

## CloudEngine 8800&7800&6800&5800 Series Switches

# **Hardware Description**

lssue 20 Date 2016-09-10



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## **About This Document**

## **Intended Audience**

This document describes hardware components of the CE8800&7800&6800&5800 series switches, including the chassis, power modules, fan modules, cables, and optical modules. You can find useful information about CE8800&7800&6800&5800 series switches hardware components from this document.

This document is intended for:

- Network planning engineers
- Hardware installation engineers
- Commissioning engineers
- On-site maintenance engineers
- System maintenance engineers

## **Symbol Conventions**

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

Symbol	Description
	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, may 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	
	Calls attention to important information, best practices and tips.	
	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 <b>boldface</b> .	
Italic	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.	

## Declaration

This manual is only a reference for you to configure your devices. The contents in the manual, such as command line syntax, and command outputs, are based on the device conditions in the lab. The manual provides instructions for general scenarios, but do not cover all usage scenarios of all product models. The contents in the manual may be different from your actual device situations due to the differences in software versions, models, and configuration files. The manual will not list every possible difference. You should configure your devices according to actual situations.

The specifications provided in this manual are tested in lab environment (for example, the tested device has been installed with a certain type of boards or only one protocol is run on

the device). Results may differ from the listed specifications when you attempt to obtain the maximum values with multiple functions enabled on the device.

## **Change History**

Changes between document issues are cumulative. The latest document issue contains all the changes made in earlier issues.

## Issue 20 (2016-09-10)

This version has the following updates:

The following information is modified:

• Structure of the document

## Issue 19 (2016-07-20)

This version has the following updates:

The following information is added:

- CE7855-32Q-EI
- CE6855-48S6Q-HI
- CE6855-48T6Q-HI
- CE6870-24S6CQ-EI
- CE6870-48S6CQ-EI
- Classification of AOC cables
- Classification of high-speed cable
- Information about new types of QSFP28 optical modules

#### Issue 18 (2016-03-25)

This version has the following updates:

The following information is modified:

- Ordering Information
- 6 Cards
- 8 Optical Module

## Issue 17 (2015-12-15)

This version has the following updates:

The following information is added:

- CE8860-4C-EI
- CE88-D8CQ Card
- CE88-D16Q Card
- CE88-D24T2CQ Card

- CE88-D24S2CQ Card
- 1200 W AC&240 V DC Power Module
- 1200 W High-Voltage DC Power Module
- FAN-180A Series Fan Modules

### Issue 16 (2015-08-26)

This version has the following updates:

The following information is modified:

- Chassis
- 4 Power Module
- 5 Fan Module

#### Issue 15 (2015-06-10)

This version has the following updates:

The following information is modified:

- Appearance and Structure
- SFP/SFP+ Modules

### Issue 14 (2015-05-30)

This version has the following updates:

The following information is added:

- CE6810-32T16S4Q-LI
- CE6810-24S2Q-LI
- CE6850-48T6Q-HI
- CE6851-48S6Q-HI
- CE6850U-48S6Q-HI
- CE6850U-24S2Q-HI
- CE5855-48T4S2Q-EI
- CE5855-24T4S2Q-EI
- 150 W AC Power Module (ES0W2PSA0150)
- FAN-040A Series Fan Modules

## Issue 13 (2015-04-26)

This version has the following updates:

The following information is modified:

- Appearance and Structure
- Ports

#### Issue 12 (2015-01-20)

This version has the following updates:

The following information is added:

- CE6850-48S6Q-HI
- 600 W AC&240 V DC Power Module
- 600 W High-Voltage DC Power Module
- FAN-060A Series Fan Modules

## Issue 11 (2014-12-01)

This version has the following updates:

The following information is modified:

- Appearance and Structure
- 7.8 AOC Cable

#### Issue 10 (2014-09-20)

This version has the following updates:

The following information is added:

- CE6810-48S4Q-LI
- CE6810-48S-LI

#### Issue 09 (2014-08-01)

This version has the following updates:

The following information is modified:

- 2 Version Support for Components
- 4 Power Module
- 5 Fan Module

#### Issue 08 (2014-04-21)

This version has the following updates:

The following information is added:

- CE7850-32Q-EI
- CE6810-48S4Q-EI

## Issue 07 (2013-12-31)

This version has the following updates:

The following information is added:

• CE5850-48T4S2Q-HI

#### Issue 06 (2013-12-01)

This version has the following updates:

The following information is modified:

• Specifications

## Issue 05 (2013-11-20)

This version has the following updates:

The following information is modified:

• Specifications

## Issue 04 (2013-10-15)

This version has the following updates:

The following information is modified:

• 4 Power Module

### Issue 03 (2013-08-01)

This version has the following updates:

The following information is added:

- 4.4 350 W DC Power Module
- 4.5 600 W AC Power Module
- 5.2 FAN-40SB Series Fan Modules
- 7.2 DC Power Cable

The following information is modified:

- Chassis
- 8 Optical Module

#### Issue 02 (2013-04-20)

This version has the following updates:

The following information is modified:

• Indicators

## Issue 01 (2013-03-15)

Initial commercial release.

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# **1** Using the Hardware Query Tool

This section describes how to obtain comprehensive information about switches and modules using the hardware query tool.

**Figure 1-1** shows the interface of the **Hardware Query Tool**. You can use this tool to query the power modules, fan modules, optical modules, and cards supported by each switch model, as well as specifications of switches and modules. You can search switch products or modules by part number, product model, or module type.

#### Figure 1-1 Hardware query tool interface





# **2** Version Support for Components

## **About This Chapter**

#### ΠΝΟΤΕ

The availability of device models and modules described in this document will be specified in product change notices (PCNs). For details, contact the product manager of Huawei local office.

The versions mentioned in this document refer to the software versions released for the CE8800&7800&6800&5800 series switches.

- 2.1 Components Available in V100R001C00
- 2.2 Components Available in V100R002C00
- 2.3 Components Available in V100R003C00
- 2.4 Components Available in V100R003C10
- 2.5 Components Available in V100R005C00
- 2.6 Components Available in V100R005C10
- 2.7 Components Available in V100R006C00
- 2.8 Components Available in V200R001C00

## 2.1 Components Available in V100R001C00

## Available Models

 Table 2-1 lists the switch models available in V100R001C00.

Series	Model	Maximum Number of Ports Supported and Port Description
CE6800	CE6850-48S4Q-EI	<ul><li>52 total:</li><li>48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
	CE6850-48T4Q-EI	52 total: 48 10GBASE-T Ethernet electrical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
CE5800	CE5850-48T4S2Q- EI	54 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (cannot be split into four 10GE ports)

Table 2-1 Models available in V100R001C00

## **Available Power Modules**

 Table 2-2 lists the power modules available in V100R001C00.

Table 2-2 Power	modules	available in	n V100R001C00
-----------------	---------	--------------	---------------

Power Module Type	Power Module	Power Description
AC power module	PAC-150WA	150 W AC power module (natural heat dissipation)
	PAC-350WA-B	350 W AC power module (air exhaust on front panel)
	PAC-350WA-F	350 W AC power module (air intake on front panel)

## Available Fan Modules

Table 2-3 lists the fan modules available in V100R001C00.

Series	Model	Description
FAN-40EA	FAN-40EA-B	FAN-40EA (air exhaust on front panel)
	FAN-40EA-F	FAN-40EA (air intake on front panel)

 Table 2-3 Fan modules available in V100R001C00

## 2.2 Components Available in V100R002C00

## 

The components marked \* are the new components added to V100R002C00.

## **Available Models**

 Table 2-4 lists the switch models available in V100R002C00.

 Table 2-4 Models available in V100R002C00

Series	Model	Maximum Number of Ports Supported and Port Description
CE6800	CE6850-48S4Q-EI	<ul><li>52 total:</li><li>48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
	CE6850-48T4Q-EI	52 total: 48 10GBASE-T Ethernet electrical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
CE5800 CE5810-24T4S-EI* 28 tota 24 10/1 10GE S		<ul><li>28 total:</li><li>24 10/100/1000BASE-T Ethernet electrical ports, 4</li><li>10GE SFP+ optical ports</li></ul>
	CE5810-48T4S-EI*	52 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports
	CE5850-48T4S2Q- EI	<ul> <li>54 total:</li> <li>48 10/100/1000BASE-T Ethernet electrical ports, 4</li> <li>10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (cannot be split into four 10GE ports)</li> </ul>

## **Available Power Modules**

Table 2-5 lists the power modules available in V100R002C00.

Power Module Type	Power Module	Power Description
AC power module	PAC-150WA	150 W AC power module (natural heat dissipation)
	PAC-350WA-B	350 W AC power module (air exhaust on front panel)
	PAC-350WA-F	350 W AC power module (air intake on front panel)
	PAC-600WA-B*	600 W AC power module (air exhaust on front panel)
	PAC-600WA-F*	600 W AC power module (air intake on front panel)
DC power module	PDC-350WA-B*	350 W DC power module (air exhaust on front panel)
	PDC-350WA-F*	350 W DC power module (air intake on front panel)

 Table 2-5 Power modules available in V100R002C00

Table 2-6 lists the fan modules available in V100R002C00.

Series	Model	Description
FAN-40EA	FAN-40EA-B	FAN-40EA (air exhaust on front panel)
	FAN-40EA-F	FAN-40EA (air intake on front panel)
FAN-40SB	FAN-40SB-B*	FAN-40SB (air exhaust on front panel)
	FAN-40SB-F*	FAN-40SB (air intake on front panel)

 Table 2-6 Fan modules available in V100R002C00

## 2.3 Components Available in V100R003C00

### 

The components marked \* are the new components added to V100R003C00.

## **Available Models**

Table 2-7 lists the switch models available in V100R003C00.

Series	Model	Maximum Number of Ports Supported and Port Description
CE7800	CE7850-32Q-EI*	32 total: 32 40GE QSFP+ optical ports (can be split into four 10GE ports)
CE6800	CE6810-48S4Q-EI*	<ul><li>52 total:</li><li>48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
	CE6850-48S4Q-EI	<ul><li>52 total:</li><li>48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
	CE6850-48T4Q-EI	52 total: 48 10GBASE-T Ethernet electrical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
CE5800	CE5810-24T4S-EI	28 total: 24 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports
	CE5810-48T4S-EI	52 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports
	CE5850-48T4S2Q- EI	54 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (cannot be split into four 10GE ports)
	CE5850-48T4S2Q- HI*	54 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)

 Table 2-7 Models available in V100R003C00

## **Available Power Modules**

 Table 2-8 lists the power modules available in V100R003C00.

Power Module Type	Power Module	Power Description
AC power module	PAC-150WA	150 W AC power module (natural heat dissipation)
	PAC-350WA-B	350 W AC power module (air exhaust on front panel)
	PAC-350WA-F	350 W AC power module (air intake on front panel)
	PAC-600WA-B	600 W AC power module (air exhaust on front panel)
	PAC-600WA-F	600 W AC power module (air intake on front panel)
DC power module	PDC-350WA-B	350 W DC power module (air exhaust on front panel)
	PDC-350WA-F	350 W DC power module (air intake on front panel)

 Table 2-8 Power modules available in V100R003C00

Table 2-9 lists the fan modules available in V100R003C00.

Series	Model	Description
FAN-40EA	FAN-40EA-B	FAN-40EA (air exhaust on front panel)
	FAN-40EA-F	FAN-40EA (air intake on front panel)
FAN-40SB	FAN-40SB-B	FAN-40SB (air exhaust on front panel)
	FAN-40SB-F	FAN-40SB (air intake on front panel)
FAN-40HA	FAN-40HA-B*	FAN-40HA (air exhaust on front panel)
	FAN-40HA-F*	FAN-40HA (air intake on front panel)

Table 2-9 Fan modules available in V100R003C00

## 2.4 Components Available in V100R003C10

## 

The components marked \* are the new components added to V100R003C10.

## **Available Models**

Table 2-10 lists the switch models available in V100R003C10.

Table 2-10 Models available in V100R003C10

Series	Model	Maximum Number of Ports Supported and Port Description
CE7800	CE7850-32Q-EI	32 total:
		32 40GE QSFP+ optical ports (can be split into four 10GE ports)
CE6800	CE6810-48S4Q-EI	52 total:
		48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6850-48S4Q-EI	52 total:
		48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6850-48T4Q-EI	52 total:
		48 10GBASE-T Ethernet electrical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-48S4Q-LI*	52 total:
		48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-48S-LI*	48 total:
		48 10GE SFP+ optical ports
CE5800	CE5810-24T4S-EI	28 total:
		24 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports
	CE5810-48T4S-EI	52 total:
		48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports
	CE5850-48T4S2Q-	54 total:
	EI	48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (cannot be split into four 10GE ports)

Series	Model	Maximum Number of Ports Supported and Port Description
	CE5850-48T4S2Q- HI	54 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)

## **Available Power Modules**

 Table 2-11 lists the power modules available in V100R003C10.

 Table 2-11 Power modules available in V100R003C10

Power Module Type	Power Module	Power Description
AC power module	PAC-150WA	150 W AC power module (natural heat dissipation)
	PAC-350WA-B	350 W AC power module (air exhaust on front panel)
	PAC-350WA-F	350 W AC power module (air intake on front panel)
	PAC-600WA-B	600 W AC power module (air exhaust on front panel)
	PAC-600WA-F	600 W AC power module (air intake on front panel)
DC power module	PDC-350WA-B	350 W DC power module (air exhaust on front panel)
	PDC-350WA-F	350 W DC power module (air intake on front panel)

## Available Fan Modules

 Table 2-12 lists the fan modules available in V100R003C10.

Series	Model	Description
FAN-40EA	FAN-40EA-B	FAN-40EA (air exhaust on front panel)
	FAN-40EA-F	FAN-40EA (air intake on front panel)

**Table 2-12** Fan modules available in V100R003C10

Series	Model	Description
FAN-40SB	FAN-40SB-B	FAN-40SB (air exhaust on front panel)
	FAN-40SB-F	FAN-40SB (air intake on front panel)
FAN-40HA	FAN-40HA-B	FAN-40HA (air exhaust on front panel)
	FAN-40HA-F	FAN-40HA (air intake on front panel)

## 2.5 Components Available in V100R005C00

### 

The components marked \* are the new components added to V100R005C00.

## **Available Models**

 Table 2-13 lists the switch models available in V100R005C00.

Series	Model	Maximum Number of Ports Supported and Port Description
CE7800	CE7850-32Q-EI	<ul><li>32 total:</li><li>32 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
CE6800	CE6810-48S4Q-EI	<ul><li>52 total:</li><li>48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
	CE6850-48S4Q-EI	<ul><li>52 total:</li><li>48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
	CE6850-48T4Q-EI	52 total: 48 10GBASE-T Ethernet electrical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-48S4Q-LI	52 total: 48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)

 Table 2-13 Models available in V100R005C00

Series	Model	Maximum Number of Ports Supported and Port Description
	CE6810-48S-LI	48 total: 48 10GE SFP+ optical ports
	CE6850-48S6Q-HI*	<ul><li>54 total:</li><li>48 10GE SFP+ optical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
CE5800	CE5810-24T4S-EI	<ul><li>28 total:</li><li>24 10/100/1000BASE-T Ethernet electrical ports, 4</li><li>10GE SFP+ optical ports</li></ul>
	CE5810-48T4S-EI	52 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports
	CE5850-48T4S2Q- EI	54 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (cannot be split into four 10GE ports)
	CE5850-48T4S2Q- HI	54 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)

## **Available Power Modules**

 Table 2-14 lists the power modules available in V100R005C00.

 Table 2-14 Power modules available in V100R005C00

Power Module Type	Power Module	Power Description
AC power module	PAC-150WA	150 W AC power module (natural heat dissipation)
	PAC-350WA-B	350 W AC power module (air exhaust on front panel)
	PAC-350WA-F	350 W AC power module (air intake on front panel)
	PAC-600WA-B	600 W AC power module (air exhaust on front panel)
	PAC-600WA-F	600 W AC power module (air intake on front panel)

Power Module Type	Power Module	Power Description
	PAC-600WB-B*	600 W AC&240 V DC power module (air exhaust on front panel)
	PAC-600WB-F*	600 W AC&240 V DC power module (air intake on front panel)
DC power module	PDC-350WA-B	350 W DC power module (air exhaust on front panel)
	PDC-350WA-F	350 W DC power module (air intake on front panel)
High-voltage DC power module	PHD-600WA-B*	600 W high-voltage DC power module (air exhaust on front panel)
	PHD-600WA-F*	600 W high-voltage DC power module (air intake on front panel)

Table 2-15 lists the fan modules available in V100R005C00.

Series	Model	Description
FAN-40EA	FAN-40EA-B	FAN-40EA series fan modules (air exhaust on front panel)
	FAN-40EA-F	FAN-40EA series fan modules (air intake on front panel)
FAN-40SB	FAN-40SB-B	FAN-40SB series fan modules (air exhaust on front panel)
	FAN-40SB-F	FAN-40SB series fan modules (air intake on front panel)
FAN-40HA	FAN-40HA-B	FAN-40HA series fan modules (air exhaust on front panel)
	FAN-40HA-F	FAN-40HA series fan modules (air intake on front panel)
FAN-060A	FAN-060A-B*	FAN-060A series fan modules (air exhaust on front panel)

Table 2-15	Fan modules	available in	V100R005C00
1abic = 10	i un mouulos	available m	1001005000

Series	Model	Description
	FAN-060A-F*	FAN-060A series fan modules (air intake on front panel)

## 2.6 Components Available in V100R005C10

## ΠΝΟΤΕ

The components marked \* are the new components added to V100R005C10.

## **Available Models**

Table 2-16 lists the switch models available in V100R005C10.

Series	Model	Maximum Number of Ports Supported and Port Description
CE7800	CE7850-32Q-EI	32 total: 32 40GE QSFP+ optical ports (can be split into four 10GE ports)
CE6800	CE6810-48S4Q-EI	<ul><li>52 total:</li><li>48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
	CE6850-48S4Q-EI	<ul><li>52 total:</li><li>48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
	CE6850-48T4Q-EI	52 total: 48 10GBASE-T Ethernet electrical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-48S4Q-LI	<ul><li>52 total:</li><li>48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
	CE6810-48S-LI	48 total: 48 10GE SFP+ optical ports
	CE6850-48S6Q-HI	<ul><li>54 total:</li><li>48 10GE SFP+ optical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>

Table 2-16 Models available in V100R005C1
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Series	Model	Maximum Number of Ports Supported and Port Description
	CE6851-48S6Q-HI*	<ul><li>54 total:</li><li>48 10GE SFP+ optical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)</li></ul>
	CE6850U-48S6Q- HI <sup>*</sup>	<ul><li>54 total:</li><li>48 10GE SFP+/FC optical ports, 6 40GE QSFP+</li><li>optical ports (can be split into four 10GE ports)</li></ul>
	CE6850-48T6Q-HI*	54 total: 48 10GBASE-T Ethernet electrical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6850U-24S2Q- HI <sup>*</sup>	26 total: 24 10GE SFP+/FC optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-32T16S4Q -LI*	52 total: 32 10GBASE-T Ethernet electrical ports, 16 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-24S2Q-L1*	26 total: 24 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)
CE5800	CE5810-24T4S-EI	28 total: 24 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports
	CE5810-48T4S-EI	52 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports
	CE5850-48T4S2Q- EI	54 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (cannot be split into four 10GE ports)
	CE5850-48T4S2Q- HI	54 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE5855-48T4S2Q- EI*	54 total: 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)

Series	Model	Maximum Number of Ports Supported and Port Description
	CE5855-24T4S2Q- EI*	30 total: 24 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)

## **Available Power Modules**

 Table 2-17 lists the power modules available in V100R005C10.

Table 2-17 Power	modules	available	in V	/100R005C10
	modules	available		10010000010

Power Module Type	Power Module	Power Description
AC power module	PAC-150WA	150 W AC power module (natural heat dissipation)
	ES0W2PSA0150*	150 W AC power module (natural heat dissipation)
	PAC-350WA-B	350 W AC power module (air exhaust on front panel)
	PAC-350WA-F	350 W AC power module (air intake on front panel)
	PAC-600WA-B	600 W AC power module (air exhaust on front panel)
	PAC-600WA-F	600 W AC power module (air intake on front panel)
	PAC-600WB-B	600 W AC&240 V DC power module (air exhaust on front panel)
	PAC-600WB-F	600 W AC&240 V DC power module (air intake on front panel)
DC power module	PDC-350WA-B	350 W DC power module (air exhaust on front panel)
	PDC-350WA-F	350 W DC power module (air intake on front panel)
High-voltage DC power module	PHD-600WA-B	600 W high-voltage DC power module (air exhaust on front panel)

Power Module Type	Power Module	Power Description
	PHD-600WA-F	600 W high-voltage DC power module (air intake on front panel)

 Table 2-18 lists the fan modules available in V100R005C10.

Series	Model	Description
FAN-40EA	FAN-40EA-B	FAN-40EA series fan modules (air exhaust on front panel)
	FAN-40EA-F	FAN-40EA series fan modules (air intake on front panel)
FAN-40SB	FAN-40SB-B	FAN-40SB series fan modules (air exhaust on front panel)
	FAN-40SB-F	FAN-40SB series fan modules (air intake on front panel)
FAN-40HA	FAN-40HA-B	FAN-40HA series fan modules (air exhaust on front panel)
	FAN-40HA-F	FAN-40HA series fan modules (air intake on front panel)
FAN-060A	FAN-060A-B	FAN-060A series fan modules (air exhaust on front panel)
	FAN-060A-F	FAN-060A series fan modules (air intake on front panel)
FAN-040A	FAN-040A-B*	FAN-040A series fan modules (air exhaust on front panel)
	FAN-040A-F*	FAN-040A series fan modules (air intake on front panel)

 Table 2-18 Fan modules available in V100R005C10

## 2.7 Components Available in V100R006C00

The components marked \* are the new components added to V100R006C00.

## **Available Models**

Table 2-19 lists the switch models available in V100R006C00.

Series	Model	Maximum Number of Ports Supported and Port Description
CE8800	CE8860-4C-EI*	The CE8860-4C-EI has no fixed service interfaces but provides four slots for interface cards. The maximum number of ports depending on the model of interface cards. The switch supports the following card models:
		• 6.3 CE88-D8CQ (8-Port 40GE/100GE Interface Card (QSFP28))
		• 6.4 CE88-D16Q (16-Port 40GE Interface Card (QSFP+))
		• 6.5 CE88-D24T2CQ (24-Port GE/10GBASE-T (RJ45) and 2-Port 40GE/100GE (QSFP28) Interface Card)
		• 6.6 CE88-D24S2CQ (24-Port 10GE/25GE (SFP28) and 2-Port 40GE/100GE (QSFP28) Interface Card)
CE7800	CE7850-32Q-EI	32 total
		32 40GE QSFP+ optical ports (can be split into four 10GE ports)
CE6800	CE6810-48S4Q-EI	52 total
		48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6850-48S4Q-EI	52 total
		48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6850-48T4Q-EI	52 total
		48 10GBASE-T Ethernet electrical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-48S4Q-LI	52 total
		48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-48S-LI	48 total
		48 10GE SFP+ optical ports
	CE6850-48S6Q-HI	54 total
		48 10GE SFP+ optical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)

Table 2-19 Models available in V100R006C00

Series	Model	Maximum Number of Ports Supported and Port Description	
	CE6851-48S6Q-HI	54 total 48 10GE SFP+ optical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)	
	CE6850U-48S6Q- HI	54 total 48 10GE SFP+/FC optical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)	
	CE6850-48T6Q-HI	54 total 48 10GBASE-T Ethernet electrical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)	
	CE6850U-24S2Q- HI	26 total 24 10GE SFP+/FC optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)	
	CE6810-32T16S4Q -LI	52 total 32 10GBASE-T Ethernet electrical ports, 16 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)	
	CE6810-24S2Q-LI	26 total 24 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)	
CE5800	CE5810-24T4S-EI	28 total 24 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports	
	CE5810-48T4S-EI	52 total 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports	
	CE5850-48T4S2Q- EI	54 total 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (cannot be split into four 10GE ports)	
	CE5850-48T4S2Q- HI	54 total 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)	
	CE5855-48T4S2Q- EI	54 total 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)	

Series	Model	Maximum Number of Ports Supported and Port Description
	CE5855-24T4S2Q- EI	30 total 24 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)

## **Available Power Modules**

 Table 2-20 lists the power modules available in V100R006C00.

Power Module Type	Power Module	Description
AC power module	PAC-150WA	150 W AC power module (natural heat dissipation)
	ES0W2PSA0150	150 W AC power module (natural heat dissipation)
	PAC-350WA-B	350 W AC power module (air exhaust on front panel)
	PAC-350WA-F	350 W AC power module (air intake on front panel)
	PAC-600WA-B	600 W AC power module (air exhaust on front panel)
	PAC-600WA-F	600 W AC power module (air intake on front panel)
	PAC-600WB-B	600 W AC&240 V DC power module (air exhaust on front panel)
	PAC-600WB-F	600 W AC&240 V DC power module (air intake on front panel)
	PAC-1K2WA-B*	1200 W AC&240 V DC power module (air exhaust on front panel)
	PAC-1K2WA-F*	1200 W AC&240 V DC power module (air intake on front panel)
DC power module	PDC-350WA-B	350 W DC power module (air exhaust on front panel)

Power Module Type	Power Module	Description
	PDC-350WA-F	350 W DC power module (air intake on front panel)
High-voltage DC power module	PHD-600WA-B	600 W high-voltage DC power module (air exhaust on front panel)
	PHD-600WA-F	600 W high-voltage DC power module (air intake on front panel)
	PHD-1K2WA-B*	1200 W high-voltage DC power module (air exhaust on front panel)
	PHD-1K2WA-F*	1200 W high-voltage DC power module (air intake on front panel)

 Table 2-21 lists the fan modules available in V100R006C00.

Table 2-21	Fan	modules	available	in	V100R006C00
		1110 44100			1 100120000000

Series	Model	Description
FAN-40EA	FAN-40EA-B	FAN-40EA series fan modules (air exhaust on front panel)
	FAN-40EA-F	FAN-40EA series fan modules (air intake on front panel)
FAN-40SB	FAN-40SB-B	FAN-40SB series fan modules (air exhaust on front panel)
	FAN-40SB-F	FAN-40SB series fan modules (air intake on front panel)
FAN-40HA	FAN-40HA-B	FAN-40HA series fan modules (air exhaust on front panel)
	FAN-40HA-F	FAN-40HA series fan modules (air intake on front panel)
FAN-060A	FAN-060A-B	FAN-060A series fan modules (air exhaust on front panel)
	FAN-060A-F	FAN-060A series fan modules (air intake on front panel)

Series	Model	Description
FAN-040A	FAN-040A-B	FAN-040A series fan modules (air exhaust on front panel)
	FAN-040A-F	FAN-040A series fan modules (air intake on front panel)
FAN-180A	FAN-180A-B*	FAN-180A series fan modules (air exhaust on front panel)
	FAN-180A-F*	FAN-180A series fan modules (air intake on front panel)

## Available Cards

 Table 2-22 lists the cards available in V100R006C00.

**Table 2-22** Cards available in V100R006C00

Card Model	Description
CE88-D8CQ*	8-port 40GE/100GE interface card (QSFP28)
CE88-D16Q*	16-port 40GE interface card (QSFP+)
CE88-D24T2CQ*	24-port GE/10GBASE-T (RJ45) and 2-port 40GE/100GE (QSFP28) interface card
CE88-D24S2CQ*	24-port 10GE/25GE (SFP28) and 2-port 40GE/100GE (QSFP28) interface card

## 2.8 Components Available in V200R001C00

## 

The components marked \* are the new components added to V200R001C00.

## **Available Models**

Table 2-23 lists the switch models available in V200R001C00.

Series	Model	Maximum Number of Ports Supported and Port Description
CE8800	CE8860-4C-EI	<ul> <li>The CE8860-4C-EI has no fixed service interfaces but provides four slots for interface cards. The maximum number of ports depending on the model of interface cards. The switch supports the following card models:</li> <li>6.3 CE88-D8CQ (8-Port 40GE/100GE Interface Card (QSFP28))</li> <li>6.4 CE88-D16Q (16-Port 40GE Interface Card (QSFP+))</li> <li>6.5 CE88-D24T2CQ (24-Port GE/10GBASE-T (RJ45) and 2-Port 40GE/100GE (QSFP28) Interface Card)</li> <li>6.6 CE88-D24S2CQ (24-Port 10GE/25GE (SFP28) and 2-Port 40GE/100GE (QSFP28) Interface Card)</li> </ul>
CE7800	CE7850-32Q-EI	32 total 32 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE7855-32Q-EI*	32 total 32 40GE QSFP+ optical ports (can be split into four 10GE ports)
CE6800	CE6810-48S4Q-EI	52 total 48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6850-48S4Q-EI	52 total 48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6850-48T4Q-EI	52 total 48 10GBASE-T Ethernet electrical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-48S4Q-LI	52 total 48 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-48S-LI	48 total 48 10GE SFP+ optical ports
	CE6850-48S6Q-HI	54 total 48 10GE SFP+ optical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)

 Table 2-23 Models available in V200R001C00

Series	Model	Maximum Number of Ports Supported and Port Description
	CE6851-48S6Q-HI	54 total 48 10GE SFP+ optical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6855-4886Q-HI*	54 total 48 10GE SFP+ optical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6850U-48S6Q- HI	54 total 48 10GE SFP+/FC optical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)
	СЕ6850-48Т6Q-НІ	54 total 48 10GBASE-T Ethernet electrical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)
	СЕ6855-48Т6Q-НІ*	54 total 48 10GBASE-T Ethernet electrical ports, 6 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6850U-24S2Q- HI	26 total 24 10GE SFP+/FC optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-32T16S4Q -LI	52 total 32 10GBASE-T Ethernet electrical ports, 16 10GE SFP+ optical ports, 4 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6810-24S2Q-LI	26 total 24 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE6870-24S6CQ- EI*	30 total 24 10GE SFP+ optical ports, 6 40GE/100GE QSFP28 optical ports (can be split into four 10GE or 25GE ports)
	CE6870-48S6CQ- EI*	54 total 48 10GE SFP+ optical ports, 6 40GE/100GE QSFP28 optical ports (can be split into four 10GE or 25GE ports)
CE5800	CE5810-24T4S-EI	28 total 24 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports

Series	Model	Maximum Number of Ports Supported and Port Description
	CE5810-48T4S-EI	52 total 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports
	CE5850-48T4S2Q- EI	54 total 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (cannot be split into four 10GE ports)
	CE5850-48T4S2Q- HI	54 total 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE5855-48T4S2Q- EI	54 total 48 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)
	CE5855-24T4S2Q- EI	30 total 24 10/100/1000BASE-T Ethernet electrical ports, 4 10GE SFP+ optical ports, 2 40GE QSFP+ optical ports (can be split into four 10GE ports)

## **Available Power Modules**

 Table 2-24 lists the power modules available in V200R001C00.

<b>Fable 2-24</b> Power modules available	ble in V200R001C00
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Power Module Type	Power Module	Description
AC power module	PAC-150WA	150 W AC power module (natural heat dissipation)
	ES0W2PSA0150	150 W AC power module (natural heat dissipation)
	PAC-350WA-B	350 W AC power module (air exhaust on front panel)
	PAC-350WA-F	350 W AC power module (air intake on front panel)
	PAC-600WA-B	600 W AC power module (air exhaust on front panel)

Power Module Type	Power Module	Description
	PAC-600WA-F	600 W AC power module (air intake on front panel)
	PAC-600WB-B	600 W AC&240 V DC power module (air exhaust on front panel)
	PAC-600WB-F	600 W AC&240 V DC power module (air intake on front panel)
	PAC-1K2WA-B	1200 W AC&240 V DC power module (air exhaust on front panel)
	PAC-1K2WA-F	1200 W AC&240 V DC power module (air intake on front panel)
DC power module	PDC-350WA-B	350 W DC power module (air exhaust on front panel)
	PDC-350WA-F	350 W DC power module (air intake on front panel)
High-voltage DC power module	PHD-600WA-B	600 W high-voltage DC power module (air exhaust on front panel)
	PHD-600WA-F	600 W high-voltage DC power module (air intake on front panel)
	PHD-1K2WA-B	1200 W high-voltage DC power module (air exhaust on front panel)
	PHD-1K2WA-F	1200 W high-voltage DC power module (air intake on front panel)

Table 2-25 lists the fan modules available in V200R001C00.

Table 2-25 Fa	n modules	available i	in	V200R001C00
10010				

Series	Model	Description
FAN-40EA	FAN-40EA-B	FAN-40EA series fan modules (air exhaust on front panel)
Series	Model	Description
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	FAN-40EA-F	FAN-40EA series fan modules (air intake on front panel)
FAN-40SB	FAN-40SB-B	FAN-40SB series fan modules (air exhaust on front panel)
	FAN-40SB-F	FAN-40SB series fan modules (air intake on front panel)
FAN-40HA	FAN-40HA-B	FAN-40HA series fan modules (air exhaust on front panel)
	FAN-40HA-F	FAN-40HA series fan modules (air intake on front panel)
FAN-060A	FAN-060A-B	FAN-060A series fan modules (air exhaust on front panel)
	FAN-060A-F	FAN-060A series fan modules (air intake on front panel)
FAN-040A	FAN-040A-B	FAN-040A series fan modules (air exhaust on front panel)
	FAN-040A-F	FAN-040A series fan modules (air intake on front panel)
FAN-180A	FAN-180A-B	FAN-180A series fan modules (air exhaust on front panel)
	FAN-180A-F	FAN-180A series fan modules (air intake on front panel)

# **Available Cards**

Table 2-26 lists the cards available in V200R001C00.

**Table 2-26** Cards available in V200R001C00

Card Model	Description
CE88-D8CQ	8-port 40GE/100GE interface card (QSFP28)
CE88-D16Q	16-port 40GE interface card (QSFP+)
CE88-D24T2CQ	24-port GE/10GBASE-T (RJ45) and 2-port 40GE/100GE (QSFP28) interface card
CE88-D24S2CQ	24-port GE/10GE/25GE (SFP28) and 2-port 40GE/100GE (QSFP28) interface card

# $\mathbf{3}_{\mathrm{Chassis}}$

# **About This Chapter**

- 3.1 Naming Conventions
- 3.2 Version Mapping
- 3.3 Chassis Models

#### 3 Chassis

# 3.1 Naming Conventions

Figure 3-1 shows the CE8800&7800&6800&5800 series switches naming conventions.

Figure 3-1 CE8800&7800&6800&5800 series switches naming conventions



 Table 3-1 describes the CE8800&7800&6800&5800 series switches naming conventions.

Fiel d	Meaning			
A	CloudEngine series data center switches			
	• CE88: CE8800 series			
	• CE78: CE7800 series			
	• CE68: CE6800 series			
	• <b>CE58</b> : CE5800 series			
B	Product model category:			
	• 10: basic model			
	• 50/55: advanced model			
	• 60:			
	- CE8860: model that supports flexible service units			
	• 70: large-buffer model			
С	Special function flag. This flag is not present if the product does not provide special functions.			
	U: The product supports FC ports.			
D	Number and type of downlink interfaces:			
	• T: GE/10GBase-T electrical interfaces			
	• S: GE/10GE SFP+ optical interfaces			
	• <b>Q</b> : 40GE quad small form-factor pluggable plus (QSFP+) optical interfaces			
	• <b>xC</b> : For a model supporting flexible service units, x stands for the number of slots and C is a slot identifier.			

Table 2.1	CE0000 8-7000	8.6900 8.5900	corios	awitahaa	nomina	annuantions
Table 3-1	$CE0000\alpha/000$	12080023800	series	switches	naming	conventions

Fiel d	Meaning				
Е	Number and types of uplink interfaces:				
	• T: GE/10GBase-T electrical interfaces				
	• S: GE/10GE SFP+ optical interfaces				
	• Q: 40GE QSFP+ optical interfaces				
	• CQ: 40GE/100GE QSFP28 optical interfaces				
	<b>NOTE</b> This field is not present in the product name if the product has only fixed interfaces and the uplink and downlink interfaces are the same type or if the product supports flexible service units.				
F	Product model type:				
	• LI: model providing basic functions				
	• EI: model providing enhanced functions				
	• HI: model providing advanced functions				

# 3.2 Version Mapping

 Table 3-2 lists the mapping between the CE8800&7800&6800&5800 series switches and software versions.

Table 3-2 Mapping between the (	CE8800&7800&6800&5800	series switches	and software
versions			

Series		Model	Available Version
CE8800	CE8860	CE8860-4C-EI	V100R006C00 and later versions
CE7800	CE7850	CE7850-32Q-EI	V100R003C00 and later versions
	CE7855	CE7855-32Q-EI	V200R001C00 and later versions
CE6800	CE6810	CE6810-48S4Q-EI	V100R003C00 and later versions
		CE6810-48S4Q-LI	V100R003C10 and later versions
		CE6810-48S-LI	V100R003C10 and later versions
		CE6810-32T16S4Q- LI	V100R005C10 and later versions
		CE6810-24S2Q-LI	V100R005C10 and later versions
	CE6850	CE6850-48S4Q-EI	V100R001C00 and later versions
		CE6850-48T4Q-EI	V100R001C00 and later versions
		CE6850-48S6Q-HI	V100R005C00 and later versions

Series		Model	Available Version
		CE6850-48T6Q-HI	V100R005C10 and later versions
		CE6851-48S6Q-HI	V100R005C10 and later versions
		CE6850U-24S2Q-HI	V100R005C10 and later versions
		CE6850U-48S6Q-HI	V100R005C10 and later versions
		CE6855-48S6Q-HI	V200R001C00 and later versions
		СЕ6855-48Т6Q-НІ	V200R001C00 and later versions
	CE6870	CE6870-24S6CQ-EI	V200R001C00 and later versions
		CE6870-48S6CQ-EI	V200R001C00 and later versions
CE5800	CE5810	CE5810-24T4S-EI	V100R002C00 and later versions
		CE5810-48T4S-EI	V100R002C00 and later versions
	CE5850	CE5850-48T4S2Q-EI	V100R001C00 and later versions
		CE5850-48T4S2Q-HI	V100R003C00 and later versions
	CE5855	CE5855-48T4S2Q-EI	V100R005C10 and later versions
		CE5855-24T4S2Q-EI	V100R005C10 and later versions

# 3.3 Chassis Models

# 3.3.1 CE5800

# CE5810-24T4S-EI

# **Appearance and Structure**

The figures in this document are for reference only. **CE5810-24T4S-EI** 





1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 150 W AC power module (PAC-150WA)		• 150 W AC power module (PAC-150WA)
	• 350 W DC power module		• 350 W DC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40SB series fan modules		• FAN-40SB series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.		

9	Twenty-four 10/100/1000BASE-T Ethernet electrical ports	10	<ul> <li>Four 10GE SFP+ Ethernet optical ports</li> <li>Applicable modules and cables:</li> <li>10GE optical module</li> <li>GE optical module</li> <li>GE copper module (only works at 1000 Mbit/s)</li> <li>SFP+ AOC cable</li> <li>SFP+ copper cables</li> </ul>
11	Three port-side mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets
13	Ground screw	_	-

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

#### ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-3** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **balance**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-4** (CE5800 as an example).

- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.
- When the fanless 150 W AC power module is used, the fan module with either of the airflow methods can be used.

#### Figure 3-3 Front-to-back airflow (air flows out from the port side)



#### Figure 3-4 Back-to-front airflow (air flows into from the port side)



#### Indicators

The CE5810-24T4S-EI has no 40GE port indicators or 40GE Breakout indicators 1/2/3/4. Other indicators on the three models are the same as those on the CE5850-48T4S2Q-HI. The CE5850-48T4S2Q-HI is used as an example here to describe the indicators.

#### Ports

#### 10/100/1000BASE-T Ethernet Electrical Port

A 10/100/1000BASE-T Ethernet electrical port receives and sends services at a speed of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. A 10/100/1000BASE-T Ethernet electrical port uses a Category 5 or higher category cable. **Table 3-3** describes the attributes of a 10/100/1000BASE-T Ethernet electrical port.

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Applicable cable	Straight-through cable and crossover cable
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

Table 3-3 Attributes of a 10/100/1000BASE-T Ethernet electrica	l port
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#### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services

when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-4** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description	
Connector	LC	
Optical attributes	Depending on the module or cable in use	
Standards compliance	IEEE802.3ae	
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex	

Table 3-4 Attributes of a 10GE SFP+ Ethernet optical port

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-5** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table 3-5 Attributes of the console port

Attribute	Description	
Connector	RJ45	
Standards compliance	RS232	
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)	
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s	

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 3-6** describes the attributes of the ETH management port (RJ45).

Table 3-6	Attributes	of the l	ЕТН	management p	ort (	RJ45)
Table 5-0	1 minoutes	or the i		management p		1.5757

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

#### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

 Table 3-7 lists the specifications of CE5810-24T4S-EI switches.

Item		Description		
Physical specifications		• Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm.		
		• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 8.0 kg.		
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         <ul> <li>When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.</li> </ul> </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>		
	Relative humidity	5% RH to 95% RH, noncondensing.		
	Altitude	< 5000 m		
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 43 dBA.</li> <li>Front-to-back airflow: &lt; 47 dBA.</li> </ul>		
Power specifications	Power source type	AC/DC		

#### Table 3-7 Specifications

Item		Description			
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>			
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>			
	High-voltage DC power input	Not supported.			
	Maximum input current	<ul> <li>150 W AC power (PAC-150WA): 2.5 A (90 V AC).</li> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> </ul>			
Chassis power consumption	Maximum power consumption	68 W			
	Typical power consumption	58 W (100% traffic load, 3 m network cables on 24 ports, SFP+ cables on 4 ports, double power modules).			
Chassis heat dissipation	Maximum heat dissipation	232 BTU/hr			
	Typical heat dissipation	198 BTU/hr (100% traffic load, 3 m network cables on 24 ports, SFP+ cables on 4 ports, double power modules).			
Surge protection		Ethernet electrical ports: 2 kV in common mode. Power module:			
		• AC: 6 kV in common mode and 6 kV in differential mode.			
		• DC: 4 kV in common mode and 2 kV in differential mode.			
Heat dissipation	Heat dissipation mode	Air cooling			
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.			
Reliability and availability	Power module backup	1+1 backup.			
	Fan module backup	1+1 backup.			

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Item		Description		
	Hot swap	All the power modules and fan modules support hot swap.		
	Mean time between failures (MTBF)	70.3		
Mean time to repair (MTTR)		1.75		
	Availability	0.9999971525		
Technical	Processor	1.2 GHz, dual-core.		
specifications	DRAM Memory	2 GB		
	NOR Flash	16 MB		
	NAND Flash	512 MB		
Stack	Service port supporting the stack function	10GE optical ports		
Safety standards	compliance	• EN 60950-1:2006+A11:2009+A1:2010+A12:2011		
		• EN 60825-1:2007		
		• EN 60825-2:2010		
		• UL 60950-1:2007 2rd Edition		
		<ul> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>EG (2005) 1 2005 + 11 2000</li> </ul>		
		• IEC 00950-1:2005+A1:2009 • AS/NIZS 60050 1:2011		
		GB4943-2011		

Item	Description		
EMC standards compliance	• FCC 47CFR Part15 CLASS A		
	• ETSI EN 300 386 V1.6.1:2012		
	• ICES-003:2012 CLASS A		
	• CISPR 22:2008 CLASS A		
	• CISPR 24:2010		
	• EN 55022:2010 CLASS A		
	• EN 55024:2010		
	• AS/NZS CISPR 22:2009 CLASS A		
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>		
	• IEC 61000-3-3:2008/EN 61000-3-3:2008		
	• CNS 13438:2006 CLASS A		
	• VCCI V-4:2012 CLASS A		
	• VCCI V-3:2012 CLASS A		
	• EC Council Directive 2004/108/EC		
	• GB9254		
Safety and environmental	• 2002/95/EC, 2011/65/EU		
standards compliance	• 2002/96/EC, 2012/19/EU		
	• EC NO.1907/2006		
	• ETSI EN 300 019-1-1 V2.1.4		
	• ETSI EN 300 019-1-2 V2.1.4		
	• ETSI EN 300 019-1-3 V2.3.2		
	• ETSI EN 300753 V1.2.1		

## **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 3-8 provides the ordering information.

Part Number	Part Model	Part Description
02356879	CE5810-24T4S -EI	CE5810-24T4S-EI Switch (24-Port GE RJ45, 4-Port 10GE SFP+, Without Fan Box and Power Module)
02350EYF	CE5810-24T4S -EI-F	CE5810-24T4S-EI Switch (24-Port GE RJ45, 4-Port 10G SFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)

Table 3-8 Ordering information

Part Number	Part Model	Part Description
02350EYH	CE5810-24T4S -EI-B	CE5810-24T4S-EI Switch (24-Port GE RJ45, 4-Port 10G SFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02359082	CE5810-EI- B01	CE5810-24T4S-EI Switch (2*150W AC Power Module, 2*FAN Box, Port-side Exhaust)
02350EYN	CE5810-EI-B- B01	CE5810-24T4S-EI Switch (2*150W Power Module, 2*FAN Box, Port-side Intake)
02350BGP	CE5810-EI- B11	CE5810-24T4S-EI Bundle 11 (CE5810-24T4S-EI mainframe, 4*SFP-10G-USR, Without Fan Box and Power Module)

#### CE5810-48T4S-EI

# Appearance and Structure

The figures in this document are for reference only.

#### CE5810-48T4S-EI

#### Figure 3-5 Appearance of the CE5810-48T4S-EI



-		-	
1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 150 W AC power module		• 150 W AC power module
	(PAC-150WA)		(PAC-150WA)
	• 350 W DC power module		• 350 W DC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40SB series fan modules		• FAN-40SB series fan modules
	FAIL-405D series fail mounes		• FAIN-405D series fair modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	NOTE		
	This label is drawable, and you can pull it		
	address of the switch		
9	Forty-eight 10/100/1000BASE-T	10	Four 10GE SFP+ Ethernet optical ports
	Ethernet electrical ports		Applicable modules and cables:
			• 10GE optical module
			• GE optical module
			• CF copper module (only works at
			1000 Mbit/s)
			• SFP+ AOC cable
			• SFP+ copper cables
<u> </u>		1.0	
	I hree port-side mounting holes for	12	Four power-supply-side mounting holes
13	Ground screw	-	-

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

#### ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-6** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **based**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-7** (CE5800 as an example).

- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.
- When the fanless 150 W AC power module is used, the fan module with either of the airflow methods can be used.



#### Figure 3-6 Front-to-back airflow (air flows out from the port side)

Figure 3-7 Back-to-front airflow (air flows into from the port side)



### Indicators

The CE5810-48T4S-EI has no 40GE port indicators or 40GE Breakout indicators 1/2/3/4. Other indicators on the three models are the same as those on the CE5850-48T4S2Q-HI. The CE5850-48T4S2Q-HI is used as an example here to describe the indicators.

#### Ports

#### 10/100/1000BASE-T Ethernet Electrical Port

A 10/100/1000BASE-T Ethernet electrical port receives and sends services at a speed of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. A 10/100/1000BASE-T Ethernet electrical port uses a Category 5 or higher category cable. **Table 3-9** describes the attributes of a 10/100/1000BASE-T Ethernet electrical port.

Attribute	Description	
Connector	RJ45	
Standards compliance	IEEE802.3ab	
Applicable cable	Straight-through cable and crossover cable	
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex	
Maximum transmission distance	100 m	

 Table 3-9 Attributes of a 10/100/1000BASE-T Ethernet electrical port

#### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-10** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description	
Connector	LC	
Optical attributes	Depending on the module or cable in use	
Standards compliance	IEEE802.3ae	
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex	

Table 3-10 Attributes of a 10GE SFP+ Ethernet optical port

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-11** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table 3-11	Attributes	of the	console	port

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. Table 3-12 describes the attributes of the ETH management port (RJ45).

Table 3-12 Attributes	s of the ETH	management port	(RJ45)
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Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

#### **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

 Table 3-13 lists the specifications of CE5810-48T4S-EI switches.

Item		Description			
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm.</li> <li>Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 8.2 kg.</li> </ul>			
Environment Temperature parameters		<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>			
	Relative humidity	5% RH to 95% RH, noncondensing.			
	Altitude	< 5000 m			
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 43 dBA.</li> <li>Front-to-back airflow: &lt; 47 dBA.</li> </ul>			
Power specifications	Power source type	AC/DC			
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>			
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>			
	High-voltage DC power input	Not supported.			
	Maximum input current	<ul> <li>150 W AC power (PAC-150WA): 2.5 A (90 V AC).</li> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> </ul>			
Chassis power consumption	Maximum power consumption	92 W			
	Typical power consumption	80 W (100% traffic load, 3 m network cables on 48 ports and SFP+ cables on 4 ports, double power modules).			

Item		Description			
Chassis heat dissipation	Maximum heat dissipation	314 BTU/hr			
Typical heat dissipation		273 BTU/hr (100% traffic load, 3 m network cables on 48 ports and SFP+ cables on 4 ports, double power modules).			
Surge protection		Ethernet electrical ports: 2 kV in common mode.			
		Power module:			
		• AC: 6 kV in common mode and 6 kV in differential mode.			
		• DC: 4 kV in common mode and 2 kV in differential mode.			
Heat dissipation	Heat dissipation mode	Air cooling			
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.			
Reliability and availability	Power module backup	1+1 backup.			
	Fan module backup	1+1 backup.			
	Hot swap	All the power modules and fan modules support hot swap.			
	Mean time between failures (MTBF)	60.48			
	Mean time to repair (MTTR)	1.76			
	Availability	0.9999966753			
Technical	Processor	1.2 GHz, dual-core.			
specifications	DRAM Memory	2 GB			
	NOR Flash	16 MB			
	NAND Flash	512 MB			
Stack	Service port supporting the stack function	n 10GE optical ports			

Item	Description
Safety standards compliance	<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>GB4943:2011</li> </ul>
EMC standards compliance	<ul> <li>FCC 47CFR Part15 CLASS A</li> <li>ETSI EN 300 386 V1.6.1:2012</li> <li>ICES-003:2012 CLASS A</li> <li>CISPR 22:2008 CLASS A</li> <li>CISPR 24:2010</li> <li>EN 55022:2010 CLASS A</li> <li>EN 55024:2010</li> <li>AS/NZS CISPR 22:2009 CLASS A</li> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> <li>IEC 61000-3-3:2008/EN 61000-3-3:2008</li> <li>CNS 13438:2006 CLASS A</li> <li>VCCI V-4:2012 CLASS A</li> <li>VCCI V-3:2012 CLASS A</li> <li>EC Council Directive 2004/108/EC</li> <li>GB9254</li> </ul>
Safety and environmental standards compliance	<ul> <li>2002/95/EC, 2011/65/EU</li> <li>2002/96/EC, 2012/19/EU</li> <li>EC NO.1907/2006</li> <li>ETSI EN 300 019-1-1 V2.1.4</li> <li>ETSI EN 300 019-1-2 V2.1.4</li> <li>ETSI EN 300 019-1-3 V2.3.2</li> <li>ETSI EN 300753 V1.2.1</li> </ul>

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-14 provides the ordering information.

Part Number	Part Model	Part Description
02356878	CE5810-48T4S -EI	CE5810-48T4S-EI Switch (48-Port GE RJ45, 4-Port 10GE SFP+, Without Fan Box and Power Module)
02350EYW	CE5810-48T4S -EI-F	CE5810-48T4S-EI Switch (48-Port GE RJ45, 4-Port 10G SFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EYX	CE5810-48T4S -EI-B	CE5810-48T4S-EI Switch (48-Port GE RJ45, 4-Port 10G SFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02359081	CE5810-EI- B00	CE5810-48T4S-EI Switch (2*150W AC Power Module, 2*FAN Box, Port-side Exhaust)
02350EYP	CE5810-EI-B- B00	CE5810-48T4S-EI Switch (2*150W Power Module, 2*FAN Box, Port-side Intake)
02350BGQ	CE5810-EI- B10	CE5810-48T4S-EI Bundle 10 (CE5810-48T4S-EI mainframe, 8*SFP-10G-USR, Without Fan Box and Power Module)

# CE5850-48T4S2Q-EI

# Appearance and Structure

The figures in this document are for reference only.

CE5850-48T4S2Q-EI





1	Dessen sounds, slot 1	2	Deres and the slot 2
1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 150 W AC power module (PAC-150WA)		• 150 W AC power module (PAC-150WA)
	• 350 W DC power module		• 350 W DC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40EA series fan modules		• FAN-40EA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.		

9	Forty-eight 10/100/1000BASE-T Ethernet electrical ports	10	<ul> <li>Four 10GE SFP+ Ethernet optical ports</li> <li>Applicable modules and cables:</li> <li>10GE optical module</li> <li>GE optical module</li> <li>GE copper module (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)</li> <li>SFP+ AOC cable</li> <li>SFP+ copper cables</li> </ul>
11	<ul> <li>Two 40GE QSFP+ Ethernet optical ports</li> <li>NOTE <ul> <li>A 40GE QSFP+ port cannot be split into four 10GE ports.</li> </ul> </li> <li>Applicable modules and cables: <ul> <li>40GE optical module</li> <li>QSFP+ AOC cable (QSFP+ to QSFP+)</li> <li>QSFP+ copper cables (QSFP+ to QSFP+)</li> </ul> </li> </ul>	12	Three port-side mounting holes for mounting brackets
13	Four power-supply-side mounting holes for mounting brackets	14	Ground screw

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.
- All power modules are hot swappable.
- Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan

modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

#### 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-9** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **based**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-10** (CE5800 as an example).

- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.
- When the fanless 150 W AC power module is used, the fan module with either of the airflow methods can be used.

Figure 3-9 Front-to-back airflow (air flows out from the port side)



#### Figure 3-10 Back-to-front airflow (air flows into from the port side)



#### Indicators

The CE5850-48T4S2Q-EI has no 40GE Breakout indicators 1/2/3/4, and other indicators are the same as those on the CE5850-48T4S2Q-HI. The CE5850-48T4S2Q-HI is used as an example here to describe the indicators.

#### Ports

#### 10/100/1000BASE-T Ethernet Electrical Port

A 10/100/1000BASE-T Ethernet electrical port receives and sends services at a speed of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. A 10/100/1000BASE-T Ethernet electrical port uses a Category 5 or higher category cable. **Table 3-15** describes the attributes of a 10/100/1000BASE-T Ethernet electrical port.

Attribute	Description	
Connector	RJ45	
Standards compliance	e IEEE802.3ab	
Applicable cable	Straight-through cable and crossover cable	
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex	
Maximum transmission distance	100 m	

Table 3-15 Attributes of a 10/100/1000BASE-T Ethernet electrical po
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#### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services

when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-16** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description	
Connector	LC	
Optical attributes	Depending on the module or cable in use	
Standards compliance	IEEE802.3ae	
Working mode         Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing           Full-duplex         Full-duplex		

Table 3-16 Attributes of a 10GE SFP+ Ethernet optical port

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A 5 m SFP+ high-speed cable cannot be used to connect 10GE optical ports between the CE5850EI (running a version prior to V100R005C10) and CE5855EI switches. To connect the 10GE optical ports of the two switches, use any of the following methods:

- Use a 1 m, 3 m, 7 m, or 10 m SFP+ high-speed cable.
- Use an active optical cable (AOC) or optical modules and optical fibers.
- Upgrade the system software of the CE5850EI switch to V100R005C10 or a later version.

#### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-17** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description	
Connector	LC/MPO	
Optical attributes	Depending on the module or cable used	
Standards compliance	IEEE802.3ba	
Working mode	Full-duplex	

Table 3-17 Attributes of a 40GE QSFP+ Ethernet optical port

#### ΠΝΟΤΕ

A 5 m 1-to-4 QSFP+ high-speed cable cannot be used to connect a 40GE optical port (split into four 10GE ports) and 10GE optical ports between the CE5850EI (running a version prior to V100R005C10) and CE5855EI switches. To connect the 10GE and 40GE optical ports of the two switches, use any of the following methods:

- Use a 1 m or 3 m 1-to-4 QSFP+ high-speed cable.
- Use optical modules and optical fibers.
- Upgrade the system software of the CE5850EI switch to V100R005C10 or a later version.

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-18** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Attribute	Description	
Connector	RJ45	
Standards RS232 compliance		
Working mode         Duplex Universal Asynchronous Receiver/Transmitter (UART)		
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s	

#### Table 3-18 Attributes of the console port

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 3-19** describes the attributes of the ETH management port (RJ45).

Table 3-19	Attributes	of the	ETH	management	port	(RJ45)	
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Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex	

Attribute	Description
Maximum transmission distance	100 m

#### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

 Table 3-20 lists the specifications of CE5850-48T4S2Q-EI switches.

Table 3-20 Specifications	Table	3-20	Specifications
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Item		Description		
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm.</li> </ul>		
		• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 8.85 kg.		
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE</li> </ul>		
		When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.		
		• Storage temperature: $-40^{\circ}$ C to $+70^{\circ}$ C.		
	Relative humidity	5% RH to 95% RH, noncondensing.		
	Altitude	< 5000 m		
	Noise (sound	• Back-to-front airflow: < 45 dBA.		
	pressure, 27°C)	• Front-to-back airflow: < 45 dBA.		
Power specifications	Power source type	AC/DC		
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.		
		<ul> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>		
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>		

Item		Description		
	High-voltage DC power input	Not supported.		
	Maximum input current	<ul> <li>150 W AC power (PAC-150WA): 2.5 A (90 V AC).</li> <li>350 W DC power (PDC-350WA series): 11 A</li> </ul>		
		(-38.4 V DC).		
Chassis power consumption	Maximum power consumption	133 W		
	Typical power consumption	103 W (100% traffic load, 3 m network cables on 48 ports and SFP+ cables on 4 ports and QSFP+ cables on 2 ports, double power modules).		
Chassis heat dissipation	Maximum heat dissipation	454 BTU/hr		
	Typical heat dissipation	351 BTU/hr (100% traffic load, 3 m network cables on 48 ports and SFP+ cables on 4 ports and QSFP+ cables on 2 ports, double power modules).		
Surge protection		Ethernet electrical ports: 2 kV in common mode.		
		Power module:		
		<ul> <li>AC: 6 kV in common mode and 6 kV in differential mode.</li> </ul>		
		• DC: 4 kV in common mode and 2 kV in differential mode.		
Heat dissipation	Heat dissipation mode	Air cooling		
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.		
Reliability and availability	Power module backup	1+1 backup.		
	Fan module backup	1+1 backup.		
	Hot swap	All the power modules and fan modules support hot swap.		
	Mean time between failures (MTBF)	53.27		

Item		Description		
	Mean time to repair (MTTR)	2.0		
	Availability	0.9999947257		
Technical	Processor	1.2 GHz, quad-core.		
specifications	DRAM Memory	2 GB		
	NOR Flash	8 MB		
	NAND Flash	1 GB		
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports.		
Safety standards compliance		<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>AD 10.12 0011</li> </ul>		
EMC standards compliance		<ul> <li>FCC 47CFR Part15 CLASS A</li> <li>ETSI EN 300 386 V1.6.1:2012</li> <li>ICES-003:2012 CLASS A</li> <li>CISPR 22:2008 CLASS A</li> <li>CISPR 24:2010</li> <li>EN 55022:2010 CLASS A</li> <li>EN 55024:2010</li> <li>AS/NZS CISPR 22:2009 CLASS A</li> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> <li>IEC 61000-3-3:2008/EN 61000-3-3:2008</li> <li>CNS 13438:2006 CLASS A</li> <li>VCCI V-4:2012 CLASS A</li> <li>VCCI V-3:2012 CLASS A</li> <li>EC Council Directive 2004/108/EC</li> <li>GB9254</li> </ul>		

Item	Description	
Safety and environmental	• 2002/95/EC, 2011/65/EU	
standards compliance	• 2002/96/EC, 2012/19/EU	
	• EC NO.1907/2006	
	• ETSI EN 300 019-1-1 V2.1.4	
	• ETSI EN 300 019-1-2 V2.1.4	
	• ETSI EN 300 019-1-3 V2.3.2	
	• ETSI EN 300753 V1.2.1	

## **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 3-21 provides the ordering information.

Part Number	Part Model	Part Description
02355272	CE5850-48T4S 2Q-EI	CE5850-48T4S2Q-EI Switch (48-Port GE RJ45, 4- Port 10GE SFP+, 2-Port 40GE QSFP+, Without Fan Box and Power Module)
02350EXX	CE5850-48T4S 2Q-EI-F	CE5850-48T4S2Q-EI Switch (48-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EXY	CE5850-48T4S 2Q-EI-B	CE5850-48T4S2Q-EI Switch (48-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02359104	CE5850-EI- B00	CE5850-48T4S2Q-EI Switch (2*150W AC Power Module, 2*FAN Box, Port-side Exhaust)
02350FCK	CE5850-EI-B- B00	CE5850-48T4S2Q-EI Switch (2*150W Power Module, 2*FAN Box, Port-side Intake)

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# CE5850-48T4S2Q-HI

# **Appearance and Structure**

The figures in this document are for reference only.

CE5850-48T4S2Q-HI



Rial	nt	side
TNY	п	Side

1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 150 W AC power module (PAC-150WA)		• 150 W AC power module (PAC-150WA)
	• 350 W DC power module		• 350 W DC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40EA series fan modules		• FAN-40EA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.		

9	Forty-eight 10/100/1000BASE-T Ethernet electrical ports	10	<ul> <li>Four 10GE SFP+ Ethernet optical ports</li> <li>Applicable modules and cables:</li> <li>10GE optical module</li> <li>GE optical module</li> <li>GE copper module (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)</li> <li>SFP+ AOC cable</li> <li>SFP+ copper cables</li> </ul>
11	<ul> <li>Two 40GE QSFP+ Ethernet optical ports</li> <li>NOTE <ul> <li>A 40GE QSFP+ port can be split into four 10GE ports.</li> </ul> </li> <li>Applicable modules and cables: <ul> <li>40GE optical module</li> <li>QSFP+ AOC cable (QSFP+ to QSFP+)</li> </ul> </li> <li>QSFP+ AOC cable (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to QSFP+)</li> </ul>	12	Three port-side mounting holes for mounting brackets
13	Four power-supply-side mounting holes for mounting brackets	14	Ground screw

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.
All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

#### ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in Figure 3-12 (CE5800 as an example).

Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **based**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-13** (CE5800 as an example).

- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.
- When the fanless 150 W AC power module is used, the fan module with either of the airflow methods can be used.



#### Figure 3-12 Front-to-back airflow (air flows out from the port side)



#### Figure 3-13 Back-to-front airflow (air flows into from the port side)

# Indicators



Figure 3-14 Indicators on the CE5850-48T4S2Q-HI rear panel

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# Figure 3-15 Indicators on the CE5850-48T4S2Q-HI front panel

Table 3-22 Indicators on the CE5850-48T4S2Q-HI pan	els
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No.	Indicator/Button	Color	Description
1	SYS: system status	-	Off: The system is not running.
	indicator	Green	• Fast blinking: The system is starting.
			• Slow blinking: The system is running properly.
		Red	Steady on:
			• The system fails to start.
			• At least one power module does not work normally.
			• At least one fan module does not work normally.
2	MST: stack master/	-	Off: The switch is not a stack master.
	slave indicator	Green	• Steady on: The switch is a stack master or standalone switch.
			• Blinking: The switch is working in SVF mode. (Versions earlier than V100R005C10: Only the CE5810-24T4S-EI and CE5810-48T4S-EI support this indicator state. V100R005C10 and later versions: only the CE5810-24T4S-EI, CE5810-48T4S-EI, and CE5850-48T4S2Q-EI support this indicator state.)

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No.	Indicator/Button	Color	Description
		Yellow	Steady on: A master election error or another type of error has occurred in the stack. (The CE5855-48T4S2Q-EI and CE5855-24T4S2Q-EI do not support this indicator state.)
3	STAT: STAT mode	-	Off: The STAT mode is not selected.
	indicator	Green	Steady on: The STAT mode (default mode) is selected, and service port indicators show the link connection states and link activity on ports.
4	SPEED: SPEED	-	Off: The SPEED mode is not selected.
	mode indicator	Green	Steady on: The SPEED mode is selected, and service port indicators show the speed of each port.
5	STACK: STACK	-	Off: The STACK mode is not selected.
	mode indicator	Green	<ul> <li>Steady on: The STACK mode is selected, and service port indicators show the stack member ID or leaf ID of the local switch.</li> <li>NOTE In V100R002C00 and later versions, if the indicator mode on any member switch of a stack or SVF system is changed to STACK by pressing the MODE button, all the other member switches in the stack or SVF system change the stack mode to STACK. In this case, service port indicators on the member switches. </li> </ul>
6	MODE/ID: mode switch button and ID indicator NOTE The mode switch button on the rear panel is integrated with the ID indicator. There is only an ID indicator and no mode switch button on the front panel.	Mode switch button: -	<ul> <li>When you press the MODE button once, the SPEED indicator turns green and service port indicators show the speed of each port.</li> <li>When you press the MODE button a second time, the STACK indicator turns green and service port indicators show the stack member ID of the local switch.</li> <li>When you press the button a third time, the STAT indicator turns green (default mode) and service port indicators show the link connection states and link activity on ports.</li> <li>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the STAT indicator is steady green, the SPEED and STACK indicators are off.</li> </ul>
		indicat or: -	on. The in indicator is not used (default state).

No.	Indicator/Button	Color	Description
		ID indicat or: blue	Steady on: The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
7	Service port indicator (GE electrical port) <b>NOTE</b> The indicator on the left indicates the port at the top, and the indicator on the right indicates the port at the bottom.	The meaning of the service port indicators varies according to the current mode. For details, see Table 3-23.	
8	Service port indicator (10GE optical port) NOTE Each 10GE optical port has two single- color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). 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.		
9	Service port indicator (40GE optical port) <b>NOTE</b> 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.	The meaning of the service port indicators varies according to the current mode. For details, see <b>Table 3-23</b> . When a 40GE port is configured as four 10GE ports, this indicator shows the status of a 10GE port. The sequence number of the indicated 10GE port is identified by indicators 40GE Breakout 1/2/3/4. <b>NOTE</b> Each 40GE port has a single-color indicator, which shows the status of the 40GE port by default. If a 40GE port is not split and is connected to four 10GE ports on a remote device using a one-to-four high-speed cable, the 40GE port cannot go Up and its indicator is off.	
10	40GE Breakout indicators 1/2/3/4 (10GE ports converted from a 40GE port)	-	Off: 40GE ports are not split into four 10GE ports.

No.	Indicator/Button	Color	Description
	NOTE Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.	Green	<ul> <li>Steady on: At least one 40GE port has been split into four 10GE ports.</li> <li>When one or more 40GE ports are configured as four 10GE ports, these indicators identify the sequence numbers of the 10GE ports. A 40GE port indicator (9 in Figure 3-14) shows the status of a 10GE port converted from the 40GE port:</li> <li>When Breakout indicator 1 is on, each 40GE port indicator shows the status of the first 10GE port converted from the corresponding 40GE port.</li> <li>When Breakout indicator 2 is on, each 40GE port indicator shows the status of the second 10GE port converted from the corresponding 40GE port.</li> <li>When Breakout indicator 3 is on, each 40GE port indicator shows the status of the second 10GE port converted from the corresponding 40GE port.</li> <li>When Breakout indicator 3 is on, each 40GE port indicator shows the status of the third 10GE port converted from the corresponding 40GE port.</li> <li>When Breakout indicator 4 is on, each 40GE port indicator shows the status of the fourth 10GE port converted from the corresponding 40GE port.</li> <li>When Breakout indicator 4 is on, each 40GE port indicator shows the status of the fourth 10GE port converted from the corresponding 40GE port.</li> <li>When Breakout indicator 1 is on, each 40GE port is not split.</li> <li>When Breakout indicator 1 is on, the indicator of 40GE port 1 shows the status of the first 10GE port 2 still shows the status of 40GE port 2.</li> <li>When Breakout indicator 2 is on, the indicator of 40GE port 2.</li> </ul>
11	ACT: USB-based deployment indicator	-	Off: USB-based deployment is disabled (default state).
		Green	<ul> <li>Steady on: USB-based deployment has been completed.</li> <li>Blinking: The system is reading data from a USB flash drive.</li> </ul>
		Red	Steady on: USB-based deployment has failed.

No.	Indicator/Button	Color	Description
12	L/A: ETH	-	Off: No link is established on the port.
	indicator	Green	• Steady on: A link is established on the port.
			<ul> <li>Blinking: The port is sending or receiving data.</li> </ul>

 Table 3-23 Service port indicators in various modes

Displa y Mode	Port	Color	Description
STAT	GE electrical port	-	Off: The port is not connected or has been shut down.
		Green	<ul> <li>Steady on: A link is established on the port.</li> <li>Blinking: The port is sending or receiving data.</li> </ul>
	10GE optical port	Green	<ul> <li>Off: The port is not connected or has been shut down.</li> <li>Steady on: A link is established on the port.</li> </ul>
		Yellow	<ul> <li>Off: The port is not sending or receiving data.</li> <li>Blinking: The port is sending or receiving data.</li> </ul>
SPEED	GE electrical port	-	Off: The port is not connected or has been shut down.
		Green	<ul> <li>Steady on: The port speed is 10/100 Mbit/s.</li> <li>Blinking: The port speed is 1000 Mbit/s.</li> </ul>
	10GE optical port	-	Off: The port is not connected or has been shut down.
		Green	<ul> <li>Steady on: The port speed is 1000 Mbit/s.</li> <li>Blinking: The port speed is 10 Gbit/s.</li> </ul>
	40GE optical port	-	Off: The port is not connected or has been shut down.

Displa y Mode	Port	Color	Description
		Green	• Steady on: The 40GE port has been split into four 10GE ports.
			• Blinking: The port is working as a 40GE port.
			<b>NOTE</b> The 40GE optical ports of the CE5850-48T4S2Q-EI cannot be split into four 10GE ports, so this indicator can only be off or blinking.
STACK	Green NOTE		• Off: Port indicators do not show the stack member ID of the switch.
	This row describes the states and meanings of port indicators on a switch working in stack mode.		• Steady on: If the indicator of a port is steady on, the port number is the stack member ID of the switch.
			<b>NOTE</b> In STACK mode, a 10GE optical port has only its LINK indicator on (green).
	Green NOTE		• Off: Port indicators do not show the leaf ID of the switch.
	NOTE This row describes the states and meanings of port indicators on a switch working in super virtual fabric (SVF)		• Steady on: If the indicator of a port is steady on, the port number indicates the leaf ID of the switch.
			<b>NOTE</b> The leaf ID range supported by a switch depends on the number of downlink ports on the switch:
			• On the CE5810-24T4S-EI, downlink ports 1 to 24 indicate leaf IDs 101 to 124. If the leaf ID of the switch is larger than 124, port indicators retain the original states before the switch changes to the SVF state and do not show the leaf ID.
			<ul> <li>On the CE5810-48T4S-EI and CE5850-48T4S2Q-EI, downlink ports 1 to 48 indicate leaf IDs 101 to 148. If the leaf ID of the switch is larger than 148, port indicators retain the original states before the switch changes to the SVF state and do not show the leaf ID.</li> </ul>

# Ports

#### 10/100/1000BASE-T Ethernet Electrical Port

A 10/100/1000BASE-T Ethernet electrical port receives and sends services at a speed of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. A 10/100/1000BASE-T Ethernet electrical port uses a Category 5 or higher category cable. **Table 3-24** describes the attributes of a 10/100/1000BASE-T Ethernet electrical port.

Attribute	Description	
Connector	RJ45	
Standards compliance	IEEE802.3ab	
Applicable cable	Straight-through cable and crossover cable	
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex	
Maximum transmission distance	100 m	

 Table 3-24 Attributes of a 10/100/1000BASE-T Ethernet electrical port

#### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-25** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description	
Connector	LC	
Optical attributes	Depending on the module or cable in use	
Standards compliance	IEEE802.3ae	
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex	

 Table 3-25 Attributes of a 10GE SFP+ Ethernet optical port

#### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-26** describes the attributes of a 40GE QSFP+ Ethernet optical port.

**Table 3-26** Attributes of a 40GE QSFP+ Ethernet optical port

Attribute	Description
Connector	LC/MPO

Attribute	Description
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-27** describes the attributes of the console port.

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

 Table 3-27 Attributes of the console port

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 3-28** describes the attributes of the ETH management port (RJ45).

 Table 3-28 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab

Attribute	Description
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

#### **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

Table 3-29 lists the specifications of CE5850-48T4S2Q-HI switches.

 Table 3-29 Specifications

Item		Description		
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm.</li> <li>Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 8.8 kg.</li> </ul>		
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>		
	Relative humidity	5% RH to 95% RH, noncondensing.		
	Altitude	< 5000 m		
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 45 dBA.</li> <li>Front-to-back airflow: &lt; 51 dBA.</li> </ul>		
Power specifications	Power source type	AC/DC		
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>		

Item		Description			
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>			
	High-voltage DC power input	Not supported.			
	Maximum input current	<ul> <li>150 W AC power (PAC-150WA): 2.5 A (90 V AC).</li> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> </ul>			
Chassis power consumption	Maximum power consumption	131 W			
	Typical power consumption	109 W (100% traffic load, 3 m network cables on 48 ports and SFP+ cables on 4 ports and QSFP+ cables on 2 ports, double power modules).			
Chassis heat dissipation	Maximum heat dissipation	447 BTU/hr			
	Typical heat dissipation	372 BTU/hr (100% traffic load, 3 m network cables on 48 ports and SFP+ cables on 4 ports and QSFP+ cables on 2 ports, double power modules).			
Surge protection		Ethernet electrical ports: 2 kV in common mode.			
		<ul> <li>AC: 6 kV in common mode and 6 kV in differential mode.</li> </ul>			
		• DC: 4 kV in common mode and 2 kV in differential mode.			
Heat dissipation	Heat dissipation mode	Air cooling			
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.			
Reliability and availability	Power module backup	1+1 backup.			
	Fan module backup	<ul> <li>1+1 backup not supported.</li> <li>NOTE <ul> <li>A CE5850HI chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li> </ul> </li> </ul>			
	Hot swap	All the power modules and fan modules support hot swap.			

3	Cha	ssis
-		

Item		Description	
	Mean time between failures (MTBF)	58.96	
	Mean time to repair (MTTR)	2.0	
	Availability	0.9999961280	
Technical	Processor	1.2 GHz, dual-core.	
specifications	DRAM Memory	2 GB	
	NOR Flash	16 MB	
	NAND Flash	1 GB	
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports.	
Safety standards	compliance	<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>GB4943:2011</li> </ul>	

Item	Description
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-30 provides the ordering information.

Table 3-3	0 Orde	ring in	forma	tion
	U OIUU	i mg m	nonna	uon

Part Number	Part Model	Part Description	
02358051	CE5850-48T4S 2Q-HI	CE5850-48T4S2Q-HI Switch (48-Port GE RJ45, 4- Port 10GE SFP+, 2-Port 40GE QSFP+, Without Fan Box and Power Module)	

Part Number	Part Model	Part Description
02350EYC	CE5850-48T4S 2Q-HI-F	CE5850-48T4S2Q-HI Switch (48-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EYD	CE5850-48T4S 2Q-HI-B	CE5850-48T4S2Q-HI Switch (48-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02359246	CE5850-HI- B00	CE5850-48T4S2Q-HI Switch (2*150W AC Power Module, 2*FAN Box, Port-side Exhaust)
02350FCL	CE5850-HI-B- B00	CE5850-48T4S2Q-HI Switch (2*150W Power Module, 2*FAN Box, Port-side Intake)

# CE5855-48T4S2Q-EI

# Appearance and Structure

The figures in this document are for reference only.

### CE5855-48T4S2Q-EI

#### Figure 3-16 Appearance of the CE5855-48T4S2Q-EI



1	Power supply slot 1	2	Power supply slot 2
			rower suppry slot 2
	Applicable power modules:		Applicable power modules:
	• 150 W AC power module (ES0W2PSA0150)		• 150 W AC power module (ES0W2PSA0150)
	<ul> <li>350 W DC power module</li> </ul>		<ul> <li>350 W DC power module</li> </ul>
	• 550 W DC power mount		• 550 W DC power mount
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-040A series fan modules		• FAN-040A series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	NOTE		
	This label is drawable, and you can pull it outward to view the ESN barcode and MAC		
	address of the switch.		
9	Forty-eight 10/100/1000BASE-T	10	Four 10GE SFP+ Ethernet optical ports
	Ethernet electrical ports		Applicable modules and cables:
			<ul> <li>10GE optical module (OSXD22N00)</li> </ul>
			and LE2MXSC80FF0 not supported)
			• GE optical module
			• <b>GE copper module</b> (works at 10
			Mbit/s, 100 Mbit/s, or 1000 Mbit/s)
			• SFP+ AOC cable
			• SFP+ copper cables
11	Two 40GE QSFP+ Ethernet optical ports	12	Three port-side mounting holes for mounting brackets
	Applicable modules and cables:		
	• 40GE optical module		
	• QSFP+ AOC cable (QSFP+ to QSFP+)		
	• QSFP+ AOC cable (QSFP+ to 4*SFP+)		
	• QSFP+ copper cables (QSFP+ to 4*SFP+)		
	• QSFP+ copper cables (QSFP+ to QSFP+)		
	NOTE		
	A 40GE QSFP+ port can be split into four 10GE ports.		

13	Four power-supply-side mounting holes	14	Ground screw
	for mounting brackets		

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-17** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **balance**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-18** (CE5800 as an example).

- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.
- When the fanless 150 W AC power module is used, the fan module with either of the airflow methods can be used.

#### Figure 3-17 Front-to-back airflow (air flows out from the port side)







# Indicators

Indicators on the CE5855-48T4S2Q-EI are the same as those on the CE5850-48T4S2Q-HI. The CE5850-48T4S2Q-HI is used as an example here to describe the indicators.

## Ports

#### 10/100/1000BASE-T Ethernet Electrical Port

A 10/100/1000BASE-T Ethernet electrical port receives and sends services at a speed of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. A 10/100/1000BASE-T Ethernet electrical port uses a Category 5 or higher category cable. **Table 3-31** describes the attributes of a 10/100/1000BASE-T Ethernet electrical port.

Attribute	Description	
Connector	RJ45	
Standards compliance	IEEE802.3ab	
Applicable cable	Straight-through cable and crossover cable	
Working modeSupported rate: 10/100/1000 Mbit/s auto-sensingFull-duplex		
Maximum transmission distance	100 m	

 Table 3-31 Attributes of a 10/100/1000BASE-T Ethernet electrical port

#### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services

when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-32** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description	
Connector	LC	
Optical attributes	Depending on the module or cable in use	
Standards compliance	IEEE802.3ae	
Working mode	orking mode Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex	

Table 3-32 Attributes of a 10GE SFP+ Ethernet optical port

### 

A 5 m SFP+ high-speed cable cannot be used to connect 10GE optical ports between the CE5855EI and CE5850EI (running a version prior to V100R005C10) switches. To connect the 10GE optical ports of the two switches, use any of the following methods:

- Use a 1 m, 3 m, 7 m, or 10 m SFP+ high-speed cable.
- Use an active optical cable (AOC) or optical modules and optical fibers.
- Upgrade the system software of the CE5850EI switch to V100R005C10 or a later version.

#### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-33** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description	
Connector	LC/MPO	
Optical attributes	Depending on the module or cable used	
Standards compliance	IEEE802.3ba	
Working mode	Full-duplex	

Table 3-33 Attributes of a 40GE QSFP+ Ethernet optical port

#### ΠΝΟΤΕ

A 5 m 1-to-4 QSFP+ high-speed cable cannot be used to connect a 40GE optical port (split into four 10GE ports) and 10GE optical ports between the CE5855EI and CE5850EI (running a version prior to V100R005C10) switches. To connect the 10GE and 40GE optical ports of the two switches, use any of the following methods:

- Use a 1 m or 3 m 1-to-4 QSFP+ high-speed cable.
- Use optical modules and optical fibers.
- Upgrade the system software of the CE5850EI switch to V100R005C10 or a later version.

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-34** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Attribute	Description	
Connector	RJ45	
Standards compliance     RS232		
Working mode Duplex Universal Asynchronous Receiver/Transmitter (UAR		
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s	

 Table 3-34 Attributes of the console port

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. Table 3-35 describes the attributes of the ETH management port (RJ45).

**Table 3-35** Attributes of the ETH management port (RJ45)

Attribute	Description	
Connector	RJ45	
Standards compliance	IEEE802.3ab	
Working mode Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex		

Attribute	Description
Maximum transmission distance	100 m

#### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

 Table 3-36 lists the specifications of CE5855-48T4S2Q-EI switches.

|--|

Item		Description	
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm.</li> <li>Weight (with two power modules and two fan</li> </ul>	
		modules, calculated based on the heaviest model if multiple models are supported): 8.4 kg.	
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE</li> </ul>	
		When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.	
		• Storage temperature: $-40^{\circ}$ C to $+70^{\circ}$ C.	
	Relative humidity	5% RH to 95% RH, noncondensing.	
	Altitude	< 5000 m	
	Noise (sound pressure, 27°C)	• Back-to-front airflow: < 48 dBA.	
		• Front-to-back airflow: < 55 dBA.	
Power specifications	Power source type	AC/DC	
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.	
		• Maximum input voltage range: 90 V AC to 264 V AC, 47 Hz to 63 Hz.	
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>	

Item		Description
	High-voltage DC power input	Not supported.
	Maximum input current	<ul> <li>150 W AC power (ES0W2PSA0150): 3 A (90 V AC).</li> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> </ul>
Chassis power consumption	Maximum power consumption	103 W
	Typical power consumption	76 W (100% traffic load, 3 m network cables on 48 ports and SFP+ cables on 4 ports and QSFP+ cables on 2 ports, double power modules).
Chassis heat dissipation	Maximum heat dissipation	351 BTU/hr
	Typical heat dissipation	259 BTU/hr (100% traffic load, 3 m network cables on 48 ports and SFP+ cables on 4 ports and QSFP+ cables on 2 ports, double power modules).
Surge protection		<ul> <li>Ethernet electrical ports: 2 kV in common mode.</li> <li>Power module:</li> <li>AC: 6 kV in common mode and 6 kV in differential mode.</li> <li>DC: 4 kV in common mode and 2 kV in differential mode.</li> </ul>
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.
Reliability and availability	Power module backup	1+1 backup.
	Fan module backup	<ul> <li>1+1 backup not supported.</li> <li>NOTE <ul> <li>A CE5855EI chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li> </ul> </li> </ul>
	Hot swap	All the power modules and fan modules support hot swap.

3	Cha	ssis
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Item		Description	
	Mean time between failures (MTBF)	55.08	
	Mean time to repair (MTTR)	1.81	
	Availability	0.99999625521	
Technical	Processor	1 GHz, dual-core.	
specifications	DRAM Memory	2 GB	
	NOR Flash	16 MB	
	NAND Flash	512 MB	
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports.	
Safety standards compliance		<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>GB4943:2011</li> </ul>	

Item	Description
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-37 provides the ordering information.

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Part Number	Part Model	Part Description
02350GTR	CE5855-48T4S 2Q-EI-F	CE5855-48T4S2Q-EI Switch (48-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)

Part Number	Part Model	Part Description
02350GTT	CE5855-48T4S 2Q-EI-B	CE5855-48T4S2Q-EI Switch (48-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02350GTU	CE5855-EI-F- B00	CE5855-48T4S2Q-EI Switch (48-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02350GTW	CE5855-EI-B- B00	CE5855-48T4S2Q-EI Switch (48-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)
02350TJD	CE5855-48T4S 2Q-EI	CE5855-48T4S2Q-EI Switch (48-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, Without Fan Box and Power Module)

# CE5855-24T4S2Q-EI

# Appearance and Structure

The figures in this document are for reference only.

#### CE5855-24T4S2Q-EI

#### Figure 3-19 Appearance of the CE5855-24T4S2Q-EI



	[	1	
1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 150 W AC power module (ES0W2PSA0150)		• 150 W AC power module (ES0W2PSA0150)
	• 350 W DC power module		• 350 W DC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-040A series fan modules		• FAN-040A series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	NOTE This label is drawable, and you can pull it		
	outward to view the ESN barcode and MAC		
	address of the switch.		
9	Twenty-four 10/100/1000BASE-T	10	Four 10GE SFP+ Ethernet optical ports
	Ethernet electrical ports		Applicable modules and cables:
			• <b>10GE optical module</b> (OSXD22N00
			and LE2MXSC80FF0 not supported)
			• GE optical module
			• <b>GE copper module</b> (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)
			• SFP+ AOC cable
			• SFP+ copper cables
11	Two 40GE QSFP+ Ethernet optical ports	12	Three port-side mounting holes for
	Applicable modules and cables:		mounting brackets
	• 40GE optical module		
	• QSFP+ AOC cable (QSFP+ to QSFP+)		
	• QSFP+ AOC cable (QSFP+ to 4*SFP+)		
	• QSFP+ copper cables (QSFP+ to 4*SFP+)		
	• QSFP+ copper cables (QSFP+ to QSFP+)		
	NOTE		
	A 40GE QSFP+ port can be split into four 10GE ports.		

13	Four power-supply-side mounting holes	14	Ground screw
	for mounting brackets		

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-20** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **balance**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-21** (CE5800 as an example).

- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.
- When the fanless 150 W AC power module is used, the fan module with either of the airflow methods can be used.

#### Figure 3-20 Front-to-back airflow (air flows out from the port side)





#### Figure 3-21 Back-to-front airflow (air flows into from the port side)

# Indicators

Indicators on the CE5855-24T4S2Q-EI are the same as those on the CE5850-48T4S2Q-HI. The CE5850-48T4S2Q-HI is used as an example here to describe the indicators.

### Ports

#### 10/100/1000BASE-T Ethernet Electrical Port

A 10/100/1000BASE-T Ethernet electrical port receives and sends services at a speed of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. A 10/100/1000BASE-T Ethernet electrical port uses a Category 5 or higher category cable. **Table 3-38** describes the attributes of a 10/100/1000BASE-T Ethernet electrical port.

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Applicable cable	Straight-through cable and crossover cable
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

 Table 3-38 Attributes of a 10/100/1000BASE-T Ethernet electrical port

#### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services

when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-39** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description
Connector	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex

Table 3-39 Attributes of a 10GE SFP+ Ethernet optical port

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A 5 m SFP+ high-speed cable cannot be used to connect 10GE optical ports between the CE5855EI and CE5850EI (running a version prior to V100R005C10) switches. To connect the 10GE optical ports of the two switches, use any of the following methods:

- Use a 1 m, 3 m, 7 m, or 10 m SFP+ high-speed cable.
- Use an active optical cable (AOC) or optical modules and optical fibers.
- Upgrade the system software of the CE5850EI switch to V100R005C10 or a later version.

#### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-40** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

Table 3-40 Attributes of a 40GE QSFP+ Ethernet optical port

#### ΠΝΟΤΕ

A 5 m 1-to-4 QSFP+ high-speed cable cannot be used to connect a 40GE optical port (split into four 10GE ports) and 10GE optical ports between the CE5855EI and CE5850EI (running a version prior to V100R005C10) switches. To connect the 10GE and 40GE optical ports of the two switches, use any of the following methods:

- Use a 1 m or 3 m 1-to-4 QSFP+ high-speed cable.
- Use optical modules and optical fibers.
- Upgrade the system software of the CE5850EI switch to V100R005C10 or a later version.

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-41** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

 Table 3-41 Attributes of the console port

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. Table 3-42 describes the attributes of the ETH management port (RJ45).

**Table 3-42** Attributes of the ETH management port (RJ45)

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex

Attribute	Description
Maximum transmission distance	100 m

#### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

 Table 3-43 lists the specifications of CE5855-24T4S2Q-EI switches.

Item		Description
Physical specifications		<ul> <li>Dimensions (W x D x H):442.0 mm x 420.0 mm x 43.6 mm.</li> </ul>
		• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 8.1 kg.
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE</li> <li>When the altitude is between 1800 m and 5000 m, the</li> </ul>
		highest operating temperature reduces 1°C every time the altitude increases 220 m.
		• Storage temperature: $-40^{\circ}$ C to $+70^{\circ}$ C.
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m
	Noise (sound	• Back-to-front airflow: < 48 dBA.
	pressure, 27°C)	• Front-to-back airflow: < 51 dBA.
Power specifications	Power source type	AC/DC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.
		• Maximum input voltage range: 90 V AC to 264 V AC, 47 Hz to 63 Hz.
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>

Item		Description
	High-voltage DC power input	Not supported.
	Maximum input current	<ul> <li>150 W AC power (ES0W2PSA0150): 3 A (90 V AC).</li> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> </ul>
Chassis power consumption	Maximum power consumption	75 W
	Typical power consumption	48 W (100% traffic load, 3 m network cables on 24 ports and SFP+ cables on 4 ports and QSFP+ cables on 2 ports, double power modules).
Chassis heat dissipation	Maximum heat dissipation	256 BTU/hr
	Typical heat dissipation	164 BTU/hr (100% traffic load, 3 m network cables on 24 ports and SFP+ cables on 4 ports and QSFP+ cables on 2 ports, double power modules).
Surge protection		Ethernet electrical ports: 2 kV in common mode.
		Power module:
		• AC: 6 kV in common mode and 6 kV in differential mode.
		• DC: 4 kV in common mode and 2 kV in differential mode.
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.
Reliability and availability	Power module backup	1+1 backup.
	Fan module backup	<ul> <li>1+1 backup not supported.</li> <li>NOTE <ul> <li>A CE5855EI chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li> </ul> </li> </ul>
	Hot swap	All the power modules and fan modules support hot swap.

3	Cha	ssis
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Item		Description
	Mean time between failures (MTBF)	65.62
	Mean time to repair (MTTR)	1.77
	Availability	0.99999690870
Technical	Processor	1 GHz, dual-core.
specifications	DRAM Memory	2 GB
	NOR Flash	16 MB
	NAND Flash	512 MB
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports.
Safety standards compliance		<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>CD4042:2011</li> </ul>

Item	Description
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental standards compliance	• 2002/95/EC, 2011/65/EU
	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-44 provides the ordering information.

Table 3-44 Ordering informat	tion
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Part Number	Part Model	Part Description
02350GTX	CE5855-24T4S 2Q-EI-F	CE5855-24T4S2Q-EI Switch (24-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
Part Number	Part Model	Part Description
-------------	-------------------------	---
02350GTY	CE5855-24T4S 2Q-EI-B	CE5855-24T4S2Q-EI Switch (24-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02350GUA	CE5855-EI-F- B01	CE5855-24T4S2Q-EI Switch (24-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02350GUB	CE5855-EI-B- B01	CE5855-24T4S2Q-EI Switch (24-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)
02350TJC	CE5855-24T4S 2Q-EI	CE5855-24T4S2Q-EI Switch (24-Port GE RJ45, 4- Port 10G SFP+, 2-Port 40G QSFP+, Without Fan Box and Power Module)

# 3.3.2 CE6800

## CE6810-48S4Q-EI

# Appearance and Structure

## 

The figures in this document are for reference only.

## CE6810-48S4Q-EI

## Figure 3-22 Appearance of the CE6810-48S4Q-EI



1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 350 W DC power module		• 350 W DC power module
	• 600 W AC power module		• 600 W AC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40EA series fan modules		• FAN-40EA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label NOTE This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.	8	USB port
9	<ul> <li>Forty-eight 10GE SFP+ Ethernet optical ports</li> <li>Applicable modules and cables: <ul> <li>10GE optical module (OSXD22N00 and LE2MXSC80FF0 not supported)</li> </ul> </li> <li>GE optical module <ul> <li>GE copper module (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)</li> </ul> </li> <li>SFP+ AOC cable <ul> <li>SFP+ copper cables</li> </ul> </li> </ul>	10	<ul> <li>Four 40GE QSFP+ Ethernet optical ports</li> <li>NOTE <ul> <li>A 40GE QSFP+ port can be split into four 10GE ports.</li> </ul> </li> <li>Applicable modules and cables: <ul> <li>40GE optical module</li> <li>QSFP+ AOC cable (QSFP+ to QSFP+)</li> </ul> </li> <li>QSFP+ AOC cable (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to QSFP+ to QSFP+)</li> </ul>
11	Three port-side mounting holes for mounting brackets	12	Four middle mounting holes for mounting brackets
13	Four power-supply-side mounting holes for mounting brackets	14	Ground screw

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

## 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in Figure 3-23 (CE5800 as an example).

Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **backet**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-24** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.



#### Figure 3-23 Front-to-back airflow (air flows out from the port side)

Figure 3-24 Back-to-front airflow (air flows into from the port side)



## Indicators

The downlink service port indicators of the CE6810-48S4Q-EI is 10GE optical port indicators, and other indicators on these models are the same as those on the CE6850-48T4Q-EI. The CE6850-48T4Q-EI is used as an example here to describe the indicators.

## Ports

## **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-45** describes the attributes of a 10GE SFP+ Ethernet optical port.

Standards

Attribute Description	
Connector	LC
Optical attributes	Depending on the module or cable in use

#### Table 3-45 Attributes of a 10GE SFP+ Ethernet optical port

IEEE802.3ae

# compliance Working mode Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex

## 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-46** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

Table 3-46 Attributes of a 40GE QSFP+ Ethernet optical port

## **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-47** describes the attributes of the console port.

## 

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table 3-47 Attributes of the console port

Attribute	Description
Connector	RJ45

Attribute	Description
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

## ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 3-48** describes the attributes of the ETH management port (RJ45).

Table 3-48 Attributes of the ETH	management port (RJ45)	)
----------------------------------	------------------------	---

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

## **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

## Specifications

Table 3-49 Spe	cifications
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Item	Description
Physical specifications	• Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm.
	• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):10.4 kg.

Item		Description
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         <ul> <li>When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.</li> </ul> </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 51 dBA.</li> <li>Front-to-back airflow: &lt; 48 dBA.</li> </ul>
Power specifications	Power source type	AC/DC
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>
	High-voltage DC power input	Not supported
	Maximum input current	<ul> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> <li>600 W AC power (PAC-600WA series): 9 A (90 V AC).</li> </ul>
Chassis power consumption	Maximum power consumption	238W
	Typical power consumption	101 W (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 4 ports, double power modules).
Chassis heat dissipation	Maximum heat dissipation	812BTU/hr
	Typical heat dissipation	344 BTU/hr (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 4 ports, double power modules).

Item		Description
Surge protection		<ul> <li>Power module:</li> <li>AC: 6 kV in common mode and 6 kV in differential mode.</li> <li>DC: 4 kV in common mode and 2 kV in differential mode.</li> </ul>
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.
Reliability and availability	Power module backup	1+1 backup.
	Fan module backup	Not supported
	Hot swap	All the power modules and fan modules support hot swap.
	Mean time between failures (MTBF)	49.27
	Mean time to repair (MTTR)	2.0
	Availability	0.99999536630
Technical	Processor	1.5 GHz, quad-core
specifications	DRAM Memory	2GB
	NOR Flash	16MB
	NAND Flash	1GB
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports

Item	Description
Safety standards compliance	• EN 60950-1:2006+A11:2009+A1:2010+A12:2011
	• EN 60825-1:2007
	• EN 60825-2:2010
	• UL 60950-1:2007 2rd Edition
	• CSA C22.2 No.650:2007 2rd Edition
	• IEC 60950-1:2005+A1:2009
	• AS/NZS 60950-1:2011
	• GB4943:2011
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

## **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-50 provides the ordering information.

Table 3-50 Ordering information	n
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Part Number	Part Model	Part Description
02359247	CE6810-EI- B00	CE6810-48S4Q-EI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Exhaust)
02350EXW	CE6810-EI-B- B0A	CE6810-48S4Q-EI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Intake)
02350EXU	CE6810-48S4Q -EI-F	CE6810-48S4Q-EI Switch (48-Port 10G SFP+, 4-Port 40G QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EXV	CE6810-48S4Q -EI-B	CE6810-48S4Q-EI Switch (48-Port 10G SFP+, 4-Port 40G QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02358856	CE6810-48S4Q -EI	CE6810-48S4Q-EI Switch (48-Port 10GE SFP+, 4- Port 40GE QSFP+, Without Fan Box and Power Module)

## CE6810-48S4Q-LI

# Appearance and Structure

## 

The figures in this document are for reference only.

## CE6810-48S4Q-LI

## Figure 3-25 Appearance of the CE6810-48S4Q-LI



1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 350 W DC power module		• 350 W DC power module
	• 600 W AC power module		• 600 W AC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40EA series fan modules		• FAN-40EA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.		
9	Forty-eight 10GE SFP+ Ethernet optical	10	Four 40GE QSFP+ Ethernet optical ports
	ports		NOTE
	Applicable modules and cables:		A 40GE QSFP+ port can be split into four 10GE ports.
	• 10GE optical module (OSXD22N00 and LE2MXSC80FF0 not supported)		Applicable modules and cables:
	• GE optical module		• 40GE optical module
	• <b>GE copper module</b> (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)		• QSFP+ AOC cable (QSFP+ to QSFP+)
	<ul> <li>SFP+ AOC cable</li> <li>SFP+ conner cables</li> </ul>		• QSFP+ AOC cable (QSFP+ to 4*SFP+)
	• SFI + copper cables		• QSFP+ copper cables (QSFP+ to 4*SFP+)
			• QSFP+ copper cables (QSFP+ to QSFP+)
11	Three port-side mounting holes for mounting brackets	12	Four middle mounting holes for mounting brackets
13	Four power-supply-side mounting holes for mounting brackets	14	Ground screw

## Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

## 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in Figure 3-26 (CE5800 as an example).

Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **backet**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-27** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.



#### Figure 3-26 Front-to-back airflow (air flows out from the port side)

Figure 3-27 Back-to-front airflow (air flows into from the port side)



## Indicators

The downlink service port indicators of the CE6810-48S4Q-LI is 10GE optical port indicators, and other indicators on these models are the same as those on the CE6850-48T4Q-LI. The CE6850-48T4Q-EI is used as an example here to describe the indicators.

## Ports

## **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. Table 3-51 describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description
Connector	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex

#### Table 3-51 Attributes of a 10GE SFP+ Ethernet optical port

## 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-52** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

Table 3-52 Attributes of a 40GE QSFP+ Ethernet optical port

## **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-53** describes the attributes of the console port.

## 

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table 3-53 Attributes of the console port

Attribute	Description
Connector	RJ45

Attribute	Description
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

## ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. Table 3-54 describes the attributes of the ETH management port (RJ45).

Table 3-54 Attributes of the	ETH management	port (	RJ45)	)
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Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

## **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

## Specifications

Item	Description	
Physical specifications	• Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm.	
	• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):10.4 kg.	

Item		Description
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         <ul> <li>When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.</li> </ul> </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 51 dBA.</li> <li>Front-to-back airflow: &lt; 48 dBA.</li> </ul>
Power specifications	Power source type	AC/DC
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>
	High-voltage DC power input	Not supported
	Maximum input current	<ul> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> <li>600 W AC power (PAC-600WA series): 9 A (90 V AC).</li> </ul>
Chassis power consumption	Maximum power consumption	238W
	Typical power consumption	101 W (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 4 ports, double power modules).
Chassis heat dissipation	Maximum heat dissipation	812BTU/hr
	Typical heat dissipation	344 BTU/hr (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 4 ports, double power modules).

Item		Description
Surge protection		<ul> <li>Power module:</li> <li>AC: 6 kV in common mode and 6 kV in differential mode.</li> <li>DC: 4 kV in common mode and 2 kV in differential mode.</li> </ul>
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.
Reliability and availability	Power module backup	1+1 backup.
	Fan module backup	Not supported
	Hot swap	All the power modules and fan modules support hot swap.
	Mean time between failures (MTBF)	49.33
	Mean time to repair (MTTR)	1.74
	Availability	0.9999959688
Technical	Processor	1.2 GHz, quad-core
specifications	DRAM Memory	2GB
	NOR Flash	16MB
	NAND Flash	512MB
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports

Item	Description
Safety standards compliance	• EN 60950-1:2006+A11:2009+A1:2010+A12:2011
	• EN 60825-1:2007
	• EN 60825-2:2010
	• UL 60950-1:2007 2rd Edition
	• CSA C22.2 No.650:2007 2rd Edition
	• IEC 60950-1:2005+A1:2009
	• AS/NZS 60950-1:2011
	• GB4943:2011
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

## **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-56 provides the ordering information.

Table 3-56 Ordering information
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Part Number	Part Model	Part Description
02350AQB	CE6810-LI- B00	CE6810-48S4Q-LI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Exhaust)
02350EGX	CE6810-LI-B- B0A	CE6810-48S4Q-LI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Intake)
02350EGV	CE6810-48S4Q -LI-F	CE6810-48S4Q-LI Switch (48-Port 10G SFP+, 4-Port 40GE QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EGW	CE6810-48S4Q -LI-B	CE6810-48S4Q-LI Switch (48-Port 10G SFP+, 4-Port 40GE QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02350APY	CE6810-48S4Q -LI	CE6810-48S4Q-LI Switch (48-Port 10GE SFP+, 4- Port 40GE QSFP+, Without Fan Box and Power Module)

## CE6810-48S-LI

# Appearance and Structure

## 

The figures in this document are for reference only.

CE6810-48S-LI

## Figure 3-28 Appearance of the CE6810-48S-LI



1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 350 W DC power module		• 350 W DC power module
	• 600 W AC power module		• 600 W AC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40EA series fan modules		• FAN-40EA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label NOTE This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.	8	USB port
9	Forty-eight 10GE SFP+ Ethernet optical ports	10	Three port-side mounting holes for mounting brackets
	Applicable modules and cables:		
	• <b>10GE optical module</b> (OSXD22N00 and LE2MXSC80FF0 not supported)		
	• GE optical module		
	• GE copper module (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)		
	• SFP+ AOC cable		
	• SFP+ copper cables		
11	Four middle mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets
13	Ground screw	-	-

## Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

## Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

## Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

## ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in Figure 3-29 (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **based** or **based**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-30** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.



#### Figure 3-29 Front-to-back airflow (air flows out from the port side)

Figure 3-30 Back-to-front airflow (air flows into from the port side)



## Indicators

Service port indicators of the CE6810-48S-LI are 10GE optical port indicators, and the CE6810-48S-LI has no 40GE port indicators or 40GE Breakout indicators 1/2/3/4. Other indicators on the CE6810-48S-LI are the same as those on the CE6850-48T4Q-EI. The CE6850-48T4Q-EI is used as an example here to describe the indicators.

## Ports

## **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-57** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description	
Connector	LC	
Optical attributes	Depending on the module or cable in use	
Standards compliance	IEEE802.3ae	
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex	

#### Table 3-57 Attributes of a 10GE SFP+ Ethernet optical port

## **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-58** describes the attributes of the console port.

## 

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Attribute	Description	
Connector	RJ45	
Standards compliance	RS232	
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)	
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s	

 Table 3-58 Attributes of the console port

## ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 3-59** describes the attributes of the ETH management port (RJ45).

 Table 3-59 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector	RJ45

Attribute	Description	
Standards compliance	IEEE802.3ab	
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex	
Maximum transmission distance	100 m	

## **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

Table 3-60	Specifications
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Item		Description	
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm.</li> <li>Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):10.2 kg.</li> </ul>	
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.</li> <li>Storage temperature: -40°C to +70°C.</li> </ul>	
	Relative humidity	5% RH to 95% RH, noncondensing.	
	Altitude	< 5000 m	
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 51 dBA.</li> <li>Front-to-back airflow: &lt; 48 dBA.</li> </ul>	
Power specifications	Power source type	AC/DC	
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>	

Item		Description			
	DC power	• Rated voltage range: -48 V DC to -60 V DC.			
	input	• Maximum voltage range: -38.4 V DC to -72 V DC.			
	High-voltage DC power input	Not supported			
	Maximum input current	<ul> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> </ul>			
		• 600 W AC power (PAC-600WA series): 9 A (90 V AC).			
Chassis power consumption	Maximum power consumption	178 W			
	Typical power consumption	89 W (100% traffic load, SFP+ cables on 48 ports, double power modules).			
Chassis heat dissipation	Maximum heat dissipation	607 BTU/hr			
	Typical heat dissipation	302 BTU/hr (100% traffic load, SFP+ cables on 48 ports, double power modules).			
Surge protection	•	Power module:			
		• AC: 6 kV in common mode and 6 kV in differential mode.			
		• DC: 4 kV in common mode and 2 kV in differential mode.			
Heat dissipation	Heat dissipation mode	Air cooling			
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.			
Reliability and availability	Power module backup	1+1 backup.			
	Fan module backup	Not supported			
	Hot swap	All the power modules and fan modules support hot swap.			
	Mean time between failures (MTBF)	56.88			

Item		Description			
	Mean time to repair (MTTR)	1.8			
	Availability	0.9999963861			
Technical	Processor	1.2 GHz, quad-core			
specifications	DRAM Memory	2GB			
	NOR Flash	16MB			
	NAND Flash	512MB			
Stack	Service port supporting the stack function	10GE optical ports			
Safety standards compliance		<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> </ul>			
EMC standards compliance		<ul> <li>GB4943.2011</li> <li>FCC 47CFR Part15 CLASS A</li> <li>ETSI EN 300 386 V1.6.1:2012</li> <li>ICES-003:2012 CLASS A</li> <li>CISPR 22:2008 CLASS A</li> <li>CISPR 24:2010</li> <li>EN 55022:2010 CLASS A</li> <li>EN 55024:2010</li> <li>AS/NZS CISPR 22:2009 CLASS A</li> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> <li>IEC 61000-3-3:2008/EN 61000-3-3:2008</li> <li>CNS 13438:2006 CLASS A</li> <li>VCCI V-4:2012 CLASS A</li> <li>VCCI V-3:2012 CLASS A</li> <li>EC Council Directive 2004/108/EC</li> <li>GB9254</li> </ul>			

Item	Description
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

## **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 3-61 provides the ordering information.

Part Number	Part Model	Part Description
02350AQC	CE6810-LI- B01	CE6810-48S-LI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Exhaust)
02350EHB	CE6810-LI-B- B0B	CE6810-48S-LI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Intake)
02350EGY	CE6810-48S- LI-F	CE6810-48S-LI Switch (48-Port 10G SFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EHA	CE6810-48S- LI-B	CE6810-48S-LI Switch (48-Port 10G SFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02350AQA	CE6810-48S- LI	CE6810-48S-LI Switch (48-Port 10GE SFP+, Without Fan Box and Power Module)

Table 3-61 Ordering information

# CE6810-32T16S4Q-LI

## Appearance and Structure

The figures in this document are for reference only.

## CE6810-32T16S4Q-LI





1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 350 W DC power module		• 350 W DC power module
	• 600 W AC power module		• 600 W AC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40EA series fan modules		• FAN-40EA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	NOTE		
	outward to view the ESN barcode and MAC address of the switch.		

9	Thirty-two 10GBASE-T Ethernet electrical ports	10	<ul> <li>Sixteen 10GE SFP+ Ethernet optical ports</li> <li>Applicable modules and cables:</li> <li>10GE optical module (OSXD22N00 and LE2MXSC80FF0 not supported)</li> <li>GE optical module</li> <li>GE copper module (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)</li> <li>SFP+ AOC cable</li> <li>SFP+ copper cables</li> </ul>
11	<ul> <li>Four 40GE QSFP+ Ethernet optical ports</li> <li>NOTE <ul> <li>A 40GE QSFP+ port can be split into four 10GE ports.</li> </ul> </li> <li>Applicable modules and cables: <ul> <li>40GE optical module</li> <li>QSFP+ AOC cable (QSFP+ to QSFP+)</li> </ul> </li> <li>QSFP+ AOC cable (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to QSFP+)</li> </ul>	12	Three port-side mounting holes for mounting brackets
13	Four power-supply-side mounting holes for mounting brackets	14	Ground screw

## Slot

Power supply slot

> The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- \_ When both power modules are working properly, they equally provide power for a chassis.
- \_ When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

## Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

## 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in Figure 3-32 (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **based**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-33** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.



## Figure 3-32 Front-to-back airflow (air flows out from the port side)





## Indicators

The downlink service port indicators of the CE6810-32T16S4Q-LI are 10GE electrical port indicators and 10GE optical indicators, and other indicators are the same as those on the CE6850-48T4Q-EI. The CE6850-48T4Q-EI is used as an example here to describe the indicators.

## Ports

## **10GBASE-T Ethernet Electrical Port**

A 10GBASE-T Ethernet electrical port receives and sends services at a speed of 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port can work in 100/1000M mode through auto-sensing. **Table 3-62** describes the attributes of a 10GBASE-T Ethernet electrical port. Category 6A shielded twisted pairs are recommended for the 10GBASE-T Ethernet electrical port.

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3an and IEEE802.3az
Applicable cable	Straight-through cable and crossover cable
Working mode	Supported rate: 100/1000 Mbit/s and 10 Gbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

<b>Table 3-62</b>	Attributes	of a	10GBA	ASE-T	Ethernet	electrical	port

## **10GE SFP+ Ethernet Optical Port**

3 Chassis

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-63** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description
Connector	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex

 Table 3-63 Attributes of a 10GE SFP+ Ethernet optical port

## 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-64** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Table 3-64	<b>Attributes</b>	of a	40GE	QSFP+	Ethernet	optical	port
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Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

## **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-65** describes the attributes of the console port.

## ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table	3-65	Attributes	of the	consol	e port
Labic	5-05	1 minoutes	or the	0011501	c port

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

## ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 3-66** describes the attributes of the ETH management port (RJ45).

Table 3-66 Attributes of the ETH management port (RJ45)				
Attribute	Description			

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

## **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

 Table 3-67 Specifications

Item		Description
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm.</li> </ul>
		• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):8.5 kg.
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m
	Noise (sound	• Back-to-front airflow: < 51 dBA.
	pressure, 2/°C)	• Front-to-back airflow: < 51 dBA.
Power specifications	Power source type	AC/DC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.
		<ul> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>
	DC power input	• Rated voltage range: -48 V DC to -60 V DC.
		• Maximum voltage range: -38.4 V DC to -72 V DC.
	High-voltage DC power input	Not supported
	Maximum input current	<ul> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> </ul>
		• 600 W AC power (PAC-600WA series): 9 A (90 V AC).
Chassis power consumption	Maximum power consumption	288 W

Item		Description
	Typical power consumption	204 W (100% traffic load, 3 m Ethernet cables on 32 ports, SFP+ high-speed copper cables on 16 ports, and QSFP+ high-speed copper cables on 4 ports, double power modules).
Chassis heat dissipation	Maximum heat dissipation	983 BTU/hr
	Typical heat dissipation	696 BTU/hr (100% traffic load, 3 m Ethernet cables on 32 ports, SFP+ high-speed copper cables on 16 ports, and QSFP+ high-speed copper cables on 4 ports, double power modules).
Surge protection	•	Ethernet electrical ports: 2 kV in common mode
		Power module:
		• AC: 6 kV in common mode and 6 kV in differential mode.
		• DC: 4 kV in common mode and 2 kV in differential mode.
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.
Reliability and availability	Power module backup	1+1 backup.
	Fan module backup	Not supported
	Hot swap	All the power modules and fan modules support hot swap.
	Mean time between failures (MTBF)	46.04
	Mean time to repair (MTTR)	1.84
	Availability	0.99999544092
Technical specifications	Processor	1.2 GHz, quad-core
	DRAM Memory	2GB
	NOR Flash	16MB
	NAND Flash	512MB

Item		Description
Stack	Service port supporting the stack function	10GE electrical ports, 10GE optical ports, and 40GE optical ports
Safety standards compliance		<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>GB4943:2011</li> </ul>
EMC standards compliance		<ul> <li>FCC 47CFR Part15 CLASS A</li> <li>ETSI EN 300 386 V1.6.1:2012</li> <li>ICES-003:2012 CLASS A</li> <li>CISPR 22:2008 CLASS A</li> <li>CISPR 24:2010</li> <li>EN 55022:2010 CLASS A</li> <li>EN 55024:2010</li> <li>AS/NZS CISPR 22:2009 CLASS A</li> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> <li>IEC 61000-3-3:2008/EN 61000-3-3:2008</li> <li>CNS 13438:2006 CLASS A</li> <li>VCCI V-4:2012 CLASS A</li> <li>VCCI V-3:2012 CLASS A</li> <li>EC Council Directive 2004/108/EC</li> <li>GB9254</li> </ul>
Safety and environmental standards compliance		<ul> <li>2002/95/EC, 2011/65/EU</li> <li>2002/96/EC, 2012/19/EU</li> <li>EC NO.1907/2006</li> <li>ETSI EN 300 019-1-1 V2.1.4</li> <li>ETSI EN 300 019-1-2 V2.1.4</li> <li>ETSI EN 300 019-1-3 V2.3.2</li> <li>ETSI EN 300753 V1.2.1</li> </ul>
# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-68 provides the ordering information.

Table 3-68 Orde	ering	inform	ation
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Part Number	Part Model	Part Description
02350EWD	CE6810-LI-F- B00	CE6810-32T16S4Q-LI Switch (32-Port 10G RJ45, 16-Port 10G SFP+, 4-Port 40G QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02350EWE	CE6810-LI-B- B00	CE6810-32T16S4Q-LI Switch (32-Port 10G RJ45, 16-Port 10G SFP+, 4-Port 40G QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)
02350EWB	CE6810-32T16 S4Q-LI-F	CE6810-32T16S4Q-LI Switch (32-Port 10G RJ45, 16-Port 10G SFP+, 4-Port 40G QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EWC	CE6810-32T16 S4Q-LI-B	CE6810-32T16S4Q-LI Switch (32-Port 10G RJ45, 16-Port 10G SFP+, 4-Port 40G QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02350TJF	CE6810-32T16 S4Q-LI	CE6810-32T16S4Q-LI Switch (32-Port 10G RJ45, 16-Port 10G SFP+, 4-Port 40G QSFP+, Without Fan Box and Power Module)

# CE6810-24S2Q-LI

# **Appearance and Structure**

The figures in this document are for reference only.

CE6810-24S2Q-LI

3 Chassis



Right side

1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 350 W DC power module		• 350 W DC power module
	• 600 W AC power module		• 600 W AC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40EA series fan modules		• FAN-40EA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.		

9	<ul> <li>Twenty-four 10GE SFP+ Ethernet optical ports</li> <li>Applicable modules and cables:</li> <li>10GE optical module (OSXD22N00 and LE2MXSC80FF0 not supported)</li> <li>GE optical module</li> <li>GE copper module (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)</li> <li>SFP+ AOC cable</li> <li>SFP+ copper cables</li> </ul>	10	<ul> <li>Two 40GE QSFP+ Ethernet optical ports</li> <li>NOTE <ul> <li>A 40GE QSFP+ port can be split into four 10GE ports.</li> </ul> </li> <li>Applicable modules and cables: <ul> <li>40GE optical module</li> <li>QSFP+ AOC cable (QSFP+ to QSFP+)</li> </ul> </li> <li>QSFP+ AOC cable (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to QSFP+ to QSFP+)</li> </ul>
11	Three port-side mounting holes for mounting brackets	12	Four middle mounting holes for mounting brackets
13	Four power-supply-side mounting holes for mounting brackets	14	Ground screw

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air

exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in Figure 3-35 (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **based**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-36** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

#### Figure 3-35 Front-to-back airflow (air flows out from the port side)







## Indicators

The downlink service port indicators of the CE6810-24S2Q-LI is 10GE optical port indicators, and other indicators on these models are the same as those on the CE6850-48T4Q-EI. The CE6850-48T4Q-EI is used as an example here to describe the indicators.

## Ports

### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-69** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description
Connector	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex

Table 3-69 Attributes of a 10GE SFP+ Ethernet optical port

#### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-70** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description	
Connector	LC/MPO	
Optical attributes	Depending on the module or cable used	
Standards compliance	IEEE802.3ba	
Working mode	Full-duplex	

#### Table 3-70 Attributes of a 40GE QSFP+ Ethernet optical port

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-71** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Attribute	Description	
Connector	RJ45	
Standards compliance	RS232	
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)	
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s	

Table 3-71 Attributes of the console port

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. Table 3-72 describes the attributes of the ETH management port (RJ45).

**Table 3-72** Attributes of the ETH management port (RJ45)

Attribute	Description
Connector	RJ45

Attribute	Description	
Standards compliance	IEEE802.3ab	
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex	
Maximum transmission distance	100 m	

#### **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

Item		Description
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm.</li> <li>Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):10.1 kg.</li> </ul>
Environment Temperature parameters		<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 51 dBA.</li> <li>Front-to-back airflow: &lt; 48 dBA.</li> </ul>
Power specifications	Power source type	AC/DC
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>

Item		Description	
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>	
	High-voltage DC power input	Not supported	
	Maximum input current	<ul> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> <li>600 W AC power (PAC-600WA series): 9 A (90 V AC).</li> </ul>	
Chassis power consumption	Maximum power consumption	171W	
	Typical power consumption	88 W (100% traffic load, SFP+ cables on 24 ports and QSFP+ cables on 2 ports, double power modules).	
Chassis heat dissipation	Maximum heat dissipation	583BTU/hr	
	Typical heat dissipation	300 BTU/hr (100% traffic load, SFP+ cables on 24 ports and QSFP+ cables on 2 ports, double power modules).	
Surge protection		<ul> <li>Power module:</li> <li>AC: 6 kV in common mode and 6 kV in differential mode.</li> <li>DC: 4 kV in common mode and 2 kV in differential mode.</li> </ul>	
Heat dissipation	Heat dissipation mode	Air cooling	
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.	
Reliability and availability	Power module backup	1+1 backup.	
	Fan module backup	Not supported	
	Hot swap	All the power modules and fan modules support hot swap.	
	Mean time between failures (MTBF)	59.37	

Item		Description	
	Mean time to repair (MTTR)	1.79	
	Availability	0.99999655471	
Technical	Processor	1.2 GHz, quad-core	
specifications	DRAM Memory	2 GB	
	NOR Flash	16MB	
	NAND Flash	512MB	
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports	
Safety standards compliance		<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>CD 1012 2011</li> </ul>	
EMC standards compliance		<ul> <li>FCC 47CFR Part15 CLASS A</li> <li>ETSI EN 300 386 V1.6.1:2012</li> <li>ICES-003:2012 CLASS A</li> <li>CISPR 22:2008 CLASS A</li> <li>CISPR 24:2010</li> <li>EN 55022:2010 CLASS A</li> <li>EN 55024:2010</li> <li>AS/NZS CISPR 22:2009 CLASS A</li> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> <li>IEC 61000-3-3:2008/EN 61000-3-3:2008</li> <li>CNS 13438:2006 CLASS A</li> <li>VCCI V-4:2012 CLASS A</li> <li>VCCI V-3:2012 CLASS A</li> <li>EC Council Directive 2004/108/EC</li> <li>GB9254</li> </ul>	

Item	Description
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 3-74 provides the ordering information.

Part Number	Part Model	Part Description
02350GUE	CE6810-LI-F- B0C	CE6810-24S2Q-LI Switch (24-Port 10G SFP+, 2-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02350GUF	CE6810-LI-B- B0C	CE6810-24S2Q-LI Switch (24-Port 10G SFP+, 2-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)
02350GUC	CE6810-24S2Q -LI-F	CE6810-24S2Q-LI Switch (24-Port 10G SFP+, 2-Port 40GE QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350GUD	CE6810-24S2Q -LI-B	CE6810-24S2Q-LI Switch (24-Port 10G SFP+, 2-Port 40GE QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02350TJE	CE6810-24S2Q -LI	CE6810-24S2Q-LI Switch (24-Port 10G SFP+, 2-Port 40GE QSFP+, 2*FAN Box, Without Fan Box and Power Module)

Table 3-74 Ordering information

# CE6850-48S4Q-EI

# **Appearance and Structure**

The figures in this document are for reference only.

### CE6850-48S4Q-EI



Right side

1	<ul> <li>Power supply slot 1</li> <li>Applicable power modules:</li> <li>350 W AC power module</li> <li>350 W DC power module</li> </ul>	2	<ul> <li>Power supply slot 2</li> <li>Applicable power modules:</li> <li>350 W AC power module</li> <li>350 W DC power module</li> </ul>
3	<ul> <li>Fan slot 1</li> <li>Applicable fan modules:</li> <li>FAN-40EA series fan modules</li> </ul>	4	<ul> <li>Fan slot 2</li> <li>Applicable fan modules:</li> <li>FAN-40EA series fan modules</li> </ul>
5	Console port	6	ETH management port (RJ45)
7	Barcode label NOTE This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.	8	USB port

9	<ul> <li>Forty-eight 10GE SFP+ Ethernet optical ports</li> <li>Applicable modules and cables: <ul> <li>10GE optical module</li> <li>GE optical module</li> </ul> </li> <li>GE copper module (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)</li> <li>SFP+ AOC cable</li> <li>SFP+ copper cables</li> </ul>	10	<ul> <li>Four 40GE QSFP+ Ethernet optical ports</li> <li>NOTE <ul> <li>A 40GE QSFP+ port can be split into four 10GE ports.</li> </ul> </li> <li>Applicable modules and cables: <ul> <li>40GE optical module</li> <li>QSFP+ AOC cable (QSFP+ to QSFP+)</li> </ul> </li> <li>QSFP+ AOC cable (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to QSFP+ to QSFP+)</li> </ul>
11	Three port-side mounting holes for mounting brackets	12	Four middle mounting holes for mounting brackets
13	Four power-supply-side mounting holes for mounting brackets	14	Ground screw

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air

exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in Figure 3-38 (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **based**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-39** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

#### Figure 3-38 Front-to-back airflow (air flows out from the port side)







## Indicators

The downlink service port indicators of the CE6850-48S4Q-EI are 10GE optical port indicators, and other indicators on these models are the same as those on the CE6850-48T4Q-EI. The CE6850-48T4Q-EI is used as an example here to describe the indicators.

## Ports

### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-75** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description	
Connector	LC	
Optical attributes	Depending on the module or cable in use	
Standards compliance	IEEE802.3ae	
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex	

 Table 3-75 Attributes of a 10GE SFP+ Ethernet optical port

#### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-76** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description	
Connector	LC/MPO	
Optical attributes	Depending on the module or cable used	
Standards compliance	IEEE802.3ba	
Working mode	Full-duplex	

#### Table 3-76 Attributes of a 40GE QSFP+ Ethernet optical port

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-77** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Attribute	Description	
Connector	RJ45	
Standards compliance	RS232	
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)	
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s	

Table 3-77 Attributes of the console port

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. Table 3-78 describes the attributes of the ETH management port (RJ45).

**Table 3-78** Attributes of the ETH management port (RJ45)

Attribute	Description
Connector	RJ45

Attribute	Description	
Standards compliance	IEEE802.3ab	
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex	
Maximum transmission distance	100 m	

#### **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

Item		Description	
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm.</li> <li>Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):11.05 kg.</li> </ul>	
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>	
	Relative humidity	5% RH to 95% RH, noncondensing.	
	Altitude	< 5000 m	
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 45 dBA.</li> <li>Front-to-back airflow: &lt; 56 dBA.</li> </ul>	
Power specifications	Power source type	AC/DC	
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>	

Item		Description		
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>		
	High-voltage DC power input	Not supported		
	Maximum input current	<ul> <li>350 W AC power (PAC-350WA series): 5 A (90 V AC).</li> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> </ul>		
Chassis power consumption	Maximum power consumption	272W		
	Typical power consumption	180 W (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 4 ports, double power modules).		
Chassis heat dissipation	Maximum heat dissipation	928 BTU/hr		
	Typical heat dissipation	614 BTU/hr (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 4 ports, double power modules).		
Surge protection		Power module:		
		• AC: 6 kV in common mode and 6 kV in differential mode.		
		• DC: 4 kV in common mode and 2 kV in differential mode.		
Heat dissipation	Heat dissipation mode	Air cooling		
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.		
Reliability and availability	Power module backup	1+1 backup.		
	Fan module backup	Not supported		
	Hot swap	All the power modules and fan modules support hot swap.		
	Mean time between failures (MTBF)	46.23		

Item		Description		
	Mean time to repair (MTTR)	2.0		
	Availability	0.9999941668		
Technical	Processor	1.5 GHz, quad-core		
specifications	DRAM Memory	2GB		
	NOR Flash	8MB		
	NAND Flash	1GB		
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports		
Safety standards compliance		<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>ED 1042 2011</li> </ul>		
EMC standards compliance		<ul> <li>FCC 47CFR Part15 CLASS A</li> <li>ETSI EN 300 386 V1.6.1:2012</li> <li>ICES-003:2012 CLASS A</li> <li>CISPR 22:2008 CLASS A</li> <li>CISPR 24:2010</li> <li>EN 55022:2010 CLASS A</li> <li>EN 55024:2010</li> <li>AS/NZS CISPR 22:2009 CLASS A</li> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> <li>IEC 61000-3-3:2008/EN 61000-3-3:2008</li> <li>CNS 13438:2006 CLASS A</li> <li>VCCI V-4:2012 CLASS A</li> <li>VCCI V-3:2012 CLASS A</li> <li>EC Council Directive 2004/108/EC</li> <li>GB9254</li> </ul>		

Item	Description
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 3-80 provides the ordering information.

Part Number	Part Model	Part Description
02359083	CE6850-EI- B00	CE6850-48S4Q-EI Switch (2*350W AC Power Module, 2*FAN Box, Port-side Exhaust)
02350EXQ	CE6850-EI-B- B0A	CE6850-48S4Q-EI Switch (2*350W AC Power Module, 2*FAN Box, Port-side Intake)
02350EXD	CE6850-48S4Q -EI-F	CE6850-48S4Q-EI Switch (48-Port 10G SFP+, 4-Port 40G QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EXE	CE6850-48S4Q -EI-B	CE6850-48S4Q-EI Switch (48-Port 10G SFP+, 4-Port 40G QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02355264	CE6850-48S4Q -EI	CE6850-48S4Q-EI Switch (48-Port 10GE SFP+, 4- Port 40GE QSFP+, Without Fan Box and Power Module)

Table	3-80	Ordering	inform	nation
Table	3-00	Orucing	mitorn	lation

# CE6850-48T4Q-EI

# Appearance and Structure

The figures in this document are for reference only.

CE6850-48T4Q-EI



Right side

1	Power supply slot 1	2	Power supply slot 2
	<ul> <li>350 W AC power module</li> </ul>		<ul> <li>350 W AC power module</li> </ul>
	• 600 W AC power module		• 600 W AC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40EA series fan modules		• FAN-40EA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.		

9	Forty-eight 10GBASE-T Ethernet electrical ports NOTE When a CE6850-48T4Q-EI switch uses 350 W AC power modules and all its ports are in use, the length of each network cable used on the switch cannot exceed 30 m.	10	<ul> <li>Four 40GE QSFP+ Ethernet optical ports</li> <li>NOTE <ul> <li>A 40GE QSFP+ port can be split into four 10GE ports.</li> </ul> </li> <li>Applicable modules and cables: <ul> <li>40GE optical module</li> <li>QSFP+ AOC cable (QSFP+ to QSFP+)</li> </ul> </li> <li>QSFP+ AOC cable (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to QSFP+)</li> </ul>
11	Three port-side mounting holes for mounting brackets	12	Four middle mounting holes for mounting brackets
13	Four power-supply-side mounting holes for mounting brackets	14	Ground screw

### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air

exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in Figure 3-41 (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **based**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-42** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

#### Figure 3-41 Front-to-back airflow (air flows out from the port side)





### Figure 3-42 Back-to-front airflow (air flows into from the port side)

# Indicators



Figure 3-43 Indicators on the CE6850-48T4Q-EI rear panel



# Figure 3-44 Indicators on the CE6850-48T4Q-EI front panel

No.	Indicator/Button	Color	Description
1	SYS: system status	-	Off: The system is not running.
	indicator	Green	<ul> <li>Fast blinking: The system is starting.</li> <li>Slow blinking: The system is running properly.</li> </ul>
		Red	Steady on:
			• The system fails to start.
			• At least one power module does not work normally.
			• At least one fan module does not work normally.
			• The card power consumption exceeds the rated power of the power modules.
2	MST: stack master/ slave indicator	-	Off: The switch is not a stack master.

No.	Indicator/Button	Color	Description
		Green	• Steady on: The switch is a stack master or standalone switch.
			<ul> <li>Blinking: The switch is working in SVF mode. (Versions earlier than V100R005C00: Only the CE6810-48S4Q-EI supports this indicator state. V100R005C00: Only the CE6810-48S4Q-EI and CE6850-48T4Q-EI support this indicator state. V100R005C10 and later versions: Only the CE6810-48S4Q- EI, CE6810-48S4Q-LI, CE6810-48S-LI, CE6810-32T16S4Q-LI, CE6810-24S2Q-LI, and CE6850-48T4Q-EI support this indicator state.)</li> </ul>
		Yellow	Steady on: A master election error or another type of error has occurred in the stack. (The CE6810-24S2Q-LI, CE6851-48S6Q-HI, CE6855-48S6Q-HI, and CE6810-32T16S4Q-LI do not support this indicator state.)
3	STAT: STAT mode indicator	-	Off: The STAT mode is not selected.
		Green	Steady on: The STAT mode (default mode) is selected, and service port indicators show the link connection states and link activity on ports.
4	SPEED: SPEED mode indicator	-	Off: The SPEED mode is not selected.
		Green	Steady on: The SPEED mode is selected, and service port indicators show the speed of each port.
5	STACK: STACK	-	Off: The STACK mode is not selected.
	mode indicator	Green	Steady on: The STACK mode is selected, and service port indicators show the stack member ID or leaf ID of the local switch. <b>NOTE</b> In V100R002C00 and later versions, if the indicator mode on any member switch of a stack or SVF system is changed to STACK by pressing the MODE button, all the other member switches in the stack or SVF system change the stack mode to STACK. In this case, service port indicators on the member switches show stack member IDs or leaf IDs of these switches.

No.	Indicator/Button	Color	Description
6	MODE/ID: mode switch button and ID indicator <b>NOTE</b> The mode switch button on the rear panel is integrated with the ID indicator. There is only an ID indicator and no mode switch button on the front panel.	Mode switch button: -	<ul> <li>When you press the MODE button once, the SPEED indicator turns green and service port indicators show the speed of each port.</li> <li>When you press the MODE button a second time, the STACK indicator turns green and service port indicators show the stack member ID of the local switch.</li> <li>When you press the button a third time, the STAT indicator turns green (default mode) and service port indicators show the link connection states and link activity on ports.</li> <li>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the STAT indicator is steady green, the SPEED and STACK indicators are off.</li> </ul>
		ID indicat or: -	Off: The ID indicator is not used (default state).
		ID indicat or: blue	Steady on: The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
7	Service port indicator (10GE electrical port) <b>NOTE</b> 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 <b>Table 3-82</b> .	
8	Service port indicator (40GE optical port) NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Meanings of service port indicators vary in different modes. For details, see <b>Table 3-82</b> . When a 40GE port is configured as four 10GE ports, this indicator shows the status of a 10GE port. The sequence number of the indicated 10GE port is identified by indicators 40GE Breakout 1/2/3/4 on the lower right corner of the panel. <b>NOTE</b> Each 40GE port has a single-color indicator, which shows the status of the 40GE port by default. If a 40GE port is not split and is connected to four 10GE ports on a remote device using a one-to-four high-speed cable, the 40GE port cannot go Up and its indicator is off.	

No.	Indicator/Button	Color	Description
9	40GE Breakout 1/2/3/4 (sequence	-	Off: 40GE ports are not split into four 10GE ports.
	10GE ports converted from a 40GE port)	Green	Steady on: At least one 40GE port has been split into four 10GE ports.
	NOTE Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.		When one or more 40GE ports are configured as four 10GE ports, these indicators identify the sequence numbers of the 10GE ports. A 40GE port indicator (8 in <b>Figure 3-43</b> ) shows the status of a 10GE port converted from the 40GE port:
			• When Breakout indicator 1 is on, each 40GE port indicator shows the status of the first 10GE port converted from the corresponding 40GE port.
			• When Breakout indicator 2 is on, each 40GE port indicator shows the status of the second 10GE port converted from the corresponding 40GE port.
			• When Breakout indicator 3 is on, each 40GE port indicator shows the status of the third 10GE port converted from the corresponding 40GE port.
			• When Breakout indicator 4 is on, each 40GE port indicator shows the status of the fourth 10GE port converted from the corresponding 40GE port.
			The following is an example:
			The first 40GE port shown in <b>Figure 3-43</b> is split into four 10GE ports, and the second 40GE port is not split.
			• When Breakout indicator 1 is on, the indicator of 40GE port 1 shows the status of the first 10GE port converted from 40GE port 1, and the indicator of 40GE port 2 still shows the status of 40GE port 2.
			• When Breakout indicator 2 is on, the indicator of 40GE port 1 shows the status of the second 10GE port converted from 40GE port 1, and the indicator of 40GE port 2 still shows the status of 40GE port 2.
10	ACT: USB-based deployment indicator	-	Off: USB-based deployment is disabled (default state).

No.	Indicator/Button	Color	Description
		Green	• Steady on: USB-based deployment has been completed.
			• Blinking: The system is reading data from a USB flash drive.
		Red	Steady on: USB-based deployment has failed.
11	L/A: ETH	-	Off: No link is established on the port.
	indicator Green • Steady • Blinking data.	<ul> <li>Steady on: A link is established on the port.</li> <li>Blinking: The port is sending or receiving data.</li> </ul>	

Table 3-82 Service port indicators in various	modes
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Display Mode	Port	Color	Description
STAT	10GE electrical port, and 40GE optical port	-	Off: The port is not connected or has been shut down.
		Green	<ul> <li>Steady on: A link is established on the port.</li> <li>Blinking: The port is sending or receiving data.</li> </ul>
	10GE optical port	Green	• Off: The port is not connected or has been shut down.
			• Steady on: A link is established on the port.
		Yellow	• Off: The port is not sending or receiving data.
			• Blinking: The port is sending or receiving data.
SPEED	10GE electrical port	-	Off: The port is not connected or has been shut down.

Display Mode	Port	Color	Description
		Green	<ul> <li>Steady on: The port speed is 100/1000 Mbit/s.</li> <li>Blinking: The port speed is 10 Gbit/s.</li> </ul>
	10GE optical port	-	Off: The port is not connected or has been shut down.
		Green	<ul> <li>Steady on: The port speed is 1000 Mbit/s.</li> <li>Blinking: The port speed is 10 Gbit/s.</li> </ul>
	40GE optical port	-	Off: The port is not connected or has been shut down.
		Green	<ul> <li>Steady on: The 40GE port has been split into four 10GE ports.</li> <li>Blinking: The port is working as a 40GE port</li> </ul>
STACK	Green NOTE This row describes the state indicators on a switch work	s and meanings of port ing in stack mode.	<ul> <li>Off: Port indicators do not show the stack member ID of the switch.</li> <li>Steady on: If the indicator of a port is steady on, the port number is the stack member ID of the switch.</li> <li>NOTE In STACK mode, a 10GE optical port has only its LINK indicator on</li> </ul>

Display Mode	Port	Color	Description
	Green NOTE This row describes the state indicators on a switch work (SVF) mode.	s and meanings of port ing in super virtual fabric	<ul> <li>Off: Port indicators do not show the leaf ID of the switch.</li> <li>Steady on: If the indicator of a port is steady on, the port number indicates the leaf ID of the switch.</li> <li>NOTE The leaf ID range supported by a switch depends on the number of downlink ports on the switch:</li> <li>On the CE6810-24S2Q-LI, downlink ports 1 to 24 indicate leaf IDs 101 to 124. If the leaf ID of the switch is larger than 124, port indicators retain the original states before the switch changes to the SVF state and do not show the leaf ID.</li> <li>On the CE6810-48S4Q-EI, CE6810-48S4Q-EI, CE6810-48S4Q-LI, CE6810-48S4Q-LI, CE6810-48S4Q-LI, CE6810-48S4Q-LI, CE6810-48S4Q-LI, CE6810-32T16S4Q- LI, and CE6850-48T4Q-EI downlink ports 1 to 48 indicate leaf IDs 101 to 148. If the leaf ID of the switch is larger than 148, port indicators retain the original states before the switch changes to the SVF state and do not show the leaf ID.</li> </ul>

## Ports

### **10GBASE-T Ethernet Electrical Port**

A 10GBASE-T Ethernet electrical port receives and sends services at a speed of 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port can work in 100/1000M mode through auto-sensing. **Table 3-83** describes the attributes of a 10GBASE-T Ethernet electrical port. Category 6A shielded twisted pairs are recommended for the 10GBASE-T Ethernet electrical port.

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3an and IEEE802.3az
Applicable cable	Straight-through cable and crossover cable
Working mode	Supported rate: 100/1000 Mbit/s and 10 Gbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

Table 3-83 Attributes of a 10GBASE-T Ethernet electrical port

#### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-84** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Table 3-84	Attributes of	a 40GE (	QSFP+ Ethe	rnet optical po	ort
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Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-85** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table	3-85	Attributes	of the	consol	e port
14010	000	1 Itti io ates	or the	0011001	e port

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 3-86** describes the attributes of the ETH management port (RJ45).

Table 3-86 Attributes of the ETH management port (RJ45)			
Attribute	Description		

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

### **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

 Table 3-87 Specifications

Item		Description
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm.</li> <li>Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):11.35 kg.</li> </ul>
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 56 dBA.</li> <li>Front-to-back airflow: &lt; 56 dBA.</li> </ul>
Power specifications	Power source type	AC
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>
	DC power input	Not supported
	High-voltage DC power input	Not supported
	Maximum input current	<ul> <li>350 W AC power (PAC-350WA series): 5 A (90 V AC).</li> <li>600 W AC power (PAC-600WA series): 9 A (90 V AC).</li> </ul>
Chassis power consumption	Maximum power consumption	380 W
	Typical power consumption	305 W (100% traffic load, 3 m network cables on 48 ports and QSFP+ cables on 4 ports, double power modules).

Item		Description
Chassis heat dissipation	Maximum heat dissipation	1297 BTU/hr
	Typical heat dissipation	1041 BTU/hr (100% traffic load, 3 m network cables on 48 ports and QSFP+ cables on 4 ports, double power modules).
Surge protection	•	Ethernet electrical ports: 2 kV in common mode.
		AC Power module: 6 kV in common mode and 6 kV in differential mode.
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.
Reliability and availability	Power module backup	1+1 backup.
	Fan module backup	Not supported
	Hot swap	All the power modules and fan modules support hot swap.
	Mean time between failures (MTBF)	41.28
	Mean time to repair (MTTR)	2.0
	Availability	0.9999933669
Technical specifications	Processor	1.5 GHz, quad-core
	DRAM Memory	2GB
	NOR Flash	8MB
	NAND Flash	1GB
Stack	Service port supporting the stack function	10GE electrical ports (V100R002 and later versions) and 40GE optical ports

Item	Description
Safety standards compliance	<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>CB 4042:2011</li> </ul>
EMC standards compliance	<ul> <li>GD4943.2011</li> <li>FCC 47CFR Part15 CLASS A</li> <li>ETSI EN 300 386 V1.6.1:2012</li> <li>ICES-003:2012 CLASS A</li> <li>CISPR 22:2008 CLASS A</li> <li>CISPR 24:2010</li> <li>EN 55022:2010 CLASS A</li> <li>EN 55024:2010</li> <li>AS/NZS CISPR 22:2009 CLASS A</li> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> <li>IEC 61000-3-3:2008/EN 61000-3-3:2008</li> <li>CNS 13438:2006 CLASS A</li> <li>VCCI V-4:2012 CLASS A</li> <li>VCCI V-3:2012 CLASS A</li> <li>EC Council Directive 2004/108/EC</li> <li>GB9254</li> </ul>
Safety and environmental standards compliance	<ul> <li>2002/95/EC, 2011/65/EU</li> <li>2002/96/EC, 2012/19/EU</li> <li>EC NO.1907/2006</li> <li>ETSI EN 300 019-1-1 V2.1.4</li> <li>ETSI EN 300 019-1-2 V2.1.4</li> <li>ETSI EN 300 019-1-3 V2.3.2</li> <li>ETSI EN 300753 V1.2.1</li> </ul>

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-88 provides the ordering information.

Table 3-88 Ordering information	ation
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Part Number	Part Model	Part Description
02359084	CE6850-EI- B01	CE6850-48T4Q-EI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Exhaust)
02350EXT	CE6850-EI-B- B00	CE6850-48T4Q-EI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Intake)
02350EXR	CE6850-48T4 Q-EI-F	CE6850-48T4Q-EI Switch (48-Port 10G RJ45, 4-Port 40G QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EXS	CE6850-48T4 Q-EI-B	CE6850-48T4Q-EI Switch (48-Port 10G RJ45, 4-Port 40G QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02355265	CE6850-48T4 Q-EI	CE6850-48T4Q-EI Switch (48-Port 10GE RJ45, 4- Port 40GE QSFP+, Without Fan Box and Power Module)

# CE6850-48S6Q-HI

# Appearance and Structure

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The figures in this document are for reference only.

### CE6850-48S6Q-HI

### Figure 3-45 Appearance of the CE6850-48S6Q-HI


1	Ground screw	2	Two ETH management ports (combo)
			Applicable transceiver modules for the GE optical port of the combo port:
			• FE optical module
			• GE optical module
			NOTE
			The combo optical port uses a 100M or GE optical module and matching fibers. A 100M optical module can be used only after the switch starts successfully.
3	Console port	4	USB port
5	Mini USB port	6	Barcode label
			<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.
7	Fan slot 1	8	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-060A series fan modules		• FAN-060A series fan modules
9	Power supply slot 1	1	Power supply slot 2
	Applicable power modules:	0	Applicable power modules:
	• 600 W AC&240 V DC power module		• 600 W AC&240 V DC power module
	• 600 W high-voltage DC power module		• 600 W high-voltage DC power module
11	Forty-eight 10GE SFP+ Ethernet optical ports	1 2	Six 40GE QSFP+ Ethernet optical ports
	Applicable transceiver modules and cables:		A 40GE QSFP+ port can be split into four 10GE ports.
	• <b>10GE optical module</b> (OSXD22N00 and LE2MXSC80FF0 not supported)		Applicable modules and cables: • 40GE optical module
	• GE optical module		• QSFP+ AOC cable (QSFP+ to
	• <b>GE copper module</b> (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)		QSFP+) • OSFP+ AOC cable (OSFP+ to
	• SFP+ AOC cable		4*SFP+)
	• SFP+ copper cables		• QSFP+ copper cables (QSFP+ to 4*SFP+)
			• QSFP+ copper cables (QSFP+ to QSFP+)

13	Three port-side mounting holes for mounting brackets	1 4	Four middle mounting holes for mounting brackets
15	Four power-supply-side mounting holes for mounting brackets	-	-

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-46** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **balance**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-47** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

Figure 3-46 Front-to-back airflow (air flows out from the port side)





### Figure 3-47 Back-to-front airflow (air flows into from the port side)

# Indicators



Figure 3-48 Indicators on the CE6850-48S6Q-HI rear panel



### Figure 3-49 Indicators on the CE6850-48S6Q-HI front panel

Table 3-89 Indicators on the CE6850-48S6Q-HI panels

No.	Indicator/Button	Color	Description
1	SYS: system status	-	Off: The system is not running.
	indicator	Green	<ul> <li>Fast blinking: The system is starting.</li> <li>Slow blinking: The system is running normally.</li> </ul>
		Red	<ul> <li>Steady on:</li> <li>The system fails to start.</li> <li>A power module does not work normally.</li> <li>A fan module does not work normally.</li> </ul>
2 MST: stack master/		-	Off: The switch is not a stack master.
	slave indicator	Green	Steady on: The switch is a stack master or standalone switch.
3	ID: ID indicator	-	Off: The ID indicator is not used (default state).
		Blue	Steady on: The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.

3 Chassis

No.	Indicator/Button	Color	Description
4	Service port indicator (10GE optical port) NOTE Each 10GE optical port has two single- color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at	Green Yellow	<ul> <li>Off: The port is not connected or has been shut down.</li> <li>Steady on: A link is established on the port.</li> <li>Off: The port is not sending or receiving data.</li> <li>Blinking: The port is sending or receiving data.</li> </ul>
5	Service port indicator (40GE optical port) NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	- Green When a 4 indicator number o 40GE Bre panel. NOTE Each 400 of the 40 If a 40G remote d cannot g	<ul> <li>Off: The port is not connected or has been shut down.</li> <li>Steady on: A link is established on the port.</li> <li>Blinking: The port is sending or receiving data.</li> <li>OGE port is configured as four 10GE ports, this shows the status of a 10GE port. The sequence f the indicated 10GE port is identified by indicators eakout 1/2/3/4 on the lower right corner of the</li> <li>GE port has a single-color indicator, which shows the status IGE port by default.</li> <li>E port is not split and is connected to four 10GE ports on a levice using a one-to-four high-speed cable, the 40GE port o Up and its indicator is off.</li> </ul>
6	40GE Breakout 1/2/3/4 (sequence number indicators of 10GE ports converted from a 40GE port) <b>NOTE</b> Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.	-	Off: 40GE ports are not split into four 10GE ports.

No.	Indicator/Button	Color	Description
		Green	Steady on: At least one 40GE port has been split into four 10GE ports.
			When one or more 40GE ports are configured as four 10GE ports, these indicators identify the sequence numbers of the 10GE ports. A port indicator (5 in <b>Figure 3-48</b> ) shows the status of a 10GE port converted from the corresponding 40GE port:
			• When Breakout indicator 1 is on, each 40GE port indicator shows the status of the first 10GE port converted from the corresponding 40GE port.
			• When Breakout indicator 2 is on, each 40GE port indicator shows the status of the second 10GE port converted from the corresponding 40GE port.
			• When Breakout indicator 3 is on, each 40GE port indicator shows the status of the third 10GE port converted from the corresponding 40GE port.
			• When Breakout indicator 4 is on, each 40GE port indicator shows the status of the fourth 10GE port converted from the corresponding 40GE port.
			The following is an example:
			The first 40GE port shown in <b>Figure 3-48</b> is split into four 10GE ports, and the second 40GE port is not split.
			• When Breakout indicator 1 is on, the indicator of 40GE port 1 shows the status of the first 10GE port converted from 40GE port 1, and the indicator of 40GE port 2 still shows the status of 40GE port 2.
			• When Breakout indicator 2 is on, the indicator of 40GE port 1 shows the status of the second 10GE port converted from 40GE port 1, and the indicator of 40GE port 2 still shows the status of 40GE port 2.
7	USB: USB-based deployment	-	Off: USB-based deployment is disabled (default state).
	indicator	Green	• Steady on: USB-based deployment has been completed.
			• Blinking: The system is reading data from a USB flash drive.
		Red	Steady on: USB-based deployment has failed.

No.	Indicator/Button	Color	Description
8	ACT: Mini USB port indicator	- Off: The Mini USB port is inactive, and the console port can be used.	
		Green	Steady on: The Mini USB port is active, and the console port cannot be used.
9 ETH management port indicator	-	Off: No link is established on the port.	
	port indicator	Green	Steady on: A link is established on the port.
		Yellow	Blinking: The port is sending or receiving data.

# Ports

#### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-90** describes the attributes of a 10GE SFP+ Ethernet optical port.

Table 3-90	Attributes of	a 10GE SFP+	Ethernet optical	port
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Attribute	Description
Connector	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex

### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-91** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Table 3-91	Attributes of a 40GE QSFP+ Eth	ernet optical port
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Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used

Attribute	Description
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-92** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table 3-92 Attributes of the console port

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

#### **Mini USB Port**

The Mini USB port can connect to a configuration terminal for onsite configuration of the system, but the configuration terminal must have a USB serial port driver installed. The Mini USB port is used as the serial port once a link is established on the port.

#### ETH Management Port (Combo)

The ETH management port (combo) consists of an electrical port and an optical port. You can connect the electrical or optical port to a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The electrical and optical ports are multiplexed, and only one of them can work at a time.

### ΠΝΟΤΕ

The combo port automatically selects the working mode as follows:

- If the optical port has no optical module installed and the electrical port has no network cable connected, the port type depends on which port is connected first. If the electrical port is connected by a network cable first, the electrical port is used for data switching. If the optical port has an optical module installed first, the optical port is used for data switching.
- If the electrical port has a network cable connected and is in Up state, the electrical port is still used for data switching when the optical port has an optical module installed.
- If the optical port has an optical module installed and is in Up state, the optical port is still used for data switching when the electrical port has a network cable connected.
- If the optical port has an optical module and fiber installed and the electrical port has a network cable connected, the optical port is used for data switching after the switch restarts.

The combo electrical port uses a Category 5 or higher category network cable. Table 3-93 describes the attributes of the combo electrical port.

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

Table 3-93 Attributes of the combo electrical port

The combo optical port uses a 100M or GE optical module and matching fibers. A 100M optical module can be used only after the switch starts successfully. If a 10GE optical module is installed, the interface can go Up, but the system displays an alarm message, indicating that the interface does not support the optical module. If a GE copper module is installed and the remote interface has a GE copper module installed, the local interface can go Up but does not support rate configuration. **Table 3-94** describes the attributes of the combo optical port.

Table 3-94 Attributes of the combo optical port

Attribute	Description
Connector	LC
Standards compliance	IEEE802.3z
Working mode	100/1000 Mbit/s Full-duplex

The CE6850-48S6Q-HI switches have two ETH management ports (combo). Pay attention to the following when using the two management ports:

- The two ports cannot be used together, and you must choose one of them to use.
- Before start of a CE6850-48S6Q-HI, you can select interface 1 or interface 2 in the BIOS menu. Interface 1 is the default choice. For details, see Modify parameters.
- After registration of the switch succeeds:
  - If both the management ports have a cable connected and are in Up state, port 1 acts as the primary management port and port 2 becomes the backup automatically. The management interface number displayed on the command line interface is MEth0/0/0, regardless of which port is used.
  - If cables are connected to the two ETH management ports after successful registration of the switch, the port that is connected first is used as the primary management port.
  - If port 1 fails, the system switches management traffic to port 2 automatically.
     When port 1 recovers, management traffic cannot be switched back to port 1, unless port 2 fails or the switch restarts. You can observe indicators on the ETH management ports to determine which port is used currently. (The Link indicator of the ETH management port used is steady green. If data is being transmitted on this port, its ACT indicator is blinking yellow. The indicators of the backup port are off.)

#### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

Item		Description
Physical specifications		• Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm.
		• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):11.6 kg.
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         <ul> <li>When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.</li> </ul> </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m

 Table 3-95 Specifications

Item		Description		
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 52 dBA.</li> <li>Front-to-back airflow: &lt; 52 dBA.</li> </ul>		
Power specifications	Power source type	AC/high-voltage DC		
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.		
		• Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz.		
	DC power input	Not supported		
	High-voltage DC power	• Rated voltage of 240 V high-voltage DC power input: 240 V DC.		
	input	• Maximum voltage range of 240 V high-voltage DC power input: 188 V DC to 290 V DC.		
		• Rated voltage range of 380 V high-voltage DC power input: 240 V DC to 380 V DC.		
		• Maximum voltage range of 380 V high-voltage DC power input: 188 V DC to 400 V DC.		
	Maximum input current	<ul> <li>600 W AC&amp;240 V DC power module (PAC-600WB series): 9 A (90 V AC)/4 A (240 V DC).</li> </ul>		
		• 600 W high-voltage DC power module (PHD-600WA series): 4 A (240 V DC).		
Chassis power consumption	Maximum power consumption	272W		
	Typical power consumption	166 W (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 6 ports, double power modules).		
Chassis heat dissipation	Maximum heat dissipation	928 BTU/hr		
	Typical heat dissipation	566 BTU/hr (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 6 ports, double power modules).		
Surge protection		AC Power module: 6 kV in common mode and 6 kV in differential mode.		
Heat dissipation	Heat dissipation mode	Air cooling		
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.		

Item		Description		
Reliability and availability	Power module backup	1+1 backup.		
	Fan module backup	Not supported		
	Hot swap	All the power modules and fan modules support hot swap.		
	Mean time between failures (MTBF)	56.21		
	Mean time to repair (MTTR)	1.7		
	Availability	0.9999965570		
Technical	Processor	1.5 GHz, quad-core		
specifications	DRAM Memory	4GB		
	NOR Flash	16MB		
	NAND Flash	1GB		
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports		
Safety standards compliance		<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> </ul>		
		<ul> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>GB4943:2011</li> </ul>		

Item	Description
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-96 provides the ordering information.

Table 3-96 Ordering information	Table 3-96	Ordering	information
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Part Number	Part Model	Part Description
02359314	CE6850-HI- B00	CE6850-48S6Q-HI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Exhaust)
02350EHE	CE6850-HI-B- B0A	CE6850-48S6Q-HI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Intake)

Part Number	Part Model	Part Description
02350EHC	CE6850-48S6Q -HI-F	CE6850-48S6Q-HI Switch (48-Port 10G SFP+, 6-Port 40GE QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EHD	CE6850-48S6Q -HI-B	CE6850-48S6Q-HI Switch (48-Port 10G SFP+, 6-Port 40GE QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02359313	CE6850-48S6Q -HI	CE6850-48S6Q-HI Switch (48-Port 10G SFP+, 6-Port 40GE QSFP+, Without FAN Box and Power Module)

# CE6850-48T6Q-HI

# Appearance and Structure

# 

The figures in this document are for reference only.

### СЕ6850-48Т6Q-НІ

## Figure 3-50 Appearance of the CE6850-48T6Q-HI



1	Ground screw	2	Two ETH management ports (combo)
			Applicable transceiver modules for the GE optical port of the combo port:
			• FE optical module
			<ul> <li>GE optical module</li> </ul>
			NOTE
			The combo optical port uses a 100M or GE optical module and matching fibers. A 100M optical module can be used only after the switch starts successfully.
3	Console port	4	USB port
5	Mini USB port	6	Barcode label
			<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.
7	Fan slot 1	8	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-060A series fan modules		• FAN-060A series fan modules
9	Power supply slot 1	1	Power supply slot 2
	Applicable power modules:	0	Applicable power modules:
	• 600 W AC&240 V DC power module		• 600 W AC&240 V DC power module
	• 600 W high-voltage DC power module		• 600 W high-voltage DC power module
11	Forty-eight 10GBASE-T Ethernet electrical ports	12	Six 40GE QSFP+ Ethernet optical ports NOTE A 40GE QSFP+ port can be split into four 10GE ports.
			Applicable modules and cables:
			• 40GE optical module
			• QSFP+ AOC cable (QSFP+ to QSFP+)
			• QSFP+ AOC cable (QSFP+ to 4*SFP+)
			• QSFP+ copper cables (QSFP+ to 4*SFP+)
			• QSFP+ copper cables (QSFP+ to QSFP+)

13	Three port-side mounting holes for mounting brackets	1 4	Four middle mounting holes for mounting brackets
15	Four power-supply-side mounting holes for mounting brackets	-	-

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-51** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **Example**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-52** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

Figure 3-51 Front-to-back airflow (air flows out from the port side)





#### Figure 3-52 Back-to-front airflow (air flows into from the port side)

# Indicators

The downlink service port indicators of the CE6850-48T6Q-HI are 10GE electrical port indicators, and other indicators are the same as those on the CE6850-48S6Q-HI. The CE6850-48S6Q-HI is used as an example here to describe the indicators.

# Ports

#### **10GBASE-T Ethernet Electrical Port**

A 10GBASE-T Ethernet electrical port receives and sends services at a speed of 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port can work in 100/1000M mode through auto-sensing. **Table 3-97** describes the attributes of a 10GBASE-T Ethernet electrical port. Category 6A shielded twisted pairs are recommended for the 10GBASE-T Ethernet electrical port.

Attribute	Description	
Connector	RJ45	
Standards compliance	IEEE802.3an and IEEE802.3az	
Applicable cable	Straight-through cable and crossover cable	
Working mode	Supported rate: 100/1000 Mbit/s and 10 Gbit/s auto-sensing Full-duplex	
Maximum transmission distance	100 m	

Table 3-97 Attribute	s of a 10GBASE-T	Ethernet electrical port
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#### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and

fibers or 1-in-4-out QSFP+ cables. **Table 3-98** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Table 3-98 Attributes of a 40GE QSFP+ E	Ethernet optical p	oort
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Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-99** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table 3-99 Attributes of the console po	rt
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Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

#### **Mini USB Port**

The Mini USB port can connect to a configuration terminal for onsite configuration of the system, but the configuration terminal must have a USB serial port driver installed. The Mini USB port is used as the serial port once a link is established on the port.

#### ETH Management Port (Combo)

The ETH management port (combo) consists of an electrical port and an optical port. You can connect the electrical or optical port to a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The electrical and optical ports are multiplexed, and only one of them can work at a time.

### ΠΝΟΤΕ

The combo port automatically selects the working mode as follows:

- If the optical port has no optical module installed and the electrical port has no network cable connected, the port type depends on which port is connected first. If the electrical port is connected by a network cable first, the electrical port is used for data switching. If the optical port has an optical module installed first, the optical port is used for data switching.
- If the electrical port has a network cable connected and is in Up state, the electrical port is still used for data switching when the optical port has an optical module installed.
- If the optical port has an optical module installed and is in Up state, the optical port is still used for data switching when the electrical port has a network cable connected.
- If the optical port has an optical module and fiber installed and the electrical port has a network cable connected, the optical port is used for data switching after the switch restarts.

The combo electrical port uses a Category 5 or higher category network cable. **Table 3-100** describes the attributes of the combo electrical port.

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

Table 3-100 Attributes of the combo electrical port

The combo optical port uses a 100M or GE optical module and matching fibers. A 100M optical module can be used only after the switch starts successfully. If a 10GE optical module is installed, the interface can go Up, but the system displays an alarm message, indicating that the interface does not support the optical module. If a GE copper module is installed and the remote interface has a GE copper module installed, the local interface can go Up but does not support rate configuration. Table 3-101 describes the attributes of the combo optical port.

Table 3-101 Attributes of the combo optical port

Attribute	Description
Connector	LC
Standards compliance	IEEE802.3z
Working mode	100/1000 Mbit/s Full-duplex

The CE6850-48T6Q-HI switches have two ETH management ports (combo). Pay attention to the following when using the two management ports:

- The two ports cannot be used together, and you must choose one of them to use.
- Before start of a CE6850-48T6Q-HI, you can select interface 1 or interface 2 in the BIOS menu. Interface 1 is the default choice. For details, see Modify parameters.
- After registration of the switch succeeds:
  - If both the management ports have a cable connected and are in Up state, port 1 acts as the primary management port and port 2 becomes the backup automatically. The management interface number displayed on the command line interface is MEth0/0/0, regardless of which port is used.
  - If cables are connected to the two ETH management ports after successful registration of the switch, the port that is connected first is used as the primary management port.
  - If port 1 fails, the system switches management traffic to port 2 automatically.
     When port 1 recovers, management traffic cannot be switched back to port 1, unless port 2 fails or the switch restarts. You can observe indicators on the ETH management ports to determine which port is used currently. (The Link indicator of the ETH management port used is steady green. If data is being transmitted on this port, its ACT indicator is blinking yellow. The indicators of the backup port are off.)

#### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

Item		Description
Physical specifications		• Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm.
		• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):12.6 kg.
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         <ul> <li>When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.</li> </ul> </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m

 Table 3-102 Specifications

Item		Description
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 53 dBA.</li> <li>Front-to-back airflow: &lt; 53 dBA.</li> </ul>
Power specifications	Power source type	AC/high-voltage DC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.
		<ul> <li>Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz.</li> </ul>
	DC power input	Not supported
	High-voltage DC power input	• Rated voltage of 240 V high-voltage DC power input: 240 V DC.
		• Maximum voltage range of 240 V high-voltage DC power input: 188 V DC to 290 V DC.
		• Rated voltage range of 380 V high-voltage DC power input: 240 V DC to 380 V DC.
		• Maximum voltage range of 380 V high-voltage DC power input: 188 V DC to 400 V DC.
	Maximum input current	<ul> <li>600 W AC&amp;240 V DC power module (PAC-600WB series): 9 A (90 V AC)/4 A (240 V DC).</li> </ul>
		• 600 W high-voltage DC power module (PHD-600WA series): 4 A (240 V DC).
Chassis power consumption	Maximum power consumption	379W
	Typical power consumption	252 W (100% traffic load, 3 m network cables on 48 ports and QSFP+ cables on 6 ports, double power modules).
Chassis heat dissipation	Maximum heat dissipation	1293BTU/hr
	Typical heat dissipation	860 BTU/hr (100% traffic load, 3 m network cables on 48 ports and QSFP+ cables on 6 ports, double power modules).
Surge protection		Ethernet electrical ports: 2 kV in common mode.
		AC Power module: 4 kV in common mode and 2.5 kV in differential mode.
Heat dissipation	Heat dissipation mode	Air cooling

Item		Description
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.
Reliability and availability	Power module backup	1+1 backup.
	Fan module backup	Not supported
	Hot swap	All the power modules and fan modules support hot swap.
	Mean time between failures (MTBF)	54.48
	Mean time to repair (MTTR)	1.81
	Availability	0.99999620929
Technical	Processor	1.2 GHz, quad-core
specifications	DRAM Memory	2GB
	NOR Flash	16MB
	NAND Flash	1GB
Stack	Service port supporting the stack function	10GE electrical ports and 40GE optical ports
Safety standards	compliance	<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>GB4943:2011</li> </ul>

Item	Description
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 3-103 provides the ordering information.

Part Number	Part Model	Part Description
02350EWK	CE6850-HI-F- B00	CE6850-48T6Q-HI Switch (48-Port 10GE RJ45, 6- Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)

Part Number	Part Model	Part Description
02350EWL	CE6850-HI-B- B00	CE6850-48T6Q-HI Switch (48-Port 10GE RJ45, 6- Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)
02350EWH	CE6850-48T6 Q-HI-F	CE6850-48T6Q-HI Switch (48-Port 10GE RJ45, 6- Port 40GE QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EWJ	CE6850-48T6 Q-HI-B	CE6850-48T6Q-HI Switch (48-Port 10GE RJ45, 6- Port 40GE QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02350TJG	CE6850-48T6 Q-HI	CE6850-48T6Q-HI Switch (48-Port 10GE RJ45, 6- Port 40GE QSFP+, Without FAN Box and Power Module)

# CE6851-48S6Q-HI

# Appearance and Structure

ΠΝΟΤΕ

The figures in this document are for reference only.

### CE6851-48S6Q-HI

### Figure 3-53 Appearance of the CE6851-48S6Q-HI



1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 350 W DC power module		• 350 W DC power module
	• 600 W AC power module		• 600 W AC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40EA series fan modules		• FAN-40EA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label NOTE This label is drawable, and you can pull it	8	USB port
	outward to view the ESN barcode and MAC address of the switch.		
9	Forty-eight 10GE SFP+ Ethernet optical ports	10	Six 40GE QSFP+ Ethernet optical ports NOTE
	Applicable modules and cables:		A 40GE QSFP+ port can be split into four 10GE ports.
	and LE2MXSC80FF0 not supported)		Applicable modules and cables:
	• GE optical module		• 40GE optical module
	• <b>GE copper module</b> (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)		• QSFP+ AOC cable (QSFP+ to QSFP+)
	<ul> <li>SFP+ AOC cable</li> <li>SFP+ conner cables</li> </ul>		• QSFP+ AOC cable (QSFP+ to 4*SFP+)
	• SFI + copper cables		• QSFP+ copper cables (QSFP+ to 4*SFP+)
			• QSFP+ copper cables (QSFP+ to QSFP+)
11	Three port-side mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets
13	Ground screw	-	-

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.

- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

#### ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in Figure 3-54 (CE5800 as an example).

Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **based**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-55** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.



#### Figure 3-54 Front-to-back airflow (air flows out from the port side)

Figure 3-55 Back-to-front airflow (air flows into from the port side)



# Indicators

The CE6851-48S6Q-HI does not have a mode switch button and the STAT/SPEED/STACK mode indicator. The downlink service port indicators of the CE6851-48S6Q-HI are 10GE optical port indicators, and other indicators on the CE6851-48S6Q-HI are the same as those on the CE6850-48T4Q-EI. The CE6850-48T4Q-EI. is used as an example here to describe the indicators.

## Ports

#### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-104** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description	
Connector	LC	
Optical attributes	Depending on the module or cable in use	
Standards compliance	IEEE802.3ae	
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex	

#### Table 3-104 Attributes of a 10GE SFP+ Ethernet optical port

#### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-105** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description	
Connector	LC/MPO	
Optical attributes	Depending on the module or cable used	
Standards compliance	IEEE802.3ba	

Table 3-105 Attributes of a 40GE QSFP+ Ethernet optical port

Full-duplex

#### **Console Port**

Working mode

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-106** describes the attributes of the console port.

#### 

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table 3-106 Attributes of the console port

Attribute	Description
Connector	RJ45

Attribute	Description	
Standards compliance	RS232	
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)	
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s	

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 3-107** describes the attributes of the ETH management port (RJ45).

Table 3-107 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

Table 3-108 lists the specifications of CE6851-48S6Q-HI switches.

Item		Description	
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm.</li> <li>Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 8.7 kg.</li> </ul>	
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>	
	Relative humidity	5% RH to 95% RH, noncondensing.	
	Altitude	< 5000 m	
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 56 dBA.</li> <li>Front-to-back airflow: &lt; 58 dBA.</li> </ul>	
Power specifications	Power source type	AC/DC	
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>	
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>	
	High-voltage DC power input	Not supported.	
	Maximum input current	<ul> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> <li>600 W AC power (PAC-600WA series): 9 A (90 V AC).</li> </ul>	
Chassis power consumption	Maximum power consumption	245 W	
	Typical power consumption	145 W (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 6 ports, double power modules).	
Chassis heat dissipation	Maximum heat dissipation	836 BTU/hr	

Item		Description	
	Typical heat dissipation	495 BTU/hr (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 6 ports, double power modules).	
Surge protection		Power module:	
		• AC: 6 kV in common mode and 6 kV in differential mode.	
		• DC: 4 kV in common mode and 2 kV in differential mode.	
Heat dissipation	Heat dissipation mode	Air cooling	
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.	
Reliability and availability	Power module backup	1+1 backup.	
	Fan module backup	<ul><li>1+1 backup not supported.</li><li>NOTE A CE6800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li></ul>	
	Hot swap	All the power modules and fan modules support hot swap.	
	Mean time between failures (MTBF)	49.08	
	Mean time to repair (MTTR)	1.77	
	Availability	0.99999587522	
Technical	Processor	1.2 GHz, quad-core.	
specifications	DRAM Memory	2 GB	
	NOR Flash	16 MB	
	NAND Flash	1 GB	
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports.	

Item	Description
Safety standards compliance	• EN 60950-1:2006+A11:2009+A1:2010+A12:2011
	• EN 60825-1:2007
	• EN 60825-2:2010
	• UL 60950-1:2007 2rd Edition
	• CSA C22.2 No.650:2007 2rd Edition
	• IEC 60950-1:2005+A1:2009
	• AS/NZS 60950-1:2011
	• GB4943:2011
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-109 provides the ordering information.

Part Number	Part Model	Part Description	
02350JAR	CE6851-HI-F- B0A	CE6851-48S6Q-HI Switch (48-Port 10G SFP+, 6-Po 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)	
02350JAS	CE6851-HI-B- B0A	CE6851-48S6Q-HI Switch (48-Port 10G SFP+, 6-Po 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)	
02350JAP	CE6851-48S6Q -HI-F	CE6851-48S6Q-HI Switch (48-Port 10G SFP+, 6-Por 40GE QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)	
02350JAQ	CE6851-48S6Q -HI-B	CE6851-48S6Q-HI Switch (48-Port 10G SFP+, 6-P 40GE QSFP+, 2*FAN Box, Port-side Intake, Witho Power Module)	
02350TJJ	CE6851-48S6Q -HI-X	CE6851-48S6Q-HI Switch (48-Port 10G SFP+, 6-Port 40GE QSFP+, Without FAN Box and Power Module)	

 Table 3-109 Ordering information

# CE6850U-24S2Q-HI

# Appearance and Structure

The figures in this document are for reference only.

CE6850U-24S2Q-HI



Right side

1	Ground screw	2	Two ETH management ports (combo)
			Applicable transceiver modules for the GE optical port of the combo port:
			• FE optical module
			• GE optical module
			NOTE
			The combo optical port uses a 100M or GE optical module and matching fibers. A 100M optical module can be used only after the switch starts successfully.
3	Console port	4	USB port
5	Mini USB port	6	Barcode label
			<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.
7	Fan slot 1	8	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-060A series fan modules		• FAN-060A series fan modules
9	<ul> <li>Power supply slot 1</li> <li>Applicable power modules:</li> <li>600 W AC&amp;240 V DC power module</li> <li>600 W high-voltage DC power module</li> </ul>	10	<ul> <li>Power supply slot 2</li> <li>Applicable power modules:</li> <li>600 W AC&amp;240 V DC power module</li> <li>600 W high-voltage DC power module</li> </ul>
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11	<ul> <li>Twenty-four 10GE SFP+ Ethernet optical ports</li> <li>Applicable modules and cables:</li> <li>FC optical module</li> <li>10GE optical module</li> <li>GE optical module</li> <li>GE copper module (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)</li> <li>SFP+ AOC cable</li> <li>SFP+ copper cables</li> </ul>	1 2	<ul> <li>Two 40GE QSFP+ Ethernet optical ports</li> <li>NOTE <ul> <li>A 40GE QSFP+ port can be split into four 10GE ports.</li> </ul> </li> <li>Applicable modules and cables: <ul> <li>40GE optical module</li> <li>QSFP+ AOC cable (QSFP+ to QSFP+)</li> </ul> </li> <li>QSFP+ AOC cable (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to 4*SFP+)</li> <li>QSFP+ copper cables (QSFP+ to QSFP+)</li> </ul>
13	Three port-side mounting holes for mounting brackets	1 4	Four middle mounting holes for mounting brackets
15	Four power-supply-side mounting holes for mounting brackets	-	-

### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in Figure 3-57 (CE5800 as an example).

Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **based**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-58** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

Figure 3-57 Front-to-back airflow (air flows out from the port side)



#### Figure 3-58 Back-to-front airflow (air flows into from the port side)



### Indicators

Indicators on the CE6850U-24S2Q-HI are the same as those on the CE6850-48S6Q-HI. The CE6850-48S6Q-HI is used as an example here to describe the indicators.

### Ports

### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. Table 3-110 describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description
Connector	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex

Table 3-110 Attributes of a 10GE SFP+ Ethernet optical port

### 

10GE SFP+ Ethernet optical ports of the CE6850U-24S2Q-HI can use 2GE/4GE/8GE FC optical modules.

### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and

fibers or 1-in-4-out QSFP+ cables. **Table 3-111** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-112** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table 3-112 Attributes of the console po	rt
--	----

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

#### **Mini USB Port**

The Mini USB port can connect to a configuration terminal for onsite configuration of the system, but the configuration terminal must have a USB serial port driver installed. The Mini USB port is used as the serial port once a link is established on the port.

#### ETH Management Port (Combo)

The ETH management port (combo) consists of an electrical port and an optical port. You can connect the electrical or optical port to a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The electrical and optical ports are multiplexed, and only one of them can work at a time.

### ΠΝΟΤΕ

The combo port automatically selects the working mode as follows:

- If the optical port has no optical module installed and the electrical port has no network cable connected, the port type depends on which port is connected first. If the electrical port is connected by a network cable first, the electrical port is used for data switching. If the optical port has an optical module installed first, the optical port is used for data switching.
- If the electrical port has a network cable connected and is in Up state, the electrical port is still used for data switching when the optical port has an optical module installed.
- If the optical port has an optical module installed and is in Up state, the optical port is still used for data switching when the electrical port has a network cable connected.
- If the optical port has an optical module and fiber installed and the electrical port has a network cable connected, the optical port is used for data switching after the switch restarts.

The combo electrical port uses a Category 5 or higher category network cable. **Table 3-113** describes the attributes of the combo electrical port.

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

Table 3-113 Attributes of the combo electrical port

The combo optical port uses a 100M or GE optical module and matching fibers. A 100M optical module can be used only after the switch starts successfully. If a 10GE optical module is installed, the interface can go Up, but the system displays an alarm message, indicating that the interface does not support the optical module. If a GE copper module is installed and the remote interface has a GE copper module installed, the local interface can go Up but does not support rate configuration. Table 3-114 describes the attributes of the combo optical port.

Table 3-114 Attributes of the combo optical port

Attribute	Description
Connector	LC
Standards compliance	IEEE802.3z
Working mode	100/1000 Mbit/s Full-duplex

The CE6850U-24S2Q-HI switch has two ETH management ports (combo). Pay attention to the following when using the two management ports:

- The two ports cannot be used together, and you must choose one of them to use.
- Before start of a CE6850U-24S2Q-HI switch, you can select interface 1 or interface 2 in the BIOS menu. Interface 1 is the default choice. For details, see Modify parameters.
- After registration of the switch succeeds:
  - If both the management ports have a cable connected and are in Up state, port 1 acts as the primary management port and port 2 becomes the backup automatically. The management interface number displayed on the command line interface is MEth0/0/0, regardless of which port is used.
  - If cables are connected to the two ETH management ports after successful registration of the switch, the port that is connected first is used as the primary management port.
  - If port 1 fails, the system switches management traffic to port 2 automatically. When port 1 recovers, management traffic cannot be switched back to port 1, unless port 2 fails or the switch restarts. You can observe indicators on the ETH management ports to determine which port is used currently. (The Link indicator of the ETH management port used is steady green. If data is being transmitted on this port, its ACT indicator is blinking yellow. The indicators of the backup port are off.)

### **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# **Specifications**

Table 3-115 lists the specifications of CE6850U-24S2Q-HI switches.

Item		Description
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm.</li> </ul>
		• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 12.3 kg.
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         <ul> <li>When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.</li> </ul> </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m

 Table 3-115 Specifications

Item		Description
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 52 dBA.</li> <li>Front-to-back airflow: &lt; 52 dBA.</li> </ul>
Power specifications	Power source type	AC/high-voltage DC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.
		• Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz.
	DC power input	Not supported.
	High-voltage DC power	• Rated voltage of 240 V high-voltage DC power input: 240 V DC.
	input	• Maximum voltage range of 240 V high-voltage DC power input: 188 V DC to 290 V DC.
		• Rated voltage range of 380 V high-voltage DC power input: 240 V DC to 380 V DC.
		• Maximum voltage range of 380 V high-voltage DC power input: 188 V DC to 400 V DC.
	Maximum input current	<ul> <li>600 W AC&amp;240 V DC power module (PAC-600WB series): 9 A (90 V AC)/4 A (240 V DC).</li> </ul>
		• 600 W high-voltage DC power module (PHD-600WA series): 4 A (240 V DC).
Chassis power consumption	Maximum power consumption	282 W
	Typical power consumption	183 W (100% traffic load, SFP+ cables on 24 ports and QSFP+ cables on 2 ports, double power modules).
Chassis heat dissipation	Maximum heat dissipation	962 BTU/hr
	Typical heat dissipation	624 BTU/hr (100% traffic load, SFP+ cables on 24 ports and QSFP+ cables on 2 ports, double power modules).
Surge protection		AC Power module: 4 kV in common mode and 2.5 kV in differential mode.
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.

Item		Description
Reliability and availability	Power module backup	1+1 backup.
	Fan module backup	<ul> <li>1+1 backup not supported.</li> <li>NOTE <ul> <li>A CE6800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li> </ul> </li> </ul>
	Hot swap	All the power modules and fan modules support hot swap.
	Mean time between failures (MTBF)	61.53
	Mean time to repair (MTTR)	1.78
	Availability	0.99999668947
Technical	Processor	1.5 GHz, quad-core.
specifications	DRAM Memory	4 GB
	NOR Flash	16 MB
	NAND Flash	1 GB
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports.
Safety standards compliance		<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>GB4943:2011</li> </ul>

Item	Description
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-116 provides the ordering information.

<b>Table 3-116</b>	Ordering	infor	mation
	oraoring	111101	mation

Part Number	Part Model	Part Description
02350GTP	CE6850U-HI- F-B0B	CE6850U-24S2Q-HI Switch (24-Port 10GE SFP+, support 2/4/8G FC, 2-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)

Part Number	Part Model	Part Description
02350GTQ	CE6850U-HI- B-B0B	CE6850U-24S2Q-HI Switch (24-Port 10GE SFP+, support 2/4/8G FC, 2-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)
02350GTM	CE6850U-24S2 Q-HI-F	CE6850U-24S2Q-HI Switch (24-Port 10GE SFP+, support 2/4/8G FC, 2-Port 40GE QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350GTN	CE6850U-24S2 Q-HI-B	CE6850U-24S2Q-HI Switch (24-Port 10GE SFP+, support 2/4/8G FC, 2-Port 40GE QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02350TJH	CE6850U-24S2 Q-HI	CE6850U-24S2Q-HI Switch (24-Port 10GE SFP+, support 2/4/8G FC, 2-Port 40GE QSFP+, Without FAN Box and Power Module)

# CE6850U-48S6Q-HI

# Appearance and Structure

The figures in this document are for reference only.

### CE6850U-48S6Q-HI

### Figure 3-59 Appearance of the CE6850U-48S6Q-HI



1	Ground screw	2	Two ETH management ports (combo)
			Applicable transceiver modules for the GE optical port of the combo port:
			• FE optical module
			• GE optical module
			NOTE
			The combo optical port uses a 100M or GE optical module and matching fibers. A 100M optical module can be used only after the switch starts successfully.
3	Console port	4	USB port
5	Mini USB port	6	Barcode label
			<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.
7	Fan slot 1	8	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-060A series fan modules		• FAN-060A series fan modules
9	Power supply slot 1	1	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 600 W AC&240 V DC power module		• 600 W AC&240 V DC power module
	• 600 W high-voltage DC power module		• 600 W high-voltage DC power module
11	Forty-eight 10GE SFP+ Ethernet optical ports	1 2	Six 40GE QSFP+ Ethernet optical ports
	Applicable modules and cables:		A 40GE QSFP+ port can be split into four 10GE ports.
	<ul> <li>rC optical module</li> <li>10CE optical module</li> </ul>		Applicable modules and cables:
	GE optical module		• 40GE optical module
	• <b>GE copper module</b> (works at 10 Mbit/s, 100 Mbit/s or 1000 Mbit/s)		• QSFP+ AOC cable (QSFP+ to QSFP+)
	• SFP+ AOC cable		• QSFP+ AOC cable (QSFP+ to 4*SFP+)
	• SFP+ copper cables		• QSFP+ copper cables (QSFP+ to 4*SFP+)
			• QSFP+ copper cables (QSFP+ to QSFP+)

13	Three port-side mounting holes for mounting brackets	1 4	Four middle mounting holes for mounting brackets
15	Four power-supply-side mounting holes for mounting brackets	-	-

### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-60** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **balance**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-61** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

Figure 3-60 Front-to-back airflow (air flows out from the port side)



#### Figure 3-61 Back-to-front airflow (air flows into from the port side)



## Indicators

Indicators on the CE6850U-48S6Q-HI are the same as those on the CE6850-48S6Q-HI. The CE6850-48S6Q-HI is used as an example here to describe the indicators.

### Ports

### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. Table 3-117 describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description
Connector	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex

Table 3-117 Attributes of a 10GE SFP+ Ethernet optical port

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10GE SFP+ Ethernet optical ports of the CE6850U-48S6Q-HI can use 2GE/4GE/8GE FC optical modules.

### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and

fibers or 1-in-4-out QSFP+ cables. **Table 3-118** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-119** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table 3-119 Attributes of the console po	rt
--	----

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

#### **Mini USB Port**

The Mini USB port can connect to a configuration terminal for onsite configuration of the system, but the configuration terminal must have a USB serial port driver installed. The Mini USB port is used as the serial port once a link is established on the port.

#### ETH Management Port (Combo)

The ETH management port (combo) consists of an electrical port and an optical port. You can connect the electrical or optical port to a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The electrical and optical ports are multiplexed, and only one of them can work at a time.

### ΠΝΟΤΕ

The combo port automatically selects the working mode as follows:

- If the optical port has no optical module installed and the electrical port has no network cable connected, the port type depends on which port is connected first. If the electrical port is connected by a network cable first, the electrical port is used for data switching. If the optical port has an optical module installed first, the optical port is used for data switching.
- If the electrical port has a network cable connected and is in Up state, the electrical port is still used for data switching when the optical port has an optical module installed.
- If the optical port has an optical module installed and is in Up state, the optical port is still used for data switching when the electrical port has a network cable connected.
- If the optical port has an optical module and fiber installed and the electrical port has a network cable connected, the optical port is used for data switching after the switch restarts.

The combo electrical port uses a Category 5 or higher category network cable. Table 3-120 describes the attributes of the combo electrical port.

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

Table 3-120 Attributes of the combo electrical port

The combo optical port uses a 100M or GE optical module and matching fibers. A 100M optical module can be used only after the switch starts successfully. If a 10GE optical module is installed, the interface can go Up, but the system displays an alarm message, indicating that the interface does not support the optical module. If a GE copper module is installed and the remote interface has a GE copper module installed, the local interface can go Up but does not support rate configuration. Table 3-121 describes the attributes of the combo optical port.

Table 3-121 Attributes of the combo optical port

Attribute	Description
Connector	LC
Standards compliance	IEEE802.3z
Working mode	100/1000 Mbit/s Full-duplex

The CE6850U-48S6Q-HI switch has two ETH management ports (combo). Pay attention to the following when using the two management ports:

- The two ports cannot be used together, and you must choose one of them to use.
- Before start of a CE6850U-48S6Q-HI switch, you can select interface 1 or interface 2 in the BIOS menu. Interface 1 is the default choice. For details, see Modify parameters.
- After registration of the switch succeeds:
  - If both the management ports have a cable connected and are in Up state, port 1 acts as the primary management port and port 2 becomes the backup automatically. The management interface number displayed on the command line interface is MEth0/0/0, regardless of which port is used.
  - If cables are connected to the two ETH management ports after successful registration of the switch, the port that is connected first is used as the primary management port.
  - If port 1 fails, the system switches management traffic to port 2 automatically. When port 1 recovers, management traffic cannot be switched back to port 1, unless port 2 fails or the switch restarts. You can observe indicators on the ETH management ports to determine which port is used currently. (The Link indicator of the ETH management port used is steady green. If data is being transmitted on this port, its ACT indicator is blinking yellow. The indicators of the backup port are off.)

### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# **Specifications**

 Table 3-122 lists the specifications of CE6850U-48S6Q-HI switches.

Item		Description
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm.</li> </ul>
		• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 12.6 kg.
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         <ul> <li>When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.</li> </ul> </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m

 Table 3-122 Specifications

Item		Description		
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 52 dBA.</li> <li>Front-to-back airflow: &lt; 52 dBA.</li> </ul>		
Power specifications	Power source type	AC/high-voltage DC		
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.		
		• Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz.		
	DC power input	Not supported.		
	High-voltage DC power	• Rated voltage of 240 V high-voltage DC power input: 240 V DC.		
	input	• Maximum voltage range of 240 V high-voltage DC power input: 188 V DC to 290 V DC.		
		• Rated voltage range of 380 V high-voltage DC power input: 240 V DC to 380 V DC.		
		• Maximum voltage range of 380 V high-voltage DC power input: 188 V DC to 400 V DC.		
	Maximum input current	<ul> <li>600 W AC&amp;240 V DC power module (PAC-600WB series): 9 A (90 V AC)/4 A (240 V DC).</li> </ul>		
		• 600 W high-voltage DC power module (PHD-600WA series): 4 A (240 V DC).		
Chassis power consumption	Maximum power consumption	339 W		
	Typical power consumption	235 W (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 6 ports, double power modules).		
Chassis heat dissipation	Maximum heat dissipation	1157 BTU/hr		
	Typical heat dissipation	802 BTU/hr (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 6 ports, double power modules).		
Surge protection		AC Power module: 4 kV in common mode and 2.5 kV in differential mode.		
Heat dissipation	Heat dissipation mode	Air cooling		
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.		

Item		Description
Reliability and availability	Power module backup	1+1 backup.
	Fan module backup	<ul> <li>1+1 backup not supported.</li> <li>NOTE <ul> <li>A CE6800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li> </ul> </li> </ul>
	Hot swap	All the power modules and fan modules support hot swap.
	Mean time between failures (MTBF)	53.24
	Mean time to repair (MTTR)	1.81
	Availability	0.99999611181
Technical specifications	Processor	1.5 GHz, quad-core.
	DRAM Memory	4 GB
	NOR Flash	16 MB
	NAND Flash	1 GB
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports.
Safety standards	compliance	<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>CB4043:2011</li> </ul>

Item	Description
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 3-123 provides the ordering information.

Lable of Leo Of acting information	<b>Fable 3-123</b>	Ordering	infor	mation
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Part Number	Part Model	Part Description
02359312	CE6850U-HI- F-B0A	CE6850U-48S6Q-HI Switch (48-Port 10GE SFP+, support 2/4/8G FC, 6-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)

Part Number	Part Model	Part Description
02350EHH	CE6850U-HI- B-B0A	CE6850U-48S6Q-HI Switch (48-Port 10GE SFP+, support 2/4/8G FC, 6-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)
02350EHF	CE6850U-48S6 Q-HI-F	CE6850U-48S6Q-HI Switch (48-Port 10GE SFP+, support 2/4/8G FC, 6-Port 40GE QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350EHG	CE6850U-48S6 Q-HI-B	CE6850U-48S6Q-HI Switch (48-Port 10GE SFP+, support 2/4/8G FC, 6-Port 40GE QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02359311	CE6850U-48S6 Q-HI	CE6850U-48S6Q-HI Switch (48-Port 10GE SFP+, support 2/4/8G FC, 6-Port 40GE QSFP+, Without FAN Box and Power Module)

# CE6855-48S6Q-HI

# Appearance and Structure

The figures in this document are for reference only.

### CE6855-4886Q-HI

### Figure 3-62 Appearance of the CE6855-48S6Q-HI



1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 350 W DC power module		• 350 W DC power module
	• 600 W AC power module		• 600 W AC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40EA series fan modules		• FAN-40EA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label NOTE This label is drawable, and you can pull it	8	USB port
	outward to view the ESN barcode and MAC address of the switch.		
9	Forty-eight 10GE SFP+ Ethernet optical ports	10	Six 40GE QSFP+ Ethernet optical ports NOTE
	Applicable modules and cables:		A 40GE QSFP+ port can be split into four 10GE ports.
	and LE2MXSC80FF0 not supported)		Applicable modules and cables:
	• GE optical module		• 40GE optical module
	• <b>GE copper module</b> (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s)		• QSFP+ AOC cable (QSFP+ to QSFP+)
	<ul> <li>SFP+ AOC cable</li> <li>SFP+ conner cables</li> </ul>		• QSFP+ AOC cable (QSFP+ to 4*SFP+)
	• SFI + copper cables		• QSFP+ copper cables (QSFP+ to 4*SFP+)
			• QSFP+ copper cables (QSFP+ to QSFP+)
11	Three port-side mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets
13	Ground screw	-	-

### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.

- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### ΠΝΟΤΕ

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-63** (CE5800 as an example).

Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **back or flows**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-64** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.



### Figure 3-63 Front-to-back airflow (air flows out from the port side)

Figure 3-64 Back-to-front airflow (air flows into from the port side)



# Indicators

The CE6855-48S6Q-HI does not have a mode switch button and the STAT/SPEED/STACK mode indicator. The downlink service port indicators of the CE6855-48S6Q-HI are 10GE optical port indicators, and other indicators on the CE6855-48S6Q-HI are the same as those on the CE6850-48T4Q-EI. The CE6850-48T4Q-EI is used as an example here to describe the indicators.

### Ports

### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-124** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description
Connector	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex

Table 3-124 Attributes of a 10GE SFP+ Ethernet optical port

### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-125** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Table 3-125 Attributes of a 400L QOLT + Ethernet optical port		
Attribute	Description	
Connector	LC/MPO	
Optical attributes	Depending on the module or cable used	
Standards compliance	IEEE802.3ba	

Table 3-125 Attributes of a 40GE QSFP+ Ethernet optical port

Full-duplex

### **Console Port**

Working mode

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-126** describes the attributes of the console port.

### 

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table 3-126 Attributes of the console port

Attribute	Description
Connector	RJ45

Attribute	Description
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. Table 3-127 describes the attributes of the ETH management port (RJ45).

Table 3-127 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

 Table 3-128 lists the specifications of CE6855-48S6Q-HI switches.

Item		Description			
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm.</li> </ul>			
		• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 8.7 kg.			
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> <li>Storage temperature: -40°C to +70°C</li> </ul>			
	Relative	5% RH to 95% RH, noncondensing.			
	humidity	,			
	Altitude	< 5000 m			
	Noise (sound	• Back-to-front airflow: < 56 dBA.			
	pressure, 27 C)	• Front-to-back airflow: < 58 dBA.			
Power specifications	Power source type	AC/DC			
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.			
		<ul> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>			
	DC power input	• Rated voltage range: -48 V DC to -60 V DC.			
		• Maximum voltage range: -38.4 V DC to -72 V DC.			
	High-voltage DC power input	Not supported.			
	Maximum input current	• 350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).			
		<ul> <li>600 W AC power (PAC-600WA series): 9 A (90 V AC).</li> </ul>			
Chassis power consumption	Maximum power consumption	216 W			
	Typical power consumption	116 W (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 6 ports, double power modules).			
Chassis heat dissipation	Maximum heat dissipation	737 BTU/hr			

 Table 3-128 Specifications

Item		Description			
	Typical heat dissipation	396 BTU/hr (100% traffic load, SFP+ cables on 48 ports and QSFP+ cables on 6 ports, double power modules).			
Surge protection		Power module:			
		• AC: 6 kV in common mode and 6 kV in differential.			
		• DC: 4 kV in common mode and 2 kV in differential mode.			
Heat dissipation	Heat dissipation mode	Air cooling			
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.			
Reliability and availability	Power module backup	1+1 backup.			
	Fan module backup	<ul><li>1+1 backup not supported.</li><li>NOTE A CE6800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li></ul>			
	Hot swap	All the power modules and fan modules support hot swap.			
	Mean time between failures (MTBF)	48.83			
	Mean time to repair (MTTR)	1.73			
	Availability	0.99999595166			
Technical	Processor	1.2 GHz, quad-core.			
specifications	DRAM Memory	2 GB			
	NOR Flash	16 MB			
	NAND Flash	1 GB			
Stack	Service port supporting the stack function	10GE optical ports and 40GE optical ports.			

Item	Description
Safety standards compliance	<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>GB4943:2011</li> </ul>
EMC standards compliance	<ul> <li>FCC 47CFR Part15 CLASS A</li> <li>ETSI EN 300 386 V1.6.1:2012</li> <li>ICES-003:2012 CLASS A</li> <li>CISPR 22:2008 CLASS A</li> <li>CISPR 24:2010</li> <li>EN 55022:2010 CLASS A</li> <li>EN 55024:2010</li> <li>AS/NZS CISPR 22:2009 CLASS A</li> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> <li>IEC 61000-3-3:2008/EN 61000-3-3:2008</li> <li>CNS 13438:2006 CLASS A</li> <li>VCCI V-4:2012 CLASS A</li> <li>VCCI V-3:2012 CLASS A</li> <li>EC Council Directive 2004/108/EC</li> <li>GB9254</li> </ul>
Safety and environmental standards compliance	<ul> <li>2002/95/EC, 2011/65/EU</li> <li>2002/96/EC, 2012/19/EU</li> <li>EC NO.1907/2006</li> <li>ETSI EN 300 019-1-1 V2.1.4</li> <li>ETSI EN 300 019-1-2 V2.1.4</li> <li>ETSI EN 300 019-1-3 V2.3.2</li> <li>ETSI EN 300753 V1.2.1</li> </ul>

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-129 provides the ordering information.

Part Number	Part Model	Part Description
02350RTC	CE6855-HI-B- B0A	CE6855-48S6Q-HI Switch (48-Port 10G SFP+, 6-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)
02350WVA	CE6855-HI-B- B0B	CE6855-48S6Q-HI Switch (48-Port 10G SFP+, 6-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake, 4m Ground Wire)
02350RTB	CE6855-HI-F- B0A	CE6855-48S6Q-HI Switch (48-Port 10G SFP+, 6-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02350SRQ	CE6855-4886Q -HI	CE6855-48S6Q-HI Switch (48-Port 10G SFP+, 6-Port 40GE QSFP+, Without Power Module and FAN Box)

 Table 3-129 Ordering information

# CE6855-48T6Q-HI

# Appearance and Structure

# 

The figures in this document are for reference only.

### СЕ6855-48Т6Q-НІ

### Figure 3-65 Appearance of the CE6855-48T6Q-HI



1	Ground screw	2	Two ETH management ports (combo) Applicable modules for the GE optical port of the combo port:
			• FE optical module
			• GE optical module
			NOTE
			The combo optical port uses a 100M or GE optical module and matching fibers. A 100M optical module can be used only after the switch starts successfully.
3	Console port	4	USB port
5	Mini USB port	6	Barcode label
			<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.
7	Fan slot 1	8	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-060A series fan modules		• FAN-060A series fan modules
9	Power supply slot 1	10	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 600 W AC&240 V DC power module		• 600 W AC&240 V DC power module
	• 600 W high-voltage DC power module		• 600 W high-voltage DC power module
11	Forty-eight 10GBASE-T Ethernet	12	Six 40GE QSFP+ Ethernet optical ports
	electrical ports		<b>NOTE</b> A 40GE QSFP+ port can be split into four 10GE ports.
			Applicable modules and cables:
			• 40GE optical module
			• QSFP+ AOC cable (QSFP+ to QSFP+)
			• QSFP+ AOC cable (QSFP+ to 4*SFP+)
			• QSFP+ copper cables (QSFP+ to 4*SFP+)
			• QSFP+ copper cables (QSFP+ to OSFP+)

13	Three port-side mounting holes for mounting brackets	14	Four middle mounting holes for mounting brackets
15	Four power-supply-side mounting holes for mounting brackets	-	-

### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-66** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **balance**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-67** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

Figure 3-66 Front-to-back airflow (air flows out from the port side)







## Indicators

The downlink service port indicators of the CE6855-48T6Q-HI are 10GE electrical port indicators, and other indicators are the same as those on the CE6850-48S6Q-HI. The CE6850-48S6Q-HI is used as an example here to describe the indicators.

## Ports

### **10GBASE-T Ethernet Electrical Port**

A 10GBASE-T Ethernet electrical port receives and sends services at a speed of 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port can work in 100/1000M mode through auto-sensing. **Table 3-130** describes the attributes of a 10GBASE-T Ethernet electrical port. Category 6A shielded twisted pairs are recommended for the 10GBASE-T Ethernet electrical port.

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3an and IEEE802.3az
Applicable cable	Straight-through cable and crossover cable
Working mode	Supported rate: 100/1000 Mbit/s and 10 Gbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

Table 3-130 Attributes of a 10GBASE-T Ethernet electrical	port
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### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and

fibers or 1-in-4-out QSFP+ cables. **Table 3-131** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

### Table 3-131 Attributes of a 40GE QSFP+ Ethernet optical port

### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-132** describes the attributes of the console port.

### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Table 3-132	Attributes	of the	console	port
-------------	------------	--------	---------	------

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

### **Mini USB Port**

The Mini USB port can connect to a configuration terminal for onsite configuration of the system, but the configuration terminal must have a USB serial port driver installed. The Mini USB port is used as the serial port once a link is established on the port.

### ETH Management Port (Combo)

The ETH management port (combo) consists of an electrical port and an optical port. You can connect the electrical or optical port to a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The electrical and optical ports are multiplexed, and only one of them can work at a time.

### ΠΝΟΤΕ

The combo port automatically selects the working mode as follows:

- If the optical port has no optical module installed and the electrical port has no network cable connected, the port type depends on which port is connected first. If the electrical port is connected by a network cable first, the electrical port is used for data switching. If the optical port has an optical module installed first, the optical port is used for data switching.
- If the electrical port has a network cable connected and is in Up state, the electrical port is still used for data switching when the optical port has an optical module installed.
- If the optical port has an optical module installed and is in Up state, the optical port is still used for data switching when the electrical port has a network cable connected.
- If the optical port has an optical module and fiber installed and the electrical port has a network cable connected, the optical port is used for data switching after the switch restarts.

The combo electrical port uses a Category 5 or higher category network cable. **Table 3-133** describes the attributes of the combo electrical port.

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

 Table 3-133
 Attributes of the combo electrical port

The combo optical port uses a 100M or GE optical module and matching fibers. A 100M optical module can be used only after the switch starts successfully. If a 10GE optical module is installed, the interface can go Up, but the system displays an alarm message, indicating that the interface does not support the optical module. If a GE copper module is installed and the remote interface has a GE copper module installed, the local interface can go Up but does not support rate configuration. Table 3-134 describes the attributes of the combo optical port.

Table 3-134 Attributes of the combo optical port

Attribute	Description
Connector	LC
Standards compliance	IEEE802.3z
Working mode	100/1000 Mbit/s Full-duplex
The CE6855-48T6Q-HI switch has two ETH management ports (combo). Pay attention to the following when using the two management ports:

- The two ports cannot be used together, and you must choose one of them to use.
- Before start of a CE6855-48T6Q-HI switch, you can select interface 1 or interface 2 in the BIOS menu. Interface 1 is the default choice. For details, see Modify parameters.
- After registration of the switch succeeds:
  - If both the management ports have a cable connected and are in Up state, port 1 acts as the primary management port and port 2 becomes the backup automatically. The management interface number displayed on the command line interface is MEth0/0/0, regardless of which port is used.
  - If cables are connected to the two ETH management ports after successful registration of the switch, the port that is connected first is used as the primary management port.
  - If port 1 fails, the system switches management traffic to port 2 automatically. When port 1 recovers, management traffic cannot be switched back to port 1, unless port 2 fails or the switch restarts. You can observe indicators on the ETH management ports to determine which port is used currently. (The Link indicator of the ETH management port used is steady green. If data is being transmitted on this port, its ACT indicator is blinking yellow. The indicators of the backup port are off.)

#### **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# **Specifications**

 Table 3-135
 lists the specifications of CE6855-48T6Q-HI switches.

Item		Description		
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm.</li> </ul>		
		• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 12.6 kg.		
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         <ul> <li>When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.</li> </ul> </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>		
	Relative humidity	5% RH to 95% RH, noncondensing.		
	Altitude	< 5000 m		

 Table 3-135 Specifications

Item		Description			
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 53 dBA.</li> <li>Front-to-back airflow: &lt; 53 dBA.</li> </ul>			
Power specifications	Power source type	AC/high-voltage DC			
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.			
		<ul> <li>Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz.</li> </ul>			
	DC power input	Not supported.			
	High-voltage DC power	• Rated voltage of 240 V high-voltage DC power input: 240 V DC.			
	input	• Maximum voltage range of 240 V high-voltage DC power input: 188 V DC to 290 V DC.			
		• Rated voltage range of 380 V high-voltage DC power input: 240 V DC to 380 V DC.			
		<ul> <li>Maximum voltage range of 380 V high-voltage DC power input: 188 V DC to 400 V DC.</li> </ul>			
	Maximum input current	<ul> <li>600 W AC&amp;240 V DC power module (PAC-600WB series): 9 A (90 V AC)/4 A (240 V DC).</li> </ul>			
		• 600 W high-voltage DC power module (PHD-600WA series): 4 A (240 V DC).			
Chassis power consumption	Maximum power consumption	346 W			
	Typical power consumption	219 W (100% traffic load, 3 m network cables on 48 ports and QSFP+ cables on 6 ports, double power modules).			
Chassis heat dissipation	Maximum heat dissipation	1181 BTU/hr			
Typical heat dissipation		747 BTU/hr (100% traffic load, 3 m network cables on 48 ports and QSFP+ cables on 6 ports, double power modules).			
Surge protection		Ethernet electrical ports: 2 kV in common mode.			
		AC Power module: 4 kV in common mode and 2.5 kV in differential mode.			
Heat dissipation	Heat dissipation mode	Air cooling			

Item		Description		
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.		
Reliability and availability	Power module backup	1+1 backup.		
	Fan module backup	<ul> <li>1+1 backup not supported.</li> <li>NOTE <ul> <li>A CE6800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li> </ul> </li> </ul>		
	Hot swap	All the power modules and fan modules support hot swap.		
	Mean time between failures (MTBF)	54.48		
	Mean time to repair (MTTR)	1.81		
	Availability	0.99999620929		
Technical	Processor	1.2 GHz, quad-core.		
specifications	DRAM Memory	2 GB		
	NOR Flash	16 MB		
	NAND Flash	1 GB		
Stack	Service port supporting the stack function	10GE electrical ports and 40GE optical ports.		
Safety standards	compliance	<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>GB4943:2011</li> </ul>		

Item	Description
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 3-136 provides the ordering information.

Part Number	Part Model	Part Description
02350QAK	CE6855-HI-F- B00	CE6855-48T6Q-HI Switch (48-Port 10GE RJ45, 6- Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)

Part Number	Part Model	Part Description
02350QAJ	CE6855-HI-B- B00	CE6855-48T6Q-HI Switch (48-Port 10GE RJ45, 6- Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)
02350WVD	CE6855-HI-B- B01	CE6855-48T6Q-HI Switch (48-Port 10GE RJ45, 6- Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake, 4m Ground Wire)
02350SRN	СЕ6855-48Т6 Q-НІ	CE6855-48T6Q-HI Switch (48-Port 10GE RJ45, 6- Port 40GE QSFP+, Without Power Module and FAN Box)

# CE6870-24S6CQ-EI

# Appearance and Structure

ΠΝΟΤΕ

The figures in this document are for reference only.

## CE6870-24S6CQ-EI

Figure 3-68 Appearance of the CE6870-24S6CQ-EI



1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 350 W DC power module		• 350 W DC power module
	• 600 W AC power module		• 600 W AC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40HA series fan modules		• FAN-40HA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	NOTE		
	outward to view the ESN barcode and MAC address of the switch.		
9	Twenty-four 10GE SFP+ Ethernet optical ports	10	Six 40GE/100GE QSFP28 Ethernet optical ports
	Applicable modules and cables:		NOTE
	• <b>10GE optical module</b> (OSXD22N00 and LE2MXSC80FF0 not supported)		A QSFP28 Ethernet optical port can be split into four 10GE or 25GE ports.
	• GE optical module		Applicable modules and cables:
	• <b>GE copper module</b> (works at 10		• 40GE optical module
	Mbit/s, 100 Mbit/s, or 1000 Mbit/s)		• 100GE optical module
	• SFP+ AOC cable		• QSFP+ to QSFP+ AOC cable
	• SFP+ copper cables		• QSFP+ to 4*SFP+ AOC cable
			<ul> <li>QSFP+ to 4*SFP+ high-speed cable</li> <li>OSEP+ to OSEP+ bigh speed cable</li> </ul>
			<ul> <li>QSFIT to QSFIT ingli-speed cable</li> <li>OSFP28 to OSFP28 high-speed</li> </ul>
			cable
			• QSFP28 to 4*SFP28 high-speed cable
11	Three port-side mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets
13	Ground screw	-	-

### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-69** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **book**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-70** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.



#### Figure 3-69 Front-to-back airflow (air flows out from the port side)

Figure 3-70 Back-to-front airflow (air flows into from the port side)



# Indicators

Indicators on the CE6870-24S6CQ-EI are the same as those on the CE6870-48S6CQ-EI. The **CE6870-48S6CQ-EI** is used as an example here to describe the indicators.

## Ports

### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-137** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description
Connector	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex

Table 3-137 Attributes of a 10GE SFP+ Ethernet optical port

### 40GE/100GE QSFP28 Optical Port

Table 3-138 describes the attributes of a 40GE/100GE QSFP28 optical port.

Table 3-138	Attributes	of a	40GE/100GE	QSFP28	optical	port
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Attribute	Specification
Connector type	Depending on the optical module
Optical attributes	Depending on the QSFP+ or QSFP28 optical module used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

### ΠΝΟΤΕ

When a port of a switch is connected to a Qlogic 100G network adapter using a QSFP28-100G-CU3M or QSFP28-100G-CU5M high-speed cable, the connected ports cannot go Up due to an auto-negotiation error on the network adapter. In this case, unplug and plug the cable on the Qlogic 100G network adapter to enable the ports to go Up.

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-139** describes the attributes of the console port.

#### 

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

<b>Table 3-139</b>	Attributes	of the	console	port

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 3-140** describes the attributes of the ETH management port (RJ45).

Table 3-140 Attributes of the ETH	I management port (RJ45)
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Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

#### **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

 Table 3-141 lists the specifications of CE6870-24S6CQ-EI switches.

Item		Description		
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm.</li> </ul>		
		• Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 8.4 kg.		
Environment Temperature parameters		<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> </ul>		
		• Storage temperature: -40°C to +70°C.		
	Relative humidity	5% RH to 95% RH, noncondensing.		
	Altitude	< 5000 m		
	Noise (sound	• Back-to-front airflow: < 55 dBA.		
	pressure, 27°C)	• Front-to-back airflow: < 51 dBA.		
Power specifications	Power source type	AC/DC		
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.		
		<ul> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>		
	DC power input	• Rated voltage range: -48 V DC to -60 V DC.		
		• Maximum voltage range: -38.4 V DC to -72 V DC.		
	High-voltage DC power input	Not supported.		
	Maximum input current	<ul> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> </ul>		
		<ul> <li>600 W AC power (PAC-600WA series): 9 A (90 V AC).</li> </ul>		
Chassis power consumption	Maximum power consumption	258 W		
	Typical power consumption	151 W (100% traffic load, SFP+ cables on 24 ports and QSFP28 cables on 6 ports, double power modules).		

 Table 3-141 Specifications

Item		Description	
Chassis heat dissipation	Maximum heat dissipation	881 BTU/hr	
	Typical heat dissipation	514 BTU/hr (100% traffic load, SFP+ cables on 24 ports and QSFP28 cables on 6 ports, double power modules).	
Surge protection		<ul> <li>Power module:</li> <li>AC: 6 kV in common mode and 6 kV in differential mode.</li> <li>DC: 4 kV in common mode and 2 kV in</li> </ul>	
	1	differential mode.	
Heat dissipation	Heat dissipation mode	Air cooling	
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.	
Reliability	Power module backup	1+1 backup.	
	Fan module backup	<ul> <li>1+1 backup not supported.</li> <li>NOTE <ul> <li>A CE6800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li> </ul> </li> </ul>	
	Hot swap	All the power modules and fan modules support hot swap.	
	Mean time between failures (MTBF)	52.98	
	Mean time to repair (MTTR)	1.66	
	Availability	0.99999641605	
Technical	Processor	1.5 GHz, quad-core.	
specifications	DRAM Memory	4 GB	
	NOR Flash	16 MB	
	NAND Flash	1 GB	
Stack	Service port supporting the stack function	10GE optical ports and 100GE optical ports.	

Item	Description
Safety standards compliance	• EN 60950-1:2006+A11:2009+A1:2010+A12:2011
	• EN 60825-1:2007
	• EN 60825-2:2010
	• UL 60950-1:2007 2rd Edition
	• CSA C22.2 No.650:2007 2rd Edition
	• IEC 60950-1:2005+A1:2009
	• AS/NZS 60950-1:2011
	• GB4943:2011
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-142 provides the ordering information.

Table 3-142 Ordering in	nformation
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Part Number	Part Model	Part Description
02350SRV	CE6870-24S6C Q-EI	CE6870-24S6CQ-EI Switch (24-Port 10GE SFP+, 6- Port 100GE QSFP28, Without Fan and Power Module)
02350RXH	CE6870-EI-F- B0B	CE6870-24S6CQ-EI Switch (24-Port 10GE SFP+, 6- Port 100GE QSFP28, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02350RXJ	CE6870-EI-B- B0B	CE6870-24S6CQ-EI Switch (24-Port 10GE SFP+, 6- Port 100GE QSFP28, 2*AC Power Module, 2*FAN Box, Port-side Intake)

# CE6870-48S6CQ-EI

# **Appearance and Structure**

ΠΝΟΤΕ

The figures in this document are for reference only.



### Figure 3-71 Appearance of the CE6870-48S6CQ-EI



1	Power supply slot 1	2	Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 350 W DC power module		• 350 W DC power module
	• 600 W AC power module		• 600 W AC power module
	-		
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40HA series fan modules		• FAN-40HA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	NOTE		
	This label is drawable, and you can pull it outward to view the ESN barcode and MAC		
	address of the switch.		
9	Forty-eight 10GE SFP+ Ethernet optical	10	Six 40GE/100GE QSFP28 Ethernet
	ports		optical ports
	Applicable modules and cables:		NOTE
	• <b>10GE optical module</b> (OSXD22N00 and LE2MXSC80FF0 not supported)		A QSFP28 Ethernet optical port can be split into four 10GE or 25GE ports.
	• GE optical module		Applicable modules and cables:
	• <b>GE copper module</b> (works at 10		• 40GE optical module
	Mbit/s, 100 Mbit/s, or 1000 Mbit/s)		• 100GE optical module
	• SFP+ AOC cable		• QSFP+ to QSFP+ AOC cable
	• SFP+ copper cables		• QSFP+ to 4*SFP+ AOC cable
			• QSFP+ to 4*SFP+ high-speed cable
			• QSFP+ to QSFP+ high-speed cable
			• QSFP28 to QSFP28 high-speed cable
			• QSFP28 to 4*SFP28 high-speed cable
11	Three port-side mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets
13	Ground screw	-	-
		-	

### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-72** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **book**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-73** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.



### **Figure 3-72** Front-to-back airflow (air flows out from the port side)

Figure 3-73 Back-to-front airflow (air flows into from the port side)



# Indicators



Figure 3-74 Indicators on the CE6870-48S6CQ-EI rear panel

Figure 3-75 Indicators on the CE6870-48S6CQ-EI front panel



No.	Indicator/Button	Color	Description
1	SYS: system status	-	Off: The system is not running.
	indicator	Green	<ul> <li>Fast blinking: The system is starting.</li> <li>Slow blinking: The system is running normally.</li> </ul>
		Red	<ul> <li>Steady on:</li> <li>The system fails to start.</li> <li>At least one power module does not work normally.</li> <li>At least one fan module does not work normally.</li> </ul>
2	MST: stack master/	-	Off: The switch is not a stack master.
	slave indicator	Green	Steady on: The switch is a stack master or standalone switch.
3	ID: ID indicator	-	Off: The ID indicator is not used (default state).
		Blue	Steady on: The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
4	Service port indicator (10GE optical port) NOTE Each 10GE/25GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). 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.	Green Yellow	<ul> <li>Off: No link has been established on the port or the port has been shut down.</li> <li>Steady on: A link is established on the port.</li> <li>Off: The port is not sending or receiving data.</li> <li>Blinking: The port is sending or receiving data.</li> </ul>
5	Service port indicator (40GE/ 100GE optical port)	-	Off: No link has been established on the port or the port has been shut down.

 Table 3-143 Description of indicators on the CE6870-48S6CQ-EI panels

No.	Indicator/Button	Color	Description
	NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	<ul> <li>Steady on: A link is established on the port.</li> <li>Blinking: The port is sending or receiving data.</li> </ul>
		<ul> <li>When a 40GE/100GE port is configured as four 10GE ports or four 25GE ports, this indicator shows the status of a 10GE/25GE port. The sequence number of the indicated port is identified by indicators 40G/100G Breakout 1/2/3/4 on the lower right corner of the panel.</li> <li>NOTE <ul> <li>Each 40GE/100GE port has a single-color indicator, which shows the status of the 40GE/100GE port by default.</li> </ul> </li> </ul>	
6	40G/100G Breakout 1/2/3/4 (sequence number indicators	-	Off: 40GE/100GE ports are working in 40GE or 100GE mode and not split into four 10GE ports or four 25GE ports.
	of 10GE/25GE ports converted from a 40GE/ 100GE port) NOTE Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.	Green	<ul> <li>Steady on: At least one 40GE/100GE port has been split into four 10GE ports or four 25GE ports.</li> <li>When one or more 40GE/100GE ports are split into four 10GE ports or four 25GE ports, these indicators identify the sequence numbers of the 10GE/25GE ports. A port indicator (6 in Figure 3-74) shows the status of a 10GE/25GE port converted from the corresponding 40GE/100GE port:</li> <li>When indicator 1 is on, each port indicator shows the status of the first 10GE/25GE port.</li> <li>When indicator 2 is on, each port indicator shows the status of the second 10GE/25GE port.</li> <li>When indicator 3 is on, each port indicator shows the status of the third 10GE/25GE port.</li> <li>When indicator 4 is on, each port indicator shows the status of the fourth 10GE/25GE port derived from the corresponding 40GE/100GE port.</li> </ul>
7	ACT: USB-based deployment indicator	-	Off: USB-based deployment is disabled (default state).

No.	Indicator/Button	Color	Description
		Green	• Steady on: USB-based deployment has been completed.
			• Blinking: The system is reading data from a USB flash drive.
		Red	Steady on: USB-based deployment has failed.
8	L/A: ETH	-	Off: No link is established on the port.
	management port indicator	Green	<ul> <li>Steady on: A link is established on the port.</li> <li>Blinking: The port is sending or receiving data.</li> </ul>

### Ports

### **10GE SFP+ Ethernet Optical Port**

A 10GE SFP+ Ethernet optical port can automatically work in GE mode when it has a GE optical module installed. A 10GE SFP+ Ethernet optical port can receive and send services when the network speed is 1 Gbit/s or 10 Gbit/s. **Table 3-144** describes the attributes of a 10GE SFP+ Ethernet optical port.

Attribute	Description
Connector	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s, 10 Gbit/s auto-sensing Full-duplex

Table 3-144	Attributes	ofa	10GF	SFP+	Ethernet	ontical	nort
1aute 3-144	Autoucs	or a	TUUL	SLI	Luncinci	optical	pon

### 40GE/100GE QSFP28 Optical Port

Table 3-145 describes the attributes of a 40GE/100GE QSFP28 optical port.

Attribute	Specification
Connector type	Depending on the optical module
Optical attributes	Depending on the QSFP+ or QSFP28 optical module used

Attribute	Specification
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

## ΠΝΟΤΕ

When a port of a switch is connected to a Qlogic 100G network adapter using a QSFP28-100G-CU3M or QSFP28-100G-CU5M high-speed cable, the connected ports cannot go Up due to an auto-negotiation error on the network adapter. In this case, unplug and plug the cable on the Qlogic 100G network adapter to enable the ports to go Up.

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-146** describes the attributes of the console port.

### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

Table 3-146 Attributes of the console port

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. Table 3-147 describes the attributes of the ETH management port (RJ45).

Table 3-147	Attributes	of the ETH	management	port	(RJ45)
-------------	------------	------------	------------	------	--------

Attribute	Description
Connector	RJ45

Attribute	Description
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

#### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

Table 3-148 lists the specifications of CE6870-48S6CQ-EI switches.

 Table 3-148 Specifications

Item		Description	
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm.</li> <li>Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 8.6 kg.</li> </ul>	
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>	
	Relative humidity	5% RH to 95% RH, noncondensing.	
	Altitude	< 5000 m	
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 55 dBA.</li> <li>Front-to-back airflow: &lt; 51 dBA.</li> </ul>	
Power specifications	Power source type	AC/DC	

Item		Description		
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>		
	DC power input	<ul> <li>Rated voltage range: -48 V DC to -60 V DC.</li> <li>Maximum voltage range: -38.4 V DC to -72 V DC.</li> </ul>		
	High-voltage DC power input	Not supported.		
	Maximum input current	<ul> <li>350 W DC power (PDC-350WA series): 11 A (-38.4 V DC).</li> </ul>		
		• 600 W AC power (PAC-600WA series): 9 A (90 V AC).		
Chassis power consumption	Maximum power consumption	333 W		
	Typical power consumption	159 W (100% traffic load, SFP+ cables on 48 ports and QSFP28 cables on 6 ports, double power modules).		
Chassis heat dissipation	Maximum heat dissipation	1135 BTU/hr		
	Typical heat dissipation	543 BTU/hr (100% traffic load, SFP+ cables on 48 ports and QSFP28 cables on 6 ports, double power modules).		
Surge protection	•	Power module:		
		• AC: 6 kV in common mode and 6 kV in differential mode.		
		• DC: 4 kV in common mode and 2 kV in differential mode.		
Heat dissipation	Heat dissipation mode	Air cooling		
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.		
Reliability and availability	Power module backup	1+1 backup.		
	Fan module backup	<ul><li>1+1 backup not supported.</li><li>NOTE A CE6800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li></ul>		

Item		Description
Hot swap		All the power modules and fan modules support hot swap.
	Mean time between failures (MTBF)	54.28
	Mean time to repair (MTTR)	1.66
	Availability	0.99999651887
Technical	Processor	1.5 GHz, quad-core.
specifications	DRAM Memory	4 GB
	NOR Flash	16 MB
	NAND Flash	1 GB
Stack	Service port supporting the stack function	10GE optical ports and 100GE optical ports.
Safety standards compliance		<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825 2:2010</li> </ul>
		<ul> <li>UL 60950-1:2007 2rd Edition</li> </ul>
		• CSA C22.2 No.650:2007 2rd Edition
		• IEC 60950-1:2005+A1:2009
		• AS/NZS 60950-1:2011
		• GB4943:2011

Item	Description
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 3-149 provides the ordering information.

Table 3-149	Ordering	information
1abic 5-147	ordoring	mormation

Part Number	Part Model	Part Description
02350SRU	CE6870-48S6C Q-EI	CE6870-48S6CQ-EI Switch (48-Port 10GE SFP+, 6- Port 100GE QSFP28, Without Fan and Power Module)

Part Number	Part Model	Part Description
02350RXD	CE6870-EI-F- B0A	CE6870-48S6CQ-EI Switch (48-Port 10GE SFP+, 6- Port 100GE QSFP28, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02350RXE	CE6870-EI-B- B0A	CE6870-48S6CQ-EI Switch (48-Port 10GE SFP+, 6- Port 100GE QSFP28, 2*AC Power Module, 2*FAN Box, Port-side Intake)

# 3.3.3 CE7800

# CE7850-32Q-EI

# Appearance and Structure

The figures in this document are for reference only.

## CE7850-32Q-EI

## Figure 3-76 Appearance of the CE7850-32Q-EI



1	Power supply slot 1	2	Power supply slot 1
	Applicable power modules:		Applicable power modules:
	• 600 W AC power module		• 600 W AC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40HA series fan modules		• FAN-40HA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.		
	This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.		
9	Thirty-two 40GE QSFP+ Ethernet optical ports	10	Three port-side mounting holes for mounting brackets
	NOTE A 40GE QSFP+ port can be split into four 10GE ports.		
	Applicable modules and cables:		
	• 40GE optical module		
	• QSFP+ AOC cable (QSFP+ to QSFP+)		
	• QSFP+ AOC cable (QSFP+ to 4*SFP+)		
	• QSFP+ copper cables (QSFP+ to 4*SFP+)		
	• QSFP+ copper cables (QSFP+ to QSFP+)		
11	Four middle mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets
13	Ground screw	-	-

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

### 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-77** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **book**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-78** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.



### **Figure 3-77** Front-to-back airflow (air flows out from the port side)

Figure 3-78 Back-to-front airflow (air flows into from the port side)



# Indicators

# CE7850-32Q-EI



Figure 3-79 Indicators on the CE7850-32Q-EI rear panel

Figure 3-80 Indicators on the CE7850-32Q-EI front panel



No.	Indicator/Button	Color	Description	
1	SYS: system status indicator	-	Off: The system is not running.	
		Green	<ul> <li>Fast blinking: The system is starting.</li> <li>Slow blinking: The system is running normally.</li> </ul>	
		Red	Steady on:	
			• The system fails to start.	
			• At least one power module does not work normally.	
			• At least one fan module does not work normally.	
2	MST: stack master/	-	Off: The switch is not a stack master.	
	slave indicator	Green	Steady on: The switch is a stack master or standalone switch.	
		Yellow	Steady on: A master election error or another type of error has occurred in the stack.	
3	STAT: STAT mode indicator	-	Off: The STAT mode is not selected.	
		Green	Steady on: The STAT mode (default mode) is selected, and service port indicators show the link connection states and link activity on ports.	
4	SPEED: SPEED mode indicator	-	Off: The SPEED mode is not selected.	
		Green	Steady on: The SPEED mode is selected, and service port indicators show the speed of each port.	
5	STACK: STACK	-	Off: The STACK mode is not selected.	
	mode indicator	Green	Steady on: The STACK mode is selected, and service port indicators show the stack member ID of the local switch.	

Table 3-150 Indicators on the CE7850-32Q-EI panels

No.	Indicator/Button	Color	Description
6	MODE/ID: mode switch button and ID indicator <b>NOTE</b> The mode switch button on the rear panel is integrated with the ID indicator. There is only an ID indicator and no mode switch button on the front panel.	Mode switch button: -	<ul> <li>When you press the MODE button once, the SPEED indicator turns green and service port indicators show the speed of each port.</li> <li>When you press the MODE button a second time, the STACK indicator turns green and service port indicators show the stack member ID of the local switch.</li> <li>When you press the button a third time, the STAT indicator turns green (default mode) and service port indicators show the link connection states and link activity on ports. If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the STAT indicator is steady green, the SPEED and STACK indicators are off.</li> </ul>
		ID indicat or: -	Off: The ID indicator is not used (default state).
		ID indicat or: blue	Steady on: The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
7	Service port indicator (40GE optical port) <b>NOTE</b> 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 <b>Table 3-151</b> . When a 40GE port is configured as four 10GE ports, this indicator shows the status of a 10GE port. The sequence number of the indicated 10GE port is identified by indicators 40GE Breakout 1/2/3/4 on the lower right corner of the panel. <b>NOTE</b> Each 40GE port has a single-color indicator, which shows the status of the 40GE port by default. If a 40GE port is not split and is connected to four 10GE ports of a remote device using a one-to-four high-speed cable, the 40GE port cannot go Un and its indicator is off	
8	40GE Breakout 1/2/3/4 (sequence number indicators of 10GE ports converted from a 40GE port) <b>NOTE</b> Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.	-	Off: 40GE ports are not split into four 10GE ports.

No.	Indicator/Button	Color	Description
		Green	Steady on: At least one 40GE port has been split into four 10GE ports.
			When one or more 40GE ports are configured as four 10GE ports, these indicators identify the sequence numbers of the 10GE ports. A 40GE port indicator (7 in <b>Figure 3-79</b> ) shows the status of a 10GE port converted from the 40GE port:
			• When Breakout indicator 1 is on, each 40GE port indicator shows the status of the first 10GE port converted from the corresponding 40GE port.
			• When Breakout indicator 2 is on, each 40GE port indicator shows the status of the second 10GE port converted from the corresponding 40GE port.
			• When Breakout indicator 3 is on, each 40GE port indicator shows the status of the third 10GE port converted from the corresponding 40GE port.
			• When Breakout indicator 4 is on, each 40GE port indicator shows the status of the fourth 10GE port converted from the corresponding 40GE port.
			The following is an example:
			The first 40GE port shown in <b>Figure 3-79</b> is split into four 10GE ports, and the second 40GE port is not split.
			• When Breakout indicator 1 is on, the indicator of 40GE port 1 shows the status of the first 10GE port converted from 40GE port 1, and the indicator of 40GE port 2 still shows the status of 40GE port 2.
			• When Breakout indicator 2 is on, the indicator of 40GE port 1 shows the status of the second 10GE port converted from 40GE port 1, and the indicator of 40GE port 2 still shows the status of 40GE port 2.
9	ACT: USB-based deployment indicator	-	Off: USB-based deployment is disabled (default state).
		Green	• Steady on: USB-based deployment has been completed.
			• Blinking: The system is reading data from a USB flash drive.
		Red	Steady on: USB-based deployment has failed.

No.	Indicator/Button	Color	Description
10	L/A: ETH	-	Off: No link is established on the port.
	management port indicator	Green	<ul> <li>Steady on: A link is established on the port.</li> <li>Blinking: The port is sending or receiving data.</li> </ul>

Table 3-151 Service port indicators in various modes

Display Mode	Port	Color	Description
STAT	STAT 40GE optical port	-	Off: The port is not connected or has been shut down.
		Green	<ul> <li>Steady on: A link is established on the port.</li> <li>Blinking: The port is sending or receiving data.</li> </ul>
SPEED	SPEED 40GE optical port	-	Off: The port is not connected or has been shut down.
		Green	<ul> <li>Steady on: The 40GE port has been split into four 10GE ports.</li> <li>Blinking: The port is working as a 40GE port.</li> </ul>

Display Mode	Port	Color	Description
STACK	Green <b>NOTE</b> This row describes the states and meanings of port indicators on a switch working in stack mode.		<ul> <li>Off: Port indicators do not show the stack member ID of the switch.</li> <li>Steady on: If the indicator of a port is steady on, the port number is the stack member ID of the switch.</li> <li>NOTE In STACK mode, a 10GE optical port has only its LINK indicator on (green).</li> </ul>
	Green NOTE This row describes the port indicators on a swi virtual fabric (SVF) mo	states and meanings of tch working in super ode.	<ul> <li>Off: Port indicators do not show the leaf ID of the switch.</li> <li>Steady on: If the indicator of a port is steady on, the port number indicates the leaf ID of the switch.</li> </ul>

# Ports

### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. Table 3-152 describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex
#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-153** describes the attributes of the console port.

#### 

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

Table 3-153 Attributes of the console port

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 3-154** describes the attributes of the ETH management port (RJ45).

Table 3-154 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

#### **USB** Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

 Table 3-155 Specifications

Item		Description
Physical specifications		<ul> <li>Dimensions (W x D x H):442.0 mm x 607.0 mm x 43.6 mm.</li> <li>Wield ( if the second secon</li></ul>
		<ul> <li>Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):11.2 kg.</li> </ul>
Environment parameters	Temperature	<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> </ul>
		• Storage temperature: $-40^{\circ}$ C to $+70^{\circ}$ C.
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m
	Noise (sound	• Back-to-front airflow: < 55 dBA.
	pressure, 27°C)	• Front-to-back airflow: < 54 dBA.
Power specifications	Power source type	AC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.
		<ul> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>
	DC power input	Not supported
	High-voltage DC power input	Not supported
	Maximum input current	600 W AC power (PAC-600WA series): 9 A (90 V AC).
Chassis power consumption	Maximum power consumption	431 W
	Typical power consumption	297 W (100% traffic load, QSFP+ cables on 32 ports, double power modules).
Chassis heat dissipation	Maximum heat dissipation	1471 BTU/hr

Item		Description	
	Typical heat dissipation	1013 BTU/hr (100% traffic load, QSFP+ cables on 32 ports, double power modules).	
Surge protection		AC Power module: 6 kV in common mode and 6 kV in differential mode.	
Heat dissipation	Heat dissipation mode	Air cooling	
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.	
Reliability and availability	Power module backup	1+1 backup.	
	Fan module backup	<ul> <li>1+1 backup not supported.</li> <li>NOTE</li> <li>CE7800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li> </ul>	
	Hot swap	All the power modules and fan modules support hot swap.	
	Mean time between failures (MTBF)	42.20	
	Mean time to repair (MTTR)	2.0	
	Availability	0.9999951387	
Technical	Processor	1.5 GHz, quad-core	
specifications	DRAM Memory	4 GB	
	NOR Flash	16 MB	
	NAND Flash	1 GB	
Stack	Service port supporting the stack function	40GE optical ports	

Item	Description
Safety standards compliance	• EN 60950-1:2006+A11:2009+A1:2010+A12:2011
	• EN 60825-1:2007
	• EN 60825-2:2010
	• UL 60950-1:2007 2rd Edition
	• CSA C22.2 No.650:2007 2rd Edition
	• IEC 60950-1:2005+A1:2009
	• AS/NZS 60950-1:2011
	• GB4943:2011
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-156 provides the ordering information.

Part Number	Part Model	Part Description
02358859	CE7850-32Q- EI	CE7850-32Q-EI Switch (32-Port 40GE QSFP+, Without Fan Box and Power Module)
02359250	CE7850-EI- B00	CE7850-32Q-EI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Exhaust)
02350EYY	CE7850-32Q- EI-F	CE7850-32Q-EI Switch (32-Port 40G QSFP+, 2*FAN Box, Port-side Exhaust, Without Power Module)
02350FAB	CE7850-32Q- EI-B	CE7850-32Q-EI Switch (32-Port 40G QSFP+, 2*FAN Box, Port-side Intake, Without Power Module)
02350EYQ	CE7850-EI-B- B0A	CE7850-32Q-EI Switch (2*600W AC Power Module, 2*FAN Box, Port-side Intake)

 Table 3-156 Ordering information

#### CE7855-32Q-EI

# Appearance and Structure

#### 

The figures in this document are for reference only.

#### CE7855-32Q-EI

#### Figure 3-81 Appearance of the CE7855-32Q-EI



1	Power supply slot 1	2	Power supply slot 1
	Applicable power modules:		Applicable power modules:
	• 600 W AC power module		• 600 W AC power module
3	Fan slot 1	4	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-40HA series fan modules		• FAN-40HA series fan modules
5	Console port	6	ETH management port (RJ45)
7	Barcode label	8	USB port
	<b>NOTE</b> This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.		
	This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.		
9	Thirty-two 40GE QSFP+ Ethernet optical ports	10	Three port-side mounting holes for mounting brackets
	NOTE A 40GE QSFP+ port can be split into four 10GE ports.		
	Applicable modules and cables:		
	• 40GE optical module		
	• QSFP+ AOC cable (QSFP+ to QSFP+)		
	• QSFP+ AOC cable (QSFP+ to 4*SFP+)		
	• QSFP+ copper cables (QSFP+ to 4*SFP+)		
	• QSFP+ copper cables (QSFP+ to QSFP+)		
11	Four middle mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets
13	Ground screw	-	-

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

#### 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-82** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **book**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-83** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.



#### Figure 3-82 Front-to-back airflow (air flows out from the port side)

Figure 3-83 Back-to-front airflow (air flows into from the port side)



## Indicators

Indicators on the CE7855-32Q-EI are the same as those on the CE7850-32Q-EI. The **CE7850-32Q-EI** is used as an example here to describe the indicators.

#### Ports

#### 40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at a speed of 40 Gbit/s. If a 40GE port is split into four 10GE ports, it must use 1-in-4-out QSFP+ optical modules and fibers or 1-in-4-out QSFP+ cables. **Table 3-157** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Attribute	Description
Connector	LC/MPO
Optical attributes	Depending on the module or cable used
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

#### Table 3-157 Attributes of a 40GE QSFP+ Ethernet optical port

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-158** describes the attributes of the console port.

#### ΠΝΟΤΕ

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Attribute	Description	
Connector	RJ45	
Standards compliance	RS232	
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)	
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s	

Table 3-158 Attributes of the console port

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. Table 3-159 describes the attributes of the ETH management port (RJ45).

**Table 3-159** Attributes of the ETH management port (RJ45)

Attribute	Description
Connector	RJ45

Attribute	Description
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

#### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

# Specifications

Item		Description	
Physical specifications		<ul> <li>Dimensions (W x D x H): 442.0 mm x 607.0 mm x 43.6 mm.</li> <li>Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):11.2 kg.</li> </ul>	
Environment Temperature parameters		<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>	
	Relative humidity	5% RH to 95% RH, noncondensing.	
	Altitude	< 5000 m	
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 55 dBA.</li> <li>Front-to-back airflow: &lt; 54 dBA.</li> </ul>	
PowerPower sourcespecificationstype		AC	
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz.</li> </ul>	

Item		Description
	DC power input	Not supported
	High-voltage DC power input	Not supported
	Maximum input current	600 W AC power (PAC-600WA series): 9 A (90 V AC).
Chassis power consumption	Maximum power consumption	444 W
	Typical power consumption	262 W (100% traffic load, QSFP+ cables on 32 ports, double power modules).
Chassis heat dissipation	Maximum heat dissipation	1515 BTU/hr
	Typical heat dissipation	895 BTU/hr (100% traffic load, QSFP+ cables on 32 ports, double power modules).
Surge protection		AC Power module: 6 kV in common mode and 6 kV in differential mode.
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.
Reliability and availability	Power module backup	1+1 backup.
	Fan module backup	<ul> <li>1+1 backup not supported.</li> <li>NOTE</li> <li>CE7800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.</li> </ul>
	Hot swap	All the power modules and fan modules support hot swap.
	Mean time between failures (MTBF)	49.81
	Mean time to repair (MTTR)	1.81
	Availability	0.99999584354

Item		Description
Technical Processor		1.5 GHz, quad-core
specifications	DRAM Memory	4 GB
	NOR Flash	16 MB
	NAND Flash	1 GB
Stack	Service port supporting the stack function	40GE optical ports
Safety standards compliance		<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>CD 4042 2011</li> </ul>
		• GB4943:2011
EMC standards compliance		<ul> <li>FCC 47CFR Part15 CLASS A</li> <li>ETSI EN 300 386 V1.6.1:2012</li> <li>ICES-003:2012 CLASS A</li> <li>CISPR 22:2008 CLASS A</li> <li>CISPR 24:2010</li> <li>EN 55022:2010 CLASS A</li> <li>EN 55024:2010</li> <li>AS/NZS CISPR 22:2009 CLASS A</li> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> <li>IEC 61000-3-3:2008/EN 61000-3-3:2008</li> <li>CNS 13438:2006 CLASS A</li> <li>VCCI V-4:2012 CLASS A</li> <li>VCCI V-3:2012 CLASS A</li> <li>EC Council Directive 2004/108/EC</li> <li>GB9254</li> </ul>

Item	Description
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 3-161 provides the ordering information.

Table 3-161 Ordering information	
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Part Number	Part Model	Part Description
02350SQX	CE7855-32Q- EI	CE7855-32Q-EI Switch (32-Port 40GE QSFP+, Without Fan Box and Power Module)
02350SBG	CE7855-EI-F- B0A	CE7855-32Q-EI Switch (32-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02350SBH	CE7855-EI-B- B0A	CE7855-32Q-EI Switch (32-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)

# 3.3.4 CE8800

#### CE8860-4C-EI

# Appearance and Structure

The figures in this document are for reference only.

CE8860-4C-EI







1	Ground screw	2	Two ETH management ports (RJ45)
3	ESN and MAC address label	4	Console port
5	USB port	6	Mini USB port
7	Fan slot 1	8	Fan slot 2
	Applicable fan modules:		Applicable fan modules:
	• FAN-180A series fan modules		• FAN-180A series fan modules

9	Power supply slot 1		Power supply slot 2
	Applicable power modules:		Applicable power modules:
	• 1200 W AC&240 V DC power module		• 1200 W AC&240 V DC power module
	• 1200 W high-voltage DC power module		• 1200 W high-voltage DC power module
11	Extended card slot 1	12	Extended card slot 2
	Applicable cards:		Applicable cards:
	• CE88-D8CQ		• CE88-D8CQ
	• CE88-D16Q		• CE88-D16Q
	• CE88-D24T2CQ		• CE88-D24T2CQ
	• CE88-D24S2CQ		• CE88-D24S2CQ
13	Extended card slot 3	14	Extended card slot 4
	Applicable cards:		Applicable cards:
	• CE88-D8CQ		• CE88-D8CQ
	• CE88-D16Q		• CE88-D16Q
	• CE88-D24T2CQ		• CE88-D24T2CQ
	• CE88-D24S2CQ		• CE88-D24S2CQ
15	Mounting holes for mounting brackets	-	-

#### Slot

• Power supply slot

The CE8800&7800&6800&5800 series switches have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide a higher reliability.

The CE8800&7800&6800&5800 series switches support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

• Fan slot

The CE8800&7800&6800&5800 series switches have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

All fan modules are hot swappable.

#### Airflow

The cooling systems of the CE8800&7800&6800&5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan

modules used. The airflow direction of the power modules and fan modules required on the CE8800&7800&6800&5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CE8800&7800&6800&5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

#### 

• Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked



from the port side, as shown in **Figure 3-85** (CE5800 as an example).

• Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked



or **based**. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 3-86** (CE5800 as an example).

• When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

Figure 3-85 Front-to-back airflow (air flows out from the port side)





#### Figure 3-86 Back-to-front airflow (air flows into from the port side)

# Indicators





#### 

The CE8860-4C-EI has four card slots at the rear of the chassis and has no indicators on the rear panel. For details about indicators on extended cards, see the indicator description for the specific cards.

No.	Indicator/Button	Color	Description
1	SYS: system status	-	Off: The system is not running.
indicator		Green	<ul> <li>Fast blinking: The system is starting.</li> <li>Slow blinking: The system is running normally.</li> </ul>
		Red	<ul> <li>Steady on:</li> <li>The system fails to start.</li> <li>At least one power module does not work normally.</li> <li>At least one fan module does not work normally.</li> </ul>
2	MST: stack master/	-	Off: The switch is not a stack master.
	slave indicator	Green	Steady on: The switch is a stack master or standalone switch.
3	ID: ID indicator	-	Off: The ID indicator is not used (default state).
		Blue	Steady on: The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
4 USB: USB-based deployment		-	Off: USB-based deployment is disabled (default state).
	indicator	Green	<ul> <li>Steady on: USB-based deployment has been completed.</li> <li>Blinking: The system is reading data from a USB flash drive.</li> </ul>
		Red	Steady on: USB-based deployment has failed.
5	ACT: Mini USB port indicator	-	Off: The Mini USB port is inactive, and the console port can be used.
		Green	Off: The Mini USB port is active, and the console port cannot be used.
6	6 ETH management		Off: No link is established on the port.
	port indicator	Green	Steady on: A link is established on the port.
		Yellow	Blinking: The port is sending or receiving data.
7	SLOT: card status indicators	-	Off: No card is present in the slot, a card is present but is not powered on, or the system is not running.

 Table 3-162 Description of indicators on the CE8860-4C-EI front panel

No.	Indicator/Button	Color	Description
	NOTE Indicators 1, 2, 3, 4 show the status of cards in slots 1, 2, 3,	Green	<ul> <li>Slow blinking: The card is running normally.</li> <li>Fast blinking: The card is powering on or resetting.</li> </ul>
4, respectively.	4, respectively.	Red	Steady on: A fault that affects services has occurred on the card. The fault cannot be rectified automatically and requires manual intervention.

#### Ports

#### **Console Port**

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 3-163** describes the attributes of the console port.

#### 

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Attribute	Description
Connector	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s - 115200 bit/s Default value: 9600 bit/s

Table 3-163 Attributes of the console port

#### **Mini USB Port**

The Mini USB port can connect to a configuration terminal for onsite configuration of the system, but the configuration terminal must have a USB serial port driver installed. The Mini USB port is used as the serial port once a link is established on the port.

#### ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. Table 3-164 describes the attributes of the ETH management port (RJ45).

Attribute	Description
Connector	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

 Table 3-164 Attributes of the ETH management port (RJ45)

The CE8860 switches have two ETH management ports (RJ45). Pay attention to the following when using the two management ports:

- The two ports cannot be used together, and you must choose one of them to use.
- Before start of a CE8860 switch, you can select interface 1 or interface 2 in the BIOS menu. Interface 1 is the default choice. For details, see Modify parameters.
- After registration of the switch succeeds:
  - If both the management ports have a cable connected and are in Up state, port 1 acts as the primary management port and port 2 becomes the backup automatically. The management interface number displayed on the command line interface is MEth0/0/0, regardless of which port is used.
  - If cables are connected to the two ETH management ports after successful registration of the switch, the port that is connected first is used as the primary management port.
  - If port 1 fails, the system switches management traffic to port 2 automatically.
     When port 1 recovers, management traffic cannot be switched back to port 1, unless port 2 fails or the switch restarts. You can observe indicators on the ETH management ports to determine which port is used currently. (The Link indicator of the ETH management port used is steady green. If data is being transmitted on this port, its ACT indicator is blinking yellow. The indicators of the backup port are off.)

#### **USB Port**

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

#### Specifications

Table 3-165 lists the specifications of CE8800&7800&6800&5800 series switches.

Table 3-165 Specification	S
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Item		Description
Physical specific	ations	<ul> <li>Dimensions (W x D x H): 442.0 mm x 600.0 mm x 88.1 mm.</li> <li>Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported):21.2 kg.</li> </ul>
Environment Temperature parameters		<ul> <li>Operating temperature: 0°C to 40°C (0 m to 1800 m).</li> <li>NOTE         When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces 1°C every time the altitude increases 220 m.     </li> <li>Storage temperature: -40°C to +70°C.</li> </ul>
	Relative humidity	5% RH to 95% RH, noncondensing.
	Altitude	< 5000 m
	Noise (sound pressure, 27°C)	<ul> <li>Back-to-front airflow: &lt; 58 dBA.</li> <li>Front-to-back airflow: &lt; 56 dBA.</li> </ul>
Power specifications	Power source type	AC/high-voltage DC
	AC power input	<ul> <li>Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz.</li> <li>Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz.</li> </ul>
	DC power input	Not supported
	High-voltage DC power input	<ul> <li>Rated voltage of 240 V high-voltage DC power input: 240 V DC.</li> <li>Maximum voltage range of 240 V high-voltage DC power input: 188 V DC to 290 V DC.</li> <li>Rated voltage range of 380 V high-voltage DC power input: 240 V DC to 380 V DC.</li> <li>Maximum voltage range of 380 V high-voltage DC power input: 188 V DC to 400 V DC.</li> </ul>
	Maximum input current	<ul> <li>1200 W AC&amp;240 V DC power module (PAC-1K2WA series): 11 A (90 V AC)/8 A (240 V DC).</li> <li>1200 W high-voltage DC power module (PHD-1K2WA series): 8 A (240 V DC).</li> </ul>

Item		Description
Chassis power consumption	Maximum power consumption	<ul> <li>Fully configured with four CE88-D8CQ cards: 625 W.</li> <li>Fully configured with four CE88-D16Q cards: 585 W.</li> <li>Fully configured with four CE88-D24T2CQ cards: 750 W.</li> <li>Fully configured with four CE88-D24S2CQ cards: 602 W.</li> </ul>
	Typical power consumption	<ul> <li>Fully configured with four CE88-D8CQ cards: 355 W (100% traffic load, QSFP28 cables on 32 ports, double power modules).</li> <li>Fully configured with four CE88-D16Q cards: 340 W (100% traffic load, QSFP+ cables on 64 ports, double power modules).</li> <li>Fully configured with four CE88-D24T2CQ cards: 522 W (100% traffic load, 3 m network cables on 96 ports and QSFP28 cables on 8 ports, double power modules).</li> <li>Fully configured with four CE88-D24S2CQ cards: 399 W (100% traffic load, SFP28 cables on 96 ports and QSFP28 cables on 8 ports, double power modules).</li> </ul>
Chassis heat dissipation	Maximum heat dissipation	<ul> <li>Fully configured with four CE88-D8CQ cards: 2134 BTU/hr.</li> <li>Fully configured with four CE88-D16Q cards: 1998 BTU/hr.</li> <li>Fully configured with four CE88-D24T2CQ cards: 2561 BTU/hr.</li> <li>Fully configured with four CE88-D24S2CQ cards: 2056 BTU/hr.</li> </ul>
	Typical heat dissipation	<ul> <li>Fully configured with four CE88-D8CQ cards: 1212 BTU/hr (100% traffic load, QSFP28 cables on 32 ports, double power modules).</li> <li>Fully configured with four CE88-D16Q cards: 1161 BTU/hr (100% traffic load, QSFP+ cables on 64 ports, double power modules).</li> <li>Fully configured with four CE88-D24T2CQ cards: 1783 BTU/hr (100% traffic load, 3 m network cables on 96 ports and QSFP28 cables on 8 ports, double power modules).</li> <li>Fully configured with four CE88-D24S2CQ cards: 1363 BTU/hr (100% traffic load, SFP28 cables on 96 ports and QSFP28 cables on 8 ports, double power modules).</li> </ul>

Item		Description	
Surge protection		AC Power module: 4 kV in common mode and 2.5 kV in differential mode.	
Heat dissipation mode		Air cooling	
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules.	
Reliability and availability	Power module backup	1+1 backup.	
	Fan module backup	uses two fan modules, which can work in 1+1 backup mode when the temperature is below 35°C.	
	Hot swap	All the power modules and fan modules support hot swap.	
	Mean time between failures (MTBF)	40.88	
	Mean time to repair (MTTR)	1.75	
	Availability	0.99999511530	
Technical	Processor	1.5 GHz, quad-core	
specifications	DRAM Memory	4 GB	
	NOR Flash	16 MB	
	NAND Flash	1 GB	
Stack	Service port supporting the stack function	ports on any cards.	
Safety standards	compliance	<ul> <li>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</li> <li>EN 60825-1:2007</li> <li>EN 60825-2:2010</li> <li>UL 60950-1:2007 2rd Edition</li> <li>CSA C22.2 No.650:2007 2rd Edition</li> <li>IEC 60950-1:2005+A1:2009</li> <li>AS/NZS 60950-1:2011</li> <li>GB4943:2011</li> </ul>	

Item	Description
EMC standards compliance	• FCC 47CFR Part15 CLASS A
	• ETSI EN 300 386 V1.6.1:2012
	• ICES-003:2012 CLASS A
	• CISPR 22:2008 CLASS A
	• CISPR 24:2010
	• EN 55022:2010 CLASS A
	• EN 55024:2010
	• AS/NZS CISPR 22:2009 CLASS A
	<ul> <li>IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009</li> </ul>
	• IEC 61000-3-3:2008/EN 61000-3-3:2008
	• CNS 13438:2006 CLASS A
	• VCCI V-4:2012 CLASS A
	• VCCI V-3:2012 CLASS A
	• EC Council Directive 2004/108/EC
	• GB9254
Safety and environmental	• 2002/95/EC, 2011/65/EU
standards compliance	• 2002/96/EC, 2012/19/EU
	• EC NO.1907/2006
	• ETSI EN 300 019-1-1 V2.1.4
	• ETSI EN 300 019-1-2 V2.1.4
	• ETSI EN 300 019-1-3 V2.3.2
	• ETSI EN 300753 V1.2.1

# **Ordering Information**

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

 Table 3-166 provides the ordering information.

Table 3-166 Ordering	information
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Part Number	Part Model	Part Description
02350SUK	CE8860-4C-EI	CE8860-4C-EI Mainframe (With 4 Subcard Slots, Without FAN Box and Power Module)

Part Number	Part Model	Part Description	
02350RMX	CE8860-EI-B- B0C	CE8860 Bundle (CE8860-4C-EI Mainframe, 1*CE88- D24S2CQ Interface Card, 1*CE88-D16Q Interface Card, 2*AC Power Module, 2*FAN Box, Port-side Intake)	
02350RMW	CE8860-EI-F- B0C	CE8860 Bundle (CE8860-4C-EI Mainframe, 1*CE88- D24S2CQ Interface Card, 1*CE88-D16Q Interface Card, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)	
02350NBR	CE8860-EI-B- B00	CE8860 Bundle (CE8860-4C-EI Mainframe, 4*CE88- D24T2CQ Interface Card, 2*AC Power Module, 2*FAN Box, Port-side Intake)	
02350NBS	CE8860-EI-B- B0A	CE8860 Bundle (CE8860-4C-EI Mainframe, 4*CE88- D24S2CQ Interface Card, 2*AC Power Module, 2*FAN Box, Port-side Intake)	
02350NBP	CE8860-EI-B- B0B	CE8860 Bundle (CE8860-4C-EI Mainframe, 4*CE88- D16Q Interface Card, 2*AC Power Module, 2*FAN Box, Port-side Intake)	
02350NBM	CE8860-EI-F- B00	CE8860 Bundle (CE8860-4C-EI Mainframe, 4*CE88- D24T2CQ Interface Card, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)	
02350NBL	CE8860-EI-F- B0A	CE8860 Bundle (CE8860-4C-EI Mainframe, 4*CE88- D24S2CQ Interface Card, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)	
02350NBJ	CE8860-EI-F- B0B	CE8860 Bundle (CE8860-4C-EI Mainframe, 4*CE88- D16Q Interface Card, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)	

# **4** Power Module

# **About This Chapter**

# 

- Power modules in a chassis must have the same power and same heat dissipation method.
- A switch must use the power modules it supports. Using unsupported power module may bring unknown risks to the switch.
- When two power modules work in 1+1 backup mode, you can hot swap one of them.
- When only one power module is installed in a chassis, install a filler panel on the empty power supply slot.
- Before powering off a switch, turn off all its power modules.
- 4.1 150 W AC Power Module (PAC-150WA)
- 4.2 150 W AC Power Module (ES0W2PSA0150)
- 4.3 350 W AC Power Module
- 4.4 350 W DC Power Module
- 4.5 600 W AC Power Module
- 4.6 600 W AC&240 V DC Power Module
- 4.7 600 W High-Voltage DC Power Module
- 4.8 1200 W AC&240 V DC Power Module
- 4.9 1200 W High-voltage DC Power Module

# 4.1 150 W AC Power Module (PAC-150WA)

# **Version Mapping**

Table 4-1 describes the mapping between switch models and the PAC-150WA.

Switch Model	PAC-150WA
CE5810-24T4S-EI CE5810-48T4S-EI	Supported NOTE This power module is supported in V100R002C00 version and later versions.
CE5850-48T4S2Q-EI	Supported NOTE This power module is supported in V100R001C00 version and later versions.
CE5850-48T4S2Q-HI	Supported NOTE This power module is supported in V100R003C00 version and later versions.

Table 4-1 Mapping between switch models and the PAC-150WA

Switch Model	PAC-150WA
CE5855-48T4S2Q-EI	Not supported
CE5855-24T4S2Q-EI	
CE6810-48S4Q-LI	
CE6810-48S-LI	
CE6810-32T16S4Q-LI	
CE6810-24S2Q-LI	
CE6810-48S4Q-EI	
CE6850-48S4Q-EI	
CE6850-48T4Q-EI	
CE6850-48S6Q-HI	
CE6850-48T6Q-HI	
CE6855-48T6Q-HI	
CE6851-48S6Q-HI	
CE6855-48S6Q-HI	
CE6850U-48S6Q-HI	
CE6850U-24S2Q-HI	
CE6870-24S6CQ-EI	
CE6870-48S6CQ-EI	
CE7855-32Q-EI	
CE7850-32Q-EI	
CE8860-4C-EI	

# Appearance

Figure 4-1 shows the appearance of the PAC-150WA.





## Function

Table 4-2 describes the functions of the PAC-150WA.

Function		Description
Input protection	Input undervoltage protection	In this protection state, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply.
	Input overcurrent protection	In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.
Output protection	Output overvoltage protection	In this protection state, the power module supplies power intermittently. When the output voltage restores to the normal range, the power module automatically resumes power supply.
	Output overcurrent protection	In this protection state, the power module supplies power intermittently. When the output current is limited within a range, the power module automatically resumes power supply.
	Output short- circuit protection	In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.
Overtemperatur	e 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.
Heat dissipation		Natural heat dissipation
Hot swap		Supported

Table 4-2 Functions of the PAC-150WA

#### 

When a power module enters overtemperature protection state, take measures to lower the temperature of the power module. The power module can automatically resume power supply when the temperature falls within the normal range.

#### Panel

Figure 4-2 shows the panel of the PAC-150WA.

#### Figure 4-2 Panel of the PAC-150WA



1. Captive screw	2. Indicator	3. Handle	4. Power switch
5. AC power socket	6. AC terminal locking latch	-	-

Table 4-3 describes the indicator on the PAC-150WA panel.

Table 4-3 Description of the indicator on the PAC-150WA panel			
Indicator	Color	Description	

Indicator	Color	Description
STATUS: power indicator	Green	<ul> <li>Off: The power input is abnormal (for example, no input, overvoltage, or undervoltage) or the power output is abnormal (for example, overvoltage, overcurrent, short-circuit, or overtemperature).</li> <li>Steady on: The power module is working normally.</li> </ul>

# Specifications

 Table 4-4 lists the technical specifications of the PAC-150WA.

Table 4-4 Technical specifications of the PAC-150WA

Item	PAC-150WA
Dimensions (W x D x H)	100 mm x 205 mm x 40 mm
Weight	1 kg
Rated input voltage	100 V AC-240 V AC, 50/60 Hz
Maximum input voltage	90 V AC-290 V AC, 45 Hz-65 Hz
Maximum input current	2.5 A
Rated output current	12.5 A
Rated output voltage	12 V

Item	PAC-150WA
Rated output power	150 W
Part Number	02130969

# 4.2 150 W AC Power Module (ES0W2PSA0150)

# **Version Mapping**

 Table 4-5 describes the mapping between switch models and the ES0W2PSA0150.

Switch Model	ES0W2PSA0150
CE5810-24T4S-EI	Not supported
CE5810-48T4S-EI	
CE5850-48T4S2Q-EI	
CE5850-48T4S2Q-HI	
CE6810-48S4Q-EI	
CE6810-48S4Q-LI	
CE6810-48S-LI	
CE6810-32T16S4Q-LI	
CE6810-24S2Q-LI	
CE6850-48S4Q-EI	
CE6850-48T4Q-EI	
CE6850-48S6Q-HI	
СЕ6850-48Т6Q-НІ	
СЕ6855-48Т6Q-НІ	
CE6851-48S6Q-HI	
CE6855-48S6Q-HI	
CE6850U-48S6Q-HI	
CE6850U-24S2Q-HI	
CE6870-24S6CQ-EI	
CE6870-48S6CQ-EI	
CE7855-32Q-EI	
CE7850-32Q-EI	
CE8860-4C-EI	

Switch Model	ES0W2PSA0150
CE5855-48T4S2Q-EI CE5855-24T4S2Q-EI	Supported NOTE This power module is supported in V100R005C10 and later versions.

## 

The ES0W2PSA0150 power module can only be used in the CE5855EI and cannot be used in any other models.

# Appearance

Figure 4-3 shows the appearance of the ES0W2PSA0150.



#### Figure 4-3 Appearance of the ES0W2PSA0150

# Function

Table 4-6 describes the functions of the ES0W2PSA0150.

**Table 4-6** Functions of the ES0W2PSA0150

Function		Description
Input protection	Input overvoltage protection and undervoltage protection	In either of the two protection states, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply.
	Input overcurrent protection	In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.

Function		Description
Output protection	Output overvoltage protection	In this protection state, the power module stops supplying power intermittently. When the output voltage restores to the normal range, the power module automatically resumes power supply.
	Output overcurrent protection	In this protection state, the power module supplies power intermittently. When the output current is limited within a range, the power module automatically resumes power supply.
	Output short- circuit protection	In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.
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.
Heat dissipation		Natural heat dissipation
Hot swap		Supported

#### 

When a power module enters overtemperature protection state, take measures to lower the temperature of the power module. The power module can automatically resume power supply when the temperature falls within the normal range.

# Panel

Figure 4-4 shows the panel of the ES0W2PSA0150.

3

Figure 4-4 Panel of the ES0W2PSA0150



1. Captive screw	2. Handle	3. Indicator	4. Power switch
5. AC power socket	6. AC terminal locking latch	-	-

Table 4-7 describes the indicators on the ES0W2PSA0150 panel.

Indicator	Color	Description
STATUS: running status indicator	Green	• Off: The power input is abnormal (for example, no input, overvoltage, or undervoltage) or the power output is abnormal (for example, undervoltage or overtemperature).
		• Steady on: The power module is working normally.
		• Blinking: The power output is abnormal (for example, output overvoltage, overcurrent, or short circuit).

Table 4-7 Description of the indicator on the ES0W2PSA0150 panel

# Specifications

 Table 4-8 lists the technical specifications of the ES0W2PSA0150.

Item	ES0W2PSA0150	
Dimensions (W x D x H)	100 mm x 205 mm x 40 mm	
Weight	0.8 kg	
Rated input voltage range	100 V AC to 240 V AC, 50/60 Hz	
Maximum input voltage	90 V AC to 264 V AC, 47 Hz to 63 Hz	
Maximum input current	3 A	
Rated output current	12.5 A	
Rated output voltage	12 V	
Rated output power	150 W	
Part Number	02310JFA	

Table 4-8	Technical	specifications	of the	ES0W2PSA0150
1 abic 4-0	recimical	specifications	or the	L00 W 21 0/10100

# 4.3 350 W AC Power Module

# **Version Mapping**

350 W AC power modules include PAC-350WA-B (B: back-to-front airflow, air exhaust on front panel) and PAC-350WA-F (F: front-to-back airflow, air intake on front panel).

Table 4-9 describes the mapping between switch models and 350 W AC power modules.

Switch Model	PAC-350WA-B	PAC-350WA-F
CE5810-24T4S-EI	Not supported	Not supported
CE5810-48T4S-EI		
CE5850-48T4S2Q-EI		
CE5850-48T4S2Q-HI		
CE5855-48T4S2Q-EI		
CE5855-24T4S2Q-EI		
CE6810-48S4Q-EI		
CE6810-48S4Q-LI		
CE6810-48S-LI		
CE6810-32T16S4Q-LI		
CE6810-24S2Q-LI		
CE6850-48S6Q-HI		
CE6850-48T6Q-HI		
CE6855-48T6Q-HI		
CE6851-48S6Q-HI		
CE6855-48S6Q-HI		
CE6850U-48S6Q-HI		
CE6850U-24S2Q-HI		
CE6870-24S6CQ-EI		
CE6870-48S6CQ-EI		
CE7855-32Q-EI		
CE7850-32Q-EI		
CE8860-4C-EI		
CE6850-48S4Q-EI	Supported NOTE	Supported NOTE
	supported in V100R001C00 version and later versions.	supported in V100R001C00 version and later versions.
CE6850-48T4Q-EI	Supported	Supported
	NOTE This power module is supported in V100R001C00 and later versions. 600 W AC power modules are recommended for the CE6850-48T4Q-EI of V100R002C00 or a later version.	NOTE This power module is supported in V100R001C00 and later versions. 600 W AC power modules are recommended for the CE6850-48T4Q-EI of V100R002C00 or a later version.

Table 4-9 Mapping between switch models and 350 W AC power modules

# Appearance

**Figure 4-5** shows the appearance of a PAC-350WA-B power module, and **Figure 4-6** shows the appearance of a PAC-350WA-F power module.



Figure 4-5 Appearance of a PAC-350WA-B power module

Figure 4-6 Appearance of a PAC-350WA-F power module



# Function

PAC-350WA-B and PAC-350WA-F power modules use different airflow designs but have the same functions. Table 4-10 describes the functions of a 350 W AC power module.
Function		Description	
Input protection	Input undervoltage protection	In this protection state, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply.	
	Input overcurrent protection	In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.	
Output protection	Output overvoltage protection	In this protection state, the power module supplies power intermittently. When the output voltage restores to the normal range, the power module automatically resumes power supply.	
	Output overcurrent protection	In this protection state, the power module supplies power intermittently. When the output current is limited within a range, the power module automatically resumes power supply.	
	Output short- circuit protection	In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.	
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.	
Heat dissipation		<ul> <li>PAC-350WA-B: back-to-front airflow</li> <li>PAC-350WA-F: front-to-back airflow</li> </ul>	
Hot swap		Supported	

Table 4-10 Functions of a 350 W AC power module

When a power module enters overtemperature protection state, take measures to lower the temperature of the power module. The power module can automatically resume power supply when the temperature falls within the normal range.

# Panel

Figure 4-7 and Figure 4-8 show the panel of a 350 W AC power module.

# Figure 4-7 Panel of a PAC-350WA-B AC power module



Figure 4-8 Panel of a PAC-350WA-F AC power module



1. Captive screw	<ul> <li>2. Airflow flag</li> <li>Sector is the sector of the sector of</li></ul>	3. Indicator	4. Fan air vent
5. Handle	6. Power switch	7. AC power socket	8. AC terminal locking latch

Table 4-11 describes the indicator on the 350 W AC power module panel.

Indicator	Color	Description
STATUS: power indicator	Green	• Off: The power input is abnormal (for example, no input, overvoltage, or undervoltage) or the power output is abnormal (for example, overvoltage, overcurrent, short-circuit, or overtemperature).
		• Steady on: The power module is working normally.

Table 4-11 Description of the indicator on the 350 W AC power module panel

## 4 Power Module

# Specifications

 Table 4-12 lists the technical specifications of 350 W AC power modules.

 Table 4-12 Technical specifications of 350 W AC power modules

Item	PAC-350WA-B	PAC-350WA-F
Dimensions (width x depth x height)	100 mm x 205 mm x 40 mm	
Weight	0.92 kg	
Rated input voltage	100 V AC-240 V AC, 50/60 Hz	
Maximum input voltage	90 V AC-290 V AC, 45 Hz-65 Hz	
Maximum input current	5 A	
Rated output current29.17 A		
Rated output voltage12 V		
Rated output power	350 W	
Part Number	02130971 02130970	

# 4.4 350 W DC Power Module

# **Version Mapping**

350 W DC power modules include PDC-350WA-B (B: back-to-front airflow, air exhaust on front panel) and PDC-350WA-F (F: front-to-back airflow, air intake on front panel).

Table 4-13 describes the mapping between switch models and 350 W DC power modules.

Switch Model	PDC-350WA-B	PDC-350WA-F
CE5810-24T4S-EI	Supported	Supported
CE5810-48T4S-EI CE5850-48T4S2Q-EI CE6850-48S4Q-EI	<b>NOTE</b> This power module is supported in V100R002C00 version and later versions.	<b>NOTE</b> This power module is supported in V100R002C00 version and later versions.

Table 4-13 Mapping between switch models and 350 W DC power modules

Switch Model	PDC-350WA-B	PDC-350WA-F
CE6850-48T4Q-EI	Not supported	Not supported
CE6850-48S6Q-HI		
CE6850U-48S6Q-HI		
СЕ6850-48Т6Q-НІ		
CE6855-48T6Q-HI		
CE6850U-24S2Q-HI		
CE7855-32Q-EI		
CE7850-32Q-EI		
CE8860-4C-EI		
CE5850-48T4S2Q-HI	Supported	Supported
CE6810-48S4Q-EI	<b>NOTE</b> This power module is supported in V100R003C00 version and later versions.	<b>NOTE</b> This power module is supported in V100R003C00 version and later versions.
CE6810-48S4Q-LI	Supported	Supported
CE6810-48S-LI	NOTE This power module is supported in V100R003C10 version and later versions.	NOTE This power module is supported in V100R003C10 version and later versions.
CE5855-48T4S2Q-EI	Supported	Supported
CE5855-24T4S2Q-EI	NOTE	NOTE
CE6810-32T16S4Q-LI	This power module is supported in V100R005C10	This power module is supported in V100R005C10
CE6810-24S2Q-LI	version and later versions.	version and later versions.
CE6851-48S6Q-HI		
CE6855-48S6Q-HI	Supported	Supported
CE6870-24S6CQ-EI	NOTE	NOTE
CE6870-48S6CQ-EI	supported in V200R001C00 version and later versions.	supported in V200R001C00 version and later versions.

# Appearance

**Figure 4-9** shows the appearance of a PDC-350WA-B power module, and **Figure 4-10** shows the appearance of a PDC-350WA-F power module.

# Figure 4-9 Appearance of a PDC-350WA-B power module



Figure 4-10 Appearance of a PDC-350WA-F power module



# Function

PDC-350WA-B and PDC-350WA-F power modules use different airflow designs but have the same functions. **Table 4-14** describes the functions of a 350 W DC power module.

Function		Description
Input protection	Input undervoltage protection	In this protection state, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply.
	Input overcurrent protection	In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.
Output protection	Output overvoltage protection	In this protection state, the power module supplies power intermittently. When the output voltage restores to the normal range, the power module automatically resumes power supply.
	Output overcurrent protection	In this protection state, the power module supplies power intermittently. When the output current is limited within a range, the power module automatically resumes power supply.
	Output short-circuit protection	In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.
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.
Heat dissipation		<ul> <li>PDC-350WA-B: back-to-front airflow</li> <li>PDC-350WA-F: front-to-back airflow</li> </ul>
Hot swap		Supported

Table 4-14 Functions of a 350 W DC power module

When a power module enters overtemperature protection state, take measures to lower the temperature of the power module. The power module can automatically resume power supply when the temperature falls within the normal range.

# Panel

Figure 4-11 and Figure 4-12 show the panel of a 350 W DC power module.





Figure 4-12 Panel of a PDC-350WA-F DC power module



1. Captive screw	2. Airflow flag	3. Indicator	4. Fan air vent
	• back-to-front airflow		
	• Front-to-back airflow		
5. Handle	6. DC power socket	-	-

Table 4-15 describes the indicator on the 350 W DC power module panel.

Table 4-15 Description of the indicator on the 350 W DC power module pan	lel
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Indicator	Color	Description
STATUS: power indicator	Green	• Off: The input power is abnormal (no DC input power, DC input overvoltage, or DC input undervoltage) or the output power is abnormal (output overvoltage, overcurrent, short-circuit, or overtemperature).
		<ul> <li>Steady on: The power module is working properly.</li> </ul>

### 4 Power Module

# Specifications

 Table 4-16 lists the technical specifications of 350 W DC power modules.

 Table 4-16 Technical specifications of 350 W DC power modules

Item	PDC-350WA-B	PDC-350WA-F
Dimensions (width x depth x height)	100 mm x 205 mm x 40 mm	
Weight	0.72 kg	
Rated input voltage	-48 V DC to -60 V DC	
Maximum input voltage	-38.4 V DC to -72 V DC	
Maximum input current	11 A	
Rated output current	29.17 A	
Rated output voltage	t voltage 12 V	
Rated output power	350 W	
Part Number	02310PQN 02310PQP	

# 4.5 600 W AC Power Module

# **Version Mapping**

600 W AC power modules include PAC-600WA-B (B: back-to-front airflow, air exhaust on front panel) and PAC-600WA-F (F: front-to-back airflow, air intake on front panel).

Table 4-17 describes the mapping between switch models and 600 W AC power modules.

Switch Model	PAC-600WA-B	PAC-600WA-F
CE5810-24T4S-EI CE5810-48T4S-EI CE5850-48T4S2Q-EI CE5850-48T4S2Q-HI CE5855-48T4S2Q-EI CE5855-24T4S2Q-EI CE6850-48S4Q-EI CE6850-48S6Q-HI CE6850-48T6Q-HI CE6855-48T6Q-HI CE6850U-48S6Q-HI CE6850U-24S2Q-HI CE6850U-24S2Q-HI	Not supported	Not supported
CE6850-48T4Q-EI	Supported NOTE This power module is supported in V100R002C00 version and later versions.	Supported NOTE This power module is supported in V100R002C00 version and later versions.
CE6810-48S4Q-EI CE7850-32Q-EI	Supported NOTE This power module is supported in V100R003C00 version and later versions.	Supported NOTE This power module is supported in V100R003C00 version and later versions.
CE6810-48S4Q-LI CE6810-48S-LI	Supported NOTE This power module is supported in V100R003C10 version and later versions.	Supported NOTE This power module is supported in V100R003C10 version and later versions.
CE6810-32T16S4Q-LI CE6810-24S2Q-LI CE6851-48S6Q-HI	Supported NOTE This power module is supported in V100R005C10 version and later versions.	Supported NOTE This power module is supported in V100R005C10 version and later versions.
CE6855-48S6Q-HI CE6870-24S6CQ-EI CE6870-48S6CQ-EI CE7855-32Q-EI	Supported NOTE This power module is supported in V200R001C00 version and later versions.	Supported NOTE This power module is supported in V200R001C00 version and later versions.

Table 4-17 Mapping between switch models and 600 W AC power modules

# Appearance

**Figure 4-13** shows the appearance of a PAC-600WA-B power module, and **Figure 4-14** shows the appearance of a PAC-600WA-F power module.



Figure 4-13 Appearance of a PAC-600WA-B power module

Figure 4-14 Appearance of a PAC-600WA-F power module



# Function

PAC-600WA-B and PAC-600WA-F power modules use different airflow designs but have the same functions. Table 4-18 describes the functions of a 600 W AC power module.

Function		Description		
Input protection	Input undervoltage protection	In this protection state, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply.		
	Input overcurrent protection	In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.		
Output protection	Output overvoltage protection	In this protection state, the power module supplies power intermittently. When the output voltage restores to the normal range, the power module automatically resumes power supply.		
	Output overcurrent protection	In this protection state, the power module supplies power intermittently. When the output current is limited within a range, the power module automatically resumes power supply.		
	Output short-circuit protection	In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.		
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.		
Heat dissipation		<ul> <li>PAC-600WA-B: back-to-front airflow</li> <li>PAC-600WA-F: front-to-back airflow</li> </ul>		
Hot swap		Supported		

Table 4-18 Functions of a 600 W AC power module

When a power module enters overtemperature protection state, take measures to lower the temperature of the power module. The power module can automatically resume power supply when the temperature falls within the normal range.

# Panel

Figure 4-15 and Figure 4-16 show the panel of a 600 W AC power module.

# Figure 4-15 Panel of a PAC-600WA-B AC power module



Figure 4-16 Panel of a PAC-600WA-F AC power module



1. Captive	2. Ventilation channel flag	3. Indicator	4. Fan air vent
screw	• back-to-front airflow		
	• Front-to-back airflow		
5. Handle	6. Power switch	7. AC power socket	8. AC terminal locking latch

Table 4-19 describes the indicator on the 600 W AC power module panel.

Indicator	Color	Description
STATUS: power indicator	Green	• Off: The input power is abnormal (no AC input power, AC input overvoltage, or AC input undervoltage) or the output power is abnormal (output overvoltage, overcurrent, short-circuit, or overtemperature).
		• Steady on: The power module is working properly.

Table 4-19 Description of the indicator on the 600 W AC power module panel

# Specifications

Table 4-20 lists the technical specifications of 600 W AC power modules.

 Table 4-20 Technical specifications of 600 W AC power modules

Item	PAC-600WA-B	PAC-600WA-F	
Dimensions (width x depth x height)	100 mm x 205 mm x 40	mm	
Weight	1 kg		
Rated input voltage	100 V AC-240 V AC, 50	)/60 Hz	
Maximum input voltage	90 V AC-290 V AC, 45 Hz-65 Hz		
Maximum input current	9 A		
Rated output current	50 A		
Rated output voltage	12 V		
Rated output power	600 W		
Part Number	02310PMH	02310PMJ	

# 4.6 600 W AC&240 V DC Power Module

# **Version Mapping**

600 W AC&240 V DC power modules can receive AC inputs or 240 V high-voltage inputs. They are classified into two types depending on the airflow designs: PAC-600WB-B (back-to-front airflow, air exhaust on front panel) and PAC-600WB-F (F: front-to-back airflow, air intake on front panel).

 Table 4-21 describes the mapping between switch models and 600 W AC&240 V DC power modules.

Switch Model	PAC-600WB-B	PAC-600WB-F
CE5810-24T4S-EI	Not supported	Not supported
CE5810-48T4S-EI		
CE5850-48T4S2Q-EI		
CE5850-48T4S2Q-HI		
CE5855-48T4S2Q-EI		
CE5855-24T4S2Q-EI		
CE6810-32T16S4Q-LI		
CE6810-24S2Q-LI		
CE6810-48S4Q-LI		
CE6810-48S-LI		
CE6810-48S4Q-EI		
CE6850-48S4Q-EI		
CE6850-48T4Q-EI		
CE6851-48S6Q-HI		
CE6855-48S6Q-HI		
CE6870-24S6CQ-EI		
CE6870-48S6CQ-EI		
CE7855-32Q-EI		
CE7850-32Q-EI		
CE8860-4C-EI		
CE6850-48S6Q-HI	Supported	Supported
	NOTE	NOTE
	supported in V100R005C00	supported in V100R005C00
	and later versions.	and later versions.
CE6850U-48S6Q-HI	Supported	Supported
CE6850-48T6Q-HI	NOTE	NOTE
CE6850U-24S2Q-HI	This power module is supported in V100R005C10 and later versions.	This power module is supported in V100R005C10 and later versions.
СЕ6855-48Т6Q-НІ	Supported	Supported
	NOTE	NOTE
	This power module is supported in V200R001C00	This power module is supported in V200R001C00
	and later versions.	and later versions.

Table 4-21 Mapping between switch models and 600 W AC&240 V DC power modules

# Appearance

**Figure 4-17** shows the appearance of a PAC-600WB-B power module, and **Figure 4-18** shows the appearance of a PAC-600WB-F power module.



### Figure 4-17 Appearance of a PAC-600WB-B power module

Figure 4-18 Appearance of a PAC-600WB-F power module



# Function

PAC-600WB-B and PAC-600WB-F power modules use different airflow designs but have the same functions. **Table 4-22** describes the functions of them.

Table 4-22	Functions	of a 600	W	AC&240	V	DC power	module
						r	

Function		Description
Input protection	Input overvoltage protection and undervoltage protection	In either of the two protection states, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply.

Function		Description
	Input overcurrent protection	In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.
Output protection	Output overvoltage protection	In this protection state, the power module stops supplying power intermittently. When the system recovers from output overvoltage, the power module automatically resumes power supply.
	Output overcurrent protection	In this protection state, the power module supplies power intermittently. When the output current is limited within a range, the power module automatically resumes power supply.
	Output short- circuit protection	In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.
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.
Heat dissipation		• PAC-600WB-B: back-to-front airflow
		• PAC-600WB-F: front-to-back airflow
Hot swap		Supported

When a power module enters overtemperature protection state, take measures to lower the ambient temperature. The power module can automatically resume power supply when the temperature falls within the normal range.

# Panel

Figure 4-19 and Figure 4-20 show the panels of 600 W AC&240 V DC power modules.

Figure 4-19 Panel of a PAC-600WB-B power module



Figure 4-20 Panel of a PAC-600WB-F power module

1. Lock	2. Indicator	3. Fan air vent	4. Handle <b>NOTE</b> Each 600 W AC&240 V DC power module is delivered with a velcro strap on the handle. This velcro strap is used to bundle the power cable to the handle.
5. Airflow flag AIR OUT airflow AIR IN AIR IN airflow : front-to-back	6. Power socket	-	

# Table 4-23 describes the indicator on a 600 W AC&240 V DC power module panel.

Indicator	Color	Description		
STAT: running	-	Off: The power module receives no power input.		
status indicator	Green	• Steady on: The power module is working normally.		
		• Blinking: The power module is in loading or standby state, or the power cable has been connected but the power module is not installed in the switch.		
	Red	Steady on:		
		• Fans of the power module fail.		
<ul> <li>The power mod protection state.</li> <li>The power input or input overvol</li> </ul>		• The power module is in overtemperature protection state.		
		• The power input is abnormal (input undervoltage or input overvoltage).		
		• The power output is abnormal (output overcurrent, output short-circuit, or output overvoltage).		

 Table 4-23 Description of the indicator on a 600 W AC&240 V DC power module panel

# Specifications

 Table 4-24 describes the technical specifications of 600 W AC&240 V DC power modules.

Item	PAC-600WB-B	PAC-600WB-F		
Dimensions (W x D x H)	66.0 mm x 340.0 mm x 39.6 i	66.0 mm x 340.0 mm x 39.6 mm		
Weight	1.5 kg			
Rated AC input voltage range	100 V AC to 240 V AC, 50/6	0 Hz		
Maximum AC input voltage range	90 V AC to 290 V AC, 47 Hz to 63 Hz			
Rated voltage range of 240 V high-voltage DC power input	240 V DC			
Maximum voltage range of 240 V high-voltage DC power input	188 V DC to 290 V DC			
Maximum input current	t • 9 A (90 V AC) • 4 A (240 V DC)			
Rated output current	50 A			
Rated output voltage	12 V			

 Table 4-24 Technical specifications of 600 W AC&240 V DC power modules

Item	PAC-600WB-B PAC-600WB-F		
Rated output power	600 W		
Part Number	02310YQN	02310YQP	

# 4.7 600 W High-Voltage DC Power Module

# **Version Mapping**

600 W high-voltage DC power modules are classified into two types depending on the airflow designs: PHD-600WA-B (back-to-front airflow, air exhaust on front panel) and PHD-600WA-F (F: front-to-back airflow, air intake on front panel).

 Table 4-25 describes the mapping between switch models and 600 W high-voltage DC power modules.

Table 4-25 Mapping between switch models and 600 W high-voltage DC power modules

Switch Model	PHD-600WA-B	PHD-600WA-F
CE5810-24T4S-EI	Not supported	Not supported
CE5810-48T4S-EI		
CE5850-48T4S2Q-EI		
CE5850-48T4S2Q-HI		
CE5855-48T4S2Q-EI		
CE5855-24T4S2Q-EI		
CE6810-32T16S4Q-LI		
CE6810-24S2Q-LI		
CE6810-48S4Q-LI		
CE6810-48S-LI		
CE6810-48S4Q-EI		
CE6850-48S4Q-EI		
CE6850-48T4Q-EI		
CE6851-4886Q-HI		
CE6855-4886Q-HI		
CE6870-24S6CQ-EI		
CE6870-48S6CQ-EI		
CE7855-32Q-EI		
CE7850-32Q-EI		
CE8860-4C-EI		

Switch Model	PHD-600WA-B	PHD-600WA-F
CE6850-48S6Q-HI	Supported NOTE This power module is supported in V100R005C00 and later versions.	Supported NOTE This power module is supported in V100R005C00 and later versions.
CE6850U-48S6Q-HI CE6850-48T6Q-HI CE6850U-24S2Q-HI	Supported NOTE This power module is supported in V100R005C10 and later versions.	Supported NOTE This power module is supported in V100R005C10 and later versions.
CE6855-48T6Q-HI	Supported NOTE This power module is supported in V200R001C00 and later versions.	Supported NOTE This power module is supported in V200R001C00 and later versions.

# Appearance

**Figure 4-21** shows the appearance of a PHD-600WA-B power module, and **Figure 4-22** shows the appearance of a PHD-600WA-F power module.



Figure 4-21 Appearance of a PHD-600WA-B power module



# Figure 4-22 Appearance of a PHD-600WA-F power module

# Function

PHD-600WA-B and PHD-600WA-F power modules use different airflow designs but have the same functions. **Table 4-26** describes the functions of them.

Function		Description	
Input protection	Input overvoltage protection and undervoltage protection	In either of the two protection states, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply.	
	Input overcurrent protection	In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.	
Output protection	Output overvoltage protection	In this protection state, the power module stops supplying power intermittently. When the system recovers from output overvoltage, the power module automatically resumes power supply.	
	Output overcurrent protection	In this protection state, the power module supplies power intermittently. When the output current is limited within a range, the power module automatically resumes power supply.	
	Output short- circuit protection	In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.	

Table 4-26 Functions of 600 W	high-voltage DC power modules
-------------------------------	-------------------------------

Function	Description
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.
Heat dissipation	<ul> <li>PHD-600WA-B: back-to-front airflow</li> <li>PHD-600WA-F: front-to-back airflow</li> </ul>
Hot swap	Supported

When a power module enters overtemperature protection state, take measures to lower the ambient temperature. The power module can automatically resume power supply when the temperature falls within the normal range.

# Panel

Figure 4-23 and Figure 4-24 show the panels of 600 W high-voltage DC power modules.

### Figure 4-23 Panel of a PHD-600WA-B power module



Figure 4-24 Panel of a PHD-600WA-F power module



1. Lock	2. Indicator	3. Fan air vent	4. Handle <b>NOTE</b> Each 600 W high-voltage DC power module is delivered with a velcro strap on the handle. This velcro strap is used to bundle the power cable to the handle.
5. Airflow flag AIR OUT airflow : back-to-front airflow : front-to-back airflow	6. Power socket	-	-

Table 4-27 describes the indicator on a 600 W high-voltage DC power module panel.

Indicator	Color	Description
STAT: running	-	Off: The power module receives no power input.
status indicator	Green	• Steady on: The power module is working normally.
		• Blinking: The power module is in loading or standby state, or the power cable has been connected but the power module is not installed in the switch.
	Red	Steady on:
		• Fans of the power module fail.
		• The power module is in overtemperature protection state.
		• The power input is abnormal (input undervoltage or input overvoltage).
		• The power output is abnormal (output overcurrent, output short-circuit, or output overvoltage).

**Table 4-27** Description of the indicator on the 600 W high-voltage DC power module panel

# Specifications

Table 4-28 describes the technical specifications of 600 W high-voltage DC power modules.

		8		
,	Table 4-28 Technical specifications of 600 W high-voltage DC power modules			

Item	PHD-600WA-B	PHD-600WA-F
Dimensions (W x D x H)	66.0 mm x 340.0 mm x 39.6 mm	
Weight	1.5 kg	
Rated voltage range of 380 V high-voltage DC power input	240 V DC to 380 V DC	
Maximum voltage range of 380 V high-voltage DC power input	188 V DC to 400 V DC	
Maximum input current	4 A	
Rated output current	50 A	
Rated output voltage	12 V	
Rated output power	600 W	
Part Number	02310YQQ 02310YQR	

# 4.8 1200 W AC&240 V DC Power Module

# **Version Mapping**

1200 W AC&240 V DC power modules can receive AC inputs or 240 V high-voltage inputs. They are classified into two types depending on the airflow designs: PAC-1K2WA-B (B: back-to-front airflow, air exhaust on front panel) and PAC-1K2WA-F (F: front-to-back airflow, air intake on front panel).

 Table 4-29 describes the mapping between switch models and 1200 W AC&240 V DC power modules.

Switch Model	PAC-1K2WA-B	PAC-1K2WA-F
CE5810-24T4S-EI	Not supported	Not supported
CE5810-48T4S-EI		
CE5850-48T4S2Q-EI		
CE5850-48T4S2Q-HI		
CE5855-48T4S2Q-EI		
CE5855-24T4S2Q-EI		
CE6810-32T16S4Q-LI		
CE6810-24S2Q-LI		
CE6810-48S4Q-LI		
CE6810-48S-LI		
CE6810-48S4Q-EI		
CE6850-48S4Q-EI		
CE6850-48T4Q-EI		
CE6850-48S6Q-HI		
CE6850-48T6Q-HI		
CE6855-48T6Q-HI		
CE6851-48S6Q-HI		
CE6855-48S6Q-HI		
CE6850U-48S6Q-HI		
CE6850U-24S2Q-HI		
CE6870-24S6CQ-EI		
CE6870-48S6CQ-EI		
CE7855-32Q-EI		
CE7850-32Q-EI		

Table 4-29 Mapping between switch models and 1200 W AC&240 V DC power modules

Switch Model	PAC-1K2WA-B	PAC-1K2WA-F
CE8860-4C-EI	Supported NOTE The power module is supported in V100R006C00 and later versions.	Supported NOTE The power module is supported in V100R006C00 and later versions.

# Appearance

**Figure 4-25** shows the appearance of a PAC-1K2WA-B power module, and **Figure 4-26** shows the appearance of a PAC-1K2WA-F power module.



Figure 4-25 Appearance of a PAC-1K2WA-B power module

Figure 4-26 Appearance of a PAC-1K2WA-F power module



# Function

PAC-1K2WA-B and PAC-1K2WA-F use different airflow designs but have the same functions. **Table 4-30** describes the functions of them.

Function		Description
InputInputprotectionovervoltageprotection andundervoltageprotectionprotection		In either of the two protection states, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply.
	Input overcurrent protection	In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.
Output protection	Output overvoltage protection	In this protection state, the power adapter stops supplying power intermittently. When the output voltage restores to the normal range, the power adapter automatically resumes power supply.
	Output overcurrent protection	In this protection state, the power module supplies power intermittently. When the output current is limited within a range, the power module automatically resumes power supply.
	Output short- circuit protection	In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.
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.
Heat dissip	ation	<ul> <li>PAC-1K2WA-B: back-to-front airflow</li> <li>PAC-1K2WA-F: front-to-back airflow</li> </ul>
Hot swap		Supported

 Table 4-30 Functions of a 1200 W AC&240 V DC power module

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When a power module enters overtemperature protection state, take measures to lower the temperature of the power module. The power module can automatically resume power supply when the temperature falls within the normal range.

# Panel

Figure 4-27 and Figure 4-28 show the panels of 1200 W AC&240 V DC power modules.

## Figure 4-27 Panel of a PAC-1K2WA-B power module



Figure 4-28 Panel of a PAC-1K2WA-F power module



1. Lock	2. Indicator	3. Fan air vent	4. Handle <b>NOTE</b> Each 1200 W AC&240 V DC power module is delivered with a velcro strap on the handle. This velcro strap is used to bundle the power cable to the handle.
5. Airflow flag AROUT airflow: back-to-front airflow: front-to-back airflow: front-to-back	6. Power socket	-	-

Table 4-31 describes the indicator on a 1200 W AC&240 V DC power module panel.

Indicator	Color	Description		
STAT: power	-	Off: The power module receives no power input.		
indicator	Green	• Steady on: The power module is working normally.		
		• Blinking: The power module is in loading or standby state, or the power cable has been connected but the power module is not installed in the switch.		
	Red	Steady on:		
		• Fans of the power module fail.		
		• The power module is in overtemperature protection state.		
		• The power input is abnormal (input undervoltage or input overvoltage).		
		• The power output is abnormal (output overcurrent, output short-circuit, or output overvoltage).		

 Table 4-31 Description of the indicator on a 1200 W AC&240 V DC power module panel

# Specifications

 Table 4-32 describes the technical specifications of 1200 W AC&240 V DC power modules.

|--|

Item	PAC-1K2WA-B	PAC-1K2WA-F	
Dimensions (W x D x H)	66.0 mm x 340.0 mm x 39.6 r	nm	
Weight	1.5 kg		
Rated AC input voltage range	100 V AC to 240 V AC, 50/6	0 Hz	
Maximum AC input voltage range	90 V AC to 290 V AC, 47 Hz to 63 Hz		
Rated voltage range of 240 V high-voltage DC power input:	240 V DC		
Maximum voltage range of 240 V high-voltage DC power input:	188 V DC to 290 V DC		
Maximum input current	• 11 A (90 V AC)		
	• 8 A (240 V DC)		
Rated output current	• 67 A (100 V AC to 130 V AC)		
	• 100 A (200 V AC to 240 V	VAC)	
	• 100 A (240 V DC)		

Item	PAC-1K2WA-B	PAC-1K2WA-F	
Rated output voltage	12 V		
Rated output power	<ul> <li>800 W (100 V AC to 130V AC)</li> <li>1200 W (200 V AC to 240V AC)</li> <li>1200 W (240 V DC)</li> </ul>		
Part number	02311GLM	02311GLL	

# 4.9 1200 W High-voltage DC Power Module

# **Version Mapping**

1200 W high-voltage DC power modules are classified into two types depending on the airflow designs: PHD-1K2WA-B (back-to-front airflow, air exhaust on front panel) and PHD-1K2WA-F (F: front-to-back airflow, air intake on front panel).

 Table 4-33 describes the mapping between switch models and 1200 W high-voltage DC power modules.

Switch Model	PHD-1K2WA-B	PHD-1K2WA-F
CE5810-24T4S-EI	Not supported	Not supported
CE5810-48T4S-EI		
CE5850-48T4S2Q-EI		
CE5850-48T4S2Q-HI		
CE5855-48T4S2Q-EI		
CE5855-24T4S2Q-EI		
CE6810-32T16S4Q-LI		
CE6810-24S2Q-LI		
CE6810-48S4Q-LI		
CE6810-48S-LI		
CE6810-48S4Q-EI		
CE6850-48S4Q-EI		
CE6850-48T4Q-EI		
CE6850-48S6Q-HI		
CE6850-48T6Q-HI		
СЕ6855-48Т6Q-НІ		
CE6851-48S6Q-HI		
CE6855-48S6Q-HI		
CE6850U-48S6Q-HI		
CE6850U-24S2Q-HI		
CE6870-24S6CQ-EI		
CE6870-48S6CQ-EI		
CE7855-32Q-EI		
CE7850-32Q-EI		
CE8860-4C-EI	Supported NOTE The power module is supported in V100R006C00 and later versions.	Supported NOTE The power module is supported in V100R006C00 and later versions.

Table 4-33 Mapping between device models and 1200 W high-voltage DC power modules

# Appearance

**Figure 4-29** shows the appearance of a PHD-1K2WA-B power module, and **Figure 4-30** shows the appearance of a PHD-1K2WA-F power module.





Figure 4-30 Appearance of a PHD-1K2WA-F power module



# Function

PHD-1K2WA-B and PHD-1K2WA-F use different airflow designs but have the same functions. **Table 4-34** describes the functions of them.

Function		Description
Input protection	Input overvoltage protection and undervoltage protection	In either of the two protection states, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply.

Function		Description		
	Input overcurrent protection	In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.		
Output Output protection overvoltage protection		In this protection state, the power adapter stops supplying power intermittently. When the output voltage restores to the normal range, the power adapter automatically resumes power supply.		
	Output overcurrent protection	In this protection state, the power module supplies power intermittently. When the output current is limited within a range, the power module automatically resumes power supply.		
	Output short- circuit protection	In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.		
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.		
Heat dissipation		• PHD-1K2WA-B: back-to-front airflow		
		• PHD-1K2WA-F: front-to-back airflow		
Hot swap		Supported		

When a power module enters overtemperature protection state, take measures to lower the temperature of the power module. The power module can automatically resume power supply when the temperature falls within the normal range.

# Panel

Figure 4-31 and Figure 4-32 show the panels of 1200 W high-voltage DC power modules.

Figure 4-31 Panel of a PHD-1K2WA-B power module





# Figure 4-32 Panel of a PHD-1K2WA-F power module

1. Lock	2. Indicator	3. Fan air vent	4. Handle <b>NOTE</b> Each 1200 W high-voltage power module is delivered with a velcro strap on the handle. This velcro strap is used to bundle the power cable to the handle.
5. Airflow flag AIR OUT airflow : back-to-front airflow : front-to-back airflow	6. Power socket	-	-

Table 4-35 describes the indicator on a 1200 W high-voltage DC power module panel.

Indicator	Color	Description		
STAT: power	-	Off: The power module receives no power input.		
indicator	Green	• Steady on: The power module is working normally.		
		• Blinking: The power module is in loading or standby state, or the power cable has been connected but the power module is not installed in the switch.		
	Red	Steady on:		
		• Fans of the power module fail.		
		• The power module is in overtemperature protection state.		
		• The power input is abnormal (input undervoltage or input overvoltage).		
		• The power output is abnormal (output overcurrent, output short-circuit, or output overvoltage).		

**Table 4-35** Description of the indicator on the 1200 W high-voltage DC power module panel

# Specifications

 Table 4-36 describes the technical specifications of 1200 W high-voltage DC power modules.

Fable 4-36 Technica	al specifications	of 1200 W	/ high-voltage	DC power r	nodules
---------------------	-------------------	-----------	----------------	------------	---------

Item	PHD-1K2WA-B	PHD-1K2WA-F
Dimensions (W x D x H)	66.0 mm x 340.0 mm x 39.6 mm	
Weight	1.5 kg	
Rated voltage range of 380 V high-voltage DC power input:	240 V DC to 380 V DC	
Maximum voltage range of 380 V high-voltage DC power input:	188 V DC to 400 V DC	
Maximum input current	8 A	
Rated output current	100 A	
Rated output voltage	12 V	
Rated output power	1200 W	
Part number	02311GLP	02311GLN

# **5** Fan Module

# **About This Chapter**

# 

- A chassis must use fan modules with the same airflow direction.
- A chassis must use fan modules of the same series.
- A chassis can work properly only when two fan modules are running. If one of fan modules is removed from the chassis, reinstall it into the chassis within 3 minutes.

5.1 FAN-40EA Series Fan Modules

- 5.2 FAN-40SB Series Fan Modules
- 5.3 FAN-40HA Series Fan Modules
- 5.4 FAN-040A Series Fan Modules
- 5.5 FAN-060A Series Fan Modules
- 5.6 FAN-180A Series Fan Modules
# 5.1 FAN-40EA Series Fan Modules

# **Version Mapping**

The FAN-40EA series fan modules are classified into two types depending on the airflow designs: FAN-40EA-B (B: back-to-front airflow, air exhaust on front panel) and FAN-40EA-F (F: front-to-back airflow, air intake on front panel).

 Table 5-1 describes the mapping between switch models and FAN-40EA fan modules.

Switch Model	FAN-40EA-B	FAN-40EA-F
CE5810-24T4S-EI	Not supported	Not supported
CE5810-48T4S-EI		
CE5855-48T4S2Q-EI		
CE5855-24T4S2Q-EI		
CE6850-48S6Q-HI		
CE6850-48T6Q-HI		
CE6855-48T6Q-HI		
CE6850U-48S6Q-HI		
CE6850U-24S2Q-HI		
CE6870-24S6CQ-EI		
CE6870-48S6CQ-EI		
CE7855-32Q-EI		
CE7850-32Q-EI		
CE8860-4C-EI		
CE5850-48T4S2Q-EI	Supported	Supported
CE6850-48S4Q-EI	NOTE	NOTE
CE6850-48T4Q-EI	This fan module is supported in V100R001C00 version and	This fan module is supported in V100R001C00 version and
	later versions.	later versions.
CE5850-48T4S2Q-HI	Supported	Supported
CE6810-48S4Q-EI	NOTE	NOTE
	in V100R003C00 version and	in V100R003C00 version and
	later versions.	later versions.
CE6810-48S4Q-LI	Supported	Supported
CE6810-48S-LI	NOTE	NOTE
	in V100R003C10 version and	in V100R003C10 version and
	later versions.	later versions.

 Table 5-1 Mapping between switch models and FAN-40EA fan modules

Switch Model	FAN-40EA-B	FAN-40EA-F
CE6810-32T16S4Q-LI CE6810-24S2Q-LI CE6851-48S6Q-HI	Supported NOTE This fan module is supported in V100R005C10 version and later versions.	Supported NOTE This fan module is supported in V100R005C10 version and later versions.
CE6855-48S6Q-HI	Supported NOTE This fan module is supported in V200R001C00 version and later versions.	Supported NOTE This fan module is supported in V200R001C00 version and later versions.

# Appearance

**Figure 5-1** shows the appearance of a FAN-40EA-B fan module, and **Figure 5-2** shows the appearance of a FAN-40EA-F fan module.

#### 

A FAN-40EA fan module consists of two fans.

Figure 5-1 Appearance of a FAN-40EA-B fan module



Figure 5-2 Appearance of a FAN-40EA-F fan module



# Function

A FAN-40EA fan module consists of a fan tray, two fans, and a fan control unit. FAN-40EA-B and FAN-40EA-F fan modules use different airflow designs but have the same functions. **Table 5-2** describes the functions of them.

 Table 5-2 Functions of a FAN-40EA fan module

Function	Description
Automatic fan speed adjustment	After the fan module communicates normally with the switch, the switch controls the speed of fans based on temperature of the chassis.
Hot swap	Supported
Heat dissipation	<ul> <li>FAN-40EA-B: back-to-front airflow</li> <li>FAN-40EA-F: front-to-back airflow</li> </ul>

# Panel

Figure 5-3 and Figure 5-4 show the panels of the FAN-40EA series fan modules.





Figure 5-4 Panel of a FAN-40EA-F fan module



1. Captive screw	2. Airflow flag	3. Indicator
	• back-to-front airflow	
	• Front-to-back airflow	
4. Handle	5. Fan air vent	-

Table 5-3 describes the indicator on the panels of the FAN-40EA fan modules.

Indicator	Color	Description
STATUS: fan	-	Off: The fan module is not running.
indicator	Green	• Slow blinking: The fan module is working properly and communicating normally with the system.
		• Fast blinking: The fan module is working properly but has not established communication with the system.
	Red	• Steady on: The fan module has a hardware fault and must be replaced.
		• Blinking: An alarm has been generated, and you need to handle it accordingly. Common causes of this alarm include errors of dual in-line package (DIP) switches, short circuits, fan blades blocked, and fault of the fan module.

Table 5-3 Indicator on panels of the FAN-40EA fan modules

# Specifications

 Table 5-4 describes the technical specifications of the FAN-40EA series fan modules.

Item	FAN-40EA-B	FAN-40EA-F
Dimensions (W x D x H)	94.5 mm x 183.1 mm x 3	9.8 mm
Number of fans	2	
Weight	0.325 kg	
Maximum power consumption	12.71 W	

Table 5-4 Technical specifications of the FAN-40EA fan modules

Item	FAN-40EA-B	FAN-40EA-F
Maximum fan speed	18500±10% revolutions	per minute (RPM)
Maximum wind rate	46 cubic feet per minute (CFM)	
Part Number	02355338	02355421

# 5.2 FAN-40SB Series Fan Modules

# **Version Mapping**

The FAN-40SB series fan modules are classified into two types depending on the airflow designs: FAN-40SB-B (B: back-to-front airflow, air exhaust on front panel) and FAN-40SB-F (F: front-to-back airflow, air intake on front panel).

 Table 5-5 lists the mapping between switch models and FAN-40SB fan modules.

Switch Model	FAN-40SB-B	FAN-40SB-F
CE5810-24T4S-EI CE5810-48T4S-EI	Supported NOTE This fan module is supported in V100R002C00 version and later versions.	Supported NOTE This fan module is supported in V100R002C00 version and later versions.

 Table 5-5 Mapping between switch models and FAN-40SB fan modules

Switch Model	FAN-40SB-B	FAN-40SB-F
CE5850-48T4S2Q-EI	Not supported	Not supported
CE5850-48T4S2Q-HI		
CE5855-48T4S2Q-EI		
CE5855-24T4S2Q-EI		
CE6810-48S4Q-LI		
CE6810-48S-LI		
CE6810-32T16S4Q-LI		
CE6810-24S2Q-LI		
CE6810-48S4Q-EI		
CE6850-48S4Q-EI		
CE6850-48T4Q-EI		
CE6850-48S6Q-HI		
CE6850-48T6Q-HI		
CE6855-48T6Q-HI		
CE6851-48S6Q-HI		
CE6855-48S6Q-HI		
CE6850U-48S6Q-HI		
CE6850U-24S2Q-HI		
CE6870-24S6CQ-EI		
CE6870-48S6CQ-EI		
CE7855-32Q-EI		
CE7850-32Q-EI		
CE8860-4C-EI		

# Appearance

**Figure 5-5** shows the appearance of a FAN-40SB-B fan module, and **Figure 5-6** shows the appearance of a FAN-40SB-F fan module.

## 

A FAN-40SB fan module has only one fan.

Figure 5-5 Appearance of a FAN-40SB-B fan module





# Function

A FAN-40SB fan module consists of a fan tray, a fan, and a fan control unit. FAN-40SB-B and FAN-40SB-F fan modules use different airflow designs but have the same functions. **Table 5-6** describes the functions of them.

Table 5-6 Functions of a FAN-40SB fan module

Function	Description
Automatic fan speed adjustment	After the fan module communicates normally with the switch, the switch controls the speed of fans based on temperature of the chassis.
Hot swap	Supported
Heat dissipation	<ul> <li>FAN-40SB-B: back-to-front airflow</li> <li>FAN-40SB-F: front-to-back airflow</li> </ul>

# Panel

Figure 5-7 and Figure 5-8 show the panels of the FAN-40SB fan modules.

Figure 5-7 Panel of a FAN-40SB-B fan module



#### Figure 5-8 Panel of a FAN-40SB-F fan module



1. Captive screw	2. Airflow flag	3. Indicator
	: back-to-front airflow	
	: front-to-back airflow	
4. Handle	5. Fan air vent	-

Table 5-7 describes the indicator on the panels of the FAN-40SB fan modules.

Indicator	Color	Description
STATUS: fan indicator	-	Off: The fan module is not running.
	Green	• Slow blinking: The fan module is working properly and communicating normally with the system.
		• Fast blinking: The fan module is working properly but has not established communication with the system.
	Red	• Steady on: The fan module has a hardware fault and must be replaced.
		• Blinking: An alarm has been generated, and you need to handle it accordingly. Common causes of this alarm include errors of dual in-line package (DIP) switches, short circuits, fan blades blocked, and fault of the fan module.

Table 5-7 Indicator on panels of the FAN-40SB fan modules

# Specifications

 Table 5-8 describes the technical specifications of the FAN-40SB fan modules.

Item	FAN-40SB-B	FAN-40SB-F	
Dimensions (W x D x H)	94.5 mm x 183.1 mm x 39.8 mm		
Number of fans	1		
Weight	0.3 kg		
Maximum power consumption	4.3 W		
Maximum fan speed	16000±10% revolutions per minute (RPM) NOTE RPM: revolutions per minute.		
Maximum wind rate	20 cubic feet per minute (CFM)		
Part Number	02356152	02356153	

Table 5-8 Technical specifications of the FAN-40SB fan modules

# 5.3 FAN-40HA Series Fan Modules

# **Version Mapping**

The FAN-40HA series fan modules are classified into two types depending on the airflow designs: FAN-40HA-B (B: back-to-front airflow, air exhaust on front panel) and FAN-40HA-F (F: front-to-back airflow, air intake on front panel).

 Table 5-9 lists the mapping between switch models and FAN-40HA series fan modules.

Switch Model	FAN-40HA-B	FAN-40HA-F
CE5810-24T4S-EI	Not supported	Not supported
CE5810-48T4S-EI		
CE5850-48T4S2Q-EI		
CE5850-48T4S2Q-HI		
CE5855-48T4S2Q-EI		
CE5855-24T4S2Q-EI		
CE6810-48S4Q-EI		
CE6810-48S4Q-LI		
CE6810-48S-LI		
CE6810-32T16S4Q-LI		
CE6810-24S2Q-LI		
CE6850-48S4Q-EI		
CE6850-48T4Q-EI		
CE6850-48S6Q-HI		
CE6850-48T6Q-HI		
СЕ6855-48Т6Q-НІ		
CE6851-48S6Q-HI		
CE6855-48S6Q-HI		
CE6850U-48S6Q-HI		
CE6850U-24S2Q-HI		
CE8860-4C-EI		
CE7850-32Q-EI	Supported	Supported
	NOTE	NOTE
	This fan module is supported in V100R003C00 version and	This fan module is supported in V100R003C00 version and
	later versions.	later versions.
CE6870-24S6CQ-EI	Supported	Supported
CE6870-48S6CQ-EI	NOTE	NOTE
CE7855-32Q-EI	in V200R001C00 version and	in V200R001C00 version and
	later versions.	later versions.

Table 5-9 Mapping between switch models and FAN-40HA series fan modules

# Appearance

**Figure 5-9** shows the appearance of a FAN-40HA-B fan module, and **Figure 5-10** shows the appearance of a FAN-40HA-F fan module.

# 

A FAN-40HA fan module consists of two counter-rotating fans, and each fan has a pair of blades.

#### Figure 5-9 Appearance of a FAN-40HA-B fan module



Figure 5-10 Appearance of a FAN-40HA-F fan module



# Function

A FAN-40HA fan module consists of a fan frame, two counter-rotating fans, and a fan control unit. FAN-40HA-B and FAN-40HA-F fan modules use different airflow designs but have the same functions. **Table 5-10** describes the functions of them.

Function	Description
Automatic fan speed adjustment	After the fan module communicates normally with the switch, the switch controls the speed of fans based on temperature of the chassis.
Hot swap	Supported
Heat dissipation	<ul> <li>FAN-40HA-B: back-to-front airflow</li> <li>FAN-40HA-F: front-to-back airflow</li> </ul>

# Panel

Figure 5-11 and Figure 5-12 show the panels of the FAN-40HA fan modules.

#### Figure 5-11 Panel of a FAN-40HA-B fan module



Figure 5-12 Panel of a FAN-40HA-F fan module



1. Captive screw	2. Airflow flag	3. Indicator
	• back-to-front airflow	
	• Front-to-back airflow	
4. Handle	5. Fan air vent	-

 Table 5-11 describes the indicator on the panels of the FAN-40HA fan modules.

Indicator	Color	Description
STATUS: fan	-	Off: The fan module is not running.
indicator	Green	• Slow blinking: The fan module is working properly and communicating normally with the system.
		• Fast blinking: The fan module is working properly but has not established communication with the system.
	Red	• Steady on: The fan module has a hardware fault and must be replaced.
		• Blinking: An alarm has been generated, and you need to handle it accordingly. Common causes of this alarm include errors of dual in-line package (DIP) switches, short circuits, fan blades blocked, and fault of the fan module.

Table 5-11 Indicator on panels of the FAN-40HA fan modules

# Specifications

 Table 5-12 describes the technical specifications of the FAN-40HA fan modules.

<b>Fable 5-12</b> Technical specifications of the FAN-40HA fan modules
--

Item	FAN-40HA-B	FAN-40HA-F	
Dimensions (W x D x H)	94.5 mm x 183.1 mm x 39.8 mm		
Number of fans	Two counter-rotating fans, each of which has a pair of blades		
Weight	0.415 kg		
Maximum power consumption	40 W		
Maximum fan speed	19000±10% revolutions per minute (RPM)		
Maximum wind rate	64 cubic feet per minute (CFM)		
Part Number	02359097 02359096		

# 5.4 FAN-040A Series Fan Modules

# **Version Mapping**

The FAN-040A series fan modules are classified into two types depending on the airflow designs: FAN-040A-B (B: back-to-front airflow, air exhaust on front panel) and FAN-040A-F (F: front-to-back airflow, air intake on front panel).

 Table 5-13 describes the mapping between switch models and FAN-040A fan modules.

Table 5-13 Mapping between switch models and FAN-040A fan modules

Switch Model	FAN-040A-B	FAN-040A-F
CE5810-24T4S-EI	Not supported	Not supported
CE5810-48T4S-EI		
CE5850-48T4S2Q-EI		
CE5850-48T4S2Q-HI		
CE6810-48S4Q-LI		
CE6810-48S-LI		
CE6810-32T16S4Q-LI		
CE6810-24S2Q-LI		
CE6810-48S4Q-EI		
CE6850-48S4Q-EI		
CE6850-48T4Q-EI		
CE6850-48T6Q-HI		
CE6855-48T6Q-HI		
CE6850-48S6Q-HI		
CE6851-48S6Q-HI		
CE6855-4886Q-HI		
CE6850U-48S6Q-HI		
CE6850U-24S2Q-HI		
CE6870-24S6CQ-EI		
CE6870-48S6CQ-EI		
CE7855-32Q-EI		
CE7850-32Q-EI		
CE8860-4C-EI		
CE5855-48T4S2Q-EI	Supported	Supported
CE5855-24T4S2Q-EI	NOTE This fan module is supported in V100R005C10 version and later versions.	NOTE This fan module is supported in V100R005C10 version and later versions.

# Appearance

**Figure 5-13** shows the appearance of a FAN-040A-B fan module, and **Figure 5-14** shows the appearance of a FAN-040A-F fan module.

## 

A FAN-040A fan module consists of two fans.



#### Figure 5-13 Appearance of a FAN-040A-B fan module

Figure 5-14 Appearance of a FAN-040A-F fan module



# Function

A FAN-040A fan module consists of a fan tray, two fans, and a fan control unit. FAN-040A-B and FAN-040A-F fan modules use different airflow designs but have the same functions. **Table 5-14** describes the functions of them.

Table 5-14	Functions	of a H	FAN-040A	fan module
		01 0 1		

Function	Description
Automatic fan speed adjustment	After the fan module communicates normally with the switch, the switch controls the speed of fans based on temperature of the chassis.
Hot swap	Supported
Heat dissipation	<ul><li>FAN-040A-B: back-to-front airflow</li><li>FAN-040A-F: front-to-back airflow</li></ul>

# Panel

Figure 5-15 and Figure 5-16 show the panels of the FAN-040A series fan modules.

Figure 5-15 Panel of a FAN-040A-B fan module

Figure 5-16 Panel of a FAN-040A-F fan module



1. Captive screw	2. Airflow flag	3. Indicator
	• back-to-front airflow	
	• Front-to-back airflow	
4. Handle	5. Fan air vent	-

Table 5-15 describes the indicator on the panels of the FAN-040A fan modules.

Indicator	Color	Description
STATUS: fan indicator Green	-	Off: The fan module is not running.
	• Slow blinking: The fan module is working properly and communicating normally with the system.	
		• Fast blinking: The fan module is working properly but has not established communication with the system.
	Red	• Steady on: The fan module has a hardware fault and must be replaced.
		• Blinking: An alarm has been generated, and you need to handle it accordingly. Common causes of this alarm include errors of dual in-line package (DIP) switches, short circuits, fan blades blocked, and fault of the fan module.

Table 5-15 Indicator on panels of the FAN-040A fan modules

# Specifications

 Table 5-16 describes the technical specifications of the FAN-040A series fan modules.

1		
Item	FAN-040A-B	FAN-040A-F
Dimensions (W x D x H)	94.5 mm x 183.1 mm x 39.8 mm	
Number of fans	2	
Weight	0.259 kg	
Maximum power consumption	12 W	
Maximum fan speed	16000±10% revolutions per minute (RPM)	
Maximum wind rate	40 cubic feet per minute (CFM)	
Part Number	02350JFA	02350JEY

Table 5-16 Technical specifications of the FAN-040A fan modules

# 5.5 FAN-060A Series Fan Modules

# **Version Mapping**

The FAN-060A series fan modules are classified into two types depending on the airflow designs: FAN-060A-B (B: back-to-front airflow, air exhaust on front panel) and FAN-060A-F (F: front-to-back airflow, air intake on front panel).

 Table 5-17 describes the mapping between device models and FAN-060A series fan modules.

Switch Model	FAN-060A-B	FAN-060A-F
CE5810-24T4S-EI	Not supported	Not supported
CE5810-48T4S-EI		
CE5850-48T4S2Q-EI		
CE5850-48T4S2Q-HI		
CE5855-48T4S2Q-EI		
CE5855-24T4S2Q-EI		
CE6810-48S4Q-LI		
CE6810-48S-LI		
CE6810-32T16S4Q-LI		
CE6810-24S2Q-LI		
CE6810-48S4Q-EI		
CE6850-48S4Q-EI		
CE6850-48T4Q-EI		
CE6851-48S6Q-HI		
CE6855-48S6Q-HI		
CE6870-24S6CQ-EI		
CE6870-48S6CQ-EI		
CE7855-32Q-EI		
CE7850-32Q-EI		
CE8860-4C-EI		
CE6850-48S6Q-HI	Supported	Supported
	NOTE	NOTE
	The fan module is supported in V100R005C00 and later	The fan module is supported in V100R005C00 and later
	versions.	versions.
CE6850U-48S6Q-HI	Supported	Supported
СЕ6850-48Т6Q-НІ	NOTE	NOTE
CE6850U-24S2Q-HI	The fan module is supported in V100R005C10 and later versions.	The fan module is supported in V100R005C10 and later versions.
СЕ6855-48Т6Q-НІ	Supported	Supported
	NOTE	NOTE
	The fan module is supported in V200R001C00 and later versions.	The fan module is supported in V200R001C00 and later versions.

Table 5-17 Mapping between switch models and FAN-060A series fan modules

# Appearance

**Figure 5-17** shows the appearance of a FAN-060A-B fan module, and **Figure 5-18** shows the appearance of a FAN-060A-F fan module.

#### ΠΝΟΤΕ

Each FAN-060A fan module has two counter-rotating fans, and each fan has a pair of blades.

Figure 5-17 Appearance of a FAN-060A-B fan module



Figure 5-18 Appearance of a FAN-060A-F fan module



# Function

A FAN-060A fan module consists of a fan tray, two counter-rotating fans, and a fan monitoring unit. FAN-060A-B and FAN-060A-F fan modules use different airflow designs but have the same functions. **Table 5-18** describes the functions of them.

Table 5-18 Functions of a FAN-060A fan module

Function	Description
Automatic fan speed adjustment	After the fan module communicates normally with the switch, the switch controls the speed of fans based on temperature of the chassis.
Hot swap	Supported
Heat dissipation	<ul> <li>FAN-060A-B: back-to-front airflow</li> <li>FAN-060A-F: front-to-back airflow</li> </ul>

# Panel

Figure 5-19 and Figure 5-20 show the panels of FAN-060A series fan modules.



Figure 5-19 Panel of a FAN-060A-B fan module

Figure 5-20 Panel of a FAN-060A-F fan module



1	. Lock	2. Indicator	3. Fan air vent



Table 5-19 describes the indicator on a FAN-060A fan module.

Indicator	Color	Description
STAT: running	-	Off: The fan module is not running.
status indicator	Green	<ul> <li>Slow blinking: The fan module is working properly and communicating normally with the system.</li> <li>Fast blinking: The fan module is working properly but has not established communication with the system.</li> </ul>
	Red	• Steady on: The fan module has a hardware fault and must be replaced.
		• Blinking: An alarm has been generated, and you need to handle it accordingly. Common causes of this alarm include short circuits, fan blades blocked, and fault of the fan module.

Table 5-19 Indicator on a FAN-060A fan module

# Specifications

Table 5-20 describes the technical specifications of the FAN-060A series fan modules.

Fable 5-20 Technical specifications	of FAN-060A series fan modules
-------------------------------------	--------------------------------

Item	FAN-060A-B	FAN-060A-F
Dimensions (W x D x H)	86.0 mm x 198.3 mm x 40.0 mm	

Item	FAN-060A-B	FAN-060A-F	
Number of fans	Two counter-rotating fans, each of which has a pair of blades		
Weight	0.478 kg		
Maximum power consumption	40 W		
Maximum fan speed	19000±10% revolutions per minute (RPM)		
Maximum wind rate	64 cubic feet per minute (CFM)		
Part Number	02359310	02359308	

# 5.6 FAN-180A Series Fan Modules

# **Version Mapping**

The FAN-180A series fan modules are classified into two types depending on the airflow designs: FAN-180A-B (B: back-to-front airflow, air exhaust on front panel) and FAN-180A-F (F: front-to-back airflow, air intake on front panel).

 Table 5-21 describes the mapping between device models and FAN-180A series fan modules.

Switch Model	FAN-180A-B	FAN-180A-F
CE5810-24T4S-EI	Not supported	Not supported
CE5810-48T4S-EI		
CE5850-48T4S2Q-EI		
CE5850-48T4S2Q-HI		
CE5855-48T4S2Q-EI		
CE5855-24T4S2Q-EI		
CE6810-48S4Q-LI		
CE6810-48S-LI		
CE6810-32T16S4Q-LI		
CE6810-24S2Q-LI		
CE6810-48S4Q-EI		
CE6850-48S4Q-EI		
CE6850-48T4Q-EI		
СЕ6850-48Т6Q-НІ		
СЕ6855-48Т6Q-НІ		
CE6850-48S6Q-HI		
CE6851-48S6Q-HI		
CE6855-48S6Q-HI		
CE6850U-48S6Q-HI		
CE6850U-24S2Q-HI		
CE6870-24S6CQ-EI		
CE6870-48S6CQ-EI		
CE7855-32Q-EI		
CE7850-32Q-EI		
CE8860-4C-EI	Supported NOTE The fan module is supported in V100R006C00 and later versions.	Supported NOTE The fan module is supported in V100R006C00 and later versions.

Table 5-21 Mapping between device models and FAN-180A series fan modules

# Appearance

**Figure 5-21** shows the appearance of a FAN-180A-B fan module, and **Figure 5-22** shows the appearance of a FAN-180A-F fan module.

# 

Each FAN-180A fan module has one counter-rotating fan, which has a pair of blades.





Figure 5-22 Appearance of a FAN-180A-F fan module



# Function

A FAN-180A fan module consists of a fan tray, a fan, and a fan monitoring unit. FAN-180A-B and FAN-180A-F fan modules use different airflow designs but have the same functions. **Table 5-22** describes the functions of them.

Table 5-22 Functions of a FAN-180A fan module

Function	Description
Automatic fan speed adjustment	After the fan module communicates normally with the switch, the switch controls the speed of the fan based on temperature of the chassis.
Hot swap	Supported
Heat dissipation	<ul> <li>FAN-180A-B: back-to-front airflow</li> <li>FAN-180A-F: front-to-back airflow</li> </ul>

# Panel

Figure 5-23 and Figure 5-24 show the panels of FAN-180A series fan modules.



Figure 5-23 Panel of a FAN-180A-B fan module

# Figure 5-24 Panel of a FAN-180A-F fan module

1. Lock	2. Indicator	3. Fan air vent
4. Handle	5. Warning label CAUTION When you remove a running fan module from a switch, its fans will continue running. Do not touch the running fans.	6. Airflow flag

Table 5-23 describes the indicator on a FAN-180A fan module.

Indicator	Color	Description
STAT: running	- Off: The fan module is not running.	
status indicator	Green	Blinking: The fan module is working properly.
	Red	• Steady on: The fan module has a hardware fault and must be replaced.
		• Blinking: An alarm has been generated, and you need to handle it accordingly. Common causes of this alarm include short circuits, fan blades blocked, and fault of the fan module.

 Table 5-23 Indicator on a FAN-180A fan module

# Specifications

Table 5-24 describes the technical specifications of the FAN-180A series fan modules.

Item	FAN-180A-B	FAN-180A-F	
Dimensions (W x D x H)	85.4 mm x 178.8 mm x 82.5 mm		
Fans	One counter-rotating fan, which has a pair of blades		
Weight	0.887 kg		
Maximum power consumption	86 W		
Maximum fan speed	12000 revolutions per minute (RPM)		
Maximum wind rate	180 cubic feet per minute (CFM)		
Part number	02350KJA 02350KHY		

Table 5-24 Technical specifications of FAN-180A series fan modules

# **6** Cards

# **About This Chapter**

6.1 Card Classification

6.2 Card Naming Conventions

6.3 CE88-D8CQ (8-Port 40GE/100GE Interface Card (QSFP28))

6.4 CE88-D16Q (16-Port 40GE Interface Card (QSFP+))

6.5 CE88-D24T2CQ (24-Port GE/10GBASE-T (RJ45) and 2-Port 40GE/100GE (QSFP28) Interface Card)

6.6 CE88-D24S2CQ (24-Port 10GE/25GE (SFP28) and 2-Port 40GE/100GE (QSFP28) Interface Card)

# 6.1 Card Classification

#### 

This document describes all the cards supported by the CE8800&7800&6800&5800 series switches. The cards that can be supplied will be specified in the product change notices (PCNs). For details, contact the product manager of Huawei local office.

Among the CE8800&7800&6800&5800 series switches, only the CE8800 series switches support pluggable cards, as listed in **Table 6-1**.

Card Name	Description	Hot Swap
CE88-D8CQ	8-port 40GE/100GE interface card (QSFP28)	Supported
CE88-D16Q	16-port 40GE interface card (QSFP+)	
CE88-D24T2CQ	24-port GE/10GBASE-T (RJ45) and 2- port 40GE/100GE (QSFP28) interface card	
CE88-D24S2CQ	24-port 10GE/25GE (SFP28) and 2-port 40GE/100GE (QSFP28) interface card	

Table 6-1 Cards supported by the CE8800 series switches

# 6.2 Card Naming Conventions

Figure 6-1 shows the CE8800&7800&6800&5800 series switches naming conventions.

Figure 6-1 CE8800&7800&6800&5800 series switches naming conventions



Table 6-2 describes the CE8800&7800&6800&5800 series switches naming conventions.

 Table 6-2 CE8800&7800&6800&5800 series switches naming conventions

Fiel d	Description
Α	CE88: cards for the CE8800 series switches

D

Fiel d	Description
B	Cards for top of rack (ToR) switches
С	Number and type of downlink interfaces:
	• T: GE/10GBase-T electrical interfaces
	• S: 10GE SFP+/25GE SFP28 optical interfaces
	• Q: QSFP+ optical interfaces
	• CQ: QSFP28 optical interfaces
D	Number and type of uplink interfaces:
	• T: GE/10GBase-T electrical interfaces
	• S: 10GE SFP+/25GE SFP28 optical interfaces
	• Q: QSFP+ optical interfaces
	• CQ: QSFP28 optical interfaces
	<b>NOTE</b> This field will not be included in a card's name if the uplink and downlink interfaces on the card are the same type.

# 6.3 CE88-D8CQ (8-Port 40GE/100GE Interface Card (QSFP28))

# **Version Mapping**

Table 6-3 describes the mapping between the CE88-D8CQ card, switch models, and software versions.

Table 6-3 CE88-D8CQ card version mapping

Switch Model	CE88-D8CQ
CE7800&6800&5800 series	Not supported
CE8860-4C-EI	Supported NOTE The card is supported in V100R006C00 and later versions.

# **Card Overview**

The CE88-D8CQ card can be install in any slot of the CE8860-4C-EI chassis.

Figure 6-2 shows the appearance of the CE88-D8CQ card.

#### Figure 6-2 Appearance of the CE88-D8CQ card



# **Functions and Features**

Table 6-4 describes functions and features of the CE88-D8CQ card.

Function and Feature	Item
Basic function	Provides data packet processing and traffic management on eight 40GE/100GE QSFP28 optical ports.
Port split	Each QSFP28 optical port can be split into four 25GE ports or four 10GE ports. Such 25GE or 10GE ports cannot work at 1 Gbit/s. With the port split function, each card can provide up to 32 25GE or 10GE optical ports.
	<b>NOTE</b> All the QSFP28 ports are independent, and each can be configured as four 10GE or 25GE ports.
Hot swap	Supported
Service port stacking	Ports on the card can be used as stack ports.

Table 6-4	Functions	and featur	res of the	CE88-D8CO	card
Table 0 1	1 unotions	una routa		CLUU DUCQ	ouru

# **Indicators and Ports**

Figure 6-3 shows indicators on the CE88-D8CQ panel.



Figure 6-3 Indicators on the CE88-D8CQ panel

 Table 6-5 describes indicators on the CE88-D8CQ panel.

Number	Indicator	Color	Description
1	One single- color indicator for each interface <b>NOTE</b> 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.	Green	<ul> <li>Off: No link is established on the port.</li> <li>Steady on: A link has been established on the port.</li> <li>Blinking: The port is transmitting or receiving data.</li> </ul>

Table 6-5 Description of indicators on the CE88-D8CQ panel

Figure 6-4 shows the ports on the CE88-D8CQ card.

Figure 6-4 Ports on the CE88-D8CQ card



1. 8 40GE/100GE QSFP28 optical ports

#### 40GE/100GE QSFP28 optical port

 Table 6-6 describes the attributes of a 40GE/100GE QSFP28 optical port.

 Table 6-6 Attributes of a 40GE/100GE QSFP28 optical port

Attribute	Description
Connector type	Depends on the optical module used.

Attribute	Description
Optical attributes	Depends on the QSFP+ or QSFP28 optical module used. See <b>8.9 40GE QSFP+ Optical Modules</b> or <b>8.10 QSFP28 Modules</b> .
Applicable cables	<ul> <li>When the port works in 100GE mode, it can use:</li> <li>QSFP28 optical module and MPO-MPO optical fiber</li> <li>QSFP28 to QSFP28 high-speed cable</li> </ul>
	<ul> <li>When the port works in 40GE mode, it can use:</li> <li>QSFP+ optical module and MPO-MPO or LC-LC optical fiber</li> <li>QSFP+ to QSFP+ high-speed cable</li> <li>QSFP+ to QSFP+ AOC cable</li> </ul>
	<ul> <li>When the port works in 4*25GE mode, it can use:</li> <li>QSFP28 optical module and MPO-4*DLC or MPO-8*FC optical fiber</li> <li>QSFP28 to 4*SFP28 high-speed cable</li> </ul>
	<ul> <li>When the port works in 4*10GE mode, it can use:</li> <li>QSFP+ optical module and MPO-4*DLC or MPO-8*FC optical fiber</li> <li>QSFP+ to 4*SFP+ high-speed cable</li> <li>QSFP+ to 4*SFP+ AOC cable</li> </ul>

# Specifications

 Table 6-7 describes the technical specifications of the CE88-D8CQ card.

Table 6-7 Technical specifications of the CE88-D8CQ card

Item	Description
Physical specifications	<ul> <li>Dimensions (W x D x H): 210.0 mm x 205.2 mm x 41.8 mm</li> <li>Weight: 1.3 kg</li> <li>Typical power consumption: 33 W</li> <li>Maximum power consumption: 71 W</li> <li>Typical heat dissipation: 113 BTU/hr</li> <li>Maximum heat dissipation: 242 BTU/hr</li> </ul>
Environment parameters	<ul> <li>Operating temperature: 0°C to 40°C</li> <li>Relative humidity: 5% RH to 95% RH</li> <li>Storage temperature: -40°C to +70°C</li> </ul>

# Ordering Information

 Table 6-8 provides the ordering information.

#### Table 6-8 Ordering information

Part Number	Card Model	Card Description
03023CRS	CE88-D8CQ	8-port 40GE/100GE interface card (QSFP28)

# 6.4 CE88-D16Q (16-Port 40GE Interface Card (QSFP+))

# **Version Mapping**

 Table 6-9 describes the mapping between the CE88-D16Q card, switch models, and software versions.

 Table 6-9 CE88-D16Q card version mapping

Switch Model	CE88-D16Q
CE7800&6800&5800 series	Not supported
CE8860-4C-EI	Supported NOTE The card is supported in V100R006C00 and later versions.

# **Card Overview**

The CE88-D16Q card can be install in any slot of the CE8860-4C-EI chassis.

Figure 6-5 shows the appearance of the CE88-D16Q card.

Figure 6-5 Appearance of the CE88-D16Q card



# **Functions and Features**

Table 6-10 describes functions and features of the CE88-D16Q card.

Table 6-10 Functions and features of the CE88-D16Q card

Function and Feature	Description
Basic function	Provides data packet processing and traffic management on 16 40GE QSFP+ optical ports.
Port split	Each QSFP+ optical port can be split into two 10GE ports. The two 10GE cannot work at 1 Gbit/s. With the port split function, each card can provide up to 32 10GE optical ports. <b>NOTE</b> All the 40GE QSFP+ optical ports are independent, and each can be configured as two 10GE ports.
Hot swap	Supported
Service port stacking	Ports on the card can be used as stack ports.

# **Indicators and Ports**

Figure 6-6 shows indicators on the CE88-D16Q panel.

Figure 6-6 Indicators on the CE88-D16Q panel



Table 6-11 describes indicators on the CE88-D16Q panel.

Number	Indicator	Color	Description
1	One single- color indicator for each interface <b>NOTE</b> 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.	Green	<ul> <li>Off: No link is established on the port.</li> <li>Steady on: A link has been established on the port.</li> <li>Blinking: The port is transmitting or receiving data.</li> </ul>

Table 6-11 Description of indicators on the CE88-D16Q panel

Figure 6-7 shows the ports on the CE88-D16Q card.

Figure 6-7 Ports on the CE88-D16Q card



1. 16 40GE QSFP+ optical ports

#### 40GE QSFP+ optical port

 Table 6-12 describes the attributes of a 40GE QSFP+ optical port.

Fable 6-12 Attri	butes of a 40GE	E QSFP+ optical port
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Attribute	Description
Connector type	Depends on the optical module used.
Optical attributes	Depends on the QSFP+ optical module used. See <b>8.9 40GE QSFP+ Optical Modules</b> .
Attribute	Description
-------------------	--
Applicable cables	When the port works in 40GE mode, it can use:
	• QSFP+ optical module and MPO-MPO or LC- LC optical fiber
	• QSFP+ to QSFP+ high-speed cable
	• QSFP+ to QSFP+ AOC cable
	<ul> <li>When the port works in 2*10GE mode, it can use:</li> <li>QSFP+ optical module and MPO-4*DLC or MPO-8*FC optical fiber (Among the four pairs of DLC or FC fibers, only the two pairs marked 1 and 2 can be used to connect to remote interfaces.)</li> </ul>
	• QSFP+ to 4*SFP+ high-speed cable (Among the four SFP+ wires, only the two marked A and B can be used to connect to remote interfaces.)
	• QSFP+ to 4*SFP+ AOC cable (Among the four SFP+ wires, only the two marked 1 and 2 can be used to connect to remote interfaces.)

## Specifications

 Table 6-13 describes the technical specifications of the CE88-D16Q card.

Table 6-13	Technical	specifications	of the	CE88-D16Q	card
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Item	Description
Physical specifications	<ul> <li>Dimensions (W x D x H): 210.0 mm x 205.2 mm x 41.8 mm</li> <li>Weight: 1.3 kg</li> <li>Typical power consumption: 27 W</li> </ul>
	<ul> <li>Naximum power consumption: 27 W</li> <li>Maximum power consumption: 58 W</li> <li>Typical heat dissipation: 92 BTU/hr</li> <li>Maximum heat dissipation: 198 BTU/hr</li> </ul>
Environment parameters	<ul> <li>Operating temperature: 0°C to 40°C</li> <li>Relative humidity: 5% RH to 95% RH</li> <li>Storage temperature: -40°C to +70°C</li> </ul>

#### **Ordering Information**

 Table 6-14 provides the ordering information.

Part Number	Card Model	Card Description
03023CRR	CE88-D16Q	16-port 40GE interface card (QSFP +)

## 6.5 CE88-D24T2CQ (24-Port GE/10GBASE-T (RJ45) and 2-Port 40GE/100GE (QSFP28) Interface Card)

#### **Version Mapping**

 Table 6-15 describes the mapping between the CE88-D24T2CQ card, switch models, and software versions.

<b>Table 6-15</b> CE88-D24T2CQ card version map	ping
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Switch Model	CE88-D24T2CQ
CE7800&6800&5800 series	Not supported
CE8860-4C-EI	Supported NOTE The card is supported in V100R006C00 and later versions.

#### **Card Overview**

The CE88-D24T2CQ card can be install in any slot of the CE8860-4C-EI chassis.

Figure 6-8 shows the appearance of the CE88-D24T2CQ card.

Figure 6-8 Appearance of the CE88-D24T2CQ card



#### 6 Cards

#### **Functions and Features**

Table 6-16 describes functions and features of the CE88-D24T2CQ card.

**Function and Feature** Description **Basic** function Provides data packet processing and traffic management on 24 GE/10GBASE-T RJ45 electrical ports and 2 40GE/100GE QSFP28 optical ports. Port split Each QSFP28 optical port can be split into four 25GE ports or four 10GE ports. Such 25GE or 10GE ports cannot work at 1 Gbit/s. NOTE The two QSFP28 ports are independent, and each can be configured as four 10GE or 25GE ports. Hot swap Supported Service port stacking Ports on the card can be used as stack ports.

 Table 6-16 Functions and features of the CE88-D24T2CQ card

#### **Indicators and Ports**

Figure 6-9 shows indicators on the CE88-D24T2CQ panel.

Figure 6-9 Indicators on the CE88-D24T2CQ panel



 Table 6-17 describes indicators on the CE88-D24T2CQ panel.

Number	Indicator	Color	Description
1	RJ45 electrical ports: one single-color indicator for each port NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	<ul> <li>Off: No link is established on the port.</li> <li>Steady on: A link has been established on the port.</li> <li>Blinking: The port is transmitting or receiving data.</li> </ul>
2	QSFP28 optical ports: one single- color indicator for each port NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.		

 Table 6-17 Description of indicators on the CE88-D24T2CQ panel

Figure 6-10 shows the ports on the CE88-D24T2CQ card.

Figure 6-10 Ports on the CE88-D24T2CQ card



1. 24 GE/10GBASE-T RJ45 electrical ports	2. 2 40GE/100GE QSFP28 optical ports
--	--------------------------------------

#### **GE/10GBASE-T RJ45** electrical port

The 24 GE/10GBASE-T RJ45 electrical ports on the CE88-D24T2CQ card can only transmit services at 1000 Mbit/s or 10 Gbit/s and cannot work at 100 Mbit/s. Category 6A shielded twisted pair (STP) cables are recommended for the ports. **Table 6-18** describes attributes of a GE/10GBASE-T RJ45 electrical port.

Table 6-18 Attributes of	a GE/10GBASE-T RJ45	electrical port
--------------------------	---------------------	-----------------

Attribute	Description
Connector type	RJ45
Standards compliance	IEEE802.3an, IEEE802.3az
Applicable cables	Straight-through cable and crossover cable
Working Mode	1000 Mbit/s or 10 Gbit/s Full-duplex
Maximum transmission distance	100 m

#### 40GE/100GE QSFP28 optical port

Table 6-19 describes the attributes of a 40GE/100GE QSFP28 optical port.

Table 6-19	Attributes	of a	40GE/	100GE	OSFP28	optical	port
	1 100110 00000	· · ·		10001	2011-0	opnen	P 0 - •

Attribute	Description
Connector type	Depends on the optical module used.
Optical attributes	Depends on the QSFP+ or QSFP28 optical module used. See <b>8.9 40GE QSFP+ Optical Modules</b> or <b>8.10 QSFP28 Modules</b> .
Applicable cables	<ul> <li>When the port works in 100GE mode, it can use:</li> <li>QSFP28 optical module and MPO-MPO optical fiber</li> <li>QSFP28 to QSFP28 high-speed cable</li> </ul>

Attribute	Description
	When the port works in 40GE mode, it can use:
	• QSFP+ optical module and MPO-MPO or LC- LC optical fiber
	• QSFP+ to QSFP+ high-speed cable
	• QSFP+ to QSFP+ AOC cable
	When the port works in 4*25GE mode, it can use:
	<ul> <li>QSFP28 optical module and MPO-4*DLC or MPO-8*FC optical fiber</li> </ul>
	• QSFP28 to 4*SFP28 high-speed cable
	When the port works in 4*10GE mode, it can use:
	<ul> <li>QSFP+ optical module and MPO-4*DLC or MPO-8*FC optical fiber</li> </ul>
	• QSFP+ to 4*SFP+ high-speed cable
	• QSFP+ to 4*SFP+ AOC cable

## Specifications

 Table 6-20 describes the technical specifications of the CE88-D24T2CQ card.

Item	Description	
Physical specifications	<ul> <li>Dimensions (W x D x H): 210.0 mm x 205.2 mm x 41.8 mm</li> <li>Weight: 1.3 kg</li> <li>Typical power consumption: 72 W</li> <li>Maximum power consumption: 109 W</li> <li>Typical heat dissipation: 246 BTU/hr</li> <li>Maximum heat dissipation: 372 BTU/hr</li> </ul>	
Environment parameters	<ul> <li>Operating temperature: 0°C to 40°C</li> <li>Relative humidity: 5% RH to 95% RH</li> <li>Storage temperature: -40°C to +70°C</li> </ul>	

#### **Ordering Information**

 Table 6-21 provides the ordering information.

Part Number	Card Model	Card Description
03023CRP	CE88-D24T2CQ	24-port GE/ 10GBASE-T (RJ45) and 2-port 40GE/ 100GE (QSFP28) interface card

#### Table 6-21 Ordering information

## 6.6 CE88-D24S2CQ (24-Port 10GE/25GE (SFP28) and 2-Port 40GE/100GE (QSFP28) Interface Card)

#### **Version Mapping**

 Table 6-22 describes the mapping between the CE88-D24S2CQ card, switch models, and software versions.

Table 6-22 CE88-D24S2CQ card version mapping

Switch Model	CE88-D24S2CQ
CE7800&6800&5800 series	Not supported
CE8860-4C-EI	Supported NOTE The card is supported in V100R006C00 and later versions.

#### **Card Overview**

The CE88-D24S2CQ card can be install in any slot of the CE8860-4C-EI chassis.

Figure 6-11 shows the appearance of the CE88-D24S2CQ card.

Figure 6-11 Appearance of the CE88-D24S2CQ card



#### **Functions and Features**

Table 6-23 describes functions and features of the CE88-D24S2CQ card.

Table 6-23 Functions and features of the	CE88-D24S2CQ card
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Function and Feature	Description	
Basic function	Provides data packet processing and traffic management on 24 10GE/25GE SFP28 optical ports and 2 40GE/100GE QSFP28 optical ports.	
Port split	Each QSFP28 optical port can be split into four 25GE ports or four 10GE ports. Such 25GE or 10GE ports cannot work at 1 Gbit/s.	
Hot swap	Supported	
Service port stacking	Ports on the card can be used as stack ports. <b>NOTE</b> SFP28 ports that have GE copper modules, 10GE optical modules, 10GE high-speed cables, or 10GE AOC cables installed cannot be used for stack connections.	

#### **Indicators and Ports**

Figure 6-12 shows indicators on the CE88-D24S2CQ panel.

Figure 6-12 Indicators on the CE88-D24S2CQ panel



 Table 6-24 describes indicators on the CE88-D24S2CQ panel.

<b>Fable 6-24</b> Description	of indicators on th	e CE88-D24S2CQ panel
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Number	Indicator	Color	Description
1	SFP28 optical ports: two single-color	Green	<ul> <li>Off: No link is established on the port.</li> <li>Steady on: A link has been established on the port.</li> </ul>

Number

2

show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.

Indicator	Color	Description
<ul> <li>indicators for each port</li> <li>Steady green: LINK indicator</li> <li>Blinking yellow: ACT indicator</li> <li>NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</li> </ul>	Yellow	<ul> <li>Off: The port is not transmitting or receiving data.</li> <li>Blinking: The port is transmitting or receiving data.</li> </ul>
QSFP28 optical ports: one single- color indicator for each port <b>NOTE</b> Arrowheads	Green	<ul> <li>Off: No link is established on the port.</li> <li>Steady on: A link has been established on the port.</li> <li>Blinking: The port is transmitting or receiving data.</li> </ul>

Figure 6-13 shows the ports on the CE88-D24S2CQ card.

#### Figure 6-13 Ports on the CE88-D24S2CQ card



1. 24 10GE/25GE SFP28 optical ports2. 2 40GE/100GE QSFP28 optical ports

#### GE/10GE/25GE SFP28 optical port

The 10GE/25GE SFP28 optical ports on the CE88-D24S2CQ card cannot work at 100 Mbit/s. **Table 6-25** describes attributes of a 10GE/25GE SFP28 optical port.

Table 6-25 Attributes of a 10GE/25GE SFP28 optical port		
Attribute	Description	

Attribute	Description	
Connector type	Depends on the optical module used.	
Optical attributes	Depends on the SFP copper module, SFP+ optical module, or SFP28 optical module used. See <b>8.5 GE</b> <b>SFP Copper Modules</b> (works at 1000 Mbit/s), <b>8.7</b> <b>10GE SFP+ Optical Modules</b> (OSXD22N00 and LE2MXSC80FF0 not supported), or <b>8.8 25GE</b> <b>SFP28 Modules</b> .	

Attribute	Description	
Port use constraints	The 24 10GE/25GE SFP28 optical ports on a CE88-D24S2CQ card are divided into six port groups, which contain ports 1-4, ports 5-8, ports 9-12, ports 13-16, ports 17-20, and ports 21-24.	
	The four ports in a group must work at the same speed. For example, if port 1 uses 10GE optical module, ports 2, 3, 4 cannot use 25GE optical modules or cables. Otherwise, all the four ports will be Down.	
	The four interfaces in a group must have the same type of media installed. For example, if interfaces 1-4 are configured to work in fiber mode, the interfaces can only connect to optical fibers, active high-speed cables, or AOCs. If interface 2 connects to a passive high-speed cable, the interface does not go Up and is in DOWN(Transceiver type mismatch) state.	
	A SFP28 interface works in 25GE mode by default and cannot switch to the 10GE or GE mode through auto-sensing. You can use the <b>port mode 10g</b> or <b>port mode ge</b> command to set the interface speed to 10 Gbit/s or 1 Gbit/s. If you run this command on an interface, all interfaces in the same group will work at 10 Gbit/s or 1 Gbit/s.	
Applicable cables	<ul> <li>When the port works in 10GE mode, it can use:</li> <li>SFP+ optical module and LC optical fiber</li> <li>SFP+ to SFP+ high-speed cable</li> <li>SFP+ to SFP+ AOC cable</li> </ul>	
	<ul> <li>When the port works in GE mode, it can use:</li> <li>SFP copper module and RJ45 cable</li> </ul>	
	<ul> <li>When the port works in 25GE mode, it can use:</li> <li>SFP28 optical module and LC optical fiber</li> <li>SFP28 to SFP28 AOC cable</li> <li>SFP28 to SFP28 high-speed cable</li> </ul>	

#### 40GE/100GE QSFP28 optical port

Table 6-26 describes the attributes of a 40GE/100GE QSFP28 optical port.

Attribute	Description
Connector type	Depends on the optical module used.

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Attribute	Description	
Optical attributes	Depends on the QSFP+ or QSFP28 optical module used. See <b>8.9 40GE QSFP+ Optical Modules</b> or <b>8.10 QSFP28 Modules</b> .	
Applicable cables	<ul> <li>When the port works in 100GE mode, it can use:</li> <li>QSFP28 optical module and MPO-MPO optical fiber</li> <li>QSFP28 to QSFP28 high-speed cable</li> </ul>	
	<ul> <li>When the port works in 40GE mode, it can use:</li> <li>QSFP+ optical module and MPO-MPO or LC-LC optical fiber</li> <li>QSFP+ to QSFP+ high-speed cable</li> <li>QSFP+ to QSFP+ AOC cable</li> </ul>	
	<ul> <li>When the port works in 4*25GE mode, it can use:</li> <li>QSFP28 optical module and MPO-4*DLC or MPO-8*FC optical fiber</li> <li>QSFP28 to 4*SFP28 high-speed cable</li> </ul>	
	<ul> <li>When the port works in 4*10GE mode, it can use:</li> <li>QSFP+ optical module and MPO-4*DLC or MPO-8*FC optical fiber</li> <li>QSFP+ to 4*SFP+ high-speed cable</li> <li>QSFP+ to 4*SFP+ AOC cable</li> </ul>	

#### Specifications

Table 6-27 describes the technical specifications of the CE88-D24S2CQ card.

Table 6-27 Technical specifications of the CE88-D24S2CQ card

Item	Description
Physical specifications	<ul> <li>Dimensions (W x D x H): 210.0 mm x 205.2 mm x 41.8 mm</li> <li>Weight: 1.4 kg</li> <li>Typical power consumption: 43 W</li> <li>Maximum power consumption: 71 W</li> <li>Typical heat dissipation: 147 BTU/hr</li> <li>Maximum heat dissipation: 243 BTU/hr</li> </ul>
Environment parameters	<ul> <li>Operating temperature: 0°C to 40°C</li> <li>Relative humidity: 5% RH to 95% RH</li> <li>Storage temperature: -40°C to +70°C</li> </ul>

#### **Ordering Information**

 Table 6-28 provides the ordering information.

#### Table 6-28 Ordering information

Part Number	Card Model	Card Description
03023CRM	CE88-D24S2CQ	24-port 10GE/25GE (SFP28) and 2-port 40GE/100GE (QSFP28) interface card

# **7**<sub>Cables</sub>

## **About This Chapter**

- 7.1 AC Power Cable
- 7.2 DC Power Cable
- 7.3 380 V High-Voltage DC Power Cable
- 7.4 Ground Cable
- 7.5 Console Cable
- 7.6 Network Cable
- 7.7 Optical Fiber
- 7.8 AOC Cable
- 7.9 Copper Cable

## 7.1 AC Power Cable

#### **Types of AC Power Cables**

#### 

The AC power cables delivered must comply with the standards used in the delivery destination. This section uses the AC power cables complying with China's national standards as an example.

AC power cables are classified into two types: C13 straight female to PI straight male AC power cable and C13 straight female to C14 straight male AC power cable.

#### **Appearance and Structure**

**Figure 7-1** shows the appearance of a C13 straight female to PI straight male AC power cable.



Figure 7-1 Appearance of a C13 straight female to PI straight male AC power cable

**Figure 7-2** shows the appearance of a C13 straight female to C14 straight male AC power cable.



#### Figure 7-2 Appearance of a C13 straight female to C14 straight male AC power cable

#### Connection

An AC power cable is connected to the AC power module of the device:

- The C13 straight female connector is connected to the power socket of a power module.
- The PI straight male or C14 straight male connector is connected to a power source.

When a **600 W AC&240 V DC power module** or **1200 W AC&240 V DC power module** uses 240 V high-voltage power input, it must be connected to the power supply device using a C13 straight female to C14 straight male AC power cable. This power cable is connected as follows:

- The C13 straight female connector is connected to the power socket of the 600 W AC&240 V DC power module or 1200 W AC&240 V DC power module.
- The C14 straight male connector is connected to a high-voltage DC PDU. If a highvoltage DC power distribution box is used, make OT or cord end terminals for the cable. Cut the C14 straight male connector off and crimp OT or cord end terminals on the bare wires. Connect the blue wire to a positive terminal on the DC power distribution box, the brown wire to a negative terminal, and the yellow-green wire to a protection ground. If the switch fails to be powered on after you connect the power cable, swap the wires on the positive and negative terminals.

## 7.2 DC Power Cable

#### Appearance and Structure

**Figure 7-3** shows the appearance of a DC power cable.

7 Cables





Figure 7-4 shows the structure of a DC power cable.

Figure 7-4 Structure of a DC power cable



#### **Pin Assignments**

 Table 7-1 lists the pin assignments of a DC power cable.

 Table 7-1 Pin assignments of a DC power cable

X1	X2	X3	Length	Conductor Cross- Sectional Area
2 female	Cord end terminal 4 <sup>2</sup> grey	Cord end terminal 4 <sup>2</sup> grey	3 m	3.332 mm <sup>2</sup> (12AWG)

#### Connection

A DC power cable connects to the DC power module of the device:

- X1 connector connects to the input port on the DC power module.
- X2/X3 cord end terminal connects to an external power module.

## 7.3 380 V High-Voltage DC Power Cable

#### **Appearance and Structure**

Figure 7-5 shows the appearance of a 380 V high-voltage DC power cable.

**Figure 7-5** Appearance of a 380 V high-voltage DC power cable (high-voltage DC straight female connector to bare wires)



#### Connection

A 380 V high-voltage DC power cable has a high-voltage DC straight female connector at one end and bare wires at the other end, and is used to connect a 600 W high-voltage DC power module or 1200 W high-voltage DC power module to a power supply device:

- The high-voltage DC straight female connector is connected to the power socket of the 600 W high-voltage DC power module or 1200 W high-voltage DC power module.
- The bare wires are connected to a 380 V high-voltage DC power distribution frame or power distribution box. Crimp OT or cord end terminals on the bare wires, and then connect the blue wire to a negative terminal, the brown wire to a positive terminal, and the yellow-green wire to a protection ground. If the switch fails to be powered on after you connect the power cable, swap the wires on the positive and negative terminals.

## 7.4 Ground Cable

#### **Appearance and Structure**

#### 

Different types of ground cables have similar appearance, except for the cross-sectional area, size of the cable lugs, and cable length. The following figure is for reference.

Figure 7-6 shows the appearance of a ground cable.





**Figure 7-7** shows the structure of a ground cable.





#### **Pin Assignments**

 Table 7-2 lists the pin assignments of a ground cable.

X1	X2	Wire Color	Conductor Cross- Sectional Area	Length
OT6-4	OT6-6	Green-yellow	4 mm <sup>2</sup>	1 m or 4 m NOTE The default ground cable delivered with a switch is 1 m long. You can also order a 4 m ground cable for a switch based on your installation environment.

 Table 7-2 Pin assignments of a ground cable

#### 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 OT6-4 naked crimping connector connects to the ground point on the chassis.
- The OT6-6 naked crimping connector connects to the ground point on the cabinet.

## 7.5 Console Cable

#### **Appearance and Structure**

Figure 7-8 shows the appearance of a console cable.

Figure 7-8 Appearance of a console cable



Figure 7-9 shows the structure of a console cable.

#### Figure 7-9 Structure of a console cable



#### **Pin Assignments**

 Table 7-3 lists the pin assignments of console cable connectors.

Connector	X1 (DB-9)	X2 (RJ45)
Pin assignment	2	3
	3	6
	5	5

 Table 7-3 Pin assignments of console cable connectors

#### Connection

A console cable connects the console port of a device to the serial port of an operation terminal, enabling users to commission or locally maintain the device.

A console cable connects a device and a console as follows:

- The 8-pin RJ45 connector is connected to the console port of the device.
- The DB-9 female connector is connected to a maintenance terminal, such as a computer.

## 7.6 Network Cable

#### **Types of Network Cables**

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

- Straight-through cable: The pin assignments of RJ45 connectors at both ends are shown in Table 7-4.
- Crossover cable: The pin assignments of RJ45 connectors at both ends are shown in Table 7-5.

#### Appearance and Structure

#### ΠΝΟΤΕ

- Straight-through cables and crossover cables are standard unshielded network cables that use RJ45 connectors.
- A straight-through cable and a crossover cable have the same appearance.

Figure 7-10 and Figure 7-11 show the appearance of a network cable.

Figure 7-10 Appearance of a network cable (1)



Figure 7-11 Appearance of a network cable (2)



Figure 7-12 shows the structure of a network cable.





#### **Pin Assignments**

 Table 7-4 lists the pin assignments of a straight-through cable.

X1 Pin	Wire Color	X2 Pin
1	White and orange	1
2	Orange	2
3	White and green	3
4	Blue	4
5	White and blue	5
6	Green	6
7	White and brown	7
8	Brown	8

 Table 7-4 Pin assignments of a straight-through cable

Table 7-5 lists the pin assignments of a crossover cable.

Table 7-5 Pin assignments of a crossover cab	ole
--	-----

X1 Pin	Wire Color	X2 Pin
1	White and orange	3
2	Orange	6
3	White and green	1
4	Blue	4

X1 Pin	Wire Color	X2 Pin
5	White and blue	5
6	Green	2
7	White and brown	7
8	Brown	8

#### 

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.

#### Connection

Network cables connect network devices to each other to enable the devices to communicate or to allow local maintenance and remote access.

- A straight-through cable connects a terminal (such as a PC or switch) to a network device.
- A crossover cable connects two terminals (such as PCs and switches).

#### Supported Cabling Types for 10GBASE-T

 Table 7-6 describes the supported cabling types for a 10GBASE-T Ethernet electrical port.

Item	Category 7 STP	Category 6A STP	Category 6A UTP	Category 6 STP	Category 6 UTP
Cable Description	Category 7 shielded twisted pair (STP)	Category 6A shielded twisted pair	Category 6A unshielded twisted pair (UTP)	Category 6 shielded twisted pair	Category 6 unshielded twisted pair
Туре	Class F	Class Ea	Class Ea	Class E	Class E
Maximum transmission distance	100 m	100 m	100 m	100 m	37 m - 55 m NOTE Category 6 unshielded cables may be limited by alien crosstalk beyond 37- meter channels.

Item	Category 7	Category	Category	Category 6	Category 6
	STP	6A STP	6A UTP	STP	UTP
Cabling system bandwidth	600 MHz NOTE The cabling system exceeds the requirement s for IEEE 10GBASE- T performanc e.	500 MHz NOTE The cabling sy the requireme 10GBASE-T	ystem exceeds nts for IEEE performance.	250 MHz NOTE Category 6 is s 250 MHz. The must be certifi according to T ensure 10GBA compliance.	specified only to cabling system ded to 500 MHz SB-155 to help ASE-T

#### ΠΝΟΤΕ

- In a new built equipment room, Category 6A shielded twisted pairs or Category 7 twisted pairs are recommended. These cables can avoid alien crosstalk while having no special installation requirements. In addition, they can be used with other types of cables.
- If Category 6 shielded or unshielded twisted pairs are used in an equipment room and the cabling systems can meet requirements of TSB-155, follow these rules route these cables:
  - Separate these cables with other types of cables. If they must be routed in the same cable trough with other types of cables, separated them from other cables using a metal plate.
  - Separate cables as much as possible at the outlet and keep the cables parallel with each other. Most alien crosstalk appears within 20 m away from the outlet. To reduce alien crosstalk, do not bundle cables in the first 5 m to 20 m.
  - If cables need to be bundled, bundle cables with cable ties placed every 150 mm to 300 mm. See Table 7-7. Bundle cables loosely, as shown in Figure 7-13.
  - You are advised to add no more than 12 cables in a bundle. A bundle cannot have more than 24 cables.
  - Replace Category 6 connectors with Category 6A connectors.

Table /-/	Intervals	Detween	cable th	-5

Table 7.7 Intervals between ashla tion

Diameter of a Network Cable Bundle (mm)	Interval Between Cable Ties (mm)
< 10	150
10-30	200
> 30	300

#### Figure 7-13 Method to bundle cables



## 7.7 Optical Fiber

#### **Types of Optical Fibers**

Optical fibers are classified into two categories:

- Optical fibers for 10GE optical modules:
  - LC-LC fiber: Single-fiber push-on (LC) connectors at both ends
  - Single-mode fiber: yellow
  - Multi-mode fiber: orange
- Optical fibers for 25GE optical modules:

LC-LC fiber: Single-fiber push-on (LC) connectors at both ends

- Optical fibers for 40GE optical modules:
  - LC-LC single-mode fiber: Single-fiber push-on (LC) connectors at both ends
  - MPO-MPO fiber: multi-fiber push-on (MPO) connectors at both ends
  - MPO-4\*DLC fiber: MPO connector at one end and four pairs of double LC (DLC) connectors at the other end
  - MPO-8\*FC fiber: MPO connector at one end and eight FC connectors at the other end
- Optical fibers for 100GE optical modules:
  - MPO-MPO fiber: multi-fiber push-on (MPO) connectors at both ends
  - MPO-4\*DLC fiber: MPO connector at one end and four pairs of double LC (DLC) connectors at the other end
  - MPO-8\*FC fiber: MPO connector at one end and eight FC connectors at the other end

#### **Appearance and Structure**

Figure 7-14 shows the appearance of an LC single-mode fiber.





Figure 7-15 shows the appearance of an LC multi-mode fiber.

Figure 7-15 Appearance of an LC multi-mode fiber



Figure 7-16 shows the appearance of an MPO-MPO fiber.

#### Figure 7-16 Appearance of an MPO-MPO fiber



Figure 7-17 shows the appearance of an MPO-4\*DLC fiber.

Figure 7-17 Appearance of an MPO-4\*DLC fiber



Figure 7-18 shows the appearance of an MPO-8\*FC fiber.

Figure 7-18 Appearance of an MPO-8\*FC fiber



Figure 7-19 shows the structure of an MPO-MPO fiber.



Figure 7-19 Structure of an MPO-MPO fiber

Figure 7-20 shows the structure of an MPO-4\*DLC fiber.

#### Figure 7-20 Structure of an MPO-4\*DLC fiber



Figure 7-21 shows the structure of an MPO-8\*FC fiber.

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#### Figure 7-21 Structure of an MPO-8\*FC fiber



#### **Pin Assignments**

 Table 7-8 lists the pin assignments of an MPO-MPO fiber.

 Table 7-8 Pin assignments of an MPO-MPO fiber

X1 Pin	X2 Pin
1	1
2	2
3	3
4	4
9	9
10	10
11	11
12	12

MPO-4\*DLC and MPO-8\*FC fibers have the same pin assignments, as shown in Table 7-9.

Table 7-9	Pin assignments	of MPO-4*DLC	and MPO-8*FC	fibers
				110015

X1 Pin	X2 Pin
1	1B
2	2B
3	3B
4	4B
9	4A
10	3A
11	2A
12	1A

#### Connection

 Table 7-10 describes usage scenarios of optical fibers and fiber connections in these scenarios.

#### 

 Table 7-10 only describes connections of two ends of each fiber. In most cases, two devices are not directly connected by one fiber, and there are optical distribution frames (ODFs) between them.

The fiber transmission distance varies depending on the optical modules used. Generally, pigtails of fixed lengths are delivered. If the required transmission distance is longer than the pigtails, extend fiber lengths using flange plats or optical distribution frames (ODFs).

Table 7-10 Fiber usage scenar	rios and	connections
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Fiber	Connection				
LC-LC fiber	<ul> <li>Scenario 1: used for connection between two CE8800&amp;7800&amp;6800&amp;5800 series switches for stacking or service aggregation.</li> </ul>				
	• Scenario 2: used for connection between 10GE or 40GE ports CE8800&7800&6800&5800 and CE12800.				
	Each end connects to a 10GE port using an SFP+ optical module.				
	Each end connects to a 25GE port using an SFP28 optical module.				
	Each end connects to a 40GE port using an QSFP+ optical module.				
MPO-MPO fiber	<ul> <li>Scenario 1: used for connection between two CE8800&amp;7800&amp;6800&amp;5800 series switches for stacking or service aggregation.</li> </ul>				
	<ul> <li>Scenario 2: used for connection between 40GE ports of CE8800&amp;7800&amp;6800&amp;5800 and CE12800.</li> </ul>				
	Each end connects to a 40GE port using a QSFP+ optical module.				
	Each end connects to a 100GE port using a QSFP28 optical module.				

Fiber	Connection
MPO-4*DLC fiber	When a 40GE port is configured as four 10GE ports, one end connects of this fiber connects to a 40GE port using a QSFP+ optical module, and the other end connects to four 10GE ports using SFP+ optical modules.
	When a 100GE port is configured as four 25GE ports, one end connects of this fiber connects to a 100GE port using a QSFP28 optical module, and the other end connects to four 25GE ports using SFP28 optical modules.
	Used for connection between a switch and an ODF. The MPO connector connects to the switch using a QSFP+ or QSFP28 optical module, and the 4*DLC connectors connect to the ODF.
MPO-8*FC fiber	Used for connection between a switch and an ODF. The MPO connector connects to the switch using a QSFP+ or QSFP28 optical module, and the eight FC connectors connect to the ODF.

## 7.8 AOC Cable

#### **Types of AOC Cables**

An active optical cable (AOC) is an active optical fiber with optical modules at both ends, and therefore is easy to use. Figure 7-22, Figure 7-23, and Figure 7-24 show different types of AOC cables.

Figure 7-22 Appearance of an SFP+ to SFP+/SFP28 to SFP28 AOC cable



#### Figure 7-23 Appearance of a QSFP+ to QSFP+ AOC cable



Figure 7-24 Appearance of a QSFP+ to 4\*SFP+ AOC cable



 Table 7-11 lists the attributes of various AOC cables.

Table 7-11	Attributes	of AOC	cables
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Model	Version Support	Length	Operatin g Wavelen gth	Connecto r Type	Part Number	Operatin g Tempera ture
SFP-10G- AOC-3M	Supported in V100R00 5C00 and later versions	3 m	850 nm	SFP+ connectors at both ends	02311BK P	0°C to 70°C
SFP-10G- AOC-5M	Supported in V200R00 1C00 and later versions	5 m	850 nm	SFP+ connectors at both ends	02311PQS	0°C to 70°C

Model	Version Support	Length	Operatin g Wavelen gth	Connecto r Type	Part Number	Operatin g Tempera ture
SFP-10G- AOC-7M	Supported in V200R00 1C00 and later versions	7 m	850 nm	SFP+ connectors at both ends	02311PQT	0°C to 70°C
SFP-10G- AOC10M	Supported in V100R00 3C10 and later versions	10 m	850 nm	SFP+ connectors at both ends	02310QW H	0°C to 70°C
SFP-10G- AOC20M	Supported in V100R00 3C10 and later versions	20 m	850 nm	SFP+ connectors at both ends	02310SSK	0°C to 70°C
QSFP- H40G- AOC10M	Supported in V100R00 5C00 and later versions	10 m	850 nm	QSFP+ connectors at both ends	02310SSH	0°C to 70°C
SFP-25G- AOC-3M	Supported in V200R00 1C00 and later versions	3 m	850 nm	SFP28 connectors at both ends	02311MP E	0°C to 70°C
SFP-25G- AOC-5M	Supported in V200R00 1C00 and later versions	5 m	850 nm	SFP28 connectors at both ends	02311MP D	0°C to 70°C
SFP-25G- AOC-7M	Supported in V200R00 1C00 and later versions	7 m	850 nm	SFP28 connectors at both ends	02311MP C	0°C to 70°C

Model	Version Support	Length	Operatin g Wavelen gth	Connecto r Type	Part Number	Operatin g Tempera ture
SFP-25G- AOC-10M	Supported in V200R00 1C00 and later versions	10 m	850 nm	SFP28 connectors at both ends	02311KN T	0°C to 70°C
QSFP-4SF P10- AOC10M	Supported in V100R00 6C00 and later versions	10 m	850 nm	QSFP+ connector at one end and four SFP+ connectors at the other end	02310SSJ	0°C to 70°C

#### Connection

Table 7-12 describes usage scenarios of AOC cables and cable connections in these scenarios.

Cable Type	Connection				
SFP+ to SFP+ AOC cable	• Scenario 1: used for 10GE optical port connection or stacking between CE8800&7800&6800&5800 series switches.				
	• Scenarios 2: used for 10GE connection between CE12800 and CE8800&7800&6800&5800 series switches.				
	Both ends connect to a 10GE optical port.				
QSFP+ to QSFP+ AOC cable	• Scenario 1: used for 40GE optical port connection or stacking between CE8800&7800&6800&5800 series switches.				
	• Scenarios 2: used for 40GE connection between CE12800 and CE8800&7800&6800&5800 series switches.				
	Both ends connect to a 40GE optical port.				
QSFP+ to 4*SFP+	When a 40GE optical port is split into four 10GE optical ports:				
AOC cable	<ul> <li>Scenario 1: used for 10GE optical port connection or stacking between CE8800&amp;7800&amp;6800&amp;5800 series switches.</li> </ul>				
	• Scenarios 2: used for 10GE connection between CE12800 and CE8800&7800&6800&5800 series switches.				
	One end connects to the 40GE optical port, and the other end connects to four 10GE optical ports.				
Cable Type	Connection				
----------------	--				
SFP28 to SFP28	Used for 25GE optical port connection or stacking between CE8800&7800&6800&5800 series switches.				
AOC cable	Both ends connect to a 25GE optical port.				

## 7.9 Copper Cable

### **Types of Copper Cables**

Table 7-13 shows the types of copper cables.

Model	Len gth	Electr ical attrib ute	Connector Type	Part Number
SFP-10G-CU1M	1 m	Passiv e	SFP+ to SFP+	02310MUN
SFP-10G-CU3M	3 m	Passiv e	SFP+ to SFP+	02310MUP
SFP-10G-CU5M	5 m	Passiv e	SFP+ to SFP+	02310QPR
SFP-10G-AC7M	7 m	Active	SFP+ to SFP+	02310QPS
SFP-10G-AC10M	10 m	Active	SFP+ to SFP+	02310MUQ
QSFP-40G-CU1M	1 m	Passiv e	QSFP+ to QSFP+	02310MUG
QSFP-40G-CU3M	3 m	Passiv e	QSFP+ to QSFP+	02310MUH
QSFP-40G-CU5M	5 m	Passiv e	QSFP+ to QSFP+	02310MUJ
QSFP-4SFP10G-CU1M	1 m	Passiv e	QSFP+ to 4*SFP+	02310MUK
QSFP-4SFP10G-CU3M	3 m	Passiv e	QSFP+ to 4*SFP+	02310MUL
QSFP-4SFP10G-CU5M	5 m	Passiv e	QSFP+ to 4*SFP+	02310MUM
QSFP28-100G-CU1M	1 m	Passiv e	QSFP28 to QSFP28	02311KNW

7	Cables
'	Cubics

Model	Len gth	Electr ical attrib ute	Connector Type	Part Number
QSFP28-100G-CU3M	3 m	Passiv e	QSFP28 to QSFP28	02311KNX
QSFP28-100G-CU5M	5 m	Passiv e	QSFP28 to QSFP28	02311KNY
SFP-25G-CU1M	1 m	Passiv e	SFP28 to SFP28	02311NKS
SFP-25G-CU3M	3 m	Passiv e	SFP28 to SFP28	02311NKV
SFP-25G-CU3M-N	3 m	Passiv e	SFP28 to SFP28	02311MNV
SFP-25G-CU5M	5 m	Passiv e	SFP28 to SFP28	02311MNW
QSFP-4SFP25G-CU1M	1 m	Passiv e	QSFP28 to 4*SFP28	02311MNX
QSFP-4SFP25G-CU3M	3 m	Passiv e	QSFP28 to 4*SFP28	02311MNY
QSFP-4SFP25G-CU3M- N	3 m	Passiv e	QSFP28 to 4*SFP28	02311MPA
QSFP-4SFP25G-CU5M	5 m	Passiv e	QSFP28 to 4*SFP28	02311MPB

### **Appearance and Structure**

Figure 7-25 shows the appearance of an SFP+ to SFP+ or SFP28 to SFP28 copper cable.

Figure 7-25 Appearance of an SFP+ to SFP+ or SFP28 to SFP28 copper cable



**Figure 7-26** shows the appearance of a QSFP+ to QSFP+ or QSFP28 to QSFP28 copper cable.



Figure 7-26 Appearance of a QSFP+ to QSFP+ or QSFP28 to QSFP28 copper cable

**Figure 7-27** shows the appearance of a QSFP+ to 4\*SFP+ or QSFP28 to 4\*SFP28 copper cable.

Figure 7-27 Appearance of a QSFP+ to 4\*SFP+ or QSFP28 to 4\*SFP28 copper cable



Figure 7-28 shows the structure of an SFP+ to SFP+ or SFP28 to SFP28 copper cable.

Figure 7-28 Structure of an SFP+ to SFP+ or SFP28 to SFP28 copper cable



Figure 7-29 shows the structure of a QSFP+ to QSFP+ or QSFP28 to QSFP28 copper cable.

Figure 7-29 Structure of a QSFP+ to QSFP+ or QSFP28 to QSFP28 copper cable



Figure 7-30 shows the structure of a QSFP+ to 4\*SFP+ or QSFP28 to 4\*SFP28 copper cable.



#### Figure 7-30 Structure of a QSFP+ to 4\*SFP+ or QSFP28 to 4\*SFP28 copper cable

### Connection

 Table 7-14 describes usage scenarios of copper cables and cable connections in these scenarios.

Copper Cable	Connection	Remarks
SFP+ to SFP+ copper cable	<ul> <li>Scenario 1: used for connection between 10GE optical ports of CE8800&amp;7800&amp;6800&amp;580 0 series switches.</li> </ul>	<ul> <li>Minimum clearance for cable routing: 60 mm</li> <li>Minimum bend radius: 35 mm</li> </ul>
	<ul> <li>Scenario 2: used to set up a stack of CE8800&amp;7800&amp;6800&amp;580 0 series switches using 10GE optical ports.</li> <li>Each end connects to a 10GE optical port.</li> </ul>	

Table 7-14 Copper cabl	e usage scenarios and	connections
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Copper Cable	Connection	Remarks
SFP28 to SFP28 copper cable	<ul> <li>Scenario 1: used for connection between 25GE optical ports of CE8800&amp;7800&amp;6800&amp;580 0 series switches.</li> <li>Scenario 2: used to set up a stack of CE8800&amp;7800&amp;6800&amp;580 0 series switches using 25GE optical ports.</li> <li>Each end connects to a 25GE optical port.</li> </ul>	<ul> <li>Minimum clearance for cable routing: 70mm</li> <li>Minimum bend radius: 40mm</li> </ul>
QSFP+ to QSFP+ copper cable	<ul> <li>Scenario 1: used for connection between 40GE optical ports of CE8800&amp;7800&amp;6800&amp;580 0 series switches.</li> <li>Scenario 2: used to set up a stack of CE8800&amp;7800&amp;6800&amp;580 0 series switches using 40GE optical ports.</li> <li>Each end connects to a 40GE optical port.</li> </ul>	<ul> <li>Minimum clearance for cable routing: 75mm</li> <li>Minimum bend radius: 50mm</li> </ul>
QSFP+ to 4*SFP+ copper cable	When a 40GE optical port is configured as four 10GE optical ports, the QSFP+ end of this cable connects to a 40GE optical port, and the 4*SFP+ ends connects to four 10GE optical ports.	<ul> <li>QSFP+ end:</li> <li>Minimum clearance for cable routing: 100 mm</li> <li>Minimum bend radius: 50 mm</li> <li>SFP+ end:</li> <li>Minimum clearance for cable routing: 60 mm</li> <li>Minimum bend radius: 35 mm</li> </ul>

7 Cables
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Copper Cable	Connection	Remarks
QSFP28 to QSFP28 copper cable	<ul> <li>Scenario 1: used for connection between 100GE optical ports of CE8800&amp;7800&amp;6800&amp;580 0 series switches.</li> <li>Scenario 2: used to set up a</li> </ul>	<ul> <li>Minimum clearance for cable routing: 90mm</li> <li>Minimum bend radius: 70mm</li> </ul>
	stack of CE8800&7800&6800&580 0 series switches using 100GE optical ports.	
	Each end connects to a 100GE optical port.	
QSFP28 to 4*SFP28	When a 100GE optical port is	QSFP28 end:
copper cable	configured as four 25GE optical ports, the QSFP28 end of this cable connects to a 100GE optical port, and the 4*SFP28 ends connects to four	<ul> <li>Minimum clearance for cable routing: 100 mm</li> <li>Minimum bend radius: 50 mm</li> </ul>
	25GE optical ports.	SFP28 end:
		• Minimum clearance for cable routing: 70 mm
		<ul> <li>Minimum bend radius: 40 mm</li> </ul>

# **8** Optical Module

## **About This Chapter**

### 

- In this document, optical modules are classified based on encapsulation types, and optical modules of each encapsulation type are classified based on interface rates.
- The actual optical modules depend on the delivered ones. The appearance of optical modules in this document is for reference only.
- Use optical modules certified for Huawei switches. Non-certified optical modules cannot ensure transmission reliability and may affect service stability on the switch. Huawei is not responsible for any problem caused by non-certified optical modules and will not fix such problems.
- All the optical modules listed in the documentation are Huawei certified optical modules.
- The transmit power of a long-distance optical module is often larger than its overload power. Therefore, when using such optical modules, select optical fibers of an appropriate length to ensure that the actual receive power is smaller than the overload power. If the optical fibers connected to a long-distance optical module are too short, use an optical attenuator to reduce the receive power on the remote optical module. Otherwise, the remote optical module may be burnt.
- 8.1 Appearance and Structure
- 8.2 Terms
- 8.3 FE SFP/eSFP Optical Modules
- 8.4 GE eSFP Optical Modules
- 8.5 GE SFP Copper Modules
- 8.6 2GE/4GE/8GE SFP Optical Modules
- 8.7 10GE SFP+ Optical Modules
- 8.8 25GE SFP28 Modules
- 8.9 40GE QSFP+ Optical Modules
- 8.10 QSFP28 Modules

## 8.1 Appearance and Structure

Figure 8-1 shows the appearance of an optical module.

Figure 8-1 Appearance of an optical module (SFP optical module as an example)



Figure 8-2 shows an SFP/SFP+ module.

#### Figure 8-2 Appearance of an SFP/SFP+ module



Figure 8-3 shows a GE copper module.

Figure 8-3 Appearance of a GE copper module



Figure 8-4 shows the appearance of a QSFP+ module.





Figure 8-5 shows an SFP28 optical module.

Figure 8-5 Appearance of an SFP28 optical module



**Figure 8-6** shows a QSFP28 optical module.

### Figure 8-6 Appearance of a QSFP28 optical module



## 8.2 Terms

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.		
Maximum rate of electrical signals that an optical device can transmit without bit errors. Various interface rates are defined in Ethernet standards, such as 125 Mbit/s, 1.25 Gbit/s, 10.3125 Gbit/s, 25.78125Gbit/s, and 41.25 Gbit/s.		
Appearance type of an optical module. Encapsulation types of optical modules include SFP, eSFP, SFP+, XFP, QSFP+, SFP28, and QSFP28.		
• SFP: small form-factor pluggable.		
• eSFP: enhanced small form-factor pluggable. An eSFP module is an SFP module that supports monitoring of voltage, temperature, bias current, transmit optical power, and receive optical power. Because all the SFP optical modules support these monitoring functions, eSFP is also called SFP.		
• SFP+: small form-factor pluggable plus, SFP with a higher rate. SFP+ modules are more sensitive to electromagnetic interference (EMI) because they have a higher rate. To reduce EMI, SFP+ modules have more springs than SFP modules.		
• XFP: 10GE optical module. X is the Roman numeral 10.		
• QSFP+: Quad SFP+, four-channel SFP+.		
• SFP28: with the same interface size as an SFP+ module. An SFP28 interface can use a 25 GE SFP28 optical module or 10GE SFP+ optical module.		
• QSFP28: with the same interface size as a QSFP+ module. A QSFP28 interface can use a 100GE QSFP28 optical module or a 40GE QSFP+ optical module.		

Center wavelength	Wavelength measured at the midpoint of the half-amplitude line in the transmit spectrum.
Fiber mode	Mode of fibers defining based on core diameters and features of optical fibers. Optical fibers are classified into single-mode fibers and multi-mode fibers. Generally, multi-mode fibers have large core diameters and severe dispersion, so they transmit optical signals over short distances when working with multi-mode optical modules. Single-mode fibers have small dispersion and can transmit optical signals over long distances when working with single-mode optical modules.
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 an optical module.
Fiber diameter	Diameter of the core of a fiber. According to international standards for optical fibers, the diameter of a multi-mode fiber is 62.5 um or 50 um, and the diameter of a single-mode fiber is 9 um.
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 classes are defined: multi-mode fiber (G.651), common single-mode fiber (G.652), shifted dispersion fiber (G.653), and non-zero shifted dispersion fiber (G.655). Multi-mode fiber (G.651) and common single-mode fiber (G.652) are commonly used fiber classes.
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+, SFP28, and XFP modules) and MPO (applicable to some of QSFP+ and QSFP28 modules).
Transmit optical power	Output optical power of an optical module when it is working properly.
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 = $10^{-12}$ ).
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 = $10^{-12}$ ).
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.

## 8.3 FE SFP/eSFP Optical Modules

### 8.3.1 eSFP-FE-LX-SM1310

Item	Description
Part Number	02315205
Version Support	Supported in V100R002C00 and later versions
Transceiver form factor	eSFP
Transmission speed	FE
Center wavelength (nm)	1310
Standard compliance	100BASE-LX
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 15 km
Modal Bandwidth	-
Transmit power (dBm)	-15 to -8
Maximum receiver sensitivity (dBm)	-31
Overload power (dBm)	-8
Extinction ratio (dB)	≥ 8.2
Operating temperature	0°C to 70°C

#### Table 8-1 Technical specifications

## 8.3.2 SFP-FE-LX-SM1310-BIDI(Single-Fiber-Bidirectional Module)

Item	Description
Part Number	02315203
Version Support	Supported in V100R002C00 and later versions
Transceiver form factor	eSFP
Transmission speed	FE
Center wavelength (nm)	Tx1310/Rx1550
Standard compliance	100BASE-BX
Connector type	LC

Item	Description
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 $\mu$ m): 15 km
Modal Bandwidth	-
Transmit power (dBm)	-15 to -8
Maximum receiver sensitivity (dBm)	-32
Overload power (dBm)	-8
Extinction ratio (dB)	≥ 8.5
Operating temperature	0°C to 70°C

### 

BIDI optical modules must be used in pairs. For example, SFP-FE-LX-SM1310-BIDI must be used with SFP-FE-LX-SM1550-BIDI.

## 8.3.3 SFP-FE-LX-SM1550-BIDI(Single-Fiber-Bidirectional Module)

Item	Description
Part Number	02315202
Version Support	Supported in V100R002C00 and later versions
Transceiver form factor	eSFP
Transmission speed	FE
Center wavelength (nm)	Tx1550/Rx1310
Standard compliance	100BASE-BX
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 $\mu$ m): 15 km
Modal Bandwidth	-
Transmit power (dBm)	-15 to -8
Maximum receiver sensitivity (dBm)	-32

### Table 8-3 Technical specifications

Item	Description
Overload power (dBm)	-8
Extinction ratio (dB)	≥ 8.5
Operating temperature	0°C to 70°C

### 

BIDI optical modules must be used in pairs. For example, SFP-FE-LX-SM1550-BIDI must be used with SFP-FE-LX-SM1310-BIDI.

### 8.3.4 SFP-FE-SX-MM1310

Item	Description
Part Number	02315233
Version Support	Supported in V100R002C00 and later versions
Transceiver form factor	SFP
Transmission speed	FE
Center wavelength (nm)	1310
Standard compliance	100BASE-FX
Connector type	LC
Applicable cable and maximum transmission distance Modal Bandwidth	<ul> <li>Multimode fiber (OM1) (with diameter of 62.5 µm): 2 km</li> <li>Multimode fiber (with diameter of 50 µm): 2 km</li> <li>Multimode fiber (OM2) (with diameter of 50 µm): 2 km</li> <li>Multimode fiber (OM1): 200 MHz*km</li> </ul>
	• Multimode fiber: 400 MHz*km
	• Multimode fiber (OM2): 500 MHz*km
Transmit power (dBm)	-19 to -14
Maximum receiver sensitivity (dBm)	-30
Overload power (dBm)	-14
Extinction ratio (dB)	≥ 10
Operating temperature	0°C to 70°C

#### Table 8-4 Technical specifications

### 8.3.5 S-SFP-FE-LH40-SM1310

Item	Description
Part Number	02317344
Version Support	Supported in V100R002C00 and later versions
Transceiver form factor	eSFP
Transmission speed	FE
Center wavelength (nm)	1310
Standard compliance	100BASE-EX
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 40 km
Modal Bandwidth	-
Transmit power (dBm)	-5 to 0
Maximum receiver sensitivity (dBm)	-37
Overload power (dBm)	-10
Extinction ratio (dB)	≥ 10.5
Operating temperature	0°C to 70°C

Table 8-5	Technical	specifications
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## 8.4 GE eSFP Optical Modules

### 8.4.1 eSFP-GE-SX-MM850

### Table 8-6 Technical specifications

Item	Description
Part Number	02315204
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	eSFP
Transmission speed	GE

Item	Description
Center wavelength (nm)	850
Standard compliance	1000BASE-SX
Connector type	LC
Applicable cable and maximum transmission distance	<ul> <li>Multimode fiber (with diameter of 62.5 μm): 220m</li> <li>Multimode fiber (OM1) (with diameter of 62.5 μm): 275m</li> <li>Multimode fiber (with diameter of 50 μm): 500m</li> <li>Multimode fiber (OM2) (with diameter of 50 μm): 550m</li> </ul>
Modal Bandwidth	<ul> <li>Multimode fiber: 160 MHz*km</li> <li>Multimode fiber (OM1): 200 MHz*km</li> <li>Multimode fiber: 400 MHz*km</li> <li>Multimode fiber (OM2): 500 MHz*km</li> </ul>
Transmit power (dBm)	-9.5 to -2.5
Maximum receiver sensitivity (dBm)	-17
Overload power (dBm)	0
Extinction ratio (dB)	≥9
Operating temperature	0°C to 70°C

### 8.4.2 eSFP-GE-ZX100-SM1550

 Table 8-7 Technical specifications

Item	Description
Part Number	02315206
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	eSFP
Transmission speed	GE
Center wavelength (nm)	1550
Standard compliance	-
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber: 100 km

Item	Description
Modal Bandwidth	-
Transmit power (dBm)	0 to 5
Maximum receiver sensitivity (dBm)	-30
Overload power (dBm)	-9
Extinction ratio (dB)	$\geq 8$
Operating temperature	0°C to 70°C

## 8.4.3 LE2MGSC40DE0(Single-Fiber-Bidirectional Module)

Item	Description
Part Number	02310KVV
Version Support	Supported in V100R002C00 and later versions
Transceiver form factor	eSFP
Transmission speed	GE
Center wavelength (nm)	Tx1310/Rx1490
Standard compliance	-
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber: 40 km
Modal Bandwidth	-
Transmit power (dBm)	-2 to +3
Maximum receiver sensitivity (dBm)	-23
Overload power (dBm)	-3
Extinction ratio (dB)	≥9
Operating temperature	0°C to 70°C

Table 8-8 Technical specifications

### 

Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, LE2MGSC40DE0 must be used with LE2MGSC40ED0.

## 8.4.4 LE2MGSC40ED0(Single-Fiber-Bidirectional Module)

Item	Description
Part Number	02310KVU
Version Support	Supported in V100R002C00 and later versions
Transceiver form factor	eSFP
Transmission speed	GE
Center wavelength (nm)	Tx1490/Rx1310
Standard compliance	-
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber: 40 km
Modal Bandwidth	-
Transmit power (dBm)	-2 to +3
Maximum receiver sensitivity (dBm)	-23
Overload power (dBm)	-3
Extinction ratio (dB)	$\geq 9$
Operating temperature	0°C to 70°C

#### Table 8-9 Technical specifications

### ΠΝΟΤΕ

Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, LE2MGSC40ED0 must be used with LE2MGSC40DE0.

### 8.4.5 SFP-GE-LX-SM1310

 Table 8-10 Technical specifications

Item	Description
Part Number	02315200

Item	Description
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	eSFP
Transmission speed	GE
Center wavelength (nm)	1310
Standard compliance	1000BASE-LX10
Connector type	LC
Applicable cable and maximum transmission distance Modal Bandwidth	<ul> <li>Multimode fiber (OM1) (with diameter of 62.5 μm): 550m</li> <li>Multimode fiber (with diameter of 50 μm): 550m</li> <li>Multimode fiber (OM2) (with diameter of 50 μm): 550m</li> <li>Single-mode fiber (G.652) (with diameter of 9 μm): 10 km</li> <li>Multimode fiber (OM1): 200/500 MHz*km</li> <li>Multimode fiber: 400/400 MHz*km</li> <li>Multimode fiber (OM2): 500/500 MHz*km</li> <li>Single-mode fiber (G.652): -</li> </ul>
Transmit power (dBm)	-9 to -3
Maximum receiver sensitivity (dBm)	-20
Overload power (dBm)	-3
Extinction ratio (dB)	$\geq 9$
Operating temperature	0°C to 70°C

## 8.4.6 SFP-GE-LX-SM1310-BIDI(Single-Fiber-Bidirectional Module)

Table 8-11 Technical spe	cifications
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Item	Description
Part Number	02315285
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	eSFP
Transmission speed	GE
Center wavelength (nm)	Tx1310/Rx1490

Item	Description
Standard compliance	1000BASE-BX10
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 $\mu$ m): 10 km
Modal Bandwidth	-
Transmit power (dBm)	-9 to -3
Maximum receiver sensitivity (dBm)	-19.5
Overload power (dBm)	-3
Extinction ratio (dB)	$\geq 6$
Operating temperature	0°C to 70°C

### 

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.

## 8.4.7 SFP-GE-LX-SM1490-BIDI(Single-Fiber-Bidirectional Module)

### Table 8-12 Technical specifications

Item	Description
Part Number	02315286
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	eSFP
Transmission speed	GE
Center wavelength (nm)	Tx1490/Rx1310
Standard compliance	1000BASE-BX10
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 10 km
Modal Bandwidth	-

Item	Description
Transmit power (dBm)	-9 to -3
Maximum receiver sensitivity (dBm)	-19.5
Overload power (dBm)	-3
Extinction ratio (dB)	$\geq 6$
Operating temperature	0°C to 70°C

### 

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.

### 8.4.8 S-SFP-GE-LH40-SM1310

### Table 8-13 Technical specifications

Item	Description
Part Number	02317346
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	eSFP
Transmission speed	GE
Center wavelength (nm)	1310
Standard compliance	1000BASE-EX
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 40 km
Modal Bandwidth	-
Transmit power (dBm)	-5 to 0
Maximum receiver sensitivity (dBm)	-23
Overload power (dBm)	-3
Extinction ratio (dB)	$\geq 9$
Operating temperature	0°C to 70°C

## 8.4.9 S-SFP-GE-LH80-SM1550

Item	Description
Part Number	02317348
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	eSFP
Transmission speed	GE
Center wavelength (nm)	1550
Standard compliance	1000BASE-ZX
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 80 km
Modal Bandwidth	-
Transmit power (dBm)	-2 to +5
Maximum receiver sensitivity (dBm)	-23
Overload power (dBm)	-3
Extinction ratio (dB)	≥9
Operating temperature	0°C to 70°C

Table 8-14 Technical s	pecifications
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## 8.5 GE SFP Copper Modules

### 8.5.1 SFP-1000BaseT

Item	Description
Part Number	02314171
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	SFP
Cable Type	CAT5 UTP/STP

Item	Description
Standard compliance	1000BASE-T(SFP-GE-T)
Connector type	RJ45
Transmission Distance	100m

## 8.6 2GE/4GE/8GE SFP Optical Modules

## 8.6.1 SFP-FC2G-LW

Item	Description
Part Number	02311BJH
Version Support	Supported in V100R006C00 and later versions
Transceiver form factor	SFP
Transmission speed	2GE
Center wavelength (nm)	1310
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 $\mu$ m): 15 km
Modal Bandwidth	-
Transmit power (dBm)	-5 to 0
Maximum receiver sensitivity (dBm)	-21
Overload power (dBm)	0
Extinction ratio (dB)	≥ 8.2
Operating temperature	0°C to 70°C

### Table 8-16 Technical specifications

### 8.6.2 SFP-FC2G-SW

Item	Description
Part Number	02311BJH
Version Support	Supported in V100R005C10 and later versions
Transceiver form factor	SFP
Transmission speed	2GE
Center wavelength (nm)	850
Connector type	LC
Applicable cable and maximum transmission distance	<ul> <li>Multimode fiber (OM2) (with diameter of 50 µm): 0.3 km</li> <li>Multimode fiber (OM3) (with diameter of 50 µm): 0.5 km</li> </ul>
Modal Bandwidth	<ul> <li>Multimode fiber (OM2): 500 MHz*km</li> <li>Multimode fiber (OM3): 2000 MHz*km</li> </ul>
Transmit power (dBm)	-9.5 to -2.5
Maximum receiver sensitivity (dBm)	-17
Overload power (dBm)	0
Extinction ratio (dB)	≥9
Operating temperature	-20°C to 85°C

#### Table 8-17 Technical specifications

### 8.6.3 SFP-FC4G-LW

Table 8-18 Technical specifications

Item	Description
Part Number	02311BJE
Version Support	Supported in V100R005C10 and later versions
Transceiver form factor	SFP
Transmission speed	2GE/4GE
Center wavelength (nm)	1310
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 $\mu$ m): 10 km

Item	Description
Modal Bandwidth	-
Transmit power (dBm)	-8.4 to -1
Maximum receiver sensitivity (dBm)	-18
Overload power (dBm)	0
Extinction ratio (dB)	$\geq 9$
Operating temperature	0°C to 70°C

### 8.6.4 SFP-FC4G-SW

Item	Description
Part Number	02311BJF
Version Support	Supported in V100R005C10 and later versions
Transceiver form factor	SFP
Transmission speed	2GE/4GE
Center wavelength (nm)	850
Connector type	LC
Applicable cable and maximum transmission distance	Multimode fiber (OM3) (with diameter of 50 µm): 0.3 km
Modal Bandwidth	Multimode fiber (OM3): 2000 MHz*km
Transmit power (dBm)	-9 to -1.5
Maximum receiver sensitivity (dBm)	-15
Overload power (dBm)	0
Extinction ratio (dB)	≥ 3
Operating temperature	-20°C to 85°C

<b>Table 8-19</b> T	echnical	specifications
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## 8.6.5 SFP-FC8G-LW

Item	Description
Part Number	02311BJA
Version Support	Supported in V100R005C10 and later versions
Transceiver form factor	SFP
Transmission speed	2GE/4GE/8GE
Center wavelength (nm)	1310
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 10 km
Modal Bandwidth	-
Transmit power (dBm)	-8.4 to 0.5
Maximum receiver sensitivity (dBm)	-13.8
Overload power (dBm)	0.5
Extinction ratio (dB)	≥ 3.5
Operating temperature	0°C to 70°C

### 8.6.6 SFP-FC8G-SW

Table 8-21 Technical specifications

Item	Description	
Part Number	02311BJL	
Version Support	Supported in V100R005C10 and later versions	
Transceiver form factor	SFP	
Transmission speed	2GE/4GE/8GE	
Center wavelength (nm)	850	
Connector type	LC	

Item	Description	
Applicable cable and maximum transmission distance	<ul> <li>2GE:</li> <li>Multimode fiber (OM2) (with diameter of 50 μm): 0.3 km</li> </ul>	
	<ul> <li>Multimode fiber (OM3) (with diameter of 50 μm): 0.5 km</li> <li>4GE:</li> </ul>	
	<ul> <li>Multimode fiber (OM2) (with diameter of 50 μm): 0.15 km</li> </ul>	
	<ul> <li>Multimode fiber (OM3) (with diameter of 50 μm): 0.38 km</li> </ul>	
	8GE:	
	<ul> <li>Multimode fiber (OM2) (with diameter of 50 μm): 0.05 km</li> </ul>	
	<ul> <li>Multimode fiber (OM3) (with diameter of 50 μm): 0.15 km</li> </ul>	
Modal Bandwidth	• Multimode fiber (OM2): 500 MHz*km	
	• Multimode fiber (OM3): 2000 MHz*km	
Transmit power (dBm)	-8.2 to -1.3	
Maximum receiver sensitivity (dBm)	-11.2	
Overload power (dBm)	0	
Extinction ratio (dB)	≥9	
Operating temperature	0°C to 70°C	

## 8.7 10GE SFP+ Optical Modules

## 8.7.1 LE2MXSC80FF0

Item	Description
Part Number	02310JFE
Version Support	Supported only in V100R001C00 and V100R002C00
Transceiver form factor	SFP+
Transmission speed	10G
Center wavelength (nm)	1550

Item	Description
Standard compliance	10GBASE-ZR
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 $\mu$ m): 80 km
Modal Bandwidth	-
Transmit power (dBm)	0 to 4
Maximum receiver sensitivity (dBm)	-24
Overload power (dBm)	-7
Extinction ratio (dB)	$\geq 9$
Operating temperature	0°C to 70°C

### 8.7.2 OMXD30000

<b>Table 8-23</b>	Technical	specifications
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Item	Description		
Part Number	02318169		
Version Support	Supported in V100R001C00 and later versions		
Transceiver form factor	SFP+		
Transmission speed	10GE		
Center wavelength (nm)	850		
Standard compliance	10GBASE-SR		
Connector type	LC		
Applicable cable and maximum transmission distance	<ul> <li>Multimode fiber (with diameter of 62.5 µm): 26m</li> <li>Multimode fiber (OM1) (with diameter of 62.5 µm): 33m</li> <li>Multimode fiber (with diameter of 50 µm): 66m</li> <li>Multimode fiber (OM2) (with diameter of 50 µm): 82m</li> <li>Multimode fiber (OM3) (with diameter of 50 µm): 300m</li> <li>Multimode fiber (OM4) (with diameter of 50 µm): 400m</li> </ul>		

Item	Description	
Modal Bandwidth	<ul> <li>Multimode fiber: 160 MHz*km</li> </ul>	
	• Multimode fiber (OM1): 200 MHz*km	
	• Multimode fiber: 400 MHz*km	
	• Multimode fiber (OM2): 500 MHz*km	
	• Multimode fiber (OM3): 2000 MHz*km	
	• Multimode fiber (OM4): 4700 MHz*km	
Transmit power (dBm)	-7.3 to -1	
Maximum receiver	-11.1	
sensitivity (dBm)		
Overload power (dBm)	-1	
Extinction ratio (dB)	$\geq$ 3	
Operating temperature	0°C to 70°C	

### 8.7.3 OSX040N01

Table 8-24         Technical	specifications
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Item	Description	
Part Number	02310CNF	
Version Support	Supported in V100R001C00 and later versions	
Transceiver form factor	SFP+	
Transmission speed	10GE	
Center wavelength (nm)	1550	
Standard compliance	10GBASE-ER	
Connector type	LC	
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 40 km	
Modal Bandwidth	-	
Transmit power (dBm)	-4.7 to +4	
Maximum receiver sensitivity (dBm)	-14.1	
Overload power (dBm)	-1	

Item	Description
Extinction ratio (dB)	$\geq$ 3
Operating temperature	0°C to 70°C

### 8.7.4 OSXD22N00

Table	8-25	Technical	specifications
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Item	Description
Part Number	02310CRM
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	SFP+
Transmission speed	10GE
Center wavelength (nm)	1310
Standard compliance	10GBASE-LRM
Connector type	LC
Applicable cable and maximum transmission distance Modal Bandwidth	<ul> <li>Multimode fiber (with diameter of 62.5 µm): 220m</li> <li>Multimode fiber (OM1) (with diameter of 62.5 µm): 220m</li> <li>Multimode fiber (with diameter of 50 µm): 100m</li> <li>Multimode fiber (OM2) (with diameter of 50 µm): 220m</li> <li>Multimode fiber (OM3) (with diameter of 50 µm): 220m</li> <li>Multimode fiber: 160/500 MHz*km</li> <li>Multimode fiber (OM1): 200/500 MHz*km</li> <li>Multimode fiber (OM2): 500/500 MHz*km</li> <li>Multimode fiber (OM3): 1500/500 MHz*km</li> </ul>
Transmit power (dBm)	-6.5 to +0.5
Maximum receiver sensitivity (dBm)	-6.5
Overload power (dBm)	1.5
Extinction ratio (dB)	≥ 3.5
Operating temperature	0°C to 70°C

## 8.7.5 SFP-10G-BXD1(Single-Fiber-Bidirectional Module)

Item	Description
Part Number	02310QDT
Version Support	Supported in V100R006C00 and later versions
Transceiver form factor	SFP+
Transmission speed	10GE
Center wavelength (nm)	Tx1330/Rx1270
Standard compliance	10GBASE-BX
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 10 km
Modal Bandwidth	-
Transmit power (dBm)	-8.2 to +0.5
Maximum receiver sensitivity (dBm)	-14.4
Overload power (dBm)	0.5
Extinction ratio (dB)	≥ 3.5
Operating temperature	-40°C to 85°C

 Table 8-26 Technical specifications

### 8.7.6 SFP-10G-BXU1(Single-Fiber-Bidirectional Module)

Item	Description
Part Number	02310QBJ
Version Support	Supported in V100R006C00 and later versions
Transceiver form factor	SFP+
Transmission speed	10GE
Center wavelength (nm)	Tx1270/Rx1330
Standard compliance	10GBASE-BX

Table 8-27 Technical specifications

Item	Description
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 $\mu$ m): 10 km
Modal Bandwidth	-
Transmit power (dBm)	-8.2 to +0.5
Maximum receiver sensitivity (dBm)	-14.4
Overload power (dBm)	0.5
Extinction ratio (dB)	≥ 3.5
Operating temperature	-40°C to 85°C

## 8.7.7 SFP-10G-ER-SM1270-BIDI(Single-Fiber-Bidirectional Module)

Table 8-28 Technical sp	ecifications
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Item	Description
Part Number	02311BJC
Version Support	Supported in V100R005C10 and later versions
Transceiver form factor	SFP+
Transmission speed	10GE
Center wavelength (nm)	Tx1270/Rx1330
Standard compliance	10GBASE-BDER
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 $\mu$ m): 40 km
Modal Bandwidth	-
Transmit power (dBm)	0 to 5
Maximum receiver sensitivity (dBm)	-18
Overload power (dBm)	-9

Item	Description
Extinction ratio (dB)	≥ 3.5
Operating temperature	0°C to 70°C

## 8.7.8 SFP-10G-ER-SM1330-BIDI(Single-Fiber-Bidirectional Module)

Table	8-29	Technical	specifications
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Item	Description
Part Number	02311BJB
Version Support	Supported in V100R005C10 and later versions
Transceiver form factor	SFP+
Transmission speed	10GE
Center wavelength (nm)	Tx1330/Rx1270
Standard compliance	10GBASE-BDER
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 40 km
Modal Bandwidth	-
Transmit power (dBm)	0 to 5
Maximum receiver sensitivity (dBm)	-18
Overload power (dBm)	-9
Extinction ratio (dB)	≥ 3.5
Operating temperature	0°C to 70°C

## 8.7.9 SFP-10G-iLR

Item	Description
Part Number	02311BJJ
Version Support	Supported in V100R005C10 and later versions
Transceiver form factor	SFP+
Transmission speed	10GE
Center wavelength (nm)	1310
Standard compliance	10GBASE-iLR
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 1.4 km
Modal Bandwidth	-
Transmit power (dBm)	-8.2 to +0.5
Maximum receiver sensitivity (dBm)	-14.4
Overload power (dBm)	0.5
Extinction ratio (dB)	≥ 3.5
Operating temperature	-40°C to 85°C

### Table 8-30 Technical specifications

## 8.7.10 SFP-10G-LR

Table 8-31 Technical specifications

Item	Description
Part Number	02310QDJ
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	SFP+
Transmission speed	10GE
Center wavelength (nm)	1310
Standard compliance	10GBASE-LR
Connector type	LC

Item	Description
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 $\mu$ m): 10 km
Modal Bandwidth	-
Transmit power (dBm)	-8.2 to +0.5
Maximum receiver sensitivity (dBm)	-12.6
Overload power (dBm)	0.5
Extinction ratio (dB)	≥ 3.5
Operating temperature	0°C to 70°C

## 8.7.11 SFP-10G-USR

Table 8-32 Technical specif	ications
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Item	Description
Part Number	02310MNW
Version Support	Supported in V100R002C00 and later versions
Transceiver form factor	SFP+
Transmission speed	10GE
Center wavelength (nm)	850
Standard compliance	10GBASE-USR
Connector type	LC
Applicable cable and maximum transmission distance	<ul> <li>Multimode fiber (OM2) (with diameter of 50 µm): 30m</li> <li>Multimode fiber (OM3) (with diameter of 50 µm): 100m</li> <li>Multimode fiber (OM4) (with diameter of 50 µm): 150m</li> </ul>
Modal Bandwidth	<ul> <li>Multimode fiber (OM2): 500 MHz*km</li> <li>Multimode fiber (OM3): 2000 MHz*km</li> <li>Multimode fiber (OM4): 4700 MHz*km</li> </ul>
Transmit power (dBm)	-7.3 to -1
Maximum receiver sensitivity (dBm)	-10.7
Overload power (dBm)	0.5
Item	Description
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Extinction ratio (dB)	$\geq$ 3
Operating temperature	0°C to 70°C

### 8.7.12 SFP-10G-ZR

Table 8-33 Techn	ical specifications
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Item	Description
Part Number	02310SNN
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	SFP+
Transmission speed	10GE
Center wavelength (nm)	1550
Standard compliance	10GBASE-ZR
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 80 km
Modal Bandwidth	-
Transmit power (dBm)	0 to 4
Maximum receiver sensitivity (dBm)	-24
Overload power (dBm)	-7
Extinction ratio (dB)	≥9
Operating temperature	0°C to 70°C

# 8.8 25GE SFP28 Modules

### 8.8.1 SFP-25G-SR

Item	Description
Part Number	02311KNR
Version Support	Supported in V100R006C00 and later versions
Transceiver form factor	SFP28
Transmission speed	25GE
Center wavelength (nm)	850
Standard compliance	25GBase-SR
Connector type	LC
Applicable cable and maximum transmission distance	<ul> <li>Multimode fiber (OM3) (with diameter of 50 μm): 0.07 km</li> <li>Multimode fiber (OM4) (with diameter of 50 μm): 0.1 km</li> </ul>
Modal Bandwidth	<ul> <li>Multimode fiber (OM3): 2000 MHz*km</li> <li>Multimode fiber (OM4): 4700 MHz*km</li> </ul>
Transmit power (dBm)	-8.4 to +2.4
Maximum receiver sensitivity (dBm)	-10.3
Overload power (dBm)	2.4
Extinction ratio (dB)	≥2
Operating temperature	0°C to 70°C

#### Table 8-34 Technical specifications

# 8.9 40GE QSFP+ Optical Modules

### 8.9.1 QSFP-40G-ER4

Item	Description
Part Number	02311BKT
Version Support	Supported in V100R005C00 and later versions
Transceiver form factor	QSFP+
Transmission speed	40GE
Center wavelength (nm)	1271, 1291, 1311, 1331

Item	Description
Standard compliance	40GBASE-ER4
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 40 km
Modal Bandwidth	-
Transmit power (dBm)	-2.7 to +4.5
Maximum receiver sensitivity (dBm)	-19.5
Overload power (dBm)	-4.5
Extinction ratio (dB)	≥ 5.5
Operating temperature	0°C to 70°C

# 8.9.2 QSFP-40G-eSM4

Table 8-36 Technical	specifications
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Item	Description
Part Number	02311DTR
Version Support	Supported in V100R005C00 and later versions
Transceiver form factor	QSFP+
Transmission speed	40GE
Center wavelength (nm)	1310
Standard compliance	40GBASE-eSM4
Connector type	МРО
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 10 km
Modal Bandwidth	-
Transmit power (dBm)	-8.2 to +0.5
Maximum receiver sensitivity (dBm)	-12.6
Overload power (dBm)	0.5

Item	Description
Extinction ratio (dB)	≥ 3.5
Operating temperature	0°C to 70°C

# 8.9.3 QSFP-40G-eSR4

Table 8-37 Technical specifications
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Item	Description
Part Number	02310RMB
Version Support	Supported in V100R003C00 and later versions
Transceiver form factor	QSFP+
Transmission speed	40GE
Center wavelength (nm)	850
Standard compliance	40GBASE-eSR4 10GBASE-SR (four lanes)
Connector type	МРО
Applicable cable and maximum transmission distance	<ul> <li>Multimode fiber (OM2) (with diameter of 50 μm): 82m</li> <li>Multimode fiber (OM3) (with diameter of 50 μm): 300m</li> <li>Multimode fiber (OM4) (with diameter of 50 μm): 400m</li> </ul>
Modal Bandwidth	<ul> <li>Multimode fiber (OM2): 500 MHz*km</li> <li>Multimode fiber (OM3): 2000 MHz*km</li> <li>Multimode fiber (OM4): 4700 MHz*km</li> </ul>
Transmit power (dBm)	-7.6 to +0.5
Maximum receiver sensitivity (dBm)	-5.4
Overload power (dBm)	2.4
Extinction ratio (dB)	≥3
Operating temperature	0°C to 70°C

### 8.9.4 QSFP-40G-iSM4

Item	Description
Part Number	02311DRW
Version Support	Supported in V100R005C00 and later versions
Transceiver form factor	QSFP+
Transmission speed	40GE
Center wavelength (nm)	1310
Standard compliance	40GBASE-iSM4
Connector type	МРО
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 $\mu$ m): 1.4 km
Modal Bandwidth	-
Transmit power (dBm)	-8.2 to +0.5
Maximum receiver sensitivity (dBm)	-11.5
Overload power (dBm)	0.5
Extinction ratio (dB)	≥ 3.5
Operating temperature	0°C to 70°C

#### Table 8-38 Technical specifications

### 8.9.5 QSFP-40G-iSR4

Table 8-39 Technical specifications

Item	Description
Part Number	02310MHR
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	QSFP+
Transmission speed	40GE
Center wavelength (nm)	850
Standard compliance	40GBASE-SR4 10GBASE-USR (four lanes)
Connector type	МРО

Item	Description	
Applicable cable and maximum transmission distance	<ul> <li>Multimode fiber (OM2) (with diameter of 50 μm): 30m</li> <li>Multimode fiber (OM3) (with diameter of 50 μm): 100m</li> <li>Multimode fiber (OM4) (with diameter of 50 μm): 150m</li> </ul>	
Modal Bandwidth	<ul> <li>Multimode fiber (OM2): 500 MHz*km</li> <li>Multimode fiber (OM3): 2000 MHz*km</li> <li>Multimode fiber (OM4): 4700 MHz*km</li> </ul>	
Transmit power (dBm)	-7.6 to +0.5	
Maximum receiver sensitivity (dBm)	-9.5	
Overload power (dBm)	2.4	
Extinction ratio (dB)	≥ 3	
Operating temperature	0°C to 70°C	

# 8.9.6 QSFP-40G-LR4

Table 8-40 Technica	l specifications
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Item	Description
Part Number	02310MHS
Version Support	Supported in V100R001C00 and later versions
Transceiver form factor	QSFP+
Transmission speed	40GE
Center wavelength (nm)	1271, 1291, 1311, 1331
Standard compliance	40GBASE-LR4
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 $\mu$ m): 10 km
Modal Bandwidth	-
Transmit power (dBm)	-7 to +2.3
Maximum receiver sensitivity (dBm)	-11.5
Overload power (dBm)	3.3

Item	Description
Extinction ratio (dB)	≥ 3.5
Operating temperature	0°C to 70°C

### 8.9.7 QSFP-40G-LX4

Table 8-41 Technical s	specifications
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Item	Description		
Part Number	02311HNP		
Version Support	Supported in V100R006C00 and later versions		
Transceiver form factor	QSFP+		
Transmission speed	40GE		
Center wavelength (nm)	1271, 1291, 1311, 1331		
Standard compliance	40GBASE-LX4		
Connector type	LC		
Applicable cable and maximum transmission distance	<ul> <li>Multimode fiber (OM3) (with diameter of 50 μm): 150m</li> <li>Single-mode fiber (G.652) (with diameter of 9 μm): 2 km</li> </ul>		
Modal Bandwidth	<ul> <li>Multimode fiber (OM3): 2000 MHz*km</li> <li>Single-mode fiber (G.652): -</li> </ul>		
Transmit power (dBm)	-7 to +2.3		
Maximum receiver sensitivity (dBm)	-11.5		
Overload power (dBm)	2.3		
Extinction ratio (dB)	≥ 3.5		
Operating temperature	10°C to 70°C		

## 8.9.8 QSFP-40G-SR-BD

Item	Description	
Part Number	02311FPA	
Version Support	Supported in V100R006C00 and later versions	
Transceiver form factor	QSFP+	
Transmission speed	40GE	
Center wavelength (nm)	850, 900	
Standard compliance	40GBASE-BIDI	
Connector type	LC	
Applicable cable and maximum transmission distance	<ul> <li>Multimode fiber (OM3) (with diameter of 50 μm): 100m</li> <li>Multimode fiber (OM4) (with diameter of 50 μm): 150m</li> </ul>	
Modal Bandwidth	<ul> <li>Multimode fiber (OM3): 2000 MHz*km</li> <li>Multimode fiber (OM4): 4700 MHz*km</li> </ul>	
Transmit power (dBm)	-4 to +5	
Maximum receiver sensitivity (dBm)	-4.5	
Overload power (dBm)	5	
Extinction ratio (dB)	≥4.5	
Operating temperature	10°C to 70°C	

#### Table 8-42 Technical specifications

# 8.10 QSFP28 Modules

### Appearance

Figure 8-7 shows a QSFP28 optical module.

#### Figure 8-7 Appearance of a QSFP28 optical module



### **QSFP28** Optical Module

Table 8-43 and Table 8-44 describes attributes of QSFP28 optical modules.

Part Numbe r	Model	Versio n Suppor t	Standar d	Rate	Tran smis sion dist ance	Fiber Mode, Modal Bandwidth (MHz*km), Core Diameter (µm), Connector Type	Operating Temperat ure
02311G QSFP28 BW -100G- SR4	Support ed in V100R0	100GBa se-SR4 (4*25G)	100 GE	≤ 0.07 km	Multi-mode (OM3), 2000, 50, MPO	0°C to 70°C	
06C00 and later versions				and later versions	≤ 0.1 km	Multi-mode (OM4), 4700, 50, MPO	
02311K NU	QSFP28 -100G- LR4	Support ed in V200R0 01C00 and later versions	100GBa se-LR4 (4*25G)	100 GE	≤ 10 km	Single-mode (G.652), -, 9, LC	0°C to 70°C

Table 8-43 Attributes of QSFP28 optical modules

Part Numbe r	Model	Versio n Suppor t	Standar d	Rate	Tran smis sion dist ance	Fiber Mode, Modal Bandwidth (MHz*km), Core Diameter (µm), Connector Type	Operating Temperat ure
02311M NM	QSFP28 -100G- PSM4	Support ed in V200R0 01C00 and later versions	100GB ASE- PSM4	100 GE	≤ 500 m	Single-mode (G.652), -, 9, MPO	0°C to 70°C
02311M NN	QSFP-1 00G- CWDM 4	Support ed in V200R0 01C00 and later versions	100GB ASE- CWDM 4	100 GE	$\leq 2$ km	Single-mode (G.652), -, 9, LC	0°C to 70°C
02311M NP	QSFP-1 00G- CLR4	Support ed in V200R0 01C00 and later versions	100GB ASE- CLR4	100 GE	≤ 2 km	Single-mode (G.652), -, 9, LC	0°C to 70°C

Table 8-44 Optical parameter	ers of QSFP28 optical modules
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Model	Operating Waveleng th (nm)	Transmit Optical Power (dBm)	Receiver Sensitivit y (dBm)	Overload Optical Power (dBm)	Extinction Ratio (dB)
QSFP28- 100G- SR4	850	-8.4 to +2.4	-10.3	2.4	≥2
QSFP28- 100G- LR4	1310	-4.3 to +4.5	-8.6	4.5	≥2
QSFP28- 100G- PSM4	1310	-9.4 to +2	-11.35	2.2	≥ 3.5

Model	Operating Waveleng th (nm)	Transmit Optical Power (dBm)	Receiver Sensitivit y (dBm)	Overload Optical Power (dBm)	Extinction Ratio (dB)
QSFP-10 0G- CWDM4	1310	-6.5 to +2.5	-9.8	2.5	≥ 3.5
QSFP-10 0G-CLR4	1310	-6.5 to +2.5	-10.7	2.5	≥ 3.5

### 8.10.1 QSFP28-100G-LR4

Table 8-45 Technical specifications
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Item	Description
Part Number	02311KNU
Version Support	Supported in V200R001C00 and later versions
Transceiver form factor	QSFP28
Transmission speed	100GE
Center wavelength (nm)	1310
Standard compliance	100GBASE-LR4
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 10 km
Modal Bandwidth	-
Transmit power (dBm)	-4.3 to +4.5
Maximum receiver sensitivity (dBm)	-8.6
Overload power (dBm)	4.5
Extinction ratio (dB)	≥2
Operating temperature	0°C to 70°C

## 8.10.2 QSFP28-100G-PSM4

Item	Description
Part Number	02311MNM
Version Support	Supported in V200R001C00 and later versions
Transceiver form factor	QSFP28
Transmission speed	100GE
Center wavelength (nm)	1310
Standard compliance	100GBASE-PSM4
Connector type	МРО
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 500m
Modal Bandwidth	-
Transmit power (dBm)	-9.4 to +2
Maximum receiver sensitivity (dBm)	-11.35
Overload power (dBm)	2.2
Extinction ratio (dB)	≥ 3.5
Operating temperature	0°C to 70°C

#### Table 8-46 Technical specifications

## 8.10.3 QSFP28-100G-SR4

 Table 8-47 Technical specifications

Item	Description
Part Number	02311GBW
Version Support	Supported in V200R001C00 and later versions
Transceiver form factor	QSFP28
Transmission speed	100GE
Center wavelength (nm)	850
Standard compliance	100GBASE-SR4
Connector type	МРО

Item	Description
Applicable cable and maximum transmission distance	<ul> <li>Multimode fiber (OM3) (with diameter of 50 μm): 70m</li> <li>Multimode fiber (OM4) (with diameter of 50 μm): 100m</li> </ul>
Modal Bandwidth	• Multimode fiber (OM3): 2000 MHz*km
	• Multimode fiber (OM4): 4/00 MHz*km
Transmit power (dBm)	-8.4 to +2.4
Maximum receiver sensitivity (dBm)	-10.3
Overload power (dBm)	2.4
Extinction ratio (dB)	≥2
Operating temperature	0°C to 70°C

## 8.10.4 QSFP-100G-CLR4

Table 8-48 Technical specificati	ions
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Item	Description
Part Number	02311MNP
Version Support	Supported in V200R001C00 and later versions
Transceiver form factor	QSFP28
Transmission speed	100GE
Center wavelength (nm)	1310
Standard compliance	100GBASE-CLR4
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 2 km
Modal Bandwidth	-
Transmit power (dBm)	-6.5 to +2.5
Maximum receiver sensitivity (dBm)	-10.7
Overload power (dBm)	2.5
Extinction ratio (dB)	≥ 3.5

Item	Description
Operating temperature	0°C to 70°C

## 8.10.5 QSFP-100G-CWDM4

#### Table 8-49 Technical specifications

Item	Description
Part Number	02311MNN
Version Support	Supported in V200R001C00 and later versions
Transceiver form factor	QSFP28
Transmission speed	100GE
Center wavelength (nm)	1310
Standard compliance	100GBASE-CWDM4
Connector type	LC
Applicable cable and maximum transmission distance	Single-mode fiber (G.652) (with diameter of 9 µm): 2 km
Modal Bandwidth	-
Transmit power (dBm)	-6.5 to +2.5
Maximum receiver sensitivity (dBm)	-9.8
Overload power (dBm)	2.5
Extinction ratio (dB)	≥ 3.5
Operating temperature	0°C to 70°C