S380 Multi-Service Gateway

Hardware Description

Issue	01
Date	2023-09-30

HUAWEI TECHNOLOGIES CO., LTD.

Trademarks and Permissions


and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.
All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

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

Contents

1 About This Document

Intended Audience

This document provides an overall description of the device hardware, helping you obtain detailed information about each chassis, cable, 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
NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
NOTE	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Command Conventions

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

Convention	Description
Boldface	The keywords of a command line are in **boldface**.
Italic	Command arguments are in *italics*.
[ ]	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

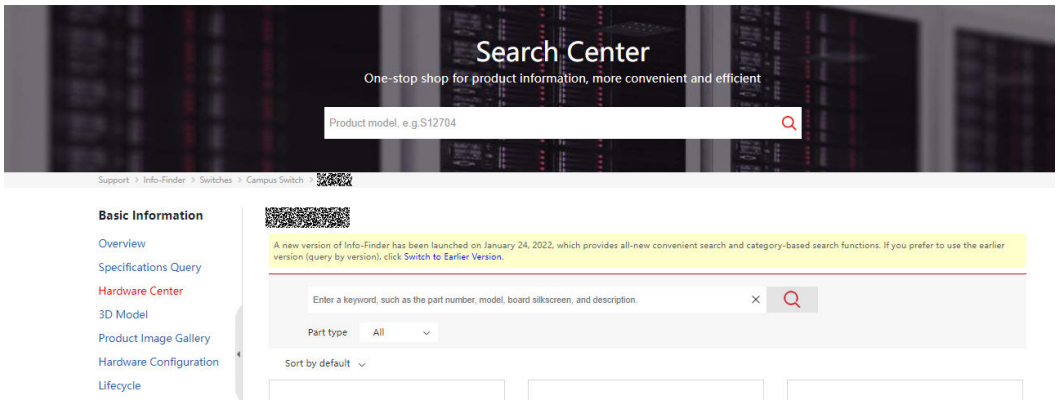
The dimensions described in this document are theoretically typical dimensions and do not include dimension tolerances.

2 Using the Info-Finder

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.

Figure 2-1 Info-Finder GUI



NOTE

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

Heat consumption (BTUs per 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

Huawei S380 series devices are integrated with the routing and switching functions.

4.2 Naming Conventions

Figure 4-1 S380 naming conventions

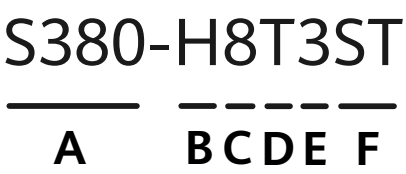


Table 4-1 S380 naming convention description

Identifier	Description
A	Product series (4 characters) • S380: S380 series

Identifier	Description
B	Level type (1 character) • **H**: high-level • **S**: standard • **L**: lightweight
C	Number of downlink ports (1 or 2 characters)
D	Downlink port type (1 or 2 characters) • **T**: GE electrical port • **P**: GE electrical port, supporting PoE+
E	Number of uplink ports (1 character)
F	Uplink port type (1 or 2 characters) • **T**: GE electrical port • **S**: GE optical port • **ST**: GE optical port and GE electrical port

4.3 S380

4.3.1 S380-L4T1T

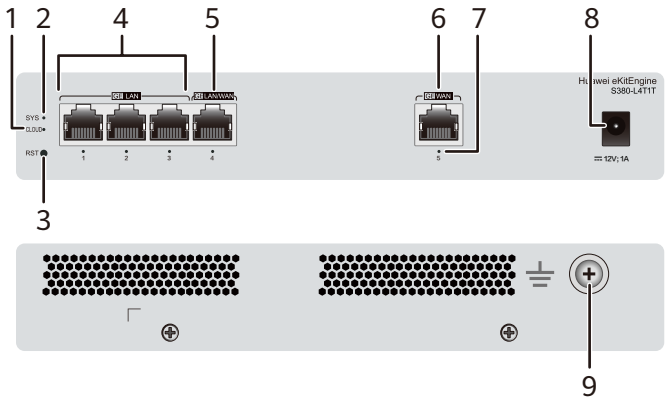
Overview

Table 4-2 Basic information about the S380-L4T1T

Item	Details
Description	S380-L4T1T, 1*GE WAN, 4*GE LAN
Part Number	98012177
Model	S380-L4T1T
First supported version	V600R022C10

Components

Figure 4-2 S380-L4T1T appearance



1	CLOUD indicator	2	SYS indicator
3	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.	4	Three GE LAN electrical ports
5	One GE LAN/WAN electrical port	6	One GE WAN electrical port
7	Port indicator	8	Power adapter socket **NOTE** Use the power adapter (12 V 1 A) delivered with the device.
9	Ground screw	-	-

Ports

Table 4-3 Ports on the S380-L4T1T

Port	Connector Type	Description	Available Components
GE LAN electrical port	RJ45	A GE LAN electrical port sends and receives LAN service data at 10/100/1000 Mbit/s.	**Ethernet cable**
GE WAN electrical port	RJ45	A GE WAN electrical port sends and receives WAN service data at 10/100/1000 Mbit/s.	**Ethernet cable**
GE LAN/WAN electrical port	RJ45	A GE LAN/WAN electrical port sends and receives LAN or WAN service data at 10/100/1000 Mbit/s.	**Ethernet cable**

Indicators and Buttons

Table 4-4 Description of indicators on the device

Indicator	Name	Color	Status	Description
SYS	System status indicator	-	Off	The system is not running or is in the reset state.
		Green	Fast blinking	The system is in the power-on loading or reset startup state.
		Green	Slow blinking	The system is running normally.

Indicator	Name	Color	Status	Description
		Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 15 seconds.
		Red	Steady on	The device cannot be started or the power supply is faulty.
Cloud	Cloud indicator	-	Off	The device is not in the cloud management state.
		Blue	Fast blinking	The device is connecting to the cloud.
		Blue	Slow blinking	The device is in the cloud management state.
		Blue	Steady on	The network is connected, and the WAN port obtains an IP address. **NOTE** This function is available in V600R023C00 and later versions.
-	Port indicator	-	Off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port. **NOTE** During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete.
		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 S380-L4T1T

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic dimensions (excluding the parts protruding from the body): 35.0 mm x 210.0 mm x 130.0 mm (1.38 in. x 8.27 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): 35.0 mm x 210.0 mm x 136.3 mm (1.38 in. x 8.27 in. x 5.37 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	90.0 mm x 285.0 mm x 180.0 mm (3.54 in. x 11.22 in. x 7.09 in.)
Chassis height [U]	0.8 U
Chassis material	Metal
Weight without packaging [kg(lb)]	0.8 kg (1.76 lb)
Weight with packaging [kg(lb)]	1.0 kg (2.2 lb)
Typical power consumption [W]	5.99 W
Typical heat dissipation [BTU/hour]	27.3 BTU/hour
Maximum power consumption [W]	6.11 W
Maximum heat dissipation [BTU/hour]	30.7 BTU/hour
Static power consumption [W]	4.25 W
MTBF [years]	77.35 years
MTTR [hours]	2 hours
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
Uplink ports	1 x GE WAN
Downlink ports	4 x GE LAN

Item	Specification
Redundant power supply	Not supported
Long-term operating temperature [°C(°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 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.).
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]	AC input: 100–240 V AC; 50/60 Hz
Input voltage range [V]	AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz Power adapter output: 12 V DC
Maximum input current [A]	1 A
Memory	DDR4: 512 MB
Flash memory	NAND Flash: 512 MB
Storage	-
Console port	Not supported
Eth Management port	LAN port
USB	Not supported
RTC	Not supported
RPS input	Not supported
Service port surge protection [kV]	Common mode: ±4 kV
Power supply surge protection [kV]	Power adapter: ±6 kV in differential mode and ±6 kV in common mode
Ingress protection level (dustproof/ waterproof)	IP20
Types of fans	None
Heat dissipation mode	Natural heat dissipation

Item	Specification
Airflow direction	-
PoE	Not supported
Certification	EMC certification Safety certification Manufacturing certification

4.3.2 S380-L4P1T

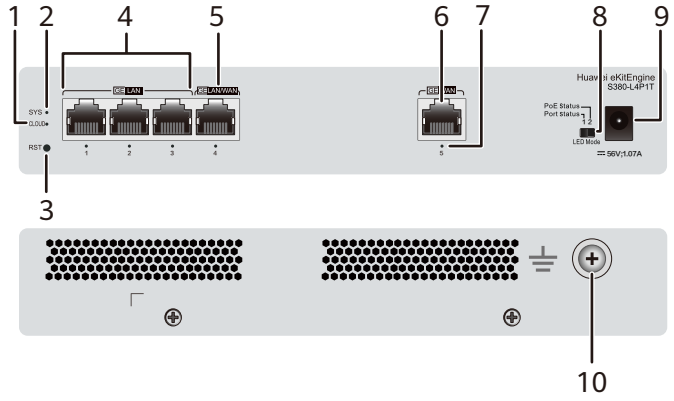
Overview

Table 4-6 Basic information about the S380-L4P1T

Item	Details
Description	S380-L4P1T, 1*GE WAN, 4*GE LAN(PoE +, 50W)
Part Number	98012178
Model	S380-L4P1T
First supported version	V600R022C10

Components

Figure 4-3 S380-L4P1T appearance



1	CLOUD indicator	2	SYS indicator

3	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.	4	Three GE PoE+ LAN electrical ports
5	One GE PoE+ LAN/WAN electrical port	6	One GE WAN electrical port
7	Port indicator	8	Port indicator status switch button **NOTE** Port status: The port indicator indicates the data transmission status of the port. PoE status: The port indicator indicates the PoE status of the port.
9	Power adapter socket **NOTE** Use the power adapter (56 V 1.07 A) delivered with the device.	10	Ground screw

Ports

Table 4-7 Ports on the S380-L4P1T

Port	Connector Type	Description	Available Components
GE PoE+ LAN electrical port	RJ45	A GE PoE+ LAN electrical port sends and receives LAN service data at 10/100/1000 Mbit/s. The port supports PoE function.	**Ethernet cable**

Port	Connector Type	Description	Available Components
GE WAN electrical port	RJ45	A GE WAN electrical port sends and receives WAN service data at 10/100/1000 Mbit/s.	Ethernet cable
GE PoE+ LAN/WAN electrical port	RJ45	A GE PoE+ LAN/WAN electrical port sends and receives LAN or WAN service data at 10/100/1000 Mbit/s. The port supports PoE function.	Ethernet cable

Indicators and Buttons

Table 4-8 Description of indicators on the device

Indicator	Name	Color	Status	Description
SYS	System status indicator	-	Off	The system is not running or is in the reset state.
		Green	Fast blinking	The system is in the power-on loading or reset startup state.
		Green	Slow blinking	The system is running normally.
		Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 15 seconds.
		Red	Steady on	The device cannot be started or the power supply is faulty.
Cloud	Cloud indicator	-	Off	The device is not in the cloud management state.

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.
		Blue	Steady on	The network is connected, and the WAN port obtains an IP address. **NOTE** This function is available in V600R023C00 and later versions.
-	Port indicator (Port status)	-	Off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port. **NOTE** During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete.
		Green	Blinking	The port is sending or receiving data.
	Port indicator (PoE status)	-	Off	The port is not supplying PoE power.
		Green	Steady on	The port is supplying power to the connected PD.
		Green	Blinking	The PoE power of the device is insufficient, and the port cannot provide power to the PD.

Power Supply System

The device uses the power adapter delivered with the device to supply power to the device and the connected PD. The power adapter can provide 50 W PoE power, which ensures full PoE power on 3 ports in compliance with 802.3af or on 1 ports in compliance with 802.3at.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-9 Technical specifications of the S380-L4P1T

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic dimensions (excluding the parts protruding from the body): 35.0 mm x 210.0 mm x 130.0 mm (1.38 in. x 8.27 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): 35.0 mm x 210.0 mm x 136.3 mm (1.38 in. x 8.27 in. x 5.37 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	90.0 mm x 285.0 mm x 180.0 mm (3.54 in. x 11.22 in. x 7.09 in.)
Chassis height [U]	0.8 U
Chassis material	Metal
Weight without packaging [kg(lb)]	0.9 kg (1.98 lb)
Weight with packaging [kg(lb)]	1.1 kg (2.43 lb)
Typical power consumption [W]	7.19 W
Typical heat dissipation [BTU/hour]	24.5 BTU/hour
Maximum power consumption [W]	61.65 W (PoE: 50 W)
Maximum heat dissipation [BTU/hour]	210.4 BTU/hour
Static power consumption [W]	4.54 W
MTBF [years]	75.89 years
MTTR [hours]	2 hours
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
Uplink ports	1 x GE WAN
Downlink ports	1 x GE WAN, 4 x GE LAN (50 W PoE+)

Item	Specification
Redundant power supply	Not supported
Long-term operating temperature [°C(°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 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.).
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: 100–240 V AC; 50/60 Hz Power adapter output: 56 V DC
Input voltage range [V]	Power adapter input: 90–290 V AC; 47–63 Hz
Maximum input current [A]	1.07 A
Memory	DDR4: 512 MB
Flash memory	NAND Flash: 512 MB
Storage	-
Console port	Not supported
Eth Management port	LAN port
USB	Not supported
RTC	Not supported
RPS input	Not supported
Service port surge protection [kV]	Common mode: ±4 kV
Power supply surge protection [kV]	Power adapter: ±6 kV in differential mode and ±6 kV in common mode
Ingress protection level (dustproof/ waterproof)	IP20
Types of fans	None

Item	Specification
Heat dissipation mode	Natural heat dissipation
Airflow direction	-
PoE	Supported
Certification	EMC certification Safety certification Manufacturing certification

4.3.3 S380-S8T2T

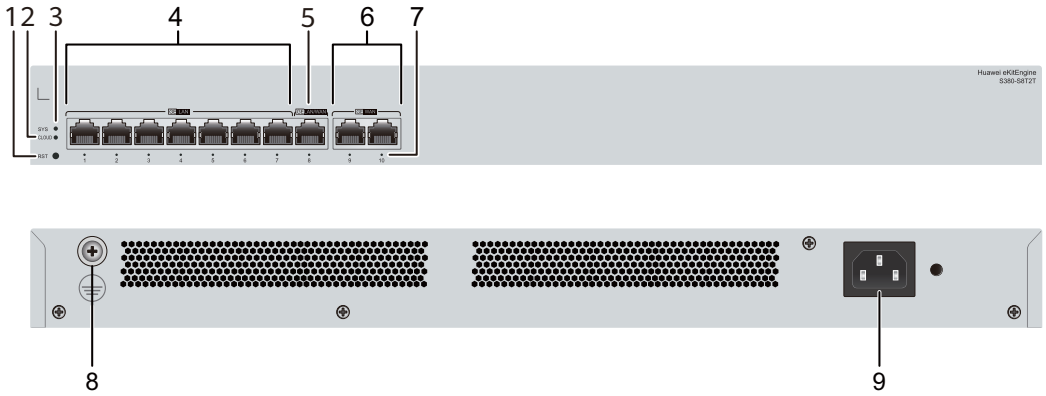
Overview

Table 4-10 Basic information about the S380-S8T2T

Item	Details
Description	S380-S8T2T, 2*GE WAN, 8*GE LAN
Part Number	98012179
Model	S380-S8T2T
First supported version	V600R022C10

Components

Figure 4-4 S380-S8T2T 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	CLOUD indicator
3	SYS indicator	4	Seven GE LAN electrical ports
5	One GE LAN/WAN electrical port	6	Two GE WAN electrical ports
7	Port indicator	8	Ground screw
9	AC socket **NOTE** Use the power cable delivered with the device.	-	-

Ports

Table 4-11 Ports on the S380-S8T2T

Port	Connector Type	Description	Available Components
GE LAN electrical port	RJ45	A GE LAN electrical port sends and receives LAN service data at 10/100/1000 Mbit/s.	**Ethernet cable**
GE WAN electrical port	RJ45	A GE WAN electrical port sends and receives WAN service data at 10/100/1000 Mbit/s.	**Ethernet cable**

Port	Connector Type	Description	Available Components
GE LAN/WAN electrical port	RJ45	A GE LAN/WAN electrical port sends and receives LAN or WAN service data at 10/100/1000 Mbit/s.	Ethernet cable

Indicators and Buttons

Table 4-12 Description of indicators on the device

Indicator	Name	Color	Status	Description
SYS	System status indicator	-	Off	The system is not running or is in the reset state.
		Green	Fast blinking	The system is in the power-on loading or reset startup state.
		Green	Slow blinking	The system is running normally.
		Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 15 seconds.
		Red	Steady on	The device cannot be started or the power supply is faulty.
Cloud	Cloud indicator	-	Off	The device is not in the cloud management state.
		Blue	Fast blinking	The device is connecting to the cloud.
		Blue	Slow blinking	The device is in the cloud management state.
		Blue	Steady on	The network is connected, and the WAN port obtains an IP address. **NOTE** This function is available in V600R023C00 and later versions.

Indicator	Name	Color	Status	Description
-	Port indicator	-	Off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port. **NOTE** During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete.
		Green	Blinking	The port is sending or receiving data.

Power Supply System

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

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-13 Technical specifications of the S380-S8T2T

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 442.0 mm x 160.0 mm (1.72 in. x 17.4 in. x 6.3 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 442.0 mm x 165.2 mm (1.72 in. x 17.4 in. x 6.5 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
Weight without packaging [kg(lb)]	1.6 kg (3.53 lb)
Weight with packaging [kg(lb)]	2.1 kg (4.63 lb)
Typical power consumption [W]	10.4 W

Item	Specification
Typical heat dissipation [BTU/hour]	35.5 BTU/hour
Maximum power consumption [W]	10.55 W
Maximum heat dissipation [BTU/hour]	36 BTU/hour
Static power consumption [W]	5.82 W
MTBF [years]	67.79 years
MTTR [hours]	2 hours
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
Uplink ports	2 x GE WAN
Downlink ports	8 x GE LAN
Redundant power supply	Not supported
Long-term operating temperature [°C(°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 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.).
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
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

Item	Specification
Memory	DDR4: 512 MB
Flash memory	NAND Flash: 512 MB
Storage	-
Console port	Not supported
Eth Management port	LAN port
USB	Not supported
RTC	Not supported
RPS input	Not supported
Service port surge protection [kV]	Common mode: ±4 kV
Power supply surge protection [kV]	Power adapter: ±6 kV in differential mode and ±6 kV in common mode
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

4.3.4 S380-S8P2T

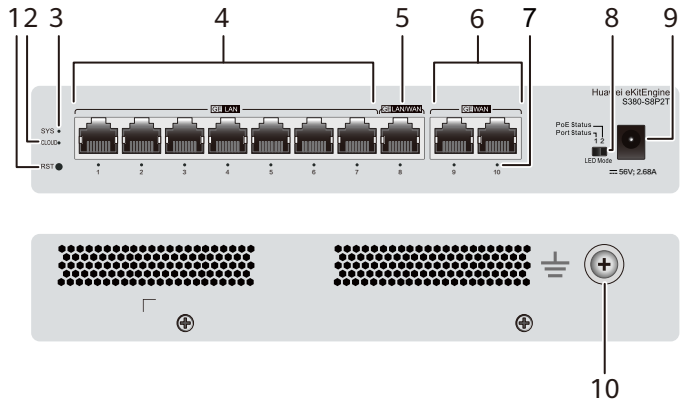
Overview

Table 4-14 Basic information about the S380-S8P2T

Item	Details
Description	S380-S8P2T, 2*GE WAN, 8*GE LAN(PoE +, 124W)
Part Number	98012180
Model	S380-S8P2T
First supported version	V600R022C10

Components

Figure 4-5 S380-S8P2T 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	CLOUD indicator
3	SYS indicator	4	Seven GE PoE+ LAN electrical ports
5	One GE PoE+ LAN/WAN electrical port	6	Two GE WAN electrical ports
7	Port indicator	8	Port indicator status switch button **NOTE** Port status: The port indicator indicates the data transmission status of the port. PoE status: The port indicator indicates the PoE status of the port.
9	Power adapter socket **NOTE** Use the power adapter (56 V 2.68 A) delivered with the device.	10	Ground screw

Ports

Table 4-15 Ports on the S380-S8P2T

Port	Connector Type	Description	Available Components
GE PoE+ LAN electrical port	RJ45	A GE PoE+ LAN electrical port sends and receives LAN service data at 10/100/1000 Mbit/s. The port supports PoE function.	**Ethernet cable**
GE WAN electrical port	RJ45	A GE WAN electrical port sends and receives WAN service data at 10/100/1000 Mbit/s.	**Ethernet cable**
GE PoE+ LAN/WAN electrical port	RJ45	A GE PoE+ LAN/WAN electrical port sends and receives LAN or WAN service data at 10/100/1000 Mbit/s. The port supports PoE function.	**Ethernet cable**

Indicators and Buttons

Table 4-16 Description of indicators on the device

Indicator	Name	Color	Status	Description
SYS	System status indicator	-	Off	The system is not running or is in the reset state.
		Green	Fast blinking	The system is in the power-on loading or reset startup state.

Indicator	Name	Color	Status	Description
		Green	Slow blinking	The system is running normally.
		Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 15 seconds.
		Red	Steady on	The device cannot be started or the power supply is faulty.
Cloud	Cloud indicator	-	Off	The device is not in the cloud management state.
		Blue	Fast blinking	The device is connecting to the cloud.
		Blue	Slow blinking	The device is in the cloud management state.
		Blue	Steady on	The network is connected, and the WAN port obtains an IP address. **NOTE** This function is available in V600R023C00 and later versions.
-	Port indicator (Port status)	-	Off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port. **NOTE** During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete.
		Green	Blinking	The port is sending or receiving data.
	Port indicator (PoE status)	-	Off	The port is not supplying PoE power.
		Green	Steady on	The port is supplying power to the connected PD.
		Green	Blinking	The PoE power of the device is insufficient, and the port cannot provide power to the PD.

Power Supply System

The device uses the power adapter delivered with the device to supply power to the device and the connected PD. The power adapter can provide 124 W PoE power, which ensures full PoE power on 8 ports in compliance with 802.3af or on 4 ports in compliance with 802.3at.

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-17 Technical specifications of the S380-S8P2T

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic dimensions (excluding the parts protruding from the body): 35.0 mm x 210.0 mm x 130.0 mm (1.38 in. x 8.27 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): 35.0 mm x 210.0 mm x 136.3 mm (1.38 in. x 8.27 in. x 5.37 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	150.0 mm x 275.0 mm x 200.0 mm (5.91 in. x 10.83 in. x 7.87 in.)
Chassis height [U]	0.8 U
Chassis material	Metal
Weight without packaging [kg(lb)]	1.5 kg (3.31 lb)
Weight with packaging [kg(lb)]	1.8 kg (3.97 lb)
Typical power consumption [W]	12.4 W
Typical heat dissipation [BTU/hour]	42.3 BTU/hour
Maximum power consumption [W]	145.8 W (PoE: 124 W)
Maximum heat dissipation [BTU/hour]	497.5 BTU/hour
Static power consumption [W]	7.53 W
MTBF [years]	65.36 years
MTTR [hours]	2 hours
Availability	> 0.99999
Noise at normal temperature (acoustic power) [dB(A)]	Noise-free (no fans), < 30

Item	Specification
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
Uplink ports	2 x GE WAN
Downlink ports	8 x GE LAN (124 W PoE+)
Redundant power supply	Not supported
Long-term operating temperature [°C(°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 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.).
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: 100–240 V AC; 50/60 Hz Power adapter output: 56 V DC
Input voltage range [V]	Power adapter input: 90–290 V AC; 47–63 Hz
Maximum input current [A]	2.68 A
Memory	DDR4: 512 MB
Flash memory	NAND Flash: 512 MB
Storage	-
Console port	Not supported
Eth Management port	LAN port
USB	Not supported
RTC	Not supported

Item	Specification
RPS input	Not supported
Service port surge protection [kV]	Common mode: ±4 kV
Power supply surge protection [kV]	Power adapter: ±6 kV in differential mode and ±6 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 S380-H8T3ST

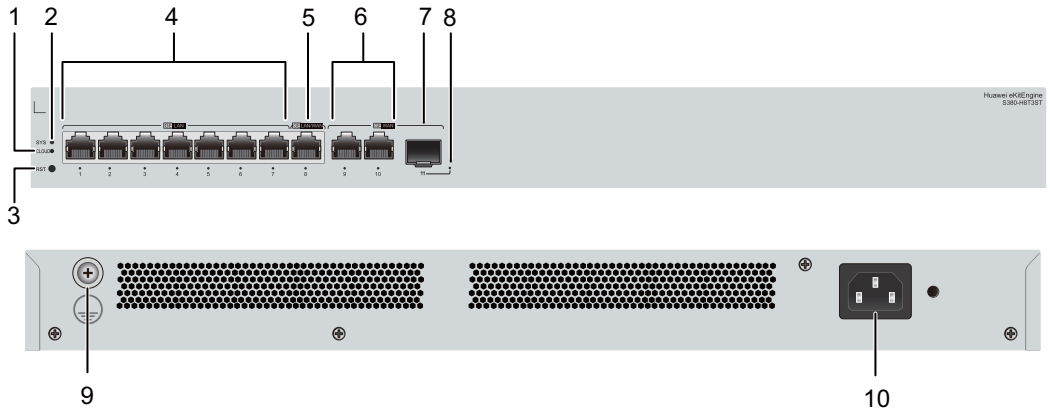
Overview

Table 4-18 Basic information about the S380-H8T3ST

Item	Details
Description	S380-H8T3ST, 2*GE WAN, 1*GE(SFP) WAN, 8*GE LAN
Part Number	98012181
Model	S380-H8T3ST
First supported version	V600R022C10

Components

Figure 4-6 S380-H8T3ST appearance



1	CLOUD indicator	2	SYS indicator
3	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.	4	Seven GE LAN electrical ports
5	One GE LAN/WAN electrical port	6	Two GE WAN electrical ports
7	One GE WAN optical port	8	Port indicator
9	Ground screw	10	AC socket **NOTE** Use the power cable delivered with the device.

Ports

Table 4-19 Ports on the S380-H8T3ST

Port	Connector Type	Description	Available Components
GE LAN electrical port	RJ45	A GE LAN electrical port sends and receives LAN service data at 10/100/1000 Mbit/s.	**Ethernet cable**
GE WAN optical port	SFP	A GE WAN optical port sends and receives WAN service data at 1000 Mbit/s.	**GE eSFP optical modules (only optical modules with transmission distances less than or equal to 10 km are supported)**
GE WAN electrical port	RJ45	A GE WAN electrical port sends and receives WAN service data at 10/100/1000 Mbit/s.	**Ethernet cable**
GE LAN/WAN electrical port	RJ45	A GE LAN/WAN electrical port sends and receives LAN or WAN service data at 10/100/1000 Mbit/s.	**Ethernet cable**

Indicators and Buttons

Table 4-20 Description of indicators on the device

Indicator	Name	Color	Status	Description
SYS	System status indicator	-	Off	The system is not running or is in the reset state.

Indicator	Name	Color	Status	Description
		Green	Fast blinking	The system is in the power-on loading or reset startup state.
		Green	Slow blinking	The system is running normally.
		Green	Steady on	During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 15 seconds.
		Red	Steady on	The device cannot be started or the power supply is faulty.
Cloud	Cloud indicator	-	Off	The device is not in the cloud management state.
		Blue	Fast blinking	The device is connecting to the cloud.
		Blue	Slow blinking	The device is in the cloud management state.
		Blue	Steady on	The network is connected, and the WAN port obtains an IP address. **NOTE** This function is available in V600R023C00 and later versions.
-	Port indicator	-	Off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port. **NOTE** During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete.
		Green	Blinking	The port is sending or receiving data.

Power Supply System

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

Heat Dissipation System

The device has no fans and uses natural heat dissipation.

Technical Specifications

Table 4-21 Technical specifications of the S380-H8T3ST

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 442.0 mm x 160.0 mm (1.72 in. x 17.4 in. x 6.3 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 442.0 mm x 166.7 mm (1.72 in. x 17.4 in. x 6.56 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
Weight without packaging [kg(lb)]	1.6 kg (3.53 lb)
Weight with packaging [kg(lb)]	2.1 kg (4.63 lb)
Typical power consumption [W]	11.25 W
Typical heat dissipation [BTU/hour]	38.4 BTU/hour
Maximum power consumption [W]	11.5 W
Maximum heat dissipation [BTU/hour]	39.2 BTU/hour
Static power consumption [W]	6.49 W
MTBF [years]	63.71 years
MTTR [hours]	2 hours
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
Uplink ports	2 x GE WAN, 1 x GE (SFP) WAN
Downlink ports	8 x GE LAN
Redundant power supply	Not supported
Long-term operating temperature [°C(°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 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.).
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
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	DDR4: 1 GB
Flash memory	NAND Flash: 512 MB
Storage	-
Console port	Not supported
Eth Management port	LAN port
USB	Not supported
RTC	Not supported
RPS input	Not supported
Service port surge protection [kV]	Common mode: ±4 kV
Power supply surge protection [kV]	Power adapter: ±6 kV in differential mode and ±6 kV in common mode
Ingress protection level (dustproof/ waterproof)	IP20
Types of fans	None

Item	Specification
Heat dissipation mode	Natural heat dissipation
Airflow direction	-
PoE	Not supported
Certification	EMC certification Safety certification Manufacturing certification

5 Cables

5.1 Ground Cable

Appearance and Structure

Figure 5-1 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 5-1 Appearance of a ground cable

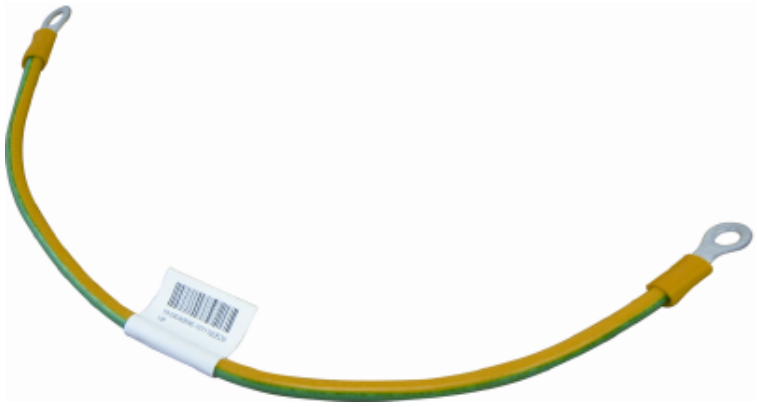
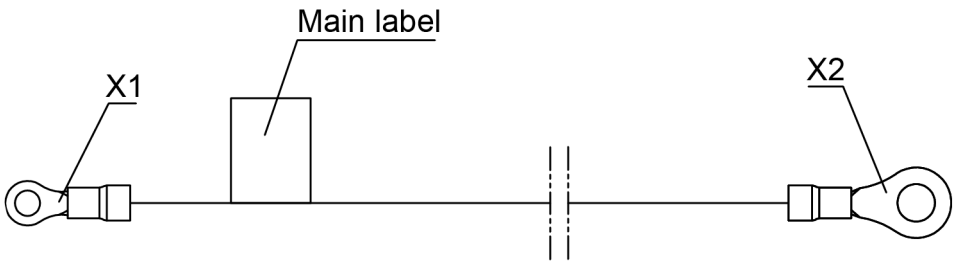


Figure 5-2 shows the structure of a ground cable.

Figure 5-2 Structure of a ground cable



Pin Assignments

Table 5-1 lists the pin assignments of a ground cable.

Table 5-1 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.

5.2 Ethernet Cable

Types of Ethernet Cables

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

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

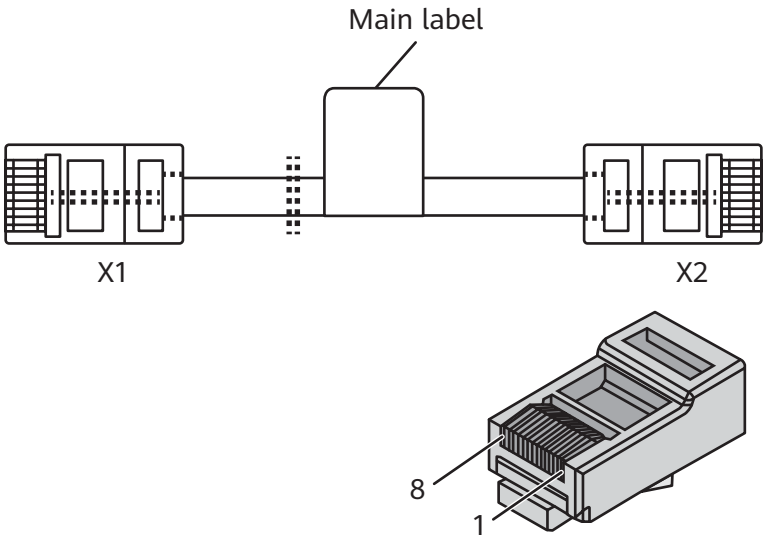
The straight-through cable and the crossover cable have the same appearance and use the RJ45 connector.

Figure 5-3 shows the appearance of an Ethernet cable.

Figure 5-3 Appearance of an Ethernet cable

Figure 5-4 shows the structure of an Ethernet cable.

Figure 5-4 Structure of an Ethernet cable



Pin Assignments

Table 5-2 lists pin assignments of a straight-through cable.

Table 5-2 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 5-3 lists pin assignments of a crossover cable.

Table 5-3 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.

5.3 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 5-5 shows a single-mode LC/PC fiber jumper.

Figure 5-5 Single-mode LC/PC fiber jumper

Figure 5-6 shows a multimode LC/PC fiber jumper.

Figure 5-6 Multimode LC/PC fiber jumper

Figure 5-7 shows a single-mode SC/PC fiber jumper.

Figure 5-7 Single-mode SC/PC fiber jumper

Comply with the following rules when selecting fiber jumpers:

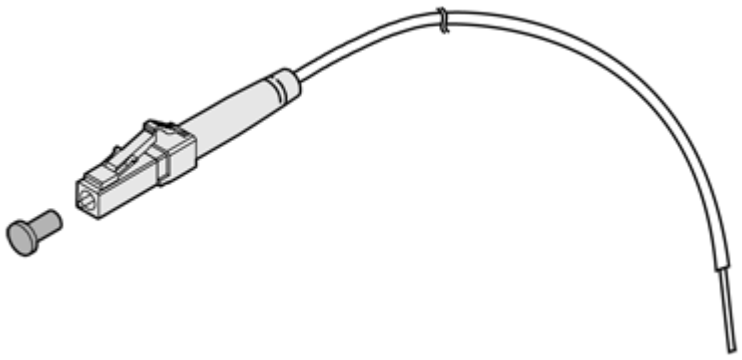
1. Determine the length of fiber jumpers based on the onsite cabling distance.
2. Determine the fiber type based on the optical module type.
   - Use a multimode fiber jumper for a multimode optical module.
   - Use a single-mode fiber jumper for a single-mode optical module.
3. Determine the optical 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 5-8** shows the structure of a fiber pigtail.

Figure 5-8 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 5-5**.
- 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 5-6**.
  - 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 5-4** lists common optical connectors.

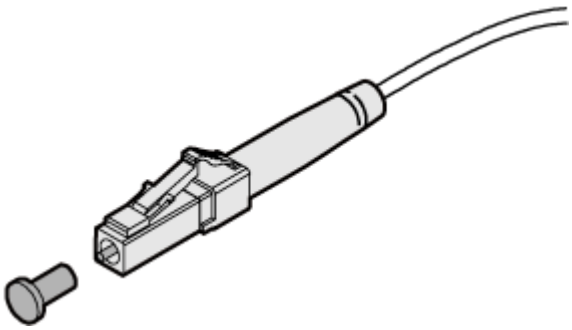
Table 5-4 Common optical connectors

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

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

Figure 5-9 shows an LC/PC optical connector.

Figure 5-9 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.

5.4 AC Power Cable

Appearance and Structure

Figure 5-10 C13 straight female to PI straight male AC power cable (used in China)

Figure 5-11 C13 straight female to C14 straight male AC power cable (China)

Figure 5-12 Appearance of a power adapter

NOTE

The AC power cables used in different countries and regions have different connector types. **Figure 5-10** use Chinese AC power cables as examples. 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 AC power cables based on the power supply system in your equipment room. 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 5-13** 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 5-14**) is used in China.
- The AC power cables connected to a power distribution box must have cord end terminals. **Figure 5-15** shows the structure of a cord end to C13 straight female AC power cable.

Figure 5-13 Structure of a C14 straight male to C13 straight female AC power cable

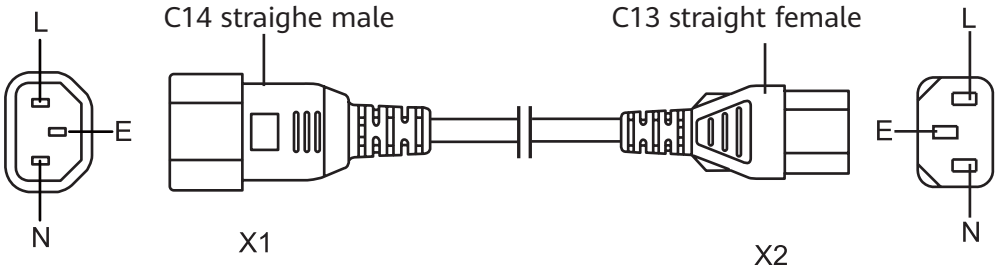


Figure 5-14 Structure of a PI straight male to C13 straight female AC power cable (used in China)

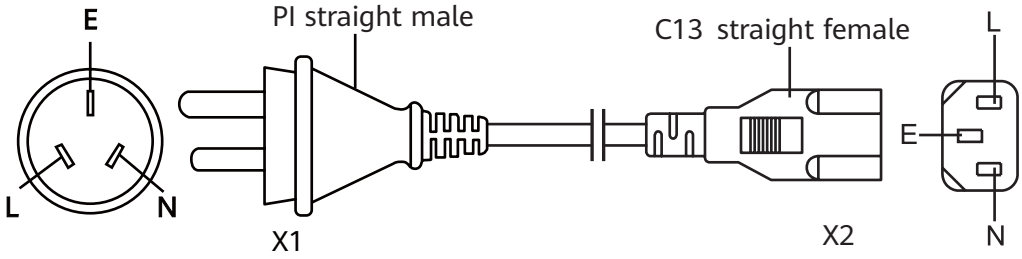
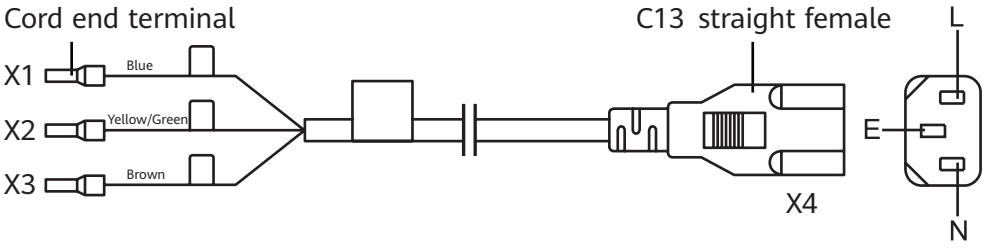


Figure 5-15 Structure of a Cord end to C13 straight female AC power cable (used in China)



Connection

Table 5-5 shows connections of various AC power cables.

Table 5-5 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. The current rating of the power cable is 10 A.
PI straight male to C13 straight female AC power cable (used in China)	PI straight male connector: connected to a country-specific power strip	

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.	

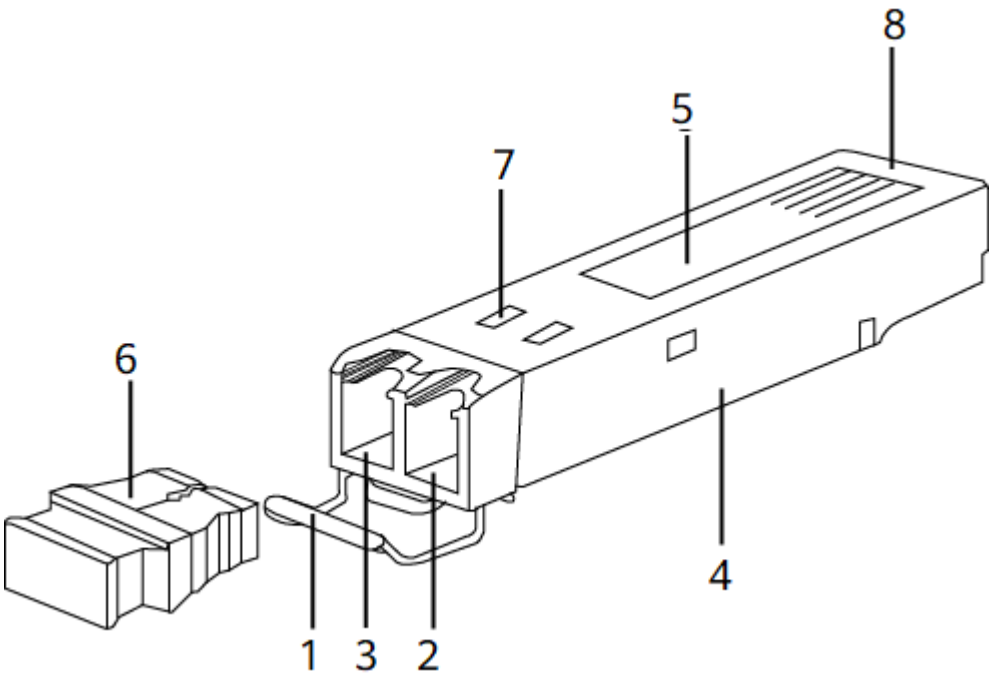
6 Pluggable Modules for Interfaces

6.1 Understanding Optical Modules

6.1.1 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 6-1** shows the structure of an optical module.

Figure 6-1 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 6-2 shows an SFP/eSFP optical module.

Figure 6-2 SFP/eSFP optical module

6.1.2 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 um or 50 um, and the diameter of a single-mode fiber is 9 um. 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.

6.2 GE eSFP Optical Modules

6.2.1 SFP-GE-LX-SM1310 (02315200)

Table 6-1 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)
DDM options	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

Item	Value
Minimum extinction ratio [dB]	9 dB
Receiver Optical Characteristics	
Rx sensitivity [dBm]	-20.0 dBm
Overload power [dBm]	-3.0 dBm

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

Table 6-2 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)
DDM options	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

Item	Value
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.	

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

Table 6-3 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)
DDM options	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

Item	Value
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.	

6.2.4 SFP-GE-LX10-C

Table 6-4 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)
DDM options	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

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

Table 6-5 SFP-GE-SX-C specifications

Item	Value
Basic Information	
Module name	SFP-GE-SX-C
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)
DDM options	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Multimode optical fiber (modal bandwidth: 160 MHz*km; diameter: 62.5 μm): 0.22 km Multimode optical fiber (OM1): 0.275 km Multimode optical fiber (modal bandwidth: 400 MHz*km; diameter: 50 μm): 0.5 km Multimode optical fiber (OM2): 0.55 km Multimode optical fiber (OM3): 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

6.2.6 eSFP-GE-SX-MM850 (02315204)

Table 6-6 eSFP-GE-SX-MM850 specifications

Item	Value
Basic Information	
Module name	eSFP-GE-SX-MM850
Part Number	02315204
Model	eSFP-GE-SX-MM850
Form factor	eSFP
Application standard	1000BASE-SX
Connector type	LC
Optical fiber type	MMF
Working case temperature [°C(°F)]	-20°C to +85°C (-4°F to +185°F)
DDM options	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Multimode optical fiber (modal bandwidth: 160 MHz*km; diameter: 62.5 μm): 0.22 km Multimode optical fiber (OM1): 0.275 km Multimode optical fiber (modal bandwidth: 400 MHz*km; diameter: 50 μm): 0.5 km Multimode optical fiber (OM2): 0.55 km Multimode optical fiber (OM3): 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

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

Table 6-7 eSFP-GE-SX-MM850 specifications

Item	Value
Basic Information	
Module name	eSFP-GE-SX-MM850
Part Number	02313URD
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)
DDM options	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Multimode optical fiber (modal bandwidth: 160 MHz*km; diameter: 62.5 μm): 0.22 km Multimode optical fiber (OM1): 0.275 km Multimode optical fiber (modal bandwidth: 400 MHz*km; diameter: 50 μm): 0.5 km Multimode optical fiber (OM2): 0.55 km Multimode optical fiber (OM3): 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

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

Table 6-8 SFP-GE-LX-SM1310 specifications

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

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

Table 6-9 SFP-GE-SX-C specifications

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

Item	Value
Part Number	02314KKF
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)
DDM options	Supported
Transmission rate [bit/s]	1 Gbit/s
Target transmission distance [km]	Multimode optical fiber (modal bandwidth: 160 MHz*km; diameter: 62.5 μm): 0.22 km Multimode optical fiber (OM1): 0.275 km Multimode optical fiber (modal bandwidth: 400 MHz*km; diameter: 50 μm): 0.5 km Multimode optical fiber (OM2): 0.55 km Multimode optical fiber (OM3): 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