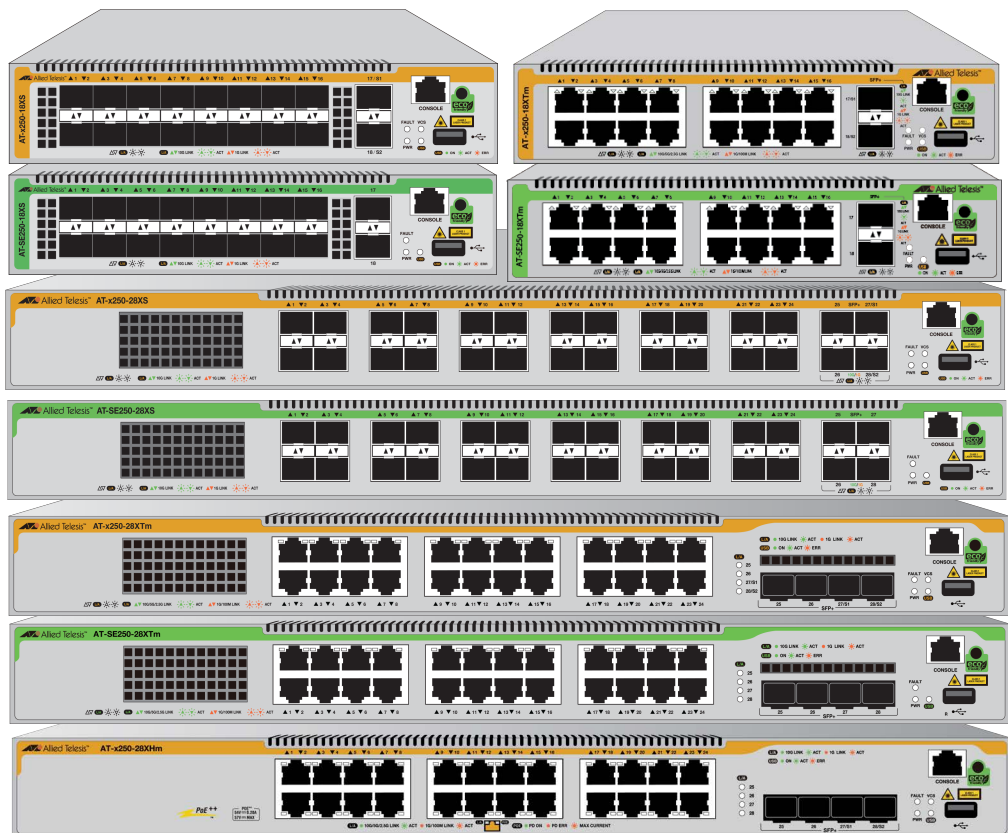


x250 Series and SE250 Series

10 GIGA MANAGED SWITCHES

AlliedWare Plus™

x250-18XS	SE250-18XS
x250-18XTm	SE250-18XTm
x250-28XS	SE250-28XS
x250-28XTm	SE250-28XTm
x250-28XHm	



Installation Guide

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Electrical Safety and Emissions Standards

This section contains the following:

- ❑ “US Federal Communications Commission”
- ❑ “Industry Canada”
- ❑ “Emissions, Immunity and Electrical Safety Standards” on page 4
- ❑ “Translated Safety Statements” on page 4

US 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

Radiated Energy

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.

Emissions, Immunity and Electrical Safety Standards

Standard Compliance	RoHS compliant
Electrical Safety	UL62368-1 (CULUS) CE UKCA IEC62368-1 EN62368-1
Electro Magnetic Interference	FCC Class A ICE-003: 2020, Issue 7, Class A EN55032: 2015+A11: 2020, Class A CISPR 32: 2012 VCCI-CISPR 32: 2013, Class A この装置は、クラス A 機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A RCM AS/NZS CISPR 32: 2015+A1: 2020, Class A UKCA



Warning

In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures. ⌘ E70

Electro Magnetic Susceptibility	EN55035: 2017/A11: 2020 EN61000-4-2: 2009 EN61000-4.3: 2006 + A1: 2008 + A2: 2010 EN61000-4-4: 2012 EN61000-4-5: 2014 + A1:2017 EN61000-4-6: 2014 + AC: 2015 EN61000-4-8: 2010 EN61000-4-11: 2004 + A1: 2017 EN61000-3-2:2014 + EN61000-3-2: 2019 EN61000-3-3: 2013 + A1: 2019
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Warning

Laser Safety: EN60825-1. ⌘ L7

Translated Safety Statements

Important: The ⌘ indicates that translations of the safety statement are available in the PDF document “**Translated Safety Statements**” posted on the Allied Telesis website at alliedtelesis.com/support.

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Preface

This guide contains the installation instructions for the following products:

- ❑ x250-18XS
- ❑ SE250-18XS
- ❑ x250-18XTm
- ❑ SE250-18XTm
- ❑ x250-28XS
- ❑ SE250-28XS
- ❑ x250-28XTm
- ❑ SE250-28XTm
- ❑ x250-28XHm

In addition to the installation instructions, this guide includes how to build a virtual stack with the Virtual Chassis Stacking (VCStack) feature.

This preface contains the following sections:

- ❑ “Document Conventions” on page 10
- ❑ “Translated Safety Statements” on page 11
- ❑ “Contacting Allied Telesis” on page 12

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.

Translated Safety Statements

Important: The  indicates that translations of the safety statement are available in the PDF document **Translated Safety Statements** posted on the Allied Telesis website at alliedtelesis.com/library/search.

☐ Übersetzte Sicherheitserklärungen

Wichtig: Das  zeigt an, dass Übersetzungen der Sicherheitserklärung in den PDF-**Translated Safety Statements** auf der Allied Telesis-Website unter alliedtelesis.com/us/en/library/search verfügbar sind.

☐ Declaraciones de seguridad traducidas

Importante: El  indica que las traducciones de la declaración de seguridad están disponibles en las **Translated Safety Statements** en PDF publicadas en el sitio web de Allied Telesis en alliedtelesis.com/us/en/library/search.

☐ Consignes de sécurité traduites

Important: Le symbole  indique que les traductions de la déclaration de sécurité sont disponibles dans le PDF **Translated Safety Statements** publiées sur le site Web de Allied Telesis à l'adresse alliedtelesis.com/us/en/library/search.

☐ Dichiarazioni di sicurezza tradotte

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☐ Översatta säkerhetsförklaringar

Viktig:  anger att översättningar av säkerhetsförklaringen finns tillgängliga i PDF-dokumentet **Translated Safety Statements** som publicerats på Allied Telesis webbplats på alliedtelesis.com/us/en/library/search.

Contacting Allied Telesis

For assistance with this product, contact Allied Telesis technical support at **www.alliedtelesis.com/support**.

Chapter 1

Overview

The chapter contains the following sections:

- ❑ “Physical Features” on page 14
- ❑ “Features” on page 18
- ❑ “Twisted Pair Ports on the Switch” on page 21
- ❑ “LEDs” on page 22
- ❑ “Management Panel” on page 28
- ❑ “Designating Ports in the Command Line Interface” on page 29

Physical Features

The x250 series and SE250 series switches are equipped with ports and management panel among others.

x250-18XS Switch

Figure 1 shows the front panel of the x250-18XS switch.

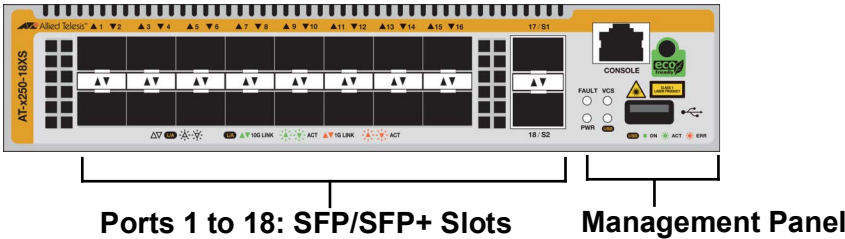


Figure 1. Front Panel of the x250-18XS Switch

SE250-18XS Switch

Figure 2 shows the front panel of the SE250-18XS switch.

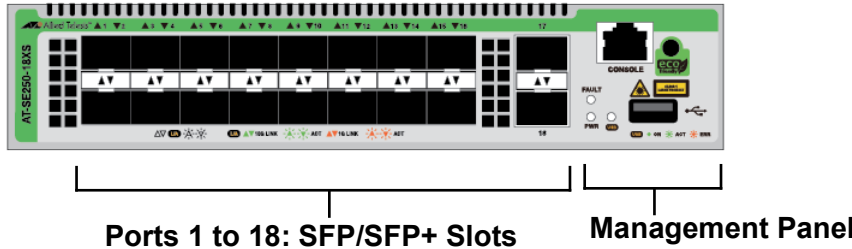


Figure 2. Front Panel of the SE250-18XS Switch

x250-18XTm Switch

Figure 3 shows the front panel of the x250-18XTm switch.

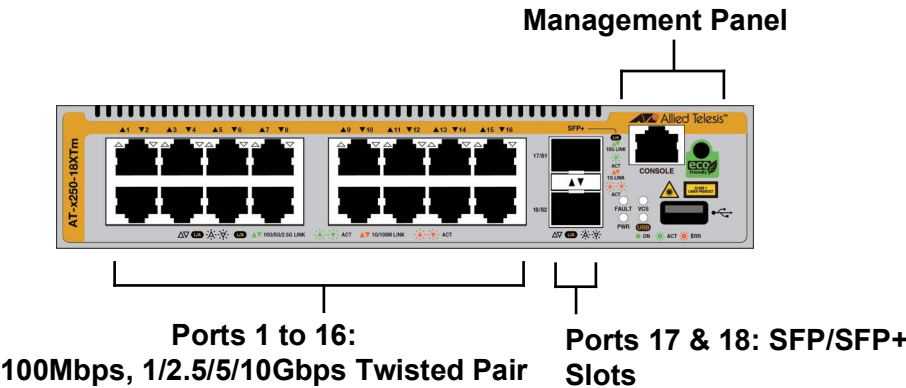


Figure 3. Front Panel of the x250-18XTm Switch

SE250-18XTm Switch

Figure 4 shows the front panel of the SE250-18XTm switch.

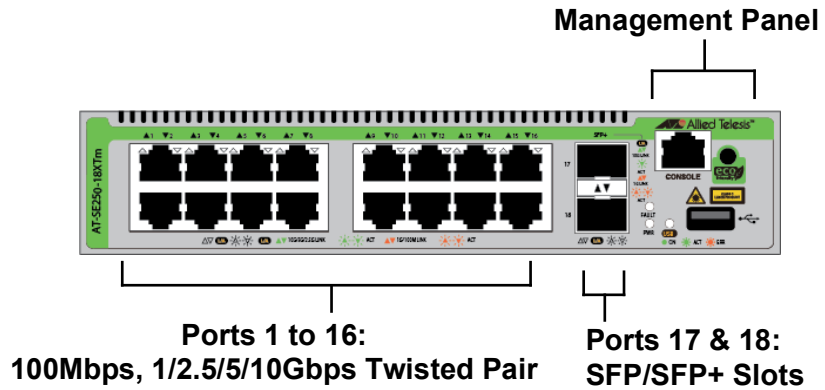


Figure 4. Front Panel of the SE250-18XTm Switch

x250-28XS Switch

Figure 5 shows the front panel of the x250-28XS switch.

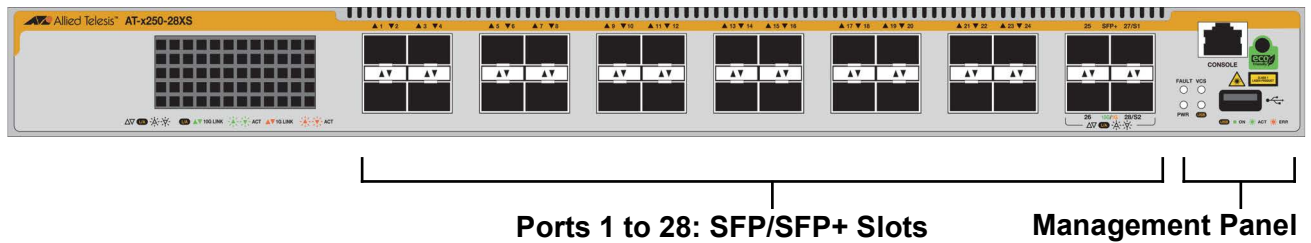


Figure 5. Front Panel of the x250-28XS Switch

SE250-28XS Switch

Figure 6 shows the front panel of the SE250-28XS switch.

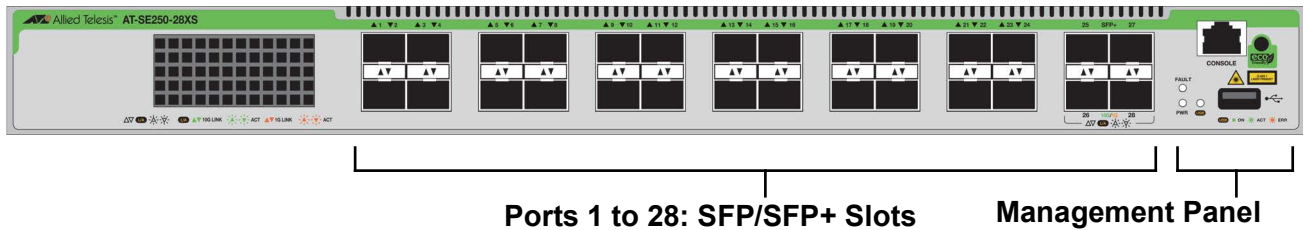


Figure 6. Front Panel of the SE250-28XS Switch

x250-28XTm Switch

Figure 7 shows the front panel of the x250-28XTm switch.

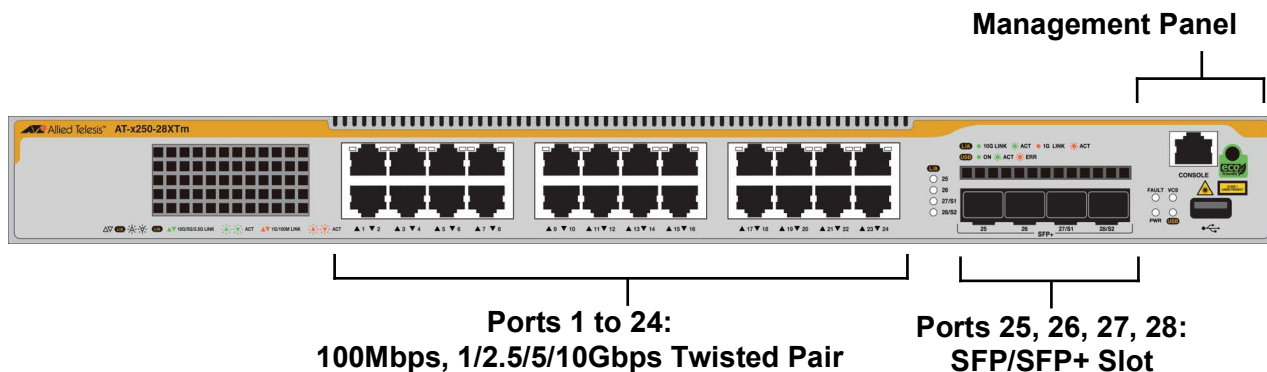


Figure 7. Front Panel of the x250-28XTm Switch

SE250-28XTm Switch

Figure 8 shows the front panel of the SE250-28XTm switch.

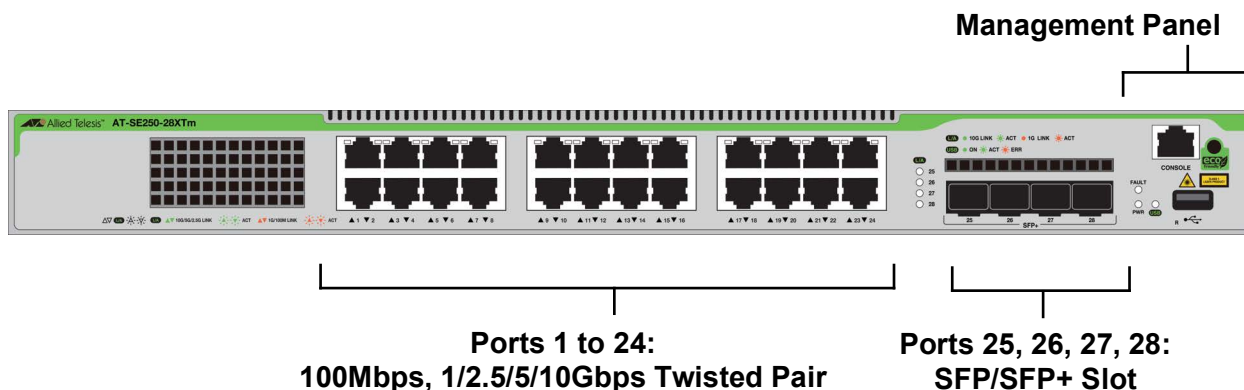


Figure 8. Front Panel of the SE250-28XTm Switch

x250-28XHm Switch

Figure 9 shows the front panel of the x250-28XHm switch.

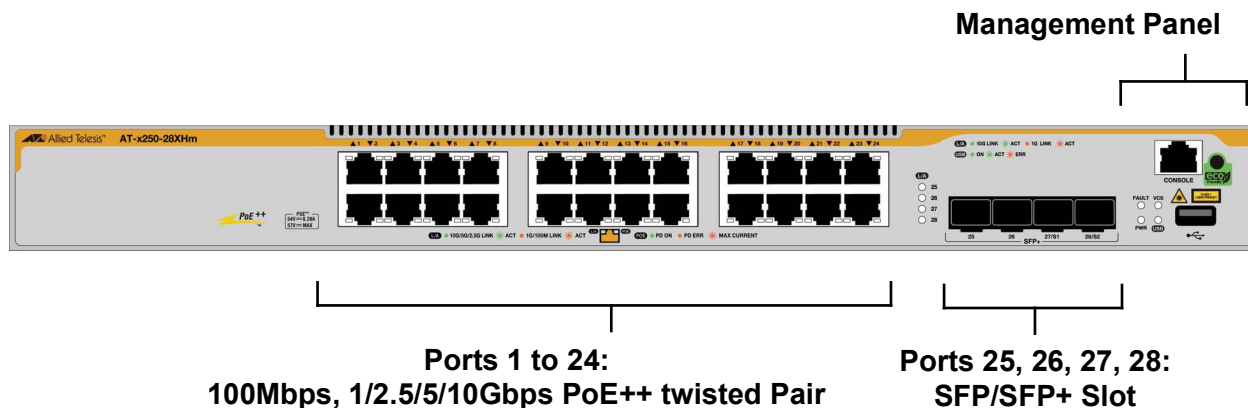


Figure 9. Front Panel of the x250-28XHm Switch

Rear Panels

The rear panel of the x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm switches is shown in Figure 10.



Figure 10. Rear Panel of the x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm Switches

The rear panel of the x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm switches is shown in Figure 11.

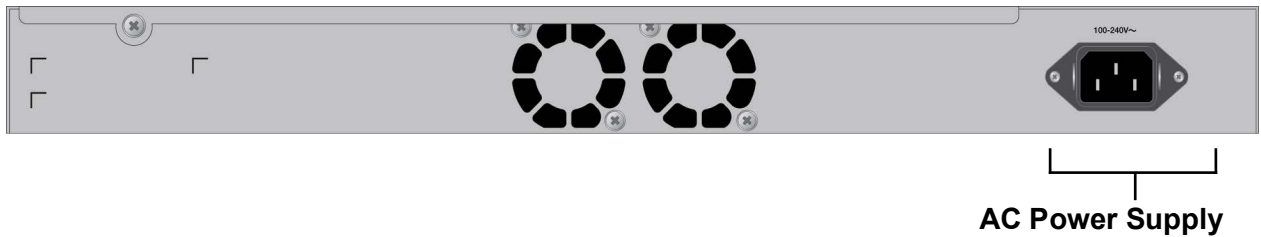


Figure 11. Rear Panel of the x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm Switches

The rear panel of the x250-28XHm switch is shown in Figure 12.

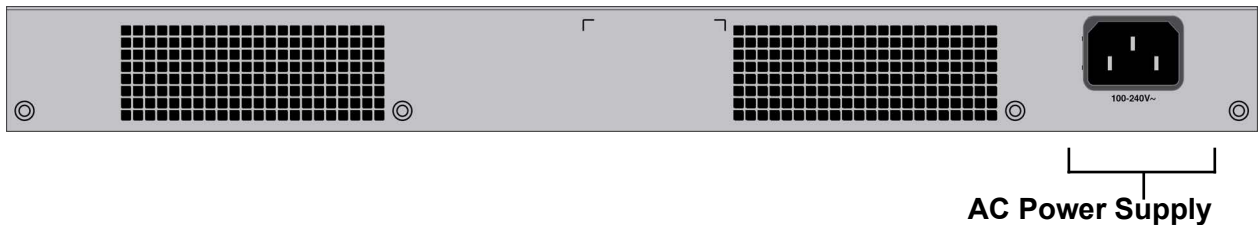


Figure 12. Rear Panel of the x250-28XHm Switch

Features

The main features of the switch are listed here.

Hardware Features

The switch has the following hardware features:

- ☐ Console port
- ☐ USB port
- ☐ Eco friendly button
- ☐ LEDs
- ☐ Fan
- ☐ 100Mbps, and 1/2.5/5/10Gbps Twisted pair ports, SFP/SFP+ transceiver slots, or both. See Table 1 for each model.

Table 1. The numbers of Ports and Fans on the Switch

	Twisted Pair Port	PoE++ Twisted Pair Port	SFP/SFP+ Port	Fan
x250-18XS, SE250-18XS	-	-	18	1
x250-18XTm, SE250-18XTm	16	-	2	1
x250-28XS, SE250-28XS	-	-	28	2
x250-28XTm, SE250-28XTm	24	-	4	2
x250-28XHm	-	24	4	4

Power over Ethernet (PoE)

The x250-28XHm switch has 24 PoE++ twisted pair ports. Here are the basic features of PoE on the switch:

- ❑ Maximum power budget for Powered Devices (PDs): 600w
- ❑ Supports PoE, PoE+, and PoE++
 - PoE: 15.4w at port
 - PoE+: 30w at port
 - PoE++: 60w at port
- ❑ Powered Device (PD) classes 0 to 6

Virtual Chassis Stacking (VCStack)

The VCStack feature enables you to link together the x250 series switches into a virtual stack so that they function as a single networking unit.

For the instructions to build a stack with the VCStack feature, see Chapter 2, “Virtual Chassis Stacking” on page 31.

SFP/SFP+ Slots

The switches support the following types of transceivers in the SFP/SFP+ ports:

- ❑ 1Gbps, SFP 1000Base-SX/LX transceivers
- ❑ 1Gbps, SFP single-port BiDi 1000Base-LX transceivers
- ❑ 1Gbps, SFP 1000Base-ZX transceivers
- ❑ 10Gbps, SFP+ 10GBase-SR/LR fiber optic transceivers

Here are guidelines for transceivers for the SFT/SFP+ slots:

- ❑ SFP and SFP+ transceivers are sold separately.
- ❑ For a list of supported transceivers, see the product’s data sheet.
- ❑ When using a Fiber Optic Small-Form Pluggable (SFP) module, ensure it is IEC 60825-1 certified and Class 1 Laser Product.

Management Software and Interfaces

Here are the management software and interfaces:

- ❑ AlliedWare Plus™ management software
- ❑ Command line interface, available locally through the Console port or remotely over the network.

Management Methods

You can manage the switch as follows:

- ❑ Command line interface (CLI) accessed locally through the Console port or remotely using Secure Shell (SSH).
- ❑ Remote management with Vista Manager
- ❑ Remote access with SNMPv1, v2c, or v3.

Management Panel

The management panel has the following features:

- ☐ Console port
- ☐ USB port
- ☐ Eco-friendly button
- ☐ System LEDs

For more information, see “Management Panel” on page 28.

Note

The eco-friendly mode can be turned on or off with the `ECOFRIENDLY LED` or `NO ECOFRIENDLY LED` command in the Command Line Interface.

Power Supply

The x250 series and SE250 series switches come with a pre-installed power supply that supplies system power.

See “Power Specifications” on page 121. A power cord and retaining clip are included with the switch.



Warning

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

Note

The power supply is not field-replaceable.

FAN

The switch has ventilation fan(s) located on the back panel. The airflow direction of the fan is from front to back, drawing air out of the switch.

Problems with the fan are displayed with the Fault LED as shown in Table 2 on page 22. For the number of fans installed for each model, see Table 1 on page 18.

Note

The fan is not field-replaceable.

Twisted Pair Ports on the Switch

This section describes the twisted-pair ports on the switch.

Connector Type The twisted pair ports have 8-pin RJ-45 connectors. The ports use four pins at 100Mbps and all eight pins at 1G/2.5G/5G/10G. The pin assignments are listed in “RJ-45 Twisted Pair Port Pinouts” on page 123.

Port Speed The ports can operate at 100M/1G/2.5G/5G/10G. The switch can set the speeds automatically through Auto-Negotiation, the default setting, or you can manually configure them with the AlliedWare Plus Operating System.

Note

Twisted pair ports must be set to Auto-Negotiation to operate at 1Gbps or higher.

Duplex Mode The ports can only operate in full-duplex mode. The ports are IEEE 802.3u-compliant and use Auto-Negotiate to set the duplex mode setting.

Maximum Distance The ports have a maximum operating distance of 100 meters (328 feet).

Cable Requirements The cable requirements are listed here:

- ☐ 100Mbps - Standard TIA/EIA 568-B-compliant Category 3 unshielded cabling.
- ☐ 1/2.5/5Gbps - Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) unshielded cabling.
- ☐ 10Gbps -Standard TIA/EIA 568-C-compliant Category 6a unshielded cabling.

LEDs

This section describes the LEDs on the switch.

LEDs for the Management Panel

The x250 series switches have the LEDs for the power, system, VCS, and USB information on the management panel. The LEDs on the management panel are shown in Figure 13. The states of the LEDs are described in Table 2.

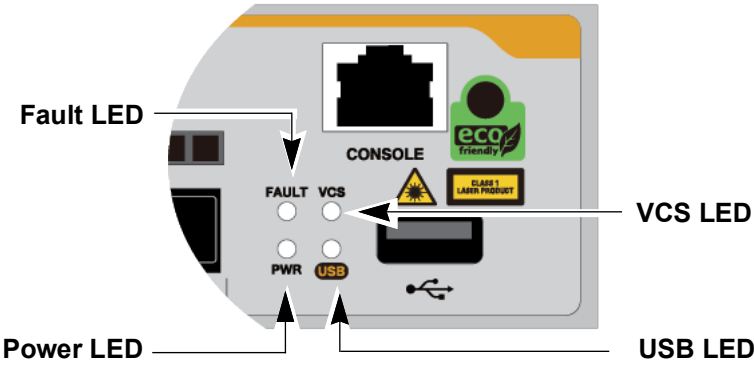


Figure 13. LEDs on the Management Panel

The LEDs on the management panel are described in Table 2.

Table 2. LEDs on the Management Panel

LED	State	Description
Fault	Solid Red	The switch is booting up.
	Flashing Red (Once)	The system or fan is having an error.
	Flashing Red (Six flashes in two seconds)	The temperature exceeds the threshold.
	Off	The switch is operating normally or powered off.
PWR	Solid Green	The switch is receiving power and operating normally.
	Off	The power is off.

Table 2. LEDs on the Management Panel (Continued)

LED	State	Description
VCS	Solid Green	Indicates that the switch is a VCS master even when VCS is disabled.
	Off	Possible causes of this state are: - The switch is a VCS member. - The switch does not support VCS. - VCS is disabled.
USB	Solid Green	A USB flash drive is attached.
	Flashing Green	Indicates that information is being written or read on the attached USB flash drive.
	Flashing Amber	Indicates that the USB flash drive has an error during writing or reading.
	Off	No USB is attached.

One LED Per Port on the x250-18XTm, SE250-18XTm, x250-28XTm, and SE250-28XTm Switches

Each 100Mbps and 1/2.5/5/10Gbps non-PoE twisted pair port on the following switches has one LED that displays link and activity information:

- ❑ x250-18XTm
- ❑ SE250-18XTm
- ❑ x250-28XTm
- ❑ SE250-28XTm

The LEDs are shown in Figure 14. The states of the LEDs for these ports are described in Table 3 on page 24.

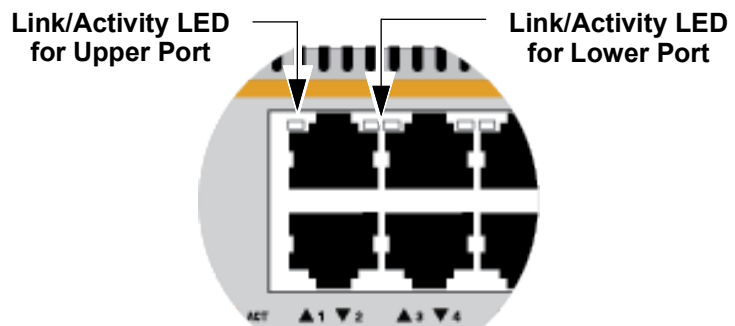


Figure 14. One LED per Non-PoE Copper Port on the Switch

The states of the link and activity LEDs are described in Table 3.

Table 3. Link and Activity LEDs Twisted Pair Ports on the Switch

State	Description
Solid Green	The port has established a 2.5Gbps, 5Gbps, or 10Gbps link to a network device.
Flashing Green	The port is transmitting or receiving data at 2.5Gbps, 5Gbps or 10Gbps.
Solid Amber	The port has established a 100Mbps or 1Gbps link to a network device.
Flashing Amber	The port is transmitting or receiving data at 100Mbps or 1Gbps.
Off	Possible causes of this state are listed here: - 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 in the management panel or the <code>NO ECOFRIENDLY LED</code> command in the command line interface.

LEDs for the x250-28XHm PoE Ports

The 100Mbps and 1/2.5/5/10Gbps twisted pair ports on the x250-28XHm switch are PoE ports.

Each PoE port has LINK/Activity and PoE LEDs that display link/activity and PoE information. The LEDs are shown in Figure 15.

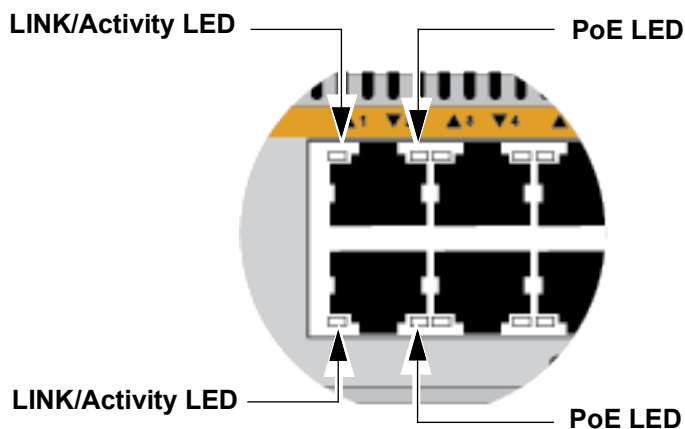


Figure 15. PoE LEDs for Twisted Pair Ports on the x250-28XHm Switch

The states of the PoE LEDs are described in Table 4.

Table 4. PoE LEDs for Twisted Pair Ports on the x250-28XHm Switch

State	Description
Solid Green	The port is delivering power to a powered device.
Solid Amber	The port is connected to a powered device, but the switch has shut down PoE on the port because of a fault condition.
Flashing Amber	The switch does not have sufficient power to allocate to the port because the switch reaches the maximum power budget.
Off	Possible causes of this state are listed here: - No powered device is connected. - The LED is turned off. To turn on the LEDs, use the eco-friendly button on the management panel or the <code>NO ECOFRIENDLY LED</code> command in the command line interface.

Note

For the LINK/Activity LED states and descriptions, see Table 3 on page 24.

LEDs for SFP/SFP+ Slots

The slots for the SFP/SFP+ ports have one link and activity status LED each. See Figure 16.

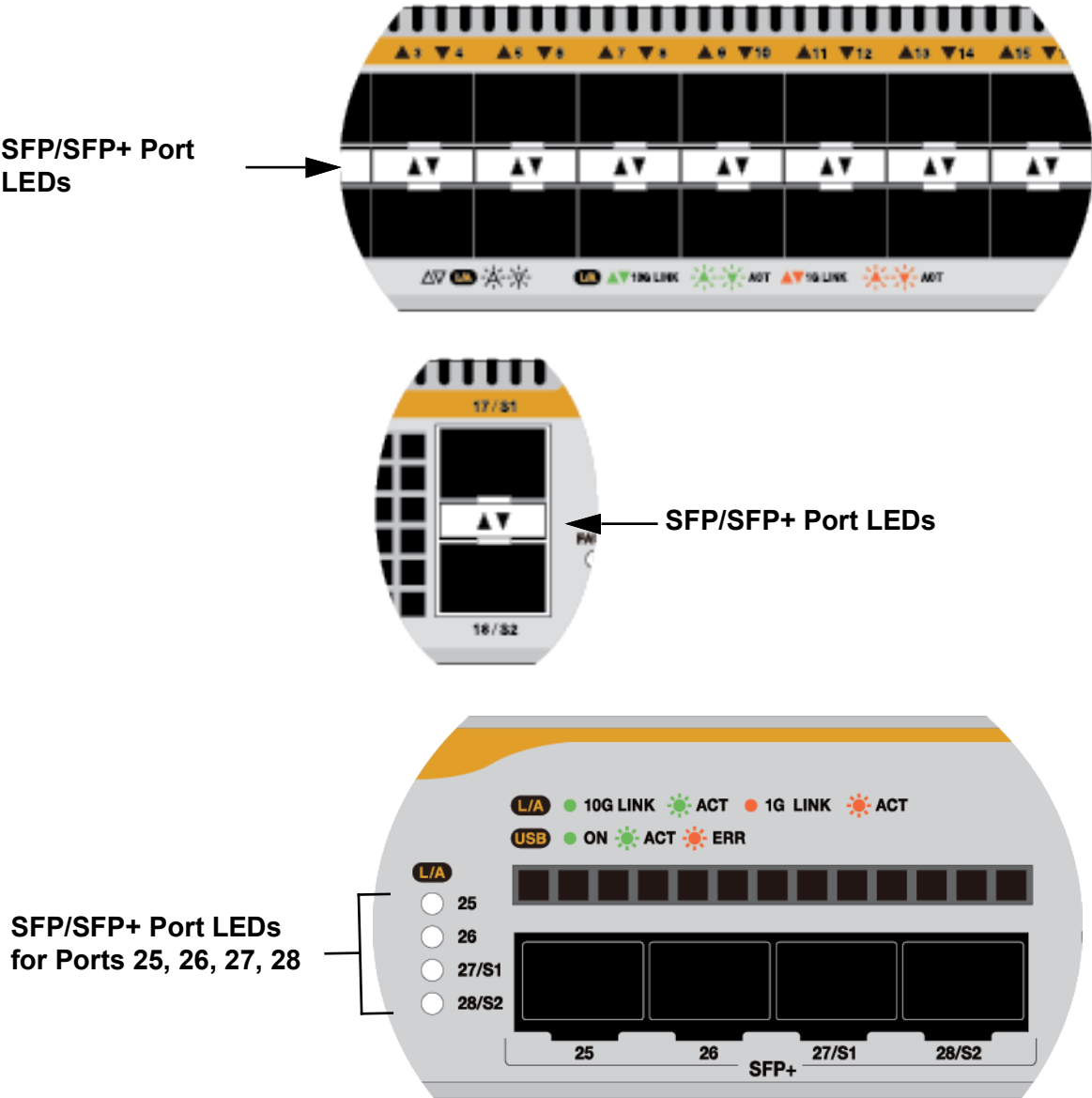


Figure 16. LEDs for SFP/SFP+ Slots

The states of the LEDs are defined in Table 5.

Table 5. Link and Activity LEDs for SFP/SFP+ Ports

State	Description
Solid Green	The SFP/SFP+ port has established a 10Gbps link to a network device.
Flashing Green	The SFP/SFP+ port is transmitting or receiving data at 10Gbps.
Solid Amber	The SFP/SFP+ port has established a 1Gbps link to a network device.
Flashing Amber	The SFP/SFP+ port is transmitting or receiving data at 1Gbps.
Off	Possible causes of this state are listed here: - The SFP/SFP+ slot is empty. - The SFP/SFP+ port has not established a link to a network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button in the management panel or the <code>NO ECOFRIENDLY LED</code> command in the command line interface.

Management Panel

The components on the management panel for the switch are identified in Figure 17.

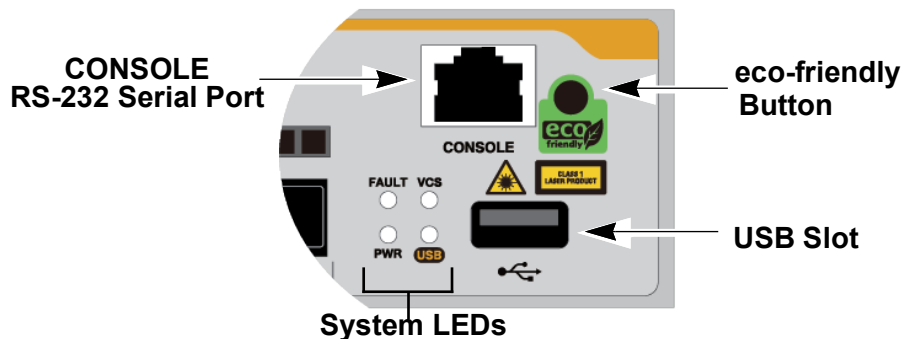


Figure 17. Management Panel for the Switch

USB Port You can use the USB port with a flash drive for the following functions:

- ☐ Provide a centralized network backup location for Autonomous Management Framework.
- ☐ Store backup copies of configuration files.
- ☐ Transfer configuration files between switches that are to have similar configurations.
- ☐ Store or transfer log files.
- ☐ Store or transfer debug files (for example, the output of the `SHOW TECH-SUPPORT` command).
- ☐ Boot the AlliedWare Plus operating system and master configuration file from flash drive.

Note

Using a flash drive with the switch is optional.

**Console (RS-232)
Port**

Use the Console Port to conduct local management sessions with the switch. Local management sessions require a terminal or PC with a terminal emulation program and the management cable. The switch does not need an IP address for local management sessions because they are not conducted over a network.

**eco-friendly
Button**

Use the eco-friendly button to turn the LEDs on the switch on or off, except the PWR LED.

Note

The eco-friendly button does not turn off the PWR LED.

Designating Ports in the Command Line Interface

The individual ports on the switch are identified with the PORT parameter in the command line interface of the AlliedWare Plus management software. The format of the parameter is shown in Figure 18.

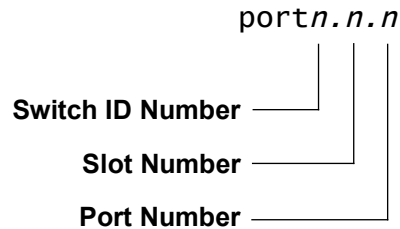


Figure 18. PORT Parameter in the Command Line Interface

The three parts of the PORT parameter are described in Table 6.

Table 6. PORT Parameter Format

Number	Description
Switch ID Number	Identifies the switch's unique ID number in VCStack. In the standalone mode, the switch ID number is always 1.
Slot Number	The slot number for the ports on the switch is 0.
Port Number	Identifies a port number.

Examples for the PORT Parameter on Base Ports

Here are examples of the PORT parameter in the INTERFACE command for switches in a stack.

The first example enters the port Interface mode for port 11 in a switch with ID 1:

```
awplus> enable
awplus# configure terminal
awplus(config)# interface port1.0.11
```

Note

In the command line, include the `port` parameter when identifying individual ports; omit it from the last port when specifying ranges.

This example enters the port Interface mode for port 4 to 7 in a switch with ID 2 as a range:

```
awplus(config)# interface port2.0.4-2.0.7
```

This example enters the port Interface mode for port 10 in a switch with ID 1 and port 18 in a switch with ID 2 as individual ports:

```
awplus(config)# interface port1.0.10,port2.0.18
```

Chapter 2

Virtual Chassis Stacking

The sections in this chapter are listed here:

- ❑ “Overview” on page 32
- ❑ “Stacking Guidelines” on page 33
- ❑ “Stacking Port Guidelines” on page 34
- ❑ “Connecting Stacking Ports” on page 35
- ❑ “Master and Member Switches” on page 36
- ❑ “Master and Member Switches” on page 36
- ❑ “Optional Feature Licenses” on page 37

Note

This section applies only to the x250 series switches.

Overview

The Virtual Chassis Stacking (VCStack) feature enables you to link together multiple switches into a virtual stack so that they function as a single networking unit.

Benefits of VCStack

The feature provides the following benefits:

- ❑ Simplifies management - You can manage the devices as a single unit, rather than individually. Your local and remote management sessions automatically give you management access to all the switches.
- ❑ Reduces IP addresses - A stack requires only one IP address for remote management access, reducing the number of IP addresses you have to assign to network devices. The one address gives you management access to all the stack units.
- ❑ Adds feature flexibility and resiliency - Stacking gives you more flexibility in how you can configure some features. For instance, you can create port aggregations using ports from different switches, rather than ports from only one switch. By distributing the ports of an aggregation across multiple switches, you increase its resiliency because the aggregation can continue to function, though at a reduced bandwidth, even if a switch in a stack stops functioning.

Stacking Guidelines

Here are general stacking guidelines:

- ❑ The x250 series switches support the VCStack feature.
- ❑ See Table 7 for the maximum numbers of units for stacking and the numbers of stacking ports per model.

Table 7. VCStack Supported Switches

VCStack Supported Switch	Max Number of Stacking Units	Stacking Ports	
		Max Number of Ports	Bandwidth of Stacking Ports
x250-18XS	2 units	2 ports	10Gbps
x250-18XTm			
x250-28XS			
x250-28XTm			
x250-28XHm			

- ❑ The VCStack feature comes standard with the AlliedWare Plus operating software. No additional software or license is required.
- ❑ The VCStack feature on the x250 series switches is enabled by default. Disabling VCStack requires rebooting the switch.
- ❑ The switches must have the same optional features licenses. If you purchased optional features for the switches, you should install them before assembling the stack.
- ❑ You should not pre-configure the features of the switches, such as VLANs and spanning tree, before building the stack. The configuration settings are likely to be discarded once the switches begin operating as a stack.

Stacking Port Guidelines

The switches of a stack are connected with stacking ports. Here are general guidelines:

- ❑ See Table 7 on page 33 for the maximum numbers of units for a stack and the numbers of stacking ports per model.
- ❑ You can choose any twisted-pair ports, SFP/SFP+ ports, or any combination of both to be stacking ports as long as they operate at the same bandwidth.
- ❑ Designate stacking ports with the `STACKPORT` command in the AlliedWare Plus operating system.
- ❑ Once ports are designated as stacking ports, they cannot be used as regular network ports. To use them as network ports, disable them as stacking ports with the `NO STACKPORT` command.
- ❑ The ports marked as S1 and S2 are designated stacking ports. They are enabled as stacking ports by default. If you want to use them as network ports, disable them as stacking ports with the `NO STACKPORT` command.
- ❑ S1 and S2 are identified as stacking ports; however, you must use port numbers to identify ports when you refer them on Command Line Interface (CLI). For example:


```
awplus(config)# interface port1.0.27-1.0.28
```
- ❑ You cannot view or change the parameter settings of the ports that are designated as stacking ports,
- ❑ The fiber optic transceivers or direct attach cables for stacking ports must be from Allied Telesis. Transceivers or cables from other network equipment providers might not perform properly as stacking ports. For a list of supported transceivers, visit **www.alliedtelesis.com**.
- ❑ If stacking ports fail for any reason, the switches operate as stand-alone devices.

Connecting Stacking Ports

The following guidelines are not mandatory, but recommendations because they can make managing or troubleshooting a stack easier:

- ❑ Use the same ports for the stacking ports on the stack switches and connect together the same ports in the switches, if possible.
- ❑ Choose consecutive ports (for example, ports 1, 2, 3 and 4).

VCStack Example 1

Figure 19 shows an example of VCStack. Here are the general properties:

- ❑ The stack consists of two switches, and each switch uses two ports as stacking ports.
- ❑ The switches use the same consecutive ports, 1 and 2.

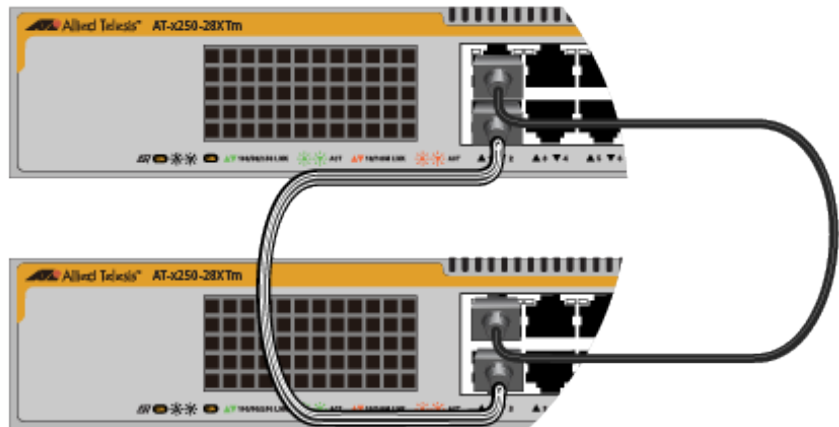


Figure 19. Stack Example of Two Switches Using Twisted-Pair Ports

VCStack Example 2

Figure 20 illustrates a stack of two switches with one copper port and one SFP/SFP+ port on each switch as stacking ports. The stacking ports must operate at the same bandwidth.



Figure 20. Stack Example with A Combination of Copper and SFP Ports

Master and Member Switches

One switch of a stack functions as a master switch. Its main functions are listed here:

- ❑ Coordinates and monitors stack operations.
- ❑ Verifies that the switches are using the same version of management software. It automatically downloads its management software over the stacking cables to switches with different software versions.
- ❑ Verifies that the switches have different ID numbers. It automatically assigns new ID numbers to resolve conflicts where two or more switches have the same ID number.

The other switches are called member switches.

Selection of the Master Switch

The switches of the stack designate the master switch during the initialization process, when they are powered on or reset. They base the selection of the master switch on the following parameters:

- ❑ Stack priority numbers
- ❑ MAC addresses

The stack priority number is an adjustable value of 0 to 255, where the lower the number, the higher the priority. Typically, the switch with the lowest priority number (highest priority) becomes the master switch of a stack. The default priority value is 128.

If the switches have the same priority values, the selection of the master switch is based on their MAC addresses. As with the priority value, the lower the MAC address, the higher the priority. The switch with the lowest MAC address becomes the master switch.

If you power on the stack without adjusting the priority values, the master switch is selected based on the MAC addresses if the units are powered on simultaneously. If you power on the switches one at a time, the master switch is the first switch powered on.

Optional Feature Licenses

The x250 series switches come with the AlliedWare Plus management software and a base set of features that are available as soon as you install the device. Additional features and capabilities might be included with the operating system but can be access only after they are unlocked with optional feature licenses from Allied Telesis. Contact your authorized reseller or distributor for a list of optional features licenses for this product.

Here are the guidelines to feature licenses for a stack of the x250 series switches:

- ❑ The VCStack feature is part of the base features of the switch. It does not require an optional feature license.
- ❑ You can install feature licenses while the switches are operating as stand-alone units or as a stack.
- ❑ When ordering feature licenses for the switches of a stack, you must order one license for each switch.
- ❑ Switches can form a stack even if they have different feature licenses. However, the additional features are only available on those switches with the licenses. The stack generates a warning message if it detects that the switches do not have the same optional feature licenses.

Chapter 3

Beginning the Installation

The chapter contains the following sections:

- ❑ “Reviewing Safety Precautions” on page 40
- ❑ “Choosing a Site for the Chassis” on page 44
- ❑ “Unpacking the Box and Verifying the Contents” on page 45
- ❑ “Installation Options” on page 47

Reviewing Safety Precautions

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

Note

Safety statements that have the  symbol are translated into multiple languages in the *Translated Safety Statements* document at www.alliedtelesis.com/support.



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

Laser Safety: EN60825-1.  L7



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**

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

**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° degrees 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

Note

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

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 (T_{mra}).

⚡ 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 should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuits (e.g., use of power strips).  E37

**Warning**

This equipment shall 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 transceivers with unprotected hands.  E43

**Warning**

Switches should not be stacked on top of one another on a table or desktop because that could present a personal safety hazard if you need to move or replace switches.  E91

**Warning**

The device is heavy. Always ask for assistance when moving or lifting it to avoid injuring yourself or damaging the equipment.  E122

Choosing a Site for the Chassis

Observe these site requirements.

- ☐ If you are installing the device in an equipment rack, check that the rack is safely secured so that it will not tip over. Devices should be installed in the rack starting at the bottom, with the heavier devices near the bottom of the rack.
- ☐ The power outlet should be located near the chassis 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, with the fan(s) on the back panel drawing the air out of the unit.
- ☐ The site should not expose the switch to moisture or water.
- ☐ The site should be a dust-free environment.
- ☐ The site should include dedicated power circuits or power conditioners to supply reliable electrical power to the network devices.
- ☐ Twisted pair cabling should not be exposed to sources of electrical noise, such as radio transmitters, broadband amplifiers, power lines, electric motors, or fluorescent fixtures.
- ☐ Switch ports are suitable for intra-building connections, or where non-exposed cabling is required.
- ☐ Do not install the device in a wiring or utility box that has inadequate airflow because it might overheat and fail.

Unpacking the Box and Verifying the Contents

The first step to install the switch is to unpack the shipping box. Here are the guidelines:



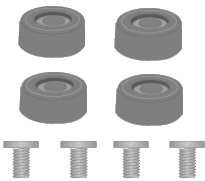
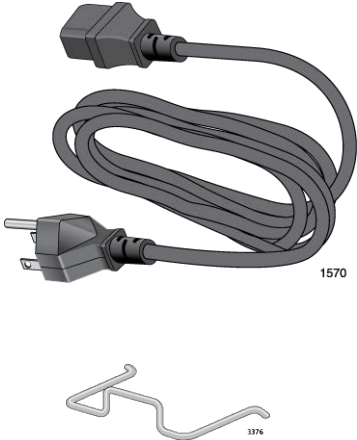
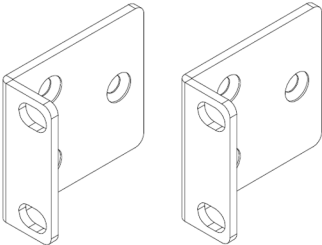
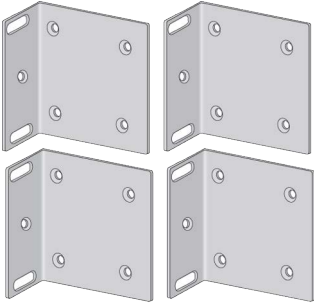
Warning

The device is heavy. Always ask for assistance before moving or lifting it to avoid injuring yourself or damage the equipment. *⚡* E122

- ❑ If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.
- ❑ Store the packaging material in a safe location. Please use the original shipping material if you need to return the device to Allied Telesis.

Unpack the box and remove the switch. Verify and inspect the contents. Table 8 on page 46 shows the contents of the shipping box except a switch.

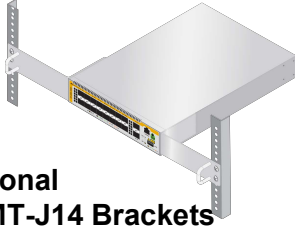
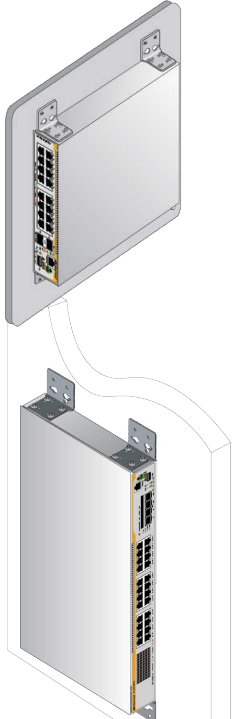
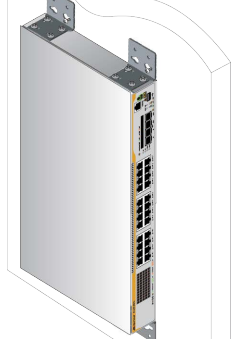
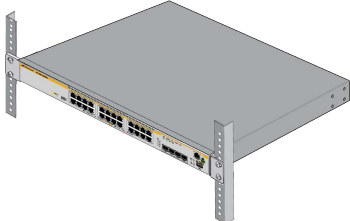
Table 8. Contents of Shipping Boxes

	19-inch Rack Mount Brackets and Screws	Four Bumper Feet	Power Cord and Power Cord Retaining Clip
x250-18XS, SE250-18XS, x250-18XTm, SE250-18XTm	N/A	 Bumper Feet with screws (M3x6mm)	 1570 3376
x250-28XS, SE250-28XS, x250-28XTm, SE250-28XTm	 Six M4x8mm screws	 Bumper Feet with rivets	
x250-28XHm	 16 M3x6mm screws		

Installation Options

The Installation options are shown in Table 9.

Table 9. Installation Options

	Tabletop	Equipment Rack	Wall
x250-18XS, SE250-18XS, x250-18XTm, SE250-18XTm		 Optional RKMT-J14 Brackets  Optional RKMT-J15 Rack Mount	
x250-28XS, SE250-28XS, x250-28XTm, SE250-28XTm	 Bumper Feet	 Use two rack mount brackets that come with the switch	 Optional BRKT-J24 Brackets
x250-28XHm		 Use two brackets that come with the switch	 Four brackets that come with the switch

Installing the x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm Switches

Here is a list of guidelines for installing the x250-18XS, SE250-18XS, x250-18XTm, or SE250-18XTm switch:

- ❑ To install the switch on a table, go to “Installing the x250 and SE250 18-Port Switches on a Table” on page 52.
- ❑ To install the switch on a wall, go to Chapter 5, “Installing the Switch on a Wall” on page 57.
- ❑ To install the x250-18XS, SE250-18XS, x250-18XTm, or SE250-18XTm switch on an equipment rack, you have two options:
 - Using RKMT-J14, go to “Installing the Switch in a Rack Using the RKMT-J14 Brackets” on page 82.
 - Using RKMT-J15, go to “Installing the Switch in a Rack Using the RKMT-J15 Rack-Mount Kit” on page 87.
- ❑ The RKMT-J14 and RKMT-J15 rack-mount kits are optional. You must purchase either of them, in addition to your switch.
- ❑ To install the x250-18XS, SE250-18XS, x250-18XTm, or SE250-18XTm switch on a wall, use the BRKT-J24 bracket kit. For wall installation, go to “Installing the Switch on a Wall Using the BRKT-J24 Brackets” on page 63.
- ❑ The BRKT-J24 bracket kit is optional. You must purchase one, in addition to your switch.

Installing the x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm Switches

Here is a list of guidelines for installing the x250-28XS, SE250-28XS, x250-28XTm, or SE250-28XTm switch:

- ❑ To install the switch on a table, go to Chapter 4, “Installing the x250 and SE250 28-Port Switches on a Table” on page 53.
- ❑ To install the x250-28XS, SE250-28XS, x250-28XTm, or SE250-28XTm switch on a wall, use the BRKT-J24 bracket kit. For wall installation, go to “Installing the Switch on a Wall Using the BRKT-J24 Brackets” on page 63.
- ❑ To install the x250-28XS, SE250-28XS, x250-28XTm, or SE250-28XTm switch on an equipment rack, go to “Installing the x250-28XS, SE250-28XS, x250-28XTm, or SE250-28XTm Switch in a Rack” on page 94.
- ❑ The BRKT-J24 bracket kit is optional. You must purchase one, in addition to your switch.
- ❑ Use the Rack-Mount Brackets that come with the switch.

Installing the x250-28XHm Switch

Here is a list of guidelines for installing the x250-28XHm switch:

- ❑ To install the switch on a table, go to “Installing the x250 and SE250 28-Port Switches on a Table” on page 53.
- ❑ To install the switch on a wall, go to Chapter 5, “Installing the Switch on a Wall” on page 57.
- ❑ To install the x250-28XHm switch on an equipment rack, go to “Installing the x250-28XHm Switch in a Rack” on page 96.

Chapter 4

Installing the Switch on a Table

The sections in this chapter are listed here:

- ❑ “Installing the x250 and SE250 18-Port Switches on a Table” on page 52
- ❑ “Installing the x250 and SE250 28-Port Switches on a Table” on page 53

Installing the x250 and SE250 18-Port Switches on a Table

The x250 series and SE250 series 18-port switches are:

- ☐ x250-18XS
- ☐ SE250-18XS
- ☐ x250-18XTm
- ☐ SE250-18XTm

To install the x250 series and SE250 series 18-port switches on a table, perform the following procedure:

Note

Before installing the switch on the table, see Chapter 3, “Beginning the Installation” on page 39.

1. Place the switch upside down on a table.
2. Place the four bumper feet to the bottom corners of the switch.
3. Attach the bumper feet to the switch using the M3x6mm screws and a crosshead screwdriver. See Figure 21.

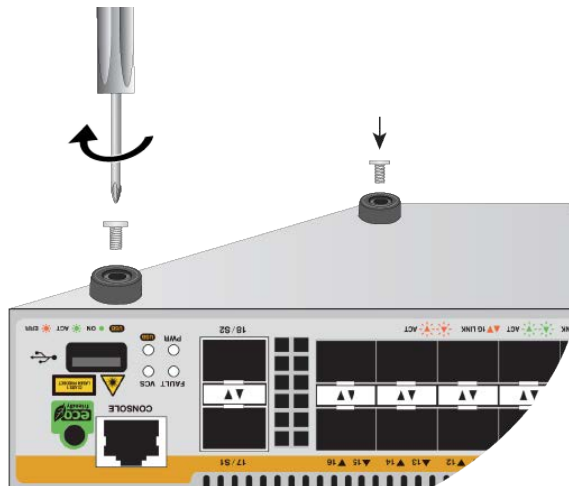


Figure 21. Attaching the Bumper Feet Using Screws

4. Turn the switch over and place it on a flat, secure desk or table, leaving ample space around it for ventilation.
5. Go to one of the following procedures:
 - ❑ Chapter 8, “Cabling the Networking Ports” on page 103.
 - ❑ For Stacking, see Chapter 2, “Virtual Chassis Stacking” on page 31.

Installing the x250 and SE250 28-Port Switches on a Table

The x250 series and SE250 series 28-port switches are:

- ❑ x250-28XS
- ❑ SE250-28XS
- ❑ x250-28XTm
- ❑ SE250-28XTm
- ❑ x250-28XHm

To install the x250 series and SE250 series 28-port switches on a table, perform the following procedure:

Note

Before installing the switch on the table, see Chapter 3, “Beginning the Installation” on page 39.

1. Disassemble the bumper feet by removing the rivets and rivet housings from the bumper feet. See Figure 22.

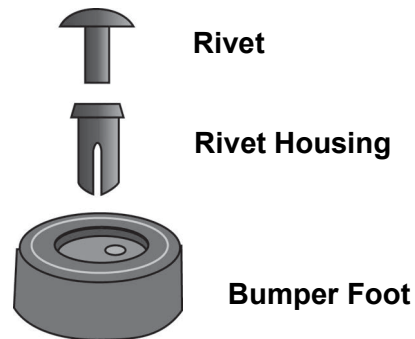


Figure 22. Parts of the Bumper Feet

2. Place the switch upside down on a table.
3. Insert a rivet housing into a bumper foot shown in Figure 23 on page 54.

You have four units in total.

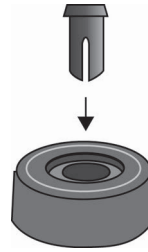


Figure 23. Inserting the Rivet Housing into the Bumper Foot

4. Place a rivet housing and bumper foot unit onto a hole at each corner shown in Figure 24. The switch has four holes.

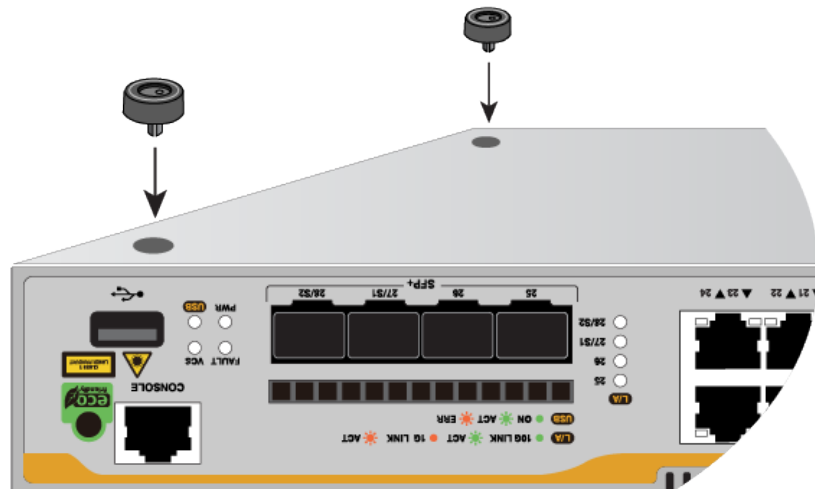


Figure 24. Placing the Bumper Foot Units on Base Corner Holes

5. Insert the rivet to secure the bumper foot to the base. See Figure 25.

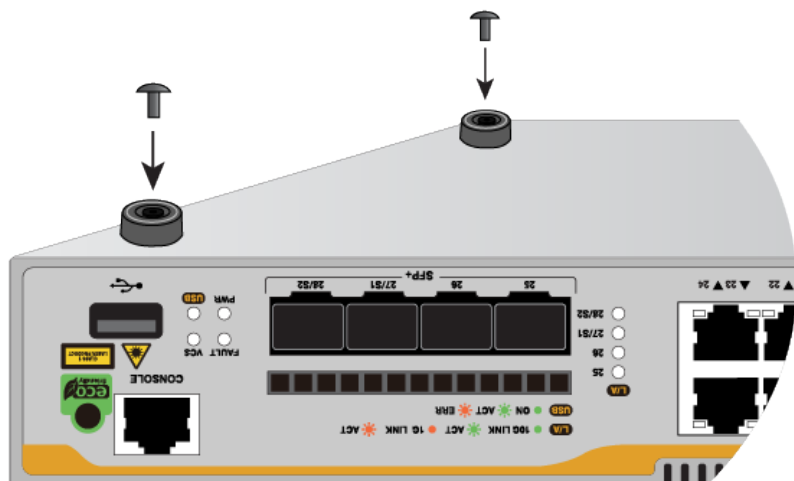


Figure 25. Inserting the Rivet into the Bumper Foot

6. Turn the switch over and place it on a flat, secure desk or table, leaving ample space around it for ventilation.
7. Go to one of the following procedures:
 - ❑ Chapter 8, “Cabling the Networking Ports” on page 103.
 - ❑ For Stacking, see Chapter 2, “Virtual Chassis Stacking” on page 31.

Chapter 5

Installing the Switch on a Wall

The procedures in this chapter are listed here:

- ❑ “Overview of Installing the Switch on a Wall” on page 58
- ❑ “Unpacking the BRKT-J24 Wall Mount Bracket Kit” on page 61
- ❑ “Installing the Switch on a Wall Using the BRKT-J24 Brackets” on page 63
- ❑ “Installing the x250-28XHm Switch on a Wall” on page 68
- ❑ “Plywood Base for a Wall with Wooden Studs” on page 70
- ❑ “Installing the Switch on a Concrete Wall” on page 73

Overview of Installing the Switch on a Wall

Required Brackets to Install a Switch

The x250 series and SE250 series switches can be installed on a wall.

Required brackets to install a switch on a wall depend upon the switch model as shown in Table 10.

Table 10. Brackets for Wall Mount

Switch	Wall Mount Brackets
x250-18XS	BRKT-J24 wall mount brackets
SE250-18XS	
x250-18XTm	
SE250-18XTm	
x250-28XS	
SE250-28XS	
x250-28XTm	
SE250-28XTm	
x250-28XHm	Brackets that come with the switch

Installation Guidelines

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

- ☐ The BRKT-J24 wall mount bracket kit is optional. You must purchase one separately.
- ☐ You may install the switch on a wall that has wooden studs.
- ☐ You may install it 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, see “Plywood Base for a Wall with Wooden Studs” on page 70. 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 only 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.

⚡ E122

**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 may result if it is not properly fastened to the wall.

 E105

- ❑ The switch can be installed on a wall with the front panel on the left or right and the bottom of the switch should be attached to the wall. See Figure 26. Do not install it with the front panel on the top or bottom.



Figure 26. Correct Orientations of the Switch on the Wall

Installing the Switch on a Wall

To install your switch on a wall, perform one of the following installation procedures:

- ❑ For the x250-28XHm switch, go to “Installing the x250-28XHm Switch on a Wall” on page 68.
- ❑ For the switch that requires the BRKT-J24 brackets, go to:
 - “Unpacking the BRKT-J24 Wall Mount Bracket Kit” on page 61.
 - “Installing the Switch on a Wall Using the BRKT-J24 Brackets” on page 63.

Note

To find out if your switch requires the BRKT-J24 brackets, see Table 10 on page 58.

Unpacking the BRKT-J24 Wall Mount Bracket Kit

Note

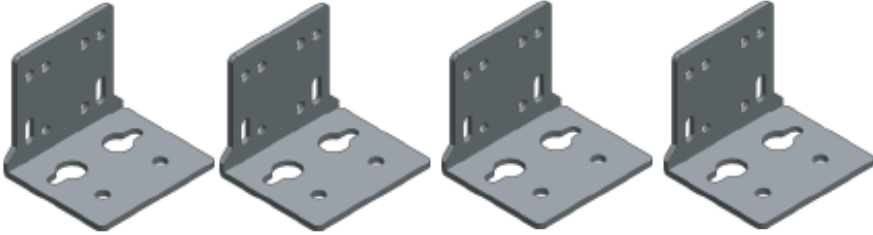
The BRKT-J24 wall mount bracket kit is optional. You must purchase the kit separately.

Unpack the BRKT-J24 brackets kit, perform the following procedure:

1. Unpack the shipping box.
2. Verify and inspect the contents.

Table 11 shows the contents of the shipping box.

Table 11. BRKT-J24 Wall Mount Bracket Kit

Item	Description
	Four BRKT-J24 wall mount brackets
	16 M4x6mm screws for the BRKT-J24 wall mount brackets

3. If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.

Note

Store the packaging material in a safe location. Please use the original shipping material if you need to return the device to Allied Telesis.

Guidelines for BRKT-J24 Bracket Holes

Here is a list of guidelines for the BRKT-J24 bracket holes to attach your switch to the brackets and attach the brackets to the wall:

- ❑ When you use two screws per bracket to install your switch to a wall, the two screws must be diagonally on the bracket plate as shown in Figure 27 on page 62.

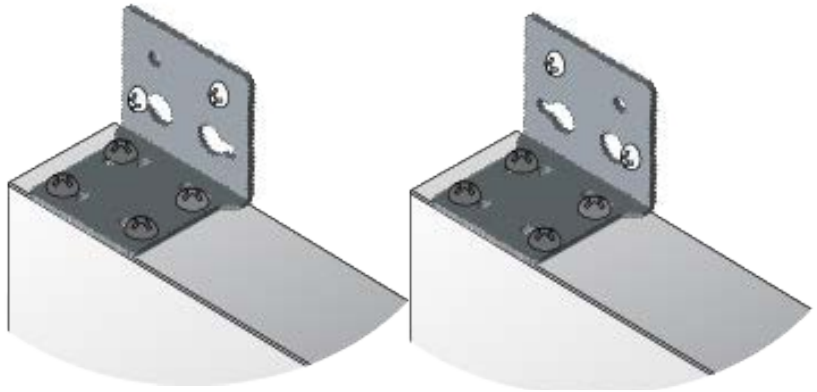


Figure 27. Two Screws Per Bracket Attached on the Wall

- ❑ For the key-hole slots on the bracket plate to a wall:
 1. With a pencil, mark the smaller holes of the key-hole slots on the wall.
 2. Install screws where you just marked on the wall. Leave them loose enough so that you can slide the bracket under the screw heads.
 3. Install the brackets on the screws by sliding the key-hole slots under the screw heads. See Figure 28.

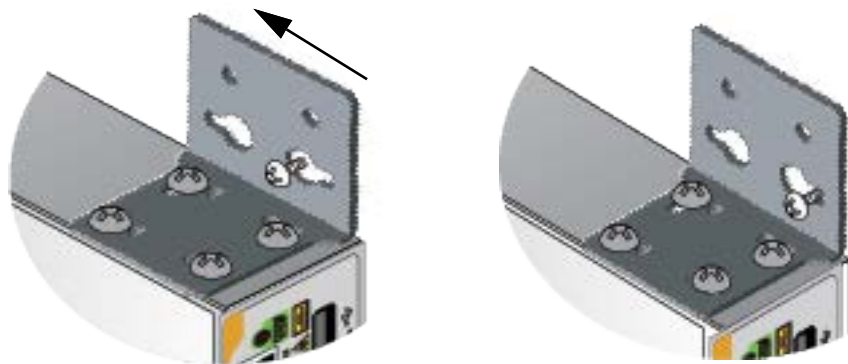


Figure 28. Sliding the Key-hole Slot under the Screw Head

Installing the Switch on a Wall Using the BRKT-J24 Brackets

This section describes instructions to install a switch on a wall using the BRKT-J24 brackets. To find out if your switch requires the BRKT-J24 brackets, see Table 10 on page 58.

Note

If you plan to install your switch on the plywood base, go to “Plywood Base for a Wall with Wooden Studs” on page 70 before installing the switch.

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

1. See “Reviewing Safety Precautions” on page 40.
2. See “Choosing a Site for the Chassis” on page 44.
3. Place the switch on a table.
4. If the bumper feet are attached to the switch, go to “Removing the Bumper Feet” on page 80.
5. Install the four BRKT-J24 brackets with the 16 screws that come with the switch to the sides of the unit.

See Figure 29 and Figure 30 on page 64 for examples.

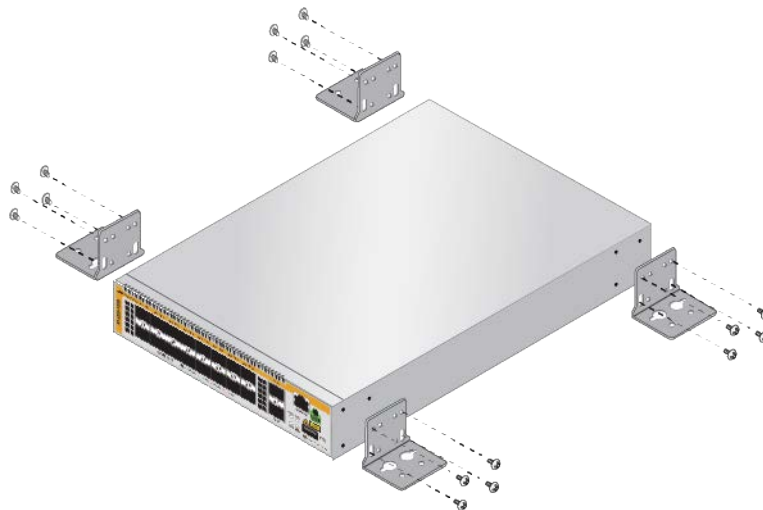


Figure 29. Installing the BRKT-J24 Brackets to the x250-18XS Switch

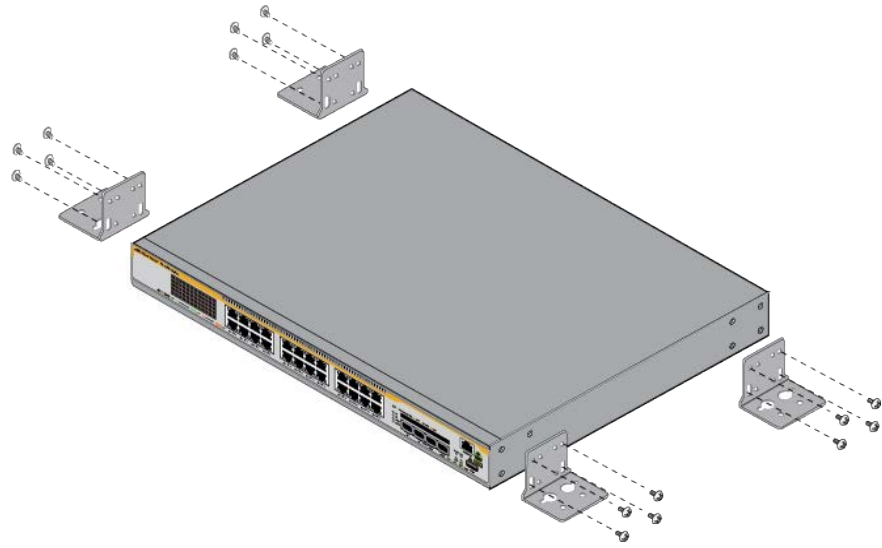


Figure 30. Installing the BRKT-J24 Brackets to the x250-28XTm Switch

6. While another person holds the switch at the wall location, mark the holes with a pencil.

For the key-hole slots, mark the smaller holes of the slots. See Figure 31.

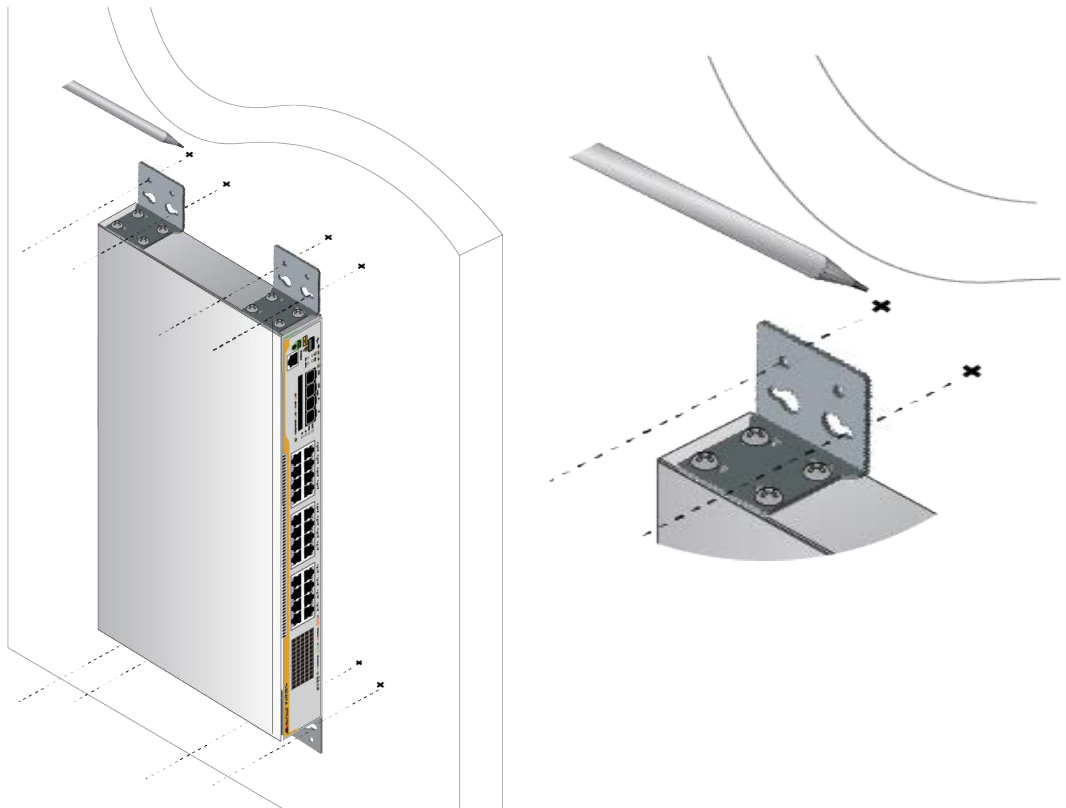


Figure 31. Marking the Holes on the Wall

7. Pre-drill the marked holes.
8. Screw four screws to the pre-drilled holes that are closer to the switch, leaving space between the screw heads and the wall. See Figure 32 on page 65.

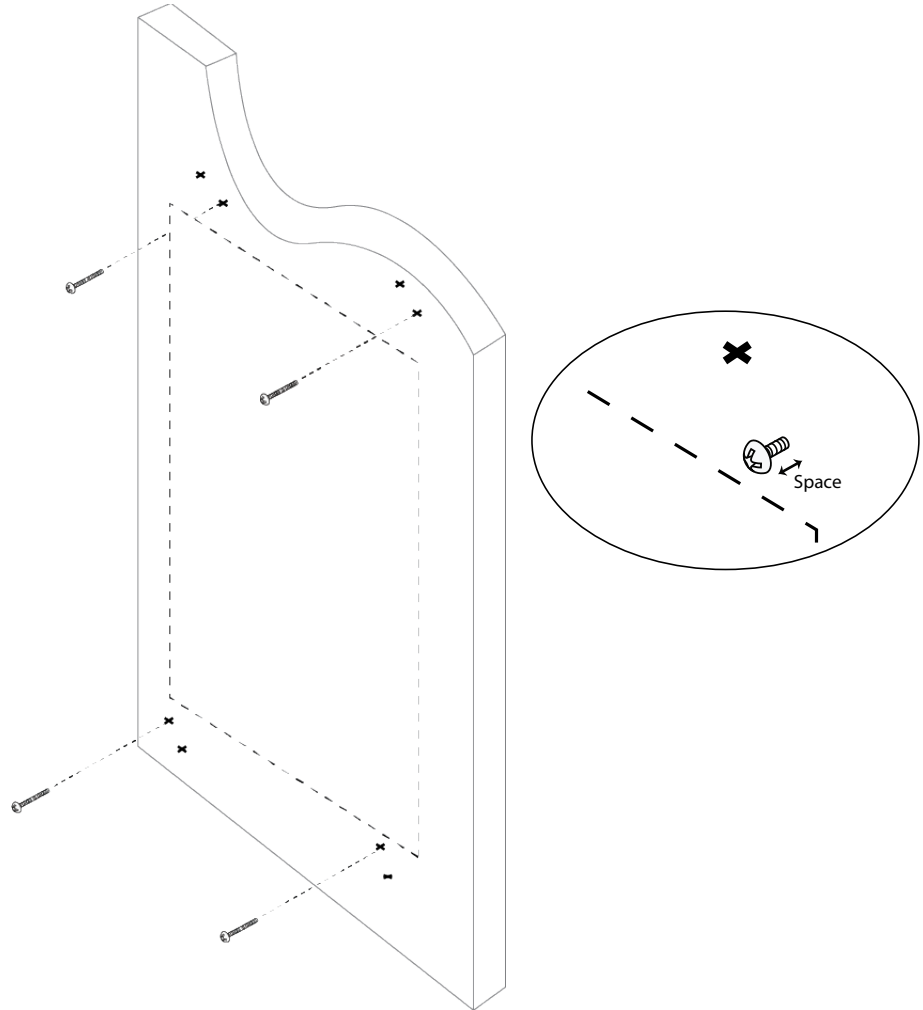


Figure 32. Screwing Four Screws on the Wall

9. Install the brackets on the screws by sliding the key-hole slots under the screw heads. See Figure 33 on page 66.

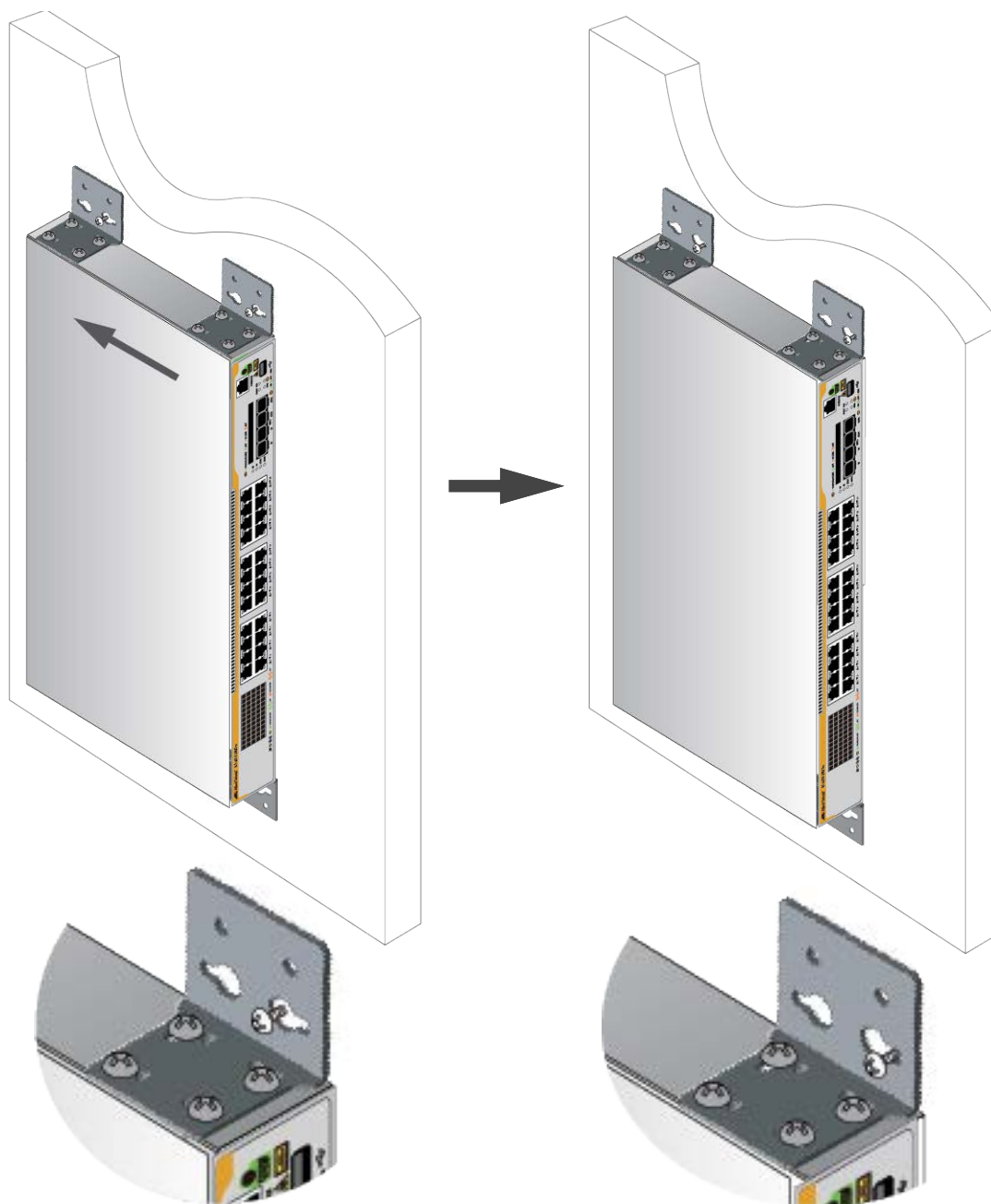


Figure 33. Hooking and Slide the Switch

10. Tighten the four screws to secure the switch to the wall.
11. Install the other four screws to the rest of the pre-drilled holes. See Figure 34 on page 67.

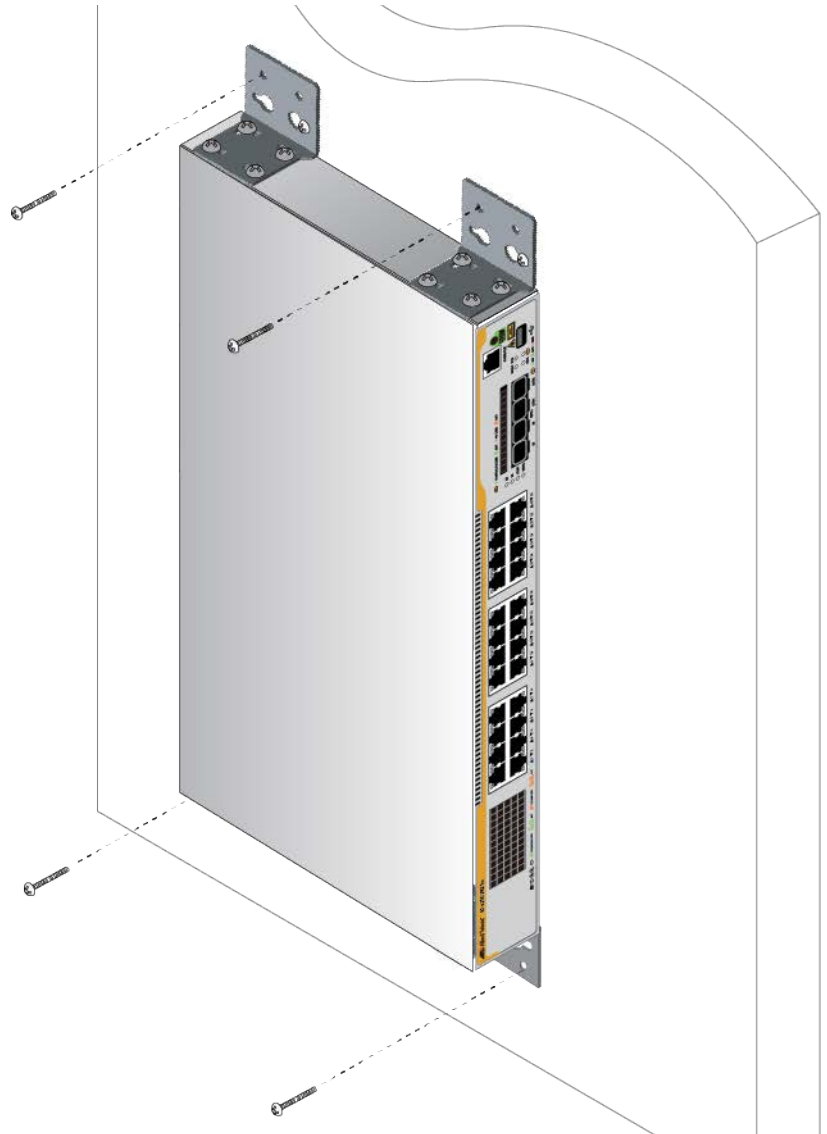


Figure 34. Screwing the Rest of the Screws

Installing the x250-28XHm Switch on a Wall

This section describes instructions to install the x250-28XHm switch on a wall.

Note

If you plan to install your switch on the plywood base, go to “Plywood Base for a Wall with Wooden Studs” on page 70 before installing the switch.

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

1. See “Reviewing Safety Precautions” on page 40.
2. See “Choosing a Site for the Chassis” on page 44.
3. Place the switch on a table.
4. If the bumper feet are attached to the switch, go to “Removing the Bumper Feet” on page 80.
5. Attach the brackets that come with the switch with the 16 screws to the sides of the unit. See Figure 35.

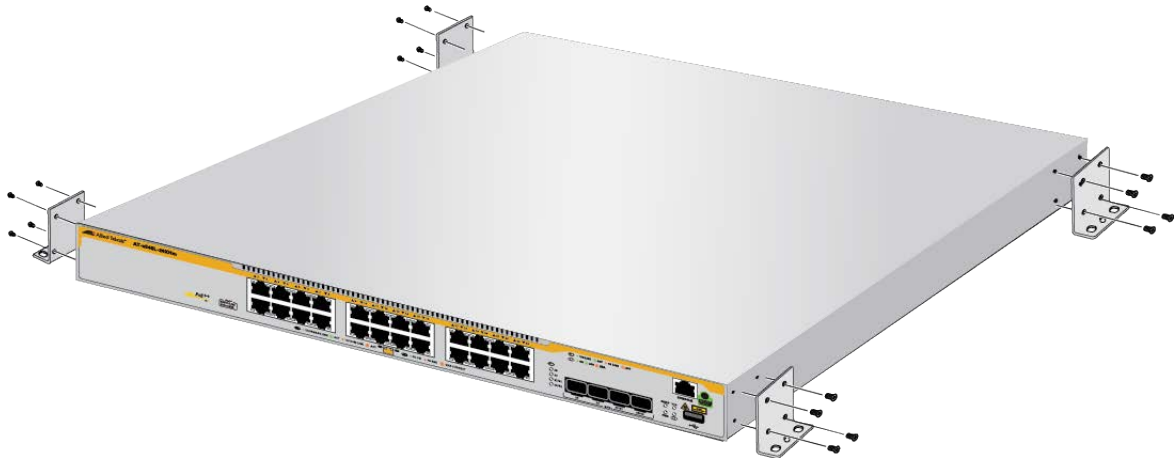


Figure 35. Installing the Brackets to the x250-28XHm Switch

6. Have two people hold the switch at the wall location, mark the holes with a pencil as shown in Figure 36 on page 69.

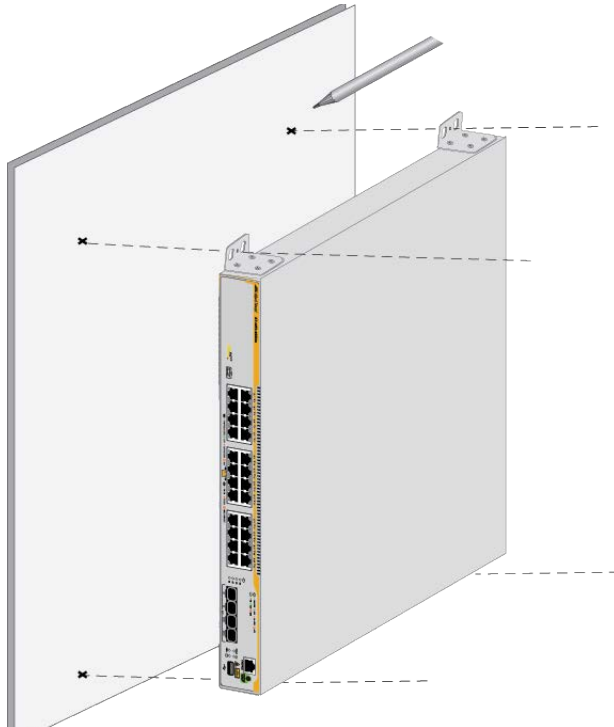


Figure 36. Marking the Holes on the Wall

7. Set aside the switch and pre-drill the marked holes.
8. Have two people hold the switch back to the wall location, tighten the screws to secure the switch to the wall. See Figure 34.

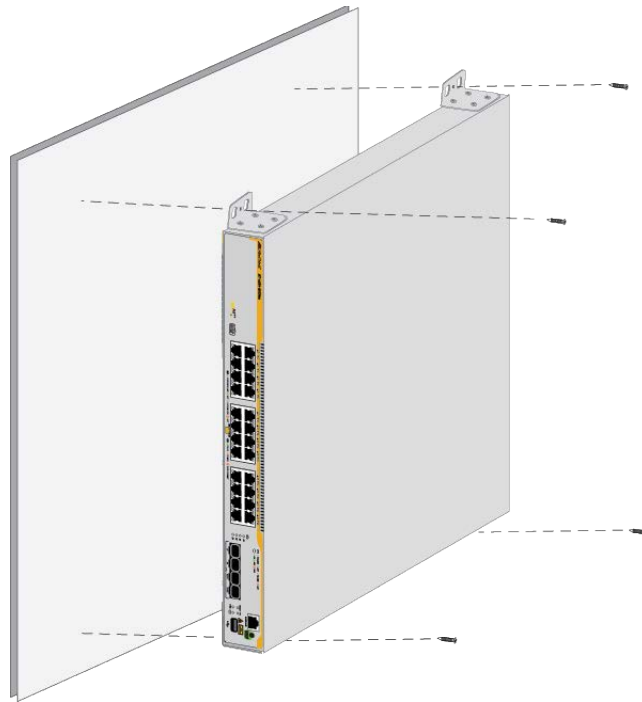


Figure 37. Installing the x250-28XHm Switch to the Wall

Plywood Base for a Wall with Wooden Studs

If you are installing the switch on a wall that has wooden studs, Allied Telesis recommends using a plywood base for the device. (A plywood base is not required for a concrete wall.) See Figure 38.

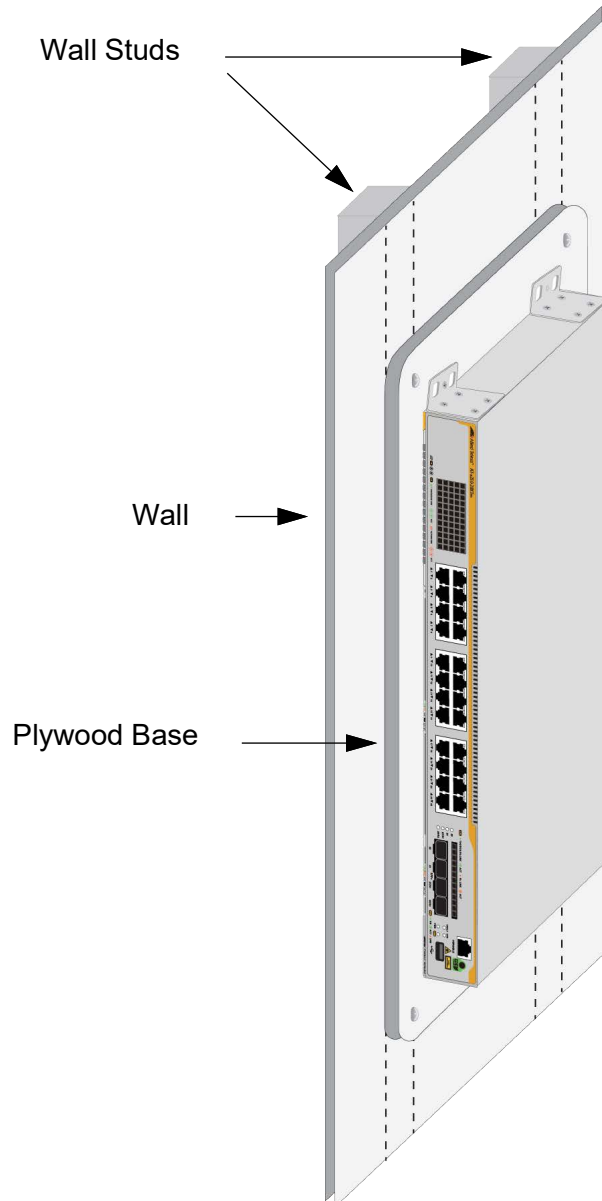


Figure 38. Switch on the Wall with a Plywood Base

The plywood base allows you to mount the switch on two wall studs. Without the base, only one side of the switch would be attached to a stud. This is because the standard distance between two studs in a wall is 41 centimeters (16 inches) while the distance between the left and right brackets on the switch is 37 centimeters (14-1/2 inches).

The recommended minimum dimensions of the plywood base are listed here:

- ❑ Width: 58.4 centimeters (23 inches)
- ❑ Height: 55.9 centimeters (22 inches)
- ❑ Thickness: 5.1 centimeters (2 inches)

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

You should install the plywood base to the wall and then install the switch on the base. See Figure 39.

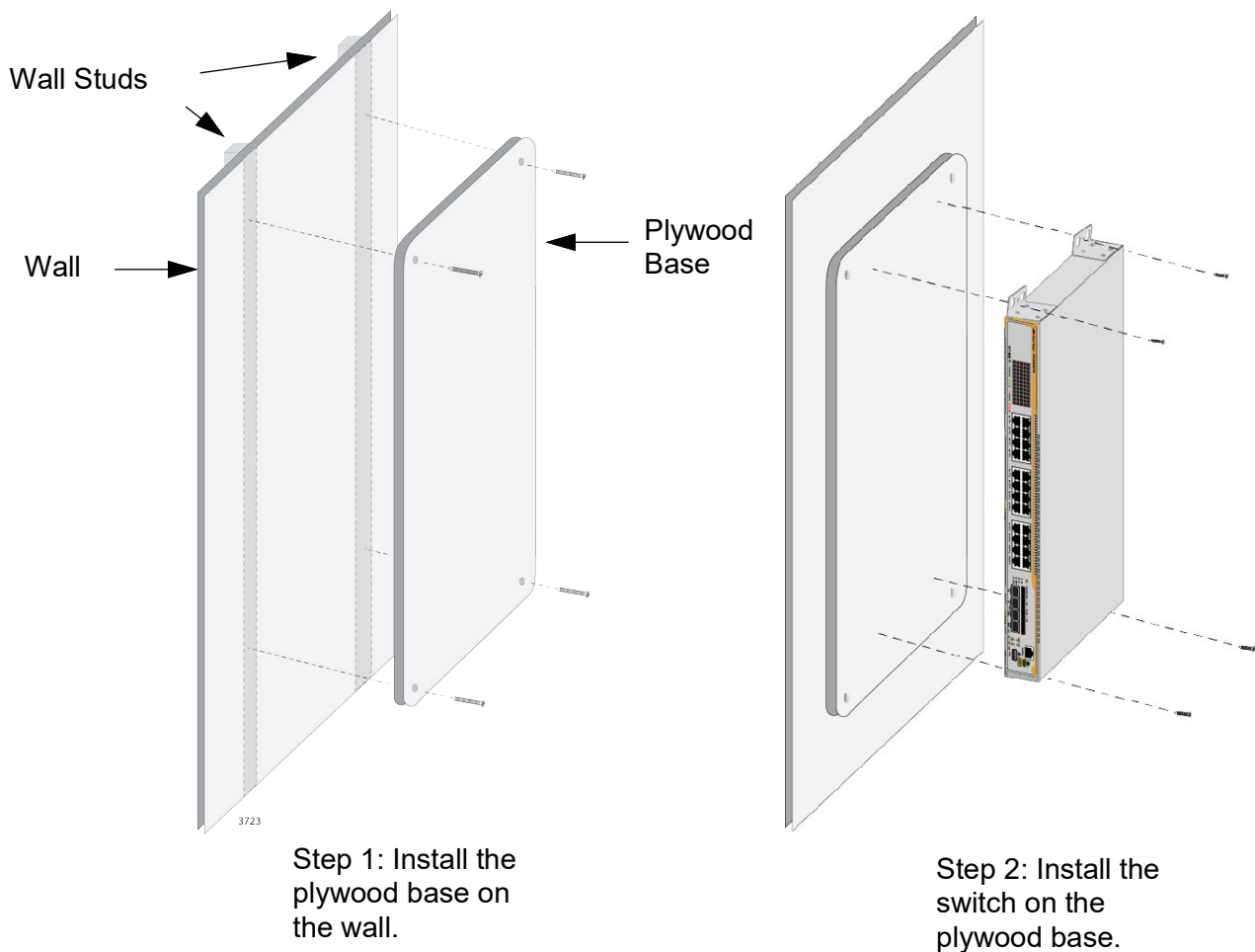


Figure 39. Steps to Installing the Switch with a Plywood Base

Tools and Material

Here are the required tools and material for installing the switch on a wall:

- ☐ Four BRKT-J24 wall mount brackets and sixteen M3-6mm screws (included with the switch) listed in Table 11 on page 61.
- ☐ Eight wood or concrete wall screws (not provided)
- ☐ Eight concrete wall anchors (not provided)
- ☐ Phillips-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-inch carbide drill bit for a concrete wall (not provided)
- ☐ Plywood base if you are installing the switch on a wall with wooden studs (not provided.) Refer to “Plywood Base for a Wall with Wooden Studs” on page 70 for illustrations.
- ☐ Four screws and anchors for attaching the plywood base to the wall (not provided)



Caution

The supplied screws and anchors may not be appropriate for all walls. A qualified building contractor should determine the hardware requirements for your wall before installing the switch. *See* E88

Guidelines for Installing the Plywood Base

A plywood base is recommended when installing the switch on a wall that has wooden studs. See “Plywood Base for a Wall with Wooden Studs” on page 70.

The installation guidelines are listed here:

- ☐ Consult a qualified building contractor for installation instructions for the plywood base.
- ☐ You should use a stud finder to identify the middle of studs and hot electrical wiring in the wall.
- ☐ You should attach the base to two wall studs with a minimum of four screws.
- ☐ The selected wall location for the base should adhere to the recommendations in “Choosing a Site for the Chassis” on page 44.

Installing the Switch on a Concrete Wall

Allied Telesis recommends a minimum of three people for this procedure. To install the switch on a concrete wall, perform the following procedure:

1. Place the switch on a table.
2. Install the brackets with screws to the sides of the switch.
3. Have two people 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 four screw holes in the four brackets.
4. Place the switch on a table or desk.
5. Use a drill and 1/4-inch carbide drill bit to pre-drill the four 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.
 - ☐ Allied Telesis recommends cleaning out the holes with a brush or compressed air.
6. Insert the four anchors into the holes.
7. Have two people hold the switch at the selected wall location while you secure it to the wall with the four provided screws.

Chapter 6

Installing the Switch in an Equipment Rack

This chapter contains instructions for installing the switch in a standard 19-inch equipment rack. The procedures in this chapter are listed here:

- ❑ “Overview of Installing the Switch in an Equipment Rack” on page 76
- ❑ “Unpacking the RKMT-J14 Rack Mount Bracket Kit” on page 78
- ❑ “Unpacking the RKMT-J15 Rack Mount Kit” on page 79
- ❑ “Removing the Bumper Feet” on page 80
- ❑ “Installing the Switch in a Rack Using the RKMT-J14 Brackets” on page 82
- ❑ “Installing the Switch in a Rack Using the RKMT-J15 Rack-Mount Kit” on page 87
- ❑ “Installing the Switch in a Rack with the Standard Brackets” on page 93

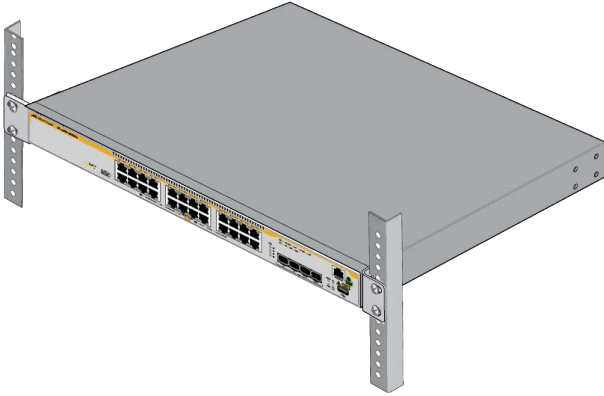
Overview of Installing the Switch in an Equipment Rack

The 28-port switches can be installed in a 19-inch equipment rack with the brackets that come with the switch. The x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm switches require optional RKMT-J14 or RKMT-J15 rack-mount kit to be installed in an equipment rack as shown in Table 12.

Table 12. Installation Options

	Rack Installation	Required Bracket and Link
x250-18XS SE250-18XS x250-18XTm SE250-18XTm		Optional RKMT-J14 rack-mount For instructions, go to: “Installing the Switch in a Rack Using the RKMT-J14 Brackets” on page 82
		Optional RKMT-J15 rack-mount For instructions, go to “Installing the Switch in a Rack Using the RKMT-J15 Rack-Mount Kit” on page 87.
x250-28XS SE250-28XS x250-28XTm SE250-28XTm		Rack mount brackets that come with the switch For instructions, go to: “Installing the Switch in a Rack with the Standard Brackets” on page 93.

Table 12. Installation Options (Continued)

	Rack Installation	Required Bracket and Link
x250-28XHm	 A 3D perspective diagram of a network switch, the x250-28XHm model, mounted in a rack. The switch is a flat, rectangular unit with a grey top cover and a front panel featuring multiple ports. It is held in place by two vertical metal brackets, one on the left and one on the right, which are attached to the rack rails. The front panel shows a series of RJ45 ports, a power jack, and other connectors.	Rack mount brackets that come with the switch For instructions, go to: “Installing the Switch in a Rack with the Standard Brackets” on page 93.

Unpacking the RKMT-J14 Rack Mount Bracket Kit

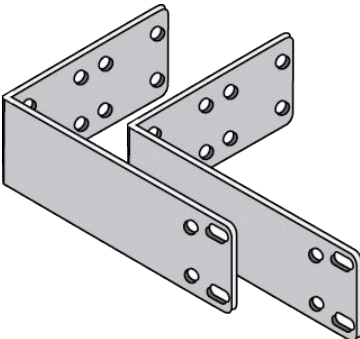
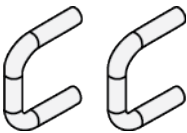
To install the x250-18XS, SE250-18XS, x250-18XTm, or SE250-18XTm switch on an equipment rack, one of the options is using the RKMT-J14 rack-mount kit.

Note
The RKMT-J14 rack-mount kit is optional. You must purchase the kit separately.

Unpack the RKMT-J14 rack-mount kit, perform the following procedure:

- 1. Unpack the shipping box.
- 2. Verify and inspect the contents. Table 13 shows the contents of the shipping box.

Table 13. RKMT-J14 Rack-Mount Bracket Kit

Item	Description
	Two RKMT-J14 rack-mount brackets
	Two handles for the RKMT-J14 brackets
	Four M3x6 Phillips pan head screws for attaching the handles to the brackets
	Eight M4x6 truss head screws for attaching the brackets to the switch

- 3. If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.

Note
Store the packaging material in a safe location. use the original shipping material if you need to return the device to Allied Telesis.

Unpacking the RKMT-J15 Rack Mount Kit

To install the x250-18XS, SE250-18XS, x250-18XTm, or SE250-18XTm switch on an equipment rack, one of the options is using the RKMT-J15 rack-mount kit.

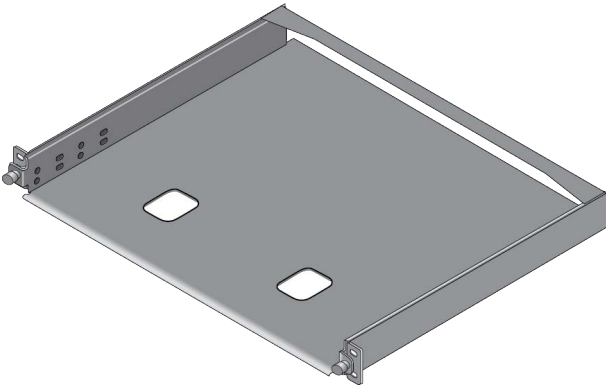
Note

The RKMT-J15 rack-mount kit is optional. You must purchase the kit separately.

Unpack the RKMT-J15 rack-mount kit, perform the following procedure:

1. Unpack the shipping box.
2. Verify and inspect the contents. Table 14 shows the contents of the shipping box.

Table 14. RKMT-J15 Rack-Mount Kit

Item	Description
	RKMT-J15 Tray
	Four M4x6mm truss head screws

3. If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.

Note

Store the packaging material in a safe location. Use the original shipping material if you need to return the device to Allied Telesis.

Removing the Bumper Feet

The bumper feet included with the switch should not be used when installing the device in an equipment rack. If they are already installed, remove the bumper feet.

Removing the Bumper Feet from the 18-Port Switch

Perform the following procedure to remove the bumper feet from the x250-18XS, SE250-18XS, x250-18XTm, or SE250-18XTm switch:

1. Place the switch upside down on a level, secure surface.
2. Use a crosshead screwscrewdriver to unscrew the bumper feet screws. See Figure 40.

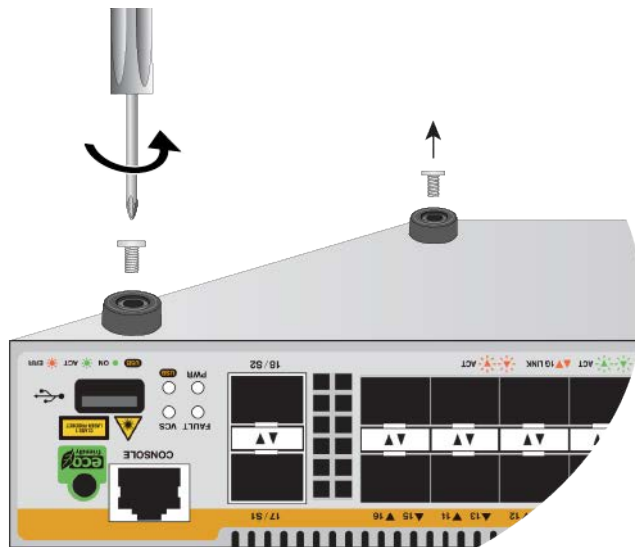


Figure 40. Removing the Bumper Feet

3. Remove the bumper feet from the switch.
4. Turn the switch back over.
5. Go to “Installing the Switch in a Rack with the Standard Brackets” on page 93.

Removing the Bumper Feet from the 28-Port Switches

Perform the following procedure to remove the bumper feet from the x250-28XS, SE250-28XS, x250-28XTm, SE250-28XTm, or x250-28XHm switch:

1. Place the switch upside down on a level, secure surface.
2. Use a small flat-head screwdriver to gently pry the rivet from the bumper feet. See Figure 40.

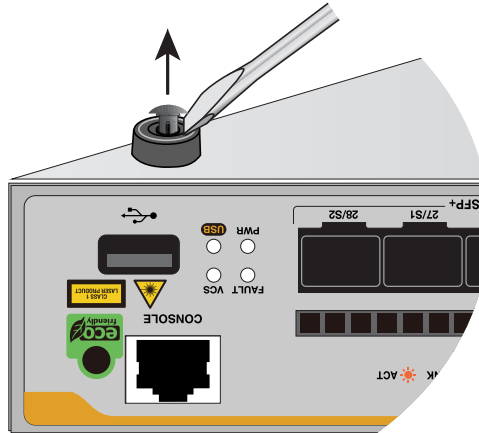


Figure 41. Removing the Bumper Feet

3. Remove the rivet and bumper feet from the switch.
4. Turn the switch back over.
5. Go to “Installing the Switch in a Rack with the Standard Brackets” on page 93.

Installing the Switch in a Rack Using the RKMT-J14 Brackets

When installing the following switches in a 19-inch equipment rack with the orientations shown in Figure 42 and Figure 43, use the RKMT-J14 rack-mount brackets. The switches are:

- ❑ x250-18XS
- ❑ SE250-18XS
- ❑ x250-18XTm
- ❑ SE250-18XTm

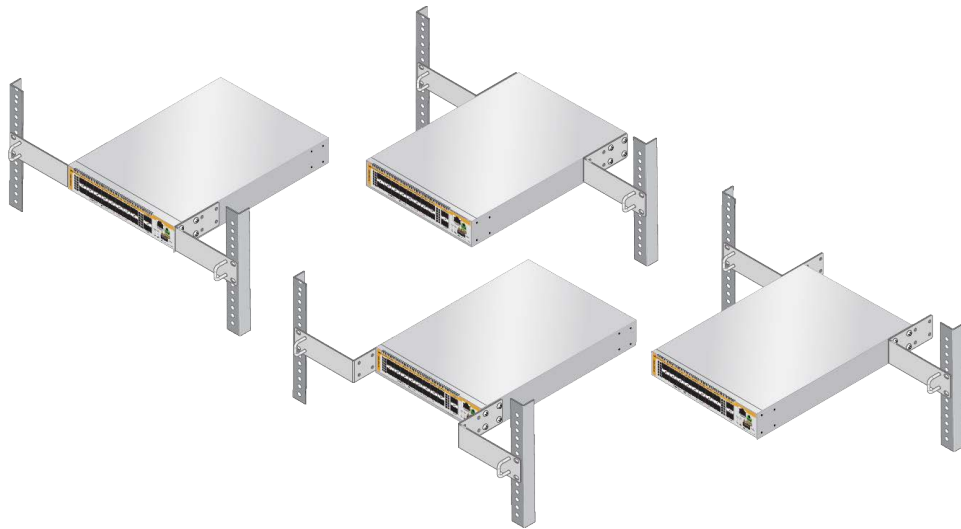


Figure 42. Orientations with the Front Panel Facing along the Rack Front

You can also orient the switch with the rear panel facing along the front of the equipment rack. See Figure 43.

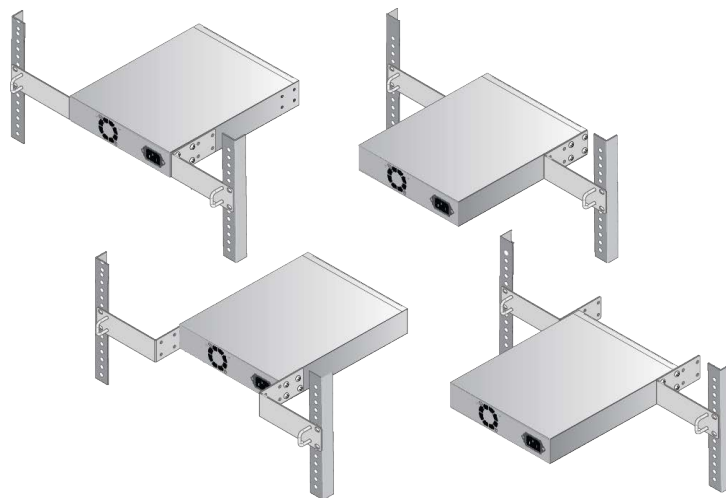


Figure 43. Orientations with the Rear Panel Facing along the Rack Front

Guidelines

Here is a list of guidelines for installing the switch on an equipment rack with the RKMT-J14 rack-mount kit:

- ❑ Before installing the switch, review the information and perform the procedures in Chapter 3, “Beginning the Installation” on page 39.
- ❑ You must purchase the RKMT-J14 rack-mount kit separately.

Switch Orientations

With the RKMT-J14 rack-mount brackets, you have several options in switch orientations as shown in Figure 42 on page 82 and Figure 43 on page 82.

These orientations are possible because the switch has two sets of four screw holes on the left and right sides for attaching the RKMT-J14 rack-mount brackets as shown in Figure 44. The RKMT-J14 brackets also have two sets of four screw holes for attaching the switch. See Figure 45.

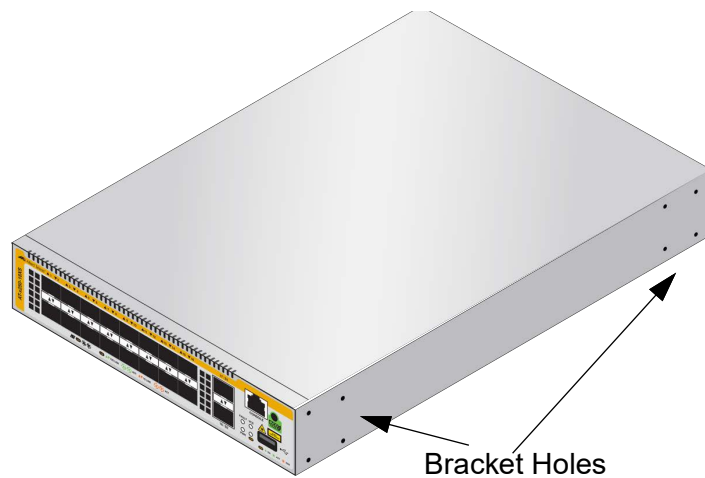


Figure 44. Bracket Holes on the Switch

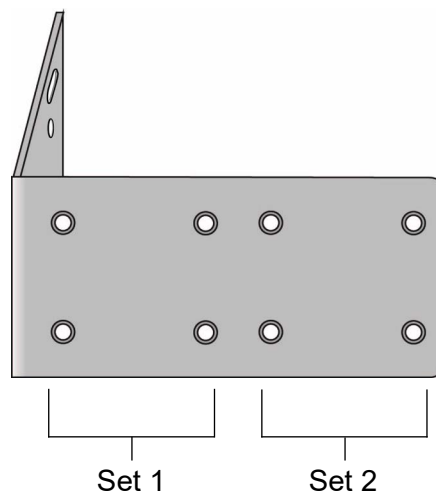


Figure 45. RKMT-J14 Bracket Holes

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.

Required Items

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

- ☐ One RKMT-J14 rack-mount kit (See Table 13 on page 78)
- ☐ Crosshead screwdriver (not provided)
- ☐ Four standard equipment rack screws (not provided)

Installing the Switch

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

1. Review “Reviewing Safety Precautions” on page 40 and “Choosing a Site for the Chassis” on page 44.



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*

2. Unpack the RKMT-J14 rack-mount kit. See “Unpacking the RKMT-J14 Rack Mount Bracket Kit” on page 78.
3. Attach the two handles to the RKMT-J14 Brackets using the four M3x6mm screws included in the brackets kit. See Figure 46.

Attaching the handles is optional.

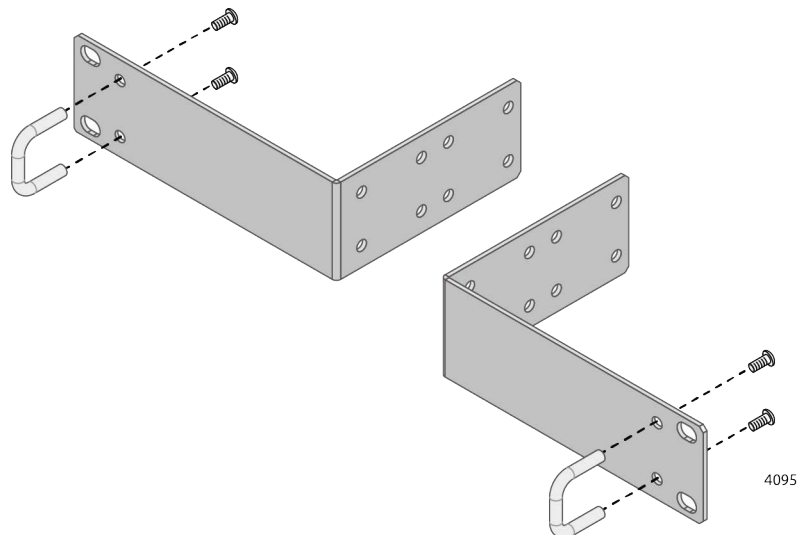


Figure 46. Attaching the Handles to the RKMT-J14 Brackets

4. Place the switch on a level, secure surface.
5. If the bumper feet are attached to the switch, go to “Removing the Bumper Feet” on page 80.
6. Attach the two brackets to the sides of the switch in the selected position, using the eight M4x6mm screws included in the bracket kit.

Figure 47 shows how to install the brackets such that the front panel of the switch is flush with the front of the equipment rack as an example.

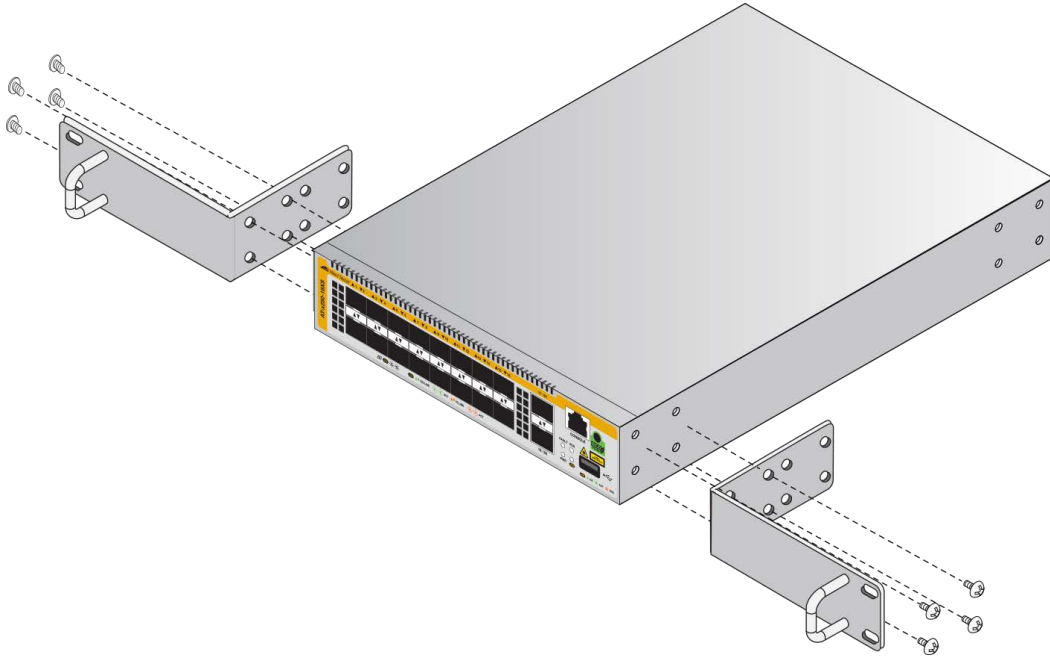


Figure 47. Attaching the RKMT-J14 Brackets to the Switch

7. While having another person hold the switch at the desired location in the equipment rack, secure the switch unit using four standard equipment rack screws (not provided). See Figure 48 on page 86.



Figure 48. Installing the Switch in a Rack with the RKMT-J14 Brackets

8. Go to Chapter 8, “Cabling the Networking Ports” on page 103.

Installing the Switch in a Rack Using the RKMT-J15 Rack-Mount Kit

When installing the following switches in a 19-inch equipment rack with the orientations shown in Figure 49, use the RKMT-J15 rack-mount brackets. The switches are:

- ☐ x250-18XS
- ☐ SE250-18XS
- ☐ x250-18XTm
- ☐ SE250-18XTm

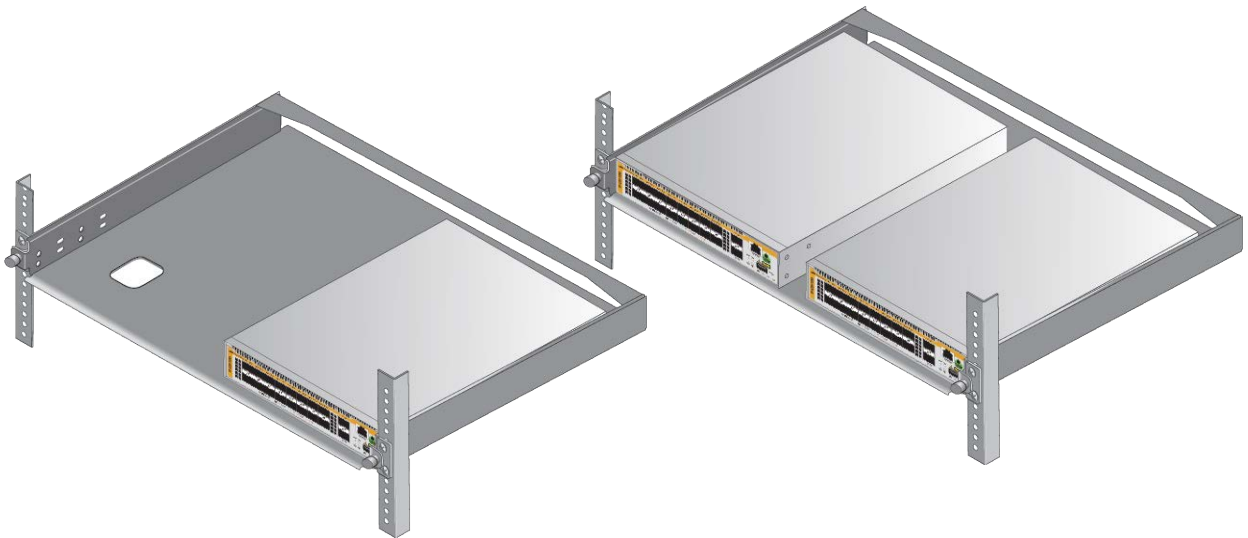


Figure 49. Switches in the RKMT-J15 Rack-Mount

Guidelines

Here is a list of guidelines for installing the switch on an equipment rack using the RKMT-J15 rack mount:

- ☐ Before installing the switch, review the information and perform the procedures in Chapter 3, “Beginning the Installation” on page 39.
- ☐ You can install either one switch or two switches in the RKMT-J15 rack mount tray.
- ☐ You must purchase the RKMT-J15 rack-mount kit separately.

Required Items

The following items are required to install the switch in an equipment rack with the RKMT-J15 rack mount:

- ☐ One RKMT-J15 rack mount kit (See “Unpacking the RKMT-J15 Rack Mount Kit” on page 79.)
- ☐ Cross-head screwdriver (not provided)
- ☐ Four standard equipment rack screws (not provided)

Installing the Switch

To install the switch in a 19-inch equipment rack with the RKMT-J15 rack-mount, perform the following procedure:

1. Review “Reviewing Safety Precautions” on page 40 and “Choosing a Site for the Chassis” on page 44.



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

2. Unpack the RKMT-J15 rack-mount kit. See “Unpacking the RKMT-J15 Rack Mount Kit” on page 79.
3. While having another person hold the RKMT-J15 tray in the equipment rack, secure the tray using four standard equipment rack screws (not provided). See Figure 50.

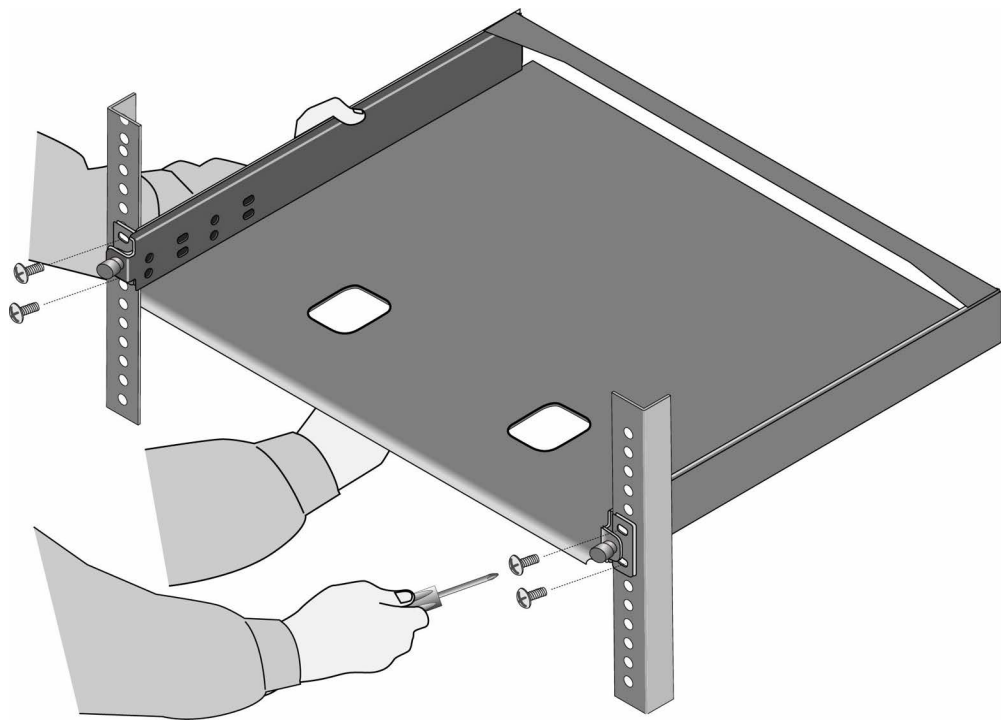


Figure 50. Installing the RKMT-J15 Tray in the Equipment Rack

4. Loosen the two thumbscrews on the front of the tray. See Figure 51 on page 89.

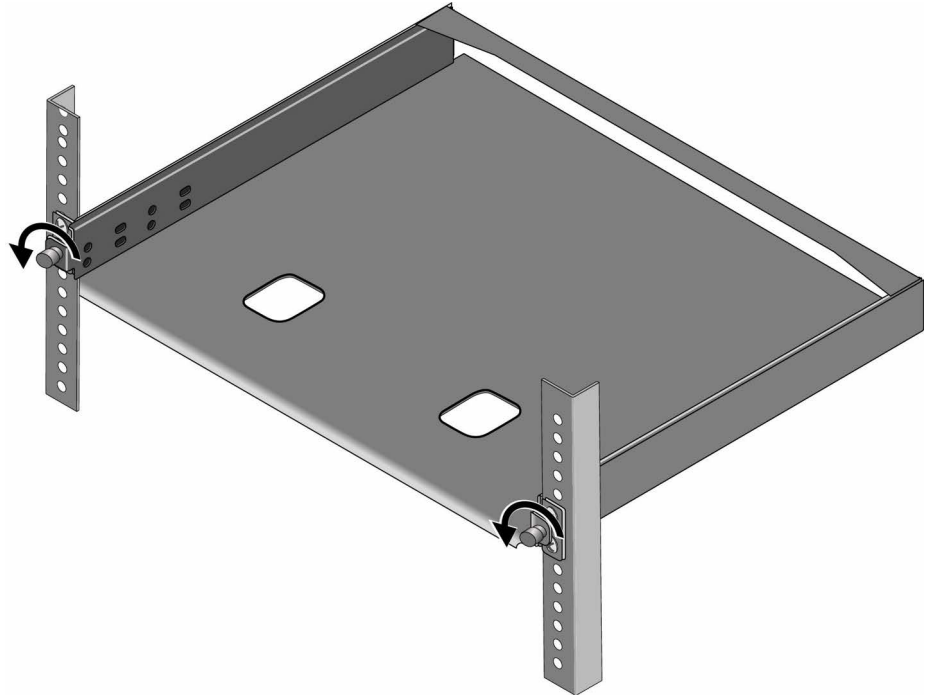


Figure 51. Loosening the Two Thumbscrews on the Front of the RKMT-J15 Tray

5. Slide out the tray as shown in Figure 52.

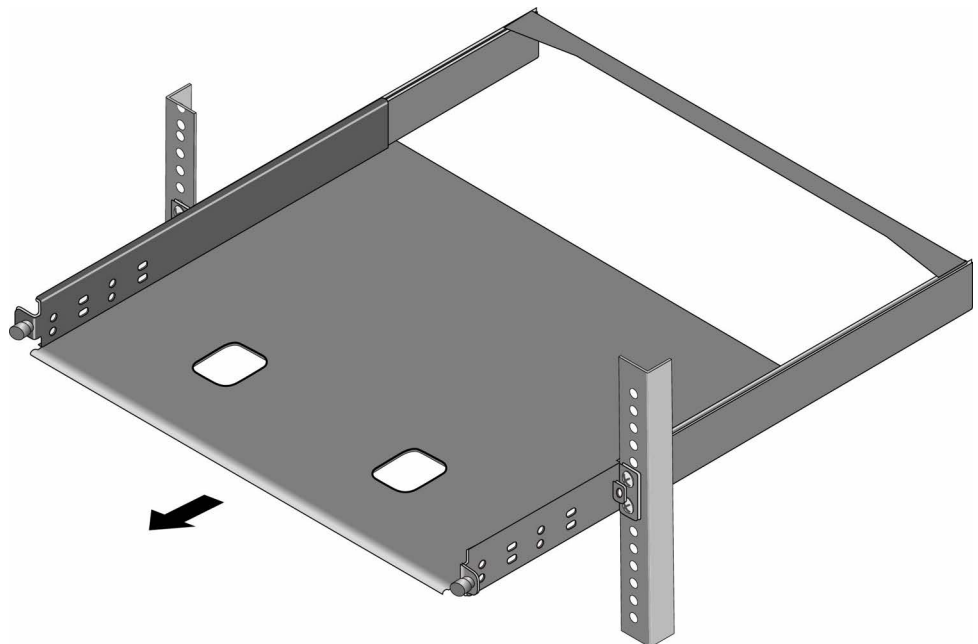


Figure 52. Sliding Out the Tray from the RKMT-J15 Rack-Mount

6. Place the unit on a level, secure surface.

7. If the bumper feet are attached to the switch, go to “Removing the Bumper Feet” on page 80.
8. Place the switch in the left or right side of the tray, with its front panel facing the front of the tray.

If you are installing only one switch, you can install it on either the left or right side. See Figure 53.

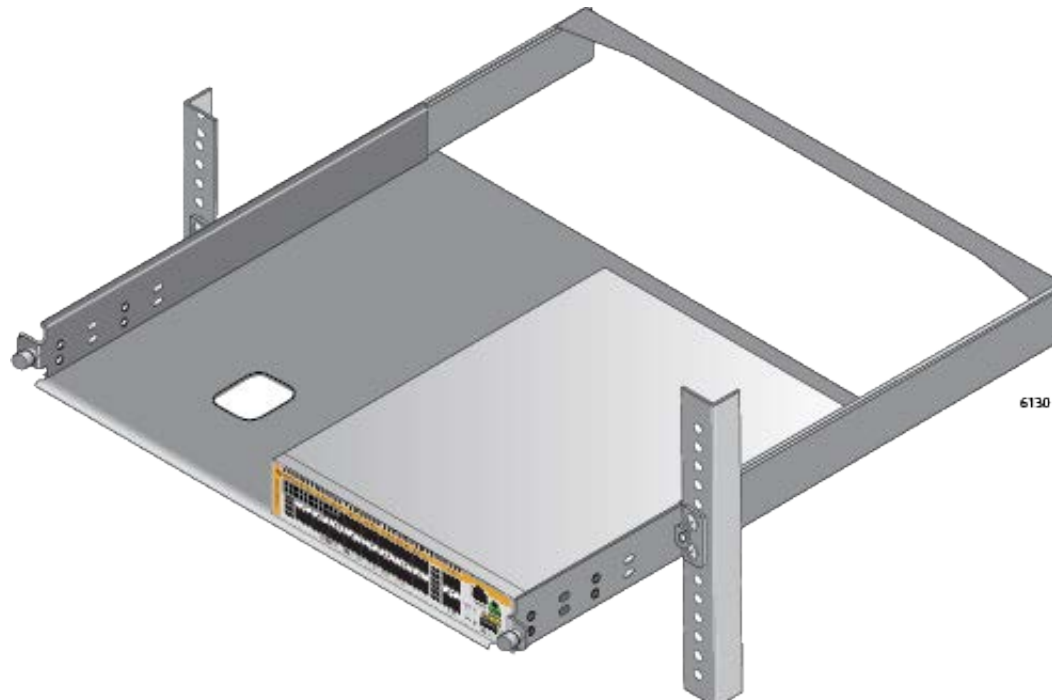


Figure 53. Placing a Switch in the RKMT-J15 Rack-Mount Tray

9. Install two M4x6mm screws included with the RKMT-J15 rack mount kit to secure the switch to the tray. See Figure 54 on page 91.

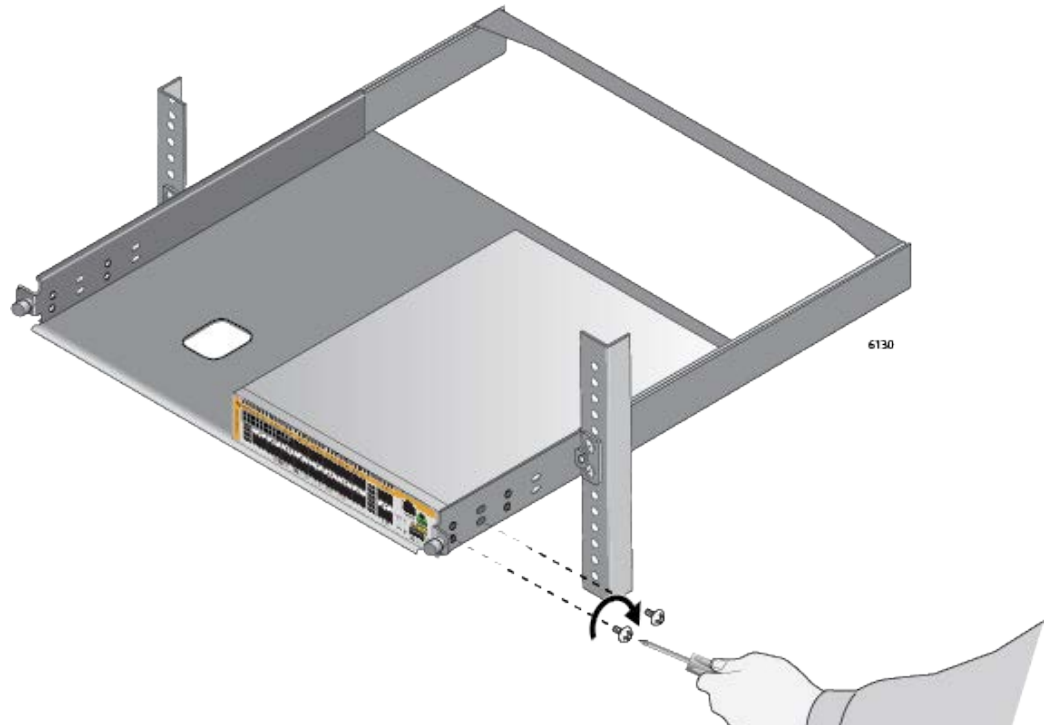


Figure 54. Securing the Switch to the RKMT-J15 Tray

10. To install a second switch in the tray, repeat Step 8 and Step 9.

11. Slide in the tray to be flush with the equipment rack poles as shown in Figure 55.

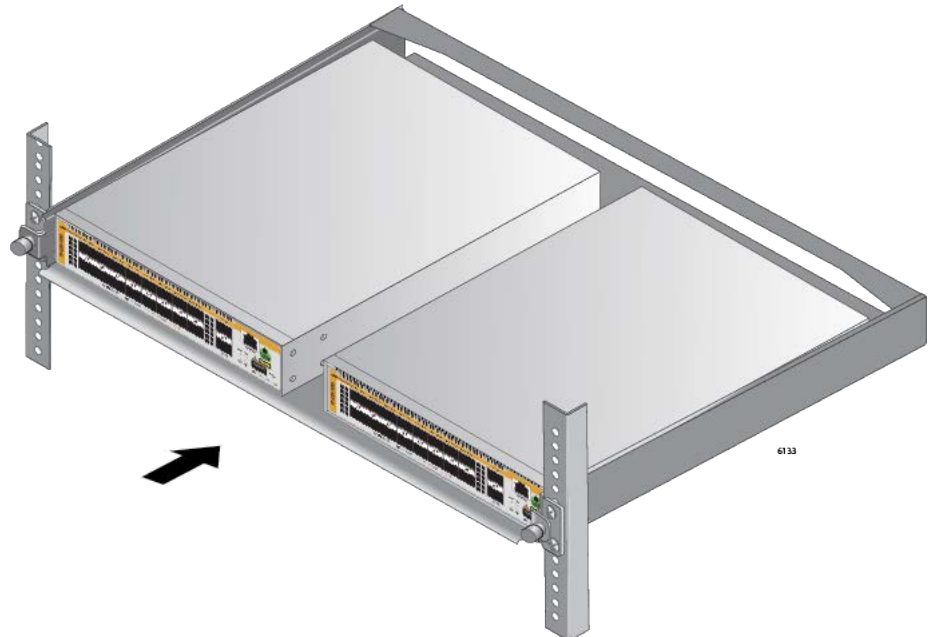


Figure 55. Sliding in the RKMT-J15 Tray

12. Tighten the two thumbscrews to secure the tray to the equipment rack.
See Figure 56.



Figure 56. Tightening the Thumbscrews on the RKMT-J15 Rack Mount

13. Go to Chapter 8, “Cabling the Networking Ports” on page 103.

Installing the Switch in a Rack with the Standard Brackets

When installing the following switches in a 19-inch equipment rack, use the rack mount brackets that come with the switch:

- ☐ x250-28XS
- ☐ SE250-28XS
- ☐ x250-28XTm
- ☐ SE250-28XTm
- ☐ x250-28XHm

Guidelines

Here is a list of guidelines for installing the switch on an equipment rack with the brackets that come with the switch:

- ☐ Before installing the switch, review the information and perform the procedures in Chapter 3, “Beginning the Installation” on page 39.
- ☐ You must install the switch with its front panel level with the front of the equipment rack. See Figure 57 as an example.



Figure 57. Correct Switch Orientation in an Equipment Rack

- ☐ For the x250-28XHm switch, use four holes on one side to attach the bracket. See Figure 58 for identifying the holes for the brackets on the side panels.

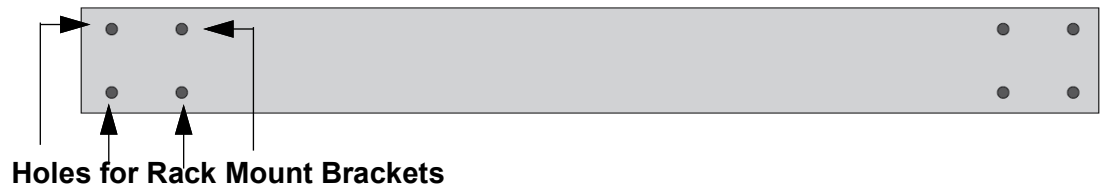


Figure 58. Holes for the Brackets on the x250-28XHm Switch

- ❑ For the x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm switches, use three holes on one side to attach the bracket. See Figure 59 for identifying the holes for the brackets on the side panel.

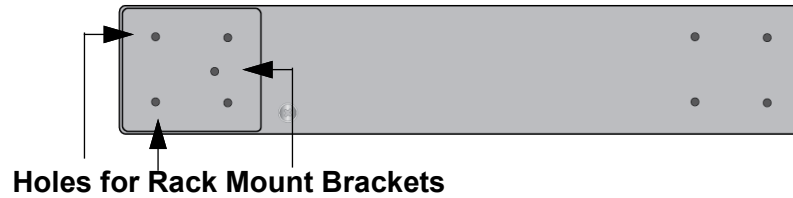


Figure 59. Holes for the Brackets on the x250-28XS, SE250-28XS, x250-28XTm and SE250-28XTm Switches

Required Items

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

- ❑ Two equipment rack brackets (included with the switch)
- ❑ For the x250-28XHm switch, eight M3x6 mm bracket screws (included with the switch)
- ❑ For the x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm switches, six M4x8 mm bracket screws (included with the switch)
- ❑ Cross-head screwdriver (not provided)
- ❑ Four standard equipment rack screws (not provided)

Installing the x250-28XS, SE250-28XS, x250-28XTm, or SE250-28XTm Switch in a Rack

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

1. Review “Reviewing Safety Precautions” on page 40 and “Choosing a Site for the Chassis” on page 44.



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*

2. Place the switch on a level, secure surface.
3. If the bumper feet are attached to the switch, go to “Removing the Bumper Feet from the 28-Port Switches” on page 81.
4. Attach the rack mount brackets to the sides of the switch with the six M4x8 screws as shown in Figure 60.

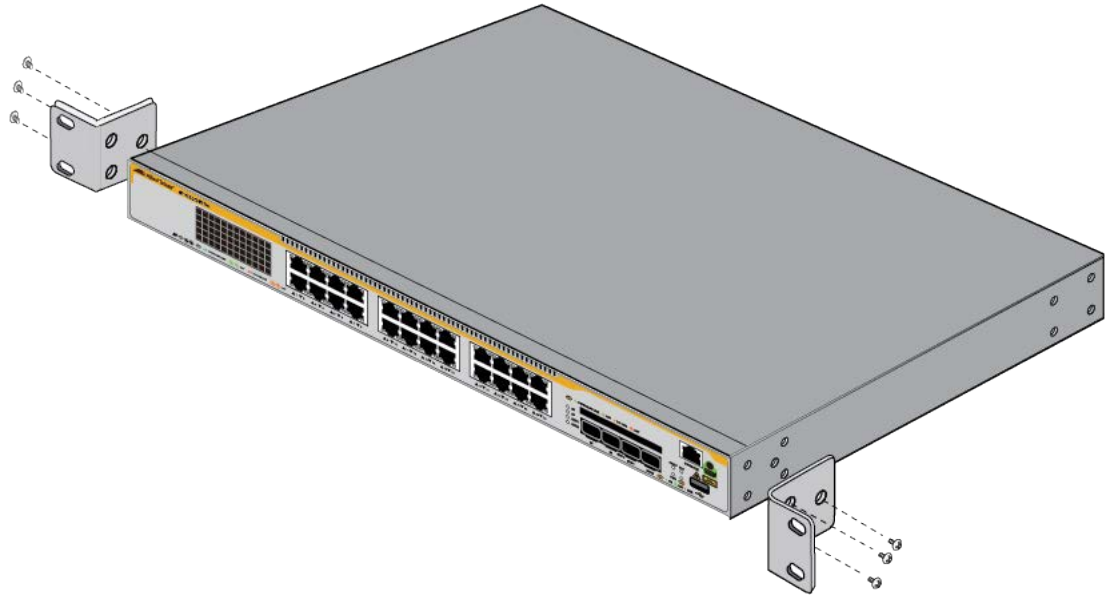


Figure 60. Attaching the Rack Mount Brackets

5. Tighten the six screws to attach the rack mount brackets to the switch. See Figure 60.
6. Have another person hold the switch in the equipment rack while you secure it using standard equipment rack screws (not provided). See Figure 61 on page 95.

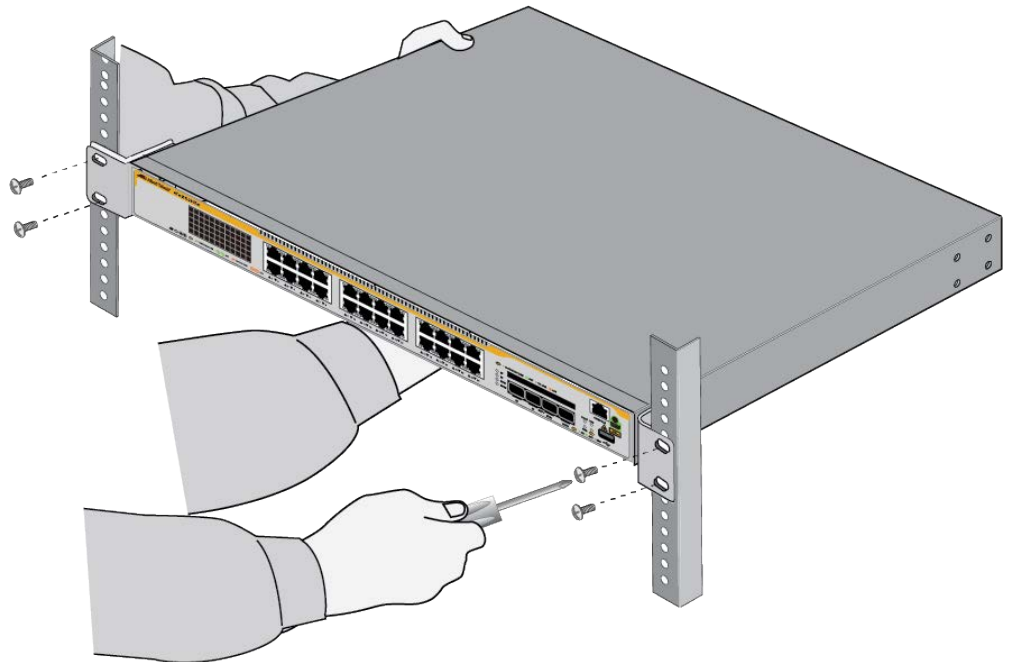


Figure 61. Installing the Switch in an Equipment Rack

Installing the x250-28XHm Switch in a Rack

To install the x250-28XHm switch in a 19-inch equipment rack, perform the following procedure:

1. Review “Reviewing Safety Precautions” on page 40 and “Choosing a Site for the Chassis” on page 44.



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*

2. Place the switch on a level, secure surface.
3. If the bumper feet are attached to the switch, go to “Removing the Bumper Feet” on page 80.
4. Attach the rack mount brackets to the sides of the switch with the eight M3x6 screws as shown in Figure 62 on page 96.

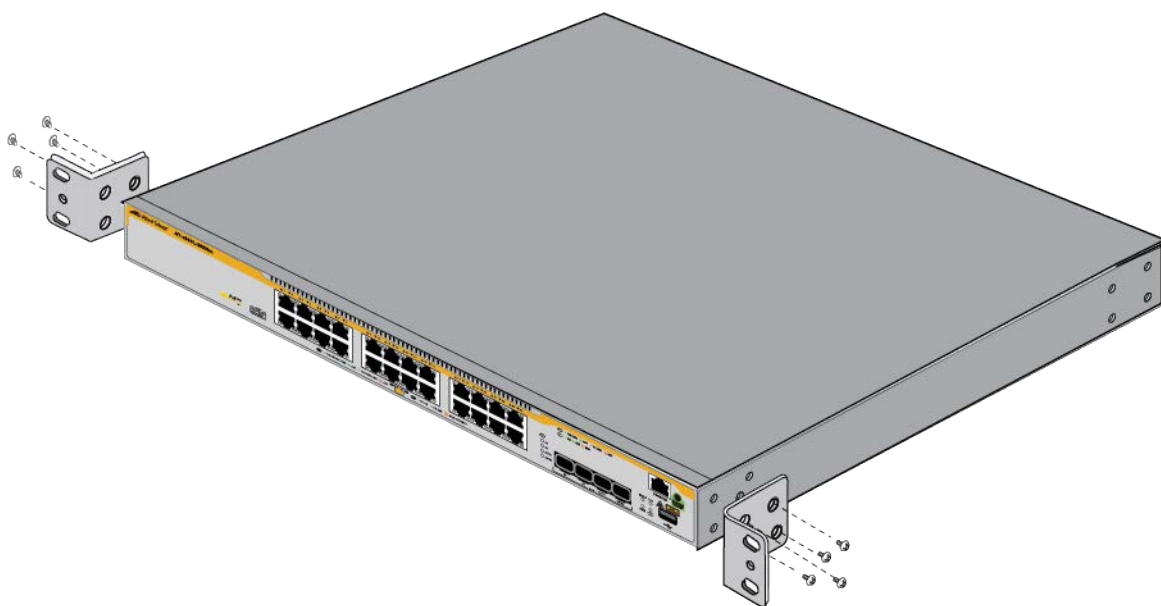


Figure 62. Attaching the Rack Mount Brackets for the x250-28XHm switch

5. Tighten the eight screws to attach the rack mount brackets to the switch.
6. Have another person hold the switch in the equipment rack while you secure it using standard equipment rack screws (not provided). See Figure 61 on page 95.

Chapter 7

Powering and Starting the Switch

This chapter contains the following sections:

- ❑ “Powering the Switch” on page 98
- ❑ “Starting a Local Management Session” on page 100
- ❑ “Powering off the Switch” on page 102

Powering the Switch

The procedure in this section explains how to power the switch.

Before powering on the chassis, review the information in “Power Specifications” on page 121.



Warning

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 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, as shown in Figure 63.

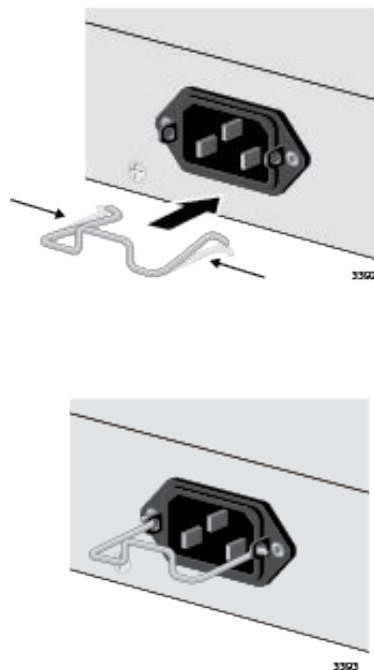


Figure 63. Installing the Power Cord Retaining Clip

2. Connect the AC power cord to the AC power connector on the rear panel. See Figure 64.

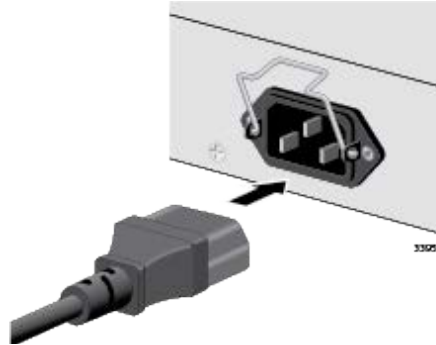


Figure 64. Connecting the AC Power Cord

3. Lower the power cord retaining clip to secure the cord to the switch. Refer to Figure 65.

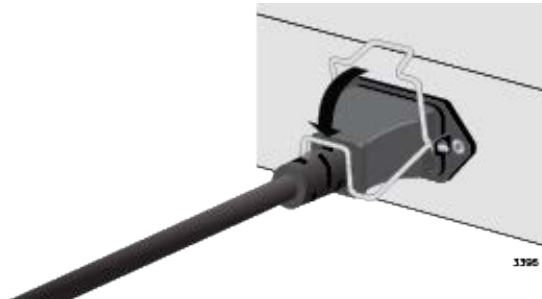


Figure 65. Lowering the Power Cord Retaining Clip

4. Connect the power cord to an appropriate AC power source. See Figure 66.

Note

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

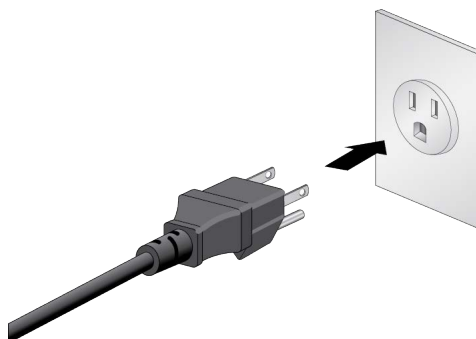


Figure 66. Connecting the Power Cord to an AC Power Source

5. Go to “Starting a Local Management Session” on page 100.

Starting a Local Management Session

This procedure explains how to start a local management session on the switch. It assumes that you powered the device and waited two minutes for it to initialize its operating software.

Note

The first management session of the switch can be either a local session, as explained in this section, For remote management, the switch uses either its default IP address 192.168.42.42 or an address assigned to it by a DHCP server. For instructions on how to start a remote management session, visit <https://www.alliedtelesis.com/us/en/products/switches/x250-series>.

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

1. Connect the RJ-45 end of a management cable to the Console RS-232 port on the management panel. Refer to Figure 67.

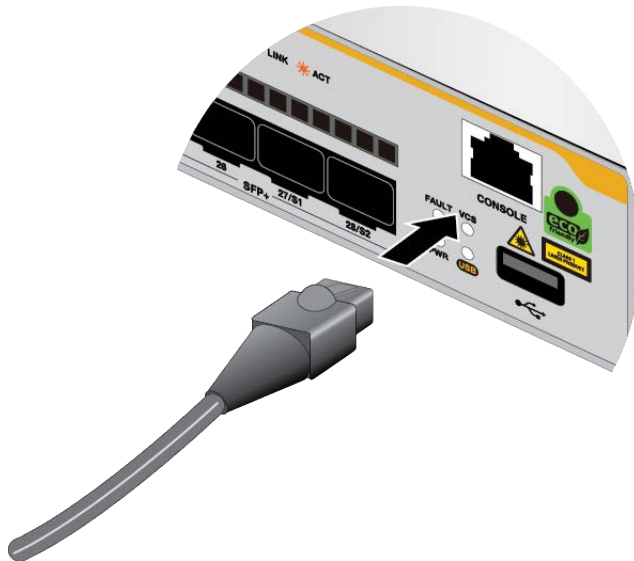


Figure 67. Connecting a Management Cable to the Console RS-232 Port

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

3. Configure the VT-100 terminal or terminal emulation program as follows:

- ☐ Baud rate: 9600 bps
- ☐ Data bits: 8
- ☐ Parity: None
- ☐ Stop bits: 1
- ☐ Flow controller: 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 username and password.

5. Enter the default username and password.

- ☐ Username: manager
- ☐ Password: friend

Note

Username and passwords are case sensitive.

The local management session starts when the User Exec mode prompt, shown in Figure 68, is displayed.



```
awp1us>
```

Figure 68. User Exec Mode Prompt

Note

To configure the switch, visit www.alliedtelesis.com for more information.

Powering off the Switch

To power off the switch, perform the following procedure:

1. Unplug the power cord.

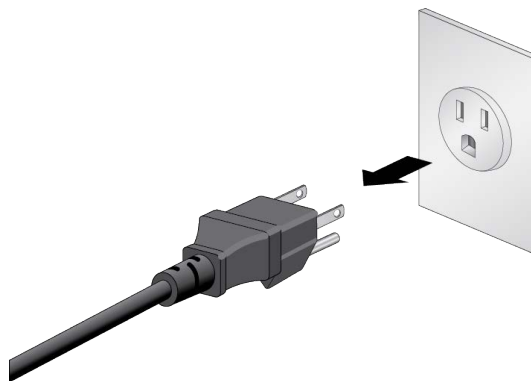


Figure 69. Powering Off the AC Power Supply

Chapter 8

Cabling the Networking Ports

This chapter contains the following procedures:

- ❑ “Cabling Twisted Pair Ports” on page 104
- ❑ “Installing SFP and SFP+ Transceivers” on page 106
- ❑ “Installing SP10TW Direct Connect Cables” on page 110

Cabling Twisted Pair Ports

Note

This section is applied to the x250-18XTm, SE250-18XTm, x250-28XTm, SE250-28XTm, and x250-28XHm switches.

Here are the guidelines for cabling the twisted pair ports:

- ❑ The minimum cable requirements are as follows:
 - 100M: Standard TIA/EIA 568-compliant Category 5, 100 ohm unshielded cabling, complying with IEEE 802.3u 100Base-TX specifications
 - 1/2.5/5G: Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) unshielded cabling
 - 10Gbps: Standard TIA/EIA 568-C-compliant Category 6a unshielded cabling
- ❑ The connectors on the cables should fit snugly into the ports, and the tabs should lock the connectors into place.
- ❑ The default setting for the wiring configurations of the ports is auto-MDI/MDI-X. The default setting is appropriate for switch ports that are connected to 100Base-TX network devices that also support auto-MDI/MDI-X.
- ❑ The default auto-MDI/MDI-X setting is not appropriate for switch ports that are connected to 100Base-TX network devices that do not support auto-MDI/MDI-X and have a fixed wiring configuration. For switch ports connected to those types of network devices, you should disable auto-MDI/MDI-X and set the wiring configurations manually.
- ❑ The appropriate MDI/MDI-X setting for a switch port connected to a 100Base-TX network device with a fixed wiring configuration depends on the setting of the network device and whether the switch and network device are connected with straight-through or crossover cable.

If you are using straight-through twisted pair cable, the wiring configurations of a port on the switch and a port on a network device must be opposite each other, such that one port uses MDI and the other MDI-X.

For example, if a network device has a fixed wiring configuration of MDI, you must disable auto-MDI/MDI-X on the corresponding switch port and manually set it to MDI-X. If you are using crossover twisted pair cable, the wiring configurations of a port on the switch and a port on a network device must be the same.

- ❑ The default speed setting for the wiring configurations of 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 1G and higher speeds.
- ❑ The twisted pair ports operate at full-duplex mode when operating at 100M/1G.

Installing SFP and SFP+ Transceivers

This section contains instructions for installing SFP and SFP+ transceivers in the ports on the switch.

Guidelines for Installing SFP or SFP+ Transceiver

Here is a list of guidelines for installing SFP or SFP+ transceiver:

- ❑ The ports for SFP/SFP+ transceivers are indicated in Table 15.

Table 15. Ports for SFP/SFP+ Transceivers

	Port for Transceivers
x250-18XS	Ports 1 to 18
SE250-18XS	
x250-18XTm	Ports 17 and 18
SE250-18XTm	
x250-28XS	Ports 1 to 28
SE250-28XS	
x250-28XTm	Ports 25 to 28
SE250-28XTm	
x250-28XHm	

- ❑ The ports for SFP/SFP+ support 1G SFP and 10G transceivers. They do not support 100M SFP transceivers.
- ❑ SFP and SFP+ transceivers are hot-swappable. You can install them while the switch is powered on.

Note

For a list of supported transceivers and direct attach cables, 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.
- ❑ Fiber optic transceivers are dust sensitive. Always keep the plug in the optical bores when a fiber optic cable is not installed, or when you store the transceiver. When you do remove the plug, keep it for future use.

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



Warning

Laser Safety: EN60825-1. ⚡ L7



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 and SFP+ Transceivers

The illustrations in the procedure show a transceiver being installed in port 25 of the x250-28XTm switch. The procedure is the same for all SFP and SFP+ ports. The transceiver in the illustrations has a duplex LC connector. The connector on your transceivers may be different.

To install transceivers, perform the following procedure:

1. If the transceiver port has a dust plug, remove it. Refer to Figure 70.

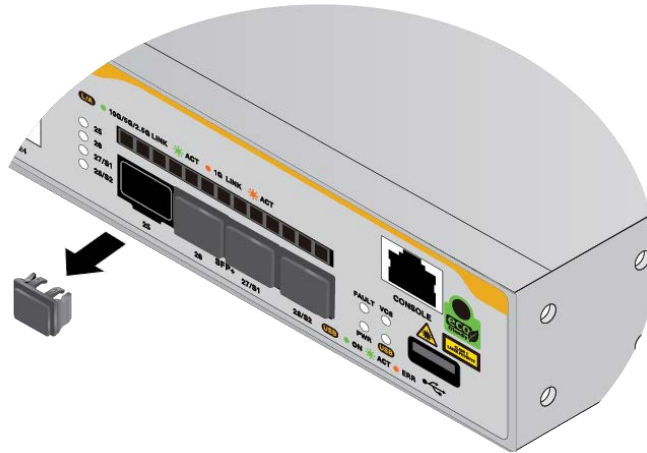


Figure 70. Removing the Dust Plug from an SFP+ Port

2. Remove the transceiver from its shipping container and store the packaging material in a safe location.
3. Position the transceiver with the Allied Telesis label facing up.
4. Slide the transceiver into the port until it clicks into place, as shown in Figure 71 on page 108.

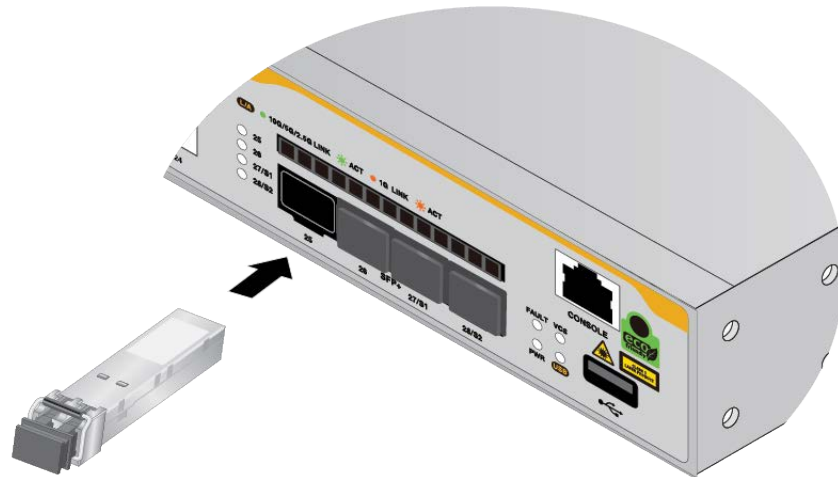


Figure 71. Installing SFP+ Transceivers

Note

If you are ready to attach the fiber optic cable to the transceiver, continue with the next step. Otherwise, repeat step 1 to step 4 to install the remaining transceivers in the switch.

5. Remove the dust cover from the transceiver. Refer to Figure 72.

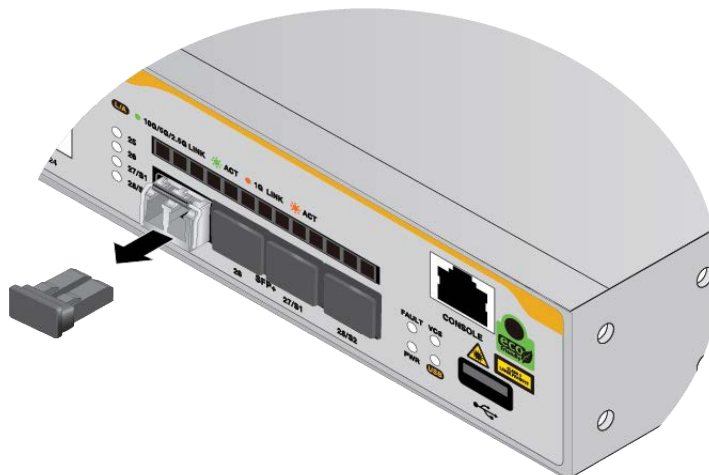


Figure 72. Removing the Dust Cover from an SFP or SFP+ Transceiver

6. Verify the position of the handle on the transceiver. The transceiver handle should be in the upright position, as shown in Figure 73 on page 109.



Figure 73. Positioning the SFP or SFP+ Handle in the Upright Position

7. Connect the fiber optic cable to the transceiver, as shown in Figure 74. The connector on the cable should fit snugly into the port, and the tab should lock the connector into place.

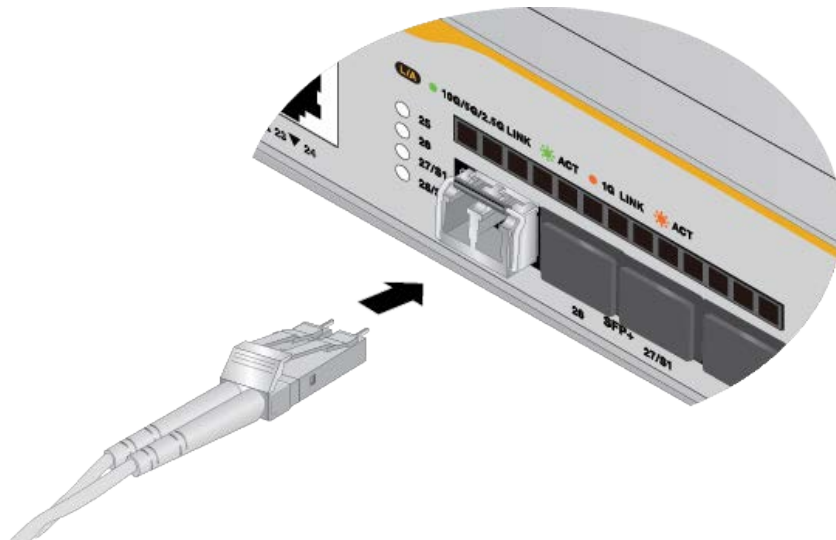


Figure 74. Connecting a Fiber Optic Cable to an SFP or SFP+ Transceiver

8. Repeat step 5 to step 7 to cable additional transceivers.

Installing SP10TW Direct Connect Cables

The SFP/SFP+ transceiver ports support SP10TW direct connect twinax cables. The cables are an economical way to add 10G connections over short distances. They have SFP+ transceivers on both ends and come in lengths of 1 and 3 meters.

To install SP10TW direct connect cables, perform the following procedure:

1. If the SFP+ port has a dust cover, remove it. Refer to Figure 72 on page 108.
2. Remove the SP10TW direct connect cable from its shipping container and store the packaging material in a safe location.
3. If there is a dust cap, remove the dust cap from a connector on the cable.
4. Slide the connector into the slot. The release tab on the connector must be on the top. Refer to Figure 75.

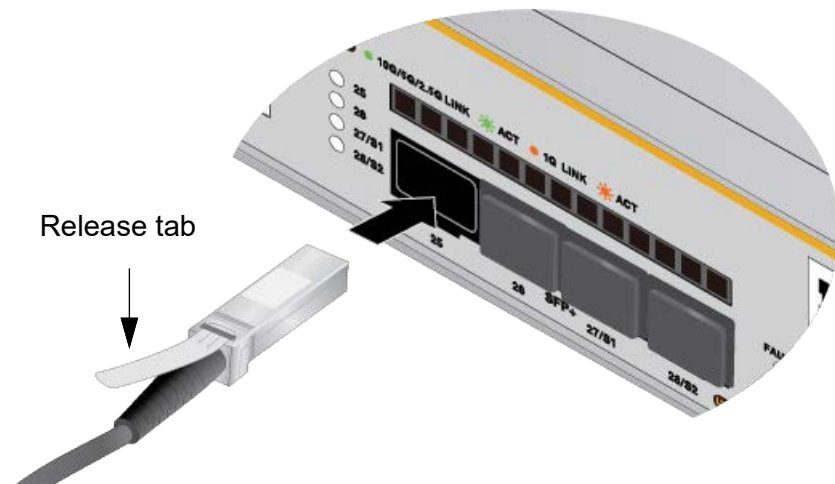


Figure 75. Installing SP10TW Cables

5. Repeat this procedure to install the other end of the cable into a port on another network device.

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: The unit is not receiving power. All the port LEDs are off, and the fans are not operating.

Solutions: Try the following:

- ❑ Verify that the power cord is securely connected to the power source and AC connector on the back panel of the switch.
- ❑ Verify that the DC power wires are securely connected to the screws on the front panel and to the DC power source unit.
- ❑ 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 121.
- ❑ Try replacing the power supply.

Note

Power supplies are hot swappable. If the chassis has two power supplies and one fails, you can replace the failed unit without having to power off the operational power supply.

Problem 2: All 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 1Gbps or 10Gbps fiber optic transceiver in SFP/SFP+ ports on the switch is unable to establish a link to a network device.

Solutions: Try the following:

- ❑ Check that the transceiver is fully inserted in the port.
- ❑ Verify that the fiber optic cable is securely connected to the port on the transceiver and the remote network device.
- ❑ Verify that the remote network device is operating properly.
- ❑ 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's management software to verify that the port is enabled.
- ❑ If the remote network device is a managed device, use its management firmware to determine whether its port is enabled.
- ❑ If the problem is with two BiDi (bi-directional) transceivers, refer to their data sheets to verify that their transmission and reception frequencies are opposite each other. For instance, a BiDi transceiver that transmits and receives at 1310nm and 1550nm, respectively, has to be connected to a transceiver that transmits and receives at 1550nm and 1310nm, respectively. Two BiDi transceivers will not establish a link if they transmit and receive at the same frequencies.
- ❑ 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 or strong.

Problem 4: The `SHOW STACK` command is not displaying all the switches in the stack.

Solutions: The switches are unable to form the stack. Try the following:

- ❑ The switches might have an earlier version of the management software that does not support VCSStack, or they might have different versions. You can view the version number with the `SHOW VERSION` command.
- ❑ Review the information in “Stacking Port Guidelines” on page 34 to verify that the stack complies with all rules and restrictions.
- ❑ If the stack is using fiber optic transceivers, verify that they are fully inserted into the ports.
- ❑ Verify that the transceivers are from Allied Telesis.
- ❑ Verify that the fiber optic cables are securely connected to the ports on the transceivers.
- ❑ Display the running configurations and confirm the ports as stacking ports. They are identified by the `STACKPORT` command. In this example from a running configuration, ports 1 to 2 are the stacking ports:

```
awplus(config)# interface port1.0.1-1.0.2
awplus(config-if)# stackport
```

- ❑ If necessary, repeat the `STACKPORT` command. Afterwards, save your changes and reboot the switch.

Problem 5: You removed a port as a stacking port with the `NO STACKPORT` command, but the port is still not forwarding regular Ethernet traffic.

- ❑ Display the running configuration to verify that the port is no longer a stacking port.
- ❑ You have to reboot the switch whenever you add or remove ports from a stack with the `STACKPORT` and `NO STACKPORT` commands. Be sure to save the change to the configuration file with the `WRITE` command before rebooting the unit.

Problem 6: The switch overheats and shuts down.

Solutions: Try the following:

- ❑ Verify that the location of the switch allows for adequate airflow.
- ❑ If the switch is operating, use the `SHOW SYSTEM ENVIRONMENT` command in the Privileged Exec mode to verify that the power supplies and fan modules are operating properly.

Problem 7: The switch functions intermittently.

Solutions: Try the following:

- ❑ 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 modules are operating correctly.
- ❑ Verify that the location of the switch allows for adequate airflow. The unit will shut down if it overheats.

Appendix A

Technical Specifications

This appendix contains the following sections:

- ❑ "Physical Specifications" on page 116
- ❑ "Environmental Specifications" on page 120
- ❑ "Power Specifications" on page 121
- ❑ "RJ-45 Twisted Pair Port Pinouts" on page 123
- ❑ "RJ-45 Style Serial Console Port Pinouts" on page 125

Physical Specifications

Dimensions Table 16 lists the dimensions (H x W x D) of the switches.

Table 16. Product Dimensions (H x W x D)

x250-18XS SE250-18XS	4.25 cm x 21 cm x 34.6 cm (1.67 in. x 8.3 in. x 13.6 in.)
x250-28XS SE250-28XS	4.4 cm x 44 cm x 29 cm (1.7 in. x 17.3 in. x 11.4 in.)
x250-18XTm SE250-18XTm	4.25 cm x 21 cm x 34.6 cm (1.67 in. x 8.3 in. x 13.6 in.)
x250-28XTm SE250-28XTm	4.4 cm x 44 cm x 29 cm (1.7 in. x 17.3 in. x 11.4 in.)
x250-28XHm	4.4 cm x 44.1 cm x 42.1cm (1.7 in. x 17.4 in. x 16.6 in.)

Height, Width, and Depth of x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm

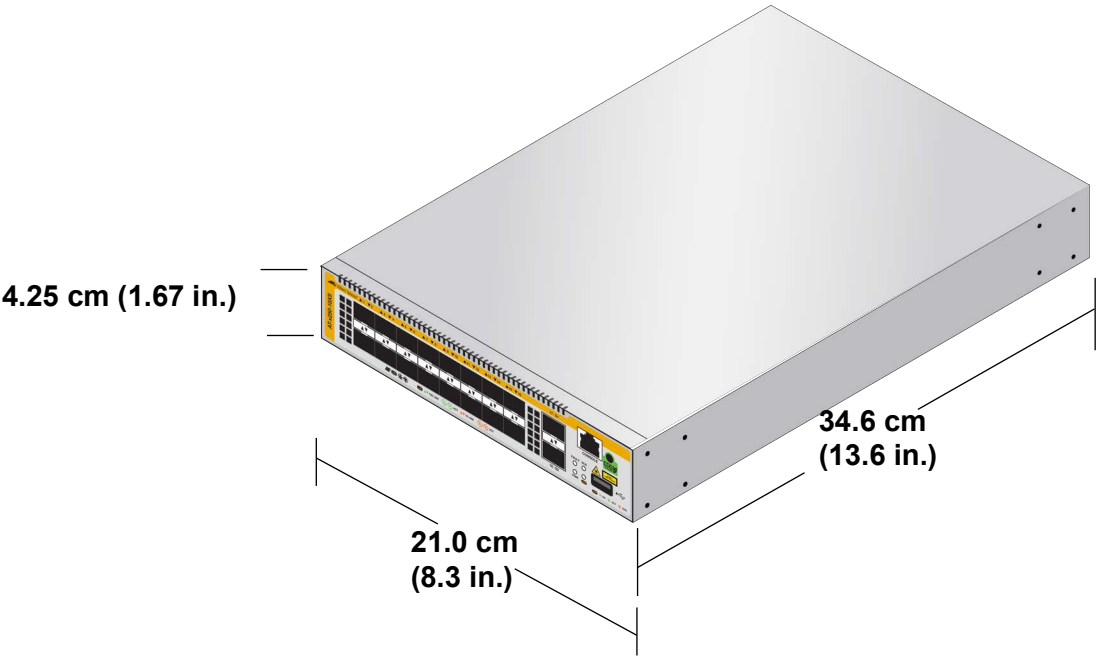


Figure 76. x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm Switches (H x W x D)

Depth (x250-18XTm and SE250-18XTm)

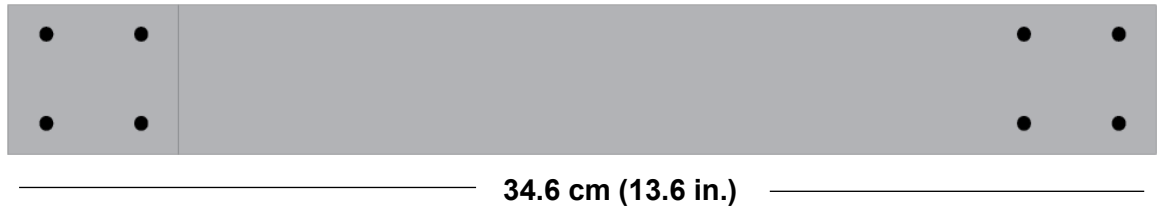


Figure 77. Bracket Holes of x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm Switches

Height, Width and Depth of x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm

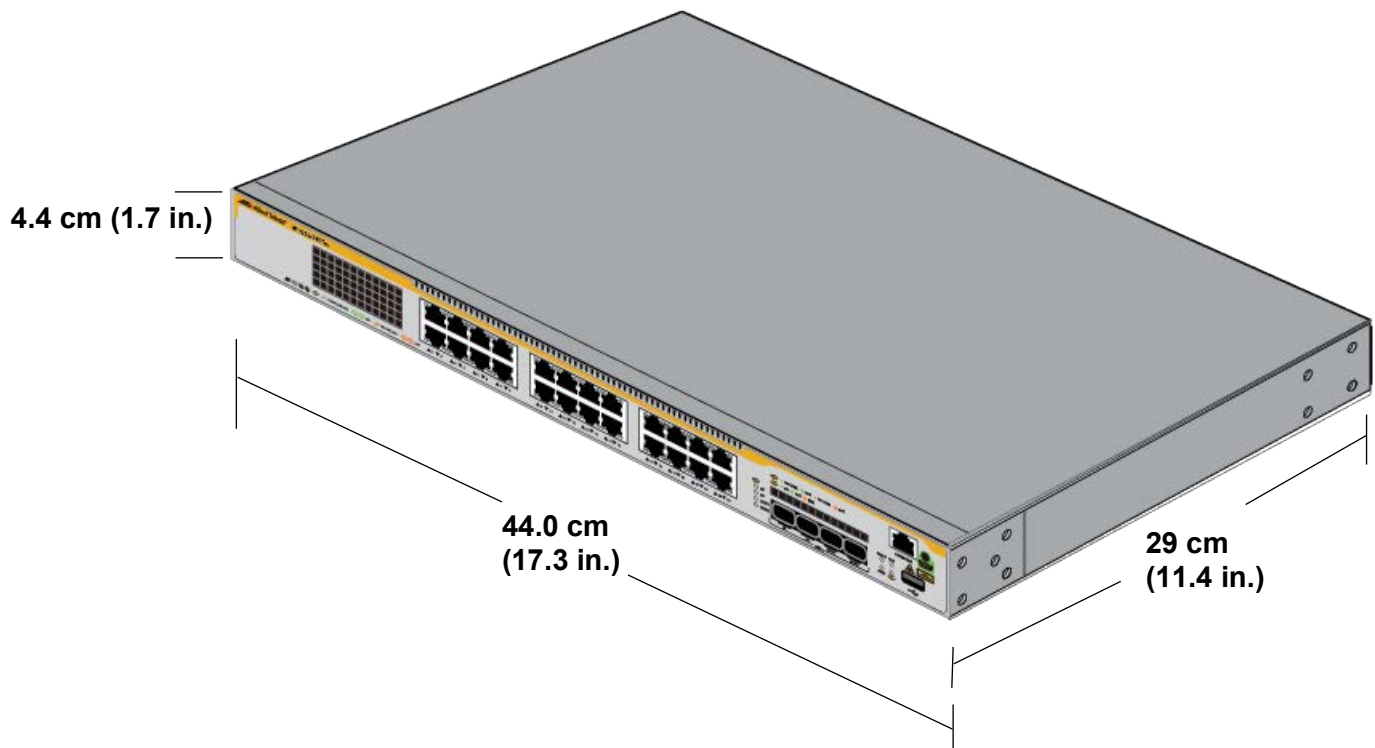


Figure 78. x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm Switches (H x W x D)

Depth (x250-28XTm and SE250-28XTm)

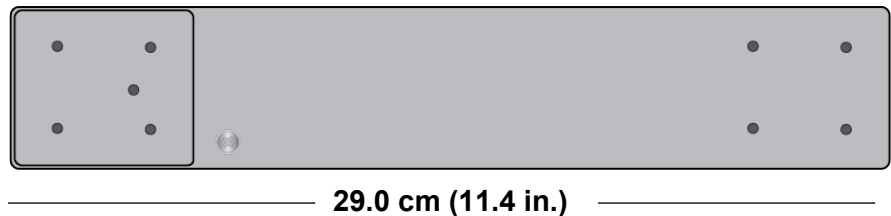


Figure 79. Bracket Holes of x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm Switches

Height, Width and Depth of x250-28XHm

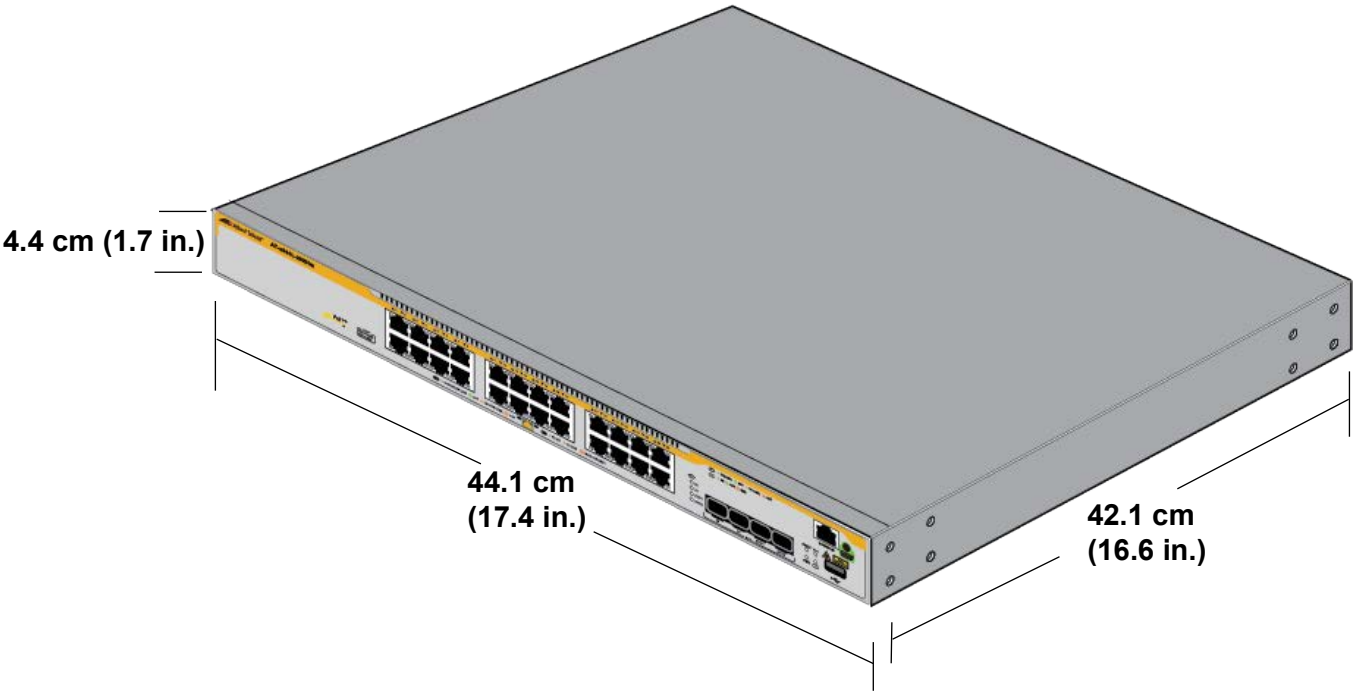


Figure 80. x250-28XHm Switch (H x W x D)

Depth (x250-28XHm)

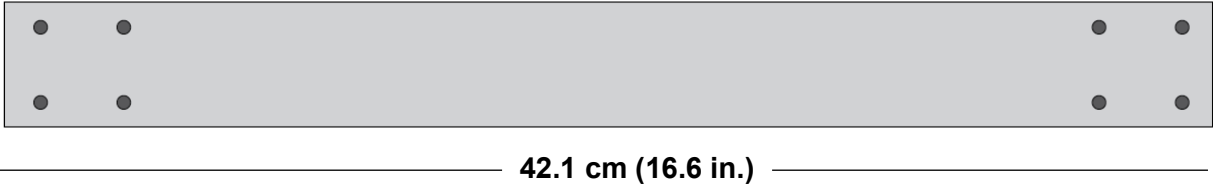


Figure 81. Bracket Holes of x250-28XHm Switch

Weights

Table 17. Product Weights

x250-18XS switch	2.7kg (6.0lb)
SE250-18XS switch	2.7kg (6.0lb)
x250-28XS switch	3.8kg (8.4lb)
SE250-28XS switch	3.8kg (8.4lb)
x250-18XTm switch	2.8kg (6.2lb)
SE250-18XTm switch	2.8kg (6.2lb)
x250-28XTm switch	4.0kg (8.8lb)
SE250-28XTm switch	4.0kg (8.8lb)
x250-28XHm switch	6.1kg (13.4lb)

Ventilation

Table 18. Ventilation Requirements

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

Table 19 lists the environmental specifications of the switches.

Table 19. 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)

Power Specifications

Maximum Power Consumptions

Table 20. Maximum Power Consumption

x250-18XS	70W
SE250-18XS	70W
x250-28XS	86W
SE250-28XS	86W
x250-18XTm	110W
SE250-18XTm	110W
x250-28XTm	160W
SE250-28XTm	160W
x250-28XHm	890W

Input Voltage and Frequency

Table 21. Input Voltages

	AC
x250-18XS	100-240 VAC, 2.0A maximum, 50/60Hz
SE250-18XS	100-240 VAC, 2.0A maximum, 50/60Hz
x250-28XS	100-240 VAC, 2.0A maximum, 50/60Hz
SE250-28XS	100-240 VAC, 2.0A maximum, 50/60Hz
x250-18XTm	100-240 VAC, 1.4A maximum, 50/60Hz
SE250-18XTm	100-240 VAC, 1.4A maximum, 50/60Hz
x250-28XTm	100-240 VAC, 2.0A maximum, 50/60Hz
SE250-28XTm	100-240 VAC, 2.0A maximum, 50/60Hz
x250-28XHm	100-240 VAC, 12.0A maximum, 50/60Hz

Heat Dissipation

Table 22. Heat Dissipation

x250-18XS	236.95 BTU/hr
SE250-18XS	236.95 BTU/hr
x250-28XS	293.82 BTU/hr
SE250-28XS	293.82 BTU/hr
x250-18XTm	360.17 BTU/hr
SE250-18XTm	360.17 BTU/hr
x250-28XTm	540.25 BTU/hr
SE250-28XTm	540.25 BTU/hr
x250-28XHm	3036.81 BTU/hr

RJ-45 Twisted Pair Port Pinouts

Figure 82 illustrates the pin layout of the RJ-45 connectors on the following products:

- ❑ x250-18XTm switch
- ❑ SE250-18XTm switch
- ❑ x250-28XTm switch
- ❑ SE250-28XTm switch
- ❑ x250-28XHm switch

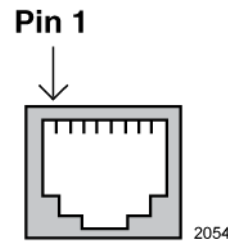


Figure 82. Pin Layout (Front View) of Twisted Pair Ports

Table 23 lists the pin signals at 100Mbps.

Table 23. Pin Signals on RJ-45 Twisted Pair Ports at 100Mbps

Pin	MDI Signal	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 24 lists the pin signals at 1/2.5/5/10Gbps.

Table 24. Pin Signals on Twisted Pair Ports at 1/2.5/5/10Gbps

Pin	Pair	Signal
1	1 +	TX and RX+
2	1 -	TX and RX-
3	2 +	TX and RX+
4	3 +	TX and RX+
5	3 -	TX and RX-
6	2 -	TX and RX-
7	4 +	TX and RX+
8	4 -	TX and RX-

RJ-45 Style Serial Console Port Pinouts

Table 25 lists the pin signals of the RJ-45 style serial Console port.

Table 25. RJ-45 Style Serial Console Port Pin Signals

Pin	Signal
1	Looped to pin 8
2	Looped to pin 7
3	Transmit Data
4	Ground
5	Ground
6	Receive Data
7	Looped to pin 2
8	Looped to pin 1

