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# **OmniSwitch 6450 Series Hardware Users Guide**



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**This user guide documents OmniSwitch 6450 Series hardware, including chassis and associated components.  
The specifications described in this guide are subject to change without notice.**

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This OmniSwitch product contains components which may be covered by one or more of the following U.S. Patents:

- U.S. Patent No. 6,339,830
- U.S. Patent No. 6,070,243
- U.S. Patent No. 6,061,368
- U.S. Patent No. 5,394,402
- U.S. Patent No. 6,047,024
- U.S. Patent No. 6,314,106
- U.S. Patent No. 6,542,507
- U.S. Patent No. 6,874,090

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# About This Guide

This *OmniSwitch 6450 Series Hardware Users Guide* describes your switch hardware components and basic switch hardware procedures.

## Supported Platforms

This information in this guide applies to the following products:

- OmniSwitch 6450-10(L)
- OmniSwitch 6450-P10(L)

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**Note.** Only the OmniSwitch 6450-10 is available with AOS Release 6.6.2.R02.

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## **Unsupported Platforms**

The information in this guide does not apply to the following products:

- OmniSwitch (original version with no numeric model name)
- OmniSwitch 6250 Series
- OmniSwitch 6400 Series
- OmniSwitch 6600 Series
- OmniSwitch 6800 Series
- OmniSwitch 6850 Series
- OmniSwitch 6855 Series
- OmniSwitch 7700
- OmniSwitch 7800
- OmniSwitch 8800
- OmniSwitch 9000 Series
- OmniStack
- OmniAccess



## Who Should Read this Manual?

The audience for this users guide is network administrators and IT support personnel who need to configure, maintain, and monitor switches and routers in a live network. However, anyone wishing to gain knowledge on the OmniSwitch 6450 Series hardware will benefit from the material in this guide.

## When Should I Read this Manual?

Read this guide as soon as you are ready to familiarize yourself with your switch hardware components. You should have already stepped through the first login procedures and read the brief hardware overviews in the *OmniSwitch 6450 Series Getting Started Guide*.

You should already be familiar with the very basics of the switch hardware, such as module LEDs and module installation procedures. This manual will help you understand your switch hardware components (e.g., chassis, cables, power supplies, etc.) in greater depth.

## What is in this Manual?

This users guide includes the following hardware-related information:

- Descriptions of switch configurations.
- Descriptions of “availability” features.
- Descriptions of chassis types (e.g., OmniSwitch 6450-10).
- Instructions for mounting the chassis.
- Descriptions of hardware components (status LEDs, chassis, cables, backup power supplies, etc.).
- Managing a chassis.
- Hardware-related Command Line Interface (CLI) commands

## What is Not in this Manual?

The descriptive and procedural information in this manual focuses on switch hardware. It includes information on some CLI commands that pertain directly to hardware configuration, but it is not intended as a software users guide. There are several OmniSwitch 6450 Series users guides that focus on switch software configuration. Consult those guides for detailed information and examples for configuring your switch software to operate in a live network environment. See [“Documentation Roadmap” on page -x](#) and [“Related Documentation” on page -xii](#) for further information on software configuration guides available for your switch.

# How is the Information Organized?

This users guide provides an overview of OmniSwitch 6450 Series switches, specifications of the hardware components, steps for setting up and managing OmniSwitch 6450 Series switches, and an overview and procedures for managing Power over Ethernet (PoE).

## Documentation Roadmap

The OmniSwitch user documentation suite was designed to supply you with information at several critical junctures of the configuration process. The following section outlines a roadmap of the manuals that will help you at each stage of the configuration process. Under each stage, we point you to the manual or manuals that will be most helpful to you.

### Stage 1: Using the Switch for the First Time

**Pertinent Documentation:** *Getting Started Guide*  
*Release Notes*

The *Getting Started Guide* provides all the information you need to get your switch up and running the first time. This guide provides information on unpacking the switch, installing power supplies, unlocking access control, setting the switch's IP address, and setting up a password. It also includes succinct overview information on fundamental aspects of the switch, such as hardware LEDs, the software directory structure, CLI conventions, and web-based management.

At this time you should also familiarize yourself with the Release Notes that accompanied your switch. This document includes important information on feature limitations that are not included in other user guides.

### Stage 2: Gaining Familiarity with Basic Switch Functions

**Pertinent Documentation:** *Hardware Users Guide*  
*Switch Management Guide*

Once you have your switch up and running, you will want to begin investigating basic aspects of its hardware and software. Information about switch hardware is provided in the *Hardware Users Guide*. This guide provide specifications, illustrations, and descriptions of all hardware components—e.g., chassis, backup power supplies, etc.

The *Switch Management Guide* is the primary user guide for the basic software features on a switch. This guide contains information on the switch directory structure, basic file and directory utilities, switch access security, SNMP, and web-based management. It is recommended that you read this guide before connecting your switch to the network.

## **Stage 3: Integrating the Switch Into a Network**

**Pertinent Documentation:** *Network Configuration Guide*

When you are ready to connect your switch to the network, you will need to learn how the OmniSwitch implements fundamental software features, such as 802.1Q, VLANs, and Spanning Tree. The *Network Configuration Guide* contains overview information, procedures and examples on how standard networking technologies are configured in the OmniSwitch.

### **Anytime**

The *OmniSwitch CLI Reference Guide* contains comprehensive information on all CLI commands supported by the switch. This guide includes syntax, default, usage, example, related CLI command, and CLI-to-MIB variable mapping information for all CLI commands supported by the switch. This guide can be consulted anytime during the configuration process to find detailed and specific information on each CLI command.

## Related Documentation

The following are the titles and descriptions of all the OmniSwitch 6450 Series user manuals:

- *OmniSwitch 6450 Series Getting Started Guide*

Describes the hardware and software procedures for getting an OmniSwitch up and running. Also provides information on fundamental aspects of OmniSwitch software.
- *OmniSwitch 6450 Series Hardware Users Guide*

Detailed technical specifications and procedures for the OmniSwitch chassis and components. This manual also includes comprehensive information on assembling and managing stacked configurations.
- *OmniSwitch 6450 CLI Reference Guide*

Complete reference to all CLI commands supported on the OmniSwitch Series of products. Includes syntax definitions, default values, examples, usage guidelines and CLI-to-MIB variable mappings.
- *OmniSwitch 6450 Switch Management Guide*

Includes procedures for readying an individual switch for integration into a network. Topics include the software directory architecture, image rollback protections, authenticated switch access, managing switch files, system configuration, using SNMP, and using web management software (WebView).
- *OmniSwitch 6450 Network Configuration Guide*

Includes network configuration procedures and descriptive information on all the major software features and protocols included in the base software package. Chapters cover Layer 2 information (Ethernet and VLAN configuration), Layer 3 information (routing protocols, such as RIP), security options (authenticated VLANs), Quality of Service (QoS), and link aggregation.
- *OmniSwitch 6450 OmniSwitch Transceivers Guide*

Includes SFP transceiver specifications and product compatibility information.
- *Technical Tips, Field Notices*

Includes information published by Alcatel-Lucent's Customer Support group.
- *Release Notes and Upgrade Instructions*

Includes open problem reports, feature exceptions, and other important information on the features supported in the current release and any limitations to their support.

## Published / Latest Product Documentation

All user guides for the OmniSwitch Series are included on the Alcatel-Lucent public website. This website also includes user guides for other Alcatel-Lucent Enterprise products.

The latest user guides can be found on our website at:

<http://enterprise.alcatel-lucent.com/?dept=UserGuides&page=Portal>

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## Technical Support

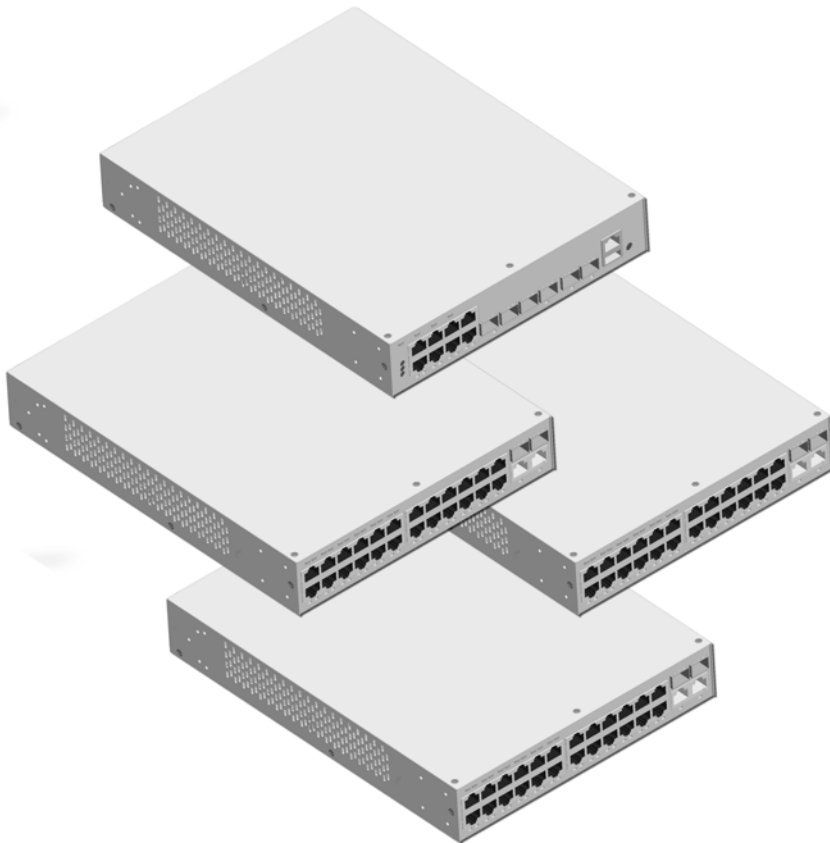
An Alcatel-Lucent service agreement brings your company the assurance of 7x24 no-excuses technical support. You'll also receive regular software updates to maintain and maximize your Alcatel-Lucent product's features and functionality and on-site hardware replacement through our global network of highly qualified service delivery partners. Additionally, with 24-hour-a-day access to Alcatel-Lucent's Service and Support web page, you'll be able to view and update any case (open or closed) that you have reported to Alcatel-Lucent's technical support, open a new case or access helpful release notes, technical bulletins, and manuals. For more information on Alcatel-Lucent's Service Programs, see our web page at [service.esd.alcatel-lucent.com](http://service.esd.alcatel-lucent.com), call us at 1-800-995-2696, or email us at [esd.support@alcatel-lucent.com](mailto:esd.support@alcatel-lucent.com).



# 1 OmniSwitch 6450 Series

The Alcatel-Lucent OmniSwitch 6450 Series is a set of stackable switches designed for Enterprise and Metro applications providing Fast Ethernet connectivity with Advanced Layer 2 software and basic routing.

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OS6450-10(L)

OS6450-P10(L)

**OmniSwitch 6450 Series**

# Chassis Configurations

OmniSwitch 6450 Series (OS6450) switches offer various Gigabit Ethernet port solutions. The following chassis configurations are available:

## SMB Models

- OmniSwitch 6450-10: Provides eight (8) 10/100/1000BaseT Ethernet ports, two (2) combo ports, two (2) non-combo SFP ports, and an internal AC power supply.
- OmniSwitch 6450-P10: Provides eight (8) 10/100/1000BaseT Power Over Ethernet (802.3at) ports, two (2) combo ports, two (2) non-combo SFP ports, and an internal AC power supply.
- OmniSwitch 6450-10L: Provides eight (8) 10/100BaseT Ethernet ports upgradeable to 10/100/1000BaseT, two (2) combo ports, two (2) non-combo SFP ports, and an internal AC power supply.
- OmniSwitch 6450-P10L: Provides eight (8) 10/100BaseT Power Over Ethernet (802.3at) ports upgradeable to 10/100/1000BaseT, two (2) combo ports, two (2) non-combo SFP ports, and an internal AC power supply.

## Combo Ports

Combo ports are individually configurable to be 10/100/1000BaseT or 100FX/1000X that can support SFP transceivers for short, long and very long distances.

## Non-combo Fiber Ports

The non-combo SFP ports provide uplink capability through the use of supported SFP transceivers.

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**Note.** The 10/100BaseT “L” models have the same hardware characteristics as the other models but can be upgraded to support 10/100/1000BaseT via a software license upgrade.

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# OmniSwitch 6450 Feature Overview

## Security Features

OmniSwitch 6450 Series switches offer extensive security features for network access control, policy enforcement and attack containment, enabling fully secure networks and OmniVista Network Management System (NMS) support.

## Applications

Well-suited for traditional enterprise network applications.

- Small and Medium sized Enterprise (SME)
- Residence and business deployments

# Availability Features

OmniSwitch 6450 Series switches incorporate advanced Alcatel-Lucent Operating System (AOS) protocols to ensure high availability for mission critical applications. Availability features are hardware- and software-based safeguards that help to prevent the loss of data flow in the unlikely event of a subsystem failure.

In addition, some availability features allow users to maintain or replace hardware components without powering off the switch or interrupting switch operations. Combined, these features provide added resiliency and help to ensure that the switch or virtual chassis is consistently available for high-impact network operations.

Hardware-related availability features include:

- [Software Rollback](#)
- [Hot Swapping](#)
- [Hardware Monitoring](#)

## Software Rollback

Software rollback (also referred to as *image rollback*) essentially allows the switch to return to a prior “last known good” version of software in the event of a system software problem. The switch controls software rollback through its resilient directory structure design (i.e., `/flash/working` and `/flash/certified`).

For detailed information on the software rollback feature, as well as the switch’s `/flash/working` and `/flash/certified` directories, refer to the “Managing CMM Directory Content” chapter in the *Switch Management Guide*.

## Hot Swapping

Hot swapping refers to the action of adding, removing, or replacing components without powering off switches or disrupting other components. This feature facilitates hardware upgrades and maintenance and allows users to easily replace components in the unlikely event of hardware failure.

The following components can be hot swapped:

- Transceivers

## Hardware Monitoring

### Automatic Monitoring

Automatic monitoring refers to the switch's built-in sensors that automatically monitor operations. If an error is detected (e.g., over-threshold temperature), the switch immediately sends a trap to the user. The trap is displayed on the console in the form of a text error message.

### LEDs

LEDs, which provide visual status information, are provided on the chassis front panel. LEDs are used to indicate conditions such as hardware and software status, temperature errors, link integrity, data flow, etc. For detailed LED descriptions, refer to [Chapter 2, "OmniSwitch 6450 Series Chassis and Hardware Components."](#)

### User-Driven Monitoring

User-driven hardware monitoring refers to CLI commands that are entered by the user in order to access the current status of hardware components. The user enters "show" commands that output information to the console. Monitoring information for chassis components, such as the optional back up power supply, chassis temperature sensor, and chassis fans is provided in [Chapter 2, "OmniSwitch 6450 Series Chassis and Hardware Components."](#) The show commands for all the features are described in detail in the *OmniSwitch CLI Reference Guide*.



# 2 OmniSwitch 6450 Series Chassis and Hardware Components

OmniSwitch 6450 Series switches are available in the chassis configurations as shown in the table below:

OmniSwitch 6450-10 (OS6450-10)	Ten port 10/100/1000BaseT model.
OmniSwitch 6450-P10 (OS6450-P10)	Ten port 10/100/1000BaseT Power Over Ethernet model.
OmniSwitch 6450-10L (OS6450-10L)	Ten port 10/100BaseT model upgradeable to 10/100/1000BaseT.
OmniSwitch 6450-P10L (OS6450-P10L)	Ten port 10/100BaseT Power Over Ethernet model upgradeable to 10/100/1000BaseT.

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**Note.** The 10/100BaseT “L” models have the same hardware characteristics as the other models but can be upgraded to support 10/100/1000BaseT via a software license upgrade.

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This chapter includes detailed information on these chassis types. Topics include:

- OmniSwitch 6450 Series chassis descriptions
- Technical specifications
- Power Supplies
- Cables and power cords
- Console port and pinout specifications

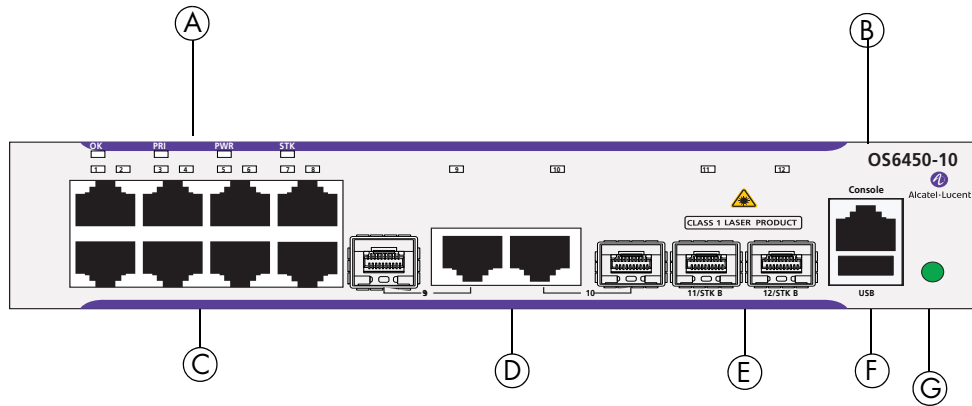
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# OmniSwitch 6450-10

The OmniSwitch 6450-10 chassis contains the following major components:

- System status LEDs
- (8) Non-combo 10/100/1000Base-T ports
- (2) Non-combo 100/1000BaseX ports
- (2) Combo 10/100/1000Base-T or 100/1000BaseX ports
- Internal AC Power Supply
- Console port (RJ-45)
- USB port (USB 2.0)
- Fanless design

## OmniSwitch 6450-10 Front Panel



OmniSwitch 6450-10 Front Panel

Item	Description
A	<b>System Status LEDs</b> Provides status on hardware, software, and power.
B	<b>Console Port</b> RS-232 console port with an RJ-45 connector. Provides access to the CLI for configuration and management.
C	<b>10/100/1000BaseT RJ-45 Ports</b> 10/100/1000BaseT non-combo ports. Odd-numbered ports are on top row, even-numbered ports are on bottom row.
D	<b>10/100/1000BaseT or 100/1000BaseX SFP Combo Ports</b> Two 10/100/1000BaseT or SFP combo ports for various supported SFP transceivers.
E	<b>SFP Uplink/Stacking Ports</b> Two SFP ports to be used for uplinks or stacking.
F	<b>USB Port</b> High speed USB 2.0 port.
G	<b>Push Button</b> When pushed all LEDs will turn off and the LED of the Stack ID will remain lit.

Refer to [“OmniSwitch 6450 Series - LED Status”](#) on page 2-11 for LED status information.



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## OmniSwitch 6450-10 Rear Panel

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**Note.** The figure shows a pre-production version of the chassis without product, safety, and compliance information labels. All production versions of the chassis have these labels.

---



**OmniSwitch 6450-10 Rear Panel**

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<b>Item</b>	<b>Description</b>
<b>A</b>	<b>Power Supply Connector</b> Internal AC power supply.
<b>B</b>	<b>Grounding Block</b> Type LCD8-10A-L grounding lug

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**OS6450-10 Specifications**

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Total non-combo 10/100/1000BaseT ports per switch	8 (1-8)
Total combo ports per switch	2 (9-10)
Total non-combo SFP ports per switch	2 (11-12 in Uplink mode)
Total 802.3at PoE ports per switch	N/A
Flash memory size	128 MB
RAM memory size	256 MB SDRAM
Chassis Width	8.56 inches (21.73 cm)
Chassis Height	1.73 inches (4.40 cm)
Chassis Depth	11.05 inches (28.07 cm)
Weight	3.80 lbs (1.72kg)
Operating Humidity	5% to 95%
Storage Humidity	5% to 95%
Operating Temperature	0C to +45C
Storage Temperature	-40C to +75C
Data rate (RJ-45)	10/100/1000 Mbps
Upper Threshold Temperature	76C
Danger Threshold Temperature	83C
Data rate (SFP)	100/1000 Mbps
Maximum frame size	9216 bytes
Cable supported (RJ-45)	10BaseT: unshielded twisted-pair (UTP) 100BaseTX: unshielded twisted-pair (UTP), Category 5, EIA/TIA 568 or shielded twisted-pair (STP), Category 5, 100 ohm 1000BaseT: unshielded twisted-pair (UTP), Category 5e
Maximum cable distance (RJ-45)	100 meters

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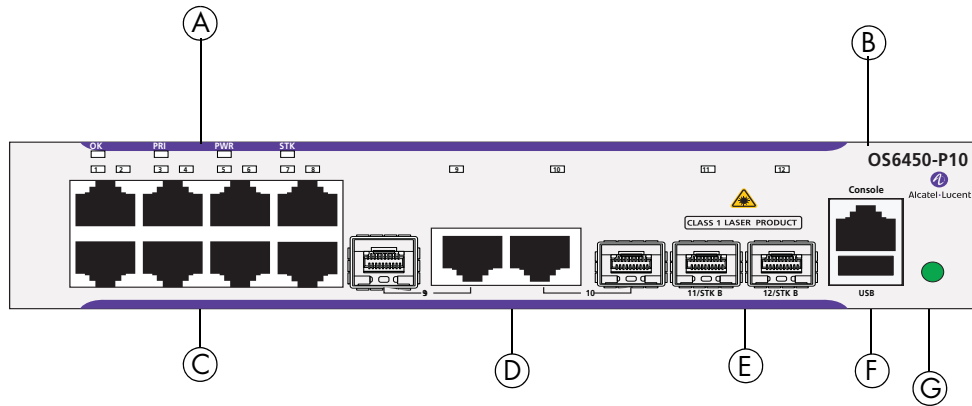
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# OmniSwitch 6450-P10

The OmniSwitch 6450-P10 chassis contains the following major components:

- System status LEDs
- (8) Non-combo 10/100/1000Base-T PoE ports
- (2) Non-combo 100/1000BaseX ports
- (2) Combo 10/100/1000Base-T or 100/1000BaseX ports
- Internal AC Power Supply
- Console port (RJ-45)
- USB port (USB 2.0)
- Fanless design

## OmniSwitch 6450-P10 Front Panel.



OmniSwitch 6450-P10 Front Panel

Item	Description
A	<b>System Status LEDs</b> Provides status on hardware, software, and power.
B	<b>Console Port</b> RS-232 console port with an RJ-45 connector. Provides access to the CLI for configuration and management.
C	<b>10/100/1000BaseT RJ-45 PoE Ports</b> 10/100/1000BaseT non-combo ports. Odd-numbered ports are on top row, even-numbered ports are on bottom row.
D	<b>10/100/1000BaseT or 100/1000BaseX SFP Combo Ports</b> Two 10/100/1000BaseT or SFP combo ports for various supported SFP transceivers.
E	<b>SFP Uplink/Stacking Ports</b> Two SFP ports to be used for uplinks or stacking.
F	<b>USB Port</b> High speed USB 2.0 port.
G	<b>Push Button</b> When pushed all LEDs will turn off and the LED of the Stack ID will remain lit.

Refer to [“OmniSwitch 6450 Series - LED Status”](#) on page 2-11 for LED status information.

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## OmniSwitch 6450-P10 Rear Panel

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**Note.** The figure shows a pre-production version of the chassis without product, safety, and compliance information labels. All production versions of the chassis have these labels.

---



OmniSwitch 6450-P10 Rear Panel

---

Item	Description
A	<b>Power Supply Connector</b> Internal AC power supply.
B	<b>Grounding Block</b> Type LCD8-10A-L grounding lug

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## OS6450-P10 Specifications

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Total non-combo 10/100/1000BaseT PoE ports per switch	8 (1-8)
Total combo ports per switch	2 (9-10)
Total non-combo SFP ports per switch	2 (11-12 in Uplink mode)
Flash memory size	128 MB
RAM memory size	256 MB SDRAM
Chassis Width	8.56 inches (21.73 cm)
Chassis Height	1.73 inches (4.40 cm) (1RU)
Chassis Depth	11.05 inches (28.07 cm)
Weight	3.80 lbs (1.72kg)
Operating Humidity	5% to 95%
Storage Humidity	5% to 95%
Operating Temperature	0C to +45C
Storage Temperature	-40C to +75C
Data rate (RJ-45)	10/100/1000 Mbps
Upper Threshold Temperature	76C
Danger Threshold Temperature	83C
Data rate (SFP)	100/1000 Mbps
Maximum frame size	9216 bytes
Cable supported (RJ-45)	10BaseT: unshielded twisted-pair (UTP) 100BaseTX: unshielded twisted-pair (UTP), Category 5, EIA/TIA 568 or shielded twisted-pair (STP), Category 5, 100 ohm 1000BaseT: unshielded twisted-pair (UTP), Category 5e
Maximum cable distance (RJ-45)	100 meters

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## OmniSwitch 6450 Series - LED Status

LED	State	Description
<b>OK</b>	Solid Green	Normal operation.
	Blinking Green	Diagnostics in progress.
	Solid Amber	Diagnostics failed.
	Blinking Amber	System fan failed.
<b>PRI</b>	Solid Green	Primary unit in a stack or standalone switch.
	Solid Amber	Secondary unit in a stack.
	Off	Switch is idle. (not primary or secondary)
<b>PWR</b>	Solid Green	P/S Normal Operation.
	Amber	P/S Present and Bad
	Off	P/S Not Present or Bad.
<b>STK</b>	Green	Unit in Stacking Mode
	Off	Unit in Standalone Mode
<b>Stack/Uplink Ports</b>	Solid / Blinking Green	Valid Uplink / Activity
	Solid / Blinking Amber	Valid Stacking Link / Activity
	Off	No Link Detected.
<b>10/100/1000 Ports</b>	Solid Green	Valid Link
	Blinking Green	Transmitting or receiving packets in a link up state for non-PoE .
	Solid Amber	Valid PoE Link.
	Blinking Amber	Transmitting or receiving packets in a link up state for PoE .
	Off	No Link Detected.
<b>SFP Ports</b>	Solid Green	Valid Link.
	Blinking Green	Transmitting or receiving packets in a link up state .
	Off	No Link Detected.
<b>Push Button Operation</b>		When pushed all LEDs will turn off and the LED of the Stack ID will remain lit.

---

## OmniSwitch 6450 Series - Power Supplies

- Internal 30W AC System Power Supply (see [“Internal 30W AC Power Supply”](#) on page 2-13)
- Internal 120W AC System Power Supply (see [“Internal 120W AC Power Supply”](#) on page 2-13)



---

## Internal 30W AC Power Supply

<b>P/S Component</b>	<b>Description</b>
Model	Internal AC Power Supply
Provides System Power For	OmniSwitch 6450-10
Input Voltage Range	100-240 VAC
Rated Frequency	50 to 60 Hz
Maximum Output Power	30 W
Output Voltage	12.0 VDC
Output Current	2.5 A

## Internal 120W AC Power Supply

<b>P/S Component</b>	<b>Description</b>
Model	Internal AC Power Supply
Provides System Power For	OmniSwitch 6450-P10
Input Voltage Range	115-230 VAC
Rated Frequency	50 to 60 Hz
Maximum Output Power	120 W
Output Voltage	12.0 VDC / 54.5 VDC
Output Current	2.5 A / 1.65A

---

# AC Power Cords

Since the power cord is the switch's only disconnect device, it should be plugged into an easily accessible outlet. In the event that your power cord is lost or damaged, refer to the specifications below.

## Specifications

The power cord included with this product contains three (3) insulated #18AWG stranded copper wires and is rated between 85-265 VAC (region dependent), 10 amps with a nominal length of 2 meters. The female end terminates in an IEC-60320-C15 attachment plug and the male end termination varies dependent upon region, as listed below.

European cords must be Harmonized (HAR) type. Refer to the information below for power plug types by region:

<b>Power Cord Types</b>	<b>User Side Connectors</b>
North America	NEMA 5-15-P
United Kingdom / Ireland	BS 1363 UK
Europe	CEE 7/7
Japan	JIS 8303
Australia	AS 3112
India	BS 546
Italy	CIE 23-16
Switzerland / Liechtenstein	SEV 1011
Denmark / Greenland	SRAF 1962 / DB 16/87
Argentina	A-10



**IEC-60320-C15**

### Power Cord Specifications

---

# Console Port

The console port, located on the chassis front panel, provides a console connection to the switch and is required when logging into the switch for the first time. By default, this RJ-45 connector provides a DTE console connection.

## Serial Connection Default Settings

The factory default settings for the serial connection are as follows:

<b>baud rate</b>	9600
<b>parity</b>	none
<b>data bits (word size)</b>	8
<b>stop bits</b>	1
<b>flow control</b>	none

---

## Port Pinouts

### RJ-45 Console Port – Connector Pinout

Pin Number	Signals as DTE Console Port
1	NC
2	NC
3	RXD
4	Ground
5	Ground
6	TXD
7	NC
8	NC

### 10/100 Ethernet Port – RJ-45 Pinout (non-PoE)

Pin Number	Description
1	RX+
2	RX-
3	TX+
4	not used
5	not used
6	TX-
7	not used
8	not used

### Gigabit Ethernet Port – RJ-45 Pinout

Pin Number	Description
1	BI_DB+
2	BI_DB-
3	BI_DA+
4	BI_DD+
5	BI_DD-
6	BI_DA-
7	BI_DC+
8	BI_DC-

---

## 10/100/1000 Mbps Power over Ethernet Port – RJ-45 Pinout

Pin Number	Description
1	RX+ (-VDC)
2	RX- (-VDC)
3	TX+ (+VDC)
4	
5	
6	TX- (+VDC)
7	
8	

## Overtemp Condition

The OmniSwitch is designed to operate within a specified operating temperature as noted under the specifications section. However, in the event that the normal operating temperature of the switch is exceeded, the following will occur:

- Upon crossing the configured Upper Threshold, a trap will be sent. (See the *Network Configuration Guide* for information on configuring switch thresholds).

If the temperature continues to rise and reaches the Danger Threshold, the following will occur:

- OK LED will display solid Amber.
- The switch will automatically shutdown
- Once the temperature drops to an acceptable operating level, the switch will automatically restart.

### Check the following if an overtemp condition exists:

- Verify that the switch is installed properly in an environment that adheres to the installation instructions in the following chapters.
- Verify proper airflow to the chassis.
- Time of the failure

Use the [snmp station](#) command and refer to the SNMP Configuration chapter for information on configuring an SNMP station.



# 3 Mounting OmniSwitch 6450 Series Switches

This chapter covers different mounting and installation options.

---

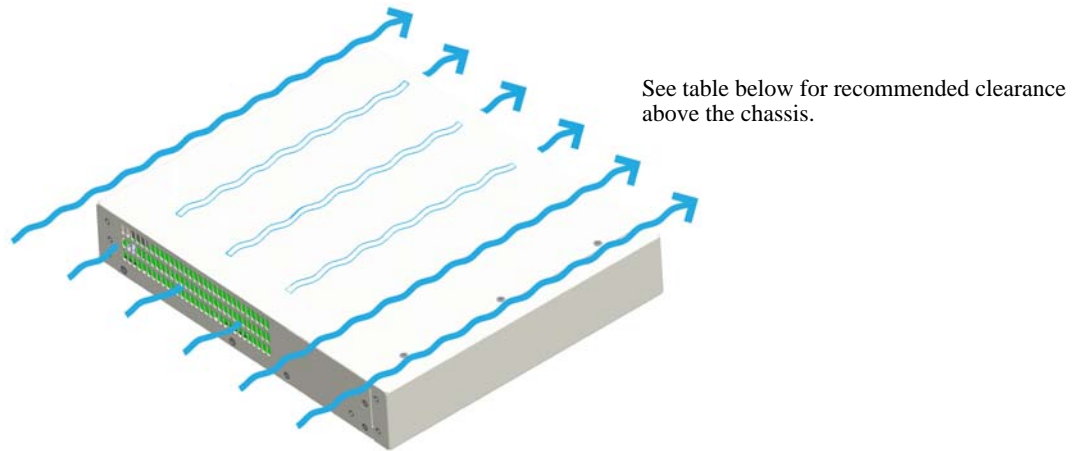
**Anti-Static Warning.** Before handling any components, free yourself of static by wearing a grounding strap, or by grounding yourself properly. Static discharge can damage the switch and the backup power supply.

---

# General Installation Recommendations

## Cooling Recommendations

OmniSwitch 6450 Series switches are convection-cooled. Although air flow is not mandatory for switch operation, *the best way to ensure proper cooling is to provide some ambient air flow over the switch whenever possible* (e.g., from room fans, etc.).



### Recommended Airflow Through Chassis - non-PoE Models

#### Reduced Air Flow

Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

#### Elevated Operating Ambient Temperatures

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature ( $T_{ma}$ ) specified by the manufacturer.



## Recommended Clearances

Always allow adequate clearance at the front, rear, top, and sides of the switch. The following table shows the recommended minimum clearances for adequate chassis cooling and access to cabling and components at the front and rear of the chassis.

---

Location	OS6450
Top	0.875 inches (1/2 RU)
Bottom	No minimum clearance required. However, be sure that the bottom of the chassis is not in direct contact with any equipment below.
Sides	2 inches
Rear	6 inches (see note below)
Front	6 inches (see note below)

---

**Note.** Clearance recommendations at the front and rear of chassis are for access to cabling and components only and are not intended as a specific airflow requirement.

---

## Mechanical Loading

Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

## Circuit Overloading

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuit might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

## Reliable Earthing

Reliable earthing of rack-mount equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

# Rack-Mounting OS6450 Switches

## General Rack-Mounting Guidelines

If you will be rack-mounting your switch(es), refer to the important guidelines below before installing.

- It is recommended that two people install the switch assembly on the rack—one person to hold the chassis and position it on the rack, and a second person to secure the chassis to the rack using attachment screws. (Please note that Alcatel-Lucent does not provide rack-mount screws. Use the screws supplied by the rack vendor.)
- To prevent a rack from becoming top heavy, it is recommended that you install heavier equipment at the bottom of the rack, whenever possible.
- Review [page 3-3](#) for recommended chassis clearances before installing.
- If you are installing the switch on a relay rack, be sure to install and secure the rack per the rack manufacturer's specifications.

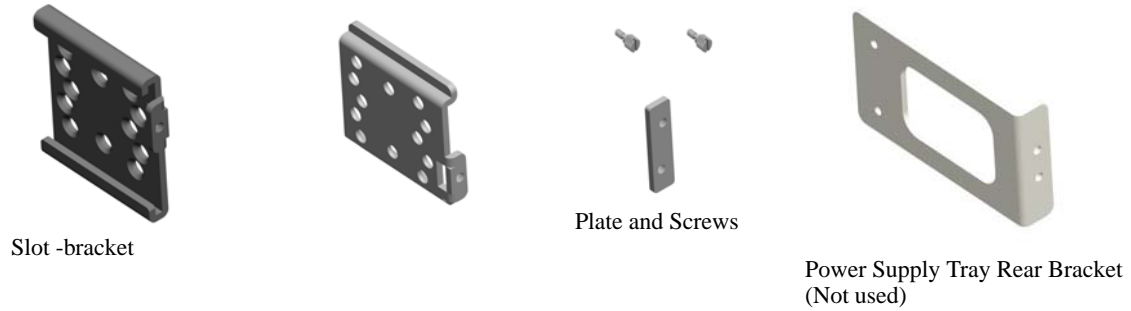
## Rack Mounting Kits

Depending on the model and mounting requirements, the switch can be rack-mounted in a variety of ways using the following kits.

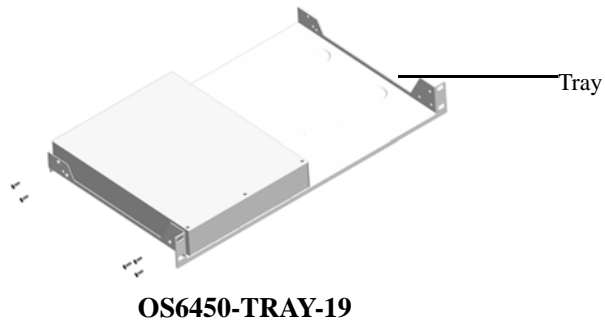
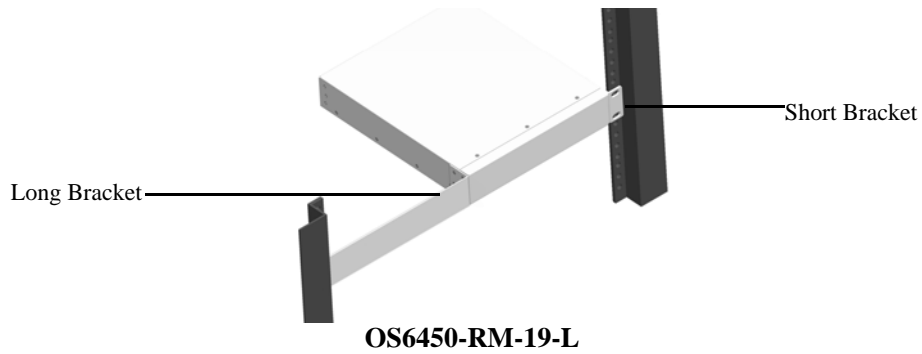
- OS6450-DUAL-MNT - Two slot-brackets, two slide-brackets, bracket-plate, and rack-mount brackets for mounting two half-chassis side-by-side.
- OS6450-RM-19-L - One short and one long bracket for rack-mounting a half-chassis.
- OS6450-Tray-19 - A tray for mounting one or two half-chassis.

## Rack Mounting Kit Components

The chassis ships with some screws attached which will need to be removed depending on the mounting option. The following diagram shows the various components for each kit.

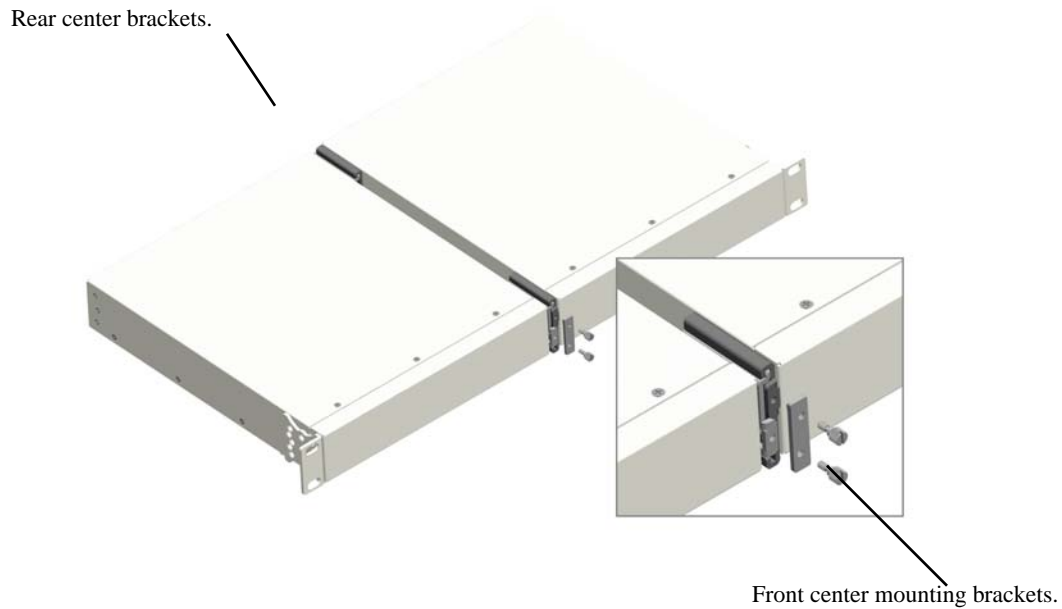


### OS6450-DUAL-MNT



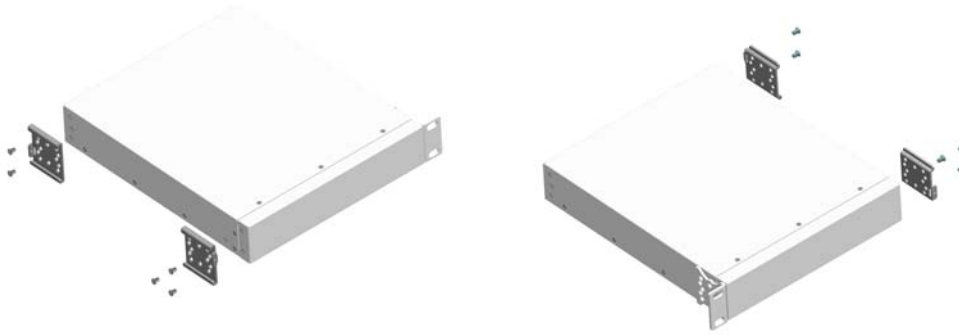
## OS6450-DUAL-MNT - Mounting Instructions

Two chassis can be assembled side-by-side for mounting into a standard 19-inch rack as show in the figure below .



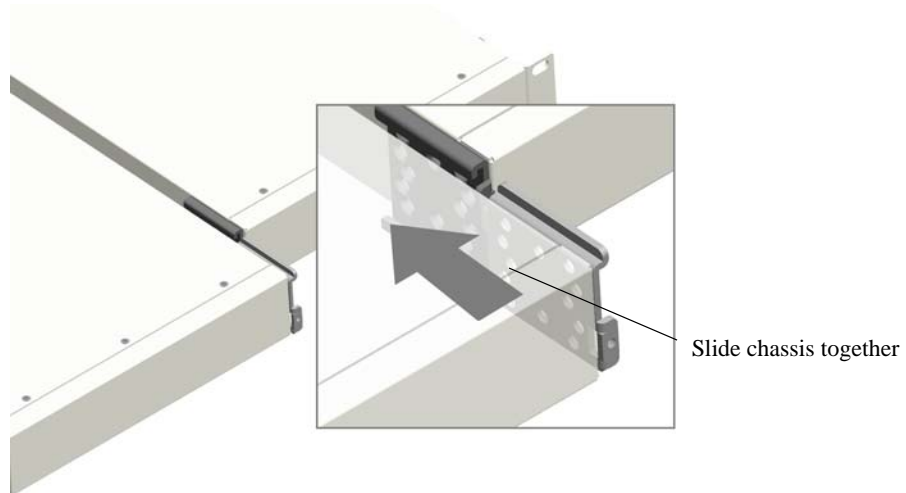
**Fully Assembled Side-by-Side Chassis Assembly**

- 1 Attach the slot-brackets and slide-brackets to the front and back of the chassis using the attachment screws (M3 flat head) provided for each bracket.



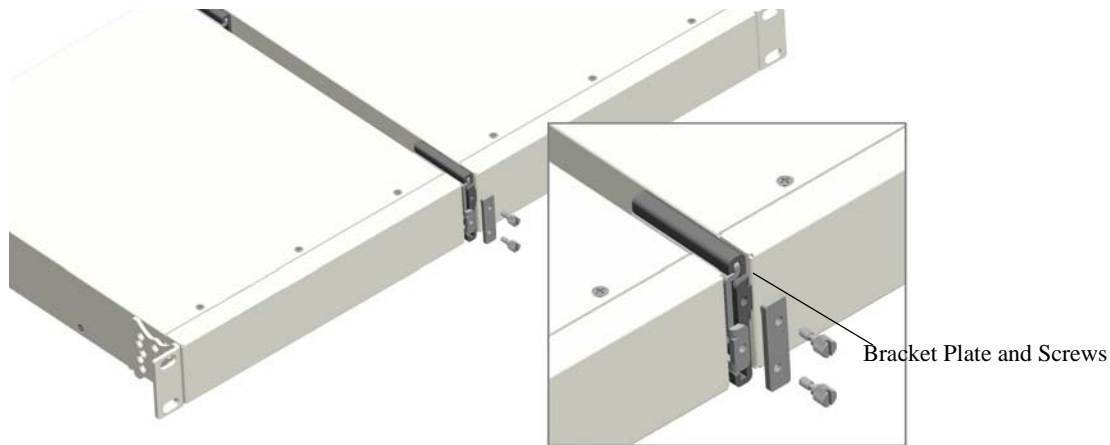
### Attach Slot/Slide-Brackets

- 2 Align the chassis and slide both front and rear center brackets together.



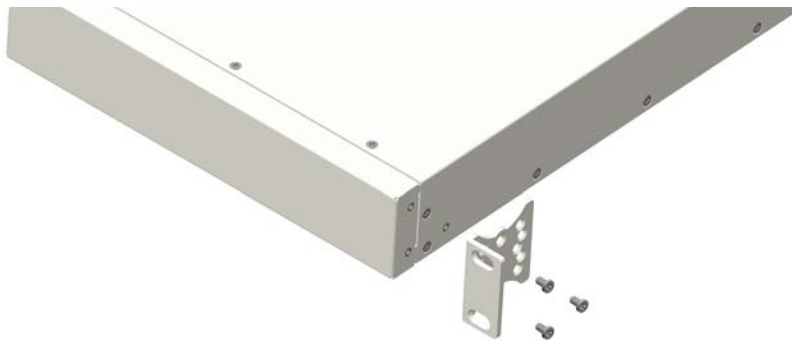
### Slide Chassis Together

- 3 Place bracket plate over front and rear brackets and secure with thumb screws.



#### Secure Front and Back with Bracket Plate

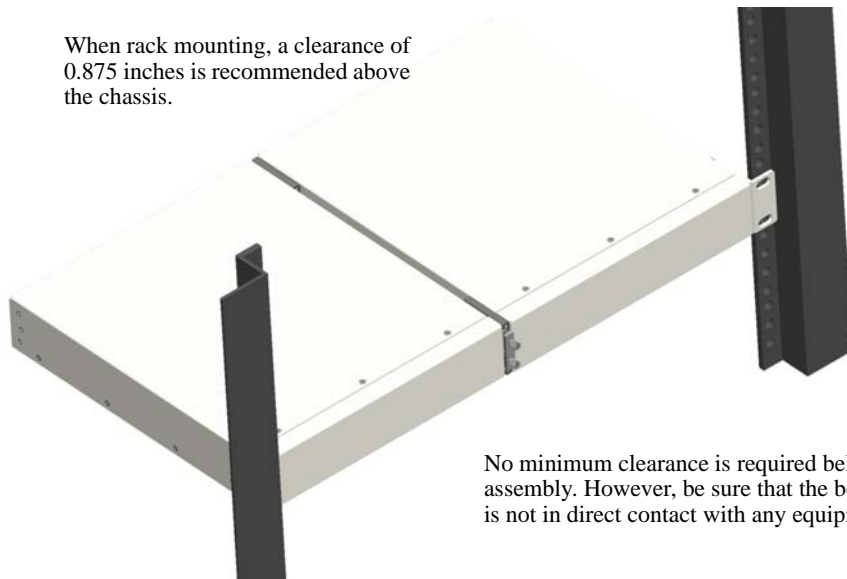
- 4 Attach rack mount brackets to both sides of the front of the chassis.



#### Attach Rack Mount Brackets

- 5 Using one additional person, lift and position the assembly on the rack until the rack-mount flanges are flush with the rack post.
- 6 Align the holes in the flanges with the rack holes and insert rack mount screws (not provided) through the *bottom hole of each flange* and then the top of each flange. Tighten both screws until they are secure.

When rack mounting, a clearance of 0.875 inches is recommended above the chassis.



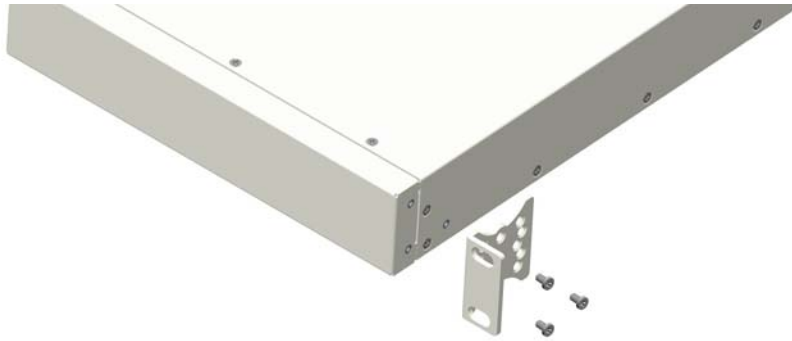
No minimum clearance is required below the chassis assembly. However, be sure that the bottom of the chassis is not in direct contact with any equipment below.

### **Rack-mounting Two Chassis**

## OS6450-RM-19L Kit - Mounting Instructions

A single chassis can be mounted into a standard 19-inch rack as shown in the figure below.

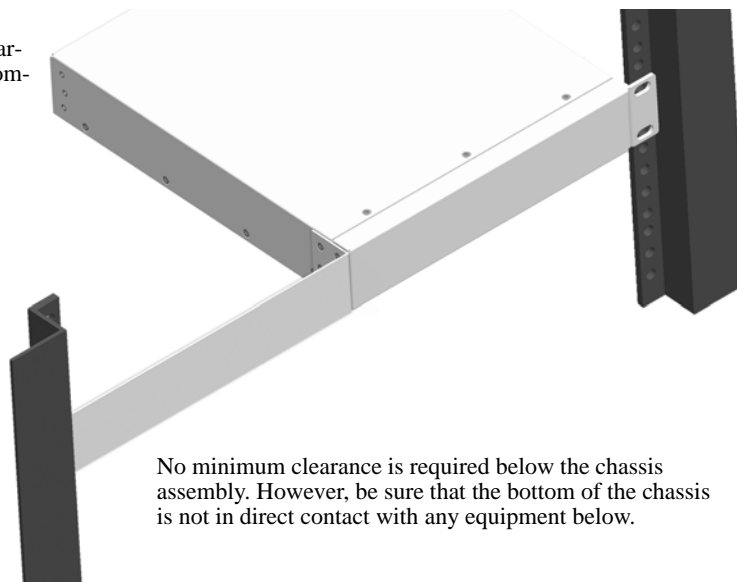
- 1 Attach rack mount brackets to both sides of the front of the chassis. The long and short bracket can be mounted on either side of the chassis.



### Attach Rack Mount Brackets

- 2 Align the holes in the flanges with the rack holes and insert rack mount screws (not provided) through the *bottom hole of each flange* and then the top of each flange. Tighten both screws until they are secure

When rack mounting, a clearance of 0.875 inches is recommended above the chassis.



No minimum clearance is required below the chassis assembly. However, be sure that the bottom of the chassis is not in direct contact with any equipment below.

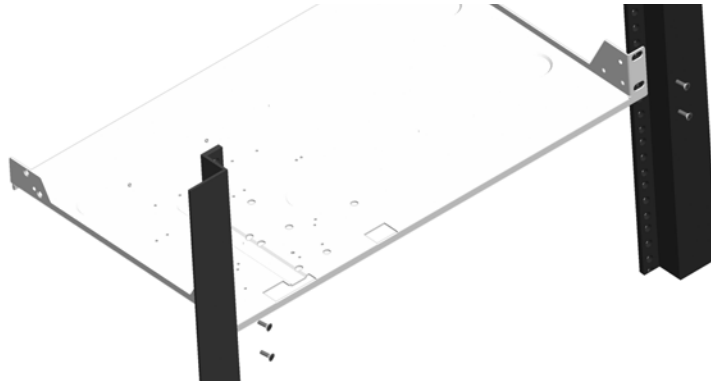
### Rack-mounting Single Chassis



## OS6450-TRAY-19 Kit - Mounting Instructions

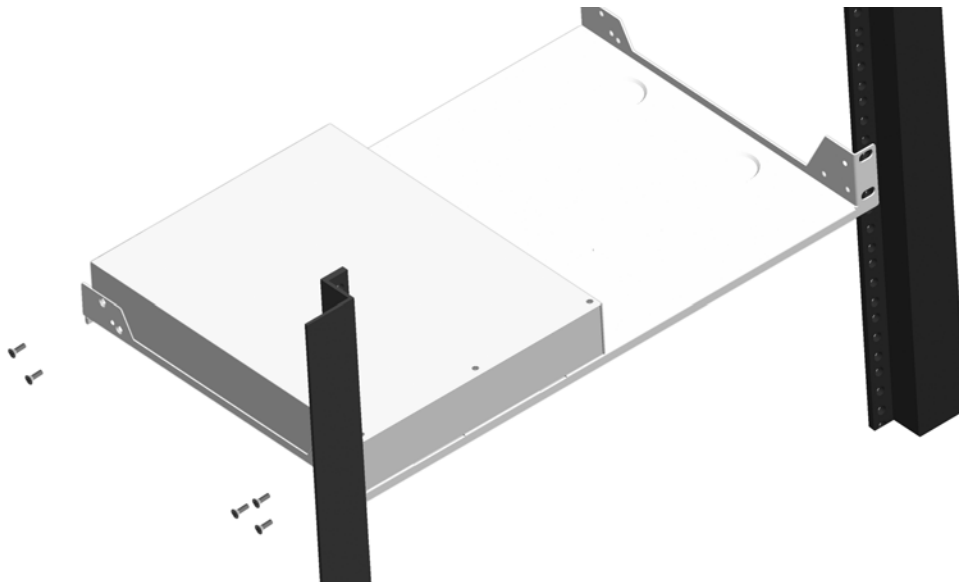
Either one or two chassis can be mounted into a standard 19-inch rack using the chassis mounting tray as shown below:

- 1 Align the holes in the integrated chassis mounting tray flanges with the rack holes and insert rack mount screws (not provided) through the *bottom hole of each flange* and then the top of each flange. Tighten both screws until they are secure.



**Attach Chassis Mounting Tray to Rack**

- 2 Place a chassis on the tray aligning the holes on front and back sides of the chassis with the holes in the chassis mounting tray. Insert and tighten all screws until they are secure.



**Secure Chassis to Tray**

---

**Note.** If you are installing two chassis side-by-side in the tray, be sure to install any required center brackets between the two chassis. Refer to your switch's *Hardware User Guide* for additional information.

---

# Table-Mounting OS6450 Switches

## General Table-Mounting Guidelines

OmniSwitch 6450 Series switches can be installed freestanding as tabletop-mounted units. If you will be table-mounting your switch(es), refer to the important guidelines below before installing.

- When choosing a location for the switch, be sure that adequate clearance has been provided for chassis airflow and access to the front, back, and sides of the chassis. For recommended clearances, refer to [“Recommended Clearances” on page 3-3](#).
- The power cord measures two (2) meters (approximately 6.5 feet) in length. When table mounting the switch, be sure that the mounting location is within the reach of all the required power sources.

## Table-Mounting Installation

- 1 Locate the four indentations on the bottom of the chassis.
- 2 Using the adhesive on the rubber feet attach them to the indentations, pressing firmly to ensure they are properly adhered.
- 3 Place the chassis on the table as desired.

# Connecting Chassis to Power Source

## AC Power Supply Connections

Since the power cord is the switch's only disconnect device, it should be plugged into an easily accessible outlet. In the event that your power cord is lost or damaged, refer to the specifications below.

### Powering On a Chassis

Follow the steps below to power on the chassis using an AC power source:

- 1** Connect the IEC-60320-C15 end of the supplied power cord to the chassis.
- 2** Connect power supply to AC power source.
- 3** Monitor the chassis as it boots.



# 4 Booting OmniSwitch 6450 Series Switches

For information on booting stand-alone switches and switches in stacked configurations, refer to the sections below.

## Booting an OmniSwitch

The switch does not use an on/off switch. The power cord is the switch's only connect/disconnect device. The power connector socket is located on the power supply rear panel. For more information, refer to [“OmniSwitch 6450 Series Chassis and Hardware Components” on page 2-1](#).

To boot the switch, plug the power cord into an easily-accessible power source, such as a grounded AC outlet or an Uninterruptible Power Supply (UPS).

The switch immediately begins the boot process. Allow a few moments for the switch to boot completely, then verify the status of all LEDs on the switch's front panel. A successful boot displays the following LED states:

---

### LED States for a Stand-Alone Switch

---

OK	Solid green or blinking amber
PRI	Solid green
STK	Off
PWR	Solid Green

---

---

### LED States for a Stacked Switch

---

OK	Solid green or blinking amber
PRI	Solid green (primary); Amber (Secondary); Off (Idle)
STK	Green
PWR	Solid Green

---

If any of the LED state differs from the states shown in the table above, refer to [page 2-8](#) for more information. Contact Alcatel-Lucent Customer Support if the LED state persists.

For information on logging in and configuring your switch, refer to the *Getting Started Guide*.

# Console Port

The console port, located on the chassis front panel, provides a console connection to the switch and is required when logging into the switch for the first time. By default, this RJ-45 connector provides a DTE console connection.

## Serial Connection Default Settings

The factory default settings for the serial connection are as follows:

<b>baud rate</b>	9600
<b>parity</b>	none
<b>data bits (word size)</b>	8
<b>stop bits</b>	1
<b>flow control</b>	none

## Modifying the Serial Connection Settings

The switch's serial connection defaults are listed above. If you wish to modify the default serial connection settings (i.e., baud rate, parity, data bits, and stop bits), refer to the following steps:

---

**Note.** You must be connected to the switch via the console port before attempting to change serial connection settings. Otherwise, an error message will display.

For switches in a stacked configuration, all changes must be configured before the switches are cabled together. In other words, you must configure these settings when each switch is operating as a stand-alone unit.

---

**1** Enter the **modify boot parameters** command at the CLI prompt. The boot prompt displays:

```
Boot >
```

**2** To change the baud rate, enter **boot serialbaudrate**, followed by the desired baud rate value. Options include 1200, 2400, 4800, 9600 (default), 19200, 38400, 57600, 76800, and 115200. For example:

```
Boot > boot serialbaudrate 19200
```

---

**Note.** Setting the console port to speeds above 9600 baud can cause problems with Zmodem uploads.

**3** To change the parity value, enter **boot serialparity**, followed by the desired parity value. Options include none (default), even, and odd. For example:

```
Boot > boot serialparity even
```

**4** To change the data bits (i.e., word size) value, enter **boot serialwordsize**, followed by the number of data bits. Options include 7 and 8 (default). For example:

```
Boot > boot serialwordsize 7
```

- 5** To change the stop bits value, enter **boot serialstopbits**, followed by the number of stop bits. Options include 1 (default) and 2. For example:

```
Boot > boot serialstopbits 2
```

- 6** Verify your current changes by entering **show** at the boot prompt:

```
Boot > show
Edit buffer contents:
Serial (console) baud      : 19200
Serial (console) parity    : even
Serial (console) stopbits  : 2
Serial (console) wordsize  : 7
```

*(additional table output not shown)*

- 7** You can save your changes to the **boot.params** file by entering **commit file** at the boot prompt:

```
Boot > commit file
```

When the **commit file** command is used, changes will not be enabled until after the next switch reboot.

- 8** You can also save your changes in real time to the switch's running memory by entering **commit system** at the boot prompt:

```
Boot > commit system
```

---

**Caution.** There are two important things to consider when using the **commit system** command to save serial connection changes:

- Output to the terminal may become illegible due to incompatible serial connection settings between the switch and the terminal emulation software.
- If you use the **commit system** command only, changes will *not* be saved to the switch's **boot.params** file and will be lost if the switch is rebooted. To save changes to the **boot.params** file, refer to step 7.

- 
- 9** Return to the CLI prompt by entering **exit** at the boot prompt.

# Monitoring the Chassis

The OmniSwitch can be monitored and managed via the console port using Command Line Interface (CLI) commands. The switches can also be monitored and managed via the Ethernet using CLI commands, WebView, SNMP, and OmniVista.

The section below provides some examples of useful hardware-related monitoring CLI commands. Refer to the *OmniSwitch CLI Reference Guide* for detailed information on all management and monitoring commands used with the OmniSwitch.

## Checking the Overall Chassis Status

To check the overall status of a chassis, including the chassis type, and current administrative and operational status, use the **show chassis** command. For example:

```
-> show chassis
```

```
Chassis 1
  Model Name:           OS6450-10,
  Description:         12 RJ45 + 2 SFP,
  Part Number:         902632-90,
  Hardware Revision:   B07,
  Serial Number:       H47Q0027,
  Manufacture Date:    JAN 03 2008,
  Admin Status:        POWER ON,
  Operational Status:  UP,
  Number Of Resets:    23
  MAC Address:         00:e0:b1:6b:ef:30,
```

For a complete list of output definitions for this command, refer to the *OmniSwitch CLI Reference Guide*.

## Checking the Temperature Status

To check chassis temperature status, including the current temperature and configured threshold values, use the **show temperature** command. For example:

```
-> show temperature
Temperature for chassis 1
  Hardware Board Temperature (deg C)           = 50,
  Temperature Upper Threshold Range (deg C)    = 0 to 83,
  Temperature Upper Threshold (deg C)         = 76,
  Temperature Status                           = UNDER THRESHOLD,
  Temperature Danger Threshold (deg C)        = 83
```

For a complete list of output definitions for this command, refer to the *OmniSwitch CLI Reference Guide*.



## Viewing the Power Supply Status

To check the status of the power supply, use the **show power** command. For example:

```
-> show power
```

```
Slot  PS   Wattage  Type   Status  Location
-----+-----+-----+-----+-----+-----
  1    1     30      AC     UP      Internal
```

## Additional Monitoring Commands

---

### CLI Commands Used for Monitoring a Chassis

---

<b>show cmm</b>	Displays the basic hardware and status information for primary and secondary management modules (if applicable).
<b>show ni</b>	Displays the basic hardware and status information for individual modules. If the switch is a standalone, information for the stand alone switch displays.
<b>show module</b>	Displays the basic information for individual modules. If the switch is a standalone, information for the stand-alone switch displays.
<b>show module long</b>	Displays the detailed information for individual modules. If the switch is a standalone, information for the standalone switch displays.
<b>show module status</b>	Displays the basic status information for individual modules. If the switch is a standalone, information for the standalone switch displays.

---

## Using LEDs to Visually Monitor the Chassis

The front and rear panel of provides status LEDs that are useful in visually monitoring the status of the switches. LEDs include:

- Ethernet Port LEDs
- System Status LEDs
- Combo Port Status LEDs

For tables showing LED states operating normally, refer to [“OmniSwitch 6450 Series - LED Status”](#) on page 2-11.

## Installing Transceivers

For information on installing transceivers refer to the *OmniSwitch Transceivers Guide*.



# A Regulatory Compliance and Safety Information

This appendix provides information on regulatory agency compliance and safety for the OmniSwitch 6450 Series switches.

## Declaration of Conformity: CE Mark

This equipment is in compliance with the essential requirements and other provisions of Directive 73/23/EEC and 89/336/EEC as amended by Directive 93/68/EEC.

**Français:** Ce matériel est conformément aux conditions essentielles et à d'autres dispositions de 73/23/EEC et de 89/336/EEC directives comme modifié par Directive 93/68/EEC.

**Deutsch:** Konformitätserklärung: CE Kennzeichnung  
Diese Anlage ist gemäß den wesentlichen Anforderungen und anderen Bestimmungen richtungweisenden 73/23/EEC und des 89/336/EEC, wie von Directive 93/68/EEC geändert.

**Español:** Este directivo equipo está en conformidad con los requisitos esenciales y otras provisiones 73/23/EEC y 89/336/EEC según la enmienda prevista por Directive 93/68/EEC.

# China RoHS: Hazardous Substance Table

## 产品说明书附件

### SUPPLEMENT TO PRODUCT INSTRUCTIONS

**这个文件涉及的是在中华人民共和国境内进口或销售的电子信息产品**  
**Include this document with all Electronic Information Products imported**  
**or sold in the People's Republic of China**

部件名称 (Parts)	有毒有害物质或元素 (Hazardous Substance)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr <sup>6+</sup> )	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
电路模块 (Circuit Modules)	×	○	○	○	○	○
电缆及电缆组件 (Cables & Cable Assemblies)	×	○	○	○	○	○
金属部件 (Metal Parts)	×	○	○	○	○	○
塑料和聚合物部件 (Plastic and Polymeric parts)	○	○	○	○	○	○
对于交付时集成了电池的电子信息产品 For electronic information products delivered with integrated functional batteries:						
电池 (Batteries)	○	○	○	○	○	○
<p>○ : 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/ T11363-2006 标准规定的限量要求以下。 Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T11363-2006 standard.</p> <p>× : 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/ T11363-2006标准规定的限量要求。 Indicates that the concentration of the hazardous substance of at least one of all homogeneous materials in the parts is above the relevant threshold of the SJ/T11363-2006 standard.</p> <p>对销售之日的所售产品, 本表显示, 阿尔卡特朗讯公司供应链的电子信息产品可能包含这些物质。注意: 在所售产品中可能会也可能不会含有所有所列的部件。 <b>This table shows where these substances may be found in the supply chain of Alcatel-Lucent electronic information products, as of the date of sale of the enclosed product. Note that some of the component types listed above may or may not be a part of the enclosed product.</b></p>						

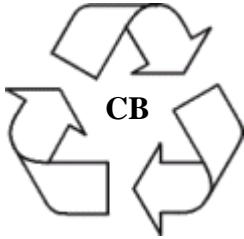
除非另外特别的标注, 此标志为针对所涉及产品的环保使用期标志。某些零部件会有一个不同的环保使用期(例如, 电池单元模块)贴在其产品上。

此环保使用期限只适用于产品是在产品手册中所规定的条件下工作。

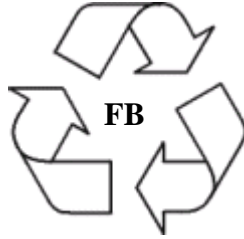
The Environment-Friendly Use Period (EFUP) for all enclosed products and their parts are per the symbol shown here, unless otherwise marked. Certain parts may have a different EFUP (for example, battery modules) and so are marked to reflect such. The Environment-Friendly Use Period is valid only when the product is operated under the conditions defined in the product manual.



Products are packaged using one or more of the following packaging materials:



**Corrugated Cardboard**



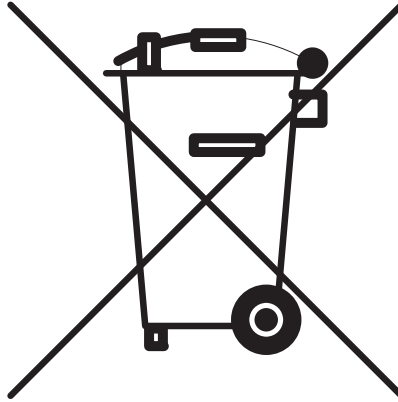
**Corrugated Fiberboard**



**Low-Density Polyethylene**

## Waste Electrical and Electronic Equipment (WEEE) Statement

The product at end of life is subject to separate collection and treatment in the EU Member States, Norway and Switzerland and therefore marked with the symbol:



Treatment applied at end of life of the product in these countries shall comply with the applicable national laws implementing directive 2002/96EC on waste electrical and electronic equipment (WEEE).

# Standards Compliance

## Safety Agency Certifications

- US UL 60950
- IEC 60950-1:2001; all national deviations
- EN 60950-1: 2001; all deviations
- CAN/CSA-C22.2 No. 60950-1-03
- NOM-019 SCFI, Mexico
- AS/NZ TS-001 and 60950:2000, Australia
- UL-AR, Argentina
- UL-GS Mark, Germany
- EN 60825-1 Laser, EN60825-2 Laser
- CDRH Laser
- GOST Russia

## EMI/EMC Standards

- FCC Part 15 (CFR 47) Class A. (Note: Class A with UTP cables.)
- EN 55022: 1995 (Emission Standard)
- AS/NZS 3548 Class A. (Note: Class A with UTP cables.)
- VCCI Class A. Note Class A with UTP cables.
- EN 55024: 1998 (Immunity Standards)
- EN 61000-3-2: 2000
- EN 61000-3-3: 1995
- EN 61000-4-2: 1995+A1: 1998
- EN 61000-4-3: 1996+A1: 1998
- EN 61000-4-4: 1995
- EN 61000-4-5: 1995
- EN 61000-4-6: 1996
- EN 61000-4-8: 1994
- EN 61000-4-11: 1994
- IEEE 802.3: Hi-Pot Test (2250 VDC on all Ethernet ports)

## FCC Class A, Part 15

This equipment has been tested and found to comply with the limits for Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions in this guide, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense.

The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment. It is suggested that the user use only shielded and grounded cables to ensure compliance with FCC Rules.

If this equipment does cause interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

## Canada Class A Statement

This equipment does not exceed Class A limits per radio noise emissions for digital apparatus, set out in the Radio Interference Regulation of the Canadian Department of Communications.

### **Avis de conformité aux normes du ministère des Communications du Canada**

Cet équipement ne dépasse pas les limites de Classe A d'émission de bruits radioélectriques pour les appareils numériques, telles que prescrites par le Règlement sur le brouillage radioélectrique établi par le ministère des Communications du Canada.

## JATE

This equipment meets the requirements of the Japan Approvals Institute of Telecommunications Equipment (JATE).

## CISPR22 Class A warning

This is a Class A product. In a domestic environment, this product may cause radio interference. Under such circumstances, the user may be requested to take appropriate countermeasures.



## VCCI

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

## Class A Warning for Taiwan and Other Chinese Markets

This is a Class A Information Product. When used in a residential environment, it may cause radio frequency interference. Under such circumstances, the user may be requested to take appropriate counter-measure.

**警告使用者：**

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

# Translated Safety Warnings

## Chassis Lifting Warning

Two people are required when lifting the chassis. Due to its weight, lifting the chassis unassisted can cause personal injury. Also be sure to bend your knees and keep your back straight when assisting with the lifting of the chassis.

**Français:** Le châssis doit être soulevé par deux personnes au minimum. Pour éviter tout risque d'accident, maintenez le dos droit et poussez sur vos jambes. Ne soulevez pas l'unité avec votre dos.

**Deutsch: Sicherheitshinweise**

Hinweise zur Anhebung des Chassis

Zum Anheben des Chassis werden zwei Personen benötigt. Aufgrund des Gewichts kann das Anheben ohne Unterstützung zu Personenschäden führen. Heben Sie das Chassis aus den Knien und halten Sie den Rücken gerade wenn Sie beim Anheben des Chassis assistieren.

**Español:** Se requieren dos personas para elevar el chasis. Para evitar lesiones, mantenga su espalda en posición recta y levante con sus piernas, no con su espalda.

## Electrical Storm Warning

To avoid a shock hazard, do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.

**Français:** Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.

**Deutsch:** Hinweise bei Unwetter

Um elektrische Schläge zu vermeiden dürfen während eines Gewitters and diesem Gerät keine Kabel angeschlossen oder gelöst werden, sowie keinerlei Installationen, Wartungen oder Konfigurationen vorgenommen werden.

**Español:** Para evitar peligro de descargas, no conecte o desconecte ningún cable, ni realice ninguna instalación, mantenimiento o reconfiguración de este producto durante una tormenta eléctrica.

## Installation Warning

Only personnel knowledgeable in basic electrical and mechanical procedures should install or maintain this equipment.

**Français:** Toute installation ou remplacement de l'appareil doit être réalisée par du personnel qualifié et compétent.

**Deutsch:** Installationshinweise

Dieses Gerät soll nur von Personal installiert oder gewartet werden, welches in elektrischen und mechanischen Grundlagen ausgebildet ist.

**Español:** Estos equipos deben ser instalados y atendidos exclusivamente por personal adecuadamente formado y capacitado en técnicas eléctricas y mecánicas.

## Invisible Laser Radiation Warning

Lasers emit invisible radiation from the aperture opening when no fiber-optic cable is connected. When removing cables do not stare into the open apertures. In addition, install protective aperture covers to fiber with no cable connected.

**Français:** Des radiations invisibles à l'œil nu pouvant traverser l'ouverture du port lorsque aucun câble en fibre optique n'y est connecté, il est recommandé de ne pas regarder fixement l'intérieur de ces ouvertures. Installez les caches connecteurs prévus à cet effet.

**Deutsch:** Hinweise zur unsichtbaren Laserstrahlung

Die Laser strahlen an der Blendenöffnung unsichtbares Licht ab, wenn keine Glasfaserkabel angeschlossen sind. Blicken Sie nicht in die Öffnungen und installieren Sie unverzüglich die Abdeckungen über den Glasfaseranschlüssen.

**Español:** Debido a que la apertura del puerto puede emitir radiación invisible cuando no hay un cable de fibra conectado, procurar no mirar directamente a las aperturas para no exponerse a la radiación.

## Power Disconnection Warning

Your switch is equipped with multiple power supplies. To reduce the risk of electrical shock, be sure to disconnect all power connections before servicing or moving the unit.

**Français:** Il se peut que cette unité soit équipée de plusieurs raccordements d'alimentation. Pour supprimer tout courant électrique de l'unité, tous les cordons d'alimentation doivent être débranchés.

**Deutsch:** Hinweise zur Spannungsfreischaltung

Ihr Gerät ist mit mehreren Netzteilen ausgerüstet. Um die Gefahr des elektrischen Schlages zu verringern, stellen sie sicher, daß alle Netzverbindungen getrennt sind bevor das Gerät gewartet oder bewegt wird.

**Español:** Antes de empezar a trabajar con un sistema, asegúrese que el interruptor está cerrado y el cable eléctrico desconectado.

## Proper Earthing Requirement Warning

To avoid shock hazard:

- The power cord must be connected to a properly wired and earth receptacle.
- Any equipment to which this product will attached must also be connected to properly wired receptacles.
- Use 22AWG solid copper conductor for ground leads connecting the frame to ground and DC return.

- Cleaning and dressing of grounding points during installation is strongly recommended. Also, do not forget the antioxidant.
- To ground the equipment properly, connect a Panduit Corporation UL listed Lug, P/N: LCD8-10A-L to the two threaded holes located on the rear using 8AWG copper conductors. Use Panduit Corporation, P/N: CT-940CH for crimping.

**Français:**

Pour éviter tout risque de choc électrique:

- Ne jamais rendre inopérant le conducteur de masse ni utiliser l'équipement sans un conducteur de masse adéquatement installé.
- En cas de doute sur la mise à la masse appropriée disponible, s'adresser à l'organisme responsable de la sécurité électrique ou à un électricien.

**Deutsch:** Hinweise zur geforderten Erdung des Gerätes

Aus Sicherheitsgründen:

- darf das Netzkabel nur an eine Schutzkontaktsteckdose angeschlossen werden.
- dürfen für den Anschluß anderer Geräte, welche mit diesem Gerät verbunden sind, auch nur Schutzkontaktsteckdosen verwendet werden.

**Español:**

Para evitar peligro de descargas:

- Para evitar peligro de descargas asegúrese de que el cable de alimentación está conectado a una toma de alimentación adecuadamente cableada y con toma de tierra.
- Cualquier otro equipo a cual se conecte este producto también debe estar conectado a tomas de alimentación adecuadamente cableadas.

## Read Important Safety Information Warning

This guide contains important safety information about which you should be aware when working with hardware components in this system. You should read this guide before installing, using, or servicing this equipment.

**Français:** Avant de brancher le système sur la source d'alimentation, consultez les directives d'installation disponibles dans ceci guide.

**Deutsch:** Bitte lesen - Sicherheitshinweise

Dieses guide enthält wichtige Sicherheitsinformationen, über die sie sich beim Arbeiten mit den Hardwareeinheiten bewußt sein sollten. Sie sollten diese Hinweise lesen, bevor sie installieren, reparieren oder die Anlage verwenden.

**Español:** Este guide contiene información importante de seguridad sobre la cual usted debe estar enterado al trabajar con los componentes de dotación física en este sistema. Usted debe leer esta guía antes de instalar, usar o mantener este equipo.

## Restricted Access Location Warning

This equipment should be installed in a location that restricts access. A restricted access location is one where access is secure and limited to service personnel who have a special key, or other means of security.

**Français:** Le matériel doit être installé dans un local avec accès limité ou seules les personnes habilitées peuvent entrer.

**Deutsch:** Hinweis zu Umgebungen mit beschränktem Zutritt

Die Anlage sollte an einem Standort mit beschränktem Zutritt installiert sein. Ein Standort mit beschränktem Zutritt stellt sicher, daß dort nur Servicepersonal mit Hilfe eines Schlüssels oder eines anderen Sicherheitssystems Zugang hat.

**Español:** Este equipo se debe instalar en un sitio con acceso restringido. Un sitio con el acceso restringido es uno seguro y con acceso limitado al personal de servicio que tiene una clave especial u otros medios de seguridad.

## Wrist Strap Warning

Because electrostatic discharge (ESD) can damage switch components, you must ground yourself properly before continuing with the hardware installation. For this purpose, Alcatel-Lucent provides a grounding wrist strap and a grounding lug located near the top-right of the chassis. For the grounding wrist strap to be effective in eliminating ESD, the power supplies must be installed in the chassis and plugged into grounded AC outlets.

**Français:** L'électricité statique (ESD) peut endommager les composants du commutateur. Pour cette raison Alcatel-Lucent joint à l'envoi du châssis un bracelet antistatique à brancher sur la prise mise à la terre située en bas à droite du commutateur. Vous devrez mettre ce bracelet avant toute intervention hardware.

**Deutsch:** Hinweise zur ESD (Elektrostatischen Aufladung)

Weil elektrostatische Aufladung (ESD) Teile der Anlage beschädigen könnten, müssen sie sich selbst erden, bevor sie mit der Hardware Installation beginnen. Zu diesem Zweck stellt Alcatel-Lucent ein Erdungsarmband und eine Erdungsöse an der oberen rechten Seite des Chassis zur Verfügung. Um eine sichere Erdungsfunktion des Erdungsarmbandes sicherzustellen, müssen die Netzteile installiert und mit dem Schutzleiter des Versorgungsstromkreises verbunden sein.

**Español:** La descarga electrostática (ESD) puede dañar componentes electrónicos. Usted debe asegurarse que está en contacto con tierra antes de hacer la instalación del equipo. Con este fin, Alcatel-Lucent proporciona una pulsera de muñeca para conectar al chasis en la toma de tierra situada en la parte superior derecha del chasis. Para que la correa de muñeca sea eficaz en la eliminación de ESD, las fuentes de alimentación deben estar instaladas en el chasis y conectadas a enchufes CA con tierra adecuada.

# Instrucciones de seguridad en español

## Advertencia sobre el levantamiento del chasis

Se requieren dos personas para levantar el chasis. Debido a su peso, la elevación del chasis sin ayuda puede causar daños corporales. También es seguro doblar sus rodillas y guardar su espalda derecho al ayudar a levantar el chasis.

## Advertencia de las tapaderas en blanco

Porque regulan la circulación de aire y ayudan a proteger componentes internos del chasis, las tapaderas en blanco deben seguir instaladas en las ranuras vacías del módulo y la fuente de alimentación siempre.

## Advertencia en caso de tormenta eléctrica

Para evitar peligro de descargas, no conecte o desconecte ningún cable, ni realice ninguna instalación, mantenimiento o reconfiguración de este producto durante una tormenta eléctrica.

## Advertencia de instalación

Solamente el personal bien informado en procedimientos eléctricos y mecánicos básicos debe instalar o mantener este equipo.

## Advertencia de radiación láser invisible

Los lasers emiten radiación invisible de la apertura abierta cuando no se conecta ningún cable de fibra óptica. Al quitar los cables no mire fijamente en las aberturas abiertas. Además, instale las cubiertas protectoras de la apertura a las salidas de la fibra sin el cable conectado.

## Advertencia de la batería de litio

Hay un peligro de la explosión si la batería del litio en su chasis se substituye incorrectamente. Substituya la batería solamente por el mismo o el equivalente de tipo de batería recomendado por el fabricante. Deseche las baterías usadas según las instrucciones del fabricante. Las instrucciones del fabricante son como sigue: Devuelva el módulo con la batería del litio a Alcatel-Lucent. La batería del litio será substituida en la fábrica de Alcatel-Lucent.

## Advertencia sobre la tensión de operación

Para reducir el riesgo del choque eléctrico, mantenga sus manos y dedos fuera de la fuente de alimentación y no toque la placa madre mientras que el interruptor está funcionando.

## Advertencia sobre la desconexión de la fuente

Su interruptor esta equipado por fuentes de alimentación múltiples. Para reducir el riesgo de choque eléctrico, asegúrese desconectar todas las conexiones de alimentación antes de mantener o de mover la unidad.

## **Advertencia sobre una apropiada conexión a tierra**

Para evitar peligro de descargas:

- El cable de alimentación debe estar conectado a una toma de alimentación adecuadamente cableada y con toma de tierra.

Cualquier equipo al cual se conecte este producto debe estar también conectado a tomas de alimentación adecuadamente cableadas.

## **Leer “información importante de seguridad”**

La *Guía de “Comenzando a Usar”* que acompaña este equipo contiene información importante de seguridad sobre la cual usted debe saber al trabajar con los componentes de dotación física en este sistema. Usted debe leer esta guía antes de instalar, de usar, o de mantener este equipo.

## **Advertencia de acceso restringido**

Este equipo se debe instalar en una ubicación que restrinja el acceso. Una ubicación con acceso restringido es una donde está seguro y limitado el acceso al personal de servicio que tiene un clave especial, u otros medios de la seguridad.

## **Advertencia de pulsera antiestática**

Debido a que la descarga electrostática (ESD) puede dañar componentes del interruptor, usted debe conectarse a tierra correctamente antes de continuar con la instalación del equipo. Para este propósito, Alcatel-Lucent proporciona una pulsera antiestática y un terminal que pone a tierra situados cerca de la parte superior derecha del chasis. Para que la pulsera antiestática sea eficaz en la eliminación de ESD, las fuentes de alimentación se deben instalar en el chasis y enchufar en las salidas de CA con descarga a tierra.

## **Clase de seguridad**

Cumple con 21CFR 1040.10 y 1040.11 ó sus equivalentes.