Summit Switch Hardware Installation Guide

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Preface

This Preface provides an overview of this guide, describes guide conventions, and lists other publications that may be useful.

INTRODUCTION

This guide provides the required information to install the Summit™ switch.

This guide is intended for use by network administrators who are responsible for installing and setting up network equipment. It assumes a basic working knowledge of

- Local Area Networks (LANs)
- Ethernet concepts
- Ethernet switching and bridging concepts
- Routing concepts
- Simple Network Management Protocol (SNMP)

For information on configuring the Summit switch, refer to the *ExtremeWare Software User Guide*.

If the information in the "Release Notes" shipped with your switch differs from the information in this guide, follow the "Release Notes."

CONVENTIONS

Table 1 and Table 2 list conventions used throughout this guide.

Table 1: Notice Icons

Icon	Notice Type	Alerts you to...
	Note	Important features or instructions.
	Caution	Risk of personal injury, system damage, or loss of data.
	Warning	Risk of severe personal injury.

Table 2: Text Conventions

Convention	Description
`Screen displays`	This typeface represents information as it appears on the screen, or command syntax.
`Screen displays bold`	This typeface represents commands that you type.
The words “enter” and “type”	When you see the word “enter” in this guide, you must type something, and then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says “type.”
[Key] names	Key names appear in text in one of two ways: ■ Referred to by their labels, such as “the Return key” or “the Escape key” ■ Written with brackets, such as [Return] or [Esc] If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press [Ctrl]+[Alt]+[Del].
Words in *italicized* type	Italics emphasize a point or denote new terms at the place where they are defined in the text.

RELATED PUBLICATIONS

The Summit switch documentation set includes the following:

- *ExtremeWare Software User Guide*
- *ExtremeWare Quick Reference Guide*
- Summit Switch“Release Notes”

Documentation for Extreme Networks products is available on the World Wide Web at the following location:

- Extreme Networks home page http://www.extremenetworks.com/

1 Summit Switch Overview

This chapter describes the following:

- Summit switch models
- Summit switch features
- Summit switch memory requirements
- Summit switch front views
- Summit switch rear view
- Summit switch LEDs
- Factory default settings

SUMMIT SWITCH MODELS

The Summit family of switches is comprised of the following models:

- Summit1 switch
- Summit1/LX switch
- Summit4 switch
- Summit4/FX switch
- Summit24 switch
- Summit48 switch
- Summit7i switch

SUMMARY OF FEATURES

Summit switches support the following ExtremeWare features:

- Virtual local area networks (VLANs) including support for IEEE 802.1Q and IEEE 802.1p
- Spanning Tree Protocol (STP) (IEEE 802.1D) with multiple STP domains
- Policy-Based Quality of Service (PB-QoS)
- Wire-speed Internet Protocol (IP) routing
- IP Multinetting
- DHCP/BOOTP Relay
- Routing Information Protocol (RIP) version 1 and RIP version 2
- Open Shortest Path First (OSPF) routing protocol
- Wire-speed IP multicast routing support
- IGMP snooping to control IP multicast traffic
- Distance Vector Multicast Routing Protocol (DVMRP)
- Protocol Independent Multicast-Dense Mode (PIM-DM)
- IPX, IPX/RIP, and IPX/SAP support
- Load sharing on multiple ports
- Console command-line interface (CLI) connection
- Telnet CLI connection
- ExtremeWare Vista Web-based management interface
- Simple Network Management Protocol (SNMP) support
- Remote Monitoring (RMON)
- Traffic mirroring for all ports

MEMORY REQUIREMENTS

Your Summit switch must have 32MB of DRAM in order to support the features in ExtremeWare version 4.0 and above. This is not an issue for Summit24 and Summit48 switch models, and all currently shipping switches contain 32MB. Some earlier models of the Summit switch shipped with 16MB, and must be upgraded to support ExtremeWare version 4.0 and above.

To determine the memory size in your switch, use the following command:

```
show memory
```

For Summit switches running ExtremeWare 4.0 and above, the switch indicates the total DRAM size in megabytes as part of the output. For Summit switches running previous ExtremeWare releases, you must calculate the memory by taking the sum of the bytes listed under `current free` and adding to it the bytes listed under `current alloc`. If the sum is greater than 16,000,000, there is no need to upgrade the memory on the switch. If this is not the case, please contact your supplier.

PORT CONNECTIONS

The major difference between the models of the Summit switch is the port configurations on each switch model. Summit switches use a combination of the following types of ports:

- 1000BASE-SX ports using 850nm duplex SC connectors
- 1000BASE-LX ports using 1300nm duplex SC connectors
- 1000BASE-SX ports using MT-RJ connectors
- Modular 1000BASE-SX and 1000BASE-LX using Gigabit Interface Connectors (GBICs)
- 10BASE-T/100BASE-TX ports using RJ-45 connectors
- 100BASE-FX ports using 1300nm duplex SC connectors
- 100BASE-TX/1000BASE-T ports using RJ-45 connectors

Table 1-1 describes port configurations available on the different Summit switch models.

Table 1-1: Summit Switch Port Configurations

	Ethernet Ports						
Switch Model	**1000BASE -SX**	**1000BASE -LX**	**100/1000 BASE-T**	**GBIC**	**Redun- dant GBIC**	**10BASE-T/ 100BASE- TX**	**100BASE- FX**
Summit1	6			2			
Summit1 /LX		6		2			
Summit4	6					16	
Summit4 /FX	6						16
Summit24				1	1	24	
Summit48				2	2	48	
Summit7i (SX)	28			4			
Summit7i (TX)			28	4			

The Summit7i switch can be purchased with either 28 1000BASE-SX ports or 28 100BASE-TX/1000BASE-T ports.

MEDIA TYPES AND DISTANCES

Table 1-2 describes the media types and distances for the different types of Summit switch ports.

Table 1-2: Media Types and Distances

Standard	**Media Type**	**Mhz/Km Rating**	**Maximum Distance**
1000BASE-SX	50/125 µm Multimode Fiber	400	500 Meters
	50/125 µm Multimode Fiber	500	550 Meters
	62.5/125 µm Multimode Fiber	160	220 Meters
	62.5/125 µm Multimode Fiber	200	275 Meters

Table 1-2: Media Types and Distances (continued)

Standard	Media Type	Mhz/Km Rating	Maximum Distance
1000BASE-LX	50/125 µm Multimode Fiber	400	550 Meters
	50/125 µm Multimode Fiber	500	550 Meters
	62.5/125 µm Multimode Fiber	500	550 Meters
	10u Single-mode Fiber		5,000 Meters
	10u Single-mode Fiber*		10,000 Meters
1000BASE-LX70	10u Single-mode Fiber		70,000 Meters
100BASE-FX	50/125 µm Multimode Fiber (full-duplex operation)		2000 Meters
	62.5/125 µm Multimode Fiber (full-duplex operation)		2000 Meters
1000BASE-T	Category 5 and higher UTP Cable		100 Meters
100BASE-TX	Category 5 and higher UTP Cable		100 Meters
10BASE-T	Category 3 and higher UTP Cable		100 Meters

*Extreme Networks proprietary. Connections between two Extreme Networks 1000BASE-LX interfaces can use a maximum distance of 10,000 Meters. However, it interoperates with standard 1000BASE-LX ports and supports a maximum distance of 5,000 Meters.

Table 1-3 describes the specifications for the 1000BASE-LX70 interface.

Table 1-3: 1000BASE-LX70 Specifications

Parameter	Minimum	Typical	Maximum
Transceiver			
Optical Output Power	0dBm	3dBm	5dBm*
Center Wavelength	1540nm	1550nm	1560nm
Receiver			
Optical Input Power Sensitivity	-20dBm		
Optical Input Power Maximum			-3dBm
Operating Wavelength	1200nm		1560nm

*The transmitter output power level for the 1000BASE-LX70 is +5dBm. The maximum allowable receiver input power level is -3dBm. Therefore, there is a minimum of 8dB loss required for the link to operate without errors. This minimum required loss can be achieved using a fiber length of 32km (0.25dB/km provides 8dB loss), or by adding 10dB of fixed optical attenuator at the receiver end.

FULL-DUPLEX

The Summit switch provides full-duplex support for all ports. Full-duplex allows frames to be transmitted and received simultaneously and, in effect, doubles the bandwidth available on a link. All 10/100/1000 Mbps ports on the Summit switch autonegotiate for half- or full-duplex operation. Gigabit Ethernet and 100BASE-FX ports operate in full-duplex mode, only.

SUMMIT1 SWITCH FRONT VIEW

Figure 1-1 shows the Summit1 switch front view.

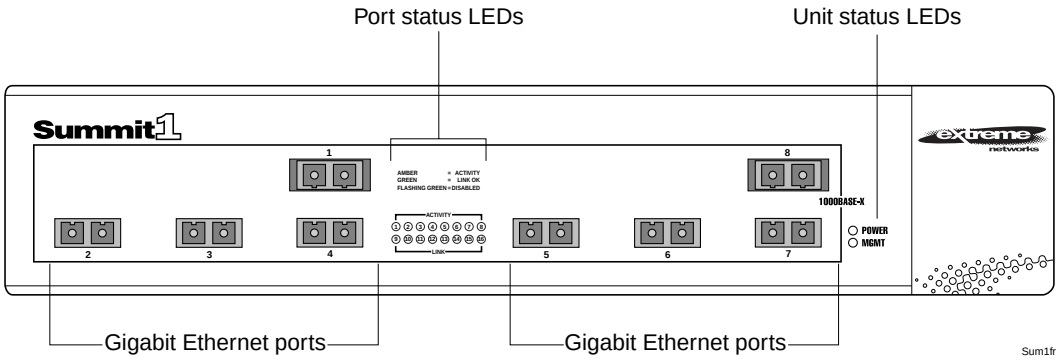


Figure 1-1: Summit1 switch front view

The Summit1 switch has eight Gigabit Ethernet ports. Six of the ports use SC connectors and support 1000BASE-SX over multimode fiber-optic cable. Ports 1 and 8 use modular GBIC connectors.

For information on supported media types and distances, refer to Table 1-2.

For information on Summit switch LEDs, refer to "Summit Switch LEDs," on page 1-15.

SUMMIT1/LX SWITCH FRONT VIEW

Figure 1-2 shows the Summit1/LX switch front view.

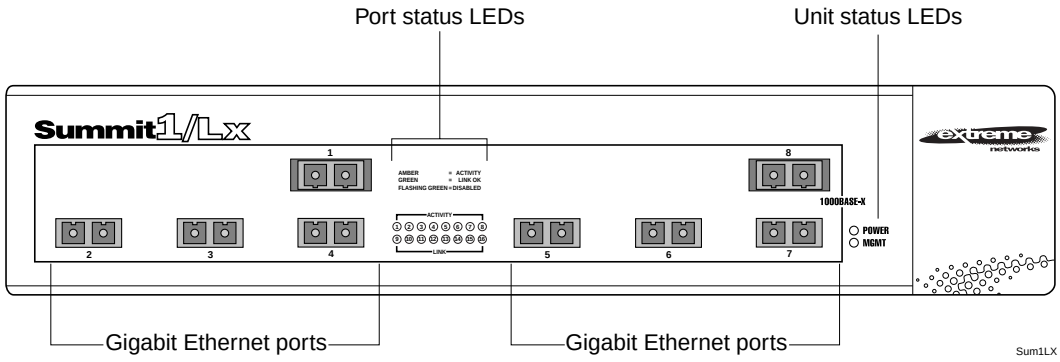


Figure 1-2: Summit1/LX switch front view

The Summit1/LX switch has eight Gigabit Ethernet ports. Six of the ports use SC connectors and support 1000BASE-LX over multimode fiber-optic cable. Ports 1 and 8 use modular GBIC connectors.

For information on supported media types and distances, refer to Table 1-2.

For information on Summit switch LEDs, refer to "Summit Switch LEDs," on page 1-15.

SUMMIT4 SWITCH FRONT VIEW

Figure 1-3 shows the Summit4 switch front view.

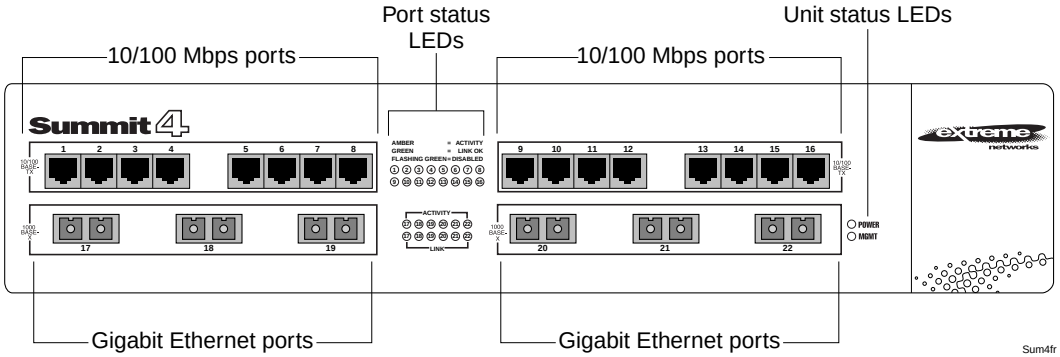


Figure 1-3: Summit4 switch front view

The Summit4 switch has 16 autosensing 10BASE-T/100BASE-TX ports and 6 Gigabit Ethernet ports. The Gigabit Ethernet ports use standard SC connectors and support 1000BASE-SX over multimode fiber-optic cable.

For information on supported media types and distances, refer to Table 1-2.

For information on Summit switch LEDs, refer to "Summit Switch LEDs," on page 1-15.

SUMMIT4/FX SWITCH FRONT VIEW

Figure 1-4 shows the Summit4/FX switch front view.

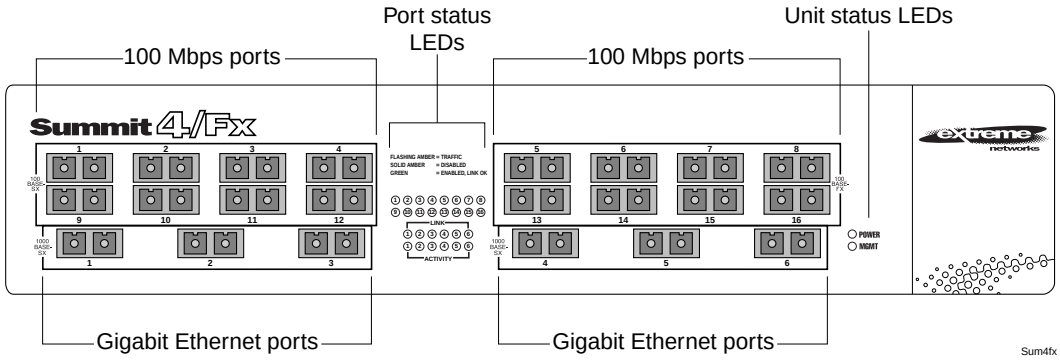


Figure 1-4: Summit4/FX switch front view

The Summit4/FX switch has 16 100BASE-FX ports and 6 Gigabit Ethernet ports. All ports use standard SC connectors. The Gigabit Ethernet ports support 1000BASE-SX over multimode fiber-optic cable.

For information on supported media types and distances, refer to Table 1-2.

For information on Summit switch LEDs, refer to "Summit Switch LEDs," on page 1-15.

SUMMIT24 SWITCH FRONT VIEW

Figure 1-5 shows the Summit24 switch front view.

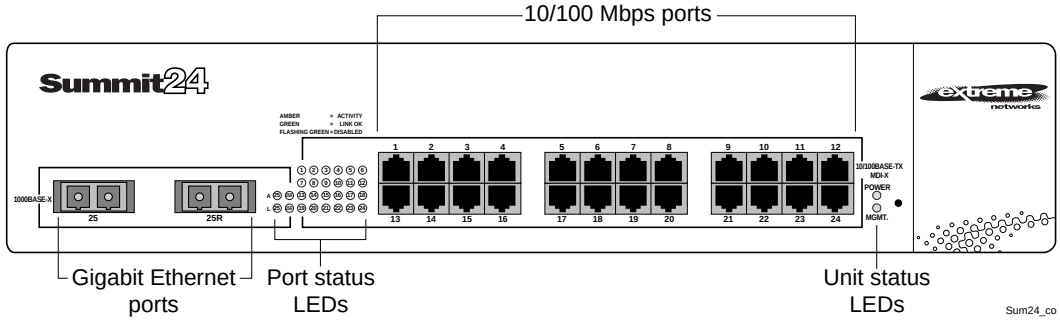


Figure 1-5: Summit24 switch front view

The Summit24 switch has 24 autosensing 10BASE-T/100BASE-TX ports, one Gigabit Ethernet port, and one redundant Gigabit Ethernet port.

For information on supported media types and distances, refer to Table 1-2.

For information on Summit switch LEDs, refer to "Summit Switch LEDs," on page 1-15.

SUMMIT48 SWITCH FRONT VIEW

Figure 1-6 shows the Summit48 switch front view.

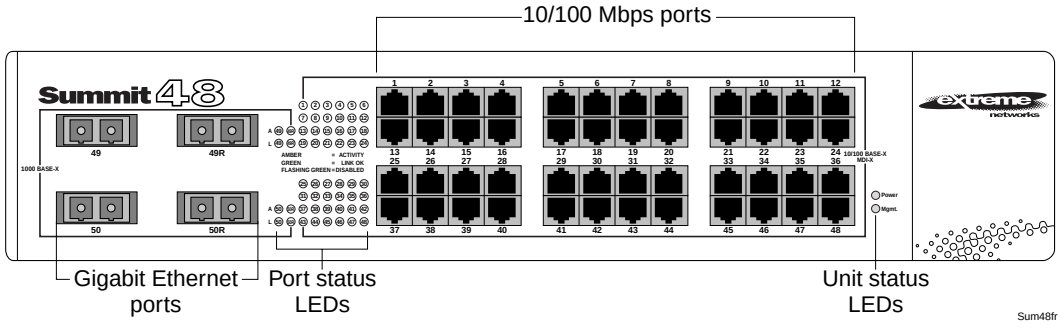


Figure 1-6: Summit48 switch front view

The Summit48 switch has 48 autosensing 10BASE-T/100BASE-TX ports, 2 Gigabit Ethernet ports, and 2 redundant Gigabit Ethernet ports. All the Gigabit Ethernet ports use GBIC connectors.

For information on supported media types and distances, refer to Table 1-2.

For information on Summit switch LEDs, refer to "Summit Switch LEDs," on page 1-15.

SUMMIT SWITCH REAR VIEW

Figure 1-7 shows the rear view for the Summit1, Summit1/LX, Summit4, Summit4/FX, Summit24, and Summit48 switches.

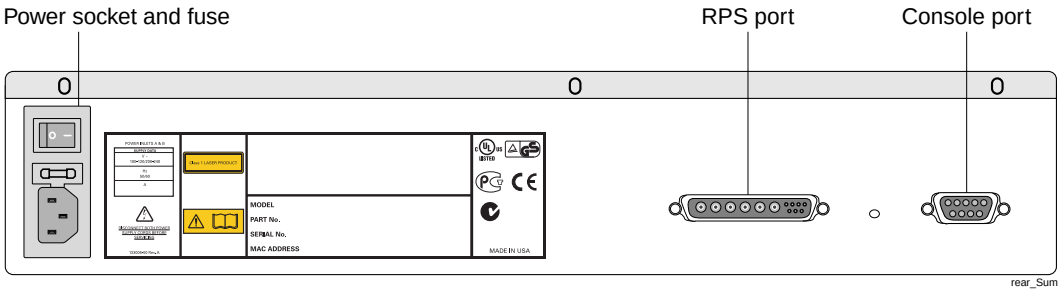


Figure 1-7: Summit switch rear view

POWER SOCKET

The Summit switch automatically adjusts to the supply voltage. The power supply operates down to 90 V. The fuse is suitable for both 110 V AC and 220-240 V AC operation.

SERIAL NUMBER

Use this serial number for fault-reporting purposes.

CONSOLE PORT

Use the console port (9-pin, “D” type connector) for connecting a terminal and carrying out local out-of-band management.

REDUNDANT POWER SUPPLY PORT

The redundant power supply (RPS) port is used to connect to a Summit RPS. The Summit RPS provides a redundant, load-shared power source to the Summit. If the primary power source for the switch fails, the RPS takes over, ensuring uninterrupted network operation.

When connected to a Summit RPS, the Summit switch can provide status on power and fan operation of the RPS through SNMP, the command-line interface, and the Web interface.

The Summit RPS can simultaneously provide power for as many as two Summit switches.

MAC ADDRESS

This label shows the unique Ethernet MAC address assigned to this device.

SUMMIT SWITCH LEDS

Table 1-4 describes the light emitting diode (LED) behavior on the Summit1, Summit1/LX, Summit4, Summit4/FX, Summit24, and Summit48 switches.

Table 1-4: Summit Switch LEDs

LED	Color	Indicates
Power	Green	The Summit switch is powered up.
	Yellow	The Summit switch is indicating a power, overheat, or fan failure.
MGMT	Green flashing	
	■ Slow	The Summit switch is operating normally.
	■ Fast	Power On Self Test (POST) in progress, or software download in progress.
	Yellow	The Summit has failed its POST.
10/100 Mbps Port Status LEDs		
	Green	Link is present; port is enabled.
	Yellow	Frames are being transmitted/received on this port.
	Green flashing	Link is present; port is disabled.
	Off	Link is not present.
Gigabit Ethernet Port Status LEDs		
Packet	Yellow	Frames are being transmitted/received on this port.
	Off	No activity on this port.
Status	Green on	Link is present; port is enabled; full-duplex operation.
	Green flashing	Link is present; port is disabled.
	Off	Link is not present.

SUMMIT7I SWITCH FRONT VIEW

The Summit7i switch ships in one of two port configurations:

- 28 autosensing 100BASE-TX/1000BASE-T ports
- 28 1000BASE-SX ports

Figure 1-8 shows the front view of the Summit7i switch with 100BASE-TX/1000BASE-T ports.

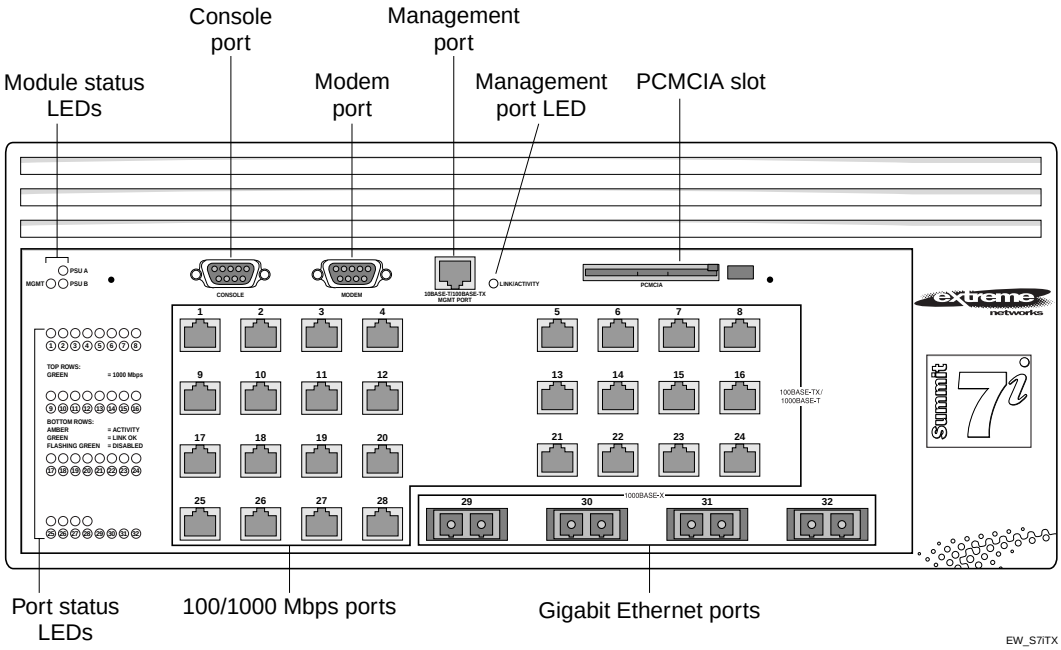


Figure 1-8: Front view of Summit7i switch with 100BASE-TX/1000BASE-T ports

Figure 1-9 shows the front view of the Summit7i switch with 1000BASE-SX ports.

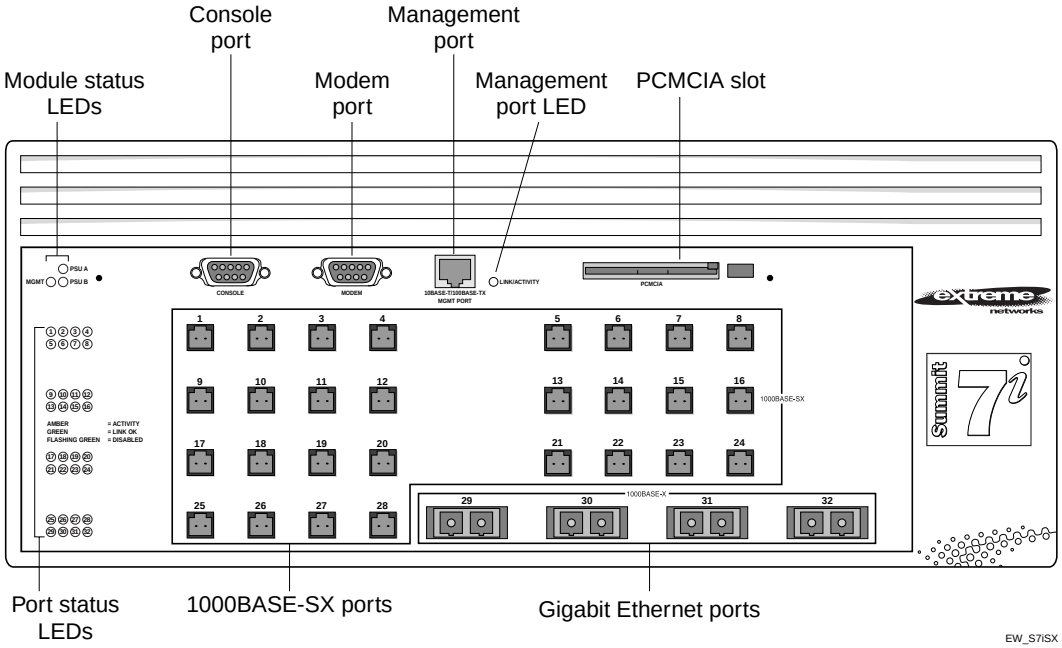


Figure 1-9: Front view of Summit7i switch with 1000BASE-SX ports

Both Summit7i switch models also come with four unpopulated GBIC ports. You can use any of the following GBICs in the Summit7i switch:

- 1000BASE-SX
- 1000BASE-LX
- 1000BASE-LX70

For information on supported media types and distances, refer to Table 1-2.

For information on Summit7i switch LEDs, refer to "Summit7i Switch LEDs," on page 1-19.

For information on GBICs, refer to "GBIC Type and Hardware/Software Support," on page 1-21.

MODULE RESET BUTTON

The module reset button is used to hard reset the switch. Use a non-conductive tool to operate the module reset button.

CONSOLE PORT

The console port (9-pin, "D" type connector) is used for connecting a terminal and carrying out local out-of-band management.

MODEM PORT

The modem port is used to connect a modem for remote access to the command line interface (CLI).

MANAGEMENT PORT

The management port (RJ-45 connector) is a 10/100 Mbps Ethernet connection used for out-of-band management.

PCMCIA SLOT

The PCMCIA slot is reserved for future use.

SUMMIT7I SWITCH LEDS

Table 1-5 describes the light emitting diode (LED) behavior on the Summit7i switch.

Table 1-5: Summit7i Switch LEDs

LED	Color	Indicates
Power (A and B)	Green	The indicated power supply unit (PSU) is powered up.
	Yellow	The indicated PSU has a failure.
	Green/Yellow Flashing	The AC power cord is not inserted correctly.
	Off	The PSU is not receiving power or no PSU is present.
MGMT	Green flashing	
	■ Slow	The Summit7i switch is operating normally.
	■ Fast	Power On Self Test (POST) in progress, or software download in progress.
	Yellow	The Summit7i switch has failed its POST or is experiencing an overheat or fan failure.
Port Status LEDs (bottom row for 100BASE-TX/1000BASE-T ports)		
	Green	Link is present; port is enabled.
	Yellow	Frames are being transmitted/received on this port.
	Green flashing	Link is present; port is disabled.
	Off	Link is not present.
100/1000 Mbps Speed LEDs (top row for 100BASE-TX/1000BASE-T ports)		
	Green	1000 Mbps
	Off	100 Mbps
10/100 Management Port LED (right of 10BASE-T/100BASE-TX Management Port)		
	Green	Link is present.
	Yellow	Frames are being transmitted.
	Off	Link is not present.

SUMMIT7I SWITCH REAR VIEW

Figure 1-10 shows the rear view for the Summit7i switch.

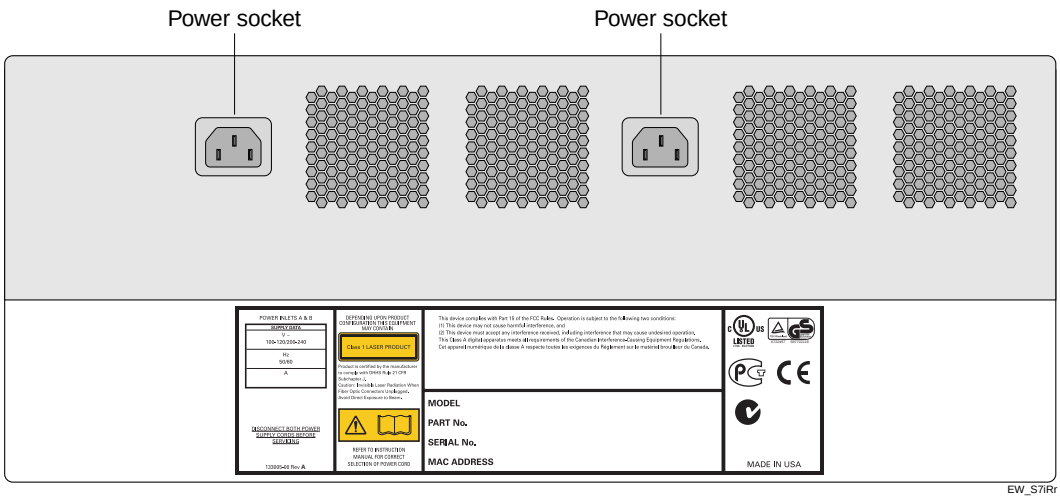


Figure 1-10: Summit7i switch rear view

POWER SOCKET

The Summit7i switch supports up to two power supplies. Each power supply has its own power socket. When a second power supply is installed, both provide a redundant, load-shared power source to the Summit7i switch. If one of the power sources fails, the second power supply takes over, ensuring uninterrupted network operation.

Summit7i switch power supplies must be serviced by personnel trained by Extreme Networks, only.

SERIAL NUMBER

The serial number is used for fault-reporting purposes.

MAC ADDRESS

This label shows the unique Ethernet MAC address assigned to this device.

GBIC TYPE AND HARDWARE/SOFTWARE SUPPORT

The switch supports two types of GBICs: the Parallel ID GBIC and the Serial ID GBIC. The system uses identifier bits to determine the media type for the GBIC that is installed. Initial ExtremeWare versions do not support Serial ID GBICs. If Serial ID GBICs are installed in a switch with an initial software release, the switch will not bring up the link on GBIC ports.

GBICs are used in these switches:

- Summit1 switch
- Summit24 switch
- Summit48 switch
- Summit7i switch

The Summit1 switch cannot read Serial ID information. When the software tries to read the media type for the 1000BASE-SX Serial ID, and the 1000BASE-LX Serial ID GBICs on these hardware platforms, the software displays “Unknown” for the media type. In that case, you can determine the GBIC media type by removing the GBIC from the switch and looking at the GBIC label.

2 Installation and Setup

This chapter describes the following:

- How to decide where to install the Summit switch
- Gigabit Ethernet configuration rules
- How to install the switch in a rack or free-standing
- How to connect equipment to the console port
- How to check the installation using the Power On Self-Test (POST)

Caution: Use of controls or adjustments of performance or procedures other than those specified herein may result in hazardous radiation exposure.

Following Safety Information

Before installing or removing any components of the switch, or before carrying out any maintenance procedures, you must read the safety information provided in Appendix A of this guide.

Determining the Switch Location

The Summit switch is suited for use in the office, where it can be free-standing or mounted in a standard 19-inch equipment rack. Alternatively, the device can be rack-mounted in a wiring closet or equipment room. Two mounting brackets are supplied with the switch.

When deciding where to install the switch, ensure that:

- The switch is accessible and cables can be connected easily.
- Water or moisture cannot enter the case of the unit.
- Air-flow around the unit and through the vents in the side of the case is not restricted. You should provide a minimum of 25mm (1-inch) clearance.
- No objects are placed on top of the unit.
- Units are not stacked more than four high if the switch is free-standing.

INSTALLING THE SUMMIT SWITCH

The Summit switch can be mounted in a rack, or placed free-standing on a tabletop.

RACK MOUNTING

Caution: The rack mount kits must not be used to suspend the switch from under a table or desk, or to attach to a wall.

To rack mount the Summit switch, follow these steps:

1 If you are installing a Summit7i switch, mount the helper bracket in the rack using four appropriate rack-mounting screws (not provided), as shown in Figure 2-1.

Only the Summit7i switch uses the helper bracket. The helper bracket is not required to rack mount a Summit1, Summit1/LX, Summit4, Summit4/FX, Summit24, or Summit48 switch.

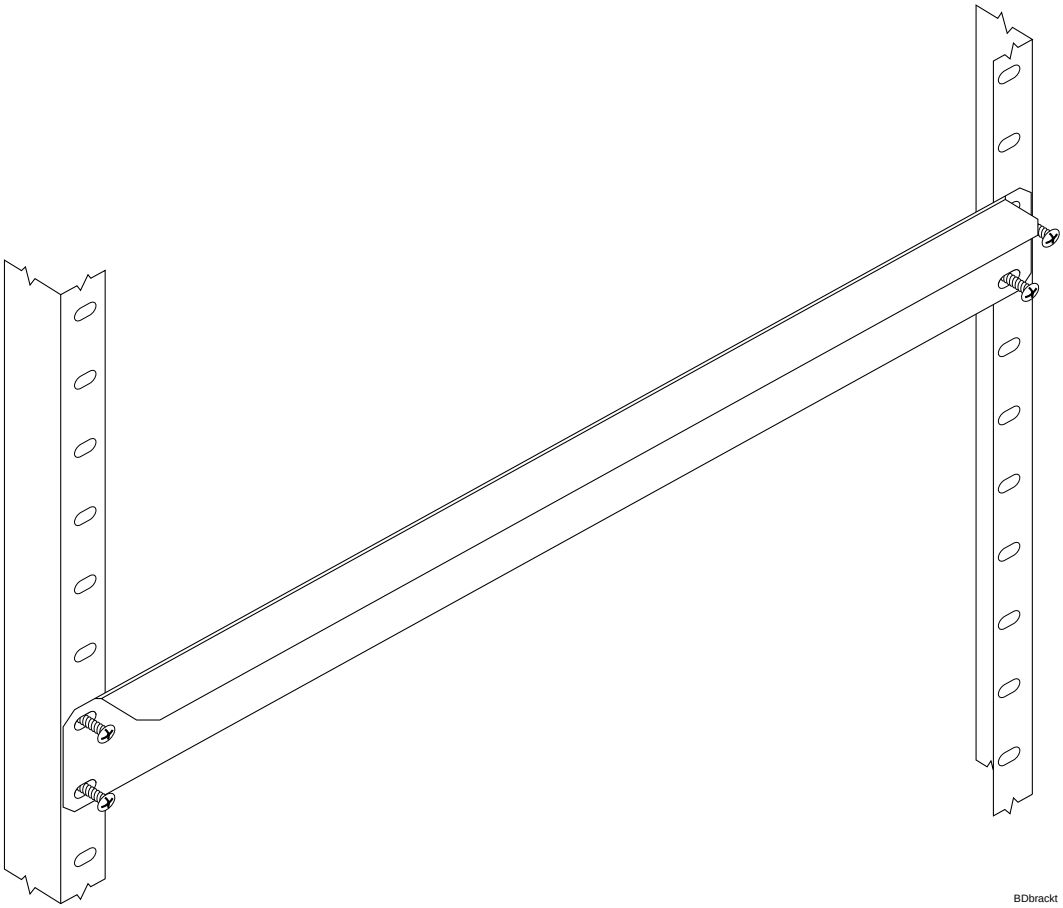


Figure 2-1: Rack-mount helper bracket

2 Place the switch the right way up on a hard flat surface, with the front facing you.

3 Remove the existing screws from the sides of the chassis and retain for Step 5.

4 Locate a mounting bracket over the mounting holes on one side of the unit.

5 Insert the screws and fully tighten with a suitable screwdriver, as shown in Figure 2-2.

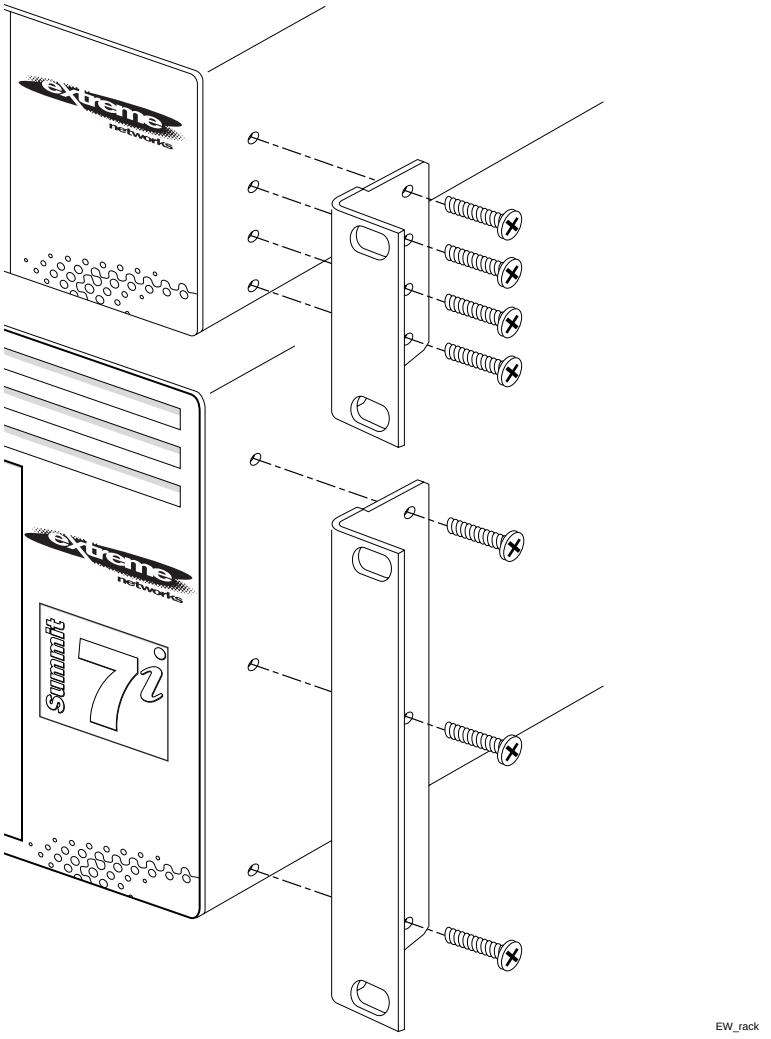


Figure 2-2: Fitting the mounting bracket

6 Repeat the three previous steps for the other side of the switch.

7 Insert the switch into the 19-inch rack. If you are installing a Summit7i switch, place it on the helper bracket. Ensure that ventilation holes are not obstructed.

8 Secure the switch with suitable screws (not provided).

9 If you are installing a Summit7i switch, remove the helper bracket once the chassis is secured.

10 Connect the Summit switch to the redundant power supply (if applicable).

11 Connect cables.

FREE-STANDING

The Summit switch is supplied with four self-adhesive rubber pads. Apply the pads to the underside of the device by sticking a pad in the marked area at each corner of the switch.

STACKING THE SWITCH AND OTHER DEVICES

Up to four Summit switches can be placed on top of one another.

This section relates only to physically placing the devices on top of one another.

Apply the pads to the underside of the device by sticking a pad at each corner of the switch. Place the devices on top of one another, ensuring that the corners align.

CONNECTING EQUIPMENT TO THE CONSOLE PORT

Connection to the console port is used for direct local management. The switch console port settings are set as follows:

- **Baud rate** — 9600
- **Data bits** — 8
- **Stop bit** — 1
- **Parity** — None
- **Flow control** — XON / XOFF

The terminal connected to the console port on the switch must be configured with the same settings. This procedure will be described in the documentation supplied with the terminal.

Appropriate cables are available from your local supplier. To make your own cables, pinouts for a DB-9 male console connector are described in Table 2-1.

Table 2-1: Console Connector Pinouts

Function	Pin Number	Direction
DCD (data carrier detect)	1	In
RXD (receive data)	2	In
TXD (transmit data)	3	Out
DTR (data terminal ready)	4	Out
GND (ground)	5	-
DSR (data set ready)	6	In
RTS (request to send)	7	Out
CTS (clear to send	8	In

Figure 2-3 shows the pin-outs for a 9-pin to RS-232 25-pin null-modem cable.

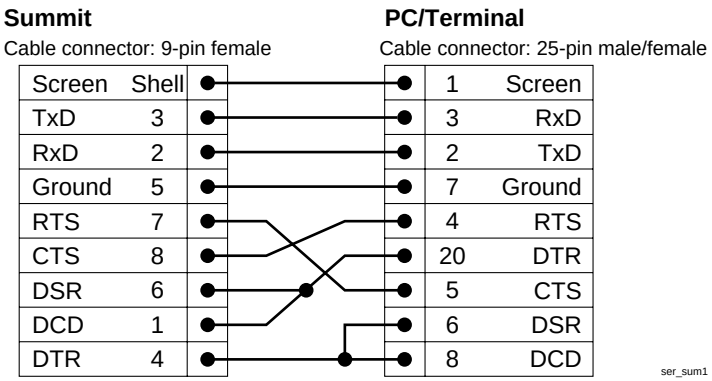


Figure 2-3: Null-modem cable pin-outs

Figure 2-4 shows the pin-outs for a 9-pin to 9-pin PC-AT null-modem serial cable.

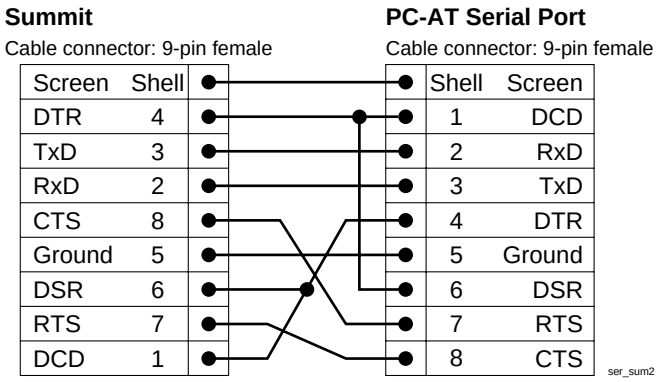


Figure 2-4: PC-AT serial null-modem cable pin-outs

POWERING ON THE SWITCH

To turn on power to the switch, connect the AC power cable to the switch and then to the wall outlet. For the Summit1, Summit4, Summit24, and Summit48 switches, turn the on/off switch to the on position.

The Summit7i switch has no on/off switch.

CHECKING THE INSTALLATION

After turning on power to the Summit switch, the device performs a Power On Self-Test (POST).

During the POST, all ports are temporarily disabled, the packet LED is off, the power LED is on, and the MGMT LED flashes. The MGMT LED flashes until the switch has successfully passed the POST.

If the switch passes the POST, the MGMT LED blinks at a slow rate (1 blink per second). If the switch fails the POST, the MGMT LED shows a solid yellow light.

For more information on the LEDs, refer to Chapter 1.

LOGGING IN FOR THE FIRST TIME

After the Summit switch has completed the POST, it is operational. Once operational, you can log in to the switch and configure an IP address for the default VLAN (named *default*).

To manually configure the IP settings, perform the following steps:

1. Connect a terminal or workstation running terminal-emulation software to the console port.
2. At your terminal, press [Return] one or more times until you see the login prompt.
3. At the login prompt, enter the default user name *admin* to log on with administrator privileges. For example:

   ```
   login: admin
   ```

   Administrator capabilities allow you to access all switch functions.

   For more information on switch security, refer to the ExtremeWare User Guide.

4. At the password prompt, press [Return].

   The default name, *admin,* has no password assigned. When you have successfully logged on to the switch, the command-line prompt displays the name of the switch (for example, *Summit1*) in its prompt.

5. Assign an IP address and subnetwork mask for VLAN *default* by typing

   ```
   config vlan default ipaddress 123.45.67.8 255.255.255.0
   ```

   Your changes take effect immediately.

6. Save your configuration changes so that they will be in effect after the next switch reboot, by typing

   ```
   save
   ```

   For more information on saving configuration changes, refer to the ExtremeWare Software User Guide.

7. When you are finished using the facility, logout of the switch by typing

   ```
   logout
   ```

After two incorrect login attempts, the Summit switch locks you out of the login facility. You must wait a few minutes before attempting to log in again.

INSTALLING THE GIGABIT INTERFACE CONNECTOR (GBIC)

GBICs can be added and removed from the switch without powering off the system. The two types of GBIC modules are shown in Figure 2-5.

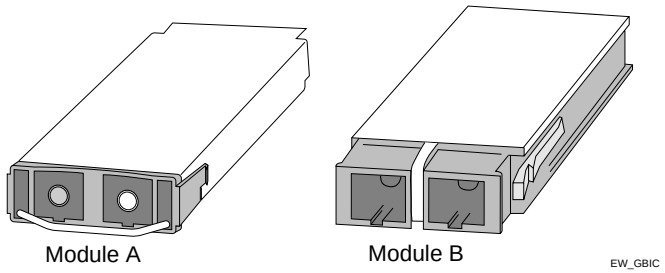


Figure 2-5: GBIC modules

GBICs are a Class 1 laser device. Use only modules approved by the switch manufacturer.

Ensure that the SC fiber-optic connector is removed from the GBIC prior to removing the GBIC from the I/O module.

Caution: Invisible laser radiation can occur when open. Avoid direct eye exposure to beam.

To remove the GBIC module labeled "Module A," lift up on the front handle and pull the GBIC out of the slot.

To remove the GBIC module labeled "Module B" or "Module C," gently squeeze the sides to release it, and pull the GBIC out of the slot.

To insert a GBIC module, follow these steps:

1. Holding the GBIC by its sides, insert the GBIC into the slot on the I/O module.
2. Slide the GBIC as far back into the slot as possible, until you hear it click.
3. If the GBIC has a handle, push down on the handle to secure the GBIC in the slot.

A Safety Information

IMPORTANT SAFETY INFORMATION

WARNING: READ THE FOLLOWING SAFETY INFORMATION THOROUGHLY BEFORE INSTALLING THE SUMMIT SWITCH. FAILURE TO FOLLOW THIS SAFETY INFORMATION MAY LEAD TO PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT.

- Installation, maintenance, removal of parts, and removal of the unit and components must be done by qualified service personnel only.

  Service personnel are persons having appropriate technical training and experience necessary to be aware of the hazards to which they are exposed in performing a task and of measures to minimize the danger to themselves or other persons.

- Install the unit only in a temperature- and humidity-controlled indoor area free or airborne materials that may conduct electricity. Too much humidity may cause a fire. Too much dryness may produce electrical shock and fire.

POWER

- The unit must be grounded.
- The unit must be connected to a grounded outlet to comply with European safety standards.
- Do not connect the power supply unit to an A/C outlet without a ground connection.

- This unit operates under Safety Extra Low Voltage (SELV) conditions according to IEC 950. The conditions are only maintained if the equipment to which it is connected also operates under SELV conditions.
- The appliance coupler (the connector to the unit and not the wall plug) must have a configuration for mating with an EN60320/IEC320 appliance inlet.
- *France and Peru only*
  This unit cannot be powered from IT† supplies. If your supplies are of IT type, this unit must be powered by 230V (2P+T) via an isolation transformer ratio 1:1, with the secondary connection point labeled Neutral, connected directly to ground.

POWER CORD

- This must be approved for the country where it is used:

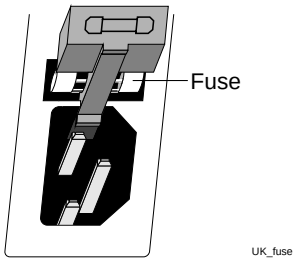
USA and Canada	• The cord set must be UL-approved and CSA-certified.
	• The minimum specification for the flexible cord is No. 18 AWG (1.5 mm^2), Type SVT or SJT, 3-conductor.
	• The cord set must have a rated current capacity of at least 10A.
	• The attachment plug must be an Earth-grounding type with a NEMA 5-15P (10A, 125V) configuration.
Denmark	• The supply plug must comply with section 107-2-D1, standard DK2-1a or DK2-5a.
Switzerland	• The supply plug must comply with SEV/ASE 1011.

- If the power cord plug is unsuitable and must be replaced, you may find other codings for the respective connections. Connect the power supply wires for the unit according to the following scheme:
  - — Brown wire to the Live (Line) plug terminal, which may be marked with the letter “L” or colored red.
  - — Blue wire to the Neutral plug terminal, which may be marked with the letter “N” or colored black.
  - — Yellow/Green wire to the Ground plug terminal, which may be marked with the letter “E” or the Earth symbol ⏚ or colored yellow/green.

FUSE

- Disconnect power from the unit before opening the fuse holder cover. The unit automatically adjusts to the supply voltage. The fuse is suitable for both 110V A.C. and 200-240V A.C. operation.
  To change the fuse, release the fuse holder by gently levering a small screwdriver under the fuse holder catch. Only fuses of the same manufacturer, rating, and type as the original must be used with the unit. Close the fuse holder.

The fuse on the Summit7i switch is not user-replacable.



- To comply with European safety standards, a spare fuse must not be fitted to the appliance inlet. Only fuses of the same manufacturer, make, and type must be used with the unit.

CONNECTIONS

- **Fiber Optic ports - Optical Safety.** Never look at the transmit LED/laser through a magnifying device while it is powered on. Never look directly at the fiber TX port and fiber cable ends when they are powered on.
- CLASS 1 LASER DEVICE

Warning: Use of controls or adjustments of performance or procedures other than those specified herein may result in hazardous laser emissions.

CONNECTIONS

- **Fiber Optic ports - Optical Safety.** Never look at the transmit LED/laser through a magnifying device while it is powered on. Never look directly at the fiber TX port and fiber cable ends when they are powered on.
- CLASS 1 LASER DEVICE

LITHIUM BATTERY

- The battery in the bq4830/DS1644 device is encapsulated and not user-replaceable.
- If service personnel disregard the instructions and attempt to replace the bq4830/DS1644, replace the lithium battery with the same or equivalent type, as recommended by the manufacturer.

Warning: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- Disposal requirements vary by country and by state.
- Lithium batteries are not listed by the Environmental Protection Agency (EPA) as a hazardous waste. Therefore, they can typically be disposed of as normal waste.
- If you are disposing of large quantities, contact a local waste-management service.
- No hazardous compounds are used within the battery module.
- The weight of the lithium contained in each coin cell is approximately 0.035 grams.
- Two types of batteries are used interchangeably:
  - CR chemistry uses manganese dioxide as the cathode material.
  - BR chemistry uses poly-carbonmonofluoride as the cathode material.

B Technical Specifications

SUMMIT1, SUMMIT1/LX, SUMMIT4, SUMMIT4/FX, SUMMIT24, AND SUMMIT48 SWITCH SPECIFICATIONS

The following table lists specifications for the Summit1, Summit1/LX, Summit4, Summit4/FX, Summit24, and Summit48 switch.

Physical Dimensions	Height: 3.5 inches x Width: 17.32 inches x Depth: 17.32 inches Weight: 10 kg
Environmental Requirements	
Operating Temperature	0 to 40° C
Storage Temperature	-10 to 70° C
Operating Humidity	10% to 95% relative humidity, noncondensing
Standards	EN60068 (IEC68)
Safety	
Agency Certifications	UL 1950 3rd Edition, listed cUL listed to CSA 22.2#950 TUV GS mark & GOST safety approval to the following EN standards: ■ EN60950:1992/A3:1995 plus Deviations ■ EN60825-1; 1994, all 1996 ZB/ZC

Electromagnetic Compatibility	FCC part 15 Class A CSA C108.8-M11983 (A) VCCI Class A EN55022 Class A EN50082 -1 (1997) C-Tick mark to AS/NZS 3548:1995
Heat Dissipation	135W maximum (341.2 BTU/hr maximum)
Power Supply	
AC Line Frequency	47Hz to 63Hz
Input Voltage Options	90VAC to 264VAC, auto-ranging
Current Rating	100-120/200-240 VAC 3.0/1.5 A

SUMMIT7i SWITCH SPECIFICATIONS

The following table lists the specifications for the Summit7i swtich.

Physical Dimensions	Height: 7.0 inches x Width: 17.25 inches x Depth: 19.0 inches Weight: 45 pounds (single power supply) 55 pounds (dual power supply)
Environmental Requirements	
Operating Temperature	0 to 40° C
Storage Temperature	-10 to 70° C
Operating Humidity	10% to 95% relative humidity, noncondensing
Standards	EN60068 to Extreme IEC68 schedule
Certification Marks	
CE	CE (European Community)
TUV/GS	TUV/GS (German Notified Body)
GOST	GOST (Russian Federation)
C-Tick	C-Tick (Australian Communication Authority)
c UL us LISTED	Underwriters Laboratories (USA and Canada)

Safety	
Agency Certifications	UL 1950 3rd Edition, listed EN60950:1992/A1-4:1997 plus ZB/ZC Deviations IEC 950CB Low Voltage Directive (LVD) CSA 22.2#950-95 AS/NZS 3260 EN60825-1 FCC CFR 21
Electromagnetic Interference/ Compatibility (EMI/EMC)	FCC CFR 47 part 15 Class A ICES-0003 A/C108.8-M1983 Class A VCCI Class A AS/NZS 3548 EN55022 Class A CISPR 22 Class A EN50082 -1:1997 include ENV 50204 EN55024:1998 includes IEC 61000-4-2, 3, 4, 5, 6, 8, 11 EN 61000-3-2, 3 CNS 13438 Class A
Heat Dissipation	380W maximum (1298 BTU/hr maximum)
Power Supply	
AC Line Frequency	47Hz to 63Hz
Input Voltage Options	90VAC to 264VAC
Current Rating	100-120/200-240 VAC 10/5 A

Index

R

S

V