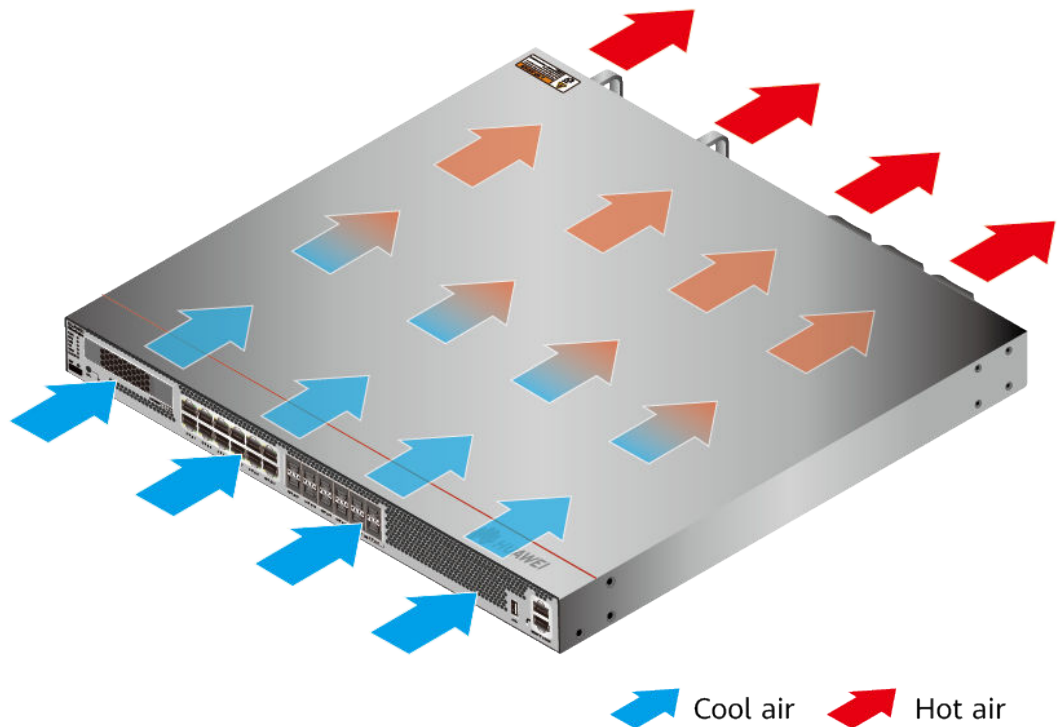
Power Supply System

- Early delivery: The power supply system has one PAC600S12-B AC power module, but two power modules can be configured for 1+1 power redundancy.
- Later delivery: The power supply system has one PAC600S12-CB, PAC600S12-DB, or PAC600S12-EB AC power module, but two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of three FAN-023A-B modules working in 2+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-81 System air flow of the USG6610E



Technical Specifications

Table 4-84 Technical specifications of the USG6610E

Item	Specification
Installation Type	Rack
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	225 mm x 550 mm x 530 mm (8.86 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	<ul style="list-style-type: none"> • USG6610E-AC (02352HMD): 10.1 kg (22.27 lb) • USG6610E-AC (02352HMD-001): 9.4 kg (20.72 lb) • USG6610E-AC (02352HMD-002): 9.4 kg (20.72 lb)

Item	Specification
Weight without packaging [kg(lb)]	<ul style="list-style-type: none"> USG6610E-AC (02352HMD): 7.1 kg (15.65 lb) USG6610E-AC (02352HMD-001): 6.7 kg (14.77 lb) USG6610E-AC (02352HMD-002): 6.7 kg (14.77 lb)
CPU	1 CPU, 8 cores/CPU, up to 2.3 GHz
Memory	DDR4 8 GB
Storage	32GB
NOR Flash	<ul style="list-style-type: none"> USG6610E-AC (02352HMD): 32 MB USG6610E-AC (02352HMD-001): 64MB USG6610E-AC (02352HMD-002): 64MB
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	<ul style="list-style-type: none"> USG6610E-AC (02352HMD): 161.79 W USG6610E-AC (02352HMD-001): 139 W USG6610E-AC (02352HMD-002): 139 W
Maximum heat dissipation [BTU/hour]	<ul style="list-style-type: none"> USG6610E-AC (02352HMD): 552.02 BTU/hour USG6610E-AC (02352HMD-001): 474.27 BTU/hour USG6610E-AC (02352HMD-002): 474.27 BTU/hour
MTBF [years]	29.34 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz

Item	Specification
Input voltage range [V]	90 V to 290 V, 47 Hz to 63 Hz
Maximum input current [A]	9 A
Maximum output power [W]	600 W
Types of fans	Pluggable
Number of fan modules	3
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	4
Maximum number of GE ports	8
Maximum number of electrical ports	12
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Redundant fans	2+1
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> Without hard disk driver: 0°C to 45°C With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 **NOTE**

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.15 USG6615E

Overview

Table 4-85 Basic information about the USG6615E

Description	Part Number	Model	First supported version
USG6615E AC Host (16*GE RJ45 + 6*GE SFP + 6*10GE SFP+, 16G Memory, 1 AC POWER)	02352RQL	USG6615E-AC	V600R007C00

Appearance

Figure 4-82 Appearance of the USG6615E (front view)

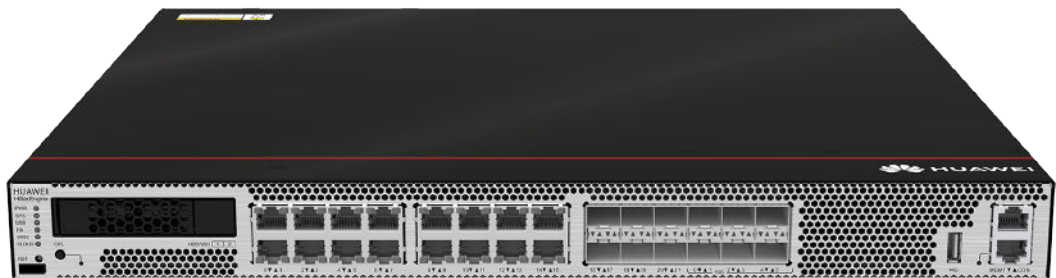
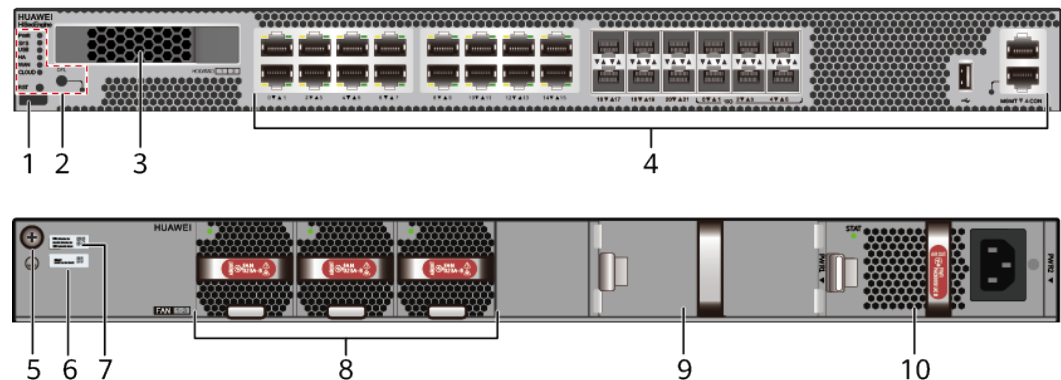


Figure 4-83 Appearance of the USG6615E (rear view)



Components

Figure 4-84 Components of the USG6615E



1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Optional power module slot	10. Power module

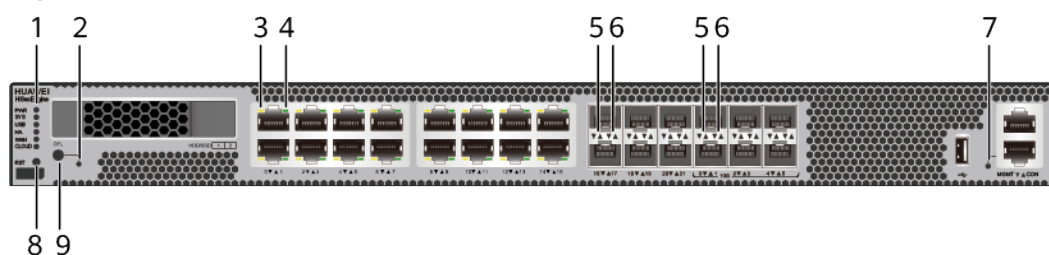
Table 4-86 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.

Name	Description
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The silkscreens of the fan module slots are FAN1 to FAN3, and the corresponding slot numbers are 4, 5, and 6 respectively.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-85 Indicators and buttons on the USG6615E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. OFL indicator	3. GE electrical port ACT indicator	4. GE electrical port LINK indicator	5. Optical port ACT indicator
6. Optical port LINK indicator	7. MGMT port indicator	8. RST button	9. OFL button	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-87 Indicators on the USG6615E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> • The system is faulty. • The power supply is abnormal. • The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Management master device in hot standby or clusterdeployment.
		Green	Blinks once every 2 seconds (0.5 Hz).	Management backup device in hot standby or cluster deployment.
		Red	Steady on	Hot standby or the cluster is faulty.
		-	Off	The hot standby or the cluster function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	OFL indicator	Green	Steady on	The hard disk can be removed.
		-	Off	The hard disk cannot be removed.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.

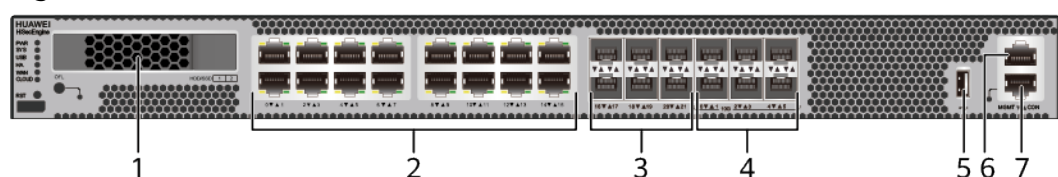
Silkscreen	Name	Color	Status	Description
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-88 Buttons on the USG6615E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-86 Ports on the USG6615E



1. HDD/SSD slot	2. GE electrical port	3. GE optical port	4. 10GE optical port	5. USB 2.0 port
6. Console port	7. MGMT port	-	-	-

Table 4-89 Ports on the USG6615E

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20, SSD-SATA960G-B disks are supported. • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 15)	RJ45	16 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/15. NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Ethernet Cable
GE optical ports (16 to 21)	SFP	6 GE autosensing Ethernet optical ports, numbered from GigabitEthernet0/0/16 to GigabitEthernet0/0/21.	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules
10GE optical ports (0 to 5)	SFP+	6 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/5.	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules
USB 2.0 port	USB 2.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	<p>Console Cable</p>

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

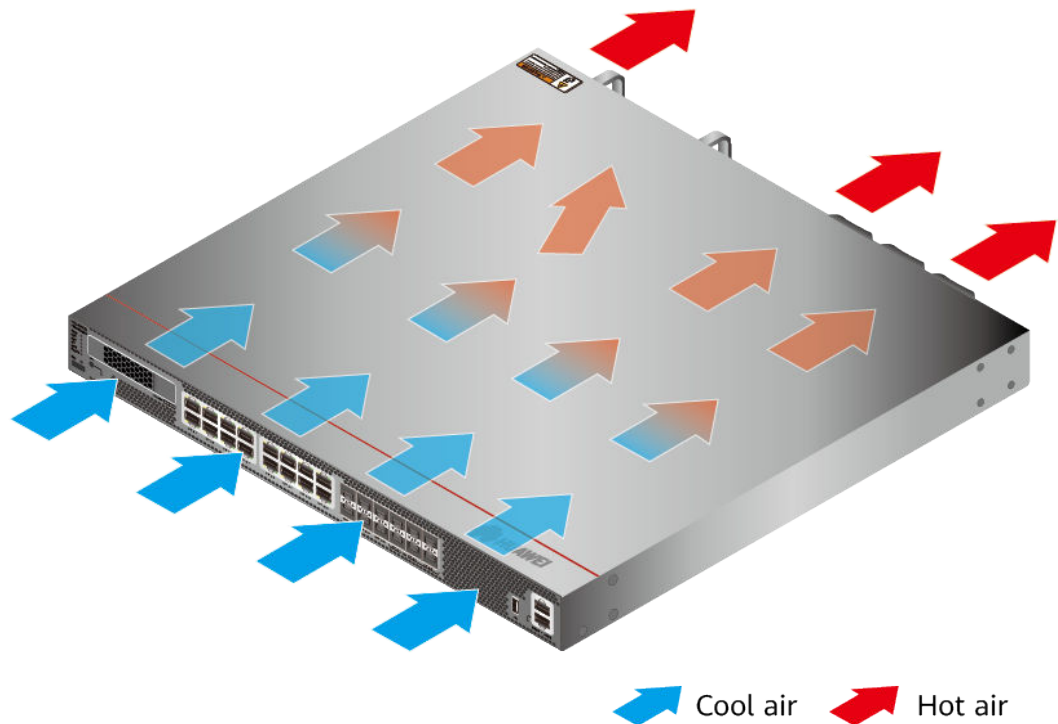
Power Supply System

The power supply system has one PAC600S12-CB, PAC600S12-DB, or PAC600S12-EB AC power module, but two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of three FAN-023A-B modules working in 2+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-87 System air flow of the USG6615E



Technical Specifications

Table 4-90 Technical specifications of the USG6615E-AC

Item	Specification
Installation Type	Rack
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	225 mm x 550 mm x 530 mm (8.86 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	10.9 kg (24.03 lb)
Weight without packaging [kg(lb)]	7.75 kg (17.09 lb)
CPU	1 CPU, 16 cores/CPU, up to 1.85 GHz
Memory	DDR4 8 GB x 2
NOR Flash	64MB
NAND Flash	2 GB

Item	Specification
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	118 W
Maximum heat dissipation [BTU/hour]	403.56 BTU/hour
MTBF [years]	37.76 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 290 V, 47 Hz to 63 Hz
Maximum input current [A]	8 A
Maximum output power [W]	600 W
Types of fans	Pluggable
Number of fan modules	3
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	6
Maximum number of GE ports	6
Maximum number of electrical ports	16
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Redundant fans	2+1
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> • Without hard disk driver: 0°C to 45°C • With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C

Item	Specification
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 **NOTE**

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.16 USG6620E

Overview

Table 4-91 Basic information about the USG6620E

Description	Part Number	Model	First supported version
USG6620E AC Host (12*GE RJ45 + 8*GE SFP + 4*10GE SFP+,1 AC power)	02352HMF	USG6620E-AC	V600R007C20SPC 100
USG6620E AC Host (12*GE RJ45 + 8*GE SFP + 4*10GE SFP+,1 AC power)	02352HMF-001	USG6620E-AC	V600R007C20SPC 300
USG6620E AC Host(12*GE RJ45+8*GE SFP +4*10GE SFP+ ,1 AC power)	02352HMF-002	USG6620E-AC	V600R007C20SPC 600

Appearance

NOTE

The model with the BOM number containing "-001" and "-002" have one more OFL indicator than the model with the BOM number not containing "-001" or "-002". The silkscreen of the device contains "HiSecEngine", and the distribution of heat dissipation holes on the front of one model slightly differ from that of another model. This document uses the model whose BOM number contains "-001" as an example.

Figure 4-88 Appearance of the USG6620E (front view)

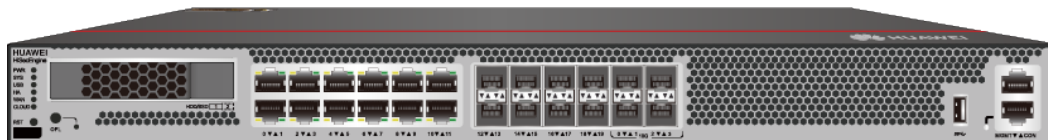
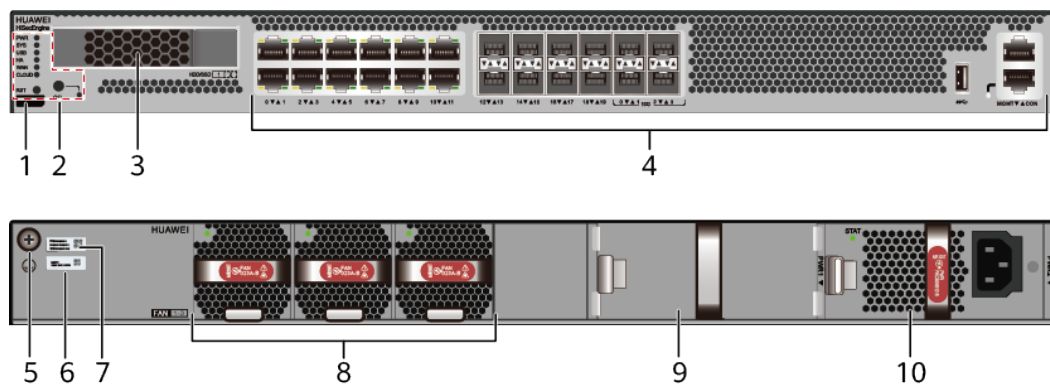


Figure 4-89 Appearance of the USG6620E (rear view)



Components

Figure 4-90 Components of the USG6620E



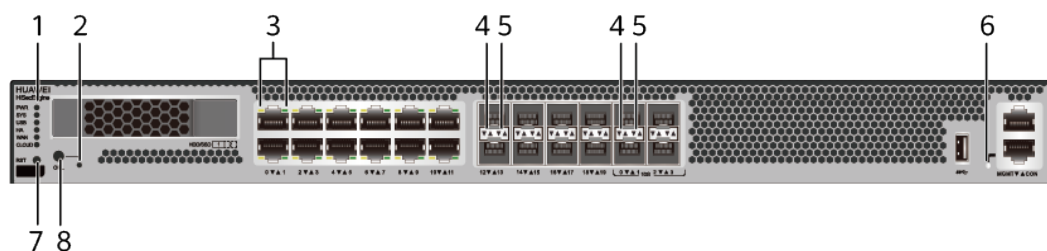
1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Optional power module slot	10. Power module

Table 4-92 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	<p>Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute.</p> <p>The silkscreens of the fan module slots are FAN1 to FAN3, and the corresponding slot numbers are 4, 5, and 6 respectively.</p>
Power module	<p>Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable.</p> <p>The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.</p>

Indicators and Buttons

Figure 4-91 Indicators and buttons on the USG6620E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. OFL indicator NOTE Only the models whose BOM number contain "-001" and "-002" support the OFL indicator.	3. GE electrical port indicator	4. Optical port ACT indicator	5. Optical port LINK indicator
6. MGMT port indicator	7. RST button	8. OFL button	-	-

NOTE

- GE electrical interface indicators from left to right correspond to GE electrical interfaces in ascending order. For example, the first indicator on the panel corresponds to GigabitEthernet0/0/0 and the second indicator corresponds to GigabitEthernet0/0/1.
- Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-93 Indicators on the USG6620E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.

Silkscreen	Name	Color	Status	Description
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.

Silkscreen	Name	Color	Status	Description
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Management master device in hot standby or cluster deployment.
		Green	Blinks once every 2 seconds (0.5 Hz).	Management backup device in hot standby or cluster deployment.
		Red	Steady on	Hot standby or the cluster is faulty.
		-	Off	The hot standby or the cluster function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.

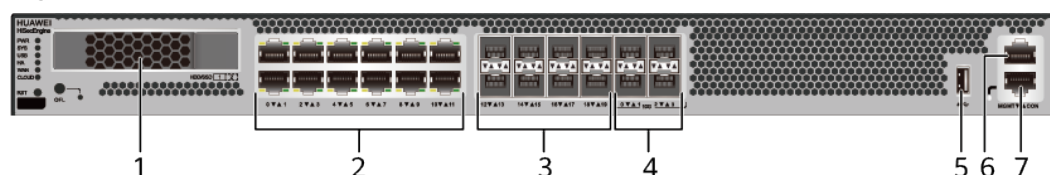
Silkscreen	Name	Color	Status	Description
-	OFL indicator	Green	Steady on	The hard disk can be removed.
		-	Off	The hard disk cannot be removed.
-	GE electrical port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-94 Buttons on the USG6620E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-92 Ports on the USG6620E



1. HDD/SSD slot	2. GE electrical port	3. GE optical port	4. 10GE optical port	5. USB 3.0 port
6. Console port	7. MGMT port	-	-	-

Table 4-95 Ports on the USG6620E

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.
GE electrical ports (0 to 11)	RJ45	<p>12 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/11.</p> <p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	Ethernet Cable

Port	Connector Type	Description	Available Components
GE optical ports (12 to 19)	SFP	8 GE autosensing Ethernet optical ports, numbered from GigabitEthernet0/0/12 to GigabitEthernet0/0/19.	<ul style="list-style-type: none"> • 1 Gbps SFP Copper Modules • 1 Gbps eSFP Optical Modules
10GE optical ports (0 to 3)	SFP+	4 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/11.	<ul style="list-style-type: none"> • 1 Gbps SFP Copper Modules • 1 Gbps eSFP Optical Modules • 10 Gbps SFP+ Optical Modules
USB 3.0 port	USB 3.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive
Console port	RJ45	Console ports allow you to locally connect a PC to the device. You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

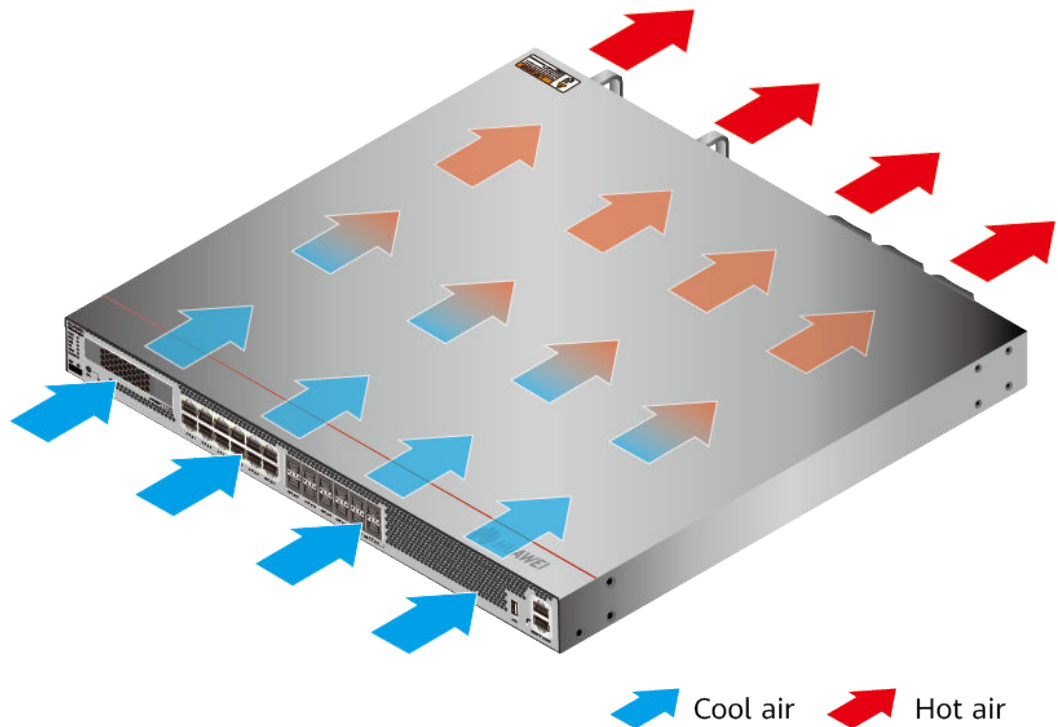
Power Supply System

- Early delivery: The power supply system has one PAC600S12-B AC power module, but two power modules can be configured for 1+1 power redundancy.
- Later delivery: The power supply system has one PAC600S12-CB, PAC600S12-DB, or PAC600S12-EB AC power module, but two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of three FAN-023A-B modules working in 2+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-93 System air flow of the USG6620E



Technical Specifications

Table 4-96 Technical specifications of the USG6620E

Item	Specification
Installation Type	Rack
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	225 mm x 550 mm x 530 mm (8.86 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	<ul style="list-style-type: none"> • USG6620E-AC (02352HMF): 10.1 kg (22.27 lb) • USG6620E-AC (02352HMF-001): 9.4 kg (20.72 lb) • USG6620E-AC (02352HMF-002): 9.4 kg (20.72 lb)

Item	Specification
Weight without packaging [kg(lb)]	<ul style="list-style-type: none"> USG6620E-AC (02352HMF): 7.1 kg (15.65 lb) USG6620E-AC (02352HMF-001): 6.7 kg (14.77 lb) USG6620E-AC (02352HMF-002): 6.7 kg (14.77 lb)
CPU	1 CPU, 8 cores/CPU, up to 2.3 GHz
Memory	DDR4 8 GB
Storage	32GB
NOR Flash	<ul style="list-style-type: none"> USG6620E-AC (02352HMF): 32 MB USG6620E-AC (02352HMF-001): 64MB USG6620E-AC (02352HMF-002): 64MB
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	<ul style="list-style-type: none"> USG6620E-AC (02352HMF): 161.79 W USG6620E-AC (02352HMF-001): 139 W USG6620E-AC (02352HMF-002): 139 W
Maximum heat dissipation [BTU/hour]	<ul style="list-style-type: none"> USG6620E-AC (02352HMF): 552.02 BTU/hour USG6620E-AC (02352HMF-001): 474.27 BTU/hour USG6620E-AC (02352HMF-002): 474.27 BTU/hour
MTBF [years]	29.34 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz

Item	Specification
Input voltage range [V]	90 V to 290 V, 47 Hz to 63 Hz
Maximum input current [A]	9 A
Maximum output power [W]	600 W
Types of fans	Pluggable
Number of fan modules	3
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	4
Maximum number of GE ports	8
Maximum number of electrical ports	12
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Redundant fans	2+1
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> Without hard disk driver: 0°C to 45°C With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 **NOTE**

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.17 USG6625E

Overview

Table 4-97 Basic information about the USG6625E

Description	Part Number	Model	First supported version
USG6625E AC Host (16*GE RJ45 + 6*GE SFP + 6*10GE SFP+, 16G Memory, 1 AC POWER)	02352RQN	USG6625E-AC	V600R007C00

Appearance

Figure 4-94 Appearance of the USG6625E (front view)

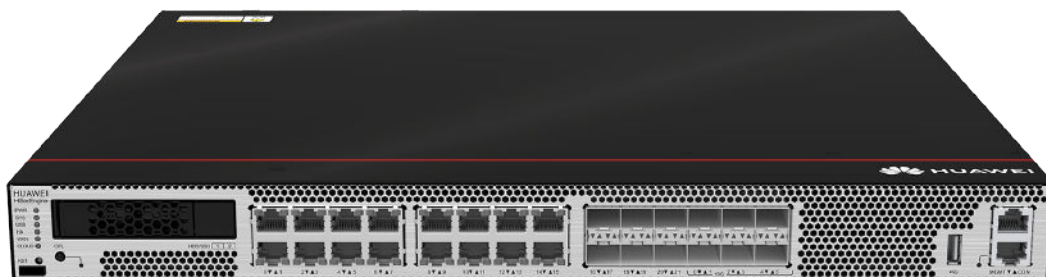
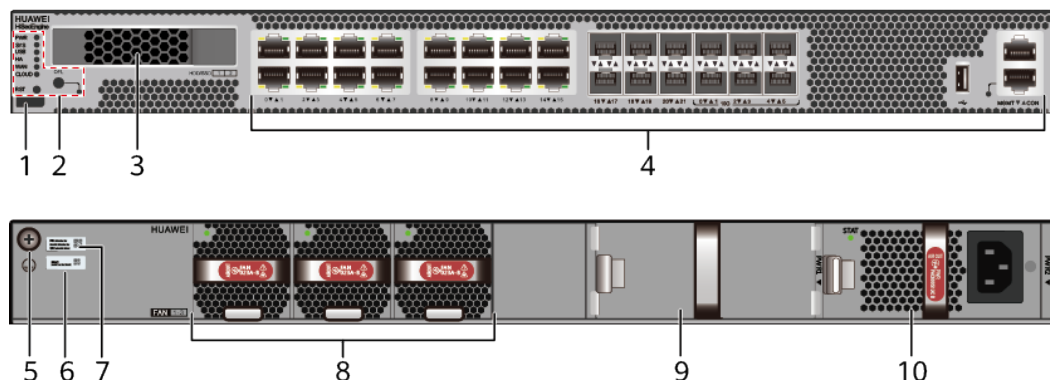


Figure 4-95 Appearance of the USG6625E (rear view)



Components

Figure 4-96 Components of the USG6625E



1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Optional power module slot	10. Power module

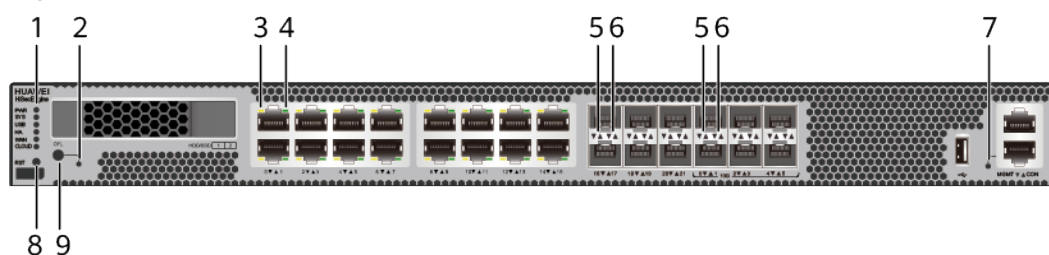
Table 4-98 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.

Name	Description
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The silkscreens of the fan module slots are FAN1 to FAN3, and the corresponding slot numbers are 4, 5, and 6 respectively.
Power module	Provides power input and distribution for the device. One power module is included in the standard configuration. Two power modules can be configured to achieve 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-97 Indicators and buttons on the USG6625E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. OFL indicator	3. GE electrical port ACT indicator	4. GE electrical port LINK indicator	5. Optical port ACT indicator
6. Optical port LINK indicator	7. MGMT port indicator	8. RST button	9. OFL button	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-99 Indicators on the USG6625E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> • The system is faulty. • The power supply is abnormal. • The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Management master device in hot standby or clusterdeployment.
		Green	Blinks once every 2 seconds (0.5 Hz).	Management backup device in hot standby or cluster deployment.
		Red	Steady on	Hot standby or the cluster is faulty.
		-	Off	The hot standby or the cluster function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	OFL indicator	Green	Steady on	The hard disk can be removed.
		-	Off	The hard disk cannot be removed.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	LINK indicator of the optical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of an optical port	Green	Steady on	The port link is connected.

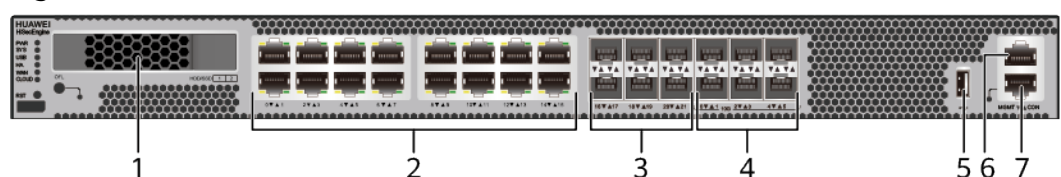
Silkscreen	Name	Color	Status	Description
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-100 Buttons on the USG6625E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-98 Ports on the USG6625E



1. HDD/SSD slot	2. GE electrical port	3. GE optical port	4. 10GE optical port	5. USB 2.0 port
6. Console port	7. MGMT port	-	-	-

Table 4-101 Ports on the USG6625E

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20, SSD-SATA960G-B disks are supported. • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 15)	RJ45	16 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/15. NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Ethernet Cable
GE optical ports (16 to 21)	SFP	6 GE autosensing Ethernet optical ports, numbered from GigabitEthernet0/0/16 to GigabitEthernet0/0/21.	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules
10GE optical ports (0 to 5)	SFP+	6 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/5.	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules
USB 2.0 port	USB 2.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

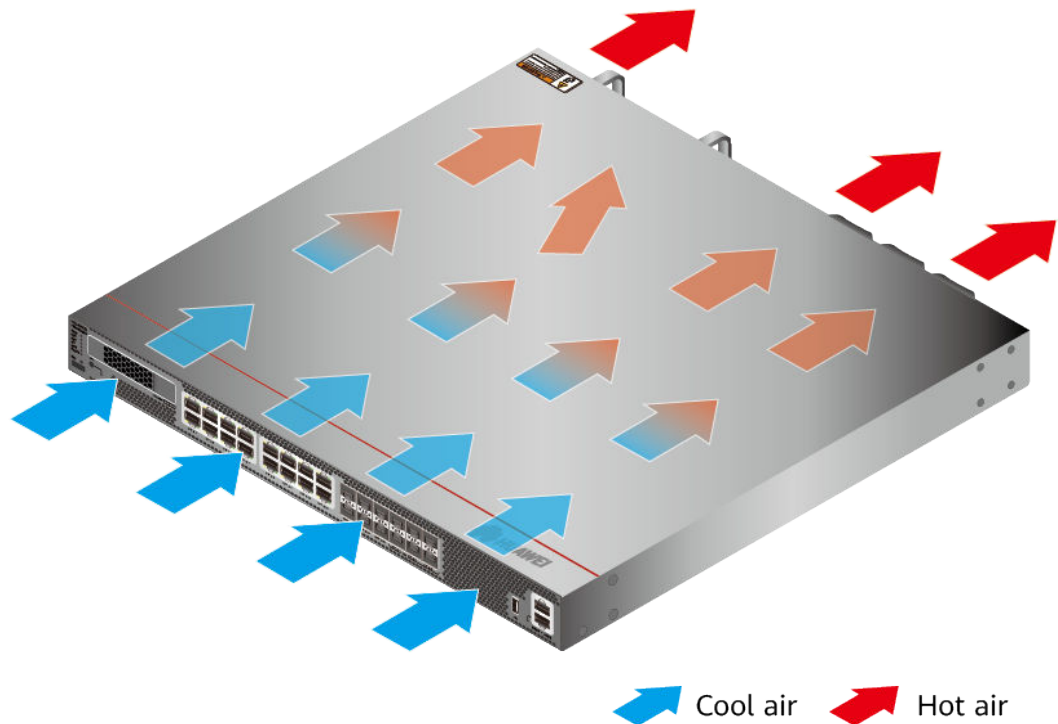
Power Supply System

The power supply system has one PAC600S12-CB, PAC600S12-DB, or PAC600S12-EB AC power module, but two power modules can be configured for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of three FAN-023A-B modules working in 2+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-99 System air flow of the USG6625E



Technical Specifications

Table 4-102 Technical specifications of the USG6625E-AC

Item	Specification
Installation Type	Rack
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	225 mm x 550 mm x 530 mm (8.86 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	10.9 kg (24.03 lb)
Weight without packaging [kg(lb)]	7.75 kg (17.09 lb)
CPU	1 CPU, 16 cores/CPU, up to 1.85 GHz
Memory	DDR4 8 GB x 2
NOR Flash	64MB
NAND Flash	2 GB

Item	Specification
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	118 W
Maximum heat dissipation [BTU/hour]	403.56 BTU/hour
MTBF [years]	37.76 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	1
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 290 V, 47 Hz to 63 Hz
Maximum input current [A]	8 A
Maximum output power [W]	600 W
Types of fans	Pluggable
Number of fan modules	3
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 10GE ports	6
Maximum number of GE ports	6
Maximum number of electrical ports	16
Redundant power supply	Two power modules are supported for 1+1 power redundancy.
Redundant fans	2+1
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> Without hard disk driver: 0°C to 45°C With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C

Item	Specification
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 **NOTE**

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.18 USG6630E

Overview

Table 4-103 Basic information about the USG6630E

Description	Part Number	Model	First supported version
USG6630E AC Host (12*GE RJ45 + 12*10GE SFP+ + 2*40GE QSFP+,2 AC power)	02352FQA	USG6630E-AC	V600R006C00
USG6630E AC Host (12*GE RJ45 + 12*10GE SFP+ + 2*40GE QSFP+,2 AC power)	02352FQA-001	USG6630E-AC	V600R007C20SPC300

Description	Part Number	Model	First supported version
USG6630E AC Host(12*GE RJ45+12*10GE SFP+ + 2*40GE QSFP+,2 AC power)	02352FQA-002	USG6630E-AC	V600R007C20SPC 600
USG6630E DC Host (12*GE RJ45 + 12*10GE SFP+ + 2*40GE QSFP+,2 DC power)	02352CKV	USG6630E-DC	V600R006C00
USG6630E DC Host (12*GE RJ45 + 12*10GE SFP+ + 2*40GE QSFP+,2 DC power)	02352CKV-001	USG6630E-DC	V600R007C20SPC 300
USG6630E DC Host(12*GE RJ45+12*10GE SFP+ + 2*40GE QSFP+,2 DC power)	02352CKV-002	USG6630E-DC	V600R007C20SPC 600

Appearance

NOTE

- The appearance difference between the DC model and AC model is the power module installed on the rear of the device. The following figure uses the AC model as an example.
- The model with the BOM number containing "-001" and "-002" have one more OFL indicator than the model with the BOM number not containing "-001" or "-002". The silkscreen of the device contains "HiSecEngine", and the distribution of heat dissipation holes on the front of one model slightly differ from that of another model. This document uses the model whose BOM number contains "-001" as an example.

Figure 4-100 Appearance of the USG6630E (front view)

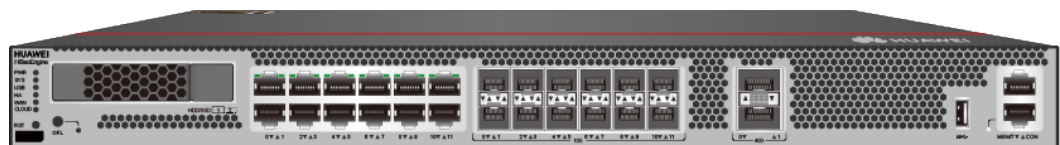
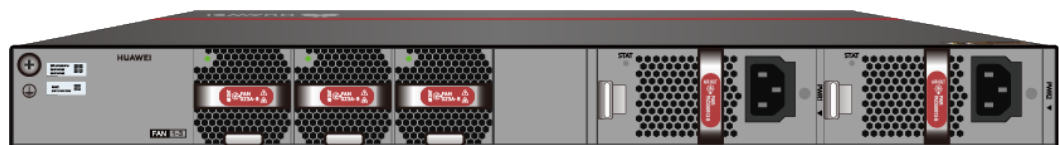
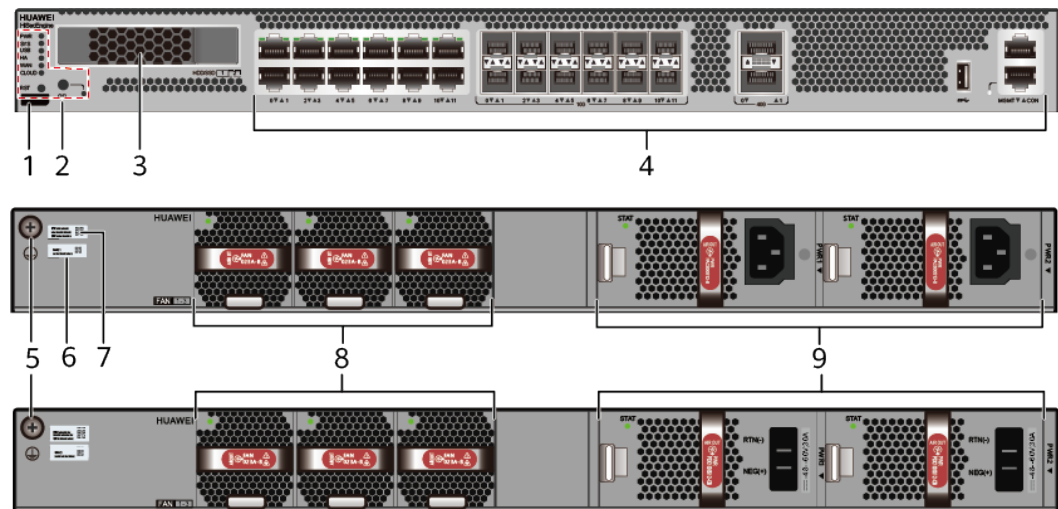


Figure 4-101 Appearance of the USG6630E (rear view)



Components

Figure 4-102 Components of the USG6630E



1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Power module	-

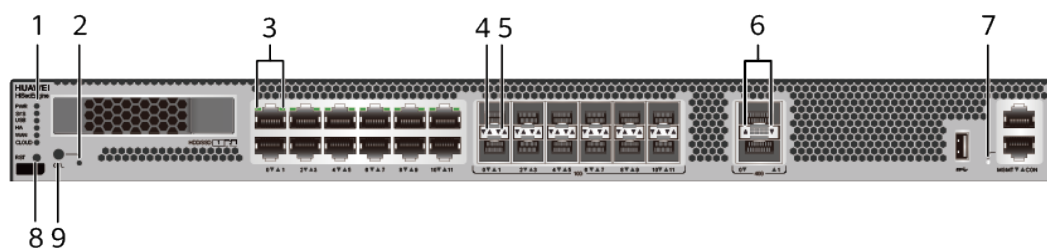
Table 4-104 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.

Name	Description
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	The fan module provides air flow for heat dissipation. The power module supports hot-swapping and can be replaced without interrupting device operation. However, to prevent overheating, do not operate the device without a functioning fan module for more than one minute. The silkscreens of the fan module slots are FAN1 to FAN3, and the corresponding slot numbers are 4, 5, and 6 respectively.
Power module	Provides power input and distribution for the device. Two power modules are included in the standard configuration to provide 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-103 Indicators and buttons on the USG6630E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. OFL indicator NOTE Only the models whose BOM number contain "-001" and "-002" support the OFL indicator.	2. GE electrical port indicator	3. 10GE optical port ACT indicator	4. 10GE optical port LINK indicator
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5. 40GE optical port indicator	6. MGMT port indicator	7. RST button	8. OFL button	-
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 **NOTE**

- GE electrical interface indicators from left to right correspond to GE electrical interfaces in ascending order. For example, the first indicator on the panel corresponds to GigabitEthernet0/0/0 and the second indicator corresponds to GigabitEthernet0/0/1.
- Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-105 Indicators on the USG6630E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.

Silkscreen	Name	Color	Status	Description
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Management master device in hot standby or cluster deployment.

Silkscreen	Name	Color	Status	Description
		Green	Blinks once every 2 seconds (0.5 Hz).	Management backup device in hot standby or cluster deployment.
		Red	Steady on	Hot standby or the cluster is faulty.
		-	Off	The hot standby or the cluster function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	OFL indicator	Green	Steady on	The hard disk can be removed.
		-	Off	The hard disk cannot be removed.
-	GE electrical port indicator	Green	Steady on	The port link is connected.

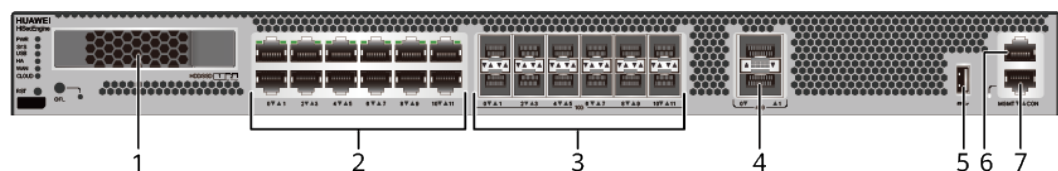
Silkscreen	Name	Color	Status	Description
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.
-	ACT indicator for 10GE optical ports	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator for 10GE optical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	Indicator for 40GE optical ports	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-106 Buttons on the USG6630E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-104 Ports on the USG6630E



1. HDD/SSD slot	2. GE electrical port	3. 10GE optical port	4. 40GE optical port	5. USB 3.0 port
6. Console port	7. MGMT port	-	-	-

Table 4-107 Ports on the USG6630E

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20, SSD-SATA960G-B disks are supported. • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 11)	RJ45	12 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/11. NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Ethernet Cable
10GE optical ports (0 to 11)	SFP+	12 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/11.	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules
40GE optical ports (0 to 1)	QSFP+	Two 40GE Ethernet optical ports, numbered from 40GE0/0/0 to 40GE0/0/1.	40Gbps QSFP+ Optical Modules
USB 3.0 port	USB 3.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

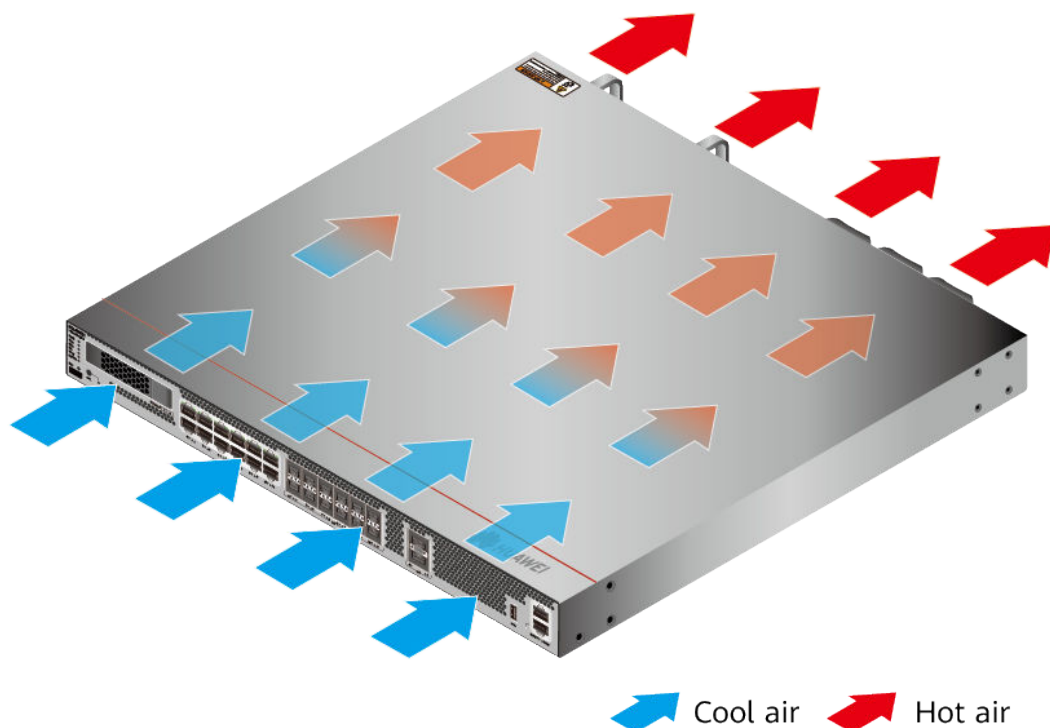
Power Supply System

- Early delivery: The power supply system has two PAC600S12-B AC power modules or PDC350S12-B DC power modules for 1+1 power redundancy.
- Later delivery: The power supply system has two PAC600S12-CB, PAC600S12-DB, or PAC600S12-EB AC power modules or PDC1000S12-CB DC power modules for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of three FAN-023A-B modules working in 2+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-105 System air flow of the USG6630E



Technical Specifications

Table 4-108 Technical specifications of the USG6630E

Item	Specification
Installation Type	Rack
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	215 mm x 550 mm x 530 mm (8.46 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U

Item	Specification
Weight with packaging [kg(lb)]	<ul style="list-style-type: none"> • USG6630E-AC (02352FQA): 10.9 kg (24.03 lb) • USG6630E-AC (02352FQA-001): 10.2 kg (22.49 lb) • USG6630E-AC (02352FQA-002): 10.2 kg (22.49 lb) • USG6630E-DC (02352CKV): 10.3 kg (22.71 lb) • USG6630E-DC (02352CKV-001): 10.2 kg (22.49 lb) • USG6630E-DC (02352CKV-002): 10.2 kg (22.49 lb)
Weight without packaging [kg(lb)]	<ul style="list-style-type: none"> • USG6630E-AC (02352FQA): 7.9 kg (17.42 lb) • USG6630E-AC (02352FQA-001): 7.5 kg (16.53 lb) • USG6630E-AC (02352FQA-002): 7.5 kg (16.53 lb) • USG6630E-DC (02352CKV): 7.3 kg (16.09 lb) • USG6630E-DC (02352CKV-001): 7.5 kg (16.53 lb) • USG6630E-DC (02352CKV-002): 7.5 kg (16.53 lb)
CPU	1 CPU, 8 cores/CPU, up to 2.3 GHz
Memory	DDR4 16 GB
Storage	32GB
NOR Flash	<ul style="list-style-type: none"> • USG6630E-AC (02352FQA): 32 MB • USG6630E-AC (02352FQA-001): 64MB • USG6630E-AC (02352FQA-002): 64MB • USG6630E-DC (02352CKV): 32 MB • USG6630E-DC (02352CKV-001): 64MB • USG6630E-DC (02352CKV-002): 64MB
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.

Item	Specification
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	<ul style="list-style-type: none"> • USG6630E-AC (02352FQA): 191 W • USG6630E-AC (02352FQA-001): 171.7 W • USG6630E-AC (02352FQA-002): 171.7 W • USG6630E-DC (02352CKV): 172.14 W • USG6630E-DC (02352CKV-001): 192.4 W • USG6630E-DC (02352CKV-002): 192.4 W
Maximum heat dissipation [BTU/hour]	<ul style="list-style-type: none"> • USG6630E-AC (02352FQA): 651.7 BTU/hour • USG6630E-AC (02352FQA-001): 585.84 BTU/hour • USG6630E-AC (02352FQA-002): 585.84 BTU/hour • USG6630E-DC (02352CKV): 587.34 BTU/hour • USG6630E-DC (02352CKV-001): 656.47 BTU/hour • USG6630E-DC (02352CKV-002): 656.47 BTU/hour
MTBF [years]	29.34 years
MTTR [hours]	2 hours
Power supply mode	<ul style="list-style-type: none"> • USG6630E-AC (02352FQA): AC built-in • USG6630E-AC (02352FQA-001): AC built-in • USG6630E-AC (02352FQA-002): AC built-in • USG6630E-DC (02352CKV): DC built-in • USG6630E-DC (02352CKV-001): DC built-in • USG6630E-DC (02352CKV-002): DC built-in
Number of power modules	2

Item	Specification
Rated input voltage [V]	<ul style="list-style-type: none"> ● USG6630E-AC (02352FQA): 100 V to 240 V, 50 Hz/60 Hz ● USG6630E-AC (02352FQA-001): 100 V to 240 V, 50 Hz/60 Hz ● USG6630E-AC (02352FQA-002): 100 V to 240 V, 50 Hz/60 Hz ● USG6630E-DC (02352CKV): -48 V to -60 V ● USG6630E-DC (02352CKV-001): -48 V to -60 V ● USG6630E-DC (02352CKV-002): -48 V to -60 V
Input voltage range [V]	<ul style="list-style-type: none"> ● USG6630E-AC (02352FQA): 90 V to 290 V, 47 Hz to 63 Hz ● USG6630E-AC (02352FQA-001): 90 V to 290 V, 47 Hz to 63 Hz ● USG6630E-AC (02352FQA-002): 90 V to 290 V, 47 Hz to 63 Hz ● USG6630E-DC (02352CKV): -38.4 V to -72 V ● USG6630E-DC (02352CKV-001): -38.4 V to -72 V ● USG6630E-DC (02352CKV-002): -38.4 V to -72 V
Maximum input current [A]	<ul style="list-style-type: none"> ● USG6630E-AC (02352FQA): 9 A ● USG6630E-AC (02352FQA-001): 9 A ● USG6630E-AC (02352FQA-002): 9 A ● USG6630E-DC (02352CKV): 11 A ● USG6630E-DC (02352CKV-001): 11 A ● USG6630E-DC (02352CKV-002): 11 A
Maximum output power [W]	<ul style="list-style-type: none"> ● USG6630E-AC (02352FQA): 600 W ● USG6630E-AC (02352FQA-001): 600 W ● USG6630E-AC (02352FQA-002): 600 W ● USG6630E-DC (02352CKV): 350 W ● USG6630E-DC (02352CKV-001): 1000 W ● USG6630E-DC (02352CKV-002): 1000 W

Item	Specification
Types of fans	Pluggable
Number of fan modules	3
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 40GE ports	2
Maximum number of 10GE ports	12
Maximum number of electrical ports	12
Redundant power supply	1+1
Redundant fans	2+1
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> Without hard disk driver: 0°C to 45°C With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 **NOTE**

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.19 USG6635E

Overview

Table 4-109 Basic information about the USG6635E

Description	Part Number	Model	First supported version
USG6635E AC Host (16*GE RJ45 + 12*10GE SFP+ + 2*40GE QSFP+, 32G Memory,2 AC POWER)	02352RQD	USG6635E-AC	V600R007C00
USG6635E DC Host (16*GE RJ45 + 12*10GE SFP+ + 2*40GE QSFP+, 32G Memory,2 DC POWER)	02352RQE	USG6635E-DC	V600R007C20

Appearance

NOTE

The appearance difference between the DC model and AC model is the power module installed on the rear of the device. The following figure uses the AC model as an example.

Figure 4-106 Appearance of the USG6635E (front view)

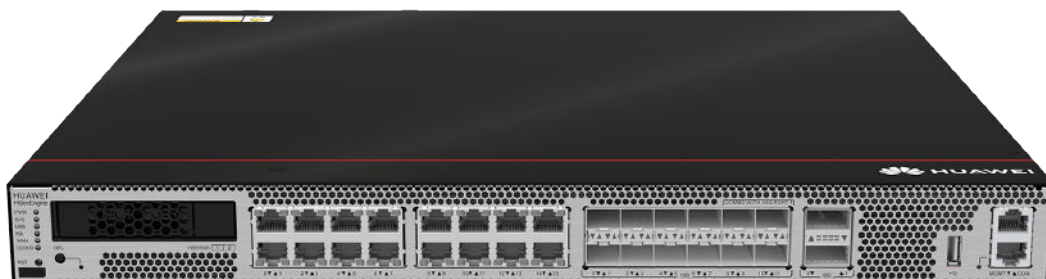
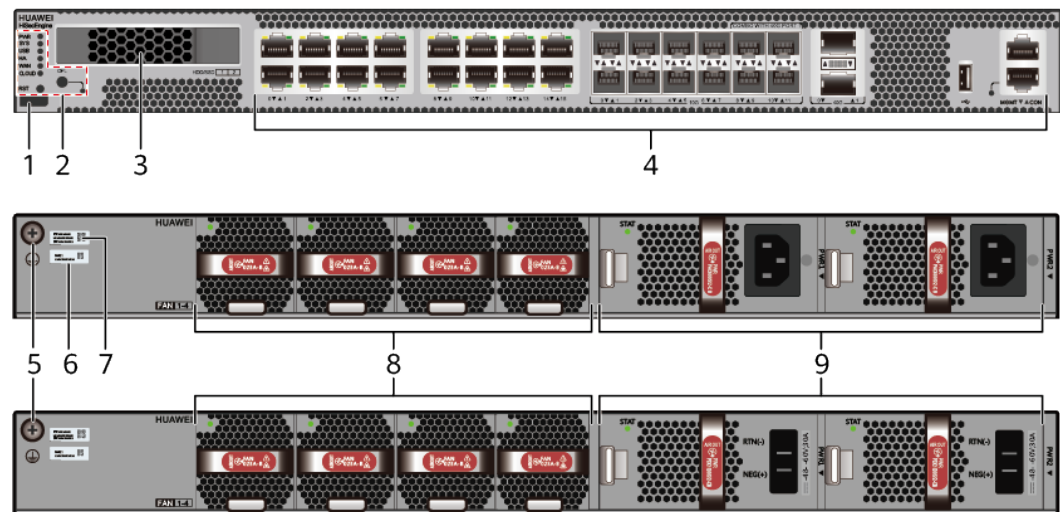


Figure 4-107 Appearance of the USG6635E (rear view)



Components

Figure 4-108 Components of the USG6635E



1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Power module	-

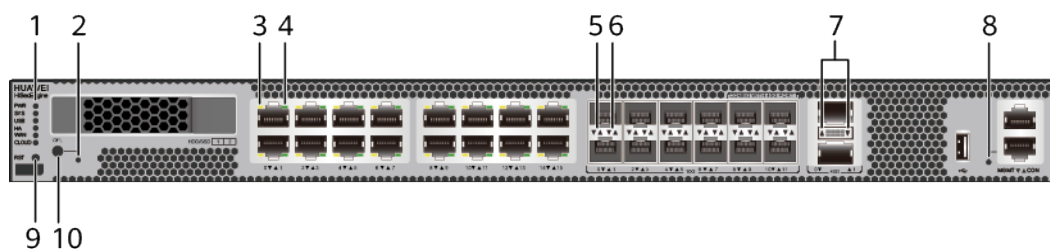
Table 4-110 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.

Name	Description
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The silkscreens of the fan module slots are FAN1 to FAN4, and the corresponding slot numbers are 4, 5, 6, and 7 respectively.
Power module	Provides power input and distribution for the device. Two power modules are included in the standard configuration to provide 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-109 Indicators and buttons on the USG6635E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. OFL indicator	3. GE electrical port ACT indicator	4. GE electrical port LINK indicator	5. 10GE optical port ACT indicator
6. 10GE optical port LINK indicator	7. 40GE optical port indicator	8. MGMT port indicator	9. RST button	10. OFL button

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-111 Indicators on the USG6635E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Management master device in hot standby or clusterdeployment.
		Green	Blinks once every 2 seconds (0.5 Hz).	Management backup device in hot standby or cluster deployment.
		Red	Steady on	Hot standby or the cluster is faulty.
		-	Off	The hot standby or the cluster function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	OFL indicator	Green	Steady on	The hard disk can be removed.
		-	Off	The hard disk cannot be removed.
-	ACT indicator of the GE electrical port	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator of the GE electrical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	ACT indicator for 10GE optical ports	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator for 10GE optical ports	Green	Steady on	The port link is connected.

Silkscreen	Name	Color	Status	Description
		-	Off	No link is established on the port.
-	Indicator for 40GE optical ports	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

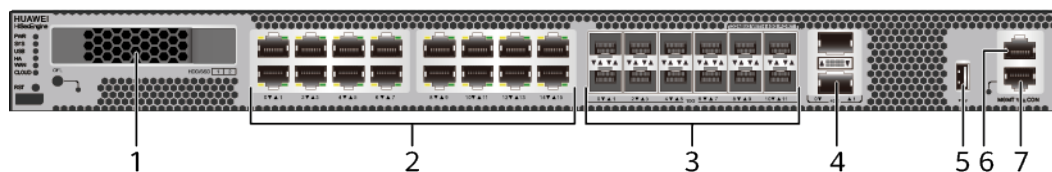
Table 4-112 Buttons on the USG6635E

Silkscreen	Name	Description
RST	RST button	<p>To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button.</p> <p>This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.</p>

Silkscreen	Name	Description
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-110 Ports on the USG6635E



1. HDD/SSD slot	2. GE electrical port	3. 10GE optical port	4. 40GE optical port	5. USB 2.0 port
6. Console port	7. MGMT port	-	-	-

Table 4-113 Ports on the USG6635E

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20, SSD-SATA960G-B disks are supported. • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 15)	RJ45	<p>16 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/15.</p> <p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	Ethernet Cable
10GE optical ports (0 to 11)	SFP+	<p>12 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/11.</p> <p>When 40GE0/0/1 optical port on the device is enabled, the 10GE optical ports numbered from XGigabitEthernet0/0/8 to XGigabitEthernet0/0/11 cannot be used.</p>	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules

Port	Connector Type	Description	Available Components
40GE optical ports (0 to 1)	QSFP+	Two 40GE Ethernet optical ports, numbered from 40GE0/0/0 to 40GE0/0/1. By default, the 40GE0/0/1 optical port mode is disabled. To enable this mode, run the set device port-config-mode 40g-port enable command.	40Gbps QSFP+ Optical Modules
USB 2.0 port	USB 2.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive
Console port	RJ45	Console ports allow you to locally connect a PC to the device. You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

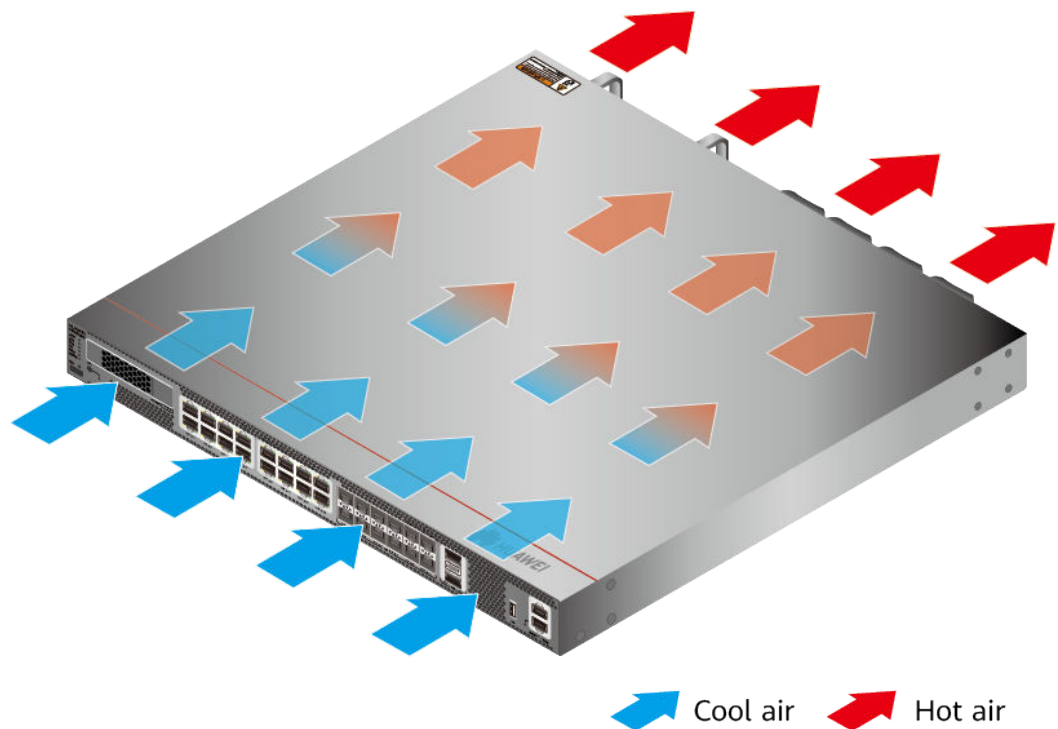
Power Supply System

The power supply system has two PAC600S12-CB, PAC600S12-DB, or PAC600S12-EB AC power modules or PDC1000S12-CB DC power modules for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of four FAN-023A-B modules working in 3+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-111 System air flow of the USG6635E



Technical Specifications

Table 4-114 Technical specifications of the USG6635E

Item	Specification
Installation Type	Rack
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	225 mm x 550 mm x 530 mm (8.86 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	11.88 kg (26.19 lb)
Weight without packaging [kg(lb)]	7.75 kg (17.09 lb)
CPU	2 CPU, 16 cores/CPU, up to 1.85 GHz
Memory	DDR4 32 GB, 16 GB/CPU
NOR Flash	128 MB, 64 MB/CPU
NAND Flash	2 GB

Item	Specification
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	<ul style="list-style-type: none"> USG6635E-AC (02352RQD): 156 W USG6635E-DC (02352RQE): 169.7 W
Maximum heat dissipation [BTU/hour]	<ul style="list-style-type: none"> USG6635E-AC (02352RQD): 533.4 BTU/hour USG6635E-DC (02352RQE): 579.02 BTU/hour
MTBF [years]	31.63 years
MTTR [hours]	2 hours
Power supply mode	<ul style="list-style-type: none"> USG6635E-AC (02352RQD): AC built-in USG6635E-DC (02352RQE): DC built-in
Number of power modules	2
Rated input voltage [V]	<ul style="list-style-type: none"> USG6635E-AC (02352RQD): 100 V to 240 V, 50 Hz/60 Hz USG6635E-DC (02352RQE): -48 V to -60 V
Input voltage range [V]	<ul style="list-style-type: none"> USG6635E-AC (02352RQD): 90 V to 290 V, 47 Hz to 63 Hz USG6635E-DC (02352RQE): -38.4 V to -72 V
Maximum input current [A]	<ul style="list-style-type: none"> USG6635E-AC (02352RQD): 8 A USG6635E-DC (02352RQE): 30 A
Rated output power [W]	<ul style="list-style-type: none"> USG6635E-AC (02352RQD): - USG6635E-DC (02352RQE): 1000 W/12 V
Maximum output power [W]	<ul style="list-style-type: none"> USG6635E-AC (02352RQD): 600 W USG6635E-DC (02352RQE): 1000 W
Types of fans	Pluggable

Item	Specification
Number of fan modules	4
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 40GE ports	2
Maximum number of 10GE ports	12
Maximum number of electrical ports	16
Redundant power supply	1+1
Redundant fans	3+1
Noise at normal temperature (acoustic power) [db(A)]	<ul style="list-style-type: none"> USG6635E-AC (02352RQD): - USG6635E-DC (02352RQE): ≤72dbA
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> Without hard disk driver: 0°C to 45°C With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 **NOTE**

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.20 USG6650E

Overview

Table 4-115 Basic information about the USG6650E

Description	Part Number	Model	First supported version
USG6650E AC Host (12*GE RJ45 + 12*10GE SFP+ + 2*40GE QSFP+,2 AC power)	02351YRY	USG6650E-AC	V600R006C00
USG6650E AC Host (12*GE RJ45 + 12*10GE SFP+ + 2*40GE QSFP+,2 AC power)	02351YRY-001	USG6650E-AC	V600R007C20SPC 300
USG6650E AC Host(12*GE RJ45+12*10GE SFP+ + 2*40GE QSFP+,2 AC power)	02351YRY-002	USG6650E-AC	V600R007C20SPC 600

Appearance

NOTE

The model with the BOM number containing "-001" and "-002" have one more OFL indicator than the model with the BOM number not containing "-001" or "-002". The silkscreen of the device contains "HiSecEngine", and the distribution of heat dissipation holes on the front of one model slightly differ from that of another model. This document uses the model whose BOM number contains "-001" as an example.

Figure 4-112 Appearance of the USG6650E (front view)

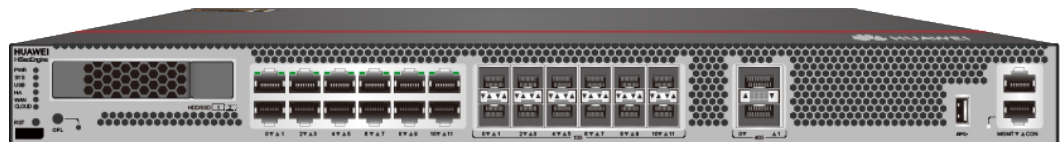
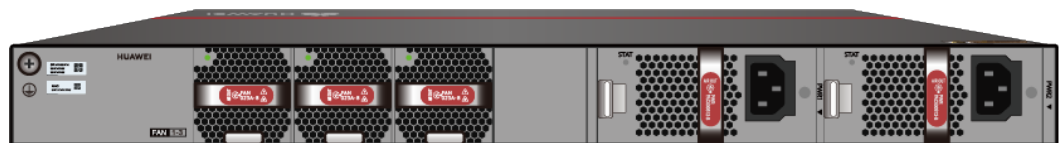
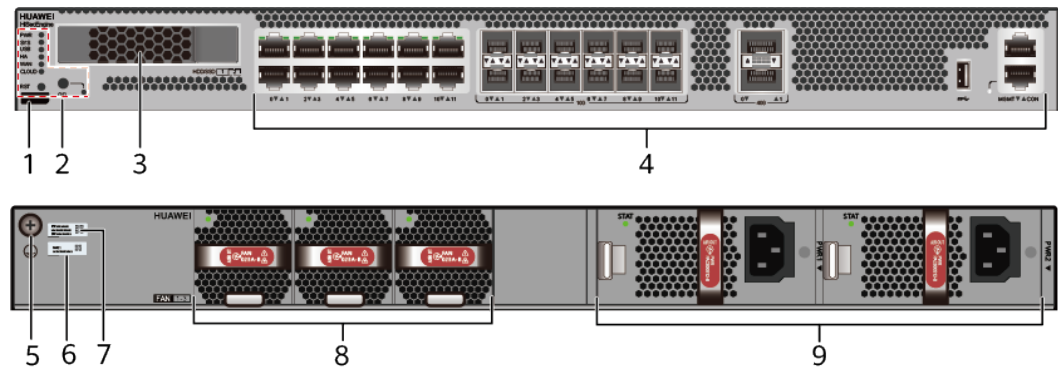


Figure 4-113 Appearance of the USG6650E (rear view)



Components

Figure 4-114 Components of the USG6650E



1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Power module	-

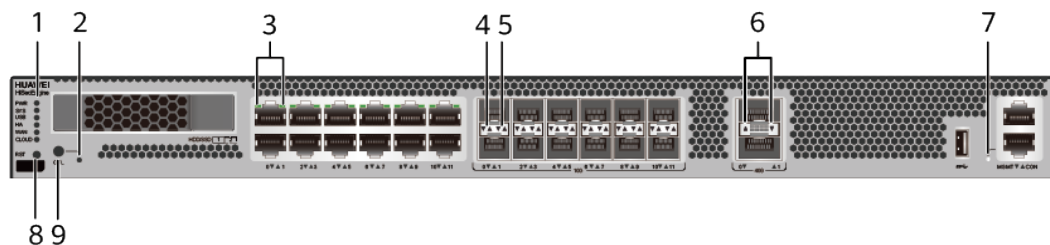
Table 4-116 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.

Name	Description
Fan module	<p>The fan module provides air flow for heat dissipation. The power module supports hot-swapping and can be replaced without interrupting device operation. However, to prevent overheating, do not operate the device without a functioning fan module for more than one minute.</p> <p>The silkscreens of the fan module slots are FAN1 to FAN3, and the corresponding slot numbers are 4, 5, and 6 respectively.</p>
Power module	<p>Provides power input and distribution for the device. Two power modules are included in the standard configuration to provide 1+1 power redundancy. When one power module is running properly, the other one is hot swappable.</p> <p>The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.</p>

Indicators and Buttons

Figure 4-115 Indicators and buttons on the USG6650E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. OFL indicator NOTE Only the models whose BOM number contain "-001" and "-002" support the OFL indicator.	2. GE electrical port indicator	3. 10GE optical port ACT indicator	4. 10GE optical port LINK indicator
5. 40GE optical port indicator	6. MGMT port indicator	7. RST button	8. OFL button	-

 NOTE

- GE electrical interface indicators from left to right correspond to GE electrical interfaces in ascending order. For example, the first indicator on the panel corresponds to GigabitEthernet0/0/0 and the second indicator corresponds to GigabitEthernet0/0/1.
- Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-117 Indicators on the USG6650E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.

Silkscreen	Name	Color	Status	Description
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Management master device in hot standby or cluster deployment.

Silkscreen	Name	Color	Status	Description
		Green	Blinks once every 2 seconds (0.5 Hz).	Management backup device in hot standby or cluster deployment.
		Red	Steady on	Hot standby or the cluster is faulty.
		-	Off	The hot standby or the cluster function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	OFL indicator	Green	Steady on	The hard disk can be removed.
		-	Off	The hard disk cannot be removed.
-	GE electrical port indicator	Green	Steady on	The port link is connected.

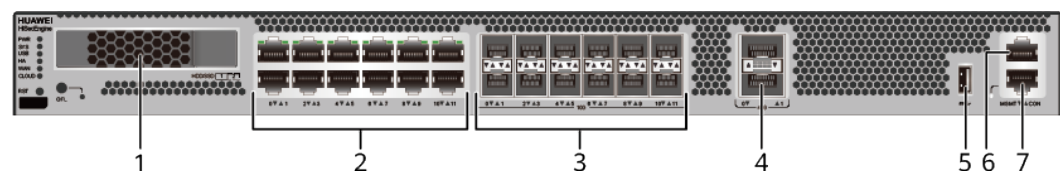
Silkscreen	Name	Color	Status	Description
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.
-	ACT indicator for 10GE optical ports	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.
-	LINK indicator for 10GE optical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	Indicator for 40GE optical ports	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-118 Buttons on the USG6650E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-116 Ports on the USG6650E



1. HDD/SSD slot	2. GE electrical port	3. 10GE optical port	4. 40GE optical port	5. USB 3.0 port
6. Console port	7. MGMT port	-	-	-

Table 4-119 Ports on the USG6650E

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20, SSD-SATA960G-B disks are supported. • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 11)	RJ45	12 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/11. NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Ethernet Cable
10GE optical ports (0 to 11)	SFP+	12 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/11.	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules
40GE optical ports (0 to 1)	QSFP+	Two 40GE Ethernet optical ports, numbered from 40GE0/0/0 to 40GE0/0/1.	40Gbps QSFP+ Optical Modules
USB 3.0 port	USB 3.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive

Port	Connector Type	Description	Available Components
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

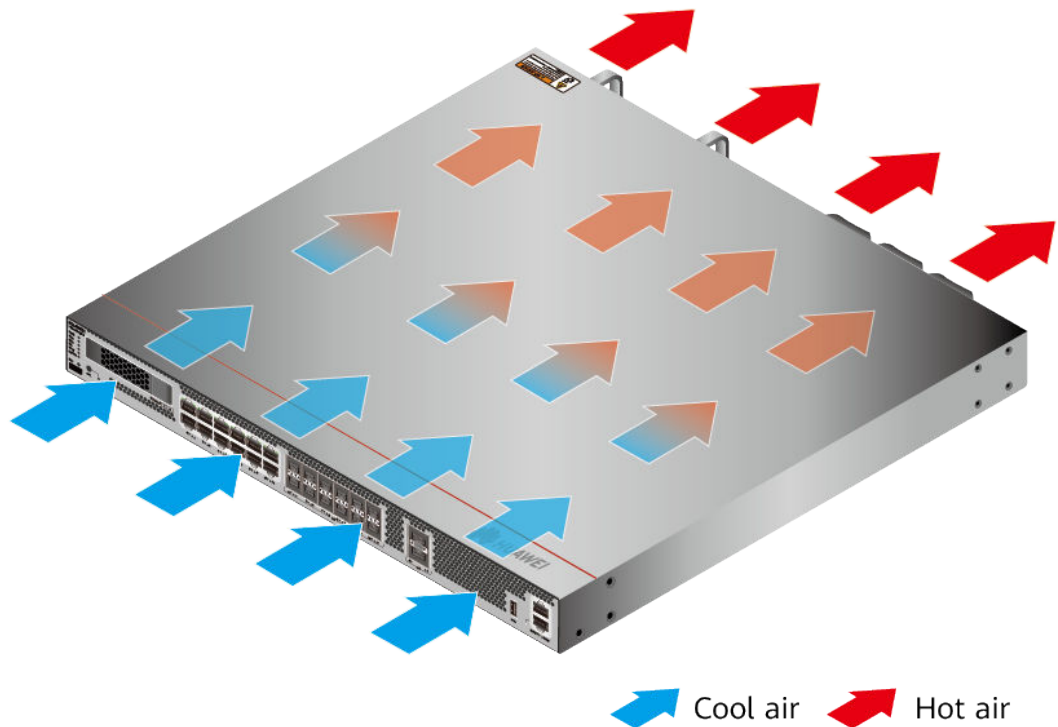
Power Supply System

- Early delivery: The power supply system has two PAC600S12-B AC power modules for 1+1 power redundancy.
- Later delivery: The power supply system has two PAC600S12-CB, PAC600S12-DB, or PAC600S12-EB AC power modules for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of three FAN-023A-B modules working in 2+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-117 System air flow of the USG6650E



Technical Specifications

Table 4-120 Technical specifications of the USG6650E

Item	Specification
Installation Type	Rack
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	215 mm x 550 mm x 530 mm (8.46 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	<ul style="list-style-type: none"> • USG6650E-AC (02351YRY): 10.9 kg (24.03 lb) • USG6650E-AC (02351YRY-001): 10.2 kg (22.49 lb) • USG6650E-AC (02351YRY-002): 10.2 kg (22.49 lb)

Item	Specification
Weight without packaging [kg(lb)]	<ul style="list-style-type: none"> USG6650E-AC (02351YRY): 7.9 kg (17.42 lb) USG6650E-AC (02351YRY-001): 7.5 kg (16.53 lb) USG6650E-AC (02351YRY-002): 7.5 kg (16.53 lb)
CPU	1 CPU, 8 cores/CPU, up to 2.3 GHz
Memory	DDR4 16 GB
Storage	32GB
NOR Flash	<ul style="list-style-type: none"> USG6650E-AC (02351YRY): 32 MB USG6650E-AC (02351YRY-001): 64MB USG6650E-AC (02351YRY-002): 64MB
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	<ul style="list-style-type: none"> USG6650E-AC (02351YRY): 191 W USG6650E-AC (02351YRY-001): 171.7 W USG6650E-AC (02351YRY-002): 171.7 W
Maximum heat dissipation [BTU/hour]	<ul style="list-style-type: none"> USG6650E-AC (02351YRY): 651.7 BTU/hour USG6650E-AC (02351YRY-001): 585.84 BTU/hour USG6650E-AC (02351YRY-002): 585.84 BTU/hour
MTBF [years]	29.34 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	2
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz

Item	Specification
Input voltage range [V]	90 V to 290 V, 47 Hz to 63 Hz
Maximum input current [A]	9 A
Maximum output power [W]	600 W
Types of fans	Pluggable
Number of fan modules	3
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 40GE ports	2
Maximum number of 10GE ports	12
Maximum number of electrical ports	12
Redundant power supply	1+1
Redundant fans	2+1
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> Without hard disk driver: 0°C to 45°C With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 **NOTE**

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.21 USG6655E

Overview

Table 4-121 Basic information about the USG6655E

Description	Part Number	Model	First supported version
USG6655E AC Host (16*GE RJ45 + 12*10GE SFP+ + 2*40GE QSFP+, 32G Memory,2 AC POWER)	02352RPS	USG6655E-AC	V600R007C00

Appearance

Figure 4-118 Appearance of the USG6655E (front view)

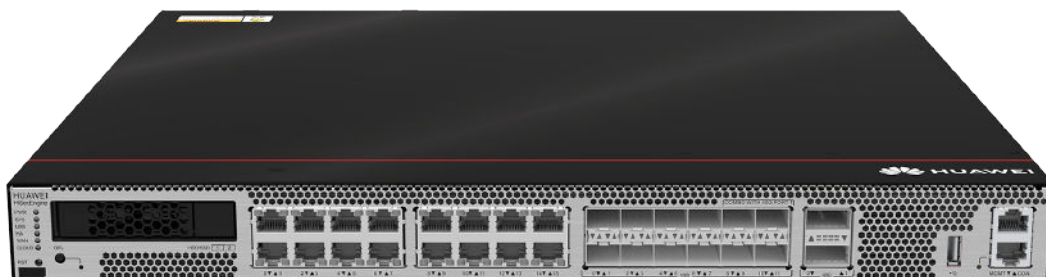
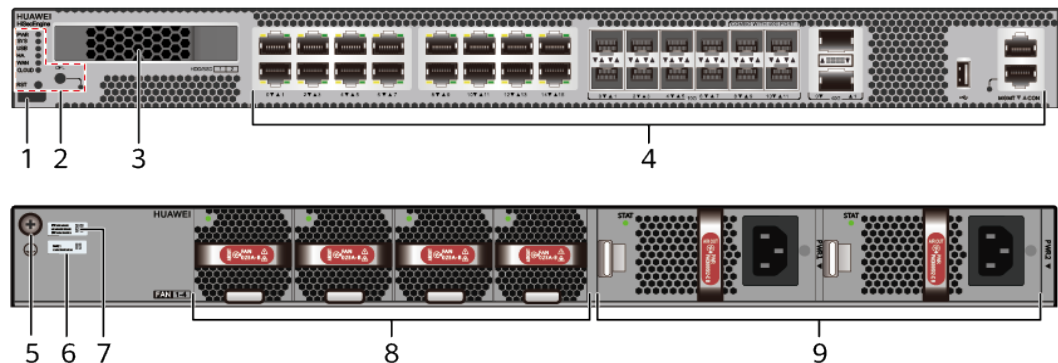


Figure 4-119 Appearance of the USG6655E (rear view)



Components

Figure 4-120 Components of the



1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Power module	-

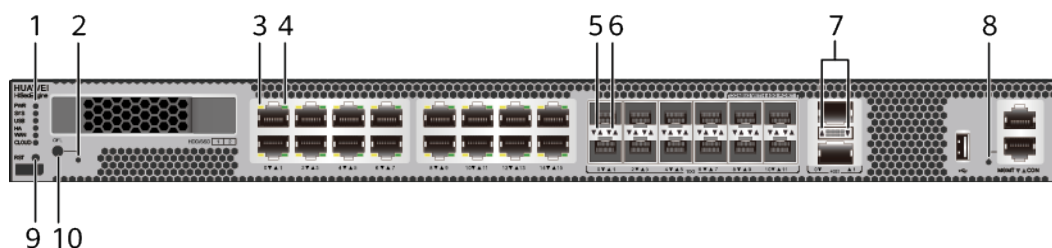
Table 4-122 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.

Name	Description
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The silkscreens of the fan module slots are FAN1 to FAN4, and the corresponding slot numbers are 4, 5, 6, and 7 respectively.
Power module	Provides power input and distribution for the device. Two power modules are included in the standard configuration to provide 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-121 Indicators and buttons on the USG6655E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. OFL indicator	3. GE electrical port ACT indicator	4. GE electrical port LINK indicator	5. 10GE optical port ACT indicator
6. 10GE optical port LINK indicator	7. 40GE optical port indicator	8. MGMT port indicator	9. RST button	10. OFL button

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-123 Indicators on the USG6655E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module works properly.
		-	Off	The power module is faulty or the power cable is disconnected.
SYS	System indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blink every two seconds (0.5 Hz)	The system is running normally.
		Green	Blink four every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> • A system fault occurs. • The power module is abnormal. • The fan module is abnormal. <p>NOTE If the system starts with dual power modules but one power module is not powered on, the System indicator is steady red, but the system is operating properly.</p>
		-	Off	The system is not running.

Silkscreen	Name	Color	Status	Description
USB	USB indicator	Green	Steady on	USB-based deployment is complete.
		Green	Blink four every second (4 Hz)	The data of USB-based deployment is being read.
		Red	Steady on	USB-based deployment fails.
		-	Off	If USB-based deployment is disabled, the system is in the default state.
HA	HA indicator	Green	Steady on	Management master device in hot standby or cluster deployment.
		Green	Blink every two seconds (0.5 Hz)	Management backup device in hot standby or cluster deployment.
		Red	Steady on	Hot standby or the cluster is faulty.
		-	Off	The hot standby or the cluster function is disabled.
WAN	WAN indicator	-	Off	Reserved.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.

Silkscreen	Name	Color	Status	Description
		Green	Blink four every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	Not connected or registered to the cloud management platform.
-	OFL indicator	Green	Steady on	The hard disk is removable.
		-	Off	The hard disk cannot be removed.
-	ACT indicator for GE Ethernet electrical ports	Yellow	Blink (12 Hz)	Data is being sent or received through the port.
		-	Off	No data is being sent or received through the port.
-	LINK indicator for GE Ethernet electrical ports	Green	Steady on	The link of the port is connected.
		-	Off	The link of the port is disconnected.
-	ACT indicator for 10GE optical ports	Yellow	Blink (12 Hz)	Data is being sent or received through the port.
		-	Off	No data is being sent or received through the port.

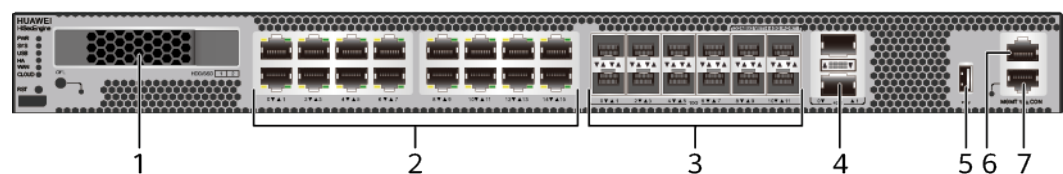
Silkscreen	Name	Color	Status	Description
-	LINK indicator for 10GE optical ports	Green	Steady on	The link of the port is connected.
		-	Off	The link of the port is disconnected.
-	Indicator for 40GE optical ports	Green	Steady on	The link of the port is connected.
		Green	Blink (12 Hz)	Data is being sent or received through the port.
		-	Off	The link of the port is disconnected.
-	Indicator for MGMT port	Green	Steady on	The link of the port is connected.
		Green	Blink (12 Hz)	Data is being sent or received through the port.
		-	Off	The link of the port is disconnected.

Table 4-124 Buttons on the USG6655E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-122 Ports on the USG6655E



1. HDD/SSD slot	2. GE electrical port	3. 10GE optical port	4. 40GE optical port	5. USB 2.0 port
6. Console port	7. MGMT port	-	-	-

Table 4-125 Ports on the USG6655E

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20, SSD-SATA960G-B disks are supported. • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.

Port	Connector Type	Description	Available Components
GE electrical ports (0 to 15)	RJ45	<p>16 10/100/1000M autosensing Ethernet electrical ports, numbered from GigabitEthernet 0/0/0 to GigabitEthernet 0/0/15.</p> <p>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>	Ethernet Cable
10GE optical ports (0 to 11)	SFP+	<p>12 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/11.</p> <p>When 40GE0/0/1 optical port on the device is enabled, the 10GE optical ports numbered from XGigabitEthernet0/0/8 to XGigabitEthernet0/0/11 cannot be used.</p>	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules

Port	Connector Type	Description	Available Components
40GE optical ports (0 to 1)	QSFP+	Two 40GE Ethernet optical ports, numbered from 40GE0/0/0 to 40GE0/0/1. By default, the 40GE0/0/1 optical port mode is disabled. To enable this mode, run the set device port-config-mode 40g-port enable command.	40Gbps QSFP+ Optical Modules
USB 2.0 port	USB 2.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive
Console port	RJ45	Console ports allow you to locally connect a PC to the device. You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

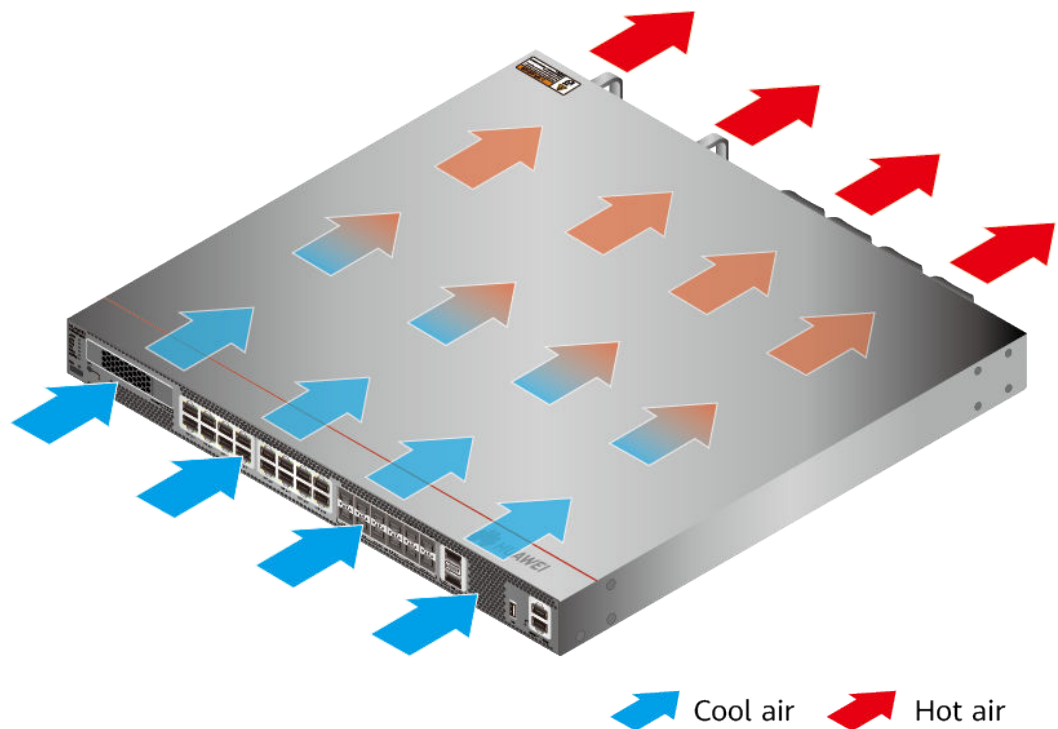
Power Supply System

The power supply system has two PAC600S12-CB, PAC600S12-DB, or PAC600S12-EB AC power modules for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of four FAN-023A-B modules working in 3+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-123 System air flow of the USG6655E



Technical Specifications

Table 4-126 Technical specifications of the USG6655E-AC

Item	Specification
Installation Type	Rack
Cabinet installation standard	Cabinet with a depth of 600 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 420 mm (1.72 in. x 17.4 in. x 16.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	225 mm x 550 mm x 530 mm (8.86 in. x 21.65 in. x 20.87 in.)
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	11.88 kg (26.19 lb)
Weight without packaging [kg(lb)]	7.75 kg (17.09 lb)
CPU	2 CPU, 16 cores/CPU, up to 1.85 GHz
Memory	DDR4 32 GB, 16 GB/CPU
NOR Flash	128 MB, 64 MB/CPU
NAND Flash	2 GB

Item	Specification
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	156 W
Maximum heat dissipation [BTU/hour]	533.4 BTU/hour
MTBF [years]	31.63 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	2
Rated input voltage [V]	100 V to 240 V, 50 Hz/60 Hz
Input voltage range [V]	90 V to 290 V, 47 Hz to 63 Hz
Maximum input current [A]	8 A
Maximum output power [W]	600 W
Types of fans	Pluggable
Number of fan modules	4
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 40GE ports	2
Maximum number of 10GE ports	12
Maximum number of electrical ports	16
Redundant power supply	1+1
Redundant fans	3+1
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> • Without hard disk driver: 0°C to 45°C • With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C

Item	Specification
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 **NOTE**

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.22 USG6680E

Overview

Table 4-127 Basic information about the USG6680E

Description	Part Number	Model	First supported version
USG6680E AC Host (28* (SFP+) + 4*QSFP + 2*HA, 2AC power supply)	02351YRR	USG6680E-AC	V600R006C00
USG6680E AC Host(28*(SFP+) +4*QSFP+2*HA, 2AC power supply)	02351YRR-001	USG6680E-AC	V600R007C20SPC600

Appearance

Figure 4-124 Appearance of the USG6680E (front view)

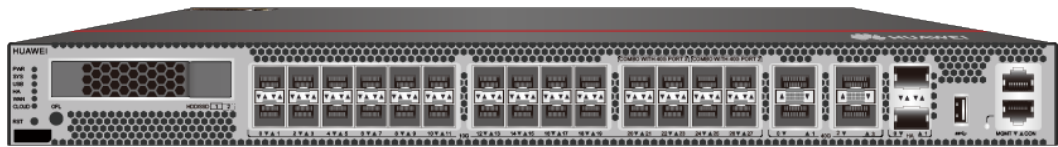
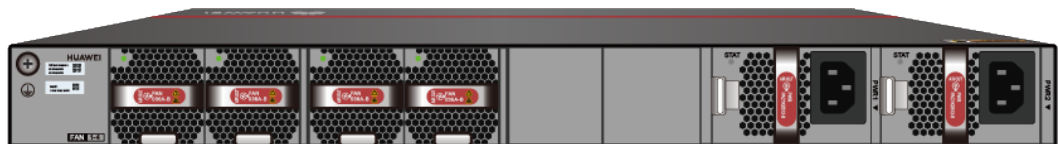
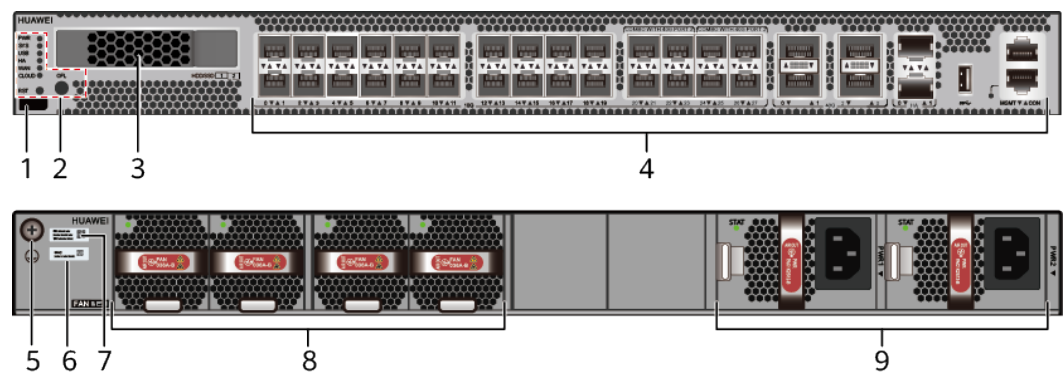


Figure 4-125 Appearance of the USG6680E (rear view)



Components

Figure 4-126 Components of the USG6680E



1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Power module	-

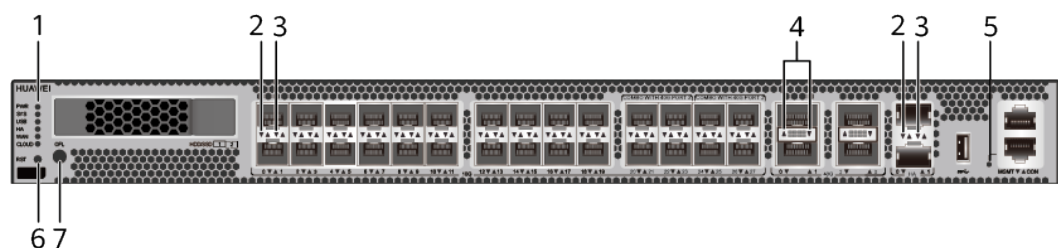
Table 4-128 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.

Name	Description
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The silkscreens of the fan module slots are FAN1 to FAN4, and the corresponding slot numbers are 4, 5, 6, and 7 respectively.
Power module	Provides power input and distribution for the device. Two power modules are included in the standard configuration to provide 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-127 Indicators and buttons on the USG6680E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. 10GE optical port ACT indicator	3. 10GE optical port LINK indicator	4. 40GE Optical port indicator	5. MGMT port indicator
6. RST button	7. OFL button	-	-	-

 **NOTE**

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-129 Indicators on the USG6680E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.

Silkscreen	Name	Color	Status	Description
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Management master device in hot standby or cluster deployment.

Silkscreen	Name	Color	Status	Description
		Green	Blinks once every 2 seconds (0.5 Hz).	Management backup device in hot standby or cluster deployment.
		Red	Steady on	Hot standby or the cluster is faulty.
		-	Off	The hot standby or the cluster function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	ACT indicator for 10GE optical ports	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.

Silkscreen	Name	Color	Status	Description
-	LINK indicator for 10GE optical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	Indicator for 40GE optical ports	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

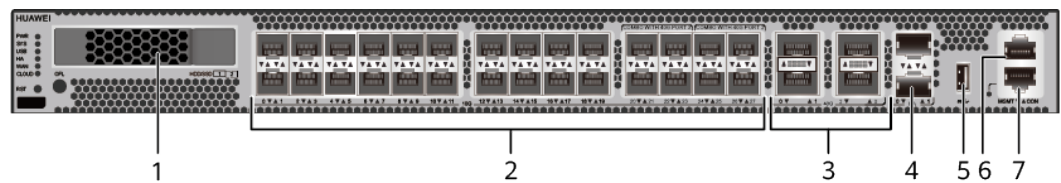
Table 4-130 Buttons on the USG6680E

Silkscreen	Name	Description
RST	RST button	<p>To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button.</p> <p>This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.</p>

Silkscreen	Name	Description
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-128 Ports on the USG6680E



1. HDD/SSD slot	2. 10GE optical port	3. 40GE optical port	4. HA port	5. USB 3.0 port
6. Console port	7. MGMT port	-	-	-

Table 4-131 Ports on the USG6680E

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20, SSD-SATA960G-B disks are supported. • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.

Port	Connector Type	Description	Available Components
10GE optical ports (0 to 27)	SFP+	<p>28 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/27.</p> <p>When 40GE0/0/2 to 40GE0/0/3 optical ports on the device are enabled, the 10GE optical ports numbered from XGigabitEthernet0/0/20 to XGigabitEthernet0/0/27 cannot be used.</p>	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules
40GE optical ports (0 to 3)	QSFP+	<p>Four 40GE Ethernet optical ports, numbered from 40GE0/0/0 to 40GE0/0/3.</p> <p>By default, the 40GE0/0/2 to 40GE0/0/3 optical ports mode are disabled. To enable this mode, run the set device port-config-mode 40g-port enable command.</p>	40 Gbps QSFP+ Optical Module

Port	Connector Type	Description	Available Components
HA ports(0 to 1)	SFP+	Heartbeat interfaces for hot standby or the cluster. Two devices are connected through independent links to form hot standby or the cluster. numbered from HA0/0/0 to HA0/0/1.	10Gbps SFP+ Optical Modules
USB 3.0 port	USB 3.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive
Console port	RJ45	Console ports allow you to locally connect a PC to the device. You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable

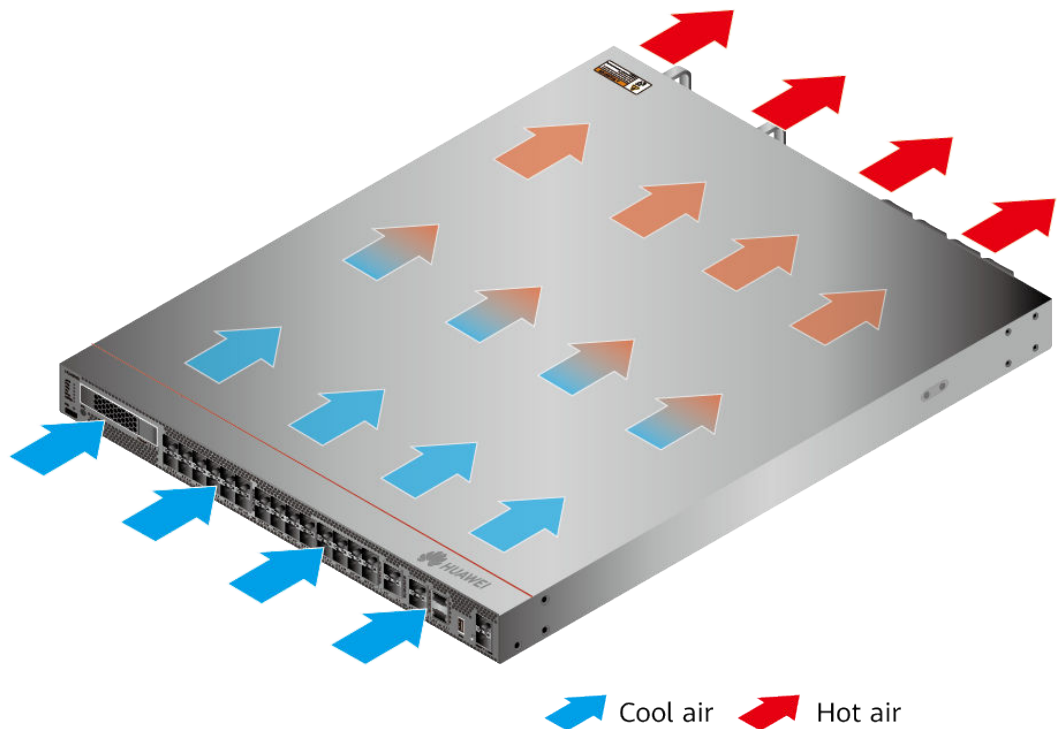
Power Supply System

- Early delivery: The power supply system has two PAC1K2S12-B AC power modules for 1+1 power redundancy.
- Later delivery: The power supply system has two PAC1K2S12-CB AC power modules for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of four FAN-036A-B modules working in 3+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-129 System air flow of the USG6680E



Technical Specifications

Table 4-132 Technical specifications of the USG6680E

Item	Specification
Installation Type	Rack
Cabinet installation standard	Cabinet with a depth of 800 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 600 mm (1.72 in. x 17.4 in. x 23.62 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	225 mm x 590 mm x 790 mm (8.86 in. x 23.23 in. x 31.1 in.)
Chassis height [U]	1 U
Weight without packaging [kg(lb)]	12 kg (26.46 lb)
CPU	2 CPU, 8 cores/CPU, up to 2.3 GHz
Memory	DDR4 32 GB, 16 GB/CPU
Storage	<ul style="list-style-type: none"> USG6680E-AC (02351YRR): 32GB USG6680E-AC (02351YRR-001): 32 GB
NOR Flash	64MB, 32MB/CPU

Item	Specification
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	488.3 W
Maximum heat dissipation [BTU/hour]	1666.1 BTU/hour
MTBF [years]	25 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	2
Rated input voltage [V]	<ul style="list-style-type: none"> AC power input: 100 V AC to 130 V AC/200 V AC to 240 V AC, 50/60 Hz High-voltage DC power input: 240V
Input voltage range [V]	AC power input: 90 V AC to 290 V AC, 47 Hz to 63 Hz
Rated output power [W]	<ul style="list-style-type: none"> 800 W (100 V AC to 130 V AC) 1200 W (200 V AC to 240 V AC) 1200 W (240 V DC)
Types of fans	Pluggable
Number of fan modules	4
Heat dissipation mode	The fan module locates at the air exhaust of the system.
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 40GE ports	4
Maximum number of 10GE ports	28
Redundant power supply	1+1
Redundant fans	3+1
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> Without hard disk driver: 0°C to 45°C With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C

Item	Specification
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.23 USG6712E

Overview

Table 4-133 Basic information about the USG6712E

Description	Part Number	Model	First supported version
USG6712E-AC Host (20* (SFP+) + 2*QSFP +2*QSFP28 + 2*HA,2AC power supply)	02352CNL	USG6712E-AC	V600R006C00
USG6712E-AC Host(20*(SFP+) +2*QSFP +2*QSFP28+2*HA, 2AC power supply)	02352CNL-001	USG6712E	V600R007C20SPC 600

Appearance

Figure 4-130 Appearance of the USG6712E (front view)

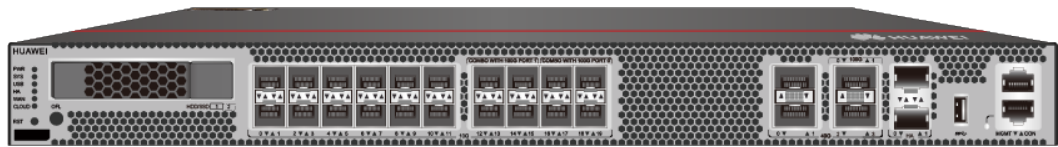
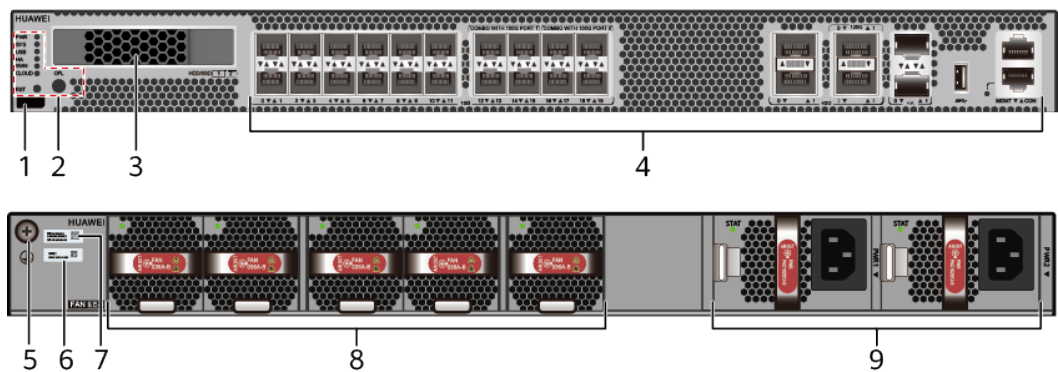


Figure 4-131 Appearance of the USG6712E (rear view)



Components

Figure 4-132 Components of the USG6712E



1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Power module	-

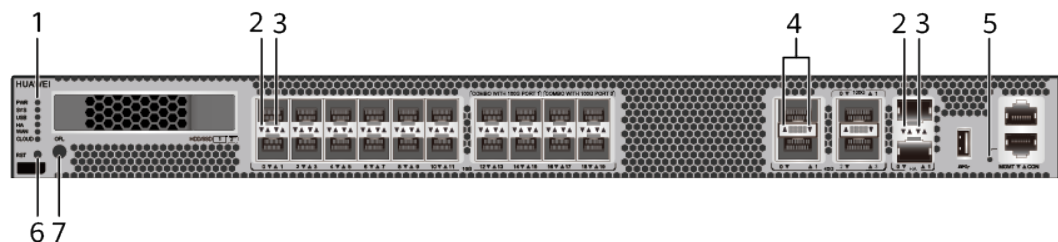
Table 4-134 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.

Name	Description
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The silkscreens of the fan module slots are FAN1 to FAN5, and the corresponding slot numbers are 4, 5, 6, 7, and 8 respectively.
Power module	Provides power input and distribution for the device. Two power modules are included in the standard configuration to provide 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-133 Indicators and buttons on the USG6712E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. 10GE optical port ACT indicator	3. 10GE optical port LINK indicator	4. 40GE/100GE optical port indicator	5. MGMT port indicator
6. RST button	7. OFL button	-	-	-

 **NOTE**

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-135 Indicators on the USG6712E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.
		Green	Blinking four times every second (4 Hz)	The system is starting.

Silkscreen	Name	Color	Status	Description
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).
HA	HA indicator	Green	Steady on	Management master device in hot standby or cluster deployment.

Silkscreen	Name	Color	Status	Description
		Green	Blinks once every 2 seconds (0.5 Hz).	Management backup device in hot standby or cluster deployment.
		Red	Steady on	Hot standby or the cluster is faulty.
		-	Off	The hot standby or the cluster function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	ACT indicator for 10GE optical ports	Yellow	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	The port is not sending or receiving data.

Silkscreen	Name	Color	Status	Description
-	LINK indicator for 10GE optical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	Indicator for 40GE/100GE optical ports	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

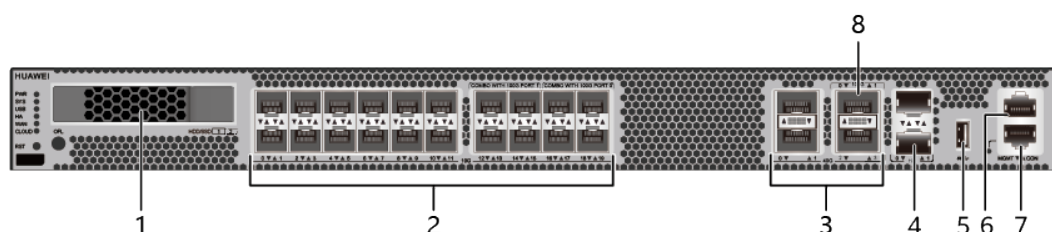
Table 4-136 Buttons on the USG6712E

Silkscreen	Name	Description
RST	RST button	<p>To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button.</p> <p>This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.</p>

Silkscreen	Name	Description
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-134 Ports on the USG6712E



1. HDD/SSD slot	2. 10GE optical port	3. 40GE optical port	4. HA port	5. USB 3.0 port
6. Console port	7. MGMT port	8. 100GE optical port	-	-

Table 4-137 Ports on the USG6712E

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20, SSD-SATA960G-B disks are supported. • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.

Port	Connector Type	Description	Available Components
10GE optical ports (0 to 19)	SFP+	<p>20 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/19.</p> <p>When 100GE0/0/0 to 100GE0/0/1 optical ports on the device are enabled, the 10GE optical ports numbered from XGigabitEthernet0/0/12 to XGigabitEthernet0/0/19 cannot be used.</p>	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules
40GE optical ports (0 to 3)	QSFP+	<p>Four 40GE Ethernet optical ports, numbered from 40GE0/0/0 to 40GE0/0/3.</p> <p>40GE optical ports 40GE0/0/2 and 40GE0/0/3 can be switched to 100GE optical ports.</p>	40Gbps QSFP+ Optical Modules
HA ports(0 to 1)	SFP+	<p>Heartbeat interfaces for hot standby or the cluster. Two devices are connected through independent links to form hot standby or the cluster. numbered from HA0/0/0 to HA0/0/1.</p>	10Gbps SFP+ Optical Modules

Port	Connector Type	Description	Available Components
USB 3.0 port	USB 3.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable
100GE optical ports (0 to 1)	QSFP28	<p>Two 100GE Ethernet optical ports, numbered 100GE0/0/0 and 100GE0/0/1.</p> <p>By default, the 100GE optical port mode is disabled. To enable this mode, run the set device port-config-mode 100g-port enable command.</p>	100Gbps QSFP28 Optical Modules

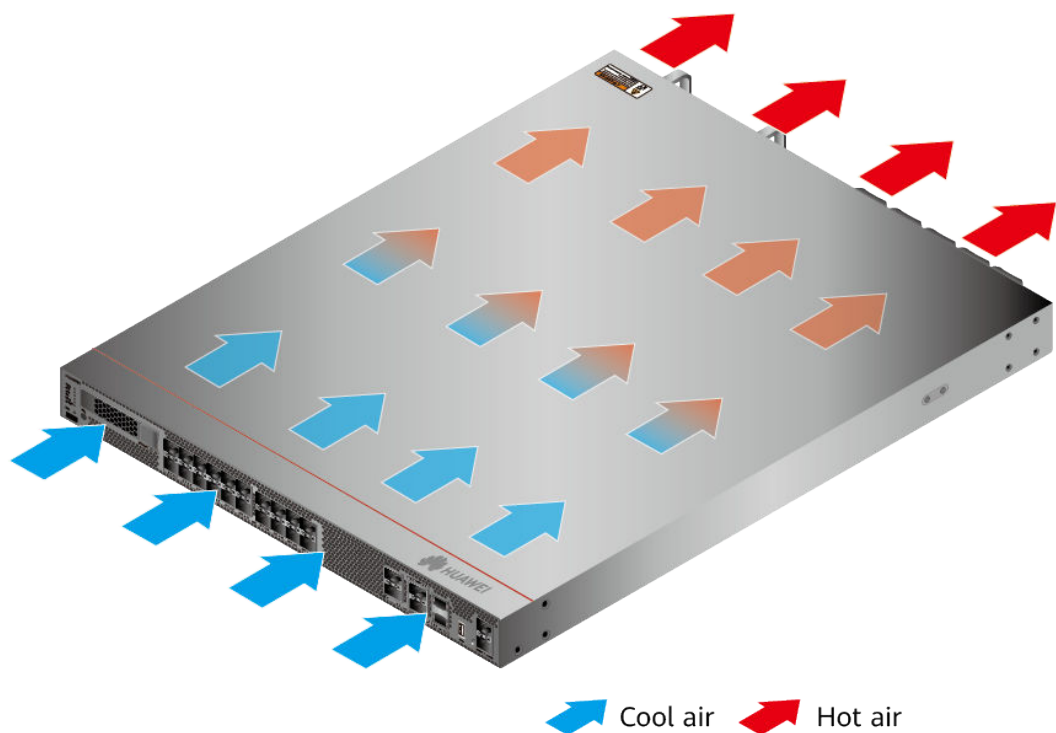
Power Supply System

- Early delivery: The power supply system has two PAC1K2S12-B AC power modules for 1+1 power redundancy.
- Later delivery: The power supply system has two PAC1K2S12-CB AC power modules for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of five FAN-036A-B modules working in 4+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-135 System air flow of the USG6712E



Technical Specifications

Table 4-138 Technical specifications of the USG6712E

Item	Specification
Installation Type	Rack
Cabinet installation standard	Cabinet with a depth of 800 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 600 mm (1.72 in. x 17.4 in. x 23.62 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	225 mm x 590 mm x 790 mm (8.86 in. x 23.23 in. x 31.1 in.)

Item	Specification
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	17.6 kg (38.8 lb)
Weight without packaging [kg(lb)]	12 kg (26.46 lb)
CPU	2 CPU, 14 cores/CPU, up to 1.9 GHz
Memory	DDR4 64GB, 32GB/CPU
Storage	<ul style="list-style-type: none"> USG6712E (02352CNL-001): 32 GB USG6712E-AC (02352CNL): 32GB
NOR Flash	64MB, 32MB/CPU
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	566 W
Maximum heat dissipation [BTU/hour]	1935.27 BTU/hour
MTBF [years]	25 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	2
Rated input voltage [V]	<ul style="list-style-type: none"> AC power input: 100 V AC to 130 V AC/200 V AC to 240 V AC, 50/60 Hz High-voltage DC power input: 240V
Input voltage range [V]	AC power input: 90 V AC to 290 V AC, 47 Hz to 63 Hz
Rated output power [W]	<ul style="list-style-type: none"> 800 W (100 V AC to 130 V AC) 1200 W (200 V AC to 240 V AC) 1200 W (240 V DC)
Types of fans	Pluggable
Number of fan modules	5
Heat dissipation mode	The fan module locates at the air exhaust of the system.

Item	Specification
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 100GE ports	2
Maximum number of 40GE ports	4
Maximum number of 10GE ports	20
Redundant power supply	1+1
Redundant fans	4+1
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> Without hard disk driver: 0°C to 45°C With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.1.24 USG6716E

Overview

Table 4-139 Basic information about the USG6716E

Description	Part Number	Model	First supported version
USG6716E-AC Host (20* (SFP+) + 2*QSFP + 2*QSFP28 + 2*HA, 2AC power supply)	02351YRS	USG6716E-AC	V600R006C00
USG6716E-AC Host(20*(SFP+) + 2*QSFP + 2*QSFP28+2*HA, 2AC power supply)	02351YRS-001	USG6716E	V600R007C20SPC 600

Appearance

Figure 4-136 Appearance of the USG6716E (front view)

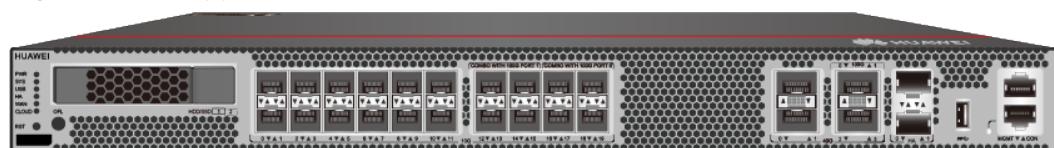
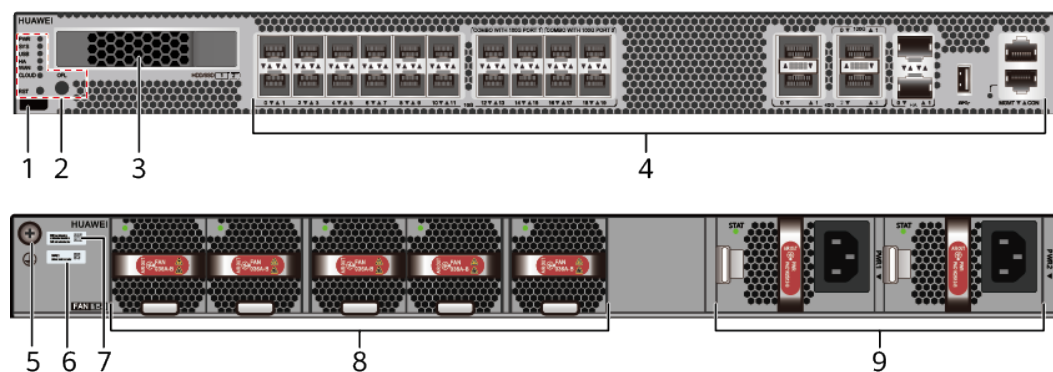


Figure 4-137 Appearance of the USG6716E (rear view)



Components

Figure 4-138 Components of the USG6716E



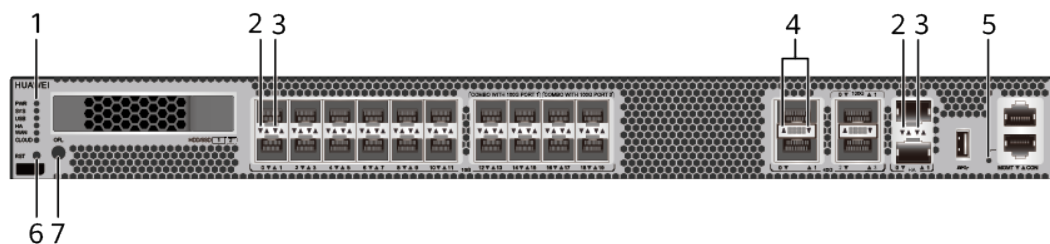
1. Product series ID	2. Indicator and button area	3. HDD/SSD slot	4. Fixed interface area	5. Protective ground terminal
6. MAC label	7. SN label	8. Fan module	9. Power module	-

Table 4-140 Component functions

Name	Description
Product series ID	Indicates the product series of the device. For details about the product model, see the nameplate in the lower part of the device.
Indicator and button area	Provides multiple indicators to display the running status of the device in real time and provides the RST button for emergency maintenance.
HDD/SSD slot	Houses hard disks for storing log and report data.
Fixed interface area	Provides service ports, USB ports, console ports, and out-of-band management ports for device configuration and maintenance.
Protective ground terminal	Connects the M4 OT terminal of a PGND cable to the cabinet or the ground bar in the equipment room.
MAC label	Uniquely identifies the MAC address of the device, which is required during network forwarding configuration.
SN label	Uniquely identifies the device, which needs to be provided for the local technical support personnel to apply for a license.
Fan module	Dissipates heat for the device and is swappable. The fan module can be removed for no more than 1 minute. The silkscreens of the fan module slots are FAN1 to FAN5, and the corresponding slot numbers are 4, 5, 6, 7, and 8 respectively.
Power module	Provides power input and distribution for the device. Two power modules are included in the standard configuration to provide 1+1 power redundancy. When one power module is running properly, the other one is hot swappable. The silkscreens of the power module slots are PWR1 and PWR2, and the corresponding slot numbers are 2 and 3 respectively.

Indicators and Buttons

Figure 4-139 Indicators and buttons on the USG6716E



1. PWR, SYS, USB, HA, WAN and CLOUD indicators	2. 10GE optical port ACT indicator	3. 10GE optical port LINK indicator	4. 40GE/100GE optical port indicator	5. MGMT port indicator
6. RST button	7. OFL button	-	-	-

NOTE

Arrowheads of optical ports show the positions of the ports. A down arrowhead indicates a port in the upper part, and an up arrowhead indicates a port in the lower part.

Table 4-141 Indicators on the USG6716E

Silkscreen	Name	Color	Status	Description
PWR	Power indicator	Green	Steady on	The power module is working properly.
		-	Off	The power module is faulty or the device is not powered on.
SYS	SYS indicator	Green	Steady on	The system is being powered on or restarted.
		Green	Blinks once every 2 seconds (0.5 Hz).	The system is running normally.

Silkscreen	Name	Color	Status	Description
		Green	Blinking four times every second (4 Hz)	The system is starting.
		Red	Steady on	<ul style="list-style-type: none"> The system is faulty. The power supply is abnormal. The fan module is abnormal. <p>NOTE If the system starts with two power modules and one power module is not powered on, the SYS indicator is steady red, but the system is running properly.</p>
		-	Off	The system is not running.
USB	USB indicator	Green	Steady on	USB-based deployment has been completed.
		Green	Blinking four times every second (4 Hz)	The system is reading data from the USB flash drive.
		Red	Steady on	USB-based deployment fails.
		-	Off	USB-based deployment is disabled (default state).

Silkscreen	Name	Color	Status	Description
HA	HA indicator	Green	Steady on	Management master device in hot standby or cluster deployment.
		Green	Blinks once every 2 seconds (0.5 Hz).	Management backup device in hot standby or cluster deployment.
		Red	Steady on	Hot standby or the cluster is faulty.
		-	Off	The hot standby or the cluster function is disabled.
WAN	WAN indicator	-	Off	Reserved function. This function is not enabled.
CLOUD	CLOUD indicator	Green	Steady on	Connected to the cloud management platform.
		Green	Blinking four times every second (4 Hz)	Connecting to the cloud management platform, transmitting or receiving data.
		-	Off	The device is not connected to the cloud management platform.
-	ACT indicator for 10GE optical ports	Yellow	Blinking (12 Hz)	The port is sending or receiving data.

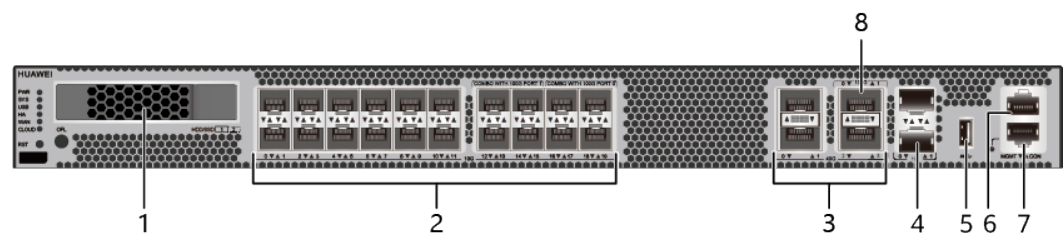
Silkscreen	Name	Color	Status	Description
		-	Off	The port is not sending or receiving data.
-	LINK indicator for 10GE optical ports	Green	Steady on	The port link is connected.
		-	Off	No link is established on the port.
-	Indicator for 40GE/100GE optical ports	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.
-	MGMT port indicator	Green	Steady on	The port link is connected.
		Green	Blinking (12 Hz)	The port is sending or receiving data.
		-	Off	No link is established on the port.

Table 4-142 Buttons on the USG6716E

Silkscreen	Name	Description
RST	RST button	To restart the device, press the RST button. Ensure that the running configuration is saved before pressing the RST button. This button can enable you to restore the default settings with one click. To be specific, you can hold down the RST button for 5 seconds and then release it to restore the default settings and restart the device.
OFL	OFL button	To remove a hard disk, press and hold the OFL button for four seconds until the OFL indicator turns on.

Ports

Figure 4-140 Ports on the USG6716E



1. HDD/SSD slot	2. 10GE optical port	3. 40GE optical port	4. HA port	5. USB 3.0 port
6. Console port	7. MGMT port	8. 100GE optical port	-	-

Table 4-143 Ports on the USG6716E

Port	Connector Type	Description	Available Components
HDD/SSD Hard disk slot	-	The hard disks are optional. You can purchase hard disk from Huawei if needed.	<ul style="list-style-type: none"> • Hard Disk Unit SSD-Sata240G-A • Hard Disk Unit SSD-SATA240G-C • Hard Disk Unit SSD-SATA960G-B • Hard Disk Unit SSD-SATA960G-C • Hard Disk Unit HDD-SATA1000G-A <p>NOTE</p> <ul style="list-style-type: none"> • From V600R007C20, SSD-SATA960G-B disks are supported. • From V600R007C20S PC600, SSD-SATA240G-C disks are supported. • From V600R007C20S PC602, SSD-SATA960G-C disks are supported.

Port	Connector Type	Description	Available Components
10GE optical ports (0 to 19)	SFP+	<p>20 GE/10GE autosensing Ethernet optical ports, numbered from XGigabitEthernet0/0/0 to XGigabitEthernet0/0/19.</p> <p>When 100GE0/0/0 to 100GE0/0/1 optical ports on the device are enabled, the 10GE optical ports numbered from XGigabitEthernet0/0/12 to XGigabitEthernet0/0/19 cannot be used.</p>	<ul style="list-style-type: none"> • 1Gbps SFP Copper Modules • 1Gbps eSFP Optical Modules • 10Gbps SFP+ Optical Modules
40GE optical ports (0 to 3)	QSFP+	<p>Four 40GE Ethernet optical ports, numbered from 40GE0/0/0 to 40GE0/0/3.</p> <p>40GE optical ports 40GE0/0/2 and 40GE0/0/3 can be switched to 100GE optical ports.</p>	40Gbps QSFP+ Optical Modules
HA ports(0 to 1)	SFP+	<p>Heartbeat interfaces for hot standby or the cluster. Two devices are connected through independent links to form hot standby or the cluster. numbered from HA0/0/0 to HA0/0/1.</p>	10Gbps SFP+ Optical Modules

Port	Connector Type	Description	Available Components
USB 3.0 port	USB 3.0 Type A	USB ports allow you to insert USB devices for system software upgrades. For details on upgrades through USB devices, refer to the Upgrade Guide delivered with the device.	USB flash drive
Console port	RJ45	<p>Console ports allow you to locally connect a PC to the device.</p> <p>You can use a console cable to connect the console port (RJ45) on the device to the COM port on your PC and use a serial port terminal program on your PC to access, configure, and manage the device.</p>	Console Cable

Port	Connector Type	Description	Available Components
MGMT port	RJ45	<p>Out-of-band 10/100/1000M RJ45 autosensing Ethernet management port. The interface number is METH 0/0/0 and the default IP address of the interface is 192.168.0.1.</p> <p>You can connect this port to the network port or any reachable port on a PC through a network cable. Then, you can use Telnet to access the CLI or use a web browser to access the web UI to configure, manage, and maintain the device.</p> <p>NOTE The MGMT port cannot be used as a service port.</p>	Ethernet Cable
100GE optical ports (0 to 1)	QSFP28	<p>Two 100GE Ethernet optical ports, numbered 100GE0/0/0 and 100GE0/0/1.</p> <p>By default, the 100GE optical port mode is disabled. To enable this mode, run the set device port-config-mode 100g-port enable command.</p>	100Gbps QSFP28 Optical Modules

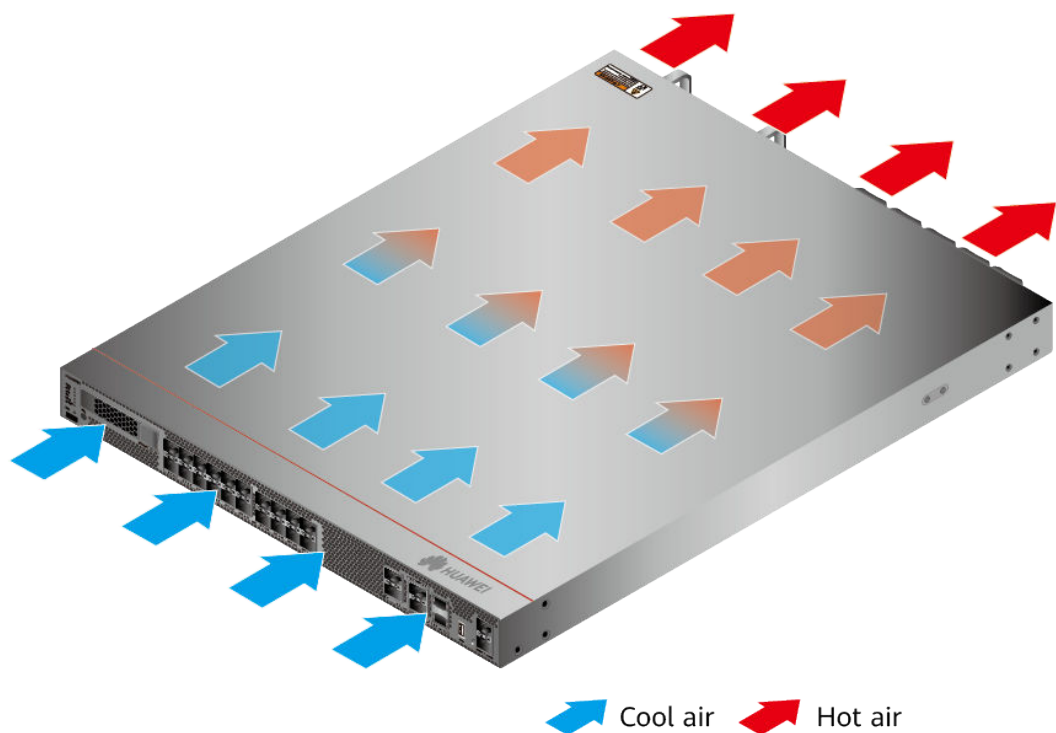
Power Supply System

- Early delivery: The power supply system has two PAC1K2S12-B AC power modules for 1+1 power redundancy.
- Later delivery: The power supply system has two PAC1K2S12-CB AC power modules for 1+1 power redundancy.

Heat Dissipation System

The heat dissipation system consists of five FAN-036A-B modules working in 4+1 backup mode. From the front panel, the device provides a front-to-rear air flow. The fan module locates at the air exhaust of the system.

Figure 4-141 System air flow of the USG6716E



Technical Specifications

Table 4-144 Technical specifications of the USG6716E

Item	Specification
Installation Type	Rack
Cabinet installation standard	Cabinet with a depth of 800 mm or above
Dimensions without packaging (H x W x D) [mm(in.)]	43.6 mm x 442 mm x 600 mm (1.72 in. x 17.4 in. x 23.62 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	225 mm x 590 mm x 790 mm (8.86 in. x 23.23 in. x 31.1 in.)

Item	Specification
Chassis height [U]	1 U
Weight with packaging [kg(lb)]	17.6 kg (38.8 lb)
Weight without packaging [kg(lb)]	12 kg (26.46 lb)
CPU	2 CPU, 14 cores/CPU, up to 1.9 GHz
Memory	DDR4 64GB, 32GB/CPU
Storage	<ul style="list-style-type: none"> USG6716E (02351YRS-001): 32 GB USG6716E-AC (02351YRS): 32GB
NOR Flash	64MB, 32MB/CPU
Hard disk	Optional. You can purchase a 2.5-inch SATA hard disk (240 GB/960 GB/1000 GB) from Huawei based on the site requirements. The hard disk is hot swappable.
Console port	RJ45
Eth Management port	RJ45
Maximum power consumption [W]	566 W
Maximum heat dissipation [BTU/hour]	1935.27 BTU/hour
MTBF [years]	25 years
MTTR [hours]	2 hours
Power supply mode	AC built-in
Number of power modules	2
Rated input voltage [V]	<ul style="list-style-type: none"> AC power input: 100 V AC to 130 V AC/200 V AC to 240 V AC, 50/60 Hz High-voltage DC power input: 240V
Input voltage range [V]	AC power input: 90 V AC to 290 V AC, 47 Hz to 63 Hz
Rated output power [W]	<ul style="list-style-type: none"> 800 W (100 V AC to 130 V AC) 1200 W (200 V AC to 240 V AC) 1200 W (240 V DC)
Types of fans	Pluggable
Number of fan modules	5
Heat dissipation mode	The fan module locates at the air exhaust of the system.

Item	Specification
Airflow direction	Air inlet from front and air outlet from rear
Maximum number of 100GE ports	2
Maximum number of 40GE ports	4
Maximum number of 10GE ports	20
Redundant power supply	1+1
Redundant fans	4+1
Long-term operating temperature [°C(°F)]	<ul style="list-style-type: none"> Without hard disk driver: 0°C to 45°C With hard disk driver: 5°C to 40°C
Storage temperature [°C(°F)]	-40°C to 70°C
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	<ul style="list-style-type: none"> Without hard disk driver: 0 m to 5000 m With hard disk driver: 0 m to 3000 m
Storage altitude [m(ft.)]	0 m to 5000 m

 NOTE

- The width does not include the size of mounting ears.
- The height is 1U (1U = 1.75 inches, or about 44.45 mm), which is a height unit defined in International Electrotechnical Commission (IEC) 60297 standards.
- Temperature and humidity are measured 1.5 m above the floor and 0.4 m in front of the rack when no protection plate exists before or after the rack.
- The operating temperature change rate of a device with HDDs must be less than or equal to 20°C/hour.

4.2 Power Modules

This chapter describes hardware information for power modules of the USG6000E, including hardware appearance, functions, and technical specifications.

4.2.1 HW-120300D1D (02220947: 36W AC Power Module)

Overview

Table 4-145 Basic information about the HW-120300D1D

Item	Details
Description	36W AC Power Module
Part Number	02220947
Model	HW-120300D1D

Appearance

Figure 4-142 Appearance of the HW-120300D1D



Version Mapping

Table 4-146 Mappings between HW-120300D1D and product models

Product	Product Model	First Supported Version
USG6530E	USG6530E-AC (02352QVD)	V600R006C00
USG6510E	USG6510E-AC (02352PQH)	V600R006C00

Functions and Features

Table 4-147 Functions and features of the HW-120300D1D

Functions and Features	Description
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Output short circuit protection	Intermittently provides output and automatically restores normal output after the output short circuit is removed.
Heat dissipation	The power adapter does not have fans and uses natural cooling.

Technical Specifications

Table 4-148 Technical specifications of the HW-120300D1D

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	32 mm x 53.95 mm x 99.45 mm (1.26 in. x 2.12 in. x 3.92 in.)
Weight without packaging [kg(lb)]	0.205 kg (0.45 lb)
Number of inputs	1
Rated input voltage [V]	100 V AC to 240 V AC (50 Hz/60 Hz)
Input voltage range [V]	90 V AC to 264 V AC (47 Hz to 63 Hz)
Maximum input current [A]	1 A
Rated output voltage [V]	12V DC
Rated output current [A]	3 A
Rated output power [W]	36 W
Type of power cables	C7

4.2.2 HW-120300D1D (02221468: 36W AC Power Module)

Overview

Table 4-149 Basic information about the HW-120300D1D

Item	Details
Description	36W AC Power Module
Part Number	02221468
Model	HW-120300D1D

Appearance

Figure 4-143 Appearance of the HW-120300D1D



Version Mapping

Table 4-150 Mappings between HW-120300D1D and product models

Product	Product Model	First Supported Version
USG6530E	USG6530E-AC (02352QVD)	V600R006C00
USG6530E	USG6530E-AC (02352QVD-001)	V600R007C20SPC300
USG6530E	USG6530E-AC (02352QVD-002)	V600R007C20SPC600
USG6510E	USG6510E-AC (02352PQH)	V600R006C00
USG6510E	USG6510E-AC (02352PQH-001)	V600R007C20SPC300

Product	Product Model	First Supported Version
USG6510E	USG6510E-AC (02352PQH-002)	V600R007C20SPC600

Functions and Features

Table 4-151 Functions and features of the HW-120300D1D

Functions and Features	Description
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Output short circuit protection	Intermittently provides output and automatically restores normal output after the output short circuit is removed.
Heat dissipation	The power adapter does not have fans and uses natural cooling.

Technical Specifications

Table 4-152 Technical specifications of the HW-120300D1D

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	32 mm x 53.95 mm x 99.45 mm (1.26 in. x 2.12 in. x 3.92 in.)
Weight without packaging [kg(lb)]	0.205 kg (0.45 lb)
Number of inputs	1
Rated input voltage [V]	100 V AC to 240 V AC (50 Hz/60 Hz)
Input voltage range [V]	90 V AC to 264 V AC (47 Hz to 63 Hz)
Maximum input current [A]	1 A

Item	Specification
Rated output voltage [V]	12V DC
Rated output current [A]	3 A
Rated output power [W]	36 W
Type of power cables	C7

4.2.3 HW-560268D0D (150W AC Power Module)

Overview

Table 4-153 Basic information about the HW-560268D0D

Item	Details
Description	150W AC Power Module
Part Number	02221024
Model	HW-560268D0D

Appearance

Figure 4-144 Appearance of the HW-560268D0D



Version Mapping

Table 4-154 Mappings between HW-560268D0D and product models

Product	Product Model	First Supported Version
USG6510E-POE	USG6510E-POE-AC (02352CSC)	V600R006C00

Functions and Features

Table 4-155 Functions and features of the HW-560268D0D

Functions and Features	Description
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Output short circuit protection	Intermittently provides output and automatically restores normal output after the output short circuit is removed.
Heat dissipation	The power adapter does not have fans and uses natural cooling.

Technical Specifications

Table 4-156 Technical specifications of the HW-560268D0D

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	42 mm x 80 mm x 180 mm (1.65 in. x 3.15 in. x 7.09 in.)
Weight without packaging [kg(lb)]	0.8 kg (1.76 lb)
Number of inputs	1
Rated input voltage [V]	100 V AC to 240 V AC (50 Hz/60 Hz)

Item	Specification
Input voltage range [V]	90 V AC to 290 V AC (47 Hz to 63 Hz)
Maximum input current [A]	2 A
Rated output voltage [V]	55.5V DC
Rated output current [A]	2.68 A
Rated output power [W]	150 W
Type of power cables	C7

4.2.4 PAC150S12-R (150W AC Power Module)

Overview

Table 4-157 Basic information about the PAC150S12-R

Item	Details
Description	150W AC Power Module
Part Number	02312DUY
Model	PAC150S12-R

Appearance

Figure 4-145 Appearance of the PAC150S12-R



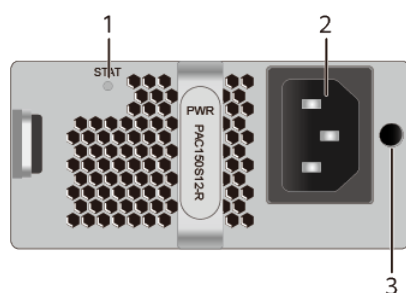
Version Mapping

Table 4-158 Mappings between PAC150S12-R and product models

Product	Product Model	First Supported Version
USG6575E-B	USG6575E-B-AC (02353LKD)	V600R007C20
USG6575E-B	USG6575E-B-AC (02353LKD-002)	V600R007C20SPC600
USG6605E-B	USG6605E-B-AC (02353PSK)	V600R007C20
USG6605E-B	USG6605E-B-AC (02353PSK-001)	V600R007C20SPC600

Panel

Figure 4-146 Panel of the PAC150S12-R



1. Power status indicator	2. Power receptacle	3. Clip hole
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Table 4-159 Indicators on the PAC150S12-R

Silkscreen	Name	Color	Status	Description
STAT	Power status indicator	Green	Steady on	The output of the AC power module is normal.

Silkscreen	Name	Color	Status	Description
		Green	Blinking	The output power is out of range. For example, overvoltage, overcurrent, or short circuit has occurred.
		-	Off	<ul style="list-style-type: none"> The input of the AC power module is out of range. For example, no AC input, AC input overvoltage, or AC input undervoltage has occurred. The output of the AC power module is out of range. For example, undervoltage, or overtemperature has occurred.

Table 4-160 Ports on the PAC150S12-R

Port	Connector Type	Description	Available Components
Power receptacle	-	Connects the C13 plug of the AC power cable. For details, see AC Power Cables.	-

Port	Connector Type	Description	Available Components
Clip hole	-	The hole is used to install the power cable clip, which is used to bind and fix the power cable. The power cable clip is installed before shipment.	-

Functions and Features

Table 4-161 Functions and features of the PAC150S12-R

Functions and Features	Description
Input undervoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Output short circuit protection	Intermittently provides output and automatically restores normal output after the output short circuit is removed.
Overtemperature protection	When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range.
Heat dissipation	The power adapter does not have fans. The heat dissipation is provided by the fan module of the device.

Functions and Features	Description
Hot swap	The device has 1+1 power module redundancy. You can hot-swap a power module without interrupting device operation.

Technical Specifications

Table 4-162 Technical specifications of the PAC150S12-R

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	39.8 mm x 90 mm x 214.3 mm (1.57 in. x 3.54 in. x 8.43 in.)
Weight without packaging [kg(lb)]	0.761 kg (1.68 lb)
Number of inputs	1
Rated input voltage [V]	100 V AC to 240 V AC (50 Hz/60 Hz)
Input voltage range [V]	90 V AC to 264 V AC (47 Hz to 63 Hz)
Maximum input current [A]	3 A
Rated output voltage [V]	12 V
Rated output current [A]	12.5 A
Rated output power [W]	150 W
Hot swapping	Supported
Type of power cables	C13

4.2.5 PAC1K2S12-B (1200W AC Power Module(Power panel side exhaust))

Overview

Table 4-163 Basic information about the PAC1K2S12-B

Item	Details
Description	1200W AC Power Module(Power panel side exhaust)
Part Number	02312DUM

Item	Details
Model	PAC1K2S12-B

Appearance

Figure 4-147 Appearance of the PAC1K2S12-B



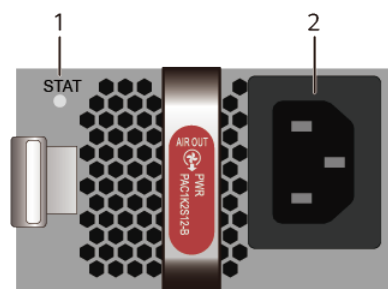
Version Mapping

Table 4-164 Mappings between PAC1K2S12-B and product models

Product	Product Model	First Supported Version
USG6716E	USG6716E-AC (02351YRS)	V600R006C00
USG6680E	USG6680E-AC (02351YRR)	V600R006C00
USG6712E	USG6712E-AC (02352CNL)	V600R006C00

Panel

Figure 4-148 Panel of the PAC1K2S12-B



1. Power status indicator	2. Power receptacle
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Table 4-165 Indicators on the PAC1K2S12-B

Silkscreen	Name	Color	Status	Description
STAT	Power status indicator	Green	Steady on	The power module is working normally.
		Green	Blinking	The power module is in loading or standby state, or the power cable has been connected but the power module is not installed in the device.

Silkscreen	Name	Color	Status	Description
		Red	Steady on	<ul style="list-style-type: none"> Fans of the power module fail. The power module is in overtemperature protection state. The power input is abnormal (input undervoltage or input overvoltage). The power output is abnormal (output overcurrent, output short-circuit, or output overvoltage).
		-	Off	The power module receives no power input.

Table 4-166 Ports on the PAC1K2S12-B

Port	Connector Type	Description	Available Components
Power receptacle	-	Connects the C13 plug of the AC power cable. For details, see AC Power Cables.	-

Functions and Features

Table 4-167 Functions and features of the PAC1K2S12-B

Functions and Features	Description
Input undervoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overvoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Output short circuit protection	Intermittently provides output and automatically restores normal output after the output short circuit is removed.
Overtemperature protection	When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range.
Heat dissipation	The heat dissipation is provided by the fan of the power module.
Hot swap	The device has 1+1 power module redundancy. You can hot-swap a power module without interrupting device operation.

Technical Specifications

Table 4-168 Technical specifications of the PAC1K2S12-B

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	39.6 mm x 66 mm x 374 mm (1.56 in. x 2.6 in. x 14.72 in.)
Weight without packaging [kg(lb)]	1.4 kg (3.09 lb)
Rated input voltage [V]	- Rated AC input voltage range: •100 V AC to 130 V AC, 50/60 Hz •200 V AC to 240 V AC, 50/60 Hz - Rated voltage of 240 V high-voltage DC power input: 240 V DC
Input voltage range [V]	<ul style="list-style-type: none"> Maximum AC input voltage range: 90 to 290 V AC, 47 to 63 Hz Maximum voltage range of 240 V high-voltage DC power input:188 V DC to 290 V DC
Rated input current [A]	10 A (100 V AC to 130 V AC), 8 A (200 V AC to 240 V AC), 8 A (240 V DC)
Rated output voltage [V]	12 V
Rated output current [A]	<ul style="list-style-type: none"> 67 A (100 V AC to 130 V AC) 100 A (200 V AC to 240 V AC) 100 A (240 V DC)
Rated output power [W]	<ul style="list-style-type: none"> 800 W (100 V AC to 130 V AC) 1200 W (200 V AC to 240 V AC) 1200 W (240 V DC)
Hot swapping	Supported
Type of power cables	C13

4.2.6 PAC1K2S12-CB (1200W AC&240V DC Power Module (Back to Front,Power panel side air-out))

Overview

Table 4-169 Basic information about the PAC1K2S12-CB

Item	Details
Description	1200W AC&240V DC Power Module (Back to Front,Power panel side air-out)
Part Number	02312VLE
Model	PAC1K2S12-CB

Appearance

Figure 4-149 Appearance of the PAC1K2S12-CB



Version Mapping

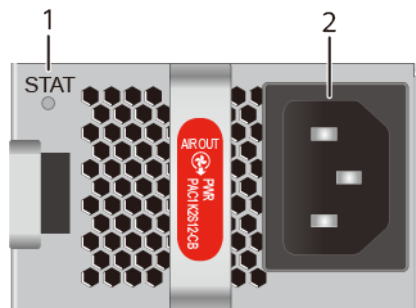
Table 4-170 Mappings between PAC1K2S12-CB and product models

Product	Product Model	First Supported Version
USG6716E	USG6716E-AC (02351YRS)	V600R007C20SPC300
USG6716E	USG6716E-AC (02351YRS-001)	V600R007C20SPC600
USG6680E	USG6680E-AC (02351YRR)	V600R007C20SPC300

Product	Product Model	First Supported Version
USG6680E	USG6680E-AC (02351YRR-001)	V600R007C20SPC600
USG6712E	USG6712E-AC (02352CNL)	V600R007C20SPC300
USG6712E	USG6712E-AC (02352CNL-001)	V600R007C20SPC600

Panel

Figure 4-150 Panel of the PAC1K2S12-CB



1. Power status indicator	2. Power receptacle
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Table 4-171 Indicators on the PAC1K2S12-CB

Silkscreen	Name	Color	Status	Description
STAT	Power status indicator	Green	Steady on	The power module is working normally.
		Green	Blinking	The power module is in loading or standby state, or the power cable has been connected but the power module is not installed in the device.

Silkscreen	Name	Color	Status	Description
		Red	Steady on	<ul style="list-style-type: none"> Fans of the power module fail. The power module is in overtemperature protection state. The power input is abnormal (input undervoltage or input overvoltage). The power output is abnormal (output overcurrent, output short-circuit, or output overvoltage).
		-	Off	The power module receives no power input.

Table 4-172 Ports on the PAC1K2S12-CB

Port	Connector Type	Description	Available Components
Power receptacle	-	Connects the C13 plug of the AC power cable. For details, see AC Power Cables.	-

Functions and Features

Table 4-173 Functions and features of the PAC1K2S12-CB

Functions and Features	Description
Input undervoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overvoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Output short circuit protection	Intermittently provides output and automatically restores normal output after the output short circuit is removed.
Overtemperature protection	When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range.
Heat dissipation	The heat dissipation is provided by the fan of the power module.
Hot swap	The device has 1+1 power module redundancy. You can hot-swap a power module without interrupting device operation.

Technical Specifications

Table 4-174 Technical specifications of the PAC1K2S12-CB

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	39.6 mm x 66 mm x 374 mm (1.56 in. x 2.6 in. x 14.72 in.)
Weight without packaging [kg(lb)]	1.2 kg (2.65 lb)
Rated input voltage [V]	- Rated AC input voltage range: •100 V AC to 130 V AC, 50/60 Hz •200 V AC to 240 V AC, 50/60 Hz - Rated voltage of 240 V high-voltage DC power input: 240 V DC
Input voltage range [V]	<ul style="list-style-type: none"> • Maximum AC input voltage range: 90 to 290 V AC, 47 to 63 Hz • Maximum voltage range of 240 V high-voltage DC power input: 188 V DC to 290 V DC
Rated input current [A]	10 A (100 V AC to 130 V AC), 8 A (200 V AC to 240 V AC), 8 A (240 V DC)
Rated output voltage [V]	12 V
Rated output current [A]	<ul style="list-style-type: none"> • 67 A (100 V AC to 130 V AC) • 100 A (200 V AC to 240 V AC) • 100 A (240 V DC)
Rated output power [W]	<ul style="list-style-type: none"> • 800 W (100 V AC to 130 V AC) • 1200 W (200 V AC to 240 V AC) • 1200 W (240 V DC)
Hot swapping	Supported
Type of power cables	C13

4.2.7 PAC600S12-B (600W AC Power Module(Back to Front, Power panel side exhaust))

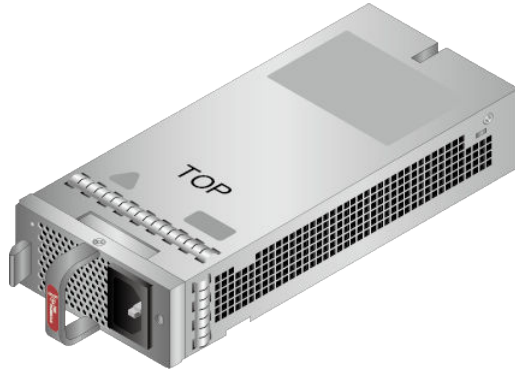
Overview

Table 4-175 Basic information about the PAC600S12-B

Item	Details
Description	600W AC Power Module(Back to Front, Power panel side exhaust)
Part Number	02312DUP
Model	PAC600S12-B

Appearance

Figure 4-151 Appearance of the PAC600S12-B



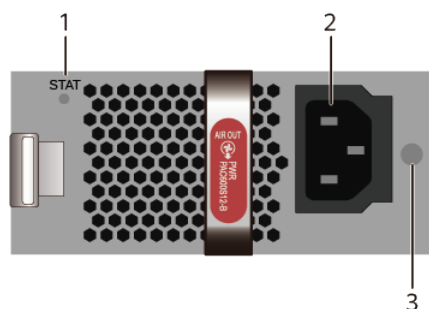
Version Mapping

Table 4-176 Mappings between PAC600S12-B and product models

Product	Product Model	First Supported Version
USG6650E	USG6650E-AC (02351YRY)	V600R006C00
USG6630E	USG6630E-AC (02352FQA)	V600R006C00
USG6620E	USG6620E-AC (02352HMF)	V600R007C20SPC100
USG6610E	USG6610E-AC (02352HMD)	V600R007C20SPC100

Panel

Figure 4-152 Panel of the PAC600S12-B



1. Power status indicator	2. Power receptacle	3. Clip hole
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Table 4-177 Indicators on the PAC600S12-B

Silkscreen	Name	Color	Status	Description
STAT	Power status indicator	Green	Steady on	The output of the AC power module is normal.

Silkscreen	Name	Color	Status	Description
		-	Off	<ul style="list-style-type: none"> The input of the AC power module is out of range. For example, no AC input, AC input overvoltage, or AC input undervoltage has occurred. The output of the AC power module is out of range. For example, undervoltage, or overtemperature has occurred.

Table 4-178 Ports on the PAC600S12-B

Port	Connector Type	Description	Available Components
Power receptacle	-	Connects the C13 plug of the AC power cable. For details, see AC Power Cables.	-
Clip hole	-	The hole is used to install the power cable clip, which is used to bind and fix the power cable. The power cable clip is installed before shipment.	-

Functions and Features

Table 4-179 Functions and features of the PAC600S12-B

Functions and Features	Description
Input undervoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overvoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Output short circuit protection	Intermittently provides output and automatically restores normal output after the output short circuit is removed.
Overtemperature protection	When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range.
Heat dissipation	The heat dissipation is provided by the fan of the power module.
Hot swap	The device has 1+1 power module redundancy. You can hot-swap a power module without interrupting device operation.

Technical Specifications

Table 4-180 Technical specifications of the PAC600S12-B

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	39.8 mm x 90 mm x 215 mm (1.57 in. x 3.54 in. x 8.46 in.)
Weight without packaging [kg(lb)]	0.97 kg (2.14 lb)
Rated input voltage [V]	100 V AC to 240 V AC (50 Hz/60 Hz)
Input voltage range [V]	90 V AC to 290 V AC (47 Hz to 63 Hz)
Maximum input current [A]	9 A
Rated output voltage [V]	12 V
Rated output current [A]	50 A
Rated output power [W]	600 W
Hot swapping	Supported
Type of power cables	C13

4.2.8 PAC600S12-CB (600W AC Power Module(Back to Front, Power panel side exhaust))

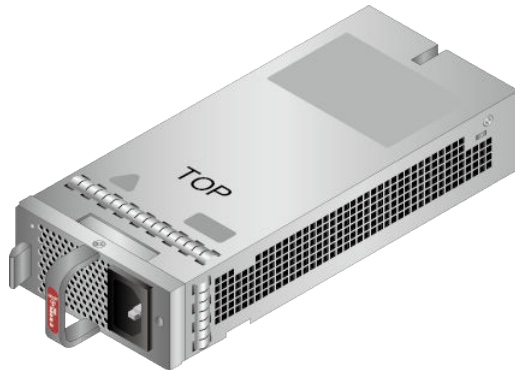
Overview

Table 4-181 Basic information about the PAC600S12-CB

Item	Details
Description	600W AC Power Module(Back to Front, Power panel side exhaust)
Part Number	02312FFU
Model	PAC600S12-CB

Appearance

Figure 4-153 Appearance of the PAC600S12-CB



Version Mapping

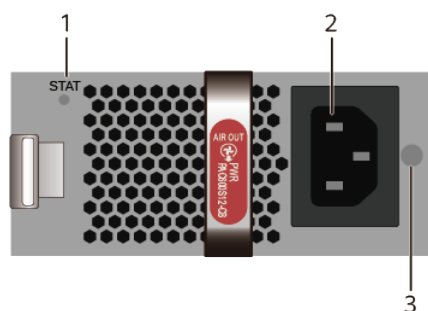
Table 4-182 Mappings between PAC600S12-CB and product models

Product	Product Model	First Supported Version
USG6650E	USG6650E-AC (02351YRY-001)	V600R007C20SPC300
USG6650E	USG6650E-AC (02351YRY-002)	V600R007C20SPC600
USG6585E	USG6585E-AC (02353ADA)	V600R007C00
USG6525E	USG6525E-AC (02353AFX)	V600R007C00
USG6635E	USG6635E-AC (02352RQD)	V600R007C00
USG6625E	USG6625E-AC (02352RQN)	V600R007C00
USG6615E	USG6615E-AC (02352RQL)	V600R007C00
USG6630E	USG6630E-AC (02352FQA-001)	V600R007C20SPC300
USG6630E	USG6630E-AC (02352FQA-002)	V600R007C20SPC600
USG6565E	USG6565E-AC (02353AEJ)	V600R007C00
USG6620E	USG6620E-AC (02352HMF-001)	V600R007C20SPC300

Product	Product Model	First Supported Version
USG6620E	USG6620E-AC (02352HMF-002)	V600R007C20SPC600
USG6555E	USG6555E-AC (02353AEK)	V600R007C00
USG6610E	USG6610E-AC (02352HMD-001)	V600R007C20SPC300
USG6610E	USG6610E-AC (02352HMD-002)	V600R007C20SPC600
USG6655E	USG6655E-AC (02352RPS)	V600R007C00

Panel

Figure 4-154 Panel of the PAC600S12-CB



1. Power status indicator	2. Power receptacle	3. Clip hole
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Table 4-183 Indicators on the PAC600S12-CB

Silkscreen	Name	Color	Status	Description
STAT	Power status indicator	Green	Steady on	The output of the AC power module is normal.

Silkscreen	Name	Color	Status	Description
		-	Off	<ul style="list-style-type: none"> The input of the AC power module is out of range. For example, no AC input, AC input overvoltage, or AC input undervoltage has occurred. The output of the AC power module is out of range. For example, undervoltage, or overtemperature has occurred.

Table 4-184 Ports on the PAC600S12-CB

Port	Connector Type	Description	Available Components
Power receptacle	-	Connects the C13 plug of the AC power cable. For details, see AC Power Cables.	-
Clip hole	-	The hole is used to install the power cable clip, which is used to bind and fix the power cable. The power cable clip is installed before shipment.	-

Functions and Features

Table 4-185 Functions and features of the PAC600S12-CB

Functions and Features	Description
Input undervoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overvoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Overtemperature protection	When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range.
Heat dissipation	The heat dissipation is provided by the fan of the power module.
Hot swap	The device has 1+1 power module redundancy. You can hot-swap a power module without interrupting device operation.

Technical Specifications

Table 4-186 Technical specifications of the PAC600S12-CB

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	39.6 mm x 90 mm x 214.5 mm (1.56 in. x 3.54 in. x 8.45 in.)
Weight without packaging [kg(lb)]	0.95 kg (2.09 lb)
Rated input voltage [V]	100 V AC to 240 V AC (50 Hz/60 Hz)
Input voltage range [V]	90 V AC to 290 V AC (47 Hz to 63 Hz)
Maximum input current [A]	8 A
Rated output voltage [V]	12 V
Rated output current [A]	50 A
Rated output power [W]	600 W
Hot swapping	Supported
Type of power cables	C13

4.2.9 PAC600S12-DB (600W AC Power Module(Back to Front, Power panel side exhaust))

Overview

Table 4-187 Basic information about the PAC600S12-DB

Item	Details
Description	600W AC Power Module(Back to Front, Power panel side exhaust)
Part Number	02131740
Model	PAC600S12-DB

Appearance

Figure 4-155 Appearance of the PAC600S12-DB



Version Mapping

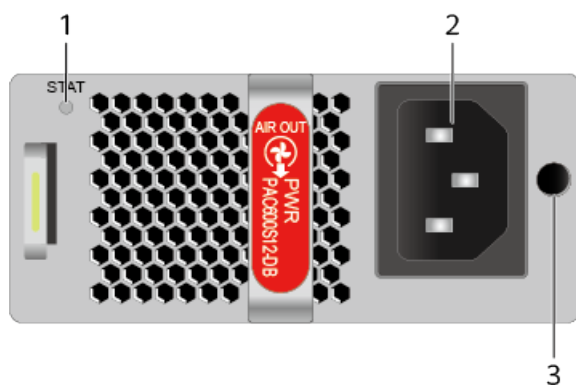
Table 4-188 Mappings between PAC600S12-DB and product models

Product	Product Model	First Supported Version
USG6650E	USG6650E-AC (02351YRY)	V600R007C20SPC300
USG6650E	USG6650E-AC (02351YRY-001)	V600R007C20SPC300
USG6650E	USG6650E-AC (02351YRY-002)	V600R007C20SPC600
USG6635E	USG6635E-AC (02352RQD)	V600R007C20SPC300
USG6625E	USG6625E-AC (02352RQN)	V600R007C20SPC300
USG6615E	USG6615E-AC (02352RQL)	V600R007C20SPC300
USG6630E	USG6630E-AC (02352FQA)	V600R007C20SPC300
USG6630E	USG6630E-AC (02352FQA-001)	V600R007C20SPC300
USG6630E	USG6630E-AC (02352FQA-002)	V600R007C20SPC600
USG6620E	USG6620E-AC (02352HMF)	V600R007C20SPC300
USG6620E	USG6620E-AC (02352HMF-001)	V600R007C20SPC300

Product	Product Model	First Supported Version
USG6620E	USG6620E-AC (02352HMF-002)	V600R007C20SPC600
USG6610E	USG6610E-AC (02352HMD)	V600R007C20SPC300
USG6610E	USG6610E-AC (02352HMD-001)	V600R007C20SPC300
USG6610E	USG6610E-AC (02352HMD-002)	V600R007C20SPC600
USG6655E	USG6655E-AC (02352RPS)	V600R007C20SPC300

Panel

Figure 4-156 Panel of the PAC600S12-DB



1. Power status indicator	2. Power receptacle	3. Clip hole
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Table 4-189 Indicators on the PAC600S12-DB

Silkscreen	Name	Color	Status	Description
STAT	Power status indicator	Green	Steady on	The output of the AC power module is normal.

Silkscreen	Name	Color	Status	Description
		-	Off	<ul style="list-style-type: none"> The input of the AC power module is out of range. For example, no AC input, AC input overvoltage, or AC input undervoltage has occurred. The output of the AC power module is out of range. For example, undervoltage, or overtemperature has occurred.

Table 4-190 Ports on the PAC600S12-DB

Port	Connector Type	Description	Available Components
Power receptacle	-	Connects the C13 plug of the AC power cable. For details, see AC Power Cables.	-
Clip hole	-	The hole is used to install the power cable clip, which is used to bind and fix the power cable. The power cable clip is installed before shipment.	-

Functions and Features

Table 4-191 Functions and features of the PAC600S12-DB

Functions and Features	Description
Input undervoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overvoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Overtemperature protection	When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range.
Heat dissipation	The heat dissipation is provided by the fan of the power module.
Hot swap	The device has 1+1 power module redundancy. You can hot-swap a power module without interrupting device operation.

Technical Specifications

Table 4-192 Technical specifications of the PAC600S12-DB

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	39.6 mm x 90 mm x 214.5 mm (1.56 in. x 3.54 in. x 8.45 in.)
Weight without packaging [kg(lb)]	0.95 kg (2.09 lb)
Rated input voltage [V]	100 V AC to 240 V AC (50 Hz/60 Hz)
Input voltage range [V]	90 V AC to 290 V AC (47 Hz to 63 Hz)
Maximum input current [A]	8 A
Rated output voltage [V]	12 V
Rated output current [A]	50 A
Rated output power [W]	600 W
Hot swapping	Supported
Type of power cables	C13

4.2.10 PAC600S12-EB (600W AC Power Module(Back to Front, Power panel side exhaust))

Overview

Table 4-193 Basic information about the PAC600S12-EB

Item	Details
Description	600W AC Power Module(Back to Front, Power panel side exhaust)
Part Number	02312FFU-002
Model	PAC600S12-EB

Appearance

Figure 4-157 Appearance of the PAC600S12-EB



Version Mapping

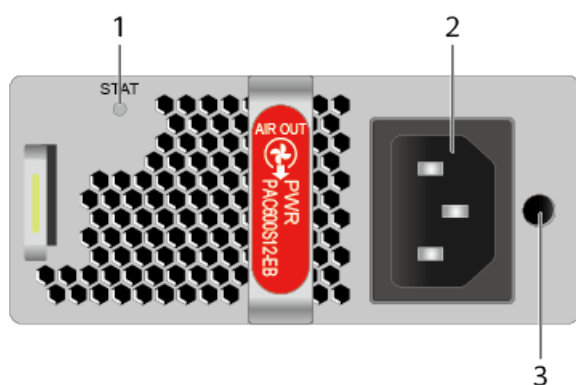
Table 4-194 Mappings between PAC600S12-EB and product models

Product	Product Model	First Supported Version
USG6650E	USG6650E-AC (02351YRY)	V600R007C20SPC500
USG6650E	USG6650E-AC (02351YRY-001)	V600R007C20SPC500
USG6650E	USG6650E-AC (02351YRY-002)	V600R007C20SPC600
USG6585E	USG6585E-AC (02353ADA)	V600R007C20SPC500
USG6525E	USG6525E-AC (02353AFX)	V600R007C20SPC500
USG6635E	USG6635E-AC (02352RQD)	V600R007C20SPC500
USG6625E	USG6625E-AC (02352RQN)	V600R007C20SPC500
USG6615E	USG6615E-AC (02352RQL)	V600R007C20SPC500
USG6630E	USG6630E-AC (02352FQA)	V600R007C20SPC500
USG6630E	USG6630E-AC (02352FQA-001)	V600R007C20SPC500
USG6630E	USG6630E-AC (02352FQA-002)	V600R007C20SPC600

Product	Product Model	First Supported Version
USG6565E	USG6565E-AC (02353AEJ)	V600R007C20SPC500
USG6620E	USG6620E-AC (02352HMF)	V600R007C20SPC500
USG6620E	USG6620E-AC (02352HMF-001)	V600R007C20SPC500
USG6620E	USG6620E-AC (02352HMF-002)	V600R007C20SPC600
USG6555E	USG6555E-AC (02353AEK)	V600R007C20SPC500
USG6610E	USG6610E-AC (02352HMD)	V600R007C20SPC500
USG6610E	USG6610E-AC (02352HMD-001)	V600R007C20SPC500
USG6610E	USG6610E-AC (02352HMD-002)	V600R007C20SPC600
USG6655E	USG6655E-AC (02352RPS)	V600R007C20SPC500

Panel

Figure 4-158 Panel of the PAC600S12-EB



1. Power status indicator	2. Power receptacle	3. Clip hole
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Table 4-195 Indicators on the PAC600S12-EB

Silkscreen	Name	Color	Status	Description
STAT	Power status indicator	Green	Steady on	The output of the AC power module is normal.
		-	Off	<ul style="list-style-type: none"> The input of the AC power module is out of range. For example, no AC input, AC input overvoltage, or AC input undervoltage has occurred. The output of the AC power module is out of range. For example, undervoltage, or overtemperature has occurred.

Table 4-196 Ports on the PAC600S12-EB

Port	Connector Type	Description	Available Components
Power receptacle	-	Connects the C13 plug of the AC power cable. For details, see AC Power Cables.	-

Port	Connector Type	Description	Available Components
Clip hole	-	The hole is used to install the power cable clip, which is used to bind and fix the power cable. The power cable clip is installed before shipment.	-

Functions and Features

Table 4-197 Functions and features of the PAC600S12-EB

Functions and Features	Description
Input undervoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overvoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Overtemperature protection	When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range.
Heat dissipation	The heat dissipation is provided by the fan of the power module.
Hot swap	The device has 1+1 power module redundancy. You can hot-swap a power module without interrupting device operation.

Technical Specifications

Table 4-198 Technical specifications of the PAC600S12-EB

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	39.6 mm x 90 mm x 214.5 mm (1.56 in. x 3.54 in. x 8.45 in.)
Weight without packaging [kg(lb)]	0.985 kg (2.17 lb)
Rated input voltage [V]	100 V AC to 240 V AC (50 Hz/60 Hz)
Input voltage range [V]	90 V AC to 290 V AC (47 Hz to 63 Hz)
Maximum input current [A]	8 A
Rated output voltage [V]	12 V
Rated output current [A]	50 A
Rated output power [W]	600 W
Hot swapping	Supported
Type of power cables	C13

4.2.11 PAC60S12-AR (60W AC Power Module)

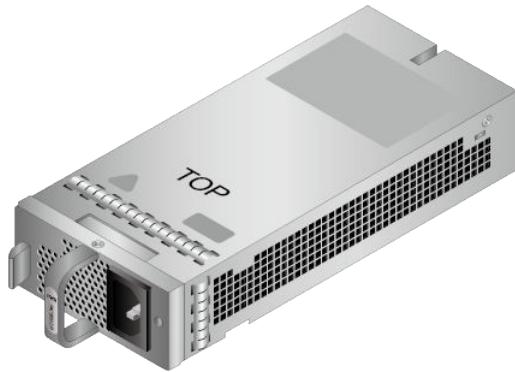
Overview

Table 4-199 Basic information about the PAC60S12-AR

Item	Details
Description	60W AC Power Module
Part Number	02312SLE
Model	PAC60S12-AR

Appearance

Figure 4-159 Appearance of the PAC60S12-AR



Version Mapping

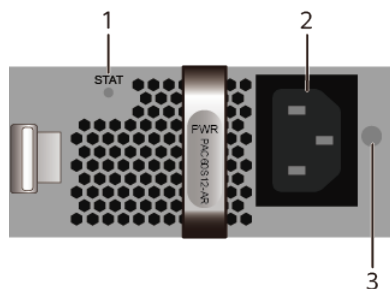
Table 4-200 Mappings between PAC60S12-AR and product models

Product	Product Model	First Supported Version
USG6585E	USG6585E-AC (02353ADA)	V600R007C00
USG6585E	USG6585E-AC (02353ADA-001)	V600R007C20SPC500
USG6585E	USG6585E-AC (02353ADA-002)	V600R007C20SPC600
USG6525E	USG6525E-AC (02353AFX)	V600R007C00
USG6525E	USG6525E-AC (02353AFX-001)	V600R007C20SPC500
USG6525E	USG6525E-AC (02353AFX-002)	V600R007C20SPC600
USG6565E	USG6565E-AC (02353AEJ)	V600R007C00
USG6565E	USG6565E-AC (02353AEJ-001)	V600R007C20SPC500
USG6565E	USG6565E-AC (02353AEJ-002)	V600R007C20SPC600
USG6555E	USG6555E-AC (02353AEK)	V600R007C00
USG6555E	USG6555E-AC (02353AEK-001)	V600R007C20SPC500

Product	Product Model	First Supported Version
USG6555E	USG6555E-AC (02353AEK-004)	V600R007C20SPC600

Panel

Figure 4-160 Panel of the PAC60S12-AR



1. Power status indicator	2. Power receptacle	3. Clip hole
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Table 4-201 Indicators on the PAC60S12-AR

Silkscreen	Name	Color	Status	Description
STAT	Power status indicator	Green	Steady on	The output of the AC power module is normal.
		Green	Blinking	The output power is out of range. For example, overvoltage, overcurrent, or short circuit has occurred.

Silkscreen	Name	Color	Status	Description
		-	Off	<ul style="list-style-type: none"> The input of the AC power module is out of range. For example, no AC input, AC input overvoltage, or AC input undervoltage has occurred. The output of the AC power module is out of range. For example, undervoltage, or overtemperature has occurred.

Table 4-202 Ports on the PAC60S12-AR

Port	Connector Type	Description	Available Components
Power receptacle	-	Connects the C13 plug of the AC power cable. For details, see AC Power Cables.	-
Clip hole	-	The hole is used to install the power cable clip, which is used to bind and fix the power cable. The power cable clip is installed before shipment.	-

Functions and Features

Table 4-203 Functions and features of the PAC60S12-AR

Functions and Features	Description
Input undervoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Output short circuit protection	Intermittently provides output and automatically restores normal output after the output short circuit is removed.
Overtemperature protection	When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range.
Heat dissipation	Power module does not have fans. The heat dissipation is provided by the fan module of the device.
Hot swap	The device has 1+1 power module redundancy. You can hot-swap a 170 W power module without interrupting device operation.

Technical Specifications

Table 4-204 Technical specifications of the PAC60S12-AR

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	39.8 mm x 90 mm x 214.3 mm (1.57 in. x 3.54 in. x 8.43 in.)
Weight without packaging [kg(lb)]	0.68 kg (1.5 lb)
Number of inputs	1
Rated input voltage [V]	100 V AC to 240 V AC (50 Hz/60 Hz)
Input voltage range [V]	90 V AC to 264 V AC (47 Hz to 63 Hz)
Maximum input current [A]	2 A
Rated output voltage [V]	12 V
Rated output current [A]	5 A
Rated output power [W]	60 W
Hot swapping	Supported
Type of power cables	C13

4.2.12 PAC60S12-R (60W AC Power Module)

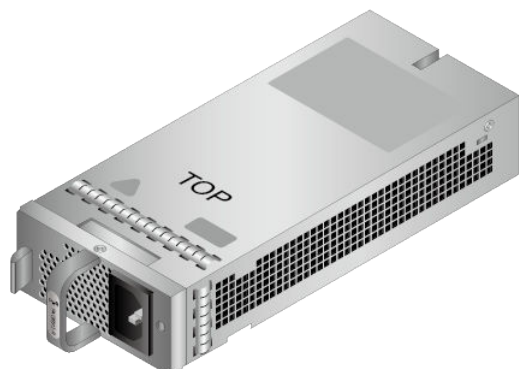
Overview

Table 4-205 Basic information about the PAC60S12-R

Item	Details
Description	60W AC Power Module
Part Number	02312DVA
Model	PAC60S12-R

Appearance

Figure 4-161 Appearance of the PAC60S12-R



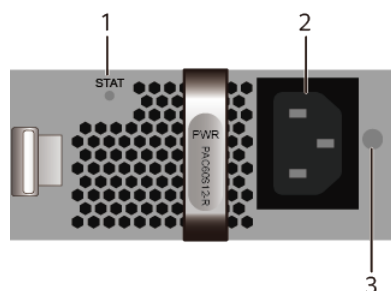
Version Mapping

Table 4-206 Mappings between PAC60S12-R and product models

Product	Product Model	First Supported Version
USG6560E	USG6560E-AC (02352CBR)	V600R006C00
USG6550E	USG6550E-AC (02352CBQ)	V600R006C00
USG6585E	USG6585E-AC (02353ADA)	V600R007C00
USG6580E	USG6580E-AC (02352CBS)	V600R006C00
USG6525E	USG6525E-AC (02353AFX)	V600R007C00
USG6515E	USG6515E-AC (02352CBP)	V600R006C00
USG6565E	USG6565E-AC (02353AEJ)	V600R007C00
USG6555E	USG6555E-AC (02353AEK)	V600R007C00

Panel

Figure 4-162 Panel of the PAC60S12-R



1. Power status indicator	2. Power receptacle	3. Clip hole
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Table 4-207 Indicators on the PAC60S12-R

Silkscreen	Name	Color	Status	Description
STAT	Power status indicator	Green	Steady on	The output of the AC power module is normal.
		Green	Blinking	The output power is out of range. For example, overvoltage, overcurrent, or short circuit has occurred.

Silkscreen	Name	Color	Status	Description
		-	Off	<ul style="list-style-type: none"> The input of the AC power module is out of range. For example, no AC input, AC input overvoltage, or AC input undervoltage has occurred. The output of the AC power module is out of range. For example, undervoltage, or overtemperature has occurred.

Table 4-208 Ports on the PAC60S12-R

Port	Connector Type	Description	Available Components
Power receptacle	-	Connects the C13 plug of the AC power cable. For details, see AC Power Cables.	-
Clip hole	-	The hole is used to install the power cable clip, which is used to bind and fix the power cable. The power cable clip is installed before shipment.	-

Functions and Features

Table 4-209 Functions and features of the PAC60S12-R

Functions and Features	Description
Input undervoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Output short circuit protection	Intermittently provides output and automatically restores normal output after the output short circuit is removed.
Overtemperature protection	When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range.
Heat dissipation	Power module does not have fans. The heat dissipation is provided by the fan module of the device.
Hot swap	The device has 1+1 power module redundancy. You can hot-swap a 170 W power module without interrupting device operation.

Technical Specifications

Table 4-210 Technical specifications of the PAC60S12-R

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	39.8 mm x 90 mm x 214.3 mm (1.57 in. x 3.54 in. x 8.43 in.)
Weight without packaging [kg(lb)]	0.65 kg (1.43 lb)
Number of inputs	1
Rated input voltage [V]	100 V AC to 240 V AC (50 Hz/60 Hz)
Input voltage range [V]	90 V AC to 264 V AC (47 Hz to 63 Hz)
Maximum input current [A]	2 A
Rated output voltage [V]	12 V
Rated output current [A]	5 A
Rated output power [W]	60 W
Hot swapping	Supported
Type of power cables	C13

4.2.13 PDC1000S12-CB (1000W DC Power Module(Back to Front,Power panel side exhaust))

Overview

Table 4-211 Basic information about the PDC1000S12-CB

Item	Details
Description	1000W DC Power Module(Back to Front,Power panel side exhaust)
Part Number	02312JVG
Model	PDC1000S12-CB

Appearance

Figure 4-163 Appearance of the PDC1000S12-CB



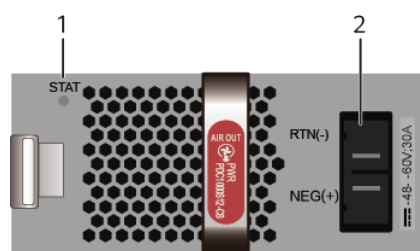
Version Mapping

Table 4-212 Mappings between PDC1000S12-CB and product models

Product	Product Model	First Supported Version
USG6635E	USG6635E-DC (02352RQE)	V600R007C20
USG6630E	USG6630E-DC (02352CKV-001)	V600R007C20SPC300
USG6630E	USG6630E-DC (02352CKV-002)	V600R007C20SPC600

Panel

Figure 4-164 Panel of the PDC1000S12-CB



1. Power status indicator	2. Power receptacle
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Table 4-213 Indicators on the PDC1000S12-CB

Silkscreen	Name	Color	Status	Description
STAT	Power status indicator	Green	Steady on	The output of the DC power module is normal.
		Green	Blinking	The output power is out of range. For example, overvoltage, overcurrent, or short circuit has occurred.
		-	Off	<ul style="list-style-type: none"> The input of the DC power module is out of range. For example, no DC input, DC input overvoltage, or DC input undervoltage has occurred. The output of the DC power module is out of range. For example, undervoltage, or overtemperature has occurred.

Table 4-214 Ports on the PDC1000S12-CB

Port	Connector Type	Description	Available Components
Power cable terminal	-	Connect the black wire to the RTN (+) terminal and the blue wire to the NEG (-) terminal. For details, see DC Power Cables.	-

Functions and Features

Table 4-215 Functions and features of the PDC1000S12-CB

Functions and Features	Description
Input undervoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overvoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overcurrent protection	Stops power output and does not automatically restore power output after the input current becomes normal.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Output short circuit protection	Intermittently provides output and automatically restores normal output after the output short circuit is removed.
Overtemperature protection	When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range.

Functions and Features	Description
Heat dissipation	The heat dissipation is provided by the fan of the power module.
Hot swap	The device has 1+1 power module redundancy. You can hot-swap a power module without interrupting device operation.

Technical Specifications

Table 4-216 Technical specifications of the PDC1000S12-CB

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	39.8 mm x 90 mm x 215 mm (1.57 in. x 3.54 in. x 8.46 in.)
Weight without packaging [kg(lb)]	1 kg (2.2 lb)
Number of inputs	1
Rated input voltage [V]	-48V DC to -60V DC
Input voltage range [V]	-38.4V DC to -72V DC
Maximum input current [A]	30 A
Rated output voltage [V]	12 V
Rated output power [W]	1000 W
Hot swapping	Supported

4.2.14 PDC350S12-B (350W DC Power Module)

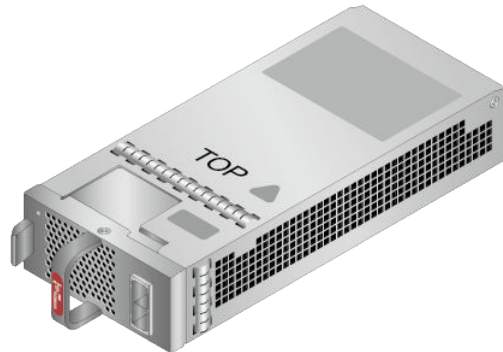
Overview

Table 4-217 Basic information about the PDC350S12-B

Item	Details
Description	350W DC Power Module
Part Number	02312DVB
Model	PDC350S12-B

Appearance

Figure 4-165 Appearance of the PDC350S12-B



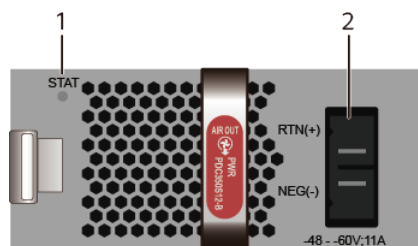
Version Mapping

Table 4-218 Mappings between PDC350S12-B and product models

Product	Product Model	First Supported Version
USG6630E	USG6630E-DC (02352CKV)	V600R006C00

Panel

Figure 4-166 Panel of the PDC350S12-B



1. Power status indicator	2. Power receptacle
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Table 4-219 Indicators on the PDC350S12-B

Silkscreen	Name	Color	Status	Description
STAT	Power status indicator	Green	Steady on	The output of the DC power module is normal.

Silkscreen	Name	Color	Status	Description
		-	Off	<ul style="list-style-type: none"> The input of the DC power module is out of range. For example, no DC input, DC input overvoltage, or DC input undervoltage has occurred. The output of the DC power module is out of range. For example, undervoltage, or overtemperature has occurred.

Table 4-220 Ports on the PDC350S12-B

Port	Connector Type	Description	Available Components
Power cable terminal	-	Connect the black wire to the RTN (+) terminal and the blue wire to the NEG (-) terminal. For details, see DC Power Cables.	-

Functions and Features

Table 4-221 Functions and features of the PDC350S12-B

Functions and Features	Description
Input undervoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overvoltage protection	Stops power output and automatically restores power output after the input voltage becomes normal.
Input overcurrent protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output current limiting protection	Intermittently provides output and automatically restores normal output after the output current falls within a normal range.
Output overvoltage protection	Intermittently stops output and automatically restores output after the overvoltage condition is removed.
Output short circuit protection	Intermittently provides output and automatically restores normal output after the output short circuit is removed.
Overtemperature protection	When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range.
Hot swap	The device has 1+1 power module redundancy. You can hot-swap a power module without interrupting device operation.

Technical Specifications

Table 4-222 Technical specifications of the PDC350S12-B

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	39.8 mm x 90 mm x 215 mm (1.57 in. x 3.54 in. x 8.46 in.)

Item	Specification
Weight without packaging [kg(lb)]	0.689 kg (1.52 lb)
Number of inputs	1
Rated input voltage [V]	-48V DC to -60V DC
Input voltage range [V]	-38.4V DC to -72V DC
Maximum input current [A]	11 A
Rated output voltage [V]	12 V
Rated output power [W]	350 W
Hot swapping	Supported

4.3 Fan Modules

This chapter describes hardware information for all fan modules of the USG6000E, including hardware appearance, and technical specifications.

4.3.1 FAN-023A-B (Fan Box,FAN-023A-B,Fan Box,Fan box(B,FAN panel side exhaust))

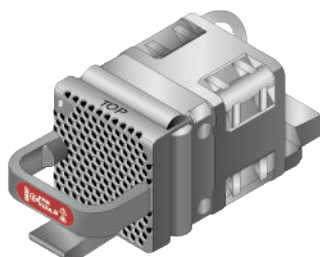
Overview

Table 4-223 Basic information about the FAN-023A-B

Item	Details
Description	Fan Box,FAN-023A-B,Fan Box,Fan box(B,FAN panel side exhaust)
Part Number	02312DKW
Model	FAN-023A-B

Appearance

Figure 4-167 Appearance of the FAN-023A-B



Version Mapping

Table 4-224 Mappings between FAN-023A-B and product models

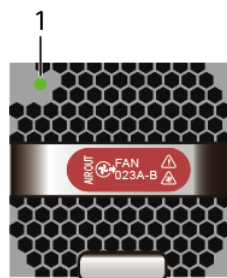
Product	Product Model	First Supported Version
USG6560E	USG6560E-AC (02352CBR)	V600R006C00
USG6550E	USG6550E-AC (02352CBQ)	V600R006C00
USG6580E	USG6580E-AC (02352CBS)	V600R006C00
USG6575E-B	USG6575E-B-AC (02353LKD)	V600R007C20
USG6575E-B	USG6575E-B-AC (02353LKD-002)	V600R007C20SPC600
USG6525E	USG6525E-AC (02353AFX)	V600R007C00
USG6525E	USG6525E-AC (02353AFX-001)	V600R007C20SPC500
USG6525E	USG6525E-AC (02353AFX-002)	V600R007C20SPC600
USG6515E	USG6515E-AC (02352CBP)	V600R006C00
USG6630E	USG6630E-AC (02352FQA)	V600R006C00
USG6630E	USG6630E-DC (02352CKV)	V600R006C00
USG6630E	USG6630E-AC (02352FQA-001)	V600R007C20SPC300
USG6630E	USG6630E-DC (02352CKV-001)	V600R007C20SPC300
USG6630E	USG6630E-AC (02352FQA-002)	V600R007C20SPC600
USG6630E	USG6630E-DC (02352CKV-002)	V600R007C20SPC600
USG6565E	USG6565E-AC (02353AEJ)	V600R007C00
USG6565E	USG6565E-AC (02353AEJ-001)	V600R007C20SPC500

Product	Product Model	First Supported Version
USG6565E	USG6565E-AC (02353AEJ-002)	V600R007C20SPC600
USG6620E	USG6620E-AC (02352HMF)	V600R007C20SPC100
USG6620E	USG6620E-AC (02352HMF-001)	V600R007C20SPC300
USG6620E	USG6620E-AC (02352HMF-002)	V600R007C20SPC600
USG6555E	USG6555E-AC (02353AEK)	V600R007C00
USG6555E	USG6555E-AC (02353AEK-001)	V600R007C20SPC500
USG6555E	USG6555E-AC (02353AEK-004)	V600R007C20SPC600
USG6610E	USG6610E-AC (02352HMD)	V600R007C20SPC100
USG6610E	USG6610E-AC (02352HMD-001)	V600R007C20SPC300
USG6610E	USG6610E-AC (02352HMD-002)	V600R007C20SPC600
USG6650E	USG6650E-AC (02351YRY)	V600R006C00
USG6650E	USG6650E-AC (02351YRY-001)	V600R007C20SPC300
USG6650E	USG6650E-AC (02351YRY-002)	V600R007C20SPC600
USG6585E	USG6585E-AC (02353ADA)	V600R007C00
USG6585E	USG6585E-AC (02353ADA-001)	V600R007C20SPC500
USG6585E	USG6585E-AC (02353ADA-002)	V600R007C20SPC600
USG6605E-B	USG6605E-B-AC (02353PSK)	V600R007C20
USG6605E-B	USG6605E-B-AC (02353PSK-001)	V600R007C20SPC600
USG6635E	USG6635E-DC (02352RQE)	V600R007C20

Product	Product Model	First Supported Version
USG6635E	USG6635E-AC (02352RQD)	V600R007C00
USG6625E	USG6625E-AC (02352RQN)	V600R007C00
USG6615E	USG6615E-AC (02352RQL)	V600R007C00
USG6655E	USG6655E-AC (02352RPS)	V600R007C00

Panel

Figure 4-168 Panel of the FAN-023A-B



1. FAN indicator

Table 4-225 Indicators on the FAN-023A-B

Silkscreen	Name	Color	Status	Description
-	FAN indicator	Green	Blink every two seconds (0.5 Hz)	The fan module is running normally.

Silkscreen	Name	Color	Status	Description
		Red	Steady on	The fan module is faulty. For example, the fans stop running or are blocked, the power supply of the fan is abnormal, the rotation speed of the fan does not match, or the fan module is not in position. For details, see SRM_ENTITY_1.3.6.1.4.1.201 1.5.25.219.2.6.1 hwFanRemove_137216, SRM_ENTITY_1.3.6.1.4.1.201 1.5.25.219.2.6.5 hwFanInvalid_139264, SRM_ENTITY_1.3.6.1.4.1.201 1.5.25.219.2.6.5 hwFanInvalid_139267.

Silkscreen	Name	Color	Status	Description
		Red	Blink every two seconds (0.5 Hz)	The fan module generates an alarm, for example, indicating the air extraction and blowing mode is incorrect. s, see SRM_ENTITY_1.3.6.1.4.1.201 1.5.25.219.2.6.5 hwFanInvalid_139265.
		-	Off	The fan module is not installed.

Functions and Features

Table 4-226 Functions and features of the FAN-023A-B

Functions and Features	Description
Basic function	The fan module supports hot swapping. It consists of the fan module frame, fan, and light pipe.

Technical Specifications

Table 4-227 Technical specifications of the FAN-023A-B

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	40 mm x 40 mm x 100.3 mm (1.57 in. x 1.57 in. x 3.95 in.)
Weight without packaging [kg(lb)]	0.1 kg (0.22 lb)
Number of fans	1
Typical power consumption [W]	7.2 W

Item	Specification
Maximum power consumption (40°C) [W]	8.64 W
Operating voltage range [V]	7 V DC to 15 V DC
Maximum airflow [CFM]	25.29 CFM
Maximum noise level [dB(A)]	59 dB(A)
Maximum wind pressure [Pa]	531.94 Pa

4.3.2 FAN-036A-B (FAN-036A-B, Fan Box, Fan box(B, FAN panel side exhaust))

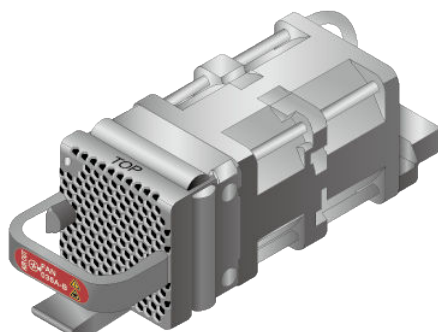
Overview

Table 4-228 Basic information about the FAN-036A-B

Item	Details
Description	FAN-036A-B, Fan Box, Fan box(B, FAN panel side exhaust)
Part Number	02312EYW
Model	FAN-036A-B

Appearance

Figure 4-169 Appearance of the FAN-036A-B



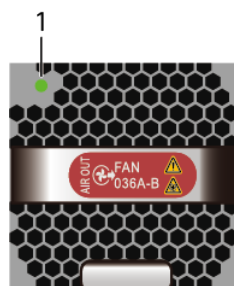
Version Mapping

Table 4-229 Mappings between FAN-036A-B and product models

Product	Product Model	First Supported Version
USG6716E	USG6716E-AC (02351YRS)	V600R006C00
USG6716E	USG6716E-AC (02351YRS-001)	V600R007C20SPC600
USG6680E	USG6680E-AC (02351YRR)	V600R006C00
USG6680E	USG6680E-AC (02351YRR-001)	V600R007C20SPC600
USG6712E	USG6712E-AC (02352CNL)	V600R006C00
USG6712E	USG6712E-AC (02352CNL-001)	V600R007C20SPC600

Panel

Figure 4-170 Panel of the FAN-036A-B



1. FAN indicator

Table 4-230 Indicators on the FAN-036A-B

Silkscreen	Name	Color	Status	Description
-	FAN indicator	Green	Blink every two seconds (0.5 Hz)	The fan module is running normally.

Silkscreen	Name	Color	Status	Description
		Red	Steady on	The fan module is faulty. For example, the fans stop running or are blocked, the power supply of the fan is abnormal, the rotation speed of the fan does not match, or the fan module is not in position. For details, see SRM_ENTITY_1.3.6.1.4.1.201 1.5.25.219.2.6.1 hwFanRemove_137216, SRM_ENTITY_1.3.6.1.4.1.201 1.5.25.219.2.6.5 hwFanInvalid_139264, SRM_ENTITY_1.3.6.1.4.1.201 1.5.25.219.2.6.5 hwFanInvalid_139267.

Silkscreen	Name	Color	Status	Description
		Red	Blink every two seconds (0.5 Hz)	The fan module generates an alarm, for example, indicating the air extraction and blowing mode is incorrect. s, see SRM_ENTITY_1.3.6.1.4.1.201 1.5.25.219.2.6.5 hwFanInvalid_139265.
		-	Off	The fan module is not installed.

Functions and Features

Table 4-231 Functions and features of the FAN-036A-B

Functions and Features	Description
Basic function	The fan module supports hot swapping. It consists of the fan module frame, fan, and light pipe.

Technical Specifications

Table 4-232 Technical specifications of the FAN-036A-B

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	40 mm x 40 mm x 128.3 mm (1.57 in. x 1.57 in. x 5.05 in.)
Weight without packaging [kg(lb)]	0.7 kg (1.54 lb)
Number of fans	1
Typical power consumption [W]	28 W

Item	Specification
Maximum power consumption (40°C) [W]	33.6 W
Operating voltage range [V]	10.8 V DC to 13.2 V DC
Maximum airflow [CFM]	36 CFM
Maximum noise level [dB(A)]	69.8 dB(A)
Maximum wind pressure [Pa]	950 Pa

4.4 Storage Devices

This chapter describes hardware information for hard disk modules of the USG6000E, including hardware appearance, functions, and technical specifications.

4.4.1 Hard Disk

4.4.1.1 HDD-SATA1000G-A (HardDisk-1000GB-SATA-7200rpm-2.5"-64M-hot-swap-built-in-Front Panel-Silver)

Overview

Table 4-233 Basic information about the HDD-SATA1000G-A

Item	Details
Description	HardDisk-1000GB-SATA-7200rpm-2.5"-64M-hot-swap-built-in-Front Panel-Silver
Part Number	02312DLF
Model	HDD-SATA1000G-A
Silkscreen	SATA 1000GB 7.2K 02312DLF

Appearance

Figure 4-171 Appearance of the HDD-SATA1000G-A



Version Mapping

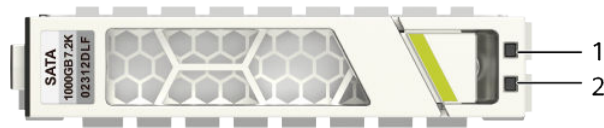
Table 4-234 Mappings between HDD-SATA1000G-A and product models

Product	Product Model	First Supported Version
USG6575E-B	USG6575E-B-AC (02353LKD)	V600R007C20
USG6575E-B	USG6575E-B-AC (02353LKD-002)	V600R007C20SPC600
USG6630E	USG6630E-AC (02352FQA)	V600R006C00
USG6630E	USG6630E-DC (02352CKV)	V600R006C00
USG6630E	USG6630E-AC (02352FQA-001)	V600R007C20SPC300
USG6630E	USG6630E-DC (02352CKV-001)	V600R007C20SPC300
USG6630E	USG6630E-AC (02352FQA-002)	V600R007C20SPC600
USG6630E	USG6630E-DC (02352CKV-002)	V600R007C20SPC600
USG6620E	USG6620E-AC (02352HMF)	V600R007C20SPC100
USG6620E	USG6620E-AC (02352HMF-001)	V600R007C20SPC300
USG6620E	USG6620E-AC (02352HMF-002)	V600R007C20SPC600
USG6610E	USG6610E-AC (02352HMD)	V600R007C20SPC100
USG6610E	USG6610E-AC (02352HMD-001)	V600R007C20SPC300

Product	Product Model	First Supported Version
USG6610E	USG6610E-AC (02352HMD-002)	V600R007C20SPC600
USG6650E	USG6650E-AC (02351YRY)	V600R006C00
USG6650E	USG6650E-AC (02351YRY-001)	V600R007C20SPC300
USG6650E	USG6650E-AC (02351YRY-002)	V600R007C20SPC600
USG6680E	USG6680E-AC (02351YRR)	V600R006C00
USG6680E	USG6680E-AC (02351YRR-001)	V600R007C20SPC600
USG6605E-B	USG6605E-B-AC (02353PSK)	V600R007C20
USG6605E-B	USG6605E-B-AC (02353PSK-001)	V600R007C20SPC600
USG6716E	USG6716E-AC (02351YRS)	V600R006C00
USG6716E	USG6716E (02351YRS-001)	V600R007C20SPC600
USG6635E	USG6635E-DC (02352RQE)	V600R007C20
USG6635E	USG6635E-AC (02352RQD)	V600R007C00
USG6712E	USG6712E-AC (02352CNL)	V600R006C00
USG6712E	USG6712E (02352CNL-001)	V600R007C20SPC600
USG6625E	USG6625E-AC (02352RQN)	V600R007C00
USG6615E	USG6615E-AC (02352RQL)	V600R007C00
USG6655E	USG6655E-AC (02352RPS)	V600R007C00

Panel

Figure 4-172 Panel of the HDD-SATA1000G-A



1. ALM indicator	2. RUN indicator
------------------	------------------

Table 4-235 Indicators on the HDD-SATA1000G-A

Silkscreen	Name	Color	Status	Description
-	ALM indicator	Orange	Steady on	The hard disk fails.
		-	Off	The hard disk is running properly. The hard disk fails.
-	RUN indicator	Green	Steady on	The hard disk is running. The hard disk is running properly. The hard disk fails.
		Green	Blinking	Data is being read from or written to the hard disk. The hard disk is running. The hard disk is running properly. The hard disk fails.

Silkscreen	Name	Color	Status	Description
		-	Off	The hard disk is not detected or the power cable is disconnected.

Functions and Features

Table 4-236 Functions and features of the HDD-SATA1000G-A

Functions and Features	Description
Basic functions	Storage log.
Hot swap	Hot swap is supported, but hard disks cannot be directly swapped or removed. Run the disk offline command. Remove the hard disk about 30 seconds after the system displays a message indicating that the hard disk stops working. Alternatively, press and hold the OFL button for about 4 seconds until the OFL indicator is on, and then remove the hard disk unit. Otherwise, the hard disk may be damaged, data may be lost, and the system may crash.
Restrictions and limitations	Do not low-level format the hard disk. Otherwise, the hard disk cannot be used.

Technical Specifications

Table 4-237 Technical specifications of the HDD-SATA1000G-A

Item	Specification
Form factor	2.5 inch
Dimensions without packaging (H x W x D) [mm(in.)]	15 mm x 75 mm x 130 mm (0.59 in. x 2.95 in. x 5.12 in.)
Weight without packaging [kg(lb)]	0.135 kg (0.3 lb)
Storage capacity [GB]	1000

Item	Specification
Port type	SATA
Maximum power consumption [W]	16.72 W
Maximum heat dissipation [BTU/hour]	57.03 BTU/hour

4.4.1.2 M.2-SATA240G-A (M.2 SSD,SATA 6Gb/s-240GB,Hot-Swappable)

Overview

Table 4-238 Basic information about the M.2-SATA240G-A

Item	Details
Description	M.2 SSD,SATA 6Gb/s-240GB,Hot-Swappable
Part Number	02312DLK
Model	M.2-SATA240G-A

Appearance

Figure 4-173 Appearance of the M.2-SATA240G-A



Version Mapping

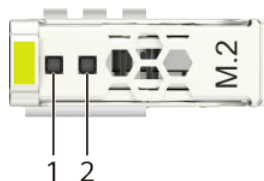
Table 4-239 Mappings between M.2-SATA240G-A and product models

Product	Product Model	First Supported Version
USG6560E	USG6560E-AC (02352CBR)	V600R006C00
USG6550E	USG6550E-AC (02352CBQ)	V600R006C00
USG6585E	USG6585E-AC (02353ADA)	V600R007C00

Product	Product Model	First Supported Version
USG6585E	USG6585E-AC (02353ADA-001)	V600R007C20SPC500
USG6585E	USG6585E-AC (02353ADA-002)	V600R007C20SPC600
USG6580E	USG6580E-AC (02352CBS)	V600R006C00
USG6525E	USG6525E-AC (02353AFX)	V600R007C00
USG6525E	USG6525E-AC (02353AFX-001)	V600R007C20SPC500
USG6525E	USG6525E-AC (02353AFX-002)	V600R007C20SPC600
USG6515E	USG6515E-AC (02352CBP)	V600R006C00
USG6565E	USG6565E-AC (02353AEJ)	V600R007C00
USG6565E	USG6565E-AC (02353AEJ-001)	V600R007C20SPC500
USG6565E	USG6565E-AC (02353AEJ-002)	V600R007C20SPC600
USG6555E	USG6555E-AC (02353AEK)	V600R007C00
USG6555E	USG6555E-AC (02353AEK-001)	V600R007C20SPC500
USG6555E	USG6555E-AC (02353AEK-004)	V600R007C20SPC600

Panel

Figure 4-174 Panel of the M.2-SATA240G-A



1. ALM indicator	2. RUN indicator
------------------	------------------

Table 4-240 Indicators on the M.2-SATA240G-A

Silkscreen	Name	Color	Status	Description
-	ALM indicator	Orange	Steady on	The hard disk fails.
		-	Off	The hard disk is running properly. The hard disk fails.
-	RUN indicator	Green	Steady on	The hard disk is running. The hard disk is running properly. The hard disk fails.
		Green	Blinking	Data is being read from or written to the hard disk. The hard disk is running. The hard disk is running properly. The hard disk fails.
		-	Off	The hard disk is not detected or the power cable is disconnected.

Functions and Features

Table 4-241 Functions and features of the M.2-SATA240G-A

Functions and Features	Description
Basic functions	Storage log.
Hot swap	Supports hot swap.

Functions and Features	Description
Restrictions and limitations	Do not low-level format the hard disk. Otherwise, the hard disk cannot be used.

Technical Specifications

Table 4-242 Technical specifications of the M.2-SATA240G-A

Item	Specification
Form factor	M.2
Dimensions without packaging (H x W x D) [mm(in.)]	10 mm x 25 mm x 110 mm (0.39 in. x 0.98 in. x 4.33 in.)
Weight without packaging [kg(lb)]	0.1 kg (0.22 lb)
Storage capacity [GB]	240
Port type	SATA
Maximum power consumption [W]	5 W
Maximum heat dissipation [BTU/hour]	5 BTU/hour

4.4.1.3 M.2-SATA64G-A (M.2 SSD,SATA 6Gb/s-64GB,Hot-Swappable)

Overview

Table 4-243 Basic information about the M.2-SATA64G-A

Item	Details
Description	M.2 SSD,SATA 6Gb/s-64GB,Hot-Swappable
Part Number	02312DLJ
Model	M.2-SATA64G-A

Appearance

Figure 4-175 Appearance of the M.2-SATA64G-A



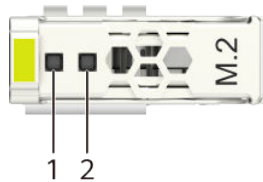
Version Mapping

Table 4-244 Mappings between M.2-SATA64G-A and product models

Product	Product Model	First Supported Version
USG6525E	USG6525E-AC (02353AFX)	V600R007C00
USG6525E	USG6525E-AC (02353AFX-001)	V600R007C20SPC500
USG6525E	USG6525E-AC (02353AFX-002)	V600R007C20SPC600
USG6515E	USG6515E-AC (02352CBP)	V600R006C00

Panel

Figure 4-176 Panel of the M.2-SATA64G-A



1. ALM indicator	2. RUN indicator
------------------	------------------

Table 4-245 Indicators on the M.2-SATA64G-A

Silkscreen	Name	Color	Status	Description
-	ALM indicator	Orange	Steady on	The hard disk fails.
		-	Off	The hard disk is running properly. The hard disk fails.

Silkscreen	Name	Color	Status	Description
-	RUN indicator	Green	Steady on	The hard disk is running. The hard disk is running properly. The hard disk fails.
		Green	Blinking	Data is being read from or written to the hard disk. The hard disk is running. The hard disk is running properly. The hard disk fails.
		-	Off	The hard disk is not detected or the power cable is disconnected.

Functions and Features

Table 4-246 Functions and features of the M.2-SATA64G-A

Functions and Features	Description
Basic functions	Storage log.
Hot swap	Supports hot swap.
Restrictions and limitations	Do not low-level format the hard disk. Otherwise, the hard disk cannot be used.

Technical Specifications

Table 4-247 Technical specifications of the M.2-SATA64G-A

Item	Specification
Form factor	M.2
Dimensions without packaging (H x W x D) [mm(in.)]	10 mm x 25 mm x 110 mm (0.39 in. x 0.98 in. x 4.33 in.)
Weight without packaging [kg(lb)]	0.1 kg (0.22 lb)
Storage capacity [GB]	64
Port type	SATA
Maximum power consumption [W]	2.7 W
Maximum heat dissipation [BTU/hour]	2.7 BTU/hour

4.4.1.4 SSD-Sata240G-A (SSD,240GB,SATA 6Gb/s,Read Intensive,2.5inch)

Overview

Table 4-248 Basic information about the SSD-Sata240G-A

Item	Details
Description	SSD,240GB,SATA 6Gb/s,Read Intensive, 2.5inch
Part Number	02312DLH
Model	SSD-Sata240G-A
Silkscreen	SATA 240GB SSD 02312DLH

Appearance

Figure 4-177 Appearance of the SSD-Sata240G-A



Version Mapping

Table 4-249 Mappings between SSD-Sata240G-A and product models

Product	Product Model	First Supported Version
USG6575E-B	USG6575E-B-AC (02353LKD)	V600R007C20
USG6575E-B	USG6575E-B-AC (02353LKD-002)	V600R007C20SPC600
USG6630E	USG6630E-AC (02352FQA)	V600R006C00
USG6630E	USG6630E-DC (02352CKV)	V600R006C00
USG6630E	USG6630E-AC (02352FQA-001)	V600R007C20SPC300
USG6630E	USG6630E-DC (02352CKV-001)	V600R007C20SPC300
USG6630E	USG6630E-AC (02352FQA-002)	V600R007C20SPC600
USG6630E	USG6630E-DC (02352CKV-002)	V600R007C20SPC600
USG6620E	USG6620E-AC (02352HMF)	V600R007C20SPC100
USG6620E	USG6620E-AC (02352HMF-001)	V600R007C20SPC300
USG6620E	USG6620E-AC (02352HMF-002)	V600R007C20SPC600
USG6610E	USG6610E-AC (02352HMD)	V600R007C20SPC100
USG6610E	USG6610E-AC (02352HMD-001)	V600R007C20SPC300
USG6610E	USG6610E-AC (02352HMD-002)	V600R007C20SPC600
USG6650E	USG6650E-AC (02351YRY)	V600R006C00
USG6650E	USG6650E-AC (02351YRY-001)	V600R007C20SPC300
USG6650E	USG6650E-AC (02351YRY-002)	V600R007C20SPC600

Product	Product Model	First Supported Version
USG6680E	USG6680E-AC (02351YRR)	V600R006C00
USG6680E	USG6680E-AC (02351YRR-001)	V600R007C20SPC600
USG6605E-B	USG6605E-B-AC (02353PSK)	V600R007C20
USG6605E-B	USG6605E-B-AC (02353PSK-001)	V600R007C20SPC600
USG6716E	USG6716E-AC (02351YRS)	V600R006C00
USG6716E	USG6716E (02351YRS-001)	V600R007C20SPC600
USG6635E	USG6635E-DC (02352RQE)	V600R007C20
USG6635E	USG6635E-AC (02352RQD)	V600R007C00
USG6712E	USG6712E-AC (02352CNL)	V600R006C00
USG6712E	USG6712E (02352CNL-001)	V600R007C20SPC600
USG6625E	USG6625E-AC (02352RQN)	V600R007C00
USG6615E	USG6615E-AC (02352RQL)	V600R007C00
USG6655E	USG6655E-AC (02352RPS)	V600R007C00

Panel

Figure 4-178 Panel of the SSD-Sata240G-A



1. ALM indicator	2. RUN indicator
------------------	------------------

Table 4-250 Indicators on the SSD-Sata240G-A

Silkscreen	Name	Color	Status	Description
-	ALM indicator	Orange	Steady on	The hard disk fails.
		-	Off	The hard disk is running properly. The hard disk fails.
-	RUN indicator	Green	Steady on	The hard disk is running. The hard disk is running properly. The hard disk fails.
		Green	Blinking	Data is being read from or written to the hard disk. The hard disk is running. The hard disk is running properly. The hard disk fails.
		-	Off	The hard disk is not detected or the power cable is disconnected.

Functions and Features

Table 4-251 Functions and features of the SSD-Sata240G-A

Functions and Features	Description
Basic functions	Storage log.

Functions and Features	Description
Hot swap	Hot swap is supported, but hard disks cannot be directly swapped or removed. Run the disk offline command. Remove the hard disk about 30 seconds after the system displays a message indicating that the hard disk stops working. Alternatively, press and hold the OFL button for about 4 seconds until the OFL indicator is on, and then remove the hard disk unit. Otherwise, the hard disk may be damaged, data may be lost, and the system may crash.
Restrictions and limitations	Do not low-level format the hard disk. Otherwise, the hard disk cannot be used.

Technical Specifications

Table 4-252 Technical specifications of the SSD-Sata240G-A

Item	Specification
Form factor	2.5 inch
Dimensions without packaging (H x W x D) [mm(in.)]	15 mm x 75 mm x 130 mm (0.59 in. x 2.95 in. x 5.12 in.)
Weight without packaging [kg(lb)]	0.135 kg (0.3 lb)
Storage capacity [GB]	240
Port type	SATA
Maximum power consumption [W]	4.36 W
Maximum heat dissipation [BTU/hour]	14.86 BTU/hour

4.4.1.5 SSD-SATA960G-B (SSD 960GB,SATA 6Gb/s,Read Intensive,2.5inch)

Overview

Table 4-253 Basic information about the SSD-SATA960G-B

Item	Details
Description	SSD 960GB,SATA 6Gb/s,Read Intensive, 2.5inch
Part Number	02312YNW
Model	SSD-SATA960G-B
Silkscreen	SATA 960GB SSD 02312YNW

Appearance

Figure 4-179 Appearance of the SSD-SATA960G-B



Version Mapping

Table 4-254 Mappings between SSD-SATA960G-B and product models

Product	Product Model	First Supported Version
USG6575E-B	USG6575E-B-AC (02353LKD)	V600R007C20
USG6575E-B	USG6575E-B-AC (02353LKD-002)	V600R007C20SPC600
USG6630E	USG6630E-AC (02352FQA)	V600R007C20
USG6630E	USG6630E-DC (02352CKV)	V600R007C20
USG6630E	USG6630E-AC (02352FQA-001)	V600R007C20SPC300
USG6630E	USG6630E-DC (02352CKV-001)	V600R007C20SPC300

Product	Product Model	First Supported Version
USG6630E	USG6630E-AC (02352FQA-002)	V600R007C20SPC600
USG6630E	USG6630E-DC (02352CKV-002)	V600R007C20SPC600
USG6620E	USG6620E-AC (02352HMF)	V600R007C20SPC100
USG6620E	USG6620E-AC (02352HMF-001)	V600R007C20SPC300
USG6620E	USG6620E-AC (02352HMF-002)	V600R007C20SPC600
USG6610E	USG6610E-AC (02352HMD)	V600R007C20SPC100
USG6610E	USG6610E-AC (02352HMD-001)	V600R007C20SPC300
USG6610E	USG6610E-AC (02352HMD-002)	V600R007C20SPC600
USG6650E	USG6650E-AC (02351YRY)	V600R007C20
USG6650E	USG6650E-AC (02351YRY-001)	V600R007C20SPC300
USG6650E	USG6650E-AC (02351YRY-002)	V600R007C20SPC600
USG6680E	USG6680E-AC (02351YRR)	V600R007C20
USG6680E	USG6680E-AC (02351YRR-001)	V600R007C20SPC600
USG6605E-B	USG6605E-B-AC (02353PSK)	V600R007C20
USG6605E-B	USG6605E-B-AC (02353PSK-001)	V600R007C20SPC600
USG6716E	USG6716E-AC (02351YRS)	V600R007C20
USG6716E	USG6716E (02351YRS-001)	V600R007C20SPC600
USG6635E	USG6635E-DC (02352RQE)	V600R007C20
USG6635E	USG6635E-AC (02352RQD)	V600R007C20

Product	Product Model	First Supported Version
USG6712E	USG6712E-AC (02352CNL)	V600R007C20
USG6712E	USG6712E (02352CNL-001)	V600R007C20SPC600
USG6625E	USG6625E-AC (02352RQN)	V600R007C20
USG6615E	USG6615E-AC (02352RQL)	V600R007C20
USG6655E	USG6655E-AC (02352RPS)	V600R007C20

Panel

Figure 4-180 Panel of the SSD-SATA960G-B



1. ALM indicator	2. RUN indicator
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Table 4-255 Indicators on the SSD-SATA960G-B

Silkscreen	Name	Color	Status	Description
-	ALM indicator	Orange	Steady on	The hard disk fails.
		-	Off	The hard disk is running properly. The hard disk fails.
-	RUN indicator	Green	Steady on	The hard disk is running. The hard disk is running properly. The hard disk fails.

Silkscreen	Name	Color	Status	Description
		Green	Blinking	Data is being read from or written to the hard disk. The hard disk is running. The hard disk is running properly. The hard disk fails.
		-	Off	The hard disk is not detected or the power cable is disconnected.

Functions and Features

Table 4-256 Functions and features of the SSD-SATA960G-B

Functions and Features	Description
Basic functions	Storage log.
Hot swap	Hot swap is supported, but hard disks cannot be directly swapped or removed. Run the disk offline command. Remove the hard disk about 30 seconds after the system displays a message indicating that the hard disk stops working. Alternatively, press and hold the OFL button for about 4 seconds until the OFL indicator is on, and then remove the hard disk unit. Otherwise, the hard disk may be damaged, data may be lost, and the system may crash.
Restrictions and limitations	Do not low-level format the hard disk. Otherwise, the hard disk cannot be used.

Technical Specifications

Table 4-257 Technical specifications of the SSD-SATA960G-B

Item	Specification
Form factor	2.5 inch
Dimensions without packaging (H x W x D) [mm(in.)]	15 mm x 75 mm x 130 mm (0.59 in. x 2.95 in. x 5.12 in.)
Weight without packaging [kg(lb)]	0.135 kg (0.3 lb)
Storage capacity [GB]	960
Port type	SATA
Maximum power consumption [W]	5.23 W
Maximum heat dissipation [BTU/hour]	17.85 BTU/hour

4.4.1.6 SSD-SATA240G-C (SSD-SATA240G-C-Solid State Drives,2.5inch)

Overview

Table 4-258 Basic information about the SSD-SATA240G-C

Item	Details
Description	SSD-SATA240G-C-Solid State Drives, 2.5inch
Part Number	02313XED
Model	SSD-SATA240G-C
Silkscreen	M.2

Appearance

Figure 4-181 Appearance of the SSD-SATA240G-C



Version Mapping

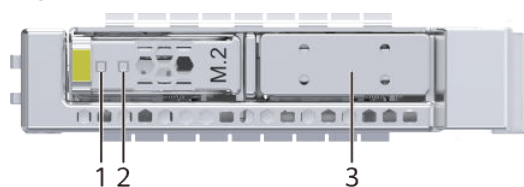
Table 4-259 Mappings between SSD-SATA240G-C and product models

Product	Product Model	First Supported Version
USG6575E-B	USG6575E-B-AC (02353LKD)	V600R007C20SPC600
USG6575E-B	USG6575E-B-AC (02353LKD-002)	V600R007C20SPC600
USG6630E	USG6630E-AC (02352FQA)	V600R007C20SPC600
USG6630E	USG6630E-DC (02352CKV)	V600R007C20SPC600
USG6630E	USG6630E-AC (02352FQA-001)	V600R007C20SPC600
USG6630E	USG6630E-DC (02352CKV-001)	V600R007C20SPC600
USG6630E	USG6630E-AC (02352FQA-002)	V600R007C20SPC600
USG6630E	USG6630E-DC (02352CKV-002)	V600R007C20SPC600
USG6620E	USG6620E-AC (02352HMF)	V600R007C20SPC600
USG6620E	USG6620E-AC (02352HMF-001)	V600R007C20SPC600
USG6620E	USG6620E-AC (02352HMF-002)	V600R007C20SPC600
USG6610E	USG6610E-AC (02352HMD)	V600R007C20SPC600
USG6610E	USG6610E-AC (02352HMD-001)	V600R007C20SPC600
USG6610E	USG6610E-AC (02352HMD-002)	V600R007C20SPC600
USG6650E	USG6650E-AC (02351YRY)	V600R007C20SPC600
USG6650E	USG6650E-AC (02351YRY-001)	V600R007C20SPC600
USG6650E	USG6650E-AC (02351YRY-002)	V600R007C20SPC600

Product	Product Model	First Supported Version
USG6680E	USG6680E-AC (02351YRR)	V600R007C20SPC600
USG6680E	USG6680E-AC (02351YRR-001)	V600R007C20SPC600
USG6605E-B	USG6605E-B-AC (02353PSK)	V600R007C20SPC600
USG6605E-B	USG6605E-B-AC (02353PSK-001)	V600R007C20SPC600
USG6716E	USG6716E-AC (02351YRS)	V600R007C20SPC600
USG6716E	USG6716E (02351YRS-001)	V600R007C20SPC600
USG6635E	USG6635E-DC (02352RQE)	V600R007C20SPC600
USG6635E	USG6635E-AC (02352RQD)	V600R007C20SPC600
USG6712E	USG6712E-AC (02352CNL)	V600R007C20SPC600
USG6712E	USG6712E (02352CNL-001)	V600R007C20SPC600
USG6625E	USG6625E-AC (02352RQN)	V600R007C20SPC600
USG6615E	USG6615E-AC (02352RQL)	V600R007C20SPC600
USG6655E	USG6655E-AC (02352RPS)	V600R007C20SPC600

Panel

Figure 4-182 Panel of the SSD-SATA240G-C



1. ALM indicator	2. RUN indicator	3. Filler panel of the M.2 hard disk slot NOTE The hard disk slot function is reserved and is not enabled.
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Table 4-260 Indicators on the SSD-SATA240G-C

Silkscreen	Name	Color	Status	Description
-	ALM indicator	Orange	Steady on	The hard disk fails.
		-	Off	The hard disk is running properly. The hard disk fails.
-	RUN indicator	Green	Steady on	The hard disk is running. The hard disk is running properly. The hard disk fails.
		Green	Blinking	Data is being read from or written to the hard disk. The hard disk is running. The hard disk is running properly. The hard disk fails.
		-	Off	The hard disk is not detected or the power cable is disconnected.

Functions and Features

Table 4-261 Functions and features of the SSD-SATA240G-C

Functions and Features	Description
Basic functions	Storage log.
Hot swap	Hot swap is supported, but hard disks cannot be directly swapped or removed. Run the disk offline command. Remove the hard disk about 30 seconds after the system displays a message indicating that the hard disk stops working. Alternatively, press and hold the OFL button for about 4 seconds until the OFL indicator is on, and then remove the hard disk unit. Otherwise, the hard disk may be damaged, data may be lost, and the system may crash.
Restrictions and limitations	Do not low-level format the hard disk. Otherwise, the hard disk cannot be used.

Technical Specifications

Table 4-262 Technical specifications of the SSD-SATA240G-C

Item	Specification
Form factor	2.5 inch
Dimensions without packaging (H x W x D) [mm(in.)]	15 mm x 75 mm x 130 mm (0.59 in. x 2.95 in. x 5.12 in.)
Weight without packaging [kg(lb)]	0.135 kg (0.3 lb)
Storage capacity [GB]	240
Port type	SATA
Maximum power consumption [W]	5.23 W
Maximum heat dissipation [BTU/hour]	17.85 BTU/hour

4.4.1.7 SSD-SATA960G-C (SSD-SATA960G-C-Solid State Drives,2.5inch)

Overview

Table 4-263 Basic information about the SSD-SATA960G-C

Item	Details
Description	SSD-SATA960G-C-Solid State Drives, 2.5inch
Part Number	02313XEE
Model	SSD-SATA960G-C
Silkscreen	M.2

Appearance

Figure 4-183 Appearance of the SSD-SATA960G-C



Version Mapping

Table 4-264 Mappings between SSD-SATA960G-C and product models

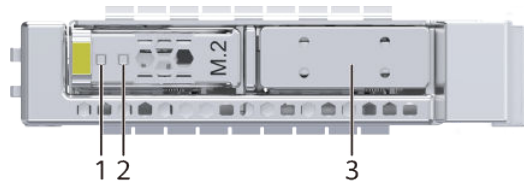
Product	Product Model	First Supported Version
USG6575E-B	USG6575E-B-AC (02353LKD)	V600R007C20SPC602
USG6575E-B	USG6575E-B-AC (02353LKD-002)	V600R007C20SPC602
USG6630E	USG6630E-AC (02352FQA)	V600R007C20SPC602
USG6630E	USG6630E-DC (02352CKV)	V600R007C20SPC602
USG6630E	USG6630E-AC (02352FQA-001)	V600R007C20SPC602

Product	Product Model	First Supported Version
USG6630E	USG6630E-DC (02352CKV-001)	V600R007C20SPC602
USG6630E	USG6630E-AC (02352FQA-002)	V600R007C20SPC602
USG6630E	USG6630E-DC (02352CKV-002)	V600R007C20SPC602
USG6620E	USG6620E-AC (02352HMF)	V600R007C20SPC602
USG6620E	USG6620E-AC (02352HMF-001)	V600R007C20SPC602
USG6620E	USG6620E-AC (02352HMF-002)	V600R007C20SPC602
USG6610E	USG6610E-AC (02352HMD)	V600R007C20SPC602
USG6610E	USG6610E-AC (02352HMD-001)	V600R007C20SPC602
USG6610E	USG6610E-AC (02352HMD-002)	V600R007C20SPC602
USG6650E	USG6650E-AC (02351YRY)	V600R007C20SPC602
USG6650E	USG6650E-AC (02351YRY-001)	V600R007C20SPC602
USG6650E	USG6650E-AC (02351YRY-002)	V600R007C20SPC602
USG6680E	USG6680E-AC (02351YRR)	V600R007C20SPC602
USG6680E	USG6680E-AC (02351YRR-001)	V600R007C20SPC602
USG6605E-B	USG6605E-B-AC (02353PSK)	V600R007C20SPC602
USG6605E-B	USG6605E-B-AC (02353PSK-001)	V600R007C20SPC602
USG6716E	USG6716E-AC (02351YRS)	V600R007C20SPC602
USG6716E	USG6716E (02351YRS-001)	V600R007C20SPC602
USG6635E	USG6635E-DC (02352RQE)	V600R007C20SPC602

Product	Product Model	First Supported Version
USG6635E	USG6635E-AC (02352RQD)	V600R007C20SPC602
USG6712E	USG6712E-AC (02352CNL)	V600R007C20SPC602
USG6712E	USG6712E (02352CNL-001)	V600R007C20SPC602
USG6625E	USG6625E-AC (02352RQN)	V600R007C20SPC602
USG6615E	USG6615E-AC (02352RQL)	V600R007C20SPC602
USG6655E	USG6655E-AC (02352RPS)	V600R007C20SPC602

Panel

Figure 4-184 Panel of the SSD-SATA960G-C



1. ALM indicator	2. RUN indicator	3. Filler panel of the M.2 hard disk slot NOTE The hard disk slot function is reserved and is not enabled.
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Table 4-265 Indicators on the SSD-SATA960G-C

Silkscreen	Name	Color	Status	Description
-	Alarm indicator	Orange	Steady on	The hard disk is faulty.
		-	Off	The hard disk is running properly.
-	Running indicator	Green	Steady on	The hard disk is in position.

Silkscreen	Name	Color	Status	Description
		Green	Blinking	Data is being read from or written to the hard disk.
		-	Off	The hard disk is not detected or the device is not powered on.

Functions and Features

Table 4-266 Functions and features of the SSD-SATA960G-C

Functions and Features	Description
Basic function	Store logs.
Hot swapping	Hot swapping is supported, but hard disks cannot be forcibly inserted or removed. Instead, run the disk offline command and wait for about 30 seconds until the system displays a message indicating that the hard disk stops working. Then you can remove the hard disk. Alternatively, press and hold down the OFL button for about 4 seconds until the OFL indicator is on, and then remove the hard disk unit. Otherwise, the hard disk may be damaged, data may be lost, or the system may break down.
Restrictions and remarks	Do not perform low-level formatting on the hard disk. Otherwise, the hard disk cannot be used.

Technical Specifications

Table 4-267 Technical specifications of the SSD-SATA960G-C

Item	Specification
Form factor	2.5 inch

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	15 mm x 75 mm x 130 mm (0.59 in. x 2.95 in. x 5.12 in.)
Weight without packaging [kg(lb)]	0.135 kg (0.3 lb)
Storage capacity [GB]	960
Port type	SATA
Maximum power consumption [W]	5.23 W
Maximum heat dissipation [BTU/hour]	17.85 BTU/hour

4.5 Optical/Electrical Modules

This chapter describes hardware information for optical/electrical modules of the USG6000E.

4.5.1 Before You Start

Before using the optical module, please understand the risk of using the non-certified optical module and how to How to Identify Huawei-Certified optical modules.

NOTICE

- A USG must use optical modules that have been certified for use. Non-certified optical modules cannot ensure transmission reliability and may affect service stability. Huawei is not liable for any problem caused by the use of non-certified optical modules and will not fix such problems.
- The methods provided here are only for reference. To confirm whether optical modules you are using have been certified for use on Huawei USGs, contact Huawei technical support.

Risks of Using Non-Huawei-Certified Optical Modules

During certification of optical modules for USG, Huawei completes comprehensive functionality verification to ensure quality of optical modules. The verified items include optical module plug/unplug, transmit optical power, receive optical power, signal transmission quality, data reading, error tolerance, compatibility, electromagnetic compatibility (EMC), and environmental parameters.

Non-Huawei-certified optical modules may cause the following problems:

- Non-standard structure and size cause failures to install optical modules on adjacent optical interfaces.

Structures or sizes of some non-Huawei-certified optical modules do not comply with the Multi-Source Agreement (MSA). When such an optical

module is installed on an optical interface, the size of this optical module hinders optical module installation on adjacent optical interfaces.

- Data bus defects cause suspension of a USG's data bus.
Some non-Huawei-certified optical modules have defects in data bus designs. Using such an optical module on a USG causes suspension of the connected data bus on the USG. As a result, data on the suspended bus cannot be read.
- Improper edge connector size damages electronic devices of optical interfaces.
If a non-Huawei-certified USG optical module with improper edge connector size is used on an optical interface, electronic devices of the optical interface will be damaged by short circuits.
- Unnormalized temperature monitoring causes incorrect alarms.
The temperature monitoring systems of some non-Huawei-certified USG optical modules do not comply with industry standards and report temperature values higher than the real temperature. When such optical modules are used on a USG, the system will report incorrect temperature alarms.
- Improper register settings cause errors or failures in reading parameters or diagnostic information.
Some non-Huawei-certified USG optical modules have improper register values on page A0, which can cause errors or failures when the system attempts to read parameters or diagnostic information from a data bus.
- Some non-Huawei-certified USG optical modules are not designed in compliance with EMC standards and have low anti-interference capability. Additionally, they bring electromagnetic interference to nearby devices.
- The operating temperature ranges of non-Huawei-certified USG optical modules cannot meet service requirements. When they are used under relatively high temperature, the optical power decreases, resulting in service interruption.

How to Identify Huawei-Certified Optical Modules

Method 1: Check for "HUAWEI" on the label

If an optical module has been certified by Huawei, its label contains "HUAWEI", as shown in [Figure 4-185](#).

Figure 4-185 "HUAWEI" on the label of a Huawei-certified optical module



Method 2: Run the display esn interface command

If **Certified** is **YES**, and **VendorName** is **huawei** in the **display esn interface** command output, the optical module has been certified by Huawei. Otherwise, it is not a Huawei-certified optical module.

4.5.2 100Mbps SFP Optical Modules

4.5.2.1 S-SFP-FE-LH40-SM1310

Table 4-268 S-SFP-FE-LH40-SM1310 specifications

Item	Value
Basic Information	
Module name	S-SFP-FE-LH40-SM1310
Part Number	02317344
Model	S-SFP-FE-LH40-SM1310
Form factor	eSFP
Application standard	STM-1
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	155Mbit/s
Target transmission distance [km]	40 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	0 dBm
Minimum Tx optical power [dBm]	-5 dBm
Minimum extinction ratio [dB]	10.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-37 dBm
Overload power (AVG) [dBm]	-10 dBm

4.5.2.2 S-SFP-FE-LH80-SM1550

Table 4-269 S-SFP-FE-LH80-SM1550 specifications

Item	Value
Basic Information	
Module name	S-SFP-FE-LH80-SM1550
Part Number	02317345
Model	S-SFP-FE-LH80-SM1550

Item	Value
Form factor	eSFP
Application standard	STM-1
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	155Mbit/s
Target transmission distance [km]	80 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1550 nm
Maximum Tx optical power [dBm]	0 dBm
Minimum Tx optical power [dBm]	-5 dBm
Minimum extinction ratio [dB]	10.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-37 dBm
Overload power (AVG) [dBm]	-10 dBm

4.5.2.3 SFP-FE-LX-SM1310-BIDI

Table 4-270 SFP-FE-LX-SM1310-BIDI specifications

Item	Value
Basic Information	
Module name	SFP-FE-LX-SM1310-BIDI
Part Number	02315203
Model	SFP-FE-LX-SM1310-BIDI
Form factor	eSFP
Application standard	100BASE-BX
Connector type	LC/PC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	155Mbit/s

Item	Value
Target transmission distance [km]	15 km
Transmitter Optical Characteristics	
Center wavelength [nm]	TX1550/RX1310
Maximum Tx optical power [dBm]	-8 dBm
Minimum Tx optical power [dBm]	-15 dBm
Minimum extinction ratio [dB]	8.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-32 dBm
Overload power (AVG) [dBm]	-8 dBm
NOTE BIDI optical modules must be used in pairs. For example, SFP-FE-LX-SM1310-BIDI must be used with SFP-FE-LX-SM1550-BIDI.	

4.5.2.4 SFP-FE-LX-SM1550-BIDI

Table 4-271 SFP-FE-LX-SM1550-BIDI specifications

Item	Value
Basic Information	
Module name	SFP-FE-LX-SM1550-BIDI
Part Number	02315202
Model	SFP-FE-LX-SM1550-BIDI
Form factor	eSFP
Application standard	100BASE-BX
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	155Mbit/s
Target transmission distance [km]	15 km
Transmitter Optical Characteristics	
Center wavelength [nm]	TX1550/RX1310
Maximum Tx optical power [dBm]	-8 dBm

Item	Value
Minimum Tx optical power [dBm]	-15 dBm
Minimum extinction ratio [dB]	8.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-32 dBm
Overload power (AVG) [dBm]	-8 dBm
NOTE BIDI optical modules must be used in pairs. For example, SFP-FE-LX-SM1550-BIDI must be used with SFP-FE-LX-SM1310-BIDI.	

4.5.2.5 SFP-FE-SX-MM1310

Table 4-272 SFP-FE-SX-MM1310 specifications

Item	Value
Basic Information	
Module name	SFP-FE-SX-MM1310
Part Number	02315233
Model	SFP-FE-SX-MM1310
Form factor	SFP
Application standard	100BASE-FX
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Transmission rate [bit/s]	100 Mbit/s
Target transmission distance [km]	Multimode fiber (50 μm or 62.5 μm diameter): 2 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	-14.0 dBm
Minimum Tx optical power [dBm]	-19.0 dBm
Minimum extinction ratio [dB]	10 dB
Receiver Optical Characteristics	

Item	Value
Rx sensitivity (AVG) [dBm]	-30.0 dBm
Overload power (AVG) [dBm]	-14.0 dBm

4.5.2.6 eSFP-FE-LX-SM1310

Table 4-273 eSFP-FE-LX-SM1310 specifications

Item	Value
Basic Information	
Module name	eSFP-FE-LX-SM1310
Part Number	02315205
Model	eSFP-FE-LX-SM1310
Form factor	eSFP
Application standard	STM-1
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	155Mbit/s
Target transmission distance [km]	15 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	-8 dBm
Minimum Tx optical power [dBm]	-15 dBm
Minimum extinction ratio [dB]	8.2 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-28 dBm
Overload power (AVG) [dBm]	-8 dBm

4.5.3 1Gbps SFP Copper Modules

4.5.3.1 SFP-1000BaseT

Table 4-274 SFP-1000BaseT specifications

Item	Value
Basic Information	
Module name	SFP-1000BaseT
Part Number	02314171
Model	SFP-1000BaseT
Form factor	SFP
Application standard	1000BASE-T
Connector type	CAT5 UTP/STP
Optical fiber type	-
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	10-1000M
Target transmission distance [km]	0.1 km
Transmitter Optical Characteristics	
Center wavelength [nm]	-
Maximum Tx optical power [dBm]	-
Minimum Tx optical power [dBm]	-
Minimum extinction ratio [dB]	-
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-
Overload power (AVG) [dBm]	-

4.5.4 1Gbps eSFP Optical Modules

4.5.4.1 OSU015N00

Table 4-275 OSU015N00 specifications

Item	Value
Basic Information	

Item	Value
Module name	OSU015N00
Part Number	02310CPX
Model	OSU015N00
Form factor	eSFP
Application standard	-
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	155M-2.67G
Target transmission distance [km]	15 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	0 dBm
Minimum Tx optical power [dBm]	-5 dBm
Minimum extinction ratio [dB]	8.2 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-21 dBm
Overload power (AVG) [dBm]	0 dBm

4.5.4.2 S-SFP-GE-LH40-SM1310

Table 4-276 S-SFP-GE-LH40-SM1310 specifications

Item	Value
Basic Information	
Module name	S-SFP-GE-LH40-SM1310
Part Number	02317346
Model	S-SFP-GE-LH40-SM1310
Form factor	eSFP
Application standard	1000base-LX/LH
Connector type	LC

Item	Value
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	1.25Gbit/s
Target transmission distance [km]	40 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	0 dBm
Minimum Tx optical power [dBm]	-5 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-23 dBm
Overload power (AVG) [dBm]	-3 dBm

4.5.4.3 S-SFP-GE-LH40-SM1550

Table 4-277 S-SFP-GE-LH40-SM1550 specifications

Item	Value
Basic Information	
Module name	S-SFP-GE-LH40-SM1550
Part Number	02317347
Model	S-SFP-GE-LH40-SM1550
Form factor	eSFP
Application standard	1000BASE-LX
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	1.25Gbit/s
Target transmission distance [km]	40 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1550 nm

Item	Value
Maximum Tx optical power [dBm]	0 dBm
Minimum Tx optical power [dBm]	-5 dBm
Minimum extinction ratio [dB]	9.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-22 dBm
Overload power (AVG) [dBm]	-3 dBm

4.5.4.4 S-SFP-GE-LH80-SM1550

Table 4-278 S-SFP-GE-LH80-SM1550 specifications

Item	Value
Basic Information	
Module name	S-SFP-GE-LH80-SM1550
Part Number	02317348
Model	S-SFP-GE-LH80-SM1550
Form factor	eSFP
Application standard	1000BASE-ZX
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	1.25Gbit/s
Target transmission distance [km]	80 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1550 nm
Maximum Tx optical power [dBm]	5 dBm
Minimum Tx optical power [dBm]	-2 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-23 dBm
Overload power (AVG) [dBm]	-3 dBm

4.5.4.5 SFP-GE-LX-SM1310

Table 4-279 SFP-GE-LX-SM1310 specifications

Item	Value
Basic Information	
Module name	SFP-GE-LX-SM1310
Part Number	02315200
Model	SFP-GE-LX-SM1310
Form factor	eSFP
Application standard	1000BASE-LX10/LH
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	1.25Gbit/s
Target transmission distance [km]	10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	-3 dBm
Minimum Tx optical power [dBm]	-9 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx operating wavelength range [nm]	-
Rx sensitivity (AVG) [dBm]	-20 dBm
Overload power (AVG) [dBm]	-3 dBm

4.5.4.6 SFP-GE-LX-SM1310-BIDI (02315285)

Table 4-280 SFP-GE-LX-SM1310-BIDI specifications

Item	Value
Basic Information	
Module name	SFP-GE-LX-SM1310-BIDI
Part Number	02315285

Item	Value
Model	SFP-GE-LX-SM1310-BIDI
Form factor	eSFP
Application standard	1000base-BX
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	1.25Gbit/s
Target transmission distance [km]	10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	TX1310/RX1490
Maximum Tx optical power [dBm]	-3 dBm
Minimum Tx optical power [dBm]	-9 dBm
Minimum extinction ratio [dB]	6 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-19.5 dBm
Overload power (AVG) [dBm]	-3 dBm

4.5.4.7 SFP-GE-LX-SM1490-BIDI (02315286)

Table 4-281 SFP-GE-LX-SM1490-BIDI specifications

Item	Value
Basic Information	
Module name	SFP-GE-LX-SM1490-BIDI
Part Number	02315286
Model	SFP-GE-LX-SM1490-BIDI
Form factor	eSFP
Application standard	1000base-BX
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C

Item	Value
Transmission rate [bit/s]	1.25Gbit/s
Target transmission distance [km]	10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	TX1490/RX1310
Maximum Tx optical power [dBm]	-3 dBm
Minimum Tx optical power [dBm]	-9 dBm
Minimum extinction ratio [dB]	6 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-19.5 dBm
Overload power (AVG) [dBm]	-3 dBm

4.5.4.8 eSFP-GE-SX-MM850

Table 4-282 eSFP-GE-SX-MM850 specifications

Item	Value
Basic Information	
Module name	eSFP-GE-SX-MM850
Part Number	02315204
Model	eSFP-GE-SX-MM850
Form factor	eSFP
Application standard	1000base-SX
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	-20°C to 85°C
Transmission rate [bit/s]	2.125Gbit/s

Item	Value
Target transmission distance [km]	<ul style="list-style-type: none"> - Multimode fiber (with diameter of 62.5 μm): 220 m - Multimode fiber (OM1) (with diameter of 62.5 μm): 275 m - Multimode fiber (with diameter of 50 μm): 500 m - Multimode fiber (OM2) (with diameter of 50 μm): 550 m
Modal bandwidth [MHz*km]	<ul style="list-style-type: none"> - Multimode fiber: 160 MHz*km - Multimode fiber (OM1): 200 MHz*km - Multimode fiber: 400 MHz*km - Multimode fiber (OM2): 500 MHz*km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	-2.5 dBm
Minimum Tx optical power [dBm]	-9.5 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-17 dBm
Overload power (AVG) [dBm]	0 dBm

4.5.4.9 eSFP-GE-ZX100-SM1550 (02315206)

Table 4-283 eSFP-GE-ZX100-SM1550 specifications

Item	Value
Basic Information	
Module name	eSFP-GE-ZX100-SM1550
Part Number	02315206
Model	eSFP-GE-ZX100-SM1550
Form factor	eSFP
Application standard	1000base-ZX
Connector type	LC

Item	Value
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	1.25Gbit/s
Target transmission distance [km]	100 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1550 nm
Maximum Tx optical power [dBm]	5 dBm
Minimum Tx optical power [dBm]	0 dBm
Minimum extinction ratio [dB]	8 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-30 dBm
Overload power (AVG) [dBm]	-9 dBm

4.5.5 10Gbps SFP+ Optical Modules

4.5.5.1 OMXD30000

Table 4-284 OMXD30000 specifications

Item	Value
Basic Information	
Module name	OMXD30000
Part Number	02318169
Model	OMXD30000
Form factor	SFP+
Application standard	10GBASE-SR
Connector type	LC
Optical fiber type	MMF
Bit error ratio (BER)	-
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	10Gbit/s

Item	Value
Target transmission distance [km]	0.3 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	-1 dBm
Minimum Tx optical power [dBm]	-7.3 dBm
Minimum extinction ratio [dB]	3 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-9.9 dBm
Overload power (AVG) [dBm]	-1 dBm

4.5.5.2 OSX010000

Table 4-285 OSX010000 specifications

Item	Value
Basic Information	
Module name	OSX010000
Part Number	02318170
Model	OSX010000
Form factor	SFP+
Application standard	10GBASE-LR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	10Gbit/s
Target transmission distance [km]	10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	0.5 dBm
Minimum Tx optical power [dBm]	-8.2 dBm
Minimum extinction ratio [dB]	3.5 dB

Item	Value
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-12.6 dBm
Overload power (AVG) [dBm]	0.5 dBm

4.5.5.3 OSX040N01

Table 4-286 OSX040N01 specifications

Item	Value
Basic Information	
Module name	OSX040N01
Part Number	02310CNF
Model	OSX040N01
Form factor	SFP+
Application standard	10GBASE-ER
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	10Gbit/s
Target transmission distance [km]	40 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1550 nm
Maximum Tx optical power [dBm]	4 dBm
Minimum Tx optical power [dBm]	-4.7 dBm
Minimum extinction ratio [dB]	3 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-14.1 dBm
Overload power (AVG) [dBm]	0.5 dBm

4.5.5.4 SFP-10G-BXD1

Table 4-287 SFP-10G-BXD1 specifications

Item	Value
Basic Information	
Module name	SFP-10G-BXD1
Part Number	02310QDT
Model	SFP-10G-BXD1
Form factor	SFP+
Application standard	10GBase-BIDI
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	2.5Gbit/s-11.3Gbit/s
Target transmission distance [km]	10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	TX1330/RX1270
Maximum Tx optical power [dBm]	0.5 dBm
Minimum Tx optical power [dBm]	-8.2 dBm
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-14.4 dBm
Overload power (AVG) [dBm]	0.5 dBm

4.5.5.5 SFP-10G-BXU1

Table 4-288 SFP-10G-BXU1 specifications

Item	Value
Basic Information	
Module name	SFP-10G-BXU1
Part Number	02310QBJ
Model	SFP-10G-BXU1

Item	Value
Form factor	SFP+
Application standard	10GBase-BIDI
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	2.5Gbit/s-11.3Gbit/s
Target transmission distance [km]	10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	TX1270/RX1330
Maximum Tx optical power [dBm]	0.5 dBm
Minimum Tx optical power [dBm]	-8.2 dBm
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-14.4 dBm
Overload power (AVG) [dBm]	0.5 dBm

4.5.5.6 SFP-10G-USR

Table 4-289 SFP-10G-USR specifications

Item	Value
Basic Information	
Module name	SFP-10G-USR
Part Number	02310MNW
Model	SFP-10G-USR
Form factor	SFP+
Application standard	10Gbase-USR
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	10.31Gbit/s

Item	Value
Target transmission distance [km]	0.1 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	-1 dBm
Minimum Tx optical power [dBm]	-7.3 dBm
Minimum extinction ratio [dB]	3 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-10.7 dBm
Overload power (AVG) [dBm]	0.5 dBm

4.5.5.7 SFP-10G-ZR

Table 4-290 SFP-10G-ZR specifications

Item	Value
Basic Information	
Module name	SFP-10G-ZR
Part Number	02310SNN
Model	SFP-10G-ZR
Form factor	SFP+
Application standard	10Gbase-ZR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	9.95Gbit/s-10.31Gbit/s
Target transmission distance [km]	80 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1550 nm
Maximum Tx optical power [dBm]	4 dBm
Minimum Tx optical power [dBm]	0 dBm
Minimum extinction ratio [dB]	9 dB

Item	Value
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-24 dBm
Overload power (AVG) [dBm]	-7 dBm

4.5.6 40Gbps QSFP+ Optical Modules

4.5.6.1 QSFP-40G-LR4 (02310MHS)

Table 4-291 QSFP-40G-LR4 specifications

Item	Value
Basic Information	
Module name	QSFP-40G-LR4
Part Number	02310MHS
Model	QSFP-40G-LR4
Form factor	QSFP+
Application standard	40GBASE-LR4
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	41.25Gbit/s
Target transmission distance [km]	10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	2.3 dBm
Minimum Tx optical power [dBm]	-7 dBm
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-11.5 dBm
Overload power (AVG) [dBm]	2.3 dBm

4.5.6.2 QSFP-40G-SDLC-PAM

Table 4-292 QSFP-40G-SDLC-PAM specifications

Item	Value
Basic Information	
Module name	QSFP-40G-SDLC-PAM
Part Number	02311PUU
Model	QSFP-40G-SDLC-PAM
Form factor	QSFP+
Application standard	40GBase-SDLC
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	41.25Gbit/s
Target transmission distance [km]	- Multimode fiber (OM3) (with diameter of 50 μm): 0.1 km - Multimode fiber (OM4) (with diameter of 50 μm): 0.15 km
Modal bandwidth [MHz*km]	- Multimode fiber (OM3): 2000 MHz*km - Multimode fiber (OM4): 4700 MHz*km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	2.4 dBm
Minimum Tx optical power [dBm]	-2.5 dBm
Minimum extinction ratio [dB]	3 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-8 dBm
Overload power (AVG) [dBm]	2.4 dBm

4.5.6.3 QSFP-40G-SR-BD (02311FPA)

Table 4-293 QSFP-40G-SR-BD specifications

Item	Value
Basic Information	
Module name	QSFP-40G-SR-BD
Part Number	02311FPA
Model	QSFP-40G-SR-BD
Form factor	QSFP+
Application standard	40GBase-BD
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	10°C to 70°C
Transmission rate [bit/s]	41.25Gbit/s
Target transmission distance [km]	0.1 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm, 900 nm
Maximum Tx optical power [dBm]	5 dBm
Minimum Tx optical power [dBm]	-4 dBm
Minimum extinction ratio [dB]	4.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-4.5 dBm
Overload power (AVG) [dBm]	5 dBm

4.5.6.4 QSFP-40G-eSR4 (02310RMB)

Table 4-294 QSFP-40G-eSR4 specifications

Item	Value
Basic Information	
Module name	QSFP-40G-eSR4
Part Number	02310RMB
Model	QSFP-40G-eSR4

Item	Value
Form factor	QSFP+
Application standard	40GBase-eSR4
Connector type	MPO
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	41.25Gbit/s
Target transmission distance [km]	- Multimode fiber (OM2) (with diameter of 50 μm): 82 m - Multimode fiber (OM3) (with diameter of 50 μm): 300 m - Multimode fiber (OM4) (with diameter of 50 μm): 400 m
Modal bandwidth [MHz*km]	- Multimode fiber (OM2): 500 MHz*km - Multimode fiber (OM3): 2000 MHz*km - Multimode fiber (OM4): 4700 MHz*km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	0.5 dBm
Minimum Tx optical power [dBm]	-7.6 dBm
Minimum extinction ratio [dB]	3 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-5.4 dBm
Overload power (AVG) [dBm]	2.4 dBm

4.5.6.5 QSFP-40G-iSR4 (02310MHR)

Table 4-295 QSFP-40G-iSR4 specifications

Item	Value
Basic Information	
Module name	QSFP-40G-iSR4

Item	Value
Part Number	02310MHR
Model	QSFP-40G-iSR4
Form factor	QSFP+
Application standard	40GBASE-SR4
Connector type	MPO
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	41.25Gbit/s
Target transmission distance [km]	- Multimode fiber (OM3) (with diameter of 50 μm): 100 m - Multimode fiber (OM4) (with diameter of 50 μm): 150 m
Modal bandwidth [MHz*km]	- Multimode fiber (OM3): 2000 MHz*km - Multimode fiber (OM4): 4700 MHz*km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	0.5 dBm
Minimum Tx optical power [dBm]	-7.6 dBm
Minimum extinction ratio [dB]	3 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-9.5 dBm
Overload power (AVG) [dBm]	2.4 dBm

4.5.6.6 QSFP-40G-LX4

Table 4-296 QSFP-40G-LX4 specifications

Item	Value
Basic Information	
Module name	QSFP-40G-LX4
Part Number	02311HNP

Item	Value
Model	QSFP-40G-LX4
Form factor	QSFP+
Application standard	40G-LX4
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	41.25 bit/s
Target transmission distance [km]	0.15 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1271nm,1291nm,1311nm,1331nm
Maximum Tx optical power [dBm]	2.3 dBm
Minimum Tx optical power [dBm]	-7 dBm
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-11.5 dBm
Overload power (AVG) [dBm]	2.3 dBm

4.5.6.7 QSFP-40G-ER4

Table 4-297 QSFP-40G-ER4 specifications

Item	Value
Basic Information	
Module name	QSFP-40G-ER4
Part Number	02311BKT
Model	QSFP-40G-ER4
Form factor	QSFP+
Application standard	40GBASE-ER4
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C

Item	Value
Transmission rate [bit/s]	41.25Gbit/s
Target transmission distance [km]	40 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1271nm, 1291nm, 1311nm, 1331nm
Maximum Tx optical power [dBm]	4.5 dBm
Minimum Tx optical power [dBm]	-2.7 dBm
Minimum extinction ratio [dB]	5.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-16.8 dBm
Overload power (AVG) [dBm]	2.3 dBm

4.5.6.8 QSFP-40G-LR4-Lite (02311YVB)

Table 4-298 QSFP-40G-LR4-Lite specifications

Item	Value
Basic Information	
Module name	QSFP-40G-LR4-Lite
Part Number	02311YVB
Model	QSFP-40G-LR4-Lite
Form factor	QSFP+
Application standard	40GBASE-LR4 Lite
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	40Gbit/s
Target transmission distance [km]	2 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1271nm, 1291nm, 1311nm, 1331nm
Maximum Tx optical power [dBm]	2.3 dBm
Minimum Tx optical power [dBm]	-9 dBm

Item	Value
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-13.5 dBm
Overload power (AVG) [dBm]	2.3 dBm

4.5.6.9 QSFP-40G-LX4-MM

Table 4-299 QSFP-40G-LX4-MM specifications

Item	Value
Basic Information	
Module name	QSFP-40G-LX4-MM
Part Number	02313NUG
Model	QSFP-40G-LX4-MM
Form factor	QSFP+
Application standard	40GBASE-LX4
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	40Gbit/s
Target transmission distance [km]	Multimode OM3 optical fiber (diameter: 50 μm): 150 m Multimode OM4 optical fiber (diameter: 50 μm): 150 m
Transmitter Optical Characteristics	
Center wavelength [nm]	1271nm, 1291nm, 1311nm, 1331nm
Maximum Tx optical power [dBm]	2.3 dBm
Minimum Tx optical power [dBm]	-7.0 dBm
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-10.5 dBm
Overload power (AVG) [dBm]	3.5 dBm

4.5.6.10 QSFP-40G-eSDLC-PAM

Table 4-300 QSFP-40G-eSDLC-PAM specifications

Item	Value
Basic Information	
Module name	QSFP-40G-eSDLC-PAM
Part Number	02311QTR
Model	QSFP-40G-eSDLC-PAM
Form factor	QSFP+
Application standard	40GBase-eSDLC-PAM4
Connector type	MPO
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	41.25Gbit/s
Target transmission distance [km]	- Multimode fiber (OM3) (with diameter of 50 μm): 100 m - Multimode fiber (OM4) (with diameter of 50 μm): 300 m
Modal bandwidth [MHz*km]	- Multimode fiber (OM3): 2000 MHz*km - Multimode fiber (OM4): 4700 MHz*km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	2.4 dBm
Minimum Tx optical power [dBm]	-2 dBm
Minimum extinction ratio [dB]	3 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-8 dBm
Overload power (AVG) [dBm]	2 dBm

4.5.7 100Gbps QSFP28 Optical Modules

4.5.7.1 QSFP-100G-CWDM4

Table 4-301 QSFP-100G-CWDM4 specifications

Item	Value
Basic Information	
Module name	QSFP-100G-CWDM4
Part Number	02311MNN
Model	QSFP-100G-CWDM4
Form factor	QSFP28
Application standard	100GBase-CWDM4
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	100Gbit/s
Target transmission distance [km]	2 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	2.5 dBm
Minimum Tx optical power [dBm]	-6.5 dBm
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-10 dBm
Overload power (AVG) [dBm]	2.5 dBm

4.5.7.2 QSFP28-100G-LR4 (02311KNU)

Table 4-302 QSFP28-100G-LR4 specifications

Item	Value
Basic Information	
Module name	QSFP28-100G-LR4
Part Number	02311KNU
Model	QSFP28-100G-LR4

Item	Value
Form factor	QSFP28
Application standard	100GBase-LR4
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	100Gbit/s
Target transmission distance [km]	10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	4.5 dBm
Minimum Tx optical power [dBm]	-4.3 dBm
Minimum extinction ratio [dB]	4 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-8.6 dBm
Overload power (AVG) [dBm]	4.5 dBm

4.5.7.3 QSFP28-100G-SR4 (02311GBW)

Table 4-303 QSFP28-100G-SR4 specifications

Item	Value
Basic Information	
Module name	QSFP28-100G-SR4
Part Number	02311GBW
Model	QSFP28-100G-SR4
Form factor	QSFP28
Application standard	100GBase-SR4
Connector type	MPO
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	100Gbit/s

Item	Value
Target transmission distance [km]	0.1 km
Modal bandwidth [MHz*km]	4700 MHz*km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	2.4 dBm
Minimum Tx optical power [dBm]	-8.4 dBm
Minimum extinction ratio [dB]	2 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-10.3 dBm
Overload power (AVG) [dBm]	2.4 dBm

4.5.7.4 QSFP-100G-4WDM-40

Table 4-304 QSFP-100G-4WDM-40 specifications

Item	Value
Basic Information	
Module name	QSFP-100G-4WDM-40
Part Number	02312QTL
Model	QSFP-100G-4WDM-40
Form factor	QSFP28
Application standard	100GBASE-4WDM
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	100Gbit/s
Target transmission distance [km]	40 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	2.9 dBm
Minimum Tx optical power [dBm]	-2.5 dBm

Item	Value
Minimum extinction ratio [dB]	8 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-21.4 dBm
Overload power (AVG) [dBm]	-3.5 dBm

4.5.7.5 QSFP-100G-CWDM4-ISP

Table 4-305 QSFP-100G-CWDM4-ISP specifications

Item	Value
Basic Information	
Module name	QSFP-100G-CWDM4-ISP
Part Number	02312DYA
Model	QSFP-100G-CWDM4-ISP
Form factor	QSFP28
Application standard	100GBase-CWDM4
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	100Gbit/s
Target transmission distance [km]	2 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	2.5 dBm
Minimum Tx optical power [dBm]	-6.5 dBm
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-10 dBm
Overload power (AVG) [dBm]	2.5 dBm

4.5.7.6 QSFP-100G-CWDM4-Lite

Table 4-306 QSFP-100G-CWDM4-Lite specifications

Item	Value
Basic Information	
Module name	QSFP-100G-CWDM4-Lite
Part Number	02312UJN
Model	QSFP-100G-CWDM4-Lite
Form factor	QSFP28
Application standard	100G-CWDM4-Lite
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	100Gbit/s
Target transmission distance [km]	2 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310nm
Maximum Tx optical power [dBm]	2.5 dBm
Minimum Tx optical power [dBm]	-6.5 dBm
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-10 dBm
Overload power (AVG) [dBm]	2.5 dBm

4.5.7.7 QSFP-100G-ER4

Table 4-307 QSFP-100G-ER4 specifications

Item	Value
Basic Information	
Module name	QSFP-100G-ER4
Part Number	02313HLU
Model	QSFP-100G-ER4

Item	Value
Form factor	QSFP28
Application standard	100GBASE-ER4
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Transmission rate [bit/s]	100 Gbit/s
Target transmission distance [km]	Single-mode fiber (G.652): 40 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1295 nm, 1300 nm, 1304 nm, 1309 nm
Maximum Tx optical power [dBm]	2.9 dBm
Minimum Tx optical power [dBm]	-2.9 dBm
Minimum extinction ratio [dB]	8 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-20.9 dBm
Overload power (AVG) [dBm]	-3.5 dBm

4.5.7.8 QSFP-100G-SWDM4

Table 4-308 QSFP-100G-SWDM4 specifications

Item	Value
Basic Information	
Module name	QSFP-100G-SWDM4
Part Number	02311QUK
Model	QSFP-100G-SWDM4
Form factor	QSFP28
Application standard	100G-SWDM4
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	PC or UPC
Transmission rate [bit/s]	100Gbit/s

Item	Value
Target transmission distance [km]	Multimode fiber (OM3) (with diameter of 50 μm): 75 m Multimode fiber (OM4) (with diameter of 50 μm): 100 m
Modal bandwidth [MHz*km]	- Multimode fiber (OM3): 2000 MHz*km - Multimode fiber (OM4): 4700 MHz*km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	3.4 dBm
Minimum Tx optical power [dBm]	-7.5 dBm
Minimum extinction ratio [dB]	2 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-10.5 dBm
Overload power (AVG) [dBm]	2.4 dBm

4.5.7.9 QSFP28-100G-1310-40km-SM

Table 4-309 QSFP28-100G-1310-40km-SM specifications

Item	Value
Basic Information	
Module name	QSFP28-100G-1310-40km-SM
Part Number	02312NVQ
Model	QSFP28-100G-1310-40km-SM
Form factor	QSFP28
Application standard	IEEE 802.3 100GBASE-ER4
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	100Gbit/s
Target transmission distance [km]	40 km

Item	Value
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	2.9 dBm
Minimum Tx optical power [dBm]	-2.9 dBm
Minimum extinction ratio [dB]	8 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-20.9 dBm
Overload power (AVG) [dBm]	-3.5 dBm

4.5.7.10 QSFP28-100G-DR

Table 4-310 QSFP28-100G-DR specifications

Item	Value
Basic Information	
Module name	QSFP28-100G-DR
Part Number	02312VSP
Model	QSFP28-100G-DR
Form factor	QSFP28
Application standard	100GBase-DR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	100Gbit/s
Target transmission distance [km]	0.5 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1311 nm
Maximum Tx optical power [dBm]	4 dBm
Minimum Tx optical power [dBm]	-2.9 dBm
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	

Item	Value
Rx sensitivity (AVG) [dBm]	-5.9 dBm
Overload power (AVG) [dBm]	4 dBm

4.5.7.11 QSFP28-100G-PSM4

Table 4-311 QSFP28-100G-PSM4 specifications

Item	Value
Basic Information	
Module name	QSFP28-100G-PSM4
Part Number	02311MNM
Model	QSFP28-100G-PSM4
Form factor	QSFP28
Application standard	100GBASE-PSM4
Connector type	MPO
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C
Transmission rate [bit/s]	100Gbit/s
Target transmission distance [km]	0.5 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	2 dBm
Minimum Tx optical power [dBm]	-9.4 dBm
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	
Rx sensitivity (AVG) [dBm]	-11.35 dBm
Overload power (AVG) [dBm]	2.2 dBm

4.6 Cables

This section describes the PGND cable, power cable, configuration cable, Ethernet cable, and optical fiber of the USG.

4.6.1 PGND Cable

4.6.1.1 PGND Cable

Connection

A ground cable is connected as follows:

- The M4 lug is connected to the ground point on the USG.
- The M6 lug is connected to the ground point or equipotential terminal on a cabinet.

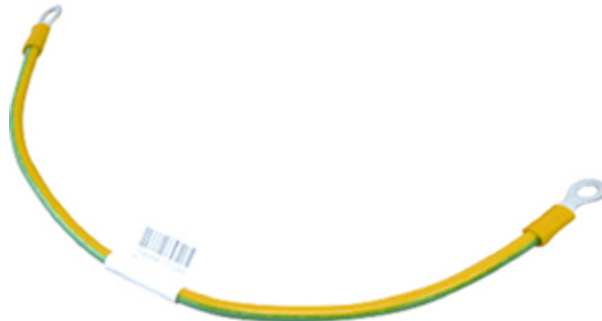
Appearance and Structure

A PGND cable has two OT terminals and a copper cable with yellow/green plastic encapsulation. [Figure 4-186](#) shows the appearance of a type of PGND cables.

NOTE

The figure is for reference only.

Figure 4-186 Appearance of the PGND cable



[Figure 4-187](#) shows the appearance of the OT terminal.

Figure 4-187 OT terminal



Technical Specifications

Table 4-312 Technical specifications of the PGND Cable

Description	Part Number	Model	Connector X1	Connector X2	Cable length	Bend radius
Power Cable, 0.4m, 4mm ² , OT6-4, 227IEC02-4 ² G&Y, OT6-6	04150617	IEC401	14170017: OT6-4	14170023: OT6-6	0.4 m	-
Power Cable, 4m, OT2-16-8, H07Z-K-16 ² G&Y, OT16-6, LSZH	04152748-001	-	OT2-16-8	OT16-6	0.85 m	30 mm

4.6.2 AC Power Cable

4.6.2.1 AC Power Cable

Connection

An AC power cable is connected as follows:

- The C7 straight female or C13 straight female connector is connected to the AC power socket of the USG.
- The PI straight male, PB straight male, PD angle male, or PG angle male connector is connected to an external power source.

Use a single-phase 3-line electrical outlet that has been properly grounded. The grounding point of the power supply must be reliably grounded in the building. Generally, the grounding point of the power supply system of the building has been buried in the grounding during the construction and wiring of the building.

NOTICE

Make sure that the power system of the building has been grounded before you connect the USG with AC power cables.

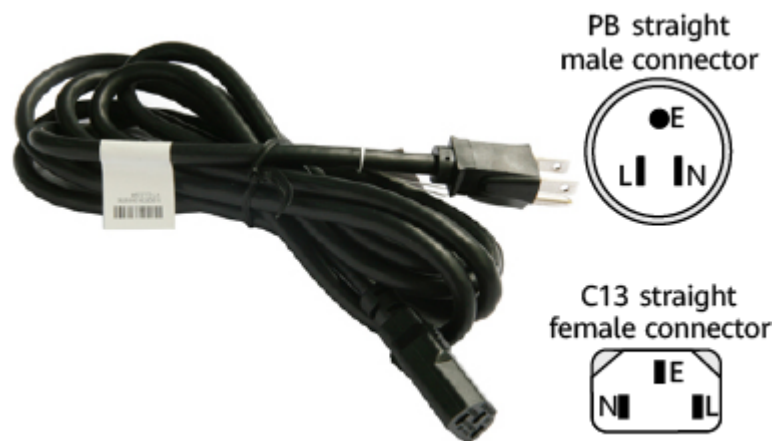
Appearance and Structure

The USG provides both the European-standard and North American-standard AC power cables. [Figure 4-188](#) and [Figure 4-189](#) list the reference specifications. You can select the desired power cables based on your site conditions. For details about the power cable appearance, see [Quick Reference Tables of Power Cables](#). You can view the photo of a power cable according to the corresponding BOM.

Figure 4-188 Appearance of the England AC power cable



Figure 4-189 Appearance of the North American-standard AC power cable



[Table 4-313](#) lists the connectors of AC power cables.

Table 4-313 Connectors of AC power cables

Connector	Description	Wire Color
L	Live wire	Brown
N	Null wire	Blue
E	PGND cable	Yellow/Green

Technical Specifications

Table 4-314 Technical specifications of the AC Power Cable

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power Cable,America AC Power Cable, 125V10A, 3.0m,PBSM , 18SJT(3C), C13SF,Black	04020728	CC13NA300	PB straight male	C7 straight female	3 m
Power Cable,Japan AC Power Cable 125V12A, 3.0m,PBSM ,HVCTF-1.25mm ² (3C),C13SF,Black	04040887	CC13JP300	PB straight male	C13 straight female	3 m
Power Cords Cable,Australia AC Power Cable,250V 10A, 3.0m,PISM, H05VV-F-1.0mm ² (3C),C13SF,Black	04040888	CC13AU300	PI straight male	C13 straight female	3 m
Power cord,BS546 250V10A, 3.0m,PM-IAM,H05VV-F-1.5mm ² (3C),C13SF,250V, 10A,Black	04040889	CC13HK300	PM-I angle male	C13 straight female	3 m

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power Cable,Britain AC Power Cable 250V10A, 3.0m,PGAM ,H05VV-F-1.0mm ² (3C),C13SF,Black	04040890	CC13UK300	PG angle male	C13 straight female	3 m
Power cord,Europe AC Power Cable, 250V10A, 3.0m,PFSM ,(H05VVF 1.0 ² (3C)), C13SF, 250V, 10A,Black	04041056	CC13EU300	PF straight male	C13 straight female	3 m
Power Cords Cable,China AC Power 250V10A, 3.0m,PISM, 227IEC53-1 . 0 ² (3C),C13SF,Black	04041104	CPACH0301	PI straight male	C13 straight female	3 m
Power Cable,Britain AC Power Cable 250V10A, 3.0m,PGAM ,H05VV-F-1.0mm ² (3C),C13AF-L,Black	04041117	CC13UK301	PG angle male	C13 left angle female connector	3 m

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power Cable,Switzerland AC Power Cable 250V10A, 3.0m,PJSM ,H05VV-F-1.0mm ² (3C),C13SF,Black	04041119	CC13CH300	PJ straight male	C13 straight female	3 m
Power Cable,Italy AC Power Cable 250V10A, 3.0m,PLSM, H05VV-F-1.0mm ² (3C),C13SF,Black	04041120	CC13IT300	PL straight male	C13 straight female	3 m
Power Cords Cable,China AC Power 250V10A, 10.0m,PISM, 227IEC53-10 ² (3C),C13SF,Black	04042697	C3X1CHN00	PI straight male	C13 straight female	10 m
Power Cords Cable,China AC Power 250V10A, 15.0m,PISM, 227IEC53-10 ² (3C),C13SF,Black	04042698	CPWR00102	PI straight male	C13 straight female	15 m

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power Cords Cable,China AC Power 250V10A, 20.0m,PISM, 2271EC53-10 ² (3C),C13SF,Black	04042699	CC13CN200	PI straight male	C13 straight female	20 m
External Power Cable, Power Cable 250V2.5A, 2m, 2X0.75mm ² ,Black,PASM, 2271EC53-0.75 ² (2C)-I,C7SF	04043491	CPC7SF201	PA straight male	C7 straight female	2 m
Power cord,Europe AC Power 250V2,2.0m,PCSM, (H03VVH2F-0.5 ² (2C)),C7SF,Black	04044216	C0C7EU200	PC straight male	C7 straight female	2 m
Power Cords Cable,Japan AC Power 125V7A, 2.0m,PASM,VCTFK-0.75 ² (2C),C7SF,Black	04044496	C0C7JP200	PA straight male	C7 straight female	2 m

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power Cable,America AC Power Cable 125V7A, 2.0m,PASM, 18NISPT-1(2C),C7SF,Black	04044497	C0C7NA200	PA straight male	C7 straight female	2 m
Power Cable, Britain AC Power Cable 250V2.5A, 2.0m,PGAM,H05VVH2-F-0.75mm ² (2C),C7SF,Black	04044533	C0C7UK200	PG angle male	C7 straight female	2 m
Power Cords Cable,Australia AC Power 250V2.5A, 2.0m,PISM-I,H03VVH2 F-0.75 ² (2C),C7SF,Black	04044577	C0C7AU200	PI-I straight male	C7 straight female	2 m
Power Cords Cable,India AC Power 250V2.5A, 2.0m,PC-IISM,IS 694-0.75 ² (2C),C7S, 250V, 2.5A,Black	04045094	C0C7IN200	PC-II straight male	C7 straight female	2 m

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power cord,Korea AC Power 250V2.5A, 2.0m,PCSM-I,K60227 IEC 52 0.75mm ² (2C),C7SF, 250V, 2.5A,Black	04045785	CO07KO200	PC-I straight male	C7 straight female	2 m
Power Cords Cable,Argentina AC Power 250V10A, 3.0m,PISM, H05VV-F-1.0mm ² (3C),C13SF,Black	04047785	CC13AR300	PI straight male	C13 straight female	3 m
Power Cords Cable,China AC Power Cable, 250V10A, 3m,PISM, 227IEC53-1 0 ² (3C),C13SF,Black	04050139	CC13CN300	PI straight male	C13 straight female	3 m
Power Cords Cable,China AC Power 250V10A, 1.5m,C14SM, 227IEC53(RVV)1.0mm ² (3C),C13SF,PDU Cable	04050188	IDS2PWRC BL00	C14 straight male	C13 straight female	1.5 m

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power Cable,China AC Power Cable 250V10A, 1.0m,PISM, 227IEC53(RVV)1.0mm ² (3C),C13SF,Black	04050206	CC13SA300	PI straight male	C13 straight female	1 m
Power Cable,China AC Power Cable 250V10A, 5.0m,PISM, 227IEC53(RVV)1.0mm ² (3C),C13SF,Black	04050206-001	W-AC250-5	PI straight male	C13 straight female	5 m
Power Cable,China AC Power Cable 250V10A, 2.0m,PISM, 227IEC53(RVV)1.0mm ² (3C),C13SF,Black	04050517	CPC13SF00	PI straight male	C13 straight female	2 m
Power cord,China AC Power Cable, 250V10A, 3.0m,C14SM, (227IEC53-1.0 ² (3C)), C13SF, 250V, 10A,Black,PDU Cable	04050846	-	C14 straight male	C13 straight female	3 m

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power cord,China AC Power Cable, 250V10A, 6.0m,C14S M, (227IEC53-1.0 ² (3C)), C13SF, 250V, 10A,Black,P DU Cable	04050847	W-AC250-6	C14 straight male	C13 straight female	6 m
Power Cords Cable,China AC Power, 250V10A, 1.5m,PISM, 227IEC53(RVV)1.0mm ² (3C),C13 SF,250V, 10A,Black	04050955	IDSV2DKB M55	PI straight male	C13 straight female	1.5 m
Power Cord Cable,Brazil AC Power Cable, 250V2.5A, 2m,PC-IIIISM,H05V VH2-F 2*0.75 ² (2C),C7SF, 250V, 2.5A,Black	04050956	C0C7BR200	PC-III straight male	C7 straight female	2 m
Power cord,India AC Power 250V6A, 3m,PM-IIAM,IS 694-1.0 ² (3C),C13 SF, 250V, 6A,Black	04051035	CC13ID300	PM-II angle male	C13 straight female	3 m

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power cord,South Africa AC Power 250V10A, 3m,PMAM, H05VV-F-1.0mm ² (3C),C13SF,250V, 10A,Black	04051080	CC13SA300	PM angle male	C13 straight female	3 m
Power cord,BS546 250V2.5A, 2m,PD-IAM,H03VH2-F-0.75mm ² (2C),C7SF, 250V, 2.5A,Black	04051081	C0C7OT200	PD-I angle male	C7 straight female	2 m
Power cord, 2m,IRAM2063 Straight Male,H05VH2-F 2*0.75 ² (2C),C7 Straight Female, 250V, 2.5A,BLACK	04051997	-	IRAM2063 straight male	C7 straight female	2 m
Power cord,Taiwan AC 125V11A, 3.0m,PBSM ,HVCTF 3*1.25mm ² ,C13SF, 125V, 11A,Black, BSMI	04052137	CC13TW300	PB straight male	C13 straight female	3 m

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power cord,Taiwan AC 125V7A, 2.0m,PASM ,VCTFK2*0.75mm2(2C),C7SF, 125V, 7A,Black,BS MI	04052138	-	PA straight male	C7 straight female	2 m
Power cord,AC Power Cable 250V2.5A, 2.0m,C14SM,H05VVH2-F-0.75mm^2(2C),C7SF, 250V, 2.5A,Black, Non-standard AC power cable	04052181	-	C14 straight male	C7 straight female	2 m
Power Cords Cable,Euro pe AC 250V10A, 1.8m,C14SM,H05VV-F-3*1.00^2,C13SF,PDU Cable	0405G019	CC13EU180	C14 straight male	C13 straight female	1.8 m

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power Cords Cable,South Africa AC Power 250V2.5A, 2m,PDAM, H03VVH2-F-0.75 ² (2C),C7SF	0405G025	C0C7SA200	PD angle male	C7 straight female	2 m
Power Cords Cable,Korea AC Power 250V10A, 3m,PF5M,H05VV-F 3*1.0 ² (3C),C13SF,Black	0405G028	CC13KO300	PF straight male	C13 straight female	3 m
Power Cords Cable,North America AC Power 250V10A, 1.8m,C14SM,SJT 18AWG(3C),C13SF,PDUCable	0405G029	IDS2PWRCBL0A	C14 straight male	C13 straight female	1.8 m
Power Cords Cable,Japan AC Power 250V12A, 1.8m,C14SM,HVCTF 1.25 ² (3C),C13SF,PDUCable	0405G02D	IDS2PWRCBL09	C14 straight male	C13 straight female	1.8 m

Description	Part Number	Model	Connector X1	Connector X2	Cable length
Power Cords Cable,Australia AC Power 250V10A, 1.8m,C14S M,H05VV-F-1.0 ² (3C),C13SF,PD U Cable	0405G02F	IDS2PWRC BL08	C14 straight male	C13 straight female	1.8 m
Power Cords Cable,Korea AC Power 250V10A, 1.8m,C14S M,H05VV-F-1.0 ² (3C),C13SF,PD U Cable	0405G02H	IDS2PWRC BL07	C14 straight male	C13 straight female	1.8 m
Power Cords Cable,Denmark AC Power 250V10A, 3m,PKSM, H05VV-F-3*1.0 ² (3C),C13SF, Black	0405G02K	CC13DE300	PK straight male	C13 straight female	3 m
Power Cable,Brazil AC Power Cable 250V10A, 3.0m,PNS M ,H05VV-F-1.0mm ² (3C),C13SF,Black	04150258	CC13BR300	PN straight male	C13 straight female	3 m

NOTICE

You must connect the AC power cable in compliance with local standards and requirements.

NOTE

- The cable with the C7 straight female X2 connector only to the desktop devices USG6510E, USG6510E-POE, USG6530E.
- The cable with the C13 straight female X2 connector and non-C14 straight male X1 connector applies to non-desktop-mounted scenarios.
- The cable with the C13 straight female X2 connector and C14 straight male X1 connector applies to non-desktop models in PDU installation scenarios.

4.6.3 DC Power Cable

4.6.3.1 DC Power Cable

Connection

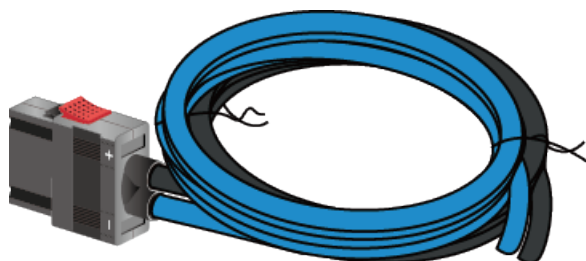
A DC power cable is connected as follows:

- One end is connected to the matching DC power terminal on the DC power module of the USG.
- The other end is connected to an external power source.

Appearance and Structure

The DC power cables include the RTN cable, and NEG (-48 V) cable. Both the RTN and NEG (-48 V) power cables consist of the terminal blocks and cables, as shown in [Figure 4-190](#). For details about the power cable appearance, see [Quick Reference Tables of Power Cables](#). You can view the photo of a power cable according to the corresponding BOM.

Figure 4-190 Appearance of the DC power cable



Cable Type	Color
NEG cable	Blue

Cable Type	Color
RTN cable	Black

The USG provides cord end terminals and OT terminals. You can select one of them based on the actual condition.

Figure 4-191 shows the appearance of the cord end terminal.

Figure 4-191 Appearance of the cord end terminal

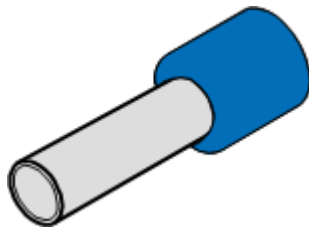


Figure 4-192 shows the appearance of the OT terminal without a cable.

Figure 4-192 Appearance of the OT terminal



Technical Specifications

Table 4-315 Technical specifications of the DC Power Cable

Description	Part Number	Model	Connector X1	Connector X2	Cable length	Bend radius
Power Cable, 3m, 12AWG, PS2F, 12UL1015B +12UL1015BL, 2*T4^2GY	04150695	DCWIRE A-3M	14190215: PS2F	14170114: 2*T4^2GY	3 m	24 mm

Description	Part Number	Model	Connector X1	Connector X2	Cable length	Bend radius
Power Cable, 3m, 4 ² mm, PS2F, (H07Z-K-4 ² B +H07Z-K-4 ² BL), 2*4 ² G Y	04152883	PS2F-T4-3M	14191175: PS2F	14170114: 2*4 ² G Y	3 m	24 mm

4.6.4 Console Cable

4.6.4.1 Console Cable

Connection

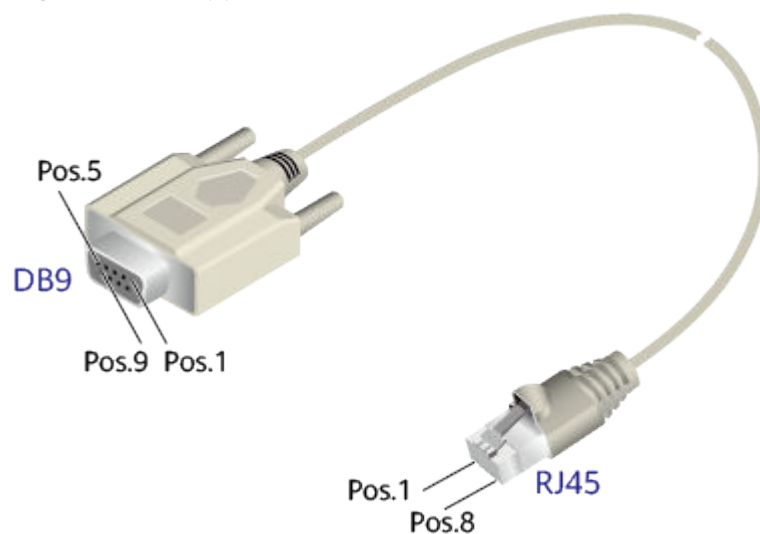
A console cable is connected as follows:

- The RJ45 connector is connected to the console port of the USG.
- The DB9 connector is connected to the COM port on a maintenance terminal.

Appearance and Structure

A console cable is an 8-wire shielded cable. [Figure 4-193](#) shows the console cable.

Figure 4-193 Appearance of the Console Cable



Name	Description
DB9	DB9 connector(female). The connector has 9 pin holes with IDs from 1 to 9. It connects to the COM port of a PC.
RJ45	RJ45 connector
Pos	Pin position

Pin Assignments

[Table 4-316](#) lists the pin assignments of a console cable.

Table 4-316 Pin assignments of a console cable

USG	Signal Description	RJ45 Pin ID	Signal Direction	DB9 Pin ID
NA	RTS (Request to Send)	1	←	7
NA	DTR (Data Terminal Ready)	2	←	4
TXD	TXD (Transmit Data)	3	→	2
NA	DCD (Data Carrier Detect)	4	→	1
GND	GND	5	-	5
RXD	RXD (Receive Data)	6	←	3
NA	DSR (Data Set Ready)	7	→	6
NA	CTS (Clear to Send)	8	→	8
<p>NOTE</p> <p>Pins in the same row are connected to each other using a cable.</p> <p>The symbol → indicates that the signal travels from the RJ45 connector to the DB9 connector, whereas the symbol ← indicates that the signal travels from the DB9 connector to the RJ45 connector.</p> <p>Pos. 9 of the DB9 connector is empty.</p>				

Technical Specifications

[Table 4-317](#) shows the technical specifications of the console cable.

Table 4-317 Technical specifications of the console cable

Item	Description
Connector 1	DB9 connector - D model - 9PIN - female
Connector 2	RJ45 Network Interface Connector, Crystal Connector, 8PIN, 8BIT, Shielded, Plug
Cable	Single Cable, Console Serial Port Cable, 3 m, D9F, CC4P0.48B(S), MP8-VI
Wire	8

4.6.5 Ethernet Cable

4.6.5.1 Ethernet Cable

Connection

The Ethernet cable, also called the network cable, is used for carrying signals on Gigabit networks or networks with a lower packet rate.

Ethernet cables are classified into straight-through and crossover cables according to the wiring scheme used at the two ends of the cables. The interfaces of the USG can dynamically adapt to straight-through cables and crossover cables.

NOTICE

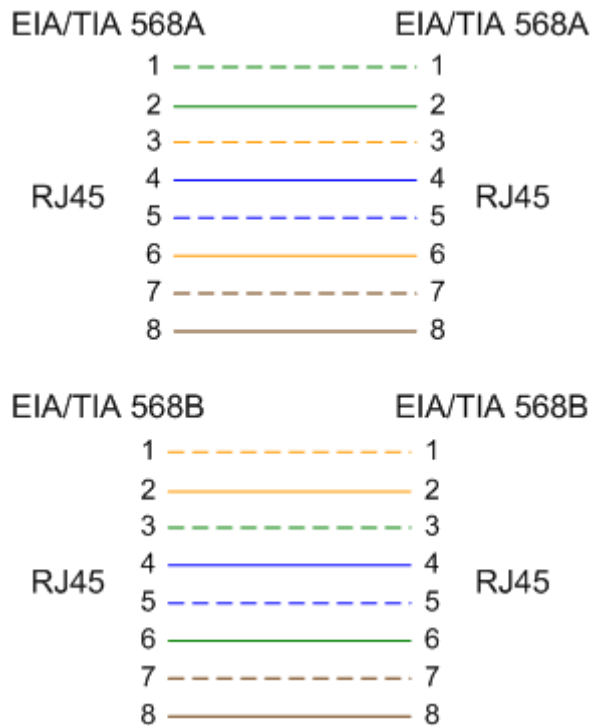
Figure 4-194 and **Figure 4-195** show how to distinguish and make straight-through cables and crossover cables. You need to strictly observe the wiring scheme to ensure the quality of services.

- Straight-through cable

The straight-through cable is also called the standard cable. Both ends of the cable use wiring scheme EIA/TIA T568A or EIA/TIA T568B. You are advised to use wiring scheme EIA/TIA T568B when you make straight-through cables.

Figure 4-194 shows the detail.

Figure 4-194 Schematic diagram of the connection scheme of straight-through cables

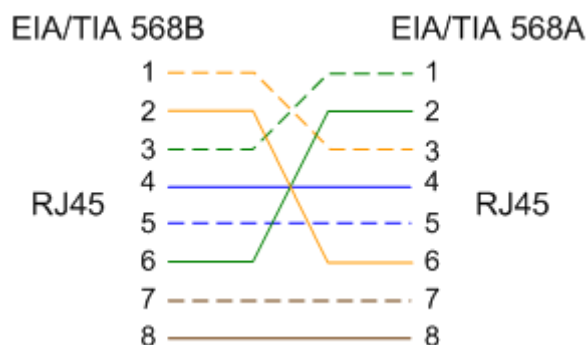


You can use straight-through cables to connect:

- A switch or hub with an USG6000E
- Computers (including servers and workstations) with a switch or hub
- Crossover cable

The crossover cable uses wiring scheme EIA/TIA T568A for one end and EIA/TIA T568B for the other, as shown in [Figure 4-195](#).

Figure 4-195 Schematic diagram of the connection scheme of crossover cables



You can use the crossover cables to connect:

- Two USG6000Es
- An USG6000E and a computer

- Two hubs
- A switch and hubs
- Two switches
- Two computers

Appearance and Structure

Network cables are classified into shielded and unshielded ones based on whether the twisted pair and RJ45 connector are shielded, as shown in [Figure 4-196](#) and [Figure 4-197](#).

Figure 4-196 Appearance of a shielded cable



Figure 4-197 Appearance of an unshielded cable

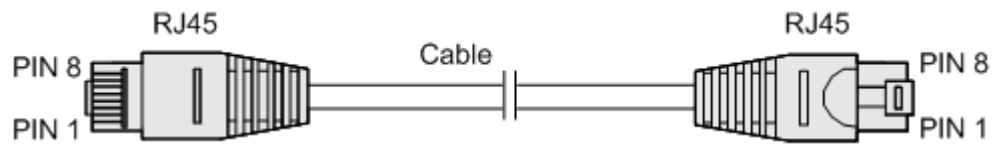


NOTE

The figure is for reference only.

An Ethernet cable consists of twisted pairs and RJ45 connectors, as shown in [Figure 4-198](#).

Figure 4-198 Structure of the Ethernet Cable

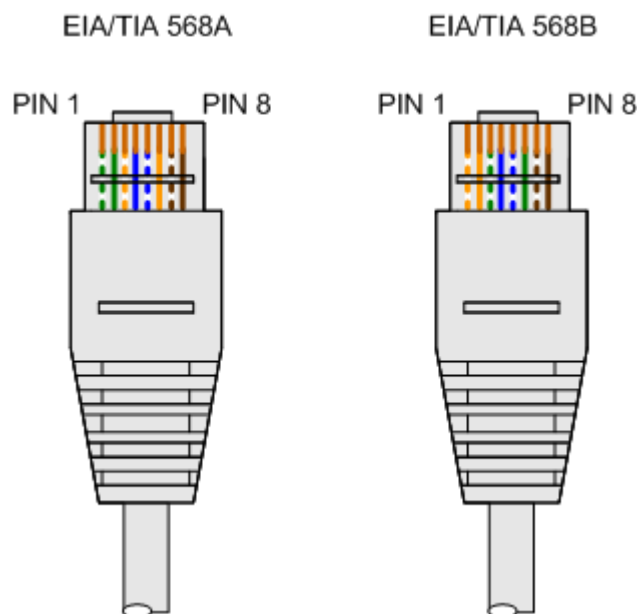


Name	Description
RJ45	RJ45 connector
Cable	Category 5 or higher twisted pair network cable
PIN1 to PIN8	8 pins. Each pin has an ID ranging from 1 to 8.

Pin Assignments

The twisted pair network cable has eight wires. The connection between wires and RJ45 connector pins complies with wiring scheme EIA/TIA 568A or EIA/TIA 568B, as shown in [Figure 4-199](#).

Figure 4-199 Wiring scheme EIA/TIA 568A or EIA/TIA 568B



EIA/TIA 568A		EIA/TIA 568B	
PIN ^a	Wire ^b	PIN	Wire
1	Green/White	1	Orange/White
2	Green	2	Orange
3	Orange/White	3	Green/White

EIA/TIA 568A		EIA/TIA 568B	
PIN ^a	Wire ^b	PIN	Wire
4	Blue	4	Blue
5	Blue/White	5	Blue/White
6	Orange	6	Green
7	Brown/White	7	Brown/White
8	Brown	8	Brown

NOTE

- a. An RJ45 connector has eight pins.
- b. The wire of a twisted pair connects to the RJ45 connector pin. The color of the plastic jacket is considered as the name of the wire.

Technical Specifications

Table 4-318 lists the technical specifications of the Ethernet cable.

Table 4-318 Technical specifications of the Ethernet cable

Item	Description
Connector 1 and 2	Shielded RJ45/Unshielded RJ45
Cable	Category 5 or higher shielded/unshielded twisted pair network cable
Wire	8

4.6.6 Optical Fiber

4.6.6.1 Optical Fiber

Connection

Optical fibers are used for carrying signals on Gigabit networks or networks with higher packet rates. An optical fiber is a carrier of optical signals and transmits optical signals over a short distance. An optical fiber is connected as follows:

- One end is connected to the optical port on the USG through the corresponding optical module.
- The other end is connected to the optical port on the peer device.

Select optical modules and fibers based on peer device interfaces.

NOTICE

You are advised to use Huawei optical modules. Optical modules from other vendors may cause incompatibility issues and lead to faults on the USG6000E.

When using optical modules and optical fibers, pay attention to the following to ensure proper communication between devices:

- Use single-mode and multi-mode optical fibers as required.
- Tx (sending) of the local device corresponds to Rx (receiving) of the peer device.
- The wavelengths of the optical modules on both ends must be the same.
- Do not overbend optical fibers. The bend radius must not be shorter than 40 mm.

CAUTION

To avoid eye injuries, do not look straight at the optical transmit interface of the laser or the optical connector.

Appearance and Structure

Optical fibers are classified into single-mode and multi-mode optical fibers. Single-mode optical fibers are used for long-distance transmission whereas multi-mode optical fibers are used for short-distance transmission. Indoor single-mode optical fibers usually have a yellow jacket, as shown in [Figure 4-200](#). The jacket of the LC/PC-LC/PC multi-mode optical fiber is orange, as shown in [Figure 4-201](#), and that of the MPO/PC-MPO/PC multi-mode optical fiber is cyan, as shown in [Figure 4-202](#). Optical fibers are not delivered with the USG6000E. Purchase optical fibers separately as required.

Figure 4-200 Appearance of the LC/PC-LC/PC single-mode optical fiber



Figure 4-201 Appearance of the LC/PC-LC/PC multi-mode optical fiber



Figure 4-202 Appearance of the MPO/PC-MPO/PC multi-mode optical fiber



NOTICE

- To ensure the normal transmission of optical signals, do not use single-mode optical fibers to connect multi-mode optical modules, nor multi-mode optical fibers to connect single-mode optical modules.
- To connect extension optical fibers, purchase LC/PC-LC/PC adapters.

Optical fibers have multiple types of connectors. Common connectors types include LC/PC, SC/PC, FC/PC and MPO/PC.

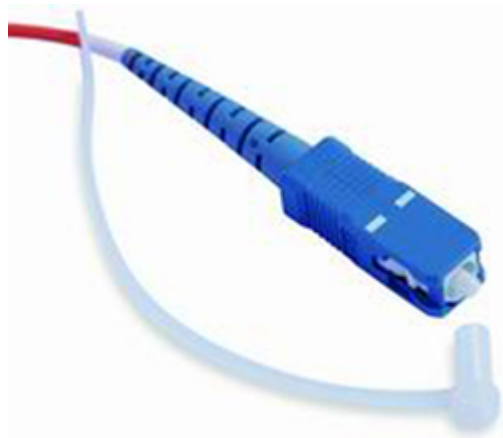
- LC/PC connector



The procedure for inserting and removing LC/PC connectors is as follows:

- Insert and remove the connector along the axis without rotating the connector.
- When you insert the fiber, carefully insert the fiber head into the optical interface on the interface board.
- To remove the optical fiber, squeeze the pinch on the fiber connector, gently push on the fiber connector, and then pull it out.

- SC/PC connector



The procedure for inserting and removing SC/PC connectors is as follows:

- Insert and remove the connector along the axis without rotating the connector.
- When you insert the fiber, carefully insert the fiber head into the optical interface on the interface board.
- To remove the optical fiber, gently push on the fiber connector, and then pull out the connector.

- FC/PC connector



The procedure for inserting and removing FC/PC connectors is as follows:

- When you insert an optical fiber, aim the FC/PC connector at the optical interface on the interface board to avoid damaging the inner layer of the

optical interface. Then insert the fiber into the optical interface, rotate the outer screw jacket clockwise, and then fasten the optical connector.

- To remove an optical fiber, rotate the outer screw jacket counter-clockwise on the optical interface until the screw loosens. Then gently pull out the optical fiber.
- MPO/PC optical fiber connector



Note the following points when removing and inserting an MPO/PC fiber connector:

- When inserting the connector, hold the shell labeled "PUSH" and feed the male connector into the female connector until you hear a clicking sound. The male and female connectors are securely installed.
- To disassemble the connector, hold the shell labeled "PULL" and remove the male connector.

There are four types of optical fibers for the USG6000E: LC/PC-LC/PC, LC/PC-SC/PC, LC/PC-FC/PC, and MPO/PC-MPO/PC, which are based on the types of connectors on both ends of the fibers, as listed in [Table 4-319](#).

Table 4-319 Common optical fiber types

Type	Transmission Mode	Connector	
		On the USG6000E	On the peer device
LC/PC-LC/PC	Single-mode/ Multi-mode	LC/PC	LC/PC
LC/PC-SC/PC			SC/PC
LC/PC-FC/PC			FC/PC
MPO/PC-MPO/PC	Multi-mode	MPO/PC	MPO/PC

Technical Specifications

Table 4-320 Technical specifications of the Optical Fiber

Description	Part Number	Model	Connector X1	Connector X2	Cable length	Bend radius
Patch Cord,SC/PC,SC/PC,Single-mode,5m,G.652D,3mm	14130098	SS-OP-D-SC-S-5	SC/PC	SC/PC	5 m	30 mm
Patch Cord,LC/PC,SC/PC,Single-mode,5m,G.652D,2mm	14130193	SS-OP-LC-SC-S-5	LC/PC	SC/PC	5 m	30 mm
Patch Cord,LC/PC-LC/PC,Single mode,G.652D,2mm,5m	14130195	SS-OP-D-LC-S-5	LC/PC	LC/PC	5 m	30 mm
Patch Cord,LC/PC,SC/PC,Single-mode,10m,G.652D,2mm	14130196	SS-OP-LC-SC-S-10	LC/PC	SC/PC	10 m	30 mm
Patch Cord,LC/PC,FC/PC,Single-mode,10m,G.652D,2mm	14130197	SS-OP-LC-FC-S-10	LC/PC	FC/PC	10 m	30 mm

Description	Part Number	Model	Connector X1	Connector X2	Cable length	Bend radius
Patch Cord,LC/PC,LC/PC,Single-mode,10m,G.652D,2mm	14130199	SS-OP-D-LC-S-10	LC/PC	LC/PC	10 m	30 mm
Patch Cord,LC/PC,FC/PC,Multi-mode,10m,A1b,2mm	14130221	SS-OP-LC-FC-M-10	LC/PC	FC/PC	10 m	30 mm
Patch Cord,LC/PC,LC/PC,Multi-mode,10m,A1B,2mm	14130222	SS-OP-D-LC-M-10	LC/PC	LC/PC	10 m	30 mm
Patch Cord,LC/PC,SC/PC,Multi-mode,10m,A1b,2mm	14130223	SS-OP-LC-SC-M-10	LC/PC	SC/PC	10 m	30 mm
Optical adapter-LC/PC-LC/PC-Blue-Shell:Plastic-Sleeve:Zirconia-Square	14130248	QW1P0FIBER06	LC/PC	LC/PC	-	-

Description	Part Number	Model	Connector X1	Connector X2	Cable length	Bend radius
Patch Cord,LC/PC,LC/PC,Single-mode,20m,G.652D,2mm	14130251	SS-OP-D-LC-S-20	LC/PC	LC/PC	20 m	30 mm
Patch Cord,LC/PC,SC/PC,Multi-mode,30m,A1b,2mm	14130275	SS-OP-LC-SC-M-30	LC/PC	SC/PC	30 m	30 mm
Patch Cord,LC/PC,SC/PC,Single-mode,30m,G.652D,2mm	14130276	SS-OP-LC-SC-S-30	LC/PC	SC/PC	30 m	30 mm
Patch Cord,LC/PC,SC/PC,Multi-mode,20m,A1b,2mm	14130279	SS-OP-LC-SC-M-20	LC/PC	SC/PC	20 m	30 mm
Patch Cord,LC/PC,SC/PC,Single-mode,20m,G.652D,2mm	14130280	SS-OP-LC-SC-S-20	LC/PC	SC/PC	20 m	30 mm
Patch Cord,LC/PC,LC/PC,Multi-mode,20m,A1b,2mm	14130295	SS-OP-D-LC-M-20	LC/PC	LC/PC	20 m	30 mm

Description	Part Number	Model	Connector X1	Connector X2	Cable length	Bend radius
Patch Cord,LC/PC,LC/PC,Multi-mode,5m,A1b,2mm	14130296	SS-OP-D-LC-M-5	LC/PC	LC/PC	5 m	30 mm
Patch Cord,LC/PC,SC/PC,Multi-mode,50m,A1b,2mm	14130311	SS-OP-LC-SC-M-50	LC/PC	SC/PC	50 m	30 mm
Patch Cord,LC/PC,SC/PC,Single-mode,50m,G.652D,2mm	14130312	SS-OP-LC-SC-S-50	LC/PC	SC/PC	50 m	30 mm
Patch Cord,LC/PC,LC/PC,Single-mode,6m,G.652D,2mm	14130360	SS-OP-D-LC-S-6	LC/PC	LC/PC	6 m	30 mm

Description	Part Number	Model	Connector X1	Connector X2	Cable length	Bend radius
Optical Cable Parts, MPO/PC, MPO/PC, MULTIMODE, 2m, 8 CORES, 0m/0m, GJFH-8A1A. 2(OM3), 3.5MM, LSZH, 43MM SHORT MPO, BENDING INSENSITIVE	14130823	F00MPMP01	MPO/PC	MPO/PC	2 m	18 mm
Optical Cable Parts, MPO/PC, MPO/PC, Multimode(OM3, Bending Insensitive), 30m, 8 Cores, 0m/0m, GJFH 8A1a, 3.5mm, LSZH, 42mm Short MPO, Indoor	14130823-002	FMMM03001	MPO/PC	MPO/PC	30 m	17.5 mm

Description	Part Number	Model	Connector X1	Connector X2	Cable length	Bend radius
Optical Cable Parts, MPO/PC, MPO/PC, Multimode (OM3, Bending Insensitive), 100m, 8 Cores, 0m/0m, GJFH-8A1a, 3.5mm, LSZH, 42mm Short MPO, Indoor	14130823-003	FMMM10001	MPO/PC	MPO/PC	100 m	17.5 mm
Optical Cable Parts, MPO/PC, MPO/PC, MULTIMODE, 15m, 8 Cores, 0m/0m, GJFH-8A1A.2 (OM3), 3.5MM, LSZH, 60mm MPO, Bending insensitive	14130923	SS-OP-D-MPO12-M-15	MPO/PC	MPO/PC	15 m	18 mm

Description	Part Number	Model	Connector X1	Connector X2	Cable length	Bend radius
Optical Cable Parts, MPO/PC, MPO/PC, Multimode, 10m, 8 cores, GJFH-8A1a.3(OM4), 3.5mm, 0mm, LSZH, Bending Insensitive	14134486	MPO12-MPO12-M4-10	MPO/PC	MPO/PC	10 m	17.5 mm

5 Hardware Installation

This chapter describes hardware installation procedures and precautions.

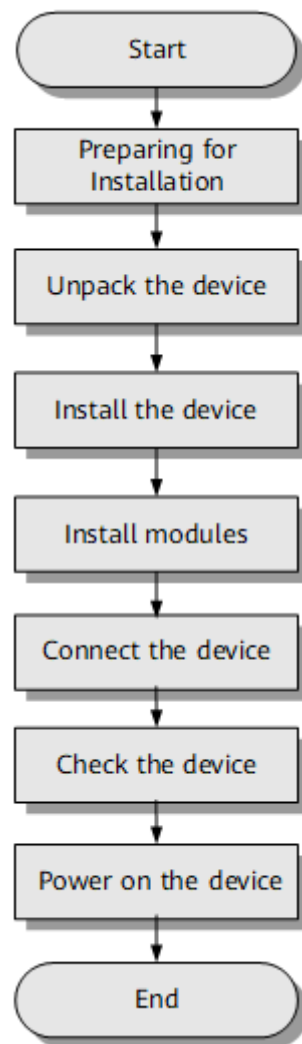
5.1 Installation Procedure

This section describes the installation procedure of the USG6000E.

procedure and precaution for unpacking and checking the products before installation has started.

Figure 5-1 shows the USG devices installation procedure.

Figure 5-1 Installation flowchart



5.2 Installation Preparation

This section describes the safety precautions that you must observe and the tools that must be prepared before you install the USG.

5.2.1 Precautions

This section describes the precautions that you must observe before installing the USG. Misoperation may cause personal injury or damage to the USG.

NOTE

This section describes common precautions related to installation. For more precautions, see *Safety and Regulatory Compliance Information*.

Safety Precautions

To ensure your own personal safety and to help protect your device from damage, observe the safety warnings on device labels and in the operation manual.

Information marked **NOTICE**, **CAUTION**, **WARNING**, and **DANGER** in the operation manual is not exhaustive, but supplements safety precautions.

Local Laws and Regulations

Comply with local laws and regulations while performing operations on the device. All safety precautions in the operation manual only supplement local safety regulations.

Basic Installation Requirements

Requirements for Huawei installation and maintenance personnel before they can perform related operations are as follows:

- Only qualified and trained engineers can install, operate, and maintain Huawei equipment.
- Only qualified professionals can remove safety facilities and troubleshoot Huawei equipment.
- Only authorized or certified personnel can replace Huawei components (including software).
- Installation and maintenance personnel must report all faults and errors that may cause safety issues to the person in charge.

Personal Safety Warnings

- Do not operate or cable the device during electrical storms.
- To avoid electric shock, do not connect the safety extra-low voltage (SELV) terminal to the telephone-network voltage (TNV) terminal.
- To avoid possible eye damage, do not look into the optical cable outlet without eye protection.
- Wear an antistatic suit, ESD gloves, and ESD wrist strap and remove any jewelry and watches before entering the equipment room to avoid possible electrical shock or injury.
- In the event of fire, evacuate the equipment room and nearby areas and pull the fire alarm or call your local emergency number.

Device Security Precautions

- Fix the device on the ground or other secure places, such as against the wall or on the mounting shelf.
- Do not block the air vent when the device is running.
- Tighten the screws with proper tools when installing the panels.
- Remove all plastic packing materials from the equipment room after the installation is complete.

5.2.2 Installation Environment Check

Before you install a USG, verify that the installation environment meets requirements to ensure the normal running and extended life time of the USG.

[Table 5-1](#) lists installation environment check items.

Table 5-1 Installation environment checklist

Check Item	Requirement	Compliance
Ventilation and heat dissipation	Complies with requirements in Device Position .	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
Stability		<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
Grounding		<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
Temperature	Complies with requirements in Humidity, Temperature, and Cleanness .	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
Relative humidity		<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
Cleanness		<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
Electrostatic discharging	Complies with requirements in ESD Requirements .	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
Surge protection	Complies with requirements in Lightning Protection and Grounding .	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
Power supply facility	Complies with requirements in Power Supply .	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
Electromagnetic shielding	Complies with requirements in Electromagnetic Protection .	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

5.2.3 Instruments Required for the Installation

This section describes the instruments and meters for installing the USG.

Table 5-2 lists the required instruments and meters for USG installation.

Table 5-2 Required instruments and meters

Category	Instrument/Meter
Measuring and lineation instruments	<ul style="list-style-type: none"> • Ruler: used to measure length. • Marker: used to indicate specific lengths with drawn lines.
Fastening tools	<ul style="list-style-type: none"> • Flat-head screwdriver: used to fasten small screws and bolts. • Phillips screwdriver: used to fasten small screws and bolts.

Category	Instrument/Meter
Drilling tools	<ul style="list-style-type: none"> ● Hammer drill: used to drill mounting holes during wall-mounting. ● Vacuum cleaner: used to remove dust and debris produced while drilling holes. ● Hammer: used to drive the hollow wall anchors into mounting holes.
Pliers	<ul style="list-style-type: none"> ● Needle-nose pliers: used to hold small fittings and twist fine wires in a narrow workplace. ● Diagonal cutting pliers: used to cut insulated sleeves and tie wraps.
Auxiliary tools	<ul style="list-style-type: none"> ● Knife: used to peel the insulated sleeve from the cable. ● Ladder: used to access overhead cabling.
Special tools	<ul style="list-style-type: none"> ● Wire stripper: used to peel the insulated sleeve of the communication cable. ● RJ-45 crimping tool: used to crimp RJ-45 cables for telephony and Ethernet applications. ● Crimping tool: used to crimp the metal sleeve at the ends of coaxial cables. ● Floating nut mounting bar: used to install floating nuts to the mounting bars of the cabinet. ● ESD gloves: used to protect the device from being damaged by static electricity. ● ESD wrist strip: used to protect the device from being damaged by static electricity. ● Protective gloves: used to shield hands from being injury by sharp objects.
Meters	<ul style="list-style-type: none"> ● Network cable tester: used to test whether a network cable is connected and check the connection sequence in a network cable. ● Optical power meter: used to test the optical power. ● Optical attenuator: used to measure optical attenuation. ● Multimeter: used to test insulation within the cabinet, cable connections, and electric performance specifications of the device, such as the voltage, current, and resistance. ● Ground resistance tester: used to measure the ground resistance. ● Configuration terminal (A common PC is also applicable).

5.3 Installing a Desktop Device

This chapter provides the cabinet-mounting, workbench-mounting, wall-mounting, and cable connection methods of the USG6510E, USG6510E-POE, USG6530E.

5.3.1 Mounting a Device to a Specified Location

The USG6510E, USG6510E-POE, USG6530E can be mounted in a 19-inch standard cabinet. When no cabinet is available, install the USG6510E, USG6510E-POE, USG6530E on a workbench or a wall.

5.3.1.1 Mounting a Device in a Cabinet

The USG6510E, USG6510E-POE, USG6530E can be mounted in a 19-inch standard cabinet using mounting ears.

Precautions

Before installing the USG, check the following items:

- Before unpacking the carton, ensure that the packing carton is intact and not damaged or soaked. Stop unpacking if the USG is rusted or soggy. Then, investigate causes and contact the supplier.
- The cabinet is stable.
- The position for the USG in the cabinet is well arranged.
- Ensure that the USG is 1 U of clearance from any devices above and below and 150 mm of clearance from any devices on the right or left.
- The device to be installed is staged near the cabinet for convenience.

You can place either end of the USG chassis towards the front door of the cabinet. In this manual, the front panel of the USG is towards the front door of the cabinet.

Tools and Accessories

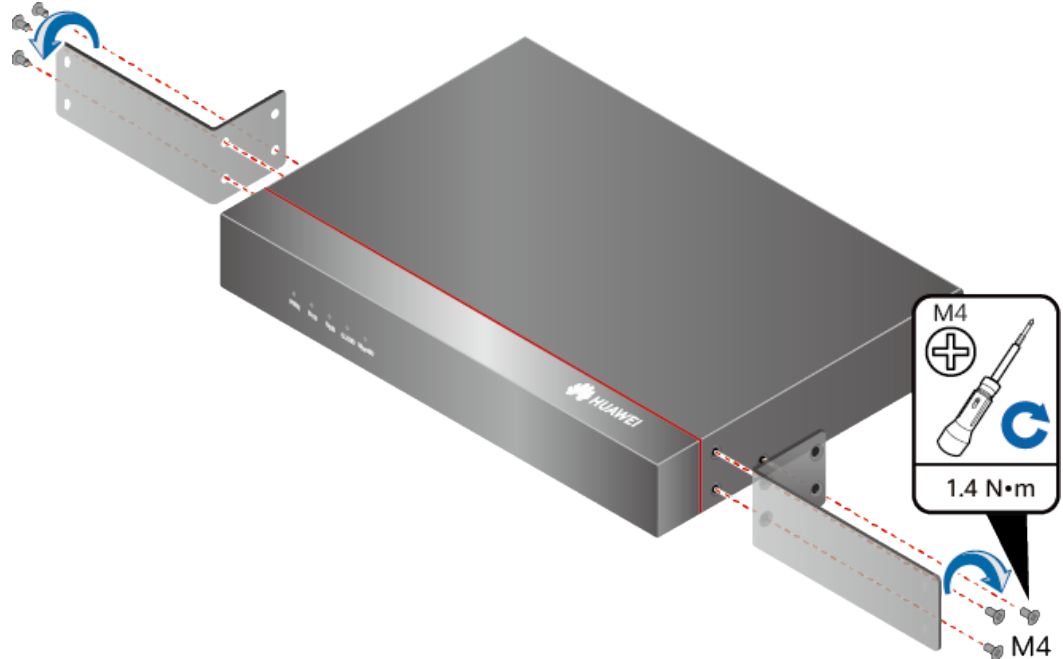
- Phillips screwdriver
- Floating nuts and matching screws
- Floating mounting bar
- Mounting ears and matching screw (purchased separately, BOM numbers: 21240477)
- Holding plate and matching screw (purchased separately, BOM numbers: 21243646)

Procedure

Step 1 Install mounting ears on the chassis.

Use a Phillips screwdriver to fix the mounting ears to both sides of the chassis with M4 screws, as shown in [Figure 5-2](#).

Figure 5-2 Installing the mounting ears on the chassis



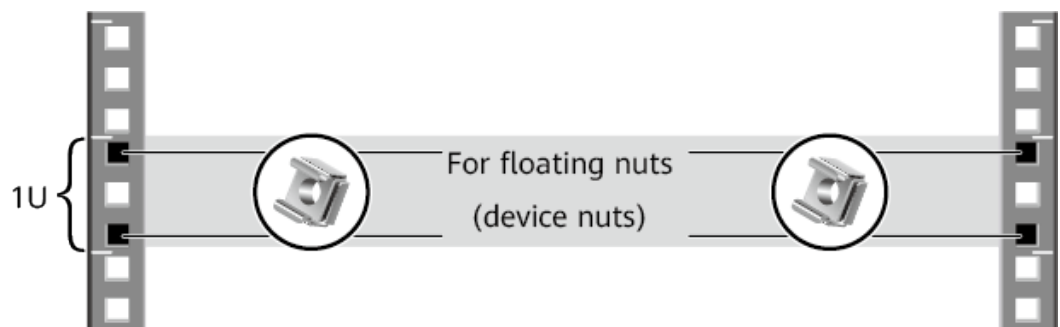
NOTE

If the tray installation mode is used, skip this step.

Step 2 Install floating nuts.

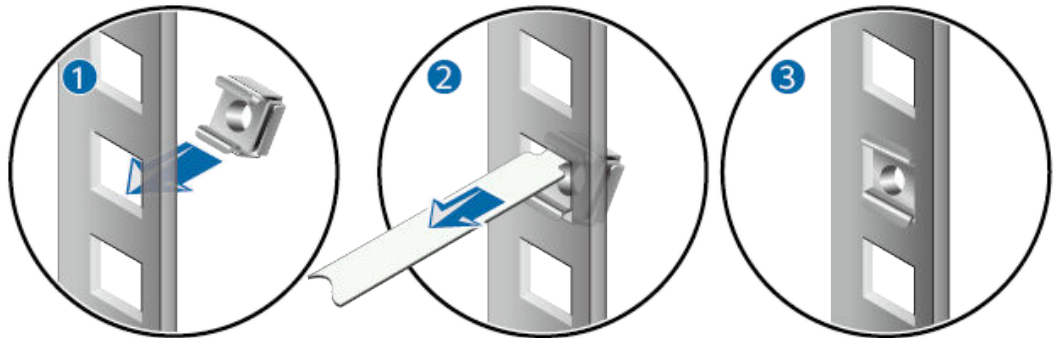
Figure 5-3 illustrates the positions of floating nuts.

Figure 5-3 Positions of floating nuts



Use M6 screws to fix the floating nuts at the positions specified in **Figure 5-3**, as shown in **Figure 5-4**.

Figure 5-4 Installing floating nuts

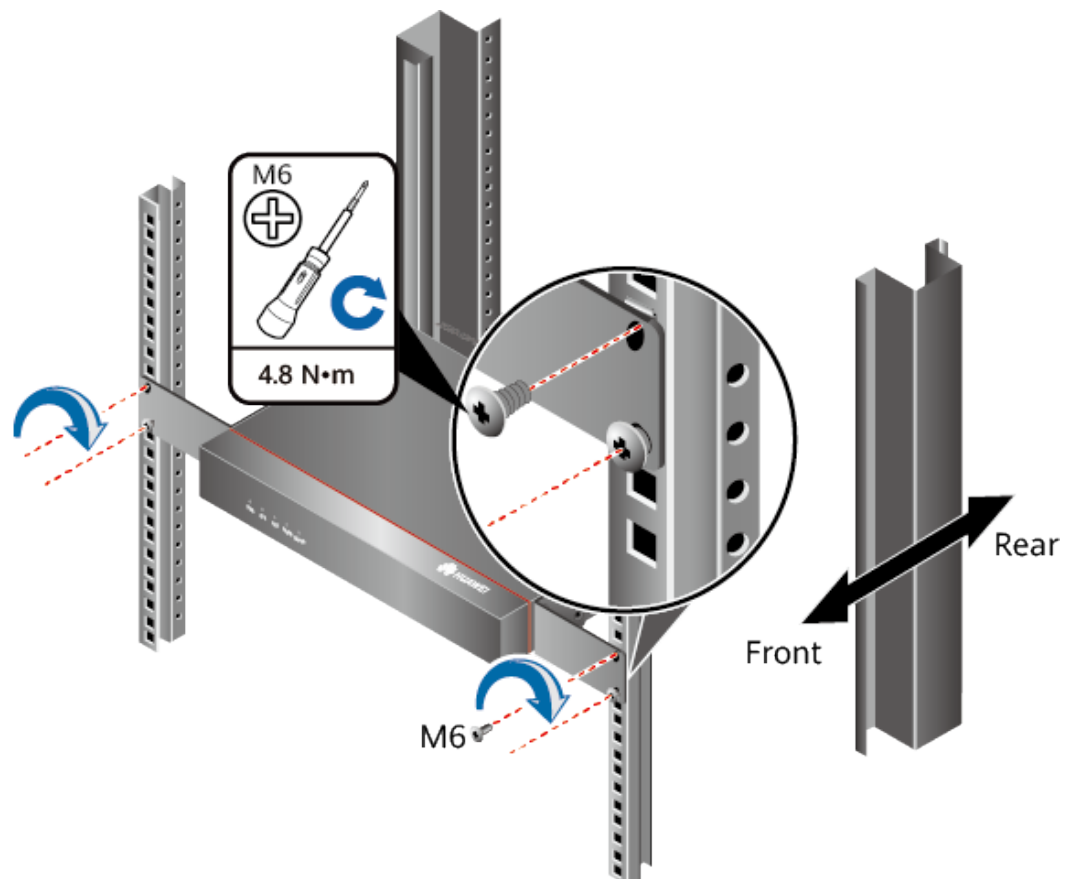


Step 3 (Optional) Install the device to a tray. For details, see the installation guide delivered with the tray.

Step 4 Mount the USG in the cabinet.

1. Lift the USG and move it to the cabinet.
2. Use a Phillips screwdriver to install M6 screws and fix the USG into the cabinet through mounting ears, as shown in [Figure 5-5](#).

Figure 5-5 Mounting the USG in a cabinet



----End

Follow-up Procedure

Perform the following checks after the installation:

- Ensure that the USG is placed securely inside the cabinet.
- Ensure that the exhaust of the USG is not blocked by other objects.

5.3.1.2 Mounting a Device on a Workbench

If you do not have a cabinet, you can mount the USG6510E, USG6510E-POE, USG6530E on a workbench.

Precautions

Before unpacking the carton, ensure that the packing carton is intact and not damaged or soaked. Stop unpacking if the USG is rusted or soggy. Then, investigate causes and contact the supplier.

The workbench must be:

- Reliably grounded.
- Clean, firm, and securely installed.

Accessories

Four rubber feet

Procedure

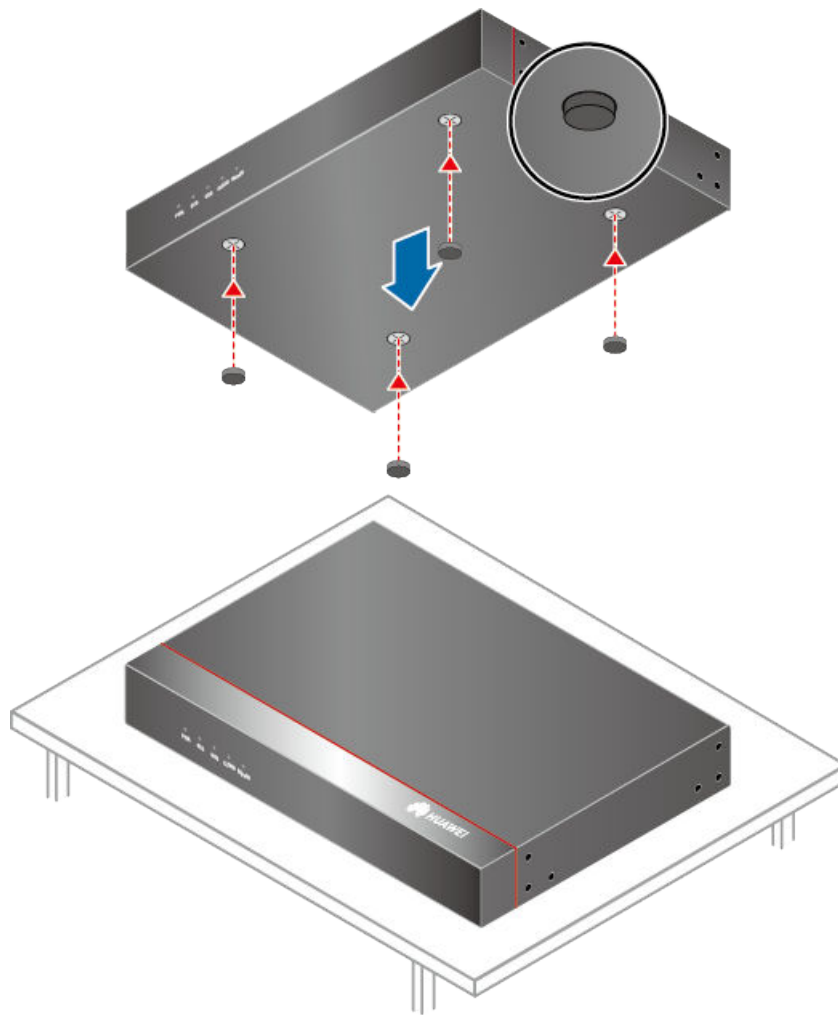
Step 1 Fix the rubber feet to the round notches at the bottom of the USG.

NOTE

Install foot pads at the bottom of the USG to ensure smooth contact between the USG and the workbench and avoid friction between the surface of the USG and the workbench.

Step 2 Place the USG on the workbench.

Figure 5-6 Placing the USG with rubber feet on a workbench



----End

Follow-up Procedure

Verify the following after the installation:

- The USG is securely placed on the workbench.
- No object blocks the exhaust of the USG, and there is at least 10 cm of distance between the USG and surrounding devices.
- There are no heavy objects on the USG.

5.3.1.3 Mounting a Device Against a Wall

When no cabinet is available, you can mount the USG6510E, USG6510E-POE, USG6530E on a wall. The customer must have expansion screws for wall-mounting.

Precautions

Before unpacking the carton, ensure that the packing carton is intact and not damaged or soaked. Stop unpacking if the USG is rusted or soggy. Then, investigate causes and contact the supplier.

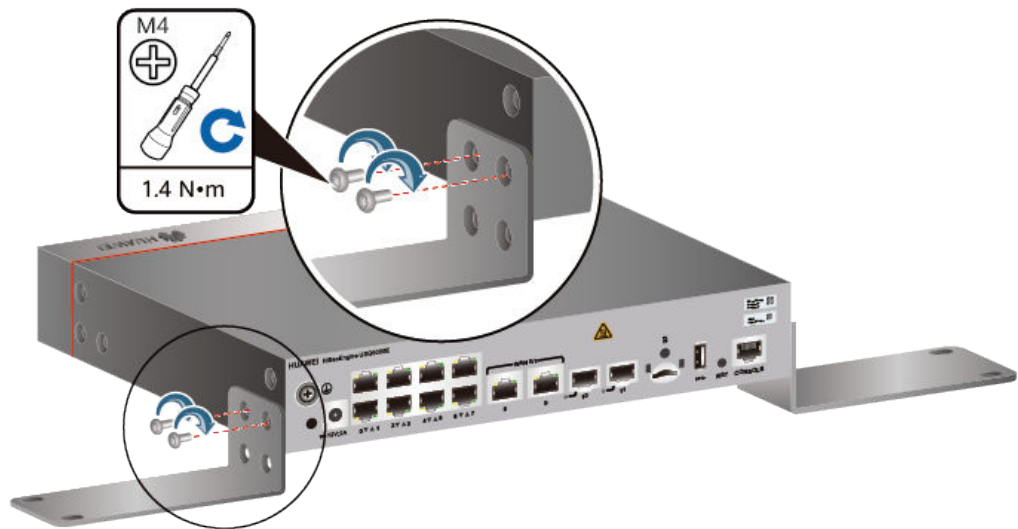
Tools and Accessories

- Ruler
- Marker
- Hammer drill
- Vacuum cleaner
- Hammer
- Phillips screwdriver
- Mounting ears and matching screw (purchased separately, BOM numbers: 21240477)

Procedure

Step 1 Fix mounting ears to both sides of the panel with ports using M4 screws.

Figure 5-7 Installing the mounting ears on the chassis

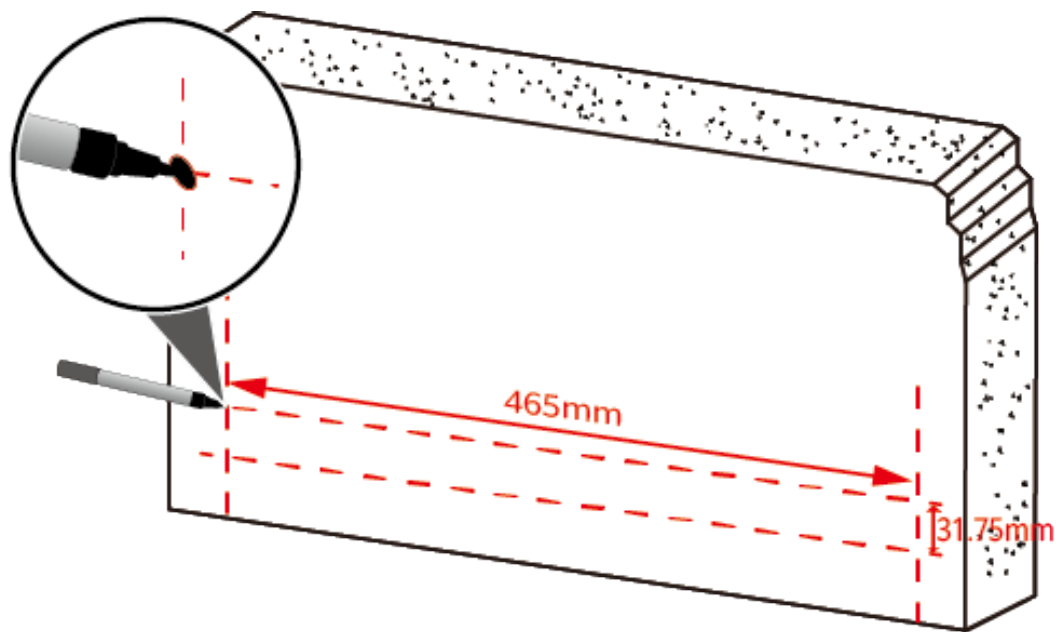


Step 2 Determine the locations of four mounting holes on the wall using a ruler and mark the mounting holes with a marker.

NOTE

- The wall must be a bearing wall. Otherwise, the wall is not suitable for wall-mounting.
- Ensure that the height of mounting holes is proper so that the indicators are easy to view.

Figure 5-8 Spacing between mounting holes



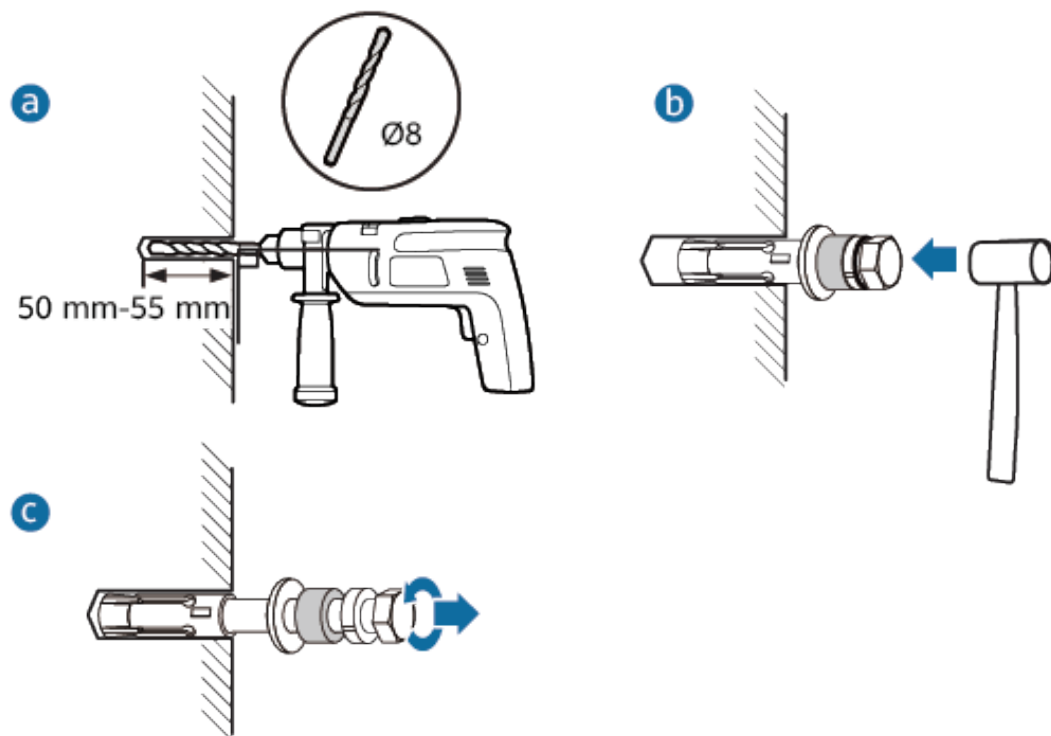
Step 3 Drill holes and install expansion bolts.

NOTICE

Ensure that the expansion bolts are secure and reliable. Otherwise, the tension after cables are connected may cause the USG6510E, USG6510E-POE, USG6530E to fall.

1. Use a $\phi 8$ drill bit to drill holes in the marked positions.
2. Insert expansion bolts into the holes and screw the nuts to fasten the expansion bolts.
3. Remove the nut, flat washer, and spring washer.

Figure 5-9 Drilling holes and installing expansion bolts

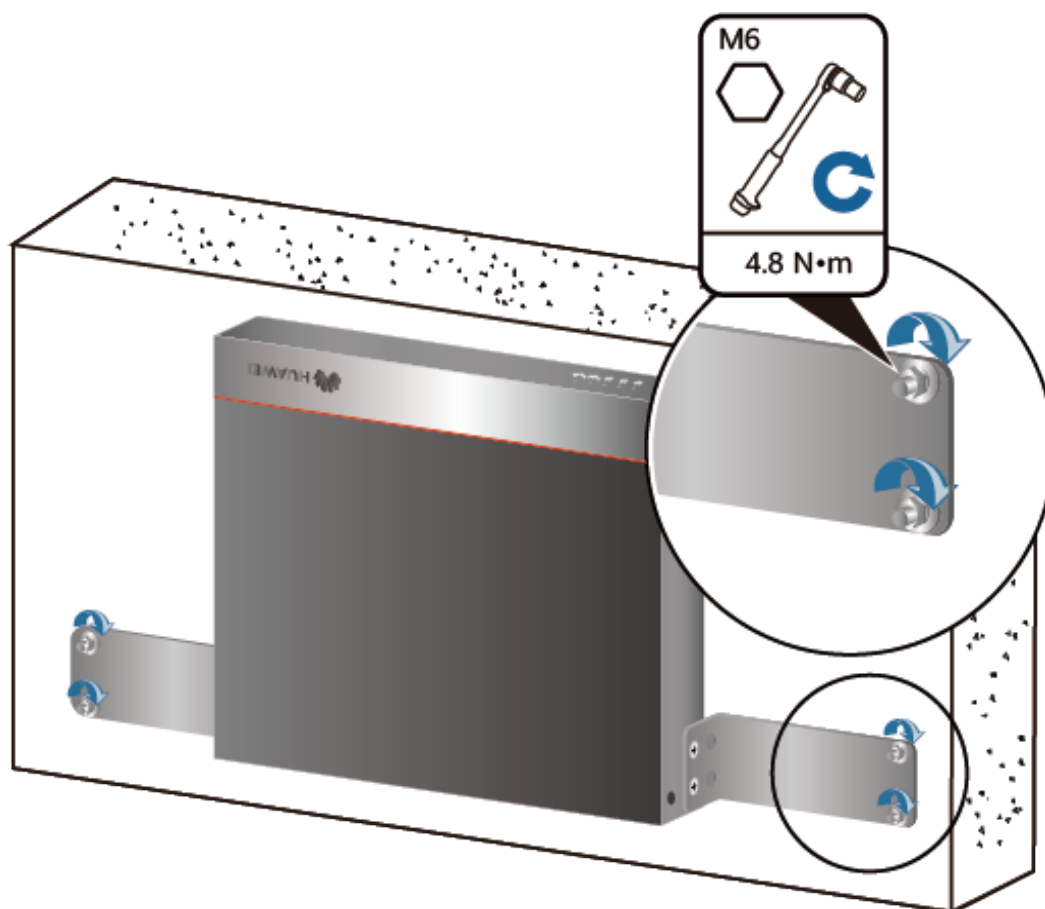


Step 4 Secure the USG on the wall and fasten the flat washers, spring washers, and nuts in order.

NOTE

The USG supports upward mounting and downward mounting. To prevent water from entering into ports and causing device damage, you are advised to mount the USG with ports facing downward.

Figure 5-10 Mounting the USG on a wall



----End

Follow-up Procedure

After wall-mounting is complete, verify that:

- The USG is securely fixed on the wall.
- A clearance of 10 cm is maintained around the USG and the air flow is not blocked.

5.3.2 Connecting a PGND Cable

Connecting the PGND cable of a USG6510E, USG6510E-POE, USG6530E correctly is a key measure of surge protection and resistance to interference. Before using the USG6510E, USG6510E-POE, USG6530E, correctly connect the PGND cable. Otherwise, the USG may be damaged.

Precautions

The USG has been installed inside a cabinet.

Tools

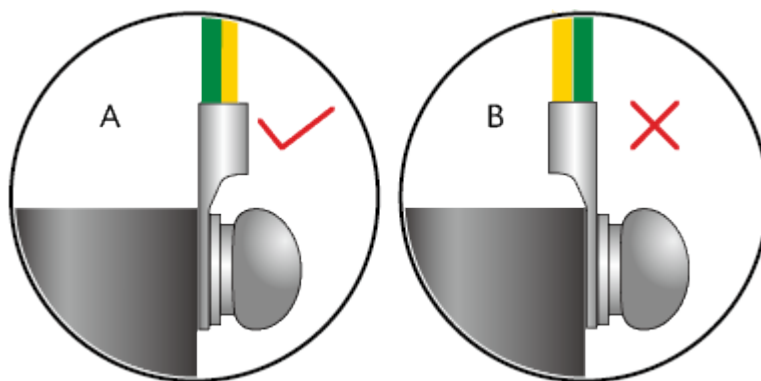
- Phillips screwdriver
- Multimeter

Procedure

Step 1 Loosen and remove the screw of the ground terminal on the USG rear panel.

Step 2 Connect the OT terminal at one end of the PGND cable to the connection hole of the USG, with the conducting wire upward, and tighten the M4 screw, as shown in A of [Figure 5-11](#), and tighten the M4 screw. The tightening torque is 1.4 N·m.

Figure 5-11 Installing the OT terminal

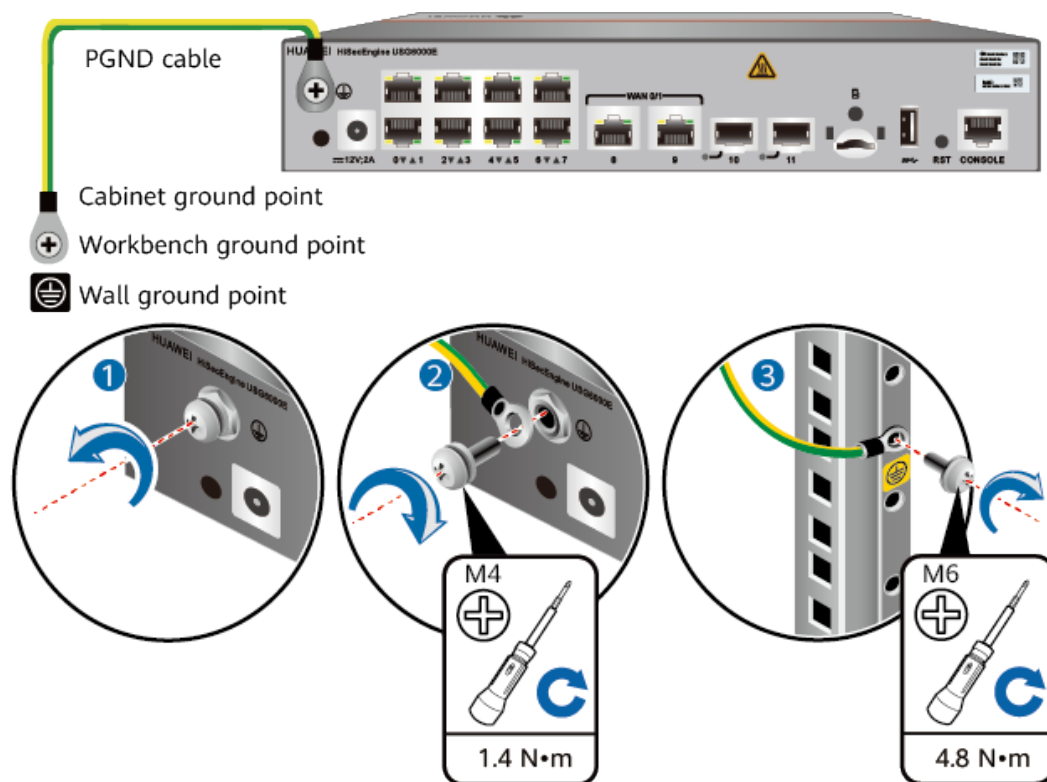


NOTE

The ground cable of the USG6510E, USG6510E-POE, USG6530E must be routed upwards.

Step 3 Connect the M6 end of the PGND cable to the ground terminal of the cabinet, workbench, or wall. The tightening torque of the M6 screw is 4.8 N·m.

Figure 5-12 Connecting a PGND cable



NOTICE

The OT terminal may rotate and result in device damage. Make sure that it is independent of the adjacent metal mechanical part or other terminals.

----End

Follow-up Procedure

Verify the following after the cabling is complete:

- The PGND cable is securely connected to the ground terminal.
- The electrical resistance between the ground terminal and ground point is less than 0.1 ohm on a multimeter.

5.3.3 Installing a Micro SD Card

This section describes how to install a micro SD card for the first time to avoid damages.

Precautions

- Micro SD cards are optional and are not delivered with the device. If required, purchase the micro SD card (part number: 06010308) from Huawei. The micro

SD card model is SDSAQAE-064G, the capacity is 64 GB, and dimensions (H x W x D) are 1 mm x 15 mm x 11 mm (0.04 in. x 0.59 in. x 0.43 in.).

- The micro SD card can be installed no matter the device is powered off or the device is running. The installation methods are the same. In this section, the micro SD card is installed when the device is powered off.
- To replace the micro SD card when the USG is powered on, you must run the **sd-card offline** command in the system view first. After the system displays a message indicating that the micro SD card is offline, remove the micro SD card. Otherwise, the micro SD card might be damaged, and the data may be lost. For details, see [Replacing a Micro SD Card \(USG6510E, USG6510E-POE, USG6530E\)](#).
- Make sure that you have worn an ESD wrist strap and the strap is well grounded before you hold the micro SD card. Otherwise, the micro SD card may be damaged.

Tools

- Phillips screwdriver
- ESD wrist strap

Procedure

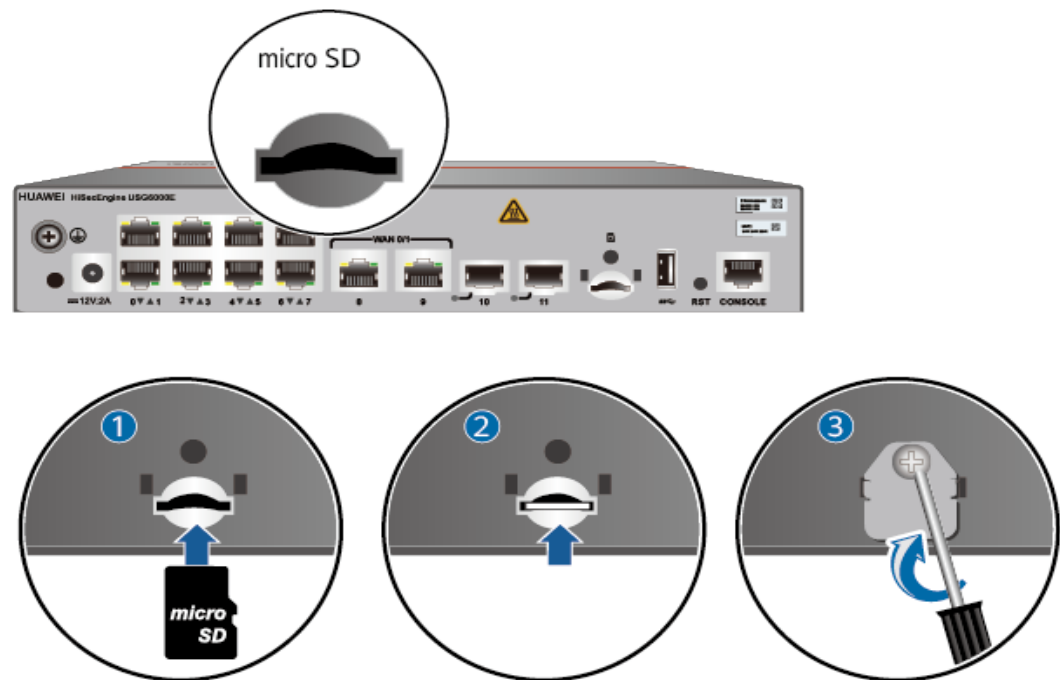
Step 1 Determine the slot (the slot with a "micro SD" mark on the rear panel) for installing the micro SD card.

Step 2 Install the micro SD card and anti-theft board.

NOTE

- Note that the micro SD card must be installed with the face with words upwards.
 - Do not use too much force; otherwise the micro SD or micro SD card slot might be damaged.
1. Insert the micro SD along the guide rail to the micro SD card slot.
 2. When you hear a click, the micro SD card is in position.
 3. Hook the locating hook on the anti-theft board to the locating hole of the rear panel and tighten the captive screw on the anti-theft board.

Figure 5-13 Installing the micro SD card and anti-theft board



----End

Follow-up Procedure

After the micro SD card is installed, power on the USG and run the **display sd-card information** command in any view to check the micro SD card installation and file system mounting status. If **SD Card Physical State** is **Present** and **SD Card File System State** is **Mounted**, the micro SD card is working properly.

- If **SD Card Physical State** is **Absent**, re-install the micro SD card and try again. If **SD Card Physical State** remains the same, the USG may fail to identify the micro SD card. You are advised to use another micro SD card.
- If **SD Card File System State** is **Unmounted**, the micro SD card format might not be **ext4**. You need to run the **reset sd-card** command in the system view to format the micro SD card.

5.3.4 Connecting a Console Cable

After connecting a PC to the console port of a USG6510E, USG6510E-POE, USG6530E with a console cable, you can use the terminal emulation program on the PC to access the command configuration interface of the USG6510E, USG6510E-POE, USG6530E.

Precautions

Before connecting a console cable, perform the following operations:

- Check preparations.
A PC is ready, a USG has been installed, and the ports to be connected are planned.
- Prepare cable labels.

Before cable connection, labels must be prepared for the cable.

NOTICE

- Make sure that the PC and the USG are connected to the same ground point. Otherwise, the console port of the USG may be damaged.
- Pay attention to port numbering and make sure that the cable is connected to the correct port, preventing damage to ports or the device.

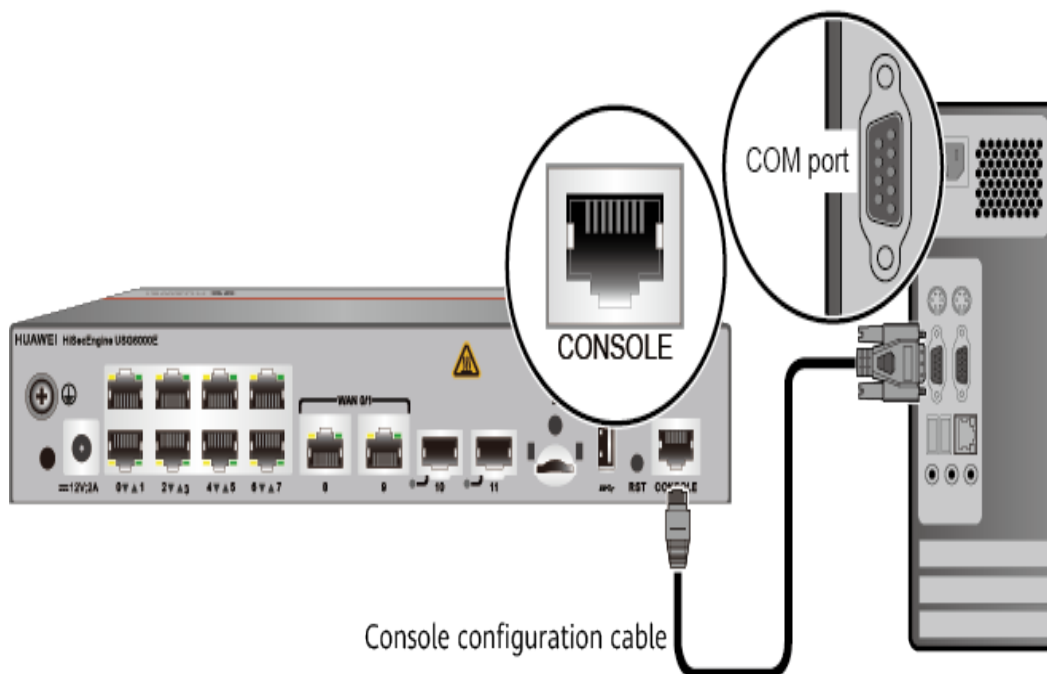
Tools

Console cable (prepared by the user)

Procedure

- Step 1** Before connecting a console cable, attach temporary labels to both ends of the cable for identification.
- Step 2** Connect the RJ45 connector of the console cable to the console port (RJ45) of the USG.
- Step 3** Connect the DB9 connector of the console cable to the COM port of the management PC.

Figure 5-14 Connecting a console cable to the USG



- Step 4** Remove the temporary labels and attach labels 2 cm away from connectors at both ends of the console cable.

----End

Follow-up Procedure

After the cable connection is complete, verify that:

- The labels at both ends of a cable are correct, clear, neat, and facing the same direction.
- Cables and connectors are free of damage or breakage and are connected properly.

For details on the console login, refer to the Configuration Guide.

5.3.5 Connecting an Ethernet Cable

Based on the network plan, you can connect one end of an Ethernet cable to the Ethernet port of a USG6510E, USG6510E-POE, USG6530E and the other end to the Ethernet port of the peer device.

Context

Before connecting the Ethernet cable, perform the following operations:

- Check construction conditions.
The peer device has been installed in the equipment room, and the port to which the Ethernet cable is to be connected has been determined.
- Check the cabling route.
The engineering document should specify the cabling route from the cabinet to the peer device in the equipment room, and the length of the cable is calculated based on the cabling path.
- Label the cable.
The cable must be labeled before being connected to the devices.

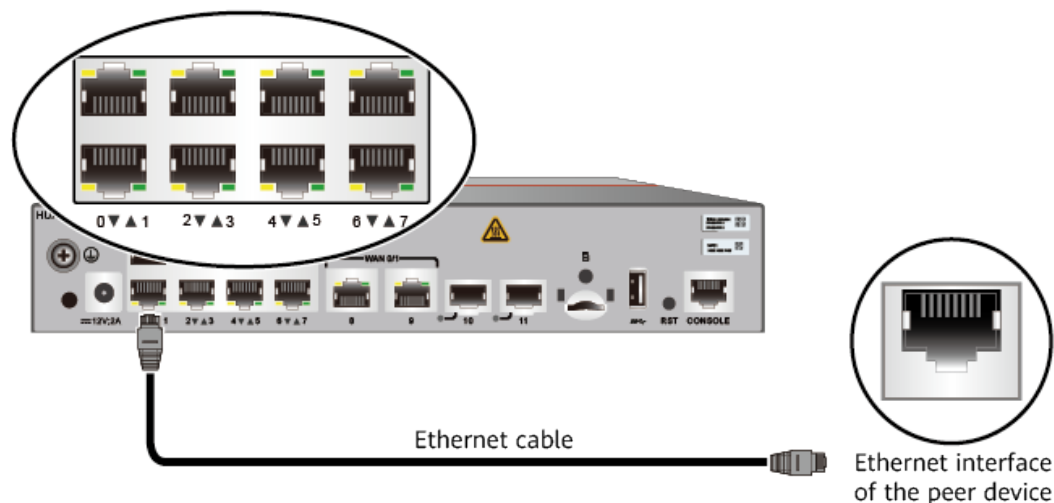
NOTICE

- Only shielded cables are supported on the USG.
 - Before connecting a cable, note the label on the port and make sure that the cable is inserted into the correct port. Otherwise, the port module or the device might be damaged.
-

Procedure

- Step 1** If multiple network cables need to be connected, attach temporary labels to both ends of each cable for identification.
- Step 2** Connect one end of an Ethernet cable to the Ethernet port of the USG and the other end to the Ethernet port of the peer device based on the network plan.

Figure 5-15 Connecting an Ethernet cable



Step 3 Lay out the Ethernet cable along a cabinet and route the cable through the cable hole for the signal cables at the top (overhead cabling) or bottom (underfloor cabling) of the cabinet.

Step 4 Remove the temporary labels and attach labels (2 cm away from connectors) at both ends of the Ethernet cable.

----End

Follow-up Procedure

Verify the following after the installation:

- The labels at both ends of the cable are correct, clear, neat, and facing the same direction.
- The cables and connectors are free of any damage or breakage and are connected properly and reliably.

5.3.6 Installing Optical Transceivers and Connecting Optical Fibers

This section describes how to install optical transceivers on the SFP or SFP+ ports and connect them to the ports of the peer device using optical fibers according to the network plan.

Context

The USG supports both 1 Gbit/s , 10 Gbit/s, and 40 Gbit/s optical modules. The optical modules at both ends are the same, including the optical fiber type (single-mode or multi-mode), optical fiber connector type (LC/PC, SC/PC, FC/PC, or MPO/PC-MPO/PC), and transmission rate. If different optical modules are used at the two ends, the communication may fail.

NOTICE

Huawei optical modules are recommended. The optical modules from other vendors may cause faults on the USG due to incompatibility.

CAUTION

Do not look into the optical interface of the optical module or the optical fiber connector without eye protection.

Before connecting optical fiber cables, read the following precautions:

- Do not overbend optical fibers, and the radius should not be shorter than 40 mm.
- Do not bundle the optical fibers too tight. Otherwise, the transmission performance of the optical fibers and the communication between devices might be adversely affected.

Before connecting optical ensure the following:

- The optical module has been installed.

Procedure

Step 1 Insert an optical transceiver into the SFP or SFP+ port of the USG.

Step 2 Remove the dust cap from the optical transceiver.

NOTE

Set aside the dust cap properly for future use. After optical fiber are disconnected for maintenance, use the dust cap to prevent the optical transceiver from dust.

Step 3 Before connecting an optical fiber, attach temporary labels to both ends of the optical fiber for identification.

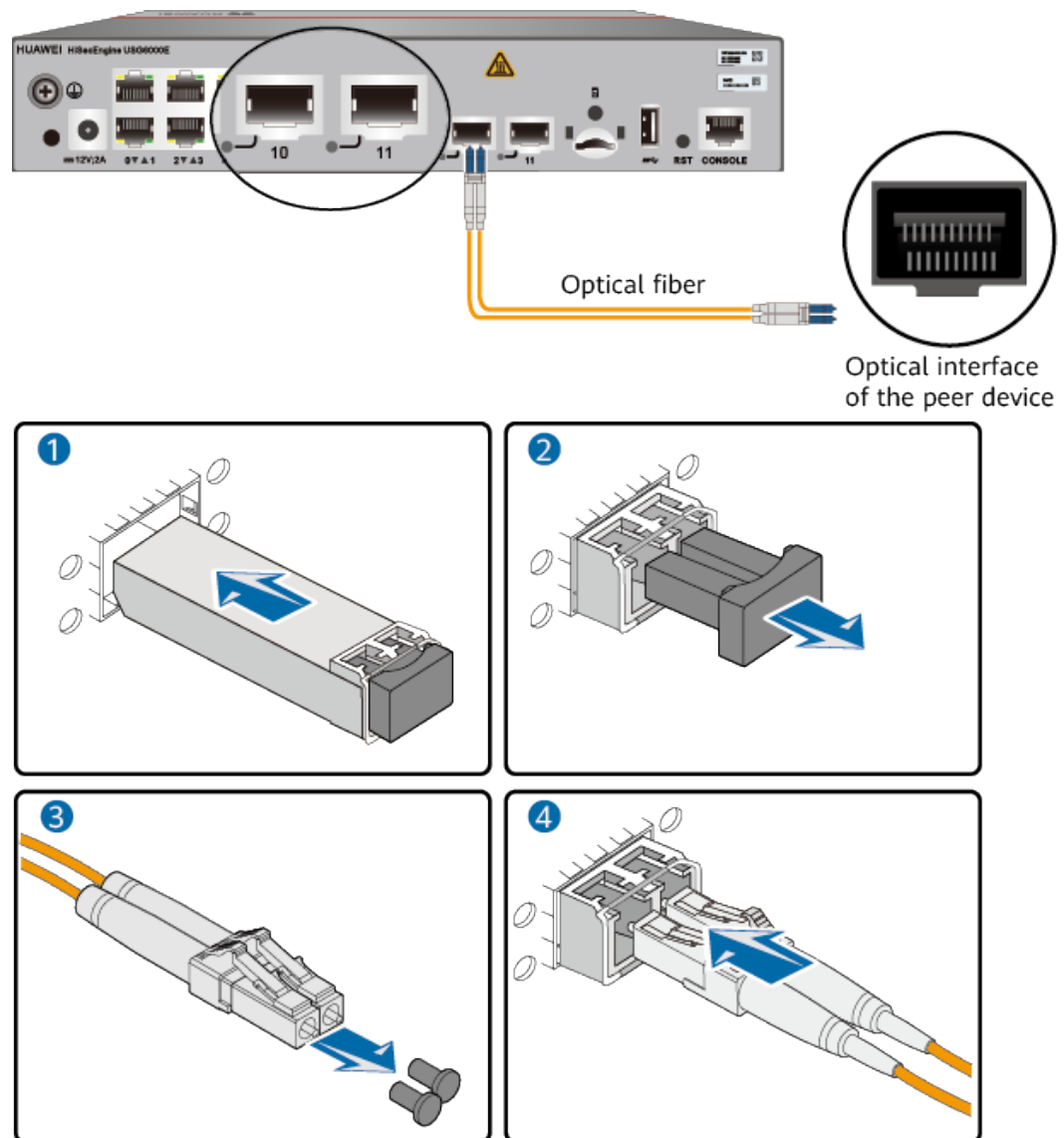
Step 4 Remove protective caps from optical fiber connectors, insert optical fibers into the optical transceiver, and connect the fiber to the peer device.

NOTE

Ensure that the Tx and Rx ports are correctly connected.

Ensure that the TX and RX ports on one end of the optical fiber cable are connected to the RX and TX ports (respectively) on the other end.

Figure 5-16 Installing optical transceivers and connecting optical fibers



Step 5 Repeat **Step 1** to **Step 4** to install all optical transceivers and connect all optical fibers.

----End

Follow-up Procedure

After you power on the USG, check the connection by observing the optical port indicator. If the indicator is on or blinks, the link is connected or data is being transmitted. If the indicator is off, the link is disconnected. Possible causes for the disconnection are as follows:

- The optical fiber is improperly inserted. Pull out the optical fiber and re-insert it.
- The RX and TX optical ports are inserted reversely. Pull out the optical fibers, change their position, and re-insert them.

- The optical module is damaged or the optical fiber is broken. Replace the optical module or the optical fiber.

5.3.7 Connecting a Power Adapter

A power adapter can be used to supply power for a USG6510E, USG6510E-POE, USG6530E. Prepare an AC power cable to connect the power connector and the power source of the equipment room.

Context

Before connecting a power connector, ensure that the power source of the equipment room meets the input requirements of the USG power module.

Procedure

- Step 1** Ensure that the PGND cable is properly grounded.
- Step 2** Insert a cable-retention clip into the jack next to the power socket.
- Step 3** Connect a power adapter.
1. Plug the C7 plug of the AC power cable into the C14 socket of the power adapter.
 2. Insert the tuning fork plug connector of the power adapter into the power socket on the USG rear panel and adjust the cable-retention clip to an appropriate position.
 3. Use a cable-retention clip to bundle the cable of the power adapter and adjust the cable-retention clip to fasten the cable.
 4. Plug the other end of the AC power cable to the AC power socket or the output of the AC power supply device.

NOTE

The USG does not have any power switch. The power supply switch determines the power-on and power-off of the USG.

Figure 5-17 Connecting a power adapter to the (USG6510E, USG6530E)

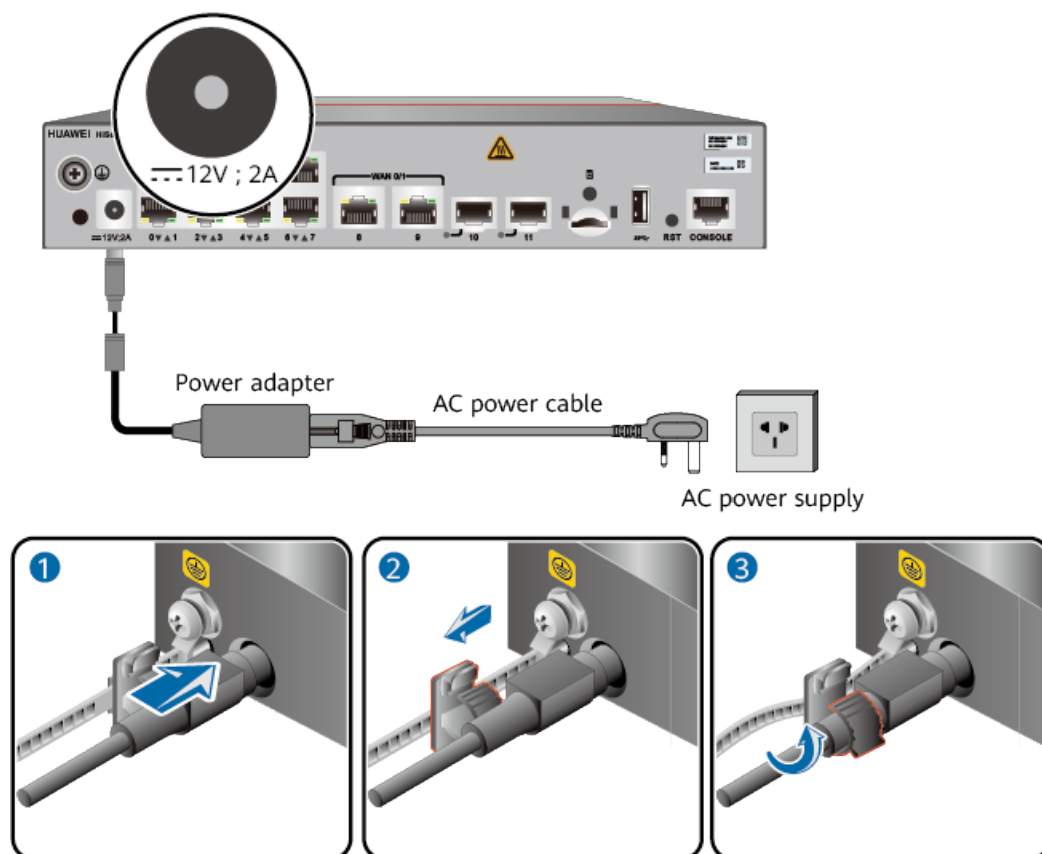
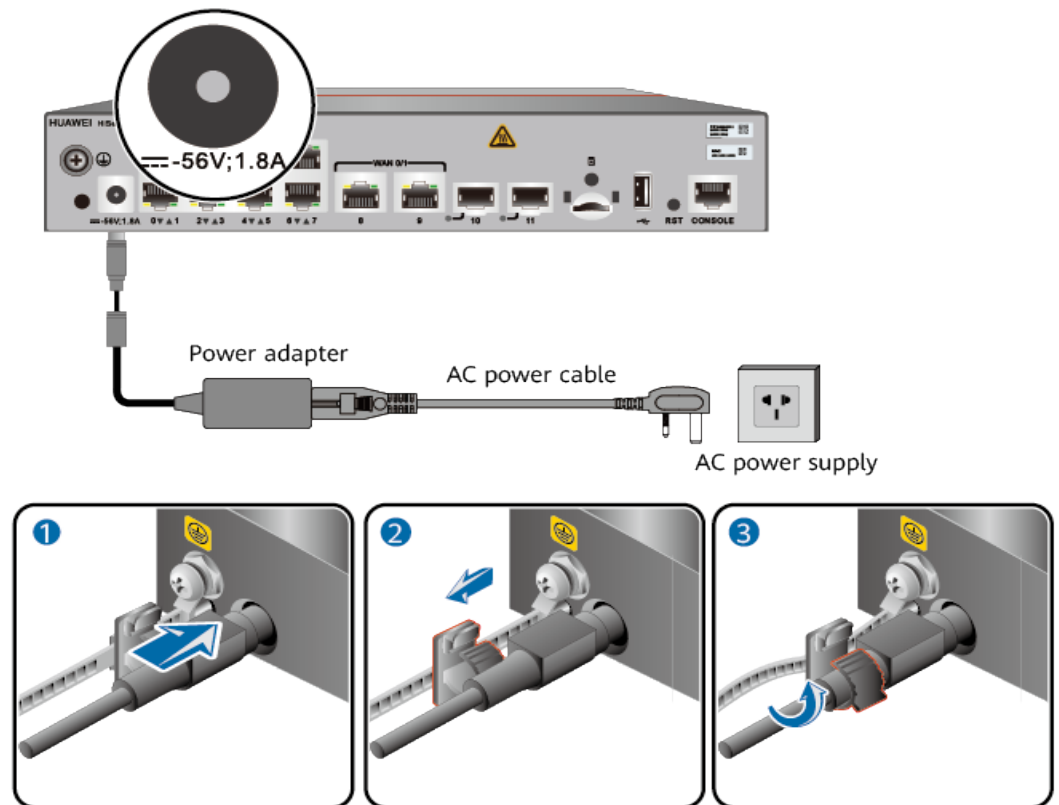


Figure 5-18 Connecting a power adapter to the (USG6510E-POE)



----End

Follow-up Procedure

Verify the following after the connection is complete:

- The power cable is firmly connected to the power supply socket.
- If multiple USGs are deployed, the power cables of each USG are correctly labeled for distinction.

5.3.8 Powering On or Off the USG6510E, USG6510E-POE, USG6530E

This section describes how to power on or off the USG6510E, USG6510E-POE, USG6530E. To ensure the normal start and security of the USG6510E, USG6510E-POE, USG6530E, strictly follow the operation guide to power on or off the USG6510E, USG6510E-POE, USG6530E.

Context

Before you power on the USG, ensure that:

- The power cable and PGND cable are properly connected.
- The power switch in the equipment room is easy to locate so that you can power off devices in the case of accidents.

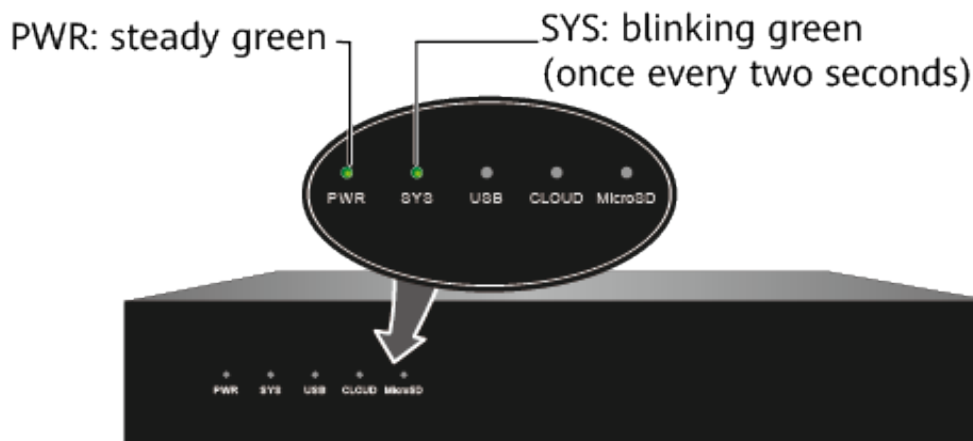
Procedure

- Power on the USG.

The USG starts after the switch of the power supply device is turned on.

You can identify the USG status based on indicators on the front panel. Indicators shown in **Figure 5-19** indicate that the USG is running normally.

Figure 5-19 Indicators when the USG runs normally



- Power off the USG.

NOTICE

Before powering off the USG, ensure that configuration data is saved. Otherwise, the configuration data may be lost.

If the USG will be administratively shut down for a long time, turn off the power switch. After powering off the USG, set it aside properly according to storage requirements.

----End

Follow-up Procedure

After the USG is powered on, you can log in to the configuration page for management and maintenance. For details, refer to the Configuration Guide.

5.4 Installing a 420 mm Deep Device

This chapter provides the cabinet-mounting, workbench-mounting, and cable connection methods of the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E series.

5.4.1 Mounting a Device to a Specified Location

The USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E can be mounted in a 19-inch standard cabinet. When no cabinet is available, you can mount the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E on a workbench.

5.4.1.1 Mounting a Device in a Cabinet

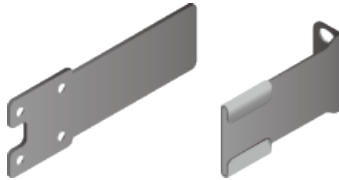
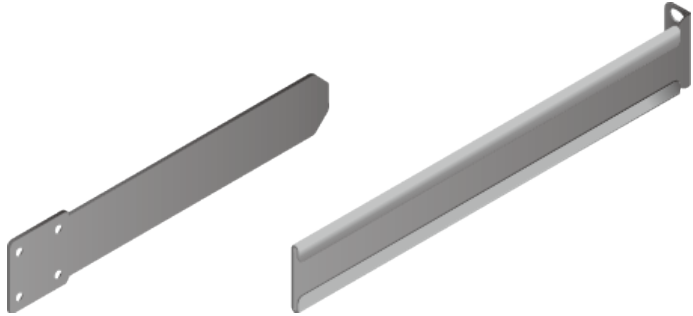
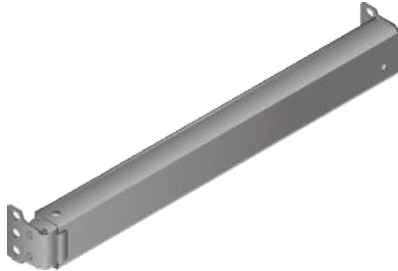
Install the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E to the cabinet through the expandable rear mounting ears or adjustable guide rails.

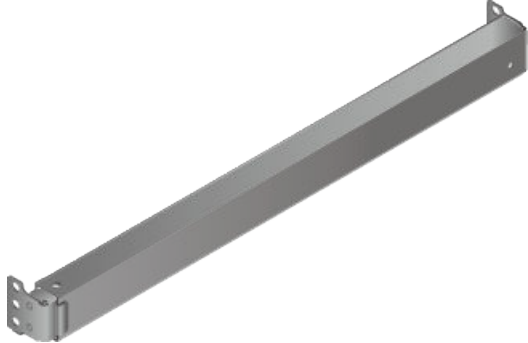
Precautions

Before installing the USG, check the following items:

- Before unpacking the carton, ensure that the packing carton is intact and not damaged or soaked. Stop unpacking if the USG is rusted or soggy. Then, investigate causes and contact the supplier.
- The cabinet is stable.
- Before installing the expandable rear mounting ears or adjustable guide rails on the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E, adjust the distance between the front and rear angle gauges (rack mounting rails/vertical columns) to satisfy the installation requirements. The specific scope of application is as follows:

Table 5-3 Expandable rear mounting ears and adjustable guide rails

Distance Between the Front and Rear Mounting Bars and Cabinet Type	Expandable Rear Mounting Ears and Adjustable Guide Rails
<p>Expandable rear mounting ears (BOM number: 21240492)</p> <ul style="list-style-type: none"> Distance between the front and rear mounting bars: 310 mm to 538 mm Cabinet depth: 600 mm to 800 mm 	
<p>Expandable rear mounting ears (BOM number: 21240537)</p> <ul style="list-style-type: none"> Distance between the front and rear mounting bars: 638 mm to 835 mm Cabinet depth: 1000 mm to 1200 mm 	
<p>Adjustable guide rails (BOM number: 21242247)</p> <ul style="list-style-type: none"> Distance between the front and rear mounting bars: 370 mm to 585 mm Cabinet depth: 600 mm to 800 mm 	

Distance Between the Front and Rear Mounting Bars and Cabinet Type	Expandable Rear Mounting Ears and Adjustable Guide Rails
Adjustable guide rails (BOM number: 21242246) <ul style="list-style-type: none"> Distance between the front and rear mounting bars: 500 mm to 850 mm Cabinet depth: 1000 mm to 1200 mm 	

- The position for the USG in the cabinet is well arranged. Ensure that the USG is 1 U of clearance from any devices above and below and 150 mm of clearance from any devices on the right or left.
- The USG to be installed is staged near the cabinet for convenience.
- In the front view, the air flow of the USG is front to rear. If the USG and a device whose air flow is rear to front must be mounted in the same cabinet, maintain certain spacing between them to prevent hot air recirculation.

You can place either end of the USG chassis towards the front door of the cabinet. In this manual, the front panel of the USG is towards the front door of the cabinet.

 **NOTE**

The method of installing expandable rear mounting ears (BOM number: 21240492) is the same as that of installing expandable rear mounting ears (BOM number: 21240537). The following uses the expandable rear mounting ears (BOM number: 21240492) as examples.

Tools and Accessories

- Phillips screwdriver
- Floating nuts and matching screws
- Floating mounting bar
- Front mounting ears and corresponding screws
- Expandable rear mounting ears and corresponding screws (purchased separately, BOM numbers: 21240492 and 21240537)
- Adjustable guide rails and matching screws (purchased separately, BOM numbers: 21242247 and 21242246)

Procedure

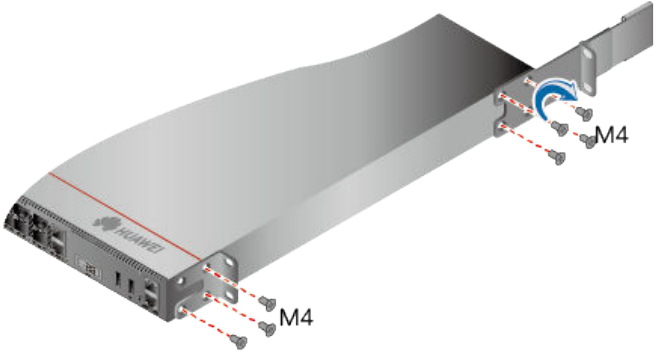
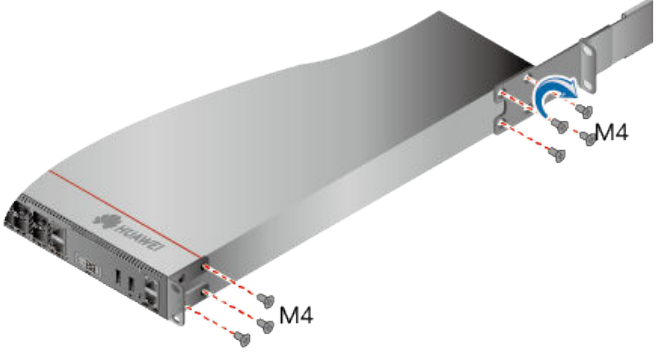
Step 1 Install mounting ears on the chassis.

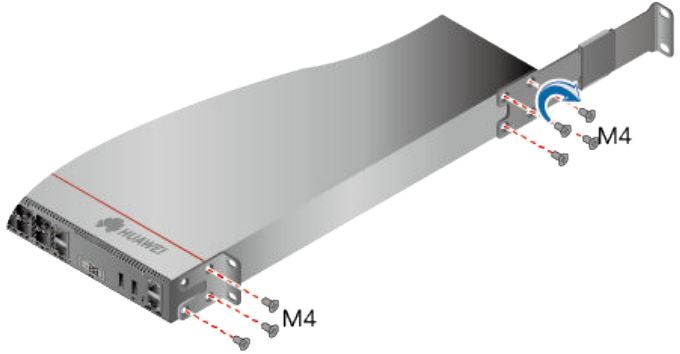
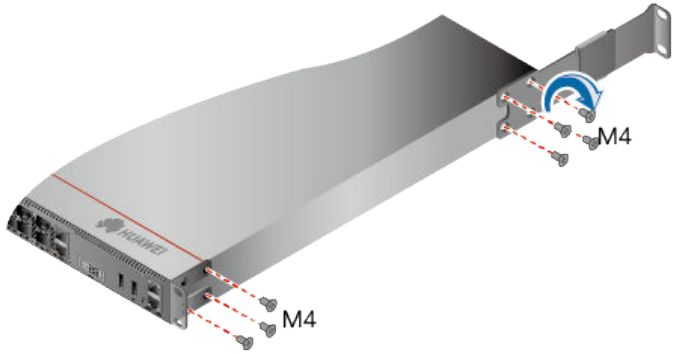
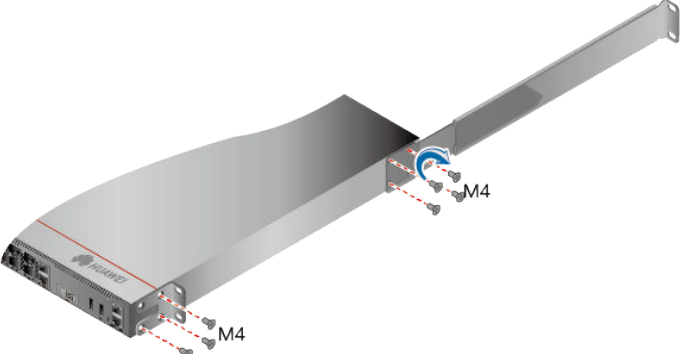
Use a Phillips screwdriver to fix the mounting ears to both sides of the chassis with M4 screws. The maximum torque is 1.4 N·m. For details about how to install the mounting ears, see the installation methods in [Table 5-4](#).

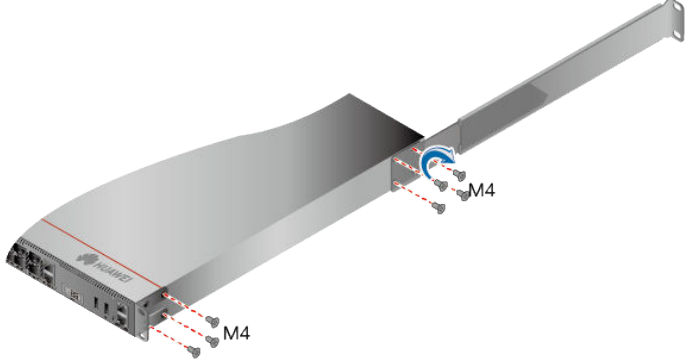
NOTE

- The front mounting brackets, rear mounting brackets, and rear mounting bracket guide rails must be installed on both sides of the USG. [Table 5-4](#) shows the installation on one side. Install them on the other side in the same way.
- To ensure sufficient cabling space, reserve at least 130 mm of vertical distance from the USG's port side to the interior side of the cabinet door.
- After the installation is complete, the rear mounting brackets and rear mounting bracket guide rails will not block cables routed from the ports or touch the cabinet door.

Table 5-4 Installation of front and rear mounting ears

Distance Between Front and Rear Mounting Rails	Installation of Front Mounting Brackets, Rear Mounting Brackets, and Rear Mounting Bracket Guide Rails
310 mm to 351 mm	
369 mm to 410 mm	

Distance Between Front and Rear Mounting Rails	Installation of Front Mounting Brackets, Rear Mounting Brackets, and Rear Mounting Bracket Guide Rails
438 mm to 479 mm	
497 mm to 538 mm	
638 mm to 696 mm	

Distance Between Front and Rear Mounting Rails	Installation of Front Mounting Brackets, Rear Mounting Brackets, and Rear Mounting Bracket Guide Rails
697 mm to 835 mm	

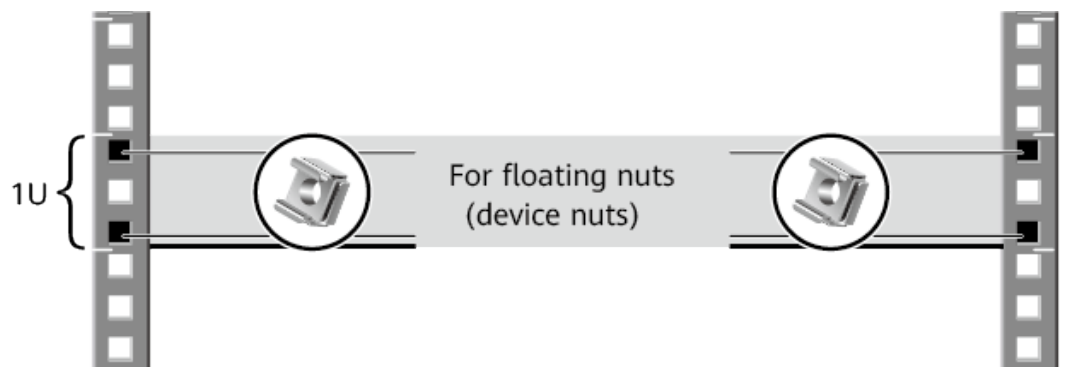
Step 2 Install floating nuts and cabinet guide rails.

1. Determine the positions for installing the guide rails and floating nuts, as shown in [Figure 5-20](#).

NOTICE

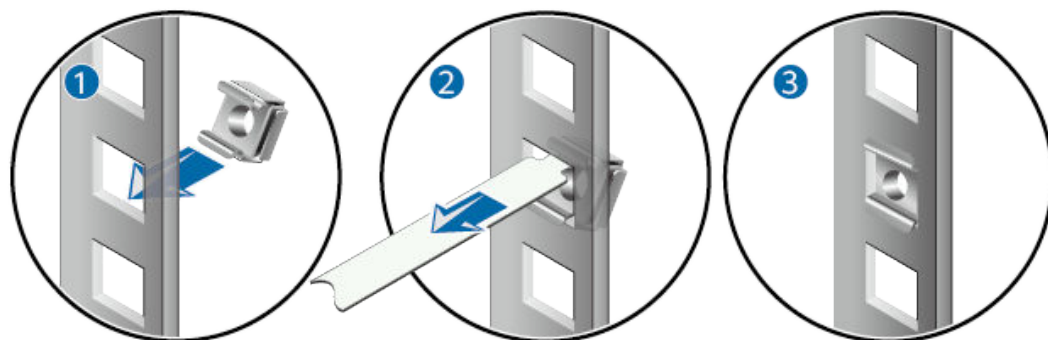
Install the two guide rails at the same height to ensure that the device is level.

Figure 5-20 Positions of floating nuts



2. Install the floating nuts that match M6 screws at the positions marked in [Figure 5-20](#). [Figure 5-21](#) illustrates how to install a floating nut.

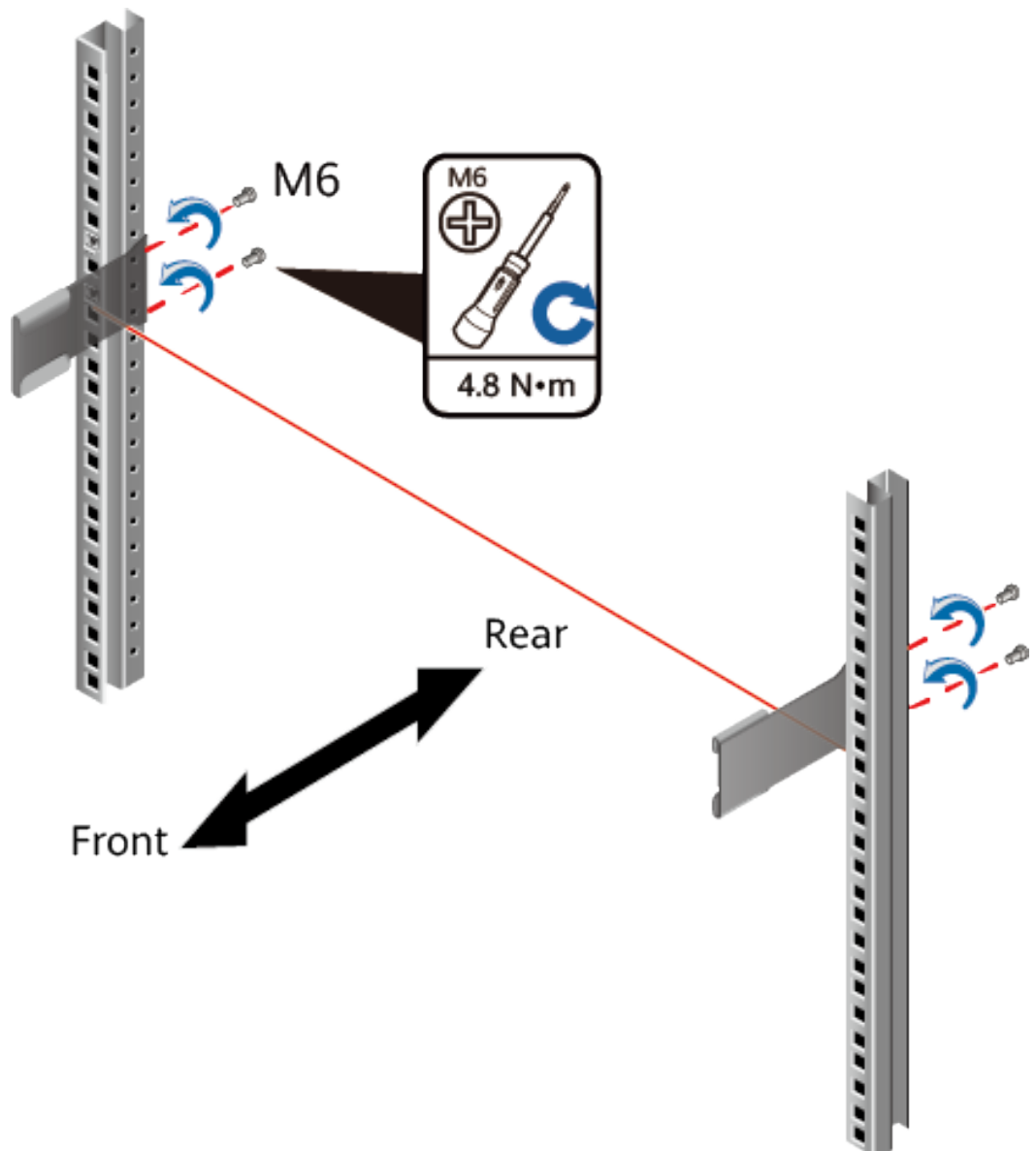
Figure 5-21 Installing floating nuts



3. Install guide rails in the correct direction. Identify the left and right guide rails, and the front and rear ends of each guide rail.

Fix expandable rear mounting ears and adjustable guide rails (at the positions marked in [Figure 5-20](#)) to the left and right of the cabinet with M6 screws, as shown in [Figure 5-22](#).

Figure 5-22 Installing guide rails

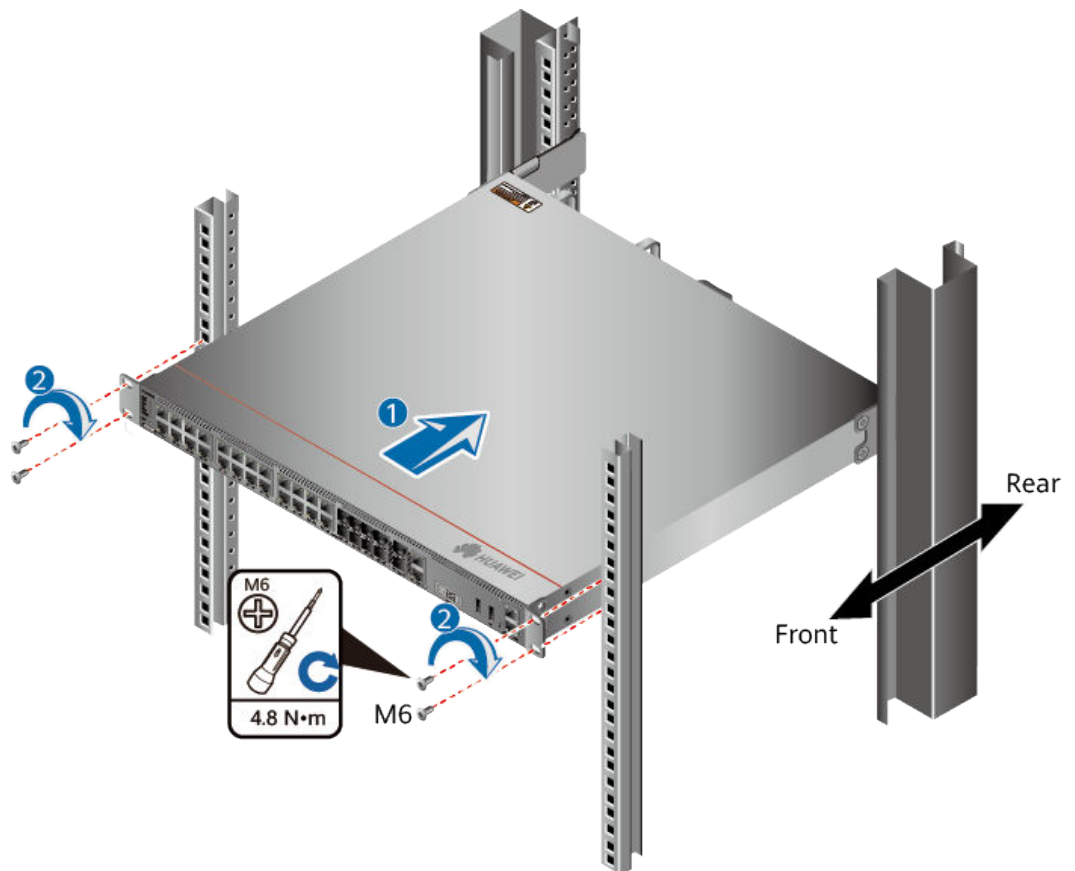


4. (Optional) Install adjustable guide rails (BOM numbers: 21242247 and 21242246). For details, see the installation guide delivered with the adjustable guide rails.

Step 3 Mount the USG in the cabinet.

1. Hold the bottom of the USG with both hands and move the USG into the cabinet. Align the rear mounting ears with the rear mounting ear guide rails and slowly slide the USG along the guide rails.
2. Place the device on the guide rails, slowly push it into the cabinet, and then tighten screws with the Phillips screwdriver to secure the device. Insert the device into the rear mounting ear guide rails and slide it into the cabinet.
3. Use M6 screws to fix the mounting ears of the USG to the mounting rack, as shown in [Figure 5-23](#).

Figure 5-23 Mounting the USG in a cabinet



----End

Follow-up Procedure

Perform the following checks after the installation:

- Ensure that the USG is placed securely inside the cabinet.
- Ensure that the exhaust of the USG is not blocked by other objects.

5.4.1.2 Mounting a Device on a Workbench

If you do not have a cabinet, you can mount the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B on a workbench.

Precautions

Before unpacking the carton, ensure that the packing carton is intact and not damaged or soaked. Stop unpacking if the USG is rusted or soggy. Then, investigate causes and contact the supplier.

The workbench must be:

- Reliably grounded.
- Clean, firm, and securely installed.

Accessories

Four rubber feet

Procedure

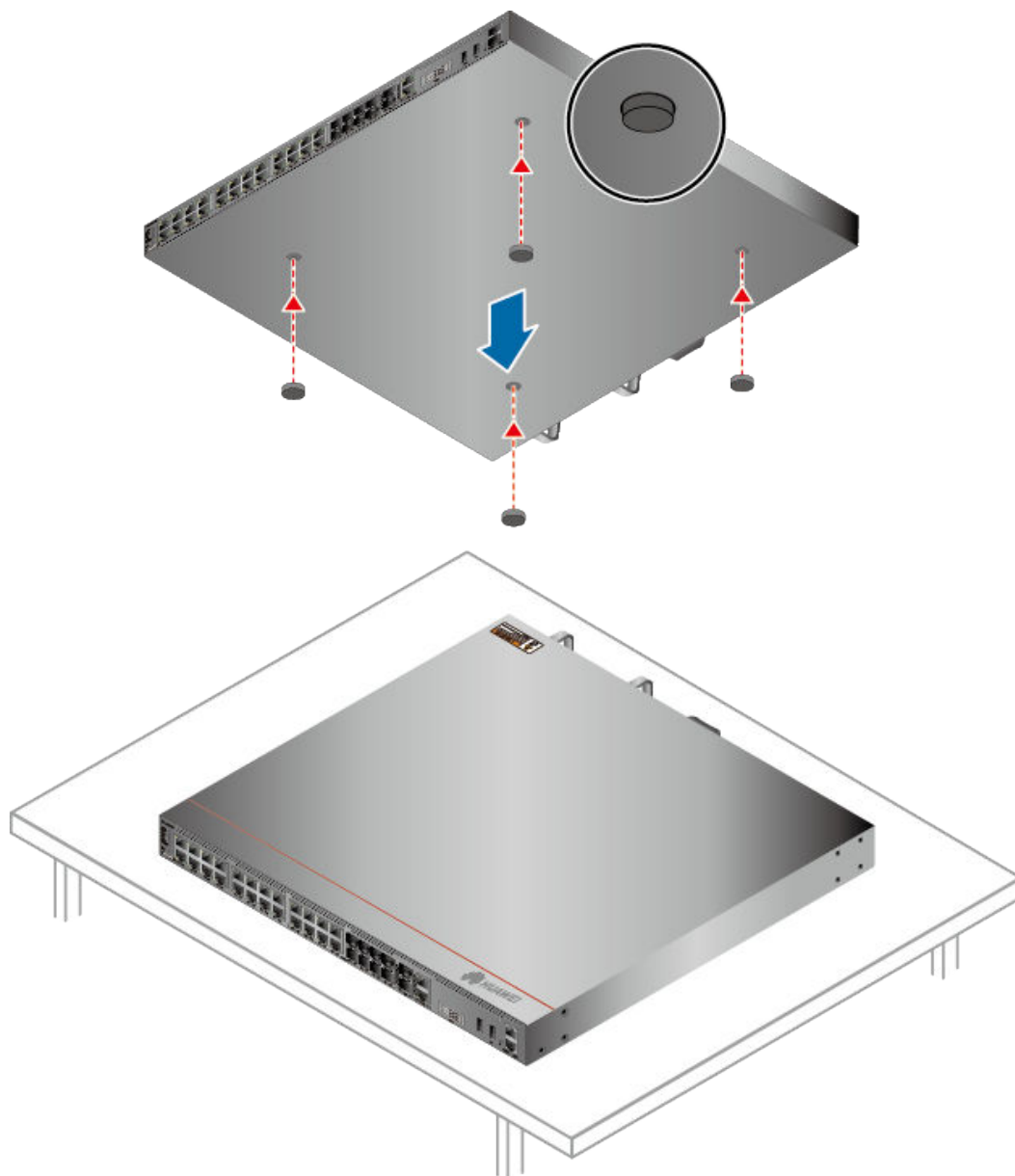
Step 1 Fix the rubber feet to the round notches at the bottom of the USG.

 **NOTE**

Install foot pads at the bottom of the USG to ensure smooth contact between the USG and the workbench and avoid friction between the surface of the USG and the workbench.

Step 2 Place the USG on the workbench.

Figure 5-24 Placing the USG with rubber feet on a workbench



----End

Follow-up Procedure

Verify the following after the installation:

- The USG is securely placed on the workbench.
- No object blocks the exhaust of the USG, and there is at least 10 cm of distance between the USG and surrounding devices.
- There are no heavy objects on the USG.

5.4.2 Connecting a PGND Cable

Connecting the PGND cable of a USG correctly is a key measure of surge protection and resistance to interference. Before using the USG, correctly connect the PGND cable. Otherwise, the USG may be damaged.

Precautions

The USG has been installed inside a cabinet.

Tools

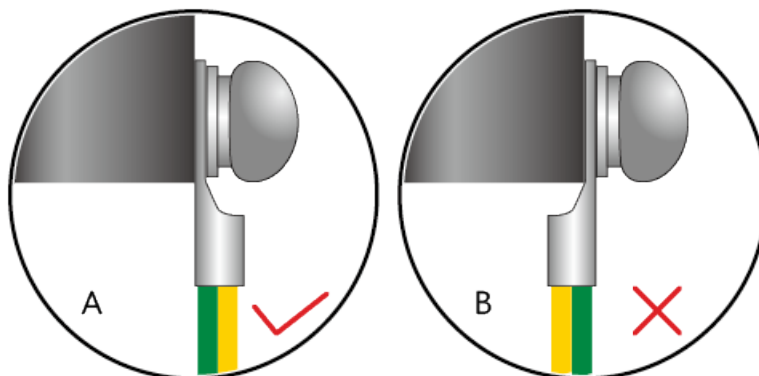
- Phillips screwdriver
- Multimeter

Procedure

Step 1 Loosen and remove the screw of the ground terminal on the USG rear panel.

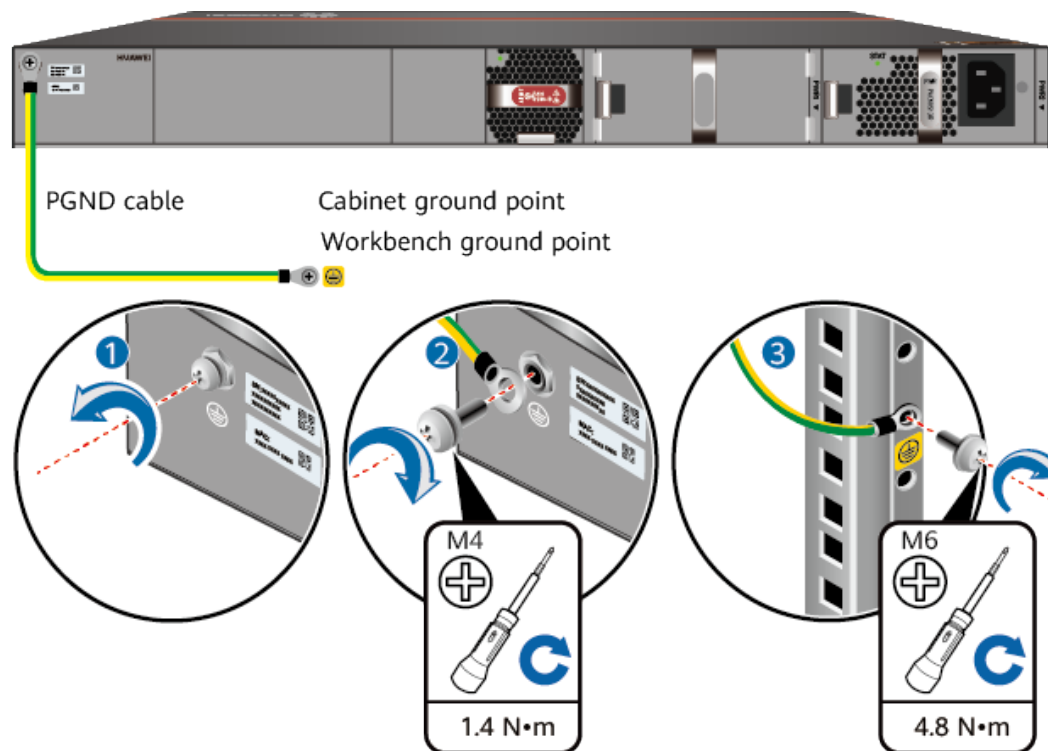
Step 2 Connect the OT terminal at one end of the PGND cable to the connection hole of the USG, with the conducting wire upward, and tighten the M4 screw, as shown in A of [Figure 5-25](#), and tighten the M4 screw. The tightening torque is 1.4 N·m.

Figure 5-25 Installing the OT terminal



Step 3 Connect the M6 end of the PGND cable to the ground terminal of the cabinet, workbench, or wall. The tightening torque of the M6 screw is 4.8 N·m.

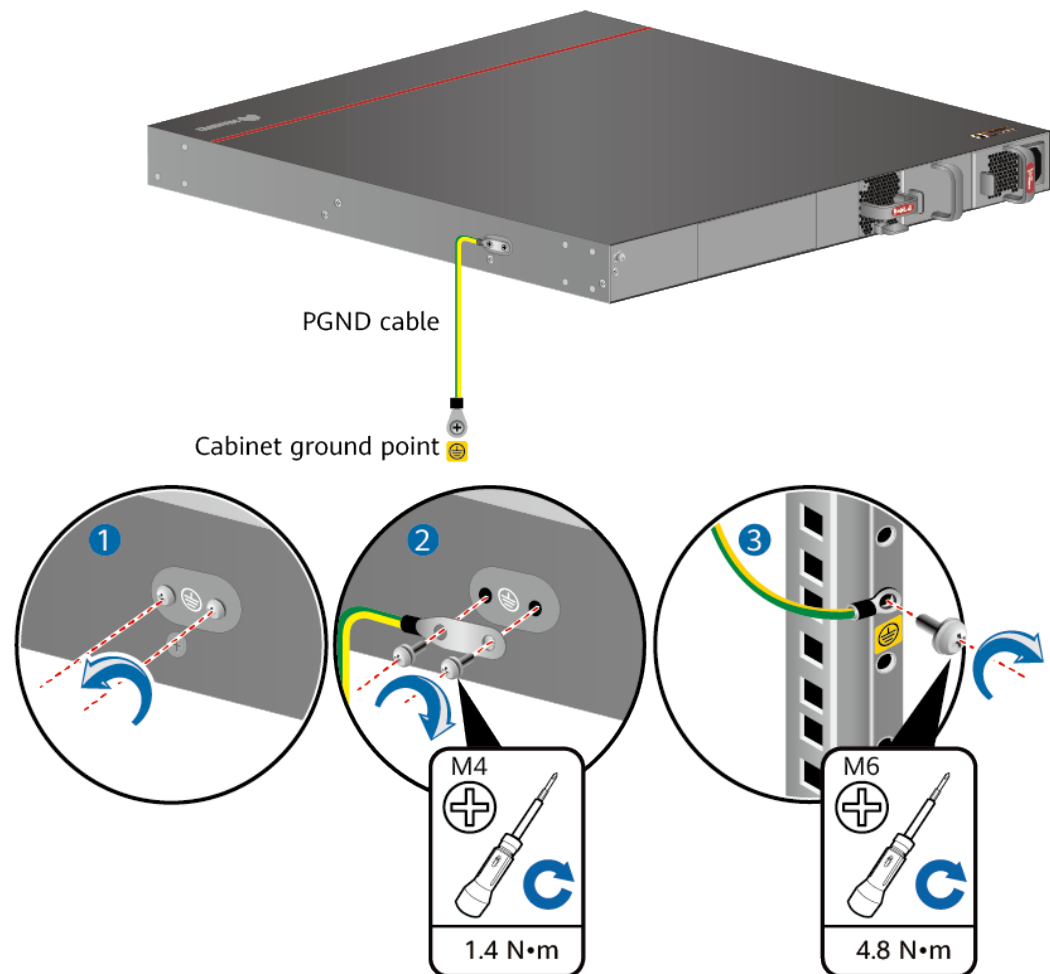
Figure 5-26 Connecting a PGND cable



NOTE

In the dual-OT scenario, connect the ground terminal on the side panel of the USG.

Figure 5-27 Connecting the ground terminal in the dual-OT scenario



NOTICE

The OT terminal may rotate and result in device damage. Make sure that it is independent of the adjacent metal mechanical part or other terminals.

----End

Follow-up Procedure

Verify the following after the cabling is complete:

- The PGND cable is securely connected to the ground terminal.
- The electrical resistance between the ground terminal and ground point is less than 0.1 ohm on a multimeter.

5.4.3 Installing a Hard Disk

This section describes how to install a hard disk units for the first time to avoid hard disk damage.

Precautions

Precautions for the use of hard disks

- Use Huawei hard disks. The system cannot recognize the hard disks provided by other vendors.
- Wear an ESD wrist strap to protect the USG and hard disks from electrostatic damage.
- Hold the two side surfaces of a hard disk, do not touch the PCB board or squeeze the hard disk, and do not vibrate, bump, or stack hard disks.
- For mapping relationships between the USG and hard disks, see [Hardware Overview](#).

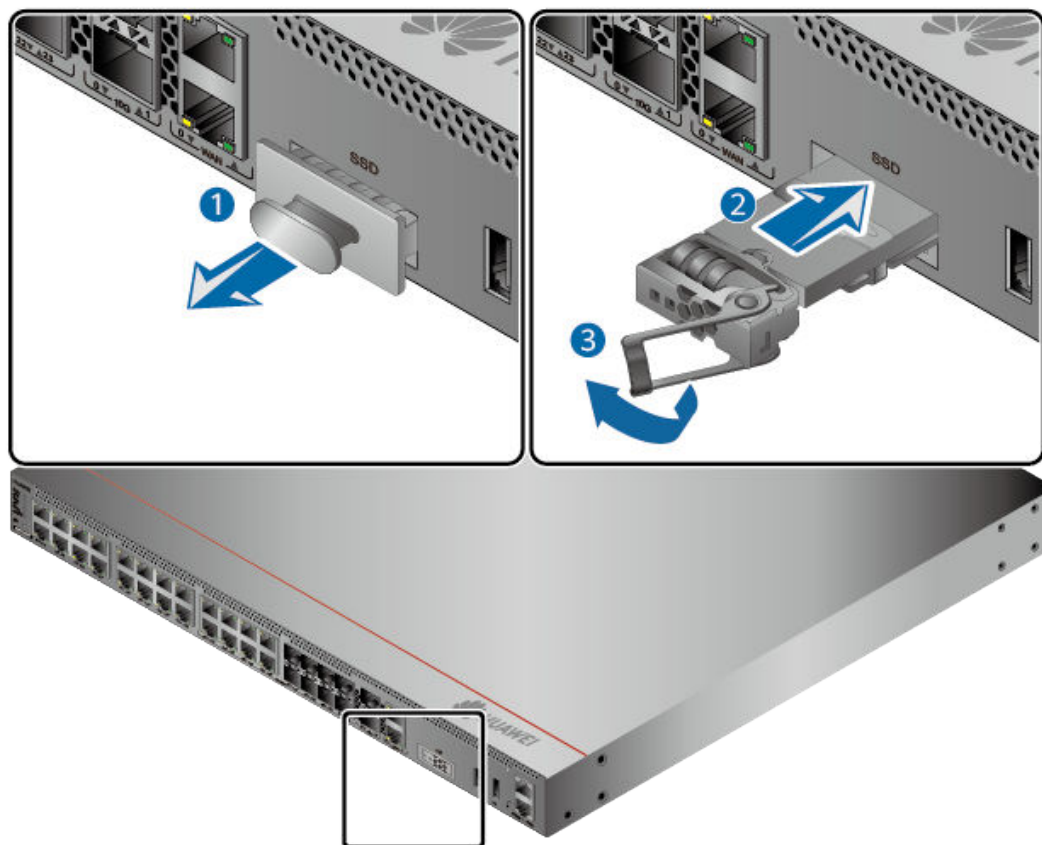
Tool

ESD bag

Installing The Hard Disk (USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6580E, USG6585E)

- Step 1** Remove the baffle plate from the hard disk slot.
- Step 2** Hold the handlers of the hard disk and push the hard disk along the guide rails till the hard disk aligns with the panel of the USG.
- Step 3** Press the hard disk handler inwardly to restore the module.

Figure 5-28 Installing the hard disk (USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6580E, USG6585E)



Step 4 After the installation is complete, perform the following operations:

 **NOTE**

Operations after the USG power-on must be performed after all installation tasks are complete.

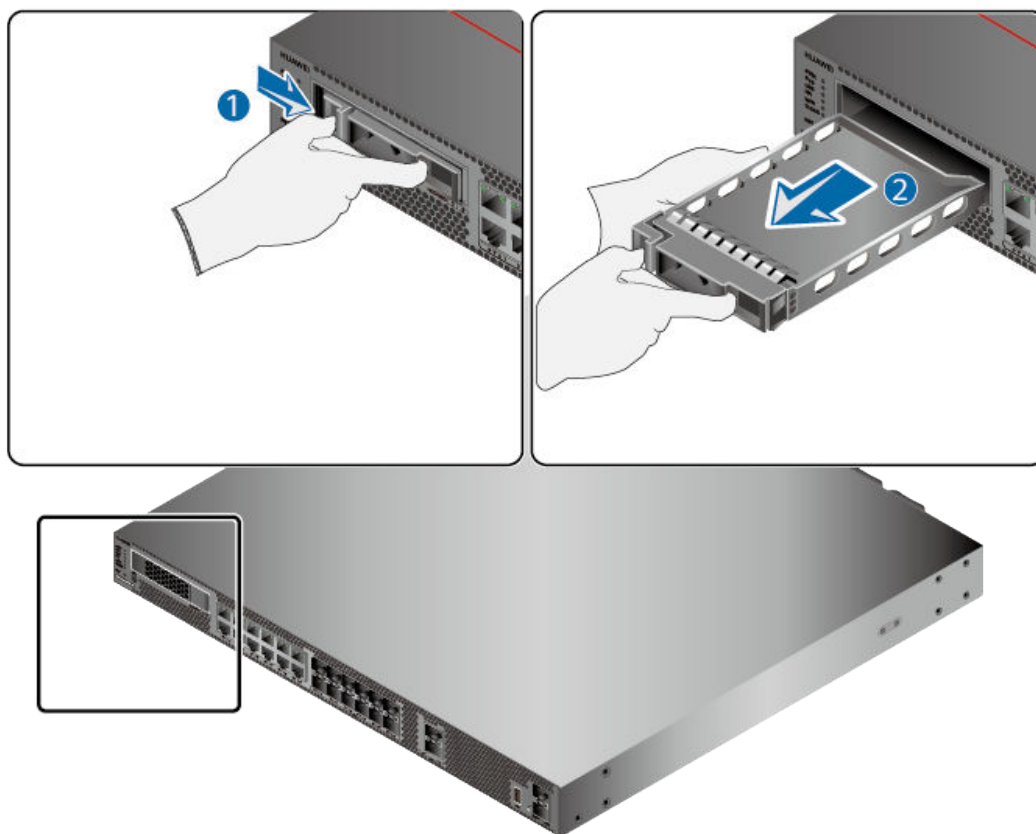
- Before the USG is powered on, ensure that the hard disk is correctly installed.
- After the USG is powered on, run the **display disk information** command in the user view to check whether the **Filesystem Status** value is **Mounted**.

----End

Installing The Hard Disk (USG6575E-B, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E)

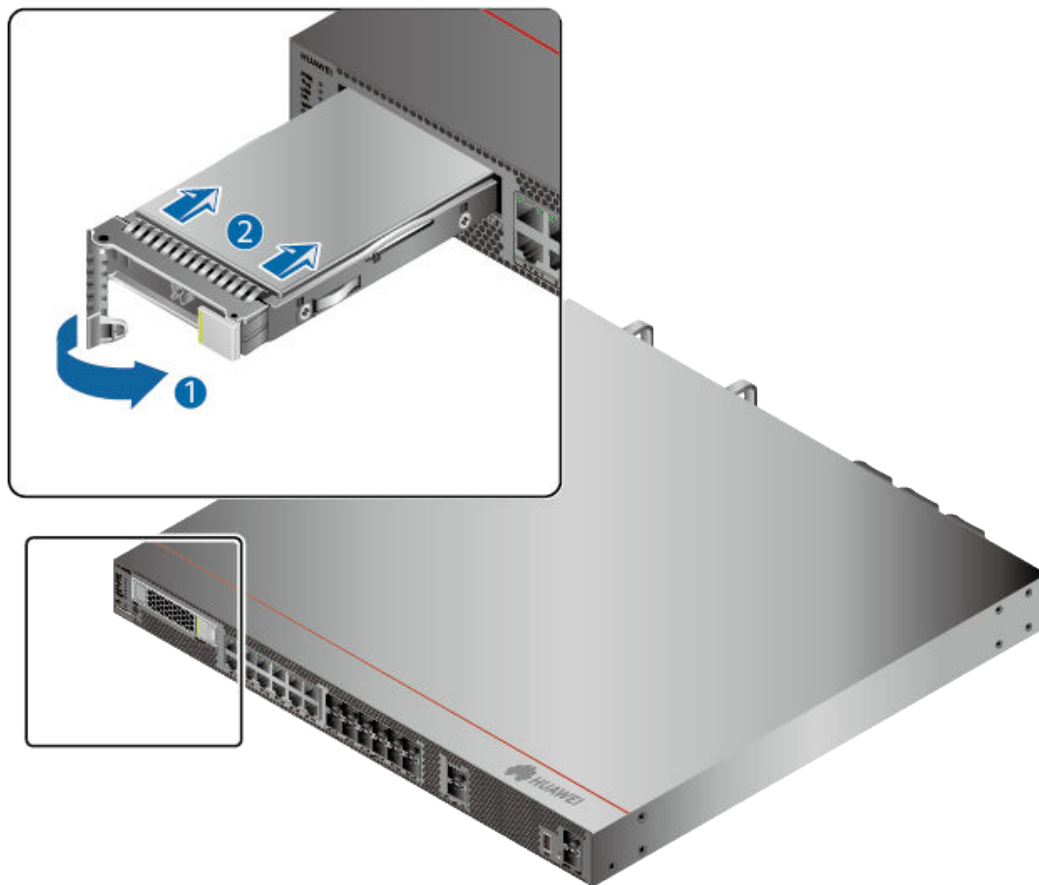
Step 1 Remove the filler panel from a hard disk slot.

Figure 5-29 Removing the filler panel from a hard disk slot (USG6575E-B, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E)



Step 2 Pull the ejector lever on the hard disk holder, keep it in pulled-out state, and push the hard disk holder with two hands along the guide rails of the slot till the front surface of the hard disk holder touches the USG panel.

Figure 5-30 Installing a hard disk (USG6575E-B, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E)



Step 3 After the ejector lever of the hard disk is fastened to the chassis, close the hard disk ejector lever.

Step 4 After the installation is complete, perform the following operations:

NOTE

Operations after the USG power-on must be performed after all installation tasks are complete.

- Before the USG is powered on, ensure that the hard disk is correctly installed.
- After the USG is powered on, run the **display disk information** command in the user view to check whether the **Filesystem Status** value is **Mounted**.

----End

5.4.4 Connecting a Console Cable

After connecting a PC to the console port of a USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E with a console cable, you can use the terminal emulation program on the PC to access the command configuration interface of the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E.

Precautions

Before connecting a console cable, perform the following operations:

- Check preparations.
A PC is ready, a USG has been installed, and the ports to be connected are planned.
- Prepare cable labels.
Before cable connection, labels must be prepared for the cable.

NOTICE

- Make sure that the PC and the USG are connected to the same ground point. Otherwise, the console port of the USG may be damaged.
 - Pay attention to port numbering and make sure that the cable is connected to the correct port, preventing damage to ports or the device.
-

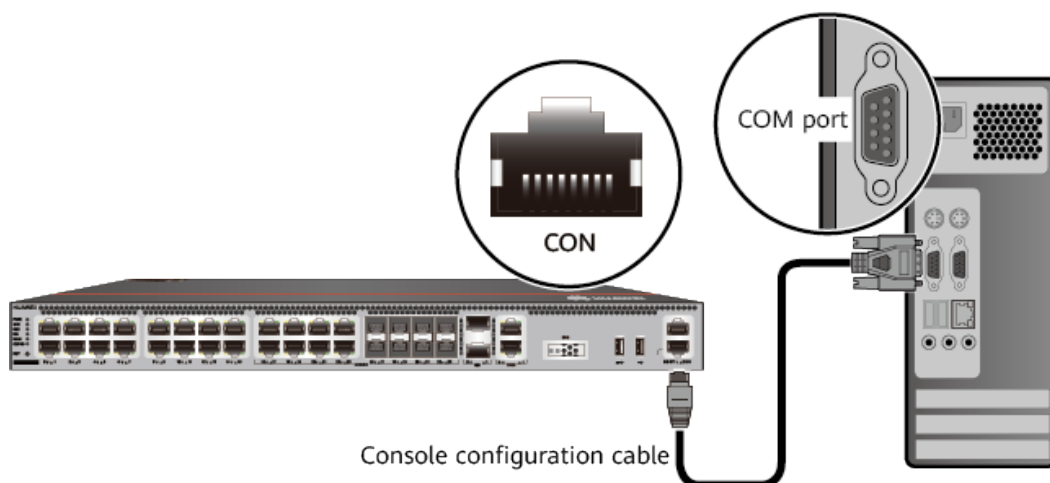
Tools

Console cable (prepared by the user)

Procedure

- Step 1** Before connecting a console cable, attach temporary labels to both ends of the cable for identification.
- Step 2** Connect the RJ45 connector of the console cable to the console port (RJ45) of the USG.
- Step 3** Connect the DB9 connector of the console cable to the COM port of the management PC.

Figure 5-31 Connecting a console cable to the USG



- Step 4** Remove the temporary labels and attach labels (2 cm away from the connectors) at both ends of the console cable.

----End

Follow-up Procedure

After the cable connection is complete, verify that:

- The labels at both ends of a cable are correct, clear, neat, and facing the same direction.
- Cables and connectors are free of damage or breakage and are connected properly.

For details on the console login, refer to the Configuration Guide.

5.4.5 Connecting an Ethernet Cable

Based on the network plan, you can connect one end of an Ethernet cable to the Ethernet port of a USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E and the other end to the Ethernet port of the peer device.

Context

Before connecting the Ethernet cable, perform the following operations:

- Check construction conditions.
The peer device has been installed in the equipment room, and the port to which the Ethernet cable is to be connected has been determined.
- Check the cabling route.
The engineering document should specify the cabling route from the cabinet to the peer device in the equipment room, and the length of the cable is calculated based on the cabling path.
- Label the cable.
The cable must be labeled before being connected to the devices.

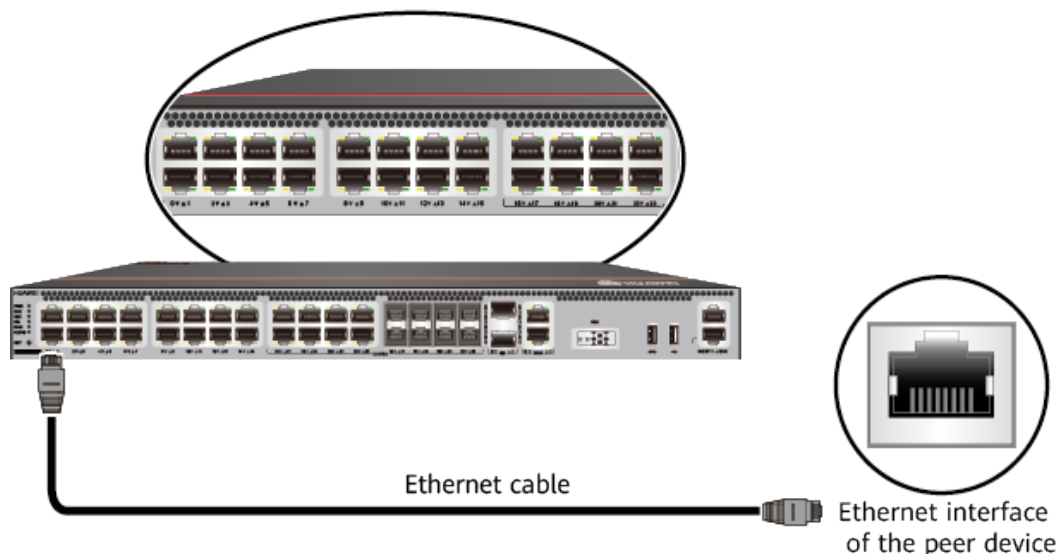
NOTICE

- Only shielded cables are supported on the USG.
 - Before connecting a cable, note the label on the port and make sure that the cable is inserted into the correct port. Otherwise, the port module or the device might be damaged.
-

Procedure

- Step 1** If multiple network cables need to be connected, attach temporary labels to both ends of each cable for identification.
- Step 2** Connect one end of an Ethernet cable to the Ethernet port of a USG and the other end to the Ethernet port of the peer device based on the network plan.

Figure 5-32 Connecting an Ethernet cable



Step 3 Lay out the Ethernet cable along a cabinet and route the cable through the cable hole for the signal cables at the top (overhead cabling) or bottom (underfloor cabling) of the cabinet.

Step 4 Remove the temporary labels and attach labels (2 cm away from the connectors) at both ends of the Ethernet cable.

----End

Follow-up Procedure

Verify the following after the installation:

- The labels at both ends of the cable are correct, clear, neat, and facing the same direction.
- The cables and connectors are free of any damage or breakage and are connected properly and reliably.

5.4.6 Installing Optical Transceivers and Connecting Optical Fibers

This section describes how to install optical transceivers on the GE, 10GE, or 40GE optical ports of the USG and connect them to the ports of the peer device using optical fibers according to the network plan.

Context

The USG supports both 1 Gbit/s, 10 Gbit/s, and 40 Gbit/s optical modules. The optical modules at both ends are the same, including the optical fiber type (single-mode or multi-mode), optical fiber connector type (LC/PC, SC/PC, FC/PC, or MPO/PC-MPO/PC), and transmission rate. If different optical modules are used at the two ends, the communication may fail.

NOTICE

Huawei optical modules are recommended. The optical modules from other vendors may cause faults on the USG due to incompatibility.

CAUTION

Do not look into the optical interface of the optical module or the optical fiber connector without eye protection.

Before connecting optical fiber cables, read the following precautions:

- Do not overbend optical fibers, and the radius should not be shorter than 40 mm.
- Do not bundle the optical fibers too tight. Otherwise, the transmission performance of the optical fibers and the communication between devices might be adversely affected.

Before connecting optical ensure the following:

- The optical module has been installed.

Procedure

Step 1 Insert an optical transceiver into the GE , 10GE, or 40GE optical port of the USG.

Step 2 Remove the dust cap from the optical transceiver.

NOTE

Set aside the dust cap properly for future use. After optical fiber are disconnected for maintenance, use the dust cap to prevent the optical transceiver from dust.

Step 3 Before connecting an optical fiber, attach temporary labels to both ends of the optical fiber for identification.

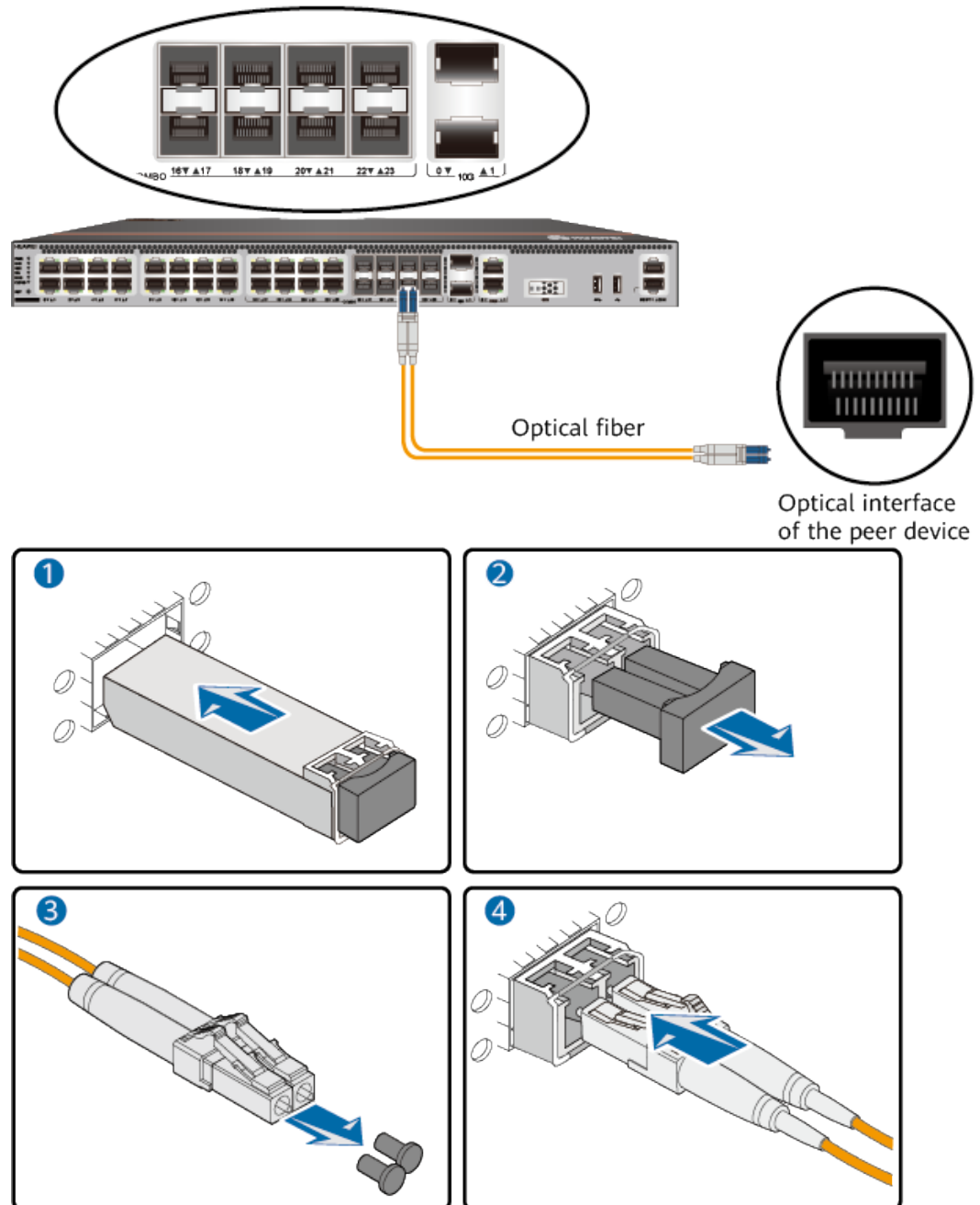
Step 4 Remove protective caps from optical fiber connectors, insert optical fibers into the optical transceiver, and connect the fiber to the peer device.

NOTE

Ensure that the Tx and Rx ports are correctly connected.

Ensure that the TX and RX ports on one end of the optical fiber cable are connected to the RX and TX ports (respectively) on the other end.

Figure 5-33 Installing optical transceivers and connecting optical fibers



Step 5 Repeat **Step 1** to **Step 4** to install all optical transceivers and connect all optical fibers.

----End

Follow-up Procedure

After you power on the USG, check the connection by observing the optical port indicator. If the indicator is on or blinks, the link is connected or data is being

transmitted. If the indicator is off, the link is disconnected. Possible causes for the disconnection are as follows:

- The optical fiber is improperly inserted. Pull out the optical fiber and re-insert it.
- The RX and TX optical ports are inserted reversely. Pull out the optical fibers, change their position, and re-insert them.
- The optical module is damaged or the optical fiber is broken. Replace the optical module or the optical fiber.

5.4.7 Connecting Power Cables

Follow the operation guide to connect power cables from the power module of the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E to the output of the power supply device.

5.4.7.1 Connecting AC Power Cables

By default, the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E comes with one AC power module. However, two AC power modules are supported. The USG6630E, USG6635E, USG6650E, USG6655E comes with two AC power module. Each AC power module requires an AC power cable. When two AC power modules are used, connect power cables to both AC power modules.

Context

Before connecting the power cables, ensure that the AC power supply in the equipment room meets the input requirements of the USG.



DANGER

Do not connect or disconnect the power cables when the USG is powered on.

Procedure

Step 1 Ensure that the PGND cable is adequately grounded.

Step 2 Connect AC power cables to AC power modules.

NOTE

When two power modules are used, connect them to different power sources to improve availability.

1. Plug one end of the C13 power cable to the power socket of the USG power module and adjust the cable-retention clip to an appropriate position.
2. Bundle the AC power cable using a cable-retention clip and adjust the cable-retention clip to fasten the AC power cable.

3. Plug the other end of the power cable to the AC power socket or the output of the AC power supply device.

Figure 5-34 Connecting AC power cables (USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E)

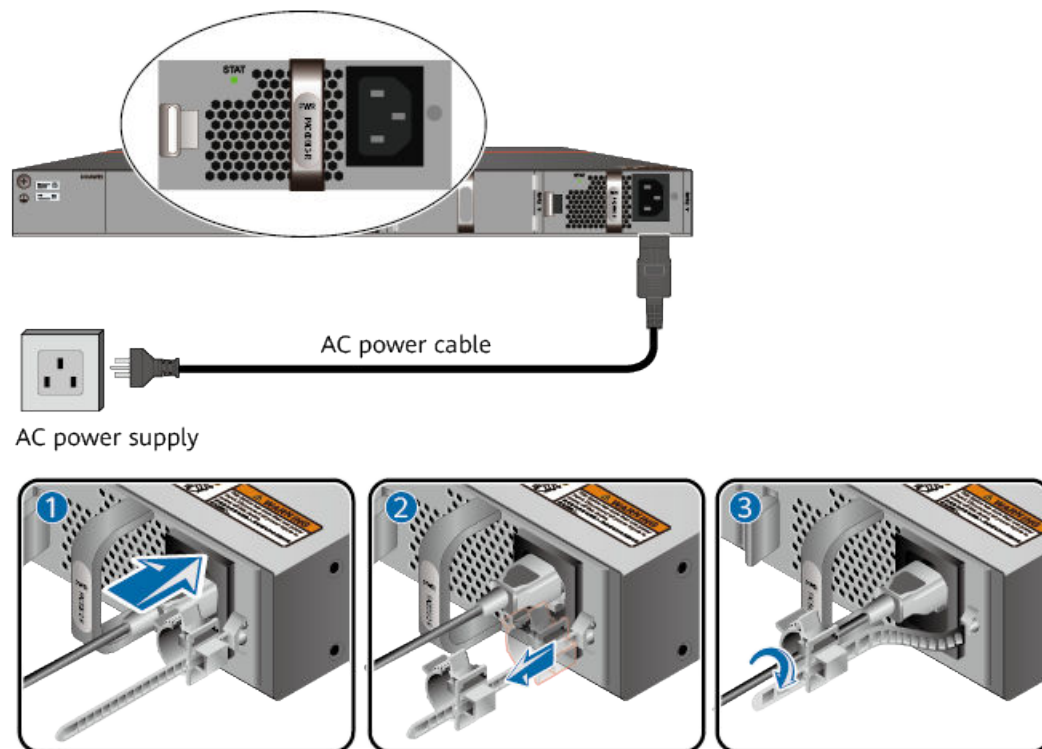
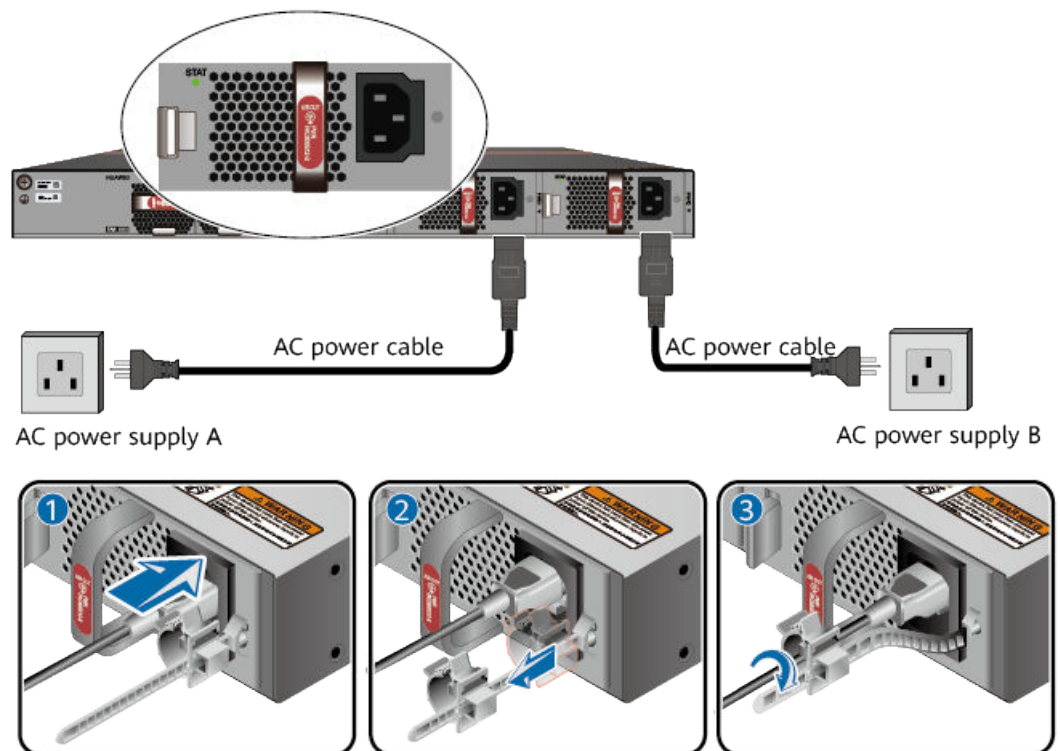


Figure 5-35 Connecting AC power cables (USG6630E, USG6635E, USG6650E, USG6655E)



----End

Follow-up Procedure

Verify the following after the connection is complete:

- The power cable is firmly connected to the power supply socket.
- If multiple USGs are deployed, the power cables of each USG are correctly labeled for distinction.

5.4.7.2 Connecting DC Power Cables

The USG6630E, USG6635E come with two DC power module. Each DC power module requires an NEG power cable and an RTN power cable. Connect power cables to both DC power modules.

Context

Before connecting power cables, ensure that the DC power supply in the equipment room meets the input requirements of the USG.

⚠ DANGER

Do not connect or disconnect the power cables when the USG is powered on.

Procedure

Step 1 Ensure that the PGND cable is adequately grounded.

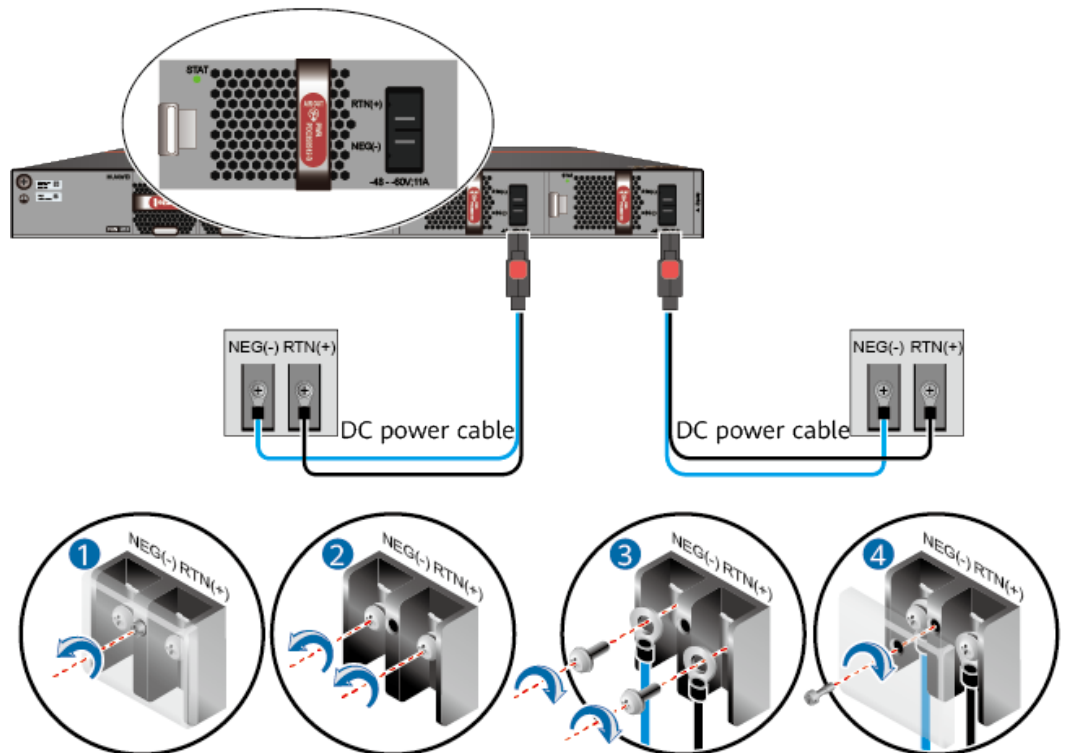
Step 2 Connect power cables for the two DC power modules one after the other.

NOTICE

- Note the labels on the DC power cables to avoid misoperations.
- To improve availability, connect two power modules to different power sources.

1. Plug the connector end of the DC power cable to the DC power module.
2. Connect the other end of the DC power cable to the output of the power supply device in the equipment room.

Figure 5-36 Connecting DC power cables



----End

Follow-up Procedure

Verify the following after the connection is complete:

- The power cables are correctly and firmly connected to the power supply device.
- If multiple USGs are deployed, the power cables of each USG are correctly labeled for distinction.

5.4.8 Powering On or Off the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E

This section describes how to power on or off the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E. To ensure the normal start and security of the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E, strictly follow the operation guide to power on or off the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E.

Context

Before you power on the USG, ensure that:

- The power cable and PGND cable are properly connected.
- The power switch in the equipment room is easy to locate so that you can power off devices in the case of accidents.

Procedure

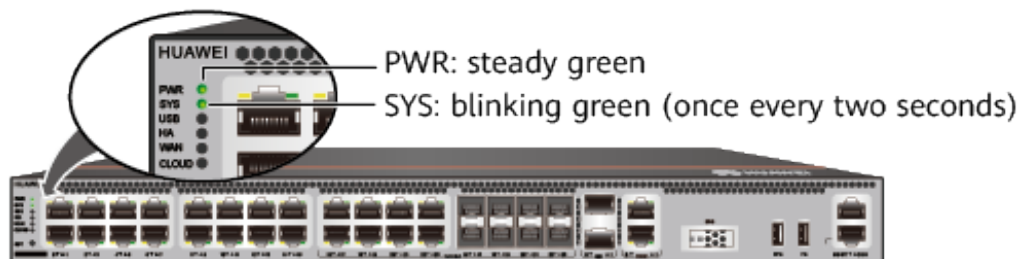
- Power on the USG.

Turn on the switch of the power supply device. The USG starts.

You can identify the USG status based on indicators on the front and rear panels. Indicators shown in [Figure 5-37](#) indicate that the USG runs normally.

Figure 5-37 Indicators when the USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6575E-B, USG6580E, USG6585E, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E (AC model) runs normally

Front view



Rear view

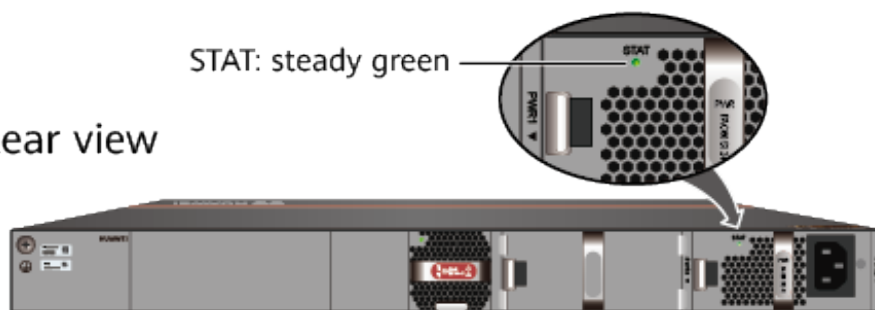
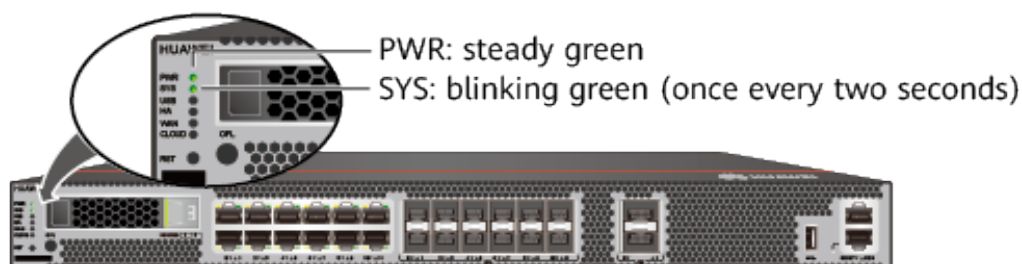
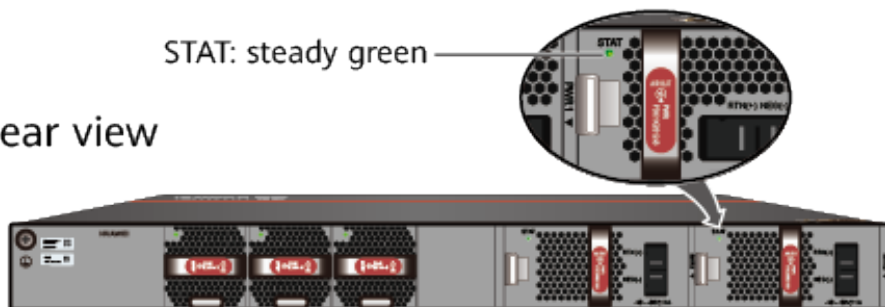


Figure 5-38 Indicators when the USG (DC model) runs normally

Front view



Rear view



- Power off the USG.

NOTICE

Before powering off the USG, ensure that configuration data is saved. Otherwise, the configuration data may be lost.

If the USG will be administratively shut down for a long time, turn off the power switch. After powering off the USG, set it aside properly according to storage requirements.

CAUTION

If the USG has hard disks, do not power off the USG by removing the power cable or switching off the power supply to prevent data loss and hard disk damage. You must run the **disk offline** command in the system view first and wait for about 30 seconds. After the system prompts you with a message indicating that hard disks have stopped, turn off the power switch of the USG.

----End

Follow-up Procedure

After the USG is powered on, you can log in to the configuration page for management and maintenance. For details, refer to the Configuration Guide.

5.5 Installing a 600 mm Deep Device

This chapter provides the cabinet-mounting, workbench-mounting, and cable connection methods of the USG6680E, USG6712E, USG6716E series.

5.5.1 Mounting a Device in a Cabinet

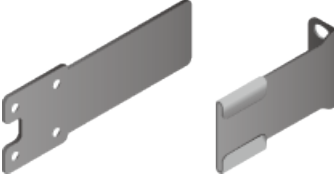
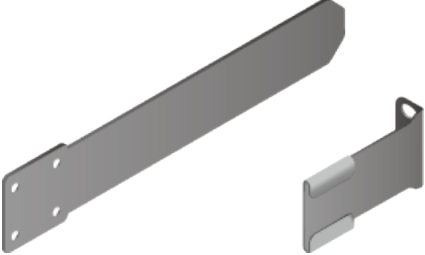
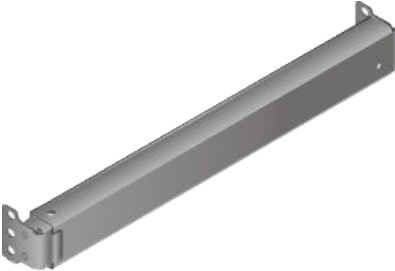
Install the USG6680E, USG6712E, USG6716E to the 19-inch standard cabinet through the expandable rear mounting ears.

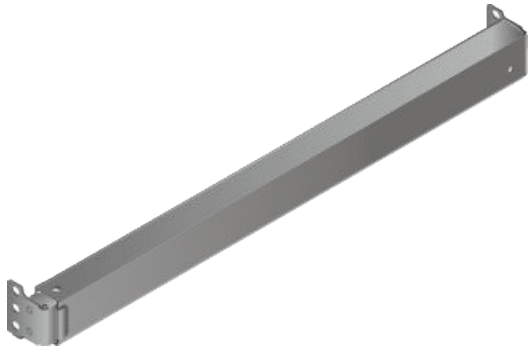
Precautions

Before installing the USG, check the following items:

- Before unpacking the carton, ensure that the packing carton is intact and not damaged or soaked. Stop unpacking if the USG is rusted or soggy. Then, investigate causes and contact the supplier.
- The cabinet is stable.
- Before installing the expandable rear mounting ears on the USG6680E, USG6712E, USG6716E, adjust the distance between the front and rear angle gauges (rack mounting rails/vertical columns) to satisfy the installation requirements. The specific scope of application is as follows:

Table 5-5 Expandable rear mounting ears and adjustable guide rails

Distance Between the Front and Rear Mounting Bars and Cabinet Type	Expandable Rear Mounting Ears and Adjustable Guide Rails
<p>Expandable rear mounting ears (BOM number: 21240492)</p> <ul style="list-style-type: none"> Distance between the front and rear mounting bars: 310 mm to 538 mm Cabinet depth: 800 mm 	
<p>Expandable rear mounting ears (BOM number: 21240538)</p> <ul style="list-style-type: none"> Distance between the front and rear mounting bars: 493 mm to 815 mm Cabinet depth: 1000 mm to 1200 mm 	
<p>Adjustable guide rails (BOM number: 21242247)</p> <ul style="list-style-type: none"> Distance between the front and rear mounting bars: 370 mm to 585 mm Cabinet depth: 800 mm 	

Distance Between the Front and Rear Mounting Bars and Cabinet Type	Expandable Rear Mounting Ears and Adjustable Guide Rails
Adjustable guide rails (BOM number: 21242246) <ul style="list-style-type: none"> Distance between the front and rear mounting bars: 500 mm to 850 mm Cabinet depth: 1000 mm to 1200 mm 	

- The position for the USG in the cabinet is well arranged. Ensure that the USG is 1 U of clearance from any devices above and below and 150 mm of clearance from any devices on the right or left.
- The USG to be installed is staged near the cabinet for convenience.
- In the front view, the air flow of the USG is front to rear. If the USG and a device whose air flow is rear to front must be mounted in the same cabinet, maintain certain spacing between them to prevent hot air recirculation.

You can place either end of the USG chassis towards the front door of the cabinet. In this manual, the front panel of the USG is towards the front door of the cabinet.

 **NOTE**

The method of installing expandable rear mounting ears (BOM number: 21240492) is the same as that of installing expandable rear mounting ears (BOM number: 21240538). The following uses the expandable rear mounting ears (BOM number: 21240492) as examples.

Tools and Accessories

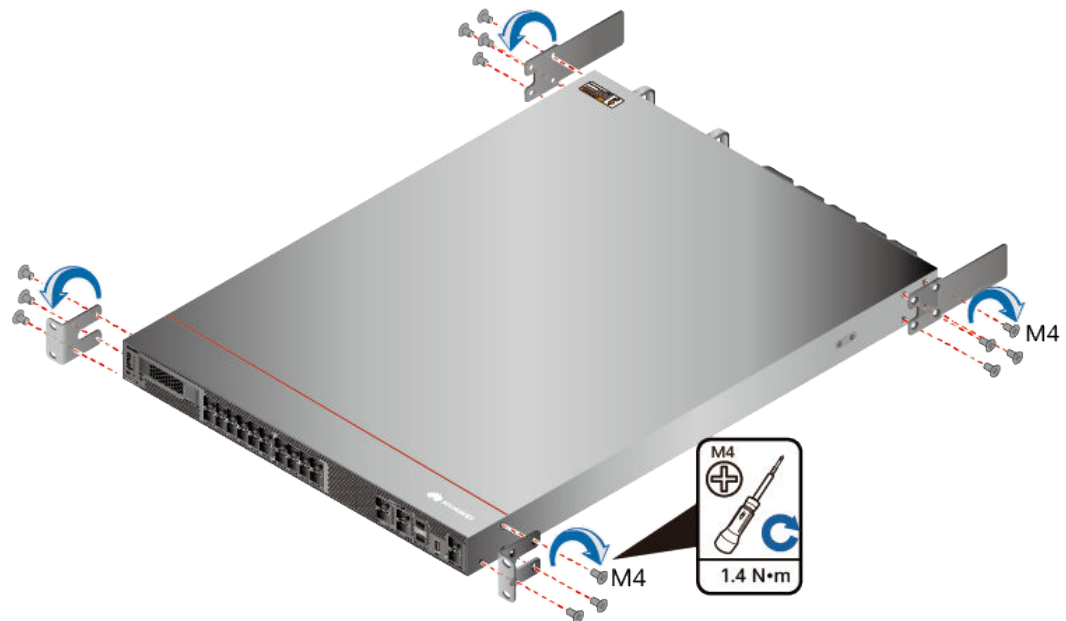
- Phillips screwdriver
- Floating nuts and matching screws
- Floating mounting bar
- Front mounting ears and corresponding screws
- Expandable rear mounting ears and corresponding screws (purchased separately, BOM numbers: 21240492 and 21240538)
- Adjustable guide rails and matching screws (purchased separately, BOM numbers: 21242247 and 21242246)

Procedure

Step 1 Install mounting ears on the chassis.

Use a Phillips screwdriver to fix the mounting ears to both sides of the chassis with M4 screws. For details about how to install the mounting ears, see the installation methods in [Figure 5-39](#).

Figure 5-39 Installation of front and rear mounting ears



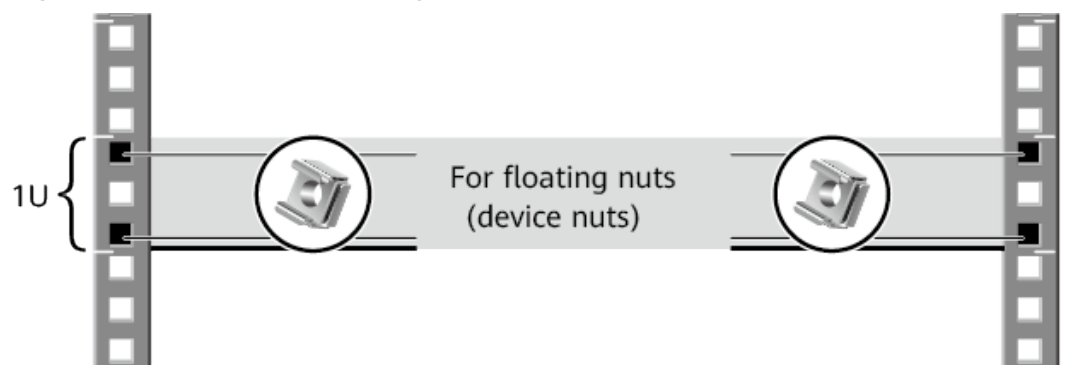
Step 2 Install floating nuts and cabinet guide rails.

1. Determine the positions for installing the guide rails and floating nuts, as shown in [Figure 5-40](#).

NOTICE

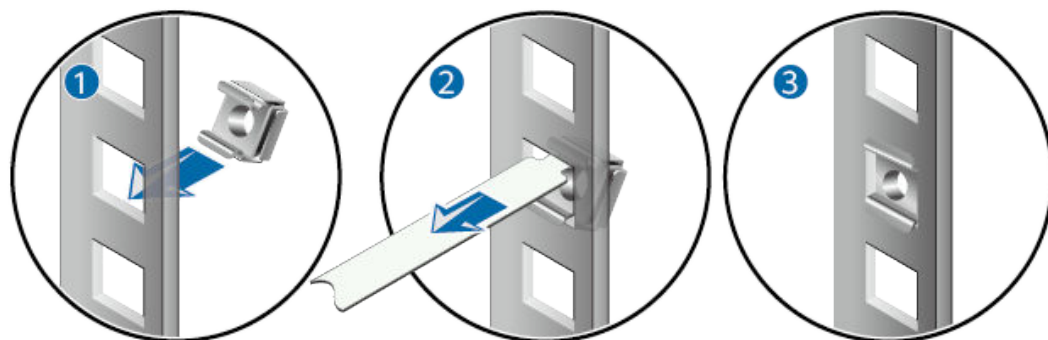
Install the two guide rails at the same height to ensure that the device is level.

Figure 5-40 Positions of floating nuts



2. Install the floating nuts that match M6 screws at the positions marked in [Figure 5-40](#). [Figure 5-41](#) illustrates how to install a floating nut.

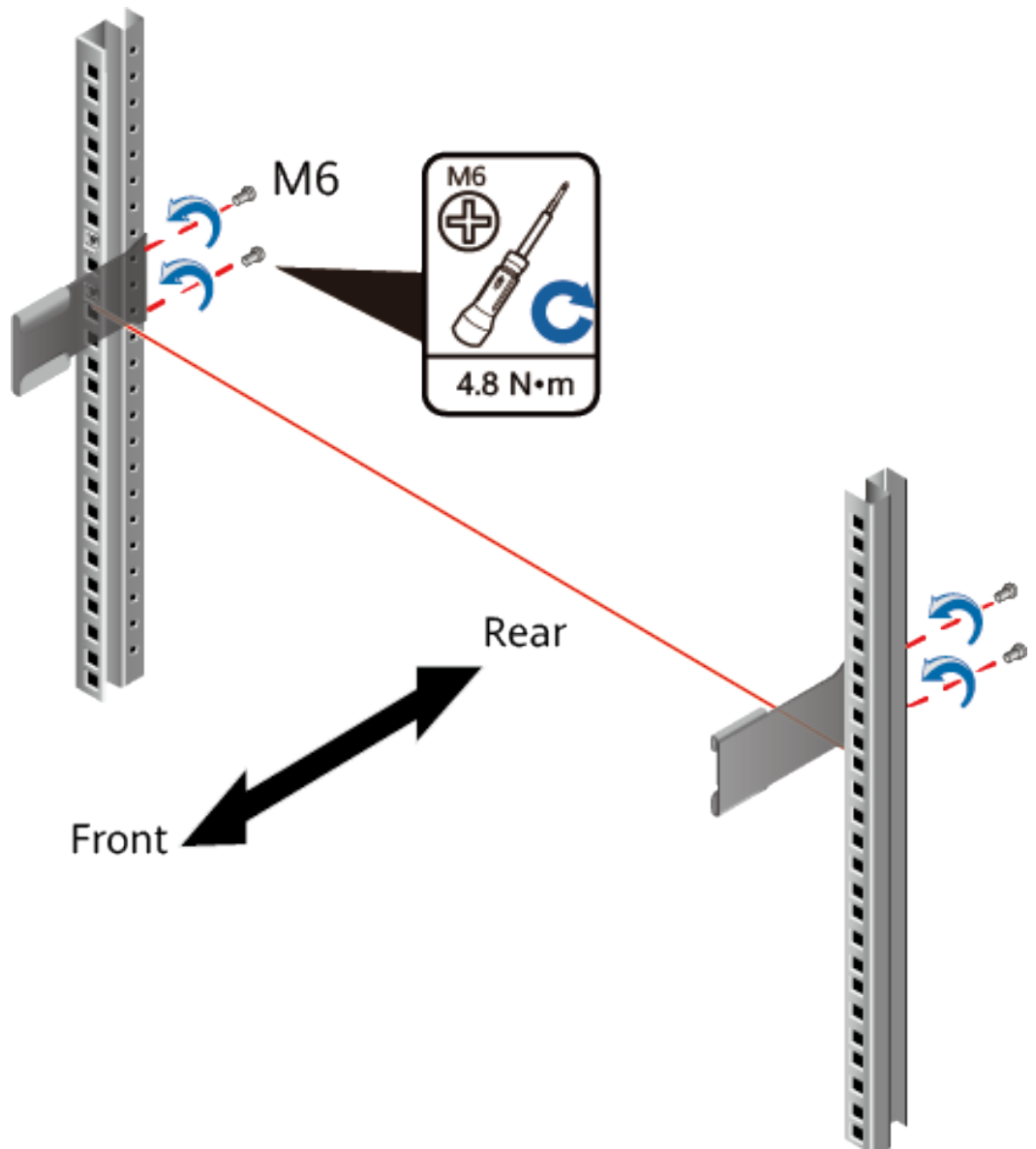
Figure 5-41 Installing floating nuts



3. Install guide rails in the correct direction. Identify the left and right guide rails, and the front and rear ends of each guide rail.

Fix expandable rear mounting ears and adjustable guide rails (at the positions marked in [Figure 5-40](#)) to the left and right of the cabinet with M6 screws, as shown in [Figure 5-42](#).

Figure 5-42 Installing guide rails

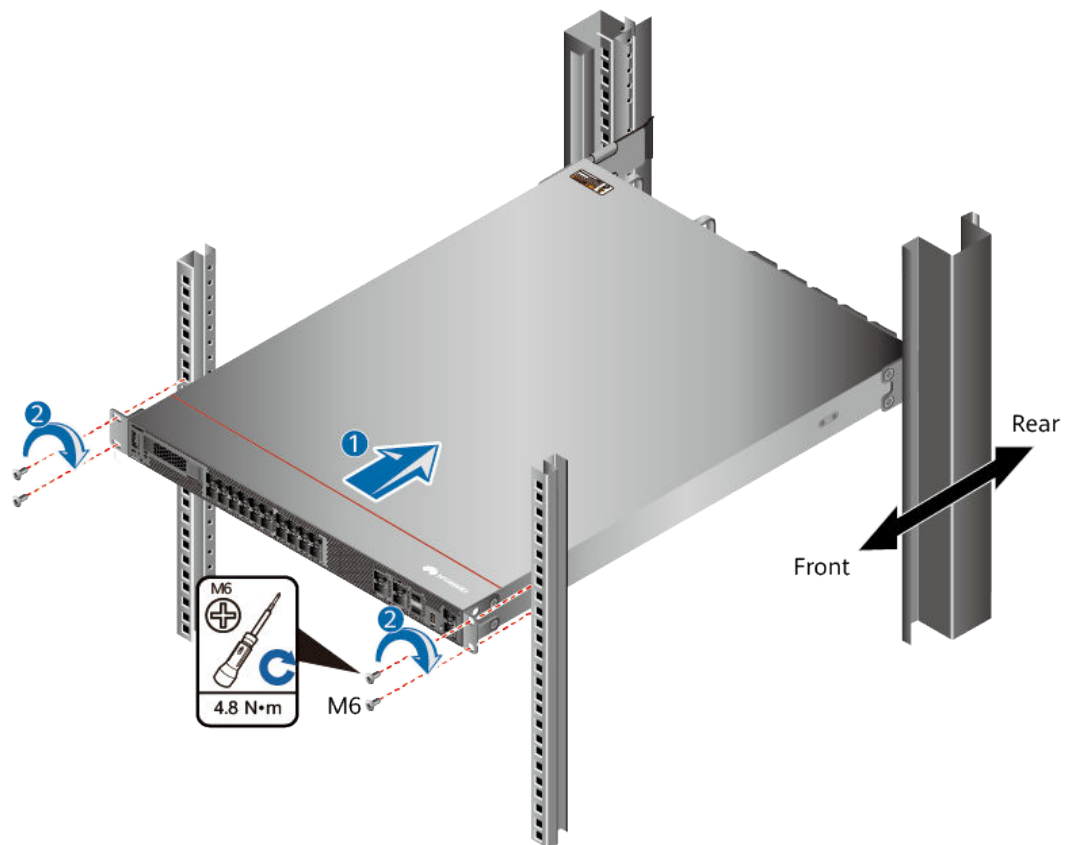


4. (Optional) Install adjustable guide rails (BOM numbers: 21242247 and 21242246). For details, see the installation guide delivered with the adjustable guide rails.

Step 3 Mount the USG in the cabinet.

1. Hold the bottom of the USG with both hands and move the USG into the cabinet. Align the rear mounting ears with the rear mounting ear guide rails and slowly slide the USG along the guide rails.
2. Use M6 screws to fix the mounting ears of the USG to the mounting rack, as shown in [Figure 5-43](#).

Figure 5-43 Mounting the USG in a cabinet



----End

Follow-up Procedure

Perform the following checks after the installation:

- Ensure that the USG is placed securely inside the cabinet.
- Ensure that the exhaust of the USG is not blocked by other objects.

5.5.2 Connecting a PGND Cable

Connecting the PGND cable of a USG6680E, USG6712E, USG6716E correctly is a key measure of surge protection and resistance to interference. Before using the USG6680E, USG6712E, USG6716E, correctly connect the PGND cable. Otherwise, the USG may be damaged.

Precautions

The USG has been installed inside a cabinet.

Tools

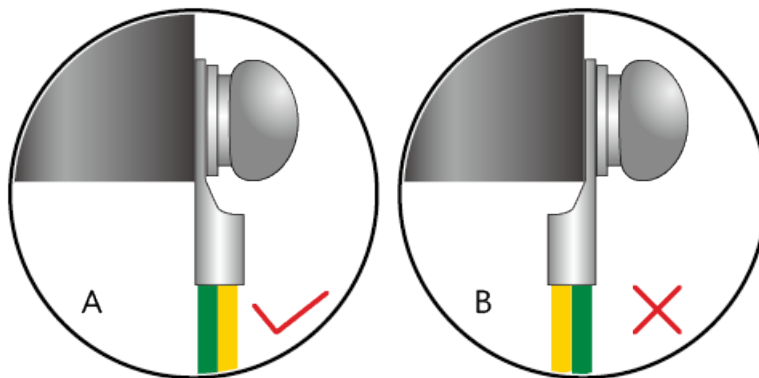
- Phillips screwdriver

- Multimeter

Procedure

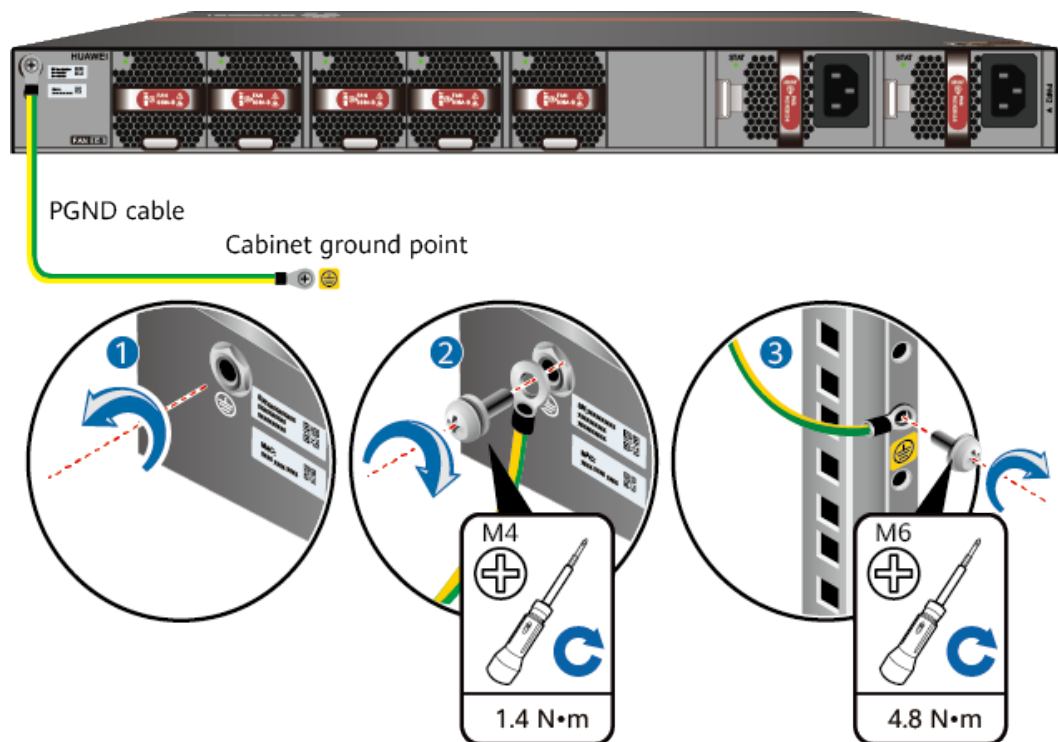
- Step 1** Loosen and remove the screw of the ground terminal on the lower right of the USG rear panel.
- Step 2** Connect the OT terminal at one end of the PGND cable to the connection hole of the USG, with the conducting wire upward, as shown in A of [Figure 5-44](#), and tighten the M4 screw. The tightening torque is 1.4 N·m.

Figure 5-44 Installing the OT terminal



- Step 3** Connect the M6 end of the PGND cable to the ground terminal of the cabinet, workbench, or wall. The tightening torque of the M6 screw is 4.8 N·m.

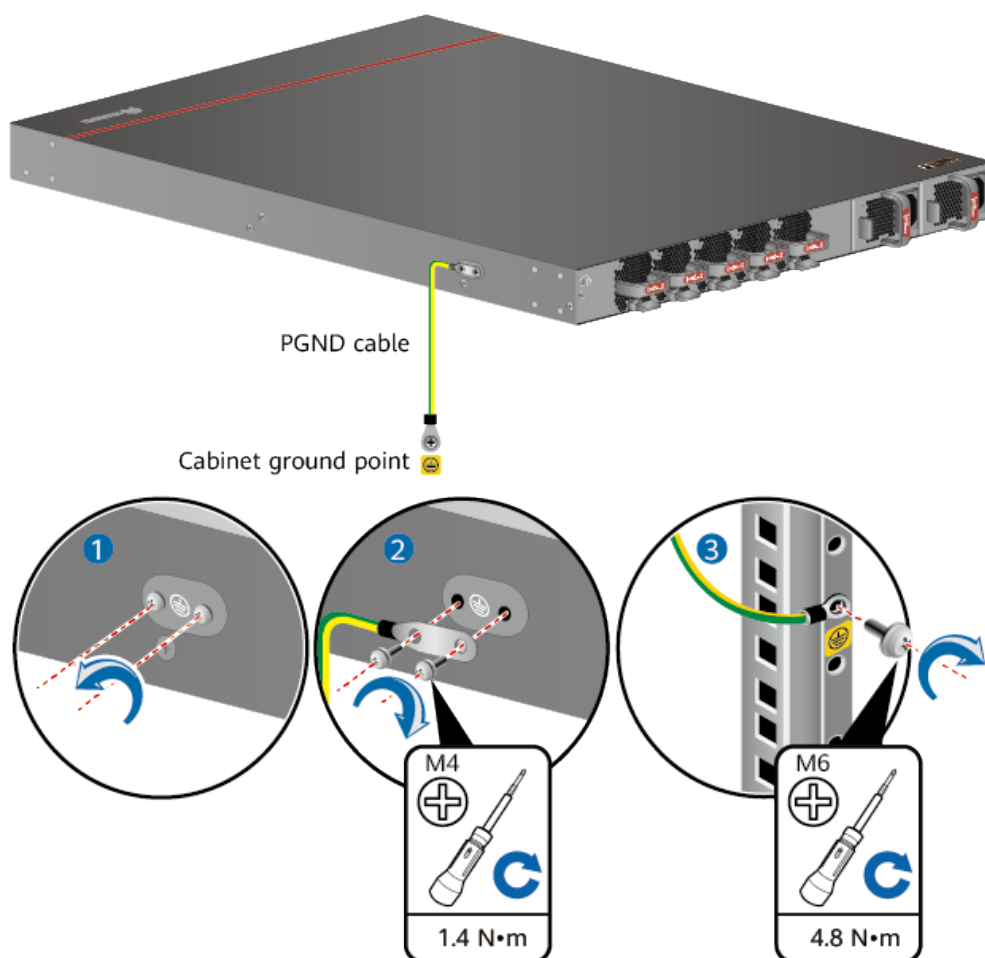
Figure 5-45 Connecting a PGND cable



 NOTE

In the dual-OT scenario, connect the ground terminal on the side panel of the USG.

Figure 5-46 Connecting the ground terminal in the dual-OT scenario



NOTICE

The OT terminal may rotate and result in device damage. Make sure that it is independent of the adjacent metal mechanical part or other terminals.

----End

Follow-up Procedure

Verify the following after the cabling is complete:

- The PGND cable is securely connected to the ground terminal.

- The electrical resistance between the ground terminal and ground point is less than 0.1 ohm on a multimeter.

5.5.3 Installing a Hard Disk

This section describes how to install a hard disk units for the first time to avoid hard disk damage.

Precautions

Precautions for the use of hard disks

- Use Huawei hard disks. The system cannot recognize the hard disks provided by other vendors.
- Wear an ESD wrist strap to protect the USG and hard disks from electrostatic damage.
- Hold the two side surfaces of a hard disk, do not touch the PCB board or squeeze the hard disk, and do not vibrate, bump, or stack hard disks.
- For mapping relationships between the USG and hard disks, see [Hardware Overview](#).

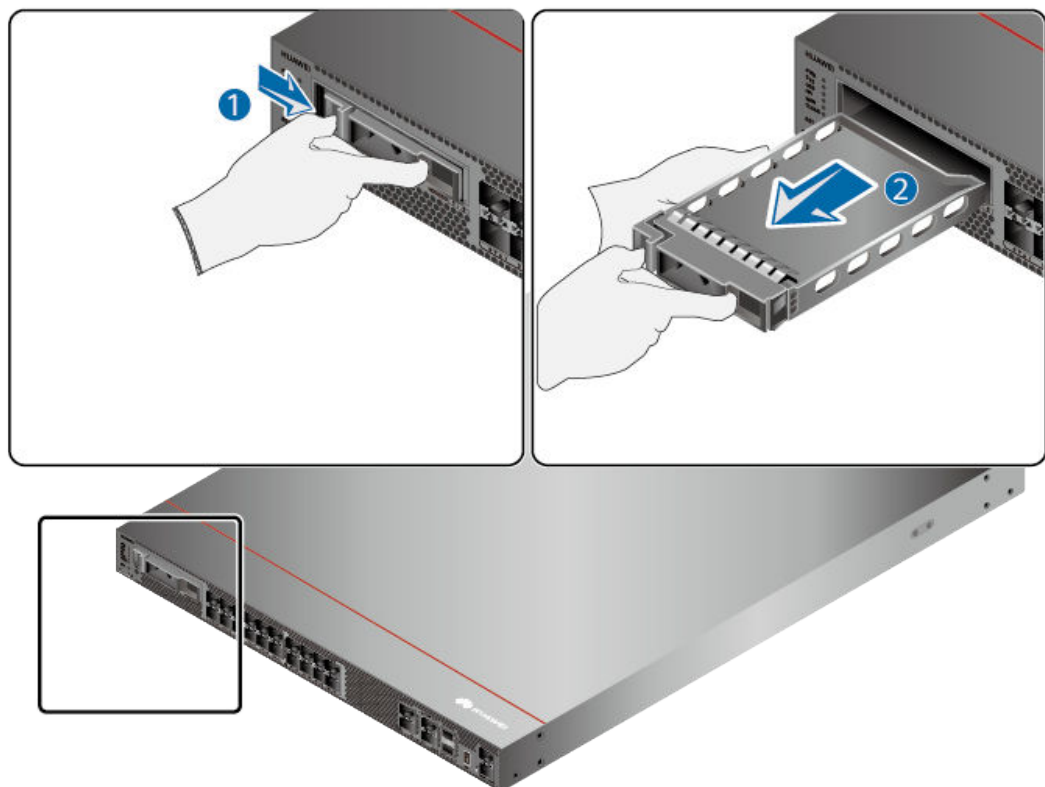
Tool

ESD bag

Procedure

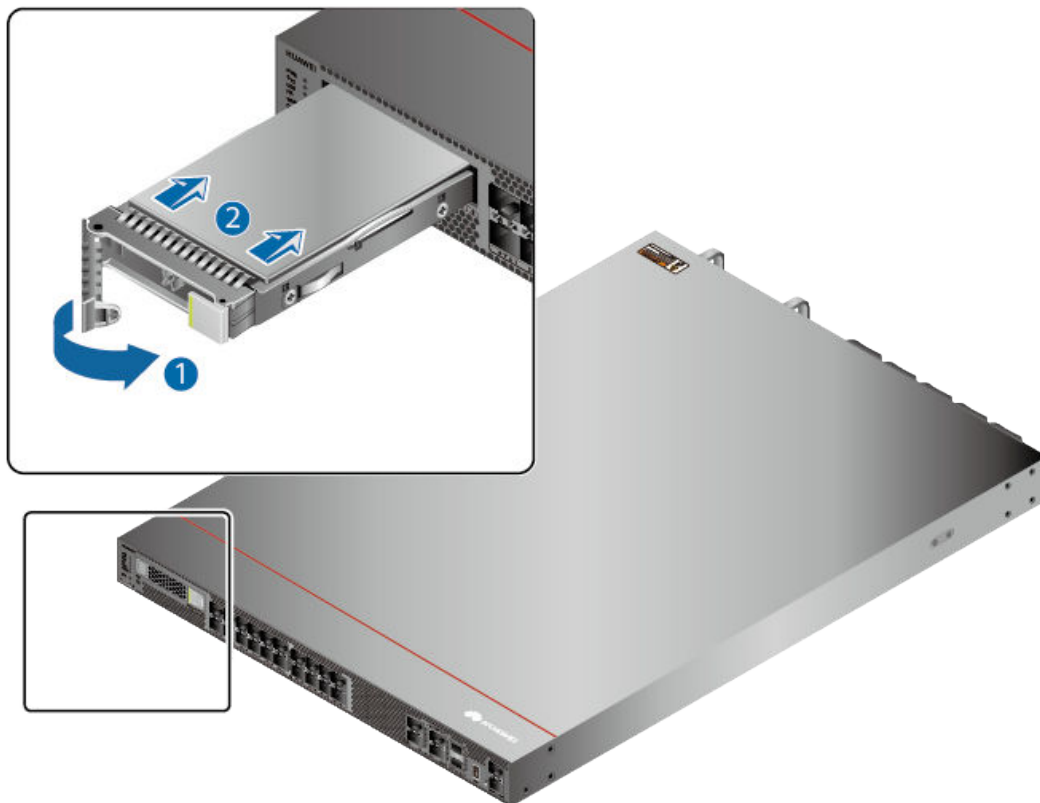
- Step 1** Remove the filler panel from a hard disk slot.

Figure 5-47 Removing the filler panel from a hard disk slot



- Step 2** Pull the ejector lever on the hard disk holder, keep it in pulled-out state, and push the hard disk holder with two hands along the guide rails of the slot till the front surface of the hard disk holder touches the USG panel.

Figure 5-48 Installing a hard disk



- Step 3** After the ejector lever of the hard disk is fastened to the chassis, close the hard disk ejector lever.
- Step 4** After the installation is complete, perform the following operations:

NOTE

Operations after the USG power-on must be performed after all installation tasks are complete.

- Before the USG is powered on, ensure that the hard disk is correctly installed.
- After the USG is powered on, run the **display disk information** command in the user view to check whether the **Filesystem Status** value is **Mounted**.

----End

5.5.4 Connecting a Console Cable

After connecting a PC to the console port of a USG6680E, USG6712E, USG6716E with a console cable, you can use the terminal emulation program on the PC to access the command configuration interface of the USG6680E, USG6712E, USG6716E.

Precautions

Before connecting a console cable, perform the following operations:

- Check preparations.
A PC is ready, a USG has been installed, and the ports to be connected are planned.
- Prepare cable labels.
Before cable connection, labels must be prepared for the cable.

NOTICE

- Make sure that the PC and the USG are connected to the same ground point. Otherwise, the console port of the USG may be damaged.
- Pay attention to port numbering and make sure that the cable is connected to the correct port, preventing damage to ports or the device.

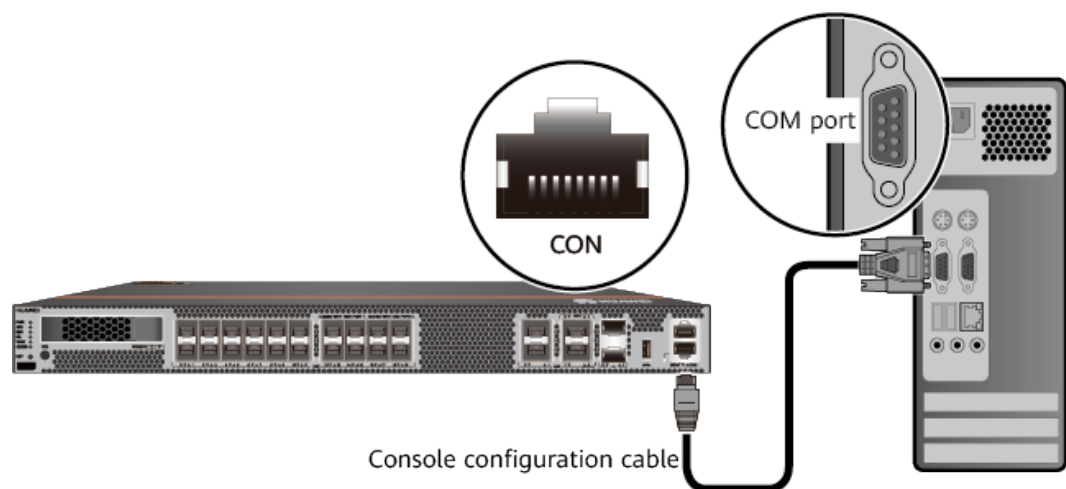
Tools

Console cable (prepared by the user)

Procedure

- Step 1** Before connecting a console cable, attach temporary labels to both ends of the cable for identification.
- Step 2** Connect the RJ45 connector of the console cable to the console port (RJ45) of the USG.
- Step 3** Connect the DB9 connector of the console cable to the COM port of the management PC.

Figure 5-49 Connecting a console cable to the USG



- Step 4** Remove the temporary labels and attach labels (2 cm away from the connectors) at both ends of the console cable.

----End

Follow-up Procedure

After the cable connection is complete, verify that:

- The labels at both ends of a cable are correct, clear, neat, and facing the same direction.
- Cables and connectors are free of damage or breakage and are connected properly.

For details on the console login, refer to the Configuration Guide.

5.5.5 Installing Optical Transceivers and Connecting Optical Fibers

This section describes how to install optical transceivers on the 10GE, 40GE, 100GE optical ports of the USG and connect them to the ports of the peer device using optical fibers according to the network plan.

Context

The USG supports 1 Gbit/s, 10 Gbit/s, 40 Gbit/s, 100 Gbit/s optical modules. The optical modules at both ends are the same, including the optical fiber type (single-mode or multi-mode), optical fiber connector type (LC/PC, SC/PC, FC/PC, or MPO/PC-MPO/PC), and transmission rate. If different optical modules are used at the two ends, the communication may fail.

NOTICE

Huawei optical modules are recommended. The optical modules from other vendors may cause faults on the USG due to incompatibility.

CAUTION

Do not look into the optical interface of the optical module or the optical fiber connector without eye protection.

Before connecting optical fiber cables, read the following precautions:

- Do not overbend optical fibers, and the radius should not be shorter than 40 mm.
- Do not bundle the optical fibers too tight. Otherwise, the transmission performance of the optical fibers and the communication between devices might be adversely affected.

Before connecting optical ensure the following:

- The optical module has been installed.

Procedure

Step 1 Insert an optical transceiver into the 10GE, or 40GE, or 100GE optical port of the USG.

Step 2 Remove the dust cap from the optical transceiver.

 **NOTE**

Set aside the dust cap properly for future use. After optical fiber are disconnected for maintenance, use the dust cap to prevent the optical transceiver from dust.

Step 3 Before connecting an optical fiber, attach temporary labels to both ends of the optical fiber for identification.

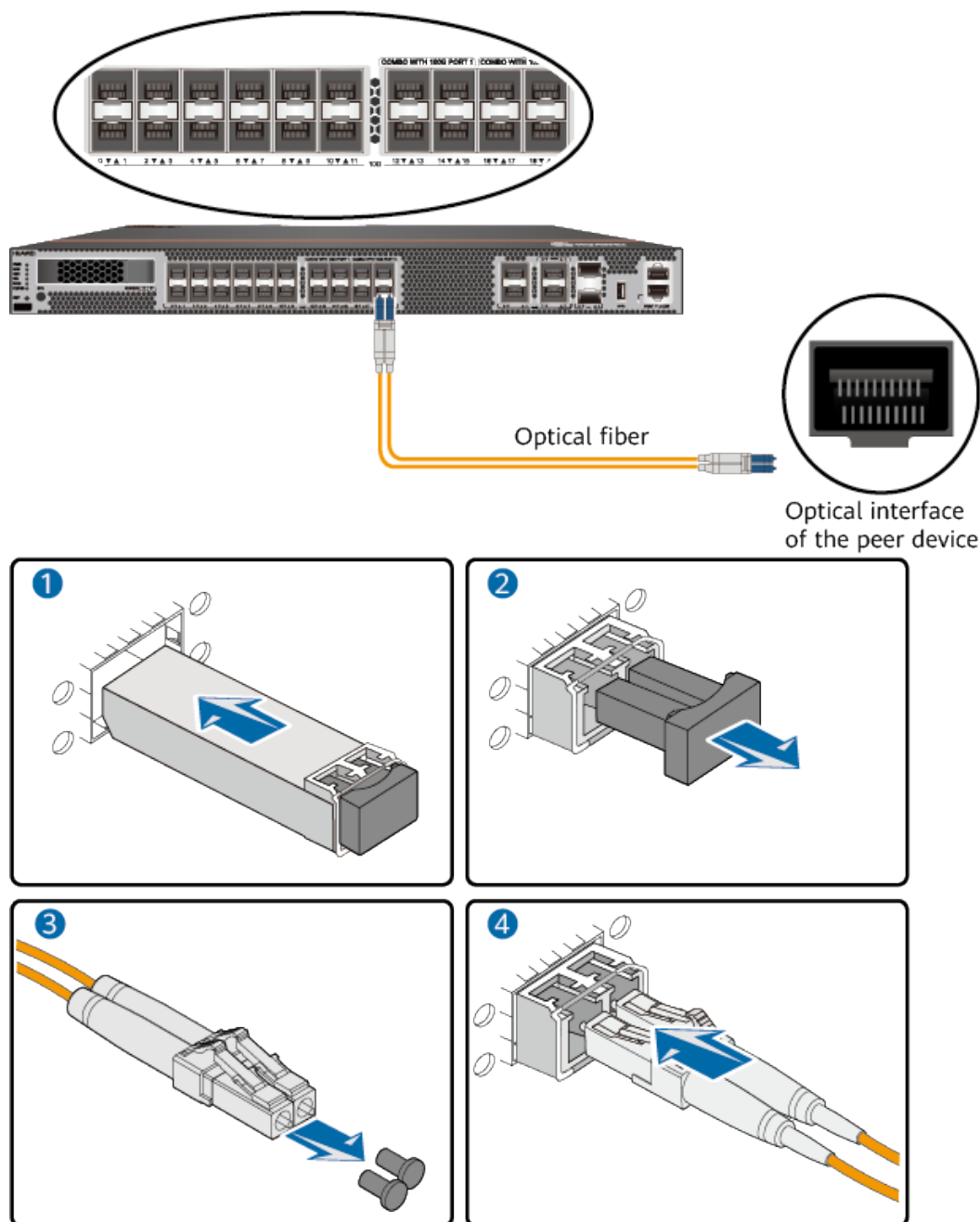
Step 4 Remove protective caps from optical fiber connectors, insert optical fibers into the optical transceiver, and connect the fiber to the peer device.

 **NOTE**

Ensure that the Tx and Rx ports are correctly connected.

Ensure that the TX and RX ports on one end of the optical fiber cable are connected to the RX and TX ports (respectively) on the other end.

Figure 5-50 Installing optical transceivers and connecting optical fibers



Step 5 Repeat **Step 1** to **Step 4** to install all optical transceivers and connect all optical fibers.

----End

Follow-up Procedure

After you power on the USG, check the connection by observing the optical port indicator. If the indicator is on or blinks, the link is connected or data is being transmitted. If the indicator is off, the link is disconnected. Possible causes for the disconnection are as follows:

- The optical fiber is improperly inserted. Pull out the optical fiber and re-insert it.
- The RX and TX optical ports are inserted reversely. Pull out the optical fibers, change their position, and re-insert them.
- The optical module is damaged or the optical fiber is broken. Replace the optical module or the optical fiber.

5.5.6 Connecting AC Power Cables

The USG6680E, USG6712E, USG6716E comes with two AC power module. Each AC power module requires an AC power cable. When two AC power modules are used, connect power cables to both AC power modules.

Context

Before connecting the power cables, ensure that the AC power supply in the equipment room meets the input requirements of the USG.



Do not connect or disconnect the power cables when the USG is powered on.

Procedure

Step 1 Ensure that the PGND cable is adequately grounded.

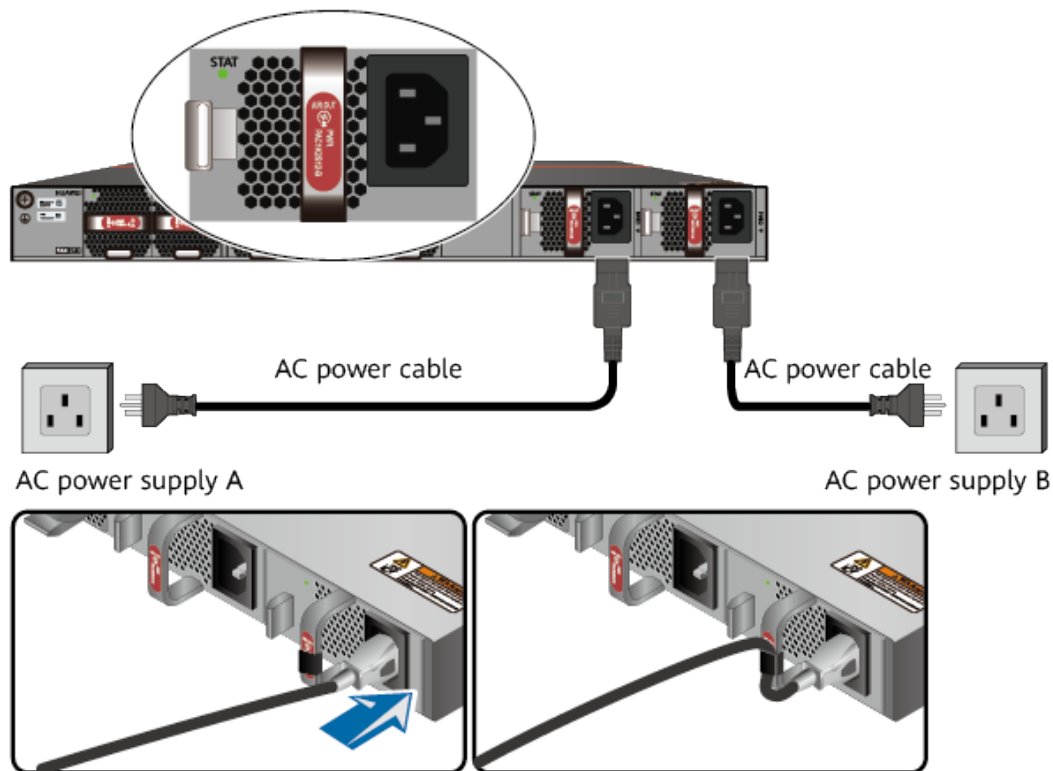
Step 2 Connect AC power cables to AC power modules.

 **NOTE**

When two power modules are used, connect them to different power sources to improve availability.

1. Plug one end of the C13 power cable to the power socket of the USG power module and adjust the cable-retention clip to an appropriate position.
2. Use a velcro strap to bundle the power cable onto the handle of the power module.
3. Connect the other end of the power cable to the external power supply system.
 - If the external power supply is AC, plug the other end of the power cable to the AC power socket or the output of the AC power supply device.

Figure 5-51 Connecting AC power cables



- If a 240 V high-voltage DC PDU is used, directly connect the straight male connector to the PDU.
- If a 240 V high-voltage DC power distribution box is used, make OT or cord end terminals for the cable. Cut the straight male connector off and crimp OT or cord end terminals on the bare wires. Connect the brown wire to a negative terminal on the DC power distribution box, the blue wire to a positive terminal, and the yellow-green wire to a protection ground. If the switch fails to be powered on after you connect the power cable, swap the wires on the positive and negative terminals.

----End

Follow-up Procedure

Verify the following after the connection is complete:

- The power cable is firmly connected to the power supply socket.
- If multiple USGs are deployed, the power cables of each USG are correctly labeled for distinction.

5.5.7 Powering On or Off the USG6680E, USG6712E, USG6716E

This section describes how to power on or off the USG6680E, USG6712E, USG6716E. To ensure the normal start and security of the USG6680E, USG6712E, USG6716E, strictly follow the operation guide to power on or off the USG6680E, USG6712E, USG6716E.

Context

Before you power on the USG, ensure that:

- The power cable and PGND cable are properly connected.
- The power switch in the equipment room is easy to locate so that you can power off devices in the case of accidents.

Procedure

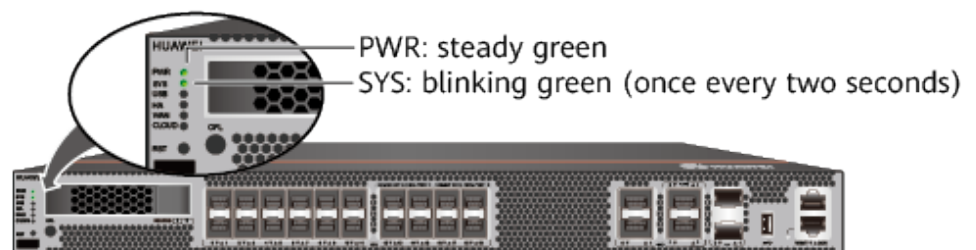
- Power on the USG.

Turn on the switch of the power supply device. The USG starts.

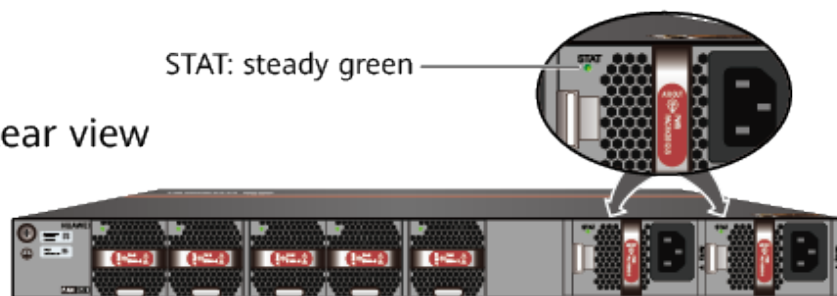
You can identify the USG status based on indicators on the front and rear panels. Indicators shown in USG [Figure 5-52](#) indicate that the USG runs normally.

Figure 5-52 Indicators when the USG runs normally

Front view



Rear view



- Power off the USG.

NOTICE

Before powering off the USG, ensure that configuration data is saved. Otherwise, the configuration data may be lost.

If the USG will be administratively shut down for a long time, turn off the power switch. After powering off the USG, set it aside properly according to storage requirements.

 **CAUTION**

If the USG has hard disks, do not power off the USG by removing the power cable or switching off the power supply to prevent data loss and hard disk damage. You must run the **disk offline** command in the system view first and wait for about 30 seconds. After the system prompts you with a message indicating that hard disks have stopped, turn off the power switch of the USG.

----End

Follow-up Procedure

After the USG is powered on, you can log in to the configuration page for management and maintenance. For details, refer to the Configuration Guide.

6 Maintaining the Hardware

The hard disks, power modules, and fan modules of the USG6000E are replaceable. You can replace them as instructed.

6.1 Replacing the Hard Disk

This section describes how to replace the hard disk as well as the precautions.

Precautions

Precautions for using the hard disks

- Use hard disks purchased from Huawei. Otherwise, the system may not identify them.
- Powering off the USG interrupts services. Install or replace the hard disks during off-peak hours.
- Wear the ESD wrist strap while working on the USG to avoid possible damages to the USG and hard disks.
- While holding a hard disk, do not touch the PCB board or squeeze the disk. Carry only one hard disk at a time. Do not vibrate, crash, or pile multiple hard disks up.
- Put the hard disks inside ESD bags when they are not used.
- For mapping relationships between the USG and hard disks, see [Hardware Overview](#).

Tools

ESD bag

Replacing the Hard Disk (USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6580E, USG6585E)

If a hard disk is faulty (for example, a hard disk failure log is generated on the USG), you can replace the hard disk. The hard disk can be replaced no matter when the USG is powered on or off. If the USG is powered off, skip [Step 1](#) and do

not run the **disk offline** command. The following procedure guides you through hard disk replacement while the USG is powered on:

Step 1 Ensure that all configurations are saved.

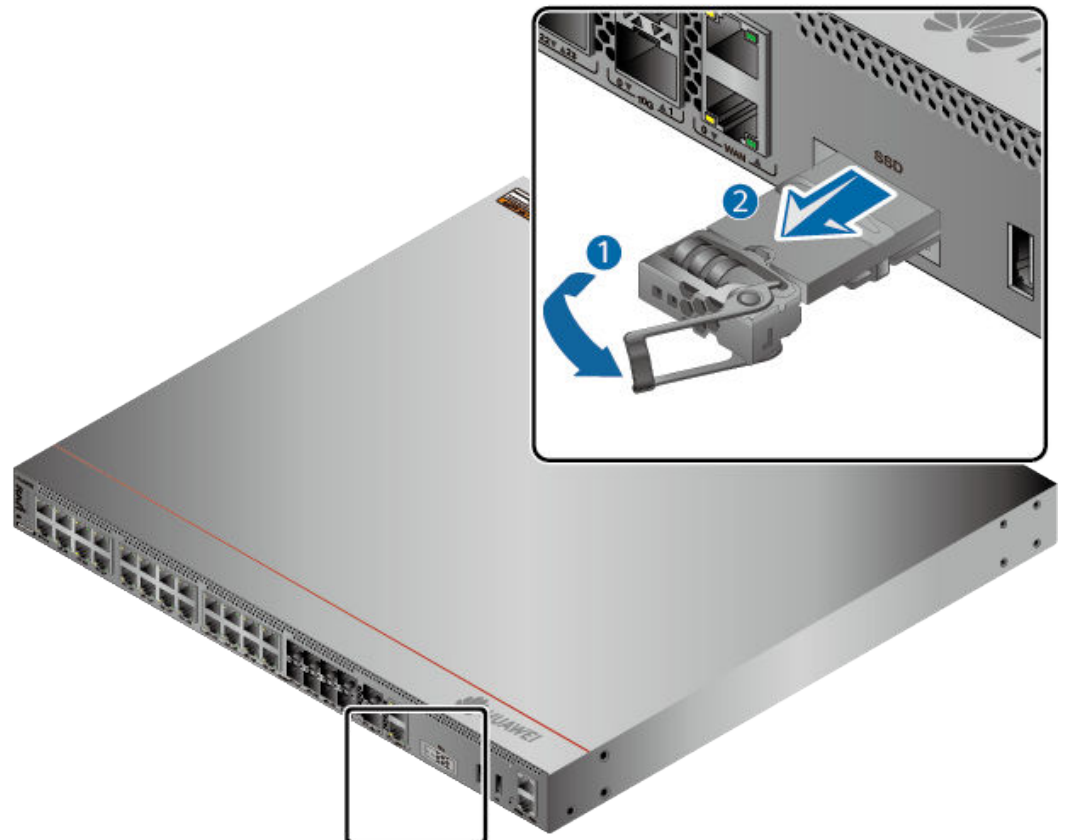
Step 2 Run the **disk offline** command in the system view. Wait about 30 seconds until the system indicates that the hard disk stops working and then remove the hard disk to be replaced.

 **NOTE**

If you remove and insert a hard disk without running the **disk offline** command first, the hard disk may be damaged, data in the hard disk may be lost, or the system may stop responding to services.

1. Use the handler to pull the hard disk out of the slot.
2. Put the replaced hard disk into an ESD bag.

Figure 6-1 Removing the hard disk (USG6515E, USG6525E, USG6550E, USG6555E, USG6560E, USG6565E, USG6580E, USG6585E)



Step 3 Install the new hard disk, see [Installing the Hard Disk](#).

Step 4 Run the **disk online** command in the system view and then the **display disk information** command. If **Filesystem Status** is **Mounted**, the hard disk works properly.

----End

Replacing the Hard Disk (USG6575E-B, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E, USG6680E, USG6712E, USG6716E)

If a hard disk is faulty (for example, a hard disk failure log is generated on the USG), you can replace the hard disk. The hard disk can be replaced no matter when the USG is powered on or off. If the USG is powered off, skip [Step 1](#) and do not run the **disk offline** command or press the **OFL** button. The following procedure guides you through hard disk replacement while the USG is powered on:

Step 1 Ensure that all configurations are saved.

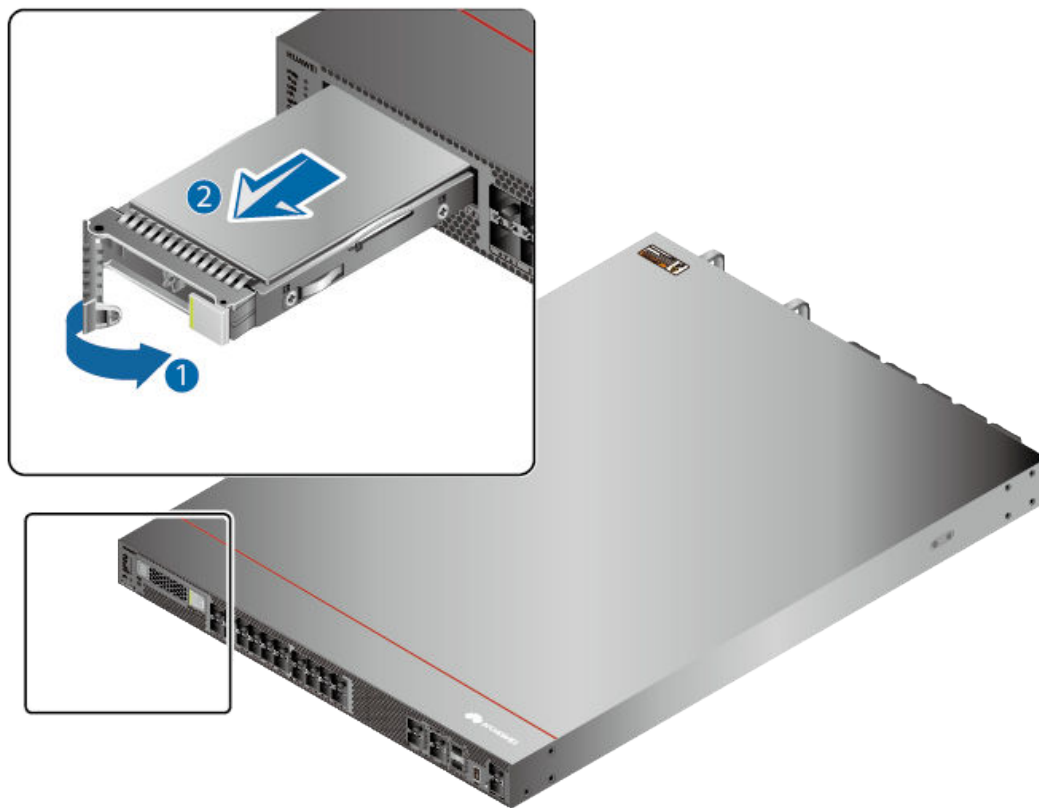
Step 2 Run the **disk offline** command in the system view. Wait about 30 seconds until the system indicates that the hard disk stops working and then remove the hard disk to be replaced. Press and hold the **OFL** button for about four seconds until the **OFL** indicator is on. Then remove the hard disk unit to be replaced.

NOTE

If you remove and insert a hard disk without running the **disk offline** command or press the **OFL** button first, the hard disk may be damaged, data in the hard disk may be lost, or the system may stop responding to services.

1. Press the button on the right of the hard disk tray to eject the handler.
2. Use the handler to pull the hard disk out of the slot.
3. Put the replaced hard disk into an ESD bag.

Figure 6-2 Removing the hard disk (USG6575E-B, USG6605E-B, USG6610E, USG6615E, USG6620E, USG6625E, USG6630E, USG6635E, USG6650E, USG6655E, USG6680E, USG6712E, USG6716E)



Step 3 Install the new hard disk, see [Installing a Hard Disk](#).

Step 4 Run the **disk online** command in the system view and then the **display disk information** command. If **Filesystem Status** is **Mounted**, the hard disk works properly.

----End

Follow-up Procedure

After replacing the hard disk, collect all tools. If the replaced hard disk is faulty, fill in the [Repair Transmission Sheet](#) and send the faulty module with the Repair Transmission Sheet to the equipment supplier or the specified repair service provider.

6.2 Replacing a Power Module

This section describes how to replace a faulty power module.

Context

When two power modules are installed on the USG, one of them is hot swappable. Pay attention to the following items during hot swapping:

- Power off the power module to be replaced.
- Do not power off the other power module during the replacement.
- Do not touch the other power module either by body or by tools, preventing human injury or device short circuit.
- DC and AC power modules are incompatible with each other and cannot be used in substitution.

Tools

ESD wrist strap

Replacing the Power Module

- Step 1** Determine the location of the power module to be replaced and attach a replacement label on the panel to identify the power module.
- Step 2** Disconnect the power supply device from the power module to be replaced.
- Step 3** Wear an ESD wrist strap.
- Step 4** Remove the power cable connected to the power module.

Refer to the following instructions to remove the power cables:

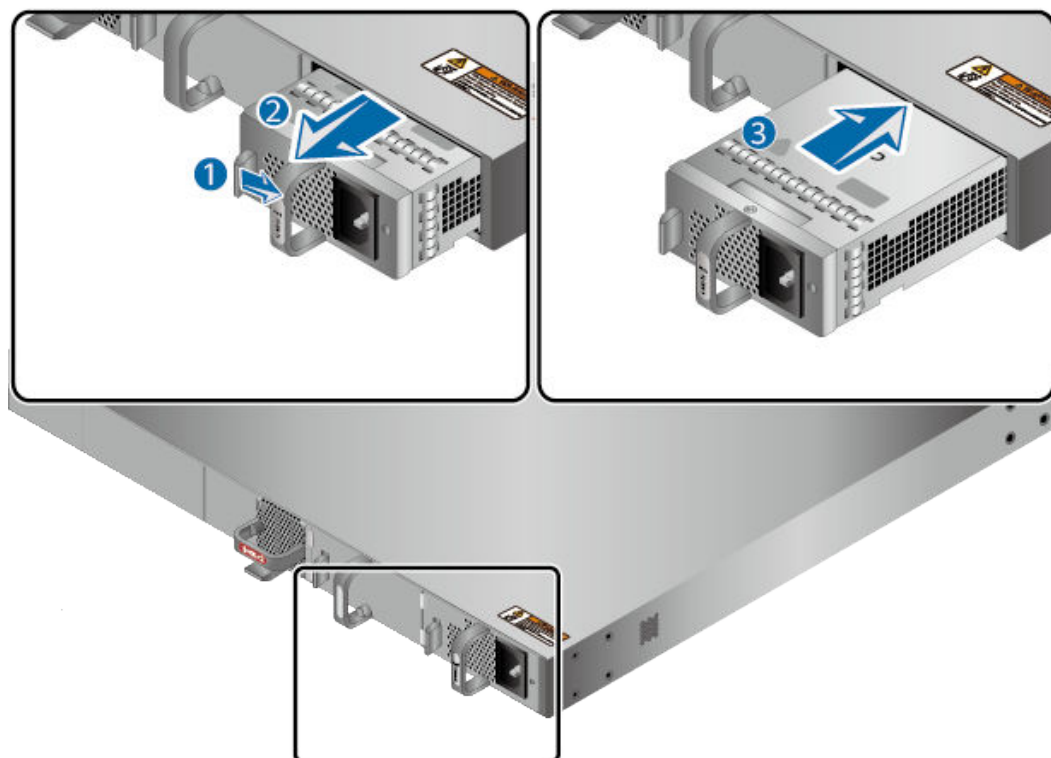
- To remove the AC power cable:
 - a. Press the baffle on the cable retention clip and remove the cable retention clip from the AC power cable. (Skip this step if the power module does not have any cable retention clip.)
 - b. Pull out the power cable from the socket on the power module.
- To remove the DC power cable:
 - a. Remove the fastening screws from the OT terminals of the DC power cable.
 - b. Pull out the power cable from the socket on the power module.

- Step 5** Replace the power module.

The methods to replace the DC power module and the AC power module are the same. The following uses AC power module replacement as an example.

1. Press the cable retention clip of the power module to the right, hold the front panel of the power module, and pull out the power module.
2. Note down the cause and time of the replacement as well as the bar code of the replaced power module and then put away the replaced power module.
3. Take the new power module from the packing box and check whether its model is the same as the replaced one.
4. Gently push the new power module into the chassis along the power slot. After the latch on the power module is tightened, pull the power module gently to check whether it can be removed.
5. Connect the power cable to the socket on the new power module. For details, see [Connecting AC Power Cables \(for a 420 mm Deep Device\)](#) or [Connecting AC Power Cables \(for a 600 mm Deep Device\)](#).

Figure 6-3 Replace the power module



6. Switch on the power supply device. If the STATUS indicator on the new power module of the USG6000E is steady green, the power module works properly.

----End

Follow-up Procedure

After replacing the power module, collect all tools. If the replaced power module is faulty, fill in the [Repair Transmission Sheet](#) and send the faulty module with the Repair Transmission Sheet to the equipment supplier or the specified repair service provider.

6.3 Replacing a Fan Module

If the only fan of the USG fails, replace the fan module immediately. Otherwise, heat dissipation of the device is affected. If the USG has two or more fans and two or more fans fail, replace the faulty fan modules immediately. Otherwise, heat dissipation of the device is affected. This section is irrelevant to other models that do not have independent fan modules.

Context

NOTE

The fan module of the USG is hot swappable. Therefore, when the fan module is faulty, you can replace the fan module without powering the USG off.

NOTICE

To prevent USG overheating, replace the fan module within 1 minute.

Tools

ESD wrist strap

Procedure

Step 1 Wear an ESD wrist strap.

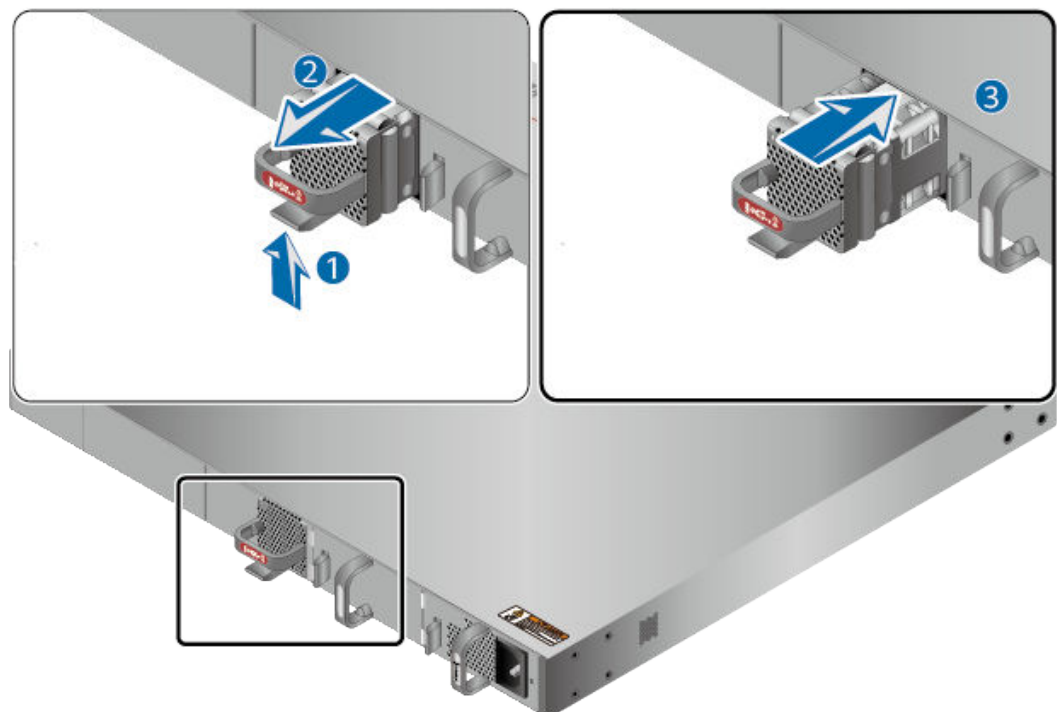
Step 2 Remove the faulty fan module.

Press upwards the fan module latch, hold the handle of the fan module, and pull out part of the fan module. After the fan stops rotating, slowly pull out the fan module from the chassis.

Step 3 Install a new fan module.

Hold the handler of the fan module with one hand and the bottom of the fan module with the other hand, insert the fan module along the guide rail of the fan slot until the back of the fan module gets in good contact with the chassis backplane. After the latch on the power module is tightened, pull the fan module gently to check whether it can be removed.

Figure 6-4 Replacing the fan module



Step 4 Check the FAN STATUS indicator on the panel. If the indicator is blinking green every two seconds (0.5 Hz), the new fan module works properly.

----End

Follow-up Procedure

After replacing the fan module, collect all tools. If the replaced fan module is faulty, fill in the [Repair Transmission Sheet](#) and send the faulty module with the Repair Transmission Sheet to the equipment supplier or the specified repair service provider.

6.4 Replacing a Micro SD Card (USG6510E, USG6510E-POE, USG6530E)

This section describes how to replace the micro SD card and the precautions.

Precautions

If the micro SD card has one of the following conditions, replace the micro SD card:

- The micro SD card is damaged. That is, the USG generates the micro SD card damage alarm: ENTEXT_1.3.6.1.4.1.2011.5.25.31.2.0.16 hwEntityExtDiskDamaged.
- The micro SD card is full. That is, the USG generates the micro SD card full alarm: ENTEXT_1.3.6.1.4.1.2011.5.25.31.2.0.17 hwEntityExtDiskFull.

Read the precautions on using the micro SD card:

- Micro SD cards are optional and are not delivered with the device. If required, purchase the micro SD card (part number: 06010308) from Huawei. The micro SD card model is SDSAQAE-064G, the capacity is 64 GB, and dimensions (H x W x D) are 1 mm x 15 mm x 11 mm (0.04 in. x 0.59 in. x 0.43 in.).
- Make sure that you have worn an ESD wrist strap and the strap is well grounded before you hold the micro SD card. Otherwise, the micro SD card may be damaged.

The micro SD card can be replaced no matter when the USG is powered on or off. If the USG is powered off, skip the **sd-card offline** command. The following procedure guides you through micro SD card replacement while the USG is powered on.

Tools

- Phillips screwdriver
- ESD wrist strap

Procedure

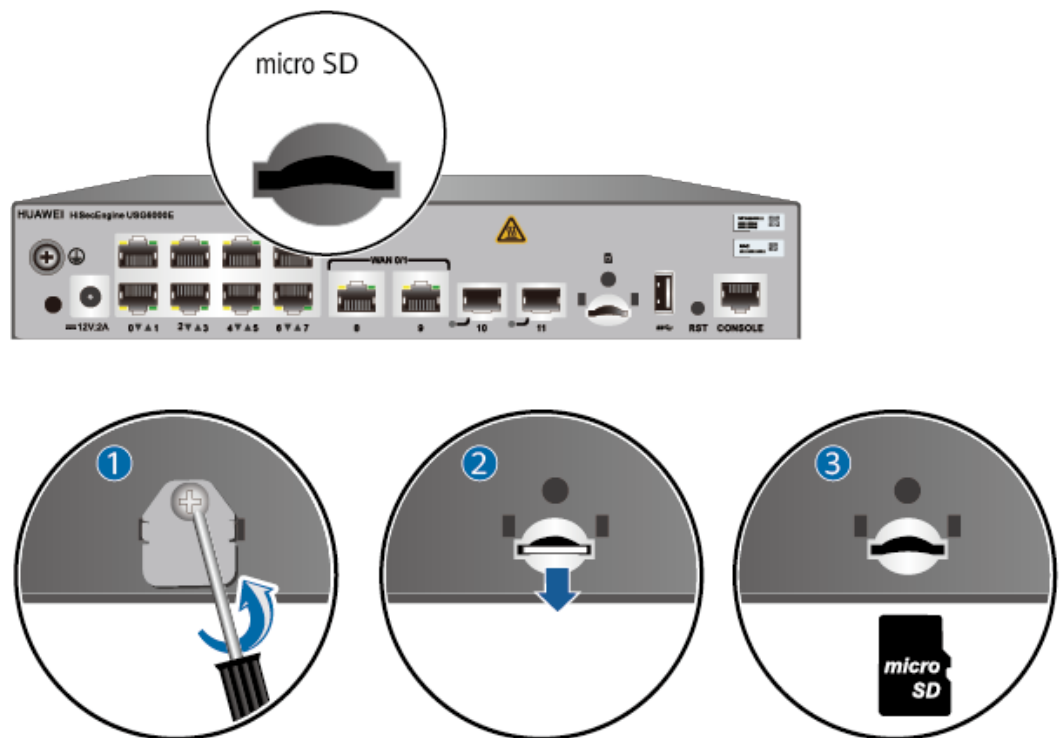
Step 1 Ensure that all configurations are saved.

Step 2 In the system view, run the **sd-card offline** command. When the system displays a message indicating that the SD card is offline, remove the micro SD card to be replaced.

 NOTE

- Before replacing a micro SD card, run the **sd-card offline** command to prevent micro SD card damage and data loss.
 - Do not use too much force; otherwise the micro SD or micro SD card slot might be damaged.
1. Loosen the screws on the anti-theft board and remove the anti-theft board.
 2. Press the micro SD card along the guide rail to loosen the internal card clip. Then the micro SD card is ejected from the slot. You can then remove the micro SD card.
 3. Place the replaced micro SD card properly.

Figure 6-5 Removing a micro SD card

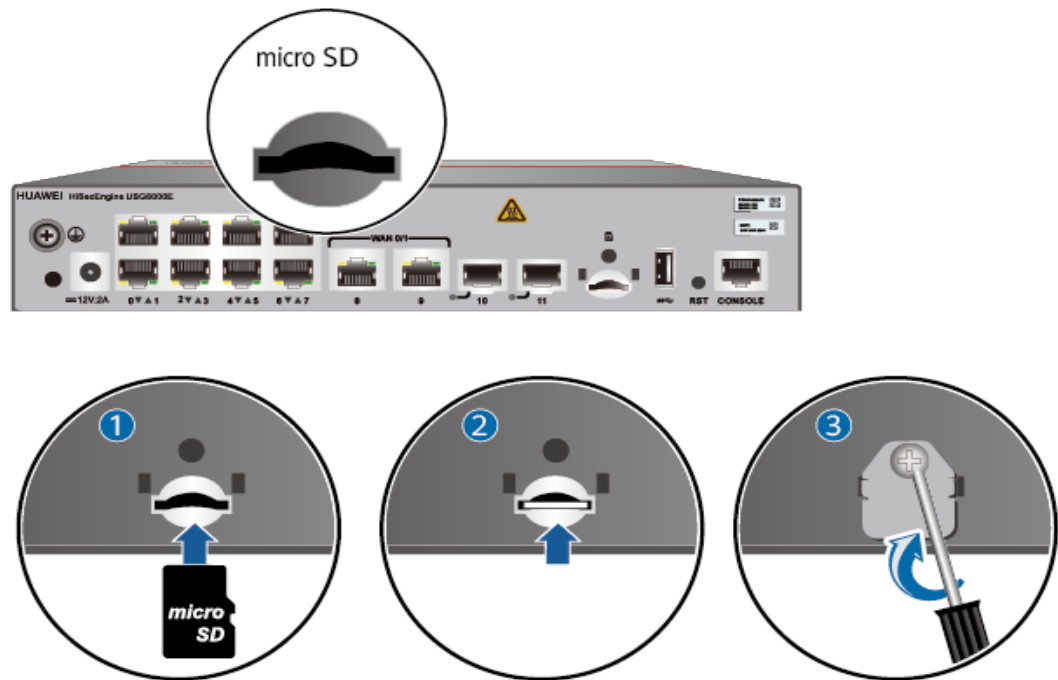


Step 3 Install the new micro SD card and anti-theft board.

 NOTE

- Note that the micro SD card must be installed with the face with words upwards.
 - Do not use too much force; otherwise the micro SD or micro SD card slot might be damaged.
1. Insert the micro SD along the guide rail to the micro SD card slot.
 2. When you hear a click, the micro SD card is in position.
 3. Hook the locating hook on the anti-theft board to the locating hole of the rear panel and tighten the captive screw on the anti-theft board.

Figure 6-6 Installing the new micro SD card and anti-theft board



Step 4 In any view, run the **display sd-card information** command to check the micro SD card installation and file system mounting status. In the command output, **SD Card Physical State** should be **Present**, and **SD Card File System State** should be **Mounted**.

- If **SD Card Physical State** is **Absent**, re-install the micro SD card and try again. If **SD Card Physical State** remains the same, the USG may fail to identify the micro SD card. You are advised to use another micro SD card.
- If **SD Card File System State** is **Unmounted**, the micro SD card format might not be **ext4**. You need to run the **reset sd-card** command in the system view to format the micro SD card.

----End

Follow-up Procedure

After replacing the micro SD card, collect all tools. If the replaced micro SD card is faulty, fill in the [Repair Transmission Sheet](#) and send the faulty module with the Repair Transmission Sheet to the equipment supplier or the specified repair service provider.

6.5 Replacing a Device

Context

When a fault occurs on the USG device, such as a memory fault, CPLD fault, or startup failure, you can replace the USG device to rectify the fault.

Precautions

Pay attention to the following during device replacement:

- If a device can still be started, save and back up the configuration data before powering off the device. Otherwise, the configuration will be lost.
- If a device with a hard disk can still be started, run the **disk offline** command in the system view. Wait for about 30 seconds. After the system displays a message indicating that the hard disk stops working, remove the hard disk unit to be replaced. Alternatively, hold down the OFL button for about 4 seconds until the OFL indicator turns on, and then remove the hard disk unit. Do not directly remove the power cable or disconnect the power supply to power off the USG device. Otherwise, data loss and hard disk damage may occur.
- To prevent a USG device from falling down, hold the device tightly with both hands while removing or installing it.
- Be careful of the heat when replacing the USG device.
- In a hot standby scenario, ensure that the model and software version of the new USG device are the same as those of the standby USG device.

Preparing Tools

- ESD wrist strap or ESD gloves
- Phillips screwdriver

Replacing a device

Step 1 Determine the installation position of the USG device to be replaced and attach a replacement label on the panel of the device to avoid misoperations.

Step 2 Wear an ESD wrist strap or ESD gloves.

Step 3 Disconnect the power supply device from the USG device to be replaced. When the PWR indicator on the USG device is off, you can proceed with subsequent operations.

Step 4 Remove the cables from the USG device to be replaced and attach labels that specify interface numbers to the cables.

NOTE

Remove the power cables, service cables, and ground cables from the USG device to be replaced in sequence.

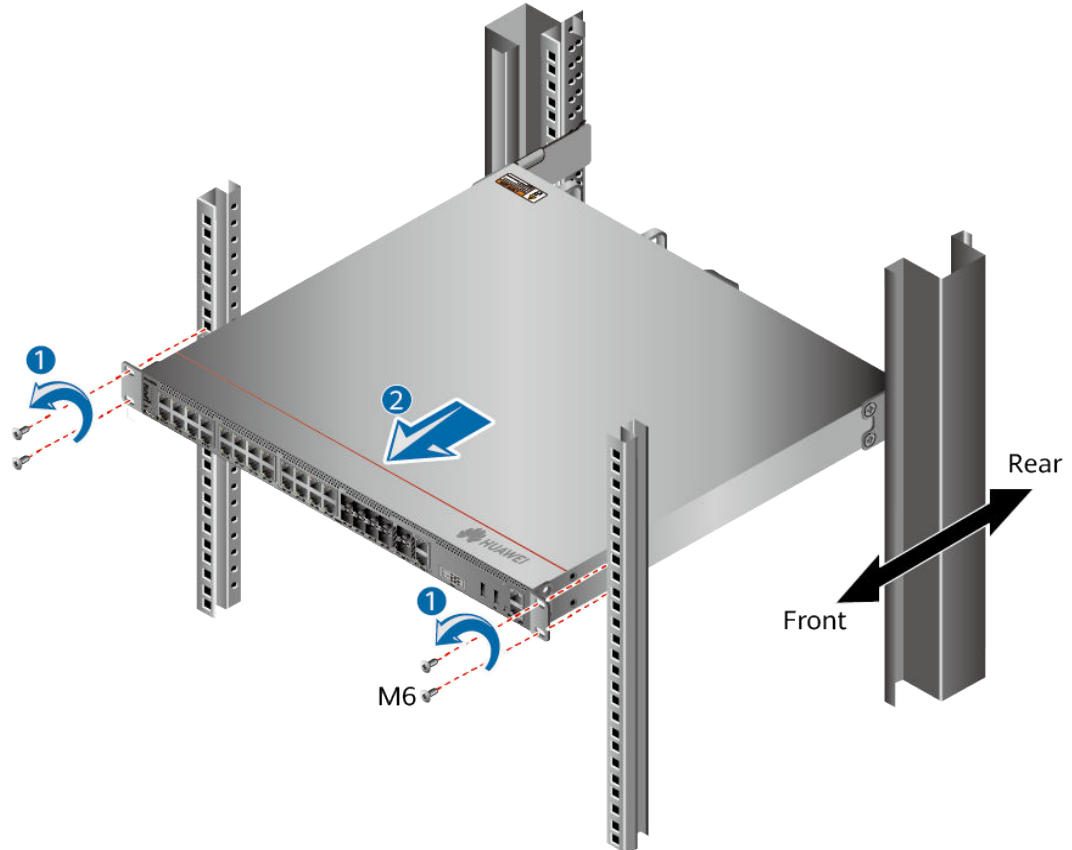
Step 5 Remove the USG device to be replaced.

For a device installed on a workbench, you only need to move the device away. For a device installed on a wall, use a Phillips screwdriver to loosen the M6 screws on the mounting ears at both ends of the device, and remove the device from the wall with both hands. For a device installed in a cabinet, perform the following steps to remove it:

1. Use a Phillips screwdriver to loosen the M6 screws on the mounting ears at both ends of the USG device.

2. Hold the USG device with both hands and pull it out along the guide rails of the rear mounting ears. Place the removed USG device in an ESD bag or on an ESD pad.

Figure 6-7 Removing a device from the cabinet



Step 6 Install the new USG device, connect the cables according to the labels, and then power on the USG device. For details, see [Hardware Installation](#).

----End

Follow-up Procedure

After replacing the device, pack up all the tools. If the old USG device is faulty, fill in the [Repair Transmission Sheet](#) and send the faulty device with the Repair Transmission Sheet to the equipment supplier or the specified repair service provider.

A Appendix

This section describes the requirements for the USG installation environment and **Fault Tag** template.

A.1 Quick Reference Tables of Power Cables

AC Power Cables for the Power Adapters Directly Connected to the Socket

Table A-1 AC power cables for the power adapters directly connected to the socket

Part Number	Description	Image
0404 3491	External Power Cable, Power Cable 250V2.5A,2m, 2X0.75mm ² ,Black,PASM, 227IEC53-0.75 ² (2C)-I,C7SF	
0404 4216	Power cord,Europe AC Power 250V2,2.0m,PCSM, (H03VVH2F-0.5 ² (2C)),C7SF,Black	

Part Number	Description	Image
0404 4496	Power Cords Cable,Japan AC Power 125V7A, 2.0m,PASM,VCTFK-0.75 ² (2C), C7SF,Black	
0404 4497	Power Cable,America AC Power Cable 125V7A, 2.0m,PASM, 18NISPT-1 (2C),C7SF,Black	
0404 5094	Power Cords Cable,India AC Power 250V2.5A,2.0m,PC-IISM,IS 694-0.75 ² (2C),C7S, 250V,2.5A,Black	
0405 0956	Power Cord Cable,Brazil AC Power Cable,250V2.5A,2m,PC-IISM,H05VVH2-F 2*0.75 ² (2C),C7SF,250V, 2.5A,Black	

Part Number	Description	Image
04051081	Power cord,BS546 250V2.5A, 2m,PD-IAM,H03VVH2-F-0.75mm ² (2C),C7SF,250V, 2.5A,Black	
04051997	Power cord,2m,IRAM2063 Straight Male,H05VVH2-F 2*0.75 ² (2C),C7 Straight Female,250V,2.5A,BLACK	
0405G025	Power Cords Cable,South Africa AC Power 250V2.5A, 2m,PDAM,H03VVH2-F-0.75 ² (2C),C7SF	

AC Power Cables for the Power Modules Directly Connected to the Socket




Table A-2 AC power cables for the power modules directly connected to the socket


Part Number	Description	Image
04020728	Power Cable,America AC Power Cable,125V10A, 3.0m,PBSM, 18SJT(3C),C13SF,Black	
04040887	Power Cable,Japan AC Power Cable 125V12A, 3.0m,PBSM,HVCTF-1.25mm ² (3C),C13SF,Black	
04040888	Power Cords Cable,Australia AC Power Cable,250V 10A, 3.0m,PISM,H05VV-F-1.0mm ² (3C),C13SF,Black	

Part Number	Description	Image
04040889	Power cord,BS546 250V10A, 3.0m,PM-IAM,H05VV-F-1.5mm ² (3C),C13SF,250V, 10A,Black	
04040890	Power Cable,Britain AC Power Cable 250V10A, 3.0m,PGAM ,H05VV-F-1.0mm ² (3C),C13SF,Black	
04041056	Power cord,Europe AC Power Cable,250V10A,3.0m,PFSM, (H05VVF 1.0 ² (3C)),C13SF, 250V,10A,Black	

Part Number	Description	Image
0404 1117	Power Cable,Britain AC Power Cable 250V10A, 3.0m,PGAM ,H05VV-F-1.0mm ² (3C),C13AF-L,Black	
0404 1120	Power Cable,Italy AC Power Cable 250V10A, 3.0m,PLSM,H05VV-F-1.0mm ² (3C),C13SF,Black	
0404 2697	Power Cords Cable,China AC Power 250V10A,10.0m,PISM, 227IEC53-1.0 ² (3C),C13SF,Black	

Part Number	Description	Image
04042699	Power Cords Cable,China AC Power 250V10A,20.0m,PISM, 227IEC53-1.0 ² (3C),C13SF,Black	
04047785	Power Cords Cable,Argentina AC Power 250V10A, 3.0m,PISM,H05VV-F-1.0mm ² (3C),C13SF,Black	
04050139	Power Cords Cable,China AC Power Cable,250V10A, 3m,PISM, 227IEC53-1.0 ² (3C),C13SF,Black	
04050206	Power Cable,China AC Power Cable 250V10A,1.0m,PISM, 227IEC53(RVV)1.0mm ² (3C),C13SF,Black	
04050517	Power Cable,China AC Power Cable 250V10A,2.0m,PISM, 227IEC53(RVV)1.0mm ² (3C),C13SF,Black	

Part Number	Description	Image
04050955	Power Cords Cable,China AC Power,250V10A,1.5m,PISM,227IEC53(RVV)1.0mm ² (3C),C13SF,250V,10A,Black	
04051035	Power cord,India AC Power 250V6A,3m,PM-IIAM,IS 694-1.0 ² (3C),C13 SF,250V, 6A,Black	
04051080	Power cord,South Africa AC Power 250V10A, 3m,PMAM,H05VV-F-1.0mm ² (3C),C13SF,250V, 10A,Black	

Part Number	Description	Image
0405 G028	Power Cords Cable,Korea AC Power 250V10A, 3m,PF5M,H05VV-F 3*1.0 ² (3C),C13SF,Black	
0405 G02K	Power Cords Cable,Denmark AC Power 250V10A, 3m,PKSM,H05VV-F-3*1.0 ² (3C),C13SF,Black	

AC Power Cables for the Power Modules Directly Connected to the PDU

Table A-3 AC power cables for the power modules directly connected to the PDU


Part Number	Description	Image
04050188	Power Cords Cable,China AC Power 250V10A,1.5m,C14SM, 227IEC53(RVV)1.0mm ² (3C),C13SF,PDU Cable	
04050846	Power cord,China AC Power Cable,250V10A,3.0m,C14SM, (227IEC53-1.0 ² (3C)),C13SF, 250V,10A,Black,PDU Cable	
04050847	Power cord,China AC Power Cable,250V10A,6.0m,C14SM, (227IEC53-1.0 ² (3C)),C13SF, 250V,10A,Black,PDU Cable	

Part Number	Description	Image
0405 G019	Power Cords Cable,Europe AC 250V10A,1.8m,C14SM,H05VV-F- 3*1.00 ² ,C13SF,PDU Cable	
0405 G029	Power Cords Cable,North America AC Power 250V10A, 1.8m,C14SM,SJT 18AWG(3C),C13SF,PDU Cable	
0405 G02D	Power Cords Cable,Japan AC Power 250V12A, 1.8m,C14SM,HVCTF 1.25 ² (3C),C13SF,PDU Cable	

Part Number	Description	Image
0405 G02F	Power Cords Cable,Australia AC Power 250V10A, 1.8m,C14SM,H05VV-F-1.0 ² (3C),C13SF,PDU Cable	
0405 G02H	Power Cords Cable,Korea AC Power 250V10A, 1.8m,C14SM,H05VV-F-1.0 ² (3C),C13SF,PDU Cable	

DC Power Cables

Table A-4 DC power cables

Part Number	Description	Image
0415 2883	Power Cable,3m,4 ² mm,PS2F, (H07Z-K-4 ² B+H07Z-K-4 ² BL),2*T4 ² GY	

A.2 Requirements for Installation Environment

This section describes the requirements for the USG installation environment, such as the device position, humidity and temperature, cleanness, antistatic measures, lightning protection measures, power supply, and anti-magnetic measures.

A.2.1 Device Position

This section describes the USG position requirements to ensure its security.

Table A-5 lists the requirements for the device position.

Table A-5 Device position requirements

Item	Requirement
Ventilation and heat dissipation	<ul style="list-style-type: none"> To ensure good heat dissipation, keep the air vent of the device at least 150 mm away from other devices. Ensure that the ventilation and heat dissipation system is available at the position where the device is to be installed.
Stability	The cabinet or mounting table must be firm enough to support the weight of the device and its accessories.
Grounding	Ensure that the chassis or mounting table is properly grounded.

A.2.2 Humidity, Temperature, and Cleanness

This section describes the requirements for the humidity, temperature, and cleanness of the equipment room. To ensure the stability and life cycle of the USG and its components, check that the equipment room meets the requirements.

Ensure that there is no explosive, conductive, magnetic, or corrosive dust or debris in the equipment room. Dust that settle on the device may cause electrostatic adsorption, resulting in poor contact of the metal socket connectors and metal contacts. This shortens the life cycle of the device and causes faults.

In addition to dust and debris, toxic gases, such as SO₂, H₂S, and NH₃ must be cleaned out of the equipment room.

Table A-6 Requirements for humidity, temperature, and cleanness in the equipment room

Item	Description					
Cleanness	Dust particle	Maximum diameter (μm)	0.05	1	3	5

Item	Description									
		Maximum density (number of dust particles per cubic meter)	1.4 x 10 ⁷	7 x 10 ⁵	2.4 x 10 ⁵	1.3 x 10 ⁵				
	Noxious gas density	Gas	SO ₂	H ₂ S	Cl ₂	HCl	HF	NH ₃	O ₃	NO ₂
		Average (mg/m ³)	0.3	0.1	0.1	0.1	0.01	1.0	0.05	0.5
		Maximum (mg/m ³)	1.0	0.5	0.3	0.5	0.03	3.0	0.1	1.0
Humidity and temperature	Temperature	Long-term operating temperature	<ul style="list-style-type: none"> Without hard disk: 0 °C to 45 °C With hard disk(s): 5 °C to 40 °C 							
		Short-term operating temperature	<ul style="list-style-type: none"> Without hard disk: -5 °C to 55 °C With hard disk(s): 5 °C to 40 °C 							
	Operating humidity		<ul style="list-style-type: none"> Without hard disk: 5% RH to 95% RH, non-condensing With hard disk(s): 5% RH to 90% RH, non-condensing 							
	Storage humidity		<ul style="list-style-type: none"> Without hard disk: 5% RH to 95% RH, non-condensing With hard disk(s): 5% RH to 90% RH, non-condensing 							

To meet the requirements listed in [Table A-6](#), take the following measures in the equipment room:

- Install a permanent temperature controller regardless of the climate conditions.
- In dry regions, use humidifiers or regularly mop the floor to ensure proper humidity in the equipment room.
- In regions with high humidity, use dehumidifiers.
- Use dust-free materials for the floor, walls, and ceilings.
- Screen exterior doors and windows. The external windows of the equipment room should be sealed for anti-dust purposes.
- Clean the equipment room and air filters on the devices once every three months.

- Wear the ESD uniform, ESD gloves, and ESD shoes before entering the equipment room.
- Locate the equipment room far away from areas with dense corrosive gases, such as chemical plants.
- The air intake vent of the equipment room must not face any pollution source.
- Place batteries in a different room from the devices.
- Invite professionals to measure the temperature, humidity, and other factors periodically.

A.2.3 ESD Requirements

This section describes the ESD requirements. Ensure that the equipment room meets these requirements because static electricity may damage the USG components and cause the USG to malfunction.

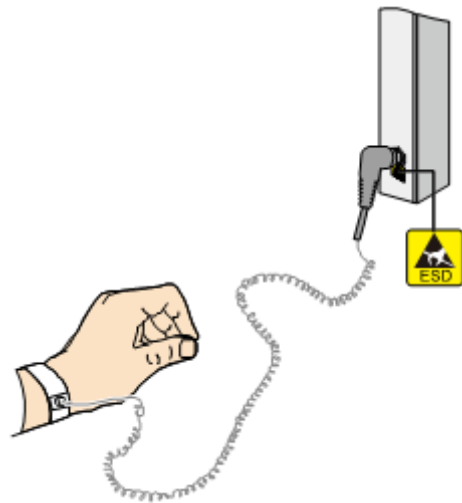
The absolute value of the static voltage must be less than 1000 V. To meet the requirement, take the following measures in the equipment room:

- Provide operators with ESD protection training.
- Adjust the humidity to reduce the impact of static electricity.
- Install an ESD floor in the equipment room.
- Wear an antistatic suit, ESD gloves, and antistatic shoes before entering the equipment room.
- Use ESD tools, such as ESD wrist straps, ESD tweezers, and extractors.
- All the conductors in the equipment room, including computer terminals, must be properly grounded. Set up an antistatic workbench.
- Electrostatic sources, such as non-ESD plastic bags, non-ESD foam, and rubber objects must be kept at least 30 cm away from ESD-sensitive components and boards.

To protect the USG boards from damage caused by static electricity discharge, take the following measures:

- Ensure that the USG is properly grounded according to the grounding requirements.
- Wear an ESD wrist strap before performing any operations on the USG.
- Ensure proper contact between the metal buckle of the ESD wrist strap and the operator's skin. Ensure that the other end of the ESD wrist strap is already connected to the ESD jack on the USG, as shown in [Figure A-1](#). In addition, wearing ESD gloves is recommended.

Figure A-1 Wearing an ESD wrist strap properly



- Ensure that the ESD wrist strap works properly and its resistance ranges from 0.75 Mohm to 10 Mohm. Generally, the service life of an ESD wrist strap is two years. If the ESD wrist strap resistance does not meet the requirement within its service life, replace it with a new one.
- Avoid contact between the boards and clothes because the ESD wrist strap cannot protect operators from the static electricity caused by this type of contact.
- Use an anti-static pad when replacing boards or chips. In addition to wearing the ESD wrist strap, use ESD tweezers and extractors when inserting and removing boards and chips. Do not touch chips and their pins with bare hands.
- Keep all boards and components in ESD bags until they are to be installed. Place temporarily demounted boards and components on the anti-static pad or other effective antistatic materials. Do not use non-ESD materials, such as foam, plastic bags, and paper bags to wrap or make contact with the boards.
- Wear an ESD wrist strap before working on board terminals. Discharge cables and terminal protection jackets using either contact discharge or air discharge before connecting them to device terminals.
- Save board packing materials, such as plastic boxes and ESD bags, for future use.

A.2.4 Lightning Protection and Grounding

This section describes the lightning protection and grounding requirements. Ensure that the equipment room meets the requirements because lightning is one of the major factors that causes damage to the USG.

Table A-7 lists the lightning protection and grounding requirements.

Table A-7 Lightning protection and grounding requirements

Item	Requirement
Civil construction of the equipment room	<p>The equipment room should be built of reinforced concrete.</p> <p>The equipment room should be equipped with lightning protection devices, such as a lightning arrester.</p> <p>The lightning protection ground for the equipment room (the grounding of the lightning arrester) should share the same grounding conductor with the protection ground of the equipment room.</p>
AC power system (TN-S power supply recommended)	<p>A dedicated transformer should be used at a communications station. Power cables that are connected to the communications station should be buried with metal jackets or insulated jackets passing through steel pipes. Both sides of the metal jackets or steel pipes are connected to the nearest ground bar. The length of the buried power cables should be no less than 15 meters.</p> <p>The three phase lines at the low-voltage side of the AC transformer at the communications station should each be installed with a closed zinc-oxide lightning arrester for grounding. The enclosure of the transformer, AC zero wire of the low-voltage side of the transformer, and the metal outer protector of the power cable connected to the transformer enclosure must be connected to the nearest grounding post.</p>
Incoming power cables	<p>AC and DC power cables should not be led into or out of the communications station through overhead lines.</p> <p>After low-voltage power cables are led into the equipment room, in the AC voltage regulator and AC power distribution box (PDB), install a lightning arrester for power cables and connect the lightning arrester to the nearest grounding post.</p> <p>If the equipment room is located in an urban area, the AC power system of the equipment room should have a lightning protection unit with a nominal discharge current of no less than 20 kA. If the equipment room is located in a suburban area that is classified as a medium or high level lightning zone, install a lightning protection unit with a nominal discharge current of greater than 60 kA. If the equipment room is located in a mountainous area that is classified as a high-level lightning zone or in an isolated building in an urban area, install a lightning protection unit with a nominal discharge current of greater than 100 kA.</p> <p>The ground cable of the lightning arrester used for the power supply must be shorter than one meter.</p>

Item	Requirement
DC distribution grounding	<p>The DC working ground of the communications station (the positive pole of the -48 V DC power supply or the negative pole of the 24 V DC power supply) should be led in from the nearest indoor main earthing conductor.</p> <p>The device that supplies power to the communications station should provide the DC working ground that connects from the collective ground cable of the building (or from the protection ground bar in the equipment room) to the power supply.</p>
Equipotential bonding	<p>The communications devices and auxiliary facilities in the equipment room must be properly grounded. These devices and facilities include mobile base transceiver stations (BTSs), transmission devices, switching devices, power supply, and distribution frames. All the devices in the communications station should be grounded to the same ground busbar. All devices in the equipment room should be grounded to the same protection ground bar in the equipment room.</p> <p>A ground grid must be shared by the working grounds and protection grounds of all devices in the equipment room.</p> <p>The cable tray, iron suspension racks, racks, chassis, metal ventilation pipes, and metal doors and windows must be grounded.</p>
Common grounding requirements	<p>The neutral of the AC power cables must not be connected to the protection ground of any communications device in the equipment room.</p> <p>Do not install switches or fuses on the ground cables.</p> <p>Ground cables should be as short and straight as possible and should not be coiled.</p>
Grounding resistance	<p>Less than 1 Ohm</p> <p>The upper end of the ground body must be no less than 0.7 m from the ground. In cold regions, the ground body should be buried under the frozen soil layer.</p> <p>Measure the grounding resistance periodically to ensure that the grounding works properly.</p>
Signal cable layout	<p>No overhead signal cable should exist in the communications station. Signal cables should be led into the station from underground.</p> <p>The communications cables led into or out of the communication station should be protected with metal sheaths or laid out in metal pipes.</p> <p>The ground cable of a lightning arrester should be as short as possible. The unused wire pairs in the cables should be grounded in the equipment room.</p>

Item	Requirement
Collective ground cable	<p>The main earthing conductor can be a cable grounding ring or busbar.</p> <p>Do not use aluminum materials as ground cables. Avoid electrochemical corrosion when different types of metals are interconnected.</p> <p>Generally, a copper busbar with a cross-sectional area of no less than 120 mm² or galvanized steel with the same resistance is used as the main earthing conductor. The main earthing conductor must be insulated from the reinforcing steel bar in the building.</p>
Grounding lead-in cable	<p>The grounding lead-in cable must be no longer than 30 m. The grounding lead-in cable should use galvanized steel with a cross-sectional area of 40 mm x 4 mm or 50 mm x 5 mm.</p>

A.2.5 Power Supply

Normal power supply is the prerequisite for proper running of the USG. This section describes the requirements for power supply.

Basic AC Power Supply

The AC power supply system that consists of mains, uninterruptible power supply (UPS), and self-provided generators should supply power in centralized mode. The power supply system should meet the needs of the communications station, and its cabling should be as simple as possible to facilitate operation and maintenance. The low-voltage AC power supply system should use 3-phase 5-wire or 1-phase 3-wire for power supply. [Table A-8](#) lists the low-voltage AC nominal voltage and frequency.

Table A-8 AC voltage and frequency

Nominal Voltage	Rated Frequency
110/127/220 (V)	50Hz/60Hz

In common cases, the UPS serves as the backup power supply for network products. The backup power supply must be the same as the mains in phases, and the duration for the switchover between the UPS and the mains should be less than 10 ms. Otherwise, the device might restart or be reset. Each device must have an independent AC surge protector. The capacity of the surge protector for the power distribution room must be greater than the sum of the operating current and fault current on the devices to be powered. The DC power supply system must be able to safely withstand the maximum load of the device, regardless of whether the device is in working or standby state. The wire type and gauge of each outlet of the power distribution panel must be able to withstand

the maximum power load of the devices. The specifications for the AC power supply voltage of all communications and power supply devices are as follows:

- Communications devices must be equipped with AC power supply with the rated voltage ranging from +5% to -10%.
- Communications power supply devices and key constructions must be equipped with AC power supply with the rated voltage ranging from +10% to -15%.
- The frequency of the AC power current ranges from +4% to -4%, and the sinusoidal distortion rate of voltage waveform must be 5% or less.

The self-provided generator sets in the communications station must be automatic in activation, deactivation, and replenishment, be equipped with remote signaling, remote measurement, and remote control, and provide standard interfaces and communications protocols.

The power cables used for AC and DC power distribution should comply with the following specifications:

- The AC neutral for communications purposes must be a conductive wire that has the same cross section as the phase cable.
- The selection of the DC power feeder depends on the long-term load. If the cross-sectional area is greater than 95 mm², use the rigid busbar. If the short-term load differs greatly from long-term load, lay out the cables by stages.
- The DC and AC conducting wires must be fire resistant and the wiring must comply with the *Class A Fire Resistance Design Norm for High-Rise Civil Buildings* (GB50045-95). The low-voltage power distribution facilities must comply with the *Low-Voltage Power Distribution Facilities and Wiring Design Norm* (GB50054-95)

In addition, the basic AC power supply system should meet the following requirements:

- Use voltage regulating or stabilization facilities to restrict the voltage fluctuation within a reasonable scale if:
 - The communications devices are powered by mains, and the voltage exceeds the rated voltage by +5% to -10% or the allowed voltage range.
 - The communications devices are not powered directly by the mains and the voltage of the mains exceeds the rated voltage by +10% to -15% or the AC voltage range allowed by the DC power supply device.
- Use the UPS or inverter power supply system if the communication load requires non-interruptible and non-transient AC power supply.
- Equip the site with the electric generator set to ensure normal communication in case of mains failure. The capacity of the generator set is greater than or equal to 1.5 to 2 times the capacity of the UPS.
- A UPS usually has only one batter set. Connect two or more UPSs in parallel or series for redundancy. If the inverter or UPS is used, configure the inverter or UPS that provides the maximum amount of power as the active one, and configure another inverter or UPS as the standby.

Basic DC Power Supply

Ensure the reliability of the DC power supply system at the communications site. Deploy the power supply device as close as possible to the communications

devices so as to shorten the power feeder and lower the circuit voltage drop between the battery port and device port to less than 3.2 V, thereby reducing installation costs and power consumption.

Use two or more independent power supply systems if the communication volume is large or if more than two switching systems are deployed at the site.

For large communications hubs, deploy an independent power supply system on each floor, each providing power for the communications equipment room on this floor. Medium-sized communications stations can be centrally powered by a power room or storage battery room, or powered in a decentralized manner. For small-sized communications stations, the power supply system can be deployed in the same equipment room as the communications devices, but you must take appropriate measures to ensure that the corrosive gases discharged by the batteries in the equipment room do not corrode the circuit boards of communications devices.

Table A-9 lists the DC power supply specifications.

Table A-9 DC power supply specifications

Item	Specifications
Voltage fluctuation range allowed for the -48 V input end	-48 V to -60 V
Surge current tolerance capability in DC power supply	At least 1.5 times higher than load rated current capability
Regulated voltage precision	The regulated voltage precision is less than or equal to 1% when the AC input voltage fluctuates between 85% and 110% of the rated voltage, the load current varies between 5% and 100% of the rated current, and the output voltage of the rectifier is any fixed value in the -46.0 V to -56.4 V range.
On/Off overshoot magnitude	Within the 95% to 105% range of the DC rated voltage value
Peak-to-peak noise voltage	Less than or equal to 200 mV
Dynamic response	The recovery time should be less than 200 ms, and the overshoot must be within the 95% to 105% range of the DC voltage set value.

The following are suggestions for the basic DC power supply system:

- Decentralized power supply is recommended. Use multiple DC power supply systems and multiple power sources.
- Use a standard-compliant DC power supply. The output voltage of the communications power supply must be in the voltage range of the device to be powered.

- Improve the reliability of the AC power supply system to properly reduce the battery capacity. When it is difficult to improve the reliability of the AC power supply system at a small communications station, properly increase the battery capacity.
- The total capacity configuration of the high-frequency switch rectifier should match the communications load power and battery charging power. Rectifier modules should use a redundancy configuration. If the number of active modules is less than or equal to 10, one standby module should be deployed. If the number of active modules is greater than 10, one standby module should be deployed for every 10 active modules.
- Storage batteries should be installed in two or multiple sets. The total capacity depends on the duration in which the storage battery sets independently supply power to the load. For most communications stations, storage battery sets should supply power for at least one hour.

A.2.6 Electromagnetic Protection

This section describes the electromagnetic protection requirements. Check that the equipment room meets these requirements so as to ensure the normal running of the USG.

Possible interference sources are as follows:

- Capacitive coupling
- Inductance coupling
- Electromagnetic radiation
- Common impedance (including the PGND system) coupling

To reduce as much interference as possible, complete the following steps:

- Take effective measures to avoid possible power grid interference to the power supply system.
- Do not use the power line ground or lightning protection ground as the working ground of the device, and leave as much space as possible between the working ground of the device and the power line ground or lightning protection ground.
- Ensure that no high-power radio transmitter, radar transmitter, or high-frequency high-current device is deployed nearby.
- Take electromagnetic protection measures if necessary.

A.3 Fault Tag

*Customer name:	
Address:	
Contact person:	
Tel.:	Fax:
Category*: <input type="checkbox"/> RMA <input type="checkbox"/> Return <input type="checkbox"/> Analysis	

