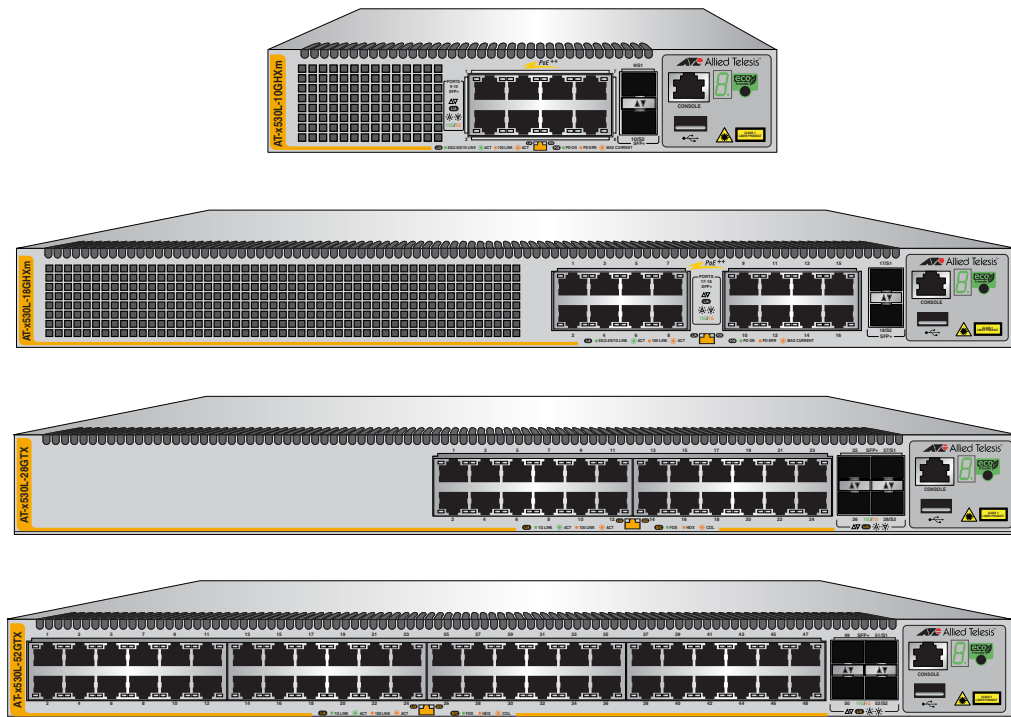Allied Telesis

x530L Series

Stackable Gigabit Layer 3+ Ethernet Switches
AlliedWare Plus™ v5.5.0-2

x530L-10GHXm
x530L-18GHXm
x530L-28GPX
x530L-28GTX
x530L-52GPX
x530L-52GTX

Installation Guide for Standalone Switches

Electrical Safety and Emissions Standards

This product meets the following standards.

U.S. Federal Communications Commission
Radiated Energy
Note: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of 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 this instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Note: Modifications or changes not expressly approved of by the manufacturer or the FCC, can void your right to operate this equipment.

Industry Canada
This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

RFI Emissions: FCC Class A, EN55032 Class A, EN61000-3-2, EN61000-3-3, VCCI Class A, CE

Warning: In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

EMC (Immunity): EN55024

Electrical Safety: EN62368-1 (TUV), UL 62368-1 ($_C$UL$_{US}$)

Laser Safety   EN60825

Translated Safety Statements

Important: Safety statements that have the ᘓ symbol are translated into multiple languages in the *Translated Safety Statements* document at **www.alliedtelesis.com/en/documents/translated-safety-statements**.

Remarque: Les consignes de sécurité portant le symbole ᘓ sont traduites dans plusieurs langues dans le document *Translated Safety Statements,* disponible à l'adresse **www.alliedtelesis.com/en/documents/translated-safety-statements**.

Contents

Figures

Tables

Tables

Preface

This guide contains the installation instructions for the x530L Series of stackable Gigabit, Layer 3+ Ethernet switches. This preface contains the following sections:

❑ "Document Conventions" on page 12
❑ "Contacting Allied Telesis" on page 13

> **Note**
> This guide explains how to install the switches as stand-alone units. For instructions on how to build a stack with Virtual Chassis Stacking (VCStack^{TM}), refer to the *x530L Series Installation Guide for Virtual Chassis Stacking*.

Document Conventions

This document uses the following conventions:

Note
Notes provide additional information.

Caution
Cautions inform you that performing or omitting a specific action may result in equipment damage or loss of data.

Warning
Warnings inform you that performing or omitting a specific action may result in bodily injury.

Contacting Allied Telesis

If you need assistance with this product, you may contact Allied Telesis technical support by going to the Services & Support section of the Allied Telesis web site at **www.alliedtelesis.com/support**. You can find links for the following services on this page:

❑ Helpdesk (Support Portal) - Log onto Allied Telesis interactive support center to search for answers to your questions in our knowledge database, check support tickets, learn about Return Merchandise Authorizations (RMAs), and contact Allied Telesis technical experts.

❑ Software Downloads - Download the latest software releases for your product.

❑ Licensing - Register and obtain your License key to activate your product.

❑ Product Documents - View the most recent installation guides, user guides, software release notes, white papers and data sheets for your product.

❑ Warranty - View a list of products to see if Allied Telesis warranty applies to the product you purchased and register your warranty.

❑ Allied Telesis Helpdesk - Contact a support representative.

To contact a sales representative or find Allied Telesis office locations, go to **www.alliedtelesis.com/contact**.

Preface

Chapter 1
Overview

This chapter contains the following sections:

> **Note**
> This guide explains how to install the switches as stand-alone units. For instructions on how to build a stack with Virtual Chassis Stacking (VCStack^{TM}), refer to the *x530L Series Installation Guide for Virtual Chassis Stacking*.

Front and Rear Panels

The front panels on the x530L Series switches are shown in Figure 1 through Figure 6 on page 17.

POE++
Ports 1-8

100Mbps/
1/2.5/5Gbps
Ports 1-8

Management
Panel

1Gbps SFP/10Gbps SFP+
Transceiver Ports 9-10
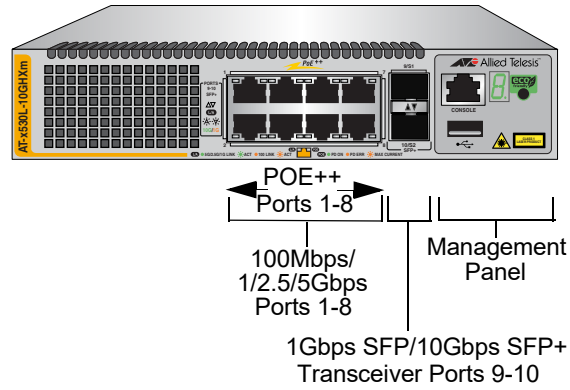
Figure 1. x530L-10GHXm Front Panel

POE++   Ports 1-16

100Mbps/
1/2.5/5Gbps
Ports 1-16

Management
Panel

1Gbps SFP/10Gbps SFP+
Transceiver Ports 17-18
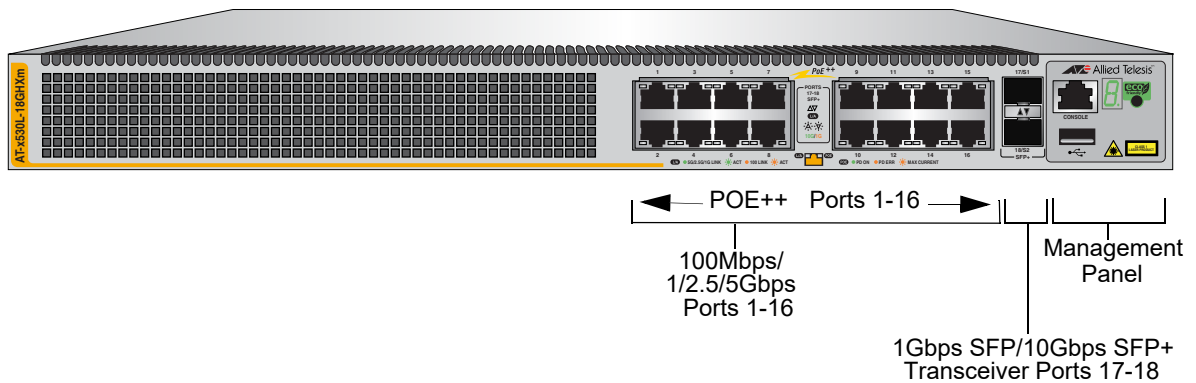
Figure 2. x530L-18GHXm Front Panel

10Mbps/100Mbps/1Gbps
Ports 1-24

Management
Panel

1Gbps SFP/10Gbps SFP+
Transceiver Ports 25-28
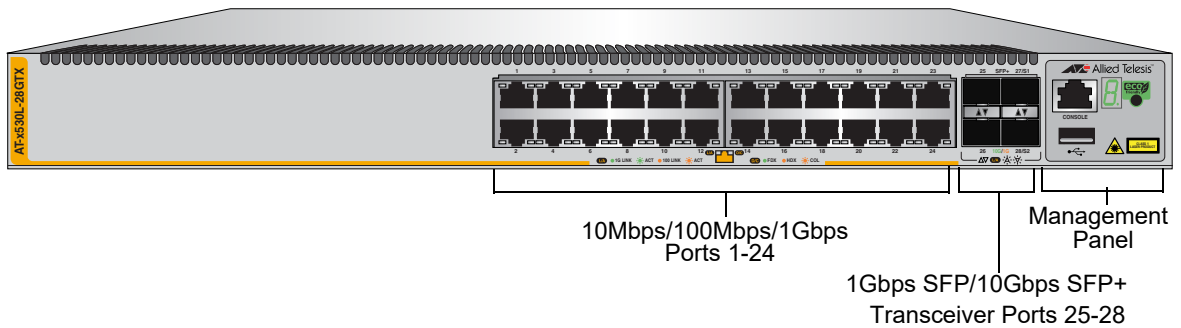
Figure 3. x530L-28GTX Front Panel

POE+ Ports 1- 24

10Mbps/100Mbps/1Gbps
Ports 1-24

1Gbps SFP/10Gbps SFP+
Transceiver Ports 25-28

Management
Panel
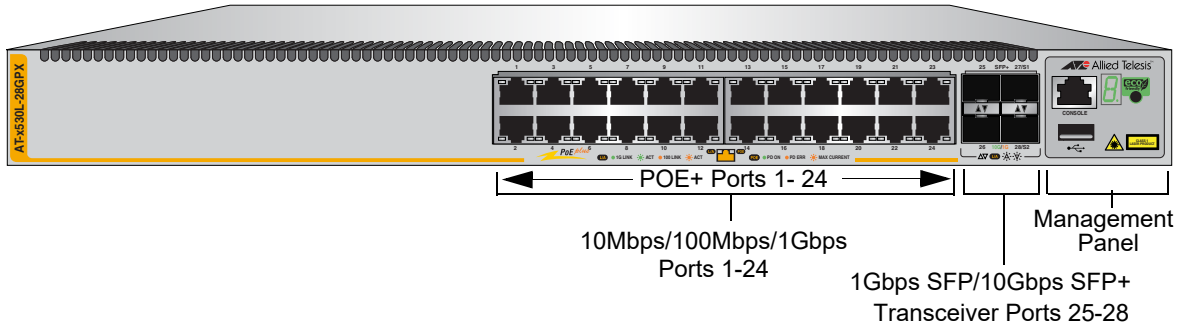
Figure 4. x530L-28GPX Front Panel

10Mbps/100Mbps/1Gbps
Ports 1-48

1Gbps SFP/10Gbps SFP+
Transceiver Ports 49-52

Management
Panel
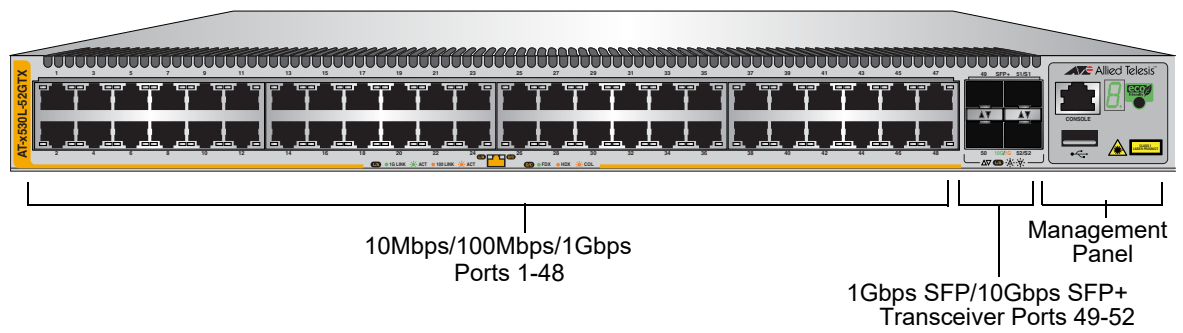
Figure 5. x530L-52GTX Front Panel

POE+ Ports 1- 48

10Mbps/100Mbps/1Gbps
Ports 1-48

1Gbps SFP/10Gbps SFP+
Transceiver Ports 49-52

Management
Panel
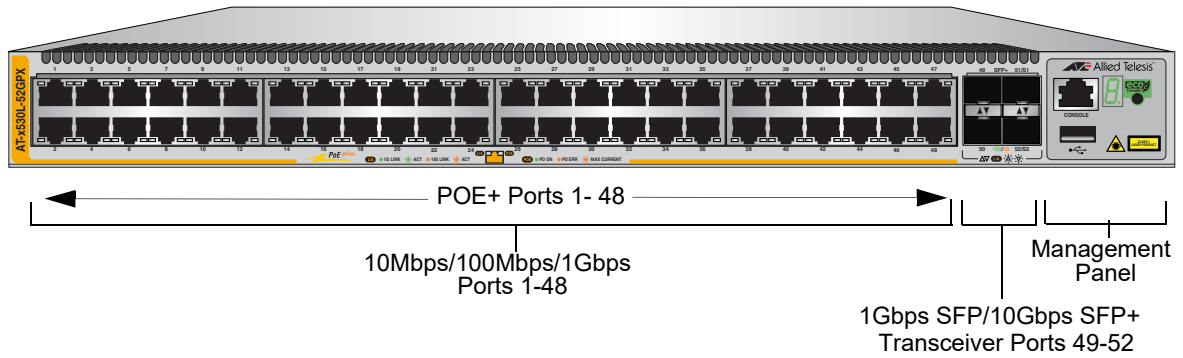
Figure 6. x530L-52GPX Front Panel

The back panels on the x530L Series switches are shown in Figure 7 through Figure 10 on page 18.
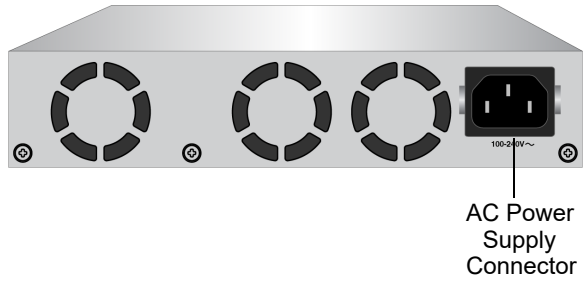
Figure 7. x530L-10GHXm Back Panel
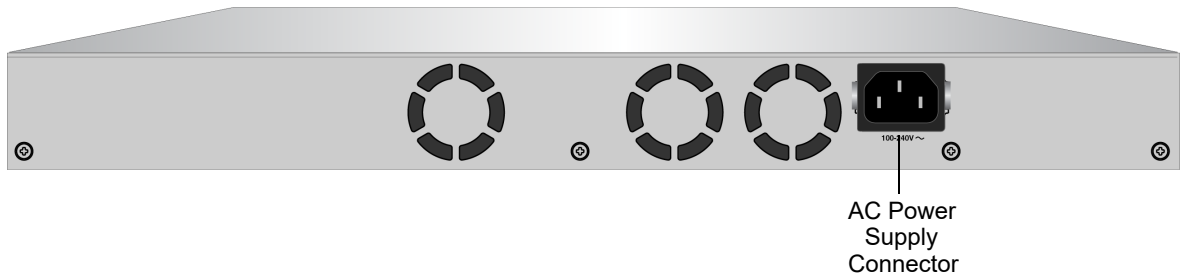
Figure 8. x530L-18GHXm Back Panel
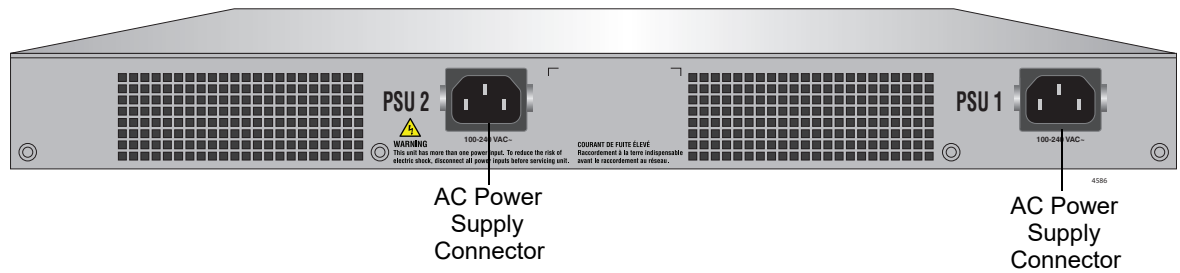
Figure 9. x530L-52GPX and x530L-28GPX Back Panel
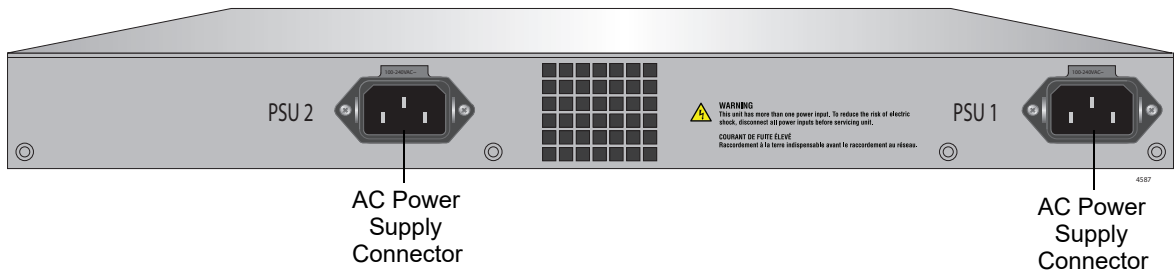
Figure 10. x530L-52GTX and x530L-28GTX Back Panel

Management Panel

Figure 11 identifies the components on the management panel.
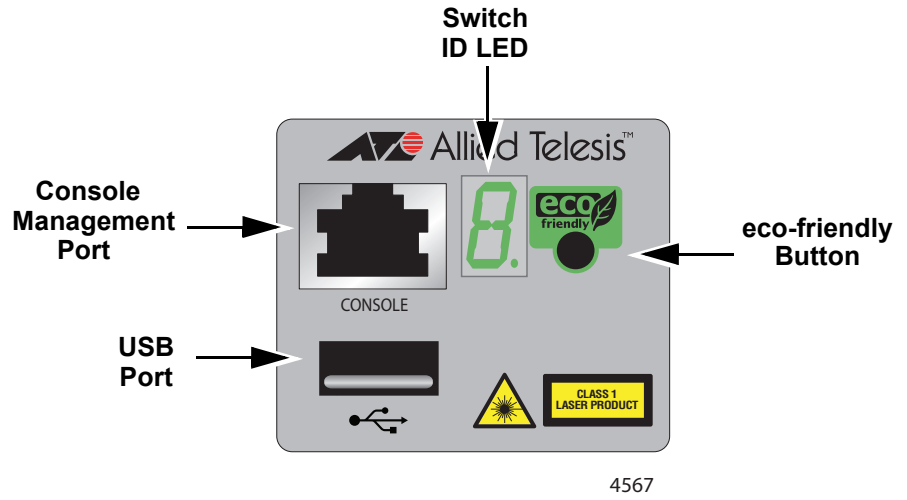
Figure 11. Management Panel

Features

The Allied Telesis x530L Series switches are stackable Gigabit, Layer 3+ Ethernet switches. The following sections list the features.

x530L Models   Table 1 lists the basic features for the switch models.

Table 1. Basic Features

Feature	x530L-10GHXm (PoE++)	x530L-18GHXm (PoE++)	x530L-28GTX	x530L-28GPX (PoE+)	x530L-52GTX	x530L-52GPX (PoE+)
100Mbps and 1/2.5/5 Gbps PoE++ Twisted Pair Ports	8	16	-	-	-	-
10Mbps, 100Mbps and 1 Gbps Twisted Pair Ports	-	-	24	-	48	-
10Mbps, 100Mbps and 1 Gbps PoE+ Twisted Pair Ports	-	-	-	24	-	48
1Gbps SFP and 10Gbps SFP+ Transceiver Ports	2	2	4	4	4	4
VCStack	Up to 8	Up to 8	Up to 8	Up to 8	Up to 8	Up to 8
Pre-installed Power Supply (Not field replaceable)	1	1	2	2	2	2

Twisted Pair Ports   The twisted pair ports on the x530L-28GTX and x530L-28GPX (1 to 24) and x530L-52GTX and x530L-52GPX (1 to 48) switches have the following features:

- ❒ Supports 10Mbps, 100Mbps and 1 Gbps operation
- ❒ 100 meters (328 feet) maximum operating distance per port
- ❒ Auto-Negotiation for speed
- ❒ Half-duplex mode at 10/100Mbps
- ❒ Full-duplex mode at 10/100/1000Mbps
- ❒ Auto-MDI/MDI-X at 10/100/1000Mbps
- ❒ Port Link/Activity (L/A) and Duplex/Collision (D/C) LEDs

The twisted pair ports on the x530L-10GHXm (1 to 8) switch have the following features:

- ❒ Supports 100Mbps and 1/2.5/5Gbps operation
- ❒ 100 meters (328 feet) maximum operating distance per port

❐ Auto-Negotiation for speed

❐ Half-duplex mode at 100Mbps

❐ Full-duplex mode at 100Mbps and 1/2.5/5Gbps

❐ Auto-MDI/MDI-X at 100Mbps and 1/2.5/5Gbps

❐ Port Link/Activity (L/A) and Duplex/Collision (D/C) LEDs

Power Over Ethernet

The basic features of PoE++ on the twisted pair ports on the x530L-28GPX and x530L-52GPX switches are:

❐ Supported on all ports

❐ 740W maximum power budget (370W per power supply):

– PoE (15.4 watts maximum) for 24 and 48 powered devices on the x530L-28GPX and x530L-52GPX switches, respectively

– PoE+ (30 watts maximum) for 24 powered devices on the x530L-28GPX and x530L-52GPX switches

❐ Supports powered device classes 0 to 4

❐ Port prioritization

❐ Mode wiring:

– Classes 0-4 (Type 1 or 2 up to 30W): Mode A (MDI-x)

– Classes 5-6 (Type 3 up to 45W/60W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)

– Classes 7-8 (Type 4 up to 75W/90W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)

❐ IEEE802.3af/at compliant

The basic features of PoE++ on the twisted pair ports on the x530L-10GHXm switch are:

❐ Supported on all ports

❐ 500W maximum power budget:

– PoE (15.4 watts maximum) for 8 powered devices

– PoE+ (30 watts maximum) for 8 powered devices

– PoE++ (60 watts maximum) for 8 powered devices

– PoE++ (90 watts maximum) for 5 powered devices

❐ Supports powered device classes 0 to 8

❐ Port prioritization

❑ Mode wiring:

– Classes 0-4 (Type 1 or 2 up to 30W): Mode A (MDI-x)

– Classes 5-6 (Type 3 up to 45W/60W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)

– Classes 7-8 (Type 4 up to 75W/90W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)

❑ IEEE802.3af/at/bt compliant

The basic features of PoE on the twisted pair ports on the x530L-18GHXm switch are:

❑ Supported on all ports

❑ 720 maximum power budget:

– PoE (15.4 watts maximum) for 16 powered devices

– PoE+ (30 watts maximum) for 16 powered devices

– PoE++ (60 watts maximum) for 12 powered devices

– PoE++ (90 watts maximum) for 8 powered devices

❑ Supports powered device classes 0 to 8

❑ Port prioritization

❑ Mode wiring:

– Classes 0-4 (Type 1 or 2 up to 30W): Mode A (MDI-x)

– Classes 5-6 (Type 3 up to 45W/60W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)

– Classes 7-8 (Type 4 up to 75W/90W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)

❑ IEEE802.3af/at/bt compliant

SFP+ Transceiver Ports

Examples of SFP 1Gbps transceivers include:

❑ SPSX and LR short and long distance transceivers using multi-mode or single mode fiber optic cable.

❑ SPEX transceivers with a maximum distance of two kilometers with multi-mode fiber optic cable.

❑ SP10BD bidirectional transceivers for single mode fiber optic cable with a maximum distance of 10 kilometers.

Examples of SFP+ 10Gbps transceivers include:

❑ SP10SR, LR, ER and ZR series of short or long distance transceivers using multi-mode or single mode fiber optic cable.

❑ SP10TW series of direct attach cables in lengths of 1 meter and 3 meters.

❑ SP10T transceiver with RJ-45 connector for links up to 20 meters at 10Gbps with Category 6a or better twisted pair cable, or 100 meters at 1Gbps.

❑ SP10LRM Long Reach Multimode transceiver for OM1 multi-mode fiber optic links up to 220 meters.

Note

Industrial (-40 to 85° C) and extended (-40 to 105° C) temperature transceivers are available.

Note

SFP and SFP+ transceivers must be purchased separately. For a current list of supported transceiver modules refer to the *x530L Series Data Sheet*

The following restrictions on SFP+ transceivers apply:

❑ 100Mbps transceivers are not supported

❑ Supports full-duplex mode only

LEDs   The port LEDs are:

❑ Link/activity LEDs for the twisted pair ports

❑ Link/activity LEDs for the SFP and SFP+ transceiver ports

❑ PoE+ LEDs for the twisted pair ports on the x530L-28GPX and x530L-52GPX switches

❑ PoE++ LEDs for the twisted pair ports on the x530L-10GHXm and x530L-18GHXm switches

❑ Full/Half/Collision LEDs for the twisted pair ports on the x530L-28GTX and x530L-52GTX switches

❑ Switch ID number LED

Installation Options   The installation options are:

❑ Desk or tabletop

❑ 19-inch equipment rack

❑ Wood or concrete wall

Management Software and Interfaces   The management software and interfaces are:

❑ AlliedWare Plus Management Software

❑ Command line interface (CLI)

Management Methods

The following methods are used for managing the switches:

❒ Local management through the Console port

❒ Remote Telnet or Secure Shell management

❒ Vista Manager mini

❒ Autonomous Management Framework (AMF) with Vista Manager EX

❒ Autonomous Wave Control for wireless networks

❒ SNMPv1, v2c, and v3

Twisted Pair Ports

The specifications of the twisted pair ports are listed in Table 2 through Table 7 on page 30.

Table 2. x530L-10GHXm Switch Twisted Pair Port Specifications

Specification	Description
Port Speed	Ports 1 - 8: 100Mbps or 1/2.5/5Gbps.
	100Mbps: Set the port speed manually or with Auto-Negotiation.
	1/2.5/5Gbps: The port speed is set with Auto-Negotiation only.
	The default is Auto-Negotiation for all ports.
Duplex Mode	Ports 1 - 8:
	100Mbps: Full- or half-duplex mode.
	1/2.5/5Gbps: Full-duplex mode only.
	Supports Auto-Negotiation at 100Mbps.
Maximum Distance	100 meters (328 feet)
Power over Ethernet	❏ PoE (15.4W maximum per port) / 8 PDs
	❏ PoE+ (30W maximum per port) / 8 PDs
	❏ PoE++(60W maximum per port) / 8 PDs
	❏ PoE++(90W maximum per port) / 5 PDs
Maximum Power Budget	500W
PoE Mode	❏ Classes 0-4 (Type 1 or 2 up to 30W): Mode A (MDI-x)
	❏ Classes 5-6 (Type 3 up to 45W/60W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)
	❏ Classes 7-8 (Type 4 up to 75W/90W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)
Connector	8-pin RJ-45

Table 3. x530L-18GHXm Switch Twisted Pair Port Specifications

Specification	Description
Port Speed	Ports 1 - 16: 100Mbps or 1/2.5/5Gbps. 100Mbps: Set the port speed manually or with Auto-Negotiation. 1/2.5/5Gbps: The port speed is set with Auto-Negotiation only. The default is Auto-Negotiation for all ports.
Duplex Mode	Ports 1 - 16: 100Mbps: Full- or half-duplex mode. 1/2.5/5Gbps: Full-duplex mode only. Supports Auto-Negotiation at 100Mbps.
Maximum Distance	100 meters (328 feet)
Power over Ethernet	❒ PoE (15.4W maximum per port) / 16 PDs ❒ PoE+ (30W maximum per port) / 16 PDs ❒ PoE++ (60W maximum per port) / 12 PDs ❒ PoE++ (90W maximum per port) / 8 PDs
Maximum Power Budget	720W
PoE Mode	❒ Classes 0-4 (Type 1 or 2 up to 30W): Mode A (MDI-x) ❒ Classes 5-6 (Type 3 up to 45W/60W): Mode A (MDI-x) plus Mode B (MDI-x, MDI) ❒ Classes 7-8 (Type 4 up to 75W/90W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)
Connector	8-pin RJ-45

Table 4. x530L-28GTX Switch Twisted Pair Port Specifications

Specification	Description
Port Speed	Ports 1 - 24: 10Mbps, 100Mbps or 1 Gbps.
	10Mbps/100Mbps: Set the port speed manually or with Auto-Negotiation.
	1Gbps: The port speed is set with Auto-Negotiation only.
	The default is Auto-Negotiation for all ports.
Duplex Mode	Ports 1 - 24:
	10Mbps/100Mbps: Full- or half-duplex mode.
	1Gbps: Full-duplex mode only.
	Supports Auto-Negotiation at 10Mbps and 100Mbps.
Maximum Distance	100 meters (328 feet).
Connector	8-pin RJ-45.

Table 5. x530L-28GPX Switch Twisted Pair Port Specifications

Specification	Description
Port Speed	Ports 1 - 24: 10Mbps, 100Mbps or 1Gbps.
	10Mbps/100Mbps: Set the port speed manually or with Auto-Negotiation.
	1Gbps: The port speed is set with Auto-Negotiation only.
	The default is Auto-Negotiation for all ports.
Duplex Mode	Ports 1 - 24:
	10Mbps/100Mbps: Full- or half-duplex mode.
	1Gbps: Full-duplex mode only.
	Supports Auto-Negotiation at 10Mbps and 100Mbps.
Maximum Distance	100 meters (328 feet).
Power over Ethernet	PoE (15.4W maximum per port) and PoE+ (30W maximum per port).
Maximum Power Budget	740W (370W per power supply).
PoE Mode	Classes 0 to 4: Mode A
Connector	8-pin RJ-45.

Table 6. x530L-52GTX Switch Twisted Pair Port Specifications

Specification	Description
Port Speed	Ports 1 - 48: 10Mbps, 100Mbps or 1Gbps. 10Mbps/100Mbps: Set the port speed manually or with Auto-Negotiation. 1Gbps: The port speed is set with Auto-Negotiation only. The default is Auto-Negotiation for all ports.
Duplex Mode	Ports 1 - 48: 10Mbps/100Mbps: Full- or half-duplex mode. 1Gbps: Full-duplex mode only. Supports Auto-Negotiation at 10Mbps and 100Mbps.
Maximum Distance	100 meters (328 feet).
Connector	8-pin RJ-45.

Table 7. x530L-52GPX Switch Twisted Pair Port Specifications

Specification	Description
Port Speed	Ports 1 - 48: 10Mbps, 100Mbps or 1Gbps.
	10Mbps/100Mbps: Set the port speed manually or with Auto-Negotiation.
	1Gbps: The port speed is set with Auto-Negotiation only.
	The default is Auto-Negotiation for all ports.
Duplex Mode	Ports 1 - 48:
	10Mbps/100Mbps: Full- or half-duplex mode.
	1Gbps: Full-duplex mode only.
	Supports Auto-Negotiation at 10Mbps and 100Mbps.
Maximum Distance	100 meters (328 feet).
Power over Ethernet	PoE (15.4W maximum per port) and PoE+ (30W maximum per port).
Maximum Power Budget	740W (370W per power supply).
PoE Mode	Classes 0 to 4: Mode A.
Connector	8-pin RJ-45.

Duplex Mode   The twisted pair ports can operate in either half- or full-duplex mode at 10 Mbps and 100 Mbps and full-duplex only at higher speeds.

The duplex mode of a port operating at 10Mbps or 100Mbps, like port speed, can be set manually using the management software or automatically with Auto-Negotiation (IEEE 802.3u), the default setting.

The speed and duplex mode settings of a port can be set independently of each other. For example in the case of a 10Mbps or 100Mbps port, it can be configured such that its speed is set manually while its duplex mode is established through Auto-Negotiation.

> **Note**
> Switch ports default to half-duplex mode when connected to 10Mbps or 100Mbps network devices that do not support Auto-Negotiation. If a network device supports full-duplex only, a duplex mode mismatch can occur, resulting in poor network performance. To prevent this, disable Auto-Negotiation and set the duplex mode manually on ports connected to 10Mbps or 100Mbps devices that support full-duplex only.

Wiring Configuration

The wiring configuration of a port operating at 10/100Mbps can be MDI or MDI-X. The wiring configurations of a switch port and a network device connected with straight-through twisted pair cabling must be opposite, such that one device is using MDI and the other MDI-X. For example, a switch port must be set to MDI-X if it is connected to a network device set to MDI.

The wiring configurations of the ports can be set manually or automatically by the switch with auto-MDI/MDI-X (IEEE 802.3ab-compliant). This feature enables the switch to automatically negotiate with network devices to establish their proper settings.

The MDI and MDI-X settings do not apply when ports are operating at a speed of 1Gbps or higher.

Cable Requirements

Minimum twisted pair cable requirements are as follows:

- ❐ 10/100Mbps ports: Standard TIA/EIA 568-B-compliant Category 3 unshielded cabling

- ❐ 1Gbps ports: Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e)

- ❐ 2.5/5Gbps ports: Standard TIA/EIA 568-A-compliant Category 6 or TIA/EIA 568-B-compliant Category 6A (Cat 6A) unshielded cabling

Port Pinouts

Refer to Table 26 on page 146 and Table 27 on page 147 for the pin signals.

LEDs   Each twisted pair port has two LEDs that display the port status.

x530L-10GHXm

The LEDs indicate Link/Activity (L/A) and PoE (PD ON/PD ERR/MAX CURRENT) information. These LEDs are shown in Figure 12.
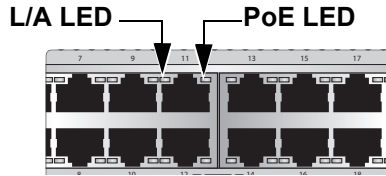
Figure 12. x530L-10GHXm Twisted Pair Ports

The states of the x530L-10GHXm LEDs are described in Table 8.

Table 8. x530L-10GHXm Twisted Pair Ports 1 - 8 LED Functions

LED	Ports	State	Description
L/A	1 - 8	Solid Green	The port has established a 1/2.5/5Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1/2.5/5Gbps.
		Solid Amber	The port has established a 100Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 100 Mbps.
		Off	Possible causes of this state are: - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

Table 8. x530L-10GHXm Twisted Pair Ports 1 - 8 LED Functions (Continued)

LED	Ports	State	Description
PoE	1-8	Solid Green	PD On - The switch is delivering power to a powered device connected to the port.
		Solid Amber	PD Error - The switch has shut down PoE on the port because of a fault condition.
		Flashing Amber	PD Max Current - The switch has detected a powered device on the port but is not delivering power to it because doing so would exceed its available power budget.
		Off	No PD - This LED state can result from the following conditions: - The port is not connected to a powered device or the device is powered off. - The port is disabled in the management software. - PoE is disabled on the port. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

x530L-18GHXm

The LEDs indicate Link/Activity (L/A) and PoE (PD ON/PD ERR/MAX CURRENT) information. These LEDs are shown in Figure 13.

L/A LED ——   ——**PoE LED**
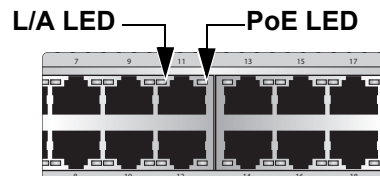
Figure 13. x530L-18GHXm Twisted Pair Ports

The states of the x530L-18GHXm LEDs are described in Table 9.

Table 9. x530L-18GHXm Twisted Pair Ports 1 - 16 LED Functions

LED	Ports	State	Description
L/A	1 - 16	Solid Green	The port has established a 1/2.5/5Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1/2.5/5Gbps.
		Solid Amber	The port has established a 100Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 100 Mbps.
		Off	Possible causes of this state are: - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.
PoE	1-16	Solid Green	PD On - The switch is delivering power to a powered device connected to the port.
		Solid Amber	PD Error - The switch has shut down PoE on the port because of a fault condition.
		Flashing Amber	PD Max Current - The switch has detected a powered device on the port but is not delivering power to it because doing so would exceed its available power budget.
		Off	No PD - This LED state can result from the following conditions: - The port is not connected to a powered device or the device is powered off. - The port is disabled in the management software. - PoE is disabled on the port. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

x530L-28GTX

The LEDs indicate Link/Activity (L/A) and Duplex/Collision (FDX/HDX/COL) information. These LEDs are shown in Figure 14.

L/A LED ——— ——— D/C LED
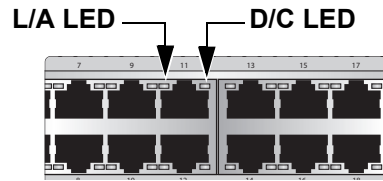
Figure 14. x530L-28GTX Twisted Pair Port LEDs

The states of the x530L-28GTX LEDs are described in Table 10.

Table 10. x530L-28GTX Twisted Pair Ports 1 - 24 LED Functions

LED	Ports	State	Description
L/A	1 - 24	Solid Green	The port has established a 1Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1Gbps.
		Solid Amber	The port has established a 10Mbps or 100 Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 10Mbps or 100Mbps.
		Off	Possible causes of this state are: - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.
D/C	1 - 24	Solid Green	The port is operating in full-duplex mode.
		Solid Amber	The port is operating in half-duplex mode.
		Flashing Amber	The port is operating in half-duplex mode with collisions.

x530L-52GTX

The LEDs indicate Link/Activity (L/A) and Duplex/Collision (FDX/HDX/ COL) information. These LEDs are shown in Figure 15.
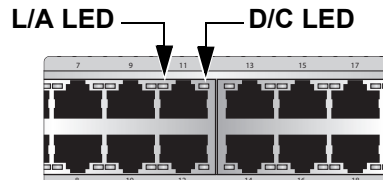
Figure 15. x530L-52GTX Twisted Pair Port LEDs

The states of the x530L-52GTX LEDs are described in Table 11.

Table 11. x530L-52GTX Twisted Pair Ports 1 - 48 LED Functions

LED	Ports	State	Description
L/A	1 - 48	Solid Green	The port has established a 1Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1Gbps.
		Solid Amber	The port has established a 10Mbps or 100 Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 10Mbps or 100Mbps.
		Off	Possible causes of this state are: - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.
D/C	1 - 48	Solid Green	The port is operating in full-duplex mode.
		Solid Amber	The port is operating in half-duplex mode.
		Flashing Amber	The port is operating in half-duplex mode with collisions.

x530L-28GPX

The LEDs indicate Link/Activity (L/A) and PoE (PD ON/PD ERR/MAX CURRENT) information. These LEDs are shown in Figure 16.

L/A LED ——— **PoE LED**
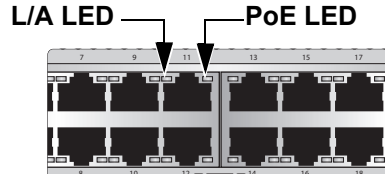
Figure 16. x530L-28GPX Twisted Pair Ports

The states of the x530L-28GTX LEDs are described in Table 12.

Table 12. x530L-28GPX Twisted Pair Ports 1 - 24 LED Functions

LED	Ports	State	Description
L/A	1 - 24	Solid Green	The port has established a 1Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1Gbps.
		Solid Amber	The port has established a 10Mbps or 100Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 10Mbps or 100 Mbps.
		Off	Possible causes of this state are: - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

Table 12. x530L-28GPX Twisted Pair Ports 1 - 24 LED Functions (Continued)

LED	Ports	State	Description
PoE	1 - 24	Solid Green	PD On - The switch is delivering power to a powered device connected to the port.
		Solid Amber	PD Error - The switch has shut down PoE on the port because of a fault condition.
		Flashing Amber	PD Max Current - The switch has detected a powered device on the port but is not delivering power to it because doing so would exceed its available power budget.
		Off	No PD - This LED state can result from the following conditions: - The port is not connected to a powered device or the device is powered off. - The port is disabled in the management software. - PoE is disabled on the port. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

x530L-52GPX

The LEDs indicate Link/Activity (L/A) and PoE (PD ON/PD ERR/MAX CURRENT) information. These LEDs are shown in Figure 17.

L/A LED ——   ——PoE LED
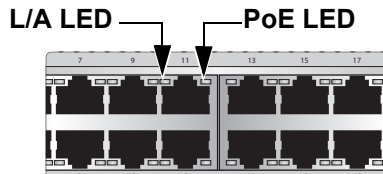
Figure 17. x530L-52GPX Twisted Pair Ports

The states of the x530L-52GPX LEDs are described in Table 13 on page 39.

Table 13. x530L-52GPX Twisted Pair Ports 1 - 48 LED Functions

LED	Ports	State	Description
L/A	1 - 48	Solid Green	The port has established a 1Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1Gbps.
		Solid Amber	The port has established a 10Mbps or 100Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 10Mbps or 100 Mbps.
		Off	Possible causes of this state are: - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.
PoE	1 - 48	Solid Green	PD On - The switch is delivering power to a powered device connected to the port.
		Solid Amber	PD Error - The switch has shut down PoE on the port because of a fault condition.
		Flashing Amber	PD Max Current - The switch has detected a powered device on the port but is not delivering power to it because doing so would exceed its available power budget.
		OFF	No PD - This LED state can result from the following conditions: - The port is not connected to a powered device or the device is powered off. - The port is disabled in the management software. - PoE is disabled on the port. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

Power Over Ethernet

The x530L-28GPX, x530L-52GPX, x530L-18GHXm, and x530L-10GHXm switches feature PoE on twisted pair ports. With PoE, the switch supplies DC power to network devices over the same twisted pair cables that carry the network traffic.

PoE can make it easier to install networks. The selection of a location for a network device can be limited by whether there is a power source nearby. This often limits equipment placement or requires the added time and cost of having additional electrical sources installed. With PoE, you can install PoE-compatible devices wherever they are needed without having to worry about whether there are power sources nearby.

A device that provides PoE to network devices is referred to as *power sourcing equipment* (PSE). It functions as a central power source for other network devices.

Devices that receive their power from a PSE are called *powered devices* (PD). Examples include wireless access points, IP telephones, webcams, and even other Ethernet switches.

The x530L-28GPX, x530L-52GPX, x530L-18GHXm, and x530L-10GHXm switches automatically determine whether devices connected to their ports are powered devices. Ports that are connected to network nodes that are not powered devices (that is, devices that receive their power from another power source) function as regular Ethernet ports, without PoE. The PoE feature remains activated on the ports but no power is delivered to the devices.

PoE Standards

The x530L-28GPX, x530L-52GPX, x530L-18GHXm, and x530L-10GHXm switches support these PoE standards:

❑ PoE (IEEE 802.3af): This standard provides up to 15.4 watts at the switch port for powered devices that require up to 13.0 watts.

❑ PoE+ (IEEE 802.3at): This standard provides up to 30.0 watts at the switch port for powered devices that require up to 25.5 watts.

The x530L-18GHXm and x530L-10GHXm switches support this additional PoE standard:

❑ PoE++ (IEEE 802.3bt): This standard provides up to 90.0 watts at the switch ports for powered devices that require up to 71.0 watts.

Powered Device Classes

Powered devices are grouped into the nine classes listed in Table 14. The classes are based on the amount of power the devices require. The x530L-28GPX and x530L-52GPX switches support classes 0 to 4. The x530L-10GHXm and x530L-18GHXm switches supports classes 0 to 8.

Table 14. IEEE Powered Device Classes

Class	Maximum Power Output from a Switch Port	PD Power Range
0	15.4W	0.44W to 12.94W
1	4.0W	0.44W to 3.84W
2	7.0W	3.84W to 6.49W
3	15.4W	6.49W to 12.94W
4	30.0W	12.94W to 25.5W
5	45.0W	40.0W (4-pair)
6	60.0W	51.3W (4-pair)
7	75.0W	62.0W (4-pair)
8	90.0W	71.3W (4-pair)

⚠️ **Caution**

When hot-swapping PoE PD Classes 5-8, the IC device can be damaged when the Ethernet cable is removed while supplying PoE power. To avoid damage, disable the port with the CLI or power off the unit before removing the cable. ✍ **E133**

Power Budget

The x530L-28GPX and x530L-52GPX switches have two power supplies. Each power supply provides 370W for a total PoE of 740W. This is the total maximum amount of power that the switch can supply to powered devices on the 24/48 PoE+ twisted pair ports. The number of powered devices that the switches can support at one time will depend on their power requirements. For instance, under normal operating conditions, the switches can support up to 24 Class 4 powered devices with the maximum 25.5W.

The x530L-10GHXm switch has one power supply. It can supply 500W of PoE power. This is the total maximum amount of power that the switch can supply to powered devices on the eight PoE++ twisted pair ports. The number of powered devices that the switch can support at one time will depend on their power requirements. For instance, under normal operating

conditions, the switch can support up to eight Class 6 powered devices with the maximum 51.3.5W or up to five Class 8 powered devices with the maximum of 71.3W.

The x530L-18GHXm switch has one power supply. It can supply 720W of PoE power. This is the total maximum amount of power that the switch can supply to powered devices on the sixteen PoE++ twisted pair ports. The number of powered devices that the switch can support at one time will depend on their power requirements. For instance, under normal operating conditions, the switch can support up to twelve Class 6 powered devices with the maximum 51.3W or up to seven Class 8 powered devices with the maximum of 71.3W.

Port Prioritization

The power requirements of the PoE devices determine the maximum number of devices the switch can support at one time. So long as the total power requirements of the power devices is less than the power budget of the switch, the switch can supply power to all the devices. But if the total power requirements exceed the power budget, the switch denies power to one or more ports using a mechanism referred to as port prioritization.

To determine whether the power requirements of the PoE devices you plan to connect to the switch exceed its power budget, refer to their documentation for their power requirements and add the requirements together. The switch should be able to power all the devices simultaneously as long as the total is below its power budget. If the total exceeds the available power budget, you should consider reducing the number of PoE devices so that all of the devices receive power. Otherwise, the switch powers a subset of the devices, based on port prioritization.

There are three priority levels:

- ❑ Critical
- ❑ High
- ❑ Low

Ports set to the Critical level, the highest priority level, are guaranteed power before any of the ports assigned to the other two priority levels. Ports assigned to the other priority levels receive power only if all the Critical ports are receiving power. Ports that are connected to your most critical powered devices must be assigned to this level. If there is not enough power to support all the ports set to the Critical priority level, power is provided to the ports based on port number, in ascending order.

The High level is the second highest level. Ports set to this level receive power only if all the ports set to the Critical level are already receiving power. It there is not enough power to support all of the ports set to the High priority level, power is provided to the ports based on port number, in ascending order.

The lowest priority level is Low. This is the default setting. Ports set to this level only receive power if all of the ports assigned to the other two levels are already receiving power. As with the other levels, if there is not enough power to support all of the ports set to the Low priority level, power is provided to the ports based on port number, in ascending order.

Power allocation is dynamic. Ports supplying power to powered devices can cease power transmission if the switch power budget is at maximum usage and new powered devices, connected to ports with higher priorities become active.

Wiring Implementation

The IEEE 802.3af standard defines two methods for delivering DC power over twisted pair cable by a switch to powered devices. These methods are known as Modes A and B, and identify the individual wires that carry the DC power within the cable from the switch to powered devices.

Twisted pair cabling typically consists of eight wires. With 100Base-TX devices, the wires connected to pins 1, 2, 3, and 6 on the RJ-45 connectors carry the network traffic while the wires connected to pins 4, 5, 7, and 8 are unused. At higher speeds, all eight wires are used to carry network data.

It takes four wires to deliver DC power to a powered device. With Mode A, power is delivered on pins 1, 2, 3, and 6. These are the same pins in 10Base-T and 100Base-TX devices that carry the network data. With Mode B, power is provided over the spare wires.

The wiring modes for the x530L-10GHXm and x530L-18GHXm switches are as follows:

- ❐ Classes 0-4 (Type 1 or 2 up to 30W): Mode A (MDI-x)
- ❐ Classes 5-6 (Type 3 up to 45W/60W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)
- ❐ Classes 7-8 (Type 4 up to 75W/90W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)

Powered devices of Classes 0 to 4 that comply with the IEEE 802.3af standard are required to support both Modes A and B. Legacy devices that do not comply with the standard will work with the switch if they are powered on pins 1, 2, 3, and 6.

SFP+ Transceiver Ports

1Gbps/10Gbps SFP or SFP+ Transceivers

The following ports support 1Gbps/10 Gbps SFP or SFP+ transceivers:

❒ x530L-10GHXm switch has two ports (ports 9 - 10)

❒ x530L-18GHXm switch has two ports (ports 17 - 18)

❒ x530L-28GPX and x530L-28GTX switches have four ports (ports 25 - 28)

❒ x530L-52GTX and x530L-52GPX switches have four ports (ports 49 - 52)

See "SFP+ Transceiver Ports" on page 22 for a description and guidelines of the SFP+ transceivers.

Note

SFP or SFP+ transceivers must be purchased separately. For a list of supported transceivers, refer to the product data sheet on the Allied Telesis web site.

LEDs

Each transceiver port has one LED. The LEDs are located between the ports. Refer to Figure 18.
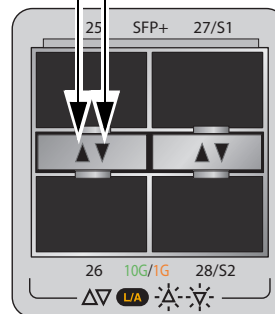
Figure 18. Link and Activity LEDs for the 1Gbps SFP/10Gbps SFP+ Ports

The LEDs display link status and activity. The possible LED states are described in Table 15.

Table 15. Link and Activity Status LEDs for the 1Gbps and 10Gbps Ports

State	Description
Solid Green	The transceiver has established a 10Gbps link to a network device.
Flashing Green	The transceiver is transmitting or receiving data in 10Gbps.
Solid Amber	The transceiver has established a 1Gbps link to a network device.
Flashing Amber	The transceiver is transmitting or receiving data in 1Gbps.
Off	Possible causes of this state are: - The port is empty. - The transceiver has not established a link to a network device. - A non-supported module is installed. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

eco-friendly Button

The eco-friendly button on the front panel of the switch is used to toggle the port LEDs on or off. You can turn off the LEDs to conserve electricity when you are not monitoring the device. You can also toggle the LEDs with the ECOFRIENDLY LED and NO ECOFRIENDLY LED commands in the Global Configuration mode of the command line interface of the AlliedWare Plus management software.

The switch is operating in a low power mode when the LEDs are turned off. Operating the switch in the low power mode does not interfere with the network operations of the device.

The management software on the switch has a command that blinks the LEDs so that you can quickly and easily identify a specific unit among the devices in an equipment rack. It is the FINDME command. The command works on the switch even if you turned off the LEDs with the eco-friendly button or NO ECOFRIENDLY LED command.

> **Note**
> Before checking or troubleshooting the network connections to the ports on the switch, you must always check to be sure that the LEDs are on by either pressing the eco-friendly button or issuing the ECOFRIENDLY LED and NO ECOFRIENDLY LED commands in the Global Configuration mode in the command line interface.

VCStack Feature

You can use the switches as stand-alone units or join up to eight units with the VCStack feature. The switches of a VCStack act as a single virtual unit. They synchronize their actions so that switching operations (such as spanning tree protocols, virtual LANs, and static port trunks) span across all of the units and ports. Two advantages of stacks are:

❒ You can manage multiple units simultaneously, which can simplify network management.

❒ You have more flexibility in how you configure some of the features. For instance, a static port trunk on a stand-alone switch can consist of ports from the same switch. In contrast, a static trunk on a stack can have ports from different switches in the same stack.

Note
This guide explains how to install the switches as stand-alone units. For instructions on how to build a stack with Virtual Chassis Stacking (VCStack™), refer to the *x530L Series Installation Guide for Virtual Chassis Stacking*.

Switch ID LED

The switch ID LED, shown in Figure 19, displays the ID number of the switch. A stand-alone switch has the ID number 0. Switches in a VCStack have the numbers 1 to 8.
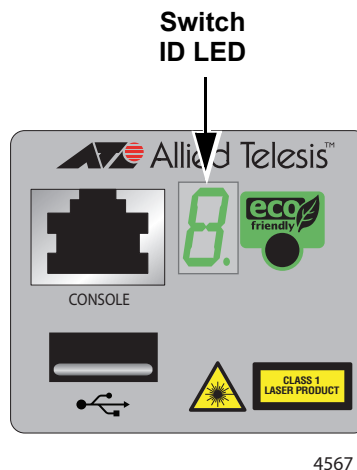
Figure 19. Switch ID LED

The states of the LED when the switch is not operating in the low power mode are shown in Figure 20.

 The switch is booting up.

 The switch has encountered a fault condition.

 The switch is operating as a stand-alone unit.

 The switch has an ID number of 1 to 8 as part of a VCStack.

 The dot in the lower right corner flashes when the switch accesses USB memory.

 When the eco-friendly mode is enabled, the front panel LEDs are in OFF mode. The horizontal segments will be lit up to show power status and mode of stacking:

Lower segment: Member
Middle segment: Standalone
Upper segment: Master
No segment illuminated: No Power

Figure 20. Switch ID LED Description

The switch displays the letter "F" for fault on the ID LED if it detects one of the following problems:

❐ A cooling fan has failed.

❐ The internal temperature of the switch has exceeded the normal operating range and the switch may shut down.

Note
You can use the SNMP or the command line management interface to determine the type of fault or faults.

USB Port

The USB port on the management panel is used for the following functions:

❐ Store configuration files on flash drives.

❐ Restore configuration files to switches that have lost or corrupted settings.

❐ Configure replacement units by downloading configuration files from a flash drive.

❐ Update the management firmware.

The port is USB 2.0-compatible.

Console Port

The Console port is an RS232 serial management port. You use the port to access the AlliedWare Plus management software on the switch to configure the feature settings or monitor status or statistics. This type of management is commonly referred to as local management because you have to be at the physical location of the switch and use the management cable included with the unit. The switch does not have to have an IP address for local management.

To establish a local management session with the switch, use the provided management cable to connect a terminal or a computer with a terminal emulation program to the Console port, which has an RJ-45 style (8P8C) connector. The cable has RJ-45 style (8P8C) and DB-9 (D-sub 9-pin) connectors.

The Console port has the following settings:

❒ Default baud rate: 9,600 bps (range is 9,600 to 115,200 bps)
❒ Data bits: 8
❒ Parity: None
❒ Stop bits: 1
❒ Flow control: None

Note
These settings are for a DEC VT100 or ANSI terminal, or an equivalent terminal emulation program.

Power Supply

Pre-Installed AC Power Supply

The x530L Series switches come with one or two pre-installed AC power supplies depending on the model:

□ Two power supplies: x530L-28GPX, x530L-28GTX, x530L-52GTX and x530L-52GPX

□ One power supply: x530L-10GHXm and x530L-18GHXm

Refer to "Power Specifications" on page 143 for the input voltage ranges.

⚠️ **Warning**
The power cord is used as a disconnection device. To de-energize equipment, disconnect the power cord(s). ⚠ E3

⚠️ **WARNING**

Shock Hazard
Disconnect all power sources
Risque de choc
Débranchez toutes les sources
d'alimentation
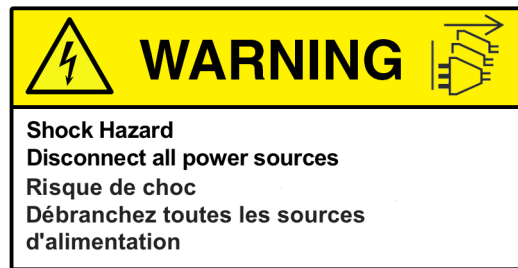
Note
Power supplies are not field-replaceable.

Software and Hardware Releases

Software and hardware releases for the AlliedWare Plus operating software and x530L Series switches are listed in Table 16.

Table 16. Software and Hardware Releases

Software Version	Hardware	VCStack
v5.4.8-2	x530L-28GPX switch x530L-28GTX switch	Allows stacks of up to four switches using the SFP/SFP+ transceiver ports for the stack trunk.
v5.4.9-2	Adds the following switches: x530L-52GPX switch x530L-52GTX switch	Allows stacks of up to eight switches using the SFP/SFP+ transceiver ports for the stack trunk.
v5.5.0-2	Adds the following switch: x530L-10GHXm switch x530L-18GHXm switch	Allows stacks of up to eight switches using the SFP/SFP+ transceiver ports or the 1/2.5/5Gbps ports for the stack trunk.

Chapter 2
Beginning the Installation

This chapter contains the following sections:

❒ "Reviewing Safety Precautions" on page 56

❒ "Choosing a Site for the Switch" on page 61

❒ "Unpacking the x530L-10GHXm Switch" on page 62

❒ "Unpacking the x530L-18GHXm Switch" on page 65

❒ "Unpacking the x530L-28GTX, x530L-28GPX, x530L-52GTX, or x530L-52GPX Switch" on page 67

Reviewing Safety Precautions

Please review the following safety precautions before beginning the installation procedure.

Important: Safety statements that have the ☞ symbol are translated into multiple languages in the *Translated Safety Statements* document at **https://www.alliedtelesis.com/en/documents/translated-safety-statements**.

Remarque: Les consignes de sécurité portant le symbole ☞ sont traduites dans plusieurs langues dans le document *Translated Safety Statements,* disponible à l'adresse **https://www.alliedtelesis.com/en/documents/translated-safety-statements**.

⚠ **WARNING** ⚡

Shock Hazard
Disconnect all power sources
Risque de choc
Débranchez toutes les sources d'alimentation
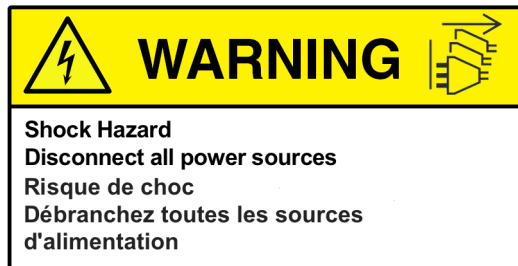
⚠ **Warning**
Class 1 Laser product. ☞ L1

⚠ **Warning**
Laser Radiation.
Class 1M Laser product.

⚠ **Warning**
Do not stare into the laser beam. ☞ L2

⚠ **Warning**
Do not look directly at the fiber optic ends or inspect the cable ends with an optical lens. ☞ L6

Warning
To prevent electric shock, do not remove the cover. No user-serviceable parts inside. This unit contains hazardous voltages and should only be opened by a trained and qualified technician. To avoid the possibility of electric shock, disconnect electric power to the product before connecting or disconnecting the LAN cables. &~ E1

Warning
Do not work on equipment or cables during periods of lightning activity. &~ E2

Warning
Power cord is used as a disconnection device. To de-energize equipment, disconnect the power cord. &~ E3

Warning
Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts. &~ E4

Note
Pluggable Equipment. The socket outlet shall be installed near the equipment and shall be easily accessible. &~ E5

Caution
Air vents must not be blocked and must have free access to the room ambient air for cooling. &~ E6

Warning
Operating Temperatures. This product is designed for a maximum ambient temperature of 50° C. &~ E52

Note
All Countries: Install product in accordance with local and National Electrical Codes. &~ E8

Warning
Only trained and qualified personnel are allowed to install or replace this equipment. ✍ E14

Caution
Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern. ✍ E21

Caution
Risk of explosion if battery is replaced by an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Attention: Le remplacement de la batterie par une batterie de type incorrect peut provoquer un danger d'explosion. La remplacer uniquement par une batterie du même type ou de type équivalent recommandée par le constructeur. Les batteries doivent être éliminées conformément aux instructions du constructeur. ✍ E22

Warning
Mounting of the equipment in the rack should be such that a hazardous condition is not created due to uneven mechanical loading. ✍ E25

Warning
The chassis may be heavy and awkward to lift. Allied Telesis recommends that you get assistance when mounting the chassis in an equipment rack. ✍ E28

Note
Use dedicated power circuits or power conditioners to supply reliable electrical power to the device. ✍ E27

Warning

This unit might have more than one power cord. To reduce the risk of electric shock, disconnect all power cords before servicing the unit. ✒ E30

Note

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than the room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra). ✒ E35

Caution

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. ✒ E36

Warning

Reliable earthing of rack-mounted equipment must be maintained. Particular attention must be given to supply connections other than direct connections to the branch circuits (e.g., use of power strips). ✒ E37

Warning

To reduce the risk of electric shock, the PoE ports on this product must not connect to cabling that is routed outside the building where this device is located. ✒ E40

Warning

This product may have multiple AC power cords installed. To de-energize this equipment, disconnect all power cords from the device. ✒ E41

Caution

An Energy Hazard exists inside this equipment. Do not insert hands or tools into open chassis ports or plugs. ✒ E44

Warning
This equipment must be installed in a Restricted Access location.
&⤳ E45

Caution
The unit does not contain serviceable components. Please return damaged units for servicing. &⤳ E42

Warning
The temperature of an operational SFP or SFP+ transceiver may exceed 70° C (158° F). Exercise caution when removing or handling a transceiver with unprotected hands. &⤳ E43

Choosing a Site for the Switch

Observe these requirements when planning the installation of the switch.

❏ Before installing the switch in an equipment rack, check that the rack is safely secured so that it will not tip over. Devices in a rack should be installed starting at the bottom, with the heavier devices near the bottom of the rack.

❏ Before installing the switch on a table, check that the table is level and stable.

❏ The power outlets should be located near the switch and be easily accessible.

❏ The site should allow for easy access to the ports on the front of the switch, so that you can easily connect and disconnect cables, and view the port LEDs.

❏ The site should allow for adequate air flow around the unit and through the cooling vents on the front and rear panels. (The ventilation direction is from front to back.)

❏ The site must not expose the switch to moisture or water.

❏ The site must be a dust-free environment.

❏ The site must have dedicated power circuits or power conditioners to supply reliable electrical power to the network devices.

❏ Do not install the switch in a wiring or utility box because it might overheat and fail from inadequate air flow.

⚠ **Warning**
Switches should not be stacked on a table or desktop. They could present a physical safety hazard if you need to move or replace switches. ↩ E91

Unpacking the x530L-10GHXm Switch

Figure 21 shows the shipping box for the x530L-10GHXm Switch.

Figure 21. x530L-10GHXm Switch Shipping Box

The items in the box are listed here:

❒ A - Protective bag

❒ B - x530L-10GHXm Switch

❒ C - Accessory kit

Note
You should retain the original packaging material in case you need to return the unit to Allied Telesis.

Figure 22 here and Figure 23 on page 64 list the items in the accessory kit. Contact your Allied Telesis sales representative for assistance if any item is missing or damaged.
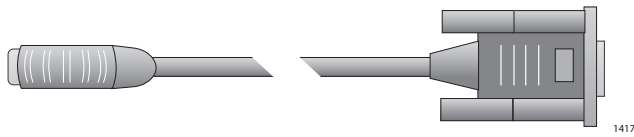
One 2m (6.6 ft) local management cable with RJ-45 (8P8C) and DB-9 (D-sub 9-pin) connectors.
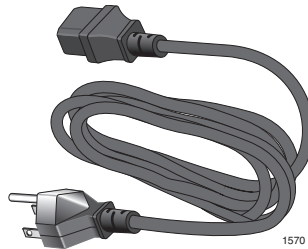
One regional AC power cord
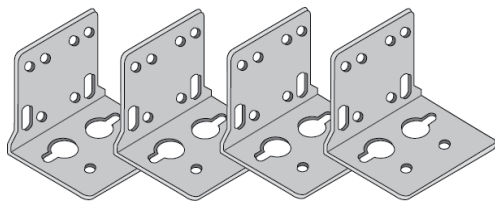
Four BRKT-J24 wall mounting brackets
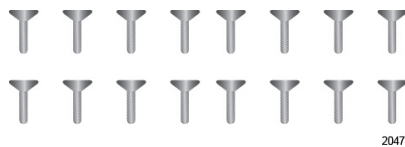
Sixteen screws for attaching the BRKT-J24 wall brackets to the switch.
Length: 6.0mm (0.2 in.)
Diameter: 4.0mm (0.2 in.)
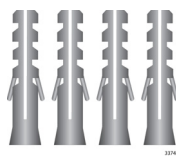
Four anchors for concrete walls:
Length: 29.6mm (1.2 in.)
Diameter: 6.0mm (0.2 in.)
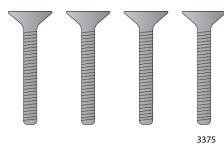
Four screws for wood or concrete walls:
Length: 32mm (1.3 in.)
Diameter: 4mm (0.2 in.)

Power cord retaining clip

Figure 22. x530L-10GHXm Switch Accessory Kit
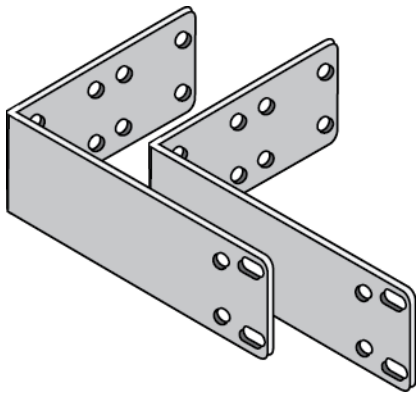
Two RKMT-J14 equipment
rack brackets
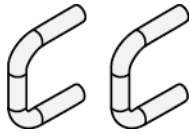
Two handles for the RKMT-J14
equipment rack brackets

Four screws for attaching the handles
to the RKMT-J14 equipment rack
brackets:
Length: 6.0mm (0.2 in.)
Diameter: 3.0mm (0.1 in.)
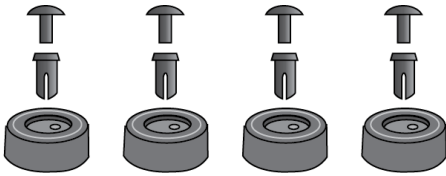
Four rubber bumper feet

Figure 23. x530L-10GHXm Switch Accessory Kit (Continued)

Unpacking the x530L-18GHXm Switch

Figure 24 shows the shipping box for the x530L-18GHXm Switch.
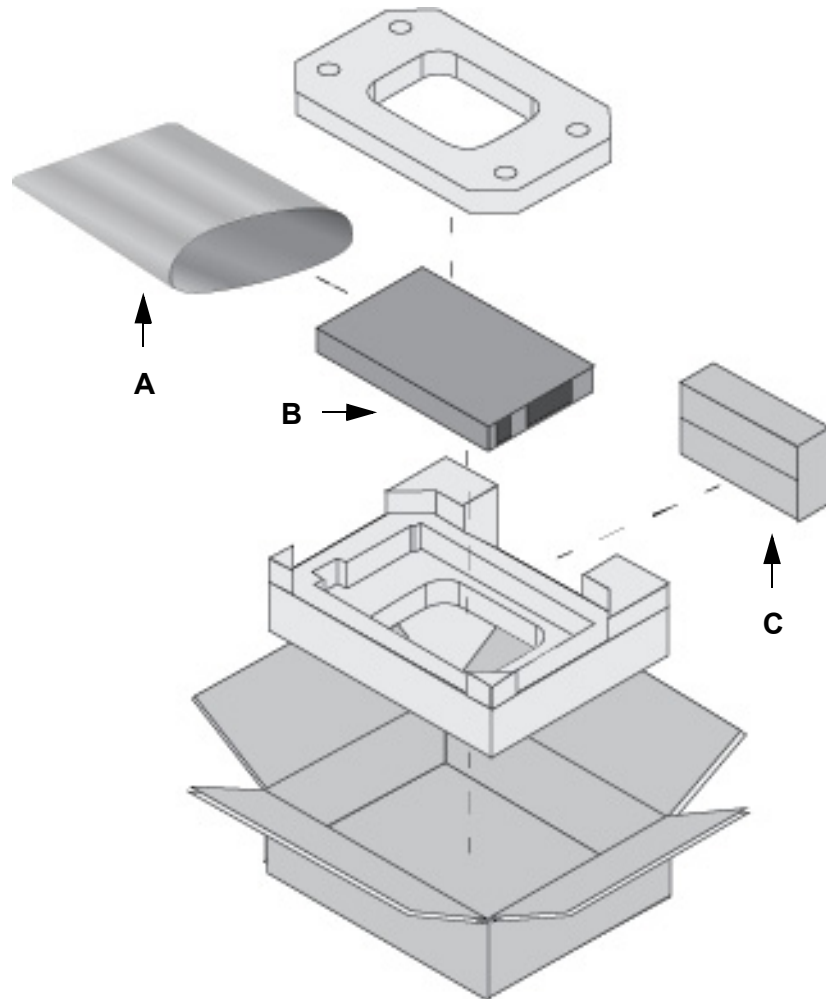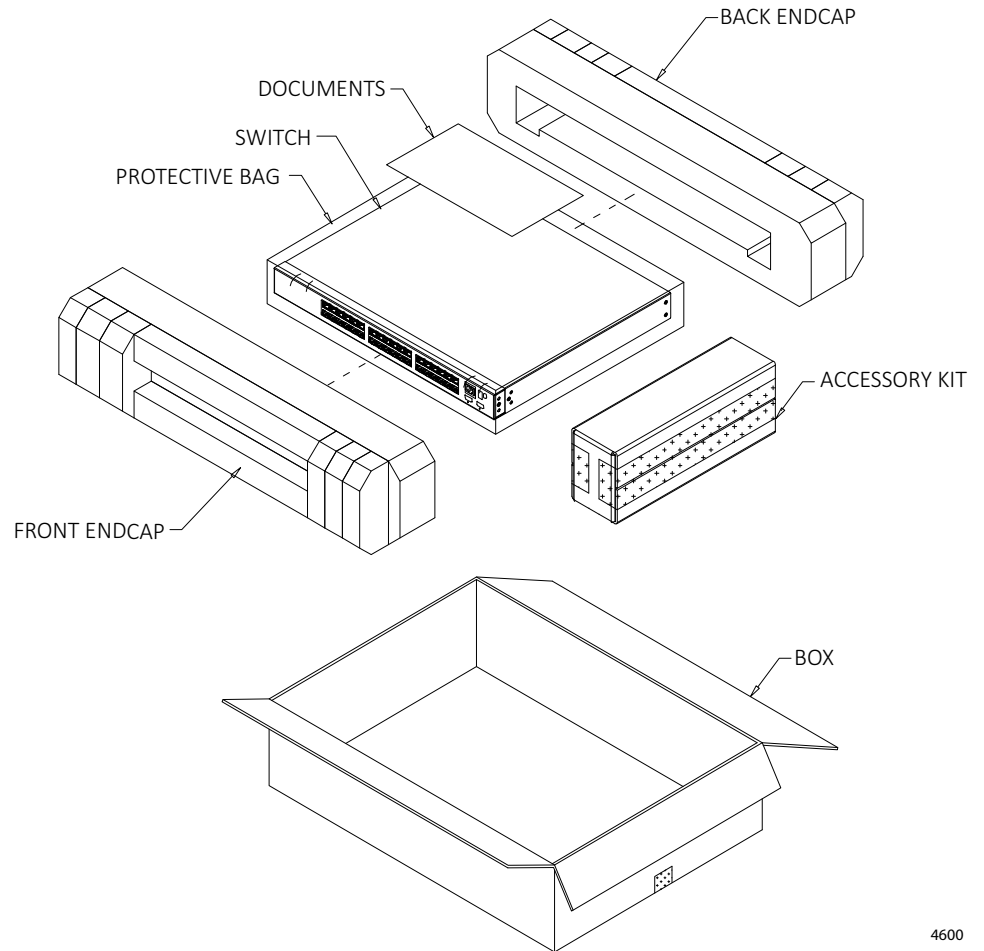

Figure 24. x530L-18GHXm Switch Shipping Box

The items in the box are listed here:

- Protective bag
- x530L-18GHXm Switch
- Accessory kit

Note
You should retain the original packaging material in case you need to return the unit to Allied Telesis.

Figure 25 lists the items in the accessory kit. Contact your Allied Telesis sales representative for assistance if any item is missing or damaged.
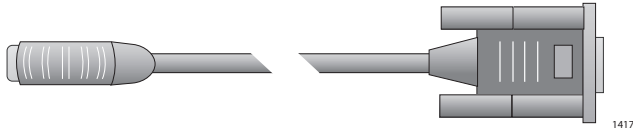
One 2m (6.6 ft) local management cable with RJ-45 (8P8C) and DB-9 (D-sub 9-pin) connectors.
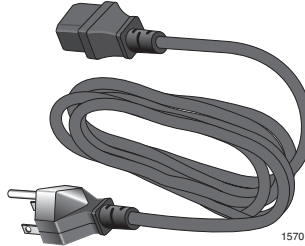
One regional AC power cord
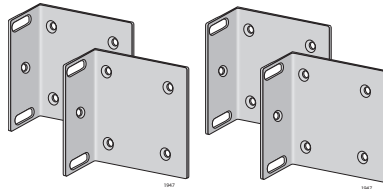
Four wall mounting brackets

Sixteen screws for attaching the wall/equipment rack brackets to the switch.
Length: 6.0mm (0.2 in.)
Diameter: 4.0mm (0.2 in.)
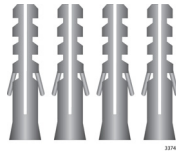
Four anchors for concrete walls:
Length: 29.6mm (1.2 in.)
Diameter: 6.0mm (0.2 in.)
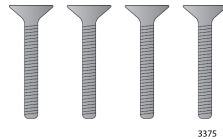
Four screws for wood or concrete walls:
Length: 32mm (1.3 in.)
Diameter: 4mm (0.2 in.)

Power cord retaining clip
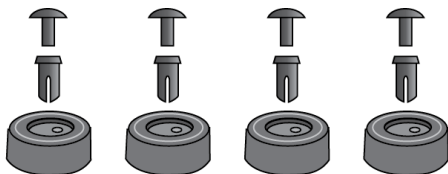
Four rubber bumper feet

Figure 25. x530L-18GHXm Switch Accessory Kit

Unpacking the x530L-28GTX, x530L-28GPX, x530L-52GTX, or x530L-52GPX Switch

Figure 26 shows the items provided in the shipping box for the switch.
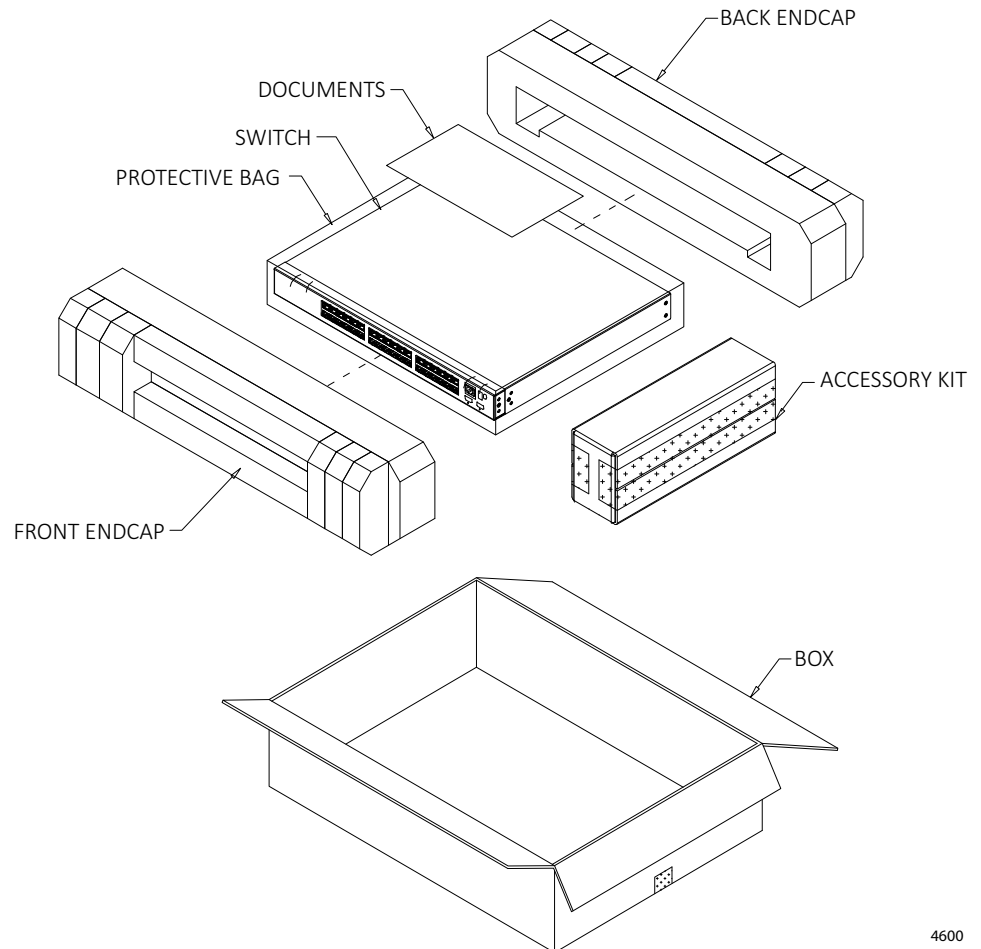
Figure 26. 28- or 52-Port Switch Shipping Box

The main items provided in the shipping box for the switch are:

❐ Protective bag

❐ The switch

❐ Accessory kit (refer to Figure 27 on page 68)

Note
Retain the original packaging material in case you need to return the unit to Allied Telesis.

Figure 27 lists the items that are included in the x530L-28GTX, x530L-28GPX, x530L-52GTX, or x530L-52GPX Switch accessory kit. Contact your Allied Telesis sales representative for assistance if any item is missing or damaged.

1 local management cable 2m (6.6 ft) with RJ-45 (8P8C) and DB-9 (D-sub 9-pin) connectors.
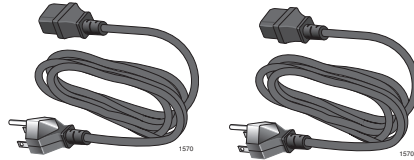
Regional AC power cords:
2 for x530L-28GTX, x530L-52GTX, x530L-28GPX or x530L-52GPX
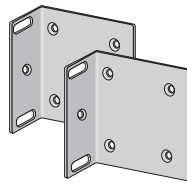
Wall/equipment rack brackets:
2 for x530L-28GTX or x530L-52GTX
4 for x530L-28GPX or x530L-52GPX
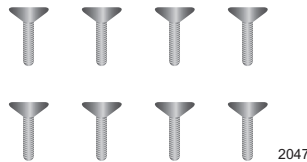
Screws to attach the wall/equipment rack brackets:
8 for x530L-28GTX or x530L-52GTX
16 for x530L-28GPX or x530L-52GPX
Length: 6.0mm (0.2 in.)
Diameter: 4.0mm (0.2 in.)
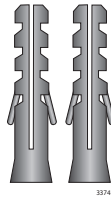
Anchors for concrete walls:
2 for x530L-28GTX or x530L-52GTX
4 for x530L-28GPX or x530L-52GPX
Length: 29.6mm (1.2 in.)
Diameter: 6.0mm (0.2 in.)
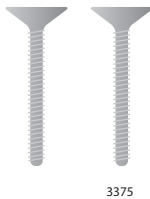
Screws for wood or concrete walls:
2 for x530L-28GTX or x530L-52GTX
4 for x530L-28GPX or x530L-52GPX
Length: 32mm (1.3 in.)
Diameter: 4mm (0.2 in.)
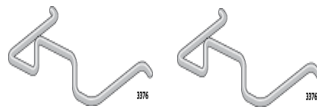
2 power cord retaining clips
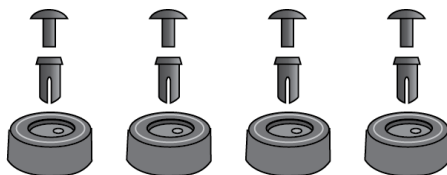
4 rubber bumper feet

Figure 27. 28- or 52-Port Accessory Kit Items

Chapter 3

Installing the Switch on a Table

This chapter contains the instructions for installing the switch on a table or desktop.

Warning
Switches should not be stacked on a table or desktop. They could present a physical safety hazard if you need to move or replace switches. ☞ E91

Warning
The switch is heavy. Always ask for assistance when moving or lifting the device so as to avoid injuring yourself or damaging the equipment.

Installing the Bumper Feet

The switch comes with four bumper feet in the accessory kit. The feet, which are reusable, are used when installing the switch on a table. If they are already assembled, disassemble them by removing the rivets and rivet housings from the bumper feet. Refer to Figure 28.

Rivet

Rivet Housing

Bumper Foot
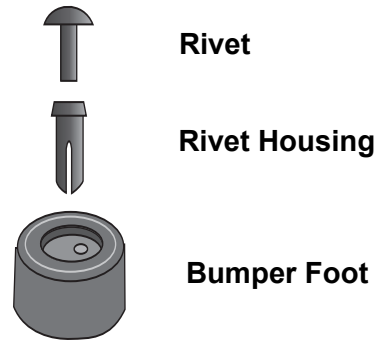
Figure 28. Parts of the Bumper Feet

The holes in the base of the switch for the bumper feet are shown in Figure 29 on page 70.

Note
Although you cannot stack the switches on top of each other, they can be placed next to each other.

Rear of Chassis

Front of Chassis
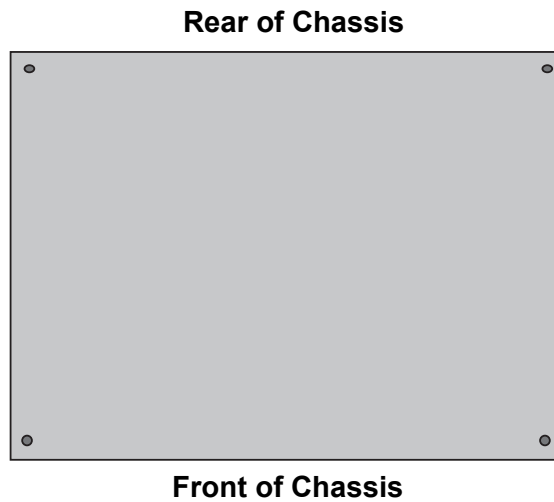
Figure 29. Holes for Bumper Feet

Note

The following procedure assumes that you have already reviewed the information and performed the procedures in Chapter 2, "Beginning the Installation" on page 55.

To install the switch on a table, perform the following procedure:

1. Place the switch upside down on a table.

2. Insert a rivet housing into a bumper foot. Refer to Figure 30.
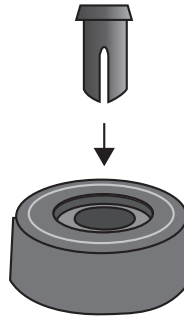
Figure 30. Inserting the Rivet Housing into the Bumper Foot

3. Place the bumper foot with rivet housing onto one of the holes in the base of the switch. Refer to Figure 31.
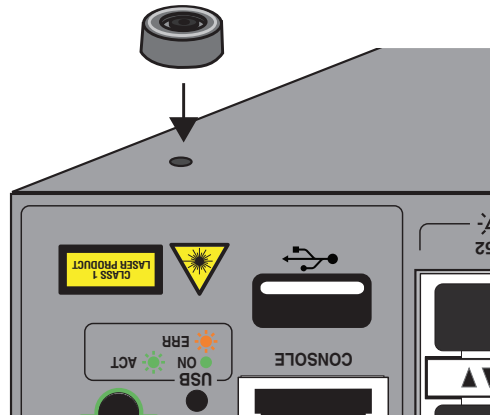
Figure 31. Placing the Bumper Foot on a Base Corner Hole

4. Insert the rivet to secure the bumper foot to the base. Refer to Figure 32 on page 72.
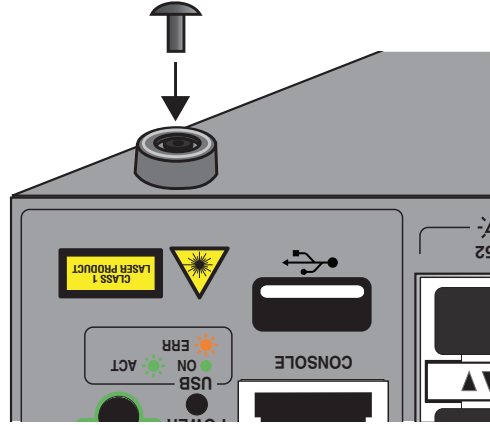
Figure 32. Inserting the Rivet into the Bumper Foot

5. Repeat steps 2 to 4 to install the remaining bumper feet.

6. Turn the switch over and place it on a flat, secure desk or table, leaving ample space around it for ventilation.

7. After placing the switch on the table or desktop, go to Chapter 6, "Powering On the Switch" on page 107.

Chapter 4

Installing the Switch in an Equipment Rack

This chapter provides instructions for installing the switch in an equipment rack, and contains the following sections:

❐ "Overview of Installing the x530L-10GHXm Switch in an Equipment Rack" on page 74

❐ "Installing the x530L-10GHXm Switch in an Equipment Rack with the RKMT-J14 Brackets" on page 76

❐ "Installing the x530L-10GHXm Switch in an Equipment Rack with the RKMT-J15 Bracket" on page 81

❐ "Installing the x530L-18GHXm, x530L-28GPX, x530L-52GTX, or x530L-52GPX Switch in an Equipment Rack" on page 87

Overview of Installing the x530L-10GHXm Switch in an Equipment Rack

You can install the x530L-10GHXm Switch in a 19-inch equipment rack two ways. One way is with the RKMT-J14 brackets that come with the switch. Refer to Figure 33.
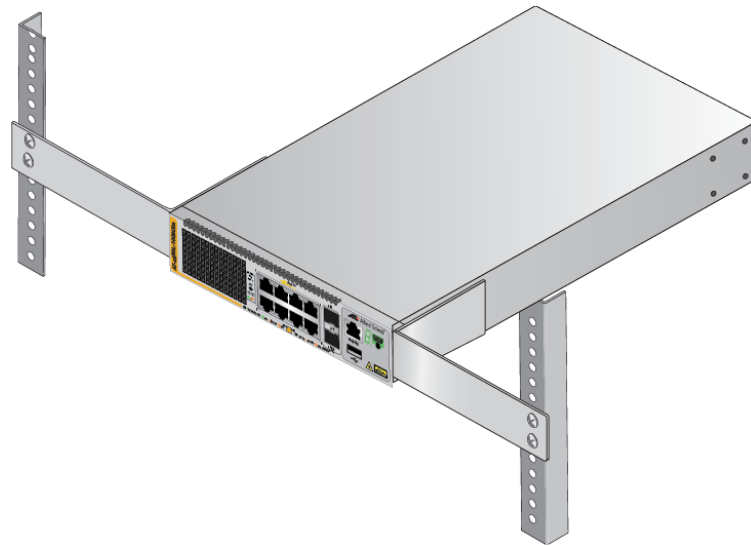
Figure 33. RKMT-J14 Brackets and Switch

For installation instructions, refer to "Installing the x530L-10GHXm Switch in an Equipment Rack with the RKMT-J14 Brackets" on page 76.

You can also install the switch in an equipment rack with the optional RKMT-J15 bracket. Refer to Figure 34.
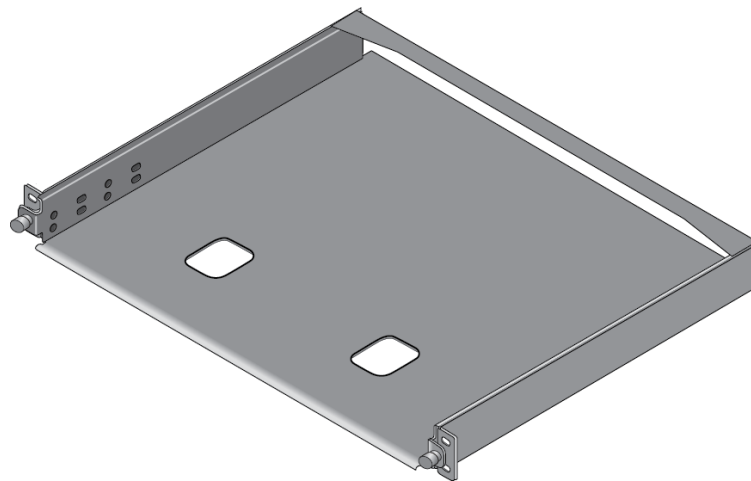
Figure 34. RKMT-J15 Bracket

The bracket lets you install two switches side-by-side. Refer to Figure 35.

Figure 35. RKMT-J15 Bracket with Switches

Note
The RKMT-J15 Bracket is purchased separately.

For installation instructions refer, to "Installing the x530L-10GHXm Switch in an Equipment Rack with the RKMT-J15 Bracket" on page 81.

Installing the x530L-10GHXm Switch in an Equipment Rack with the RKMT-J14 Brackets

This section contains the procedure for installing the x530L-10GHXm Switch in a standard 19-inch equipment rack, with the RKMT-J14 Brackets included with the switch.

Required Items

The following items are required to install the switch in an equipment rack with the RKMT-J14 Brackets:

❐ Two RKMT-J14 equipment rack brackets (included with the switch)

❐ Eight M4x6mm bracket screws (included with the switch)

❐ Four M3x6mm screws (included with the switch)

❐ Two bracket handles (included with the switch)

❐ Cross-head screwdriver (not provided)

❐ Four standard equipment rack screws (not provided)

Switch Orientations in the Equipment Rack

The switch has two sets of four screw holes on the left and right sides, for attaching the RKMT-J14 Brackets. Refer to Figure 36.
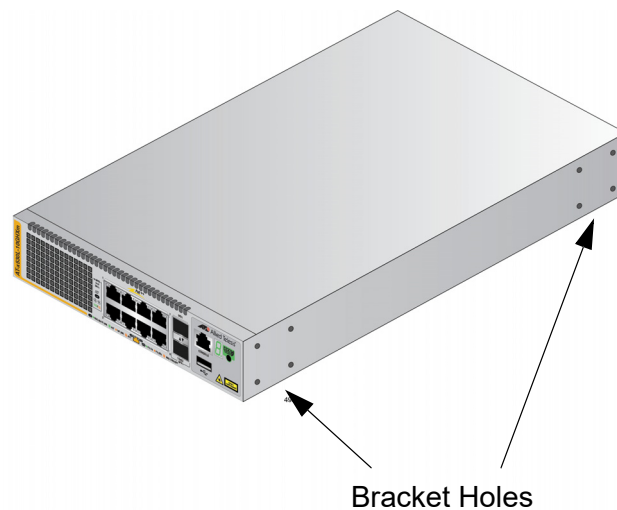
Bracket Holes

Figure 36. Bracket Holes

The brackets also have two sets of four holes. Refer to Figure 37 on page 77.
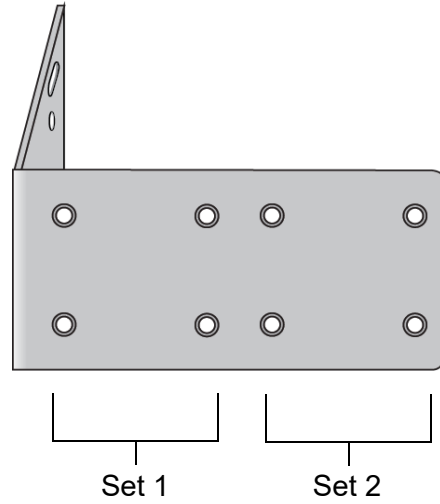
Figure 37. RKMT-J14 Bracket Holes

You can use the different sets of holes on the switch and brackets to install the switch in the equipment rack in a variety of orientations. You can install it with the front panel flush with, extending in front of, or recessed behind the front of the equipment rack. The illustrations in Figure 38 show the switch orientations with the front panel facing the front of the equipment rack.
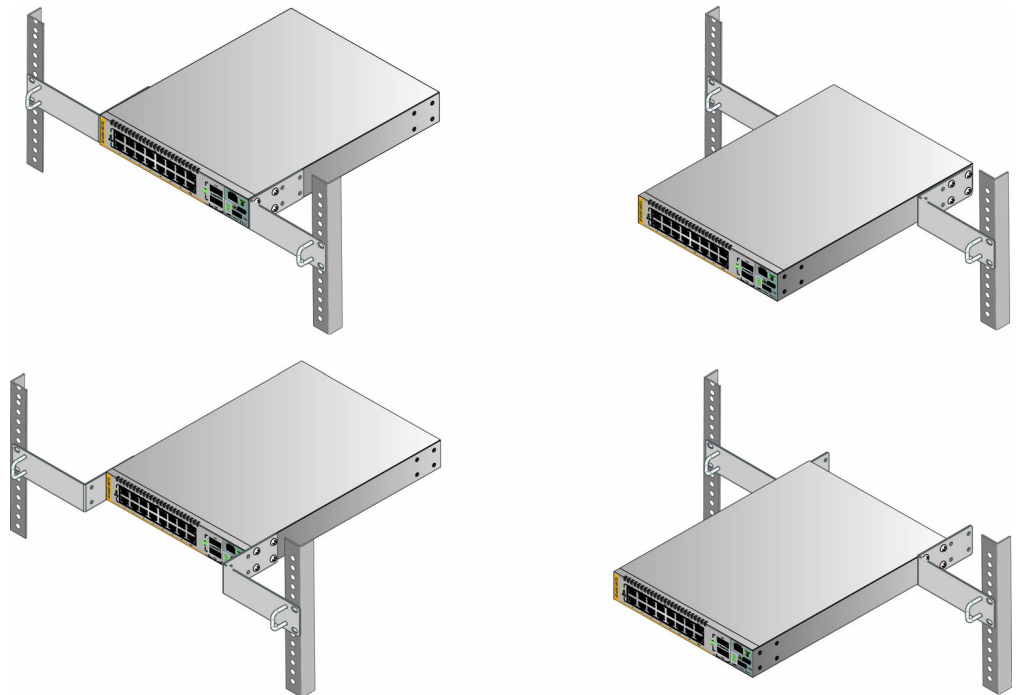
Figure 38. Switch Orientations with the Front Panel Facing the Front of the Equipment Rack

You can also orient the switch with the rear panel facing the front of the equipment rack. Refer to Figure 39.
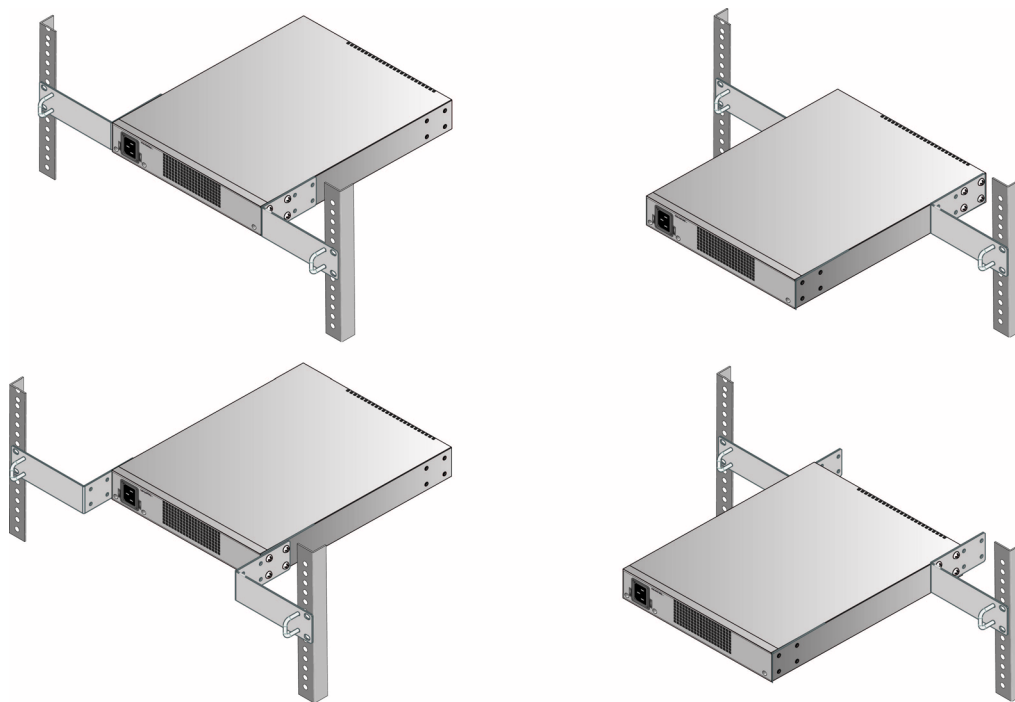
Figure 39. Switch Orientations with the Rear Panel Facing the Front of the Equipment Rack

Installing the Switch

If you have not chosen an orientation for the switch in the equipment rack, review "Switch Orientations in the Equipment Rack" on page 76.

Please review the installation guidelines in "Choosing a Site for the Switch" on page 61 before installing the switch in an equipment rack.

⚠️ **Caution**
The chassis may be heavy and awkward to lift. Allied Telesis recommends that you get assistance when mounting the chassis in an equipment rack. ⟿ E28

To install the switch in a 19-inch equipment rack with the RKMT-J14 Brackets, perform the following procedure:

1. Attach the two handles to the RKMT-J14 Brackets using the four M3x6mm screws included with the switch. Refer to Figure 40 on page 79.
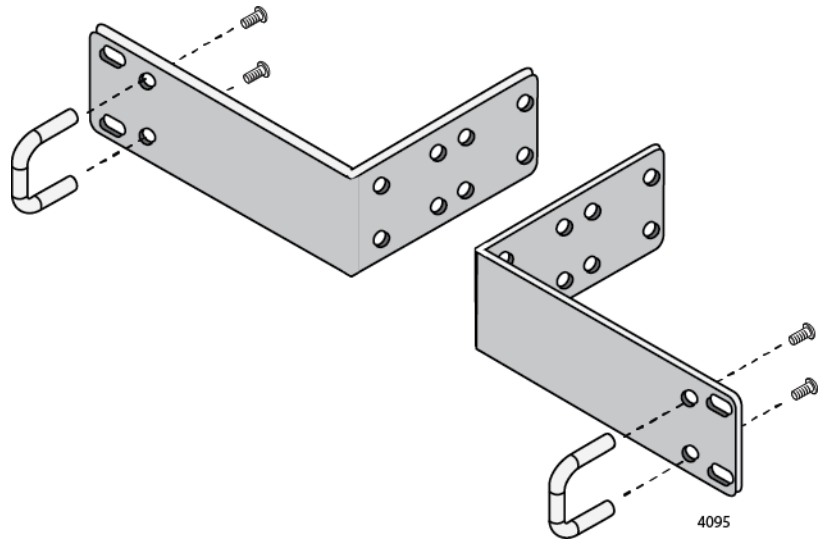
Figure 40. Attaching the Handles to the RKMT-J14 Brackets

2. Place the switch on a level, secure surface.

3. Attach the two brackets to the sides of the switch in the selected position, using the eight M4x6mm screws included with the unit. (Refer to Figure 38 on page 77 and Figure 39 on page 78.) The illustration in Figure 41 shows the installation of the brackets such that the front panel of the switch is even with the front of the equipment rack.

Figure 41. Attaching the RKMT-J14 Brackets to the Switch

4. Have another person hold the switch at the desired location in the equipment rack while you secure it using four standard equipment rack screws (not provided). Refer to Figure 42.

Figure 42. Installing the Switch in an Equipment Rack

5. Go to Chapter 6, "Powering On the Switch" on page 107.

Installing the x530L-10GHXm Switch in an Equipment Rack with the RKMT-J15 Bracket

This section contains the procedure for installing the x530L-10GHXm switch in a standard 19-inch equipment rack, with the optional RKMT-J15 Bracket.

Required Items The following items are required to install the x530L-10GHXm switch in an equipment rack with the RKMT-J15 Bracket:

- ❒ One RKMT-J15 equipment rack-mount bracket (sold separately)
- ❒ Four M4x6mm bracket screws (included with the RKMT-J15)
- ❒ Cross-head screwdriver (not provided)
- ❒ Flat-head screwdriver (not provided)
- ❒ Four standard equipment rack screws (not provided)

Note
If the rubber feet have been attached to the device, remove them.

Installing the Switch To install the x530L-10GHXm switch in a 19-inch equipment rack with the RKMT-J15 Bracket, perform the following procedure:

1. Have another person hold the RKMT-J15 Bracket at the desired location in the equipment rack while you secure it using four standard equipment rack screws (not provided). Refer to Figure 43 on page 82.
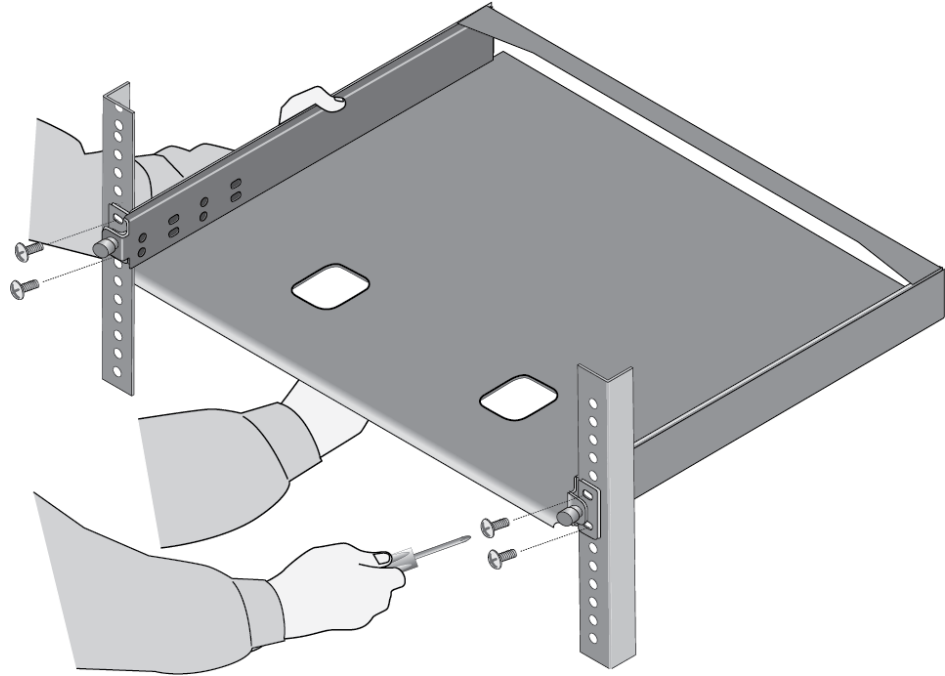
Figure 43. Installing the RKMT-J15 Bracket in the Equipment Rack

2. Loosen the two thumbscrews on the front of the bracket. Refer to Figure 44.
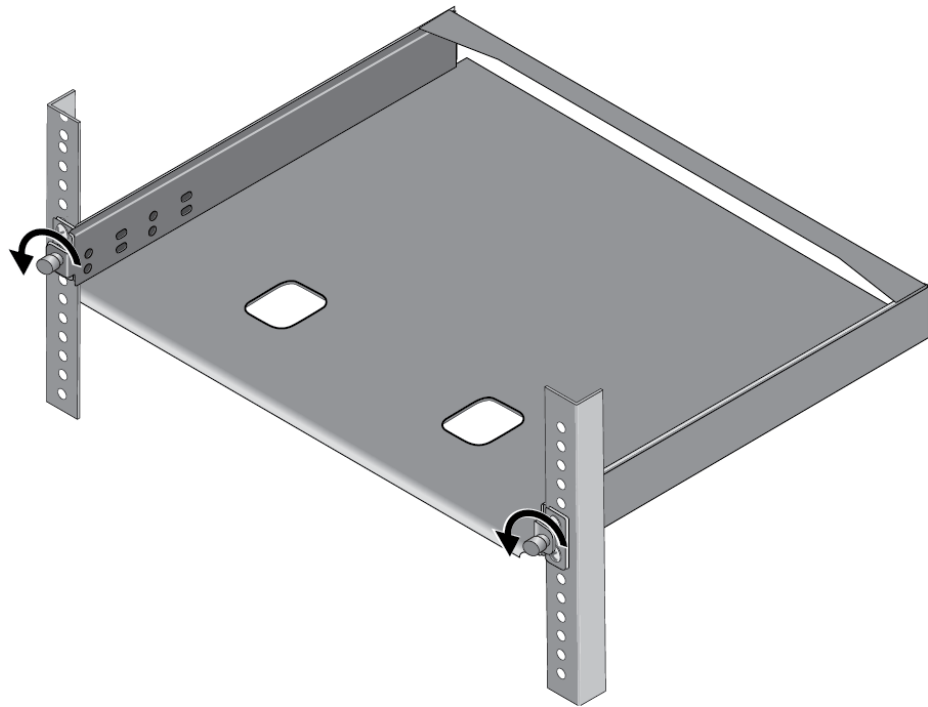
Figure 44. Loosening the Two Thumbscrews on the Front of the RKMT-J15 Bracket

3. Slide out the bracket tray. Refer to Figure 45.
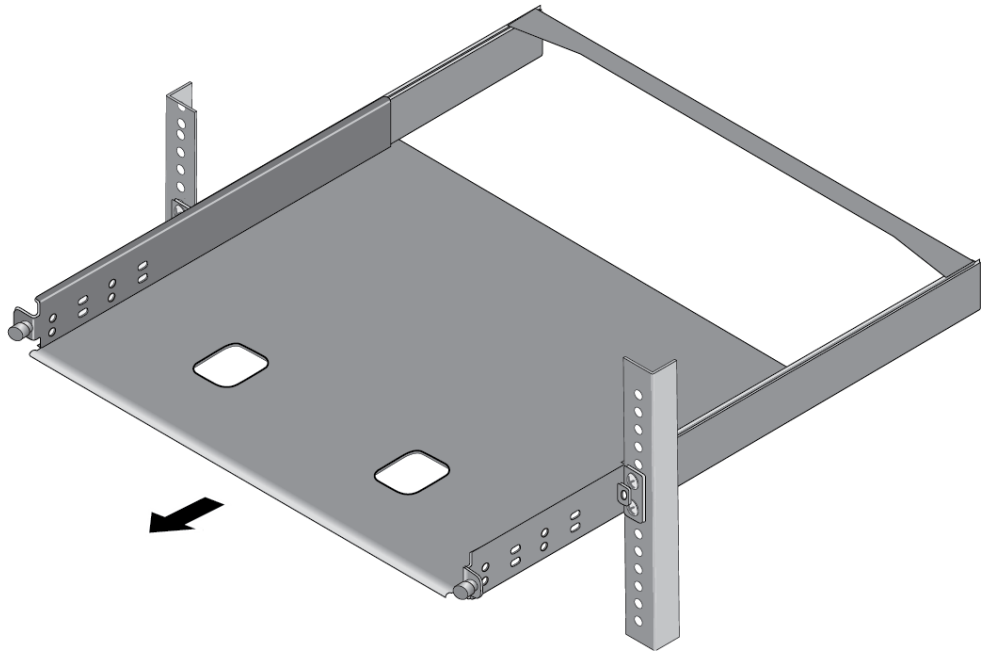
Figure 45. Sliding Out the Bracket of the RKMT-J15

Note
Follow steps 4 to 6 to remove the plastic feet from the bottom of the switch. If the plastic feet have been installed, you must remove them to install the switch in the RKMT-J15 Bracket.

4. Place the switch upside-down on a table.

5. Use a small flat-head screwdriver to pry the four plastic feet from the bottom of the switch. Refer to Figure 46.
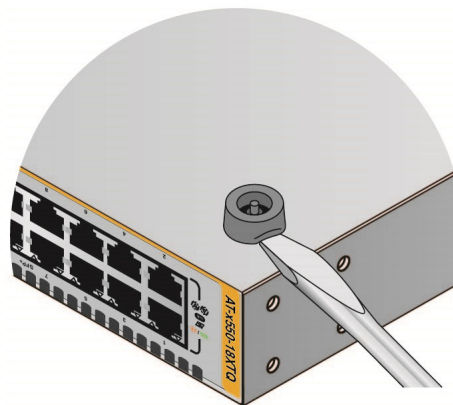
Figure 46. Removing the Plastic Feet from the Bottom Panel of the Switch

6. Turn the switch over so that it is right-side up.

7. Place the switch on one side of the bracket. Align the front panel with the front edge of the bracket. If you are installing only one switch, you may install it on either the left or right side. Refer to Figure 47.
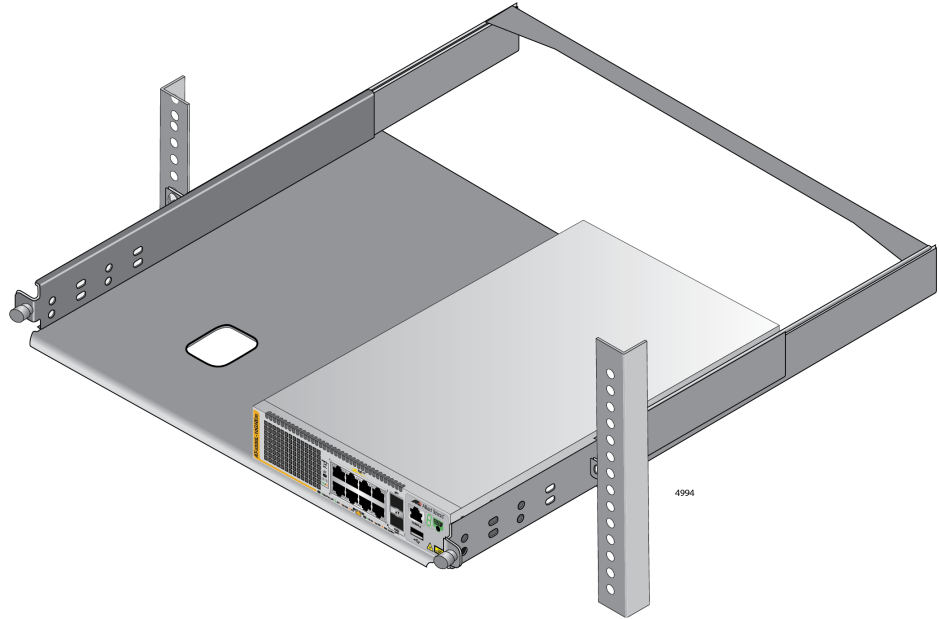
Figure 47. Placing the x530L-10GHXm Switch in the RKMT-J15 Bracket

8. Install two M4x6mm screws included with the RKMT-J15 using the first set of holes to secure the switch to the bracket. Refer to Figure 48.
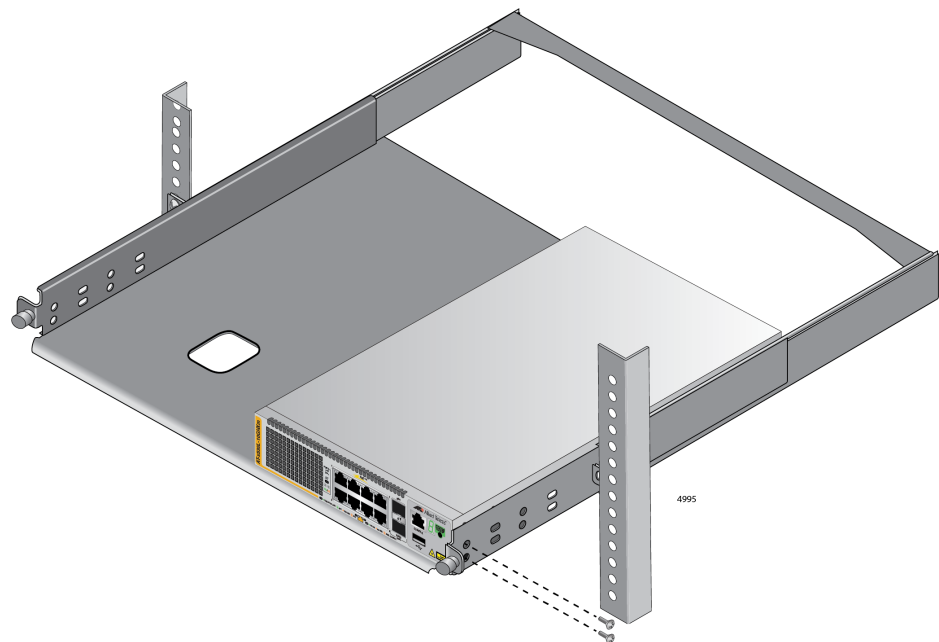
Figure 48. Securing the x530L-10GHXm Switch to the RKMT-J15 Bracket

9. To install a second switch in the bracket, repeat steps 4 to 8.

10. Slide in the bracket tray. Refer to Figure 49.
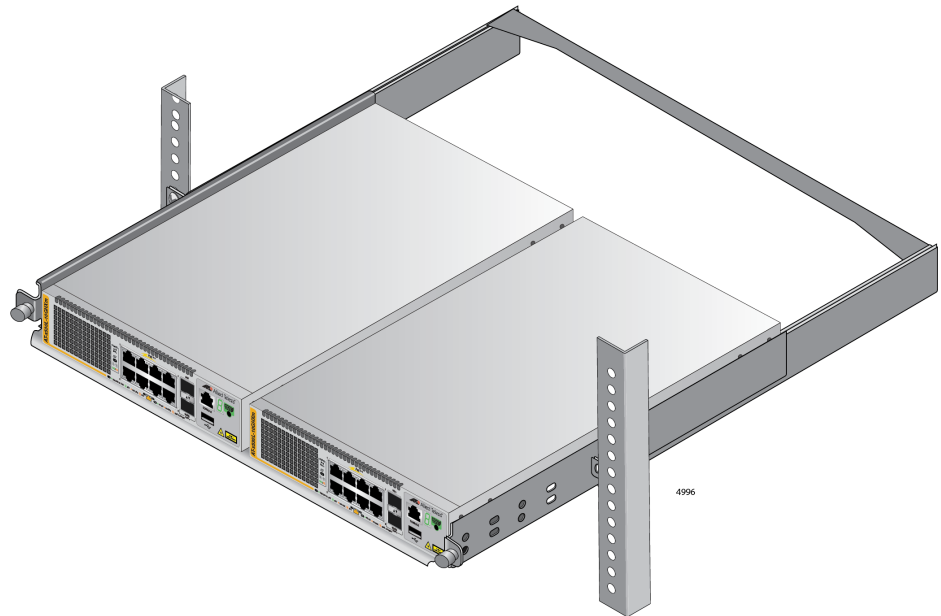
Figure 49. Sliding in the Bracket

11. Tighten the two thumbscrews to secure the bracket to the rack. Refer to Figure 50.
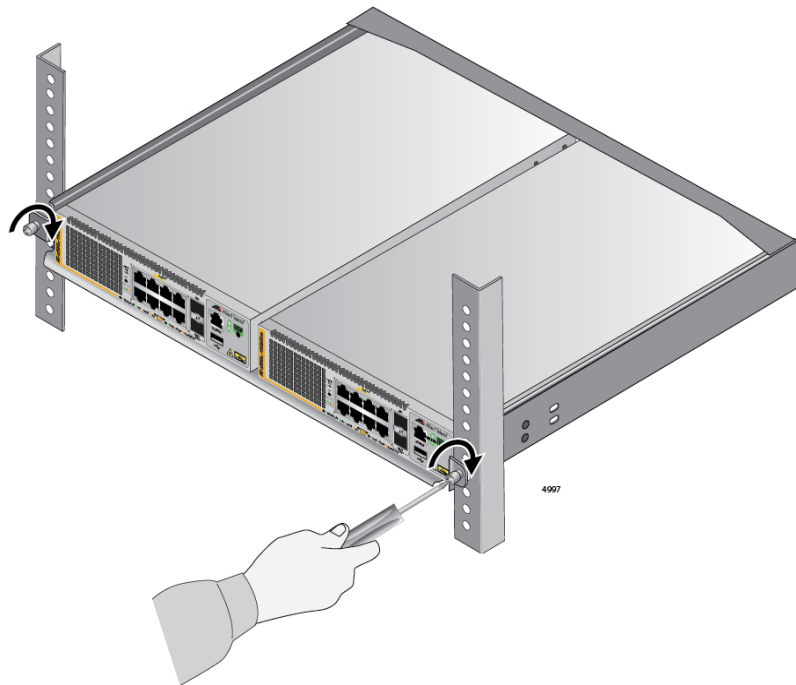
Figure 50. Tightening the Two Thumbscrews on the RKMT-J15 bracket.

12. After installing the switch, go to Chapter 6, "Powering On the Switch" on page 107.

Installing the x530L-18GHXm, x530L-28GPX, x530L-52GTX, or x530L-52GPX Switch in an Equipment Rack

This section contains the procedure for installing the x530L-18GHXm, x530L-28GTX, x530L-28GPX, x530L-52GTX, or x530L-52GPX Switch in a standard 19-inch equipment rack using the brackets supplied with the unit.

Required Items

The following items are required to install the switch in an equipment rack:

- ❐ Two equipment rack brackets (included with the switch)
- ❐ Eight M4x6mm bracket screws (included with the switch)
- ❐ Cross-head screwdriver (not provided)
- ❐ Four standard equipment rack screws (not provided)

Switch Orientations in the Equipment Rack

The switch has two sets of four screw holes on the left and right sides, for attaching the brackets. Refer to Figure 51.
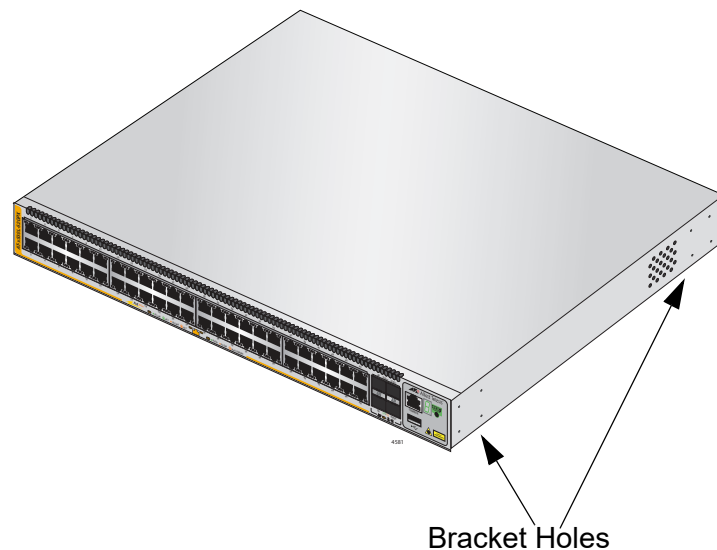
Bracket Holes

Figure 51. Bracket Holes on the Switch

You can use the different sets of holes on the switch to install the switch in the equipment rack in a variety of orientations. You can install it with the front panel flush with, extending in front of, or recessed behind the front of the equipment rack. Refer to Figure 52.
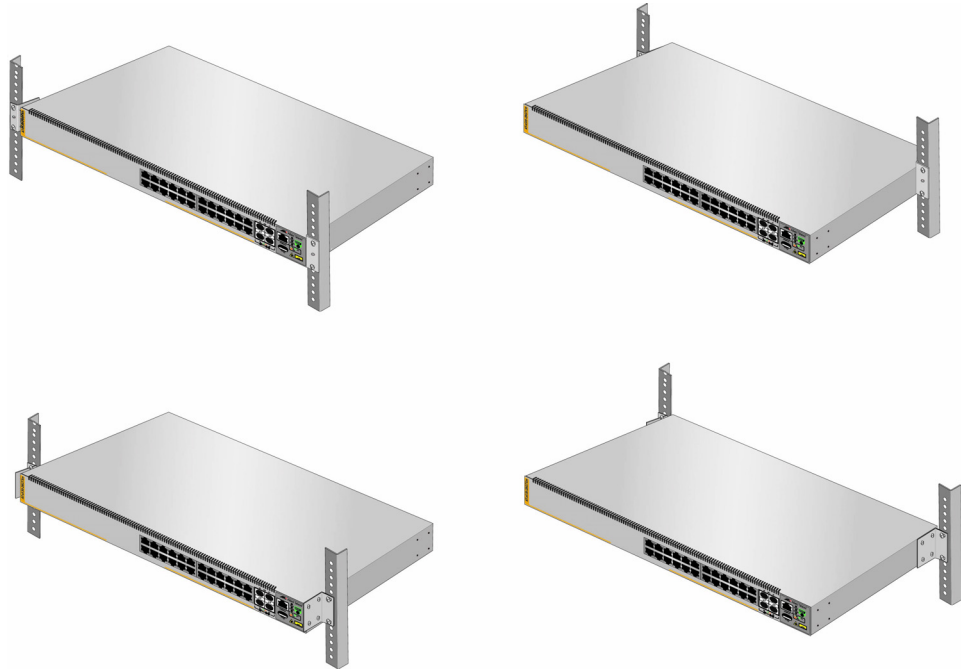
Figure 52. Switch Orientations in an Equipment Rack

Installing the Switch

If you have not chosen an orientation for the switch in the equipment rack, review "Switch Orientations in the Equipment Rack" on page 87.

Please review the installation guidelines in "Choosing a Site for the Switch" on page 61 before installing the switch in an equipment rack.

⚠ **Caution**
The chassis can be heavy and awkward to lift. Allied Telesis recommends that you get assistance when mounting the chassis in an equipment rack. ✍ E28

To install the switch in a 19-inch equipment rack, perform the following procedure:

1. Place the switch on a level, secure surface.

2. Attach the two brackets to the sides of the switch in the selected position, using the eight M4x6mm screws supplied with the unit. The illustration in Figure 53 shows the installation of the brackets such that the front panel of the switch is even with the front of the equipment rack.
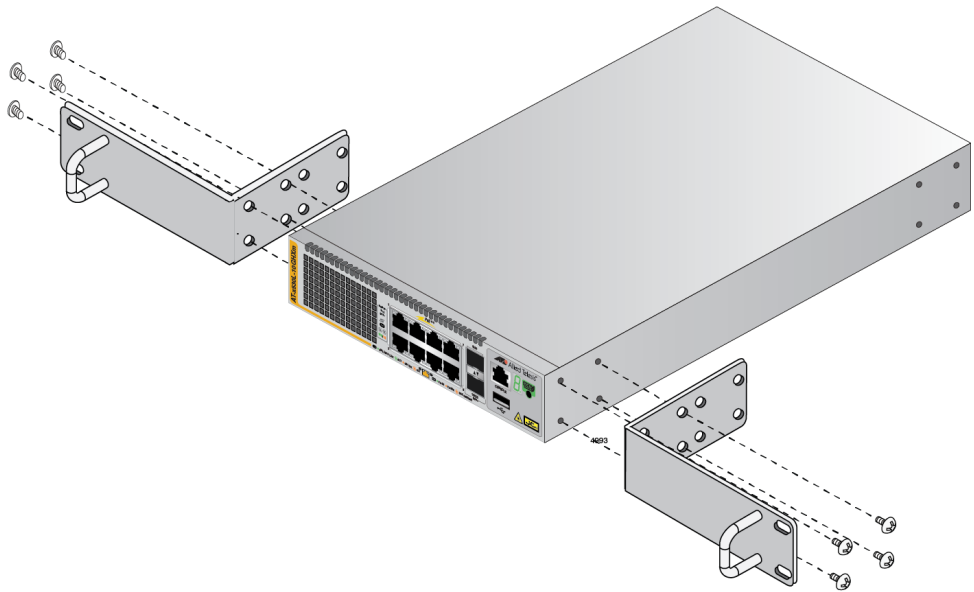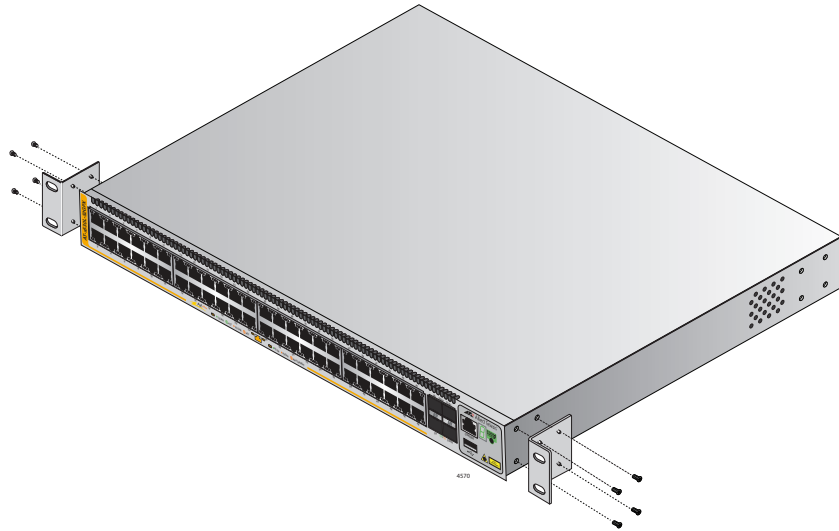

Figure 53. Example of Attaching the Brackets to the Switch

Have another person hold the switch at the desired location in the equipment rack while you secure it using four standard equipment rack screws (not provided). Refer to Figure 54 on page 90.
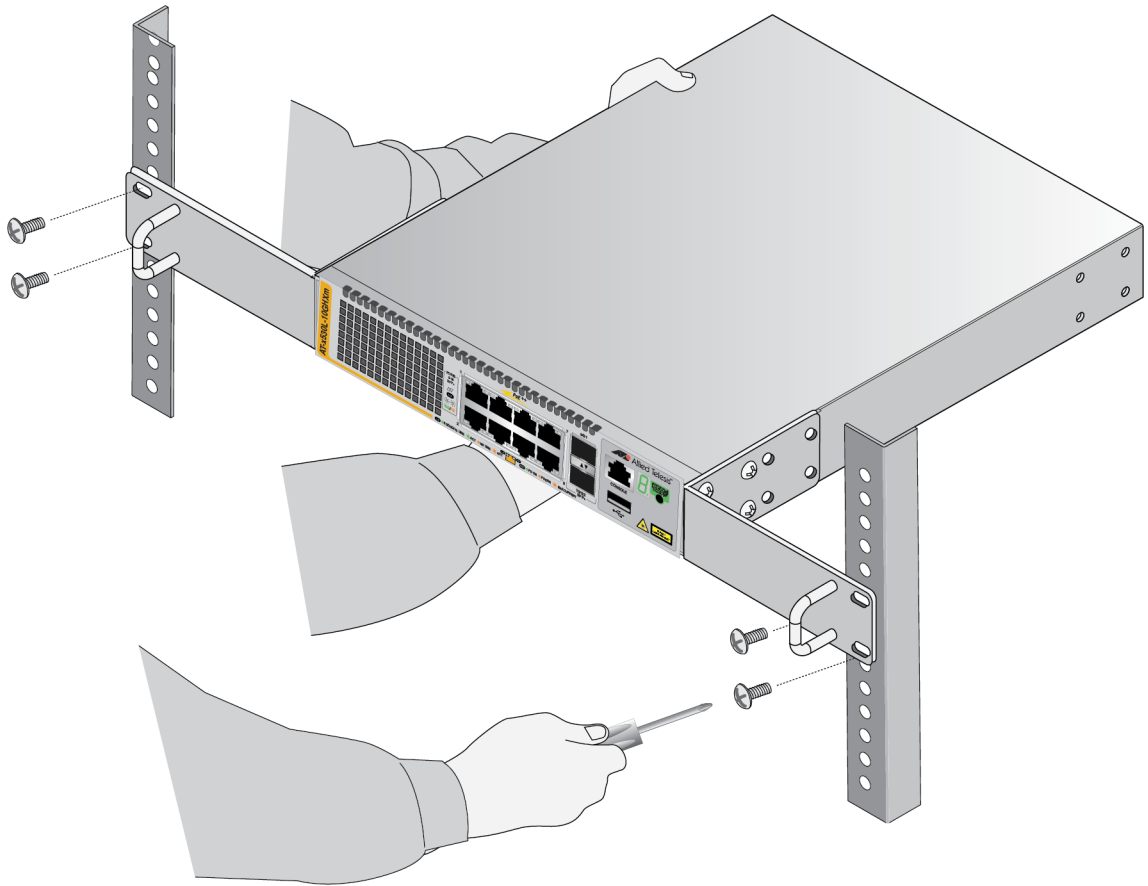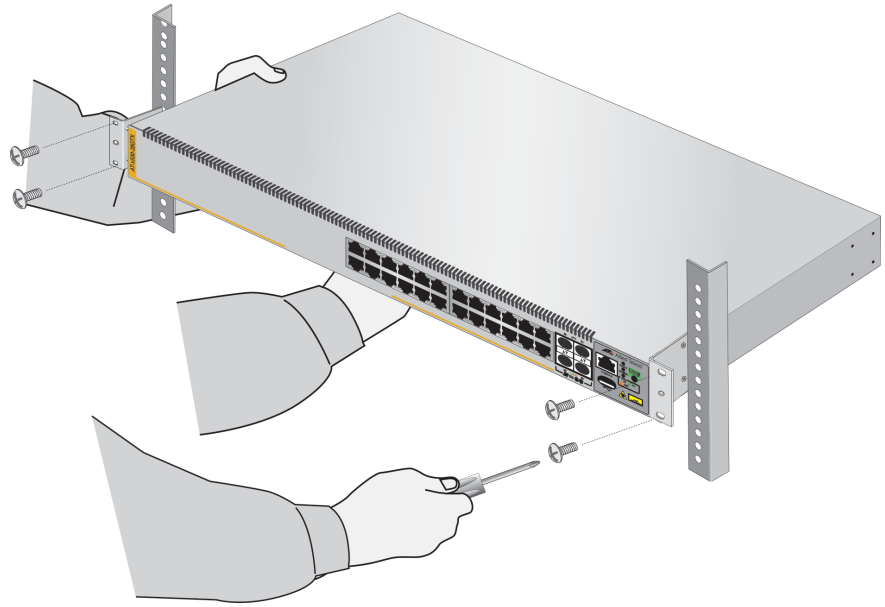
Figure 54. Installing the Switch in an Equipment Rack

3. After installing the switch, go to Chapter 6, "Powering On the Switch" on page 107.

Chapter 5
Installing the Switch on a Wall

The procedures in this chapter are listed here:

Switch Orientations on a Wall

Install the switch on a wall with the front panel facing up, left or right as shown in Figure 55. Do not install the switch with the front panel facing down.
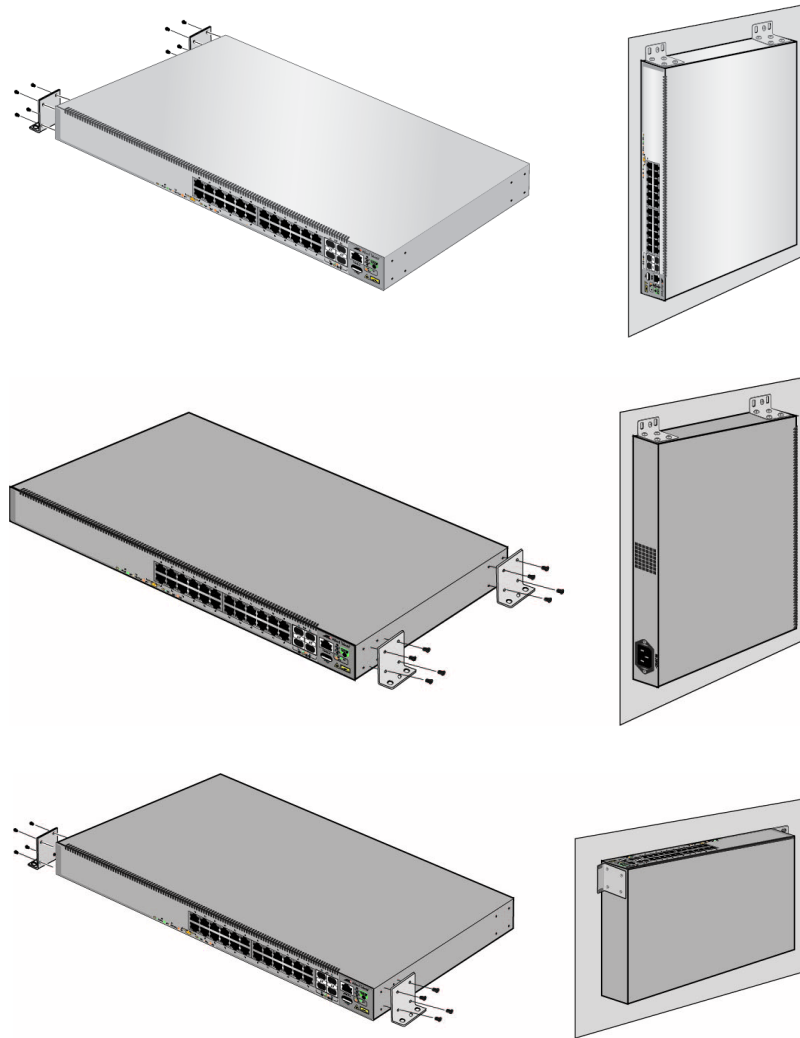
Figure 55. Switch Orientations on a Wall

Installation Guidelines

Here are the guidelines for installing the switch on a wall:

❒ You can install the switches on a wall with the front panels facing up, left, or right. Do not install the switches with the front panels facing down.

❒ Install the switch on a wall that has wooden studs or on a concrete wall.

❒ If you are installing the switch on a wall with wooden studs, use a plywood base to support the switch. For more information, refer to "Plywood Base for a Wall with Wooden Studs" on page 97. A plywood base is not required for a concrete wall.

❒ Do not install the switch on a wall that has metal studs. Metal studs may not be strong enough to safely support the device.

❒ Do not install the switch on sheetrock or similar material. Sheetrock is not strong enough to safely support the device.

⚠ **Warning**
The device is heavy. Always ask for assistance before moving or lifting it to avoid injuring yourself or damaging the equipment.

⚠ **Warning**
The device should be installed on a wall by a qualified building contractor. Serious injury to yourself or others or damage to the equipment can result if it is not properly fastened to the wall. ᗌ E105

Tools and Material

Here are the requirements for installing the switches on a wall:

❒ The x530L-10GHXm Switch requires the four BRKT-J24 wall brackets and sixteen screws included with the switch.

❒ The x530L-28GPX, x530L-28GTX, x530L-52GPX, and x530L-52GTX Switches require the two wall/equipment rack brackets and eight screws included with the switches.

❒ Two or four wood or concrete wall screws (included with the switch)

❒ Two or four concrete wall anchors (included with the switch)

❒ Cross-head screwdriver (not provided)

❒ Flat-head screwdriver (not provided)

❒ Stud finder for a wooden wall, capable of identifying the middle of wall studs and hot electrical wiring (not provided)

❒ Drill and 1/4" carbide drill bit for a concrete wall (not provided)

⚠️ **Caution**

The supplied screws and anchors might not be appropriate for all walls. A qualified building contractor can determine the hardware requirements for your wall prior to installing the switch. ⌇ E88

To install the switch on a wall, perform the following procedure:

1. Place the switch on a table.

2. If the bumper feet are attached to the bottom of the switch, remove them using a flat-head screwdriver.

3. For the x530L-10GHXm Switch, attach the four BRKT-J24 wall brackets with sixteen screws to the sides of the switch as shown in Figure 56.
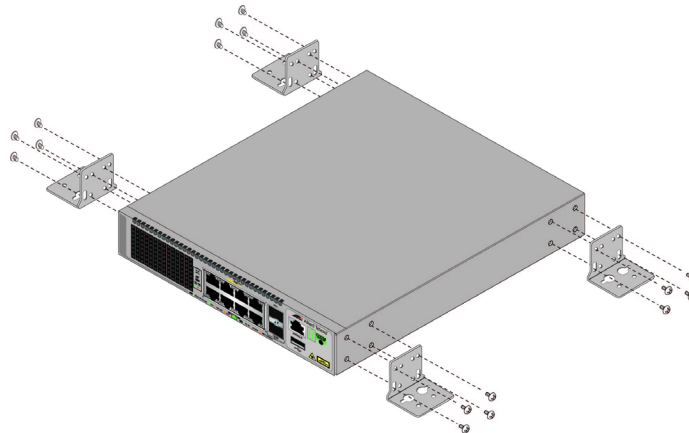
Figure 56. Attaching Wall Brackets to the x530L-10GHXm

4. For the x530L-28GTX, x530L-28GPX, x530L-52GTX, and x530L-52GPX Switches, attach the two wall/equipment rack brackets with eight screws to the sides of the switch. Refer to Figure 57 on page 95.
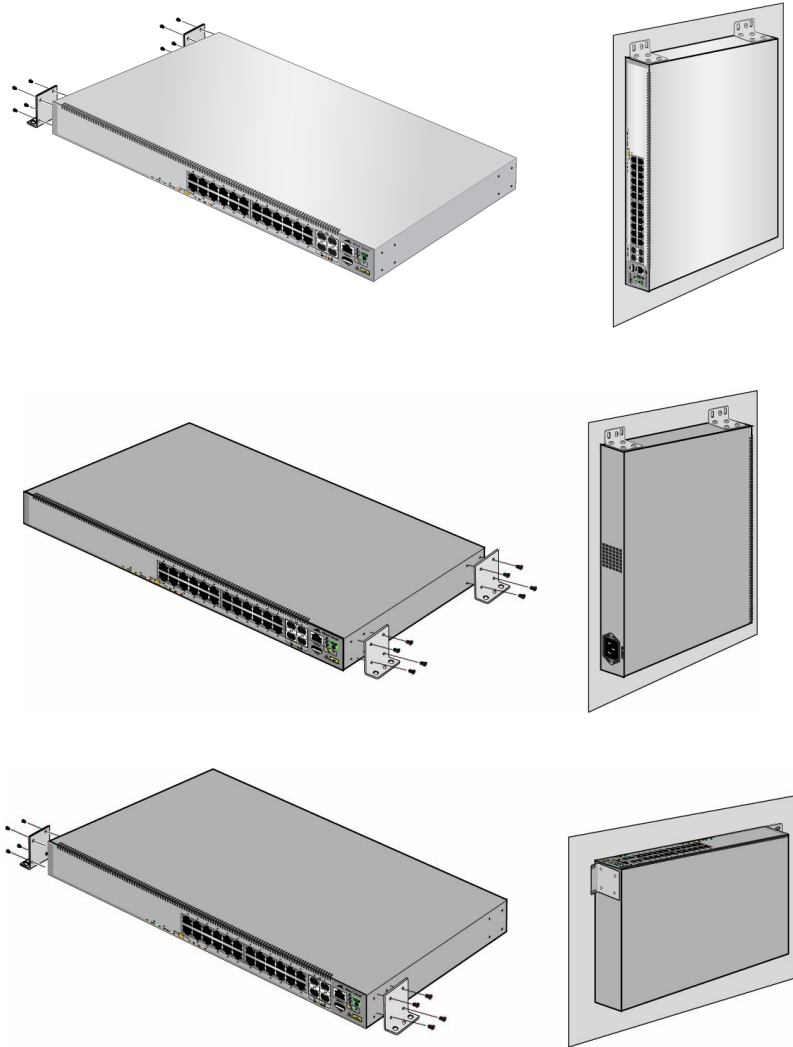
Figure 57. Attaching Wall Brackets to x530L-28GTX, x530L-28GPX,
x530L-52GTX, and x530L-52GPX Switches

Note
If the wall material requires pre-drilled holes, perform steps 5 to 9.
Otherwise, go to step 10.

5. Have another person hold the switch on the concrete wall at the
    selected location for the device while you use a pencil or pen to mark
    the wall with the locations of the screw holes in the brackets. Refer to
    Figure 58 on page 96.
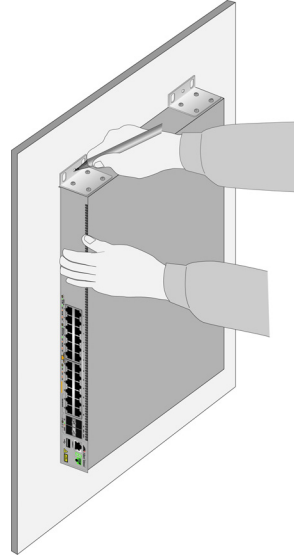
Figure 58. Marking the Screw Holes

6. Place the switch on a table or desk.

7. Use the stud finder to check for hot electrical wires at the locations of the screw holes.

> ⚠️ **Warning**
> Do not install the switch on a wall near hot electrical wires.

8. If the wall material requires pre-drilling the screw holes, use a drill to drill the holes. The dimensions of the supplied screws and anchors are in "Unpacking the x530L-10GHXm Switch" on page 62 and "Unpacking the x530L-18GHXm Switch" on page 65.

9. If the wall material requires anchors, insert the anchors into the screw holes.

10. Have another person hold the switch at the selected wall location while you secure it to the wall with appropriate screws.

11. After installing the switch, go to Chapter 6, "Powering On the Switch" on page 107.

Plywood Base for a Wall with Wooden Studs

If you are installing the switch on a wall that has wooden studs, use plywood base for the device. (A plywood base is not required for a concrete wall.) Refer to Figure 59.
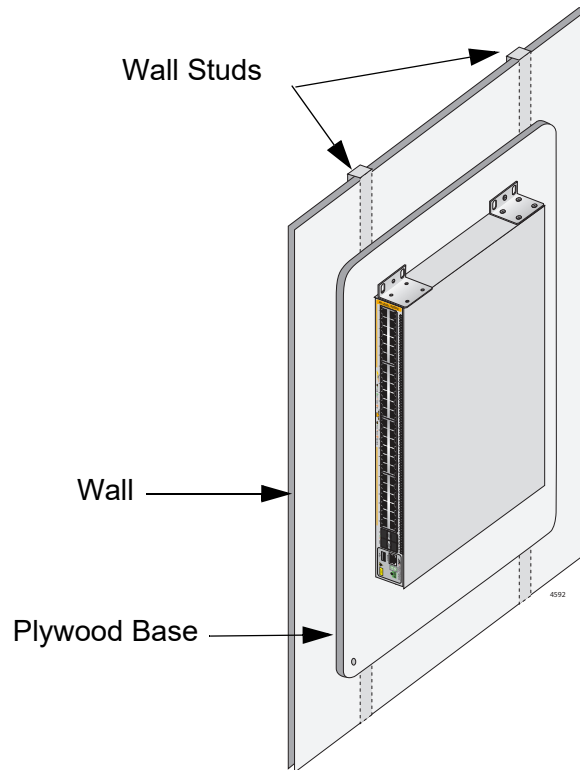
Figure 59. Switch on the Wall with a Plywood Base

Mount the plywood base to two studs in the wall. The recommended minimum dimensions of the plywood base for the switch are:

❒ Width: 55.9 centimeters (22 inches)

❒ Height: 61.0 centimeters (24 inches)

❒ Thickness: 2.5 centimeters (1 inch)

The dimensions assume the wall studs are 41 centimeters (16 inches) apart. You might need to adjust the width of the base if the distance between the studs in your wall is different than the industry standard.

Installing a Plywood Base

A plywood base is recommended when installing the switch on a wall that has wooden studs. Refer to Figure 60. Consult a qualified building contractor for installation instructions for the plywood base. The installation guidelines are listed here:

❐ Use a stud finder to identify the middle of studs and hot electrical wiring in the wall.

❐ Attach the base to two wall studs with a minimum of four screws.

❐ The selected wall location for the base must provide sufficient space from other devices or walls so that you can access the front and back panels, and for adequate air flow for ventilation.
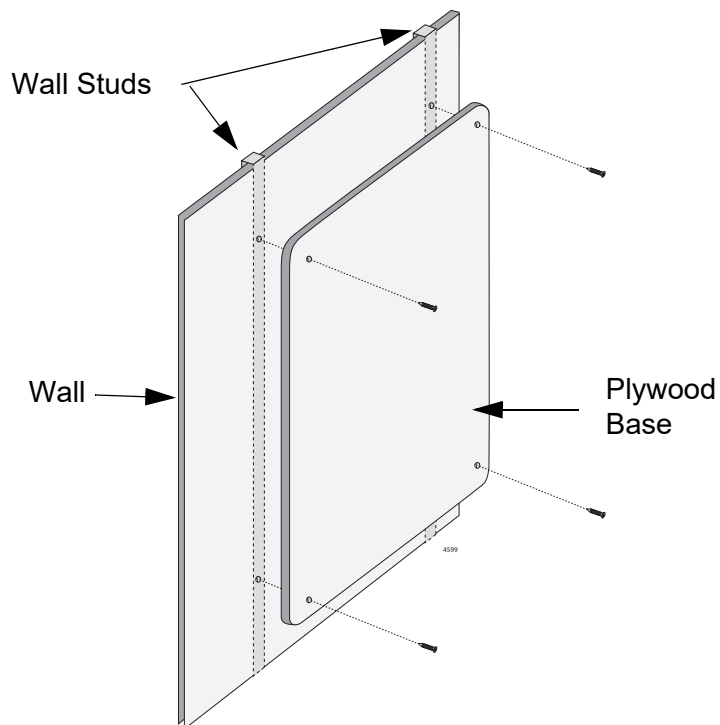
Figure 60. Installing the Plywood Base to the Wall

Installing the Switch on a Plywood Base

After the plywood base for the switch has been installed on the wall, install the switch. See "Reviewing Safety Precautions" on page 56 and "Choosing a Site for the Switch" on page 61 before performing this procedure. Allied Telesis recommends a minimum of two people for this procedure.

> **Warning**
> The device is heavy. Always ask for assistance before moving or lifting it to avoid injuring yourself or damaging the equipment.

> **Warning**
> The device should be installed on the wall by a qualified building contractor. Serious injury to yourself or others or damage to the equipment can result if it is not properly fastened to the wall. ☞ E105

To install the switch on the plywood base, perform the following procedure:

1. Place the switch on a table.

2. For the x530L-28GPX, x530L-28GTX, x530L-52GPX, x530L-52GTX, install two wall/equipment rack brackets to the sides of the unit with the eight M4x6mm screws included with the switch. Install the brackets on the same side of the switch. Refer to Figure 61 on page 100. For the x530L-10GHXm, install four wall/equipment rack brackets to the sides of the unit with the sixteen M4x6mm screws included with the switch. Refer to Figure 62 on page 100.

Brackets positions
to install the switch with
the front panel on the left.
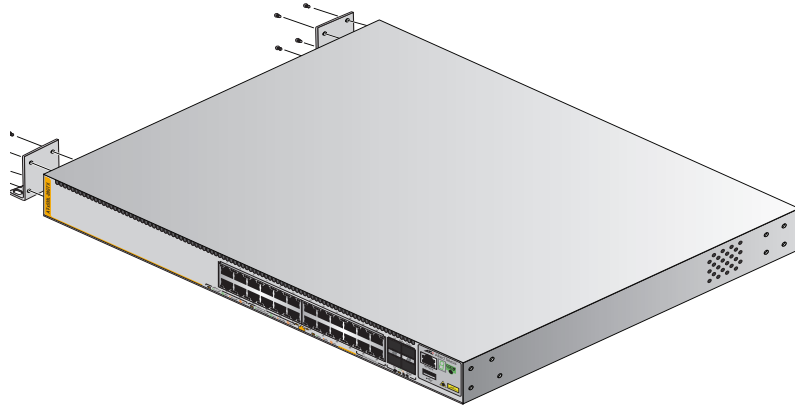
Brackets positions
to install the switch with
the front panel on the right.
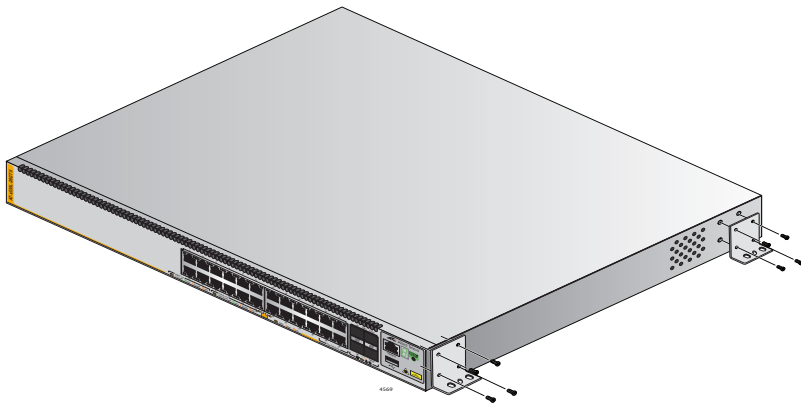
Figure 61. Installing Two Brackets on the x530L-28GPX, x530L-28GTX,
x530L-52GPX, or x530L-52GTX Switch
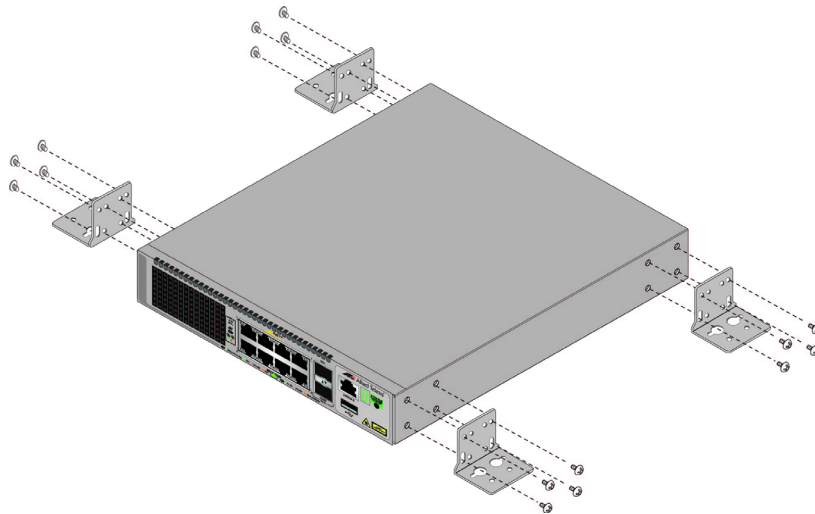
Figure 62. Installing Four Brackets on the x530L-10GHXm

3. After attaching the brackets, have another person hold the switch on the plywood base on the wall while you secure it with the M4x32.3mm screws included with the switch. Refer to Figure 63 on page 101 for the x530L-28GPX, x530L-28GTX, x530L-52GPX, or x530L-52GTX switch or Figure 64 on page 102 for the x530L-10GHXm switch.

    Follow these guidelines as you position the switch on the wall:

    ❐ Position the switch so that the front panel is facing up, left or right. Refer to Figure 63. Do not install it with the front panel facing down.

    ❐ Provide sufficient space from other devices or walls so that you can access the front and back panels, and for adequate air flow for ventilation.
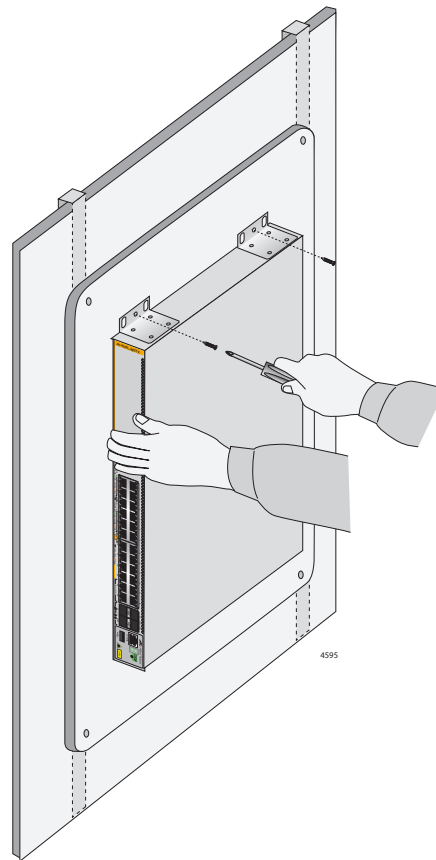
Figure 63. Securing the Switch to the Plywood Base
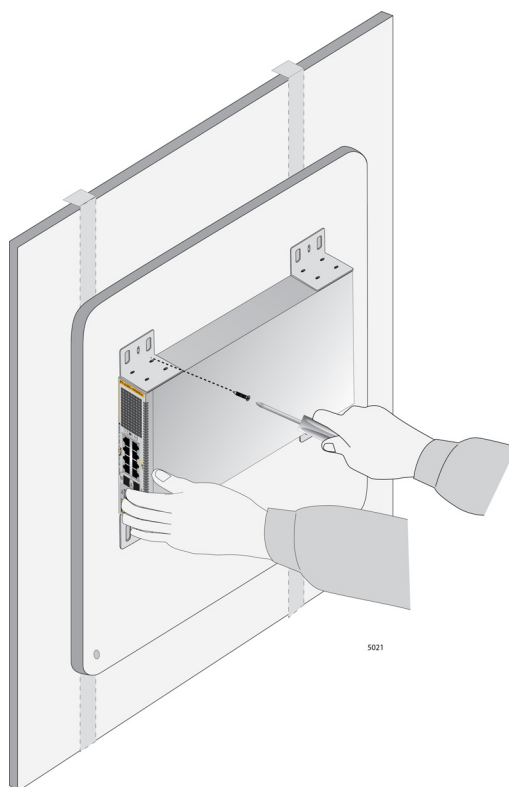
Figure 64. Securing the x530L-10GHXm Switch to the Plywood Base

4. Go to Chapter 6, "Powering On the Switch" on page 107.

Installing the Switch on a Concrete Wall

This section contains the instructions for installing the switch on a concrete wall. Please review the information in the following sections before performing the procedure:

❒ "Switch Orientations on a Wall" on page 92

❒ "Installation Guidelines" on page 93

⚠️ **Warning**
The device is heavy. Always ask for assistance before moving or lifting it to avoid injuring yourself or damaging the equipment.

⚠️ **Warning**
The device should be installed on the wall by a qualified building contractor. Serious injury to yourself or others or damage to the equipment can result if it is not properly fastened to the wall. ☞ E105

To install the switch on a concrete wall, perform the following procedure:

1. Place the switch on a table.

2. For the x530L-28GTX, x530L-52GTX, x530L-28GPX or x530L-52GPX switch, install two wall/equipment rack brackets to the sides of the unit with the eight M4x6mm screws included with the switch. Install the brackets on the same side of the switch. Refer to Figure 61 on page 100. For the x530L-10GHXm switch, install four wall/equipment rack brackets to the sides of the unit with the sixteen M4x6mm screws included with the switch. Refer to Figure 62 on page 100.

3. After attaching the brackets, have another person hold the switch on the concrete wall at the selected location for the device while you use a pencil or pen to mark the wall with the locations of the screw holes in the four brackets (one screw per bracket). Refer to Figure 65 on page 104.

   Follow these guidelines as you position the switch on the wall:

   ❒ Position the switch so that the front panel is facing up, left or right. Refer to Figure 55 on page 92. Do not install the switch with the front panel facing down.

   ❒ Provide sufficient space from other devices or walls so that you can access the front and back panels, and for adequate air flow and ventilation.
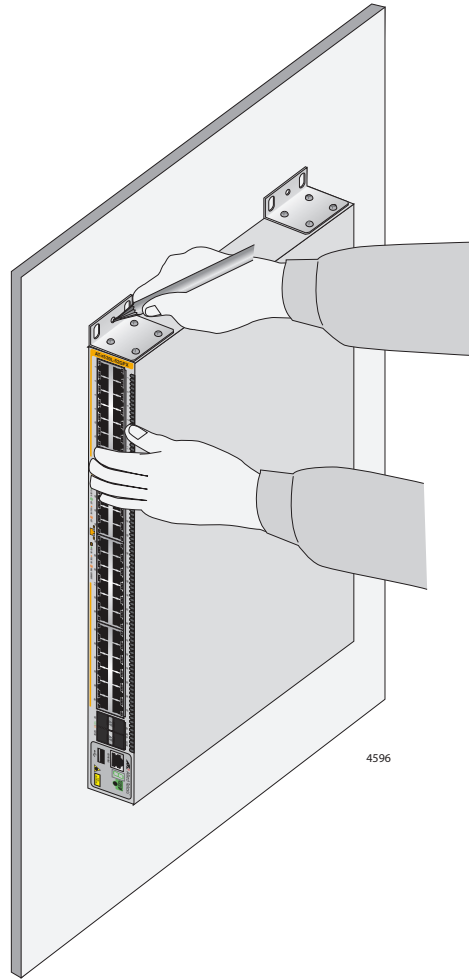
Figure 65. Marking the Locations of the Bracket Holes on a Concrete Wall

4. Place the switch on a table.

5. Use a drill and a 1/4-inch carbide drill bit to pre-drill the holes you marked in step 3. Please review the following guidelines:

   ❑ Prior to drilling, set the drill to hammer and rotation mode. The modes break up the concrete and clean out the hole.

   ❑ Clean out the holes with a brush or compressed air.

6. Insert the anchors into the holes.

7. Have another person hold the switch at the selected wall location while you secure it to the wall with the M4x32mm screws provided. Refer to Figure 66.
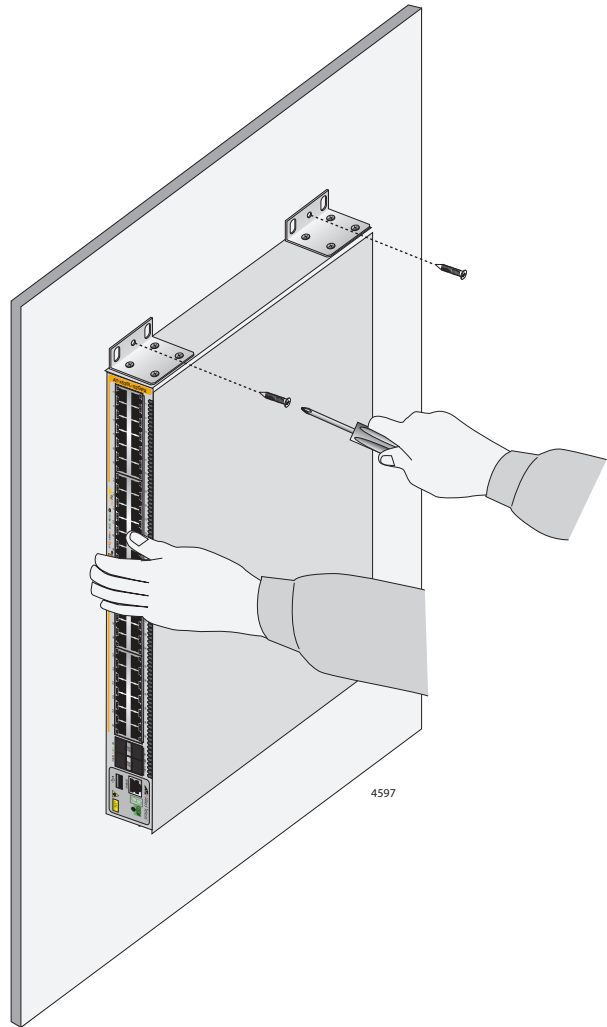
Figure 66. Installing the Switch on a Concrete Wall

8. Go to Chapter 6, "Powering On the Switch" on page 107.

Chapter 6

Powering On the Switch

This chapter contains the following procedures:

❑ "Powering On the Switch" on page 108
❑ "Monitoring the Initialization Processes" on page 111

Powering On the Switch

Before powering on the switch, review the information in "Power Specifications" on page 143 for the power specifications.

⚠️ **Warning**
The power cord is used as a disconnection device. To de-energize equipment, disconnect the power cord. ⌇ E3

Note
Pluggable Equipment. The socket outlet shall be installed near the equipment and shall be easily accessible. ⌇ E5

To power on the switch, perform the following procedure:

1. Install the power cord retaining clip on the AC power connector on the rear panel of the switch. Refer to Figure 67.
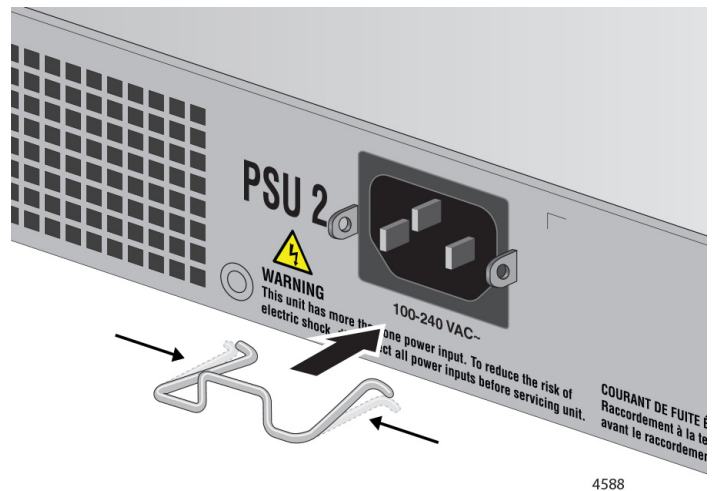
Figure 67. Installing the Power Cord Retaining Clip

2. Connect the AC power cord to the AC power connector on the rear panel. Refer to Figure 68 on page 109.
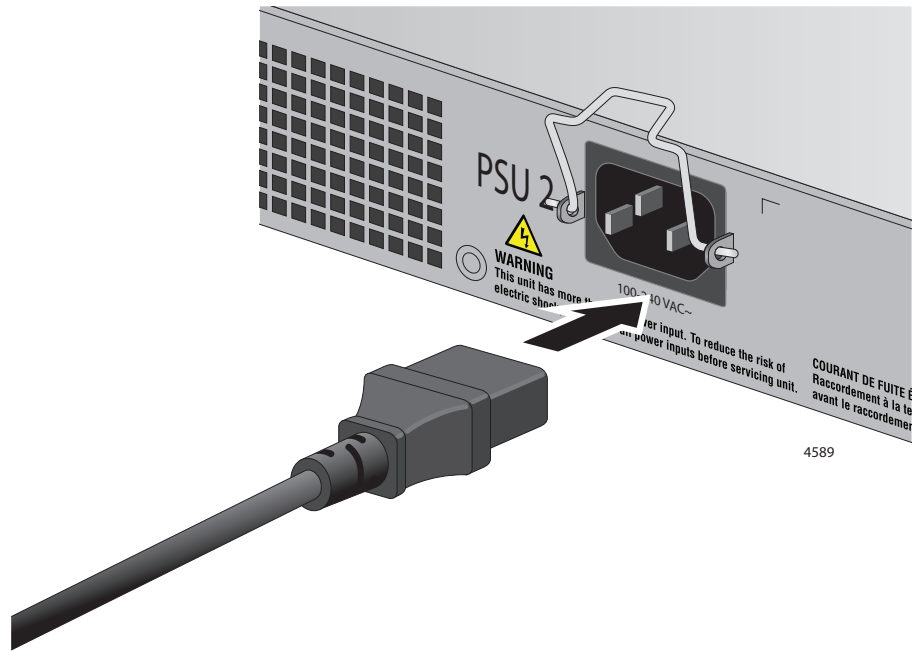
Figure 68. Connecting the AC Power Cords

3. Lower the power cord retaining clips to secure the cords to the switch. Refer to Figure 69.
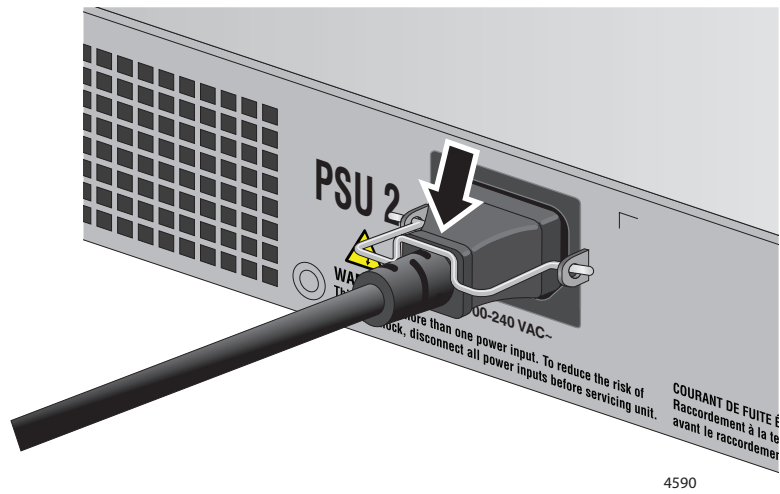
Figure 69. Lowering the Power Cord Retaining Clips

4. Connect the power cord to an appropriate power source. Refer to Figure on page 110. See "Power Specifications" on page 143 for the power specifications of the switches.
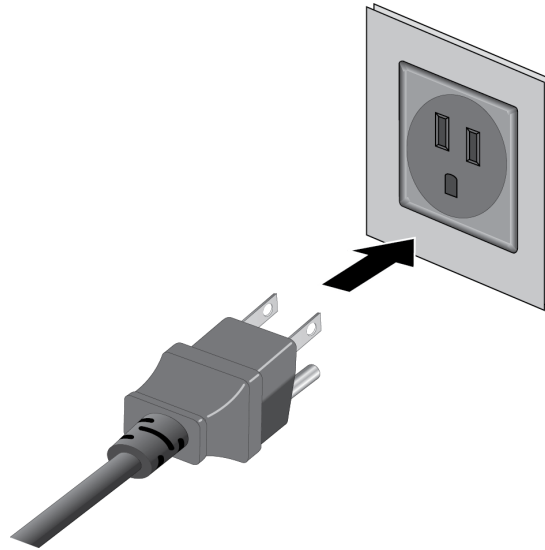
Figure 70. Connecting the Power Cords to an AC Power Source

5. Repeat steps 1 to 4 to connect a power cord to the second power supply.

Note

The illustration shows a North American power cord. Your power cords may be different.

---

6. Do one of the following:

☐   To monitor the switch as it initializes the management software, go to "Monitoring the Initialization Processes" on page 111.

☐   Wait two minutes for the switch to initialize its management software and then go to Chapter 7, "Configuring the Switch for Stand-alone Operations" on page 115.

Monitoring the Initialization Processes

It takes about two minutes for the switch to initialize its management software programs and features, and load the default configuration. You can monitor the bootup sequence by connecting a terminal or computer with a terminal emulator program to the Console port. (The Console port settings are provided in "Starting a Local Management Session" on page 117.) The switch displays the messages in Figure 71 through Figure 73 on the Console port as it initializes the management software.

```
Bootloader 6.2.12 loaded
Press <Ctrl+B> for the Boot Menu
Reading flash:x530L-5.5.0-rcl.rel...
Verifying release... OK
Booting...
Starting base/first...                              [  OK  ]
Mounting virtual filesystems...                     [  OK  ]

             _____   ____
         /\ \            / /_____\
        /    \ \_       __/ /|  _____  |
       /       \ |       |  /  |  _____  |
      /         \ \   / /     \ ___ /
     /_____/\____\ \/ /_____/


Allied Telesis Inc.
AlliedWare Plus (TM) v5.4.9
Current release filename: x530L-5.5.0-rcl.rel...
Built: Mon Nov 26 01:57:50 UTC 2020
Mounting static filesystems...                      [  OK  ]
Attaching to /dev/mtd0...                            [  OK  ]
Mounting file system...                             [  OK  ]
Checking for last gasp debug output...              [  OK  ]
Checking NVS filesystem...                          [  OK  ]
Mounting NVS filesystem...                          [  OK  ]
Initializing random number generator...            [  OK  ]
Starting base/hwrandom...                           [  OK  ]
Starting base/jitterentropy-rngd...                 [  OK  ]
Starting base/dbus...                               [  OK  ]
Starting base/linux...                              [  OK  ]
Starting base/syslog...                             [  OK  ]
```

Figure 71. Switch Initialization Messages

```
Starting base/loopback...                                   [   OK   ]
Starting base/poe_done...                                   [   OK   ]
Starting base/portmapper...                                 [   OK   ]
Received event syslog.done
Starting base/modules...                                    [   OK   ]
Received event modules.done
Starting base/reboot-stability...                           [   OK   ]
Checking system reboot stability...                         [   OK   ]
Starting base/apteryx...                                    [   OK   ]
Starting base/crond...                                      [   OK   ]
Starting base/appmond...                                    [   OK   ]
Starting base/clockcheck...                                 [   OK   ]
Starting network/execd...                                   [   OK   ]
Starting base/inet...                                       [   OK   ]
Received event apteryx.done
Starting hardware/early_host_info...                        [   OK   ]
Starting base/alfred...                                     [   OK   ]
Starting base/kernond...                                    [   OK   ]
Starting base/apteryx-sync...                               [   OK   ]
Starting base/logconf...                                    [   OK   ]
Received event apteryx-sync.done
Starting hardware/platformd...                              [   OK   ]
Starting hardware/plugman...                                [   OK   ]
Starting hardware/timeout...                                [   OK   ]
Starting hardware/hardware-done...                          [   OK   ]
Received event board.inserted
Received event hardware.done
Starting base/external-media...                             [   OK   ]
Starting network/startup...                                 [   OK   ]
Starting network/hostcfg...                                 [   OK   ]
Received event hostcfg.done
Starting network/cmplplatformd...                           [   OK   ]
Starting base/eventwatch...                                 [   OK   ]
Starting network/startup...                                 [   OK   ]
Starting hardware platform_eventd...                        [   OK   ]
Starting network/licd...                                    [   OK   ]
Starting network/stackd...                                  [   OK   ]
Starting network/election.timeout...                        [   OK   ]
Starting network/corosync...                                [   OK   ]
Received event network.enabled
```

Figure 72. Switch Initialization Messages (Continued)

```
Initializing HA processes:
atmf_agentd, execd, exfx, hostd, atmfd, auth, epsr
hsl, imi, imiproxyd, lldpd, loopprot, mstp, nsm
pim6d, ripngd, rmon, sflowd, vrrpd, bgpd, irdpd
lacp, ospf6d, ospfd, pdmd, pimd, ripd, udldd

Received event network.initialized

Assigning Active Workload to HA processes:
hsl, irdpd, lacpd, loopprotd, mstpd, nsm, ospfd
ripd, rmond, sflowd, vrrpd, authd, epsrd, imi
imiproxyd, lldpd

Received event network.activated

Loading default configuration
..

done!
Received event network.configured
```

Figure 73. Switch Initialization Messages (Continued)

Chapter 7

Configuring the Switch for Stand-alone Operations

This chapter contains the following procedures:

Determining the Stand-alone or Stacking Status of the Switch

After powering on the switch and waiting two minutes for it to initialize the management software, examine the switch ID LED on the front panel. If the LED is displaying the number "1" or higher, the VCStack feature is enabled on the unit. You need to disable it to use the switch in stand-alone mode. For instructions, start with "Starting a Local Management Session" on page 117. The VCStack feature is enabled by default.

If the LED is displaying "0", the VCStack feature is already disabled and the switch is operating as a stand-alone unit. Go to Chapter 8, "Cabling the Networking Ports" on page 125.

⚠️ **Caution**

You must reset the switch to disable the VCStack feature. Some network traffic can be lost if the device is already connected to a live network. ✍ E89

Note

The initial management session of the switch must be from the Console port.

Starting a Local Management Session

This procedure explains how to start a local management session on a stack. You can establish the session using any switch in the stack. After establishing the session, go to "Specifying Ports in the Command Line Interface for Stand-alone Switches" on page 123. The procedure requires a VT100 terminal or a VT100 terminal emulator.

Performing a local management session on the switch requires a management cable. Allied Telesis offers two cables. One cable comes with the switch. It has an RJ-45 (8P8C) connector that connects to the Console port on the switch and a DB-9 (D-sub 9-pin) connector that connects to your workstation. Refer to Figure 74.
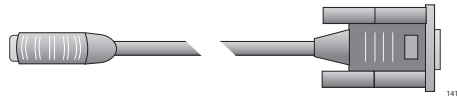
Figure 74. Management Cable Included with Switch

For workstations that do not have a DB-9 connector, such as laptop computers, Allied Telesis offers the optional VT-Kit3 management cable. Refer to Figure 75. The cable has a USB-A male connector that connects to a USB port on your workstation.

Figure 75. VT-Kit3 Management Cable

To use the cable, you connect it to the Console port with a standard, straight-through Ethernet cable. Refer to Figure 77 on page 118. The cable requires a software driver from Allied Telesis. The VT-Kit3 management cable is sold separately.
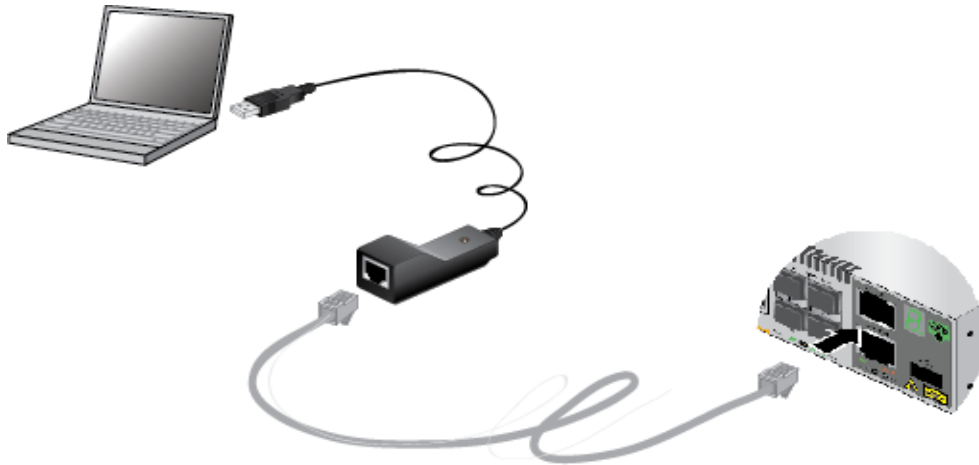
Figure 76. Management Workstation, VT-Kit3 Management Cable, and Switch

To start a local management session on the switch, perform the following procedure:

1. Connect the RJ-45 connector of the management cable to the console port on the front panel of the switch, as shown in Figure 77.
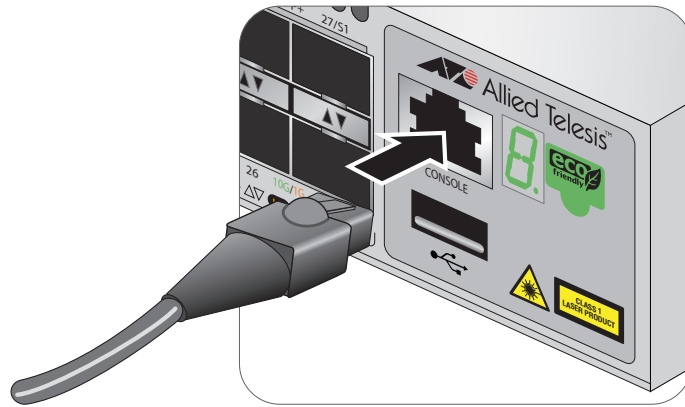
4578

Figure 77. Connecting the Management Cable to the Console Port

2. Connect the other end of the cable to an RS-232 port on a terminal or computer with a terminal emulator program.

3. Configure the terminal or terminal emulator program as follows:

    ❏   Default baud rate: 9,600 bps (range is 9,600 to 115,200 bps)

    ❏   Data bits: 8

    ❏   Parity: None

    ❏   Stop bits: 1

    ❏   Flow control: None

    Note
    The port settings are for a DEC VT100 or ANSI terminal, or an
    equivalent terminal emulator program.

4. Press Enter.

    You are prompted for a user name and password.

5. When prompted, type a user name and password to log on the switch.
    If this is the initial management session, enter "manager" as the user
    name and "friend" as the password. The user name and password are
    case sensitive.

    The local management session starts when the User Exec mode
    prompts.

    ```
    awplus>
    ```

    Note
    The User Exec mode is the first level in the command mode
    interface. For complete information on the modes and commands,
    refer to the *Command Reference: x530 Series Switches Running
    AlliedWare Plus Version 5.5.0* at **www.alliedtelesis.com/library**.

6. If you need to disable the VCStack feature, perform the procedure in
    "Disabling the VCStack Feature" on page 120.

Disabling the VCStack Feature

The following procedures explain how to disable the VCStack feature to use the switch as a stand-alone unit.

⚠️ **Caution**

Disabling the VCStack feature requires resetting the switch. Some network traffic can be lost if the switch is connected to a live network. ⮑ E89

To disable the VCStack feature, perform the following procedure:

1. Start a local management session on the switch. For instructions, refer to "Starting a Local Management Session" on page 117.

2. To display the status of the VCStack feature on the switch, at the User Exec mode prompt, type the command SHOW STACK.

```
awplus> show stack
Virtual Chassis Stacking summary information

ID     Pending ID   MAC address       Priority    Status     Role
1      -            eccd:6dd1:64a2    128          Ready      Active Master

Operational Status                    Standalone Unit

Stack MAC address                     eccd:6dd1:64a2

awplus>
```

Figure 78. SHOW STACK Command

3. If the Operational Status of the switch is "Stacking Hardware Disabled," the VCStack feature is already disabled on the unit. If this is the case, go to Chapter 8, "Cabling the Networking Ports" on page 125.

    However, if the Operational Status is "Standalone Unit" as shown in Figure 78, the VCStack feature is active on the unit. (The "Standalone Unit" status means the switch is functioning as a stack of one switch.) You must disable the feature to use the switch as a stand-alone unit. Continue with the next step.

4. To move to the Global Configuration mode, type the commands ENABLE and CONFIGURE TERMINAL.

```
awplus> enable
awplus# configure terminal
Enter configuration commands, one per line. End with CNTL/Z
awplus(config)#
```

Figure 79. Moving to the Global Configuration Mode

5. To disable the VCStack feature, type the command NO STACK *<id>* ENABLE in the following format:

    no stack *<id>* enable

    The *id* parameter is the ID number of the switch, displayed on the ID LED. Replace the *id* parameter with the number on the ID LED. For example, if the ID number of the switch is 1, the default value, enter the command as follows:

    ```
    awplus(config)# no stack 1 enable
    ```

```
Warning; This will disable the stacking hardware on member-1.
Are you sure you want to continue? (y/n):
```

6. To disable VCStack on the switch type Y, or type N to cancel the procedure.

```
awplus(config)#18:04:12 awplus VCS[2119]: Deactivating
Stacking Ports on stack member 1.
```

Figure 80. Disabling VCStack

7. Press the Enter key to re-display the Global Configuration mode prompt.

8. Go to "Saving Your Changes and Rebooting the Switch" on page 122.

Saving Your Changes and Rebooting the Switch

After disabling the VCStack feature, save your configuration changes and reboot the switch. Changes to the status of the VCStack feature do not take affect until after you reboot the unit.

To save your configuration changes and reboot the switch, perform the following procedure:

1. To return to the Privileged Exec mode, from the Global Configuration mode, type the command EXIT.

```
awplus(config)# exit
awplus#
```

Figure 81. Returning to the Privileged Exec Mode

2. To save your change in the configuration file, type the command WRITE.

```
awplus# write
Building configuration ...
[OK]
awplus#
```

Figure 82. Saving the Changes with the WRITE Command

If this is the initial management session, the switch automatically creates the Default.cfg configuration file and stores the change in the file.

3. To reboot the switch, type the command REBOOT.

4. To confirm, type "Y" for yes.

5. Wait two minutes for the switch to initialize the management software and then examine the Switch ID LED again. The switch is ready for normal network operation as a stand-alone unit if its ID number is "0." If the number is not "0," repeat the procedures in this chapter, being sure to save your configuration changes with the WRITE command.

6. Go to Chapter 8, "Cabling the Networking Ports" on page 125.

Specifying Ports in the Command Line Interface for Stand-alone Switches

The individual ports on the switches are specified in the command line interface with the PORT parameter. The format of the parameter is shown in Figure 83.

$$port1.0.n$$

Stack ID ——————

Module ID ——————
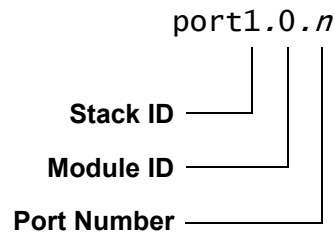
Port Number ——————

Figure 83. PORT Parameter in the Command Line Interface

The three parts of the PORT parameter are described in Table 17.

Table 17. PORT Parameter Format

Number	Description
Stack ID	Designates the switch's ID number. The correct value is "1" for a stand-alone switch. Do not enter 0, the value displayed on the Switch ID LED.
Module ID	Designates the module number of a port. The x530L Series switches do not have modules, Consequently, this value is always 0 (zero).
Port Number	Designates a port number.

The following is an example of the PORT parameter on a stand-alone switch. It uses the INTERFACE command to enter the Port Interface mode for ports 15 and 17:

```
awplus> enable
awplus# configure terminal
awplus(config)# interface port1.0.15,port1.0.17
```

For instructions on the command line interface and the PORT parameter, refer to the *Software Reference for x530 Series Switches, AlliedWare Plus Operating System*.

Chapter 8

Cabling the Networking Ports

This chapter contains the following procedures:

Cabling Twisted Pair Ports

Here are the guidelines to cabling the twisted pair ports on the switches:

❒ Minimum twisted pair cable requirements are as follows:

– 10/100Mbps ports: Standard TIA/EIA 568-B-compliant Category 3 unshielded cabling

– 1Gbps ports: Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e)

– 2.5/5Gbps ports: Standard TIA/EIA 568-A-compliant Category 6 or TIA/EIA 568-B-compliant Category 6A (Cat 6A) unshielded cabling

❒ PoE is enabled by default on the x530L-10GHXm,x530L-18GHXm, x530L-28GPX and x530L-52GPX switch ports.

❒ The connectors on the cables must fit snugly into the ports, and the tabs must lock the connectors into place.

❒ The default speed setting for the ports is Auto-Negotiation. This setting is appropriate for ports connected to network devices that also support Auto-Negotiation.

❒ The ports must be set to the default setting of Auto-Negotiation to operate at 1Gbps.

❒ The twisted pair ports can operate in either half- or full-duplex mode when operating at 10/100Mbps. However, if any of the twisted pair ports operate at 1Gbps or higher, then the duplex mode is always full-duplex.

❒ Do not attach cables to ports of static or Link Aggregation Control Protocol (LACP) port trunks until after you configure the trunks on the switch. Otherwise, the ports will form network loops that can adversely affect network performance.

Guidelines to Handling SFP and SFP+ Transceivers

Review the following guidelines before installing SFP or SFP+ transceivers in the switches:

❒ The transceivers are hot-swappable. You can install them while the switch is powered on.

❒ For a list of supported transceivers, refer to the product data sheet on the Allied Telesis web site.

❒ The operational specifications and fiber optic cable requirements of the transceivers are provided in the documents included with the devices.

❒ Install a transceiver before connecting the fiber optic cable.

❒ Unnecessary removal and insertion of a transceiver can lead to premature failure.

⚠ **Caution**

Transceivers can be damaged by static electricity. Be sure to observe all standard electrostatic discharge (ESD) precautions, such as wearing an antistatic wrist strap, to avoid damaging the devices. ✍ E92

Installing SFP or SFP+ Transceivers in the Switches

This section contains installation instructions for SFP or SFP+ transceivers in:

- ❒ x530L-10GHXm ports 9 and 10
- ❒ x530L-18GHXm ports 17 and 18
- ❒ x530L-28GTX and x530L-28GPX ports 25 to 28
- ❒ x530L-52GTX and x530L-52GPX ports 49 to 52

The following illustrations show a transceiver with a duplex LC connector. The connectors on your transceivers may be different.

To install transceivers, perform the following procedure:

1. Select a port for the transceiver.

2. Remove the transceiver from its shipping container and store the packaging material in a safe location.

3. If you are installing the transceiver in a top port, position the transceiver with the Allied Telesis label facing up. If you are installing the transceiver in a bottom port, position the transceiver with the label facing down. Refer to Figure 84.
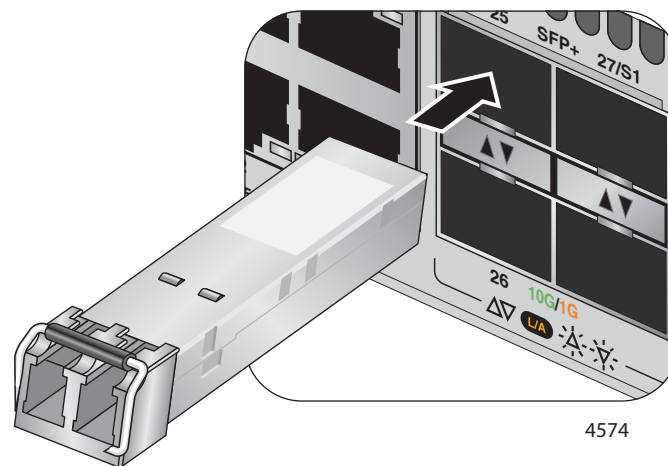
Figure 84. Installing an SFP Transceiver

4. Slide the transceiver into the port until it clicks into place.

5. Verify the position of the handle on the transceiver. If the transceiver is in a top port, the handle must be in the upright position, as shown in Figure 85. If the transceiver is in a bottom port, the handle must be in the down position.
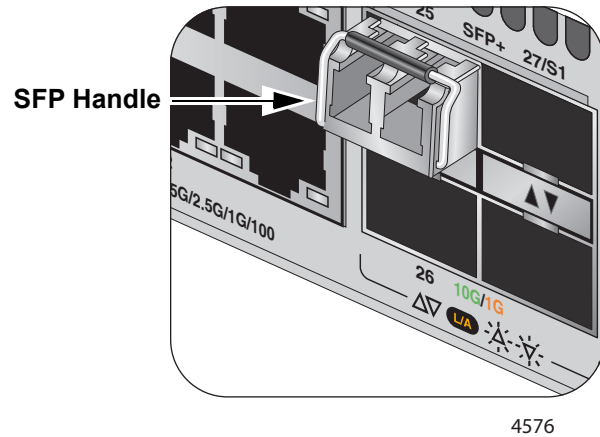
4576

Figure 85. Positioning the SFP or SFP+ Handle in the Upright Position

> **Note**
> If you are ready to attach the fiber optic cable to the transceiver, continue with the next step. Otherwise, repeat steps 1 through 5 to install the remaining transceivers in the switch.

6. Connect the fiber optic cable to the transceiver, as shown in Figure 86. The connector on the cable must fit snugly into the port, and the tab must lock the connector into place.
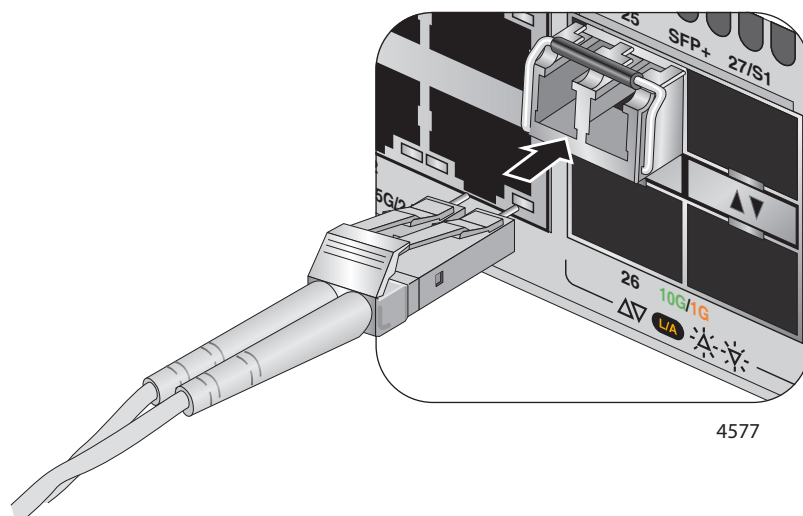
4577

Figure 86. Connecting a Fiber Optic Cable to an SFP or SFP+ Transceiver

7. Repeat this procedure to install additional transceivers.

Installing SP10TW Direct Connect Twinax Cables in the Switches

The SFP/SFP+ transceiver ports of the switches support SP10TW1 and SP10TW3 direct connect twinax cables. They come in lengths of 1 and 3 meters, respectively, and have SFP+ transceivers on both ends. The cables are an economical way to add 10Gbps connections over short distances.

To install SP10TW cables in the switches, perform the following procedure:

1. Select a port for the transceiver.

2. Remove the transceiver from its shipping container and store the packaging material in a safe location.

3. To install the transceiver in a port in the top row, position the transceiver with the Allied Telesis label facing up. To install the transceiver in a port in the bottom row, position the transceiver with the label facing down. Refer to Figure 87.

Figure 87. Installing SP10TW Cables

4. Slide the transceiver into the port until it clicks into place.
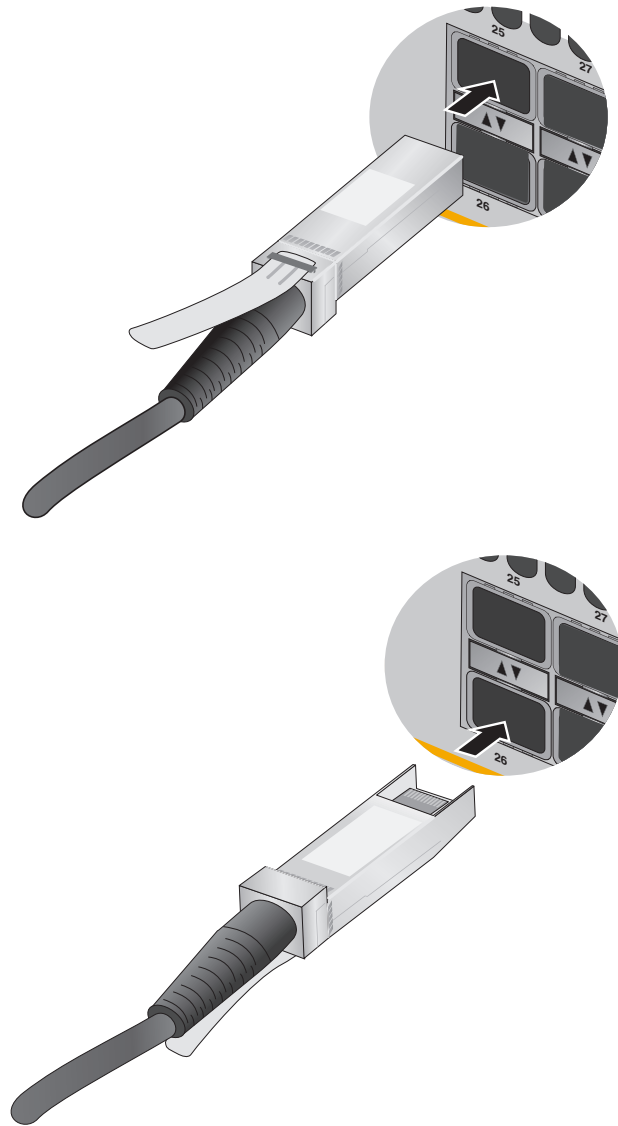
5. Connect the other end of the cable into an SFP+ port on another network device.

6. Repeat this procedure to install additional transceivers.

> **Note**
> To remove the connector and cable from the port, gently push on the connector, pull on the release tab, and slide the connector from the port.

Chapter 9

Troubleshooting

This chapter contains suggestions on how to troubleshoot problems with the switch.

> **Note**
> For further assistance, please contact Allied Telesis Technical Support at **www.alliedtelesis.com/support**.

Problem 1: All the port LEDs and Switch ID LED are off, and the fans are not operating.

Solutions: The unit is not receiving power. Try the following:

❒ Verify that the power cord is securely connected to the power source and the AC connector on the back panel of the switch.

❒ Verify that the power outlet has power by connecting another device to it.

❒ Try connecting the unit to another power source.

❒ Try a different power cord.

❒ Verify that the voltage from the power source is within the required levels for your region. The power requirements for the switch are listed in "Power Specifications" on page 143.

Problem 2: All of the port LEDs are off even though the ports are connected to active network devices.

Solution: The switch might be operating in the low power mode. To toggle on the LEDs, press the eco-friendly button on the front panel of the switch. You can also toggle the LEDs off and on with the ECOFRIENDLY LED and NO ECOFRIENDLY LED commands in the command line interface.

Problem 3: A twisted pair port on the switch is connected to an active network device but the port's LINK/ACT LED is off.

Solutions: The port is unable to establish a link to a network device. Try the following:

❐ Verify that the network device connected to the twisted pair port is powered on and is operating properly.

❐ Try connecting another network device to the twisted pair port with a different cable. If the twisted pair port is able to establish a link, then the problem is with the cable or the other network device.

❐ Verify that the twisted pair cable does not exceed 100 meters (328 feet).

❐ Verify that you are using the appropriate category of twisted pair cable. Refer to "Cable Requirements" on page 31.

❐ Verify that the port is connected to the correct twisted pair cable.

Note
Twisted pair ports may require five to ten seconds to establish a link.

Problem 4: The LINK/ACT LED for an SFP or SFP+ transceiver is off.

Solutions: The fiber optic port on the transceiver is unable to establish a link to a network device. Try the following:

❐ Verify that the remote network device connected to the fiber optic port is operating properly.

❐ Verify that the fiber optic cable is securely connected to the port on the transceiver and to the port on the remote network device.

❐ Check that the transceiver is fully inserted in the port.

❐ Verify that the operating specifications of the fiber optic ports on the transceiver and remote network device are compatible.

❐ Verify that the correct type of fiber optic cabling is being used.

❐ Verify that the port is connected to the correct fiber optic cable.

❐ Try connecting another network device to the fiber optic port using a different cable. If the port is able to establish a link, then the problem is with the cable or with the other network device.

❐ Use the switch management software to verify that the port is enabled.

❐ If the remote network device is a managed device, use the management firmware to determine whether the port is enabled.

❐ Test the attenuation of both directions on the fiber optic cable with a fiber optic tester to determine whether the optical signal is too weak (sensitivity) or too strong (maximum input power).

Problem 5: The x530L-10GHXm, x530L-18GHXm, x530L-28GPX or x530L-52GPX switch is not providing power to a PoE or PoE+ device.

Solutions: Try the following:

❏ Review the powered device's documentation to verify that it is compatible with the switch. Refer to "Powered Device Classes" on page 41 and "Wiring Implementation" on page 43.

❏ Use the SHOW SYSTEM ENVIRONMENT command to confirm that both power supplies are operating normally.

❏ Use the management software to determine whether the switch has reached its maximum power, and so cannot support any further powered devices.

❏ Verify that you are using the appropriate category of twisted-pair cable by referring to "Twisted Pair Ports" on page 25.

❏ Use the management software on the switch to determine whether PoE is enabled on the port. The default setting for PoE is enabled.

❏ Use the management software on the switch to determine whether the PoE power setting for the port has been reduced to a value below the power requirements of the device.

❏ Try connecting the device to a different port on the switch.

Problem 6: The switch functions intermittently.

Solutions: Check the system hardware status through the management software:

❏ Use the SHOW SYSTEM ENVIRONMENT command in the Privileged Exec mode to verify that the input voltage from the power source to the switch is stable and within the approved operating range. The unit will shut down if the input voltage fluctuates above or below the approved operating range.

❏ Use the SHOW SYSTEM ENVIRONMENT command in the Privileged Exec mode to verify that the fan is operating correctly.

❏ Verify that the location of the switch allows for adequate airflow. The unit will shut down if it is overheating.

Problem 7: The Switch ID LED on the front of the switch is flashing the letter "F."

Solutions: One or more of the following problems has occurred:

❏ A cooling fan has failed.

❏ The switch might be overheating and may have to shut down.

Contact your Allied Telesis sales representative for assistance.

Appendix A
Technical Specifications

This appendix contains the following sections:

Physical Specifications

Dimensions

Table 18 lists the dimensions of the switches. Figure 88 through Figure 93 on page 140 illustrate the dimensions of the switches.

Table 18. Product Dimensions

| Model	Dimension (L x H x D)
x530L-10GHXm	21.03 cm x 4.25 cm x 36.14 cm (8.28 in. x 1.67 in. x 14.23 in.)
x530L-18GHXm	44.05 cm x 4.37 cm x 25.53 cm (17.34 in. x 1.72 in. x 10.5 in.)
x530L-28GTX	44.05 cm x 4.37 cm x 32.26 cm (17.344 in. x 1.72 in. x 12.7 in.)
x530L-28GPX	44.05 cm x 4.37 cm x 42.06cm (17.344 in. x 1.72 in. x 16.56 in.)
x530L-52GTX	44.05 cm x 4.37 cm x 32.26 cm (17.344 in. x 1.72 in. x 12.7 in.)
x530L-52GPX	44.05 cm x 4.37 cm x 42.06 cm (17.344 in. x 1.72 in. x 16.56 in.)
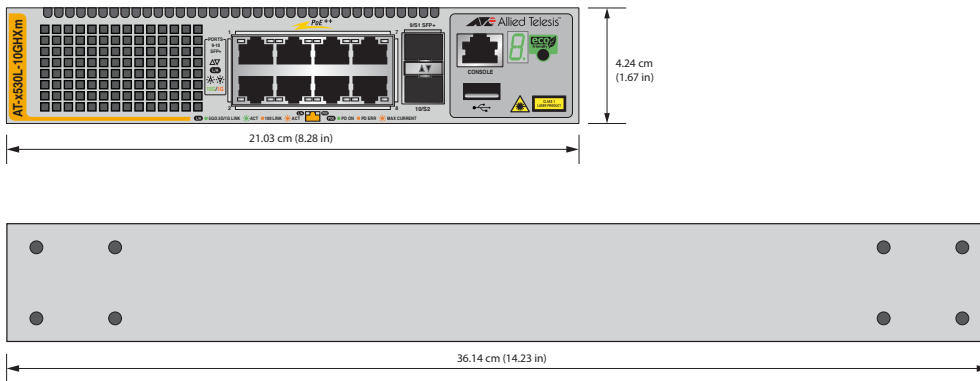
Figure 88. x530L-10GHXm
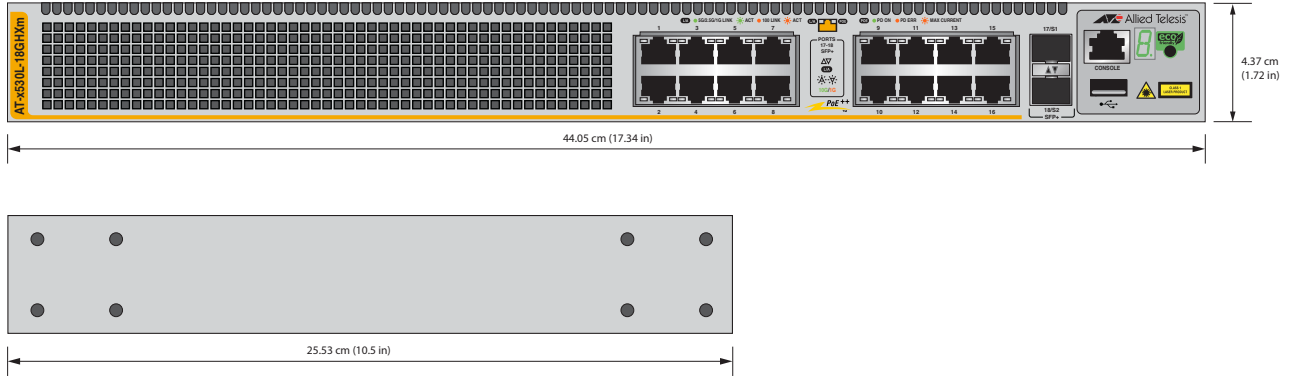
Figure 89. x530L-18GHXm
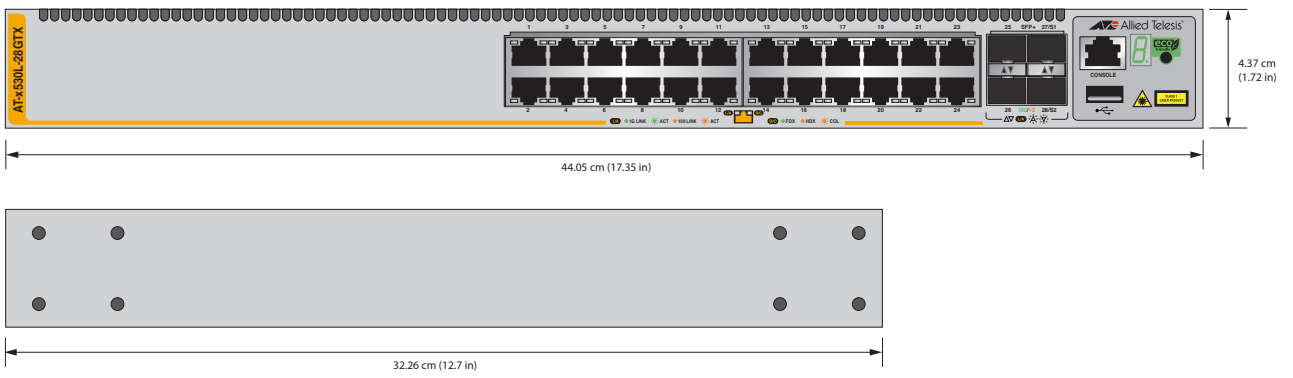
Figure 90. x530L-28GTX
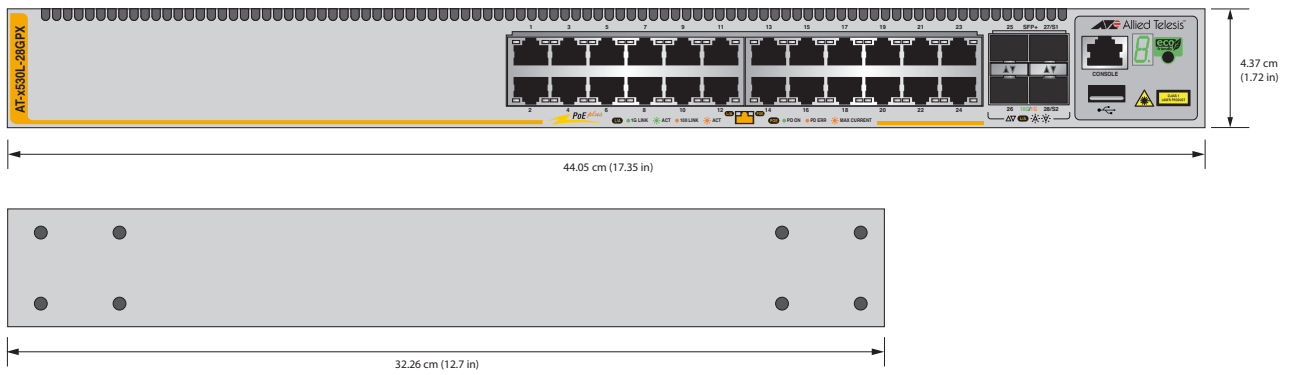
Figure 91. x530L-28GPX
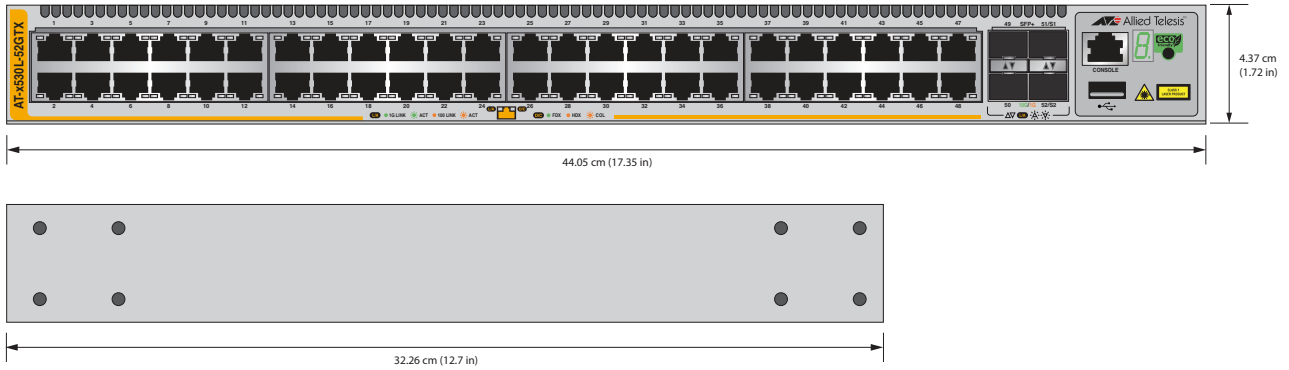
Figure 92. x530L-52GTX
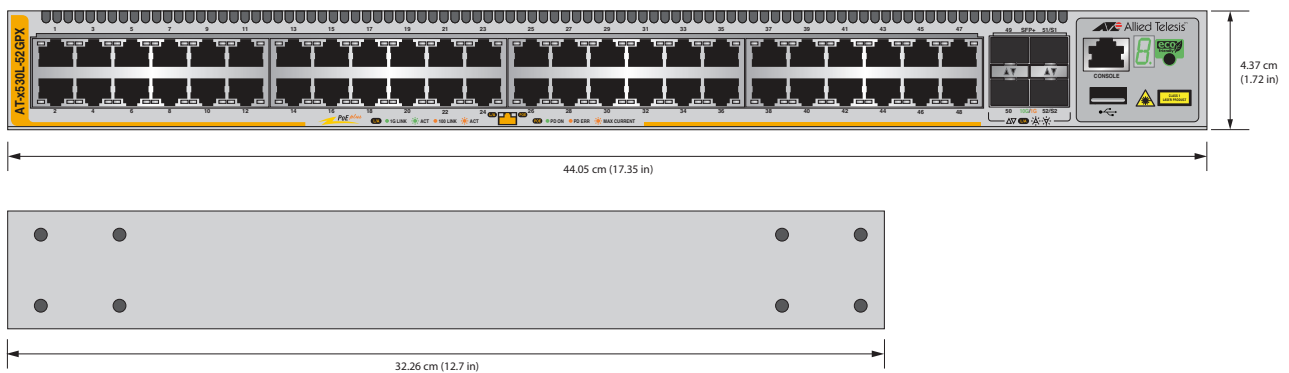
Figure 93. x530L-52GPX

Weights

Table 19 lists the weights of the switches.

Table 19. Product Weights

x530L-10GHXm	3.20 kg (7.00 lb)
x530L-18GHXm	4.28 kg (9.45 lb)
x530L-28GTX with ATKK60W PSU	4.36 kg (9.60 lb)
x530L-28GPX	5.44 kg (12.00 lb)
x530L-52GTX with ADP150W PSU	5.19 kg (11.45 lb)
x530L-52GPX	6.71 kg (14.8 lb)

Ventilation

Table 20 lists the ventilation requirements.

Table 20. Ventilation Requirements

Recommended Minimum Ventilation on All Sides	10 cm (4.0 in)

Environmental Specifications

Table 21 lists the environmental specifications of the switches.

Table 21. Environmental Specifications

Operating Temperature	0° C to 50° C (32° F to 122° F)
Storage Temperature	-25° C to 70° C (-13° F to 158° F)
Operating Humidity	5% to 90% noncondensing
Storage Humidity	5% to 95% noncondensing
Maximum Operating Altitude	3,000 m (9,842 ft)
Maximum Nonoperating Altitude	4,000 m (13,100 ft)
Product Noise Level	More than 42 dB @ 30C or less
Installation Requirement	Tabletop, wall or rack mount

Power Specifications

This section contains the maximum power consumption values, input voltages, and heat dissipation values.

Maximum Power Consumption

Table 22 lists the maximum power consumption for the switches.

Table 22. Maximum Power Consumption

x530L-10GHXm	549 W (1 PSU)
x530L-18GHXm	910 W (1 PSU)
x530L-28GTX	39 W (1 or 2 PSUs)
x530L-28GPX	470 W (1 PSU) 890 W (2 PSU)
x530L-52GTX	60 W (1 or 2 PSUs)
x530L-52GPX	520 W (1 PSU) 950 W (2 PSU)

Input Voltages

Table 23 lists the input voltage for the switches.

Table 23. Input Voltage

x530L-10GHXm	100-240 VAC, 50/60 Hz, 8 A
x530L-18GHXm	100-240 VAC, 50/60 Hz, 10 A
x530L-28GTX	100-240 VAC, 50/60 Hz, 1 A
x530L-28GPX	100-240 VAC, 50/60 Hz, 6 A (per input) (x2)
x530L-52GTX	100-240 VAC, 50/60 Hz, 1 A
x530L-52GPX	100-240 VAC, 50/60 Hz, 6 A (per input) (x2)

Heat Dissipation

Table 24 lists the heat dissipation for the switches.

Table 24. Heat Dissipation

x530L-10GHXm	2116 BTU/hr (1 PSU)
x530L-18GHXm	3105.5 BTU/hr (1 PSU)
x530L-28GTX	133.09 BTU/hr (1 or 2 PSUs)
x530L-28GPX	1603 BTU/hr (1 PSU) 3037 BTU/hr (2 PSU)
x530L-52GTX	205 BTU/hr (1 or 2 PSUs)
x530L-52GPX	1774.49 BTU/hr (1 PSU) 3241.86 BTU/hr (2 PSU)

Certifications

Table 25 lists the product certificates.

Table 25. Product Certifications

EMI (RFI Emissions)	FCC Class A, EN55032 Class A, EN61000-3-2, EN61000-3-3, VCCI Class A, RCM
EMC (Immunity)	EN55024
Electrical and Laser Safety	EN62368-1 (TUV), UL 60950-1 ($_C$UL$_{US}$), CSA-C22-2 No. 60950-1 ($_C$UL$_{US}$), EN60825-1 (TUV), UL 62368-1
Compliance Marks	CE, $_C$UL$_{US}$, TUV
RoHS and WEEE	Complies with RoHS 6 Complies with China RoHS

RJ-45 Twisted Pair Port Pinouts

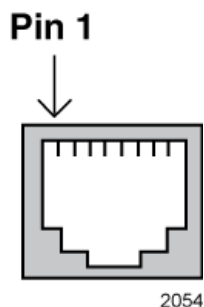Figure 94 illustrates the pin layout of the RJ-45 connectors on the front panel of the switch.

Figure 94. RJ-45 Socket Pin Layout (Front View)

Table 26 and Table 27 on page 147 list the pin signals.

Table 26. Pin Signals at 10M/100M

Pin	10 Mbps/ 100 Mbps MDI Signal	10 Mbps/ 100 Mbps MDI-X Signal
1	TX+	RX+
2	TX-	RX-
3	RX+	TX+
4	Not used	Not used
5	Not used	Not used
6	RX-	TX-
7	Not used	Not used
8	Not used	Not used

Table 27. Pin Signals at 1/2.5/5 Gbps

Pin	1/2.5/5 Gbps MDI Signal	1/2.5/5 Gbps MDI-X Signal
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

RJ-45 Style Serial Console Port Pinouts

Table 28 lists the pin signals of the RJ-45 style serial console port.

Table 28. RJ-45 Style Serial Console Port Pin Signals

Pin	Signal
1	RTS#
2	Not used
3	Transmit Data
4	Ground
5	Ground
6	Receive Data
7	Not used
8	CTS

USB Port

Table 29 lists the pin signals of the USB port.

Table 29. USB Port Pin Signals

Pin	Signal
1	+5V
2	DATA-
3	DATA+
X	NC
4	GND

Appendix A: Technical Specifications