x250 Series and SE250 Series

10 GIGA MANAGED SWITCHES

AlliedWare Plus™

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

Installation Guide

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

Electrical Safety	UL62368-1 ($_c$UL$_{US}$)
	CE
	UKCA
	IEC62368-1
	EC62368-1

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
	RCM
	AS/NZS CISPR 32: 2015+A1: 2020, Class A

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

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**.

Contents

Contents

Preface

This guide contains the installation instructions for the following products:

- ❒ x250-18XS
- ❒ x250-28XS
- ❒ x250-18XTm
- ❒ x250-28XTm
- ❒ SE250-18XS
- ❒ SE250-28XS
- ❒ SE250-18XTm
- ❒ SE250-28XTm

In addition to the installation instructions, this guide includes how to build a virtual stack with the Virtual Chassis Stacking (VCStack) feature for the x250 series switches.

> **Note**
> The VCS Stack section applies only to the x250 series switches.

This preface contains the following sections:

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

Importante: ✍ indica che le traduzioni della dichiarazione di sicurezza sono disponibili nelle **Translated Safety Statements** in PDF pubblicate sul sito Web di Allied Telesis all'indirizzo **alliedtelesis.com/us/en/library/search**.

☐ 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

The x250 series and SE250 series switches are equipped with ports, management panel among others. See Figure 1, Figure 2, Figure 3,Figure 4 on page 15, Figure 5 on page 15, Figure 6 on page 15, Figure 7 on page 16, and Figure 8 on page 16 for the front panels of each model.

x250-18XS Switch

Management Panel

Ports 1 to 18: SFP/SFP+ Slots
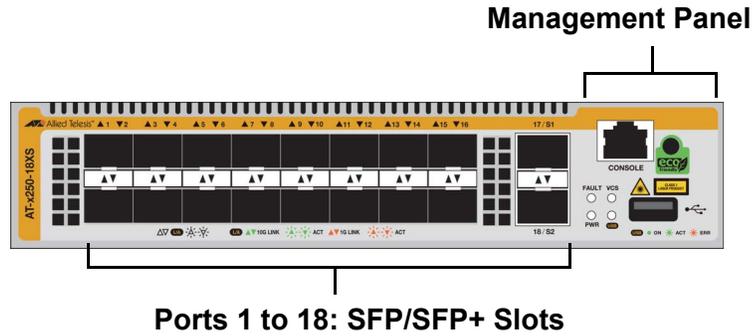
Figure 1. Front Panel of the x250-18XS Switch

SE250-18XS Switch

Management Panel

Ports 1 to 18: SFP/SFP+ Slots
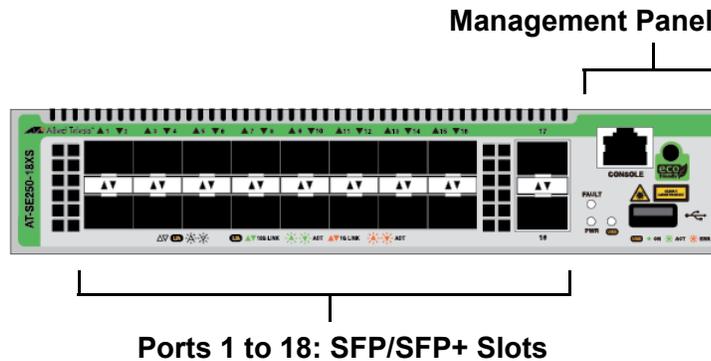
Figure 2. Front Panel of the SE250-18XS Switch

x250-18XTm Switch

Management Panel

Ports 1 to 16:
100Mbps, 1/2.5/5/10Gbps Twisted Pair

Ports 17 &18:
SFP/SFP+ Slots
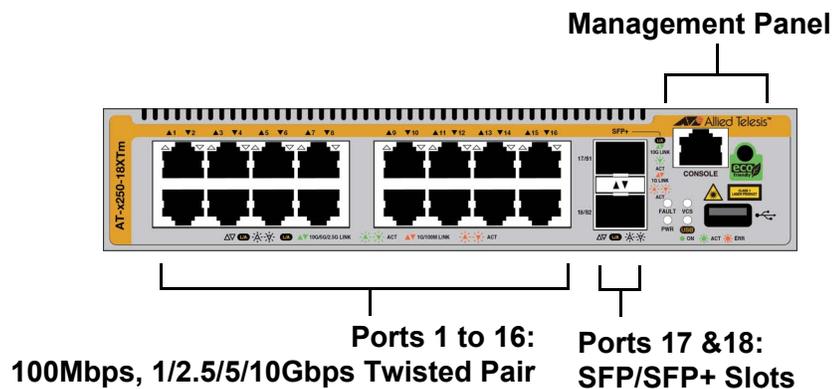
Figure 3. Front Panel of the x250-18XTm Switch

Management Panel

SE250-18XTm Switch

Ports 1 to 16:
100Mbps, 1/2.5/5/10Gbps Twisted Pair

Ports 17 &18:
SFP/SFP+ Slots
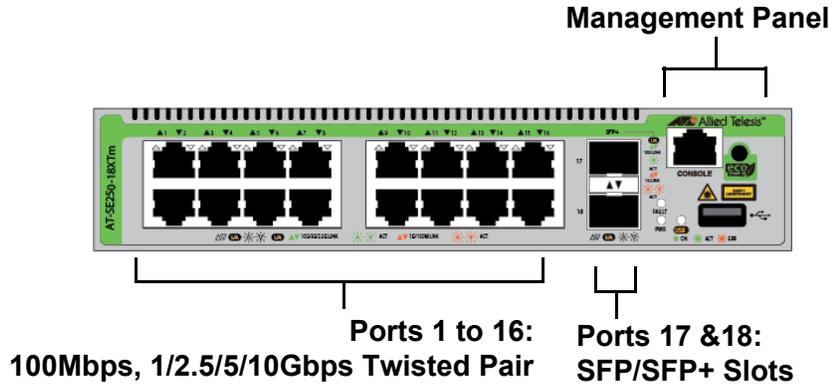
Figure 4. Front Panel of the SE250-18XTm Switch

x250-28XS Switch

Management Panel

Ports 1 to 28: SFP/SFP+ Slots
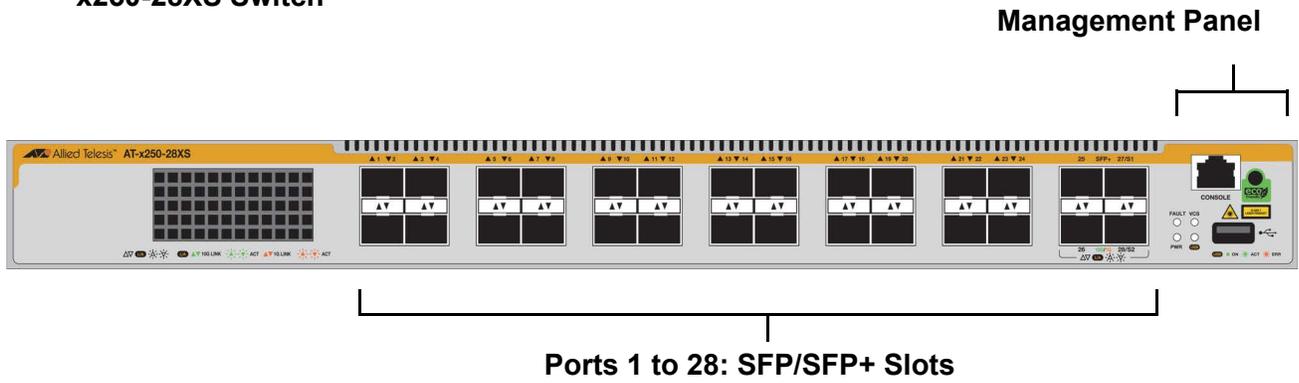
Figure 5. Front Panel of the x250-28XS Switch

SE250-28XS Switch

Management Panel

Ports 1 to 28: SFP/SFP+ Slots
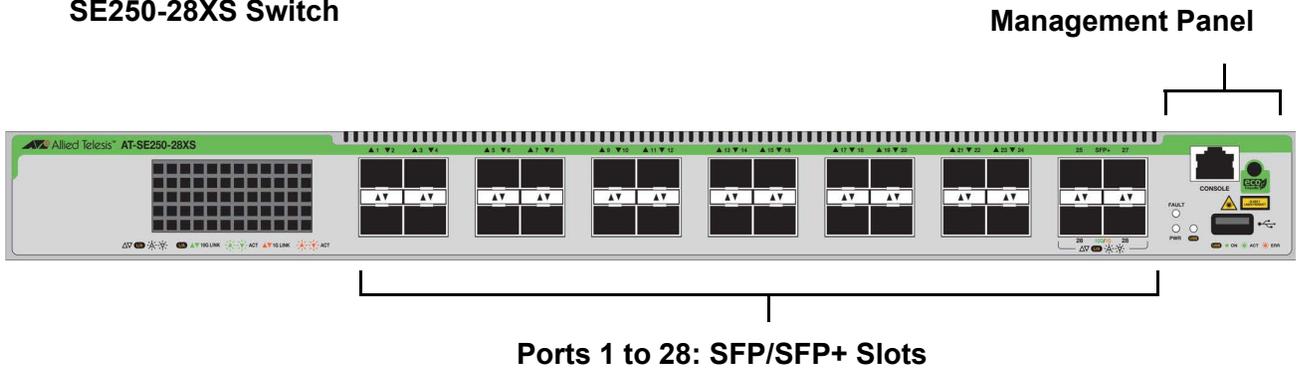
Figure 6. Front Panel of the SE250-28XS Switch

x250-28XTm Switch

Management Panel

Ports 1 to 24:
100Mbps, 1/2.5/5/10Gbps Twisted Pair

Ports 25, 26, 27, 28:
SFP/SFP+ Slot
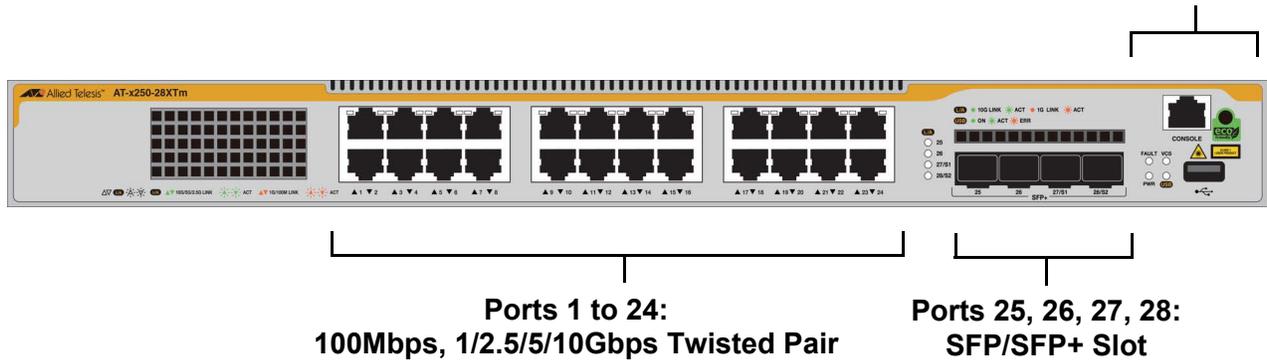
Figure 7. Front Panel of the x250-28XTm Switch

SE250-28XTm Switch

Management Panel

Ports 1 to 24:
100Mbps, 1/2.5/5/10Gbps Twisted Pair

Ports 25, 26, 27, 28:
SFP/SFP+ Slot
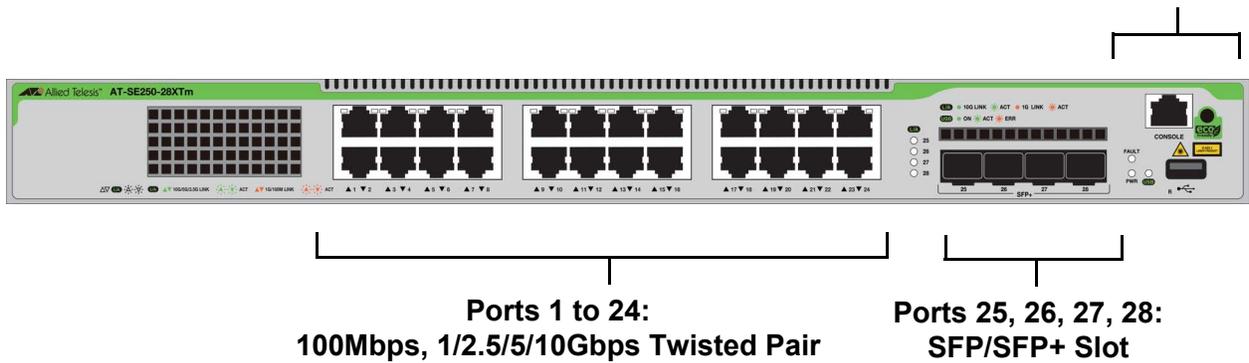
Figure 8. Front Panel of the SE250-28XTm Switch

The rear panel of the x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm switches is shown in Figure 9.

AC Power Supply
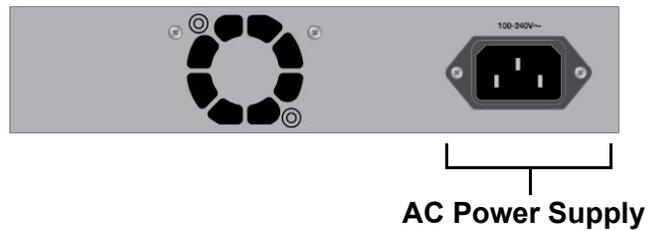
Figure 9. Rear Panel of the x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm Switches

The rear panel of the x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm switches is shown in Figure 10 on page 17.

AC Power Supply
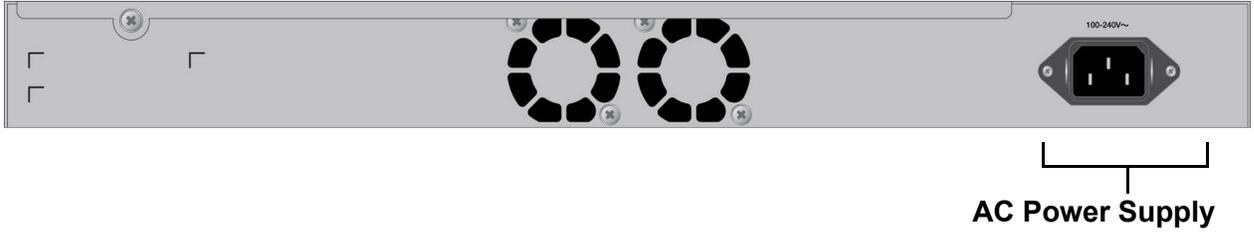
Figure 10. Rear Panel of the x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm Switches

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

❒ 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 Twisted Pair Ports and SFP Ports on the Switch

	x250-18XS, SE250-18XS	x250-18XTm, SE250-18XTm	x250-28XS, SE250-28XS	x250-28XTm, SE250-28XTm
Twisted pair ports	None	16	None	24
SFP/SFP+ Slots	18	2	28	4

Virtual Chassis Stacking (VCStack)

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

This feature only applies to the x250 series switches. For the instructions to build a virtual stack with the VCStack feature, see Chapter 2, "Virtual Chassis Stacking" on page 29.

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 accessed locally through the Console port or remotely using Telnet or Secure Shell.

❒ 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 24.

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 one pre-installed power supply that supplies system power. See "Power Specifications" on page 148. 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 x250-18XS, SE250-18XS, x250-18XTm, or SE250-18XTm switch has one ventilation and x250-28XS, SE250-28XS, x250-28XTm, or SE250-28XTm switch has two ventilation fans 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. See "System LEDs" on page 25.

Note
The fan is not field-replaceable.

Twisted Pair Ports on the Switch

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

> **Note**
> The x250-18XTm, SE250-18XTm, x250-28XTm, and SE250-28XTm switches have the twisted-pair ports.

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 150.

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 1000Mbps 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 for Twisted Pair Ports

This section explains the LEDs for the 100Mbps and 1/2.5/5/10Gbps twisted pair ports on the switch.

Each port has one LED that displays link and activity information. The LEDs are shown in Figure 11.
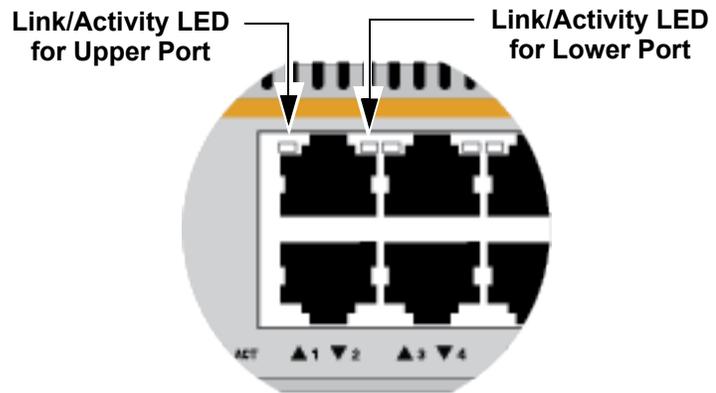
Figure 11. Link and Activity LEDs for Twisted Pair Ports on the Switch

The states of the link and activity LEDs are described in Table 2.

Table 2. Link and Activity LEDs for 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 NO ECOFRIENDLY LED command in the command line interface.

SFP/SFP+ Transceiver Slots

The switch comes with slots for SFP/SFP+ transceivers.

Note
When using a Fiber Optic Small-Form Pluggable (SFP) module, ensure it is IEC 60825-1 certified and Class 1 Laser Product.

LEDs   The slots for the SFP/SFP+ transceivers have one link and activity status LED each. Refer to Figure 12.
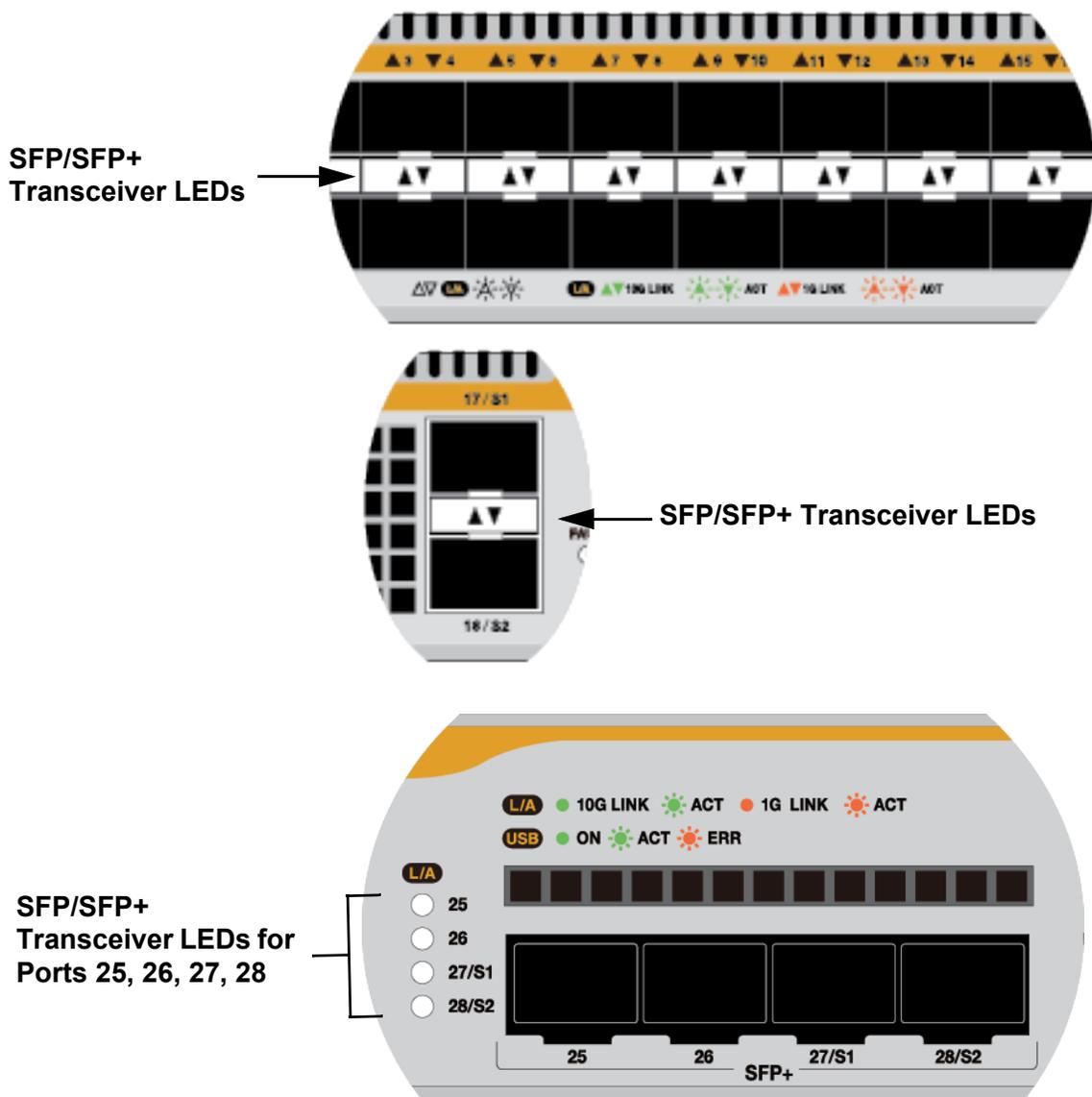
Figure 12. LEDs for SFP/SFP+ Transceiver Slots

The states of the LEDs are defined in Table 3.

Table 3. Link and Activity LEDs for SFP/SFP+ Transceivers

State	Description
Solid Green	The transceiver has established a 10Gbps link to a network device.
Flashing Green	The transceiver is transmitting or receiving data at 10Gbps.
Solid Amber	The transceiver has established a 1Gbps link to a network device.
Flashing Amber	The transceiver is transmitting or receiving data at 1Gbps.
Off	Possible causes of this state are listed here: - The transceiver slot is empty. - The transceiver 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 NO ECOFRIENDLY LED command in the command line interface.

Management Panel

The components on the management panel for the switch are identified in Figure 13.

CONSOLE
RS-232 Serial Port

eco-friendly
Button

USB Slot

System LEDs
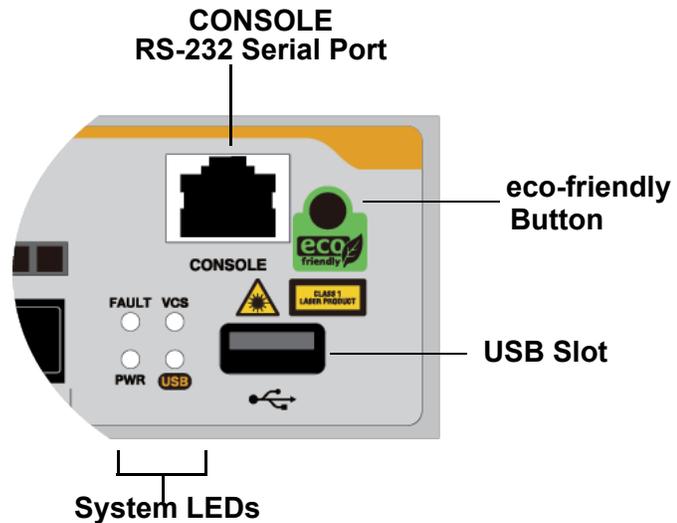
Figure 13. Management Panel for the Switch

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.

Using a flash drive with the switch is optional.

Console (RS-232) Port   You 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 that comes with the switch. The switch does not need an Internet Protocol (IP) address for local management sessions because they are not conducted over a network. For instructions, refer to "General Steps for the Master Switch" on page 96.

eco-friendly Button

Use the eco-friendly button on the management panel to turn the LEDs on or off.

System LEDs

The system LEDs on the management panel are described in Table 4.

Table 4.   System LEDs on the Management Panel

LED	Status	Description
FAULT	Off	The system is operating normally.
	Solid Red	The firmware is loading.
	Red Flashing (One time)	The system or fan is having an error.
	Red Flashing (Six times)	The temperature exceeds the threshold.
POWER	Solid Green	The switch is receiving power and operating normally.
	Off	The switch is not receiving power.
VCS	Solid Green	The unit is a VCStack master switch.
	Off	VCStack is disabled or the unit is a VCStack member switch.
USB	Off	No activities on the USB port
	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.

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 14.

port*n.n.n*

Switch ID Number ————

Slot Number ————
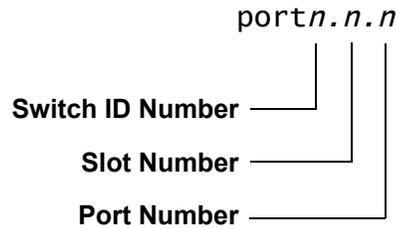
Port Number ————

Figure 14. PORT Parameter in the Command Line Interface

The three parts of the PORT parameter are described in Table 5.

Table 5. 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 base port 11 in a switch with ID 1:

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

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

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

Note
You must include the PORT parameter when identifying individual ports, and omit it from the last port when specifying ranges.

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

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

Chapter 2
Virtual Chassis Stacking

The sections in this chapter are listed here:

Overview

The Virtual Chassis Stacking (VCStack) feature enables you to link together two x250 series switches into a virtual stack so that they function as a single networking unit.

> **Note**
> VCStack feature is only available to the x250 series switches.

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:

❒ A stack must consist of two x250 series switches.

❒ Two ports per switch must be designated as trunk ports.

❒ The VCStack feature comes standard with the AlliedWare Plus operating software. No additional software or license is required.

❒ The default setting for the VCStack feature on the x250 series switches is enabled. Disabling it requires rebooting the switch. Instructions later in this guide explain how to disable and enable the feature and reboot the unit.

❒ 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.

❒ The switches of a stack have to be connected together with a network link called a stack trunk. As explained in "Stack Trunks" on page 32, you can choose any twisted pair ports on the switches to be the trunk. Once ports are designated as members of the trunk, they cannot be used as regular networking ports.

❒ You should not pre-configure the features of the switches, such as virtual LANs and spanning tree, before building the stack. The configuration settings are likely to be discarded once the switches begin operating as a stack.

Stack Trunks

The switches of a stack are connected with a physical network link called the stack trunk. Here are general trunk guidelines:

❑ A stack must consist of two x250 series switches.

❑ Up to two ports per switch can be designated as trunk ports.

❑ The trunk ports must be operated at 10Gbps.

❑ Designate trunk ports with the STACKPORT command in the AlliedWare Plus operating system.

❑ Once ports are designated as trunk ports, you cannot view or change their parameter settings.

❑ The fiber optic transceivers or direct attach cables of a trunk must be from Allied Telesis. Transceivers or cables from other network equipment providers might not perform properly as trunks. For a list of supported transceivers, visit the Allied Telesis web site.

❑ If a trunk fails for any reason, the switches operate as stand-alone devices.

You can choose the ports of a trunk from the following groups:

❑ "Twisted Pair Ports," next

❑ "S1 or S2 SFP/SFP+ Ports" on page 33

Twisted Pair Ports

Twisted pair ports 1 to 24 on the x250-28XTm switch and ports 1 to 16 on the x250-18XTm switch support trunk. Here are the guidelines:

❑ You can use any of the two ports for the trunk.

❑ Ports 1 to 24 in the x250-28XTm switch and 1 to 16 on the x250-18XTm switch support 100Mbps, 1Gbps, 2.5Gbps, 5Gbps, and 10Gbps; however, a trunk must operate at 10Gbps in Auto-Negotiation.

The following guidelines are not mandatory but they are recommended because they can make managing or troubleshooting a trunk easier:

❑ Use the same ports for the trunk on the two switches and connect together the same ports in the switches, if possible.

❑ Choose consecutive ports (for example, ports 1 to 2).

Figure 15 shows an example of VCStack. Here are the general properties:

❑ The stack consists of two x250 series switches and each switch uses two ports as truck ports.

❑ Each port operates at 10Gbps speed.

❒ The switches use the same consecutive ports, 1 and 2.

The trunk ports do not have to be consecutive, nor do they have to be the same ports on the two switches. But following the recommendations can make trunk management easier.
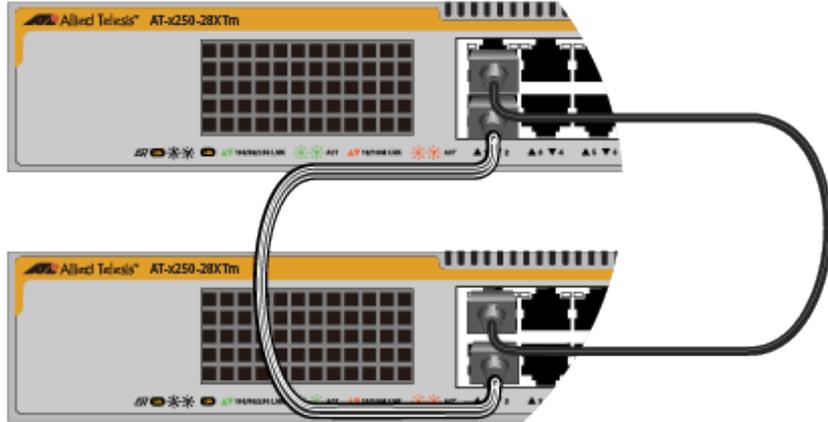
Figure 15. Example Stack of the x250-28XTm Switches

S1 or S2 SFP/ SFP+ Ports

You can also use ports S1 and S2 on the x250 series switch, which are marked on SFP/SFP+ slots, for a stack trunk.

Here are the guidelines to using ports S1 and S2 for a trunk:

❒ A stack can use only ports S1 and S2, not other SFP/SFP+ ports.

❒ Figure 16 on page 33 illustrates a stack of two x250-28XTm switches with ports 27(S1) and 28(S2) for trunk ports.
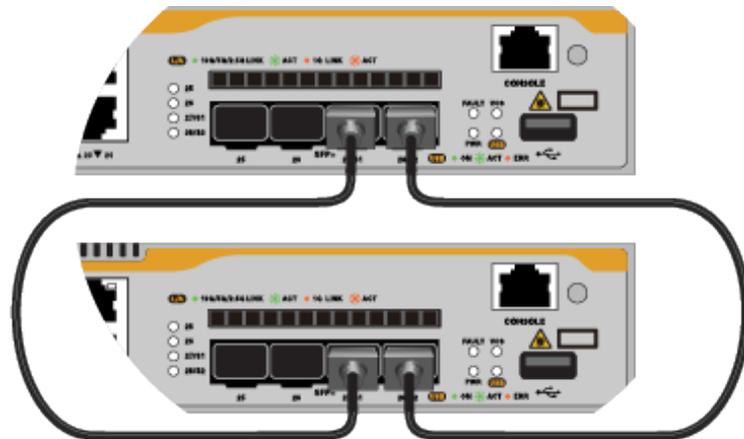
Figure 16. Stack Trunk Examples with S1 and S2 Ports

Master and Member Switches

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

❑ Coordinate and monitor stack operations.

❑ Verify 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.

❑ Verify 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.

Switch ID Numbers

Each switch must have an ID number. The ID number is 1 or 2. The default is 1. You can assign the numbers yourself or let the master switch assign the numbers automatically when you first power on the stack.

You use the ID numbers to identify the individual ports and switches when configuring the devices with the commands in the management software. For further information, refer to "Designating Ports in the Command Line Interface" on page 26.

The ID numbers are also used to identify the parameter settings that are stored in the configuration file. When the stack is reset or power cycled, the switches uses the ID numbers in the commands in the configuration file to determine which parameter settings belong to which switch.

⚠️ **Caution**

You should not change the ID numbers of the switches after you begin configuring the parameter settings. Otherwise, the stack might apply parameter settings to the wrong devices when you reset or power cycle it. ✍ E79

The switches do not use the ID numbers to select the master switch. The selection of the master switch is based on the priority numbers and MAC addresses, as previously explained.

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.

Planning a Stack

Here are questions you need to answer before building or configuring a stack:

❐ How many switches will be in the stack? AlliedWare Plus supports stacks of two switches.

❐ Which switch will be the master switch? Refer to "Master and Member Switches" on page 34. It can be any switch.

❐ Which ports will be the trunk ports on the switches? Refer to "Stack Trunks" on page 32.

❐ What will be the ID numbers of the member switches? Refer to "Switch ID Numbers" on page 35. The master switch should be given ID 1, the default value. Member switches should be assigned IDs in the range of 2 to 8.

❐ What types of transceivers will be used in ports S1 or S2 in the master and member switches? See "SFP/SFP+ Transceiver Slots" on page 22. You may install the transceivers (but not cable them) before configuring the switches for stacking.

❐ Have you already connected network cables to the trunk ports? If so, you should disconnect them before configuring the switches for stacking.

Note
Cabling the trunk ports before activating and configuring the VCStack feature may result in loops in your network topology, which can cause poor network performance.

Stacking Worksheet

The worksheet in Table 6 is here to assist you in configuring and maintaining a stack.

Table 6. Stacking Worksheet

Switch	Switch/ Location	Switch ID	Priority	Firmware Version Number[1]	Trunk Ports	Transceivers in S1 and S2
Master		1	1			S1: S2:
Member		2	2			S1: S2:

1. AlliedWare Plus version number.

The worksheet columns are described in Table 7.

Table 7. Stacking Worksheet Columns

Column	Description
Location	Use this column to record the model names and physical locations of the switches, such as their buildings or equipment rooms. The information can be useful in identifying and locating the switches if they are in different locations.
ID	Each switch in a stack has to have a unique ID number: 1 or 2. You use the ID numbers to configure the individual ports. Allied Telesis recommends assigning the ID 1, the default value, to the master switch. You should decide on the ID assignments of the switches before beginning the configuration procedures.

Table 7. Stacking Worksheet Columns (Continued)

Column	Description
Priority	When the switches of a stack are reset or powered on, they perform an initialization process that involves, in part, choosing the master switch. The selection is based on their priority numbers and MAC addresses. The former is an adjustable parameter with a range of 0 to 255 and a default value of 128. The lower the value, the higher the priority. Thus, the switch with the lowest value becomes the stack master. If switches have the same priority number, the master is selected based on their MAC addresses. Again, as with priority numbers, the lower the MAC address, the higher the priority. Allied Telesis recommends setting each switch's priority value to match its ID value. This is to ensure that the switch you have chosen to be the master unit will indeed function in that role. It will also make it possible for you to know the order in which the switches assume the master role if the primary master should fail or be powered off.
Firmware Version Number	Use this column to record the version numbers of the AlliedWare Plus management software on the switches. The switches might not be able to form the stack if they have different versions. Switches that have different versions should be updated to the most recent release before you build the stack. The configuration instructions explain how to view the version numbers.
Trunk Ports	Use this column to enter the trunk ports. You should choose the ports before beginning the configuration procedures. Refer to "Stack Trunks" on page 32.
Transceivers in S1 and S2	Used this column to record the transceiver speeds for S1 and S2.

Table 8 is an example of a completed worksheet for planning a stack with four switches.

Table 8. Example of a Completed Stack Worksheet

Switch	Switch/ Location	Switch ID	Prior-ity	Firmware Version Number	Trunk Ports	Transceivers in S1 and S2
Master	x250-28XTm Bldg 2A rm:304	1	1	v5.4.9-0	S2	S1: empty S2: 10Gbps
Member	x250-28XTm Bldg 2A rm:304	2	2	v5.4.9-0	S2	S1: empty S2: 10Gbps

Chapter 3
Beginning the Installation

The chapter contains the following sections:

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

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 (Tmra). ✍ E35

⚠️ **Caution**

Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. ✍ E36

Warning

Reliable earthing of rack-mounted equipment 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

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 injure 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 9 shows the contents of the shipping box except a switch.

Table 9. Accessory Kit

Item	x250-18XS, SE250-18XS, x250-18XTm, SE250-18XTm	x250-28XS, SE250-28XS, x250-28XTm, SE250-28XTm
Two 19-inch rack mount brackets	N/A	
Six M4x8mm screws for the 19-inch rack-mount brackets	N/A	
Four bumper feet		Bumper feet with rivets
Four bumper feet screws (M3x6mm)		N/A
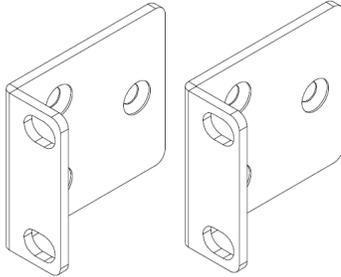
Table 9.   Accessory Kit (Continued)

Item	x250-18XS, SE250-18XS, x250-18XTm, SE250-18XTm	x250-28XS, SE250-28XS, x250-28XTm, SE250-28XTm
Power cord		
Power cord retaining clip		

Installation Options

The Installation options of the x250 series and SE250 series switches are shown in Table 10.

Table 10. Installation Options

	x250-18XS, SE250-18XS, x250-18XTm, SE250-18XTm	x250-28XS, SE250-28XS, x250-28XTm, SE250-28XTm
Tabletop	**Bumper Feet**	**Bumper Feet**
Equipment Rack	**Optional RKMT-J14 Brackets** **Optional RKMT-J15 Rack Mount**	**Rack-Mount Brackets**
Wall	**Optional BRKT-J24 Brackets**	
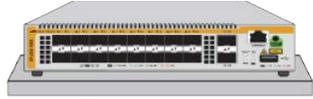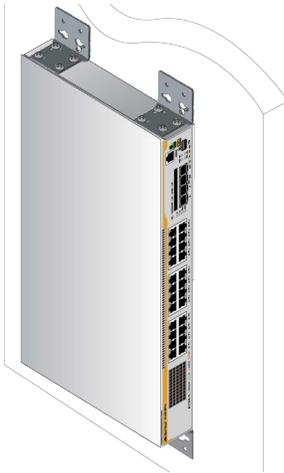
Installing the x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm Switches

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 Chapter 4, "Installing the Switch on a Table" on page 51.

❒ To install the switch on a wall, go to Chapter 6, "Installing the Switch on a Wall" on page 75.

❒ 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 61.

  – Using RKMT-J15, go to "Installing the Switch in a Rack Using the RKMT-J15 Rack-Mount Kit" on page 66.

❒ The RKMT-J14 and RKMT-J15 rack-mount kits are optional. You must purchase one of them, in addition to your switch.

❒ 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 Switch on a Table" on page 51.

❒ To install the switch on a wall, go to Chapter 6, "Installing the Switch on a Wall" on page 75.

❒ To install the x250-28XS, SE250-28XS, x250-28XTm, or SE250-28XTm switch on an equipment rack, go to "Installing the Switch in a Rack with the Standard Brackets" on page 72.

❒ The BRKT-J24 bracket kit is optional. You must purchase one, in addition to your switch.

Chapter 4

Installing the Switch on a Table

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

⚠️ **Warning**

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

⚠️ **Warning**

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

Installing x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm Switches on a Table

To install the x250-18XS, SE250-18XS, x250-18XTm, or SE250-18XS switch on a table, perform the following procedure:

> **Note**
> Before installing the switch on the table, see Chapter 3, "Beginning the Installation" on page 41.

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 cross-head screw driver. See Figure 17 on page 52.
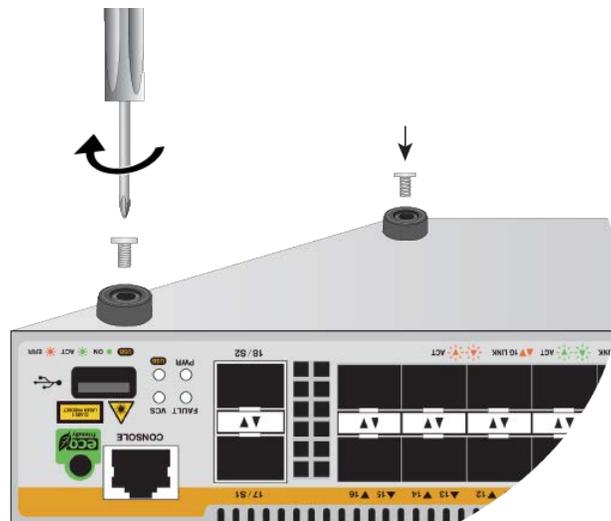
Figure 17. Attaching the Bumper Feet Using Screws

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 11, "Cabling the Networking Ports" on page 129.

   ❑ For Stacking, go to Chapter 7, "Configuring the Master Switch" on page 91.

Installing x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm Switches on a Table

To install the x250-28XS, SE250-28XS, x250-28XTm, or SE250-28XTm switch on a table, perform the following procedure:

> **Note**
> Before installing the switch on the table, see Chapter 3, "Beginning the Installation" on page 41.

1. Disassemble the bumper feet by removing the rivets and rivet housings from the bumper feet. See Figure 18.
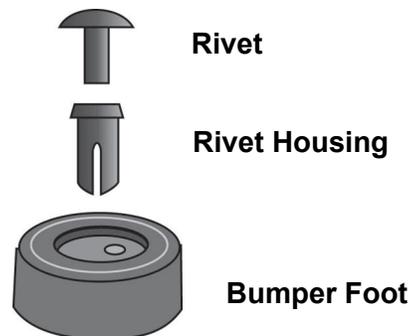
Figure 18. Parts of the Bumper Feet

2. Place the switch upside down on a table.

3. Inset a rivet housing into a bumper foot shown in Figure 19.

   You have four units total.
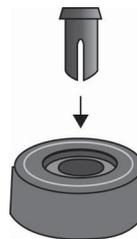
Figure 19. Inserting the Rivet Housing into the Bumper Foot

4. Place a rivet housing and bumper foot unit onto a hole at each corner shown in Figure 20. The switch has four holes.
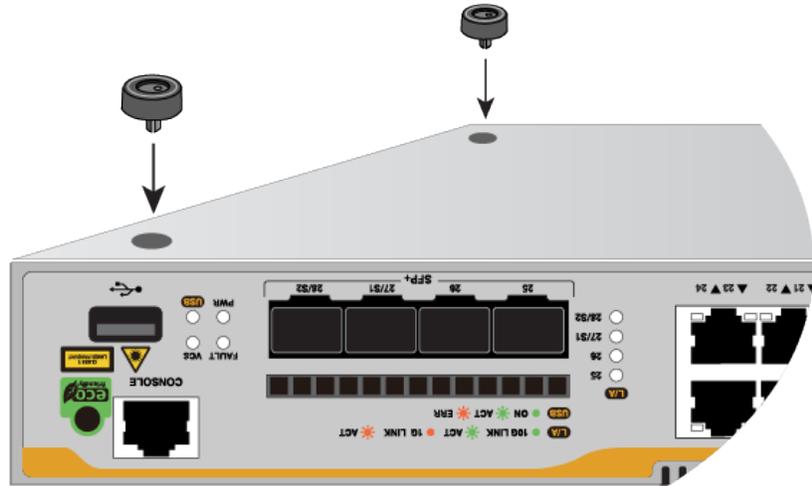
Figure 20. Placing the Bumper Foot Units on Base Corner Holes

5. Insert the rivet to secure the bumper foot to the base. See Figure 21 on page 54.
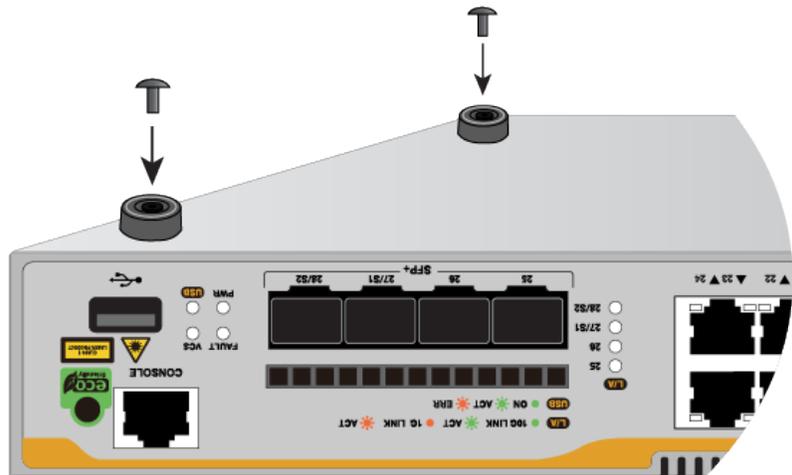
Figure 21. Inserting the Rivet into the Bumper Foot

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 11, "Cabling the Networking Ports" on page 129.

    ❑ For Stacking, go to Chapter 7, "Configuring the Master Switch" on page 91.

Chapter 5
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

The x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm switches can be installed in a 19-inch equipment rack with the brackets that come with the switch. On the other hand, 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 11.

Table 11. 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 61
		Optional RKMT-J15 rack-mount For instructions, go to "Installing the Switch in a Rack Using the RKMT-J15 Rack-Mount Kit" on page 66.
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 72.

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 12 shows the contents of the shipping box.

Table 12.   RKMT-J14 Rack-Mount Bracket Kit
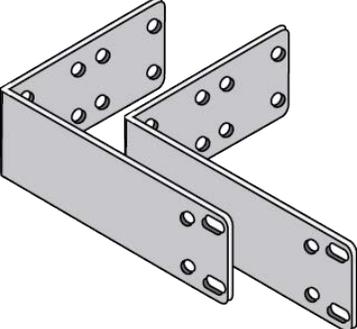
Item	Description
	Two RKMT-J14 rack-mount brackets
	Two handles for the RKMT-J14 brackets
	Four M3x6 Phillips pan head screws for attaching the handles to the brackets
	Eight M4x6 truss head screws for attaching the brackets to the switch
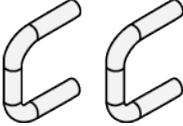
3. If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.

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 13 shows the contents of the shipping box.

Table 13.   RKMT-J15 Rack-Mount Kit
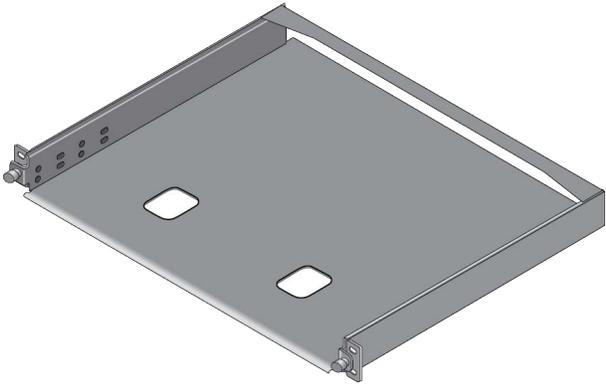
Item	Description
	RKMT-J15 Tray
	Four M4x6mm truss head screws

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

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 cross-head screw screwdriver to unscrew the bumper feet screws. See Figure 22.
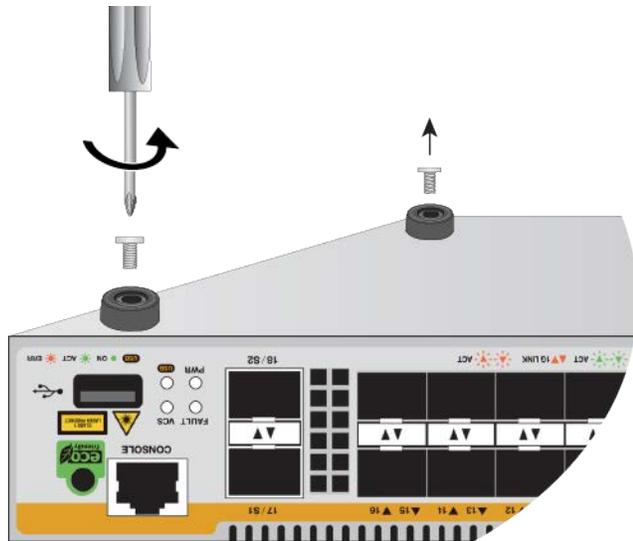
Figure 22. Removing the Bumper Feet

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 72.

Removing the Bumper Feet from the x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm Switches

Perform the following procedure to remove the bumper feet from the x250-28XS, SE250-28XS, x250-28XTm, or SE250-28XTm 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 22.
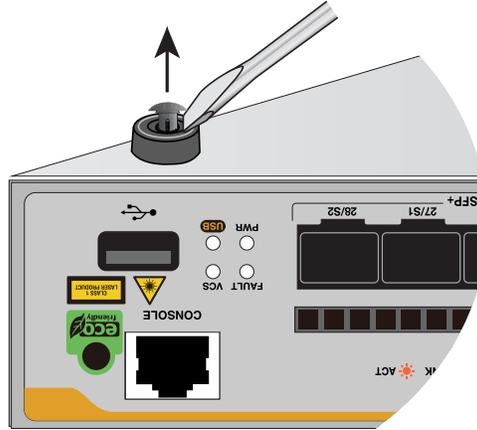
Figure 23. Removing the Bumper Feet

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 72.

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 24 and Figure 25, use the RKMT-J14 rack-mount brackets. The switches are:

- ❐ x250-18XS
- ❐ SE250-18XS
- ❐ x250-28XTm
- ❐ SE250-28XTm
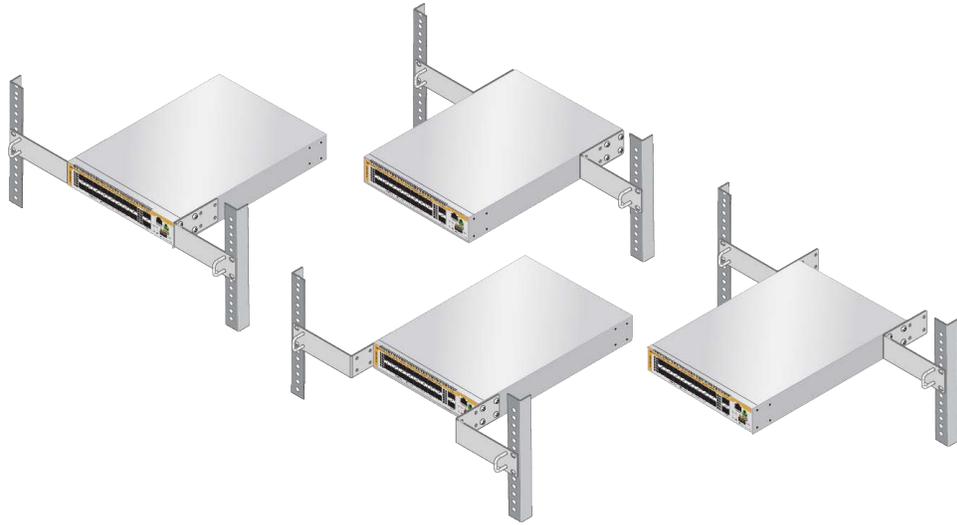
Figure 24. Orientations with the Front Panel Facing along the Rack Front

You can also orient the switch with the rear panel facing along the front of the equipment rack. See Figure 25.
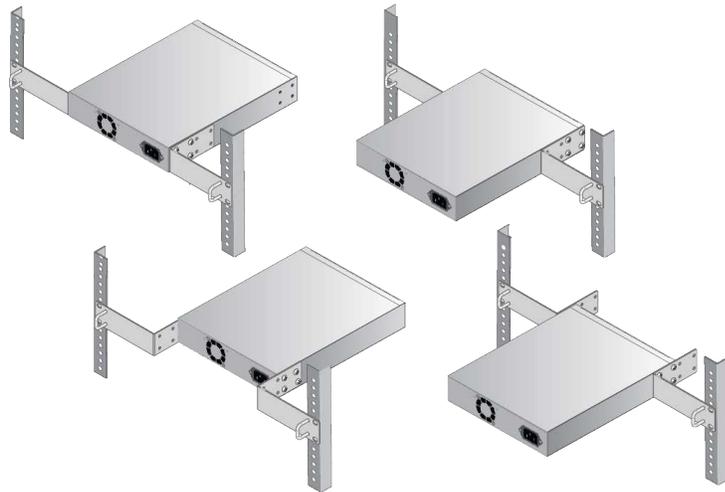
Figure 25. Orientations with the Rear Panel Facing along the Rack Front

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 41.

❒ 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 24 on page 61 and Figure 25 on page 61.

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 26. The RKMT-J14 brackets also have two sets of four screw holes for attaching the switch. See Figure 27.
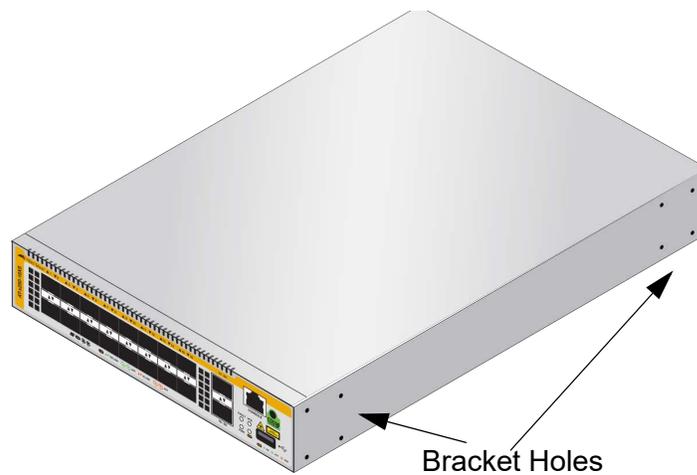
Bracket Holes

Figure 26. Bracket Holes on the Switch

Set 1   Set 2
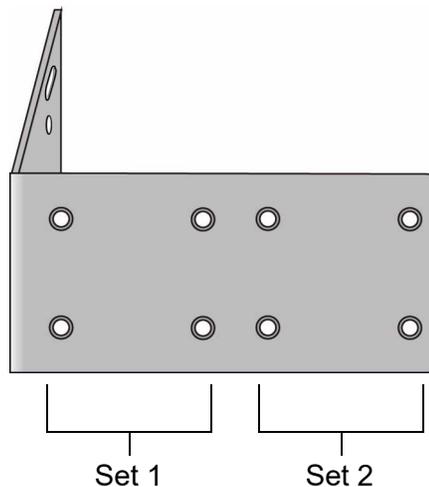
Figure 27. RKMT-J14 Bracket Holes

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 (SeeTable 12 on page 57)
- ❒ 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-J14 rack-mount kit, perform the following procedure:

1. Review "Reviewing Safety Precautions" on page 42 and "Choosing a Site for the Chassis" on page 46.

⚠ **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 57.

3. Attach the two handles to the RKMT-J14 Brackets using the four M3x6mm screws included in the brackets kit. See Figure 28.

    Attaching the handles is optional.
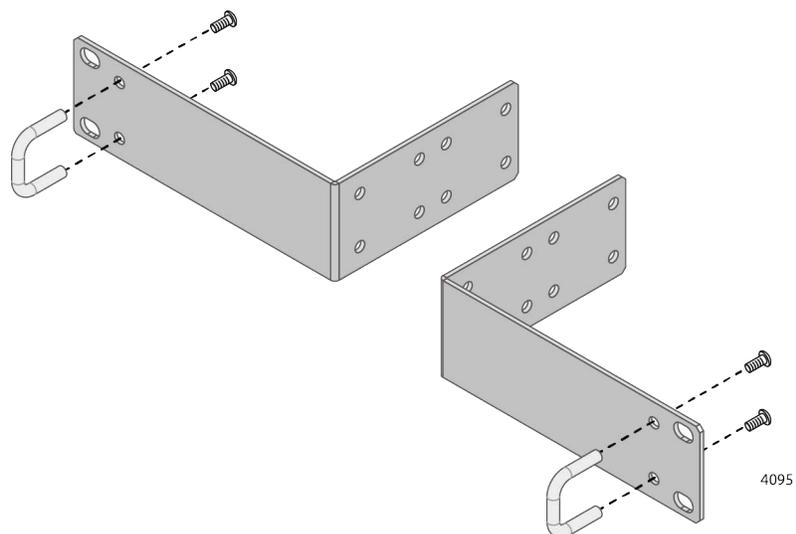
Figure 28. Attaching the Handles to the RKMT-J14 Brackets

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 59.

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 41 on page 74 shows how to install the brackets such that the front panel of the switch is even with the front of the equipment rack as an example.
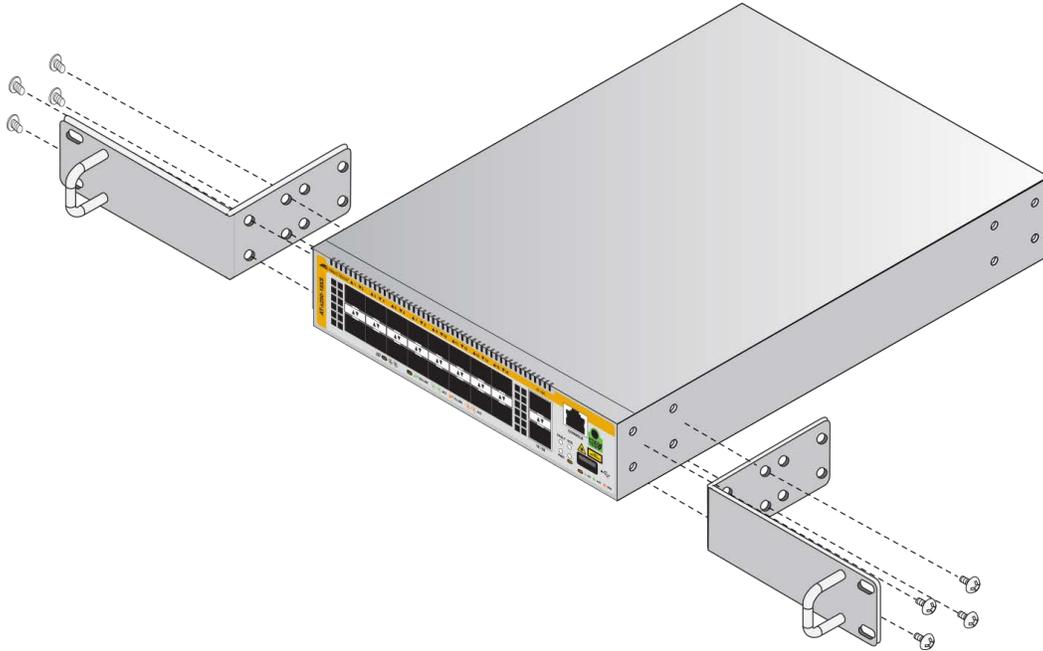
Figure 29. Attaching the RKMT-J14 Brackets to the Switch

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 42 on page 74.

Figure 30. Installing the Switch in a Rack with the RKMT-J14 Brackets

8. Go to Chapter 11, "Cabling the Networking Ports" on page 129.

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 31, use the RKMT-J15 rack-mount brackets. The switches are:

❒ x250-18XS

❒ SE250-18XS

❒ x250-18XTm

❒ SE250-18XTm
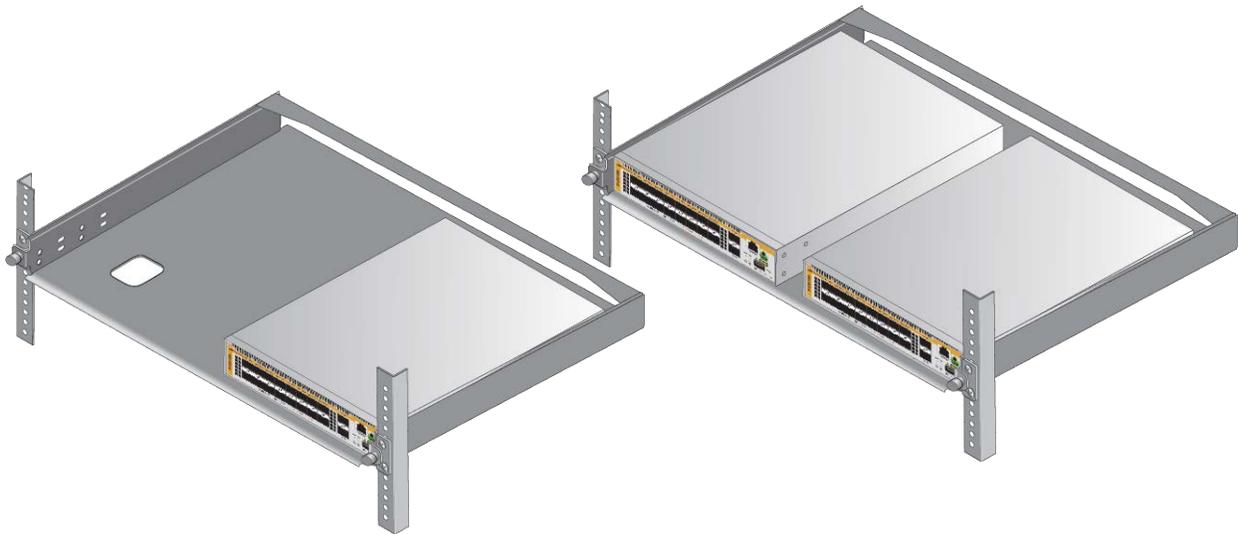
Figure 31. Switches in the RKMT-J15 Rack-Mount

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 41.

❒ 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 58.)

❒ 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 42 and "Choosing a Site for the Chassis" on page 46.

> ⚠️ **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 58.

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 32.
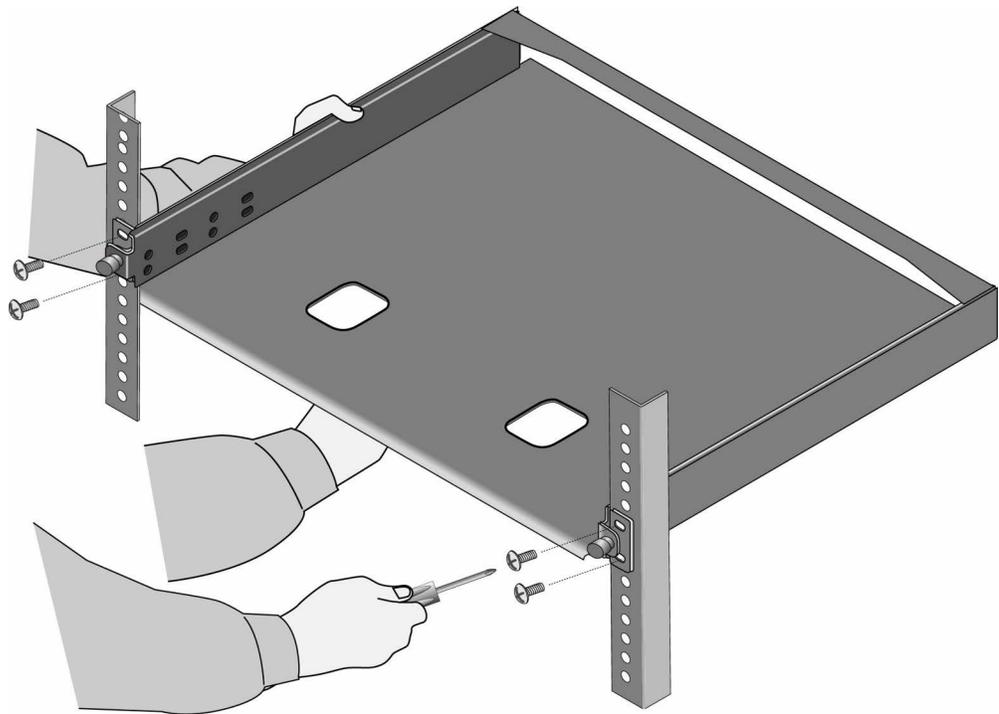
Figure 32. Installing the RKMT-J15 Tray in the Equipment Rack

4. Loosen the two thumbscrews on the front of the tray. See Figure 33 on page 68.
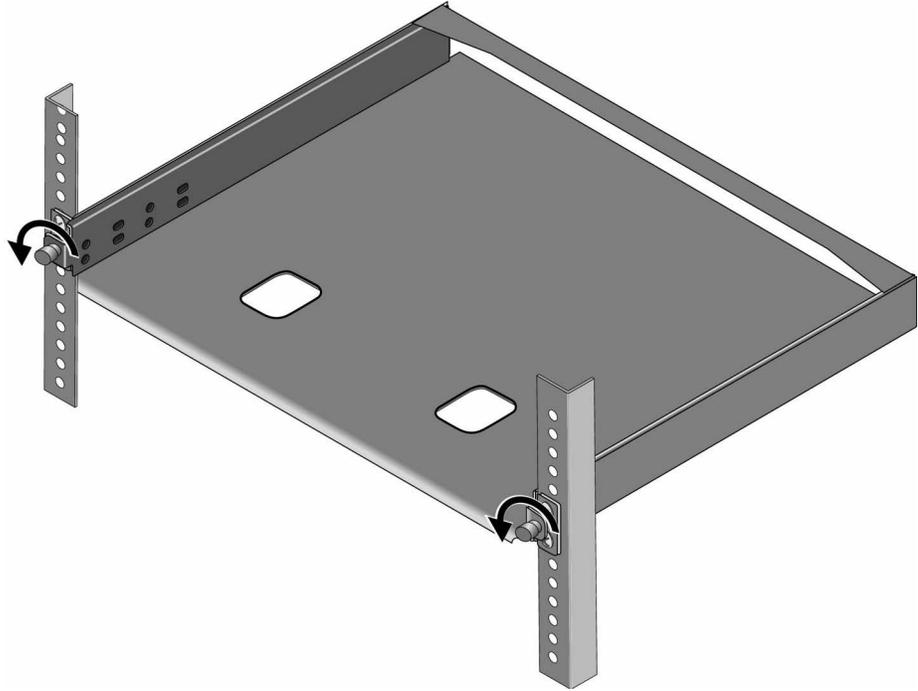
Figure 33. Loosening the Two Thumbscrews on the Front of the
RKMT-J15 Tray

5. Slide out the tray as shown in Figure 34.
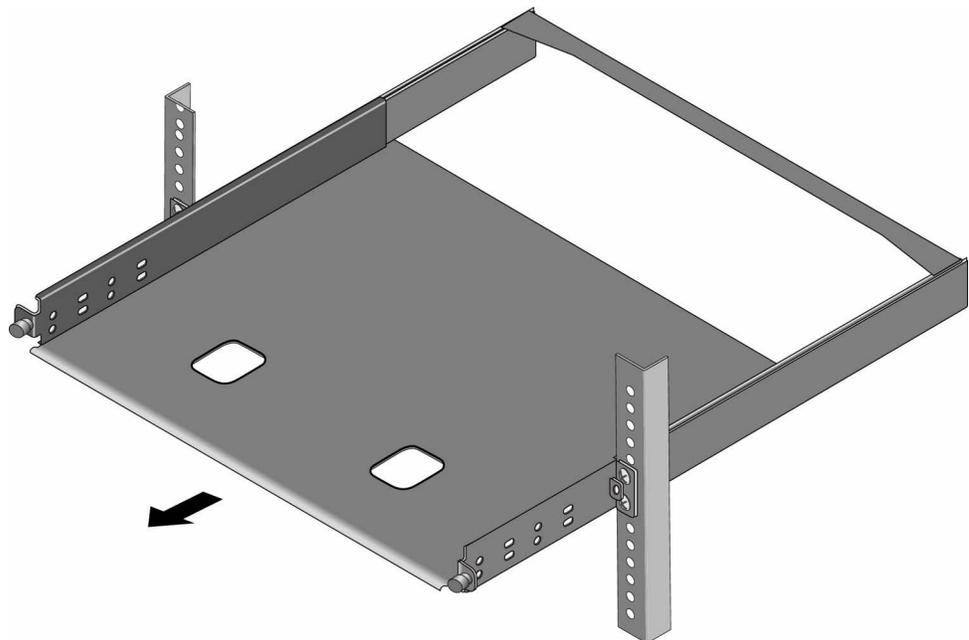
Figure 34. Sliding Out the Tray from the RKMT-J15 Rack-Mount

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 59.

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 35.
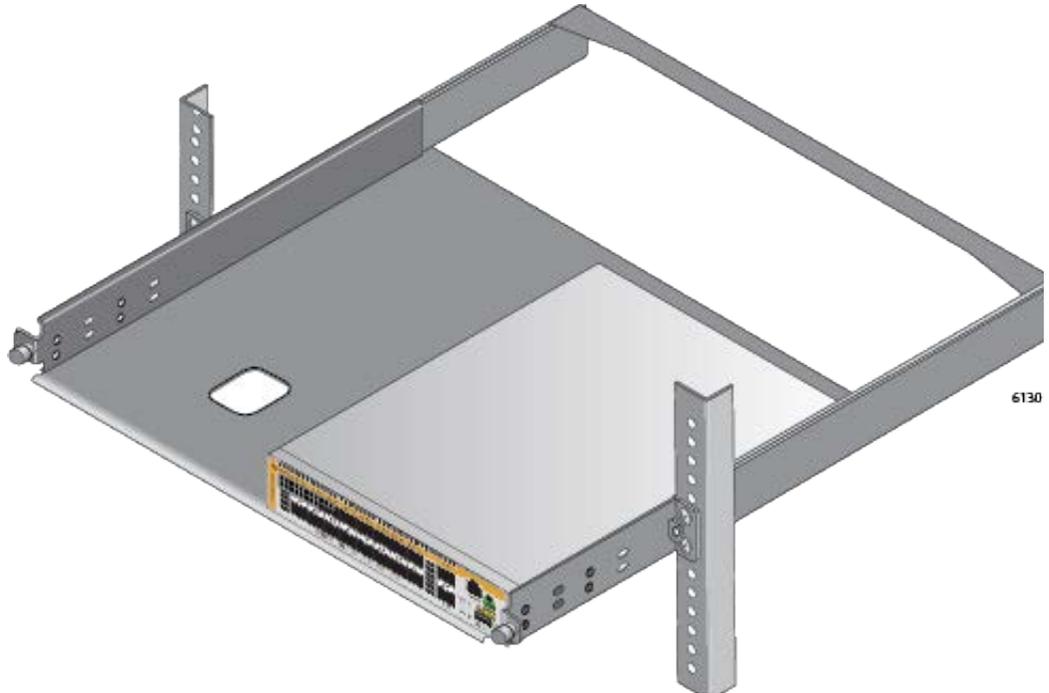
Figure 35. Placing a Switch in the RKMT-J15 Rack-Mount Tray

9. Install two M4x6mm screws included with the RKMT-J15 rack mount kit to secure the switch to the tray. See Figure 36 on page 70.
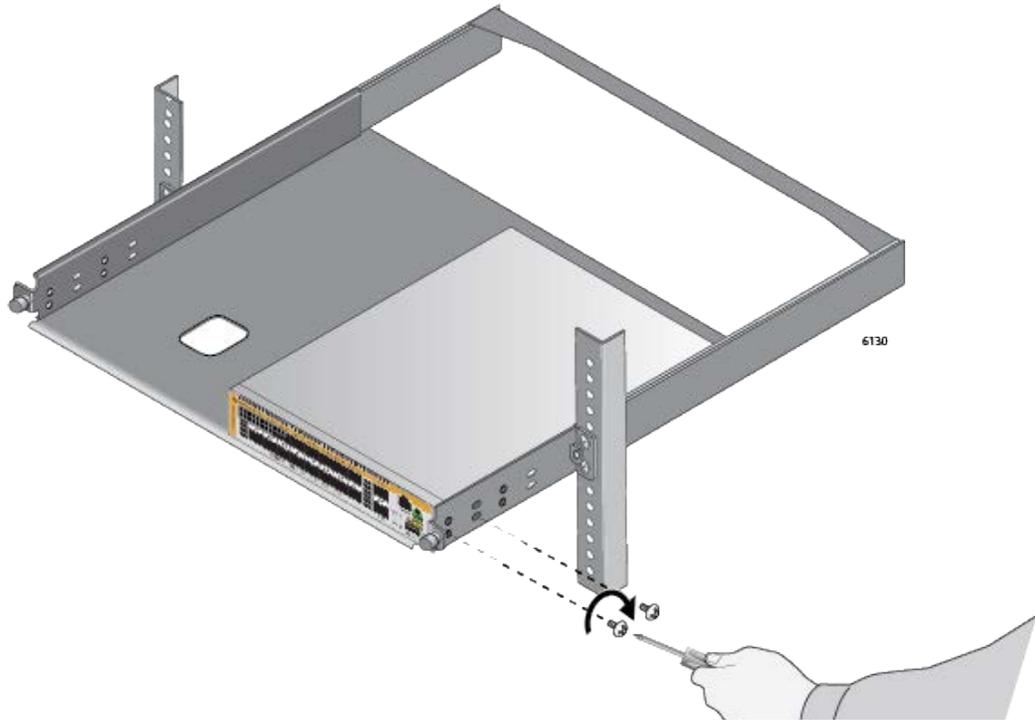
Figure 36. Securing the Switch to the RKMT-J15 Tray

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

11. Slide in the tray to be level with the equipment rack poles as shown in Figure 37.
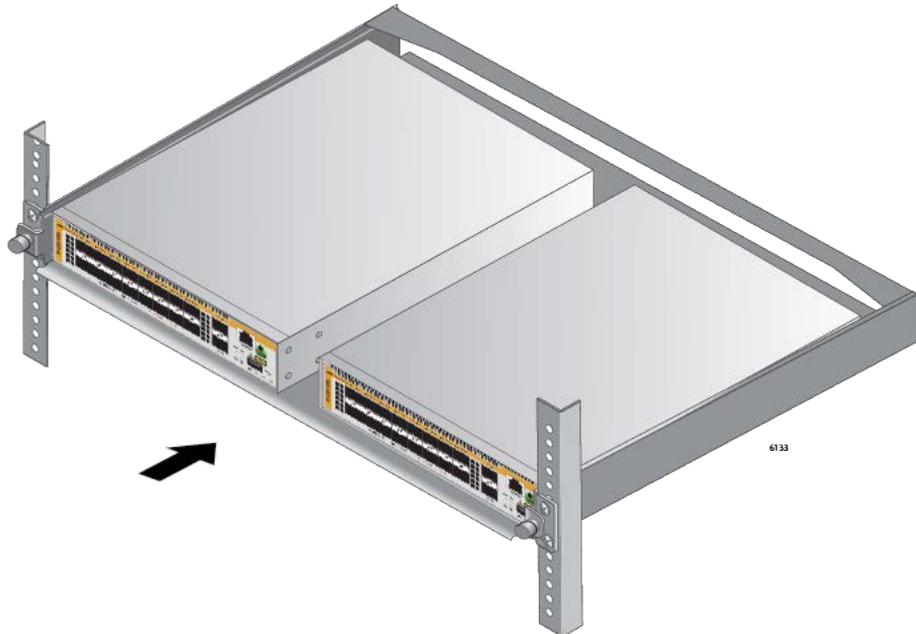
Figure 37. Sliding in the RKMT-J15 Tray

12. Tighten the two thumbscrews to secure the tray to the equipment rack. See Figure 38.

Figure 38. Tightening the Thumbscrews on the RKMT-J15 Rack Mount

13. Go to Chapter 11, "Cabling the Networking Ports" on page 129.

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

Guidelines Here is a list of guidelines for installing the x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm switches on an equipment rack:

❐ Before installing the switch, review the information and perform the procedures in Chapter 3, "Beginning the Installation" on page 41.

❐ You must install the switch with its front panel level with the front of the equipment rack as shown in Figure 39.

Figure 39. Correct Switch Orientation in an Equipment Rack

Rack Hole Locations See Figure 40 for identifying the holes for the brackets on the switch.

Holes for Rack Mount Brackets
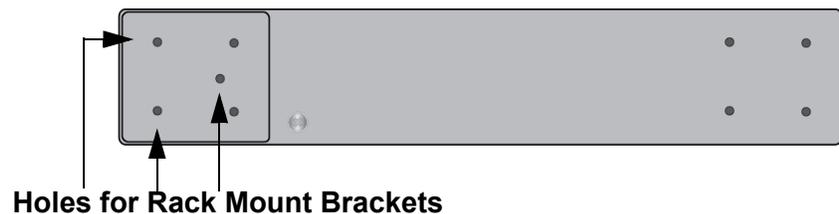
Figure 40. Holes for the Brackets on the x250-28XS, SE250-28XS, x250-28XTm and SE250-28XTm Switches

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

- ❐   Two equipment rack brackets (included with the switch)
- ❐   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 42 and "Choosing a Site for the Chassis" on page 46.

⚠️ **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 59.

4. Attach the rack mount brackets to the sides of the switch in the selected positions as shown in n Figure 41.

    Figure 41 shows the installation of the brackets so that the front panel is even with the front of the equipment rack.

5. Tighten the six M4x8 mm screws to attach the rack mount brackets to the switch. See Figure 41.
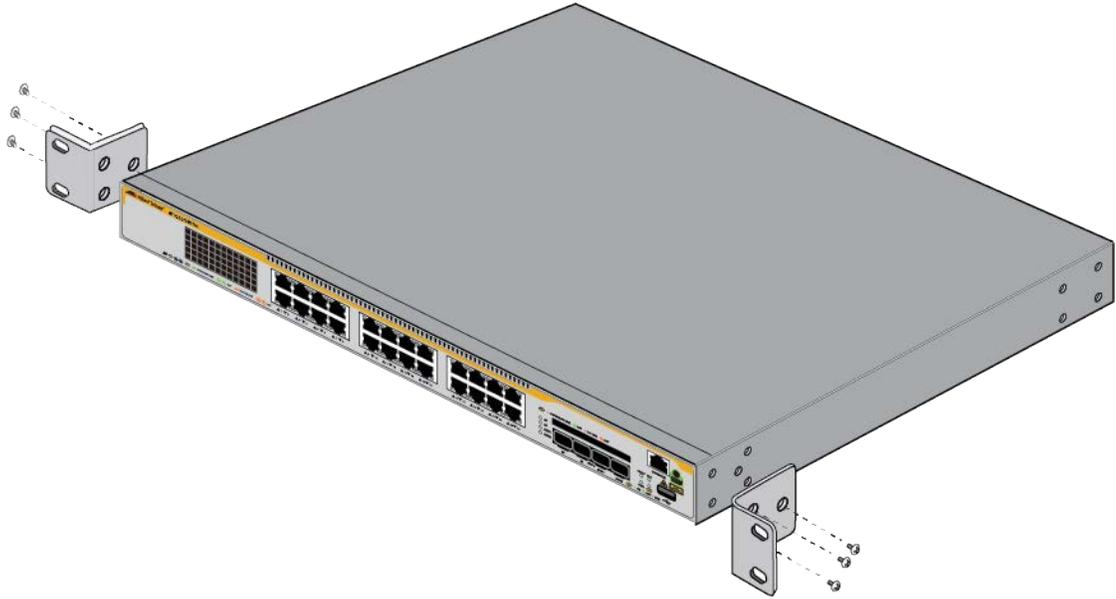
Figure 41. Attaching the Rack Mount Brackets

6. Have another person hold the switch in the equipment rack while you secure it using standard equipment rack screws (not provided). See Figure 42 on page 74.
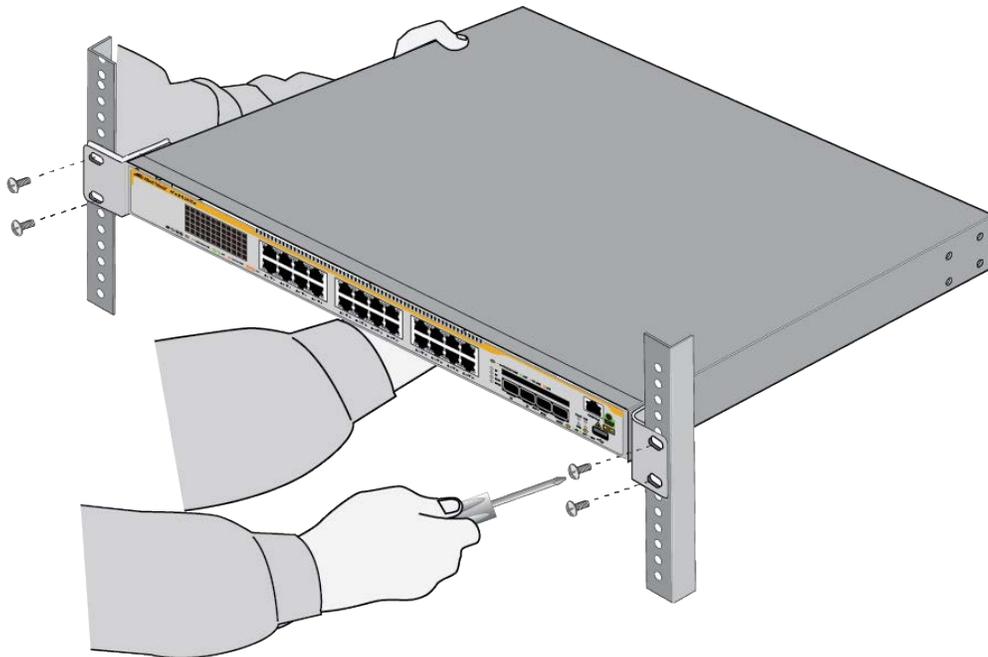
Figure 42. Installing the Switch in an Equipment Rack

Chapter 6

Installing the Switch on a Wall

The procedures in this chapter are listed here:

Overview of Installing the Switch on a Wall

The x250 series and SE250 series switches require BRKT-J24 wall mount brackets to be installed on a wall.

Installation Guidelines

Here are the guidelines to 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, you should use a plywood base to support the switch. For more information, refer to "Plywood Base for a Wall with Wooden Studs" on page 80. A plywood base is not required for a concrete wall.

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

❒ You should 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 attached to the wall, as shown in Figure 43 on page 77. Do not install it with the front panel on the top or bottom.

Figure 43. Correct Orientations of the Switch on the Wall

Guidelines for Bracket Holes

To install the switch on a wall, you need the BRKT-J24 wall mount brackets. Here is a list of guidelines for 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 44 on page 78.
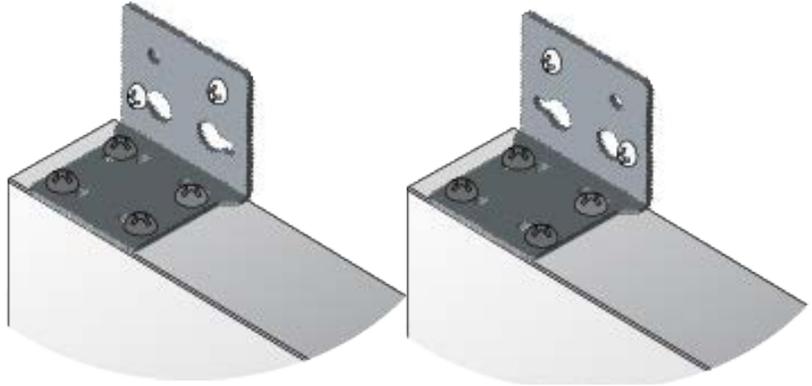
Figure 44. Two Screws Per Bracket Attached on the Wall

❐ 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 45.
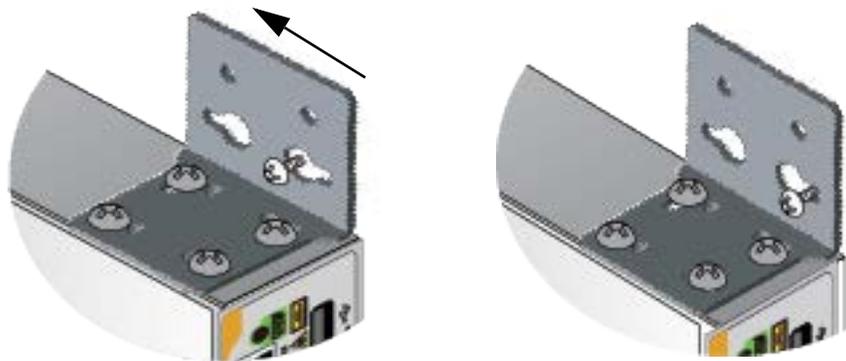
Figure 45. Sliding the Key-hole Slot under the Screw Head

Unpacking the BRKT-J24 Wall Mount Bracket Kit

To install the switch on a wall, you must have the BRKT-J24 wall mount bracket kit. Here are guidelines:

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

Unpacking the BRKT-J24 Bracket Kit

Unpack the BRKT-J24 brackets 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.   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.

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 46.

Wall Studs
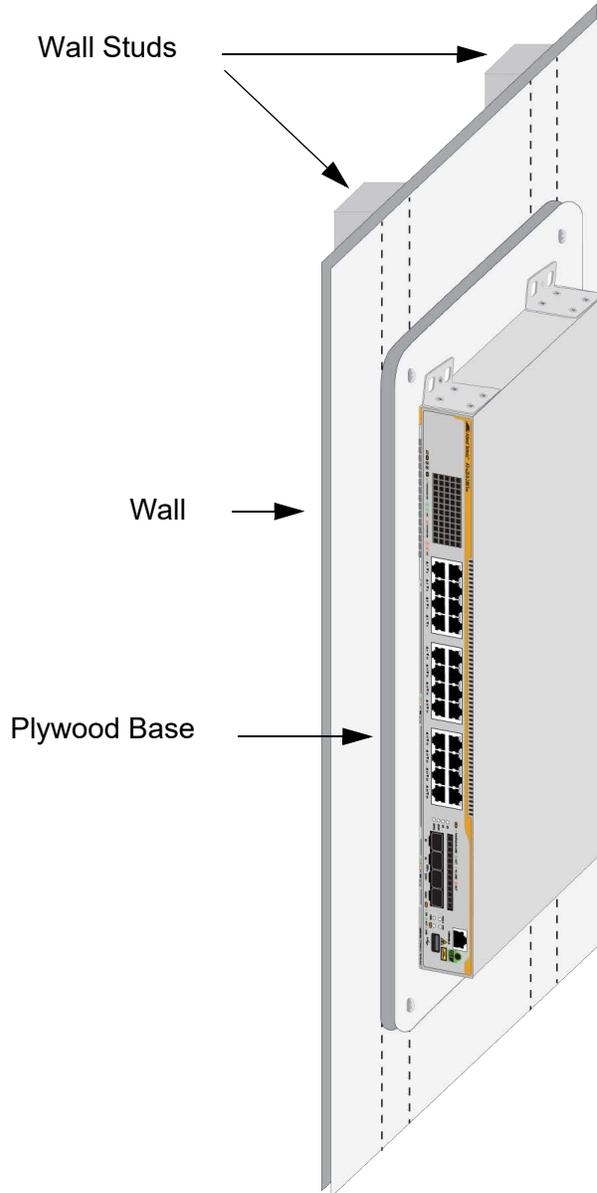
Wall

Plywood Base

Figure 46. 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 47.

Wall Studs

Wall

Plywood Base

3723

Step 1: Install the plywood base on the wall.

Step 2: Install the switch on the plywood base.
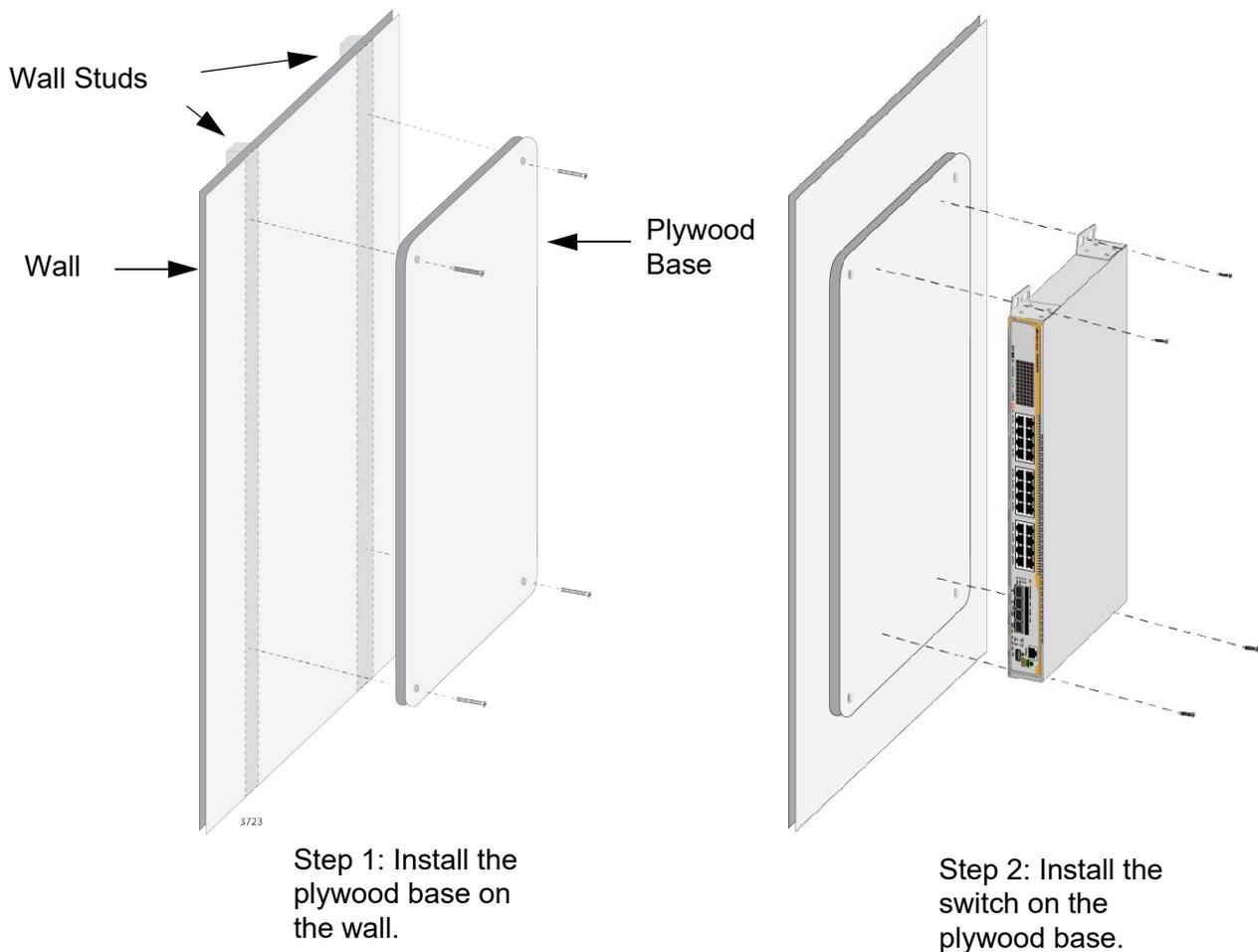
Figure 47. Steps to Installing the Switch with a Plywood Base

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 9 on page 47.

❒   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 80 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. ➥ 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 80.

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 46.

Installing the Switch on a Wall

If you plan to install your switch on the plywood base, go to "Plywood Base for a Wall with Wooden Studs" on page 80 before installing the switch.

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

1. See "Reviewing Safety Precautions" on page 42.

2. See "Choosing a Site for the Chassis" on page 46.

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 59.

5. Install the four BRKT-J24 brackets with the 16 screws that come with the switch to the sides of the unit.

    See Figure 48 and Figure 49 on page 84 for examples.
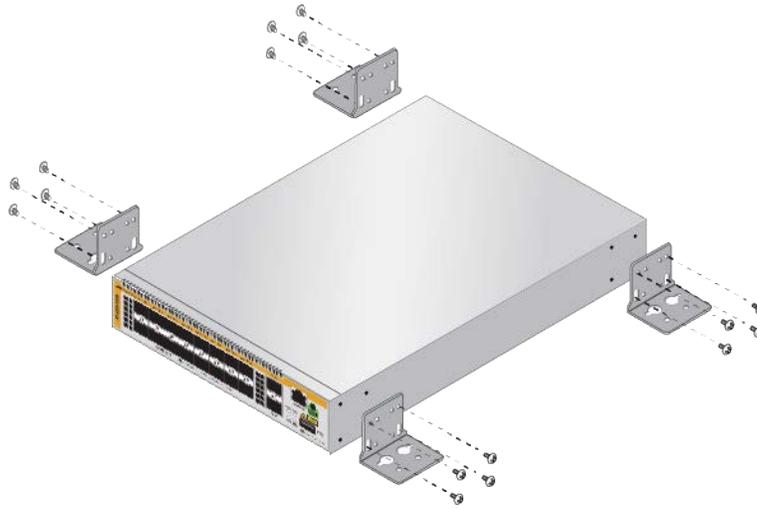
Figure 48. Installing the BRKT-J24 Brackets to the x250-18XS Switch
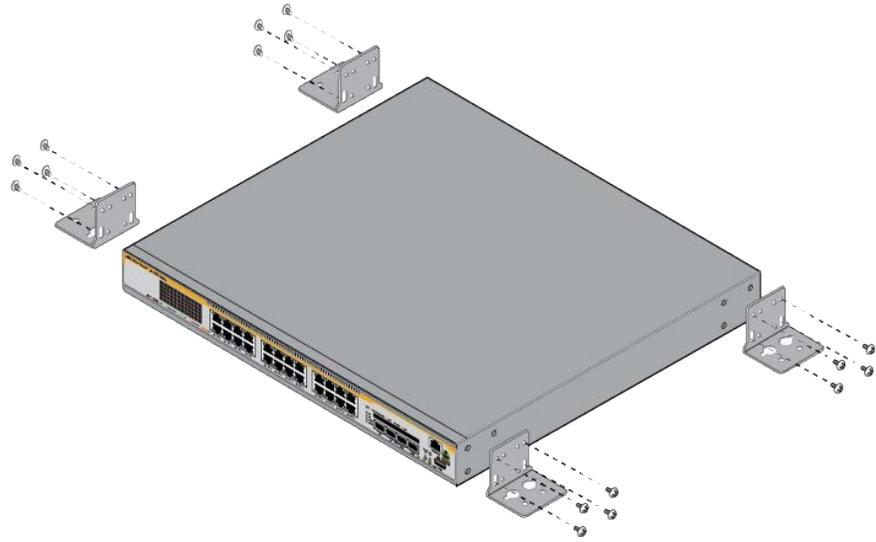
Figure 49. Installing the BRKT-J24 Brackets to the x250-28XTm Switch

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 50.
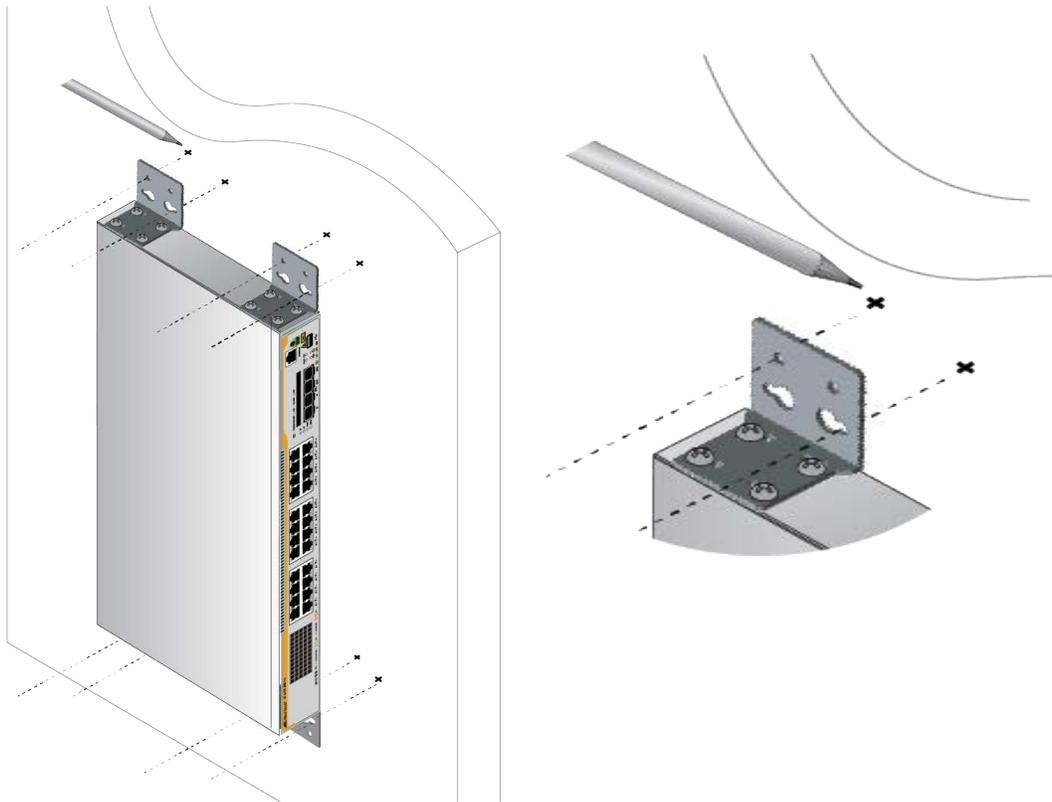
Figure 50. Marking the Holes on the Wall

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 51 on page 85.
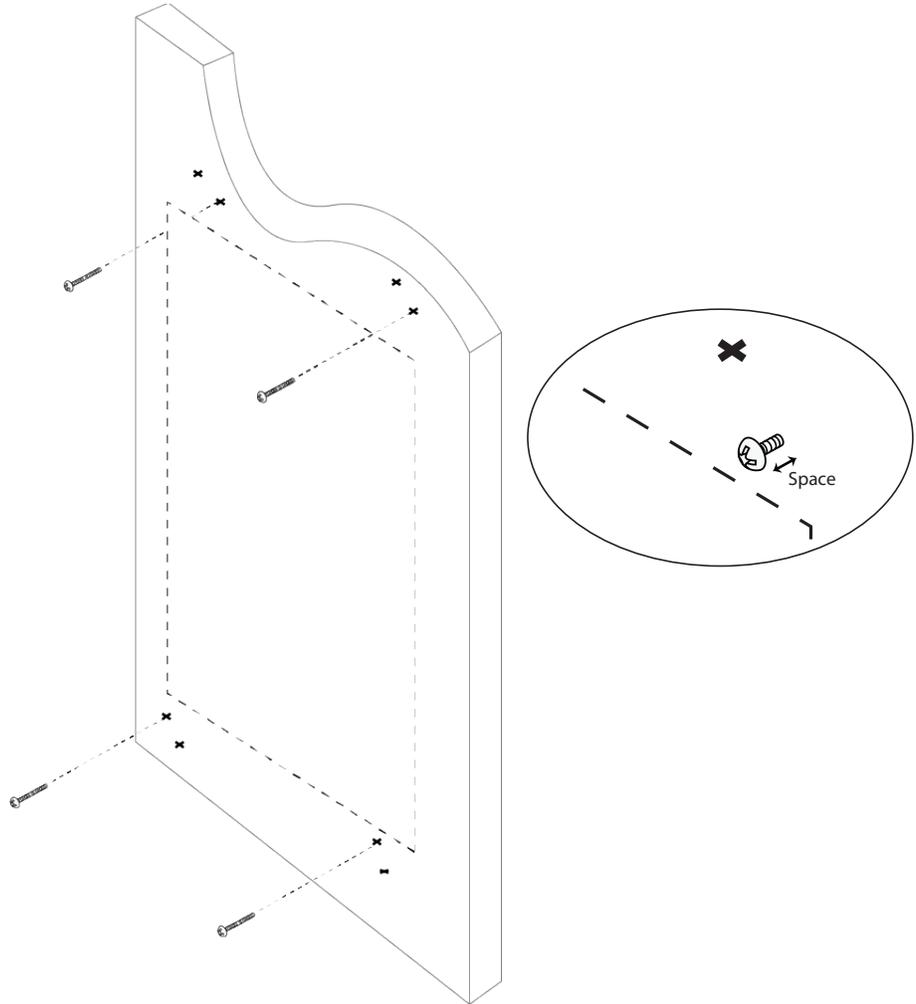
Figure 51. Screwing Four Screws on the Wall

9.   Install the brackets on the screws by sliding the key-hole slots under the screw heads.See Figure 52 on page 86.
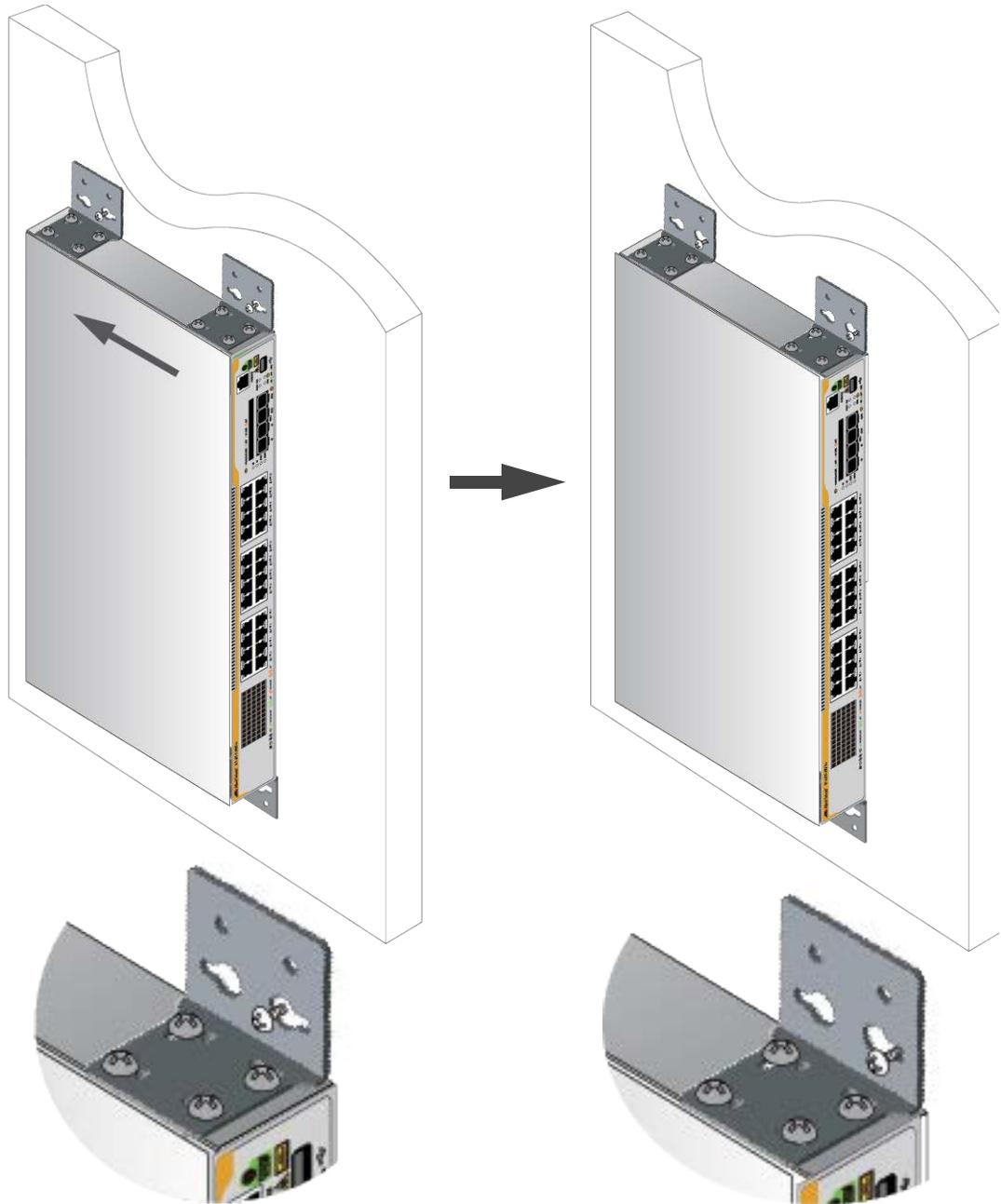
Figure 52. Hooking and Slide the Switch

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 53 on page 87.
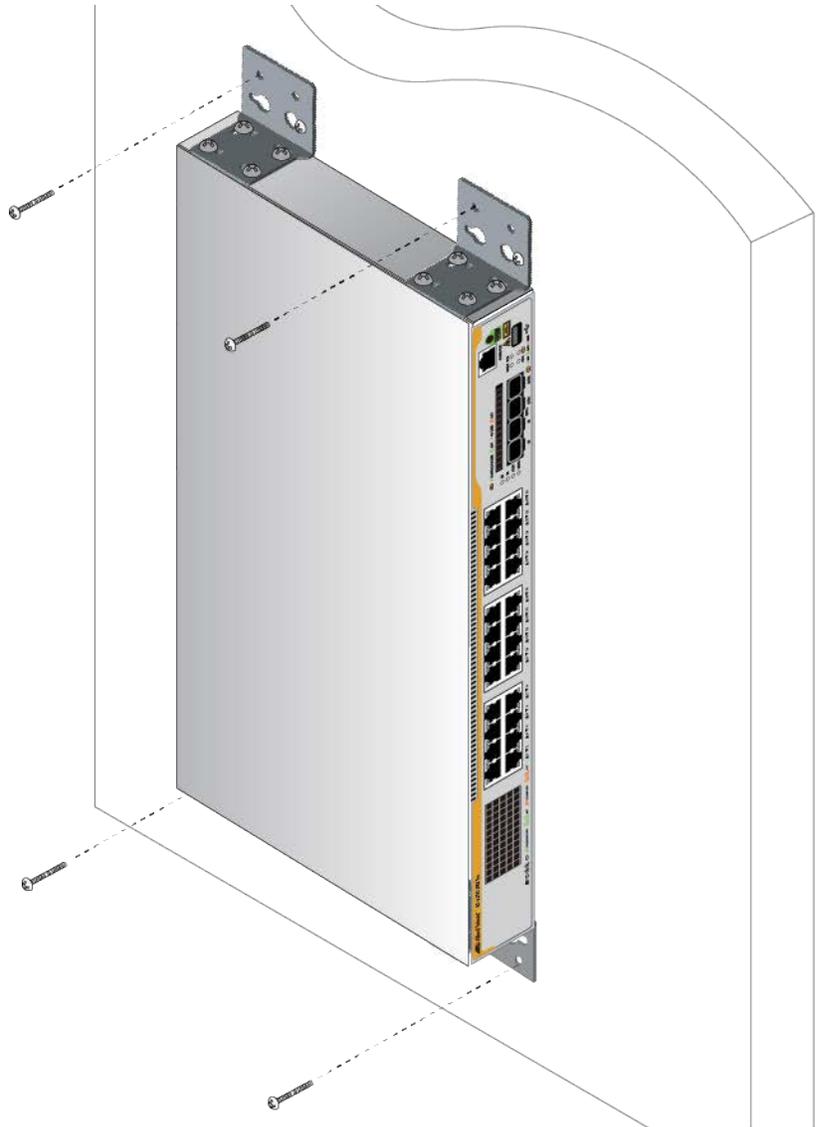
Figure 53. Screwing the Rest of the Screws

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 four brackets with sixteen screws that come with the BRKT-J24 brackets to the sides of the switch, as shown in Figure 48 on page 83 and Figure 49 on page 84.

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. See Figure 54.
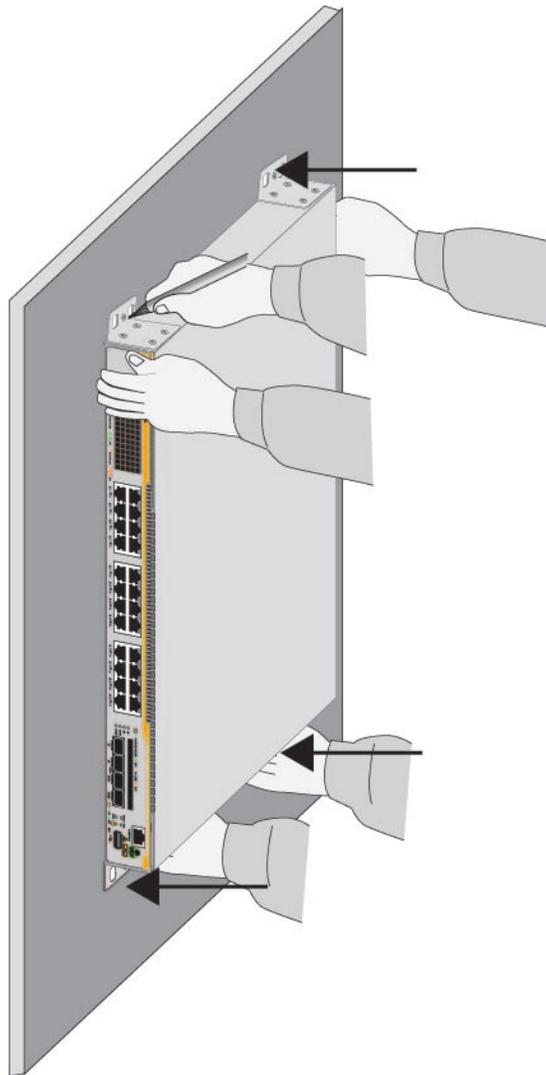
Figure 54. Marking the Locations of the Bracket Holes on a Concrete Wall

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. See Figure 55.
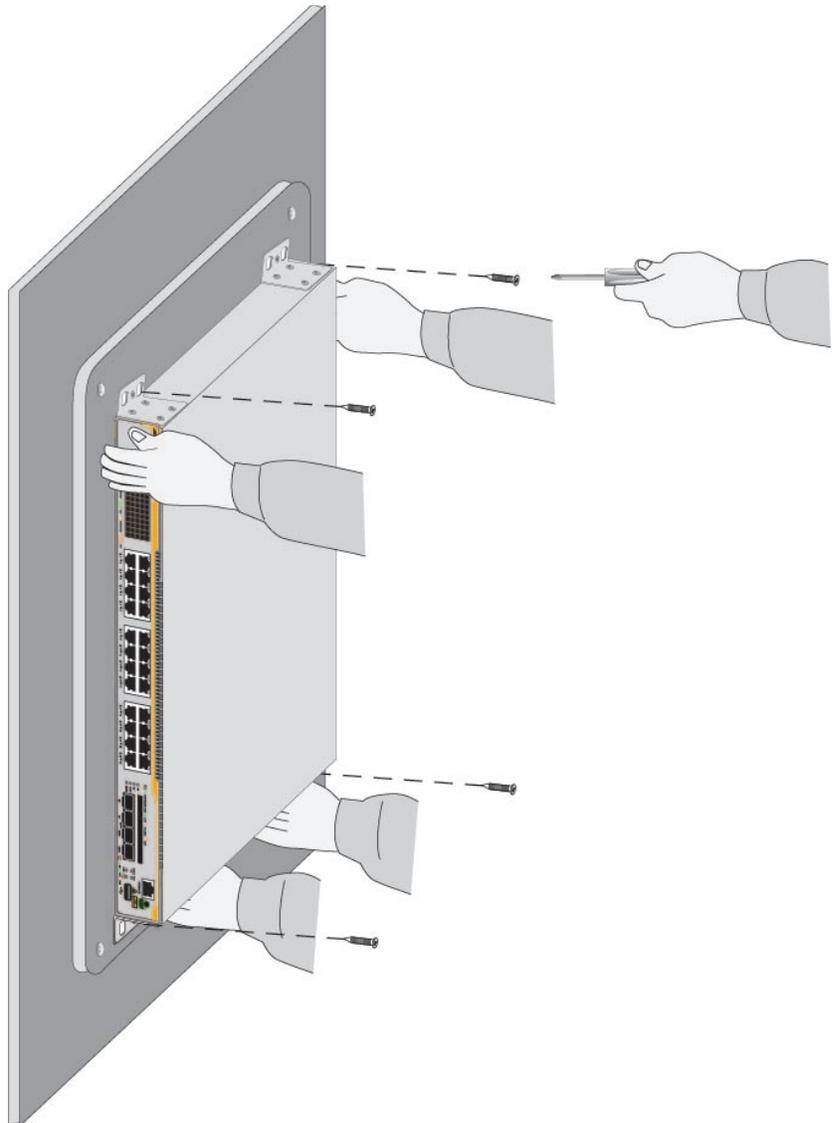
Figure 55. Installing the Switch on a Concrete Wall

Chapter 7

Configuring the Master Switch

This chapter contains the following sections:

Note
This chapter applies only to the x250 series switches.

Overview of Stack Ports

The x250 series switch has the Virtual Chassis Stacking (VCStack) feature that you can build a stack trunk. Any twisted-pair ports or the ports marked S1 and S2 can be used for VCStack.

Guidelines to the Stack Ports:

Here is a list of guidelines to the stack ports:

❑ Any two twisted-pair ports on the x250 series switch can be stack trunk ports.

❑ The SFP/SFP+ slots marked S1 and S2 can be stack ports.

See the x250-28XTm switch in Figure 56 as an example. Port 27 is marked as S1; Port 28 is marked as S2.
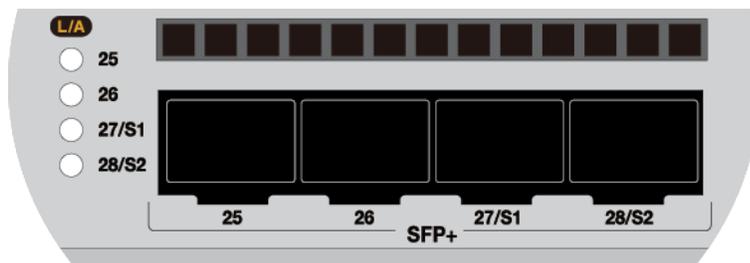
Figure 56. Ports S1 and S2

❑ Ports S1 and S2 can be used either as stack ports or for SFP/SFP+ transceivers.

❑ S1 and S2 are identified as ports for VCStack; however, you must use port numbers to identify ports when you refer them on command lines. For example:

```
awplus(config)# interface port1.0.27-1.0.28
```

❑ Table 15 shows the port numbers of stack ports on each model.

Table 15. Stacking Ports on the x250 Series Switches

	Stack Ports	
	S1	**S2**
x250-18XS	Port 17	Port 18
x250-18XTm	Port 17	Port 18
x250-28XS	Port 27	Port 28
x250-28XTm	Port 27	Port 28

Command Summary

The following sections briefly describe the commands for configuring the master and adding a member switch for stacking. For further instructions, see documents for *AlliedWare Plus Operating System*. After reviewing the commands, go to "General Steps for the Master Switch" on page 96 to begin the configuration procedures.

PLATFORM PORTMODE INTERFACE

This command is used to configure ports S1 and S2 on the switch for the SFP/SFP+ transceiver.

Allied Telesis recommends configuring these ports during the initial configuration process even if they will not be used for the stack trunk.

The command format is shown here:

```
platform portmode interface ports speed
```

The variables are defined here:

❐ The *ports* variable specifies the ports to be configured. The values are port*n*.0.27 or port*n*.0.28. The "*n*" variable is the switch's ID. You can configure more than one port at a time.

❐ The *speed* parameter configures ports for a speed such as 10g.

This example configures ports 27 and 28 for 10Gbps SFP+ transceivers:

```
awplus(config)# platform portmode interface
port1.0.27,port1.0.28 10g
```

For background information on port numbering, refer to "Designating Ports in the Command Line Interface" on page 26.

STACKPORT

You use this command to designate the ports of the stack trunk. The command has to be performed after you have enabled the stacking feature with the STACK ENABLE command. Additionally, it has to be performed from the Interface mode of the selected ports. In this example, ports 27 and 28 on the switch are designated as ports of the stack trunk:

```
awplus(config)# interface port1.0.27-1.0.28
awplus(config-if)# stackport
```

The command for removing the stacking function from ports is the NO STACKPORT command. You might perform the command if you assign the stacking function to the wrong ports or decide to change the trunk ports. Like the STACKPORT command, it has to be performed from the Interface mode, This example removes the stacking function from ports 27 and 28:

```
awplus(config)# interface port1.0.27,port1.0.28
awplus(config-if)# no stackport
```

As explained in "Designating Ports in the Command Line Interface" on page 26, you need to adjust the PORT parameter depending on the ID number of the switch. This example designates ports 17 and 18 as the trunk ports on a switch with the ID number 2:

```
awplus(config)# interface port2.0.17,port2.0.18
awplus(config-if)# stackport
```

STACK ENABLE

This command, which is located in the Global Configuration mode, is used to activate the VCStack feature. Activating the VCStack feature requires resetting the switch. You must perform this command before designating the ports of the stack trunk with the STACKPORT command. Here is the command:

```
awplus(config)# stack enable
```

To disable the stacking function from a switch, use the NO STACK ENABLE command. The format of the command, which is in the Global Configuration mode, is shown here:

```
no stack switch_ID enable
```

The variable is defined here:

❑ *switch_ID* - This is the ID number of a switch. The ID numbercan be found using the SHOW STACK command.

This example disables the stacking function on the switch with ID 2:

```
awplus(config)# no stack 2 enable
```

STACK PRIORITY

This command is used to assign priority numbers to switches.Switches use the numbers to select the master switch. The lower the number the higher the priority. The unit with the lowest number becomes the master. If they have the same priority value, they use their MAC addresses to determine the master. As with priority numbers, the lower the MAC address, the higher the priority. A switch can have only one priority number.

Allied Telesis recommends making a switch's priority and ID numbers the same. This is not required, but it can make managing and troubleshooting a stack easier.

The format of the command, which is in the Global Configuration mode, is shown here:

```
stack switch_ID priority priority_number
```

The variables are defined here:

- ❒ *switch_ID* - This is the ID number of the switch. The ID number can be 1 or 2. You can specify only one ID number.

- ❒ *priority_number* - This is the new priority number for the switch. You can specify only one number. The range is 0 to 255. The default is 128.

This example assigns the priority 1 to the switch with ID 1:

```
awplus(config)# stack 1 priority 1
```

STACK RENUMBER

Every switch in a stack has to have a unique ID number assigned with this command. Here is the format.

```
stack current_switch_ID renumber new_switch_ID
```

The variables are defined here:

- ❒ *current_switch_ID* - This is the current ID number of the switch. You can specify only one ID number.

- ❒ *new_switch_ID* - This is the new ID number for the switch. You can specify only one number. The switch ID number can be 1 or 2. The default is 1.

Changing the ID number requires resetting the switch.

This example changes the switch's ID from the default 1 to 2:

```
awplus(config)# stack 1 renumber 2
```

SWITCH PROVISION

To ensure that the first power-on of the stack is successful, Allied Telesis recommends configuring the units such that each unit knows about the others prior to forming the stack. This involves using the SWITCH PROVISION command to add the switches as provisioned units on all the devices. Here is the format of the command:

```
switch switch_ID provision switch_name
```

This example adds a provisioned switch with the ID 2 to the current x250-28xtm switch:

```
awplus(config)# switch 2 provision x250-28xtm
```

General Steps for the Master Switch

The procedure for configuring the master switch is divided into two parts. Here are the general steps to "Configuring the Master Switch - Part I" on page 98.

Note

The procedures require reseting the switch. Some network traffic will be lost if the unit is already connected to an active network.

---

1. Power on the switch.

    See "Powering on the Switch" on page 124.

2. Start a local management session on the switch.

    See "Starting a Local Management Session" on page 126.

3. Verify the hardware with the SHOW SYSTEM ENVIRONMENT command in the Privilege Exec mode.

4. Display the firmware version number with the SHOW VERSION command.

5. Enable the VCStack feature with the STACK ENABLE command in the Global Configuration mode.

6. Assign the master switch the priority 1 with the STACK PRIORITY command in the Global Configuration mode.

    This is to ensure that it acts as the master switch during the first power-on of the stack.

7. Add the member switches as provisioned units to the master switch, with the SWITCH PROVISION command.

    This step is to ensure that the master switch knows about the member switch during the first power-on of the stack.

8. Save your changes with the WRITE command in the Privilege Exec mode.

9. Reboot the switch with the REBOOT command.

Here are the general steps to "Configuring the Master Switch - Part II" on page 101:

1. Start a new local management session.

2. Designate the types of transceivers to be used in ports S1 and S2 on the switch with the PLATFORM PORTMODE INTERFACE command, on the master and provisioned member switch.

   Allied Telesis recommends performing this task at this time even if you are not using those ports as the stack trunk.

3. Designate the ports of the stack trunk on the master and provisioned member switches with the STACKPORT command in the port Interface mode.

4. Save your changes with the WRITE command in the Privilege Exec mode.

5. Reboot the switch with the REBOOT command.

6. Verify the changes with the SHOW STACK and SHOW RUNNING-CONFIG commands.

Configuring the Master Switch - Part I

This section contains Part I for configuring the master switch for stacking. In this procedure, you do the following:

❒ Verify the hardware status with the SHOW SYSTEM ENVIRONMENT command.

❒ Display the firmware version number with the SHOW VERSION command.

❒ Enable VCStack with the STACK ENABLE command.

❒ Assign the master switch the priority 1 with the STACK PRIORITY command in the Global Configuration mode.

❒ Add the member switches as provisioned switches with the SWITCH PROVISION command.

❒ Save the configuration and reboot the switch with the WRITE and REBOOT commands.

Allied Telesis recommends filling out the worksheet in "Stacking Worksheet" on page 38 before performing this procedure.

To configure the master switch, perform the procedure in Table 16.

Table 16. Configuring the Master Switch - Part I

Step	Description and Command
Steps 1 to 4 power on the switch, start a local management session, and verify the hardware operations of the unit.	
1	Power on the master switch and wait two minutes for it to initialize the management software. Refer to "General Steps for the Master Switch" on page 96.
2	Start a local management session. Refer to "General Steps for the Master Switch" on page 96.
3	Move to the Privileged Exec mode with the ENABLE command. `awplus> enable`

Table 16. Configuring the Master Switch - Part I (Continued)

Step	Description and Command

4	Verify that the switch hardware is operating correctly with the SHOW SYSTEM ENVIRONMENT command. The status of all components should be Ok.
	
	`awplus# show system environment`
	`Environment Monitoring Status`
	
	`Overall Status: Normal`
	
	`Resource ID: 1 Name: PSU Bay A (AT-PWR600)`
	`ID Sensor (Units)        Reading    Low Limit  High Limit    Status`
	`1  Device Present         Yes        -          -           Ok`
	`2  Fan/Temperature Fault  Yes        -          -           Ok`
	`.`
	`.`

	Step 5 displays the version number of the AlliedWare Plus operating software on the switch. After viewing the version numbers on all the switches, you will compare them to confirm they all have the same version. Switches with different versions will have to be updated.
5	Display the version number of the AlliedWare Plus operating software on the switch by entering the SHOW VERSION command and write it down in the worksheet in "Stacking Worksheet" on page 38 for the master switch. `awplus# show version`
	Steps 6 to 8 activate VCStack on the switch and assign it the priority 1 so that it becomes the master switch when the stack is powered on for the first time.

6	Move to the Global Configuration mode with the CONFIGURE TERMINAL command.
	
	`awplus# configure terminal`
	`Enter configuration commands, one per line. End with CNTL/Z.`

7	Activate VCStack on the switch with the STACK ENABLE command.
	
	`awplus(config)# stack enable`
	`% Automatically enabling 'stack virtual-mac' to minimize disruption form failovers.`
	`% Please check that the new MAC 0000.cd37.0431 is unique within the network.`
	`% Save the config and restart the system for this change to take effect.`

8	Assign priority 1 to the switch with the STACK PRIORITY to ensure that it is selected as the master switch during the first power-on of the stack.
	
	`awplus(config)# stack 1 priority 1`
	`% Warning: Stacking is currently disabled.`

Table 16. Configuring the Master Switch - Part I (Continued)

Step	Description and Command
Step 9 adds the member switch as a provisioned switch to the master switch.	
9	Add the member switch as a provisioned switch to the master switch, with the SWITCH PROVISION command. Assign ID 2. The x250-28XTm switch can have only one member switch. `awplus(config)# switch 2 provision x250-28xtm`
Steps 10 to 15 save your changes and reboot the switch.	
10	Return to the Privileged Exec mode. `awplus(config)# exit`

11	Enter the WRITE command to save your change. If this is the first management session, the switch adds the configuration file DEFAULT.CFG to flash memory.
	
	`awplus# write`
	`Building configuration ...`
	`[OK]`

12	Restart the switch with the REBOOT command.
	
	`awplus# reboot`
	`reboot system? (y/n):`
	`awplus#`

13	Type "Y" for yes.
14	Wait two minutes for the switch to initialize its management software.

Configuring the Master Switch - Part II

This section contains Part II for configuring the master switch. In this procedure, you do the following:

❑ Designate the types of transceivers to be used in ports S1 and S2 for the x250 series switch on the master and a provisioned member switch.

❑ Designate the trunk ports.

To perform Part II, perform the procedure in Table 17.

Table 17. Configuring the Master Switch- Part II

Step	Description and Command
1	Start a new local management session. Refer to "General Steps for the Master Switch" on page 96.
2	Move to the Privileged Exec mode with the ENABLE command. `awplus> enable`

3	Move to the Global Configuration mode with the CONFIGURE TERMINAL command.
	
	`awplus# configure terminal`
	`Enter configuration commands, one per line. End with CNTL/Z.`

Steps 4 designates the types of transceivers to be used in ports 27(S1) and 28(S2) on the master switch. The ports support 10Gbps SFP+ transceivers,	
4	Designate the types of transceivers to be used in ports 27(S1) and 28(S2) on the master switch with the PLATFORM PORTMODE INTERFACE command in the Global Configuration mode. For more information, refer to "SFP/SFP+ Transceiver Slots" on page 22 and "PLATFORM PORTMODE INTERFACE" on page 93. This example configures ports 27 and 28 for 10Gbps transceivers on the master switch: `awplus(config)# platform portmode interface port1.0.27-1.0.28 10g`
Steps 5 to 7 designate the stack ports on the master switch with the STACKPORT command.	
5	Enter the port Interface modes of the ports that will be the stack trunk on the master switch. This example assumes the master switch will use ports 27(S1) and 28(S2) as the stack trunk. Be sure to modify the command to specify the ports for your stack trunk. `awplus(config)# interface port1.0.27-1.0.28`

Table 17. Configuring the Master Switch- Part II (Continued)

Step	Description and Command

6	Designate the ports as trunk ports with the STACKPORT command.
	
	`awplus(config-if)# stackport`
	`% Save the config and restart the system for this change to take effect.`

7	Return to the Global Configuration mode. `awplus(config-if)# exit`
Steps 8 designates the types of transceivers to be used in ports 27(S1) and 28(S2) on the provisioned member switches.	
8	Configure ports27(S1) and 28(S2) on the provisioned member switches for the appropriate transceivers, with the PLATFORM PORTMODE INTERFACE command. For more information, refer to "SFP/SFP+ Transceiver Slots" on page 22 and "PLATFORM PORTMODE INTERFACE" on page 93. The x250-28XTm switch can have only one member switch. `awplus(config)# platform portmode interface port2.0.27-2.0.28 10g`
Steps 9 and 10 designate the stack ports on the provisioned switches with the STACKPORT command.	
9	Enter the port Interface modes of the ports that will be the stack trunk on the provisioned member switches. This example assumes the stack will have three member switches and the stack ports are 33 and 37. Be sure to modify the command to specify the ports for your stack trunk. `awplus(config)# interface port2.0.27-2.0.28`

10	Designate the ports as trunk ports with the STACKPORT command.
	
	`awplus(config-if)# stackport`
	`% Save the config and restart the system for this change to take effect.`

Steps 11 to 17 save your changes and reboot the switch.	
11	Return to the Global Configuration mode. `awplus(config-if)# exit`
12	Return to the Privileged Exec mode. `awplus(config)# exit`

Table 17. Configuring the Master Switch- Part II (Continued)

Step	Description and Command

13	Enter the WRITE command to save your change.
	
	`awplus# write`
	`Building configuration ...`
	`[OK]`

14	Restart the switch with the REBOOT command.
	
	`awplus# reboot`
	`reboot system? (y/n):`
	`awplus#`

15	Type "Y" for yes.
16	Wait two minutes for the switch to initialize its management software.
17	Go to "Verifying the Master Switch" on page 104.

Verifying the Master Switch

Perform the steps in Table 18 to confirm the configuration of the master switch.

Table 18. Verifying the Master Switch

Step	Description and Command
1	Start a new local management session.
2	Move to the Privileged Exec mode with the ENABLE command. `awplus> enable`

3	Enter the SHOW STACK command. Here is an example for a stack of four switches:
	
	```awplus# show stack``` `Virtual Chassis Stacking summary information`
	
	`ID Pending ID  MAC address       Priority  Status   Role`
	`1  -           e01a.ba56.c208    1         Ready    Active Master`
	`2  -           -                 -         -        Provisioned`
	`3  -           -                 -         -        Provisioned`
	`4  -           -                 -         -        Provisioned`
	
	`Operational Status              Standalone unit`
	`Stack MAC address               0000.ab56.d4a8 (Virtual MAC)`

4	Verify the display for the following: - The table should have one entry for the master switch (ID 1). - The table should have one entry for each provisioned member switch (IDs 2 to 8). If the table is missing a member switch, repeat the SWITCH PROVISION command in "Configuring the Master Switch - Part I" on page 98. - The master switch should have the priority 1. If the priority number is incorrect, repeat the STACK PRIORITY command in "Configuring the Master Switch - Part I" on page 98. - The Operational Status should be Standalone Unit, indicating that stacking is enabled and that the unit is operating as a stack of one switch. If the status is Stacking Hardware Disabled, the stacking feature is disabled and needs to be enabled. Repeat the STACK ENABLE command in "Configuring the Master Switch - Part I" on page 98. - Always remember to perform the WRITE command to save your configuration changes.

Table 18. Verifying the Master Switch (Continued)

Step	Description and Command

5	Enter the SHOW RUNNING-CONFIG command and verify the following:
	
	- Check the running configuration for SWITCH PROVISION commands. There should be one command for each switch and the commands should designated x250-28XTm switches. Here are examples for a stack of two switches:
	
	`switch 1 provision x250-28`
	`switch 2 provision x250-28`
	
	- Check the running configuration for STACKPORT commands. There should be one command for each switch and the commands should designate the trunk ports. Here are examples:
	
	`.`
	`interface port1.0.27-1.0.28`
	` stackport`
	`.`
	`interface port2.0.27-2.0.28`
	` stackport`
	`.`

6	Go to "What to Do Next" on page 106.

What to Do Next

After configuring the master switch, do the following:

1. Power off the switch by performing the following:
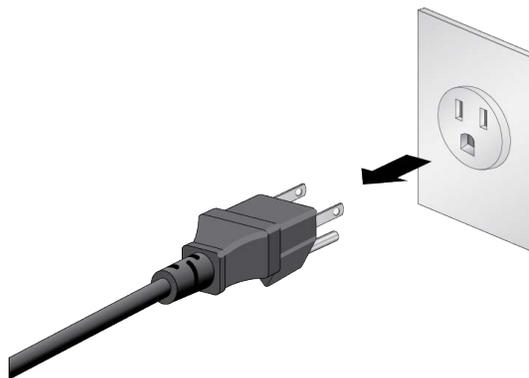
Figure 57. Powering Off the AC Power Supply

2. Configure the member switches, as explained in Chapter 8, "Configuring Member Switches" on page 107.

3. After configuring the master and member switches, verify that all the units are powered off.

4. Cable the ports of the stack trunk. Refer to Chapter 11, "Cabling the Networking Ports" on page 129.

5. Power on the switches of the stack. Refer to "Powering on the Stack" on page 120.

6. Verify that the switches formed the stack. Refer to "Verifying the Stack" on page 121.

7. Cable the networking ports. Refer to Chapter 11, "Cabling the Networking Ports" on page 129.

Chapter 8

Configuring Member Switches

This chapter contains the following sections:

Note
This chapter applies only to the x250 series switch.

General Steps for Member Switches

The procedure for configuring a member switch is divided into two parts.

Note
The procedures require resetting a member switch twice. Network traffic will be lost if it is already connected to an active network.

Here are the general steps to "Configuring a Member Switch - Part I" on page 110:

1. Start a local management session on a member switch.

2. Verify the hardware with the SHOW SYSTEM ENVIRONMENT command in the Privilege Exec mode.

3. Enable the VCStack feature with the STACK ENABLE command in the Global Configuration mode.

4. Assign the member switch its ID number 2, with the STACK RENUMBER command in the Global Configuration mode.

5. Save your changes with the WRITE command in the Privilege Exec mode.

6. Restart the switch with the REBOOT command.

Here are the general steps to "Configuring a Member Switch - Part II" on page 113:

1. Start a new local management session.

2. Change the switch's priority number to match its ID number, with the STACK PRIORITY command in the Global Configuration mode.

3. Specify the types of transceivers to be used in slots S1 and S2 for the x250 series switch on the master and member switch with the PLATFORM PORTMODE INTERFACE command.

4. Designate the ports of the stack trunk on the master and member switches with the STACKPORT command in the port Interface mode.

5. Save your changes with the WRITE command in the Privilege Exec mode.

6. Restart the switch with the REBOOT command.

7. Start a new local management session.

8. Verify the changes with the
   SHOW STACK and SHOW RUNNING-CONFIG command.

Configuring a Member Switch - Part I

The instructions for configuring a member switch are divided into two parts. In Part I you do the following:

□ Display the hardware status with the SHOW SYSTEM ENVIRONMENT command.

□ Display the firmware version number with the SHOW VERSION command.

□ Enable VCStack with the STACK ENABLE command.

□ Set the switch ID number with the STACK RENUMBER command.

□ Add other member switches with the SWITCH PROVISION command.

□ Save the configuration and reboot the switch with the WRITE and REBOOT commands.

Allied Telesis recommends filling out the worksheet in "Stacking Worksheet" on page 38 before performing the procedures.

To configure a member switch, perform the procedure in Table 19.

Table 19. Configuring a Member Switch - Part I

Step	Description and Command
1	Power on the member switch and wait two minutes for it to initialize the management software. Refer to "General Steps for the Master Switch" on page 96.
2	Start a local management session. Refer to "General Steps for the Master Switch" on page 96.
3	Enter the ENABLE command to move from the User Exec mode to the Privileged Exec mode. `awplus> enable`

4	Verify that the switch hardware is operating correctly, with the SHOW SYSTEM ENVIRONMENT command. All components should have a status of Ok.
	
	`awplus# show system environment`
	`Environment Monitoring Status`
	`Overall Status: Normal`
	`Resource ID: 1 Name: PSU Bay A (AT-PWR600)`
	`ID Sensor (Units)       Reading    Low Limit  High Limit   Status`
	`1  Device Present         Yes         -          -          Ok`
	`2  Fan/Temperature Fault  Yes         -          -          Ok`
	`.`

Table 19. Configuring a Member Switch - Part I (Continued)

Step	Description and Command
5	Display the version number of the AlliedWare Plus operating software on the switch by entering the SHOW VERSION command. Write down the version number in the worksheet in "Stacking Worksheet" on page 38. After viewing the version numbers on all the switches, you will compare them to confirm they all have the same version. Switches with different versions will have to be updated. `awplus# show version`

6	Move to the Global Configuration mode with the CONFIGURE TERMINAL command.
	
	`awplus# configure terminal`
	`Enter configuration commands, one per line. End with CNTL/Z.`

7	Activate VCStack on the switch with the STACK ENABLE command.
	
	`awplus(config)# stack enable`
	`% Automatically enabling 'stack virtual-mac' to minimize disruption form failovers.`
	`% Please check that the new MAC 0000.cd37.0431 is unique within the network.`
	`% Save the config and restart the system for this change to take effect.`

8	Assign a ID number 2 to the member switch with the STACK RENUMBER command.
	
	`awplus(config)# stack 1 renumber 2`
	`% Warning: Stacking is currently disabled.`
	`% Warning: the new ID will not become effective until the stack-member reboots.`
	`% Warning: the boot configuration may now be invalid.`

9	Add the member switch as a provisioned switch to the member switch, with the SWITCH PROVISION command.: `awplus(config)# switch 2 provision x250-28`
10	Return to the Privileged Exec mode. `awplus(config)# exit`

11	Enter the WRITE command to save your change. If this is the first management session, the switch adds the configuration file DEFAULT.CFG to flash memory, for storing your configuration changes.
	
	`awplus# write`
	`Building configuration ...`
	`[OK]`

Table 19. Configuring a Member Switch - Part I (Continued)

Step	Description and Command

12	Restart the switch with the REBOOT command.
	
	`awplus# reboot`
	`reboot system? (y/n):`
	`awplus#`

13	Type "Y" for yes.
14	Wait two minutes for the switch to initialize its management software.

Configuring a Member Switch - Part II

This section contains the second part to configuring the member switch. The steps show how to configure the following parameters:

❑ Set the priority number of the switch to match its ID number, with the STACK PRIORITY command.

❑ Specify the types of transceivers to be used in slots S1 and S2 for the x250 series switch on the master and member switch with the PLATFORM PORTMODE INTERFACE command.

❑ Designate the ports of the stack trunk with the STACKPORT command. Refer to "Stack Trunks" on page 32.

To configure a member switch, perform the procedure in Table 20.

Table 20. Configuring a Member Switch - Part II

Step	Description and Command
1	Start a new local management session on the member switch. Refer to "General Steps for the Master Switch" on page 96.
2	Enter the ENABLE command to move from the User Exec mode to the Privileged Exec mode. `awplus> enable`

3	Move to the Global Configuration mode with the CONFIGURE TERMINAL command.
	
	`awplus# configure terminal`
	`Enter configuration commands, one per line. End with CNTL/Z.`

4	Change the switch's priority to match its ID number, with the STACK PRIORITY command. This example sets priority to 2 on a member switch with the ID 2: `awplus(config)# stack 2 priority 2`

5	Specify the types of transceivers to be used in slots S1 and S2 the x250 series switch on the master (port1) and member switch with the PLATFORM PORTMODE INTERFACE command. For more information, see "PLATFORM PORTMODE INTERFACE" on page 93.
	
	This example configures slots S1 and S2 for 10Gbps transceivers on a stack of two switches.
	
	`awplus(config)# platform portmode interface port1.0.27-1.0.28 10g`
	`awplus(config)# platform portmode interface port2.0.27-2.0.28 10g`

Table 20. Configuring a Member Switch - Part II (Continued)

Step	Description and Command
6	Enter the port Interface modes of the ports to be the stack trunk on the master and member switches with the INTERFACE command. The example command here assumes a stack of four switches and that the switches will be using ports S1 and S2 for the stack trunk. Be sure to modify the command for you selected trunk ports. `awplus(config)# interface port1.0.27-1.0.28,port2.0.27-2.0.28`

7	Designate the ports as the stack trunk with the STACKPORT command.
	
	`awplus(config-if)# stackport`
	`% Save the config and restart the system for this change to take`
	`effect.`

8	Return to the Global Configuration mode. `awplus(config-if)# exit`
9	Return to the Privileged Exec mode. `awplus(config)# exit`

10	Save your changes with the WRITE command.
	
	`awplus# write`
	`Building configuration ...`
	`[OK]`

11	Restart the switch.
	
	`awplus# reboot`
	`reboot system? (y/n):`

12	Type "Y" for yes.
13	Wait two minutes for the switch to initialize its management software.
14	Go to "Verifying a Member Switch," next.

Verifying a Member Switch

Perform the steps in Table 21 to confirm the configuration of a member switch.

Table 21. Verifying a Member Switch

Step	Description and Command
1	Start a local management session. Refer to "General Steps for the Master Switch" on page 96.
2	Move to the Privileged Exec mode. `awplus> enable`

3	Enter the SHOW STACK command. The example here is for a member switch with the ID 2, that will be in a stack of four switches:
	
	```awplus# show stack```
	 ```Virtual Chassis Stacking summary information```
	
	 ```ID Pending ID MAC address Priority Status Role```
	 ```1 - - - - Provisioned```
	 ```2 - e01a.ba56.c112 2 Ready Active Master```
	 ```3 - - - - Provisioned```
	 ```4 - - - - Provisioned```
	
	 ```Operational Status Standalone unit```
	 ```Stack MAC address 0000.ab56.478c (Virtual MAC)```

4	Verify the display for the following: - The table should have from two to eight entries, depending on the number of switches to be in the stack. - Switch ID 1 will be for the master switch. - The other entries are for the member switches. There should be one entry for each member switch that will be in the stack. To add more entries, perform the SWITCH PROVISION command in "Configuring a Member Switch - Part I" on page 110. - The entry with the Ready status and Active Master role is the switch you are currently managing. Its role will change to member after the stack is functioning. - The switch's priority should match its ID number. If it does not, perform the STACK PRIORITY command in "Configuring a Member Switch - Part II" on page 113. - The Operational Status should be Standalone Unit. This indicates that stacking is enabled and the unit is operating as a stack of one switch. If the status is Stacking Hardware Disabled, the stacking feature is disabled. Perform the STACK ENABLE in "Configuring a Member Switch - Part I" on page 110. Be sure to save your changes with the WRITE command.

Table 21. Verifying a Member Switch (Continued)

Step	Description and Command

5	Enter the SHOW RUNNING-CONFIG command and verify the following:
	
	- Check the running configuration for SWITCH PROVISION commands. There should be one command for each switch and the commands should designate x250-28XTm switches. Here are examples for a stack of four switches:
	
	`switch 1 provision x250-28`
	`switch 2 provision x250-28`
	
	- Check the running configuration for STACKPORT commands. There should be one command for each switch and the commands should designate the trunk ports. In this example, ports 27 and 28 are designated as the trunk ports:
	
	`.`
	`interface port1.0.27-1.0.28`
	` stackport`
	`.`
	`interface port2.0.27-2.0.28`
	` stackport`
	`.`

6	Go to "What to Do Next," next.

What to Do Next

After configuring a member switch, do the following:

1. Power off the switch. See "Powering off the Switch" on page 128.

2. If you have not already configured the master switch, perform "Configuring the Master Switch - Part I" on page 98.

3. After configuring the master and member switches, verify that all the units are powered off.

4. Cable the stacking ports on the master and member switches. See Chapter 11, "Cabling the Networking Ports" on page 129.

5. Power on the switches of the stack, as explained in "Powering on the Stack" on page 120.

6. Verify that the switches have successfully formed the stack by performing "Verifying the Stack" on page 121.

7. Cable the networking ports, as explained in Chapter 11, "Cabling the Networking Ports" on page 129.

Chapter 9

Powering On and Verifying the Stack

This chapter contains the following sections:

❐ "Powering on the Stack" on page 120
❐ "Verifying the Stack" on page 121

> **Note**
> This chapter applies only to the x250-18XTm and x250-28XTm switches.

Powering on the Stack

After configuring the master and member switches for stacking and cabling the trunk ports, you are ready to power on the stack for the first time. (If you want to monitor the power-on sequence, connect a terminal or PC with a terminal emulator program to the Console port on any of the switches).

To power on the stack for the first time, perform the following procedure:

1. Verify that all switches are powered off.

    Disconnect the AC power cord for the power supply from the AC power source.

2. If you have not already cabled the trunk ports, do so now. See Chapter 11, "Cabling the Networking Ports" on page 129.

3. Power on all the switches at the same time.

    Connect the AC power cord for the power supply from the AC power source.

    See "Power Specifications" on page 148 for the power specifications of the switches.

    ⚠ **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

4. Wait three minutes for the switches to form the stack.

5. Go to "Verifying the Stack" on page 121.

Verifying the Stack

To verify the stack, perform the following procedure:

1. Start a local management session on any switch in the stack. Refer to "General Steps for the Master Switch" on page 96.

2. From the User Exec mode, enter the SHOW STACK command:

    ```
    awplus> show stack
    ```

    An example of the command for a stack of four switches is shown in Figure 58.

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

ID      Pending ID      MAC address       Priority   Status    Role
1       -               e01a:ea20:8011    1          Ready     Active Master
2       -               e01a:ea20:ee45    2          Ready     Member

Operational Status                        Normal operations

Stack MAC address                         0015:774f:ed30
```

Figure 58. SHOW STACK Command

Review the following items:

❒ The command should list all the switches. If the list is incomplete, see Chapter 12, "Troubleshooting" on page 139.

❒ The Operational Status field should be "Normal operations" to indicate that all the trunk ports are operating normally.

❒ If the Operational Status field is displaying "Not all stack ports are up," one or more trunk ports are not being used or cannot establish links with their counterparts. For more information, see Chapter 12, "Troubleshooting" on page 139.

3. Go to Chapter 11, "Cabling the Networking Ports" on page 129, to complete the installation.

Chapter 10
Powering on and Starting the Switch

This chapter contains the following sections:

❒ "Powering on the Switch" on page 124

❒ "Starting a Local Management Session" on page 126

❒ "Powering off the Switch" on page 128

Powering on the Switch

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

Before powering on the chassis, review the information in "Power Specifications" on page 148.

⚠ **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 on the switch, perform the following procedure:

1. Install the power cord retaining clip on the AC power connector on the rear panel of the switch, as shown in Figure 59.
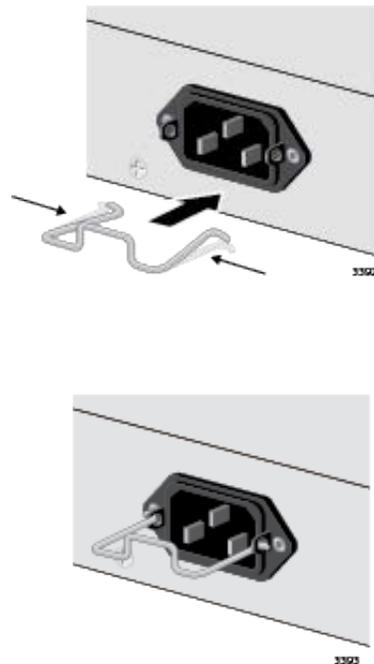
Figure 59. Installing the Power Cord Retaining Clip

2. Connect the AC power cord to the AC power connector on the rear panel. Refer to Figure 60.
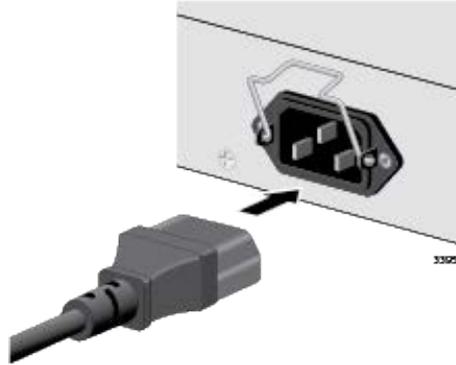
Figure 60. Connecting the AC Power Cord

3. Lower the power cord retaining clip to secure the cord to the switch. Refer to Figure 61.
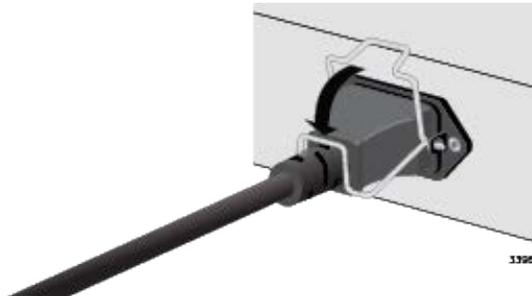
Figure 61. Lowering the Power Cord Retaining Clip

4. Connect the power cord to an appropriate AC power source. Refer to Figure 62 on page 125.

    Note
    The illustration shows the North American power cord. Your power cord may be different.
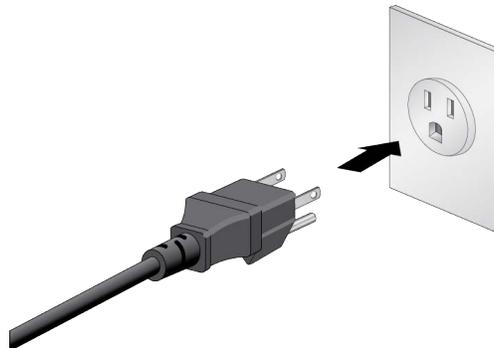
Figure 62. Connecting the Power Cord to an AC Power Source

5. Go to "Starting a Local Management Session" on page 126.

Starting a Local Management Session

This procedure explains how to start a local management session on the switch. It assumes that you powered on 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, or a remote session over your network through the NET MGMT port. 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, refer to the *Software Reference for x250 Switches, AlliedWare Plus Operating System*.

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

1. Connect the RJ-45 end of the management cable to the Console RS-232 port on the management panel. Refer to Figure 63.
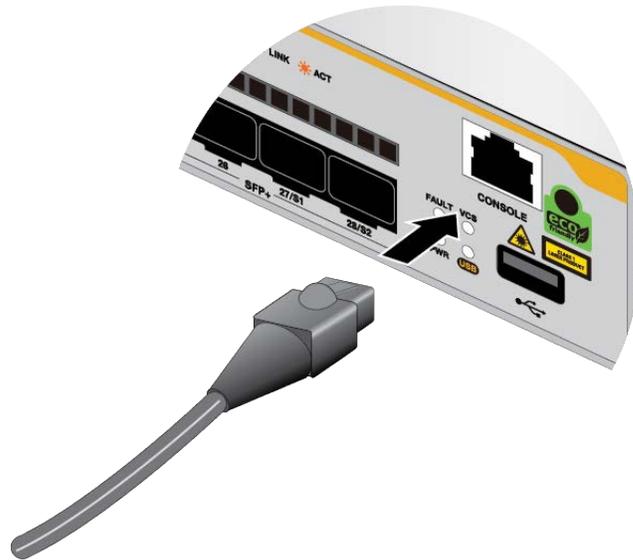
Figure 63. Connecting the Management Cable to the Console RS-232 Port

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 user name and password.

5. Enter the default user name and password. They are "manager" and "friend" (without the quotes), respectively.

    Note
    User names and passwords are case sensitive.

    The local management session starts when the User Exec mode prompt, shown in Figure 64. is displayed.

    ```
    awplus>
    ```

    Figure 64. User Exec Mode Prompt

    Note
    The User Exec mode is the first level in the command mode interface. For complete information on the modes and commands, refer to the *Software Reference for x250 Series Switches, AlliedWare Plus Operating System* from **www.alliedtelesis.com**.

6. If you configure your switch for stacking, do one of the following:

    ❑ To begin configuring the master switch, go to Chapter 7, "Configuring the Master Switch" on page 91.

    ❑ If you have already configured the master switch, go to Chapter 8, "Configuring Member Switches" on page 107.

Powering off the Switch

To power off the switch, perform the following procedure:

1. Unplug the power cord.
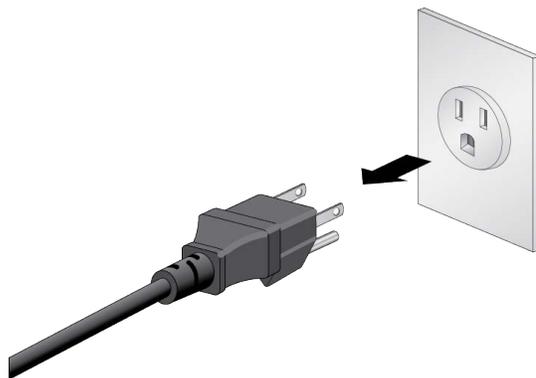
Figure 65. Powering Off the AC Power Supply

Chapter 11

Cabling the Networking Ports

This chapter contains the following procedures:

❒ "Cabling Twisted Pair Ports" on page 130

❒ "Installing SFP and SFP+ Transceivers" on page 132

❒ "Installing SP10TW Direct Connect Cables" on page 136

Cabling Twisted Pair Ports

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

Here are the guidelines to 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 22.

Table 22. 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	

❒ 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, 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 66.
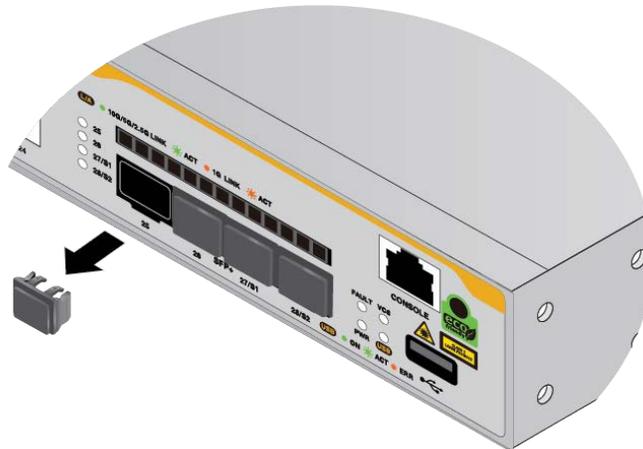
Figure 66. Removing the Dust Plug from an SFP+ Port

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 67 on page 134.
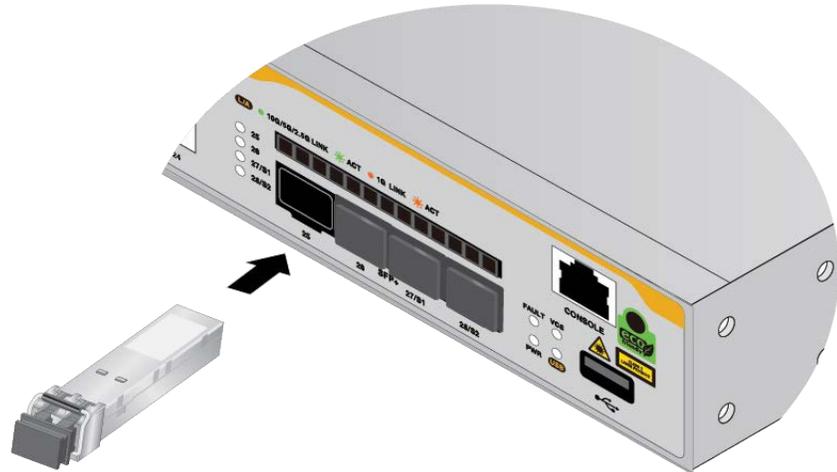
Figure 67. Installing SFP+ Transceivers

> **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 68.
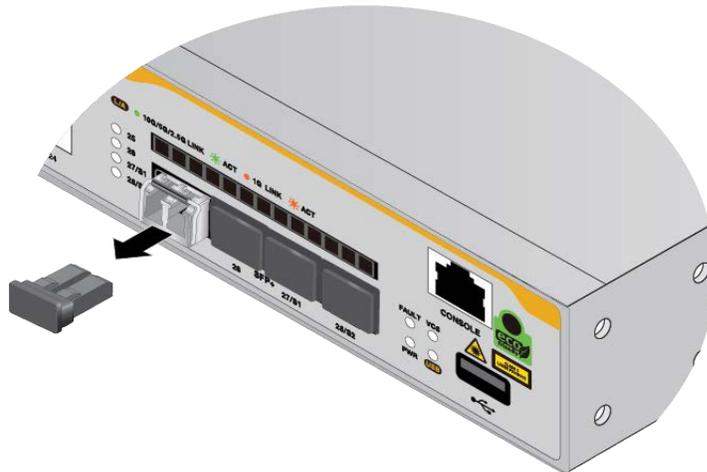
Figure 68. Removing the Dust Cover from an SFP or SFP+ Transceiver

6. Verify the position of the handle on the transceiver. The transceiver handle should be in the upright position, as shown in Figure 69 on page 135.
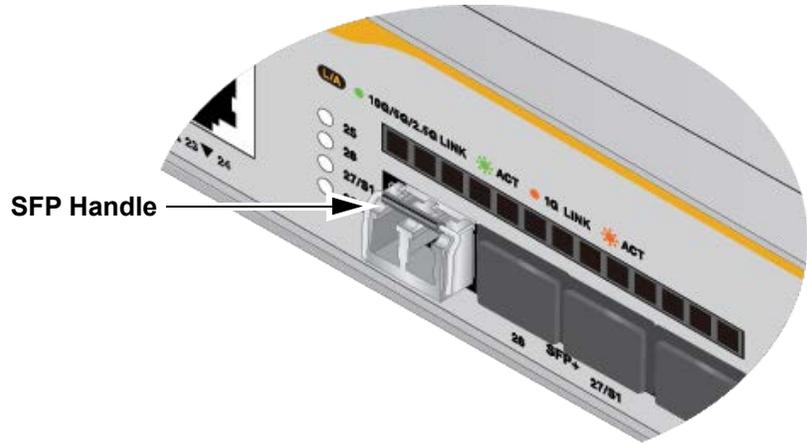
SFP Handle

Figure 69. Positioning the SFP or SFP+ Handle in the Upright Position

7. Connect the fiber optic cable to the transceiver, as shown in Figure 70 on page 135. The connector on the cable should fit snugly into the port, and the tab should lock the connector into place.
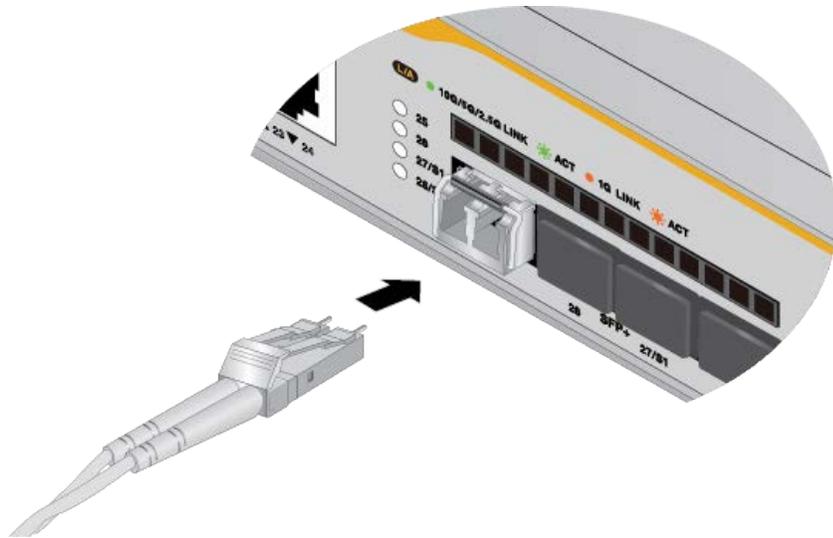
Figure 70. Connecting a Fiber Optic Cable to an SFP or SFP+ Transceiver

8. Repeat this procedure to install and 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.

> **Note**
> The switch does not support the 7-meter SP10TW7 cable.

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

1. If the SFP+ port has a dust cover, remove it. Refer to Figure 68 on page 134.

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 71.
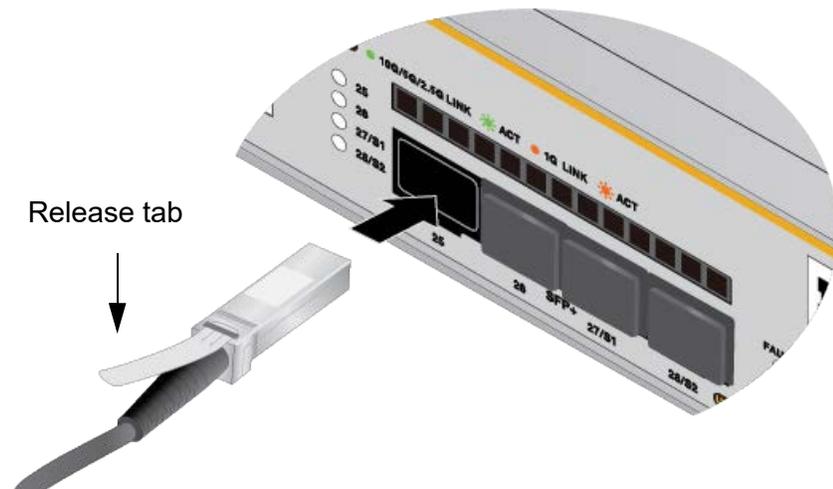
Figure 71. Installing SP10TW Cables

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 12
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 and Switch ID LED 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 148.

❒ 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 VCStack, or they might have different versions. You can view the version number with the SHOW VERSION command.

❒ Review the information in "Stack Trunks" on page 32 to verify that the trunk complies with all rules and restrictions.

❒ If the trunk 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 of the stack trunk. They are identified by the STACKPORT command. In this example from a running configuration, ports 1 to 2 are the stack trunk:

```
interface port1.0.1-1.0.2
  stackport
```

❒ If necessary, repeat the STACKPORT command. For information, refer to "STACKPORT" on page 93. Afterwards, save your changes and reboot the switch.

Problem 5: You removed a port from a stack trunk 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 part of the stack trunk.

❒ You have to reboot the switch whenever you add or remove ports from stack trunks 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.

Problem 8: The Switch ID LED in the management panel is flashing "F."

Solutions: One of the following problems has occurred:

❒ A cooling fan has failed.

❒ The internal temperature of the switch is outside the normal operating range and the unit might shut down.

Appendix A
Technical Specifications

This appendix contains the following sections:

Physical Specifications

Dimensions (H x W x D)

Table 23 lists the dimensions of the switches.

Table 23. Product Dimensions

x250-18XS SE250-18XS	4.25 cm x 21.0 cm x 34.6 cm (1.67 in. x 8.3 in. x 13.6 in.)
x250-28XS SE250-28XS	4.4 cm x 44.0 cm x 29 cm (1.7 in. x 17.3 in. x 11.4 in.)
x250-18XTm SE250-18XTm	4.25 cm x 21.0 cm x 34.6 cm (1.67 in. x 8.3 in. x 13.6 in.)
x250-28XTm SE250-28XTm	4.4 cm x 44.0 cm x 29 cm (1.7 in. x 17.3 in. x 11.4 in.)

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

4.25 cm (1.67 in.)

**34.6 cm (13.6 in.)**

21.0 cm (8.3 in.)
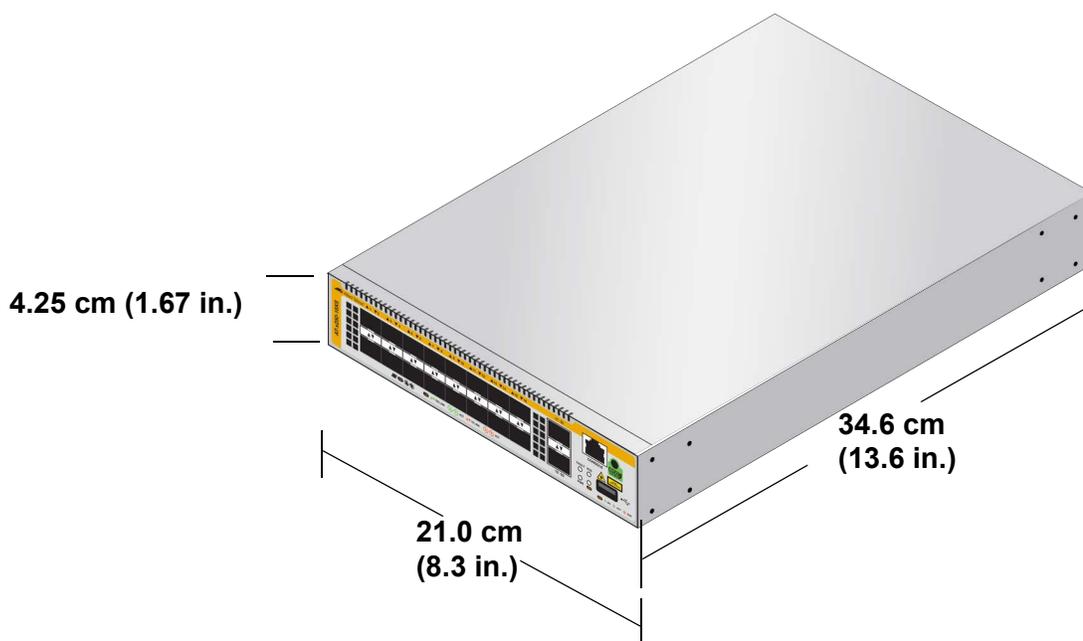
Figure 72. x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm Switches (H x W x D)

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

4.4 cm (1.7 in.)

44.0 cm (17.3 in.)

29 cm (11.4 in.)
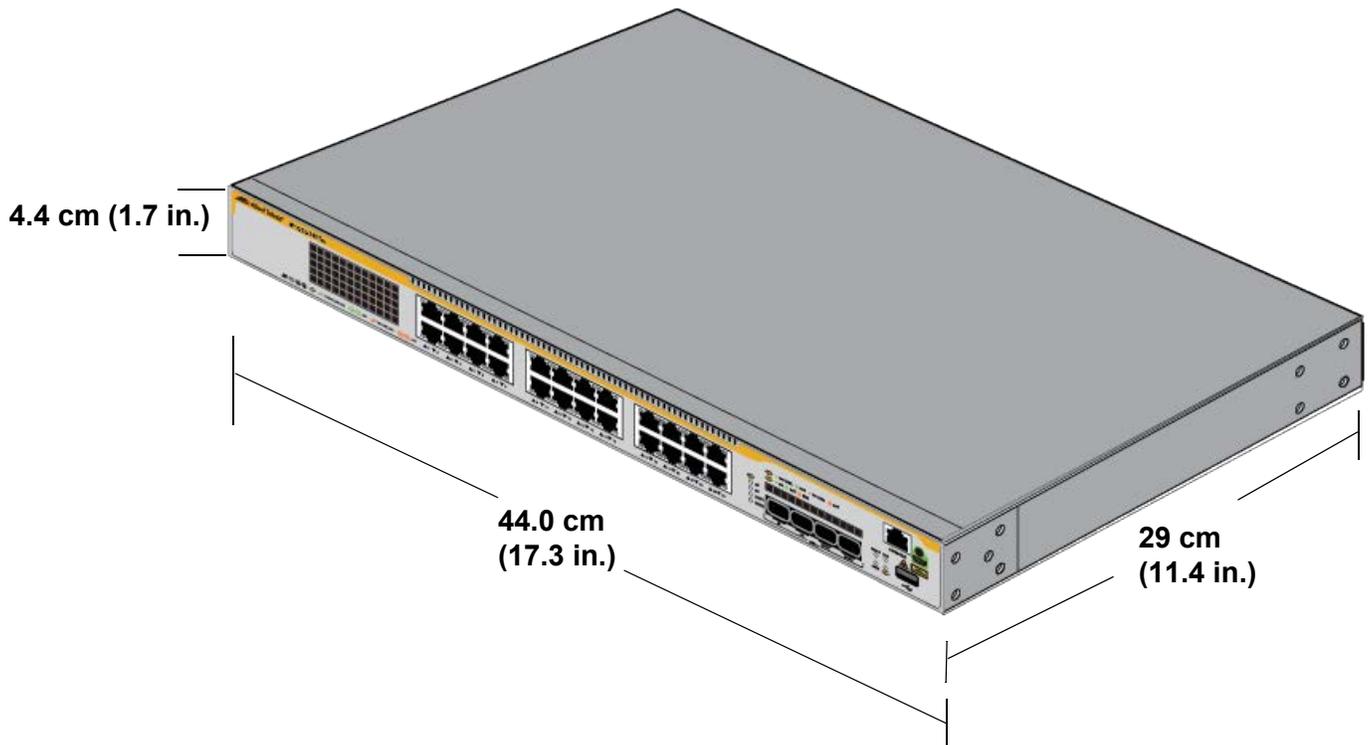
Figure 73. x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm Switches (H x W x D)

The locations of the bracket holes for the x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm switches are shown in Figure 74.

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

34.6 cm (13.6 in.)
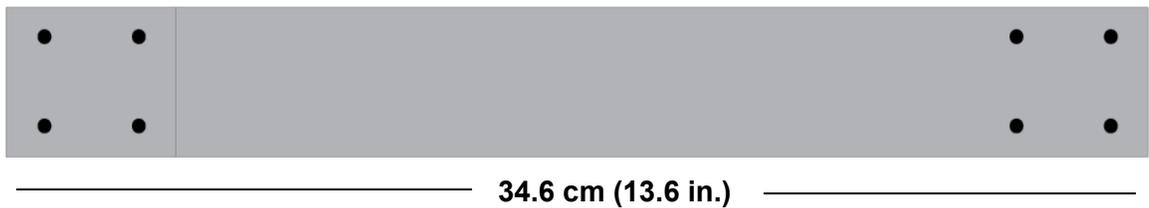
Figure 74. Bracket Holes of x250-18XS, SE250-18XS, x250-18XTm, and SE250-18XTm Switches

The locations of the bracket holes for the x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm switches are shown in Figure 75.

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

29.0 cm (11.4 in.)
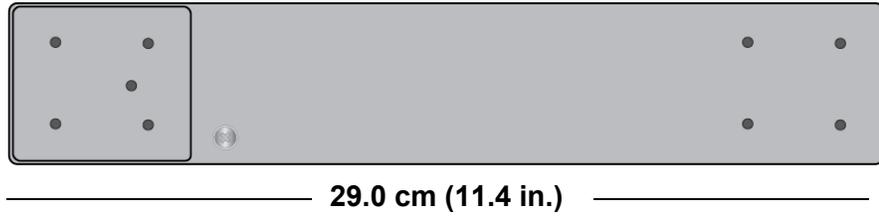
Figure 75. Bracket Holes of x250-28XS, SE250-28XS, x250-28XTm, and SE250-28XTm Switches

Weights

Table 24. 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)

Ventilation

Table 25. Ventilation Requirements

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

Environmental Specifications

Table 26 lists the environmental specifications of the switches.

Table 26. 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

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

Maximum Power Consumptions

Table 27. 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

The maximum power consumptions for the switch is 970W.

Input Voltage and Frequency

Table 28 lists the input voltages for the switches.

Table 28. 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

Heat Dissipation

Table 29 lists the heat dissipations for the switches.

Table 29. 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

RJ-45 Twisted Pair Port Pinouts

Figure 76 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
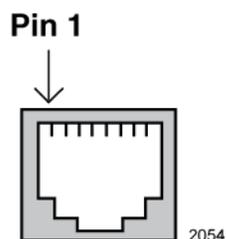
Figure 76. Pin Layout (Front View) of Twisted Pair Ports

Table 30 lists the pin signals at 100Mbps.

Table 30. 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 31 lists the pin signals at 1/2.5/5/10Gbps.

Table 31. 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 32 lists the pin signals of the RJ-45 style serial Console port.

Table 32. 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