



## **3Com S7900E Family** Getting Started Guide

S7910E

S7906E

S7906E-V

S7903E

S7903E-S

S7902E

Manual Version:

20090108-C-1.01

[www.3com.com](http://www.3com.com)

**3Com Corporation**

350 Campus Drive, Marlborough,  
MA, USA 01752 3064



Copyright © 2008-2009, 3Com Corporation. All rights reserved. No part of this documentation may be reproduced in any form or by any means or used to make any derivative work (such as translation, transformation, or adaptation) without written permission from 3Com Corporation.

3Com Corporation reserves the right to revise this documentation and to make changes in content from time to time without obligation on the part of 3Com Corporation to provide notification of such revision or change.

3Com Corporation provides this documentation without warranty, term, or condition of any kind, either implied or expressed, including, but not limited to, the implied warranties, terms or conditions of merchantability, satisfactory quality, and fitness for a particular purpose. 3Com may make improvements or changes in the product(s) and/or the program(s) described in this documentation at any time.

If there is any software on removable media described in this documentation, it is furnished under a license agreement included with the product as a separate document, in the hard copy documentation, or on the removable media in a directory file named LICENSE.TXT or !LICENSE.TXT. If you are unable to locate a copy, please contact 3Com and a copy will be provided to you.

## **UNITED STATES GOVERNMENT LEGEND**

*If you are a United States government agency, then this documentation and the software described herein are provided to you subject to the following:*

All technical data and computer software are commercial in nature and developed solely at private expense. Software is delivered as "Commercial Computer Software" as defined in DFARS 252.227-7014 (June 1995) or as a "commercial item" as defined in FAR 2.101(a) and as such is provided with only such rights as are provided in 3Com's standard commercial license for the Software. Technical data is provided with limited rights only as provided in DFAR 252.227-7015 (Nov 1995) or FAR 52.227-14 (June 1987), whichever is applicable. You agree not to remove or deface any portion of any legend provided on any licensed program or documentation contained in, or delivered to you in conjunction with, this User Guide.

Unless otherwise indicated, 3Com registered trademarks are registered in the United States and may or may not be registered in other countries.

3Com and the 3Com logo are registered trademarks of 3Com Corporation.

All other company and product names may be trademarks of the respective companies with which they are associated.

## **ENVIRONMENTAL STATEMENT**

It is the policy of 3Com Corporation to be environmentally-friendly in all operations. To uphold our policy, we are committed to:

Establishing environmental performance standards that comply with national legislation and regulations.

Conserving energy, materials and natural resources in all operations.

Reducing the waste generated by all operations. Ensuring that all waste conforms to recognized environmental standards. Maximizing the recyclable and reusable content of all products.

Ensuring that all products can be recycled, reused and disposed of safely.

Ensuring that all products are labelled according to recognized environmental standards.

Improving our environmental record on a continual basis.

### **End of Life Statement**

3Com processes allow for the recovery, reclamation and safe disposal of all end-of-life electronic components.

### **Regulated Materials Statement**

3Com products do not contain any hazardous or ozone-depleting material.

### **Environmental Statement about the Documentation**

The documentation for this product is printed on paper that comes from sustainable, managed forests; it is fully biodegradable and recyclable, and is completely chlorine-free. The varnish is environmentally-friendly, and the inks are vegetable-based with a low heavy-metal content.

# About This Manual

## Organization

3Com S7900E Family Getting Started Guide is organized as follows:

Chapter	Contents
1 Product Overview	Introduces the S7900E Series Ethernet Switches in terms of chassis, SRPUs, LPUs, power supply, and fan tray.
2 Installation Preparations	Specifies the installation requirements of the S7900E Series Ethernet Switches and presents installation precautions.
3 Hardware Installation	Introduces how to install the S7900E Series Ethernet Switches and how to connect the power supply, ground cables, and the console cable.
4 System Commissioning	Introduces the startup process of the S7900E Series Ethernet Switches, including power-on and system initialization.
5 Hardware Maintenance	Introduces how to install and remove power modules, cards, fans, mounting ears, cable management bracket, CF card, and air filters of the S7900E Series Ethernet Switches.
6 Software Maintenance	Introduces how to load and upgrade the software of the S7900E Series Ethernet Switches.
7 Troubleshooting	Introduces how to troubleshoot the configuration system, power modules, fans, and LPUs of the S7900E Series Ethernet Switches.
Appendix A List of Pluggable Modules	Introduces pluggable modules for different types of ports and their related parameters.
Appendix B AC Power Cables Used in Different Countries or Regions	Introduces AC power cables used in different countries or Regions, including 10A AC power cables and 16A AC power cables.

## Conventions

The manual uses the following conventions:

### Command conventions

Convention	Description
<b>Boldface</b>	The keywords of a command line are in <b>Boldface</b> .
<i>italic</i>	Command arguments are in <i>italic</i> .
[ ]	Items (keywords or arguments) in square brackets [ ] are optional.
{ x   y   ... }	Alternative items are grouped in braces and separated by vertical bars. One is selected.
[ x   y   ... ]	Optional alternative items are grouped in square brackets and separated by vertical bars. One or none is selected.
{ x   y   ... }*	Alternative items are grouped in braces and separated by vertical bars. A minimum of one or a maximum of all can be selected.
[ x   y   ... ]*	Optional alternative items are grouped in square brackets and separated by vertical bars. Many or none can be selected.






Convention	Description
&<1-n>	The argument(s) before the ampersand (&) sign can be entered 1 to n times.
#	A line starting with the # sign is comments.

## GUI conventions

Convention	Description
<b>Boldface</b>	Window names, button names, field names, and menu items are in Boldface. For example, the <b>New User</b> window appears; click <b>OK</b> .
>	Multi-level menus are separated by angle brackets. For example, <b>File &gt; Create &gt; Folder</b> .

Convention	Description
< >	Button names are inside angle brackets. For example, click <OK>.
[ ]	Window names, menu items, data table and field names are inside square brackets. For example, pop up the [New User] window.
/	Multi-level menus are separated by forward slashes. For example, [File/Create/Folder].

## Symbols

Convention	Description
 <b>Warning</b>	Means reader be extremely careful. Improper operation may cause bodily injury.
 <b>Caution</b>	Means reader be careful. Improper operation may cause data loss or damage to equipment.
 <b>Highlight</b>	Means an action or information that needs special attention to ensure successful configuration or good performance.
 <b>Note</b>	Means a complementary description.
 <b>Tip</b>	Means techniques helpful for you to make configuration with ease.

## Related Documentation

In addition to this manual, each 3Com S7900E Family documentation set includes the following:

Manual	Description
3Com S7900E Family Configuration Guide - Release 6300 Series	Describe how to configure your S7900E Switch using the supported protocols and CLI commands.
3Com S7900E Family Command Reference Guide - Release 6300 Series	Provide detailed descriptions of command line interface (CLI) commands, which you require to manage your switch.



## **Obtaining Documentation**

You can access the most up-to-date 3Com product documentation on the World Wide Web at this URL:  
<http://www.3com.com>.

# Table of Contents

<b>1 Product Overview</b>	<b>1-1</b>
Introduction	1-1
Physical Description of the S7900E Series	1-1
Chassis and Slots	1-1
Backplane	1-9
Power Supply System	1-9
Fan Tray	1-16
Air Filter	1-16
SRPUs	1-17
SRPU Types	1-17
LSQ1MPUA0 SRPU	1-17
Dedicated S7903E-S SRPU-LSQ1CGP24TSC0	1-21
Saliency VI-10GE SRPU-LSQ1SRP2XB0	1-25
Saliency VI SRPU-LSQ1SRPB0	1-29
Saliency VI-Turbo SRPU-LSQ1SRP1CB0	1-32
Saliency VI-Plus SRPU-LSQ1SRPD0	1-35
Saliency VI-GE SRPU-LSQ1SRP12GB0	1-38
LPUs	1-42
LSQ1FP48SA0	1-42
LSQ1FV48SA0	1-43
LSQ1GP12EA0	1-44
LSQ1GP12SC0	1-45
LSQ1GP24SC0	1-46
LSQ1GP48SC0	1-47
LSQ1GT24SC0	1-48
LSQ1GV48SA0	1-49
LSQ1GV48SC0	1-50
LSQ1P24XGSC0	1-51
LSQ1T24XGSC0	1-52
LSQ1TGX1EA0	1-53
LSQ1TGX2SC0	1-54
LSQ1GP24TSC0	1-55
LSQ1GV40PSC0	1-57
LSQ1PT4PSC0	1-58
LSQ1PT8PSC0	1-59
LSQ1PT16PSC0	1-60
Ordering Information for the S7900E Series	1-61
Purchasing a Switch	1-61
Purchasing SRPUs	1-62
Purchasing LPUs	1-63
Purchasing Optical Modules	1-64
Purchasing Air Filters	1-64
Purchasing Fan Trays	1-64

# 1 Product Overview

## Introduction

The S7900E Series Ethernet Switches (hereinafter referred to as the S7900E series) are high performance, cost-effective Layer-3 switches with a large capacity. The S7900E series are designed to operate at the core layer of small- and medium-sized networks, the convergence layer of large enterprise networks, and the convergence and access layers of metropolitan area networks (MANs). The S7900E series have been optimized to meet users' diversified demands for devices used on these networks.

The S7900E series include six models, as described in [Table 1-1](#).

**Table 1-1** Dimensions of the S7900E series

Model	Slot direction	Number of slots	Number of SRPU slots
S7902E	Horizontal	4	2 half-sized slots
S7903E-S	Horizontal	3	1
S7903E	Horizontal	5	2
S7906E	Horizontal	8	2
S7910E	Horizontal	12	2
S7906E-V	Vertical	8	2

## Physical Description of the S7900E Series

### Chassis and Slots

The integrated chassis of the S7900E series consists of a card area, a fan area, and a power supply area.

**Table 1-2** Dimensions of the S7900E series

Model	Dimensions (H x W x D)
S7902E	175 x 436 x 420 mm (6.89 x 17.17 x 16.54 in.)
S7903E-S	175 x 436 x 420 mm (6.89 x 17.17 x 16.54 in.)
S7903E	441 x 436 x 420 mm (17.36 x 17.17 x 16.54 in.)
S7906E	575 x 436 x 420 mm (22.64 x 17.17 x 16.54 in.)
S7910E	708 x 436 x 420 mm (27.87 x 17.17 x 16.54 in.)
S7906E-V	930 x 436 x 420 mm (36.61 x 17.17 x 16.54 in.)



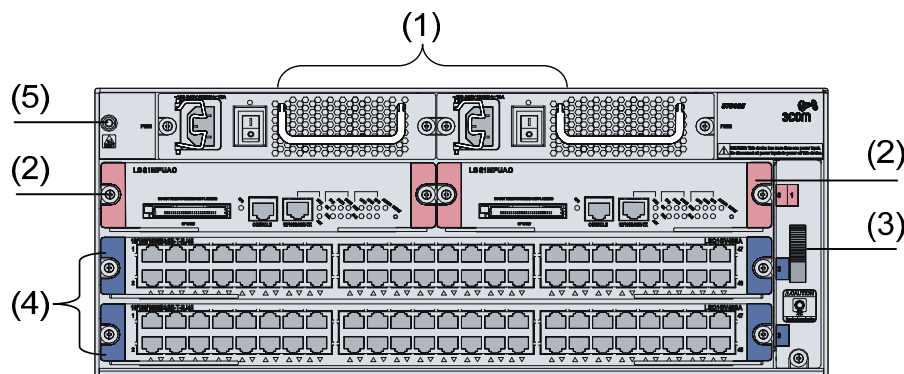
## Note

- The backplane, switching & routing processing unit (SRPU), power modules, and fan tray are all required parts of the S7900E series.
- SRPUs and line processing units (LPUs) are distinguished by their edge colors. SRPUs have pink edges while LPUs have purple edges. SRPUs must be inserted in pink slots while LPUs must be inserted in purple slots.
- The power supply of the S7900E series can be AC or DC, depending on the actual requirement. However, it is forbidden to insert different power modules into one S7900E Ethernet switch.

## S7902E

[Figure 1-1](#) shows the front panel of the S7902E.

**Figure 1-1** Front panel of the S7902E



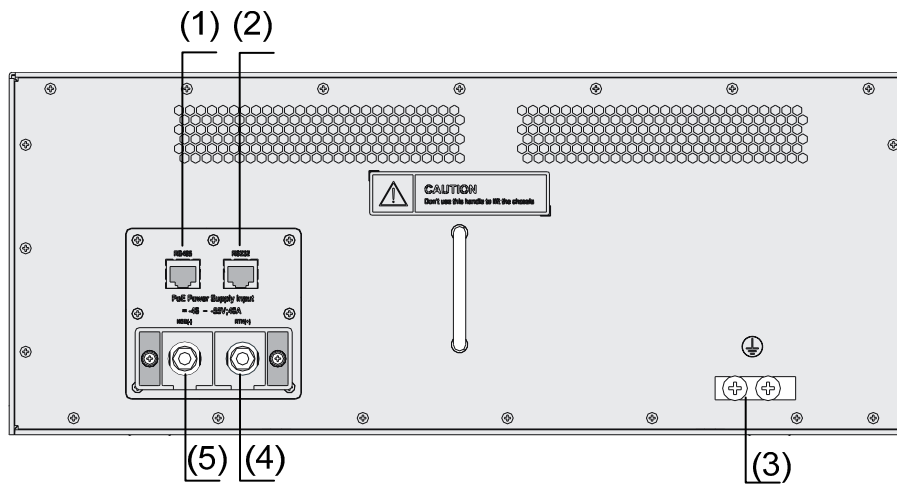
(1) Power modules	(2) SRPUs (in slot 0 and slot 1)
(3) Fan tray	(4) LPUs (in slot 2 and slot 3)
(5) Jack for ESD-preventive wrist strap	

All modules of the S7902E are hot swappable.

- The S7902E has four horizontal slots. SRPUs are inserted into the upper two slots. See callout (2) in [Figure 1-1](#). SRPUs are required and support active-standby switchover. Different LPUs are inserted into the other two slots. See callout (4) in [Figure 1-1](#).
- The fan tray is installed on the right side of the chassis. See callout (3) in [Figure 1-1](#).
- The two power modules, which sit in the upper part of the chassis provide 1+1 redundancy backup. See callout (1) in [Figure 1-1](#). You can select either AC power supply or DC power supply.

[Figure 1-2](#) shows the rear panel of the S7902E.

**Figure 1-2** Rear panel of the S7902E



(1) COM port for monitoring PoE (RS485)	(2) COM port for monitoring PoE (RS232)
(3) Grounding screws	
(4) RTN terminal (+) of external PoE power supply	
(5) Negative terminal (-) of external PoE power supply (-46 V to -55 V)	

There are two DC power input (PoE power supply input) terminals and two COM ports (monitor ports) on the rear panel of the chassis.



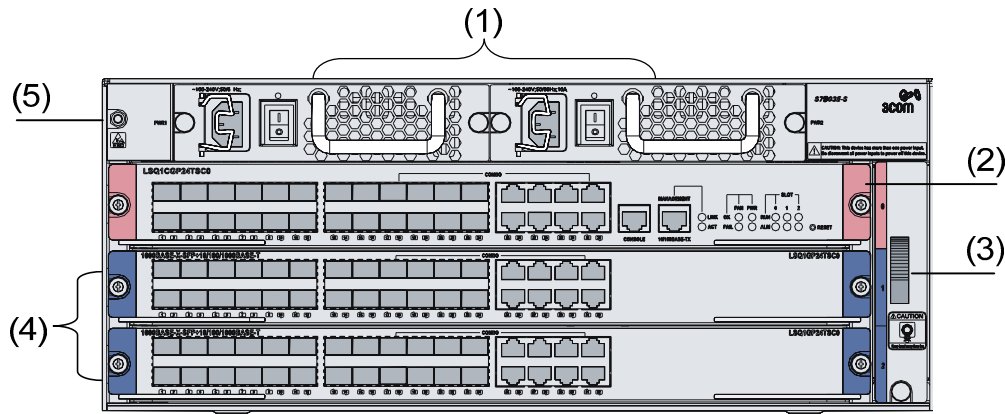
**Note**

- The S7900E series are Power over Ethernet (PoE) capable, that is, they can supply power to devices such as IP phones, wireless access points, and network cameras connected to their Ethernet ports through twisted pair cables.
- For the S7902E and S7903E-S, the external PoE power supply is connected to the PoE power supply input terminals on the rear panel, while for the other models of the S7900E series, the external PoE power supply is connected to a power module. For details, refer to section “[PSR1400-D](#)” on page [1-14](#) and section “[PSR2800-ACV](#)” on page [1-15](#).

**S7903E-S**

[Figure 1-3](#) shows the front panel of the S7903E-S.

**Figure 1-3** Front panel of the S7903E-S



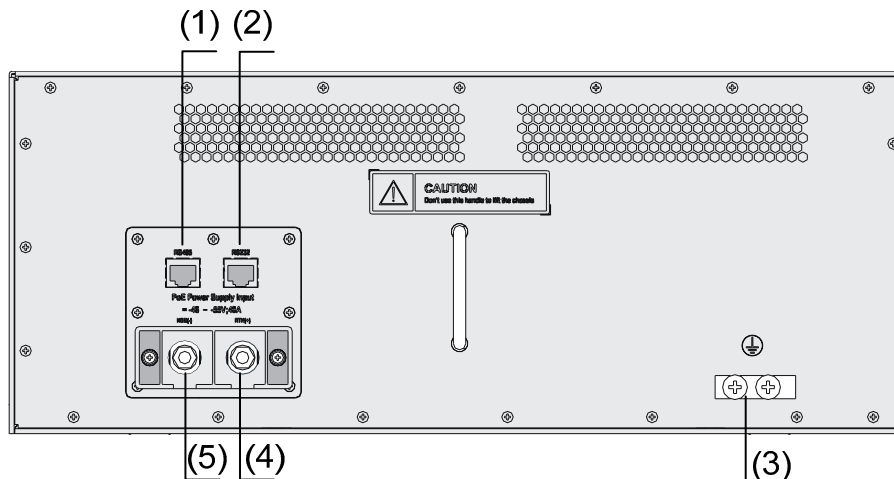
(1) Power modules	(2) SRPUs (in slot 0)
(3) Fan tray	(4) LPUs (in slot 1 and slot 2)
(5) Jack for ESD-preventive wrist strap	

All modules of the S7903E-S are hot swappable.

- The S7903E-S has three horizontal slots. SRPUs are inserted into the upper slot. See callout (2) in [Figure 1-3](#). Dedicated S7903E-S SRPUs are required. Different LPUs are inserted into the other two slots. See callout (4) in [Figure 1-3](#).
- The fan tray is installed on the right side of the chassis. See callout (3) in [Figure 1-3](#).
- The two power modules, which sit in the upper part of the chassis provide 1+1 redundancy backup. See callout (1) in [Figure 1-3](#). You can select either AC power supply or DC power supply.

[Figure 1-4](#) shows the rear panel of the S7903E-S.

**Figure 1-4** Rear panel of the S7903E-S



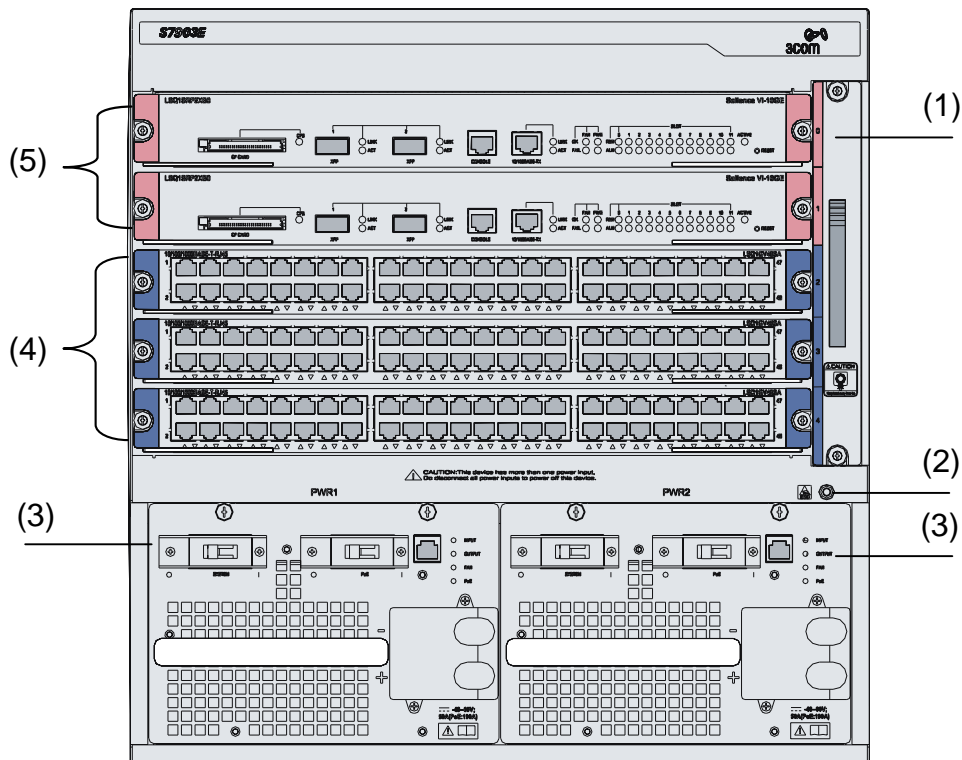
(1) COM port for monitoring PoE (RS485)	(2) COM port for monitoring PoE (RS232)
(3) Grounding screws	
(4) RTN terminal (+) of external PoE power supply	
(5) Negative terminal (-) of external PoE power supply (-46 V to -55 V)	

There are two DC power input (PoE power supply input) terminals and two COM ports (monitor ports) on the rear panel of the chassis.

## S7903E

[Figure 1-5](#) shows the front panel of the S7903E.

**Figure 1-5** Front panel of the S7903E



(1) Fan tray	(2) Jack for ESD-preventive wrist strap
(3) Power modules	(4) LPUs (in slot 2 to slot 4)
(5) SRPUs (in slot 0 and slot 1)	

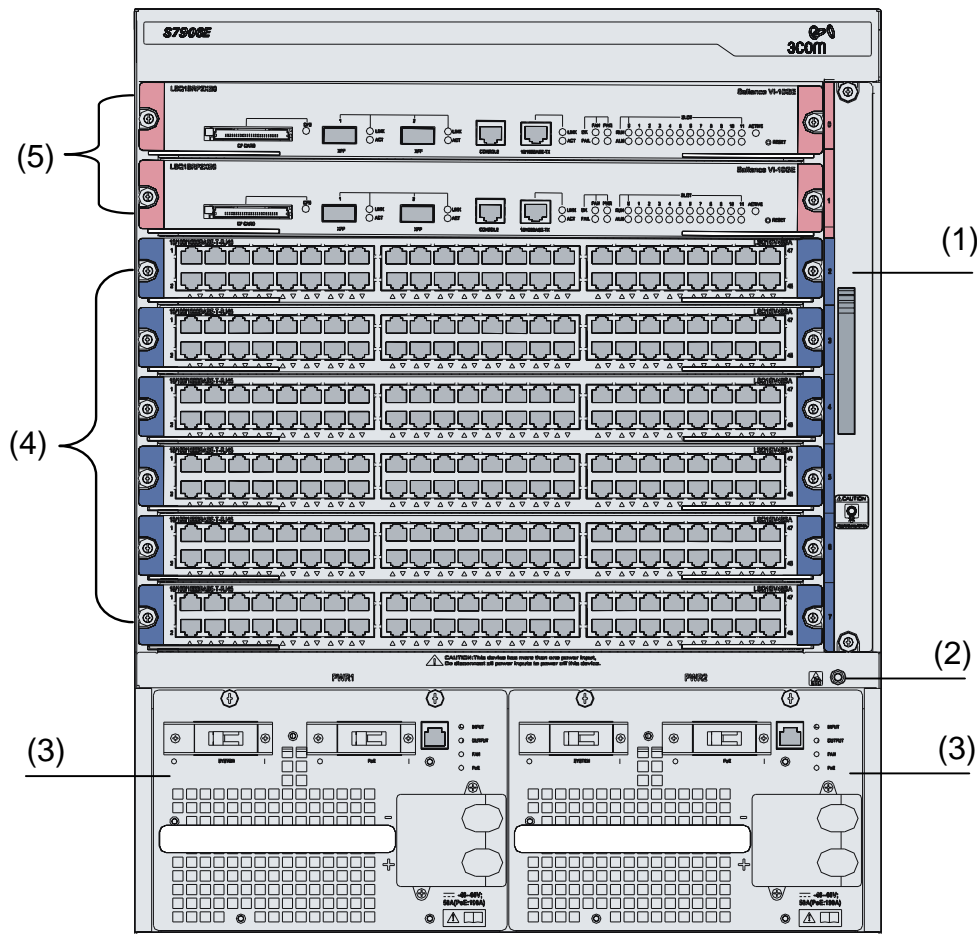
All the modules of the S7903E are hot swappable.

- The S7903E has five horizontal slots. SRPUs are inserted into the upper two slots (see callout (5) in [Figure 1-5](#)). SRPUs are required and support active-standby switchover. Different LPUs are inserted into the other three slots (see callout (4) in [Figure 1-5](#)).
- The fan tray is installed on the right side of the chassis (see callout (1) in [Figure 1-5](#)).
- The two power modules, which sit in the lower part of the chassis (see callout (3) in [Figure 1-5](#)), provide 1+1 redundancy backup. You can select either AC power supply or DC power supply.

## S7906E

[Figure 1-6](#) shows the front panel of the S7906E.

**Figure 1-6** Front panel of the S7906E



(1) Fan tray	(2) Jack for ESD-preventive wrist strap
(3) Power module	(4) LPUs (in slot 2 to slot 7)
(5) SRPUs (in slot 0 and slot 1)	

All the modules of the S7906E are hot swappable.

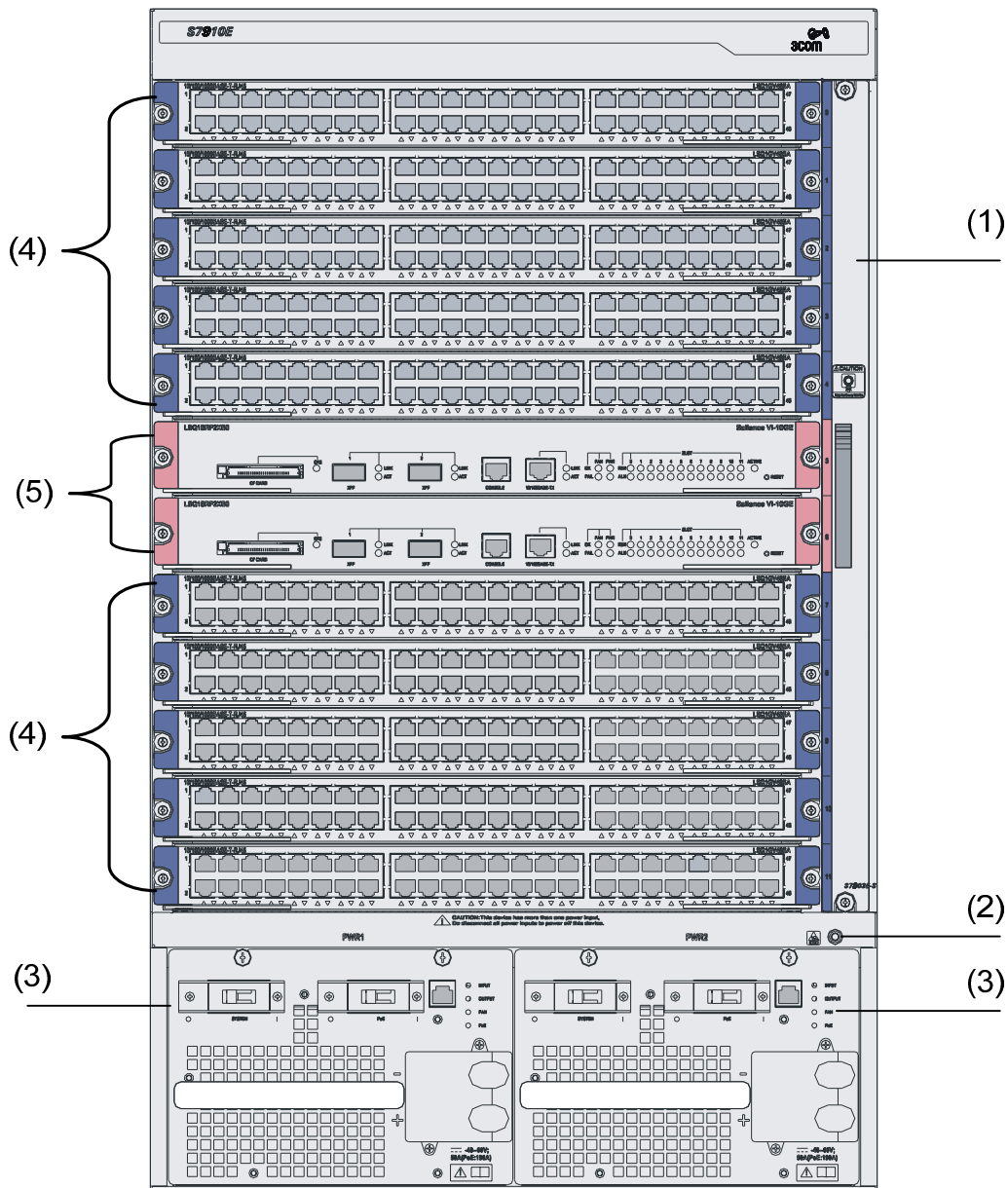
- The S7906E has eight horizontal slots. SRPUs are inserted in the upper two slots (see callout (5) in [Figure 1-6](#)). SRPUs are required and support active-standby switchover. Different LPUs are inserted into the other six slots (see callout (4) in [Figure 1-6](#)).
- The fan tray is installed on the right side of the chassis (see callout (1) [Figure 1-6](#)).
- The two power modules, which sit in the lower part of the chassis (see callout (3) in [Figure 1-6](#)), provide 1+1 redundancy backup. You can select either AC power supply or DC power supply.

## S7910E

[Figure 1-7](#) shows the front panel of the S7910E.



Figure 1-7 Front panel of the S7910E



(1) Fan tray	(2) Jack for ESD-preventive wrist strap
(3) Power module	(4) LPUs (in slot 0 to slot 4 and slot 7 to slot 11)
(5) SRPUs (in slot 5 and slot 6)	

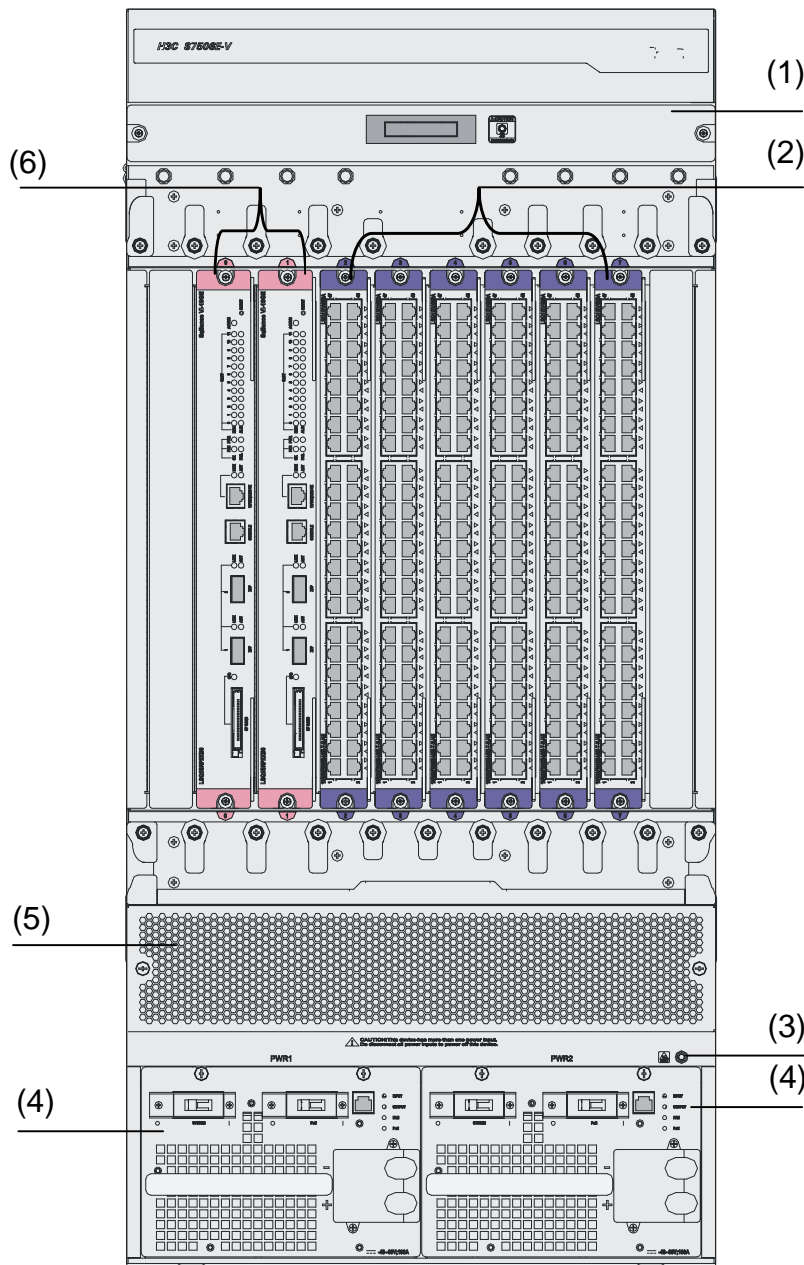
All the modules of the S7910E are hot swappable.

- The S7910E has twelve horizontal slots. SRPUs are inserted in the middle two slots (see callout (5) in [Figure 1-7](#)). SRPUs are required and support active-standby switchover. Different LPUs are inserted in the other ten slots (see callout (4) in [Figure 1-7](#)).
- The fan tray is installed on the right side of the chassis (see callout (1) in [Figure 1-7](#)).
- The two power modules, which sit in the lower part of the chassis (see callout (3) in [Figure 1-7](#)), provide 1+1 redundancy backup. You can select either AC power supply or DC power supply.

### S7906E-V

[Figure 1-8](#) shows the front panel of the S7906E-V.

**Figure 1-8** Front panel of the S7906E-V



(1) Fan tray	(2) LPUs (in slot 2 to slot 7)
(3) Jack for ESD-preventive wrist strap	(4) Power module
(5) Air filter	(6) SRPUs (in slot 0 and slot 1)

All the modules of the switch are hot swappable.

- The S7906E-V switch has eight vertical slots. SRPUs are inserted in the left two slots (see callout (5) in [Figure 1-8](#)). SRPUs are required and support active-standby switchover. Different LPUs are inserted in the other six slots (see callout (2) in [Figure 1-8](#)).
- The fan tray is installed above the SRPUs and LPUs (see callout (1) in [Figure 1-8](#)) and the air flows up from the bottom.
- The two power modules, which sit in the lower part of the chassis (see callout (3) in [Figure 1-8](#)), provide 1+1 redundancy backup. You can select either AC power supply or DC power supply.

## Backplane

The backplane in the integrated chassis of the S7900E series implements high-speed data exchange as well as management & control signal exchange between SRPUs and LPUs.

The backplane mainly provides the following functions:

- Interconnection between cards
- Card hot-swapping
- Automatic slot recognition
- Automatic chassis type recognition
- Distributed power supply to the system. The S7906E-V has two backplanes: signal backplane and power supply backplane. The power supply backplane is connected to the power modules and is also connected to the signal backplane with an internal cable.
- Connection of the signal cable that monitors the fan tray and power supply

## Power Supply System

The S7900E series support a variety of power modules, as listed in [Table 1-3](#).

**Table 1-3** Power module models of the S7900E series

Model	Height	Power input mode (AC/DC)	Support PoE power (Yes/No)
PSR320-A	1 U	AC	No
PSR320-D	1 U	DC	No
PSR650-A	1 U	AC	No
PSR650-D	1 U	DC	No
PSR1400-A	3 U	AC	No
PSR1400-D	3 U	DC	No
PSR2800-ACV	3 U	AC	No

**Table 1-4** Features of power modules

Feature	Description
Protection functions	Support input under-voltage protection, output over-voltage protection, short-circuit protection, over-current protection, and overheat protection
1+1 hot backup support	Support 1 + 1 hot backup and current sharing
Hot swap support	Support hot swap with the power switch turned off while the device is in operation

Typically, the S7902E and the S7903E-S use 1U power modules, while the other models of the S7900E series use 3U power modules.

The S7900E series support a large variety of card types, and system power consumption of a switch varies with different types of cards in use. You can choose an appropriate power module model for your switch based on its system power consumption.

The system power consumption of a switch is determined by its SRPUs, LPUs, and fan tray. Specifically, the system power consumption of a switch is equal to the power consumption of its SRPUs, LPUs, and fan tray put together.

For how to install power modules and power module adapters, refer to section 5.2 "Removing and Installing a Power Module."

**Table 1-5** Compatibility matrix between power modules and switch chasses

Chassis (right)	S7902E	S7903E-S	S7903E	S7906E	S7906E-V	S7910E
Power module (below)						
PSR320-A	Y	Y	N	N	N	N
PSR320-D	Y	Y	N	N	N	N
PSR650-A	Y	Y	N	N	N	N
PSR650-D	Y	Y	N	N	N	N
PSR1400-A	N	N	Y	Y	Y	Y
PSR1400-D	N	N	Y	Y	Y	Y
PSR2800-ACV	N	N	Y	Y	Y	Y

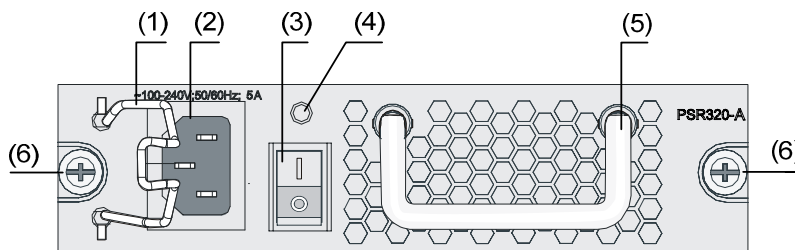


**Note**

- Y means that the power module fits the chassis.
- N means that the power module cannot be used in the chassis.
- Do not use different types of power modules in the same device.

**PSR320-A**

**Figure 1-9** PSR320-A power module



(1) Power cable retainer	(2) AC power socket
(3) Power switch	(4) Power LED
(5) Power module handle	(6) Captive screws

As shown in the figure, above the power switch is the power LED. If the power LED is green, the power supply operates normally. If the LED is red, the power supply is abnormal.

**Table 1-6** Technical specifications of the PSR320-A power module

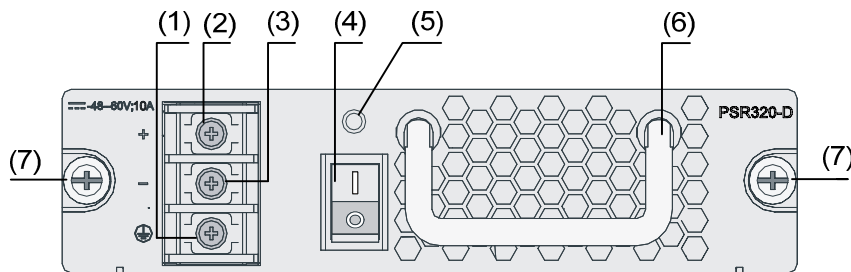
Item	Specifications
Rated voltage range	100 VAC to 240 VAC; 50 Hz or 60 Hz
Maximum output power	300 W
Dimensions (H x W x D)	40 x 140 x 350 mm (1.57 x 5.51 x 13.78 in.)

 **Note**

The PSR320-A uses a 10-A AC power cable.

**PSR320-D**

**Figure 1-10** PSR320-D power module



(1) Grounding screws	(2) RTN terminal (+) of DC input
(3) Negative terminal (-) of DC input (-48 V to -60 V)	(4) Power switch
(5) Power LED	(6) Power module handle
(7) Captive screws	

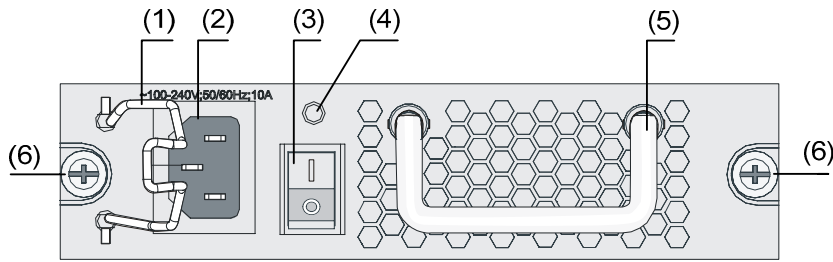
As shown in the figure, above the power switch is the power LED. If the power LED is green, the power supply operates normally. If the power LED is red, the power supply is abnormal.

**Table 1-7** Technical specifications of the PSR320-D power module

Item	Specifications
Rated voltage range	-48 VDC to -60 VDC
Maximum output power	300 W
Dimensions (H x W x D)	40 x 140 x 350 mm (1.57 x 5.51 x 13.78 in.)

## PSR650-A

Figure 1-11 PSR650-A power module



(1) Power cable retainer	(2) AC power socket
(3) Power switch	(4) Power LED
(5) Power module handle	(6) Captive screws

Above the power switch is the power LED. If the power LED is green, the power supply operates normally. If the LED is red, the power supply is abnormal.

Table 1-8 Technical specifications of the PSR650-A power module

Item	Specifications
Rated voltage range	100 VAC to 240 VAC; 50 Hz or 60 Hz
Maximum output power	650 W
Dimensions (H x W x D)	40 x 140 x 350 mm (1.57 x 5.51 x 13.78 in.)

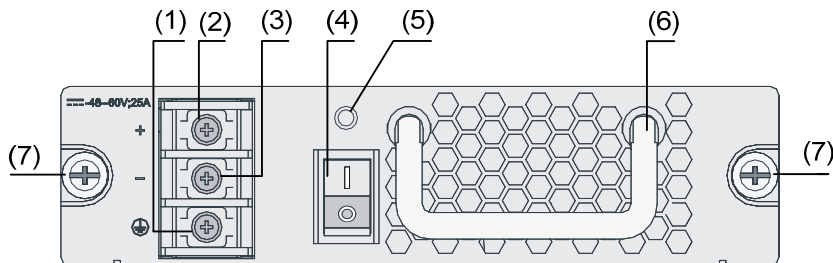


### Note

The PSR650-A uses a 10 A AC power cable.

## PSR650-D

Figure 1-12 PSR650-D power module



(1) Grounding screw	(2) RTN terminal (+) of DC input
(3) Negative terminal (-) of DC input (-48 V to -60 V)	(4) Power switch
(5) Power LED	(6) Power module handle
(7) Captive screws	

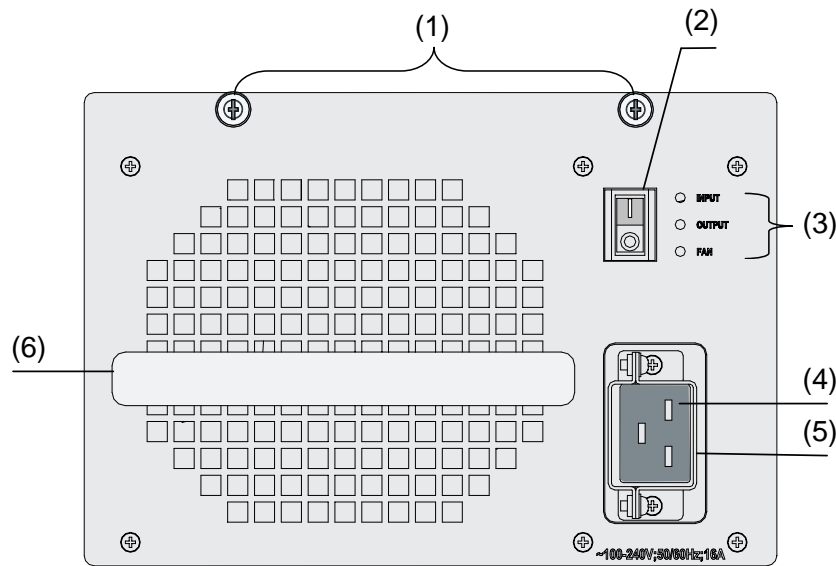
Above the power switch is the power LED. If the power LED is green, the power supply operates normally. If the power LED is red, the power supply is abnormal.

**Table 1-9** Technical specifications of the PSR650-D power module

Item	Specifications
Rated voltage range	-48 VDC to -60 VDC
Maximum output power	650 W
Dimensions (H x W x D)	40 x 140 x 350 mm (1.57 x 5.51 x 13.78 in.)

**PSR1400-A**

**Figure 1-13** PSR1400-A power module



(1) Captive screws	(2) Power switch
(3) Power LEDs	(4) AC power socket
(5) Power cable retainer	(6) Power module handle

On the right of the switch are the input LED, output LED, and fan LED. For their colors and descriptions, refer to section 7.2.3 “Troubleshooting PSR1400-A.”

**Table 1-10** Technical specifications of the PSR650-A power module

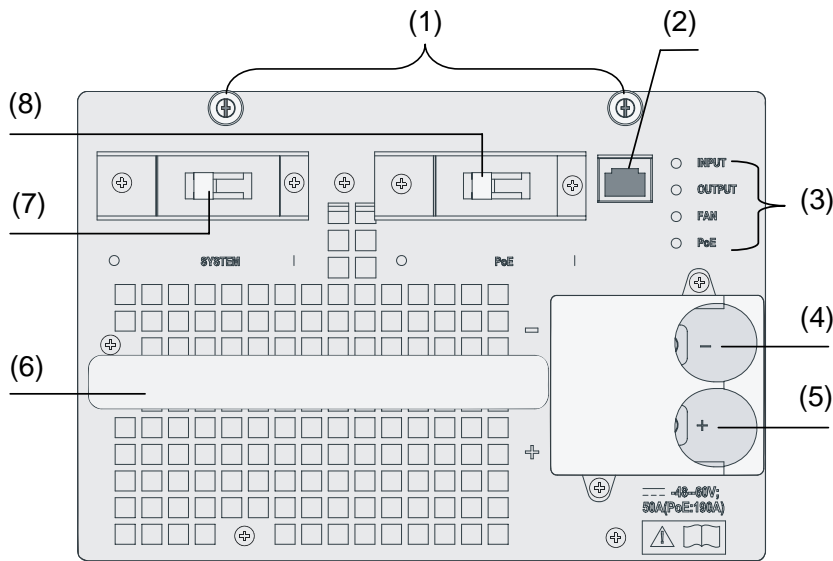
Item	Specifications
Rated voltage range	100 VAC to 240 VAC; 50 Hz or 60 Hz
Maximum output power	1150 W (110 V)
	1400 W (220 V)
Dimensions (H x W x D)	128 x 196 x 380 mm (5.04 x 7.72 x 14.96 in.)

 **Note**

The PSR1400-A uses a 16 A AC power cable.

## PSR1400-D

**Figure 1-14** PSR1400-D power module



(1) Captive screws	(2) COM port for monitoring PoE
(3) Power LEDs	(4) Negative terminal (-) of DC input (-48 V to -60 V)
(5) RTN terminal (+) of DC input	(6) Power module handle
(7) System power switch	(8) PoE power switch

The PSR1400-D power module provides system power and PoE power. The switch marked “SYSTEM” is used to control the system power, and the other marked “PoE” is used to control the PoE power. The RJ-45 port (RS485) on the right of the PoE power switch is the COM port for monitoring PoE.

On the right of the panel are the input LED, output LED, fan LED and PoE LED. For their colors and descriptions, refer to section 7.2.4 “Troubleshooting PSR1400-D.”

**Table 1-11** Technical specifications of the PSR1400-D DC power module

Item	Specifications
Rated voltage range	-48 VDC to -60 VDC
Maximum system output power	1400 W
Maximum PoE output power	6720 W
Dimensions (H x W x D)	128 x 196 x 380 mm (5.04 x 7.72 x 14.96 in.)



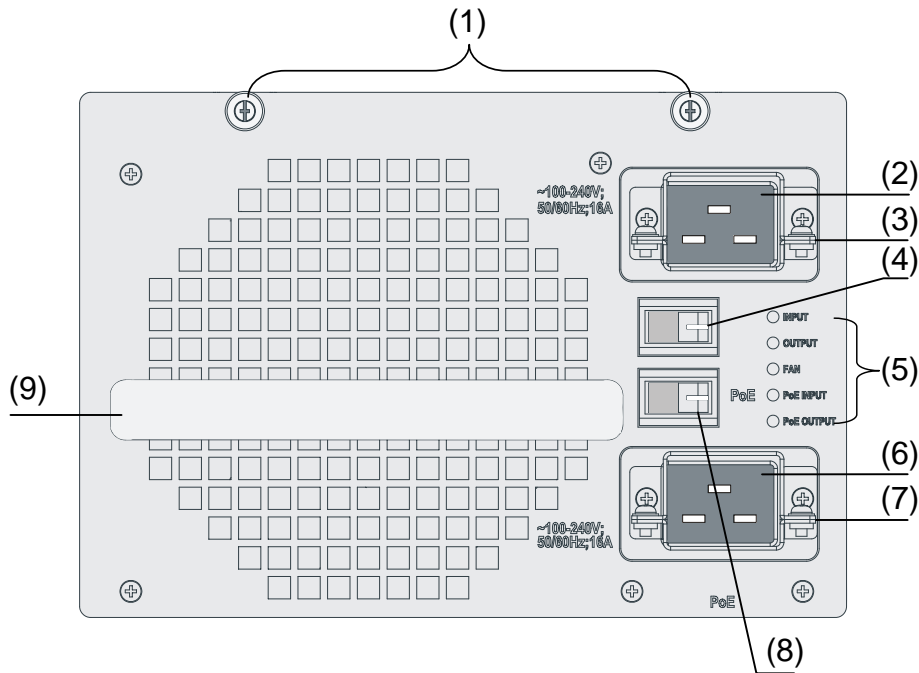
### Note

If power to the PSR1400-D power module is switch controlled, make sure that the negative input of the power module is disconnected when disconnecting power to the power module.



## PSR2800-ACV

Figure 1-15 PSR2800-ACV power module



(1) Captive screws	(2) System power socket
(3) Power cable retainer	(4) System power switch
(5) Power LEDs	(6) PoE power socket
(7) Power cable retainer	(8) PoE power switch
(9) Power module handle	

The PSR2800-ACV power module provides system power and PoE power. In [Figure 1-15](#), the switch indicated by (4) is used to control the power input of the whole system and the socket indicated by (2) is used for system power input, while the switch indicated by (8) is used to control the PoE power and the socket indicated by (6) is used for PoE power input.

On the right of the panel are the input LED, output LED, fan LED, PoE input LED, and PoE output LED. For the descriptions of these LEDs, refer to section 7.2.5 “Troubleshooting PSR2800-ACV.”

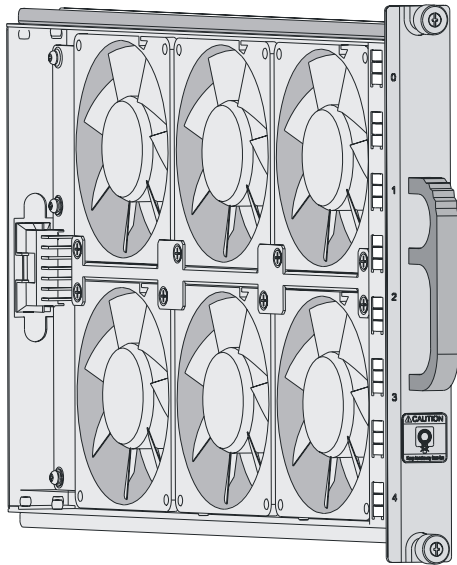
Table 1-12 Technical specifications of the PSR2800-ACV power module

Specifications	Value or range
Rated voltage range	100 VAC to 240 VAC, 50 Hz or 60 Hz
Maximum system output power	1150 W (110 V)
	1400 W (220 V)
Maximum PoE output power	1150 W (110 V)
	1400 W (220 V)
Physical dimensions (H x W x D)	128 x 196 x 380 mm (5.04 x 7.72 x 14.96 in.)

## Fan Tray

The S7902E, S7903E-S, S7903E, S7906E and S7910E switches provide chassis for horizontal cards. The fan tray is installed on the right side of the front of the chassis. The S7906E-V switch provides chassis for vertical cards. The fan tray is installed on the upper of the front of the chassis.

**Figure 1-16** Fan tray (for the S7903E)



The power consumption of the fan trays for the S7900E series varies with fan tray models.

**Table 1-13** Power consumption of the fan trays for the S7900E series

Model	Power consumption (W)
S7902E fan tray	20
S7903E-S fan tray	20
S7903E fan tray	30
S7906E fan tray	45
S7910E fan tray	50
S7906E-V fan tray	50

## Air Filter

Over a long period of time, dust may block the air filter at the air intake vent of the S7900E series. As a result, the heat dissipation of the system may be affected. You are recommended to clean the air filter every three months. Air filters are optional accessories.

Since the air flows up from the bottom, air filters for the S7906E-V, different from those for the other models, are installed on the front and rear sides near the bottom of the chassis.

# SRPUs

## SRPU Types

For the S7900E series, SRPUs are the core in the control and management plane and switching fabric. The S7900E series provide seven types of SRPUs.

**Table 1-14** SRPUs and their suitable chassis

Chassis (right)	S7902E	S7903E-S	S7903E	S7906E	S7910E	S7906E-V
Engine (below)						
LSQ1MPUA0	Yes	No	No	No	No	No
LSQ1CGP24TSC0	No	Yes	No	No	No	No
LSQ1SRP2XB0 (Saliency VI-10GE)	No	No	Yes	Yes	Yes	Yes
LSQ1SRPB0 (Saliency VI)	No	No	Yes	Yes	Yes	Yes
LSQ1SRP1CB0 (Saliency VI-Turbo)	No	No	Yes	Yes	Yes	Yes
LSQ1SRPD0 (Saliency VI-Plus)	No	No	Yes	Yes	Yes	Yes
LSQ1SRP12GB0 (Saliency VI-GE)	No	No	Yes	Yes	Yes	Yes



### Note

The S7900E series, except the S7903E-S, are a dual-SRPU system. The SRPUs in a chassis must be of the same type.

## LSQ1MPUA0 SRPU

### Applicable model

S7902E

### Technical specifications

**Table 1-15** Technical specifications of the LSQ1MPUA0

Item	Specifications
CPU	MIPS64, 600 MHz
Boot ROM	512 KB
Flash memory	64 MB
DDR SDRAM	512 MB
Dimensions (H x W x D)	45 x 199 x 355 mm (1.77 x 7.83 x 13.98 in.)

Item	Specifications
Interfaces	<ul style="list-style-type: none"> <li>• One compact flash (CF) card interface</li> <li>• One console port, used for local or remote configuration and management of the switch through a dialup configuration</li> <li>• One 10/100Base-TX management Ethernet port</li> </ul>
Power consumption	10 W to 15 W

 **Note**

The dimensions of the S7900E series are expressed in the form of H x W x D, where  
H: Height of the front panel of the card.

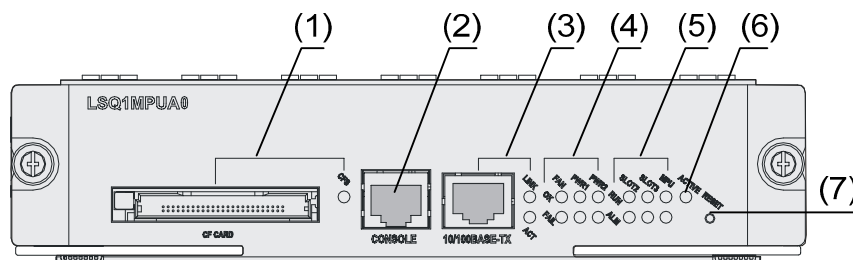
W: Width of the part inserted into the chassis, instead of that of the front panel.

D: Depth from the front panel to the other end, excluding the length of the handle.

### Panel and LEDs

[Figure 1-17](#) shows the front panel of the LSQ1MPUA0.

**Figure 1-17** Front panel of the LSQ1MPUA0



(1) CF card interface and CFS LED	(2) Console port
(3) 10/100Base-TX Ethernet port for management and LEDs	
(4) Power and fan tray status LEDs	(5) LPU status LEDs
(6) ACTIVE LED of LSQ1MPUA0	(7) RESET button

### On-board interfaces

- CF card slot

The CF card slot can accommodate a standard CF card (Type I or Type II), where you can store host software and logs, and thus upgrade software conveniently. The CF card is hot swappable.

[Table 1-16](#) describes the CFS LED on the right of the CF card.

**Table 1-16** Description of the CFS LED

Status	Description
OFF	No CF card is in position.
ON	The CF card is in position.

- Console port

Using an RJ-45 connector, the console port can be connected through a regular asynchronous serial cable directly to a computer for system debugging, configuration, maintenance, management, and host software loading, or to a modem for remote system debugging, configuration, maintenance and management.

**Table 1-17** Specifications of the console port

Item	Specifications
Connector type	RJ-45
Number of connectors	1
Interface standard	Asynchronous EIA/TIA-232
Baud rate	115,200 bps (defaulting to 9,600 bps)
Transmission distance	15 m (49.21 ft.)
Functions	<ul style="list-style-type: none"> <li>• It can be connected to an ASCII terminal.</li> <li>• It can be connected to a serial port of a local or remote (through a pair of modems) PC running terminal emulation program.</li> </ul>

- 10/100Base-TX Ethernet port for management

Using an RJ-45 connector, the 10/100Base-TX management Ethernet port can be connected to a local PC for switch program loading and switch debugging, or connected to a remote NMS for remote management.

**Table 1-18** Specifications of the 10/100Base-TX Ethernet port

Item	Specifications
Connector type	RJ-45
Number of connectors	1
Interface speed	10/100 Mbps, half/full duplex
Cable medium and maximum transmission distance	Category-5 twisted pair, with a maximum transmission distance of 100 m (328.08 ft.)
Function	Host software & Boot ROM upgrade and network management

[Table 1-19](#) describes the LED status of the 10/100Base-TX management Ethernet port.

**Table 1-19** Description of the status LEDs of the 10/100Base-TX management Ethernet port

LED	Description
LINK	<ul style="list-style-type: none"><li>• OFF: No link is present.</li><li>• ON: A link is present.</li></ul>
ACT	<ul style="list-style-type: none"><li>• OFF: No data is being transmitted or received.</li><li>• Blinking: Data is being transmitted or received.</li></ul>

## System LEDs

- System status LEDs

The LEDs on the card panel indicate the statuses of the power modules, fan tray, two LPUs, and LSQ1MPUA0 itself.

- Power status LEDs

PWR1 and PWR2: The LEDs show the status of the two power modules (AC or DC).

**Table 1-20** Description of the power status LEDs

LED	Description
OK	ON: The power module works normally.
	OFF: The power module is faulty or out of position.
FAIL	ON: The power module is faulty, or there is no power input to the power module, or the power switch is turned off.
	OFF: The power module is operational or out of position.

- Fan status LEDs

FAN: The LEDs show the status of the fan tray.

**Table 1-21** Description of the fan status LEDs

LED	Description
OK	<ul style="list-style-type: none"><li>• ON: The fans operate normally.</li><li>• OFF: The fans are faulty or out of position.</li></ul>
FAIL	<ul style="list-style-type: none"><li>• ON: The fans are faulty or out of position.</li><li>• OFF: The fans operate normally.</li></ul>

- LPU status LEDs (SLOT2, SLOT3, MPU)

SLOT2 and SLOT3: The LEDs show the status of the LPUs in slot 2 and slot 3.

MPU: The LEDs show the status of the LSQ1MPUA0 itself.

**Table 1-22** Description of LPU status LEDs

LED	Description
RUN	<ul style="list-style-type: none"> <li>ON/OFF: The LPU is faulty or out of position.</li> <li>Blinking: The LPU is operating normally.</li> </ul>
ALM	<ul style="list-style-type: none"> <li>OFF: The LPU is operational or out of position.</li> <li>ON: The LPU is faulty.</li> </ul>

**Note**

If the RUN LED flashes at a high frequency, the card is in the startup process, but is not yet operational. At system startup, the ALM LED will be ON for a while but it does not mean that the card is faulty.

- ACTIVE LED

The ACTIVE LED shows the active/standby status of the LSQ1MPUA0. If the ACTIVE LED is ON, the LSQ1MPUA0 is active; if OFF, the LSQ1MPUA0 is standby.

**RESET button**

A reset button is provided on the LSQ1MPUA0 for you to reset the card when necessary.

**Dedicated S7903E-S SRPU-LSQ1CGP24TSC0****Applicable model**

S7903E-S

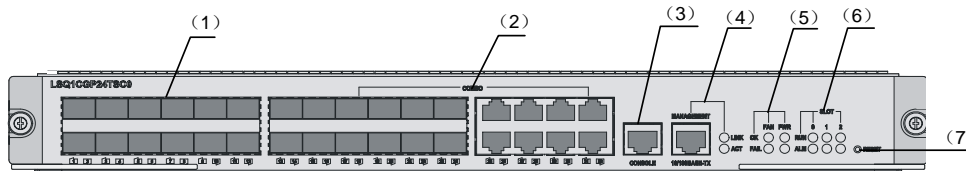
**Technical specifications****Table 1-23** Technical specifications of the LSQ1CGP24TSC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
Flash memory	64 MB
DDR SDRAM	512 MB
Dimensions (H x W x D)	45 x 377 x 355 mm (1.77 x 14.84 x 13.98 in.)
Ports	<ul style="list-style-type: none"> <li>Twenty-four 1000Base-X-SFP/100Base-FX-SFP ports, eight of which can form eight Combo ports with the eight 10/100/1000Base-T GE ports</li> <li>One console port, used for local or remote configuration and management of the switch through a dialup connection</li> <li>One 10/100Base-TX port for management and upgrade</li> </ul>
Power consumption	25 W to 45 W

**Panel and LEDs**

[Table 1-19](#) shows the front panel of the LSQ1CGP24TSC0.

**Figure 1-18** Front panel of the LSQ1CGP24TSC0



(1) GE/FE SFP optical ports	(2) Combo ports
(3) Console port	
(4) 10/100Base-TX Ethernet management port and its LEDs	
(5) Power and fan tray status LEDs	(6) LPU status LEDs
(7) RESET button	

### On-board interfaces

- Optical Ethernet ports and Combo ports

The LSQ1CGP24TSC0 provides twenty-four 1000Base-X-SFP/100Base-FX-SFP ports and eight 10/100/1000Base-T GE ports. The eight GE ports and eight of the SFP ports can form eight Combo ports, each comprising a GE port and an SFP port.

**Table 1-24** Specifications of the Ethernet ports

Item	Specifications
Connector types	<ul style="list-style-type: none"> <li>• SFP</li> <li>• RJ-45</li> </ul>
Number of connectors	<ul style="list-style-type: none"> <li>• 24 SFP connectors</li> <li>• 8 RJ-45 connectors</li> </ul>
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE 802.1X-2004</li> </ul>
Pluggable module type	<ul style="list-style-type: none"> <li>• Gigabit SFP module</li> <li>• 100 Mbps SFP module</li> </ul> Refer to "Appendix A List of Pluggable Modules."

[Table 1-25](#) shows the pairings of the eight SFP ports and the eight GE ports for the Combo interfaces.

**Table 1-25** Pairings of the SFP ports and the GE ports for the Combo interfaces

1000Base-X-SFP/100Base-FX-SFP port number	10/100/1000Base-T GE port number
17	25
18	26
19	27
20	28
21	29
22	30
23	31



1000Base-X-SFP/100Base-FX-SFP port number	10/100/1000Base-T GE port number
24	32



#### Note

In a Combo port, only one of the 1000Base-X-SFP/100Base-FX-SFP port and the 10/100/1000Base-T GE port can be used at a time.

Each Ethernet port has a green LED. [Table 1-26](#) describes the LEDs.

**Table 1-26** Description of the LED of each Ethernet port

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

- Console port

Using an RJ-45 connector, the console port can be connected through a regular asynchronous serial cable directly to a computer for system debugging, configuration, maintenance, management, and host software loading, or to a modem for remote system debugging, configuration, maintenance and management.

**Table 1-27** Specifications of the console port

Item	Specifications
Connector type	RJ-45
Number of connectors	1
Interface standard	Asynchronous EIA/TIA-232
Baud rate	115,200 bps (defaulting to 9,600 bps)
Transmission distance	15 m (49.21 ft.)
Functions	<ul style="list-style-type: none"> <li>• It can be connected to an ASCII terminal.</li> <li>• It can be connected to the serial port of a local or remote (through a pair of modems) PC running terminal emulation program.</li> </ul>

- 10/100Base-TX Ethernet port for management

Using an RJ-45 connector, the interface can be connected through a regular asynchronous serial cable directly to a computer for switch program loading and switch debugging, or to a remote NMS for remote management.

**Table 1-28** Specifications of the 10/100Base-TX Ethernet port for management

Item	Specifications
Connector type	RJ-45

Item	Specifications
Number of connectors	1
Interface speed	10/100 Mbps, half/full duplex
Connecting cable and maximum transmission distance	Category-5 twisted pair, with a maximum transmission distance of 100 m (328.08 ft.)
Function	Used for switch software upgrade and network management

[Table 1-29](#) describes the status LED of the 10/100Base-TX Ethernet port.

**Table 1-29** Description of the status LED of the 10/100Base-TX Ethernet port

LED	Description
LINK	<ul style="list-style-type: none"> <li>OFF: No link is present.</li> <li>ON: A link is present.</li> </ul>
ACT	<ul style="list-style-type: none"> <li>OFF: No data is being transmitted or received.</li> <li>Blinking: Data is being transmitted or received.</li> </ul>

## System LEDs

- System status LEDs

The LEDs on the card panel indicate the statuses of the power modules, fan tray, LPUs, and LSQ1CGP24TSC0 itself.

- Power status LEDs

PWR: The power status LEDs show the status of the power modules.

**Table 1-30** Description of the power status LEDs

LED	Description
OK	<ul style="list-style-type: none"> <li>ON: The power modules operate normally.</li> </ul>
	<ul style="list-style-type: none"> <li>OFF: The power module is faulty or out of position.</li> </ul>
FAIL	<ul style="list-style-type: none"> <li>ON: At least one power module is faulty or switched off.</li> </ul>
	<ul style="list-style-type: none"> <li>OFF: The power modules are operational or out of position.</li> </ul>

- Fan status LEDs

FAN: The LEDs shows the status of the fan tray.

**Table 1-31** Description of the fan status LEDs

LED	Description
OK	<ul style="list-style-type: none"> <li>ON: The fans operate normally.</li> </ul>
	<ul style="list-style-type: none"> <li>OFF: The fans are faulty or out of position.</li> </ul>
FAIL	<ul style="list-style-type: none"> <li>ON: The fans are faulty or out of position.</li> </ul>
	<ul style="list-style-type: none"> <li>OFF: The fans operate normally.</li> </ul>

- LPU status LEDs (SLOT0, SLOT1, and SLOT2)

SLOT0, SLOT1, and SLOT2: The LPU status LEDs indicate the status of the LPUs seated in these three slots.

**Table 1-32** Description of LPU status LEDs

LED	Description
RUN	<ul style="list-style-type: none"> <li>• ON/OFF: The LPU is faulty or out of position.</li> <li>• Blinking: The LPU is operating normally.</li> </ul>
ALM	<ul style="list-style-type: none"> <li>• OFF: The LPU is operational or out of position.</li> <li>• ON: The LPU is faulty.</li> </ul>

**Note**

If the RUN LED flashes at a high frequency, the card is in the startup process, but is not operational yet. At system startup, the ALM LED will be ON for a while, but it does not mean that the card is faulty.

**RESET button**

A reset button is provided on the LSQ1CGP24TSC0 for you to reset the card when necessary.

**Salience VI-10GE SRPU-LSQ1SRP2XB0****Applicable models**

- S7903E
- S7906E
- S7910E
- S7906E-V

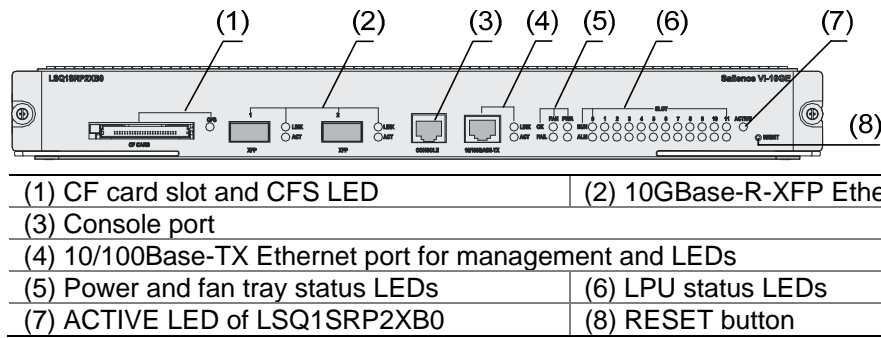
**Technical specifications****Table 1-33** Technical specifications of the LSQ1SRP2XB0

Item	Specifications
CPU	MIPS64, 600 MHz
Boot ROM	512 KB
Flash memory	64 MB
DDR SDRAM	512 MB
Dimensions (H x W x D)	45 x 377 x 355 mm (1.77 x 14.84 x 13.98 in.)
Interfaces	<ul style="list-style-type: none"> <li>• One CF card interface</li> <li>• Two 10GBase-R-XFP Ethernet ports</li> <li>• One console port, used for local or remote configuration and management of the switch through a dialup connection</li> <li>• One 10/100Base-TX management Ethernet port</li> </ul>
Power consumption	55 W to 65 W

**Panel and LEDs**

[Figure 1-19](#) shows the front panel of the LSQ1SRP2XB0.

**Figure 1-19** Front panel of the LSQ1SRP2XB0



### On-board interfaces

- CF card slot

The CF card slot can accommodate a standard CF card (Type I or Type II), where you can store host software and logs, and thus upgrade software conveniently. The CF card is hot swappable.

[Table 1-34](#) describes the CFS LED on the right of the CF card.

**Table 1-34** Description of the CFS LED

Status	Description
OFF	No CF card is in position.
ON	The CF card is in position.

- 10GBase-R-XFP Ethernet ports

**Table 1-35** Specifications of the 10GBase-R-XFP Ethernet ports

Item	Specifications
Connector type	LC
Number of interfaces	2
Interface standard	10GBase-R
Applicable fiber module	Refer to “Appendix A List of Pluggable Modules.”

[Table 1-36](#) describes the status LEDs of 10GBase-R-XFP Ethernet ports.

**Table 1-36** Description of the status LEDs of 10GBase-R-XFP Ethernet ports

LED	Description
LINK	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> </ul>
ACT	<ul style="list-style-type: none"> <li>• OFF: No data is being transmitted or received.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

- Console port

Using an RJ-45 connector, the console port can be connected through a regular asynchronous serial cable directly to a computer for system debugging, configuration, maintenance, management, and host

software loading, or to a modem for remote system debugging, configuration, maintenance and management.

**Table 1-37** Specifications of the console port

Item	Specifications
Connector type	RJ-45
Number of connectors	1
Interface standard	Asynchronous EIA/TIA-232
Baud rate	115,200 bps (defaulting to 9,600 bps)
Transmission distance	15 m (49.21 ft.)
Functions	<ul style="list-style-type: none"> <li>• It can be connected to an ASCII terminal.</li> <li>• It can be connected to a serial port of a local or remote (through a pair of modems) PC running terminal emulation program.</li> </ul>

- 10/100Base-TX management Ethernet port

Using an RJ-45 connector, the 10/100Base-TX management Ethernet port can be connected to a local PC for switch program loading and switch debugging, or connected to a remote NMS for remote management.

**Table 1-38** Specifications of the 10/100Base-TX Ethernet port for management

Item	Specifications
Connector type	RJ-45
Number of interfaces	1
Interface speed	10/100 Mbps, half/full duplex
Cable medium and maximum transmission distance	Category-5 twisted pair, with a maximum transmission distance of 100 m (328.08 ft.)
Function	Used for switch software upgrade and network management

**Table 1-39** Description of the status LEDs of the 10/100Base-TX management Ethernet port

LED	Description
LINK	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> </ul>
ACT	<ul style="list-style-type: none"> <li>• OFF: No data is being transmitted or received.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## System LEDs

- System status LEDs

The LEDs on the card panel indicate the statuses of the power modules, fan tray, twelve LPUs, and LSQ1SRP2XB0 itself.

- Power status LEDs

PWR: The power status LEDs show the status of the power modules.

**Table 1-40** Description of the power status LEDs

LED	Description
OK	ON: The power modules operate normally.
	OFF: The power module is faulty or out of position.
FAIL	ON: At least one power module is faulty or switched off.
	OFF: The power modules are operational or out of position.

- Fan status LEDs

FAN: The LEDs show the status of the fan tray.

**Table 1-41** Description of the fan status LEDs

LED	Description
OK	<ul style="list-style-type: none"><li>• ON: The fans operate normally.</li><li>• OFF: The fans are faulty or out of position.</li></ul>
FAIL	<ul style="list-style-type: none"><li>• ON: The fans are faulty or out of position.</li><li>• OFF: The fans operate normally.</li></ul>

- LPU status LEDs (SLOT0 through SLOT11)

SLOT0 through SLOT11: The LPU status LEDs indicate the status of the LPUs seated in the 12 slots.

**Table 1-42** Description of LPU status LEDs

LED	Description
RUN	<ul style="list-style-type: none"><li>• ON/OFF: The LPU is faulty or out of position.</li><li>• Blinking: The LPU is operating normally.</li></ul>
ALM	<ul style="list-style-type: none"><li>• OFF: The LPU is operational or out of position.</li><li>• ON: The LPU is faulty.</li></ul>



**Note**

If the RUN LED flashes at a high frequency, the card is in the startup process, but is not yet operational. At system startup, the ALM LED will be ON for a while, but it does not mean that the card is faulty

- ACTIVE LED

The ACTIVE LED shows the active/standby status of the LSQ1SRP2XB0. If the ACTIVE LED is ON, the LSQ1SRP2XB0 is active; if OFF, the LSQ1SRP2XB0 is standby.

**RESET button**

A reset button is provided on the LSQ1SRP2XB0 for you to reset the card when necessary.

# Salience VI SRPU-LSQ1SRPB0

## Applicable models

- S7903E
- S7906E
- S7910E
- S7906E-V

## Technical specifications

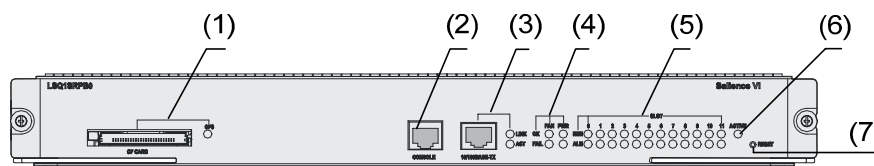
**Table 1-43** Technical specifications of the LSQ1SRPB0

Item	Specifications
CPU	MIPS64, 600 MHz
Boot ROM	512 KB
Flash memory	64 MB
DDR SDRAM	512 MB
Dimensions (H x W x D)	45 x 377 x 355 mm (1.77 x 14.84 x 13.98 in.)
Ports	<ul style="list-style-type: none"> <li>• One CF card slot</li> <li>• One console port, used for local or remote configuration and management of the switch through a dialup connection</li> <li>• One 10/100Base-TX management Ethernet port</li> </ul>
Power consumption	42 W to 50 W

## Panel and LEDs

[Figure 1-20](#) shows the front panel of the LSQ1SRPB0.

**Figure 1-20** Front panel of the LSQ1SRPB0



(1) CF card slot and CFS LED	(2) Console port
(3) 10/100Base-TX Ethernet port for management and LEDs	(4) Power and fan status LEDs
(5) LPU status LEDs	(6) ACTIVE LED of LSQ1SRPB0
(7) RESET button	

## On-board interfaces

- CF card slot

The CF card slot can accommodate a standard CF card (Type I or Type II), where you can store host software and logs, and thus upgrade software conveniently. The CF card is hot swappable.

[Table 1-44](#) describes the CFS LED on the right of the CF card.

**Table 1-44** Description of the CFS LED

Status	Description
OFF	No CF card is in position.
ON	The CF card is in position.

- Console port

Using an RJ-45 connector, the console port can be connected through a regular asynchronous serial cable directly to a computer for system debugging, configuration, maintenance, management, and host software loading, or to a modem for remote system debugging, configuration, maintenance and management.

**Table 1-45** Specifications of the console port

Item	Specifications
Connector type	RJ-45
Number of connectors	1
Interface standard	Asynchronous EIA/TIA-232
Baud rate	115,200 bps (defaulting to 9,600 bps)
Transmission distance	15 m (49.21 ft.)
Functions	<ul style="list-style-type: none"> <li>• It can be connected to an ASCII terminal.</li> <li>• It can be connected to the serial port of a local or remote (through a pair of modems) PC running terminal emulation program.</li> </ul>

- 10/100Base-TX management Ethernet port

Using an RJ-45 connector, the 10/100Base-TX management Ethernet port can be connected to a local PC for switch program loading and switch debugging, or connected to a remote NMS for remote management.

**Table 1-46** Specifications of the 10/100Base-TX Ethernet port

Item	Specifications
Connector type	RJ-45
Number of interfaces	1
Interface speed	10/100 Mbps, half/full duplex
Connecting cable and maximum transmission distance	Category-5 twisted pair, with a maximum transmission distance of 100 m (328.08 ft.)
Function	Used for switch software upgrade and network management

[Table 1-47](#) describes the status LEDs of the 10/100Base-TX management Ethernet port.



**Table 1-47** Description of the status LEDs of the 10/100Base-TX Ethernet port

LED	Description
LINK	<ul style="list-style-type: none"><li>• OFF: No link is present.</li><li>• ON: A link is present.</li></ul>
ACT	<ul style="list-style-type: none"><li>• OFF: No data is being transmitted or received.</li><li>• Blinking: Data is being transmitted or received.</li></ul>

### System LEDs

- System status LED

The status LEDs on the panel indicate the statuses of the power modules, fan tray, twelve LPUs, and SQ1SRPB0 itself.

- Power status LED

PWR: The power status LEDs show the status of the power modules

**Table 1-48** Description of the power status LEDs

LED	Description
OK	ON: The power modules operate normally.
	OFF: The power modules are faulty or out of position.
FAIL	ON: At least one power module is faulty or switched off.
	OFF: The power modules are operational or out of position.

- Fan status LEDs

FAN: The LEDs show the status of the fan tray.

**Table 1-49** Description of the fan status LEDs

LED	Description
OK	<ul style="list-style-type: none"><li>• ON: The fans operate normally.</li><li>• OFF: The fans are faulty or out of position.</li></ul>
FAIL	<ul style="list-style-type: none"><li>• ON: The fans are faulty or out of position.</li><li>• OFF: The fans operate normally.</li></ul>

- LPU status LEDs (SLOT0 through SLOT11)

SLOT1 through SLOT11: The LPU status LEDs indicate the status of the LPUs seated in the twelve slots.

**Table 1-50** Description of LPU status LEDs

LED	Description
RUN	<ul style="list-style-type: none"><li>• ON/OFF: The LPU is faulty or out of position.</li><li>• Blinking: The LPU is operating normally.</li></ul>
ALM	<ul style="list-style-type: none"><li>• OFF: The LPU is operational or out of position.</li><li>• ON: The LPU is faulty.</li></ul>



## Note

If the RUN LED flashes at a high frequency, the card is in the startup process, but is not yet operational. At system startup, the ALM LED will be ON for a while, but it does not mean that the card is faulty

- ACTIVE LED

The ACTIVE LED shows the active/standby status of the LSQ1SRPB0. If the ACTIVE LED is ON, the LSQ1SRPB0 is active; if OFF, the LSQ1SRPB0 is standby.

### RESET button

A reset button is provided on the LSQ1SRPB0 for you to reset the card when necessary.

## Salience VI-Turbo SRPU-LSQ1SRP1CB0

### Applicable models

- S7903E
- S7906E
- S7910E
- S7906E-V

### Technical specifications

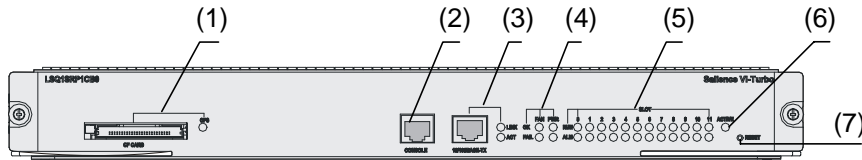
**Table 1-51** Technical specifications of LSQ1SRP1CB0

Item	Specifications
CPU	MIPS64, 600 MHz
Boot ROM	512 KB
Flash memory	64 MB
DDR SDRAM	512 MB
Card physical dimensions (H x W x D)	45.1 × 377 × 355 mm (1.77 × 14.84 × 13.98 in.)
Interfaces	<ul style="list-style-type: none"><li>• One CF card slot</li><li>• One console port, used for local or remote configuration and management of the switch through a dialup connection</li><li>• One 10/100Base-TX management Ethernet port</li></ul>
Power consumption	53 W to 60 W

### Panel and LEDs

[Figure 1-21](#) shows the front panel of the LSQ1SRP1CB0.

**Figure 1-21** Front panel of the LSQ1SRP1CB0



(1) CF card slot and CFS LED	(2) Console port
(3) 10/100Base-TX Ethernet port for management and LEDs	
(4) Power and fan status LEDs	(5) LPU status LEDs
(6) ACTIVE LED of LSQ1SRP1CB0	(7) RESET button

### On-board interfaces

- CF card slot

The CF card slot can accommodate a standard CF card (Type I or Type II), where you can store host software and logs, and thus upgrade software conveniently. The CF card is hot swappable.

[Table 1-52](#) describes the CFS LED on the right of the CF card.

**Table 1-52** Description of the CFS LED

Status	Description
OFF	No CF card is in position.
ON	The CF card is in position.

- Console port

Using an RJ-45 connector, the console port can be connected through a regular asynchronous serial cable directly to a computer for system debugging, configuration, maintenance, management, and host software loading, or to a modem for remote system debugging, configuration, maintenance and management.

**Table 1-53** Specifications of the console port

Item	Specifications
Connector type	RJ-45
Number of connectors	1
Interface standard	Asynchronous EIA/TIA-232
Baud rate	115,200 bps (defaulting to 9,600 bps)
Transmission distance	15 m (49.21 ft.)
Functions	<ul style="list-style-type: none"> <li>• It can be connected to an ASCII terminal.</li> <li>• It can be connected to a serial port of a local or remote (through a pair of modems) PC running terminal emulation program.</li> </ul>

- 10/100Base-TX management Ethernet port

Using an RJ-45 connector, the 10/100Base-TX management Ethernet port can be connected to a local PC for switch program loading and switch debugging, or connected to a remote NMS for remote management.

**Table 1-54** Specifications of the 10/100Base-TX Ethernet port

Item	Specifications
Connector type	RJ-45
Number of interfaces	1
Interface speed	10/100 Mbps, half/full duplex
Cable medium and maximum transmission distance	Category-5 twisted pair, with a maximum transmission distance of 100 m (328.08 ft.)
Function	Used for switch software upgrade and network management

[Table 1-55](#) describes the status LEDs of the 10/100Base-TX management Ethernet port.

**Table 1-55** Description of the status LEDs of the 10/100Base-TX Ethernet port

LED	Description
LINK	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> </ul>
ACT	<ul style="list-style-type: none"> <li>• OFF: No data is being transmitted or received.</li> <li>• Blinking: Data is being transmitted or received..</li> </ul>

## System LEDs

- System status LEDs

The LEDs on the card panel indicate the statuses of the power modules, fans, LPUs seated in the twelve slots, and LSQ1SRP1CB0 itself.

- Power status LEDs

PWR: The power status LEDs show the status of the power modules.

**Table 1-56** Description of the power status LEDs

LED	Description
OK	ON: The power modules operate normally.
	OFF: The power modules are faulty or out of position.
FAIL	ON: At least one power module is faulty or out of position.
	OFF: The power modules are operational or out of position.

- Fan status LEDs

FAN: The LEDs show the status of the fan tray.

**Table 1-57** Description of the fan status LEDs

LED	Description
OK	<ul style="list-style-type: none"><li>• ON: The fans operate normally.</li><li>• OFF: The fans are faulty or out of position.</li></ul>
FAIL	<ul style="list-style-type: none"><li>• ON: The fans are faulty or out of position.</li><li>• OFF: The fans operate normally.</li></ul>

- LPU status LEDs (SLOT0 through SLOT11)

SLOT0 through SLOT11: The LEDs indicate the status of the LPUs seated in the twelve slots.

**Table 1-58** Description of the LPU status LEDs

LED	Description
RUN	<ul style="list-style-type: none"><li>• ON/OFF: The LPU is faulty or out of position.</li><li>• Blinking: The LPU is operating normally.</li></ul>
ALM	<ul style="list-style-type: none"><li>• OFF: The LPU is operational or out of position.</li><li>• ON: The LPU is faulty.</li></ul>



**Note**

If the RUN LED flashes at a high frequency, the card is in the startup process, but is not yet operational. At system startup, the ALM LED will be ON for a while, but it does not mean that the card is faulty

- ACTIVE LED

The ACTIVE LED shows the active/standby status of the LSQ1SRP1CB0. If the ACTIVE LED is ON, the LSQ1SRP1CB0 is active; if OFF, the LSQ1SRP1CB0 is standby.

**RESET button**

A reset button is provided on the LSQ1SRP1CB0 for you to reset the card when necessary.

**Salience VI-Plus SRPU-LSQ1SRPD0**

**Applicable models**

- S7903E
- S7906E
- S7910E
- S7906E-V

**Technical specifications**

**Table 1-59** Technical specifications of the LSQ1SRPD0

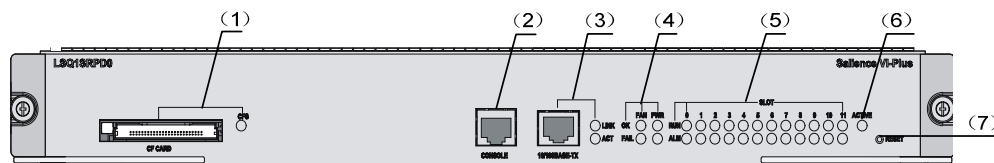
Item	Specifications
CPU	MIPS64, 600 MHz
Boot ROM	512 KB
Flash memory	64 MB

Item	Specifications
DDR SDRAM	512 MB
Dimensions (H x W x D)	45 x 377 x 355 mm (1.77 x 14.84 x 13.98 in.)
Interfaces	<ul style="list-style-type: none"> <li>• One CF card slot</li> <li>• One console port, used for local or remote configuration and management of the switch through a dialup connection</li> <li>• One 10/100Base-TX management Ethernet port</li> </ul>
Power consumption	50 W to 60 W

## Panel and LEDs

Figure 1-22 shows the front panel of the LSQ1SRPD0.

Figure 1-22 Front panel of the LSQ1SRPD0



(1) CF card slot and CF card status LED	(2) Console port
(3) 10/100Base-TX management Ethernet port and LEDs	(4) Power module and fan status LEDs
(5) LPU status LEDs	(6) ACTIVE LED of LSQ1SRPD0
(7) RESET button	

## On-board interfaces

- CF card slot

The CF card slot can accommodate a standard CF card (Type I or Type II), where you can store host software and logs and thus upgrade software conveniently. The CF card is hot swappable.

- Console port

Using an RJ-45 connector, the console port can be connected through a regular asynchronous serial cable directly to a computer for system debugging, configuration, maintenance, management, and host software loading, or to a modem for remote system debugging, configuration, maintenance and management.

Table 1-60 Specifications of the console port

Item	Specifications
Connector type	RJ-45
Number of connectors	1
Interface standard	Asynchronous EIA/TIA-232
Baud rate	115,200 bps (defaulting to 9,600 bps)
Transmission distance	15 m (49.21 ft.)
Functions	<ul style="list-style-type: none"> <li>• It can be connected to an ASCII terminal.</li> <li>• It can be connected to a serial port of a local or remote (through a pair of modems) PC running terminal emulation program.</li> </ul>

- 10/100Base-TX management Ethernet port

Using an RJ-45 connector, the 10/100Base-TX management Ethernet port can be connected to a local PC for switch program loading and switch debugging, or connected to a remote NMS for remote management.

**Table 1-61** Specifications of the 10/100Base-TX management Ethernet port

Item	Specifications
Connector type	RJ-45
Number of interfaces	1
Interface speed	10/100 Mbps, half/full duplex
Cable medium and maximum transmission distance	Category-5 twisted pair, with a maximum transmission distance of 100 m (328.08 ft.)
Function	Used for switch software upgrade and network management

[Table 1-62](#) describes the status LEDs of the 10/100Base-TX management Ethernet port.

**Table 1-62** Description of the status LEDs of the 10/100Base-TX management Ethernet port

LED	Description
LINK	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> </ul>
ACT	<ul style="list-style-type: none"> <li>• OFF: No data is being transmitted or received.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## System LEDs

- System status LEDs

The LEDs on the card panel indicate the statuses of the power modules, fans, LPUs seated in the twelve slots, and LSQ1SRPD0 itself.

- Power status LEDs

PWR: The power status LEDs show the status of the power modules.

**Table 1-63** Description of the power status LEDs

LED	Description
OK	ON: The power modules operate normally.
	OFF: The power module is faulty or out of position.
FAIL	ON: The power module is faulty or out of position.
	OFF: The power modules are operational or out of position.

- Fan status LEDs

FAN: The LEDs show the status of the fan tray.

**Table 1-64** Description of the fan status LEDs

LED	Description
OK	<ul style="list-style-type: none"><li>• ON: The fans operate normally.</li><li>• OFF: The fans are faulty or out of position.</li></ul>
FAIL	<ul style="list-style-type: none"><li>• ON: The fans are faulty or out of position.</li><li>• OFF: The fans operate normally.</li></ul>

- LPU status LEDs (SLOT0 through SLOT11)

SLOT0 through SLOT11: The LEDs indicate the status of the LPUs seated in the twelve slots.

**Table 1-65** Description of the LPU status LEDs

LED	Description
RUN	<ul style="list-style-type: none"><li>• ON/OFF: The LPU is faulty or out of position.</li><li>• Blinking: The LPU is operating normally.</li></ul>
ALM	<ul style="list-style-type: none"><li>• OFF: The LPU is operational or out of position.</li><li>• ON: The LPU is faulty.</li></ul>



**Note**

If the RUN LED flashes at a high frequency, the card is in the startup process, but is not yet operational. At system startup, the ALM LED will be ON for a while, but it does not mean that the card is faulty.

- ACTIVE LED

The ACTIVE LED shows the active/standby status of the LSQ1SRPD0. If the ACTIVE LED is ON, the LSQ1SRPD0 is active; if OFF, the LSQ1SRPD0 is standby.

**RESET button**

A reset button is provided on the LSQ1SRPD0 for you to reset the card when necessary.

**Salience VI-GE SRPU-LSQ1SRP12GB0**

**Applicable models**

- S7903E
- S7906E
- S7910E
- S7906E-V

**Technical specifications**

**Table 1-66** Technical specifications of the LSQ1SR12GB0

Item	Specifications
CPU	Dual CPUs: <ul style="list-style-type: none"><li>• MIPS64, 600 MHz</li><li>• MIPS64, 400 MHz</li></ul>

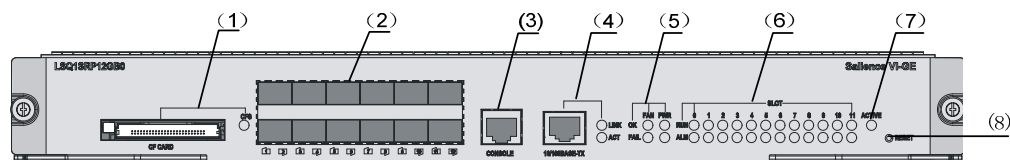


Item	Specifications
Boot ROM	512 KB
Flash memory	64 MB
DDR SDRAM	512 MB
Dimensions (H x W x D)	45 x 377 x 355 mm (1.77 x 14.84 x 13.98 in.)
Interfaces	<ul style="list-style-type: none"> <li>• One CF card slot</li> <li>• Twelve 1000Base-X-SFP/100Base-FX-SFP ports</li> <li>• One console port, used for local or remote configuration and management of the switch through a dialup connection</li> <li>• One 10/100Base-TX management Ethernet port</li> </ul>
Power consumption	42 W to 60 W

## Panel and LEDs

[Figure 1-23](#) shows the front panel of the LSQ1SR12GB0.

**Figure 1-23** Front panel of the LSQ1SRPD0



(1) CF card slot and CF card status LED	(2) Gigabit/100 Mbps Ethernet ports and LEDs
(3) Console port	(4) 10/100Base-TX Ethernet port for management and LEDs
(5) Power and fan tray status LEDs	(6) LPU status LEDs
(7) ACTIVE LED of LSQ1SR12GB0	(8) RESET button

## On-board interfaces

- CF card slot

The CF card slot can accommodate a standard CF card (Type I or Type II), where you can store host software and logs, and thus upgrade software conveniently. The CF card is hot swappable.

[Table 1-67](#) describes the CFS LED on the right of the CF card.

**Table 1-67** Description of the CFS LED

Status	Description
OFF	No CF card is in position.
ON	The CF card is in position.

- GE/FE SFP ports

[Table 1-68](#) presents the specifications of the GE/FE ports.

**Table 1-68** Specifications of the GE/FE SFP ports

Item	Specifications
Connector type	SFP
Number of connectors	12
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE 802.1X-2004</li> </ul>
Pluggable module type	<ul style="list-style-type: none"> <li>• Gigabit SFP module</li> <li>• 100 Mbps SFP module</li> </ul> Refer to "Appendix A List of Pluggable Modules."

[Table 1-69](#) describes the status LEDs of the 1000Base-X-SFP/100Base-FX-SFP ports.

**Table 1-69** Description of the status LEDs of the 1000Base-X-SFP/100Base-FX-SFP ports

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

- Console port

Using an RJ-45 connector, the console port can be connected through a regular asynchronous serial cable directly to a computer for system debugging, configuration, maintenance, management, and host software loading, or to a modem for remote system debugging, configuration, maintenance and management.

**Table 1-70** Specifications of the console port

Item	Specifications
Connector type	RJ-45
Number of connectors	1
Interface standard	Asynchronous EIA/TIA-232
Baud rate	115,200 bps (defaulting to 9,600 bps)
Transmission distance	15 m (49.21 ft.)
Functions	<ul style="list-style-type: none"> <li>• It can be connected to an ASCII terminal.</li> <li>• It can be connected to a serial port of a local or remote (through a pair of modems) PC running terminal emulation program.</li> </ul>

- 10/100Base-TX management Ethernet port

Using an RJ-45 connector, the 10/100Base-TX management Ethernet port can be connected to a local PC for switch program loading and switch debugging, or connected to a remote NMS for remote management.

**Table 1-71** Specifications of the 10/100Base-TX management Ethernet port

Item	Specifications
Connector type	RJ-45
Number of connectors	1
Interface speed	10/100 Mbps, half/full duplex
Cable medium and maximum transmission distance	Category-5 twisted pair, with a maximum transmission distance of 100 m (328.08 ft.)
Function	Used for switch software upgrade and network management

[Table 1-72](#) describes the status LEDs of the 10/100Base-TX management Ethernet port.

**Table 1-72** Description of the status LEDs of the 10/100Base-TX management Ethernet port

LED	Description
LINK	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> </ul>
ACT	<ul style="list-style-type: none"> <li>• OFF: No data is being transmitted or received.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## System LEDs

- System status LEDs

The LEDs on the card panel indicate the statuses of the power modules, fans, LPUs seated in the twelve slots, and LSQ1SR12GB0 itself.

- Power status LEDs

PWR: The power status LEDs show the status of the power modules.

**Table 1-73** Description of the power status LEDs

LED	Description
OK	ON: The power modules operate normally.
	OFF: The power module is faulty or out of position.
FAIL	ON: The power module is faulty or out of position.
	OFF: The power modules are operational or out of position.

- Fan status LEDs

FAN: The fan status LEDs show the status of the fan tray.

**Table 1-74** Description of the fan status LEDs

LED	Description
OK	<ul style="list-style-type: none"> <li>• ON: The fans operate normally.</li> <li>• OFF: The fans are faulty or out of position.</li> </ul>

LED	Description
FAIL	<ul style="list-style-type: none"> <li>• ON: The fans are faulty or out of position.</li> <li>• OFF: The fans operate normally.</li> </ul>

- LPU status LEDs (SLOT0 through SLOT11)

SLOT0 through SLOT11: The LEDs indicate the status of the LPUs seated in the twelve slots.

**Table 1-75** Description of the LPU status LEDs

LED	Description
RUN	<ul style="list-style-type: none"> <li>• ON/OFF: The LPU is faulty or out of position.</li> <li>• Blinking: The LPU is operating normally.</li> </ul>
ALM	<ul style="list-style-type: none"> <li>• OFF: The LPU is operational or out of position.</li> <li>• ON: The LPU is faulty.</li> </ul>



#### Note

If the RUN LED flashes at a high frequency, the card is in the startup process, but is not yet operational. At system startup, the ALM LED will be ON for a while, but it does not mean that the card is faulty.

- ACTIVE LED

The ACTIVE LED shows the active/standby status of the LSQ1SR12GB0. If the ACTIVE LED is ON, the LSQ1SR12GB0 is active; if OFF, the LSQ1SR12GB0 is standby.

#### RESET button

A reset button is provided on the LSQ1SR12GB0 for you to reset the card when necessary.

## LPUs

### LSQ1FP48SA0

#### Introduction

The LSQ1FP48SA0 provides forty-eight 100Base-FX-SFP ports.

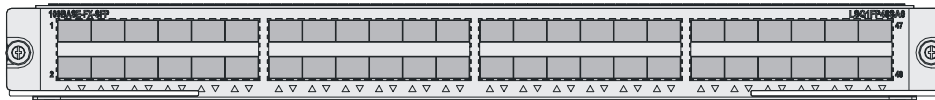
**Table 1-76** Technical specifications of the LSQ1FP48SA0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	34W to 85 W
Connector type	LC
Number of ports	48

Item	Specifications
Interface speed	100 Mbps
Pluggable module type	100 Mbps SFP module Refer to “Appendix A List of Pluggable Modules.”
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-24** LSQ1FP48SA0 panel



Each 100M Ethernet optical port has a green LED. [Table 1-77](#) describes the LED.

**Table 1-77** Description of the LED of each port on the LSQ1FP48SA0 panel

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1FV48SA0

### Introduction

The LSQ1FV48SA0 provides forty-eight 10/100M auto-sensing Ethernet electrical ports and can be upgraded to support the PoE function.

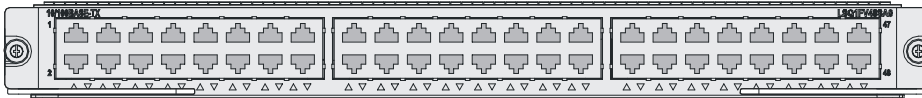
**Table 1-78** Technical specifications of the LSQ1FV48SA0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	30 W to 35 W
Connector type	RJ-45
Number of ports	48
Interface speed	<ul style="list-style-type: none"> <li>• 10/100 Mbps, half/full duplex</li> <li>• MDI/MDI-X auto-sensing</li> </ul>
Cable medium and maximum transmission distance	Category-5 twisted pair with the maximum transmission distance of 100 m (328.08 ft.)

Item	Specifications
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-25** LSQ1FV48SA0 panel



Each 10/100M auto-sensing Ethernet electrical port has a green LED. [Table 1-79](#) describes the LED.

**Table 1-79** Description of the LED of each port on the LSQ1FV48SA0 panel

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1GP12EA0

### Introduction

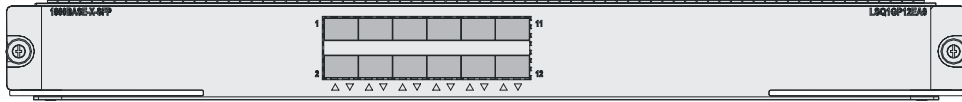
The LSQ1GP12EA0 provides twelve 1000Base-X-SFP Ethernet ports.

**Table 1-80** Technical specifications of the LSQ1GP12EA0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	40 W to 50W
Connector type	LC
Number of ports	12
Port transmission speed	1000 Mbps
Pluggable module type	Gigabit SFP module Refer to "Appendix A List of Pluggable Modules."
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-26** LSQ1GP12EA0 panel



Each 1000Base-X-SFP Ethernet port has a green LED. [Table 1-81](#) describes the LED.

**Table 1-81** Description of the LED of each port on the LSQ1GP12EA0 panel

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1GP12SC0

### Introduction

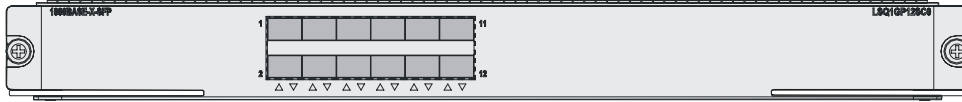
The LSQ1GP12SC0 provides twelve 1000Base-X-SFP/100Base-FX-SFP Ethernet ports.

**Table 1-82** Technical specifications of the LSQ1GP12SC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	26 W to 35 W
Connector type	LC
Number of ports	12
Interface speed	1000/100 Mbps
Pluggable module type	<ul style="list-style-type: none"> <li>• Gigabit SFP module</li> <li>• 100 Mbps SFP module</li> </ul> Refer to "Appendix A List of Pluggable Modules."
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-27** LSQ1GP12SC0 panel



Each 1000Base-X-SFP/100Base-FX-SFP Ethernet port has a green LED. [Table 1-83](#) describes the LED.

**Table 1-83** Description of the LED of each port on the LSQ1GP12SC0 panel

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1GP24SC0

### Introduction

The LSQ1GP24SC0 provides twenty-four 1000Base-X-SFP/100Base-FX-SFP Ethernet ports.

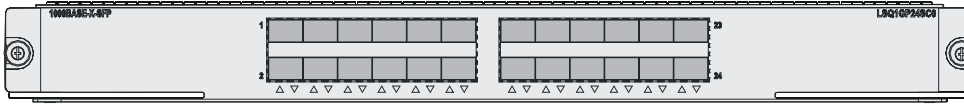
**Table 1-84** Technical specifications of the LSQ1GP24SC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	38 W to 55 W
Connector type	LC
Number of ports	24
Port transmission speed	1000/100 Mbps
Pluggable module type	<ul style="list-style-type: none"> <li>• Gigabit SFP module</li> <li>• 100 Mbps SFP module</li> </ul> Refer to "Appendix A List of Pluggable Modules."
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>



## Panel and LEDs

**Figure 1-28** LSQ1GP24SC0 panel



Each 1000Base-X-SFP/100Base-FX-SFP Ethernet port has a green LED. [Table 1-85](#) describes the LED.

**Table 1-85** Description of the LED of each port on the LSQ1GP24SC0 panel

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1GP48SC0

### Introduction

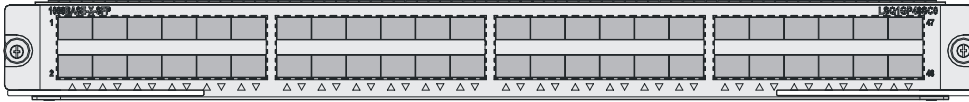
The LSQ1GP48SC0 provides forty-eight 1000Base-X-SFP/100Base-FX-SFP Ethernet ports.

**Table 1-86** Technical specifications of the LSQ1GP48SC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	43 W to 85 W
Connector type	LC
Number of ports	48
Port transmission speed	1000/100 Mbps
Pluggable module type	<ul style="list-style-type: none"> <li>• Gigabit SFP module</li> <li>• 100 Mbps SFP module</li> </ul> Refer to "Appendix A List of Pluggable Modules."
Standard	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-29** LSQ1GP48SC0 panel



Each 1000Base-X-SFP/100Base-FX-SFP Ethernet port has a green LED. [Table 1-87](#) describes the LED.

**Table 1-87** Description of the LED of each port on the LSQ1GP48SC0 panel

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1GT24SC0

### Introduction

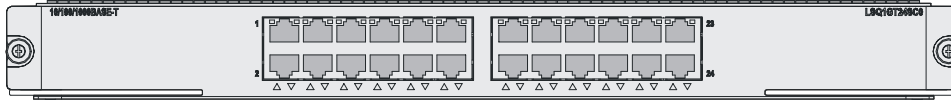
The LSQ1GT24SC0 provides twenty-four 10/100/1000M autosensing Ethernet electrical ports.

**Table 1-88** Technical specifications of the LSQ1GT24SC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	42 W to 50 W
Connector type	RJ-45
Number of ports	24
Interface speed	<ul style="list-style-type: none"> <li>• 10/100/1000 Mbps, half/full duplex</li> <li>• MDI/MDI-X auto-sensing</li> </ul>
Cable medium and maximum transmission distance	Category-5 twisted pair cables, with a maximum transmission distance of 100 m (328.08 ft.)
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-30** LSQ1GT24SC0 panel



Each 10/100/1000M auto-sensing Ethernet electrical port has a green LED. [Table 1-89](#) describes the LED.

**Table 1-89** Description of the LED of each port on the LSQ1GT24SC0 panel

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1GV48SA0

### Introduction

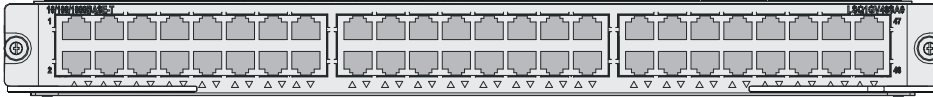
The LSQ1GV48SA0 provides forty-eight 10/100/1000M auto-sensing Ethernet electrical ports and can be upgraded to support the PoE function.

**Table 1-90** Technical specifications of the LSQ1GV48SA0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	60 W to 80 W
Connector type	RJ-45
Number of ports	48
Interface speed	<ul style="list-style-type: none"> <li>• 10/100/1000 Mbps, half/full duplex</li> <li>• MDI/MDI-X auto-sensing</li> </ul>
Cable medium and maximum transmission distance	Category-5 twisted pair cables, with a maximum transmission distance of 100 m (328.08 ft.)
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-31** LSQ1GV48SA0 panel



Each 10/100/1000M auto-sensing Ethernet electrical port has a green LED. [Table 1-91](#) describes the LED.

**Table 1-91** Description of the LED of each port on the LSQ1GV48SA0 panel

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1GV48SC0

### Introduction

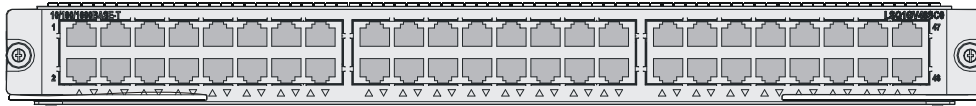
The LSQ1GV48SC0 provides forty-eight 10/100/1000M auto-sensing Ethernet electrical ports and can be upgraded to support the PoE function.

**Table 1-92** Technical specifications of the LSQ1GV48SC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	60 W to 90 W
Connector type	RJ-45
Number of ports	48
Interface speed	<ul style="list-style-type: none"> <li>• 10/100/1000 Mbps, half/full duplex</li> <li>• MDI/MDI-X auto-sensing</li> </ul>
Cable medium and maximum transmission distance	Category-5 twisted pair cables, with a maximum transmission distance of 100 m (328.08 ft.)
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-32** LSQ1GV48SC0 panel



Each 10/100/1000M auto-sensing Ethernet electrical port has a green LED. [Table 1-93](#) describes the LED.

**Table 1-93** Description of the LED of each port on the LSQ1GV48SC0 panel

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1P24XGSC0

### Introduction

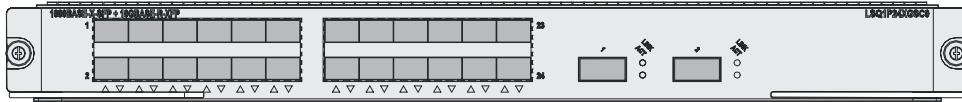
The LSQ1P24XGSC0 provides twenty-four 1000Base-X-SFP/100Base-FX-SFP Ethernet ports and two 10GBase-R-XFP Ethernet ports.

**Table 1-94** Technical specifications of the LSQ1P24XGSC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	40 W to 55 W
Connector type	LC
Number of ports	26
Interface speed	<ul style="list-style-type: none"> <li>• 1000Base-X-SFP Ethernet port: 1000 Mbps</li> <li>• 100Base-FX-SFP Ethernet ports: 100 Mbps</li> <li>• 10GBase-R-XFP Ethernet ports: 10 Gbps</li> </ul>
Pluggable module type	<ul style="list-style-type: none"> <li>• Gigabit SFP module</li> <li>• 100 Mbps SFP module</li> <li>• 10G XFP module</li> </ul> Refer to "Appendix A List of Pluggable Modules."
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-33** LSQ1P24XGSC0 panel



Each 1000MBase-X-SFP/100Base-FX-SFP Ethernet port has a green LED. [Table 1-95](#) describes the LED.

**Table 1-95** Description of the LED of the 1000MBase-X-SFP Ethernet port

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

Each 10GBase-R-XFP Ethernet port has two LEDs. [Table 1-96](#) describes the LEDs.

**Table 1-96** Description of the LEDs of the 10GBase-R-XFP Ethernet port

LED	Description
LINK	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> </ul>
ACT	<ul style="list-style-type: none"> <li>• OFF: No data is being transmitted or received.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1T24XGSC0

### Introduction

The LSQ1T24XGSC0 provides 24 auto-sensing 10/100/1000Base-T Ethernet ports and two 10GBase-R-XFP Ethernet ports.

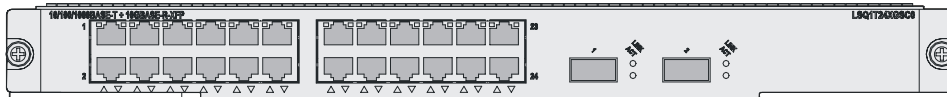
**Table 1-97** Technical specifications of the LSQ1T24XGSC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	50 W to 75 W
Connector type	LC RJ-45
Number of ports	26
Port transmission speed	10GBase-R-XFP Ethernet port: 10 Gbps auto-sensing 10/100/1000Base-T Ethernet port: 1000 Mbps

Item	Specifications
Pluggable module type	10G XFP module Refer to “Appendix A List of Pluggable Modules.”
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-34** LSQ1T24XGSC0 panel



Each auto-sensing 10/100/1000Base-T Ethernet port has a green LED. [Table 1-98](#) describes the LED.

**Table 1-98** Description of the LED of the auto-sensing 10/100/1000Base-T Ethernet port

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is passing through the port.</li> </ul>

Each 10GBase-R-XFP Ethernet port has two LEDs. [Table 1-99](#) describes the LEDs.

**Table 1-99** Description of the LEDs of the 10GBase-R-XFP Ethernet port

LED	Description
LINK	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> </ul>
ACT	<ul style="list-style-type: none"> <li>• OFF: No data is being transmitted or received.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1TGX1EA0

### Introduction

The LSQ1TGX1EA0 provides one 10GBase-R-XFP Ethernet port.

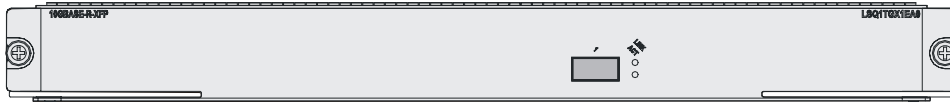
**Table 1-100** Technical specifications of the LSQ1TGX1EA0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)

Item	Specifications
Power consumption	35 W to 45 W
Connector type	LC
Number of ports	1
Interface speed	10 Gbps
Pluggable module type	10G XFP module Refer to “Appendix A List of Pluggable Modules.”
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-35** LSQ1TGX1EA0 panel



The 10GBase-R-XFP Ethernet port has two green LEDs. [Table 1-101](#) describes the LEDs.

**Table 1-101** Description of the LEDs of the 10GBase-R-XFP Ethernet port

LED	Description
LINK	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> </ul>
ACT	<ul style="list-style-type: none"> <li>• OFF: No data is being transmitted or received.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1TGX2SC0

### Introduction

The LSQ1TGX2SC0 provides two 10GBase-R-XFP Ethernet ports.

**Table 1-102** Technical specifications of the LSQ1TGX2SC0

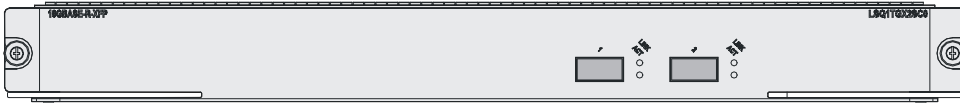
Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	30 W to 40 W
Connector type	LC
Number of ports	2



Item	Specifications
Interface speed	10 Gbps
Pluggable module type	10G XFP module Refer to “Appendix A List of Pluggable Modules.”
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-36** LSQ1TGX2SC0 panel



Each 10GBase-X-XFP Ethernet port has two green LEDs. [Table 1-103](#) describes the LEDs on the LSQ1TGX2SC0 panel.

**Table 1-103** Description of the LEDs of the 10GBase-X-XFP Ethernet port

LED	Description
LINK	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> </ul>
ACT	<ul style="list-style-type: none"> <li>• OFF: No data is being transmitted or received.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1GP24TSC0

### Introducion

The LSQ1GP24TSC0 provides twenty-four 1000Base-X-SFP/100Base-FX-SFP Ethernet ports and eight 10/100/1000Base-T GE ports. The eight GE ports and eight of the SFP ports can form eight Combo ports, each comprising a GE port and an SFP port.

**Table 1-104** Technical specifications of the LSQ1GP24TSC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	25 W to 45 W
Connector type	SFP RJ-45
Number of ports	24 SFP + 8 RJ-45

Item	Specifications
Interface speed	<ul style="list-style-type: none"> <li>• 1000Base-X-SFP Ethernet ports: 1000 Mbps</li> <li>• 100Base-FX-SFP Ethernet ports: 100 Mbps</li> <li>• Ethernet electrical ports: 10/100/1000 Mbps, half/full duplex MDI/MDI-X auto-sensing</li> </ul>
Pluggable module type	<ul style="list-style-type: none"> <li>• Gigabit SFP module</li> <li>• 100 Mbps SFP module</li> <li>• 10/100/1000 Mbps auto-sensing electrical Ethernet port</li> </ul> Refer to “Appendix A List of Pluggable Modules.”
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

[Table 1-105](#) shows the pairings of the eight SFP and the eight GE ports for the Combo interfaces.

**Table 1-105** Pairings of the SFP ports and the GE ports for the Combo interfaces

1000Base-X-SFP/100Base-FX-SFP Ethernet port number	10/100/1000Base-T GE port number
17	25
18	26
19	27
20	28
21	29
22	30
23	31
24	32

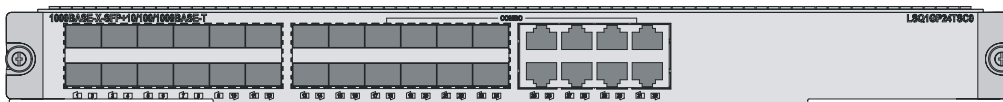


**Note**

In a Combo port, only one of the 1000Base-X-SFP/100Base-FX-SFP port and the 10/100/1000Base-T GE port can be used at a time.

**Panel and LEDs**

**Figure 1-37** LSQ1GP24TSC0 panel



Each Ethernet port has one green LED. [Table 1-106](#) describes the LEDs on the LSQ1GP24TSC0 panel.

**Table 1-106** Description of the LED of each Ethernet port

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1GV40PSC0

### Introduction

The LSQ1GV40PSC0 provides forty electrical GE ports and eight 1000Base-X-SFP/ 100Base-FX-SFP ports.

**Table 1-107** Technical specifications of the LSQ1GV40PSC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	41 W to 95 W
Connector type	<ul style="list-style-type: none"> <li>• SFP</li> <li>• RJ-45</li> </ul>
Number of ports	40 RJ-45 + 8 SFP
Interface speed	<ul style="list-style-type: none"> <li>• Electrical GE port: 10/100/1000 Mbps</li> <li>• Gigabit SFP port: 100/1000 Mbps</li> </ul>
Pluggable module type	<ul style="list-style-type: none"> <li>• Gigabit SFP module</li> <li>• 100 Mbps SFP module</li> <li>• Auto-sensing 10/100/1000Base-T Ethernet port</li> </ul> Refer to “Appendix A List of Pluggable Modules.”
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

### Panel and LEDs

**Figure 1-38** LSQ1GV40PSC0 panel



Each Ethernet port has a green LED. [Table 1-108](#) describes the LEDs on the LSQ1GV40PSC0 panel.

**Table 1-108** Description of the LED of each Ethernet port

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1PT4PSC0

### Introduction

The LSQ1PT4PSC0 provides four 1000Base-PX-D (EPON) ports and eight 1000Base-X-SFP/100Base-FX-SFP Ethernet ports.

**Table 1-109** Technical specifications of the LSQ1PT4PSC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	33 W to 40 W
Connector type	<ul style="list-style-type: none"> <li>• Pluggable modules for EPON interfaces: SC</li> <li>• Gigabit SFP module: LC</li> <li>• 100 Mbps SFP module: LC</li> </ul>
Number of ports	4 EPON + 8 SFP
Interface speed	<ul style="list-style-type: none"> <li>• Pluggable modules for EPON interfaces: 1000 Mbps</li> <li>• Gigabit SFP module: 1000 Mbps</li> <li>• 100 Mbps SFP module: 100 Mbps</li> </ul>
Pluggable module type	<ul style="list-style-type: none"> <li>• Pluggable modules for EPON interfaces</li> <li>• Gigabit SFP module</li> <li>• 100 Mbps SFP module</li> </ul> Refer to "Appendix A List of Pluggable Modules."
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

### Panel and LEDs

**Figure 1-39** LSQ1PT4PSC0 panel



Each EPON port has a green LED. [Table 1-110](#) describes the LED of each EPON port.

**Table 1-110** Description of the EPON port status and the LED status of the LSQ1PT4PSC0

LED status	EPON port status	Description
OFF	Down	No SFP module is installed.
OFF	UP	An SFP module is installed but no ONU is registered.
ON	UP	An ONU is registered.

Likewise, each 1000Base-X-SFP/100Base-FX-SFP Ethernet port has a green LED. [Table 1-111](#) describes the LED of each 1000Base-X-SFP/100Base-FX-SFP Ethernet port.

**Table 1-111** Description of the LED of each 1000Base-X-SFP/100Base-FX-SFP Ethernet port

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1PT8PSC0

### Introduction

The LSQ1PT8PSC0 provides eight EPON ports and eight 1000Base-X-SFP/ 100Base-FX-SFP Ethernet ports.

**Table 1-112** Technical specifications of the LSQ1PT8PSC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	38 W to 45 W
Connector type	<ul style="list-style-type: none"> <li>• Pluggable modules for EPON interfaces: SC</li> <li>• Gigabit SFP module: LC</li> <li>• 100 Mbps SFP module: LC</li> </ul>
Number of ports	8 EPON + 8 SFP
Interface speed	<ul style="list-style-type: none"> <li>• Pluggable modules for EPON interfaces: 1000 Mbps</li> <li>• Gigabit SFP module: 1000 Mbps</li> <li>• 100 Mbps SFP module: 100 Mbps</li> </ul>
Pluggable module type	<ul style="list-style-type: none"> <li>• Pluggable modules for EPON interfaces</li> <li>• Gigabit SFP module</li> <li>• 100 Mbps SFP module</li> </ul> Refer to "Appendix A List of Pluggable Modules."
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-40** LSQ1PT8PSC0 panel



Each EPON port has a green LED. [Table 1-113](#) describes the LED of each EPON port.

**Table 1-113** Description of the EPON port status and the LED status of the LSQ1PT8PSC0

LED status	EPON port status	Description
OFF	Down	No SFP module is installed.
OFF	UP	An SFP module is installed but no ONU is registered.
ON	UP	An ONU is registered.

Likewise, each 1000Base-X-SFP/100Base-FX-SFP Ethernet port has a green LED. [Table 1-114](#) describes the LED of each 1000Base-X-SFP/100Base-FX-SFP Ethernet port.

**Table 1-114** Description of the LED of each 1000Base-X-SFP/100Base-FX-SFP Ethernet port

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## LSQ1PT16PSC0

### Introduction

The LSQ1PT16PSC0 provides sixteen EPON ports and eight 1000Base-X-SFP/ 100Base-FX-SFP Ethernet ports.

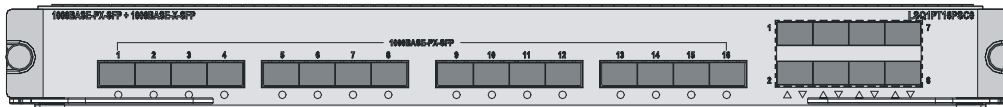
**Table 1-115** Technical specifications of the LSQ1PT16PSC0

Item	Specifications
CPU	MIPS64, 400 MHz
Boot ROM	512 KB
DDR SDRAM	512 MB
Dimensions (H x W x D)	40 x 377 x 355 mm (1.57 x 14.84 x 13.98 in.)
Power consumption	55 W to 65 W
Connector type	<ul style="list-style-type: none"> <li>• Pluggable modules for EPON interfaces: SC</li> <li>• Gigabit SFP module: LC</li> <li>• 100 Mbps SFP module: LC</li> </ul>
Number of ports	16 EPON + 8 SFP
Interface speed	<ul style="list-style-type: none"> <li>• Pluggable modules for EPON interfaces: 1000 Mbps</li> <li>• Gigabit SFP module: 1000 Mbps</li> <li>• 100 Mbps SFP module: 100 Mbps</li> </ul>

Item	Specifications
Pluggable module type	<ul style="list-style-type: none"> <li>• Pluggable modules for EPON interfaces</li> <li>• Gigabit SFP module</li> <li>• 100 Mbps SFP module</li> </ul> Refer to “Appendix A List of Pluggable Modules.”
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.3-2005</li> <li>• IEEE 802.1D-2004</li> <li>• IEEE 802.1Q-2003</li> <li>• IEEE802.1X-2004</li> </ul>

## Panel and LEDs

**Figure 1-41** LSQ1PT16PSC0 panel



Each EPON port has a green LED. [Table 1-116](#) describes the LED of each EPON port.

**Table 1-116** Description of the EPON port status and the LED status of the LSQ1PT16PSC0

LED status	EPON port status	Description
OFF	Down	No SFP module is installed.
OFF	UP	An SFP module is installed but no ONU is registered.
ON	UP	An ONU is registered.

Likewise, each 1000Base-X-SFP/100Base-FX-SFP Ethernet port has a green LED. [Table 1-117](#) describes the LED of each 1000Base-X-SFP/100Base-FX-SFP Ethernet port.

**Table 1-117** Description of the LED of each 1000Base-X-SFP/100Base-FX-SFP Ethernet port

LED	Description
LINK/ACT	<ul style="list-style-type: none"> <li>• OFF: No link is present.</li> <li>• ON: A link is present.</li> <li>• Blinking: Data is being transmitted or received.</li> </ul>

## Ordering Information for the S7900E Series

The S7900E series are delivered by module to meet various requirements of users. You can purchase the switch and SRPU modules as you need.

### Purchasing a Switch

While purchasing a switch, take the following factors into consideration.

#### Networking requirements

- Location of this switch in the networking scenario, and the role it plays

- How much the backplane capacity matches the network traffic
- Necessary processing and connecting capability for uplink and downlink
- Required scalability of this switch for network expansion
- Required reliability of switch service
- Required transmission distance in the switch networking

### Switch model

**Table 1-118** List of the S7900E series models

Description	Quantity	Remarks
S7902E switch	1	Optional
S7903E-S switch	1	Optional
S7903E switch	1	Optional
S7906E switch	1	Optional
S7910E switch	1	Optional
S7906E-V switch	1	Optional

### Power system

**Table 1-119** List of power modules for the S7900E series

Description	Quantity	Remarks
PSR320-A	1 to 2	At least one is required. Note that an S7900E switch can only be equipped with the same type of power module (AC or DC).
PSR320-D	1 to 2	
PSR650-A	1 to 2	
PSR650-D	1 to 2	
PSR1400-A	1 to 2	
PSR1400-D	1 to 2	
PSR2800-ACV	1 to 2	

### Purchasing SRPUs

**Table 1-120** List of SRPUs for the S7900E series

Type	Quantity	Remarks
LSQ1MPUA0	1 to 2	Required For S7902E only
LSQ1CGP24TSC0	1	Required For S7903E-S only
Saliency VI-10GE	1 to 2	Required
Saliency VI	1 to 2	Required
Saliency VI-Turbo	1 to 2	Required



Type	Quantity	Remarks
Saliency VI-Plus	1 to 2	Required
Saliency VI-GE	1 to 2	Required

## Purchasing LPUs

**Table 1-121** List of LPUs for the S7900E series

Type	Quantity	Remarks
LSQ1FP48SA0	Determined by the number of LPU slots in the chassis	Optional
LSQ1FV48SA0	Determined by the number of LPU slots in the chassis	Optional
LSQ1GP12EA0	Determined by the number of LPU slots in the chassis	Optional
LSQ1GP12SC0	Determined by the number of LPU slots in the chassis	Optional
LSQ1GP24SC0	Determined by the number of LPU slots in the chassis	Optional
LSQ1GP48SC0	Determined by the number of LPU slots in the chassis	Optional
LSQ1GT24SC0	Determined by the number of LPU slots in the chassis	Optional
LSQ1GV48SA0	Determined by the number of LPU slots in the chassis	Optional
LSQ1GV48SC0	Determined by the number of LPU slots in the chassis	Optional
LSQ1P24XGSC0	Determined by the number of LPU slots provided by the chassis	Optional
LSQ1T24XGSC0	Determined by the number of LPU slots in the chassis	Optional
LSQ1TGX1EA0	Determined by the number of LPU slots in the chassis	Optional
LSQ1TGX2SC0	Determined by the number of LPU slots in the chassis	Optional
LSQ1GP24TSC0	Determined by the number of LPU slots in the chassis	Optional
LSQ1PT40PSC0	Determined by the number of LPU slots in the chassis	Optional
LSQ1PT4PSC0	Determined by the number of LPU slots in the chassis	Optional
LSQ1PT8PSC0	Determined by the number of LPU slots in the chassis	Optional
LSQ1PT16PSC0	Determined by the number of LPU slots in the chassis	Optional

## Purchasing Optical Modules

When ordering optical modules, you need to consider card types, number of cards, types of pluggable modules supported, and the number of interfaces that a card provides. For detailed types and parameters of the optical modules, refer to “Appendix A List of Pluggable Modules.”

## Purchasing Air Filters

**Table 1-122** List of air filters for the S7900E series

Description	Quantity	Remarks
S7902E air filter	0 to 1	Optional
S7903E-S air filter	0 to 1	Optional
S7903E air filter	0 to 1	Optional
S7906E air filter	0 to 1	Optional
S7910E air filter	0 to 1	Optional
S7906E-V air filter	0 to 1	Optional

## Purchasing Fan Trays

**Table 1-123** List of fan trays for the S7900E series

Description	Quantity	Remarks
S7902E fan tray	0 to 1	Optional
S7903E-S fan tray	0 to 1	Optional
S7903E fan tray	0 to 1	Optional
S7906E fan tray	0 to 1	Optional
S7910E fan tray	0 to 1	Optional
S7906E-V fan tray	0 to 1	Optional

# Table of Contents

<b>2 Installation Preparations</b> .....	<b>2-1</b>
Safety Instructions.....	2-1
General Instructions.....	2-1
Electrical Safety.....	2-1
Handling Safety.....	2-1
Anti-static Safety.....	2-2
Laser Safety.....	2-2
Examining Installation Site.....	2-2
Temperature/Humidity Requirements.....	2-3
Cleanness Requirements.....	2-3
Anti-static Requirements.....	2-4
Grounding Requirements.....	2-4
Power Supply Requirements.....	2-4
Installation Planning.....	2-4
Installation Space Requirement.....	2-4
Rack-Mounting Requirements.....	2-4
Installation Tools.....	2-5

# 2 Installation Preparations

---

## Safety Instructions

To avoid damage to human body and devices, please read the following safety recommendations carefully before installing the S7900E series. The recommendations do not cover every possible hazardous condition.

### General Instructions

- Turn OFF all the powers and remove all the power cables before opening the chassis.
- Keep the chassis clean and dust-free.
- Keep the chassis and installation tools away from walk areas.
- Do not wear loose clothing, jewelry (including ring and necklace, and so on) or any other things that could get caught in the chassis when you install and maintain the switch.

### Electrical Safety

- Look carefully for possible hazards in your work area, such as ungrounded power extension cables, missing safety grounds, and moist floors.
- Locate the emergency power-off switch in the room before installation. Shut the power off at once in case accident occurs.
- Unplug all the power cables and external cables before moving the chassis.
- Better not maintain the equipment alone when it has been powered by electricity.
- Never assume that power is disconnected from a circuit. Always check.
- Do not place the switch on a moist area and avoid liquid flowing into the switch.

### Handling Safety

The S7900E series are rather big and heavy, so follow the recommendations below when moving them.

- Turn off all the powers and remove all the power cables before opening the chassis.
- Do not move the switch alone. Work with another person.
- Move the switch slowly and stably. Never move suddenly or twist your body.
- Move the switch at stable and consistent paces with your peer. Keep balance of your body.



Hold the handles on both sides of the chassis, instead of power handles or the vent of the chassis when moving the switch. Since the power handle or the vent is not designed to bear the weight of the entire chassis, the switch may get damaged or even your body may get hurt if you hold these parts to move the switch.

---

## Anti-static Safety

To prevent the electric component from being damaged by the electrostatic discharge (ESD), take ESD measures for the area where the switch is located and note the points below:

- Always wear an ESD-preventive wrist strap when installing the parts, especially the electric printed circuit boards, of the switch.
- Take the edge of the circuit board. Do not touch the components or the electric printed circuit.

Take the following steps to use the ESD-preventive wrist strap.

Step 1: Wear the ESD-preventive wrist strap.

Step 2: Strain and tighten the strap, and ensure that it makes good contact with your skin.

Step 3: Insert the grounding terminal of the ESD-preventive wrist strap into the jack on the switch chassis or attach it to the grounding screw of the chassis with an alligator clip.

Step 4: Make sure the ESD-preventive wrist strap is well grounded.



### Note

An ESD-preventive wrist strap is shipped with the S7900E series.

There is a jack for the ESD-preventive wrist strap on the chassis of the S7900E series.

---



### Caution

For safety case, check the resistance of the ESD-preventive wrist strap. The resistance between human body and the ground should be 1 to 10M ohm.

---

## Laser Safety

Some LPUs of the S7900E series have optical interfaces. In operating status, it is prohibited to stare into the open optical interface because the laser being transmitted through the optical fiber will produce a small beam of light, it has very high power density and is invisible to human eyes, when a beam of light enters the eye, retina may be burned.

---



### Caution

Staring at the laser beam inside the fiber could hurt your eyes.

---

## Examining Installation Site

The S7900E series can only be used indoors. To ensure that the switch works normally and expand its service life, the installation environment shall meet the requirements below.

## Temperature/Humidity Requirements

To ensure the normal operation and service life of a switch, a certain level of temperature and humidity should be maintained in the equipment room. If the humidity in the equipment room is too high for a long time, it will lead to bad insulation of the insulating material or even creepage. Sometimes, the mechanical performance changes of material, the rustiness and corrosion of some metal parts are also likely to occur. If the relative humidity is too low, the captive screws may become loose due to the shrinkage of the insulation washers. Meanwhile, the electrostatic is likely to be produced in the dry environment, which will jeopardize the CMOS circuit of the switch. The higher the temperature, the greater the damage it will do on the switch. High temperature for a long time will speed up the aging process of the insulation materials, greatly lower the reliability of the switch and therefore affect its service life seriously.

**Table 2-1** Temperature/humidity requirements

Temperature		Relative humidity	
Working condition	Idle condition	Working condition	Idle condition
0°C to 45°C (32°F to 113°F)	-40°C to +70°C (-40°F to +158°F)	10% to 95%, noncondensing	5% to 95%, noncondensing

## Cleanness Requirements

Dust is a big harm for the normal operation of the switch. The indoor dust accumulated on the chassis can cause electrostatic adsorption, resulting in the poor contact of the connector or metal contact point. This happens more frequently when the relative indoor humidity is low, which will not only shorten the service life of the switch, but also cause communication failure.

The required specifications on dust content and particle diameter in an equipment room are shown in [Table 2-2](#).

**Table 2-2** Dust concentration limit in the equipment room

Physical active substance	Concentration limit (particles/m <sup>3</sup> )
Dust particle	≤3 × 10 <sup>4</sup> (No visible dust on desk over three days)

Note: Dust particle diameter ≥ 5μm

Except the requirements on dust, rigorous requirements on ingredient of salts, acids and sulfides of air in an equipment room are also set. These harmful gases will speed up the metal corrosion and the aging processes of certain parts. The equipment room should be protected from the invasion of harmful gases such as SO<sub>2</sub>, H<sub>2</sub>S, NO<sub>2</sub>, NH<sub>3</sub> and Cl<sub>2</sub>, the value limits of which are shown in the following table:

**Table 2-3** Limits on harmful gases in the equipment room

Gas	Maximum concentration (mg/m <sup>3</sup> )
SO <sub>2</sub>	0.2
H <sub>2</sub> S	0.06
NH <sub>3</sub>	0.05

Gas	Maximum concentration (mg/m3)
Cl <sub>2</sub>	0.01

## Anti-static Requirements

Any possible interference sources, no matter outside or inside the system, affect the switch in use may in a way of capacitance coupling, inductance coupling, radiation of electromagnetic wave, common impedance (including the grounding system) coupling or conducting line (power line, signaling line and transmission line etc.).Therefore, the following should be considered:

- Adopt effective measures to protect the power supply system against the power grid interference.
- Separate the working ground of the switch from the ground device of the power supply equipment or lightning-protection ground device as far as possible.
- Keep the switch far away from the radio launcher, radar launcher, and high-frequency devices working in high currents.

If necessary, adopt electromagnetic shield.

## Grounding Requirements

A good grounding system is the basis for a switch to work stably and reliably and the important guarantee of lightning protection, anti-interference and ESD. A user should provide good grounding system for the switch and the grounding resistance should be less than 1.5 ohm.

## Power Supply Requirements

For the power supply requirements, refer to section 1.2.3 “Power Supply System” in Chapter 1 “Product Overview”.

## Installation Planning

Since the S7900E series are a kind of complex equipment, it is necessary to make a good plan and arrangement concerning installation position, networking mode, power supply and cabling before installation.

## Installation Space Requirement

For better heat dissipation and equipment maintenance, it is recommended that the front and back of the switch should be at least one meter away from walls or other devices, and that the left and right of the switch should be at least 0.8 meters away from walls. If a rack is to be installed, the headroom should be 3 meters at least.

If the above-mentioned requirements are not satisfied, it will be very inconvenient to install a rack or install air filters on the switch.

## Rack-Mounting Requirements

Before rack-mounting a switch, make sure the rack meets the following requirements:

- Better mount a switch in an open rack. However, if you mount a switch in a closed rack, make sure of good heat dissipation system.
- Make sure the rack stands steadily enough to well support the switch and accessories.

- Make sure that the switch fits the rack size. Leave some spaces beside the left and right panels of the switch for chassis heat dissipation.

## Installation Tools

**Table 2-4** Required installation tools list

Type	Name	Tools
General tools	Measure and lineation tools	Long tape, ruler (of 1 meter), gradienter, marking pen, powder marker and pencil
	Drills	A percussion drill, several auxiliary drill bits, a vacuum cleaner
	Fastening tools	Flat-blade screwdriver P4-75mm Phillips screwdriver P1-100mm, P2-150mm and P3-250mm Socket wrench M5 Socket wrench M6 Double offset ring wrench M6 Double-ended double offset ring wrench (10-12) or double open-end wrench (10-12)
	Small tools	Sharp-nose pliers, diagonal pliers, vices, hand-held electrical drill, file, handsaw, crowbar and rubber hammer
	Auxiliary tools	Hair brush, tweezers, paper knife, hand bellows, electric iron, solder wire, fork and ladder
Special tools	ESD-preventive wrist glove, cable stripper, crimping pliers, RJ-45 crimping pliers and wire punchdown tool	
Tools for fiber-optic cleaning	Lint-free paper, and optical fiber End-Face microscope	
Instruments	Multimeter, 500 V Meg-ohmmeter (used to measure the insulation resistance), error detector, optical power meter and earth resistance tester	



### Note

The above instruments and tools are not shipped with the S7900E series and need to be prepared by the users.



# Table of Contents

<b>3 Hardware Installation</b> .....	<b>3-1</b>
Confirming Installation Preparations .....	3-1
Installation Flowchart .....	3-1
Mounting a Switch to the Designated Position .....	3-2
Mounting a Switch into a Cabinet .....	3-2
Mounting a Switch on a Workbench .....	3-3
Connecting the Grounding Cable .....	3-3
Installing Switch Modules .....	3-5
Connecting the Power Cable .....	3-6
Connecting the AC Power Cable .....	3-6
Connecting the DC Power Cables .....	3-8
Connecting PoE Power Cables .....	3-9
Connecting Interface Cables .....	3-11
Connecting the Console Cable .....	3-11
Connecting the AUX Cable (Optional) .....	3-12
Connecting the COM Cable .....	3-12
Connecting Category-5 Cables .....	3-13
Connecting Fibers .....	3-15
Cabling .....	3-16
Workbench-Mounted Switch .....	3-16
Rack-Mounted Switch .....	3-16
General Cabling Requirements .....	3-16
Cable Binding .....	3-17
Correct Use of Labels .....	3-17
Precautions for Cable Binding .....	3-17
Checking the Installation .....	3-19

# 3 Hardware Installation

---



## Note

The S7900E series are designed for indoor application.

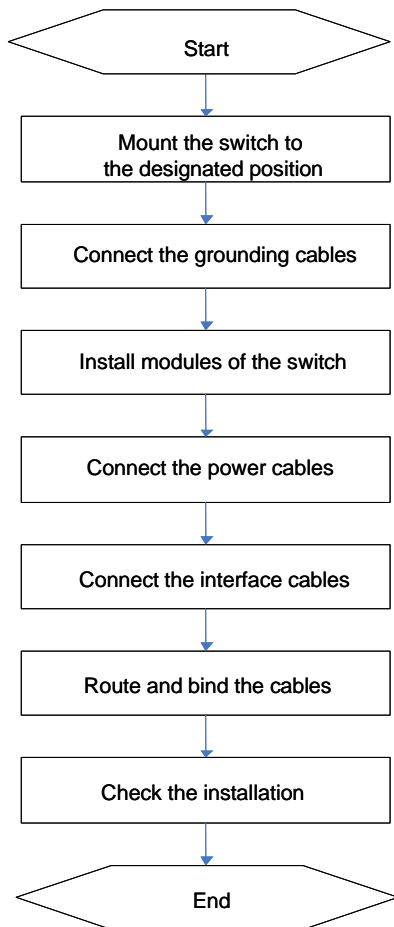
---

## Confirming Installation Preparations

- Make sure that you have read Chapter 2 carefully
- All requirements introduced in Chapter 2 are satisfied.

## Installation Flowchart

Figure 3-1 Installation flowchart

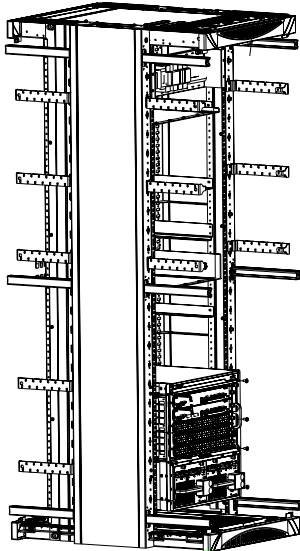


# Mounting a Switch to the Designated Position

## Mounting a Switch into a Cabinet

After purchasing an S7900E Ethernet switch, you can mount the switch into an H3C N68 cabinet or a standard 19" cabinet. The installation methods are similar. The following describes how to mount a switch into an N68 cabinet.

**Figure 3-2** Mount a switch into an N68 cabinet



### Installing an N68 cabinet

In a special-purpose N68 cabinet ready for delivery, a place for an S7900E Ethernet switch has been left and well prepared according to your order, and all accessories except LPUs and cables, have been installed. For the procedure for installing an N68 cabinet, refer to *H3C N68 Cabinet Installation and Remodel Introduction*.

### Mounting a Switch

You are recommended to mount an S7900E Ethernet switch in an N68 cabinet in the following way:

- 1) Before installation, ensure that:
  - The N68 cabinet has been well fixed. The installation position for the switch has been well arranged and there is no obstacle around.
  - The switch is ready for installation and has been carried to a place near the cabinet and convenient for moving.
  - An air filter, if required, is already installed because it is inconvenient to mount it onto the switch that is installed in the cabinet.
- 2) Mount weight-bearing guide rails on the N68 cabinet based on the installation position of the switch. (Two types of weight-bearing guide rails are available. One is small guide rails and applicable to the S7902E and S7903E-S. The other is large guide rails and applicable to the S7900E series other than the S7902E and S7903E-S.)
- 3) Mount the cable rack and mounting ears on the switch.
- 4) Together with another person, carry the switch to the front of the cabinet slowly.
- 5) Lift the switch a little above the weight-bearing guide rails and put it on the guide rails and adjust its position.

- 6) Fix the mounting ears to the square-hole brackets of the N68 cabinet with fastening screws.

## Mounting a Switch on a Workbench

- 1) Before installation, make sure that:
  - The workbench is firm enough to hold the switch and cables.
  - There are no obstacles around the workbench.
  - The switch is ready for installation and has been carried near to the workbench.
- 2) Together with another person, carry the switch to front of the workbench slowly.
- 3) Lift the switch a little above the workbench and put the switch on it.

## Connecting the Grounding Cable



Correct connection of the protection grounding cable of the switch ensures the lightning protection and anti-interference performance of the switch. Thus, you must connect the grounding cable properly when installing and using a switch.

---

### Common grounding environment

- 1) Remove the grounding screw from the lower right part of the rear panel of the switch chassis.
- 2) Set the grounding cable connector provided together with the switch around the grounding screw.
- 3) Fasten the grounding screw in the hole on the chassis.
- 4) Connect the other end of the grounding cable to the grounding strip of the switch.



- The S7900E series provide dual grounding screws in compliance with the NEBS standard to deliver high reliability.
  - Generally, the cabinet has a grounding strip. The grounding cable of the switch can be connected to the grounding strip of the cabinet.
- 

### Other grounding environment



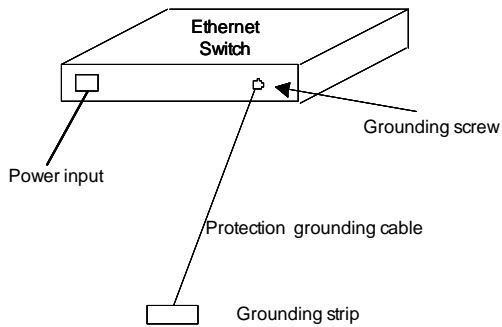
The following figures are sketch maps, and just show the way of cable connecting rather than the real layouts.

---

Hereafter introduced some methods for grounding the switch in different environment.

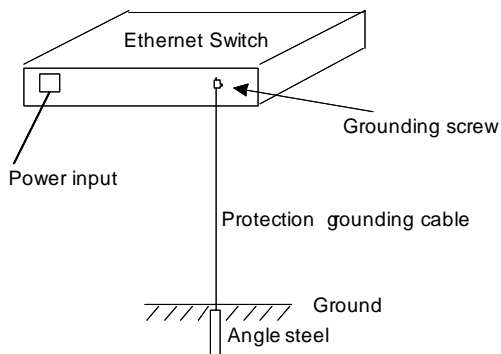
- If there is a grounding strip in the Ethernet switch installation environment, attach one end of the yellow-green protection grounding cable to the grounding screw of the grounding strip and fasten the captive nuts. The grounding cable of a switch shall be connected to the project ground of the equipment room.

**Figure 3-3** Connect the protection grounding cable to the grounding strip



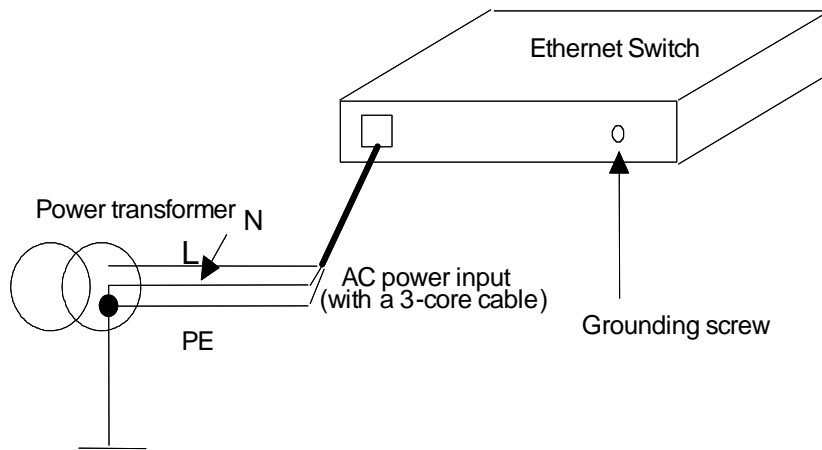
- If there is no grounding strip but earth nearby and the grounding body is allowed to be buried, you can simply hammer an angle iron or steel pipe no shorter than 0.5m into the earth. In this case, the yellow-green protection grounding cable should be welded with the angle iron (steel pipe) and the joint should be processed against eroding.

**Figure 3-4** Connect the protection grounding cable to the grounding body nearby



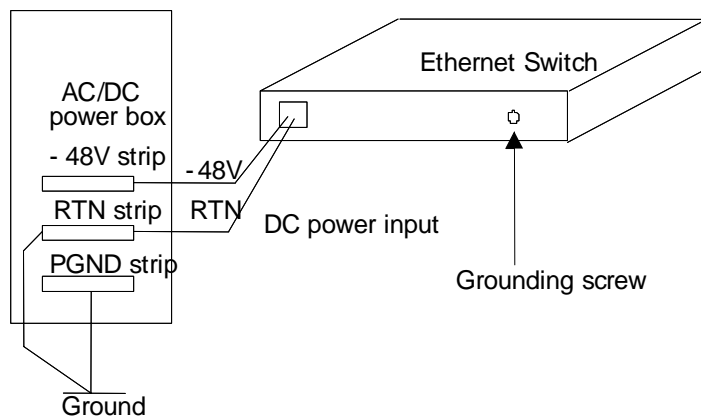
- If there is no grounding strip and no grounding body can be buried, the AC-powered Ethernet switch can be grounded through the PE wire of the AC power supply. In this case, make sure that the PE wire of the AC power supply has been well grounded at the power distribution room or AC power supply transformer side.

**Figure 3-5** Ground an AC-powered Ethernet switch through the AC PE wire



- If there is no grounding strip and no grounding body can be buried, the DC-powered Ethernet switch can be grounded through the return (RTN) wire of the DC power supply. In this case, make sure the RTN wire has been well grounded from the DC egress of the DC power cabinet.

**Figure 3-6** Ground a DC-powered Ethernet switch through the RTN wire of a power cabinet



## Installing Switch Modules

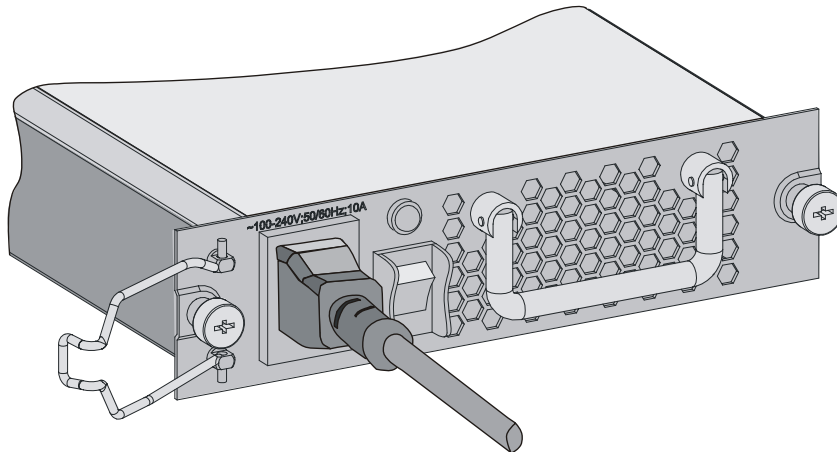
For the procedure for installing cards, power modules, and fan tray, refer to Chapter 5 “Hardware Maintenance”.

# Connecting the Power Cable

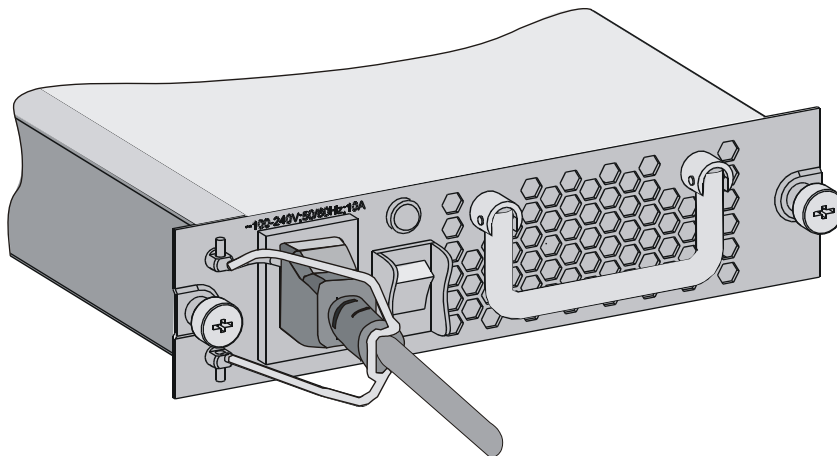
## Connecting the AC Power Cable

### PSR320-A power module

**Figure 3-7** Connect the AC power cable for the PSR320-A (I)



**Figure 3-8** Connect the AC power cable for the PSR320-A (II)



To connect the AC power cable for the PSR320-A, proceed as follows:

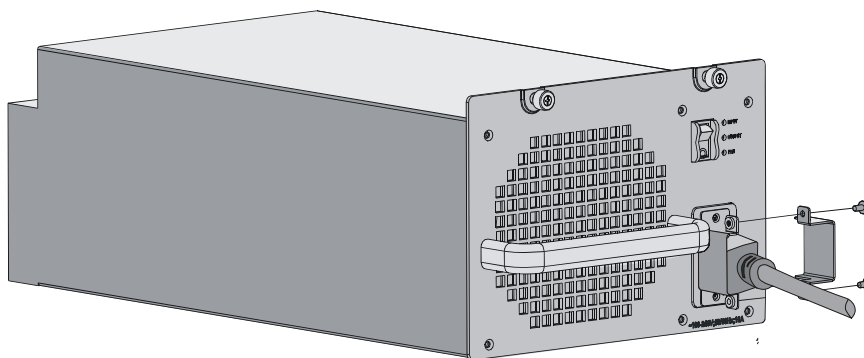
- 1) Plug one end of the AC power cable into the socket on the switch and lock the cable with the power cable retainer.
- 2) Plug the other end into the AC power socket strip, which is connected to the AC power supply in the equipment room.

### PSR650-A power module

Refer to section "[PSR320-A power module](#)" on page [3-6](#).

## PSR1400-A power module

**Figure 3-9** Connect the AC power cable for the PSR1400-A



To connect the AC power cable for the PSR1400-A, proceed as follows:

- 1) Use a Phillips screwdriver to screw off the right part of the power cable retainer suite.
- 2) Plug one end of the power cable shipped with the switch into the power socket and fasten the left part of the power socket retainer suite to the other part to lock the power cable.
- 3) Plug the other end into the AC power socket strip, which is connected to the AC power supply in the equipment room.

## PSR2800-ACV power module

There are two AC power inputs on the PSR2800-ACV power module, one for system power and the other for PoE power. The connection of the power cable for each power input is the same as that of the PSR1400-A. For the detailed connection method, refer to section [“PSR1400-A power module”](#) on [3-7](#).

---

### Note

Since the busbars used in equipment rooms are typically for 10A power cables, but the PSR1400-A power module and PSR2800-ACV power module require a 16A power cable (AC), you need to provide a busbar suitable for 16A power cables. Refer to Appendix B “AC Power Cables Used in Different Countries or Regions” for AC power cable specifications.

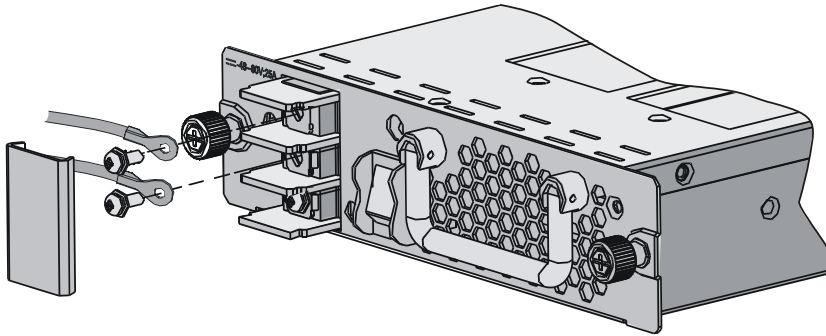
---



## Connecting the DC Power Cables

### PSR320-D power module

**Figure 3-10** Connect the DC power cable for the PSR320-D



---

 **Caution**

Turn off all switches on the switch before connecting the DC power cables.

---

To connect the DC power cable for the PSR320-D, proceed as follows:

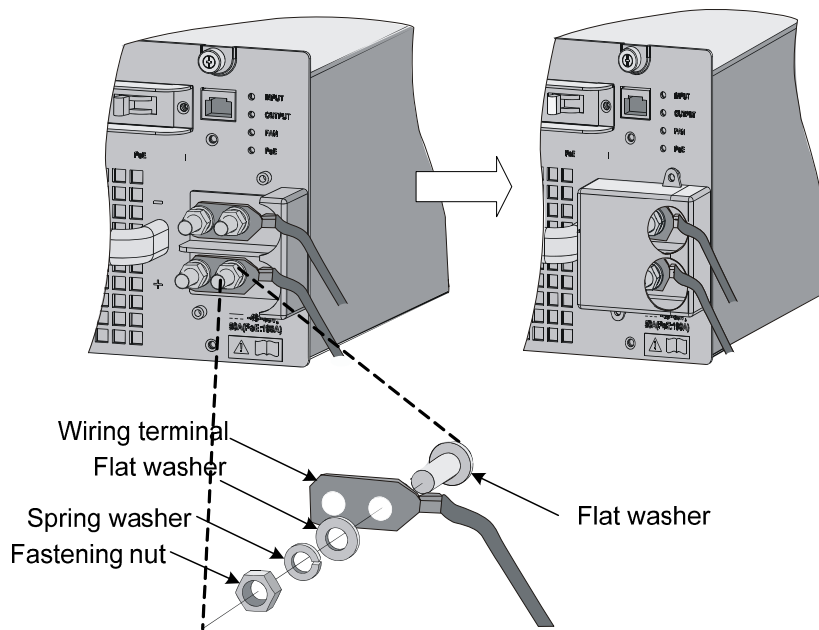
- 1) Remove the protection cover from the power module.
- 2) Loosen the fastening screw on the wiring terminal with a Phillips screwdriver.
- 3) Connect the end of the blue DC power cable marked with – to the negative terminal (–) on the power module and fasten the screw.
- 4) Connect the end of the black DC power cable marked with + to the RTN (+) terminal on the power module and fasten the screw.
- 5) Put the protection cover on the wiring terminals.
- 6) Connect the other ends of the DC power cables to the wiring terminals that provide a power supply to the switch.

### PSR650-D power module

Refer to section “[PSR320-D power module](#)” on page [3-8](#).

## PSR1400-D power module

Figure 3-11 Connect the DC power cable for the PSR1400-D



---

### Caution

- Turn off all switches on the switch before connecting the DC power cables
  - If power to the PSR1400-D power module is switch controlled, make sure that the negative input of the power module is disconnected when disconnecting power to the power module.
- 

To connect the DC power cables for the PSR1400-D, proceed as follows:

- 1) Loosen the fastening screws on the protection cover with a Phillips screwdriver and remove the protection cover. There are two flat washers, one spring washer, and one fastening nut M6 from inside to outside on each wiring terminal.
- 2) Loosen the fastening nut on four wiring terminals with a socket wrench M6 and remove the fastening nut, spring washer and one flat washer in turn.
- 3) Connect the end of the blue DC power cable marked with – to the negative terminals (-) on the power module and fasten the screws.
- 4) Connect the end of the black DC power cable marked with + to the RTN (+) terminals on the power module and fasten the screws.
- 5) Put the flat washers and spring washer on the wiring terminal in turn and screw up the fastening nut with the socket wrench M6. Repeat this step for the other three terminals.
- 6) Put the protection cover on the wiring terminals and screw up the fastening screws.
- 7) Connect the other ends of the DC power cables to the wiring terminals that provide a power supply to the switch.

## Connecting PoE Power Cables

To provide PoE supply to attached devices, the S7900E series require appropriate PoE power modules. PoE power modules fall into external and internal types.

- 1) The S7902E and the S7903E-S require not only an internal power module for its own power feed, but also an appropriate external PoE power module, PSE2500-A for example, to provide PoE supply.
- 2) The S7903E, S7906E, S7906E-V, and S7910E require only internal PoE power modules, PSR1400-D or PSR2800-ACV for example, for both their own power feed and PoE supply to attached devices.
  - With PSR1400-D modules, an S7903E, S7906E, S7906E-V, or S7910E can provide a maximum of 6720 W of PoE supply.
  - With PSR2800-ACV modules, an S7903E, S7906E, S7906E-V, or S7910E can provide a maximum of 1400 W of PoE supply.

In the case of PSR1400-D power modules, the power cables can be directly used as the PoE input cables. For how to connect the power cables, refer to section "[PSR1400-D power module](#)" on page [3-9](#).

In the case of PSR2800-ACV power modules, you can connect the 16A AC power cables to the PoE input ends of the power modules for PoE input. For how to connect the power cables, refer to section "[PSR2800-ACV power module](#)" on page [3-7](#).

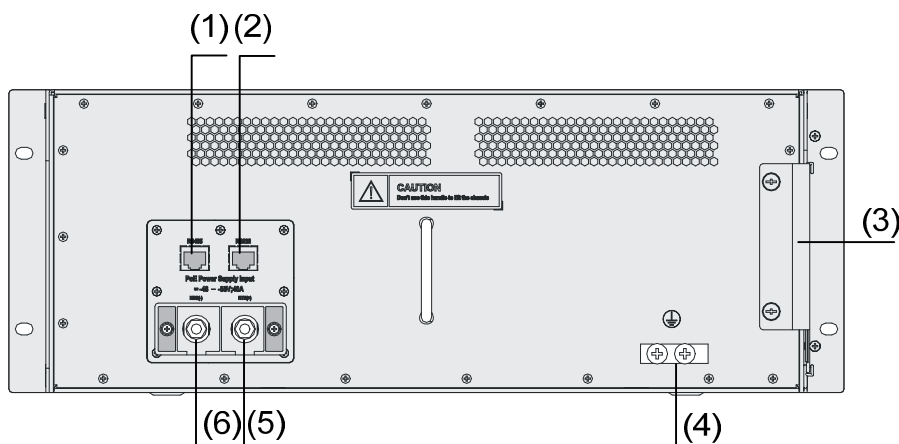
 **Note**

- When you use PSR1400-D modules to provide PoE supply to attached devices and there are more than three PoE-capable LPUs in the switch, you are recommended to use 0AWG cables with a cross section area of 50 mm<sup>2</sup> to ensure the steady and safe operation of the switch.
- If customer-supplied PoE power cables are used as PoE power input cables for the S7902E and the S7903E-S, you should ensure that the cables can bear a current of 50 A and have a minimum cross section area of 8.4 mm<sup>2</sup>.

An external PoE power supply can be connected to the PoE input terminals on the rear panel of the S7902E and the S7903E-S with the delivered cables.

[Figure 3-12](#) shows the rear panel of the S7902E and the S7903E-S.

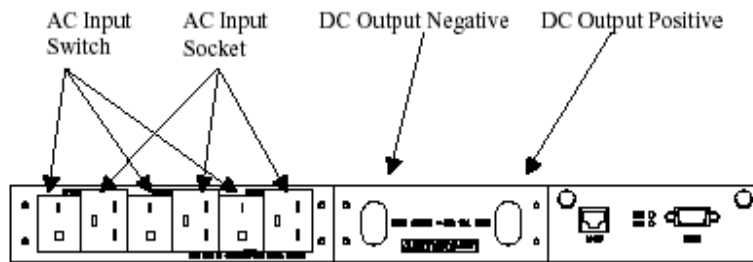
**Figure 3-12** Rear panel of the S7902E



(1) COM port for monitoring PoE (RS485)	(2) COM port for monitoring PoE (RS232)
(3) Air filter (optional)	(4) Grounding screw
(5) RTN (+) terminal for external PoE power module	
(6) NEG (-) terminal (-46 V to -55 V) for external PoE power module	

Figure 3-13 shows the rear panel of an external PoE power supply.

**Figure 3-13** Rear panel of an external PoE power supply (PSE2500-A)



Follow these steps to connect the PoE power cables:

- 3) Remove the protection cover from the terminals which are used to connect the external PoE power supply.
- 4) Use a socket wrench M5 to loosen the fastening nut on the input terminal of the switch, and a socket wrench M8 to loosen the fastening nut on the output terminal of the external PoE power supply.
- 5) Connect the end marked with -48V OT of one delivered DC power cable to the NEG (-) terminal on the switch and screw up the nut. Connect the other end to the NEG (-) terminal of the external PoE power supply and screw up the nut.
- 6) Connect the end marked with GND OT of the other delivered DC power cable to the RTN (+) terminal on the switch and screw up the nut. Connect the other end to the RTN (+) terminal of the external PoE power supply and screw up the nut.
- 7) Connect the end marked with PGND OT of the grounding cable to the grounding screw of the switch and fasten the screw. Connect the other end to the grounding strip.
- 8) Remount the protection cover on the terminals.

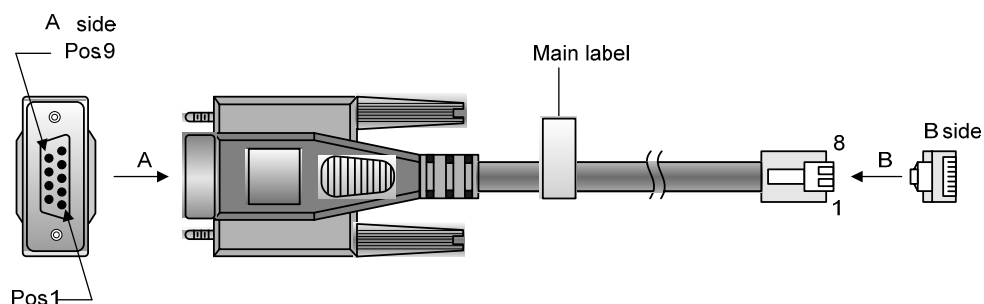
## Connecting Interface Cables

### Connecting the Console Cable

#### Introduction

The console cable is an 8-core shielded cable. One end is a crimped RJ-45 connector, which is to be plugged into the console port. The other end is furnished with a DB-9 female connector. You can select either of them based on your actual requirements to fit in with the 9-pin serial interface at the configuration terminal. The following figure shows the console cable.

**Figure 3-14** Console cable



**Table 3-1** Console cable pinouts

Pin (RJ-45)	Signal	Pin (DB-9)	Signal
1	RTS	8	CTS
2	DTR	6	DSR
3	TXD	2	RXD
4	SG	5	SG
5	SG	5	SG
6	RXD	3	TXD
7	DSR	4	DTR
8	CTS	7	RTS

### Connecting the console cable

Take the following steps to connect the console cable, when configuring the switch on the terminal.

- 1) Plug the DB-9 female plug of the console cable to the serial port of the PC or the terminal where the switch is to be configured.
- 2) Connect the RJ-45 connector of the console cable to the console port of the switch.

### Connecting the AUX Cable (Optional)

The AUX cable is used for the remote Modem dial-up configuration for the S7900E series.

#### Introduction

The AUX cable is an 8-core shielded cable. One end is an RJ-45 RS-232 connector, which can be plugged into the console port. The other end is furnished with a DB-9 connector, which can be plugged into the DB-9 socket on the Modem. The AUX cable is the same as the console cable. For details, see [Figure 3-14](#) and [Table 3-1](#).

#### Connection procedure

Follow these steps to connect the AUX cable:

- 1) Plug the RJ-45 connector of the AUX cable into the console port.
- 2) Plug the DB-9 connector of the AUX cable into the serial port of the analog Modem.

### Connecting the COM Cable

#### Introduction

When connected to an external PoE power supply, the S7900E series can monitor the running status of the external PoE power supply through the COM port. The COM ports (one RS-485 port and one RS-232 port) of the S7902E and the S7903E-S are located on the rear panel of the chassis.

When the S7903E, S7906E, S7906E-V, or S7910E provides PoE supply through the PSR1400-D, they can monitor the running status of the PoE supply through the PoE monitoring port (one RS-485 port) on the PSR1400-D.

## Connection procedure

The connection procedure of the RS-232 port and that of the RS-485 port are shown respectively as follows (taking the S7902E using the PSE2500-A as an example):

If the RS-232 port is used, use an 8-core shielded cable. One end of the cable is a crimped RJ-45 connector, which is connected to the RS-232 COM port on the rear panel of the S7902E; the other end is attached with a DB-9 female connector and can be connected to the RS-232 port of PSE2500-A. The COM cable is similar to the console cable. For details, see [Figure 3-14](#).

If the RS-485 port is used, use a straight through cable to connect the COM port with the RS-485 port on the PSE2500-A.

The PoE monitoring port on the PSR1400-D is an RS-485 port. You can select a proper connection method for the RS-485 port according to the type of the PoE monitoring port on the external power module.



### Note

When the S7900E series adopt only the -48 V DC power, but no external PoE power supply, it is unnecessary to connect the COM port.

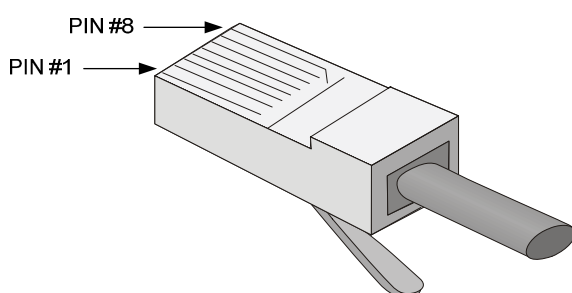
---

## Connecting Category-5 Cables

### Introduction to the RJ-45 connector

10Base-T/100Base-TX and 1000Base-T ports of the S7900E series use RJ-45 connectors, support MDI/MDIX auto-sensing, and adopt category-5 cables. The following figure illustrates the appearance and pinouts of RJ-45 connector.

**Figure 3-15** RJ-45 connector



**Table 3-2** RJ-45 MDI interface pinouts

Pin	10Base-T/100Base-TX		1000Base-T	
	Signal	Function	Signal	Function
1	Tx+	Send data	BIDA+	Bi-directional data cable A+
2	Tx-	Send data	BIDA-	Bi-directional data cable A-
3	Rx+	Receive data	BIDB+	Bi-directional data cable B+

Pin	10Base-T/100Base-TX		1000Base-T	
	Signal	Function	Signal	Function
4	Reserved	—	BIDC+	Bi-directional data cable C+
5	Reserved	—	BIDC-	Bi-directional data cable C-
6	Rx-	Receive data	BIDB-	Bi-directional data cable B-
7	Reserved	—	BIDD+	Bi-directional data cable D+
8	Reserved	—	BIDD-	Bi-directional data cable D-



#### Note

Tx = Transmit data

Rx = Receive data

BI = Bi-directional data

**Table 3-3** RJ-45 MDI-X interface pinouts

Pin	10Base-T/100Base-TX		1000Base-T	
	Signal	Function	Signal	Function
1	Rx+	Receive data	BIDB+	Bi-directional data cable B+
2	Rx-	Receive data	BIDB-	Bi-directional data cable B-
3	Tx+	Send data	BIDA+	Bi-directional data cable A+
4	Reserved	—	BIDD+	Bi-directional data cable D+
5	Reserved	—	BIDD-	Bi-directional data cable D-
6	Tx-	Send data	BIDA-	Bi-directional data cable A-
7	Reserved	—	BIDC+	Bi-directional data cable C+
8	Reserved	—	BIDC-	Bi-directional data cable C-



#### Note

Pins 1 and 2 (negative), 3 and 6 (positive) are used for external PoE power supply.

### Connection procedure

- 1) Plug one end of the network cable into the Ethernet RJ-45 jack of the switch to be connected.
- 2) Plug the other end of the cable into the RJ-45 port of the peer device.

## Connecting Fibers

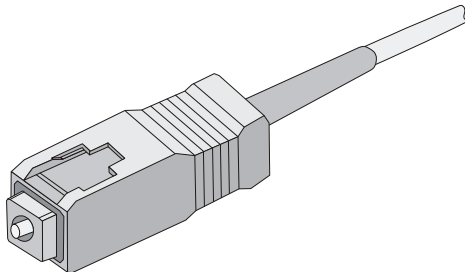
### Introduction to the fiber connector

Before connecting the fibers, make sure the type of the connector and the fiber are consistent with that of the optical interface.

Fiber connectors are indispensable passive components in optical fiber communication system. Their application enables the removable connection between optical channel, which makes optical system debugging and maintenance more convenient and transit dispatching more flexible. Among multiple fiber connectors, only SC and LC will be introduced here.

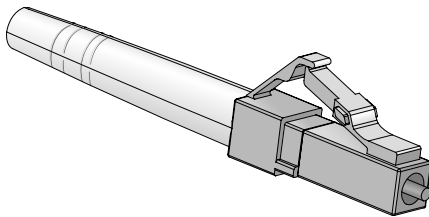
- SC fiber connector

**Figure 3-16** SC connector



- LC fiber connector

**Figure 3-17** LC connector



### Connecting fibers

- 1) Remove the protective cap from the connector of the fiber and clean the surface of the fiber.
- 2) Remove the protective cap from the optical interface of the switch, and plug one end of the fiber into this interface.

Step 3: Connect the other end of the fiber connector to the corresponding device.

---

#### **Caution**

When the optical interface has not been connected with a fiber connector or its dustproof cover is open, there might be some invisible radiation emitted from the optical interface. So do not stare into the optical interface directly.

Cover the optical interface if there is no connector plugged in.

---



# Cabling

## Workbench-Mounted Switch

For an integrated chassis, you do not have to care about the cabling inside or outside the cabinet. All the interface service cables of the S7900E series except the S7906E-V run on the left side of the chassis, but the interface service cables of the S7906E-V run on the upward or downward cabling racks. The power cables (including AC and DC power cables) of the S7900E series except the S7902E and S7903E-S run out of the front of the chassis, but those of the S7902E and S7903E-S run out of the rear of the chassis.

## Rack-Mounted Switch

For the switches mounted in a 19" standard cabinet or N68 cabinet, the service cables are bound on the cable binding rack at the left side of the chassis and arranged to run on the cabling rack or in the raised floor according to the situation in an exchange equipment room (whether the signal cable of the room is accessed from the cabling rack on the top of the chassis or the cabling rack under the floor.) Collect all the transit data signal cable connectors and locate them on the floor of the chassis (instead of any places outside the chassis for fear of unexpected damage). The power cables run out of the front right side of the chassis and either on the cabling rack or in the raised floor as near as possible according to the situation in an exchange equipment room (concerning DC power distribution cabinet, lightning protection box, terminal strip and so on).

## General Cabling Requirements

### Minimum curvature radius of cables

- The curvature radius of a fixed power cable, communication cable, or ribbon cable should be at least five times the cable's outer diameter. If the cable is frequently bent, plugged and unplugged, the curvature radius should be at least seven times the cable's outer diameter.
- The curvature radius of an ordinary fixed coaxial cable should be at least seven times of the cable's outer diameter. If the coaxial cable is frequently bent, plugged and unplugged, the curvature radius should be at least ten times the cable's outer diameter.

### Minimum curvature radius of fibers

- When the fiber is wrapped up around the cabling plate, the diameter of the cabling plate should be at least 25 times the fiber's diameter.
- When the fiber is being moved, the diameter of the cabling plate should be at least 20 times the fiber's diameter.
- When the fiber is fixed, the diameter of the cabling plate should be at least 10 times the fiber's diameter.



#### Note

The fiber's diameter refers to the outer diameter of the fiber jacket. Generally, the diameter of a single-core fiber is 0.9 mm, 2.0 mm, or 3.0 mm (0.04 in., 0.08 in., or 0.12 in.).

---

# Cable Binding

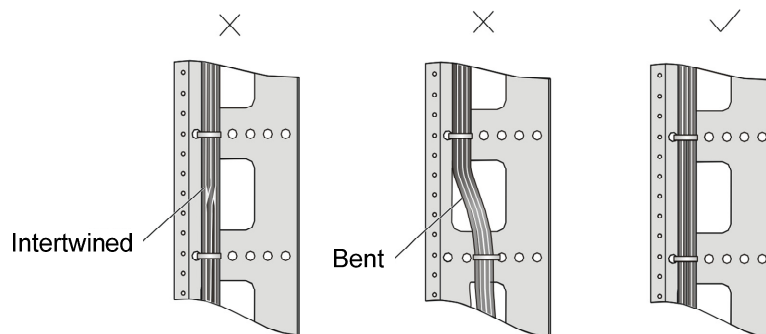
## Correct Use of Labels

Correctly edit the label and paste it to the right place of the bound cables. For details, refer to the description of label usage in the appendix.

## Precautions for Cable Binding

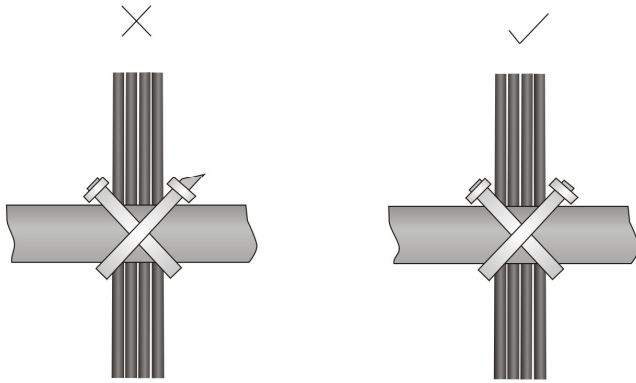
- Bind the cables straight in the cabinet. No twisting or bending.

**Figure 3-18** Cable binding example I



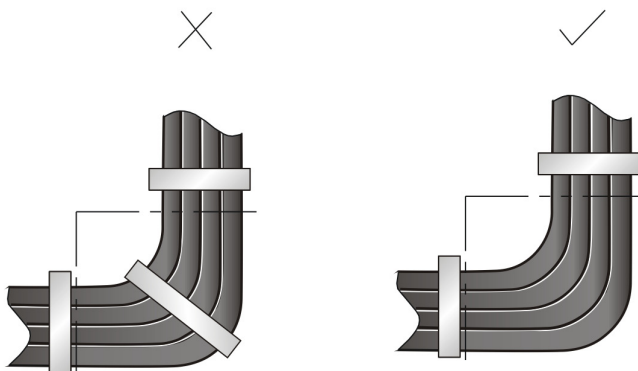
- The radius of the curve at which a cable is bent should be at least twice the cable's diameter. At the point where a cable runs out of a connector, the radius of the curve at which the cable is bent should be at least five times its diameter.
- Different cables (power cable, signal cable, grounding cable, and so on.) should run and be bound separately in a cabinet. They must not be bound together. If they are close to each other, you can cable them in a crossing way. For parallel cabling, the space between power cable and signal cable should be no less than 30 mm (1.18 in.);
- The cable binding rack and cable channel inside and outside a cabinet should be smooth and stretch no sharp points.
- The metal hole through which a cable runs through should have a smooth and fully surface or an insulating bush;
- Use the right type of ties to bind the cables. Do not bind any cables with tied ties.
- Bind the cables with ties and cut the extra parts. Trim the cut and leave no sharp points. See the following figure:

**Figure 3-19** Cable binding example II



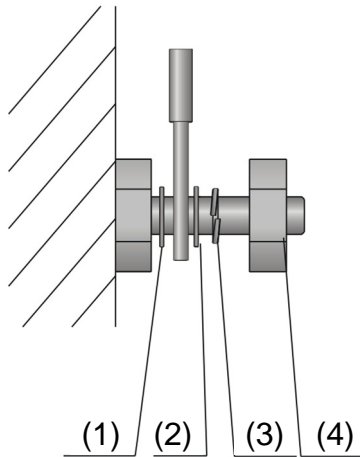
- Before bending the cables, bind them first. Mind that no tie binds the bended part of any cables, for fear of cable core breaking due to excessive stress. See the following figure.

**Figure 3-20** Cable binding example III



- The spare cables or excessive parts should be folded and bound and located at right places in a cabinet or on the cable channel. In the so-called right places, the running device will not be affected or damaged and the cables will not be damaged, either.
- 220V power cable and -48V power cable cannot be tied on the guides of any mobile components;
- Keep excessive parts of power cables for those mobile components, such as grounding cable of doors, to free the cables from possible stress. When installing these components, make sure the excessive cables will not touch heat source, sharp point, or keen edges. Use high temperature cables near the heat sources;
- For the cable terminals fixed with screw thread, the screws or nuts should be fastened and prevented from loosening. See the following figure;

**Figure 3-21** Cable fixing example



(1) Flat washer	(2) Flat washer
(3) Spring washer	(4) Fastening nut

- Fix the terminal of harder power cables to free the terminal and the cable from stress;
- No tapping screw can be used to fasten the cabling terminals;
- The power cables of the same type and in the same direction should be bound together and kept clean and straight;

Follow the parameters defined in the following table for binding cables with ties.

**Table 3-4** Tie-binding parameters

Cable bundle diameter	Space between bundles
10 mm (0.39 in.)	80 mm to 150 mm (3.15 in. to 5.91 in.)
10 mm to 30 mm (0.39 in. to 1.18 in.)	150 mm to 200 mm (5.91 in. to 7.87 in.)
30 mm (1.18 in.)	200 mm to 300 mm (7.87 in. to 11.81 in.)

- No cable or bundle can tie a knot;
- The metal parts of crimping cold-pressed terminal blocks (such as air switch) cannot stretch beyond the blocks.

## Checking the Installation



### Caution

Confirm that you have turned off the power before check; otherwise, improper connection will hurt people or the component of the switch.

After installing the switch, please check if the items listed in the following table are normal.

**Table 3-5** Installation checklist

Items	Normal	Abnormal (Description)
ESD-preventive wrist strap		
Console cable		
Grounding cable		
Power cable		
SRPU		
LPU		
Fan tray		
Power module		

# Table of Contents

<b>4 System Commissioning</b> .....	<b>4-1</b>
Configuration Environment Setup .....	4-1
Setting up Networking Environment .....	4-1
Connecting the Console Cable .....	4-1
Setting Terminal Parameters .....	4-1
Power-On Startup .....	4-4
Check before Power-On .....	4-4
Power-On .....	4-4
Check after Power-On (Recommended) .....	4-5
Startup Process .....	4-5

# 4 System Commissioning

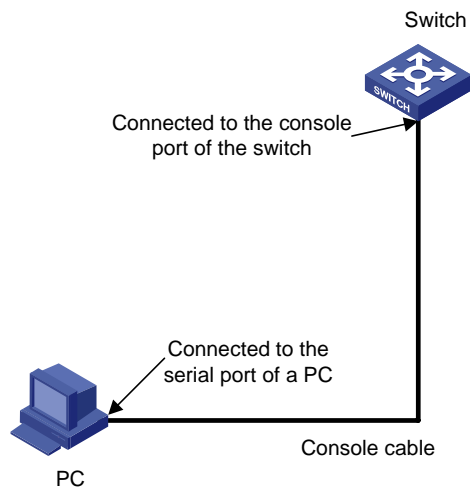
---

## Configuration Environment Setup

### Setting up Networking Environment

- A terminal (a PC in this example) is connected to the console port of the switch with a console cable.

**Figure 4-1** Switch configuration networking



### Connecting the Console Cable

Step 1: Connect the DB-9 female connector of the console cable to the serial port of the PC or the terminal where the switch is to be configured.

Step 2: Connect the RJ-45 connector of the console cable to the console port of the switch.

### Setting Terminal Parameters

Parameter requirements:

- Bits per second: 9600
- Data bits: 8
- Parity: None.
- Stop bits is 1.
- Flow control: None.
- Terminal emulation: VT100.

We take the PC running Windows XP HyperTerminal as an example to introduce how to set the terminal parameters.

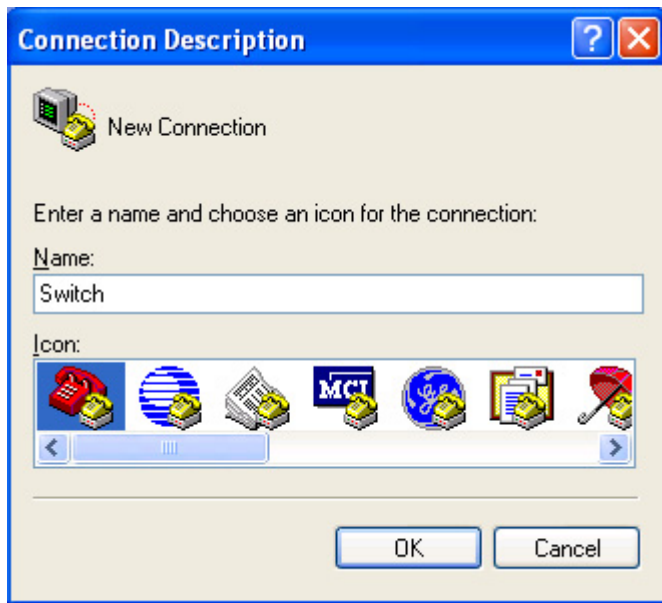
- 1) Start PC and run the terminal emulator (such as Terminal on Windows3.1, and the HyperTerminal on Windows95/Windows98/Windows 2000/Windows NT/Windows ME/Windows XP).
- 2) Set the parameters for Windows XP HyperTerminal as follows:

- Bits per second: 9600
- Data bits: 8.
- Parity: None
- Stop bits:1
- Flow control: None
- Terminal emulation: VT100

The procedure is as follows:

Select **Start > Programs/All Programs > Accessories > Communications > HyperTerminal** to enter the HyperTerminal window to establish a new connection and the system will pop up the **Connection Description** dialog box.

**Figure 4-2** Connection description of HyperTerminal



Type the name of the new connection and click **OK**. Then there pops up the interface as shown in the following figure. Select the serial port to be used from **Connect using** drop-down list box.

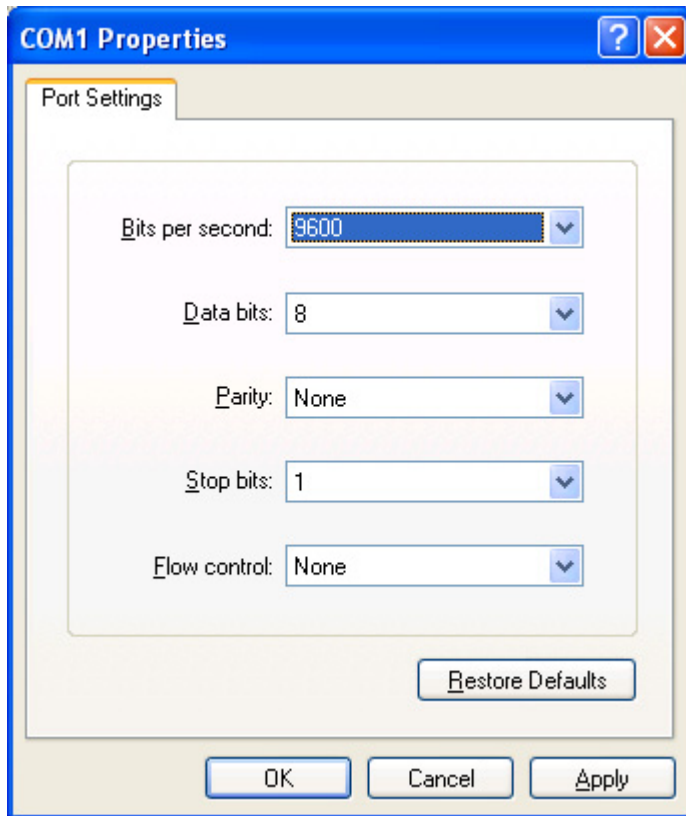
**Figure 4-3** Set serial port for HyperTerminal connection





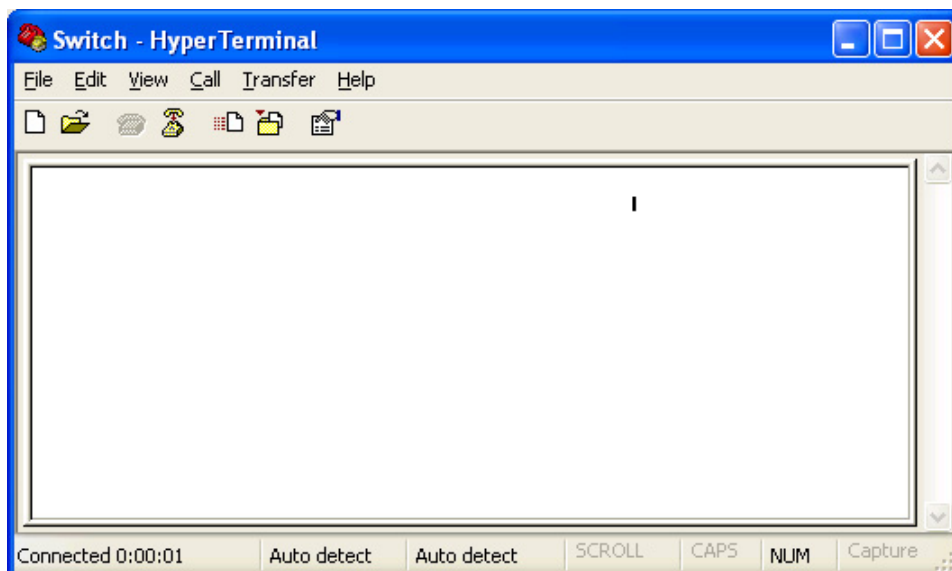
After selecting serial ports, click **OK**. The following interface will pop up for setting serial port parameters. Set bits per second to **9600**, data bits to **8**, parity to **none**, stop bits to **1** and flow control to **none**.

**Figure 4-4** Set serial port parameters



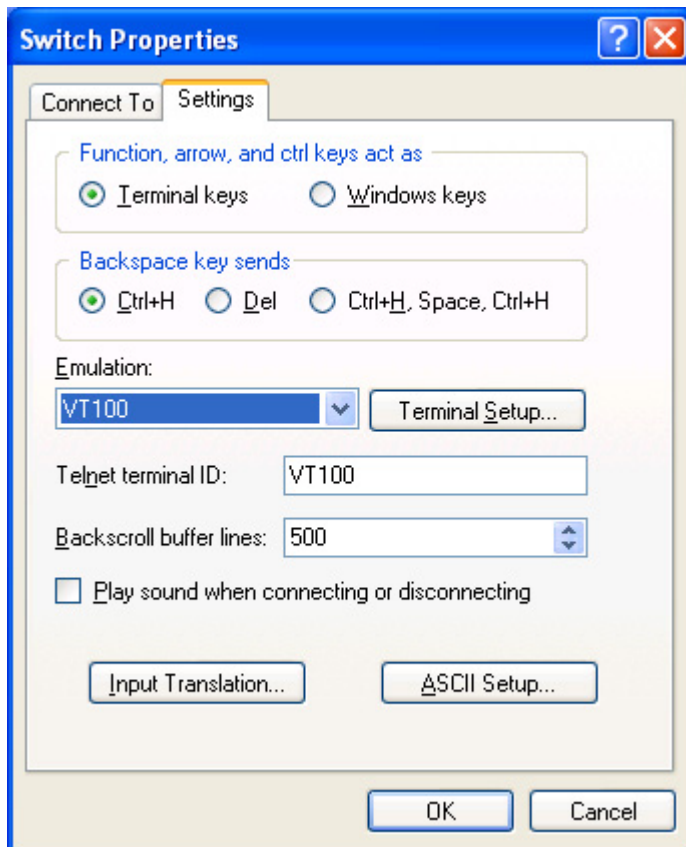
After setting serial port parameters, click **OK**. Then the system will enter the HyperTerminal dialogue box as shown in the following figure.

**Figure 4-5** HyperTerminal interface



In the above dialogue box, select **Properties** and enter the window. Click the **Settings** tab to set the attributes (see the following figure). In this interface, select the terminal emulation to VT100 and then click **OK**.

**Figure 4-6** Set terminal emulation in the property setting window



## Power-On Startup

### Check before Power-On

Before powering on an Ethernet Switch, check if:

- The switch has been mounted steadily.
- All the cards have been correctly installed.
- All the communication cables, fibers, power cables, and grounding cables have been correctly connected.
- If the voltage of power supply can meet the requirements on the switch.
- The console cable has been correctly connected. The computer or terminal for configuration has been started and the terminal parameter settings have been done.

---

### Caution

Before powering on the switch, make sure where the power switch of the equipment room is located, so that you will be able to power off when meeting accident.

---

### Power-On

- Turn on the power supply of the switch.

- Power on the switch.

## Check after Power-On (Recommended)

You are recommended to check as follows after powering on the switch to ensure the configurations thereafter.

- After a switch is powered on, the heat dissipation system starts working. You can hear the noise as the fan rotates and feel air flow out from the vent.
- Check if any system indicator on the SRPU indicates abnormal condition.

## Startup Process

As the switch is started, the configuration terminal will yield the following output:



### Note

The following information may slightly vary with switch models and software versions.

---

```
Starting.....
RAMLine.....OK
System is booting.....***.....

*****
*                                     *
*   3Com S7900E BOOTROM, Version 206   *
*                                     *
*****

Copyright(c) 2004-2008 3Com.
Creation date   : Apr 11 2008, 10:15:28
CPU type       : BCM1125H
CPU Clock Speed : 600Mhz
BUS Clock Speed : 66Mhz
BOOT_FLASH type : M29W040B
Flash Size     : 64MB
Memory Size    : 512MB

Main board slot 0 self testing.....
SDRAM Data lines selftest.....OK!
SDRAM Address lines selftest.....OK!
SDRAM fast selftest.....OK!
CPLD selftest.....OK!
FPGA selftest.....OK!
```



# Table of Contents

<b>5 Hardware Maintenance .....</b>	<b>5-1</b>
Required Tools.....	5-1
Removing and Installing a Power Module.....	5-1
Removing and Installing a Power Module .....	5-2
Removing and Installing Cards .....	5-3
Removing a Card.....	5-4
Installing a Card.....	5-4
Removing and Installing a Fan Tray .....	5-5
For the S7906E-V.....	5-6
For the Other Models.....	5-7
Installing Mounting Ears and a Cabling Rack(s).....	5-7
Installing Cabling Racks on the S7906E-V.....	5-8
Installing Mounting Ears and the Cabling Rack on the Other Models.....	5-8
Installing and Removing Air Filters (Optional) .....	5-10
Installing and Removing Air Filters onto/from the S7906E-V .....	5-10
Installing and Removing an Air Filter onto/from the Other Models .....	5-11
Installing and Removing a CF Card.....	5-11
CF Card Slot and CFS LED .....	5-11
Install a CF Card.....	5-12
Removing the CF Card.....	5-12

# 5 Hardware Maintenance

---

---

## Caution

The power modules of the S7900E series are hot-swappable. When installing or replacing an in-service power module, pay attention to operations and electrical safety. Do not touch any naked wire, terminal or any part of the product labeled with a dangerous voltage to avoid injury.

---

## Required Tools

- ESD-preventive wrist strap
- Screwdriver

## Removing and Installing a Power Module

The power module installation and removal procedures described in this section involve the following two scenarios:

- Power modules are directly installed to/removed from the chassis.
- Power modules are installed to/removed from the chassis with power module adapters.

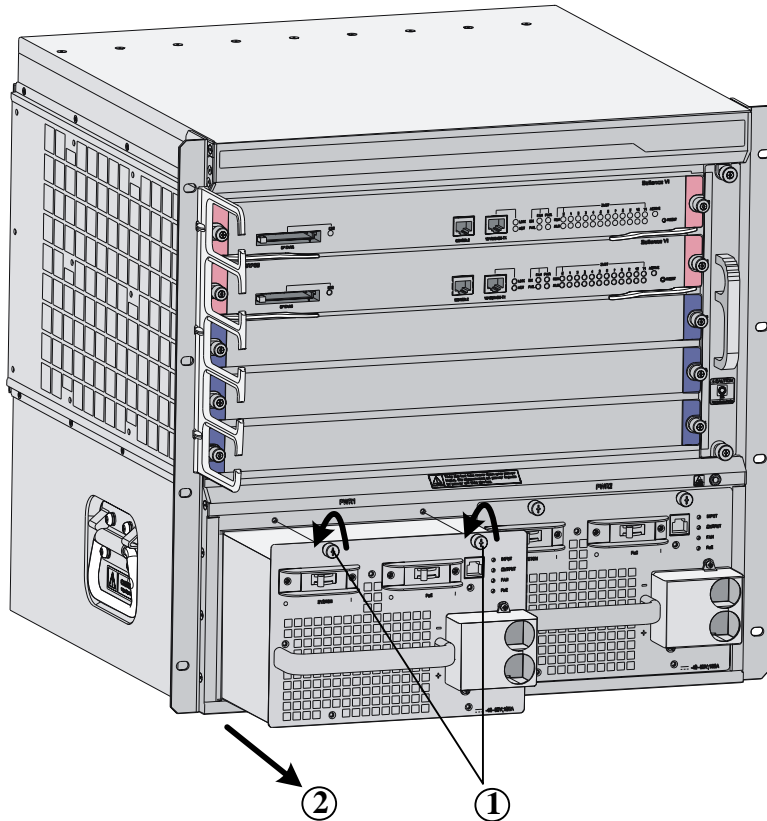
In the second scenario, you need to install a power module adapter to the chassis first and then install a power module to the power module adapter. The installation and removal methods in this scenario are the same as in the first scenario.

The following describes how to install and remove a power module in the first scenario.

## Removing and Installing a Power Module

### Removing a power module

**Figure 5-1** Remove a power module



Follow these steps to install a power module:

- 1) Wear an ESD-preventive wrist strap and loosen the captive screws on the power module (see callout ① in [Figure 5-1](#)).
- 2) Grasp the handle of the power module with one hand to pull out a part of it. Then hold the module bottom with the other hand and take out the module slowly (see callout ② in [Figure 5-1](#)).

---

### Caution

Since the power module of the S7900E series is heavy, you are recommended to grasp the handle of the power module with one hand and hold the bottom with the other while pulling out a power module slowly.

If you are not going to install a new power module after removing a power module, you should install a blank panel for the heat dissipation and dust-proof purpose.

---

### Installing a power module

Install a power module in the opposite order you remove it:

- 1) Put on an ESD-preventive wrist strap and take a new power module out of its package. Check that the input mode of the power module is as required.

- 2) Grasp the handle of the module with one hand and hold the module bottom with the other. Gently push the power module along the guide rails into the chassis until it has firm contact with the connector on the backplane.
- 

 **Caution**

Be sure not to insert the power module with its front panel upside down.

Follow the forward inertia of the power module when inserting it into the chassis to ensure that the power module has firm contact with the connector on backplane.

To prevent damage to the power module and the connection terminals on the backplane, make sure to pull the module out first in case of any misalignment, and then push it in again.

---

- 3) Tighten the captive screws with a screwdriver to secure the power module to the chassis.
- 

 **Caution**

If the captive screws cannot be tightened, check whether the power module is properly installed.

---

## Removing and Installing Cards

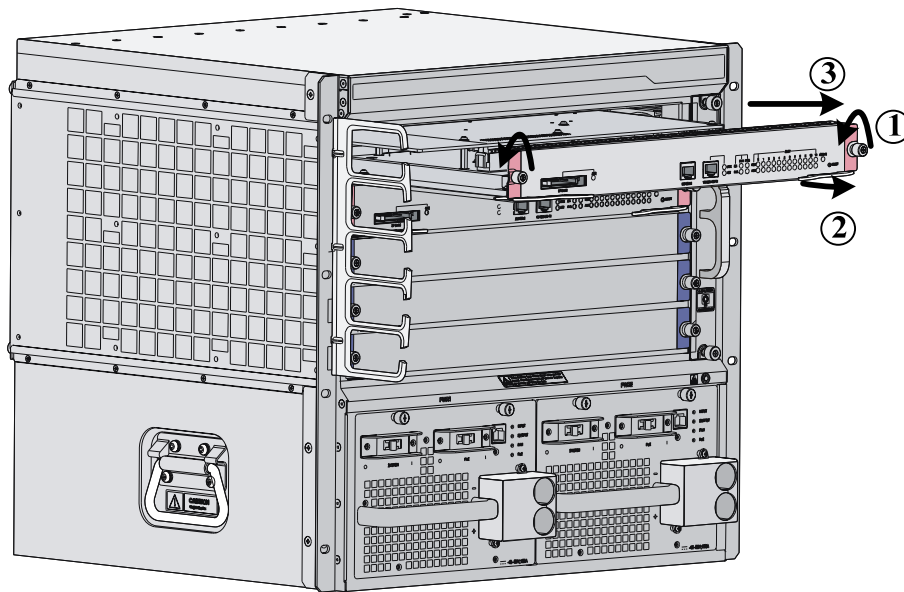
SRPUs and LPUs of the S7900E series are basically of the same structure. These cards share similar installation and removal methods. This section describes the general installation and removal methods.

Cards of the S7900E series are hot-swappable.



## Removing a Card

Figure 5-2 Remove a card



Follow these steps to remove a card:

- 1) Wear an ESD-preventive wrist strap and loosen the captive screws on the card with a screwdriver (see callout ① in [Figure 5-2](#)).
- 2) Hold the ejector levers on the card with both hands and press them outward to separate the connectors of the card from the backplane (see callout ② in [Figure 5-2](#)).
- 3) Pull part of the card out along the guide rails slowly, then hold the card bottom with one hand (do not touch its circuit) and pull it out of the chassis with the other hand (see callout ③ in [Figure 5-2](#)).



### Note

If you are not going to install a new card after removing a card, install a blank panel on the slot for the dust-proof purpose.

---

## Installing a Card

Install a card in the opposite way you remove it:

- 1) Wear an ESD-preventive wrist strap and loosen the captive screws on the blank panel on the slot, where the card should be inserted.
- 2) Hold the card by the front panel with one hand and hold the card bottom with the other hand (do not touch its circuit). Slide the card steadily into the slot along the guide rails. When most part of the card is inserted in the slot, press the ejector levers on the card outward with both hands. Then, push the card until the positioning pin on its handle bar touches the hole on the chassis.
- 3) Press the ejector levers inward until the ejector levers touch the panel tightly and the card snaps into the backplane.

- 4) Tighten the captive screws to fix the card.

**Note**

Put away the removed blank panel for future use.

When installing or removing a card, keep the card parallel to the slot to prevent the card from scratching other parts in the chassis.

---

## Removing and Installing a Fan Tray

---

**Caution**

Do not touch any naked wire, terminal or any part of the product labeled with a dangerous voltage to avoid injury.

If you want to replace the fan tray of an in-service switch, separate the fan tray from the backplane to disconnect the power and wait for the fan stops rotating before pulling it out completely. Considering that the fan may be still rotating, avoid stretching your hands into the fan tray.

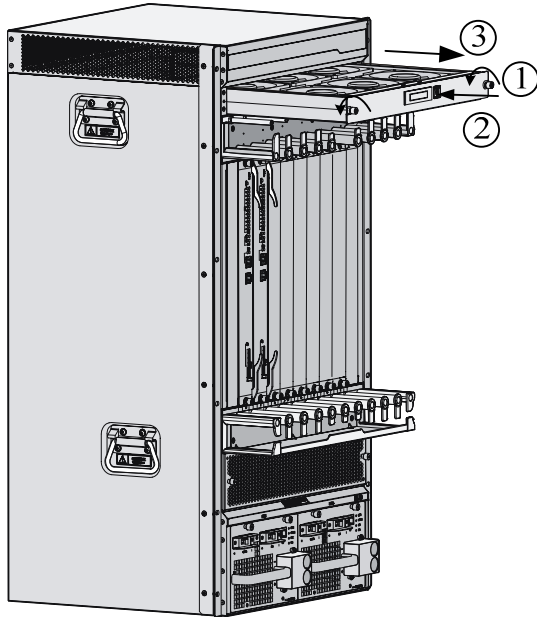
---

The fan tray handle of the S7906E-V is slightly different from those of the S7902E, S7903E-S, S7903E, S7906E, and S7910E. The fan tray handles of S7902E, S7903E-S, S7903E, S7906E, and S7910E are fixed, while that of the S7906E-V is hidden in the groove of the fan tray. Therefore, you need to rotate the handle out of the groove before removing the fan tray from the S7906E-V or installing a fan tray on the S7906E-V.

## For the S7906E-V

### Removing the fan tray

**Figure 5-3** Removing the fan tray of the S7906E-V



Follow these steps to remove the fan tray of the S7906E-V:

- 1) Wear an ESD-preventive wrist strap and loosen the captive screws on the fan tray with a screwdriver (see callout ① in [Figure 5-3](#)).
- 2) Press the left side of the handle to rotate it out of the groove (see callout ② in [Figure 5-3](#)).
- 3) Grasp the handle to take out the fan tray (see callout ③ in [Figure 5-3](#)).
- 4) Put the removed fan tray in a package.

---

 **Caution**

Install a new fan tray soon after removing the old one to ensure that the switch can work normally.

---

### Installing a fan tray

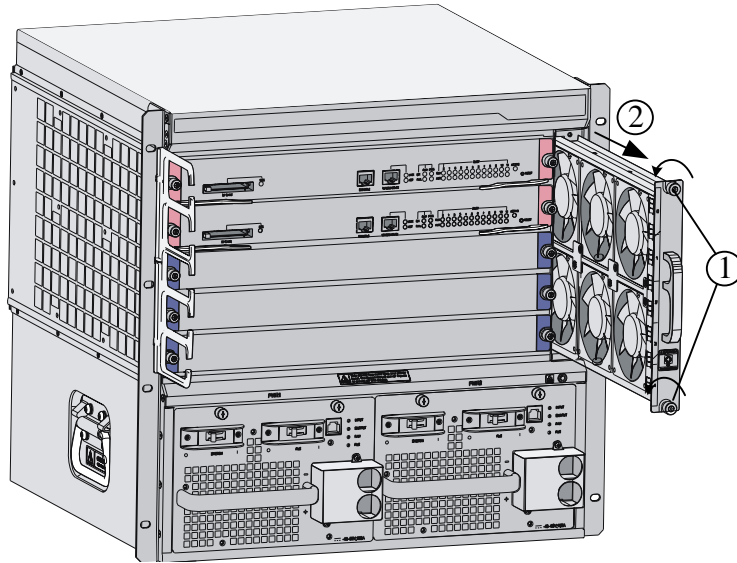
Install a fan tray in the opposite way you remove it:

- 1) Wear an ESD-preventive wrist strap, take a new fan tray out of a package, and insert it along the guide rails into the switch until it snaps into the chassis backplane.
- 2) Tighten the captive screws with a screwdriver.
- 3) Push the handle into the groove.

## For the Other Models

### Removing the fan tray

**Figure 5-4** Remove the fan tray of the other models



Follow these steps to remove the fan tray of other models:

- 1) Wear an ESD-preventive wrist strap and loosen the captive screws on the fan tray with a screwdriver (see callout ① in [Figure 5-4](#)).
- 2) Drag the fan tray out of the slot (see callout ② in [Figure 5-4](#)).
- 3) Put the removed fan tray into a package.

### Installing a fan tray

Install a fan tray in the opposite way you remove it:

- 1) Take a new fan tray out of a package and slide it along the guide rails into the switch until it snaps into the chassis backplane.
- 2) Tighten the captive screws on the fan tray with a screwdriver.

## Installing Mounting Ears and a Cabling Rack(s)

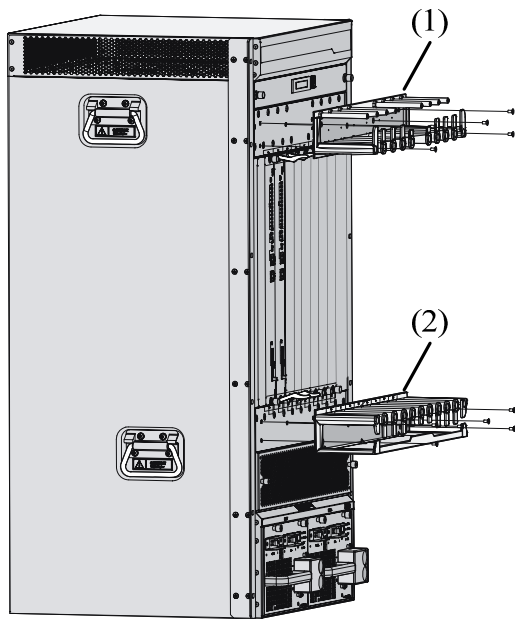
To facilitate installation and cable routing, mounting ears and a cabling rack are shipped together with the S7900E series, but they are separated. Therefore, you first need to install the cabling rack on a mounting ear.

For the S7906E-V, it is unnecessary to install cabling racks onto mounting ears. Two cabling racks are provided for the S7906E-V: upward cabling rack and downward cabling rack. These two cabling racks are different. The cabling rack with a tray should be installed in the lower part of the chassis. However, they are installed in the same way.

The mounting ears of the S7900E series are installed in the same way.

## Installing Cabling Racks on the S7906E-V

**Figure 5-5** Install cabling racks on the S7906E-V



---

(1) Upward cabling rack

(2) Downward cabling rack

---

Follow these steps to install cabling racks on the S7906E-V:

- 1) Place the cabling racks closely against the place where it should be installed on the chassis and align the screws with the crew holes.
- 2) Tighten the screws to fix the cabling racks.



### Note

There are two cabling racks: upward cabling rack and downward cabling rack. However, they are installed in the same way.

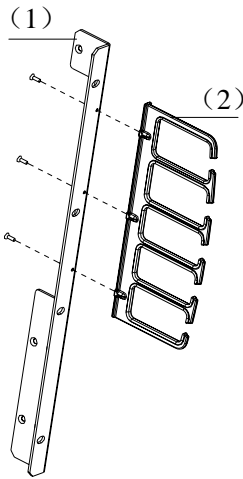
---

## Installing Mounting Ears and the Cabling Rack on the Other Models

### Installing the cabling rack onto a mounting ear

As shown in [Figure 5-6](#), install the cabling rack onto the left mounting ear.

**Figure 5-6** Install the cabling rack onto the left mounting ear

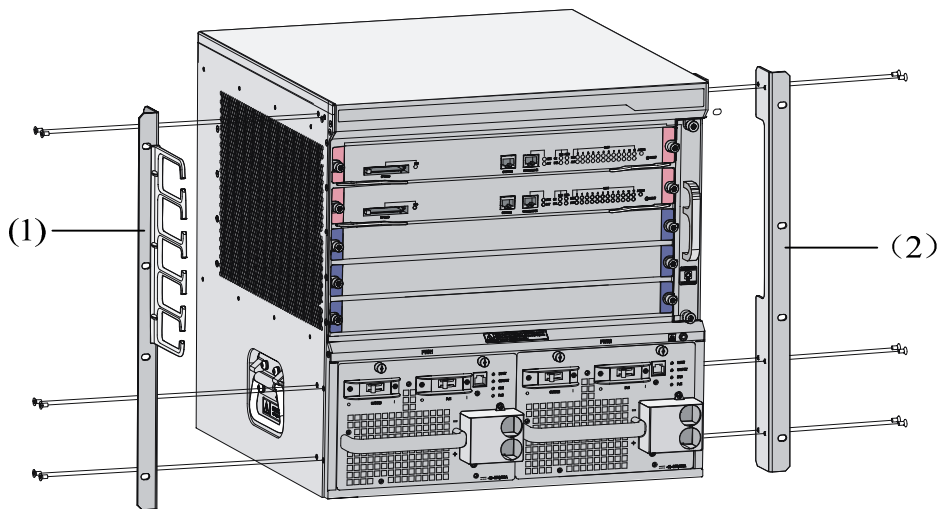


(1) Left mounting ear

(2) Cabling rack

### Installing the mounting ears and cabling rack onto the chassis

**Figure 5-7** Install the mounting ears and cabling rack



(1) Mounting ear and cabling rack

(2) Mounting ear

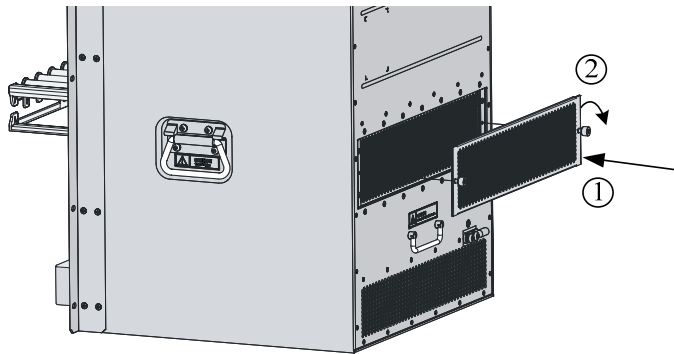
Follow these steps to install the mounting ears and cabling rack on a model other than the S7906E-V:

- 1) Face the slots of the switch.
- 2) Attach the mounting ear with the cabling rack installed to the left (opposite side to the fan tray) of the switch. Attach the mounting ear without any cabling rack to the right side of the switch.

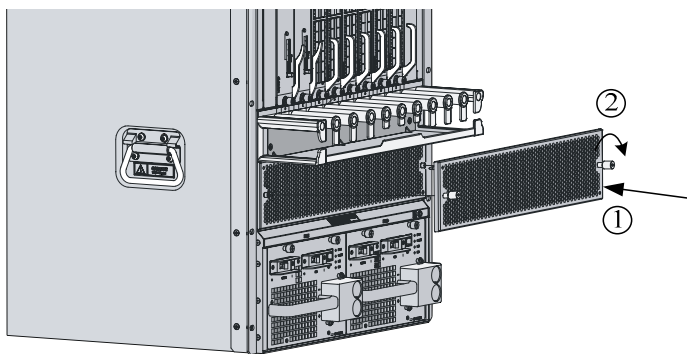
# Installing and Removing Air Filters (Optional)

## Installing and Removing Air Filters onto/from the S7906E-V

**Figure 5-8** Install a rear air filter on the S7906E-V



**Figure 5-9** Install a front air filter on the S7906E-V



### Installing air filters

Follow these steps to install air filters:

- 1) Place an air filter closely against the air intake vent at the back of the chassis and align the captive screws with the screw holes (see callout ① in [Figure 5-8](#)).
- 2) Tighten the captive screws to fix the air filter (see callout ② in [Figure 5-8](#)).



#### Note

There is also an air filter on the front of the chassis and it is installed in the same way.

---

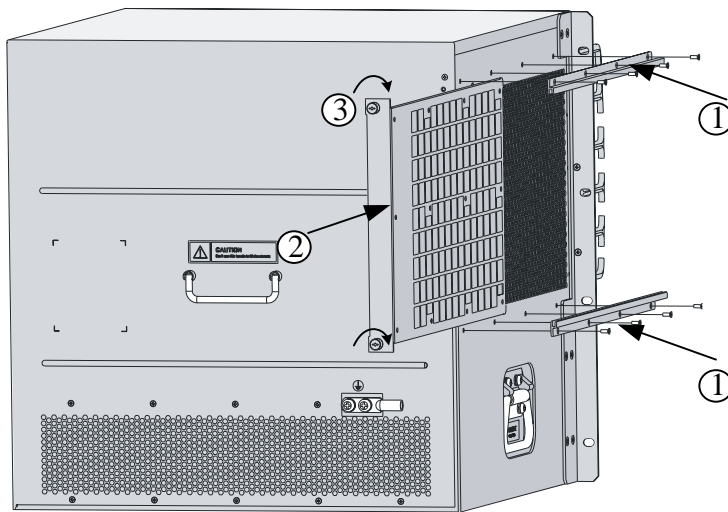
### Removing air filters

Remove the air filters in the opposite way you install them:

- 1) Loosen the captive screws on the air filters.
- 2) Remove the air filters from the chassis.

## Installing and Removing an Air Filter onto/from the Other Models

**Figure 5-10** Install an air filter (on the S7903E)



### Installing an air filter

Follow these steps to install an air filter on the chassis:

- 1) Fasten the two metal air-filter-fixing bars to the chassis (see callout ① in [Figure 5-10](#)).
- 2) Insert an air filter along the clearance between the upper and lower metal bars and the chassis at the back of the chassis (see callout ② in [Figure 5-10](#)).
- 3) Tighten the captive screws to fix the air filter (see callout ③ in [Figure 5-10](#)).

### Removing the air filter

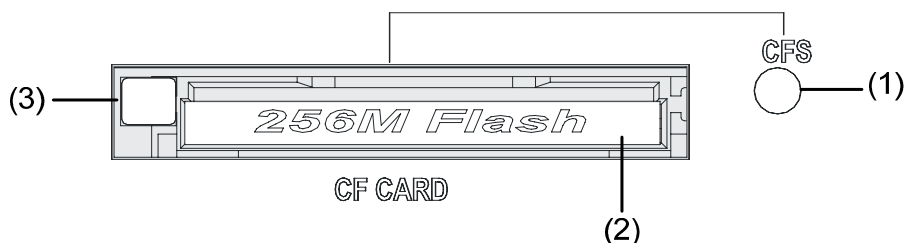
Remove the air filter in the opposite way you install it:

- 1) Loosen the captive screws on the air filter.
- 2) Pull the air filter out of the chassis slowly.

## Installing and Removing a CF Card

### CF Card Slot and CFS LED

**Figure 5-11** CF card slot and CFS LED

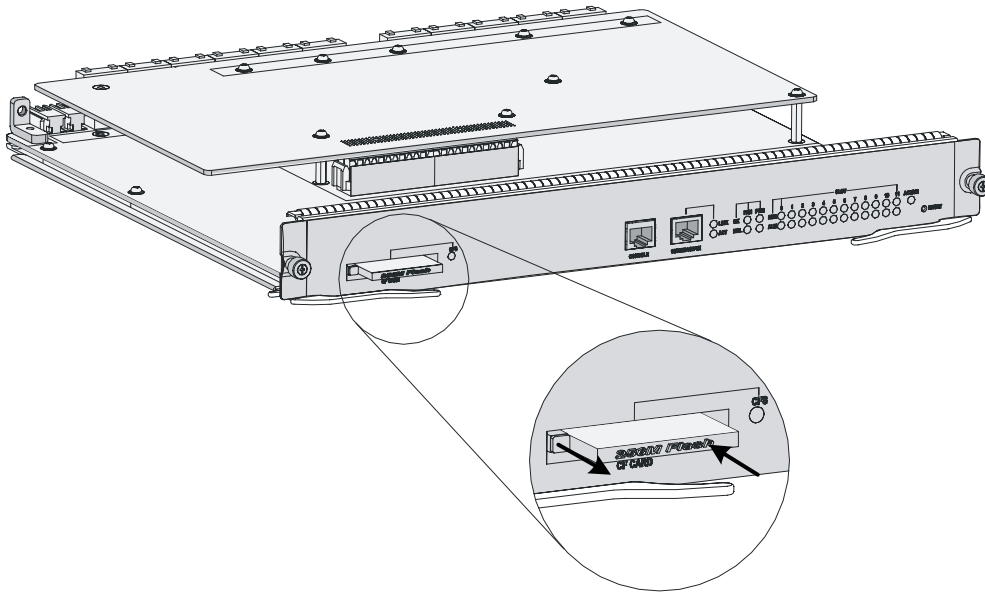


(1) CFS LED	(2) CF card
(3) CF card eject button	



## Install a CF Card

Figure 5-12 Install a CF card



Follow these steps to install a CF card:

- 1) Press down the eject button completely and make sure the button does not spring out after you move your hand away from it.
- 2) Insert the CF card into the slot until it is seated in the slot and the eject button pops out towards you. (See [Figure 5-12.](#))

## Removing the CF Card

Follow these steps to remove the CF card:

- 1) Execute the **umount** command in user view to unmount the CF card.

---

### Note

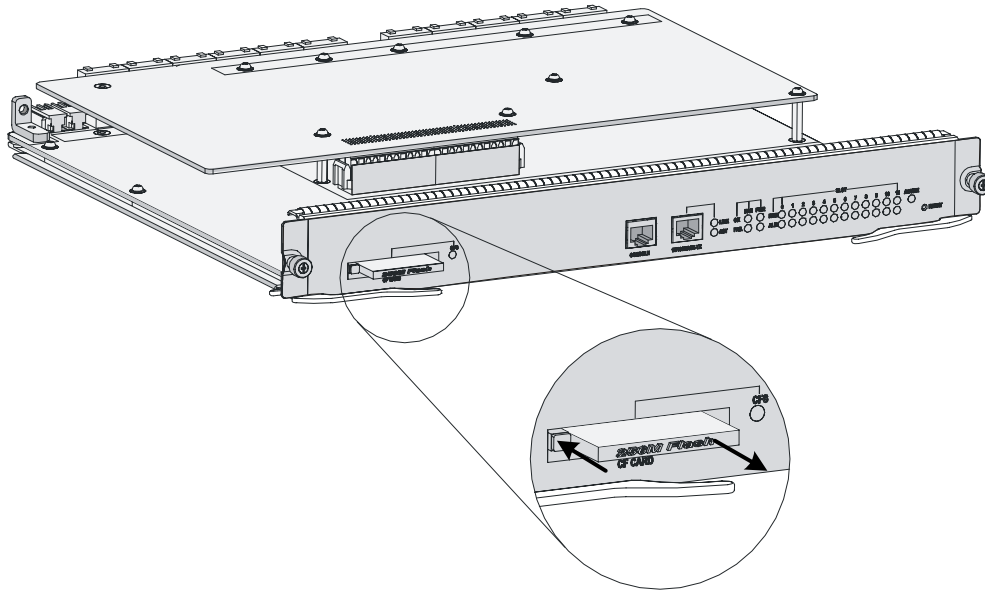
If you want to use the CF card after you execute the **umount** command, you can execute the **mount** command in user view to mount the CF card again.

For detailed descriptions about the **mount** and **umount** commands, refer to the file system management commands in *S7900E Series Ethernet Switches Command Manual*.

---

- 2) Press down the eject button and remove the CF card when it is ejected part way out of the slot. (See [Figure 5-13.](#))

**Figure 5-13** Remove the CF card



---

 **Caution**

To avoid damaging the hardware or the file system on the CF card, do not remove the CF card when the switch is booting or the CFS LED is flashing.

Put the removed CF card in an antistatic bag to protect it against ESD damage.

---

# Table of Contents

<b>6 Software Maintenance</b> .....	<b>6-1</b>
Software Maintenance Overview .....	6-1
Upgrading Through the Boot Menu.....	6-1
BOOT Menu .....	6-1
Downloading Through the Management/Upgrade Ethernet Port Using TFTP.....	6-3
Downloading Through the Management/Upgrade Ethernet Port Using FTP.....	6-5
Downloading Through the Console Port Using XMODEM.....	6-6
Setting the Main and Backup Host Software Through the Boot Menu.....	6-11
Updating Boot ROM Through a File on the Flash .....	6-12
Upgrading Through Command Lines.....	6-14
Upgrading Using FTP .....	6-14
Upgrading Using TFTP.....	6-15
Examples of Upgrading Boot ROM and Host Software of the Dual SRPUs.....	6-16
Upgrading Boot ROM and Host Software Through Command Lines .....	6-16
Upgrading Through the Boot Menu .....	6-18
Handling Upgrade Failure .....	6-19
Handling Password Loss .....	6-19

# 6 Software Maintenance

---

## Software Maintenance Overview

Software maintenance of a switch means to upgrade the switch host software and Boot ROM through the host software package, which contains the host software and the Boot ROM program, and is with the extension name of **.app** (S7900E.app for example).

- Host software upgrade involves downloading the host software package onto the Flash of both the active and standby SRPUs, and setting the main and backup boot files.
- Boot ROM upgrade involves upgrading the Boot ROM of the SRPUs and LPUs through the Boot ROM program in the host software package.

There are two ways to upgrade host software and Boot ROM programs:

- Upgrade through boot menu.
- Upgrade through command lines.

However, you can upgrade the Boot ROM program of LPUs through command lines only.



### Note

- To ensure the software version consistency between the active and standby SRPUs, upgrade the software in the same way, that is, upgrade the software on both the active and standby SRPUs either through command lines or through the boot menu.
  - Since upgrading through command lines affects the services of the S7900E series less significantly than upgrading through the boot menu, the former is recommended.
- 

## Upgrading Through the Boot Menu

You can download the host software package onto the Flash of a switch in one of the following ways:

- Download through a management/upgrade Ethernet port using TFTP
- Download through a management/upgrade Ethernet port using FTP
- Download through the console port using XMODEM

After downloading the host software package onto the Flash, specify the main/backup boot file to complete the host software upgrade. If you need to upgrade the Boot ROM of the SRPUs through the boot menu, refer to section [“Updating Boot ROM Through a File on the Flash”](#) on page [6-12](#).

### BOOT Menu

Upon power-on, the switch will run the Boot ROM program first. The following information will be displayed on the terminal:

```
Starting.....
```

```
RAMLine....OK
System is booting.....***.....
```

```
*****
*
*      3Com S7900E BOOTROM, Version 206      *
*
*****
```

```
Copyright(c) 2004-2008 3Com.
Creation date   : Apr 11 2008, 10:15:28
CPU type       : BCM1125H
CPU Clock Speed : 600Mhz
BUS Clock Speed : 66Mhz
BOOT_FLASH type : M29W040B
Flash Size     : 64MB
Memory Size    : 512MB
```

```
Main board slot 0 self testing.....
SDRAM Data lines selftest.....OK!
SDRAM Address lines selftest.....OK!
SDRAM fast selftest.....OK!
CPLD selftest.....OK!
FPGA selftest.....OK!
The switch Mac address is .....0000.FC00.7906
```



**Note**

The above information may vary slightly with the models of S7900E series.

---

Press Ctrl+B to enter Boot Menu... 5

Press **Ctrl+B**. The system prompts you to input the Boot ROM password:

Password :



**Note**

To enter the boot menu, press **Ctrl+B** within 5 seconds after “Press Ctrl+B to enter Boot Menu...” is prompted. Otherwise, the system will start executing the host software decompression, and in this case, if you want to enter the boot menu, you have to reboot the switch.

---

Enter the correct Boot ROM password and the system displays the boot menu.

By default, no password is set for the switch and you can press **Enter** to enter the boot menu.

---

 **Caution**

While using the switch, keep in mind the modified Boot ROM password.

---

```
BOOT MENU
1: Download application file to device
2: Select application file to boot
3: Display all files in device
4: Delete file from device
5: Modify bootrom password
0: Reboot
```

```
Enter your choice(0-5):
```

## Downloading Through the Management/Upgrade Ethernet Port Using TFTP

### Introduction to TFTP

Trivial File Transfer Protocol (TFTP) is a TCP/IP protocol used for file transmission between client and server. TFTP provides the unreliable data stream transfer service over UDP.

### Downloading the host software package

- 1) Connect the switch to the PC that stores the file to be downloaded through the management/upgrade Ethernet port (the IP address of the PC is required). Connect the switch to a PC through the console port (the two PCs can be the same one).
- 2) Run the TFTP Server program on the PC connected to the Ethernet port, and specify the file directory of the program to be downloaded.
- 3) Run the terminal emulation program on the PC connected to the console port. Start the switch, enter the boot menu (refer to section "[BOOT Menu](#)" on page [6-1](#)), and enter **1** when the system displays "Enter your choice(0-5):" to enter the download protocol menu:

```
BOOT MENU
1. Download application file to device
2. Select application file to boot
3. Display all files in device
4. Delete file from device
5. Modify bootrom password
0. Reboot
```

```
Enter your choice(0-5): 1
```

- 4) On the download protocol menu, type **1** to select TFTP, and then press **Enter** to set the TFTP parameters:
  1. Set TFTP protocol parameter
  2. Set FTP protocol parameter

- 3. Set XMODEM protocol parameter
- 0. Return to boot menu

Enter your choice(0-3): 1

Load File name:

Switch IP address:

Server IP address:

- 5) Input the TFTP parameter values and press **Enter**. The system displays the following information for confirmation:

Are you sure you want to download file to flash? Yes or No(Y/N)

Enter **Y** to download the file, or **N** to return to the download protocol menu.

- 6) Type **Y** and press **Enter**. The system starts program downloading and upon its completion automatically starts to write the program to the Flash. The system displays the following information upon the completion of the downloading process:

Attached TCP/IP interface to sbel.

Attaching network interf

Prepare for loading...OK!

Loading.....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....done!

Free flash Space : 65932288 bytes

Writing flash.....  
 .....  
 .....  
 .....  
 .....done!

- 1. Set TFTP protocol parameter
- 2. Set FTP protocol parameter
- 3. Set XMODEM protocol parameter
- 0. Return to boot menu

Enter your choice(0-3):

After the above steps, you have completed the downloading of the host software package.

To complete the host software upgrade, you need to set the main/backup attribute of the host software. For details, refer to "[Setting the Main and Backup Host Software Through the Boot Menu](#)" on page 6-11.

If you need to upgrade the Boot ROM on the SRPUs through the boot menu, refer to section "[Updating Boot ROM Through a File on the Flash](#)" on page 6-12.

# Downloading Through the Management/Upgrade Ethernet Port Using FTP

## Introduction to FTP

A switch can be used through Ethernet port as an FTP server or a client to provide another approach to software loading and file configuration.

In the following example, the switch functions as an FTP client.

## Loading the host software package

- 1) Connect the switch to the PC that stores the file to be downloaded through the management/upgrade Ethernet port. The IP address of the PC is required. Connect the switch to a PC through the console port. The two PCs can be the same one.
- 2) Run the FTP server program on the PC connected to the management/upgrade Ethernet port, specify the directory of the program to be downloaded, and set the login username and password.
- 3) Run the terminal emulation program on the PC connected to the console port. Start the switch, enter the boot menu (refer to section "[BOOT Menu](#)" on page [6-1](#)), and enter **1** when the system displays "Enter your choice(0-5):" to enter the download protocol menu.

```
BOOT MENU
```

- ```
1. Download application file to device
2. Select application file to boot
3. Display all files in device
4. Delete file from device
5. Modify bootrom password
0. Reboot
```

```
Enter your choice(0-5): 1
```

- 4) On the download protocol menu, type **2** to select FTP, and then press **Enter** to set the FTP parameters:

- ```
1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu
```

```
Enter your choice(0-3): 2
```

```
Load File name:
```

```
Switch IP address:
```

```
Server IP address:
```

```
FTP User Name:
```

```
FTP User Password:
```

- 5) Input the FTP parameter values and then press **Enter**. The system displays the following information:

```
Are you sure you want to download file to flash? Yes or No(Y/N)
```

Enter **Y** to download the file, or **N** to return to the download protocol menu.

- 6) Type **Y** and press **Enter**. The system starts program downloading and upon its completion automatically starts to write the program to the Flash. The system displays the following information upon the completion of the downloading process:

```
Attached TCP/IP interface to sbel.
```







## Note

Since it takes a long time to download the host software package through the console port using XMODEM, you may use other alternatives if available.

---

### Downloading the host software package

Follow these steps to download the host software package onto the switch:

- 1) Enter the Boot Menu (refer to section “[BOOT Menu](#)” on page [6-1](#)), and enter **1** when the system displays “Enter your choice(0-5):” to enter the download protocol menu.

```
BOOT MENU
```

1. Download application file to device
2. Select application file to boot
3. Display all files in device
4. Delete file from device
5. Modify bootrom password
0. Reboot

```
Enter your choice(0-5): 1
```

- 2) On the download protocol menu, type **3** to select XMODEM and press **Enter**, and then the system will prompt you to input the name of the file to be downloaded.

1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu

```
Enter your choice(0-4): 3
```

```
Load File name          :update.app
```

- 3) Enter the file name to enter the download baud rate menu:

```
Please select your download baudrate:
```

1. 9600
2. 19200
3. 38400
4. 57600
5. 115200
0. Exit

```
Enter your choice (0-5):2
```

- 4) Choose an appropriate download baud rate. If you select **2** to choose the download baud rate 19,200 bps, the system displays the following information after you press **Enter**:

```
Please change the terminal's baudrate to 19200 bps and select XMODEM protocol.
```

```
Press ENTER key when ready.
```

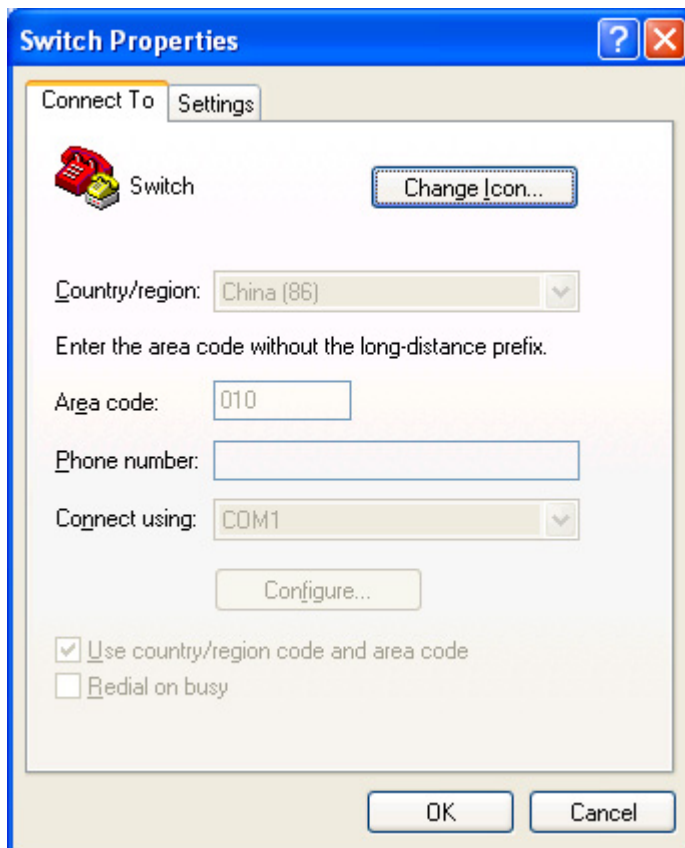


## Note

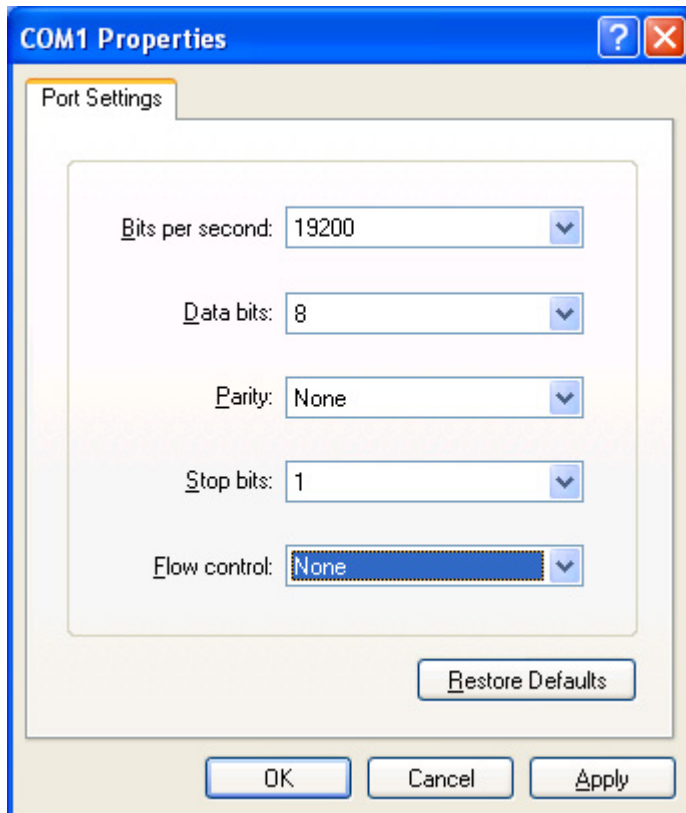
You do not need to modify the HyperTerminal's baud rate if you have chosen 9600 bps, and thus you can skip Step 5 and 6 and go to Step 7 directly. At this time, the system will not display the above information.

- 5) Click **Disconnect** in the HyperTerminal window to disconnect the HyperTerminal from the switch before setting a baud rate.
- 6) Select **File > Properties** in the HyperTerminal window, click **Configure** in the popup dialog box, and select the baud rate of 19200 bps in the console port configuration dialog box.

**Figure 6-1** Properties dialog box



**Figure 6-2** Console port configuration dialog box



- 7) Click **Connect** to re-establish a connection with the switch and press **Enter** to download the program. The terminal displays the following information:

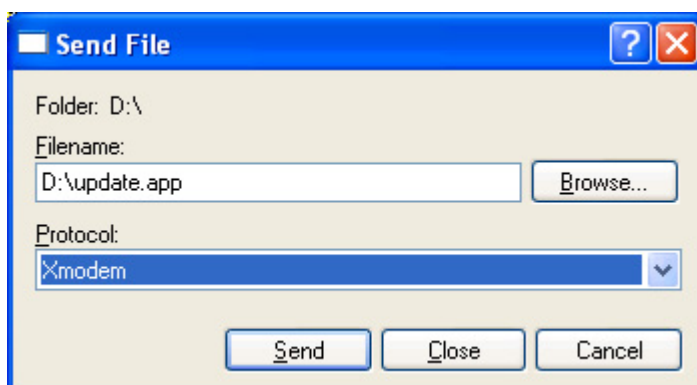
Now please start transfer file with XMODEM protocol.

If you want to exit, Press <Ctrl+X>

Downloading ...CCCCCCCCCCCCCCC

- 8) Select **Transfer > Send File** in the HyperTerminal window. In the popup dialog box shown in the following figure, click **Browse** to select the software you need to download, and set the protocol to XMODEM.

**Figure 6-3** Send File dialog box







## Note

After the system reboots, you need to change the baud rate of the HyperTerminal back to 9600 bps as described in Steps 5 and 6. You need not to change the baud rate if you have chosen 9600 bps for download.

---

## Setting the Main and Backup Host Software Through the Boot Menu

The S7900E series support dual image booting. Usually the switch boots with the main image (namely, the main boot file), but uses the backup image (namely, the backup boot file) when the main image is in error.

For the setting of the main and backup host software through command lines, refer to section [“Set the main and backup boot files.”](#) on page 6-17. The following introduces the setting of dual image through the boot menu.

- 1) Enter the boot menu.

```
BOOT MENU
```

1. Download application file to device
2. Select application file to boot
3. Display all files in device
4. Delete file from device
5. Modify bootrom password
0. Reboot

```
Enter your choice(0-5): 2
```

- Select **2** and press **Enter**.

```
File Number   File Size(bytes)   File Name
=====
1.             4                 snmpboots
2.            1972                SWITCH100.cfg
3.            1012                taskswitch.log
4.           631736                Btm105.app
5.           199696                8241btm.app
6.           6048565                SWITCH200.app
7(*).          5639172                SWITCH000.app
8(-).          203460                 SWITCH100.app
Flash Free Space : 21444608 bytes
```

```
The current application file is :SWITCH000.app
```

```
The backup application file is : SWITCH100.app
```

The system displays all files on the Flash, wherein the file number with an asterisk (\*) is the main boot file and the one with a hyphen (-) is the backup boot file.

- 2) Re-configure the main and backup boot files.

- Set the main boot file.

Enter the sequence number of the desired main boot file when the terminal displays the following information:

Please input the primary application file number to boot :8

Press **Enter** and the terminal displays the name of the main boot file you have chosen. Type **Y** to confirm it, or **N** to reset the main boot file.

The primary file you selected is SWITCH100.app, are you sure? Yes or No(Y/N):Y

If you type **Y**, the terminal displays the following information:

On reboot, SWITCH100.app will become the default primary application file to boot!

This means the main boot file has been set successfully.

- Set the backup boot file.

You can set the backup boot file in a similar way you set the main boot file. The terminal displays the following information:

Please input the backup application file number :6

The file you selected is SWITCH200.app, are you sure? Yes or No(Y/N)y

On reboot,SWITCH200.app will become the backup application file to boot!

- 3) Decide whether to run the main boot file immediately. If you type **Y** and press **Enter**, the system begins to reboot.

Do you want to run SWITCH100.app now?Yes or No(Y/N)?Y

Auto-booting.....

One of the following cases may occur when the system is rebooting:

- The main boot file is correct and the system boots with the main boot file.
- An error occurs to the main boot file, so the system boots with the backup boot file.
- An error occurs to both the main and backup files, so the system randomly chooses an application file for booting.
- If the system fails to boot with the randomly-chosen application file, it supposes that the file system is unavailable or no correct boot file is available and thus stops choosing a boot file.



#### Note

- If you do not specify the backup boot file but the main boot file only, the system boots with the main boot file. If the main boot file has an error, the system randomly chooses an application file for booting.
  - If you do not specify the main boot file but the backup boot file only, the system boots with the backup boot file.
  - If you specify neither the main boot file nor the backup boot file, the system randomly chooses an application file for booting.
- 

## Updating Boot ROM Through a File on the Flash

- 1) Download the host software package containing the Boot ROM program onto the switch.



## Note

You can download the host software through the Boot menu or command lines.

- 2) Enter the Boot menu. After the system prompts “Enter your choice(0-5):”, press **Ctrl+U** and then press **Enter** to enter the Boot ROM update menu.

```
bootrom update menu:
```

1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
4. Update through file in device
0. Return to boot menu

```
Enter your choice(0-4):
```

- 3) Select **4** from the Boot ROM update menu to upgrade the Boot ROM program through a file on the Flash memory. Press **Enter** and the system displays the following information:

```
Flash: /
```

File Number	File Size(bytes)	File Name
=====		
0(*).	23250494	update.app
1.	3443	config.cfg

```
Flash Free Space : 41804800 bytes
```

```
The current application file is: update.app
```

```
The backup boot file has not been selected.
```

```
Please input the file number:0
```

- 4) Enter file number 0 to select to upgrade the Boot ROM program through the host software package. The system prompts you whether to upgrade the Boot ROM program through the host software package. If you enter **Y**, the system will display the following information:

```
The file you selected is flash:/ update.app, update from it? Yes or  
No(Y/N)y
```

```
bootrom is updating now.....
```

```
#Update-file Checked mode#
```

```
Get flash Type.....FLASH_M29W040B
```

```
Erasing flash.....done!
```

```
Programming flash.....done!
```

```
Get content.....done!
```

```
Check flash.....done!
```

```
Bootrom update succeeded.
```

After the Boot ROM program is successfully upgraded, the system brings you back to the Boot ROM update menu.

```
bootrom update menu:
```

1. Set TFTP protocol parameter
2. Set FTP protocol parameter



3. Set XMODEM protocol parameter
4. Update through file in device
0. Return to boot menu

Enter your choice(0-4):

**Enter 0 to return to the Boot Menu.**

BOOT MENU

- 1: Download application file to device
- 2: Select application file to boot
- 3: Display all files in device
- 4: Delete file from device
- 5: Modify bootrom password
- 0: Reboot

Enter your choice(0-5):

**Enter 0 to reboot the switch. The Boot ROM upgrade is completed.**

## Upgrading Through Command Lines

If your terminal is connected to the switch over a network, you can upgrade the Boot ROM program and host software through command lines.

### Upgrading Using FTP

Run the FTP Server on the local PC (assume its IP address is 10.10.110.1). Ensure that you have configured the username and password and set the correct file directory. Log into the switch through Telnet or the console port, and then download the host software package to the switch using FTP.

Assume that:

- The main boot file is SWITCH002.app.
- The active host software is SWITCH001.app.

Follow these steps after logging into the switch.

- 1) Download the software to the switch using FTP.

```
<3Com> ftp 10.10.110.1
Trying ...
Press CTRL+K to abort
Connected to 10.10.110.1
220 WFTPD 2.0 service (by Texas Imperial Software) ready for new user
User(none):liujidong
331 Give me your password, please
Password:
230 Logged in successfully
[ftp] binary
[ftp] get SWITCH002.app
[ftp] bye
```



## Note

You may also download two copies of the host software package and specify one as the main boot file and the other as the backup boot file.

---

### 2) Upgrade the Boot ROM program.

```
<3Com> bootrom update file flash:/ SWITCH002.app slot 0
```

```
    This command will update bootrom file on the specified board(s), Continue? [Y/N]:y
```

```
    Now updating bootrom, please wait...
```

```
Start accessing bootflash chip...
```

```
Bootrom update succeeded.
```

### 3) Set the main and backup boot files.

- Set the main boot file.

```
<3Com> boot-loader file flash:/ SWITCH002.app slot 0 main
```

```
    This command will set boot file of the specified board, Continue? [Y/N]:y
```

```
    The specified file will be used as a main boot file at the next time!
```

- Set the backup boot file.

```
<3Com> boot-loader file flash:/ SWITCH001.app slot 0 backup
```

```
    This command will set boot file of the specified board, Continue? [Y/N]:y
```

```
    The specified file will be used as a backup boot file at the next time!
```

- Display the boot file information.

```
<3Com> display boot-loader
```

```
The primary app to boot of board 0 at this time is: flash:/SWITCH001.app
```

```
The primary app to boot of board 0 at next time is: flash: /SWITCH002.app
```

```
The slave app to boot of board 0 at next time is: flash:/SWITCH001.app
```

```
<3Com> reboot
```

(Make sure that other configuration is saved before rebooting the system.)

After the above steps, you have completed upgrading of the Boot ROM program and the host software.

Note that you must execute the **reboot** command to validate the host software package. If the Flash memory does not have enough space, you can delete some program files on the Flash after completing the Boot ROM upgrade. (You are recommended to delete the host software packages that are no longer in use.) Then you can download the desired host software package to the switch through FTP to upgrade the host software.

Note that the switch cannot be powered off during loading process.

## Upgrading Using TFTP

Upgrading using TFTP is similar to upgrading using FTP, except that the protocol used for downloading is TFTP. In this case, the switch can only function as a TFTP client to download software from the TFTP server to its Flash. After software is downloaded, the remaining procedure is the same as that in the case of upgrading using FTP.

## Examples of Upgrading Boot ROM and Host Software of the Dual SRPUs

The following gives an example to describe the entire procedure for upgrading the Boot ROM program and host software of an S7902E switch (installed with dual SRPUs). The upgrading procedure applies to all S7900E series switches.

### Upgrading Boot ROM and Host Software Through Command Lines

Assume that

- The host software package for upgrade is S7902E002.app.
- The host software package the system currently runs is S7902E001.app.
- Slot 0 is for the active SRPU.
- Slot 1 is for the standby SRPU.
- Slot 3 is for an LPU.

#### Upgrading using FTP

Run the FTP Server on the local PC (assume its IP address is 10.10.110.1). Ensure that you have configured the username and password and set the correct file directory.

Log into the switch through Telnet or the console port and download the host software package to the switch by using FTP.

1) Download the software to the switch using FTP.

```
<3Com> ftp 10.10.110.1
Trying ...
Press CTRL+K to abort
Connected.
220 WFTPD 2.0 service (by Texas Imperial Software) ready for new user
User(none):lyt
331 Give me your password, please
Password:
230 Logged in successfully
[ftp] binary
[ftp] get S7902E002.app
[ftp] bye
```

2) Upgrade the Boot ROM program.

Skip this step if unnecessary.



#### Note

If you want to upgrade Boot ROM on both the SRPUs and the LPU, you are recommended to upgrade the Boot ROM program on the LPU and SRPUs in turn.

---

- Upgrade the Boot ROM program of the LPU.

```
<3Com> bootrom update file flash:/ S7902E002.app slot 3
```

This command will update bootrom file on the specified board(s), Continue? [Y/N]:y

Now updating bootrom, please wait...

Board is loading file in Frame 0 Slot 3.

Start accessing bootflash chip...

Board has finished to load file in Frame 0 Slot 3.

Bootrom update succeeded.

- Upgrade the Boot ROM program on the active SRPU.

```
<3Com> bootrom update file flash:/ S7902E002.app slot 0
```

This command will update bootrom file on the specified board(s), Continue? [Y/N]:y

Now updating bootrom, please wait...

Start accessing bootflash chip...

Bootrom update succeeded.

### 3) Set the main and backup boot files.

- Set the main boot file.

```
<3Com>boot-loader file flash:/ S7902E002.app slot 0 main
```

This command will set boot file of the specified board, Continue? [Y/N]:y

The specified file will be used as a main boot file at the next time!

- Set the backup boot file.

```
<3Com>boot-loader file flash:/ S7902E001.app slot 0 backup
```

This command will set boot file of the specified board, Continue? [Y/N]:y

The specified file will be used as a backup boot file at the next time!

- Display the boot file information.

```
<3Com> display boot-loader
```

The primary app to boot of board 0 at this time is: flash:/ S7902E001.app

The primary app to boot of board 0 at next time is: flash: / S7902E002.app

The slave app to boot of board 0 at next time is: flash:/ S7902E001.app

### 4) Upgrade the Boot ROM program and host software of the standby SRPU.

- Copy the host software package on the active SRPU to the standby SRPU.

```
<3Com> copy S7902E002.app slot1#flash:/
```

%Copy file flash:/ S7902E002.app to slot1#flash:/ S7902E002.app...Done.

- Upgrade Boot ROM of the standby SRPU and set the main and backup boot files.

```
<3Com> bootrom update file slot1#flash:/ S7902E002.app slot 1
```

This command will update bootrom file on the specified board(s), Continue? [Y/N]:y

Now updating bootrom, please wait...

Start accessing bootflash chip...

Bootrom update succeeded.

```
<3Com> boot-loader file slot1#flash:/ S7902E002.app slot 1 main
```

This command will set boot file of the specified board, Continue? [Y/N]:y

The specified file will be used as a main boot file at the next time!

```
<3Com> boot-loader file slot1#flash:/ S7902E001.app slot 1 backup
```

This command will set boot file of the specified board, Continue? [Y/N]:y

The specified file will be used as a backup boot file at the next time!



## Note

The host software package on the active SRPU can be used to upgrade Boot ROM on both the active SRPU and the LPU. The Boot ROM of the standby SRPU can be upgraded through the host software package on the standby SRPU only.

---

- Display the boot file information.

```
<3Com> display boot-loader
```

```
The primary app to boot of board 0 at this time is: flash:/ S7902E001.app
```

```
The primary app to boot of board 0 at next time is: flash: / S7902E002.app
```

```
The slave app to boot of board 0 at next time is: flash:/ S7902E001.app
```

```
The primary app to boot of board 1 at this time is: flash:/ S7902E001.app
```

```
The primary app to boot of board 1 at next time is: flash: / S7902E002.app
```

```
The slave app to boot of board 1 at next time is: flash:/ S7902E001.app
```

- 5) Reboot the system.

```
<3Com> reboot
```

## Upgrading using TFTP

Upgrading using TFTP is similar to upgrading using FTP, except that the protocol used for downloading software to the switch is TFTP. In this case, the switch can only function as a TFTP client to download software from the TFTP server to its Flash. After the downloading is completed, the remaining procedure is the same as that in the case of upgrading using FTP.

## Upgrading Through the Boot Menu

You can upgrade software on the active and standby SRPUs through the boot menu in the same way. Pay attention that:

- Two HyperTerminals are recommended to connect the console ports of the active and standby SRPUs, respectively. Upgrade the Boot ROM and host software of the active and standby SRPUs at the same time. After upgrading, reboot the system or reboot the active SRPU and the standby SRPU respectively.
- If only one HyperTerminal is used, first upgrade the Boot ROM program and host software on the active SRPU. Then connect the HyperTerminal to the console port of the standby SRPU for software upgrade. Finally, reboot the system.
- After the system is rebooted, upgrade the Boot ROM program on the LPU through command lines. For the command lines, refer to section "[Upgrade the Boot ROM program.](#)" on page [6-16](#).



### Caution

- The software of the SRPUs and LPUs must be consistent so that the S7900E series can work normally.
  - After upgrading the host software of the SRPUs of the S7900E series, you must reboot the LPUs to synchronize the software of the LPUs with that of the SRPUs.
  - You are recommended to reboot the whole system after upgrading the software of the SRPUs.
- 

## Handling Upgrade Failure

If an upgrade fails, the system runs the original version. In this case, you need to check whether the physical ports are well connected.

- 1) If no, reconnect them correctly and restart the upgrade.
- 2) If yes, check the information displayed on the HyperTerminal during the upgrade process for any error. If there is any input error, correct it and restart the upgrade. For example,
  - If the XMODEM is used for upgrade, the baud rate of the HyperTerminal is not changed back to 9600 bps after you download the software by using a baud rate other than 9600 bps.
  - If TFTP is used for upgrade, the IP address of server or switch, the name of the file to be downloaded, or the working path of TFTP server is wrong.
  - If FTP is used for upgrade, the IP address of server or switch, the name of the file to be downloaded, the username, or the password is wrong.
- 3) If the upgrade fails when the physical connection is normal and no input errors are found, contact the local agents of 3Com for help.

## Handling Password Loss

If you lose the Boot ROM password of the switch, contact the local agents of 3Com.

# Table of Contents

<b>7 Troubleshooting</b> .....	<b>7-1</b>
Troubleshooting the Configuration System.....	7-1
No Display on the Terminal .....	7-1
Illegible Characters on the Terminal.....	7-2
Troubleshooting Power Modules .....	7-2
Troubleshooting the PSR320-A and the PSR320-D .....	7-2
Troubleshooting the PSR650-A and the PSR650-D .....	7-2
Troubleshooting PSR1400-A.....	7-2
Troubleshooting PSR1400-D .....	7-3
Troubleshooting PSR2800-ACV.....	7-4
Troubleshooting Fans .....	7-4
Troubleshooting LPUs.....	7-5

# 7 Troubleshooting

---

Although the S7900E series have passed the comprehensive and strict test before delivery, faults may occur due to improper installation. This chapter describes how to handle faults caused by improper installation.

On the SRPU of the S7900E series, you can find the status LEDs of LPUs, power modules, and fans. You can check these status LEDs to locate faults.



The LEDs on the standby SRPU of the S7900E series are always OFF except the SRPU LED. The SRPU LED on the standby SRPU is in the same state as that on the active SRPU. Thus, you need not consider the LEDs on the standby SRPU when troubleshooting power modules, fans, or LPUs.

---

## Troubleshooting the Configuration System

After the switch is powered on and the system is normal, the booting information will be displayed on the configuration terminal. If the configuration system has failed, the configuration terminal may display illegible characters or nothing at all.

### No Display on the Terminal

After the switch is powered on, if no information is displayed on the terminal, check if:

- The power system works normally.
- SRPU works normally.
- The console cable is connected to the console port of the SRPU.

If no problem is found after the above check, check if:

- The serial port connected to the console cable is wrong. (The port in use is not the one set on the terminal.)
- The configuration of parameters on the terminal is wrong.

Correct parameter configuration is listed as follows:

- Bits per second: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None
- Terminal emulation mode: VT100
- Something is wrong with the console cable.



## Illegible Characters on the Terminal

If the configuration terminal displays illegible characters, configuration of parameters on the terminal might be incorrect. In this case, check the configuration according to the correct one listed in section [“No Display on the Terminal”](#) on page [7-1](#).

## Troubleshooting Power Modules

### Troubleshooting the PSR320-A and the PSR320-D

The power modules PSR320-A and PSR320-D each have only one power LED.

- 1) When the power LED is in green, the power module works normally.
- 2) When the power LED is in red, the power module is faulty. It is possible that
  - The power output is abnormal.
  - The power module is overheated.
  - The power module fan is faulty.
- 3) When the power LED is OFF, the power supply of the system is faulty.

In this case, check whether:

- The power switch is turned on.
- The power cable is properly connected.
- The voltage is correct.

On the SRPUs, there are also LEDs indicating the working status of the power modules. For details, refer to related description about the power LEDs in Chapter 1 “Product Overview”.

### Troubleshooting the PSR650-A and the PSR650-D

Refer to section [“Troubleshooting the PSR650-A and the PSR650-D”](#) on page [7-2](#).

### Troubleshooting PSR1400-A

The power module PSR1400-A has three status LEDs, which indicate the input and output statuses of the power module and the working status of the power module fan, respectively.

[Table 7-1](#) describes the colors and working status of the three LEDs in different cases.

**Table 7-1** Description of LEDs on the PSR1400-A

Case	LED	Color	Status
The power module is connected but the power switch is turned off.	INPUT	Green	The power input is normal.
	OUTPUT	Red	No power is output.
	FAN	Red	The power module fan does not rotate.
The power module is connected and the power switch is turned on.	INPUT	Green	The power input is normal.
	OUTPUT	Green	The power output is normal.
	FAN	Green	The power module fan works normally.
There is a short circuit, over-current, or over voltage on the output circuit.	INPUT	Green	The power input is normal.
	OUTPUT	Red	The power module goes into the self-protection state.
	FAN	Green	The power module fan works normally.

Case	LED	Color	Status
The power module is over-temperature protected.	INPUT	Green	The power input is normal.
	OUTPUT	Red	The power module goes into the self-protection state.
	FAN	Green	The power module fan works normally.
The fan tray is faulty.	INPUT	Green	The power input is normal.
	OUTPUT	Green	The power output is normal.
	FAN	Red	The power module fan is faulty.



#### Note

After the power supply is cut off, it takes a short while for the power LED to go off. This is normal.

On the SRPUs, there are also LEDs indicating the working status of the power modules. For details, refer to related description about the power LEDs on the SRPUs other than the LSQ1MPUA0 in Chapter 1 “Product Overview”.

## Troubleshooting PSR1400-D

The power module PSR1400-D has four LEDs, which indicate the input and output statuses of the power module and the working statuses of the power module fan and the PoE power supply, respectively.

**Table 7-2** Description of LEDs on the PSR1400-D

Case	LED	Color	Status
The power module is connected but the SYSTEM power switch is turned off.	INPUT	OFF	The power input is normal.
	OUTPUT	OFF	No power is output.
	FAN	OFF	A fan does not rotate.
	PoE	OFF	No PoE is output.
The power module is connected and the SYSTEM power switch is turned on, but the PoE switch is turned off.	INPUT	Green	The power input is normal.
	OUTPUT	Green	The power output is normal.
	FAN	Green	The power module fan works normally.
	PoE	OFF	No PoE is output.
The power module is connected, and the SYSTEM power switch and PoE switch are turned on.	INPUT	Green	The power input is normal.
	OUTPUT	Green	The power output is normal.
	FAN	Green	The power module fan works normally.
	PoE	Green	PoE is output.

Case	LED	Color	Status
There is a short circuit, over-current, or over-voltage on the output circuit.	INPUT	Green	The power input is normal.
	OUTPUT	Red	The power module goes into the self-protection state.
	FAN	Green	The power module fan works normally.
	PoE	OFF	No PoE is output.
The power module is over-temperature protected.	INPUT	Green	The power input is normal.
	OUTPUT	Red	The power module goes into the self-protection state.
	FAN	Green	The power module fan works normally.
	PoE	OFF	No PoE is output.
The fan tray is faulty.	INPUT	Green	The power input is normal.
	OUTPUT	Green	The power output is normal.
	FAN	Red	The power module fan is faulty.
	PoE	OFF	No PoE is output.

On the SRPUs, there are also LEDs indicating the working status of the power modules. For details, refer to related description about the power LEDs on the SRPUs other than the LSQ1MPUA0 in Chapter 1 “Product Overview”.

## Troubleshooting PSR2800-ACV

On the right of the PSR2800-ACV power module panel are the input LED, output LED, fan LED, PoE input LED, and PoE output LED. Compared with the PSR1400-A power module, the PSR2800-ACV power module has two power inputs: one for system power input and the other for PoE power input. The meanings of the PoE power LEDs are similar to those of the system power LEDs. For the meanings of these LEDs and for the troubleshooting procedure, refer to section “[Troubleshooting PSR1400-D](#)” on page [7-3](#).

## Troubleshooting Fans

**Table 7-3** Description of fan LEDs

LED	Status	Description
OK (Green)	ON	All fans work normally.
	OFF	A fan tray is faulty or no fan is installed.
FAIL (Red)	ON	A fan tray is faulty or no fan is installed.
	OFF	All fans work normally.

If the OK LED is OFF, check whether:

- Every heat dissipation fan works normally.
- Something blocks the vent of the chassis.
- A blank panel is installed on the slot without a card.

## Troubleshooting LPUs

**Table 7-4** Description of LPU LEDs

LED	Status	Description
RUN (Green)	ON/OFF	The LPU is faulty or is not installed yet.
	Flashing	The LPU works normally.
ALM (Red)	OFF	The LPU is faulty or is not installed yet.
	ON	The LPU works abnormally.

- If the ALM LED of an LPU stays ON, something is wrong with the LPU. When you reset the LPU, the ALM LED will turn on. After normal booting, the LED will be OFF.
- When resetting an LPU, if the ALM LED stays OFF, the LPU may be disconnected from the power supply. Check if the LPU is properly installed.

# Table of Contents

<b>Appendix A List of Pluggable Modules</b> .....	<b>A-1</b>
10G XFP Modules .....	A-1
Gigabit SFP Modules .....	A-1
100 Mbps SFP Modules .....	A-2
Pluggable Modules for EPON Interfaces .....	A-3

# Appendix A List of Pluggable Modules

## 10G XFP Modules

**Table A-1** Specifications of 10G XFP modules

Type	Central wavelength	Connector type	Cable specifications	Maximum transmission distance
XFP-SX-MM850	850 nm	LC	50/125µm multi-mode fiber	300 m (0.186 miles)
XFP-LX-SM1310	1310 nm	LC	9/125µm single mode fiber	10 km (6.21 miles)
XFP-LH40-SM1550	1550 nm	LC	9/125µm single mode fiber	40 km (24.86 miles)
XFP-LH80-SM1550	1550 nm	LC	9/125µm single mode fiber	80 km (49.71 miles)

## Gigabit SFP Modules

**Table A-2** Specifications of Gigabit SFP modules

Type	Central wavelength	Connector type	Cable specifications	Maximum transmission distance
SFP-GE-SX-MM8 50-A	850 nm	LC	50/125µm multi-mode fiber	550 m (0.34 miles)
			62.5/125µm multi-mode fiber	275 m (0.17 miles)
SFP-GE-LX-SM13 10-A	1310 nm	LC	9/125µm single mode fiber	10 km (6.21 miles)
SFP-GE-LH40-S M1310	1310 nm	LC	9/125µm single mode fiber	30 km (18.64 miles)
SFP-GE-LH40-S M1550	1550 nm	LC	9/125µm single mode fiber	40 km (24.86 miles)
SFP-GE-LH70-S M1550	1550 nm	LC	9/125µm single mode fiber	70 km (43.50 miles)
SFP-GE-LH100-S M1550	1550 nm	LC	9/125µm single mode fiber	100 km (62.14 miles)
SFP-GE-T	—	RJ-45	Category-5 twisted pair cable	100 m (0.06 miles)
SFP-GE-LX-SM13 10-BIDI	1490 nm (receive)/1310 nm (transmit)	LC	9/125µm single mode fiber	10 km (6.21 miles)
SFP-GE-LX-SM14 90-BIDI	1490 nm (transmit)/1310 nm (receive)	LC	9/125µm single mode fiber	10 km (6.21 miles)

Type	Central wavelength	Connector type	Cable specifications	Maximum transmission distance
SFP-GE-LH70-S M1470-CW	1470 nm	LC	9/125µm single mode fiber	70 km (43.50 miles)
SFP-GE-LH70-S M1490-CW	1490 nm	LC	9/125µm single mode fiber	70 km (43.50 miles)
SFP-GE-LH70-S M1510-CW	1510 nm	LC	9/125µm single mode fiber	70 km (43.50 miles)
SFP-GE-LH70-S M1530-CW	1530 nm	LC	9/125µm single mode fiber	70 km (43.50 miles)
SFP-GE-LH70-S M1550-CW	1550 nm	LC	9/125µm single mode fiber	70 km (43.50 miles)
SFP-GE-LH70-S M1570-CW	1570 nm	LC	9/125µm single mode fiber	70 km (43.50 miles)
SFP-GE-LH70-S M1590-CW	1590 nm	LC	9/125µm single mode fiber	70 km (43.50 miles)
SFP-GE-LH70-S M1610-CW	1610 nm	LC	9/125µm single mode fiber	70 km (43.50 miles)

## 100 Mbps SFP Modules

**Table A-3** Specifications of 100 Mbps SFP modules

Type	Central wavelength	Connector type	Cable specifications	Maximum transmission distance
SFP-FE-SX-MM1 310-A	1310 nm	LC	50/125µm multi-mode fiber	2 km (1.24 miles)
			62.5/125µm multi-mode fiber	
SFP-FE-LX-SM13 10-A	1310 nm	LC	9/125µm single mode fiber	15 km (9.32 miles)
SFP-FE-LH40-SM 1310	1310 nm	LC	9/125µm single mode fiber	40 km (24.86 miles)
SFP-FE-LH80-SM 1550	1550 nm	LC	9/125µm single mode fiber	80 km (49.71 miles)
SFP-FE-LX-SM13 10-BIDI	1550 nm (receive)/1310 nm (transmit)	LC	9/125µm single mode fiber	15 km (9.32 miles)
SFP-FE-LX-SM15 50-BIDI	1550 nm (transmit)/1310 nm (receive)	LC	9/125µm single mode fiber	15 km (9.32 miles)

## Pluggable Modules for EPON Interfaces

**Table A-4** Specifications of Pluggable Modules for EPON Interfaces

Type	Central wavelength	Connector type	Cable specifications	Maximum transmission distance
SFP-GE-PX10-D-S M1490-A	1490nm (transmit)/1310nm (receive)	SC	9/125µm single-mode fiber	10 km (6.21 miles)
SFP-GE-PX20-D-S M1490-A	1490nm (transmit)/1310nm (receive)	SC	9/125µm single-mode fiber	20 km (12.43 miles)



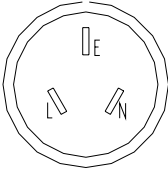

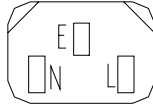
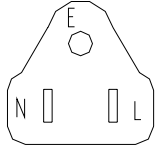

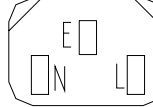
# Table of Contents

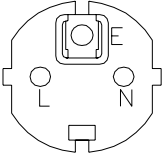
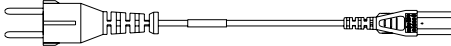
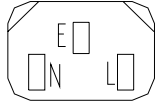
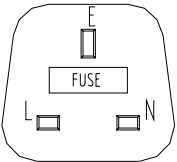
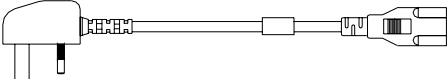
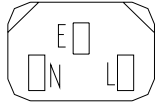
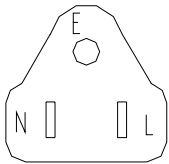
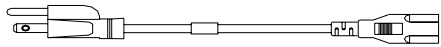
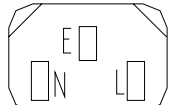
<b>Appendix B AC Power Cables Used in Different Countries or Regions .....</b>	<b>B-1</b>
10A AC Power Cables Used in Different Countries or Regions .....	B-1
16A AC Power Cables Used in Different Countries or Regions .....	B-4

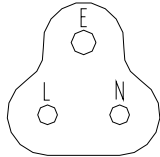
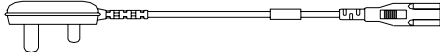
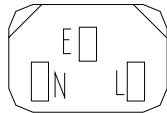
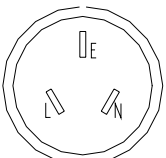
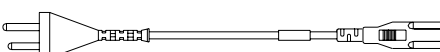
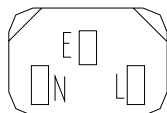
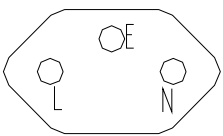
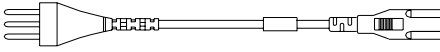
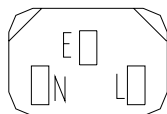
# Appendix B AC Power Cables Used in Different Countries or Regions

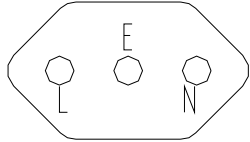
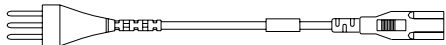
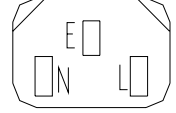
## 10A AC Power Cables Used in Different Countries or Regions

**Table B-1** 10A AC power cables used in different countries or regions

	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
1	I type	04041104 (3m, i.e., 9.8 ft.)	Mainland China		
	Connector outline		Power cable outline		Connector outline
					
2	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
	B type	04020728 (3m, i.e., 9.8 ft.)	Canada and U.S.A	Mexico, Argentina, Brazil, Columbia, Venezuela, Thailand, Peru, Philippine, and A6 countries or regions	
	Connector outline		Power cable outline		Connector outline
					

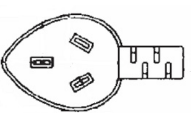
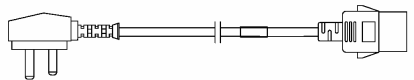
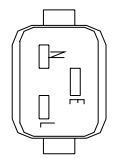
	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
3	F type	04041056 (3m, i.e., 9.8 ft.)	Holland, Denmark, Sweden, Finland, Norway, Germany, France, Austria, Belgium, and Italy	Indonesia, Turkey, Russia, and CIS	India
	Connector outline		Power cable outline		Connector outline
					
	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
4	G type	04040890 (3m, i.e., 9.8 ft.)	U.K.	Malaysia, Singapore, Hong Kong, and Egypt	
	Connector outline		Power cable outline		Connector outline
					
	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
5	B type	04040887 (3m, i.e., 9.8 ft.)	Japan		
	Connector outline		Power cable outline		Connector outline
					

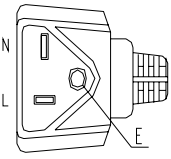
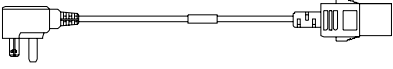

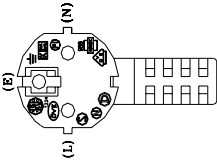
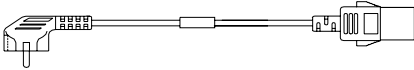
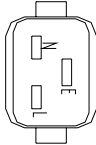
	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
6	D type	04040889 (3m, i.e., 9.8 ft.)	Hong Kong	South Africa	India
	Connector outline		Power cable outline		Connector outline
					
	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
7	I type	04040888 (3m, i.e., 9.8 ft.)	Australia		
	Connector outline		Power cable outline		Connector outline
					
	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
8	J type	04041119 (3m, i.e., 9.8 ft.)	Switzerland		
	Connector outline		Power cable outline		Connector outline
					

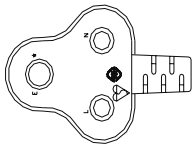
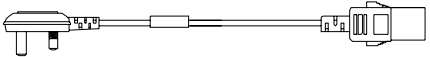
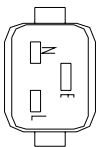
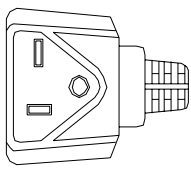
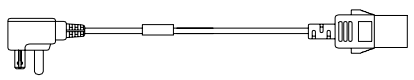
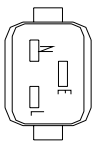
	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
g	L type	04041120 (3m, i.e., 9.8 ft.)	Italy		
	Connector outline		Power cable outline		Connector outline
					

## 16A AC Power Cables Used in Different Countries or Regions

**Table B-2** 16A AC power cables used in different countries or regions

	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
1	I type	04043396 (3m, i.e., 9.8 ft.)	Mainland China		
	Connector outline		Power cable outline		Connector outline
					

2	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
	<b>B</b> type	0404A063 (3m, i.e., 9.8 ft.)	Canada and U.S.A	Mexico, Argentina, Brazil, Columbia, Venezuela, Thailand, Peru, Philippine, and A6 countries or regions	
	Connector outline		Power cable outline		Connector outline
					
3	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
	<b>F</b> type	0404A061 (3m, i.e., 9.8 ft.)	Holland, Denmark, Sweden, Finland, Norway, Germany, France, Austria, Belgium, and Italy	Indonesia, Turkey, Russia, and CIS	
	Connector outline		Power cable outline		Connector outline
					
4	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
	<b>G</b> type	0404A060 (3m, i.e., 9.8 ft.)	U.K.	Malaysia, Singapore, Hong Kong, and Egypt	
	Connector outline		Power cable outline		Connector outline

					
5	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
	B type	0404A062 (3m, i.e., 9.8 ft.)	Japan		
	Connector outline		Power cable outline		Connector outline
					
6	Connector type	Code (Length)	Countries or regions where the type of power cables conforms to local safety regulations and can be used legally	Other countries or regions using this type of power cables	Countries or regions seldom using this type of power cables
	I type	0404A01A (3m, i.e., 9.8 ft.)	Australia		
	Connector outline		Power cable outline		Connector outline
	