

S210 Series Switches

Hardware Description

Issue	02
Date	2025-09-30



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Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129
People's Republic of China

Website: <https://www.huawei.com>

Email: support@huawei.com

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For vulnerability information, enterprise customers can visit the following web page:

<https://securitybulletin.huawei.com/enterprise/en/security-advisory>

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1 About This Document

Intended Audience

This document provides an overall description of the switch hardware, helping you obtain detailed information about each chassis and optical module.

This document is intended for network engineers responsible for network design and deployment. You should understand your network well, including the network topology and service requirements.

Symbol Conventions

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

Symbol	Description
	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
	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.

Symbol	Description
 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.
{ 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.

Disclaimer

- This document is designed as a reference for you to configure your devices. Its contents, including web pages, command line input and output, are based on laboratory conditions. It provides instructions for general scenarios, but does not cover all use cases of all product models. The examples given may differ from your use case due to differences in software versions, models, and configuration files. When configuring your device, alter the configuration depending on your use case.

- The specifications provided in this document are tested in a lab environment (for example, a certain type of cards have been installed on the tested device or only one protocol is run on the device). Results may differ from the listed specifications when you attempt to obtain the maximum values due to factors such as differences in hardware configurations and carried services.
- In this document, public IP addresses may be used in feature introduction and configuration examples and are for reference only unless otherwise specified.

Device Dimension Conventions

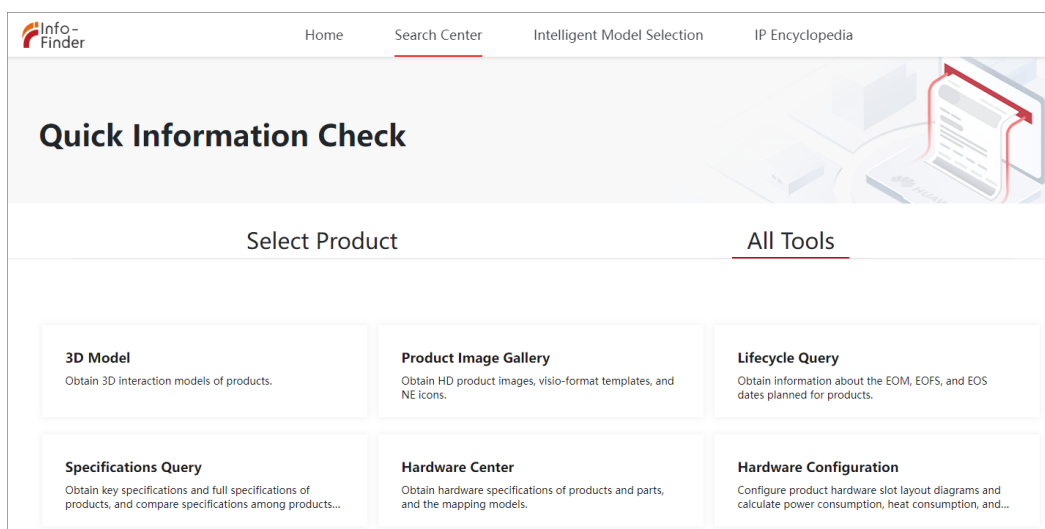
The dimensions described in this document are theoretically typical dimensions and do not include dimension tolerances.

2 Using the 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 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:** provides the product images, product overview, component installation and removal video, and related component information, helping you quickly gain full product information in one-stop mode.

Figure 2-1 Info-Finder Graphical User Interface (GUI)



 NOTE

The heat consumption of a device can be calculated as follows based on its power consumption:

Heat consumption (BTU/hour) = Power consumption (W) x 3.4121

3 Version Requirements for Components

This document describes all the device models and modules supported in a version. To obtain accurate subscription information, visit <https://e.huawei.com> or contact Huawei local sales offices. You can also pay attention to the product change notices (PCNs) and lifecycle management bulletins on this website.

The appearances of devices and modules are subject to actually delivered products. The figures in this document are for reference only.

4 Chassis

[4.1 Chassis Overview](#)

[4.2 Naming Conventions](#)

[4.3 S210](#)

[4.4 S210I](#)

4.1 Chassis Overview

The S series fixed Ethernet switches integrate the access and transmission functions to provide reliable access/aggregation and high-quality transmission of services on enterprise networks. The switches are built on an integrated hardware platform, and their hardware system consists of the chassis, power supply system, heat dissipation system, and Switch Control Unit (SCU).

4.2 Naming Conventions

Figure 4-1 Switch naming conventions

S620-24T16X8Y2CZ

A	B	C	D	E	F	G	H	I	J
---	---	---	---	---	---	---	---	---	---

NOTE

The device name in this figure is used as an example and does not represent a specific device.

The uplink and downlink ports mentioned in this document refer to the recommended usage of the ports, and do not indicate that the corresponding ports can be used only for the downlink or uplink.

Table 4-1 Switch naming convention description

Identifier	Description
A	Product series (4 or 5 characters) • S110: S110 series • S210: S210 series • S210I: S210I series • S220: S220 series • S220S: S220S series • S310: S310 series • S310S: S310S series • S530: S530 series • S620: S620 series
B	Number of downlink ports of type 1 (1 or 2 characters)
C	Downlink port type 1 (1 or 2 characters) • T: GE electrical port • S: GE optical port • P: GE electrical port, supporting PoE+ • PN: 2.5GE electrical port, supporting PoE+ • LP: GE electrical port, supporting PoE+ and low PoE power • HP: GE electrical port, supporting PoE+ and high PoE power • ST: GE optical port and GE combo port • X: 10GE optical port
D	Number of downlink ports of type 2 (0 or 1 character)
E	Downlink port type 2 (0 or 1 character) • X: 10GE optical port • S: GE optical port • J: 2.5GE optical port • UN: 2.5GE electrical port, supporting PoE++
F	Number of uplink ports of type 1 (1 character)
G	Uplink port type 1 (1 or 2 characters) • S: GE optical port • ST: GE optical port and GE electrical port • X: 10GE optical port • J: 2.5GE optical port • JX: 2.5GE optical port and 10GE optical port • Y: 25GE optical port
H	Number of uplink ports of type 2 (0 or 1 character)

Identifier	Description
I	Uplink port of type 2 (0, 1, or 2 characters) • X: 10GE optical port • C: 100GE optical port
J	Special function type (0 or 1 character) • By default, this field is left empty. • R: indicates a rack-mounted model, which is involved only in the S110 series. • E: the switch supports independent stack ports. • Z: the switch supports pluggable cards.

4.3 S210

4.3.1 S210-8T

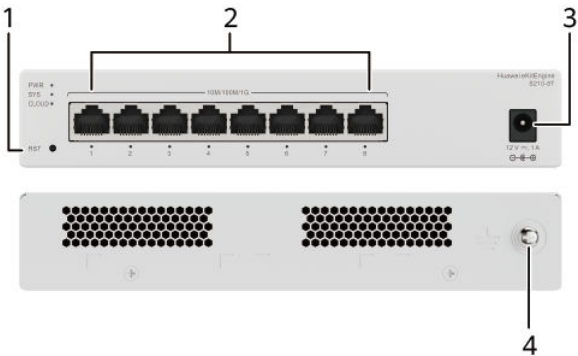
Overview

Table 4-2 Basic information about the S210-8T

Item	Details
Description	S210-8T(8*10/100/1000BASE-T ports, with 1*AC power adapter, Fanless)
Part Number	98012916
Model	S210-8T
First supported version	V600R025C00

Components

Figure 4-2 S210-8T appearance



1	One RST button NOTICE To restore the factory settings and reset the device, hold down the button for at least 6 seconds. To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button.	2	Eight 10/100/1000BASE-T ports
3	Power adapter socket NOTE Use the power adapter delivered with the device.	4	Ground screw NOTE The ground cable is not delivered with the device.

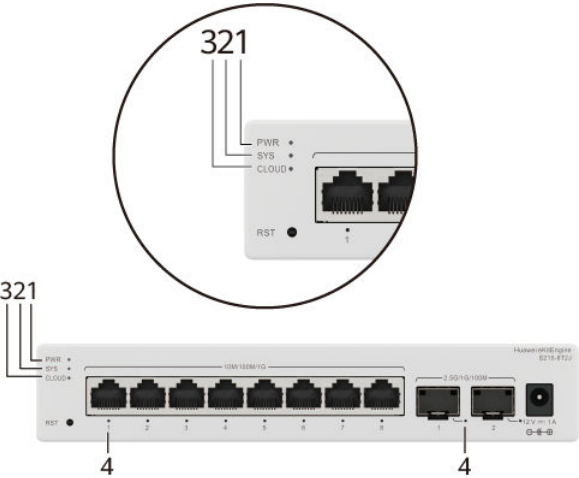
Ports

Table 4-3 Ports on the S210-8T

Port	Connector Type	Description	Available Components
10/100/1000BASE-T port	RJ45	A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.	Ethernet cable

Indicators and Buttons

Figure 4-3 Indicators on the Switch



NOTE

The S210-8T2J model is used as an example.

Table 4-4 Description of indicators on the switch

No.	Indicator	Name	Color	Status	Description
1	PWR	Power module indicator	-	Off	The switch is powered off.
			Green	Steady on	The power supply is normal.
2	SYS	System status indicator	-	Off	The system is not running.
			Green	Fast blinking	The system is starting.
			Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.
			Green	Slow blinking	The system is running normally.
			Red	Steady on	The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.
3	CLOUD	Cloud indicator	-	Off	The device is not connected to the cloud.

No.	Indicator	Name	Color	Status	Description
4	-	Service port indicator (one indicator for each port)	Blue	Fast blinking	The device is connecting to the cloud.
			Blue	Slow blinking	The device is in the cloud management state.
			-	Off	The port is not connected or has been shut down.
4	-	Service port indicator (one indicator for each port)	Green	Steady on	A link has been established on the port.
			Green	Blinking	The port is sending or receiving data.

Power Supply System

The device is powered by the power adapter delivered with the device.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-5 Technical specifications of the S210-8T

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic dimensions (excluding the parts protruding from the body): 35 mm x 195 mm x 130 mm (1.38 in. x 7.68 in. x 5.12 in.) Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 35 mm x 195 mm x 136 mm (1.38 in. x 7.68 in. x 5.35 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	93.0 mm x 285.0 mm x 190.0 mm (3.66 in. x 11.22 in. x 7.48 in.)
Chassis height [U]	0.8 U
Chassis material	Metal
Weight without packaging [kg(lb)]	0.81 kg (1.79 lb)

Item	Specification
Weight with packaging [kg(lb)]	1.06 kg (2.34 lb)
Typical power consumption [W]	7.91 W
Typical heat dissipation [BTU/hour]	26.99 BTU/hour
Maximum power consumption [W]	6.94 W (device) 8.90 W (device + adapter)
Maximum heat dissipation [BTU/hour]	23.68 (device) 30.37 (device + adapter)
Static power consumption [W]	4.85 W
MTBF [years]	103.4 years
Availability	> 0.99999
Noise at normal temperature (acoustic power) [dB(A)]	Noise-free (no fans), < 30
Noise at normal temperature (acoustic pressure) [dB(A)]	Noise-free (no fans), < 20
Number of card slots	0
Number of power slots	0
Number of fans modules	0
Redundant power supply	Not supported
Long-term operating temperature [°C(°F)]	–5°C to +45°C (23°F to 113°F) at an altitude of 0 to 1800 m (0 to 5905.44 ft.)
Restriction on the operating temperature variation rate [°C(°F)]	When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). Devices cannot start when the temperature is lower than 0°C (32°F).
Storage temperature [°C(°F)]	–40°C to +70°C (–40°F to +158°F)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0–5000 m (0–16404 ft.)
Storage altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Power supply mode	Power adapter

Item	Specification
Rated input voltage [V]	- Power adapter input: 100 V AC to 240 V AC; 50/60 Hz
Input voltage range [V]	- Power adapter input: 90 V AC to 300 V AC; 47 Hz to 63 Hz
Maximum input current [A]	1 A
Memory	-
Flash memory	-
Console port	Not supported
Eth Management port	Not supported
USB	Not supported
RTC	Not supported
RPS input	Not supported
Power supply surge protection [kV]	Differential mode: ± 6 kV; common mode: ± 6 kV
Ingress protection level (dustproof/waterproof)	IP20
Types of fans	None
Heat dissipation mode	Natural heat dissipation
Airflow direction	-
PoE	Not supported
Certification	EMC certification Safety certification Manufacturing certification

4.3.2 S210-8T2J

Overview

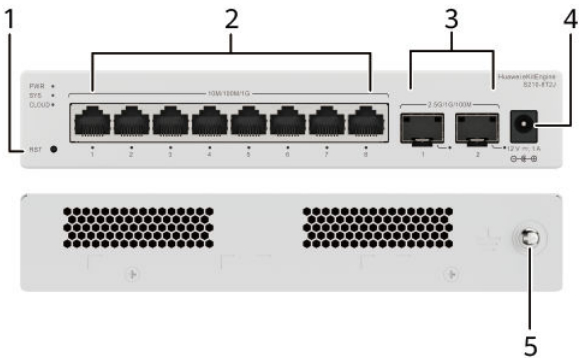
Table 4-6 Basic information about the S210-8T2J

Item	Details
Description	S210-8T2J (8*10/100/1000BASE-T ports, 2*2.5GE SFP ports, with 1*AC power adapter, Fanless)

Item	Details
Part Number	98012918
Model	S210-8T2J
First supported version	V600R025C00

Components

Figure 4-4 S210-8T2J appearance



1	One RST button NOTICE To restore the factory settings and reset the device, hold down the button for at least 6 seconds. To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button.	2	Eight 10/100/1000BASE-T ports
3	Two 2.5GE SFP optical ports	4	Power adapter socket NOTE Use the power adapter delivered with the device.
5	Ground screw NOTE The ground cable is not delivered with the device.	-	-

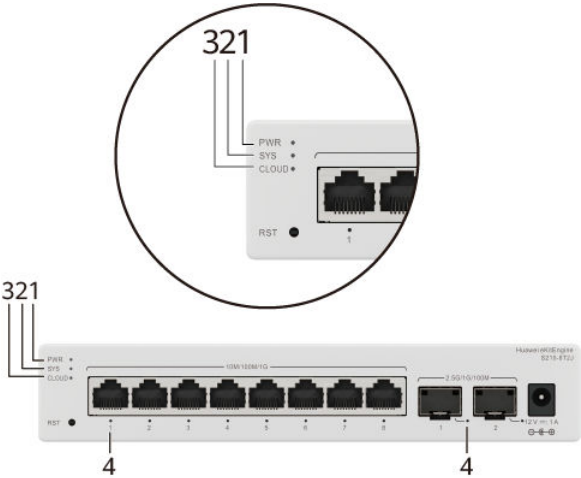
Ports

Table 4-7 Ports on the S210-8T2J

Port	Connector Type	Description	Available Components
10/100/1000BASE-T port	RJ45	A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.	Ethernet cable
2.5GE SFP optical port	SFP	A 2.5GE SFP Ethernet optical port sends and receives service data at 100 Mbit/s, 1 Gbit/s, or 2.5 Gbit/s.	- FE SFP/eSFP optical modules (the maximum transmission distance cannot exceed 10 km) - GE eSFP optical modules (the maximum transmission distance cannot exceed 10 km) 2.5GE eSFP optical modules

Indicators and Buttons

Figure 4-5 Indicators on the Switch



NOTE

The S210-8T2J model is used as an example.

Table 4-8 Description of indicators on the switch

No.	Indicator	Name	Color	Status	Description
1	PWR	Power module indicator	-	Off	The switch is powered off.
			Green	Steady on	The power supply is normal.
2	SYS	System status indicator	-	Off	The system is not running.
			Green	Fast blinking	The system is starting.
			Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.
			Green	Slow blinking	The system is running normally.
			Red	Steady on	The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.
3	CLOUD	Cloud indicator	-	Off	The device is not connected to the cloud.

No.	Indicator	Name	Color	Status	Description
4	-	Service port indicator (one indicator for each port)	Blue	Fast blinking	The device is connecting to the cloud.
			Blue	Slow blinking	The device is in the cloud management state.
			-	Off	The port is not connected or has been shut down.
4	-	Service port indicator (one indicator for each port)	Green	Steady on	A link has been established on the port.
			Green	Blinking	The port is sending or receiving data.

Power Supply System

The device is powered by the power adapter delivered with the device.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-9 Technical specifications of the S210-8T2J

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic dimensions (excluding the parts protruding from the body): 35 mm x 195 mm x 130 mm (1.38 in. x 7.68 in. x 5.12 in.) Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 35 mm x 195 mm x 136 mm (1.38 in. x 7.68 in. x 5.35 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	93.0 mm x 285.0 mm x 190.0 mm (3.66 in. x 11.22 in. x 7.48 in.)
Chassis height [U]	0.8 U
Chassis material	Metal
Weight without packaging [kg(lb)]	0.95 kg (2.09 lb)

Item	Specification
Weight with packaging [kg(lb)]	1.19 kg (2.62 lb)
Typical power consumption [W]	10.52 W
Typical heat dissipation [BTU/hour]	35.90 BTU/hour
Maximum power consumption [W]	7.46 W (body) 10.93 W (device + adapter)
Maximum heat dissipation [BTU/hour]	25.45 (device) 37.29 (device + adapter)
Static power consumption [W]	4.85 W
MTBF [years]	102.91 years
Availability	> 0.99999
Noise at normal temperature (acoustic power) [dB(A)]	Noise-free (no fans), < 30
Noise at normal temperature (acoustic pressure) [dB(A)]	Noise-free (no fans), < 20
Number of card slots	0
Number of power slots	0
Number of fans modules	0
Redundant power supply	Not supported
Long-term operating temperature [°C(°F)]	-5°C to +45°C (23°F to 113°F) at an altitude of 0 to 1800 m (0 to 5905.44 ft.)
Restriction on the operating temperature variation rate [°C(°F)]	When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). Devices cannot start when the temperature is lower than 0°C (32°F).
Storage temperature [°C(°F)]	-40°C to +70°C (-40°F to +158°F)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Storage altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Power supply mode	Power adapter

Item	Specification
Rated input voltage [V]	- Power adapter input: 100 V AC to 240 V AC; 50/60 Hz
Input voltage range [V]	- Power adapter input: 90 V AC to 300 V AC; 47 Hz to 63 Hz
Maximum input current [A]	1 A
Memory	-
Flash memory	-
Console port	Not supported
Eth Management port	Not supported
USB	Not supported
RTC	Not supported
RPS input	Not supported
Power supply surge protection [kV]	Differential mode: ± 6 kV; common mode: ± 6 kV
Ingress protection level (dustproof/waterproof)	IP20
Types of fans	None
Heat dissipation mode	Natural heat dissipation
Airflow direction	-
PoE	Not supported
Certification	EMC certification Safety certification Manufacturing certification

4.3.3 S210-8LP2J

Overview

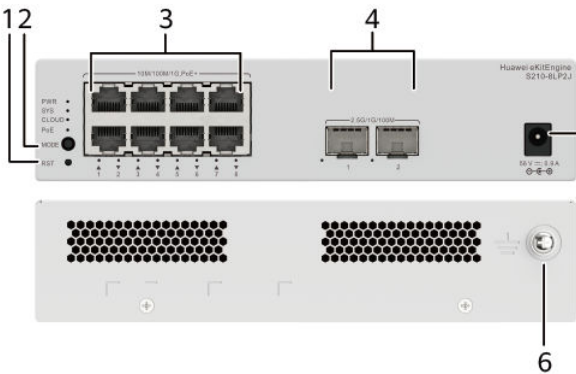
Table 4-10 Basic information about the S210-8LP2J

Item	Details
Description	S210-8LP2J (8*10/100/1000BASE-T ports (32W PoE+), 2*2.5GE SFP ports, with 1*AC power adapter, Fanless)

Item	Details
Part Number	98012920
Model	S210-8LP2J
First supported version	V600R025C00

Components

Figure 4-6 S210-8LP2J appearance



1	One RST button NOTICE To restore the factory settings and reset the device, hold down the button for at least 6 seconds. To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button.	2	One MODE button
3	Eight 10/100/1000BASE-T PoE+ ports	4	Two 2.5GE SFP optical ports
5	Power adapter socket NOTE Use the power adapter delivered with the device.	6	Ground screw NOTE The ground cable is not delivered with the device.

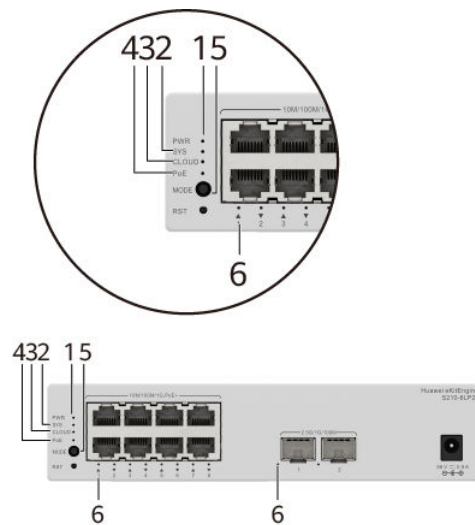
Ports

Table 4-11 Ports on the S210-8LP2J

Port	Connector Type	Description	Available Components
10/100/1000BASE-T port	RJ45	A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.	Ethernet cable
2.5GE SFP optical port	SFP	A 2.5GE SFP Ethernet optical port sends and receives service data at 100 Mbit/s, 1 Gbit/s, or 2.5 Gbit/s.	- FE SFP/eSFP optical modules (the maximum transmission distance cannot exceed 10 km) - GE eSFP optical modules (the maximum transmission distance cannot exceed 10 km) 2.5GE eSFP optical modules

Indicators and Buttons

Figure 4-7 Indicators on the Switch



 NOTE

The S210-8LP2J model is used as an example.

Table 4-12 Description of indicators on the switch

No.	Indicator	Name	Color	Status	Description
1	PWR	Power module indicator	-	Off	The switch is powered off.
			Green	Steady on	The power supply is normal.
2	SYS	System status indicator	-	Off	The system is not running.
			Green	Fast blinking	The system is starting.
			Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.
			Green	Slow blinking	The system is running normally.
			Red	Steady on	The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.

No.	Indicator	Name	Color	Status	Description
3	CLOUD	Cloud indicator	-	Off	The device is not connected to the cloud.
			Blue	Fast blinking	The device is connecting to the cloud.
			Blue	Slow blinking	The device is in the cloud management state.
4	PoE	PoE indicator	-	Off	The PoE mode is not selected.
			Green	Steady on	The PoE mode is selected, and service port indicators show the PoE status of each port.
5	MODE	Mode switch button	-	-	- When you press this button once (hold it down for more than 1 second), the service port indicators change to the PoE mode and show the PoE status of each service port. - When you press this button a second time (hold it down for more than 1 second), the service port indicators restore to the default mode and show the connection status and link activity of each service port. If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.
6	-	Service port indicator (one indicator for each port)	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.		Meanings of service port indicators vary in different modes. For details, see Table 4-13 .

Table 4-13 Description of service port indicators in different modes (one indicator for each port)

Display Mode	Color	Status	Description
Default mode	-	Off	The port is not connected or has been shut down.
	Green	Steady on	A link has been established on the port.
	Green	Blinking	The port is sending or receiving data.
PoE mode	-	Off	The port is not providing power to a powered device (PD).
	Green	Steady on	The port is providing power to a PD.
	Green	Blinking	The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards.

Power Supply System

The device uses the power adapter delivered with the device to supply power to the device and the connected PD. The device provides 8 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 32 W.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-14 Technical specifications of the S210-8LP2J

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 195 mm x 160 mm (1.72 in. x 7.68 in. x 6.30 in.) Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 195 mm x 166.2 mm (1.72 in. x 7.68 in. x 6.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	116.0 mm x 285.0 mm x 300.0 mm (4.57 in. x 11.22 in. x 11.81 in.)
Chassis height [U]	1 U
Chassis material	Metal
Weight without packaging [kg(lb)]	1.35 kg (2.98 lb)
Weight with packaging [kg(lb)]	1.83 kg (4.03 lb)
Typical power consumption [W]	13.14 W
Typical heat dissipation [BTU/hour]	44.82 BTU/hour
Maximum power consumption [W]	- Without PoE: 13.60 W (device), 15.59 W (device + adapter) - Full PoE load: 55.82 W (PoE: 32 W)
Maximum heat dissipation [BTU/hour]	- Without PoE: 46.40 (device), 53.19 (device + adapter) - Full PoE load: 190.46
Static power consumption [W]	7.15 W
MTBF [years]	84.12 years
Availability	> 0.99999
Noise at normal temperature (acoustic power) [dB(A)]	Noise-free (no fans), < 30
Noise at normal temperature (acoustic pressure) [dB(A)]	Noise-free (no fans), < 20
Number of card slots	0
Number of power slots	0
Number of fans modules	0

Item	Specification
Redundant power supply	Not supported
Long-term operating temperature [°C(°F)]	-5°C to +45°C (23°F to 113°F) at an altitude of 0 to 1800 m (0 to 5905.44 ft.)
Restriction on the operating temperature variation rate [°C(°F)]	When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). Devices cannot start when the temperature is lower than 0°C (32°F).
Storage temperature [°C(°F)]	-40°C to +70°C (-40°F to +158°F)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Storage altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Power supply mode	Power adapter
Rated input voltage [V]	Power adapter input: 100 V AC to 240 V AC; 50/60 Hz
Input voltage range [V]	Power adapter input: 90 V AC to 264 V AC; 45 Hz to 65 Hz
Maximum input current [A]	0.9 A
Memory	-
Flash memory	-
Console port	Not supported
Eth Management port	Not supported
USB	Not supported
RTC	Not supported
RPS input	Not supported
Power supply surge protection [kV]	Differential mode: ±6 kV; common mode: ±6 kV
Ingress protection level (dustproof/waterproof)	IP20
Types of fans	None
Heat dissipation mode	Natural heat dissipation

Item	Specification
Airflow direction	-
PoE	Supported
Certification	EMC certification Safety certification Manufacturing certification

4.3.4 S210-8P2J

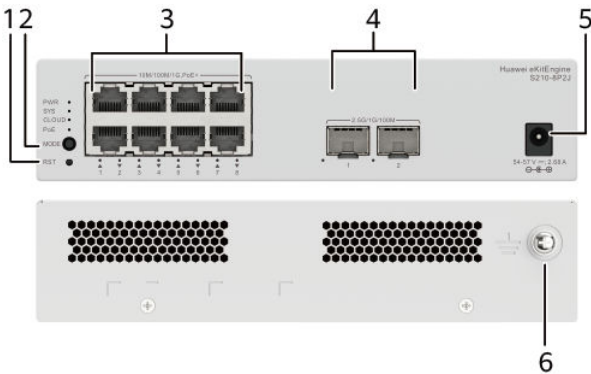
Overview

Table 4-15 Basic information about the S210-8P2J

Item	Details
Description	S210-8P2J (8*10/100/1000BASE-T ports (128W PoE+), 2*2.5GE SFP ports, with 1*220 V AC power adapter, Fanless)
Part Number	98012922
Model	S210-8P2J
First supported version	V600R025C00

Components

Figure 4-8 S210-8P2J appearance



1	One RST button NOTICE To restore the factory settings and reset the device, hold down the button for at least 6 seconds. To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button.	2	One MODE button
3	Eight 10/100/1000BASE-T PoE+ ports	4	Two 2.5GE SFP optical ports
5	Power adapter socket NOTE Use the power adapter delivered with the device.	6	Ground screw NOTE The ground cable is not delivered with the device.

Ports

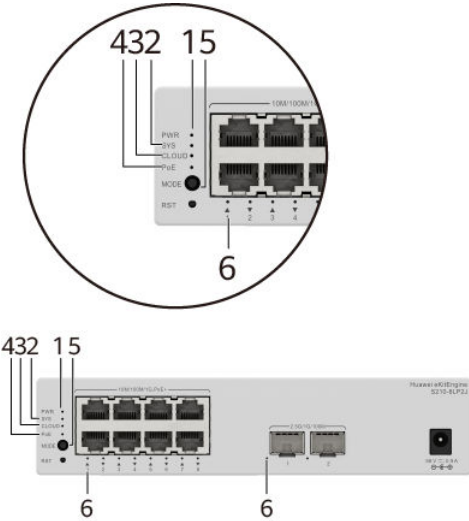
Table 4-16 Ports on the S210-8P2J

Port	Connector Type	Description	Available Components
10/100/1000BASE-T port	RJ45	A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.	Ethernet cable

Port	Connector Type	Description	Available Components
2.5GE SFP optical port	SFP	A 2.5GE SFP Ethernet optical port sends and receives service data at 100 Mbit/s, 1 Gbit/s, or 2.5 Gbit/s.	• FE SFP/eSFP optical modules (the maximum transmission distance cannot exceed 10 km) • GE eSFP optical modules (the maximum transmission distance cannot exceed 10 km) • 2.5GE eSFP optical modules

Indicators and Buttons

Figure 4-9 Indicators on the Switch



NOTE

The S210-8LP2J model is used as an example.

Table 4-17 Description of indicators on the switch

No.	Indicator	Name	Color	Status	Description
1	PWR	Power module indicator	-	Off	The switch is powered off.
			Green	Steady on	The power supply is normal.
2	SYS	System status indicator	-	Off	The system is not running.
			Green	Fast blinking	The system is starting.
			Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.
			Green	Slow blinking	The system is running normally.
			Red	Steady on	The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.
3	CLOUD	Cloud indicator	-	Off	The device is not connected to the cloud.
			Blue	Fast blinking	The device is connecting to the cloud.
			Blue	Slow blinking	The device is in the cloud management state.
4	PoE	PoE indicator	-	Off	The PoE mode is not selected.
			Green	Steady on	The PoE mode is selected, and service port indicators show the PoE status of each port.

No.	Indicator	Name	Color	Status	Description
5	MODE	Mode switch button	-	-	- When you press this button once (hold it down for more than 1 second), the service port indicators change to the PoE mode and show the PoE status of each service port. - When you press this button a second time (hold it down for more than 1 second), the service port indicators restore to the default mode and show the connection status and link activity of each service port. If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.
6	-	Service port indicator (one indicator for each port)	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.		Meanings of service port indicators vary in different modes. For details, see Table 4-18 .

Table 4-18 Description of service port indicators in different modes (one indicator for each port)

Display Mode	Color	Status	Description
Default mode	-	Off	The port is not connected or has been shut down.
	Green	Steady on	A link has been established on the port.
	Green	Blinking	The port is sending or receiving data.
PoE mode	-	Off	The port is not providing power to a powered device (PD).

Display Mode	Color	Status	Description
	Green	Steady on	The port is providing power to a PD.
	Green	Blinking	The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards.

Power Supply System

The device uses the power adapter delivered with the device to supply power to the device and the connected PD. The device provides 8 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 128 W.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-19 Technical specifications of the S210-8P2J

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 195 mm x 160 mm (1.72 in. x 7.68 in. x 6.30 in.) Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 195 mm x 166.2 mm (1.72 in. x 7.68 in. x 6.54 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	116.0 mm x 285.0 mm x 300.0 mm (4.57 in. x 11.22 in. x 11.81 in.)
Chassis height [U]	1 U
Chassis material	Metal
Weight without packaging [kg(lb)]	1.60 kg (3.53 lb)
Weight with packaging [kg(lb)]	2.08 kg (4.59 lb)
Typical power consumption [W]	16.74 W

Item	Specification
Typical heat dissipation [BTU/hour]	57.13 BTU/hour
Maximum power consumption [W]	- Without PoE: 14.60 W (device), 17.59 W (device + adapter) - Full PoE load: 161.02 W (PoE: 128 W)
Maximum heat dissipation [BTU/hour]	- Without PoE: 49.82 (device), 60.02 (device + adapter) - Full PoE load: 549.42
Static power consumption [W]	7.15 W
MTBF [years]	84.12 years
Availability	> 0.99999
Noise at normal temperature (acoustic power) [dB(A)]	Noise-free (no fans), < 30
Noise at normal temperature (acoustic pressure) [dB(A)]	Noise-free (no fans), < 20
Number of card slots	0
Number of power slots	0
Number of fans modules	0
Redundant power supply	Not supported
Long-term operating temperature [°C(°F)]	-5°C to +45°C (23°F to 113°F) at an altitude of 0 to 1800 m (0 to 5905.44 ft.)
Restriction on the operating temperature variation rate [°C(°F)]	When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). Devices cannot start when the temperature is lower than 0°C (32°F).
Storage temperature [°C(°F)]	-40°C to +70°C (-40°F to +158°F)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Storage altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Power supply mode	Power adapter

Item	Specification
Rated input voltage [V]	Power adapter input: 170 V AC to 240 V AC; 50/60 Hz Power adapter output: 54 V DC
Input voltage range [V]	Power adapter input: 170 V AC to 264 V AC; 47 Hz to 63 Hz
Maximum input current [A]	2.78 A
Memory	-
Flash memory	-
Console port	Not supported
Eth Management port	Not supported
USB	Not supported
RTC	Not supported
RPS input	Not supported
Power supply surge protection [kV]	±4 kV in differential mode and ±4 kV in common mode
Ingress protection level (dustproof/waterproof)	IP20
Types of fans	None
Heat dissipation mode	Natural heat dissipation
Airflow direction	-
PoE	Supported
Certification	EMC certification Safety certification Manufacturing certification

4.3.5 S210-24T2J

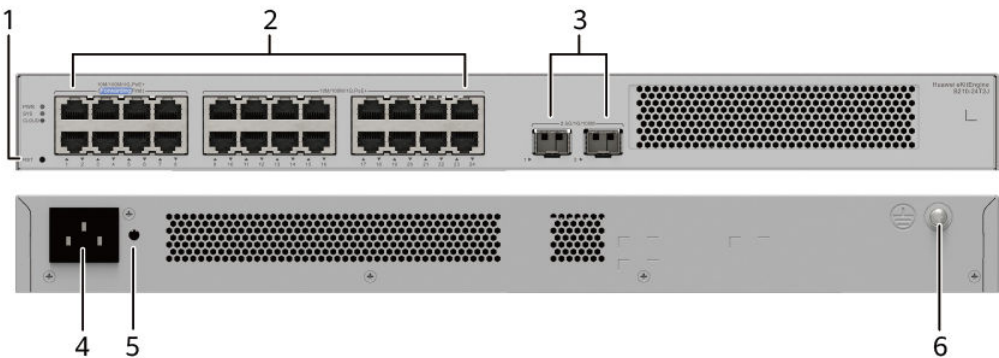
Overview

Table 4-20 Basic information about the S210-24T2J

Item	Details
Description	S210-24T2J (24*10/100/1000BASE-T ports, 2*2.5GE SFP ports, built-in AC power, Fanless)
Part Number	98012925
Model	S210-24T2J
First supported version	V600R025C00

Components

Figure 4-10 S210-24T2J appearance



1	One RST button NOTICE To restore the factory settings and reset the device, hold down the button for at least 6 seconds. To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button.	2	Twenty-four 10/100/1000BASE-T ports NOTE The model with the Forwarding First silkscreen on the front panel supports the Forwarding First function. This function is available on ports 1 to 8. With this function, traffic on ports 1 to 8 is preferentially forwarded when traffic congestion occurs on uplink ports.
3	Two 2.5GE SFP optical ports	4	AC socket NOTE It is used with an AC power cable .

5	Jack for AC power cable locking strap NOTE The AC power cable locking strap is not delivered with the switch.	6	Ground screw NOTE It is used with a ground cable .
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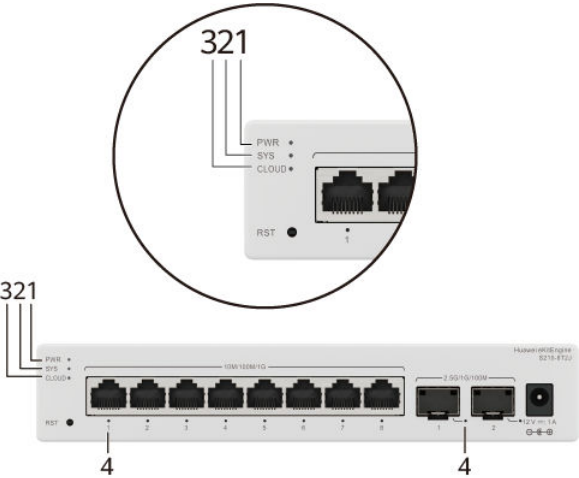
Ports

Table 4-21 Ports on the S210-24T2J

Port	Connector Type	Description	Available Components
10/100/1000BASE-T port	RJ45	A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.	Ethernet cable
2.5GE SFP optical port	SFP	A 2.5GE SFP Ethernet optical port sends and receives service data at 100 Mbit/s, 1 Gbit/s, or 2.5 Gbit/s.	• FE SFP/eSFP optical modules (the maximum transmission distance cannot exceed 10 km) • GE eSFP optical modules (the maximum transmission distance cannot exceed 10 km) • 2.5GE eSFP optical modules

Indicators and Buttons

Figure 4-11 Indicators on the Switch



NOTE

The S210-8T2J model is used as an example.

Table 4-22 Description of indicators on the switch

No.	Indicator	Name	Color	Status	Description
1	PWR	Power module indicator	-	Off	The switch is powered off.
			Green	Steady on	The power supply is normal.
2	SYS	System status indicator	-	Off	The system is not running.
			Green	Fast blinking	The system is starting.
			Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.
			Green	Slow blinking	The system is running normally.
			Red	Steady on	The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.
3	CLOUD	Cloud indicator	-	Off	The device is not connected to the cloud.

No.	Indicator	Name	Color	Status	Description
			Blue	Fast blinking	The device is connecting to the cloud.
			Blue	Slow blinking	The device is in the cloud management state.
4	-	Service port indicator (one indicator for each port)	-	Off	The port is not connected or has been shut down.
			Green	Steady on	A link has been established on the port.
			Green	Blinking	The port is sending or receiving data.

Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-23 Technical specifications of the S210-24T2J

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442 mm x 160 mm (1.72 in. x 17.40 in. x 6.30 in.) Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442 mm x 167 mm (1.72 in. x 17.40 in. x 6.57 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	90.0 mm x 550.0 mm x 260.0 mm (3.54 in. x 21.65 in. x 10.24 in.)
Chassis height [U]	1 U
Chassis material	Metal

Item	Specification
Weight without packaging [kg(lb)]	2.06 kg (4.54 lb)
Weight with packaging [kg(lb)]	2.55 kg (5.62 lb)
Typical power consumption [W]	18.30 W
Typical heat dissipation [BTU/hour]	62.44 BTU/hour
Maximum power consumption [W]	18.90 W
Maximum heat dissipation [BTU/hour]	64.49 BTU/hour
Static power consumption [W]	8.14 W
MTBF [years]	59.46 years
Availability	> 0.99999
Noise at normal temperature (acoustic power) [dB(A)]	Noise-free (no fans), < 30
Noise at normal temperature (acoustic pressure) [dB(A)]	Noise-free (no fans), < 20
Number of card slots	0
Number of power slots	0
Number of fans modules	0
Redundant power supply	Not supported
Long-term operating temperature [°C(°F)]	-5°C to +45°C (23°F to 113°F) at an altitude of 0 to 1800 m (0 to 5905.44 ft.)
Restriction on the operating temperature variation rate [°C(°F)]	When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). Devices cannot start when the temperature is lower than 0°C (32°F).
Storage temperature [°C(°F)]	-40°C to +70°C (-40°F to +158°F)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Storage altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Power supply mode	AC built-in
Rated input voltage [V]	AC input: 100-240 V AC; 50/60 Hz

Item	Specification
Input voltage range [V]	AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz
Maximum input current [A]	0.8 A
Memory	-
Flash memory	-
Console port	Not supported
Eth Management port	Not supported
USB	Not supported
RTC	Not supported
RPS input	Not supported
Power supply surge protection [kV]	Differential mode: ± 6 kV; common mode: ± 6 kV
Ingress protection level (dustproof/waterproof)	IP20
Types of fans	None
Heat dissipation mode	Natural heat dissipation
Airflow direction	-
PoE	Not supported
Certification	EMC certification Safety certification Manufacturing certification

4.3.6 S210-24P2J

Overview

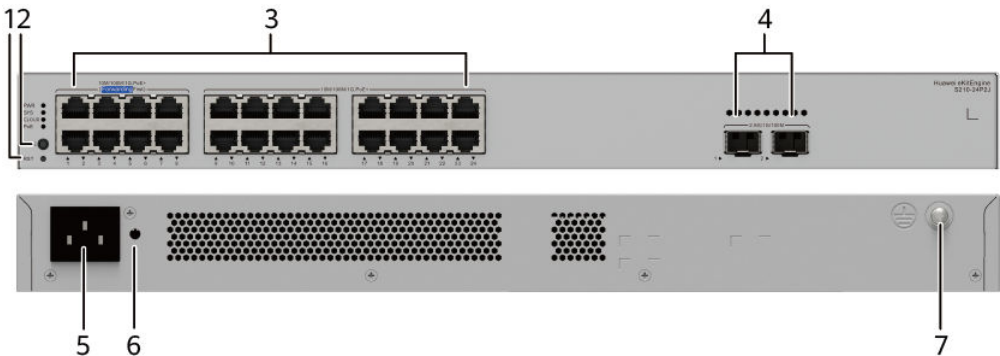
Table 4-24 Basic information about the S210-24P2J

Item	Details
Description	S210-24P2J (24*10/100/1000BASE-T ports (400W PoE+), 2*2.5GE SFP ports, built-in AC power)
Part Number	98012928
Model	S210-24P2J

Item	Details
First supported version	V600R025C00
Remarks	If the upper-level circuit breaker for a device is also connected to many other devices, a C32 or above circuit breaker needs to be used. If the upper-level circuit breaker for a device is connected only to this device, a C25 or below circuit breaker can be used.

Components

Figure 4-12 S210-24P2J appearance



1	One RST button NOTICE To restore the factory settings and reset the device, hold down the button for at least 6 seconds. To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button.	2	One MODE button
3	Twenty-four 10/100/1000BASE-T PoE+ ports NOTE The model with the Forwarding First silkscreen on the front panel supports the Forwarding First function. This function is available on ports 1 to 8. With this function, traffic on ports 1 to 8 is preferentially forwarded when traffic congestion occurs on uplink ports.	4	Two 2.5GE SFP optical ports

5	AC socket NOTE It is used with an AC power cable .	6	Jack for AC power cable locking strap NOTE The AC power cable locking strap is not delivered with the switch.
7	Ground screw NOTE It is used with a ground cable .	-	-

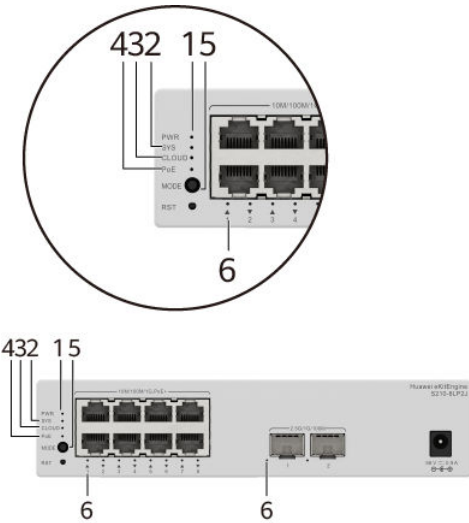
Ports

Table 4-25 Ports on the S210-24P2J

Port	Connector Type	Description	Available Components
10/100/1000BASE-T port	RJ45	A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.	Ethernet cable
2.5GE SFP optical port	SFP	A 2.5GE SFP Ethernet optical port sends and receives service data at 100 Mbit/s, 1 Gbit/s, or 2.5 Gbit/s.	• FE SFP/eSFP optical modules (the maximum transmission distance cannot exceed 10 km) • GE eSFP optical modules (the maximum transmission distance cannot exceed 10 km) • 2.5GE eSFP optical modules

Indicators and Buttons

Figure 4-13 Indicators on the Switch



NOTE

The S210-8LP2J model is used as an example.

Table 4-26 Description of indicators on the switch

No.	Indicator	Name	Color	Status	Description
1	PWR	Power module indicator	-	Off	The switch is powered off.
			Green	Steady on	The power supply is normal.
2	SYS	System status indicator	-	Off	The system is not running.
			Green	Fast blinking	The system is starting.
			Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.
			Green	Slow blinking	The system is running normally.
			Red	Steady on	The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.

No.	Indicator	Name	Color	Status	Description
3	CLOUD	Cloud indicator	-	Off	The device is not connected to the cloud.
			Blue	Fast blinking	The device is connecting to the cloud.
			Blue	Slow blinking	The device is in the cloud management state.
4	PoE	PoE indicator	-	Off	The PoE mode is not selected.
			Green	Steady on	The PoE mode is selected, and service port indicators show the PoE status of each port.
5	MODE	Mode switch button	-	-	- When you press this button once (hold it down for more than 1 second), the service port indicators change to the PoE mode and show the PoE status of each service port. - When you press this button a second time (hold it down for more than 1 second), the service port indicators restore to the default mode and show the connection status and link activity of each service port. If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.
6	-	Service port indicator (one indicator for each port)	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.		Meanings of service port indicators vary in different modes. For details, see Table 4-27 .

Table 4-27 Description of service port indicators in different modes (one indicator for each port)

Display Mode	Color	Status	Description
Default mode	-	Off	The port is not connected or has been shut down.
	Green	Steady on	A link has been established on the port.
	Green	Blinking	The port is sending or receiving data.
PoE mode	-	Off	The port is not providing power to a powered device (PD).
	Green	Steady on	The port is providing power to a PD.
	Green	Blinking	The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards.

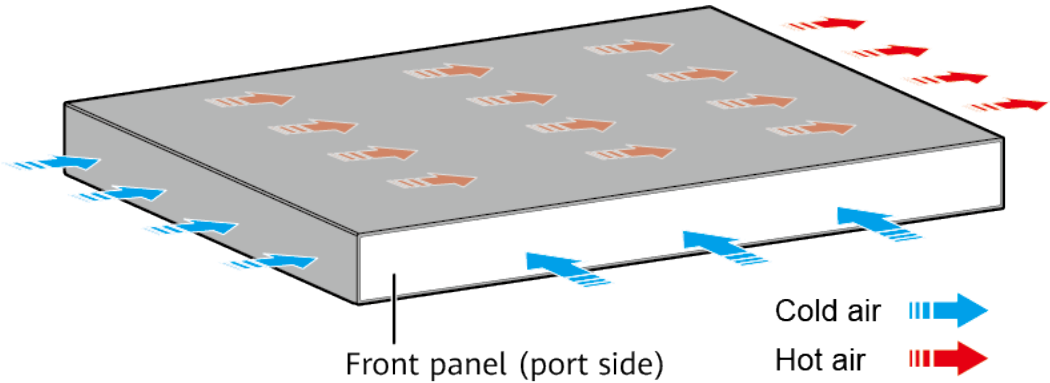
Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules. The device provides 24 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 400 W.

Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



 NOTE

This figure only shows the airflow direction and does not depict the actual device.

Technical Specifications

Table 4-28 Technical specifications of the S210-24P2J

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442 mm x 220 mm (1.72 in. x 17.40 in. x 8.66 in.) Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442 mm x 227 mm (1.72 in. x 17.40 in. x 8.94 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)
Chassis height [U]	1 U
Chassis material	Metal
Weight without packaging [kg(lb)]	2.88 kg (6.35 lb)
Weight with packaging [kg(lb)]	3.51 kg (7.74 lb)
Typical power consumption [W]	30.32 W
Typical heat dissipation [BTU/hour]	103.44 BTU/hour
Maximum power consumption [W]	- Without PoE: 32.42 W - Full PoE load: 482.68 W (PoE: 400 W)
Maximum heat dissipation [BTU/hour]	- Without PoE: 110.63 - Full PoE load: 1646.95
Static power consumption [W]	15.74 W
MTBF [years]	48.88 years
Availability	> 0.99999
Noise at normal temperature (acoustic power) [dB(A)]	52.8 dB(A)
Noise at normal temperature (acoustic pressure) [dB(A)]	40.1 dB(A)
Number of card slots	0

Item	Specification
Number of power slots	0
Number of fans modules	2
Redundant power supply	Not supported
Long-term operating temperature [°C(°F)]	-5°C to +45°C (23°F to 113°F) at an altitude of 0 to 1800 m (0 to 5905.44 ft.)
Restriction on the operating temperature variation rate [°C(°F)]	When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). Devices cannot start when the temperature is lower than 0°C (32°F).
Storage temperature [°C(°F)]	-40°C to +70°C (-40°F to +158°F)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Storage altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Power supply mode	AC built-in
Rated input voltage [V]	- AC input: 100 V AC to 240 V AC, 50/60 Hz - High-voltage DC input: 240 V DC
Input voltage range [V]	- AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz - High-voltage DC input: 190 V DC to 290 V DC
Maximum input current [A]	6 A
Memory	-
Flash memory	-
Console port	Not supported
Eth Management port	Not supported
USB	Not supported
RTC	Not supported
RPS input	Not supported
Power supply surge protection [kV]	Differential mode: ±6 kV; common mode: ±6 kV

Item	Specification
Ingress protection level (dustproof/waterproof)	IP20
Types of fans	Built-in
Heat dissipation mode	Air cooling
Airflow direction	Air intake from left and front, air exhaustion from right
PoE	Supported
Certification	EMC certification Safety certification Manufacturing certification

4.4 S210I

4.4.1 S210I-8T4SX

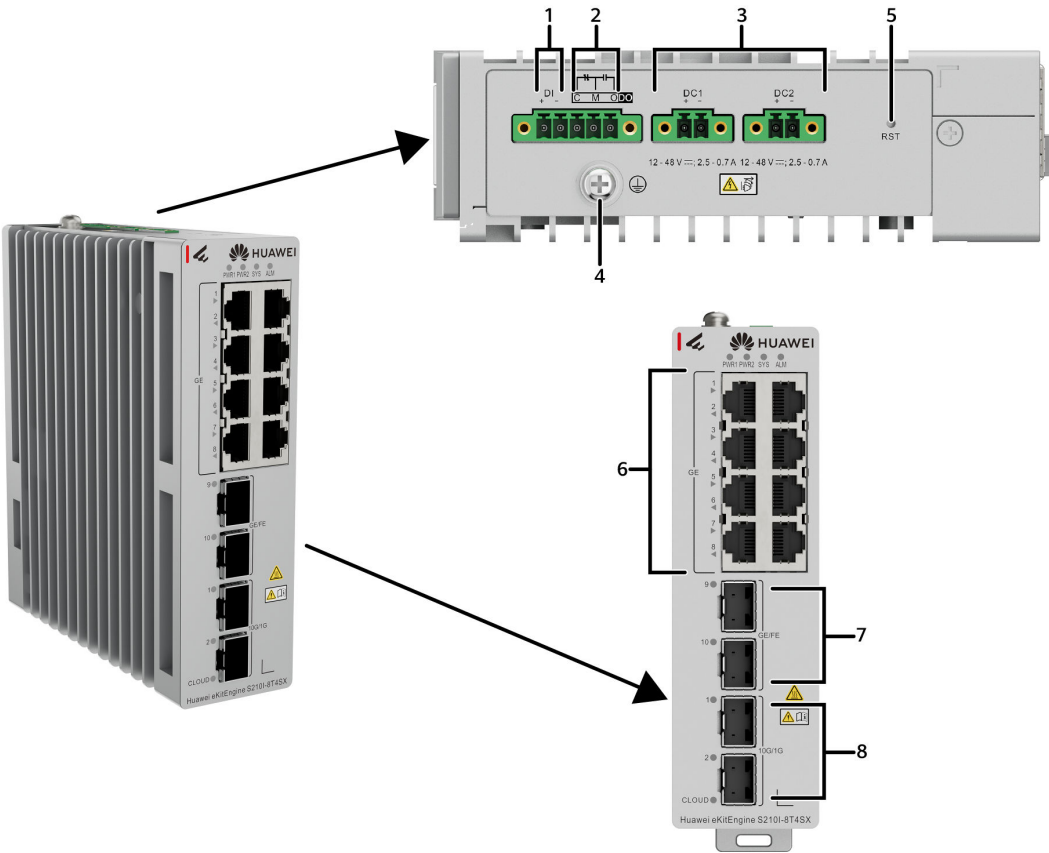
Overview

Table 4-29 Basic information about the S210I-8T4SX

Item	Details
Description	S210I-8T4SX (8*10/100/1000BASE-T ports, 2*GE SFP ports, 2*10GE SFP+ ports, DIN Rail Mounting, Dual redundant 9.6 to 60V DC supply, Fanless, Without power module)
Part Number	98012931
Model	S210I-8T4SX
First supported version	V600R024C10SPC600

Components

Figure 4-14 S210I-8T4SX appearance



1	One DI port NOTE It must be used with 1x5-Pin Phoenix Connector , which is included in the auxiliary material package delivered with the device.	2	One DO port NOTE It must be used with 1x5-Pin Phoenix Connector , which is included in the auxiliary material package delivered with the device.
3	Two DC power input ports NOTE The following external power module can be configured: PAC60S12-AN	4	Ground screw NOTE It is used with a ground cable .

5	One RST button NOTICE - To reset the device, press and hold down this button for less than 6 seconds. - To restore the device to its factory default settings, press and hold down this button for more than 6 seconds.	6	Eight 10/100/1000BASE-T ports
7	Two 100/1000BASE-X ports	8	Two 10GE SFP+ ports

Ports

Figure 4-15 Typical connections of the DI port

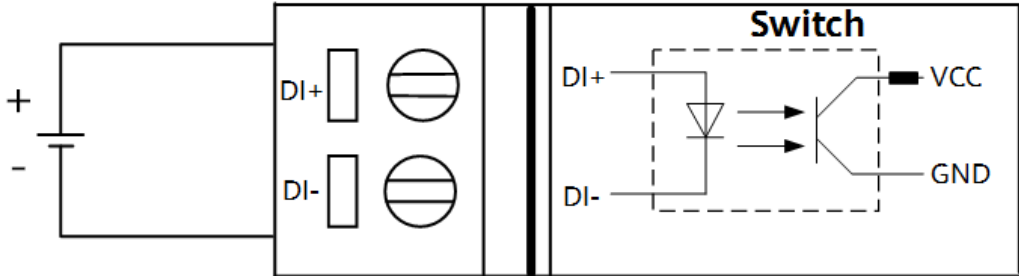


Figure 4-16 Typical connections of the DO port

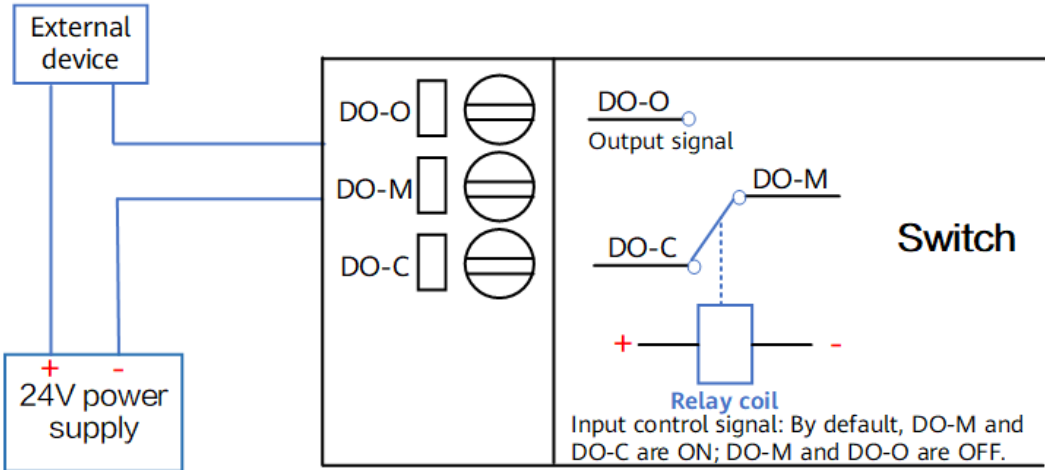


Table 4-30 Ports on the S210I-8T4SX

Port	Connector Type	Description	Available Components
10/100/1000BASE-T port	RJ45	A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.	Ethernet cable
1000BASE-X port	SFP	A 1000BASE-X port can send and receive data at 1000 Mbit/s or 100 Mbit/s.	Industrial optical modules
10GE SFP+ optical port	SFP+	A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s.	Industrial optical modules (When 10GE optical modules are used, only optical modules with transmission distances less than or equal to 10 km are supported)
DI port	1x5-Pin Phoenix Connector	The DI port is used to check active level signals. Signal type: 9.6 V to 60 V for state 1; -30 V to +3 V for state 0	1x5-Pin Phoenix Connector

Port	Connector Type	Description	Available Components
DO port	1x5-Pin Phoenix Connector	The DO port outputs signals so that the connected device can take corresponding actions. Signal type: Passive DO signals, Boolean value (short circuit and open circuit)	1x5-Pin Phoenix Connector

Indicators and Buttons

Figure 4-17 Indicators on the device

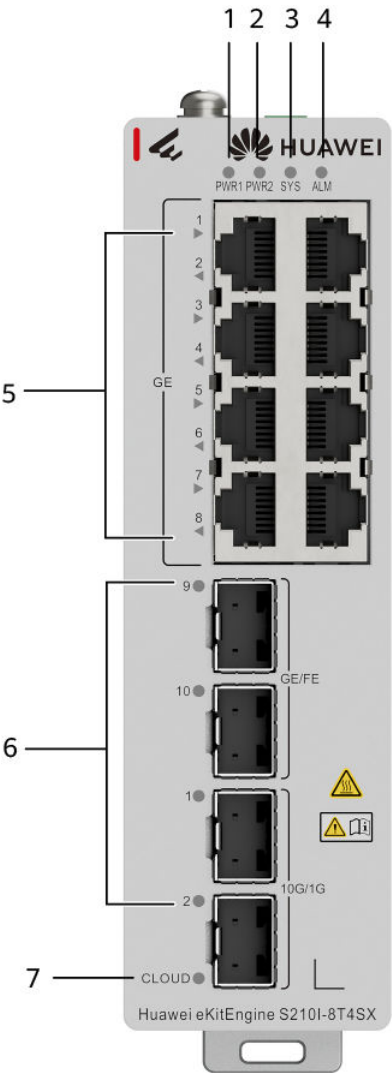


Table 4-31 Description of indicators on the device

No.	Indicator	Name	Color	Status	Description
1	PWR 1	Indicator of power module 1	-	Steady off	Power module 1 is not supplying power or is abnormal.
			Green	Steady on	Power module 1 supplies power properly.
2	PWR 2	Indicator of power module 2	-	Steady off	Power module 2 is not supplying power or is abnormal.
			Green	Steady on	Power module 2 supplies power properly.

No.	Indicator	Name	Color	Status	Description
3	SYS	System status indicator	-	Off	The system is not running.
			Green	Fast blinking	The system is starting.
			Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.
			Green	Slow blinking	The system is running normally.
4	ALM	Alarm indicator	Red	Steady on	The system is faulty or a temperature alarm has been generated.
			-	Steady off	The system is normal.
5	1 to 8	Electrical port indicator (one indicator for each port)	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.		Meanings of service port indicators vary in different modes. For details, see Table 4-32 .
6	9 and 10 1 and 2	Optical port indicator (one indicator for each port)	-		
7	CLOUD	Cloud indicator	-	Off	The device is not connected to the cloud.
			Blue	Fast blinking	The device is connecting to the cloud.

No.	Indicator	Name	Color	Status	Description
			Blue	Slow blinking	The device is in the cloud management state.

Table 4-32 Description of service port indicators in different modes (one indicator for each port)

Display Mode	Color	Status	Description
Default mode	-	Steady off	The port is not connected or has been shut down.
	Green	Steady on	A link has been established on the port.
	Green	Blinking	The port is sending or receiving data.

Power Supply System

The device can use a single power module or dual power modules for 1+1 power redundancy. It can be connected to a PAC60S12-AN power module.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-33 Technical specifications of the S210I-8T4SX

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic dimensions (excluding the parts protruding from the body): 150.0 mm x 44.0 mm x 133.0 mm (5.91 in. x 1.73 in. x 5.24 in.) Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 162.0 mm x 44.0 mm x 142.0 mm (6.38 in. x 1.73 in. x 5.59 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	113.0 mm x 235.0 mm x 188.0 mm (4.45 in. x 9.25 in. x 7.40 in.)

Item	Specification
Chassis height [U]	3.65 U
Chassis material	Metal
Weight without packaging [kg(lb)]	0.975 kg (2.15 lb)
Weight with packaging [kg(lb)]	1.34 kg (2.95 lb)
Typical power consumption [W]	12.48 W
Typical heat dissipation [BTU/hour]	42.58 BTU/hour
Maximum power consumption [W]	16.2 W @ 60 V 13.2 W @ 12 V
Maximum heat dissipation [BTU/hour]	55.28 @ 60 V 45.04 @ 12 V
Static power consumption [W]	5.64 W
MTBF [years]	138.479 years
Availability	> 0.99999
Noise at normal temperature (acoustic power) [dB(A)]	Noise-free (no fans)
Noise at normal temperature (acoustic pressure) [dB(A)]	Noise-free (no fans)
Number of card slots	0
Number of power slots	0
Number of fans modules	0
Redundant power supply	1+1
Long-term operating temperature [°C(°F)]	0–1800 m (0–5906 ft.) altitude, industrial optical modules: • Sealed cabinet: –40°C to +65°C (–40°F to +149°F) • Vented cabinet (≥ 40 LFM): –40°C to +70°C (–40°F to +158°F) • Blower-equipped cabinet (≥ 200 LFM): –40°C to +75°C (–40°F to +167°F)
Restriction on the operating temperature variation rate [°C(°F)]	When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature [°C(°F)]	–40°C to +85°C (–40°F to +185°F)

Item	Specification
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Storage altitude [m(ft.)]	0-5000 m (0-16404 ft.)
Power supply mode	DC external
Rated input voltage [V]	DC input: 12 V DC to 48 V DC
Input voltage range [V]	DC input: 9.6 V DC to 60 V DC
Maximum input current [A]	2.5 A
Flash memory	Physical space: 16 MB
Eth Management port	Not supported
USB	Not supported
RTC	Not supported
RPS input	Not supported
Service port surge protection [kV]	Common mode: ± 6 kV
Power supply surge protection [kV]	DC power: ± 2 kV in common mode and ± 1 kV in differential mode
Ingress protection level (dustproof/waterproof)	IP40
Types of fans	None
Heat dissipation mode	Natural heat dissipation
Airflow direction	-
PoE	Not supported
Certification	EMC certification Safety certification Manufacturing certification

4.4.2 S210I-8P4SX

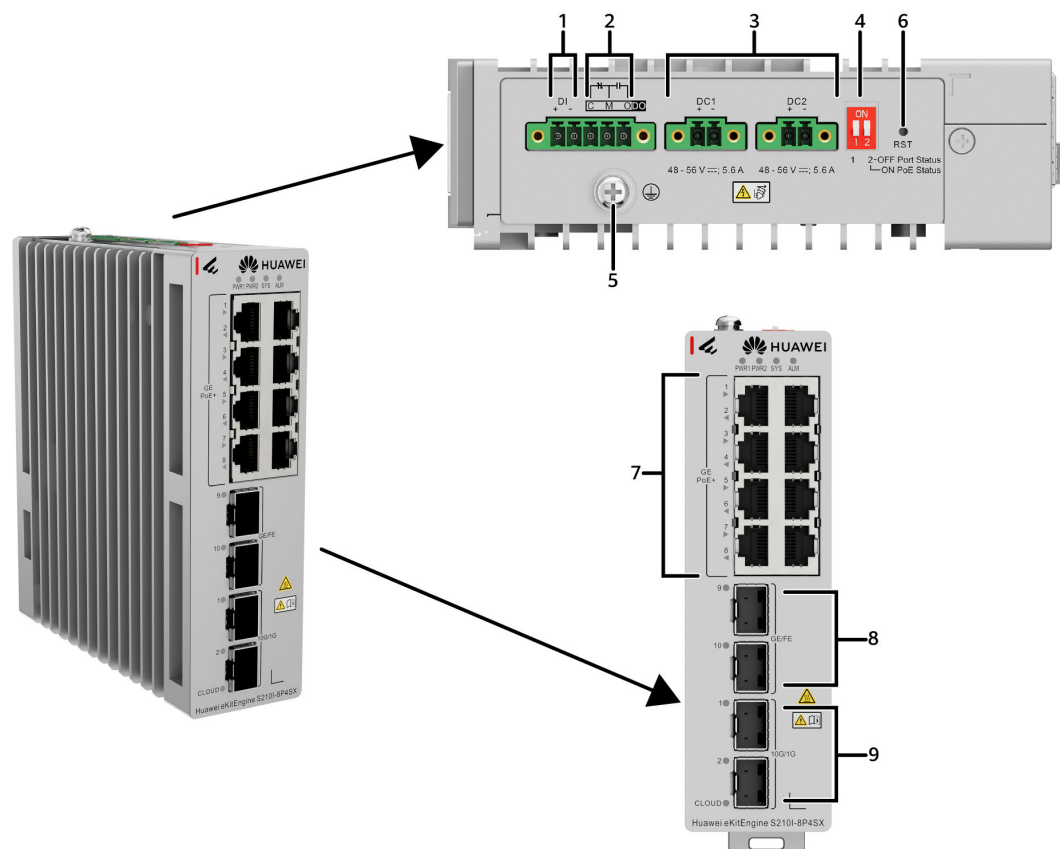
Overview

Table 4-34 Basic information about the S210I-8P4SX

Item	Details
Description	S210I-8P4SX (8*10/100/1000BASE-T ports, 2*GE SFP ports, 2*10GE SFP+ ports, PoE+, DIN Rail Mounting, Dual redundant 48 to 57V DC supply, Fanless, Without power module)
Part Number	98012933
Model	S210I-8P4SX
First supported version	V600R024C10SPC600

Components

Figure 4-18 S210I-8P4SX appearance



1	One DI port NOTE It must be used with 1x5-Pin Phoenix Connector , which is included in the auxiliary material package delivered with the device.	2	One DO port NOTE It must be used with 1x5-Pin Phoenix Connector , which is included in the auxiliary material package delivered with the device.
3	Two DC power input ports NOTE The following external power module can be configured: 5.2 PAC240S56-CN (240 W PoE AC&HVDC Power)	4	PoE DIP switch NOTICE - DIP switch 1 is reserved and cannot be used. - When DIP switch 2 is set to ON, the device works in PoE mode and the service port indicators show the PoE status of each port. When DIP switch 2 is set to OFF (default), the service port indicators show the Link and Active states of each port.
5	Ground screw NOTE It is used with a ground cable .	6	One RST button NOTICE - To reset the device, press and hold down this button for less than 6 seconds. - To restore the device to its factory default settings, press and hold down this button for more than 6 seconds.
7	Eight 10/100/1000BASE-T PoE+ ports	8	Two 100/1000BASE-X ports
9	Two 10GE SFP+ ports	-	-

Ports

Figure 4-19 Typical connections of the DI port

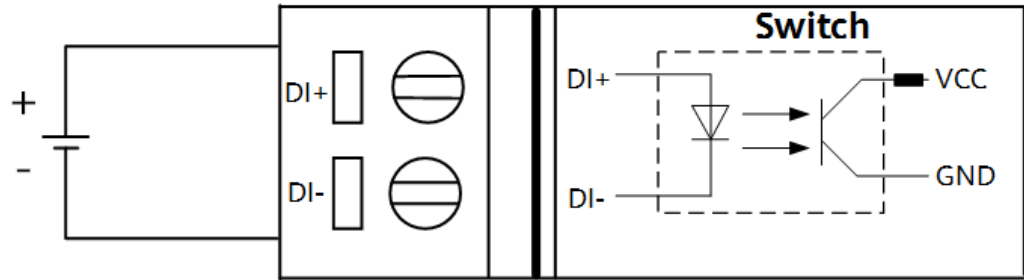


Figure 4-20 Typical connections of the DO port

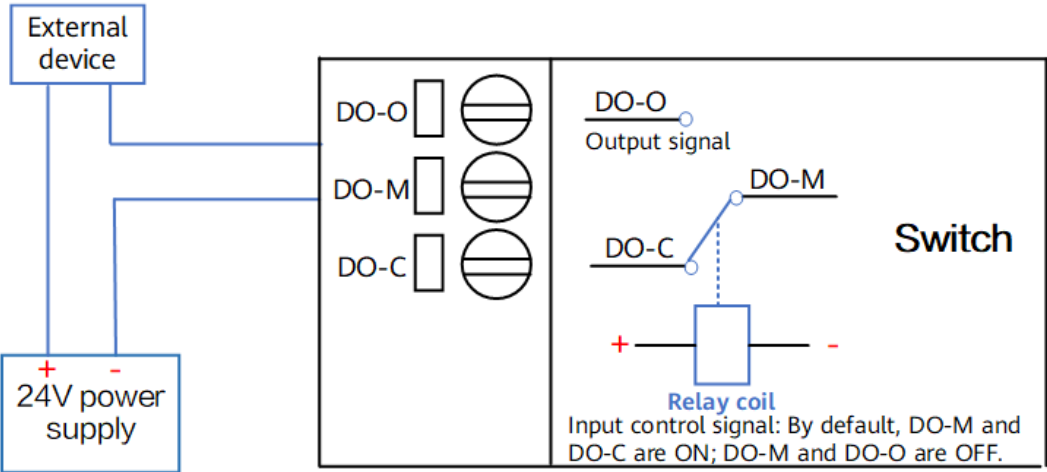


Table 4-35 Ports on the S210I-8P4SX

Port	Connector Type	Description	Available Components
10/100/1000BASE-T port	RJ45	A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.	Ethernet cable
1000BASE-X port	SFP	A 1000BASE-X port can send and receive data at 1000 Mbit/s or 100 Mbit/s.	Industrial optical modules
10GE SFP+ optical port	SFP+	A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s.	Industrial optical modules (When 10GE optical modules are used, only optical modules with transmission distances less than or equal to 10 km are supported)

Port	Connector Type	Description	Available Components
DI port	1x5-Pin Phoenix Connector	The DI port is used to check active level signals. Signal type: 9.6 V to 60 V for state 1; -30 V to +3 V for state 0	1x5-Pin Phoenix Connector
DO port	1x5-Pin Phoenix Connector	The DO port outputs signals so that the connected device can take corresponding actions. Signal type: Passive DO signals, Boolean value (short circuit and open circuit)	1x5-Pin Phoenix Connector

Indicators and Buttons

Figure 4-21 Indicators on the device

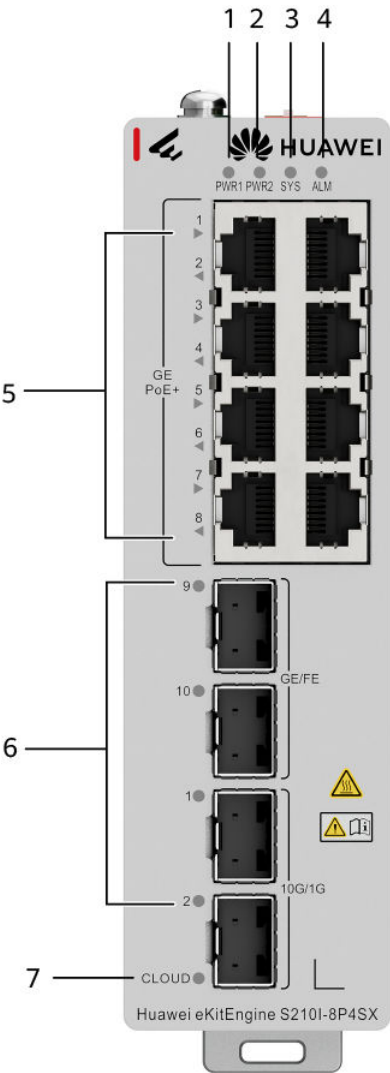


Table 4-36 Description of indicators on the device

No.	Indicator	Name	Color	Status	Description
1	PWR 1	Indicator of power module 1	-	Steady off	Power module 1 is not supplying power or is abnormal.
			Green	Steady on	Power module 1 supplies power properly.
2	PWR 2	Indicator of power module 2	-	Steady off	Power module 2 is not supplying power or is abnormal.
			Green	Steady on	Power module 2 supplies power properly.

No .	Indicator	Name	Color	Status	Description
3	SYS	System status indicator	-	Off	The system is not running.
			Green	Fast blinking	The system is starting.
			Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.
			Green	Slow blinking	The system is running normally.
4	ALM	Alarm indicator	Red	Steady on	The system is faulty or a temperature alarm has been generated.
			-	Steady off	The system is normal.
5	1 to 8	Electrical port indicator (one indicator for each port)	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.		Meanings of service port indicators vary in different modes. For details, see Table 4-37 .
6	9 and 10 1 and 2	Optical port indicator (one indicator for each port)	-		
7	CLOUD	Cloud indicator	-	Off	The device is not connected to the cloud.
			Blue	Fast blinking	The device is connecting to the cloud.

No.	Indicator	Name	Color	Status	Description
			Blue	Slow blinking	The device is in the cloud management state.

Table 4-37 Description of service port indicators in different modes (one indicator for each port)

Display Mode	Color	Status	Description
Default mode	-	Steady off	The port is not connected or has been shut down.
	Green	Steady on	A link has been established on the port.
	Green	Blinking	The port is sending or receiving data.
PoE connection status indicator mode NOTE You need to set DIP switch 2 to ON. In this case, the device works in PoE mode, and the service port indicators show the PoE status of each port.	-	Steady off	The port is not providing power to a powered device (PD).
	Green	Steady on	The port is providing power to a PD.
	Green	Blinking	The PD connected to the port is not an IEEE-compliant PD or its power exceeds the maximum power or power threshold of the port.

Power Supply System

The device can use a single power module or dual power modules for 1+1 power redundancy. It can be connected to a PAC240S56-CN power module.

Table 4-38 Power supply configurations

Power Module 1	Power Module 2	Available PoE Power	Maximum Number of Ports (Fully Loaded)
PAC240S56-CN	-	210 W	802.3af (15.4 W per port): 8 802.3at (30 W per port): 7

Power Module 1	Power Module 2	Available PoE Power	Maximum Number of Ports (Fully Loaded)
PAC240S56-CN	PAC240S56-CN	240 W	802.3af (15.4 W per port): 8 802.3at (30 W per port): 8

 NOTE

- The PoE power supply of the device is in direct mode. The input voltage must meet the PoE standard. If the input voltage does not meet the PoE standard, the voltage on the PD side may be too low.
- If the PAC240S56-CN is used, one PAC240S56-CN can supply power to only one S210I-8P4SX at a time.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-39 Technical specifications of the S210I-8P4SX

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic dimensions (excluding the parts protruding from the body): 150.0 mm x 44.0 mm x 133.0 mm (5.91 in. x 1.73 in. x 5.24 in.) Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 162.0 mm x 44.0 mm x 142.0 mm (6.38 in. x 1.73 in. x 5.59 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	113.0 mm x 235.0 mm x 188.0 mm (4.45 in. x 9.25 in. x 7.40 in.)
Chassis height [U]	3.65 U
Chassis material	Metal
Weight without packaging [kg(lb)]	0.986 kg (2.17 lb)
Weight with packaging [kg(lb)]	1.35 kg (2.98 lb)
Typical power consumption [W]	15.56 W
Typical heat dissipation [BTU/hour]	53.09 BTU/hour

Item	Specification
Maximum power consumption [W]	- Without PoE: 16.24 W - Full PoE load: 257.6 W (PoE: 240 W)
Maximum heat dissipation [BTU/hour]	- Without PoE: 55.41 - Full PoE load: 878.96
Static power consumption [W]	9.52 W
MTBF [years]	133.599 years
Availability	> 0.99999
Noise at normal temperature (acoustic power) [dB(A)]	Noise-free (no fans)
Noise at normal temperature (acoustic pressure) [dB(A)]	Noise-free (no fans)
Number of card slots	0
Number of power slots	0
Number of fans modules	0
Redundant power supply	1+1
Long-term operating temperature [°C(°F)]	0–1800 m (0–5906 ft.) altitude, industrial optical modules: - Sealed cabinet: –40°C to +60°C (–40°F to +140°F) - Vented cabinet (≥ 80 LFM): –40°C to +70°C (–40°F to +158°F) - Blower-equipped cabinet (≥ 200 LFM): –40°C to +75°C (–40°F to +167°F)
Restriction on the operating temperature variation rate [°C(°F)]	When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature [°C(°F)]	–40°C to +85°C (–40°F to +185°F)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	0–5000 m (0–16404 ft.)
Storage altitude [m(ft.)]	0–5000 m (0–16404 ft.)
Power supply mode	DC external

Item	Specification
Rated input voltage [V]	DC input: 56 V DC
Input voltage range [V]	DC input: 54 V DC to 57 V DC (PoE/PoE+) 48 V DC (PoE)
Maximum input current [A]	5.6 A
Flash memory	Physical space: 16 MB
Eth Management port	Not supported
USB	Not supported
RTC	Not supported
RPS input	Not supported
Service port surge protection [kV]	Common mode: ± 6 kV
Power supply surge protection [kV]	DC power: ± 2 kV in common mode and ± 1 kV in differential mode
Ingress protection level (dustproof/ waterproof)	IP40
Types of fans	None
Heat dissipation mode	Natural heat dissipation
Airflow direction	-
PoE	Supported
Certification	EMC certification Safety certification Manufacturing certification

5 Independent Power

- 5.1 PAC60S12-AN (60 W AC&HVDC Power)
- 5.2 PAC240S56-CN (240 W PoE AC&HVDC Power)
- 5.3 HW-120100D0D (Adapter Power-HW-120100D0D-Desktop-Black-12W)
- 5.4 AD-560090D0D (Adapter Power-AD-560090D0D-Desktop-50.4W-ERPVI)
- 5.5 AD-540278D0D (Adapter Power-AD-540278D0D-Desktop-150W-ErP 6-White)

5.1 PAC60S12-AN (60 W AC&HVDC Power)

Overview

Table 5-1 Basic information about the PAC60S12-AN

Item	Details
Description	60 W AC&HVDC Power
Part Number	02131664
Model	PAC60S12-AN

Appearance

Figure 5-1 Appearance of the PAC60S12-AN



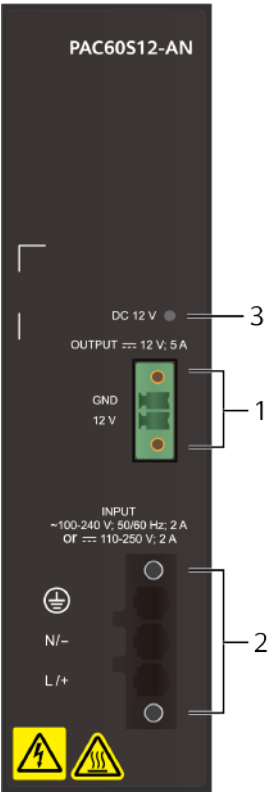
Version Mapping

Table 5-2 Mappings between PAC60S12-AN and product models

Product	Product Model	First Supported Version	Limitations
S210I	S210I-8T4SX (98012931)	V600R024C10SPC 600	-

Panel

Figure 5-2 Panel of the PAC60S12-AN



1. 2-pin DC output power socket NOTE Connect the power cable to the switch using a power cable with a "Power Cable (with 2PIN-I Terminal Blocks)". 2PIN connectors are included in the auxiliary material package delivered with the device.	2. AC/DC input power socket NOTE Connect the power adapter to an external power supply system using a power cable with a "3-Pin AC/DC Power Terminal Block". 3PIN connectors are included in the auxiliary material package delivered with the device.	3. DC 12 V power output indicator
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Table 5-3 Indicators on the PAC60S12-AN

Silkscreen	Name	Color	Status	Description
DC 12 V	DC 12 V indicator	Green	Steady on	The power supply is working properly.

Silkscreen	Name	Color	Status	Description
		Green	Blinking	The power supply is in hiccup protection state.
		-	Off	The power supply output is abnormal.

Functions and Features

Table 5-4 Functions and features of the PAC60S12-AN

Functions and Features	Description
Input overcurrent protection	The power module cannot automatically resume power supply from this protection state.
Input undervoltage protection	The power module can automatically resume power supply from this protection state.
Output overvoltage protection	The power module can automatically resume power supply from this protection state.
Output overcurrent protection	The power module can automatically resume power supply from this protection state.
Output short-circuit protection	The power module can automatically resume power supply from this protection state.
Overtemperature protection	When the temperature of the power module exceeds a specified threshold, the power module stops supplying power. When the temperature falls into the normal range, the power module automatically resumes power supply.

Technical Specifications

Table 5-5 Technical specifications of the PAC60S12-AN

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	150 mm x 40 mm x 130 mm (5.91 in. x 1.57 in. x 5.12 in.)
Weight without packaging [kg(lb)]	0.9 kg (1.98 lb)
Rated input voltage [V]	- AC input: 100 V AC to 240 V AC; 50/60 Hz - DC input: 110 V DC to 250 V DC
Input voltage range [V]	- AC input: 90 V AC to 290 V AC - DC input: 88 V DC to 300 V DC
Rated input current [A]	2 A
Rated output voltage [V]	12 V DC
Rated output current [A]	5 A
Rated output power [W]	60 W
Power dissipation Mode	Natural heat dissipation
Hot swapping	Supported

5.2 PAC240S56-CN (240 W PoE AC&HVDC Power)

Overview

Table 5-6 Basic information about the PAC240S56-CN

Item	Details
Description	240 W PoE AC&HVDC Power
Part Number	02131265
Model	PAC240S56-CN

Appearance

Figure 5-3 Appearance of the PAC240S56-CN



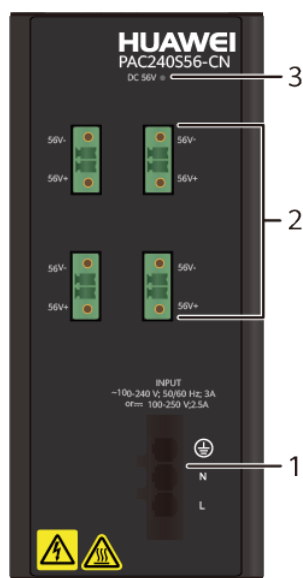
Version Mapping

Table 5-7 Mappings between PAC240S56-CN and product models

Product	Product Model	First Supported Version	Limitations
S210I	S210I-8P4SX (98012933)	V600R024C10SPC 600	-

Panel

Figure 5-4 Panel of the PAC240S56-CN



1. 3-pin AC/DC input power socket NOTE Connect the power adapter to an external power supply system using a power cable with a "3-Pin AC/DC Power Terminal Block". 3PIN connectors are included in the auxiliary material package delivered with the device. The customer needs to prepare the power cable. The recommended conductor diameter of the power cable is 1.0 mm².	2. Four 2-pin DC output power sockets NOTE Connect the power cable to the switch using a power cable with a "Power Cable (with 2PIN-I Terminal Blocks)". 2PIN connectors are included in the auxiliary material package delivered with the device. The customer needs to prepare the power cable. The recommended conductor diameter of the power cable is 1.0 mm².	3. DC 56 V power output indicator
--	--	--

Table 5-8 Indicators on the PAC240S56-CN

Silkscreen	Name	Color	Status	Description
DC 56V	Power output indicator	-	Steady off	The power output is abnormal or the power module is faulty.
		Green	Steady on	The power output is normal.
		Green	Blinking	The power module is in the output overvoltage or overcurrent protection state.

Functions and Features

Table 5-9 Functions and features of the PAC240S56-CN

Function	Description
System power supply and PoE power supply	The power module supports a maximum of 240 W system power and PoE power.

Function	Description
Input protection	The power module provides protection against input overvoltage, input undervoltage, and input overcurrent.
Output protection	The power module provides protection against output overvoltage, overcurrent, and short-circuit.
Overtemperature protection	When the temperature of the power module exceeds a specified threshold, the power module stops supplying power. When the temperature falls into the normal range, the power module automatically resumes power supply.

Technical Specifications

Table 5-10 Technical specifications of the PAC240S56-CN

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	150 mm x 65 mm x 133 mm (5.91 in. x 2.56 in. x 5.24 in.)
Weight without packaging [kg(lb)]	1.47 kg (3.24 lb)
Number of inputs	1
Rated input voltage [V]	100 V AC to 240 V AC, 50/60 Hz 100 V DC to 250 V DC
Input voltage range [V]	90 V AC to 290 V AC, 45 to 66 Hz 77 V DC to 300 V DC
Maximum input current [A]	100 V AC to 240 V AC: 3 A 100 V DC to 138 V DC: 2.5 A 138 V DC to 250 V DC: 2 A
Rated output voltage [V]	56 V DC
Rated output power [W]	Total power: 240 W
Power dissipation Mode	Natural heat dissipation without fans

5.3 HW-120100D0D (Adapter Power-HW-120100D0D-Desktop-Black-12W)

Overview

Table 5-11 Basic information about the HW-120100D0D

Item	Details
Description	Adapter Power-HW-120100D0D-Desktop-Black-12W
Part Number	02221222
Model	HW-120100D0D

Appearance

Figure 5-5 Appearance of the HW-120100D0D



Version Mapping

Table 5-12 Mappings between HW-120100D0D and product models

Product	Product Model	First Supported Version	Limitations
S210	S210-8T (98012916)	V600R025C00	-
S210	S210-8T2J (98012918)	V600R025C00	-

Technical Specifications

Table 5-13 Technical specifications of the HW-120100D0D

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	30 mm x 46 mm x 96 mm (1.18 in. x 1.81 in. x 3.78 in.)
Weight without packaging [kg(lb)]	0.1 kg (0.22 lb)
Number of inputs	1
Rated input voltage [V]	100 V AC to 240 V AC, 50/60 Hz
Input voltage range [V]	90 V AC to 300 V AC; 47 Hz to 63 Hz
Maximum input current [A]	0.5 A
Rated output voltage [V]	12 V
Rated output current [A]	1 A
Rated output power [W]	12 W
Power dissipation Mode	Natural heat dissipation without fans

5.4 AD-560090D0D (Adapter Power-AD-560090D0D-Desktop-50.4W-ERPVI)

Overview

Table 5-14 Basic information about the AD-560090D0D

Item	Details
Description	Adapter Power-AD-560090D0D-Desktop-50.4W-ERPVI
Part Number	02221860
Model	AD-560090D0D

Appearance

Figure 5-6 Appearance of the AD-560090D0D



Version Mapping

Table 5-15 Mappings between AD-560090D0D and product models

Product	Product Model	First Supported Version	Limitations
S210	S210-8LP2J (98012920)	V600R025C00	-

Technical Specifications

Table 5-16 Technical specifications of the AD-560090D0D

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	30.5 mm x 55 mm x 100 mm (1.20 in. x 2.17 in. x 3.94 in.)
Weight without packaging [kg(lb)]	0.2 kg (0.44 lb)
Number of inputs	1
Rated input voltage [V]	100 V AC to 240 V AC, 50/60 Hz
Input voltage range [V]	90 V AC to 264 V AC; 45 Hz to 65 Hz

Item	Specification
Maximum input current [A]	1.5 A
Rated output voltage [V]	56 V
Rated output current [A]	0.9 A
Rated output power [W]	50.4 W
Power dissipation Mode	Natural heat dissipation without fans

5.5 AD-540278D0D (Adapter Power-AD-540278D0D-Desktop-150W-ErP 6-White)

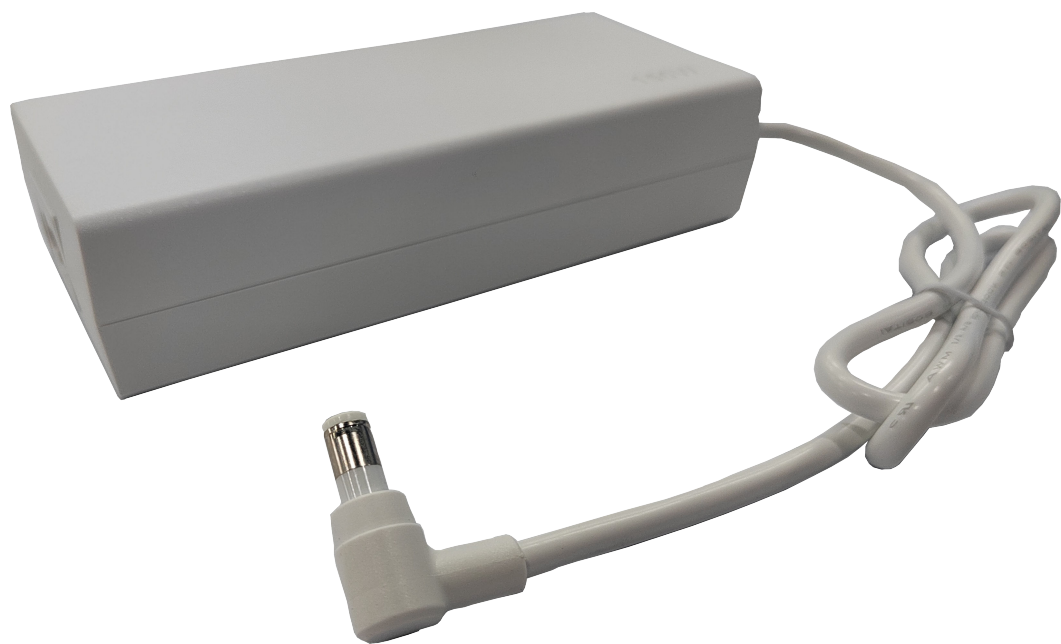
Overview

Table 5-17 Basic information about the AD-540278D0D

Item	Details
Description	Adapter Power-AD-540278D0D-Desktop-150W-ErP 6-White
Part Number	02222067
Model	AD-540278D0D

Appearance

Figure 5-7 Appearance of the AD-540278D0D



Version Mapping

Table 5-18 Mappings between AD-540278D0D and product models

Product	Product Model	First Supported Version	Limitations
S210	S210-8P2J (98012922)	V600R025C00	-

Technical Specifications

Table 5-19 Technical specifications of the AD-540278D0D

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	35 mm x 70 mm x 150 mm (1.38 in. x 2.76 in. x 5.91 in.)
Weight without packaging [kg(lb)]	0.4 kg (0.88 lb)
Number of inputs	1
Rated input voltage [V]	170 V AC to 240 V AC; 50/60 Hz
Input voltage range [V]	170 V AC to 264 V AC; 47 Hz to 63 Hz
Maximum input current [A]	2 A

Item	Specification
Rated output voltage [V]	54 V
Rated output current [A]	2.78 A
Rated output power [W]	150 W
Power dissipation Mode	Natural heat dissipation without fans

6 Cables

- 6.1 Ground Cable
- 6.2 Optical Fiber
- 6.3 Ethernet Cable
- 6.4 AC Power Cable
- 6.5 3-Pin AC/DC Power Terminal Block
- 6.6 5-Pin Phoenix Connector (DI/DO)
- 6.7 Power Cable (with 2PIN-I Terminal Blocks)

6.1 Ground Cable

Appearance and Structure

Figure 6-1 shows the appearance of a typical ground cable.

NOTE

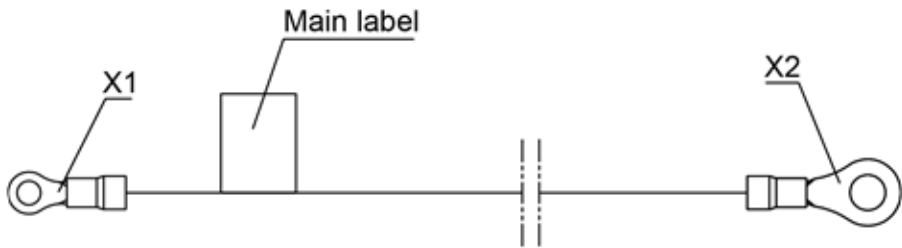
Other types of ground cables are similar to the example shown in the figure, except for their cross-sectional area, size of the cable lugs, and cable length.

Figure 6-1 Appearance of a ground cable



Figure 6-2 shows the structure of a ground cable.

Figure 6-2 Structure of a ground cable



Pin Assignments

Table 6-1 lists the pin assignments of a ground cable.

Table 6-1 Pin assignments of a ground cable

X1	X2	Wire Color	Conductor Cross-Sectional Area	Length
OT-4	OT-6	Green-yellow	4 mm ²	0.4 m

Connection

A ground cable grounds a device to protect it from lightning and electromagnetic interference. A ground cable is connected to a chassis in the following way:

- The OT-4 naked crimping connector connects to the ground point on the chassis.
- The OT-6 naked crimping connector connects to the ground point on the cabinet.

6.2 Optical Fiber

Fiber Jumper

A fiber jumper consists of one or more optical fibers of a certain length and the optical connectors at both ends. A fiber jumper connects an optical module to a fiber terminal box.

Figure 6-3 Single-mode LC/PC fiber jumper



Figure 6-4 Multimode LC/PC fiber jumper



Figure 6-5 Single-mode SC/PC fiber jumper



Comply with the following rules when selecting fiber jumpers:

1. Determine the length of fiber jumpers based on the onsite cabling distance.
2. Determine the fiber type based on the optical module type.
 - Use a multimode fiber jumper for a multimode optical module.
 - Use a single-mode fiber jumper for a single-mode optical module.
3. Determine the optical connector type based on the interface type.

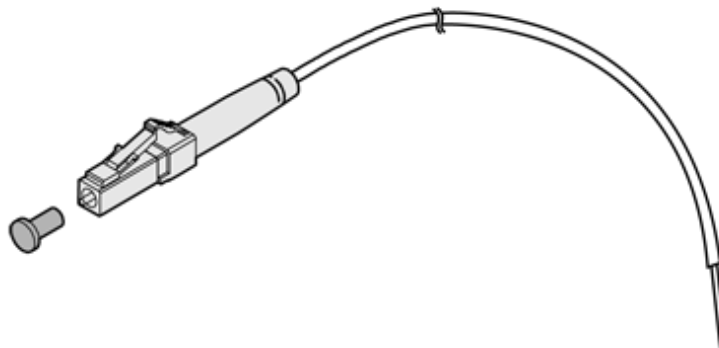
Ensure that the optical connector at each end of a fiber jumper is the same type as the interface to which it will be connected.

Fiber Pigtail

A fiber pigtail is an optical fiber that has an optical connector at one end and a piece of exposed fiber at the other end. The exposed fiber can be fused to another optical fiber. Fiber pigtails are commonly used to connect optical fibers to optical modules in fiber terminal boxes (optical couplers and jumpers are also used).

Figure 6-6 shows the structure of a fiber pigtail.

Figure 6-6 Structure of a fiber pigtail



Fiber pigtails are classified into single-mode and multimode fiber pigtails and are used for short-distance connections.

Optical Fiber, Optical Connector, and Fiber Adapter

Optical Fiber

Optical fibers are classified into single-mode fibers and multimode fibers.

- Single-mode fibers have a diameter of 5-10 μm and transmit laser in one mode under a specified wavelength. These fibers support a wide frequency band and a large transmission capacity, so they are used for long-distance transmission. Most single-mode fibers are yellow, as shown in [Figure 6-3](#).
- Multimode fibers have a diameter of 50 μm or 62.5 μm and transmit laser light in multiple modes under a specified wavelength. These fibers have a lower transmission capacity than single-mode fibers and are used for short-distance transmission. Modal dispersion occurs during transmission over multimode fibers.

In the latest cabling infrastructure of ISO/IEC 11801, multimode fibers are classified into four categories: OM1, OM2, OM3, and OM4.

- OM1: traditional 62.5/125 μm multimode fibers. OM1 fibers have a large core diameter and numerical aperture, and provide high light gathering ability and bending resistance.
- OM2: traditional 50/125 μm multimode fibers. OM2 fibers have a small core diameter and numerical aperture. Compared with OM1 fibers, OM2 fibers provide higher bandwidth because they significantly reduce the modal dispersion. When transmitting data at 1 Gbit/s with 850 nm wavelength, OM1 and OM2 fibers support maximum link lengths of 220 m and 550 m, respectively. OM1 and OM2 fibers can provide sufficient bandwidth within a distance of 300 m. Generally, OM1 and OM2 fibers are orange, as shown in [Figure 6-4](#).
- OM3: new-generation multimode fibers, with longer transmission distances than OM1 and OM2 fibers.
- OM4: laser optimized multimode fibers with 50 μm core diameter. OM4 is an improvement to OM3 and only increases the modal bandwidth. OM4 fibers provide 4700 MHz*km of modal bandwidth, whereas OM3 fibers provide only 2000 MHz*km of modal bandwidth. Generally, OM3 and OM4 fibers are light green. You can identify OM3 and OM4 fibers by their labels or printed marks.

Optical Connector

Optical connectors are used to connect optical fibers of the same type. [Table 6-2](#) lists common optical connectors.

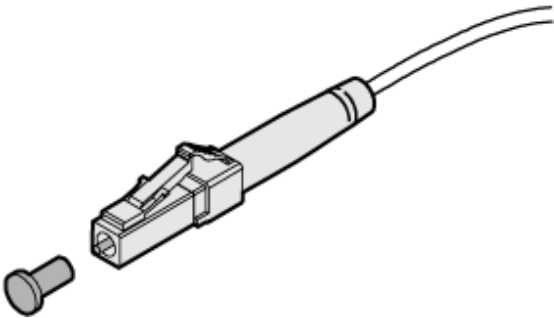
Table 6-2 Common optical connectors

Connect or Type	Optical Connector			
Square connector	SC/PC connector 	LC/PC connector 	MTRJ/PC connector 	MPO connector 

Connect or Type	Optical Connector			
	FC/PC connector	ST/PC connector	-	-
Round connector				

Figure 6-7 shows an LC/PC optical connector.

Figure 6-7 LC/PC optical connector



NOTICE

When connecting or removing an LC/PC optical connector, align the connector with the optical port and do not rotate the fiber. Pay attention to the following points:

- To connect a fiber, align the optical connector with the optical port and gently insert the optical fiber into the port.
- To remove a fiber, press the clip on the connector and pull the fiber out.

Fiber Adapter

A fiber adapter (also called a flange) is a fiber connection component. Two fiber connectors need to be connected using a fiber adapter. Fiber adapters are widely used in optical distribution frames (ODFs), fiber transmission equipment, and optical instruments.

6.3 Ethernet Cable

Introduction

An Ethernet cable connects a maintenance terminal to the console port on the device for local or remote maintenance.

According to the frequency and signal-to-noise ratio (SNR), common network cables include Category 5 cable (Cat 5), Category 5 enhanced (Cat 5e), and Category 6 cable (Cat 6). These are twisted pair cables that use RJ45 connectors, with a maximum transmission distance of 100 m. Network cables also include Category 1 cable (Cat 1), Category 2 cable (Cat 2), Category 3 cable (Cat 3), Category 4 cable (Cat 4), Category 6a (Cat 6a), and Category 7 cable (Cat 7). Generally, a higher number indicates a later version, more advanced technology, and higher bandwidth and cost.

Depending on whether the shield layer is available, network cables can be classified into shielded twisted pair (STP) and unshielded twisted pair (UTP). STP cables can reduce radiation and prevent information from being intercepted and external electromagnetic interference from entering. Compared with the same type of UTP cables, STP cables boast higher transmission rate, but they are more expensive and more difficult to install. UTP cables feature low cost, light weight, and are easy to bend. They rarely cause great impact on common networks. Therefore, UTP cables are more widely used. However, to implement a full-duplex transmission rate of up to 10 Gbit/s, only Category 7 STP-7 can be used.

Table 6-3 describes the basic parameters of several network cables.

Table 6-3 Basic parameters of network cables

Network Cable Type	Usage Scenario	Transmissi on Frequency	Maximum Transmission Rate	Transmission Distance
Cat 5	100Base-T and 10Base-T networks	1 MHz to 100 MHz	100 Mbit/s	100 m
Cat 5e	1000Base-T networks	1 MHz to 100 MHz	1000 Mbit/s	100 m
Cat 6	1000Base-T networks	1 MHz to 250 MHz	1000 Mbit/s	100 m
Cat 6a	10GBase-T networks	1 MHz to 500 MHz	10 Gbit/s	100 m
Cat 7	10GBase-T networks	1 MHz to 600 MHz	10 Gbit/s	100 m

Types of Ethernet Cables

Ethernet cables are classified into straight-through cables and crossover cables.

- Straight-through cable: The twisted pairs in the RJ45 connectors at both ends are crimped in the same sequence. A straight-through cable connects two devices of different types, for example, a PC and a switch.
- Crossover cable: The twisted pairs in the RJ45 connectors at two ends are crimped in different sequences. A crossover cable connects two devices or interfaces of the same type, for example, two PCs.

Crossover and straight cables only differ in wire sequences, and function the same when transmitting data.

Huawei S series models support both straight-through and crossover cables and their ports are adaptive to the cable types.

Use shielded Ethernet cables when devices complying with EN 50121-4 are used in environments that meet EN 50121-4 requirements.

Appearance and Structure

NOTE

The straight-through cable and the crossover cable have the same appearance and use the RJ45 connector.

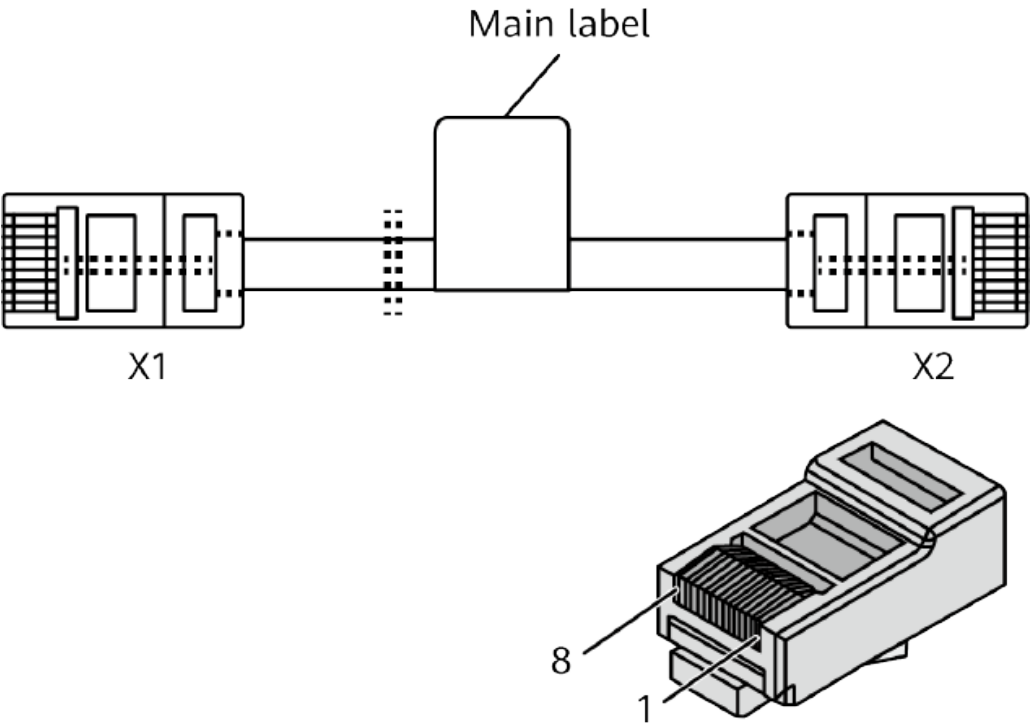
Figure 6-8 shows the appearance of an Ethernet cable.

Figure 6-8 Appearance of an Ethernet cable



Figure 6-9 shows the structure of an Ethernet cable.

Figure 6-9 Structure of an Ethernet cable



Pin Assignments

Table 6-4 lists pin assignments of a straight-through cable.

Table 6-4 Pin assignments of a straight-through cable

Connector X1	Connector X2	Color	Relationship
X1.2	X2.2	Orange	Twisted pair
X1.1	X2.1	White/Orange	
X1.6	X2.6	Green	Twisted pair
X1.3	X2.3	White/Green	
X1.4	X2.4	Blue	Twisted pair
X1.5	X2.5	White/Blue	
X1.8	X2.8	Brown	Twisted pair
X1.7	X2.7	White/Brown	

Table 6-5 lists pin assignments of a crossover cable.

Table 6-5 Pin assignments of a crossover cable

Connector X1	Connector X2	Color	Relationship
X1.6	X2.2	Orange	Twisted pair
X1.3	X2.1	White/Orange	
X1.2	X2.6	Green	Twisted pair
X1.1	X2.3	White/Green	
X1.4	X2.4	Blue	Twisted pair
X1.5	X2.5	White/Blue	
X1.8	X2.8	Brown	Twisted pair
X1.7	X2.7	White/Brown	

NOTE

To achieve the best electrical transmission performance, ensure that the wires connected to pins 1 and 2 and to pins 3 and 6 are twisted pairs.

6.4 AC Power Cable

Appearance and Structure

Figure 6-10 C13 straight female to PI straight male AC power cable (used in China)



Figure 6-11 C13 straight female to C14 straight male AC power cable (China)**NOTE**

The AC power cables used in different countries and regions have different connector types. The power cable and plug delivered with the chassis can only be used on this chassis, and cannot be used on other devices.

Types of AC Power Cables

Select power cables based on the power supply system in your equipment room. When the device uses 240 V high-voltage DC input or 110 V/220 V AC input, use the C13 straight-female AC power cable. Standard and country-specific AC power cables can be directly connected to power modules.

- Standard power cables: used to transmit power from a PDU. [Figure 6-12](#) shows the structure of a C14 straight male to C13 straight female AC power cable.
- Country-specific power cables: used to transmit power from a country-specific power strip. The cables are delivered in compliance with standards of the destination country or region. For example, PI straight male to C13 straight female AC power cable ([Figure 6-13](#)) is used in China.
- The AC power cables connected to a power distribution box must have cord end terminals. [Figure 6-14](#) shows the structure of a cord end to C13 straight female AC power cable.

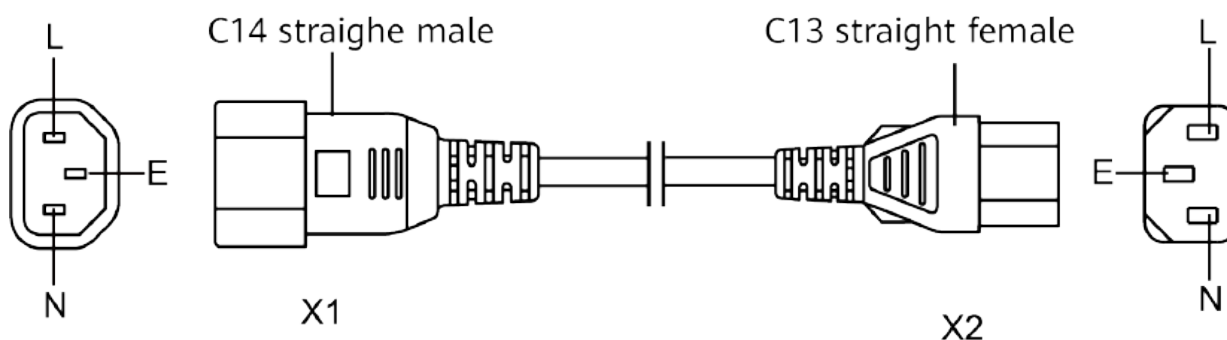
Figure 6-12 Structure of a C14 straight male to C13 straight female AC power cable

Figure 6-13 Structure of a PI straight male to C13 straight female AC power cable (used in China)

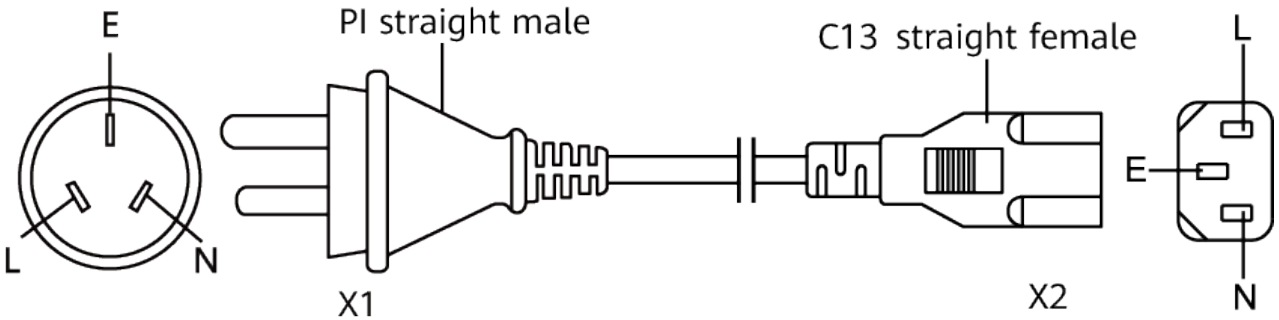
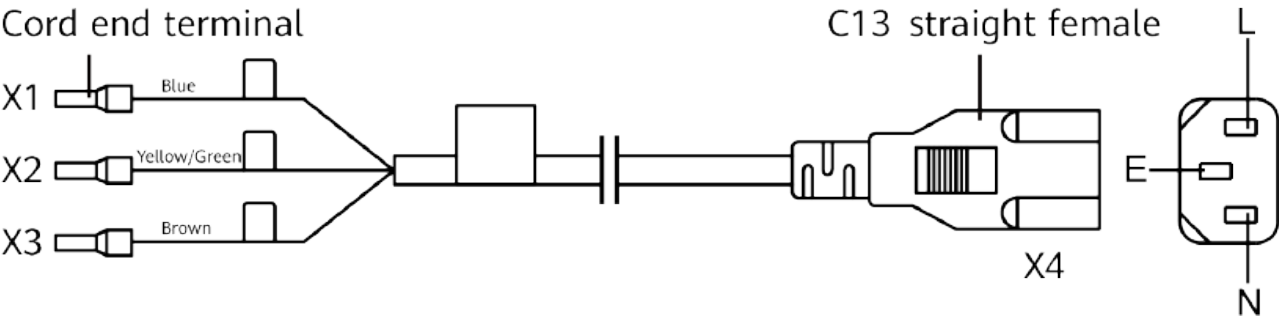


Figure 6-14 Structure of a Cord end to C13 straight female AC power cable (used in China)
Cord end terminal



Connection

Table 6-6 shows connections of various AC power cables.

Table 6-6 Connections of AC power cables

Power Cable Type	Connector Type and Connection	
C14 straight male to C13 straight female AC power cable	C14 straight male connector: connected to a PDU	C13 straight female connector: connected to the AC power socket on the switch.
PI straight male to C13 straight female AC power cable (used in China)	PI straight male connector: connected to a country-specific power strip	The current rating of the power cable is 10 A.

Power Cable Type	Connector Type and Connection	
Cord end to C13 straight female AC power cable (used in China)	Cord end terminal: connected to a power distribution box or power distribution frame. Connect the brown wire to the L terminal, blue wire to the N terminal, and the yellow/green wire to the ground terminal. Different AC power cables may be delivered in compliance with local regulations or customer requirements.	

6.5 3-Pin AC/DC Power Terminal Block

Connection

A 3-pin AC/DC power cable consists of a 3-pin AC/DC power terminal block at one end and power wires at the other end. Make the power wires according to the power supply requirements and connect them to the power supply system.

The 3-pin AC/DC power terminal block can prevent damages to the device caused by reverse connection of the power wires. Once the positive and negative wires are reversely connected to the power terminal block, the device will not be powered on.

The 3-pin AC/DC power terminal block can be used for both AC and DC power cables. You can connect either an AC or a DC power cable to the power terminal block as required, and connect the other end of the power cable to an external power supply system.

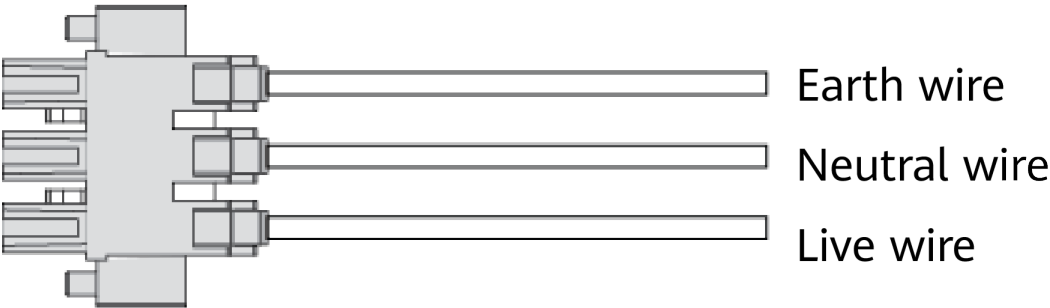
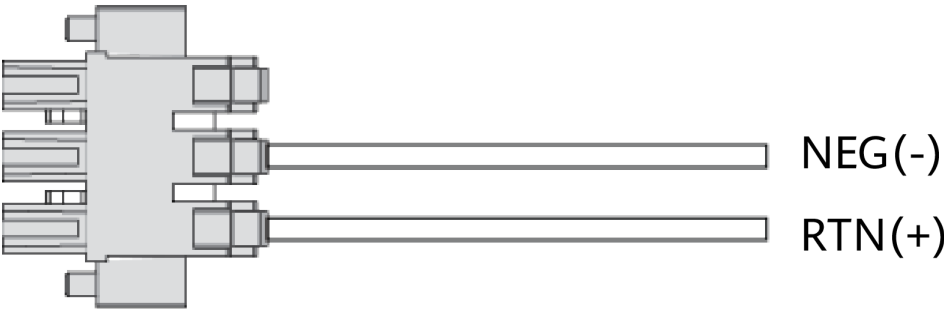
The 3-pin AC/DC power cable is connected as follows:

- The 3-pin AC/DC power terminal block is connected to the AC/DC input power socket of a power module.
- The other end is connected to an external power supply device.

Appearance and Structure

Figure 6-15 Appearance of the 3-Pin AC/DC Power Terminal Block

Connected to a DC power supply system



Connected to a AC power supply system

Table 6-7 lists the specifications of the 3-pin AC/DC power cable.

Table 6-7 Specifications of the 3-pin AC/DC power cable

Cable	Minimum Cross-Sectional Area	Maximum Cross-Sectional Area
3-pin AC/DC power cable	0.5 mm ² or 20 AWG	2.5 mm ² or 12 AWG

Technical Specifications

Table 6-8 Technical specifications of the 3-Pin AC/DC Power Terminal Block

Item	Details
Part Number	14180441
Model	-
Description	Combicon,1*3,Straight Male,20-14 AWG (UL),Pitch 7.62mm
Connector X1	3-Pin AC/DC Power Terminal Block

6.6 5-Pin Phoenix Connector (DI/DO)

Connection

A 5-pin Phoenix connector (DI/DO) is used to connect the switch to an external device through a cable.

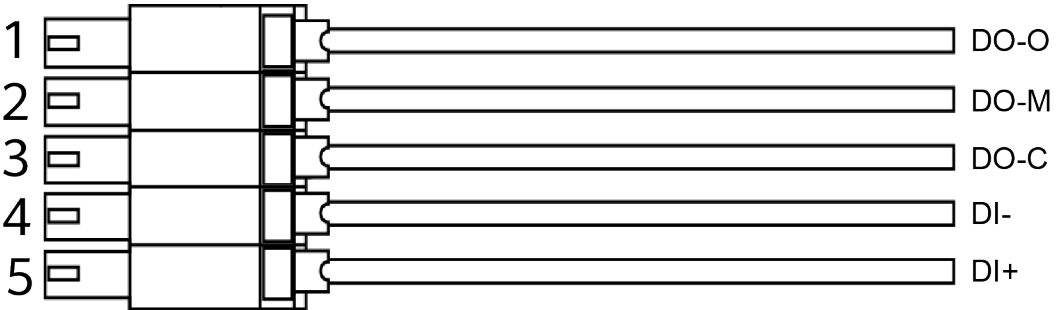
DI/DO port:

- For DI port connection, insert two cables to the DI+ and DI- holes. For DO port connection, insert three cables to the DO-O, DO-C, and DO-M holes.
- The 5-pin Phoenix connector is connected to the DI/DO port on the device.
- The other end is connected to an external boolean device.

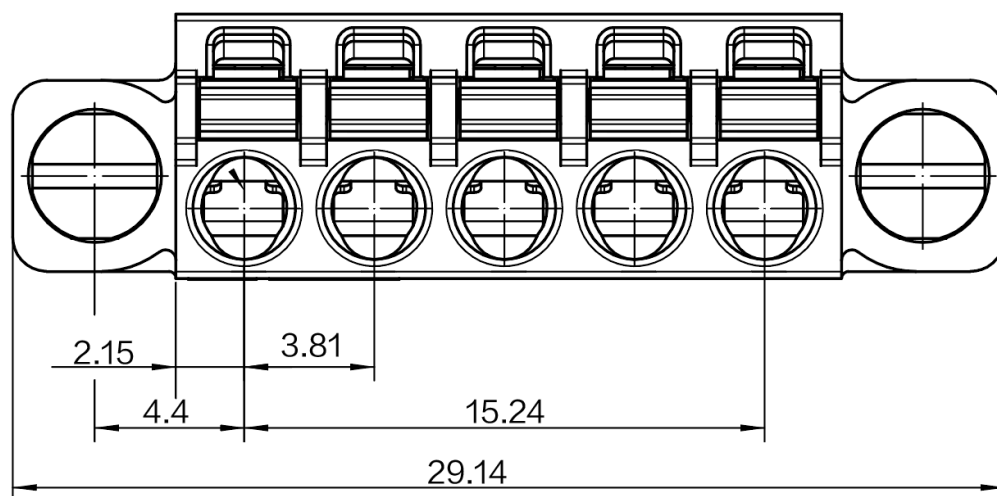
Appearance and Structure

Figure 6-16 shows the structure of a 5-pin Phoenix connector (DI/DO).

Figure 6-16 Structure of a 5-pin Phoenix connector (DI/DO)



The distance between pins of the Phoenix connector must be 3.81 mm. Figure 6-17 shows the other dimensions of the Phoenix connector.

Figure 6-17 Phoenix connector dimensions

Pin Assignments

Table 6-9 Pin assignments of the 5-pin Phoenix connector

No.	Signal
1	DO-O
2	DO-M
3	DO-C
4	DI-
5	DI+

6.7 Power Cable (with 2PIN-I Terminal Blocks)

Connection

The power cable (with 2PIN-I terminal blocks) is connected as follows:

- One end is connected to the DC power interface of the device through a 2-pin DC power terminal block.
- The other end is connected to a DC power supply device through a 2-pin DC power terminal block.

NOTE

The power cable (with 2PIN-I terminal blocks) consists of 2-pin DC input terminal blocks at both ends. The 2-pin DC input terminal blocks can prevent damages to the device caused by reverse connection of the power wires. Once the positive and negative wires are reversely connected to the power terminal blocks, the device will not be powered on.

Appearance and Structure

Figure 6-18 Appearance of the Power Cable (with 2PIN-I Terminal Blocks)

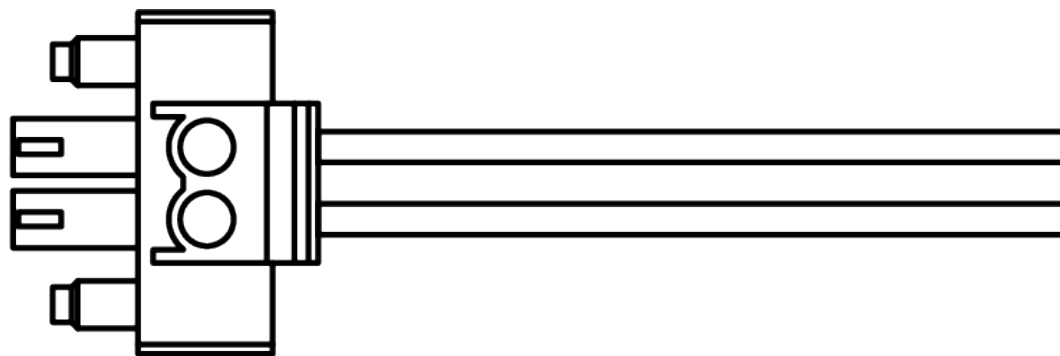
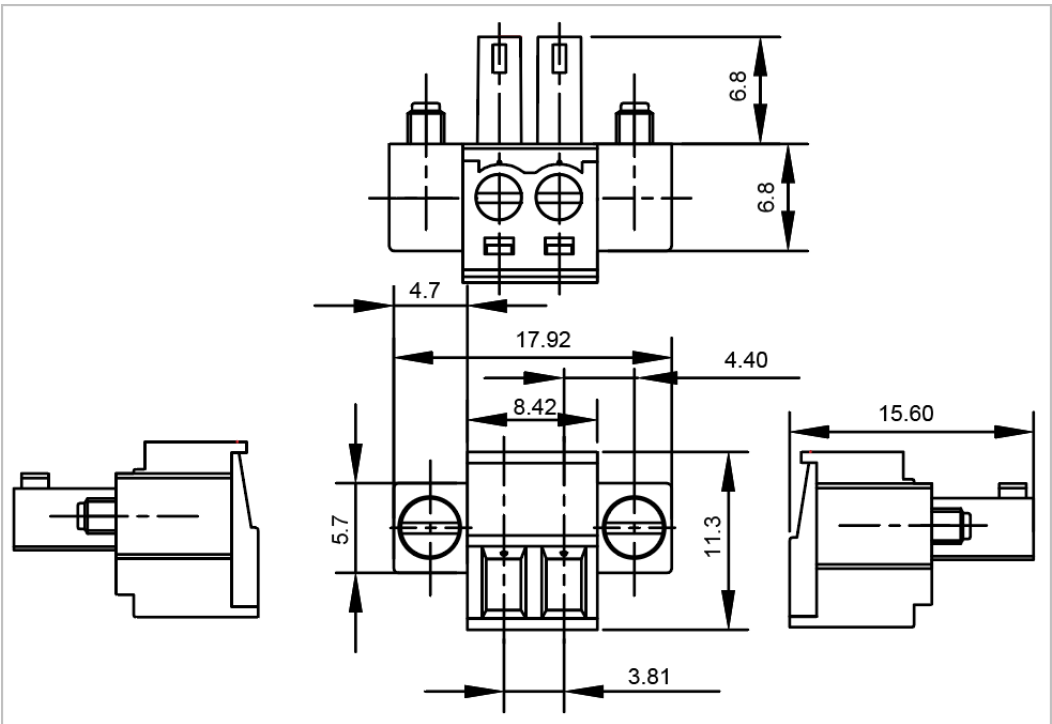


Table 6-10 and Figure 6-19 describe the specifications of the power cable.

Table 6-10 Specifications of the power cable

Conductor Type	Cross-Sectional Area of the Conductor
18UL1015 red	0.823 mm ² or 18 AWG
18UL1015 black	0.823 mm ² or 18 AWG

Figure 6-19 2PIN-I Terminal Blocks dimensions (in mm)



Pin Assignments

Table 6-11 lists the pin assignments of the 2-pin DC input terminal block.

Table 6-11 Pin assignments of the 2-pin DC input terminal block

X1	Signal	X2
18UL1015 red	RTN (+)	18UL1015 red
18UL1015 black	NEG (-)	18UL1015 black

Technical Specifications

Table 6-12 Technical specifications of the Power Cable (with 2PIN-I Terminal Blocks)

Description	Connector X1	Connector X2
Power Cable (with 2PIN-I Terminal Blocks)	2-pin DC input terminal block	2-pin DC input terminal block

7 Pluggable Modules for Interfaces

[7.1 Important Notes About Using Optical Modules Certified for Huawei Switches](#)

[7.2 Understanding Optical Modules](#)

[7.3 FE SFP/eSFP Optical Modules](#)

[7.4 GE eSFP Optical Modules](#)

[7.5 2.5GE eSFP Optical Modules](#)

[7.6 10GE SFP+ Optical Modules](#)

[7.7 Industrial Optical Modules](#)

7.1 Important Notes About Using Optical Modules Certified for Huawei Switches

7.1.1 How to Identify Huawei-Certified Switch Optical Modules

NOTICE

- A switch must use optical or copper modules that have been certified for use on Huawei S switches. Non-certified optical or copper 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 or copper 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 S switches, contact Huawei technical support.
-

10GE or Lower Speed Optical Modules

Huawei started certification on 10GE or lower speed optical modules for S switch products on July 1, 2013.

To determine whether optical modules delivered for Huawei S switches before July 1, 2013 are certified ones, contact Huawei technical support.

If your optical modules are delivered after July 1, 2013, use either of the following methods to determine whether they have been certified by Huawei.

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 7-1](#).

Figure 7-1 "HUAWEI" on the label of a Huawei-certified S switch optical module



7.1.2 Risks of Using Non-Huawei-Certified Switch Optical Modules

During certification of optical modules for Huawei switches, 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 switch 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 switch's data bus.
Some non-Huawei-certified optical modules have defects in data bus designs. Using such an optical module on a switch causes suspension of the connected data bus on the switch. 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 switch 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 switch 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 switch, the system will report incorrect temperature alarms.

- Improper register settings cause errors or failures in reading parameters or diagnostic information.

Some non-Huawei-certified switch 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.

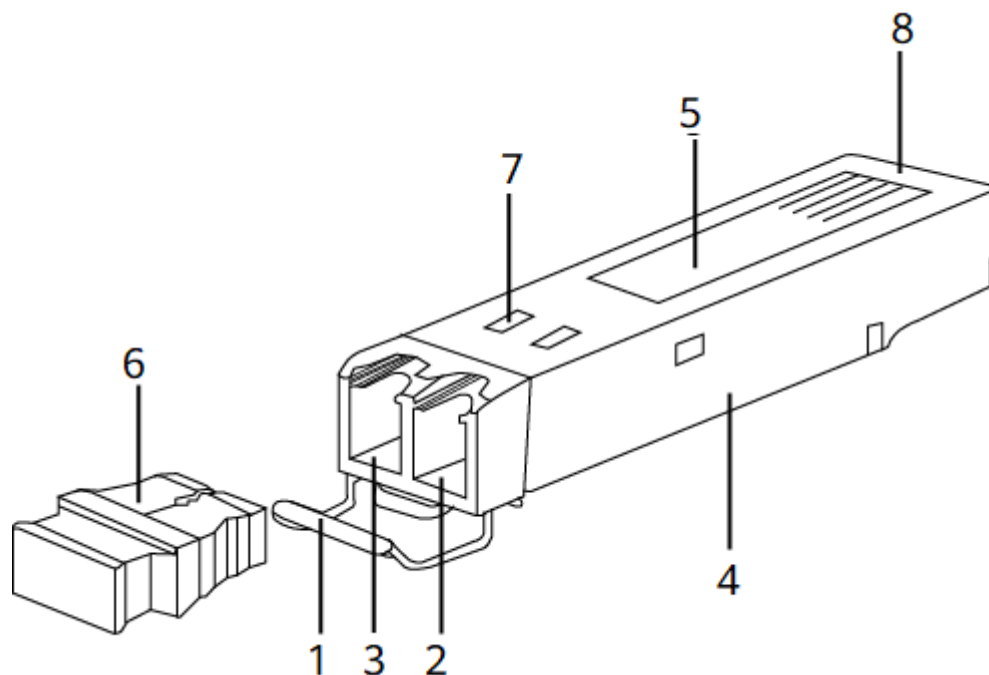
- Some non-Huawei-certified switch optical modules are not designed in compliance with EMC standards and have low anti-interference capability. Additionally, they bring electromagnetic interference to nearby devices.
- The operating temperature ranges of non-Huawei-certified switch optical modules cannot meet service requirements. When they are used under relatively high temperature, the optical power decreases, resulting in service interruption.

7.2 Understanding Optical Modules

7.2.1 What Is an Optical Module

On an optical network, a sender needs to convert electrical signals into optical signals before sending them to a receiver, and the receiver needs to convert received optical signals into electrical signals. An optical module is a component that completes electrical/optical conversion on an optical network. [Figure 7-2](#) shows the structure of an optical module.

Figure 7-2 Structure of an optical module (using an SFP/eSFP optical module as an example)



1. Handle	2. Receiver	3. Transmitter
4. Shell	5. Label	6. Dust plug
7. Spring	8. Connector	-

Figure 7-3 shows an SFP/eSFP optical module.

Figure 7-3 SFP/eSFP optical module



7.2.2 Parameter Description

Transmit optical power	Output optical power of an optical module when it is working properly. When two optical modules are connected, the transmit optical power of one end must be within the range of receive optical power on the other end.
Receive optical power	Average input optical power that the receiver of an optical module can receive within a range of bit error rate (BER = 10 ⁻¹²). The upper limit of this parameter is the overload optical power and the lower limit is the maximum receiver sensitivity. When two optical modules are connected, the receive optical power on one end determines the range of transmit optical power on the other end.

Maximum receiver sensitivity	Minimum average input optical power that the receiver of an optical module can receive within a range of bit error rate ($BER = 10^{-12}$). When two optical modules are connected, the maximum receiver sensitivity on one end determines the minimum value of transmit optical power on the other end.
Overload optical power	Maximum average input optical power that the receiver of an optical module can receive within a range of bit error rate ($BER = 10^{-12}$). When two optical modules are connected, the overload optical power on one end determines the maximum transmit optical power on the other end.
Extinction ratio	Minimum ratio of the average optical power with signals transmitted against the average optical power without signals transmitted in complete modulation mode. The extinction ratio indicates the capability of an optical module to identify signal 0 and signal 1. This parameter is a quality indicator for optical modules. Optical modules with a large extinction ratio may not have good quality. Qualified optical modules should have an extinction ratio complying with IEEE 802.3.
Fiber mode	Mode of optical fibers defined based on core diameters and features of optical fibers. Optical fibers are classified into single-mode and multimode fibers. Generally, multimode fibers have large core diameters and severe dispersion, so they transmit optical signals over short distances. Single-mode fibers have low dispersion and can transmit optical signals over long distances.
Modal bandwidth	Bandwidth measured at a point with transmit power several dB lower than that of the point with the peak center wavelength. Modal bandwidth reflects spectrum characteristics of multimode fibers. The higher modal bandwidth a multimode fiber has, the longer transmission distance the fiber supports.
Fiber diameter	Diameter of the core of a fiber. According to international standards for optical fibers, the diameter of a multimode fiber is 62.5 μm or 50 μm , and the diameter of a single-mode fiber is 9 μm . Select optical fibers with diameters supported by the optical modules.
Fiber class	Optical signals with different wavelengths have their best working windows in different optical fibers. To help efficiently adjust wavelengths or dispersion features of optical fibers and change their refractive indexes, the following fiber classes are defined: multimode fiber (G.651), common single-mode fiber (G.652), shifted dispersion fiber (G.653), and non-zero shifted dispersion fiber (G.655). G.651 and G.652 are commonly used fiber classes. Optical fibers of higher classes support longer transmission distances. When selecting optical fibers for optical modules, determine the classes of fibers based on the required transmission distances.

Connector type	Type of the interface on an optical module to accommodate a fiber. Commonly used connector types are LC (applicable to all the SFP, SFP+, and XFP modules), SC, and MPO (applicable to 150 m QSFP+ and CXP modules). Select optical fibers with connectors supported by the optical modules.
Transmission distance	Maximum distance over which optical signals can transmit. Optical signals sent from different types of sources can transmit over different distances due to negative effects of optical fibers, such as dispersion and attenuation. When connecting optical interfaces, select optical modules and fibers based on the maximum signal transmission distance.
Interface rate	Maximum rate of electrical signals that an optical component can transmit without bit errors. The interface rates defined in Ethernet standards include 125 Mbit/s, 1.25 Gbit/s, 10.3125 Gbit/s, and 41.25 Gbit/s. When connecting optical interfaces, select optical modules and fibers based on the maximum signal transmission rate.
Center wavelength	Wavelength measured at the midpoint of the half-amplitude line in the transmit spectrum. Two connected optical modules must have the same center wavelength.
MSA	Multi-Source Agreement, a non-profit organization jointly established by optical module manufacturers. This agreement defines the structure and dimensions of optical transceivers by referring to Optical Internetworking Forum (OIF) and International Telecommunication Union (ITU) standards.

7.2.3 Rules for Optical Module Interoperation

Interoperation Rules

Optical modules with the same standards can interoperate with each other. The standards define the rate, wavelength, and transmission distance of optical modules, but not their encapsulation modes (two interoperated optical modules can have different encapsulation modes).

If you need to achieve interoperability between optical modules with different standards, contact technical support personnel.

When S series devices are connected to other products such as routers, comply with the preceding optical module interoperation rules.

Standards Description

The following describes the standards, using 1000BASE-LX10 as an example:

- 1000 indicates the rate (1000 Mbit/s, in this case). Other rates include 10 Mbit/s, 100 Mbit/s, 10 Gbit/s, 40 Gbit/s, and 100 Gbit/s.
- BASE indicates baseband transmission.
- L represents a center wavelength of the laser. Currently, the following center wavelengths are available: S (short wavelength: 850 nm), L (long wavelength:

1310 nm), E (extra long wavelength: 1550 nm), and B (single-fiber bidirectional long wavelength).

- X represents the encoding format. The encoding formats include T (twisted pair), X (8B/10B), R (64B/66B), and W (WIS).
- 10 indicates the number of channels. Currently, the value can be 4 or 10. If there is no number, the value is 1.

 NOTE

This example provides the definitions in IEEE standards, which are not applicable to all optical modules, for example, non-standard optical modules.

The following organizations or agreements define standards related to optical modules:

- IEEE 802.3, which defines MAC and PHY standards
- Small Form Factor (SFF) committee or Multi-Source Agreements (MSAs), which define optical module hardware, software, and structure standards

7.3 FE SFP/eSFP Optical Modules

7.3.1 SFP-FE-SX-MM1310

Table 7-1 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)
Digital diagnostic monitoring (DDM)	Not supported
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

Item	Value
Minimum Tx optical power [dBm]	-19.0 dBm
Minimum extinction ratio [dB]	10 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-30.0 dBm
Overload power [dBm]	-14.0 dBm

7.4 GE eSFP Optical Modules

7.4.1 SFP-GE-BXU1-SC

Table 7-2 SFP-GE-BXU1-SC specifications

Item	Value
Basic Information	
Module name	SFP-GE-BXU1-SC
Part Number	02310TQH
Model	SFP-GE-BXU1-SC
Form factor	eSFP
Application standard	Non-standard
Connector type	SC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm (RX) 1490 nm (TX)
Maximum Tx optical power [dBm]	-3.0 dBm
Minimum Tx optical power [dBm]	-9.0 dBm
Minimum extinction ratio [dB]	9 dB

Item	Value
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-19.5 dBm
Overload power [dBm]	-3.0 dBm
NOTE This module supports the single-fiber bidirectional function.	

7.4.2 SFP-GE-LX-SM1310 (02315200)

Table 7-3 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 (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	-3.0 dBm
Minimum Tx optical power [dBm]	-9.0 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-20.0 dBm
Overload power [dBm]	-3.0 dBm

7.4.3 SFP-GE-LX-SM1310-BIDI (02315285)

Table 7-4 SFP-GE-LX-SM1310-BIDI specifications

Item	Value
Basic Information	
Module name	SFP-GE-LX-SM1310-BIDI
Part Number	02315285
Model	SFP-GE-LX-SM1310-BIDI
Form factor	eSFP
Application standard	1000BASE-BX10
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1490 nm (RX) 1310 nm (TX)
Maximum Tx optical power [dBm]	-3.0 dBm
Minimum Tx optical power [dBm]	-9.0 dBm
Minimum extinction ratio [dB]	6 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-19.5 dBm
Overload power [dBm]	-3.0 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-LX-SM1310-BIDI must be used with SFP-GE-LX-SM1490-BIDI.	

7.4.4 SFP-GE-LX-SM1490-BIDI (02315286)

Table 7-5 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-BX10
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm (RX) 1490 nm (TX)
Maximum Tx optical power [dBm]	-3.0 dBm
Minimum Tx optical power [dBm]	-9.0 dBm
Minimum extinction ratio [dB]	6 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-19.5 dBm
Overload power [dBm]	-3.0 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-LX-SM1490-BIDI must be used with SFP-GE-LX-SM1310-BIDI.	

7.4.5 SFP-GE-LX10-C

Table 7-6 SFP-GE-LX10-C specifications

Item	Value
Basic Information	
Module name	SFP-GE-LX10-C
Part Number	02312UUC
Model	SFP-GE-LX10-C
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 (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	-3.0 dBm
Minimum Tx optical power [dBm]	-9.0 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-20.0 dBm
Overload power [dBm]	-3.0 dBm

7.4.6 SFP-GE-SX-C (02312UUB)

Table 7-7 SFP-GE-SX-C specifications

Item	Value
Basic Information	
Module name	SFP-GE-SX-C

Item	Value
Part Number	02312UUB
Model	SFP-GE-SX-C
Form factor	eSFP
Application standard	1000BASE-SX
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	-20°C to +85°C (-4°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km Multimode fiber (OM1): 0.275 km Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km Multimode fiber (OM2): 0.55 km Multimode fiber (OM3/OM4): 1 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 [dBm]	-17.0 dBm
Overload power [dBm]	0 dBm

7.4.7 eSFP-GE-SX-MM850 (02315204)

Table 7-8 eSFP-GE-SX-MM850 specifications

Item	Value
Basic Information	

Item	Value
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 (-4°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km Multimode fiber (OM1): 0.275 km Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km Multimode fiber (OM2): 0.55 km Multimode fiber (OM3/OM4): 1 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 [dBm]	-17.0 dBm
Overload power [dBm]	0 dBm

7.4.8 OGSC10DD0

Table 7-9 OGSC10DD0 specifications

Item	Value
Basic Information	
Module name	OGSC10DD0
Part Number	02310LJH
Model	OGSC10DD0
Form factor	eSFP
Application standard	1000BASE-LX10/LH
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	-3.0 dBm
Minimum Tx optical power [dBm]	-9.0 dBm
Minimum extinction ratio [dB]	9.5 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-19 dBm
Overload power [dBm]	-3.0 dBm

7.4.9 OGSM01880

Table 7-10 OGSM01880 specifications

Item	Value
Basic Information	
Module name	OGSM01880

Item	Value
Part Number	02310LJG
Model	OGSM01880
Form factor	eSFP
Application standard	1000BASE-SX
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km Multimode fiber (OM1): 0.275 km Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km Multimode fiber (OM2): 0.55 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	-2.5 dBm
Minimum Tx optical power [dBm]	-10 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-17.0 dBm
Overload power [dBm]	0 dBm

7.4.10 SFP-GE-BX-D1-I

Table 7-11 SFP-GE-BX-D1-I specifications

Item	Value
Basic Information	
Module name	SFP-GE-BX-D1-I

Item	Value
Part Number	02311DMA
Model	SFP-GE-BX-D1-I
Form factor	SFP
Application standard	1000BASE-BX
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm (RX) 1490 nm (TX)
Maximum Tx optical power [dBm]	-3 dBm
Minimum Tx optical power [dBm]	-9 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-19.5 dBm
Overload power [dBm]	-3 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-BX-D1-I must be used with SFP-GE-BX-U1-I.	

7.4.11 SFP-GE-BX-U1-I

Table 7-12 SFP-GE-BX-U1-I specifications

Item	Value
Basic Information	
Module name	SFP-GE-BX-U1-I
Part Number	02311DMF

Item	Value
Model	SFP-GE-BX-U1-I
Form factor	SFP
Application standard	1000BASE-BX
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1490 nm (RX) 1310 nm (TX)
Maximum Tx optical power [dBm]	-3 dBm
Minimum Tx optical power [dBm]	-9 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-19.5 dBm
Overload power [dBm]	-3 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-BX-D1-I must be used with SFP-GE-BX-U1-I.	

7.4.12 eSFP-GE-SX-MM850 (02313URD)

Table 7-13 eSFP-GE-SX-MM850 specifications

Item	Value
Basic Information	
Module name	eSFP-GE-SX-MM850
Part Number	02313URD
Model	eSFP-GE-SX-MM850

Item	Value
Form factor	eSFP
Application standard	1000BASE-SX
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	-20°C to +85°C (-4°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km Multimode fiber (OM1): 0.275 km Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km Multimode fiber (OM2): 0.55 km Multimode fiber (OM3/OM4): 1 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 [dBm]	-17.0 dBm
Overload power [dBm]	0 dBm

7.4.13 SFP-GE-LX-SM1310 (02313URF)

Table 7-14 SFP-GE-LX-SM1310 specifications

Item	Value
Basic Information	
Module name	SFP-GE-LX-SM1310
Part Number	02313URF

Item	Value
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 (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	-3.0 dBm
Minimum Tx optical power [dBm]	-9.0 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-20.0 dBm
Overload power [dBm]	-3.0 dBm

7.4.14 SFP-GE-SX-C (02314KKF)

Table 7-15 SFP-GE-SX-C specifications

Item	Value
Basic Information	
Module name	SFP-GE-SX-C
Part Number	02314KKF
Model	SFP-GE-SX-C
Form factor	eSFP
Application standard	1000BASE-SX
Connector type	LC
Optical fiber type	MMF

Item	Value
Working case temperature [°C(°F)]	-20°C to +85°C (-4°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km Multimode fiber (OM1): 0.275 km Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km Multimode fiber (OM2): 0.55 km Multimode fiber (OM3/OM4): 1 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 [dBm]	-17.0 dBm
Overload power [dBm]	0 dBm

7.4.15 SFP-GE-LX-SM1310-BIDI (02314KKJ)

Table 7-16 SFP-GE-LX-SM1310-BIDI specifications

Item	Value
Basic Information	
Module name	SFP-GE-LX-SM1310-BIDI
Part Number	02314KKJ
Model	SFP-GE-LX-SM1310-BIDI
Form factor	eSFP
Application standard	1000BASE-BX10
Connector type	LC

Item	Value
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1490 nm (RX) 1310 nm (TX)
Maximum Tx optical power [dBm]	-3.0 dBm
Minimum Tx optical power [dBm]	-9.0 dBm
Minimum extinction ratio [dB]	6 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-19.5 dBm
Overload power [dBm]	-3.0 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-LX-SM1310-BIDI must be used with SFP-GE-LX-SM1490-BIDI.	

7.4.16 SFP-GE-LX-SM1490-BIDI (02314KKH)

Table 7-17 SFP-GE-LX-SM1490-BIDI specifications

Item	Value
Basic Information	
Module name	SFP-GE-LX-SM1490-BIDI
Part Number	02314KKH
Model	SFP-GE-LX-SM1490-BIDI
Form factor	eSFP
Application standard	1000BASE-BX10
Connector type	LC
Optical fiber type	SMF

Item	Value
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm (RX) 1490 nm (TX)
Maximum Tx optical power [dBm]	-3.0 dBm
Minimum Tx optical power [dBm]	-9.0 dBm
Minimum extinction ratio [dB]	6 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-19.5 dBm
Overload power [dBm]	-3.0 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-LX-SM1490-BIDI must be used with SFP-GE-LX-SM1310-BIDI.	

7.5 2.5GE eSFP Optical Modules

7.5.1 SFP-2.5G-FR

Table 7-18 SFP-2.5G-FR specifications

Item	Value
Basic Information	
Module name	SFP-2.5G-FR
Part Number	02314LBD
Model	SFP-2.5G-FR
Form factor	eSFP
Application standard	1000BASE-LX/2.5G_FR
Connector type	LC

Item	Value
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 75°C (32°F to 167°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s 2.5 Gbit/s
Target transmission distance [km]	Single-mode fiber: - 2.5GE: 2 km - GE: 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]	2.5GE: 6.0 GE: 8.0
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-18 dBm
Overload power [dBm]	-3 dBm

7.5.2 SFP-2.5G-SR-I

Table 7-19 SFP-2.5G-SR-I specifications

Item	Value
Basic Information	
Module name	SFP-2.5G-SR-I
Part Number	02314LBB
Model	SFP-2.5G-SR-I
Form factor	eSFP
Application standard	2.5G_SR
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40.00°F to +185.00°F)

Item	Value
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	2.5 Gbit/s
Target transmission distance [km]	Multimode fiber (OM1): 0.032 km Multimode fiber (OM2): 0.12 km Multimode fiber (OM3): 0.3 km Multimode fiber (OM4): 0.3 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	-1 dBm
Minimum Tx optical power [dBm]	-9 dBm
Minimum extinction ratio [dB]	3 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-17 dBm
Overload power [dBm]	-1 dBm

7.5.3 eSFP-2.5G-iLR-BXD1

Table 7-20 eSFP-2.5G-iLR-BXD1 specifications

Item	Value
Basic Information	
Module name	eSFP-2.5G-iLR-BXD1
Part Number	02314VYF
Model	eSFP-2.5G-iLR-BXD1
Form factor	eSFP
Application standard	Non-standard
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	2.5 Gbit/s

Item	Value
Target transmission distance [km]	Single-mode fiber: 2 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm (RX) 1490 nm (TX)
Maximum Tx optical power [dBm]	4.0 dBm
Minimum Tx optical power [dBm]	-2.0 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-26 dBm
Overload power [dBm]	-3.0 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, eSFP-2.5G-iLR-BXD1 must be used with eSFP-2.5G-iLR-BXU1.	

7.5.4 SFP-2.5G-LR

Table 7-21 SFP-2.5G-LR specifications

Item	Value
Basic Information	
Module name	SFP-2.5G-LR
Part Number	02315BSU
Model	SFP-2.5G-LR
Form factor	eSFP
Application standard	2.5G_LR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 75°C (32°F to 167°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	2.5 Gbit/s
Target transmission distance [km]	10 km

Item	Value
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]	2.5GE: 6.0 GE: 8.0
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-18 dBm
Overload power [dBm]	-3 dBm

7.5.5 eSFP-2.5G-iLR-BXU1

Table 7-22 eSFP-2.5G-iLR-BXU1 specifications

Item	Value
Basic Information	
Module name	eSFP-2.5G-iLR-BXU1
Part Number	02314VYJ
Model	eSFP-2.5G-iLR-BXU1
Form factor	eSFP
Application standard	Non-standard
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	2.5 Gbit/s
Target transmission distance [km]	Single-mode fiber: 2 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1490 nm (RX) 1310 nm (TX)
Maximum Tx optical power [dBm]	4.0 dBm

Item	Value
Minimum Tx optical power [dBm]	-2.0 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-26 dBm
Overload power [dBm]	-3.0 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, eSFP-2.5G-iLR-BXD1 must be used with eSFP-2.5G-iLR-BXU1.	

7.6 10GE SFP+ Optical Modules

7.6.1 OMXD30000 (02318169)

Table 7-23 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
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s

Item	Value
Target transmission distance [km]	Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.026 km Multimode fiber (OM1): 0.033 km Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.066 km Multimode fiber (OM2): 0.082 km Multimode fiber (OM3): 0.3 km Multimode fiber (OM4): 0.4 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	-1.0 dBm
Minimum Tx optical power [dBm]	-7.3 dBm
Minimum extinction ratio [dB]	3.0 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-11.1 dBm
Overload power [dBm]	-1.0 dBm

7.6.2 OSX010000 (02318170)

Table 7-24 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 (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported

Item	Value
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-12.6 dBm
Overload power [dBm]	0.5 dBm

7.6.3 SFP-10G-LR-C (02312UUG)

Table 7-25 SFP-10G-LR-C specifications

Item	Value
Basic Information	
Module name	SFP-10G-LR-C
Part Number	02312UUG
Model	SFP-10G-LR-C
Form factor	SFP+
Application standard	10GBASE-LR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm
Maximum Tx optical power [dBm]	0.5 dBm

Item	Value
Minimum Tx optical power [dBm]	-8.2 dBm
Minimum extinction ratio [dB]	3.5 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-12.6 dBm
Overload power [dBm]	0.5 dBm

7.6.4 SFP-10G-SR-C

Table 7-26 SFP-10G-SR-C specifications

Item	Value
Basic Information	
Module name	SFP-10G-SR-C
Part Number	02312UUE
Model	SFP-10G-SR-C
Form factor	SFP+
Application standard	10GBASE-SR
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.026 km Multimode fiber (OM1): 0.033 km Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.066 km Multimode fiber (OM2): 0.082 km Multimode fiber (OM3): 0.3 km Multimode fiber (OM4): 0.4 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm

Item	Value
Maximum Tx optical power [dBm]	-1.0 dBm
Minimum Tx optical power [dBm]	-7.3 dBm
Minimum extinction ratio [dB]	3.0 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-11.1 dBm
Overload power [dBm]	-1.0 dBm

7.6.5 SFP-10G-USR (02310MNW)

Table 7-27 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 (non-standard)
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Multimode fiber (OM3): 0.1 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	-1.0 dBm
Minimum Tx optical power [dBm]	-7.3 dBm
Minimum extinction ratio [dB]	3.0 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-10.7 dBm

Item	Value
Overload power [dBm]	0.5 dBm

7.6.6 OMXD30000 (02313URC)

Table 7-28 OMXD30000 specifications

Item	Value
Basic Information	
Module name	OMXD30000
Part Number	02313URC
Model	OMXD30000
Form factor	SFP+
Application standard	10GBASE-SR
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.026 km Multimode fiber (OM1): 0.033 km Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.066 km Multimode fiber (OM2): 0.082 km Multimode fiber (OM3): 0.3 km Multimode fiber (OM4): 0.4 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	-1.0 dBm
Minimum Tx optical power [dBm]	-7.3 dBm
Minimum extinction ratio [dB]	3.0 dB
Receiver Optical Characteristics	

Item	Value
Rx sensitivity [dBm]	-11.1 dBm
Overload power [dBm]	-1.0 dBm

7.6.7 OSX010000 (02313URK)

Table 7-29 OSX010000 specifications

Item	Value
Basic Information	
Module name	OSX010000
Part Number	02313URK
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 (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-12.6 dBm
Overload power [dBm]	0.5 dBm

7.6.8 SFP-10G-USR (02313URN)

Table 7-30 SFP-10G-USR specifications

Item	Value
Basic Information	
Module name	SFP-10G-USR
Part Number	02313URN
Model	SFP-10G-USR
Form factor	SFP+
Application standard	10GBASE-USR (non-standard)
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Multimode fiber (OM3): 0.1 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	-1.0 dBm
Minimum Tx optical power [dBm]	-7.3 dBm
Minimum extinction ratio [dB]	3.0 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-10.7 dBm
Overload power [dBm]	0.5 dBm

7.6.9 SFP+10GE-LH10-SM1310

Table 7-31 SFP+10GE-LH10-SM1310 specifications

Item	Value
Basic Information	
Module name	SFP+10GE-LH10-SM1310

Item	Value
Part Number	02311MUU
Model	SFP+10GE-LH10-SM1310
Form factor	SFP+
Application standard	10GBASE-LR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm

7.6.10 SFP-10G-BXD1

Table 7-32 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-BX
Connector type	LC

Item	Value
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1270 nm (RX) 1330 nm (TX)
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 [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-10G-BXD1 must be used with SFP-10G-BXU1.	

7.6.11 SFP-10G-BXU1

Table 7-33 SFP-10G-BXU1 specifications

Item	Value
Basic Information	
Module name	SFP-10G-BXU1
Part Number	02310QBJ
Model	SFP-10G-BXU1
Form factor	SFP+
Application standard	10GBASE-BX
Connector type	LC
Optical fiber type	SMF

Item	Value
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1330 nm (RX) 1270 nm (TX)
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 [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-10G-BXU1 must be used with SFP-10G-BXD1.	

7.6.12 SFP-10G-SR

Table 7-34 SFP-10G-SR specifications

Item	Value
Basic Information	
Module name	SFP-10G-SR
Part Number	02311SKW
Model	SFP-10G-SR
Form factor	SFP+
Application standard	10GBASE-SR
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 85°C (32°F to 185°F)

Item	Value
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Multimode fiber (OM3): 0.3 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	-1.0 dBm
Minimum Tx optical power [dBm]	-7.3 dBm
Minimum extinction ratio [dB]	3.0 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-11.1 dBm
Overload power [dBm]	-1.0 dBm

7.6.13 SFP-10G-iLR

Table 7-35 SFP-10G-iLR specifications

Item	Value
Basic Information	
Module name	SFP-10G-iLR
Part Number	02311BJJ
Model	SFP-10G-iLR
Form factor	SFP+
Application standard	10GBASE-iLR (non-standard)
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode optical fiber: 1.4 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm

Item	Value
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 [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm

7.6.14 SFP-10G-iLR-C

Table 7-36 SFP-10G-iLR-C specifications

Item	Value
Basic Information	
Module name	SFP-10G-iLR-C
Part Number	02312UUF
Model	SFP-10G-iLR-C
Form factor	SFP+
Application standard	10GBASE-iLR (non-standard)
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode optical fiber: 1.4 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-14.4 dBm

Item	Value
Overload power [dBm]	0.5 dBm

7.6.15 SFP-10G-LR-I (02313ABG)

Table 7-37 SFP-10G-LR-I specifications

Item	Value
Basic Information	
Module name	SFP-10G-LR-I
Part Number	02313ABG
Model	SFP-10G-LR-I
Form factor	SFP+
Application standard	10GBASE-LR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm

7.6.16 SFP-10G-LR (02313URL)

Table 7-38 SFP-10G-LR specifications

Item	Value
Basic Information	
Module name	SFP-10G-LR
Part Number	02313URL
Model	SFP-10G-LR
Form factor	SFP+
Application standard	10GBASE-LR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10Gbit/s
Target transmission distance [km]	Single-mode (G.652) optical fiber (diameter: 9 μm): 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-12.6 dBm
Overload power [dBm]	0.5 dBm

7.6.17 SFP-10G-LR-C (02314KKE)

Table 7-39 SFP-10G-LR-C specifications

Item	Value
Basic Information	
Module name	SFP-10G-LR-C

Item	Value
Part Number	02314KKE
Model	SFP-10G-LR-C
Form factor	SFP+
Application standard	10GBASE-LR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-12.6 dBm
Overload power [dBm]	0.5 dBm

7.6.18 SFP-10G-LR (02310QDJ)

Table 7-40 SFP-10G-LR specifications

Item	Value
Basic Information	
Module name	SFP-10G-LR
Part Number	02310QDJ
Model	SFP-10G-LR
Form factor	SFP+
Application standard	10GBASE-LR
Connector type	LC

Item	Value
Optical fiber type	SMF
Working case temperature [°C(°F)]	0°C to 70°C (32°F to 158°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10Gbit/s
Target transmission distance [km]	Single-mode (G.652) optical fiber (diameter: 9 μm): 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-12.6 dBm
Overload power [dBm]	0.5 dBm

7.6.19 SFP-10G-LR-I (02314LBW)

Table 7-41 SFP-10G-LR-I specifications

Item	Value
Basic Information	
Module name	SFP-10G-LR-I
Part Number	02314LBW
Model	SFP-10G-LR-I
Form factor	SFP+
Application standard	10GBASE-LR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s

Item	Value
Target transmission distance [km]	Single-mode fiber: 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm

7.7 Industrial Optical Modules

7.7.1 OGSC10DD0

Table 7-42 OGSC10DD0 specifications

Item	Value
Basic Information	
Module name	OGSC10DD0
Part Number	02310LJH
Model	OGSC10DD0
Form factor	eSFP
Application standard	1000BASE-LX10/LH
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm

Item	Value
Maximum Tx optical power [dBm]	-3.0 dBm
Minimum Tx optical power [dBm]	-9.0 dBm
Minimum extinction ratio [dB]	9.5 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-19 dBm
Overload power [dBm]	-3.0 dBm

7.7.2 OGSM01880

Table 7-43 OGSM01880 specifications

Item	Value
Basic Information	
Module name	OGSM01880
Part Number	02310LJG
Model	OGSM01880
Form factor	eSFP
Application standard	1000BASE-SX
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km Multimode fiber (OM1): 0.275 km Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km Multimode fiber (OM2): 0.55 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm

Item	Value
Maximum Tx optical power [dBm]	-2.5 dBm
Minimum Tx optical power [dBm]	-10 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-17.0 dBm
Overload power [dBm]	0 dBm

7.7.3 SFP-GE-BX-D1-I

Table 7-44 SFP-GE-BX-D1-I specifications

Item	Value
Basic Information	
Module name	SFP-GE-BX-D1-I
Part Number	02311DMA
Model	SFP-GE-BX-D1-I
Form factor	SFP
Application standard	1000BASE-BX
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1310 nm (RX) 1490 nm (TX)
Maximum Tx optical power [dBm]	-3 dBm
Minimum Tx optical power [dBm]	-9 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	

Item	Value
Rx sensitivity [dBm]	-19.5 dBm
Overload power [dBm]	-3 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-BX-D1-I must be used with SFP-GE-BX-U1-I.	

7.7.4 SFP-GE-BX-U1-I

Table 7-45 SFP-GE-BX-U1-I specifications

Item	Value
Basic Information	
Module name	SFP-GE-BX-U1-I
Part Number	02311DMF
Model	SFP-GE-BX-U1-I
Form factor	SFP
Application standard	1000BASE-BX
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1490 nm (RX) 1310 nm (TX)
Maximum Tx optical power [dBm]	-3 dBm
Minimum Tx optical power [dBm]	-9 dBm
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-19.5 dBm

Item	Value
Overload power [dBm]	-3 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-BX-D1-I must be used with SFP-GE-BX-U1-I.	

7.7.5 SFP+10GE-LH10-SM1310

Table 7-46 SFP+10GE-LH10-SM1310 specifications

Item	Value
Basic Information	
Module name	SFP+10GE-LH10-SM1310
Part Number	02311MUU
Model	SFP+10GE-LH10-SM1310
Form factor	SFP+
Application standard	10GBASE-LR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm

7.7.6 SFP-10G-BXD1

Table 7-47 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-BX
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1270 nm (RX) 1330 nm (TX)
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 [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-10G-BXD1 must be used with SFP-10G-BXU1.	

7.7.7 SFP-10G-BXU1

Table 7-48 SFP-10G-BXU1 specifications

Item	Value
Basic Information	
Module name	SFP-10G-BXU1
Part Number	02310QBJ
Model	SFP-10G-BXU1
Form factor	SFP+
Application standard	10GBASE-BX
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km
Transmitter Optical Characteristics	
Center wavelength [nm]	1330 nm (RX) 1270 nm (TX)
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 [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm
NOTE Supports the single-fiber bidirectional function. Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-10G-BXU1 must be used with SFP-10G-BXD1.	

7.7.8 SFP-10G-SR

Table 7-49 SFP-10G-SR specifications

Item	Value
Basic Information	
Module name	SFP-10G-SR
Part Number	02311SKW
Model	SFP-10G-SR
Form factor	SFP+
Application standard	10GBASE-SR
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	0°C to 85°C (32°F to 185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Multimode fiber (OM3): 0.3 km
Transmitter Optical Characteristics	
Center wavelength [nm]	850 nm
Maximum Tx optical power [dBm]	-1.0 dBm
Minimum Tx optical power [dBm]	-7.3 dBm
Minimum extinction ratio [dB]	3.0 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-11.1 dBm
Overload power [dBm]	-1.0 dBm

7.7.9 SFP-10G-iLR

Table 7-50 SFP-10G-iLR specifications

Item	Value
Basic Information	
Module name	SFP-10G-iLR

Item	Value
Part Number	02311BJJ
Model	SFP-10G-iLR
Form factor	SFP+
Application standard	10GBASE-iLR (non-standard)
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode optical fiber: 1.4 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm

7.7.10 SFP-10G-iLR-C

Table 7-51 SFP-10G-iLR-C specifications

Item	Value
Basic Information	
Module name	SFP-10G-iLR-C
Part Number	02312UUF
Model	SFP-10G-iLR-C
Form factor	SFP+
Application standard	10GBASE-iLR (non-standard)
Connector type	LC

Item	Value
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode optical fiber: 1.4 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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm

7.7.11 SFP-10G-LR-I (02313ABG)

Table 7-52 SFP-10G-LR-I specifications

Item	Value
Basic Information	
Module name	SFP-10G-LR-I
Part Number	02313ABG
Model	SFP-10G-LR-I
Form factor	SFP+
Application standard	10GBASE-LR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 10 km

Item	Value
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
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm

7.7.12 SFP-10G-LR-I (02314LBW)

Table 7-53 SFP-10G-LR-I specifications

Item	Value
Basic Information	
Module name	SFP-10G-LR-I
Part Number	02314LBW
Model	SFP-10G-LR-I
Form factor	SFP+
Application standard	10GBASE-LR
Connector type	LC
Optical fiber type	SMF
Working case temperature [°C(°F)]	-40°C to +85°C (-40°F to +185°F)
Digital diagnostic monitoring (DDM)	Supported
Transmission rate [bit/s]	10 Gbit/s
Target transmission distance [km]	Single-mode fiber: 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 [dBm]	-14.4 dBm
Overload power [dBm]	0.5 dBm