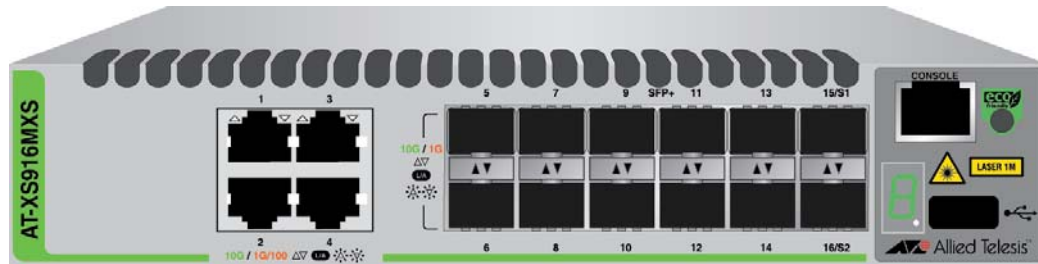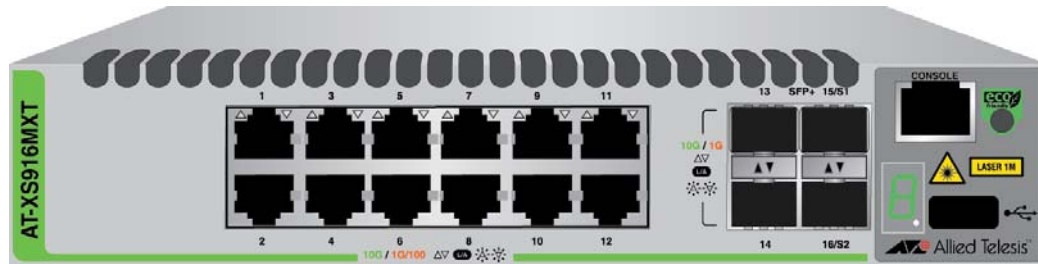# XS900MX Series

Stackable 10Gigabit Ethernet Switches
AlliedWare Plus™ Version 5.4.8

❑ AT-XS916MXT

❑ AT-XS916MXS

Installation Guide for Stand-alone Switches

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

RFI Emissions   FCC Class A, EN55022 Class A, EN61000-3-2, EN61000-3-3, VCCI Class A, RCM

⚠ **Warning**
In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures. ∿ E70

EMC (Immunity)   EN55024

Electrical Safety   UL 60950-1 ($_C$UL$_{US}$), CSA-C22 No. 60950-1 ($_C$UL$_{US}$), EN60950-1 (TUV), EN60825-1 (TUV)

⚠ **Warning**
Laser Safety: EN60825 ∿ L7

Translated Safety Statements

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

Remarque: Les consignes de sécurité portant le symbole ∿ sont traduites dans plusieurs langues dans le document *Translated Safety Statements,* disponible à l'adresse **www.alliedtelesis.com/library**.

Contents

Figures

Tables

Tables

Preface

This guide contains the installation instructions for the XS900MX Series of Layer 3 10 Gigabit Ethernet switches. This preface contains the following sections:

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

> **Note**
> This guide explains how to install the switches as stand-alone units. For instructions on how to install them in a stack configuration with Virtual Chassis Stacking (VCStack^{TM}), see the *XS900MX Series Installation Guide for VCStack*.

Document Conventions

This document uses the following conventions:

Note
Notes provide additional information.

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

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

Contacting Allied Telesis

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

❒ 24/7 Online Support — Enter our interactive support center to search for answers to your product questions in our knowledge database, to check support tickets, to learn about Return Merchandise Authorizations (RMA), or to contact Allied Telesis technical experts.

❒ USA and EMEA phone support — Select the phone number that best fits your location and customer type.

❒ Hardware warranty information — Learn about Allied Telesis warranties and register your product online.

❒ Replacement Services — Submit a RMA request via our interactive support center.

❒ Documentation — View the most recent installation and user guides, software release notes, white papers, and data sheets for your products.

❒ Software Downloads — Download the latest software releases for your managed products.

For sales or corporate information, go to **www.alliedtelesis.com/purchase** and select your region.

Chapter 1

Overview

This chapter contains the following sections:

Note
This guide explains how to install the switches as stand-alone units. For instructions on how to install the devices as a stack with Virtual Chassis Stacking (VCStack^{TM}) feature, see the *XS900MX Series Installation Guide for VCStack*.

Front Panels

The front panel of the AT-XS916MXT Switch is shown in Figure 1.

100Mbps and 1/10Gbps Twisted Pair Ports

1Gbps SFP and 10Gbps SFP+ Ports

Default Stacking Ports

Management Panel
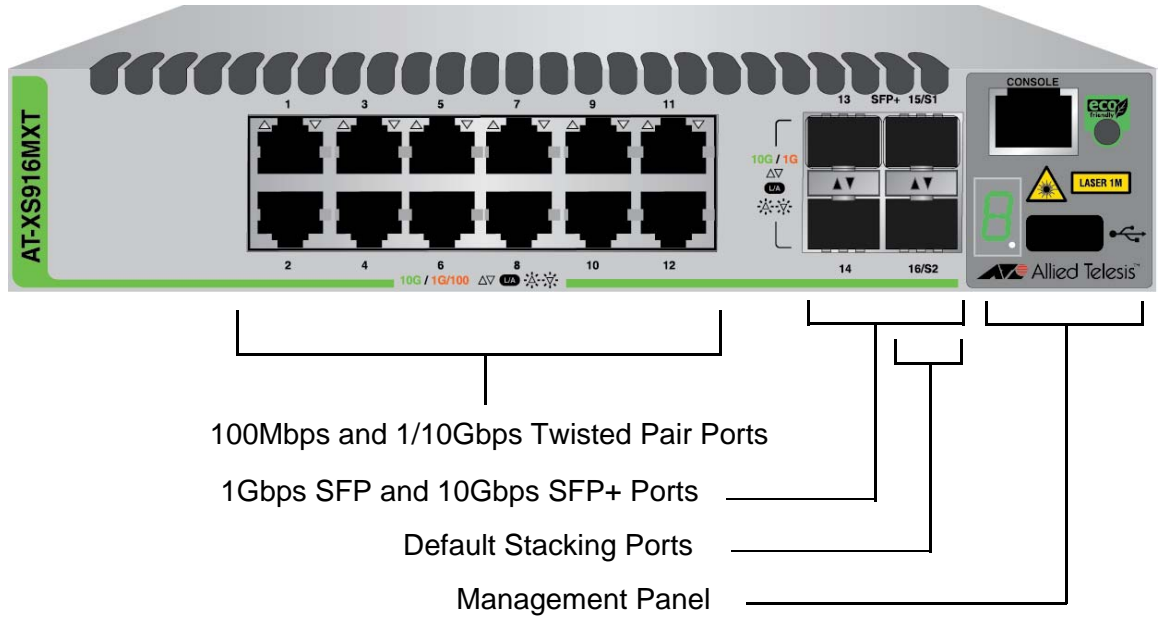
Figure 1. AT-XS916MXT Switch Front Panel

The front panel of the AT-XS916MXS Switch is shown in Figure 2.

100Mbps and 1/10Gbps Twisted Pair Ports

1Gbps SFP and 10Gbps SFP+ Ports

Default Stacking Ports

Management Panel
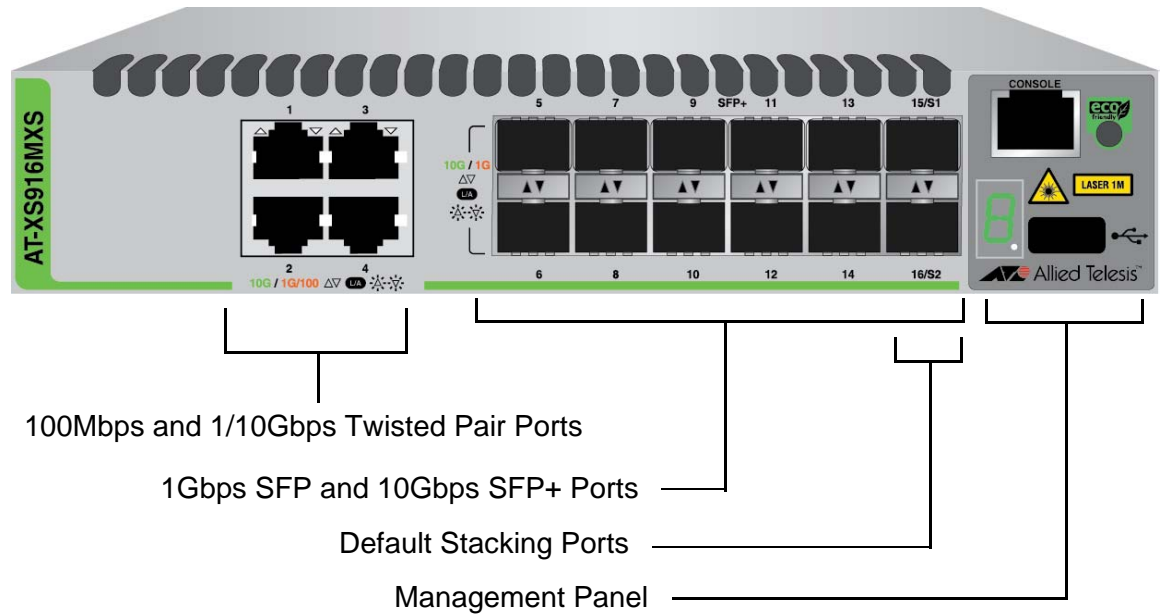
Figure 2. AT-XS916MXS Switch Front Panel

Features

The XS900MX Switches and their features are listed in this section:

XS900MX Models

Here are the model names:

❐ AT-XS916MXT

❐ AT-XS916MXS

100Mbps and 1/10Gbps Twisted Pair Ports

Here are the basic features of the 100Mbps and 1/10Gbps twisted pair ports:

❐ Four ports on the AT-XS916MXS Switch and twelve ports on the AT-XS916MXT Switch

❐ 100Base-TX, 1000Base-T, and 10GBASE-T compliant

❐ IEEE 802.3u Auto-Negotiation compliant

❐ Auto-MDI/MDIX

❐ 100 meters (328 feet) maximum operating distance

❐ IEEE 802.3x flow control in full-duplex mode

❐ IEEE 802.3ab 1000Base-T

❐ IEEE 802.3an 10GBase-T

❐ Jumbo frames up to 9KB

❐ RJ-45 connectors

SFP/SFP+ Ports

Here are the basic features of the SFP/SFP+ ports:

❐ 12 SFP/SFP+ ports on the AT-XS916MXS Switch has and four ports on the AT-XS916MXT Switch

❐ Support 1Gbps SFP or 10Gbps SFP+ transceivers.

❐ Ports 15/S1 and 16/S2 can be used as regular networking ports or trunk ports for the VCStack feature.

Refer to "1Gbps SFP and 10Gbps SFP+ Ports" on page 21 and "15/S1 and 16/S2 Default Trunk Ports" on page 22.

LEDs

Here are the port LEDs:

❐ Link/activity LEDs for the twisted pair ports and SFP/SFP+ ports

❐ Switch ID number LED

❐ eco-friendly button turns off the LEDs to conserve electricity

Installation Options

Here are the installation options for the switches:

- ❒ Desk or tabletop
- ❒ 19-inch equipment rack
- ❒ Wall

MAC Address Table

Here are the basic features of the MAC address tables of the switches:

- ❒ Storage capacity of 16,000 dynamic MAC address entries
- ❒ Storage capacity of 256 static MAC address entries
- ❒ Automatic learning and aging

Management Software and Interfaces

Here are the management software and interfaces:

- ❒ AlliedWare Plus Management Software
- ❒ Command line interface

Management Methods

Here are the methods for managing the switches:

- ❒ Local management through the Console port
- ❒ Remote Telnet and Secure Shell management
- ❒ SNMPv1, v2c, and v3

Management Panel

Figure 3 identifies the components in the management panels on the XS900MX Switches.
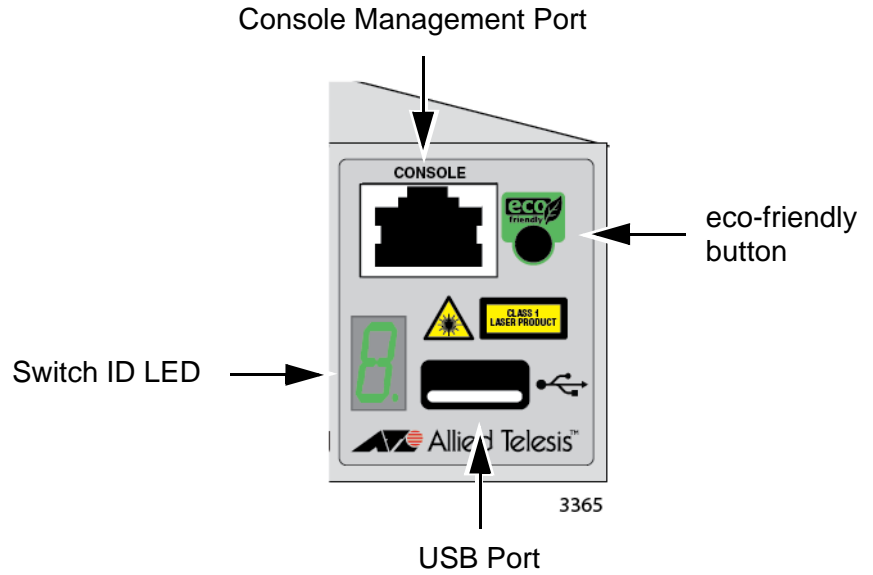
Figure 3. Management Panel

100Mbps and 1/10Gbps Twisted Pair Ports

The AT-XS916MXT and AT-XS916MXS Switches have twelve and four 100/1000/10GBASE-T ports, respectively.

Speed　The ports can operate at 100Mbps, 1Gbps, or 10Gbps. The speeds can be set manually using the management software or automatically with Auto-Negotiation (IEEE 802.3u), the default setting.

Duplex Mode　The twisted pair ports operate in full-duplex mode. You cannot change the duplex mode of a port manually.

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

The switch has the auto-MDI/MDI-X detection feature (IEEE 802.3ab-compliant) so that the switch automatically negotiates with network devices to establish their proper settings.

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

Port Pinouts　See Table 12 on page 94 and Table 13 on page 94 for the port pinouts of the twisted pair ports.

Cable Requirements　The minimum cable requirements for the ports are listed here.

- ❐ 100Mbps: Standard TIA/EIA 568-B-compliant Category 3 shielded or unshielded cabling.
- ❐ 1000Mbps: Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) shielded or unshielded cabling.
- ❐ 10Gbps: Standard TIA/EIA 568-B-compliant shielded Category 6a cabling

1Gbps SFP and 10Gbps SFP+ Ports

The XS916MX Switches have ports for 1Gbps SFP or 10Gbps SFP+ transceivers.The AT-XS916MXT Switch has four ports and the AT-XS916MXS Switch has twelve ports. Transceivers are used to connect the switches to other network units over large distances, build high-speed backbone networks between network devices, or connect high-speed devices, such as servers, to your network.

Examples of 1Gbps SFP transceivers include:

❒ AT-SPSX and AT-SPEX transceivers using multi-mode fiber optic cable, for distances up to 550 meters and two kilometers, respectively.

❒ AT-SPLX10 and AT-SPLX40 transceivers using single-mode fiber optic cable, for distances up to 10 and 40 kilometers, respectively.

Examples of 10Gbps SFP+ transceivers include:

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

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

❒ AT-SP10TW1 and AT-SP10TW3 Direct Attach Cables in lengths of one and three meters, respectively.

Note
Industrial (-40 to 85° C) temperature transceivers are available.

Note
SFP/SFP+ transceivers are purchased separately.

Note
The XS916MX Switches do not support the AT-SP10TW7 Direct Attach Cable.

15/S1 and 16/S2 Default Trunk Ports

The 15/S1 and 16/S2 ports can be used as regular networking ports or as trunk ports for a stack of two switches, with the VCStack feature. The switches of a VCStack function as a single virtual unit. They synchronize their actions so that switching operations, like spanning tree protocols, virtual LANs, and static port trunks, span across all the units and ports. Two advantages of stacks are:

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

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

In order to use ports 15/S1 and 16/S2 or any of the SFP/SFP+ slots for a stack trunk, you have to use the following approved transceivers:

❒ AT-StackXS/1.0 (1 meter) stacking transceiver and cable

❒ AT-SP10TW1 (1 meter) Direct Attach Cable

❒ AT-SP10TW3 (3 meter) Direct Attach Cable

Note
The XS916MX Switches do not support the AT-SP10TW7 Direct Attach Cable as a stacking cable for the VCStack feature.

Note
Stacking cables are purchased separately.

A stacking transceiver has two SFP transceiver-style connectors and one or three meters of cable. An example is shown in Figure 4.

Figure 4. Stacking Transceiver

Note
This guide explains how to install the devices as stand-alone units. For instructions on how to install the switches in a stack with Virtual Chassis Stacking (VCStack), refer to the *XS900MX Series Installation Guide for VCStack*.

The default settings for ports 15/S1 and 16/S2 are trunk ports for VCStack. You can use the ports as regular networking ports by disabling VCStack or selecting other ports for the trunk. When the ports are operating as regular networking ports, they support the same SFP/SFP+ transceivers as the other SFP/SFP+ ports. Refer to "1Gbps SFP and 10Gbps SFP+ Ports" on page 21.

eco-friendly Button

The eco-friendly button on the front panel of the switch is used to toggle the port LEDs on or off. You might turn off the LEDs to conserve electricity when you are not monitoring the device. You can also toggle the LEDs with the ECOFRIENDLY LED and NO ECOFRIENDLY LED commands in the Global Configuration mode of the command line interface. The switch is said to be operating in a low power mode when the LEDs are turned off.

Operating the switch in the low power mode with the LEDs turned off does not interfere with the network operations of the device.

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

The Switch ID LED is always on, but it displays different information depending on whether the LEDs are on or off. When the LEDs are on, the ID LED displays the ID number of the switch. When the switch is operating in the low power mode with the LEDs off, the ID LED indicates whether the switch is a stand-alone unit or the master or member switch of a VCStack, as detailed in Figure 9 on page 28.

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

LEDs

This section describes the functions of the LEDs.

LEDs for the Twisted Pair Ports

Each twisted pair port has one status LED that displays link and activity information. Refer to Figure 5.

Link/activity LED for the Top Port

Link/activity LED for the Bottom Port
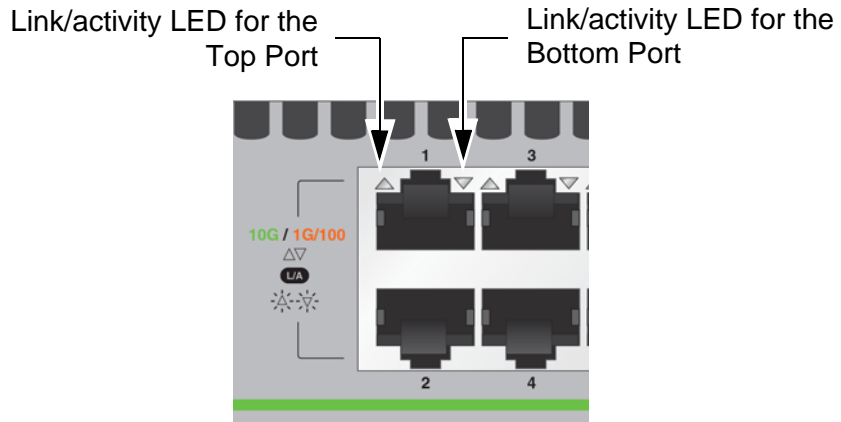
Figure 5. Link/activity LEDs for the Twisted Pair Ports

The Port LEDs are described in Table 1.

Table 1. Link/activity LEDs for the Twisted Pair Ports

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

LEDs for the SFP/SFP+ Ports

The LEDs for the SFP/SFP+ ports are located between the ports, as shown in Figure 6. Each port has one LED. The left LED is for the top port and the right LED is for the bottom port.

Link/activity LED for the Top Port   Link/activity LED for the Bottom Port
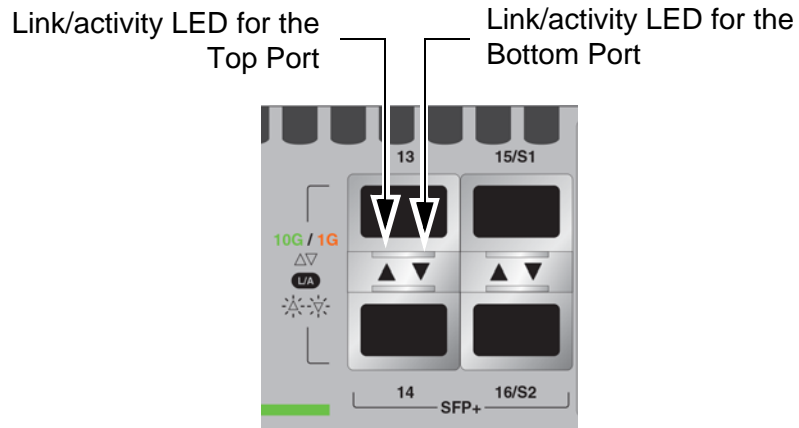
Figure 6. Link/activity LEDs for the SFP/SFP+ Ports

The LEDs are described in Table 2.

Table 2. Link/activity LEDs for the SFP/SFP+ Ports

LED	State	Description
L/A LED	Off	The slot is empty, the SFP transceiver has not established a link to a network device, or the LEDs are turned off. To turn on the LEDs, use the eco-friendly button.
	Solid Amber	The SFP transceiver has established a 1Gbps link to a network device.
	Flashing Amber	The SFP transceiver is receiving or transmitting data at 1Gbps.
	Solid Green	The SFP+ transceiver has established a 10Gbps link to a network device.
	Flashing Green	The SFP+ transceiver is receiving or transmitting data at 10Gbps.

Switch ID LED

The Switch ID LED, shown in Figure 7 on page 27, displays the ID number of the switch. A stand-alone switch has the ID number 0. Switches in a VCStack have the number 1 or 2. You use switch IDs to identify the switches and ports in the command line interface of the AlliedWare Plus management software. Refer to "Specifying Ports in the Command Line Interface for Stand-alone Switches" on page 32.
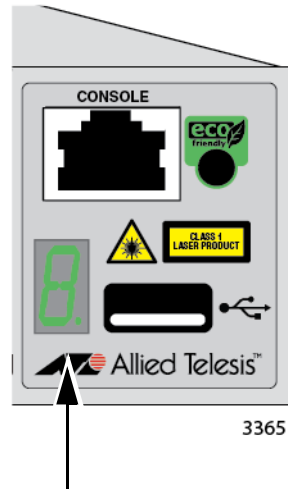
Switch ID LED

Figure 7. Switch ID LED

The states of the LED when the switch is not operating in the low power mode are shown in Figure 8.

 The switch is booting up.

 The switch has encountered a fault condition.

 The switch is operating as a stand-alone unit.

 The switch has an ID number of 1 or 2 as part of a VCStack.

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

Figure 8. Switch ID LED Not in Low Power Mode

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

❒ A cooling fan has failed.

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

Note
You can use the SHOW SYSTEM ENVIRONMENT command in the command line interface to identify the source of the problem.

The states of the LED when the switch is operating in the low power mode are shown in Figure 9.
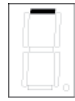
 The switch is the master switch of a VCStack.

 The switch is operating as a stand-alone unit.

 The switch is a member switch of a VCStack.

2667

Figure 9. Switch ID LEDs in Low Power Mode

USB Port

The management panel has a USB port for storing configuration files on flash drives, restoring configuration files to switches whose settings have been lost or corrupted, or configuring replacement units. You can also use the port and flash drives to update the management firmware on the switch.

The port is USB2.0 compatible.

Console Port

The Console port is used to conduct management sessions with the switch to configure its features and parameter settings. This type of management uses serial RS-232 and is commonly referred to as local or out-of-band management because it is not conducted over your network. To perform local management, you must be at the location of the switch and must use the management cable included with the switch.

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

The Console port has the following settings:

- ❐ Default baud rate: 9600 bps (Range is 9600 to 115200 bps)
- ❐ Data bits: 8
- ❐ Parity: None
- ❐ Stop bits: 1
- ❐ Flow control: None

Note

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

Power Supply

The XS900MX Switches come with one AC power supply. The back panels have one AC connector. The power supply is not field-replaceable; refer to "Technical Specifications" on page 91 for the input voltage range.

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

Note
The switches are powered on or off by connecting or disconnecting the power cords.

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

The PORT parameter in the command line interface in the management software is used to specify individual ports on the switch. Figure 10 shows its format.

$$port1.0.n$$

Stack ID ─────────┐

Module ID ─────────┐
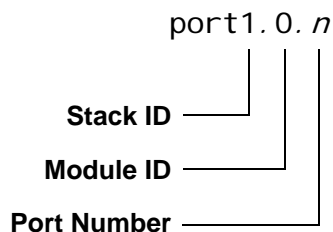
Port Number ─────────┘

Figure 10. PORT Parameter in the Command Line Interface

The three parts of the PORT parameter are described in Table 3.

Table 3. PORT Parameter Format

Number	Description
Stack ID	Designates the switch's ID number. The ID number is 1 for a stand-alone switch. (The Switch ID LED displays 0 on a stand-alone switch. Be sure to enter 1, not 0, as the switch ID.)
Module ID	Designates the module number of a port. This value is always 0 (zero) for XS900MX Switches because they do not support modules.
Port Number	Designates a port number or range.

Here is an example of the PORT parameter on a stand-alone switch. It uses the INTERFACE command to enter the Port Interface mode for ports 15 and 16:

```
awplus> enable
awplus# configure terminal
awplus(config)# interface port1.0.15,port1.0.16
```

For instructions on the command line interface and the PORT parameter, refer to the *Software Reference for XS900MX Series Switches, AlliedWare Plus Operating System*.

Chapter 2

Beginning the Installation

The chapter contains the following sections:

Reviewing Safety Precautions

Review the following safety precautions before beginning the installation procedure.

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

> **Note**
> Les consignes de sécurité portant le symbole ᚼ   sont traduites dans plusieurs langues dans le document *Translated Safety Statements,* disponible à l'adresse **www.alliedtelesis.com/library**.

> **Warning**
> Class 1 Laser product. ᚼ L1

> **Warning**
> Do not stare into the laser beam. ᚼ L2

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

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

> **Warning**
> Do not work on equipment or cables during periods of lightning activity. ᚼ 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. ∞ E57

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. ∿ 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

⚠ **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

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

Caution

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

Warning

When you remove an SFP module from this product, the case temperature of the SFP may exceed 40° C (158° F). Exercise caution when handling with unprotected hands. E43

Caution

You have to reset the switch to disable the VCStack feature. Some network traffic may be lost if the device is already connected to a live network. E75

Caution

Disabling the VCStack feature requires resetting the switch. If the switch is already connected to a live network, some network traffic may be lost. E75A

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. E76

Warning

A transceiver 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 device. E77

Choosing a Site for the Switch

Observe these requirements when planning the installation of the switch.

❑ If you plan to install the switch in an equipment rack, check to be sure that the rack is safely secured so that it will not tip over. Devices in a rack should be installed starting at the bottom, with the heavier devices near the bottom of the rack.

❑ If you plan to install the switch on a table, check to be sure that the table is level and stable.

❑ The power outlet should be located near the switch and be easily accessible.

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

❑ The site should allow for adequate air flow around the unit and through the cooling vents on the front and rear panels. (The ventilation direction in units that have a cooling fan is from front to back, with the fan on the back panel drawing the air out of the unit.)

❑ Do not install the switch in a wiring or utility box because the switch overheats and fails from inadequate airflow.

❑ 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.

❑ The site should not expose the twisted pair cabling to sources of electrical noise, such as radio transmitters, broadband amplifiers, power lines, electric motors, and fluorescent fixtures.

❑ Switch ports are suitable for intra-building connections, or where non-exposed cabling is required.

❑ Do not place objects on top of the switch.

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. ⬿ E76

Unpacking the Switch

The XS900MX Switches come with the components listed in Figure 11.

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

AC power cord

Management cable, with RJ-45 (8P8C) and DB-9 (D-sub 9-pin) connectors.

Power cord retainer clip
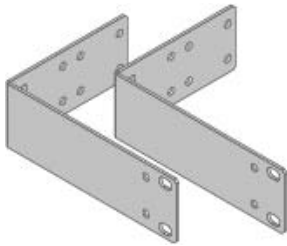
Two AT-RKMT-J14 equipment rack brackets

Two handles

Four M3x6mm screws
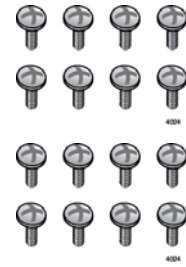
Sixteen M4x6mm screws
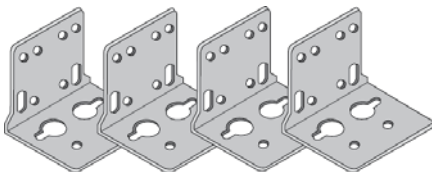
Four AT-RKMT-J24 wall brackets

Four 6mmx4mmx29.6mm anchors

Four M4x32mm screws for wood or concrete walls

Figure 11. XS900MX Switch Components

Note
Please retain the original packaging material in the event you need to return the unit to Allied Telesis.

Installing the Power Cord Retaining Clip

The power cord retaining clip that comes with the switch protects the power cord from being accidentally unplugged from the unit.

To install the power cord retaining clip, position the "u" part facing down, press in the sides, and insert the ends of the clip into the holes in the retaining bracket on the AC connector on the switch. See Figure 12.
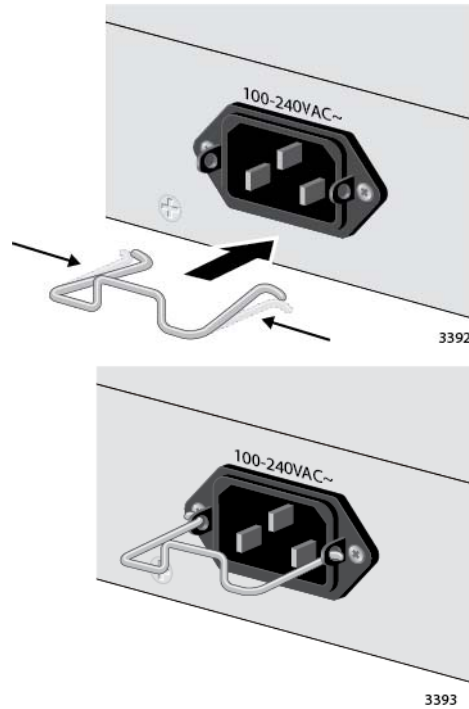
Figure 12. Installing the Retaining Clip

Chapter 3
Installing the Switch on a Table or in an Equipment Rack

This chapter contains the instructions for installing the switch on a table or in an equipment rack. The procedures in this chapter are listed here:

❐ "Installing the Switch on a Table or Desktop" on page 42

❐ "Overview to Installing the Switch in an Equipment Rack" on page 43

❐ "Installing the Switch in an Equipment Rack with AT-RKMT-J14 Brackets" on page 45

❐ "Installing the Switch in an Equipment Rack with the AT-RKMT-J15 Bracket" on page 50

Installing the Switch on a Table or Desktop

This section contains the procedure for installing the switch on a table.

> **Note**
> The rubber feet on the bottom of the chassis should be left on for table installation.

> ⚠️ **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

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

1. Review the information in "Choosing a Site for the Switch" on page 38 to verify that the selected site is suitable for the unit.

2. Check to be sure that the table is strong enough to support the weight of the switch.

3. Lift the chassis onto the table.

4. Check to be sure that all of the appropriate components are included in the shipping container. Refer to "Unpacking the Switch" on page 39.

5. After unpacking the switch, go to Chapter 6, "Powering On the Switch" on page 75.

Overview to Installing the Switch in an Equipment Rack

You can install XS900MX Switches in a 19-inch equipment rack two ways. One way is with the AT-RKMT-J14 brackets that come with the switch. Refer to Figure 13.
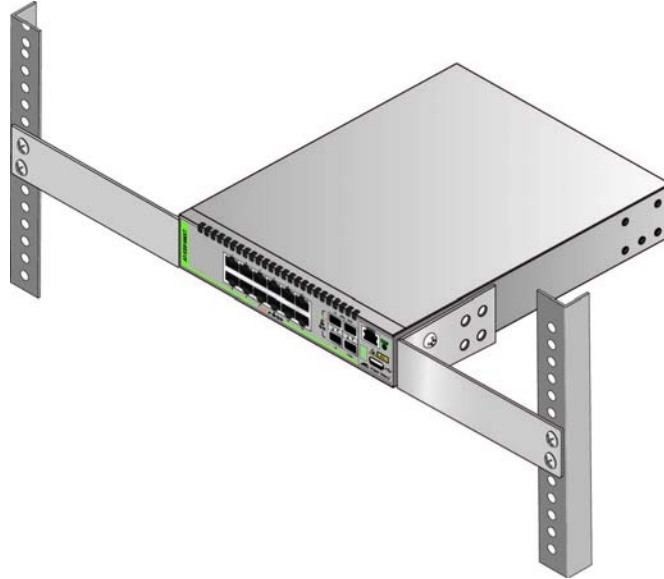
Figure 13. AT-RKMT-J14 Brackets and Switch

For installation instructions, refer to "Installing the Switch in an Equipment Rack with AT-RKMT-J14 Brackets" on page 45.

You can also install the switch in an equipment rack with the optional AT-RKMT-J15 bracket. Refer to Figure 14.
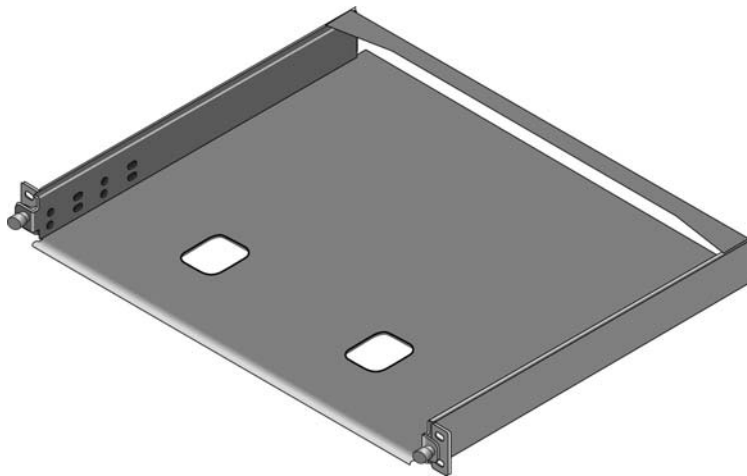
Figure 14. AT-RKMT-J15 Bracket

The bracket lets you install two switches side-by-side. Refer to Figure 15.
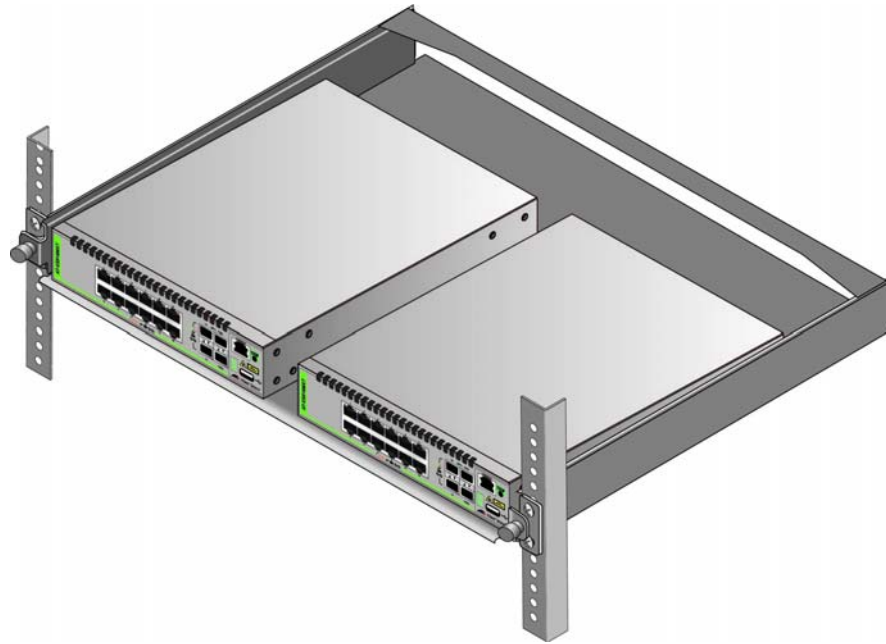
Figure 15. AT-RKMT-J15 Bracket with Switches

Note
The AT-RKMT-J15 Bracket is purchased separately.

For installation instructions refer, to "Installing the Switch in an Equipment Rack with the AT-RKMT-J15 Bracket" on page 50.

Installing the Switch in an Equipment Rack with AT-RKMT-J14 Brackets

This section contains the procedure for installing XS900MX Switches in a standard 19-inch equipment rack, with the AT-RKMT-J14 Brackets included with the units.

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

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

❒ Eight M4x6mm bracket screws (included with the switch)

❒ Four M3x6mm screws (included with the switch)

❒ Two bracket handles (included with the switch)

❒ Cross-head screwdriver (not provided)

❒ Four standard equipment rack screws (not provided)

Switch Orientations in the Equipment Rack The switch has two sets of four screw holes on the left and right sides, for attaching the AT-RKMT-J14 Brackets. Refer to Figure 16.

Bracket Holes
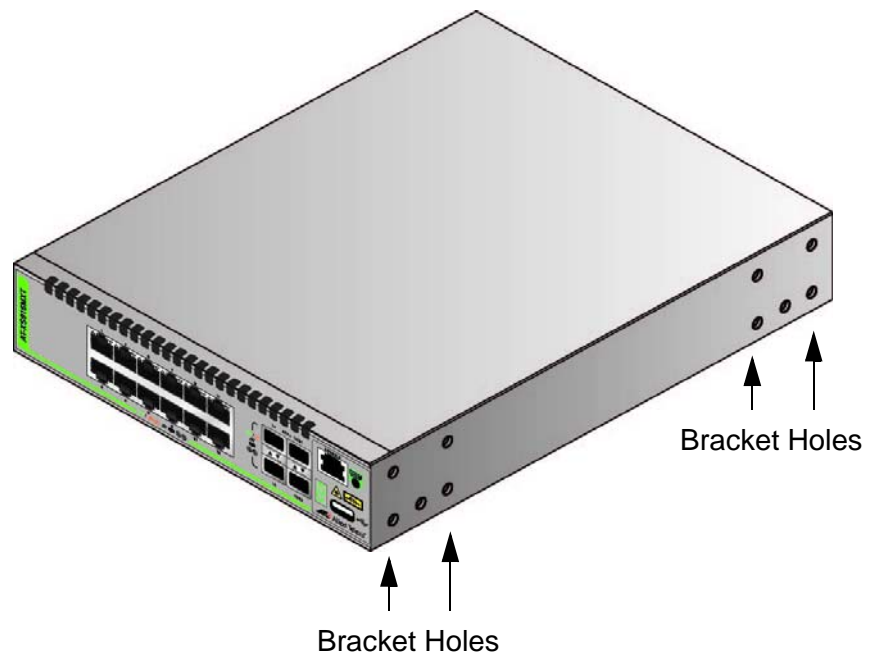
Bracket Holes

Figure 16. Bracket Holes for AT-RKMT-J14 Brackets

The brackets also have two sets of four holes. Refer to Figure 17.
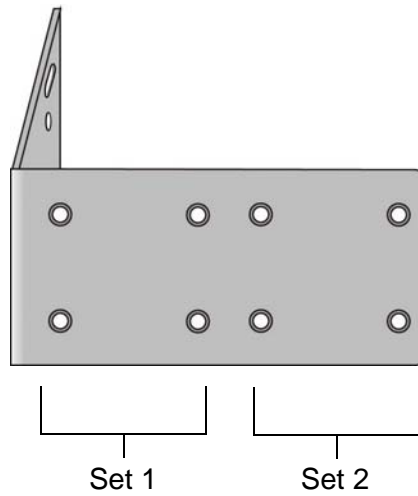
Figure 17. AT-RKMT-J14 Bracket Holes

You can use the different sets of holes on the switch and brackets to install the switch in different orientations in the equipment rack . You can install it with the front panel flush with, extending in front of, or recessed behind the front of the equipment rack. The illustrations in Figure 18 show the switch orientations with the front panel facing the front of the equipment rack.
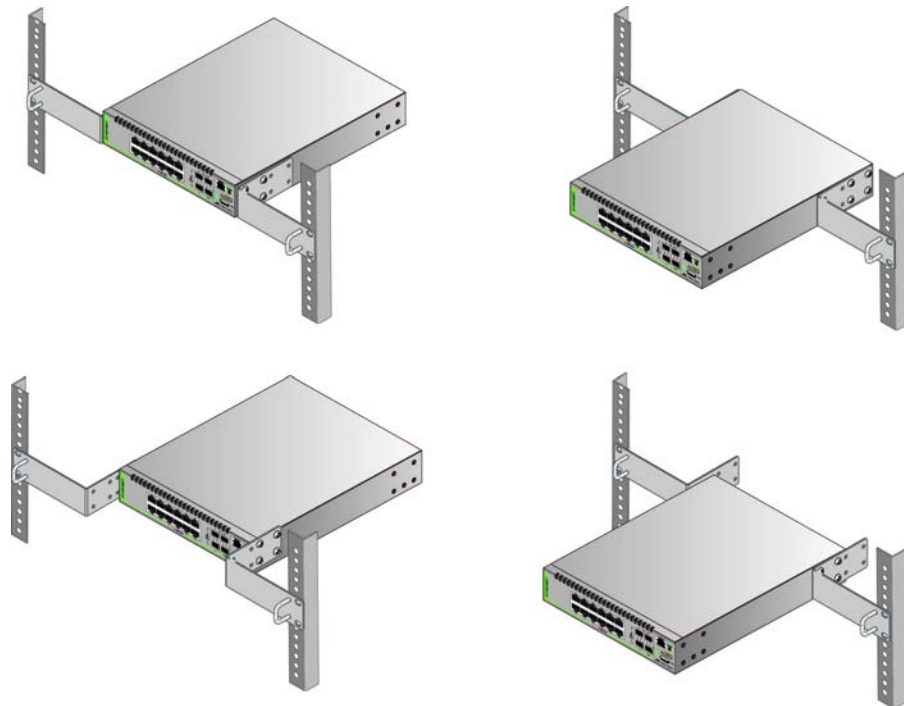
Figure 18. Switch Orientations with the Front Panel Facing the Front of the Equipment Rack

You can also orient the switch with the rear panel facing the front of the equipment rack. Refer to Figure 19.
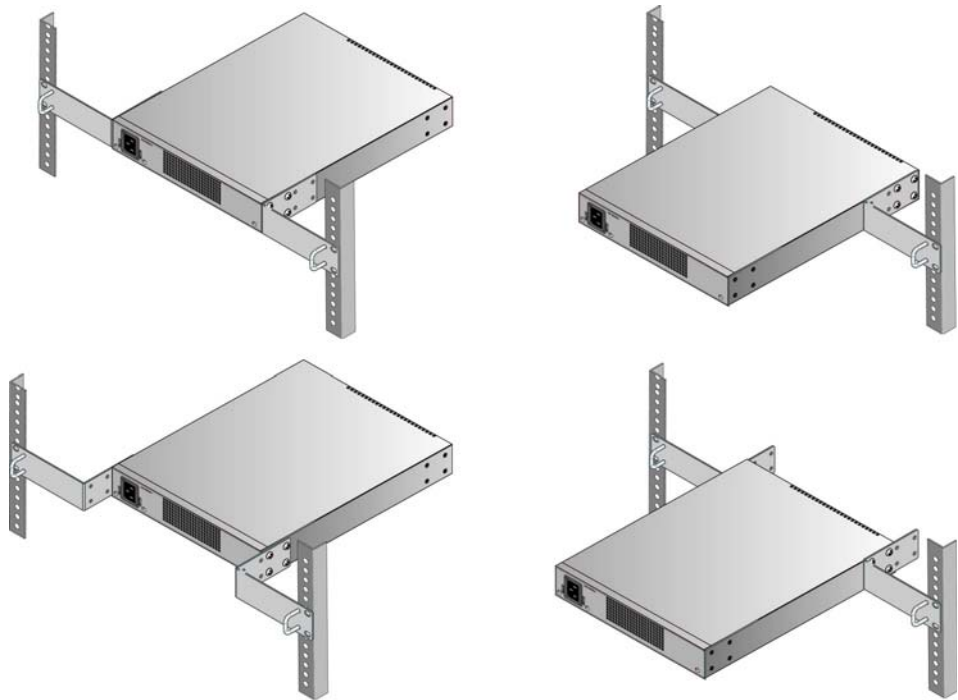
Figure 19. Switch Orientations with the Rear Panel Facing the Front of the Equipment Rack

Installing the Switch

If you have not chosen an orientation for the switch in the equipment rack, review "Switch Orientations in the Equipment Rack" on page 45.

Please review the information in "Choosing a Site for the Switch" on page 38 before installing the switch in an equipment rack.

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

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

1. Attach the two handles to the AT-RKMT-J14 Brackets using the four M3x6mm screws included with the switch. Refer to Figure 20 on page 48.
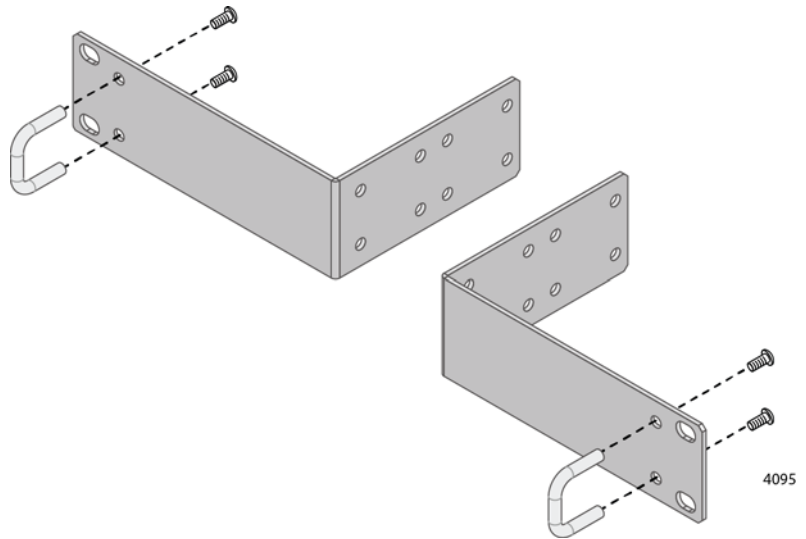
Figure 20. Attaching the Handles to the AT-RKMT-J14 Brackets

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

3. Attach the two brackets to the sides of the switch in the selected position, using the eight M4x6mm screws included with the unit. (Refer to Figure 18 on page 46 and Figure 19 on page 47.) The illustration in Figure 21 shows the installation of the brackets such that the front panel of the switch is even with the front of the equipment rack.
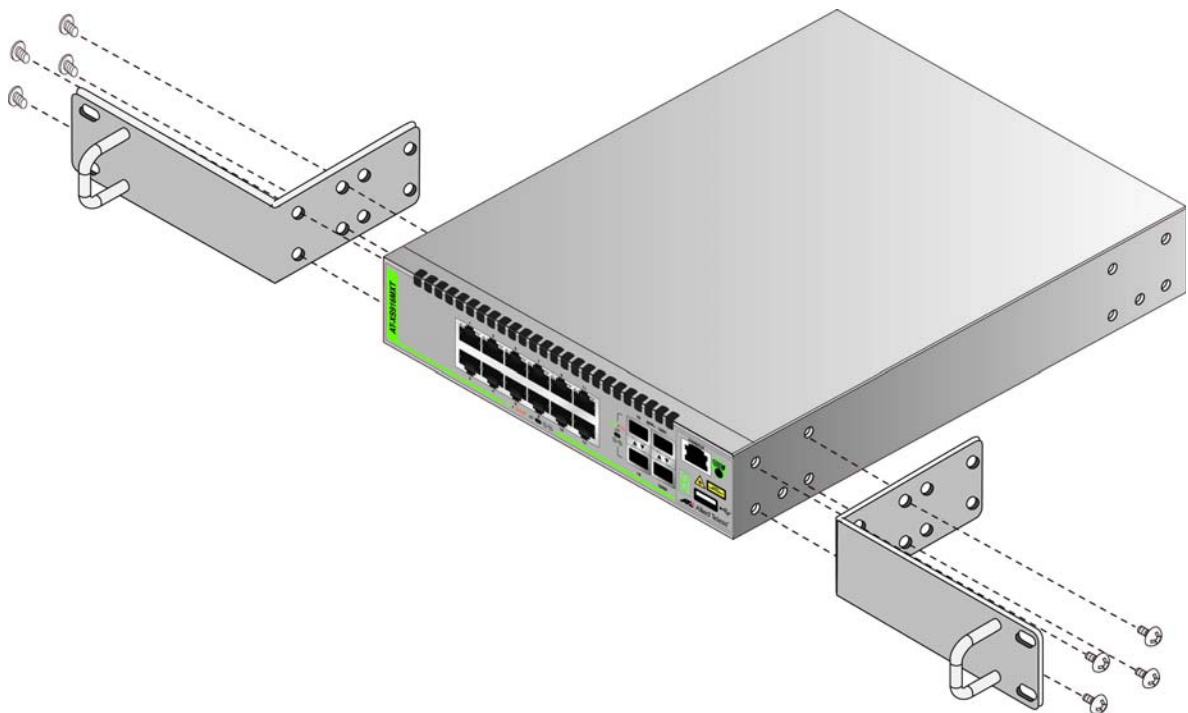
Figure 21. Attaching the AT-RKMT-J14 Brackets to the Switch

4. Have another person hold the switch at the desired location in the equipment rack while you secure it using four standard equipment rack screws (not provided). Refer to Figure 22.
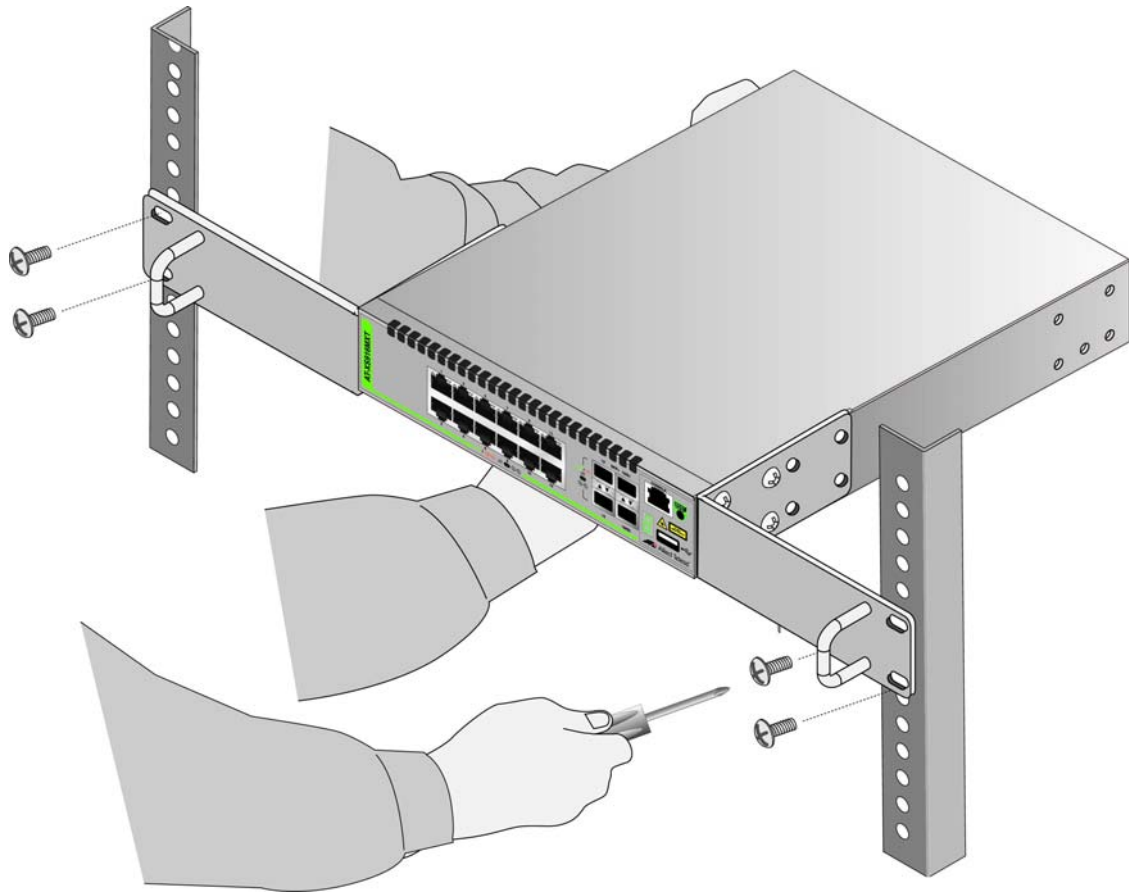
Figure 22. Installing the Switch in an Equipment Rack

5. Go to Chapter 6, "Powering On the Switch" on page 75.

Installing the Switch in an Equipment Rack with the AT-RKMT-J15 Bracket

This section contains the procedure for installing XS900MX Switches in a standard 19-inch equipment rack, with the optional AT-RKMT-J15 Bracket.

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

- ❐ One AT-RKMT-J15 equipment rack bracket (sold separately)
- ❐ Four M4x6mm bracket screws (included with the switch)
- ❐ Cross-head screwdriver (not provided)
- ❐ Flat-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 AT-RKMT-J15 Bracket, perform the following procedure:

1. Have another person hold the AT-RKMT-J15 Bracket at the desired location in the equipment rack while you secure it using four standard equipment rack screws (not provided). Refer to Figure 23.
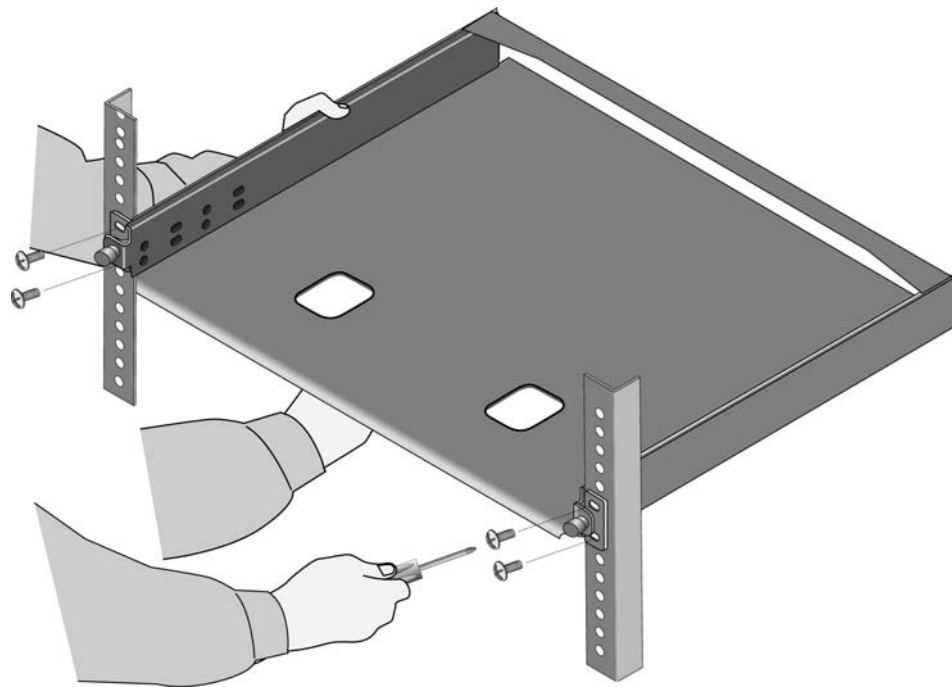
Figure 23. Installing the AT-RKMT-J15 Bracket in the Equipment Rack

2. Loosen the two thumbscrews on the front of the bracket. Refer to Figure 24.
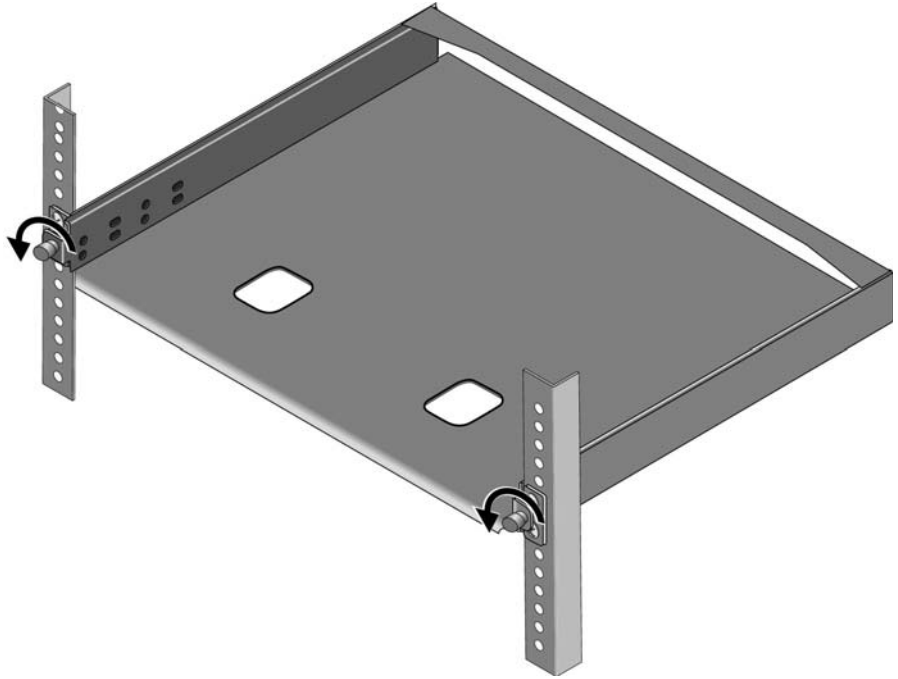
Figure 24. Loosening the Two Thumbscrews on the Front of the AT-RKMT-J15 Bracket

3. Slide out the bracket tray. Refer to Figure 25.
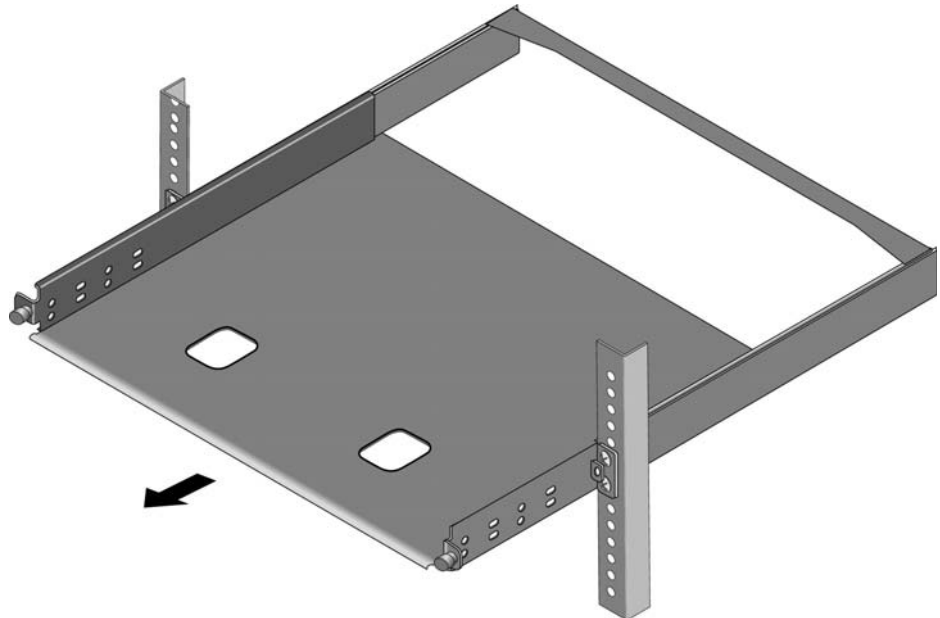
Figure 25. Sliding Out the Tray from the AT-RKMT-J15 Bracket

> **Note**
> Steps 4 to 6 remove the plastic feet from the bottom of the switch.
> You must remove the plastic feet to install the switch in the AT-
> RKMT-J15 Bracket.

4. Place the switch upside-down on a table. Refer to Figure 26.
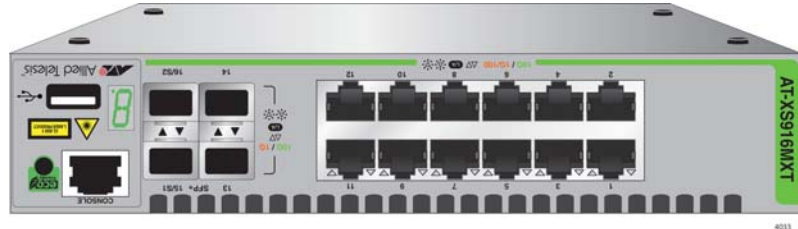
Figure 26. Turning the Switch Upside Down

5. Use a small flat-head screwdriver to pry the four plastic feet from the bottom of the switch. Refer to Figure 27.
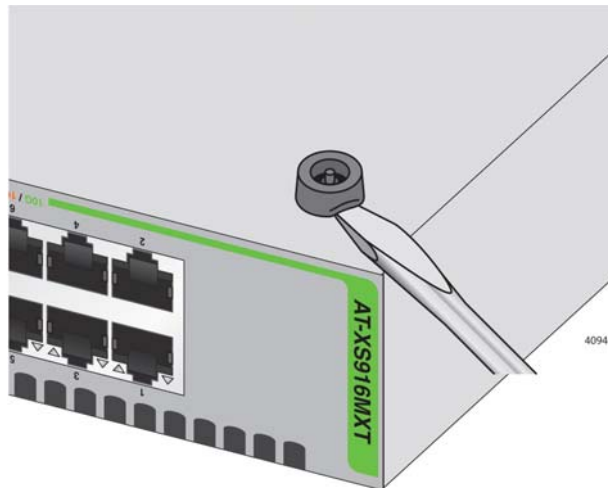
Figure 27. Removing the Plastic Feet from the Bottom Panel of the Switch

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

7. Place the switch in the left or right side of the bracket, with its front panel facing the front of the bracket. If you are installing only one switch, you can install it on either side. Refer to Figure 28 on page 53.
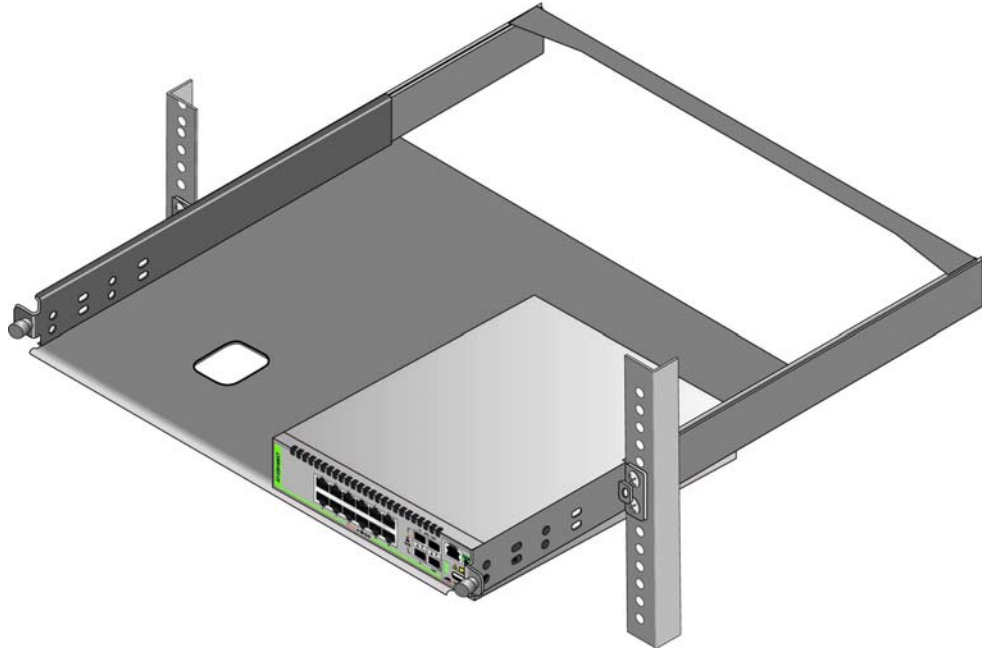
Figure 28. Placing a Switch in the AT-RKMT-J15 Bracket

8. Install two M4x6mm screws included with the switch to secure the switch to the bracket. Refer to Figure 29.
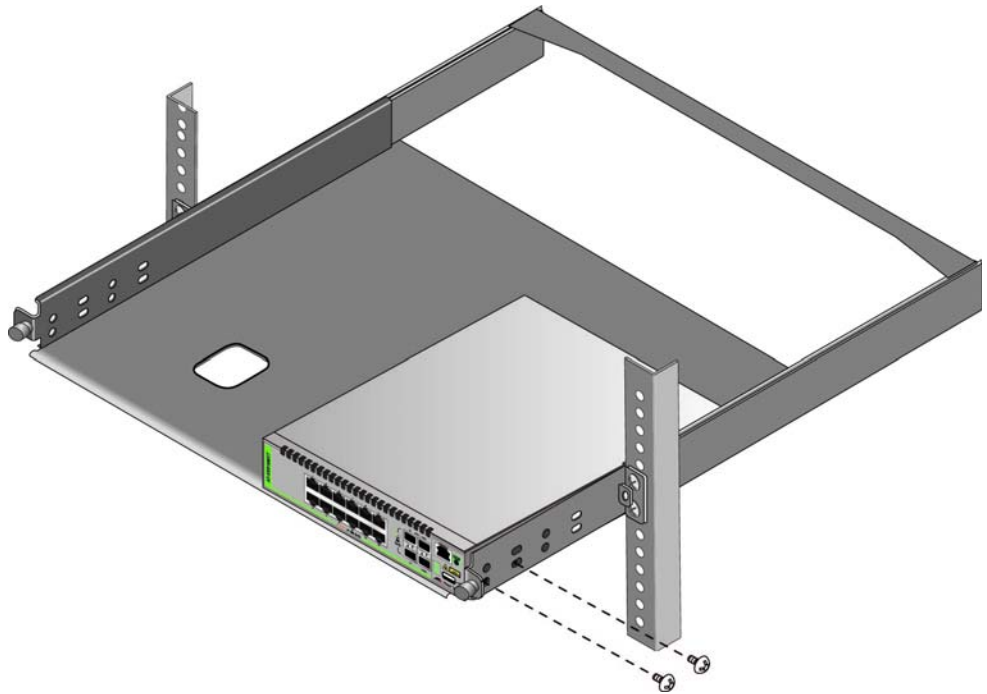
Figure 29. Securing the Switch to the AT-RKMT-J15 Bracket

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

10. Slide in the bracket tray. Refer to Figure 30.
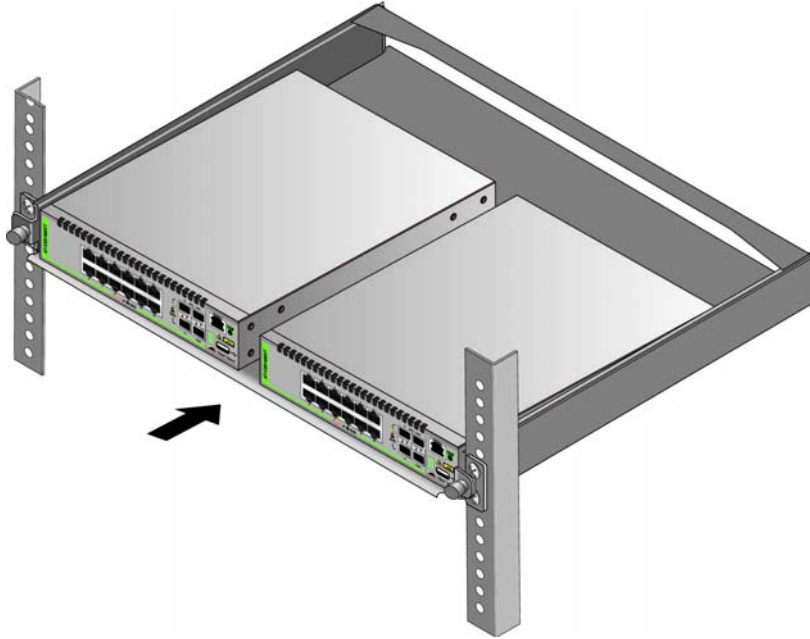
Figure 30. Sliding in the Bracket Tray

11. Tighten the two thumbscrews to secure the tray to the bracket. Refer to Figure 31.
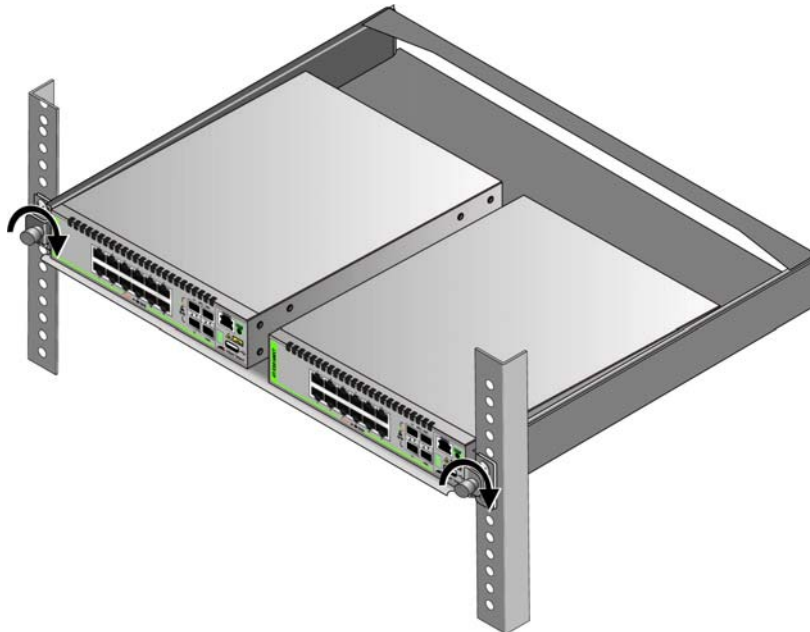
Figure 31. Tightening the Two Thumbscrews on the AT-RKMT-J15 Bracket

12. Go to Chapter 6, "Powering On the Switch" on page 75.

Chapter 4

Installing the Switch on a Wall

The procedures in this chapter are listed here:

Switch Orientations on a Wall

You can install the switch on a wall with the front panel on the left or right, as shown in Figure 32. Do not install it with the front panel on the top or bottom.

Figure 32. Positioning the Switch on the Wall

Installation Guidelines

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

❒ You can install the switch on a wall with wooden studs or 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 59. 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.

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

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

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

Tools and Material

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

❒ Four AT-BRKT-J24 wall brackets and sixteen screws (included with the switch)

❒ Cross-head screwdriver (not provided)

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

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

❒ 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 59 for illustrations.

❒ Four screws to attach the plywood base to the wall (not provided)

❒ Four 6mmx4mmx29.6mm anchors (included with the switch)

❒ Four M4x32mm screws to attach the switch to the wall (included with the switch)

⚠️ **Caution**

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

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.) Refer to Figure 33.
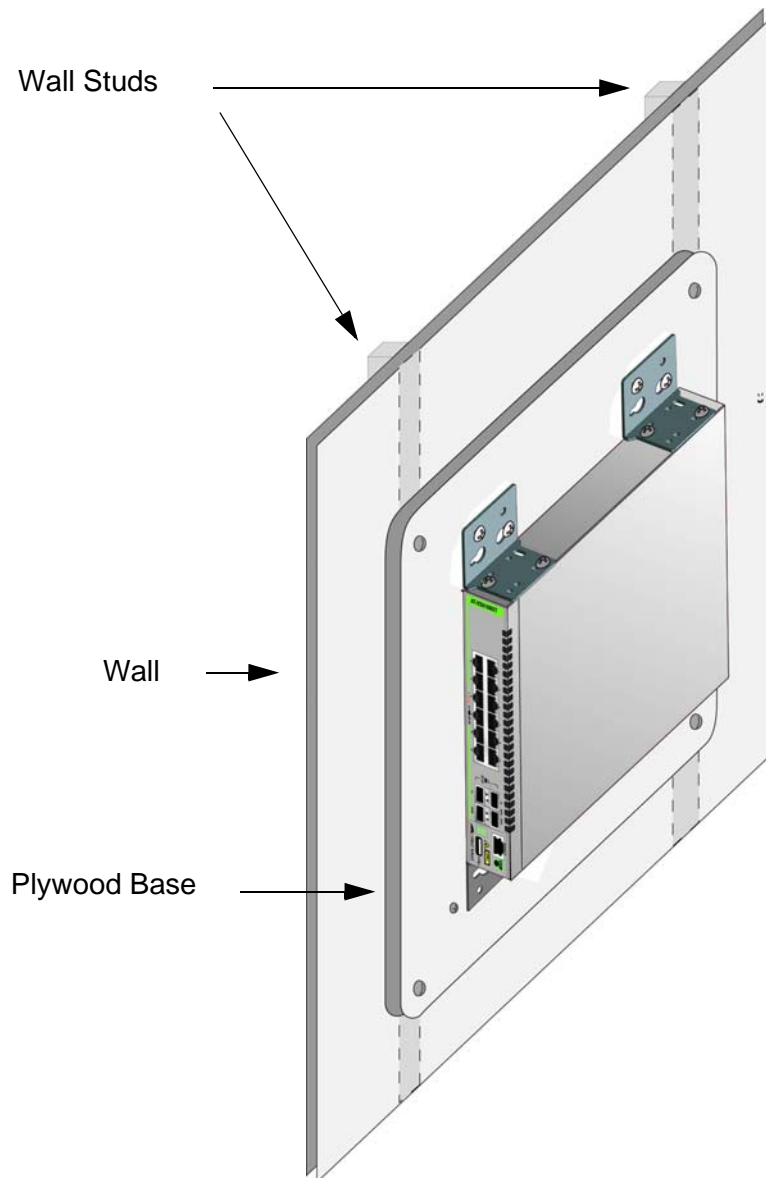
Figure 33. Switch on the Wall with a Plywood Base

The plywood base should be mounted to two studs in the wall. The recommended minimum dimensions of the plywood base for the switch are listed here:

❐ Width: 55.9 centimeters (22 inches)

❐ Height: 35.6 centimeters (14 inches)

❐ Thickness: 2.5 centimeters (1 inch)

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

You should install the plywood base on the wall and then install the switch on the base. Refer to Figure 34.

Wall Studs

Wall

Plywood Base

Step 1: Install the plywood base on the wall.

Step 2: Install the switch on the plywood base.
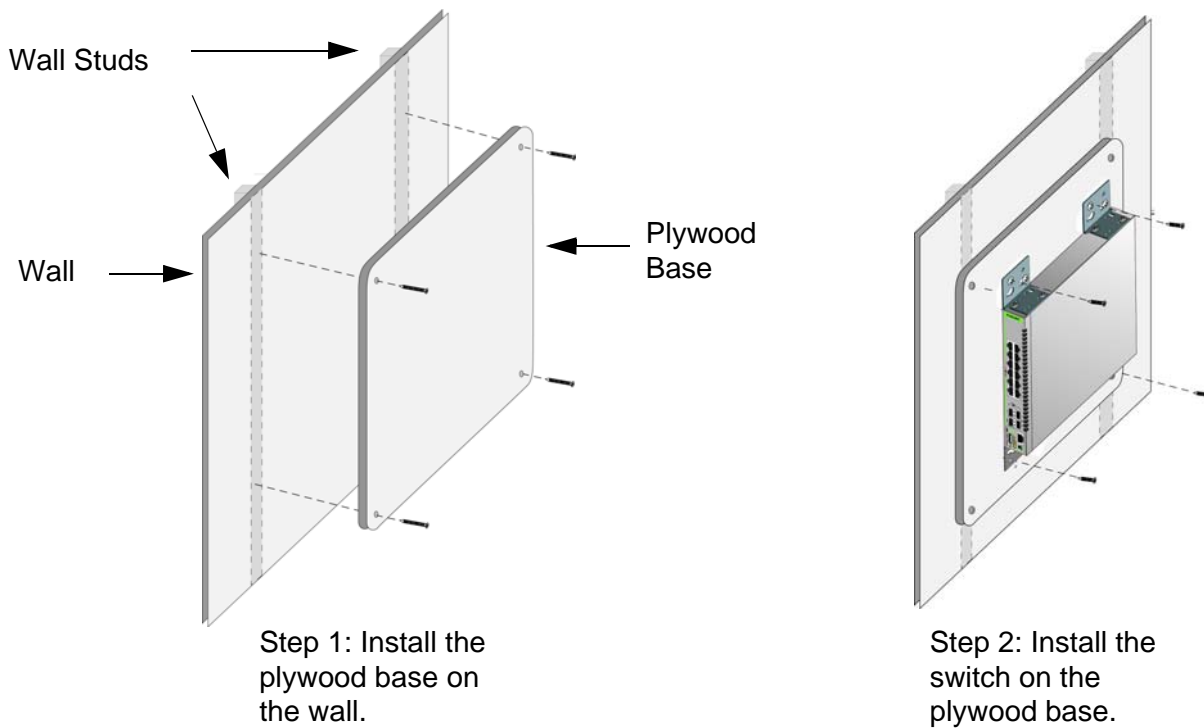
Figure 34. Steps to Installing the Switch with a Plywood Base

Installing a Plywood Base

A plywood base is recommended when installing the switch on a wall that has wooden studs. Refer to "Plywood Base for a Wall with Wooden Studs" on page 59. Consult a qualified building contractor for installation instructions for the plywood base. The installation guidelines are listed here:

❐ 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 provide sufficient space from other devices or walls so that you can access the front and back panels, and for adequate air flow for ventilation.

Installing the Switch on a Plywood Base

This procedure assumes that the plywood base for the switch is already installed on the wall. Please review "Reviewing Safety Precautions" on page 34 and "Choosing a Site for the Switch" on page 38 before performing this procedure. Allied Telesis recommends a minimum of two people for this procedure.

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

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

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

1. Place the switch on a table.

2. Install the four AT-BRKT-J24 wall brackets to the sides of the unit, with the sixteen M4x6mm screws included with the switch. Refer to Figure 35.
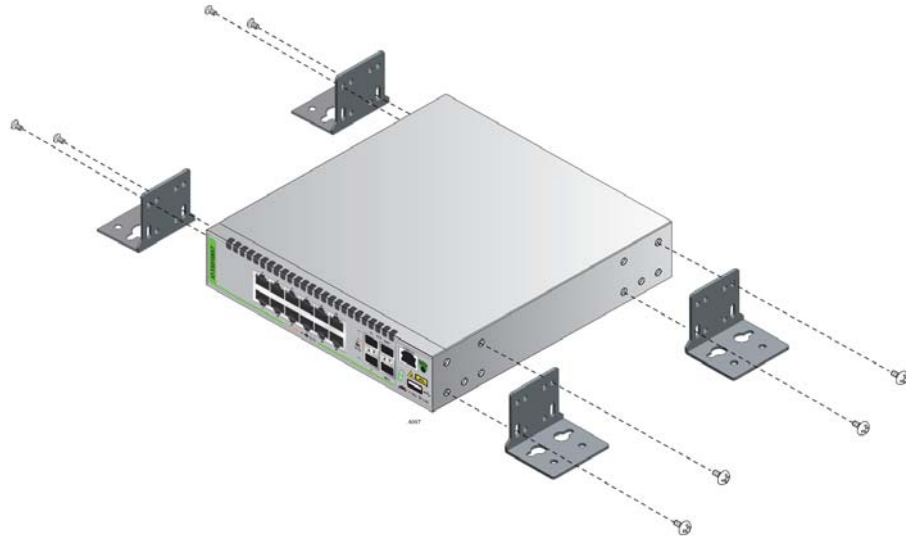
Figure 35. Installing the Wall Brackets

3. After attaching the brackets, have another person hold the switch on the plywood base on the wall while you secure it with four screws (not provided with the switch). Refer to Figure 36.

    Please follow these guidelines as you position the switch on the wall:

    ❐ Position it so that the front panel is either on the left or right. Refer to Figure 32 on page 56. Do not install it with the front panel facing up or down.

    ❐ Leave sufficient space from other devices or walls so that you can access the front and back panels, and for adequate air ventilation.
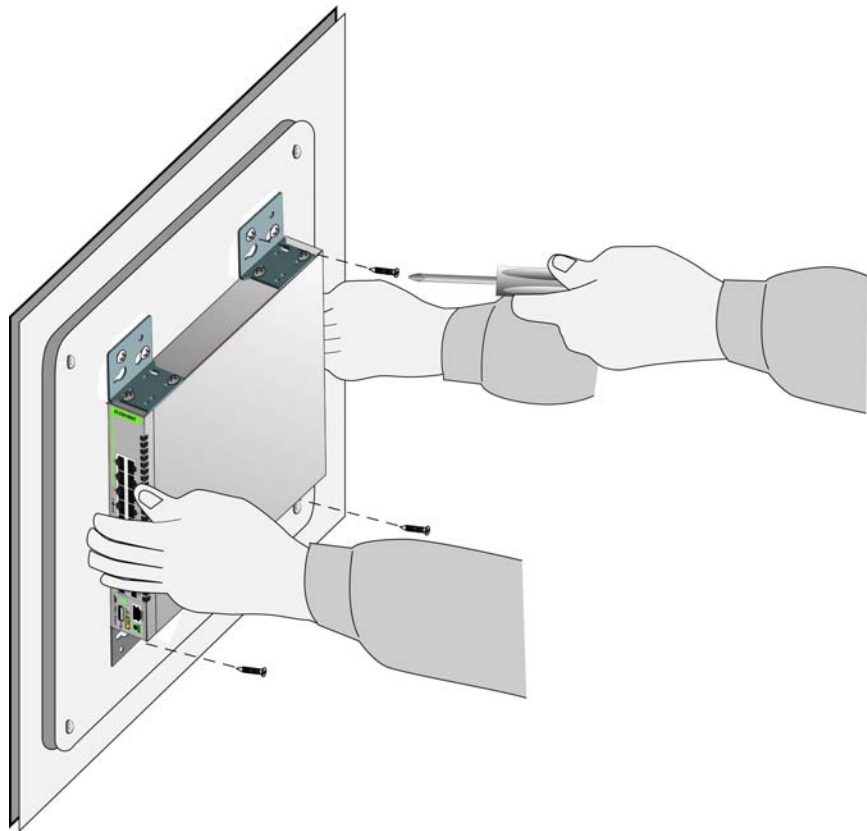
Figure 36. Securing the Switch to the Plywood Base

4. Go to Chapter 6, "Powering On the Switch" on page 75.

Installing the Switch on a Concrete Wall

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

❐ "Switch Orientations on a Wall" on page 56

❐ "Installation Guidelines" on page 57

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

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

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

1. Place the switch on a table.

2. Install the four AT-BRKT-J24 wall brackets to the sides of the unit, with the sixteen M4x6mm screws included with the switch. Refer to Figure 35 on page 62.

3. Have another person hold the switch on the concrete wall at the selected location for the device while you use a pencil or pen to mark the wall with the locations of the four screw holes in the four brackets (one screw per bracket). Refer to Figure 37 on page 65.

   Please follow these guidelines as you position the switch on the wall:

   ❐ Position the switch so that the front panel is either on the left or the right. Refer to Figure 32 on page 56. Do not install the switch with the front panel facing up or down.

   ❐ Leave sufficient space from other devices or walls so that you can access the front and back panels, and for adequate air ventilation.
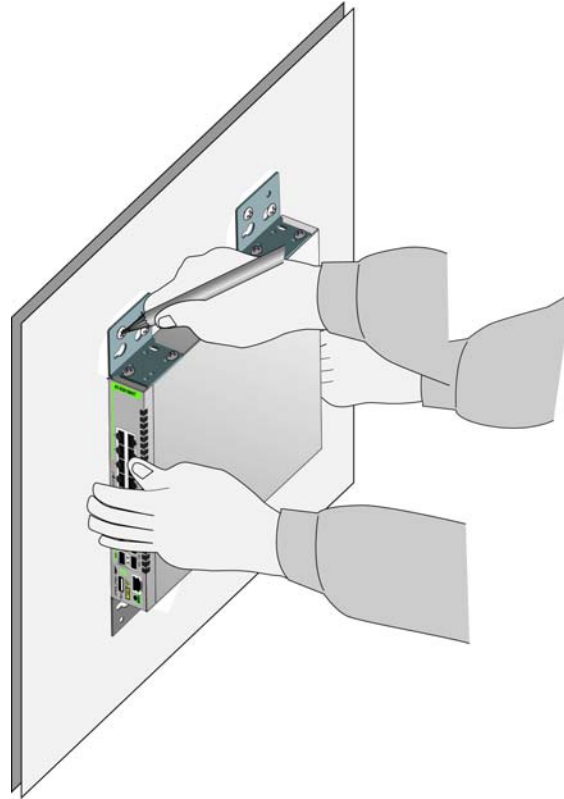
Figure 37. Marking the Locations of the Bracket Holes on a Concrete Wall

4. Place the switch on a table or desk.

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

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

   ❒ Allied Telesis recommends cleaning out the holes with a brush or compressed air.

6. Insert the four provided anchors into the holes.

7. Have another person hold the switch at the selected wall location while you secure it to the wall with the four M4x32mm screws. Refer to Figure 38 on page 66.
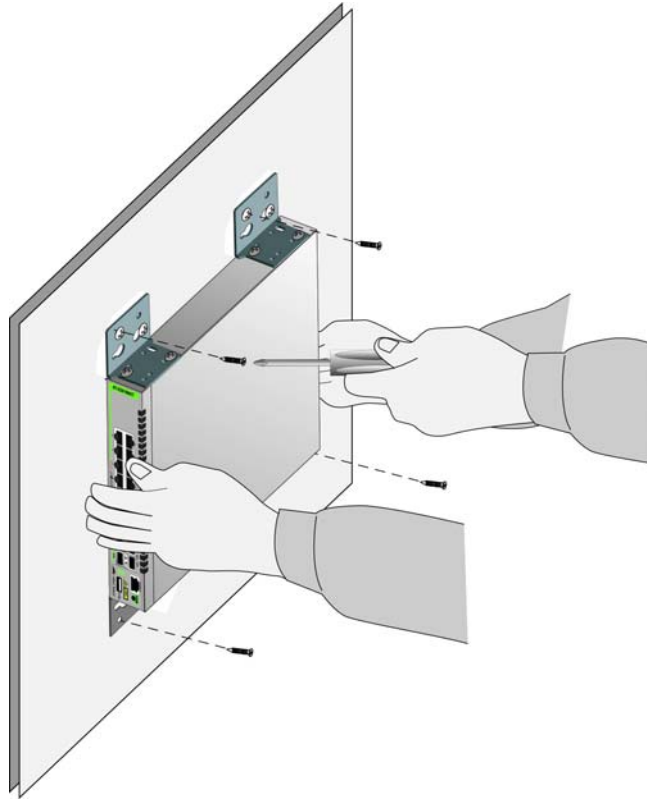
Figure 38. Installing the Switch on a Concrete Wall

8. Go to Chapter 6, "Powering On the Switch" on page 75.

Chapter 5
Cabling the Networking Ports

This chapter contains the following procedures:

❒ "Cabling the Twisted Pair Ports" on page 68

❒ "Installing SFP/SFP+ Transceivers" on page 69

❒ "Installing AT-SP10TW1 and AT-SP10TW3 Direct Attach Cables" on page 72

Cabling the Twisted Pair Ports

Here are the guidelines to cabling the 100Mbps and 1/10Gbps twisted pair ports:

❒ The cable specifications for the twisted pair ports are listed in "Cable Requirements" on page 20.

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

❒ The setting for the wiring configurations of the ports is auto-MDI/MDI-X. You cannot change the wiring configurations manually.

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

❒ The default speed setting of Auto-Negotiation is not appropriate for ports connected to 100Base-TX network devices that do not support Auto-Negotiation and have fixed speeds. For those switch ports, you should disable Auto-Negotiation and set the port's speed manually to match the speeds of the network devices.

❒ The ports must be set to Auto-Negotiation, the default setting, to operate at 1000Mbps or 10Gbps.

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

❒ The default duplex mode setting of Auto-Negotiation is not appropriate for ports connected to network devices that do not support Auto-Negotiation and have a fixed duplex mode. You should disable Auto-Negotiation on those ports and set their duplex modes manually to avoid the possibility of duplex mode mismatches. A switch port using Auto-Negotiation defaults to half-duplex if it detects that the end node is not using Auto-Negotiation. This can result in a mismatch if the end node is operating at a fixed duplex mode of full-duplex.

❒ Do not attach cables to ports of static or LACP port trunks until after you have configured the trunks on the switch. Otherwise, the ports will form network loops that can adversely affect network performance.

Installing SFP/SFP+ Transceivers

This section contains guidelines and procedures for installing SFP/SFP+ transceivers.

Guidelines for SFP/SFP+ Transceivers

Here are general installation guidelines for SFP/SFP+ transceivers:

❒ SFP/SFP+ transceivers are hot-swappable. You may install them while the chassis is powered on.

❒ You should 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.

❒ The S1 and S2 stacking slots can be used as SFP/SFP+ slots.

⚠ **Warning**
A transceiver 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 device. ⮌ E77

Installing SFP/ SFP+ Transceivers

To install SFP/SFP+ transceivers, perform the following procedure:

1. Remove the dust plug from a transceiver slot on the switch. Refer to Figure 39.

Figure 39. Removing the Dust Plug from an SFP/SFP+ Slot

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

3. Position the transceiver.

   For a top slot, position the transceiver with the handle on top. For a bottom slot, position the transceiver with the handle beneath the module.

4. Slide the transceiver into the slot until it clicks into place. See Figure 40.
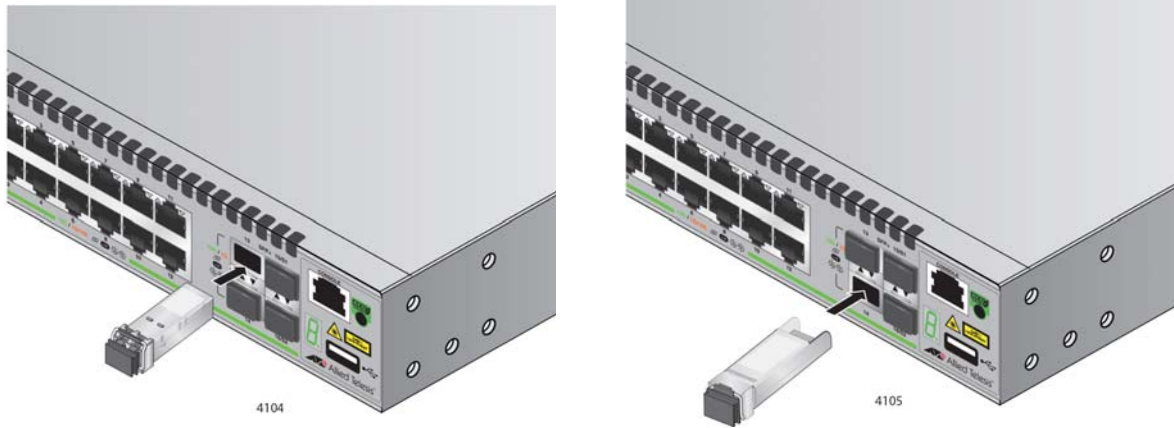
Figure 40. Installing an SFP/SFP+ Transceiver

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 another SFP transceiver in the switch.

5. Remove the dust cover from the transceiver, as shown in Figure 41.
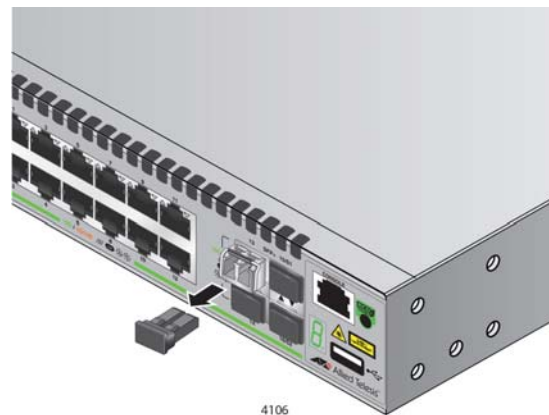
Figure 41. Removing the Dust Cover from an SFP Transceiver

6. Verify the position of the handle on the SFP transceiver.

   For a top slot, the handle is in the upright position, as shown in Figure 42. For a bottom slot, the handle should be in the down position.
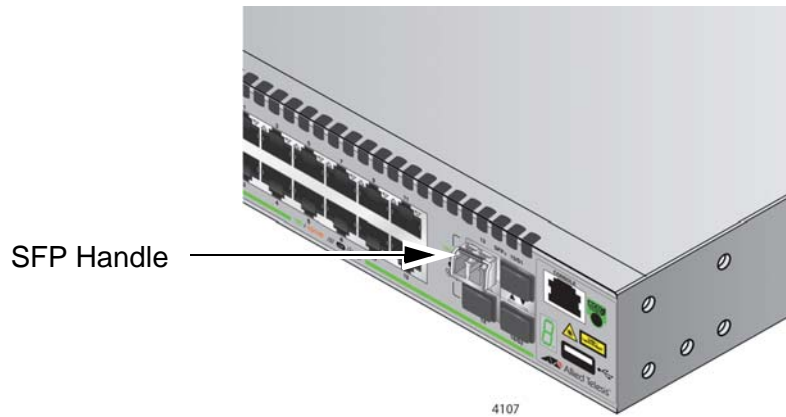
SFP Handle

Figure 42. Positioning the SFP Handle in the Upright Position

7. Connect the fiber optic cable to the transceiver, as shown in Figure 43.

   The connector on the cable should fit snugly into the port, and the tab should lock the connector into place.
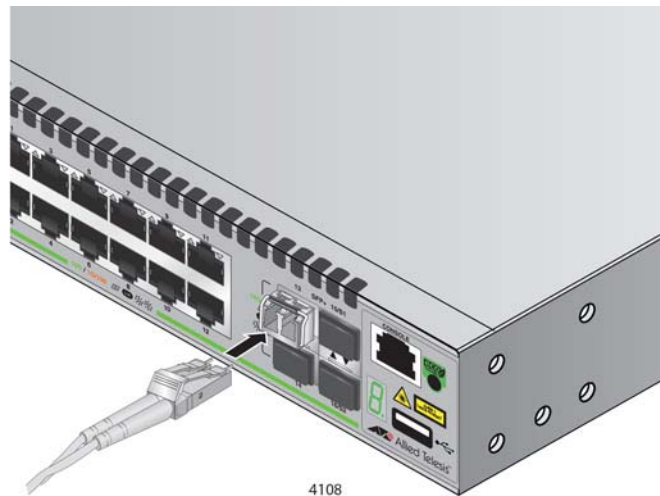
Figure 43. Connecting a Fiber Optic Cable to an SFP Transceiver

8. Repeat this procedure to install additional transceivers.

9. After installing the transceivers, go to Chapter 6, "Powering On the Switch" on page 75.

Installing AT-SP10TW1 and AT-SP10TW3 Direct Attach Cables

The SFP/SFP+ transceiver ports support AT-SP10TW1 and AT-SP10TW3 Direct Attach Cables. The cables are an economical way to add 10Gbps connections over short distances. They can also be used as trunk cables with VCStack. The AT-SP10TW1 and AT-SP10TW3 Cables come in one and three meters, respectively, and have SFP+ transceivers on both ends.

> **Note**
> The XS900MX Switches do not support the AT-SP10TW7 Direct Attach Cable.

To install AT-SP10TW cables, perform the following procedure:

1. Select a port for the transceiver.

1. If the port has a dust cover, remove the cover. Refer to Figure 41 on page 70.

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

3. To install the transceiver in a port in the top row, position the transceiver with the Allied Telesis label facing up. To install the transceiver in a port in the bottom row, position the transceiver with the label facing down. Refer to Figure 44.
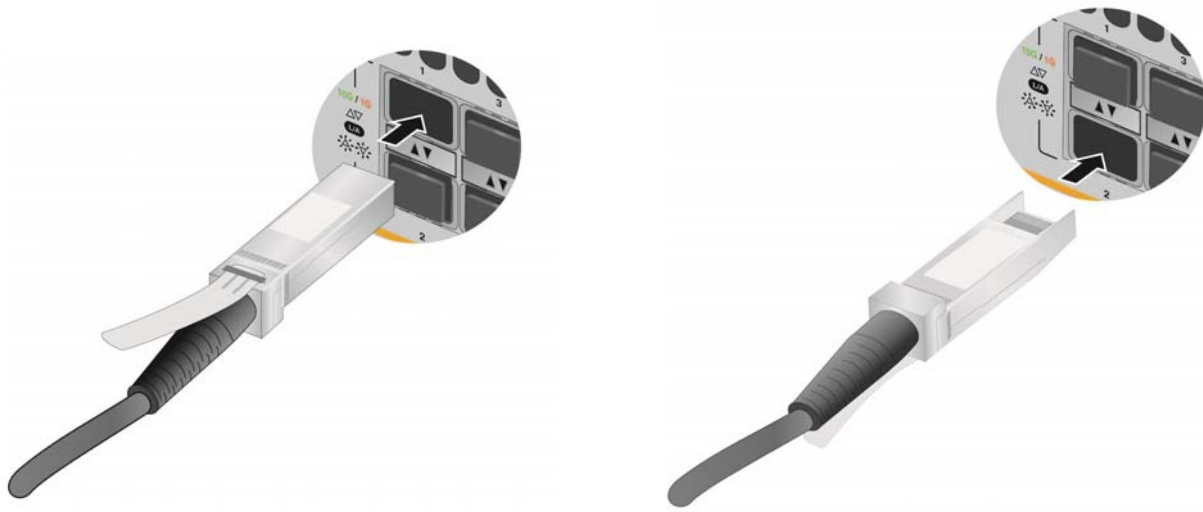
Figure 44. Installing AT-SP10TW Cables

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

5. Connect the other end of the cable into an SFP+ port on another network device.

> **Note**
> If you are using the cable as trunk cables for VCStack, remember that the cables must crossover to different ports. For example, it you are using the default trunk ports 15/S1 and 16/S2, port 15/S1 on one switch must crossover to port 16/S2 on the second switch.

6. Repeat this procedure to install additional transceivers.

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

Chapter 6
Powering On the Switch

This chapter contains the following procedures:

Powering On the Switch

Before powering on the switch, see "Power Specifications" on page 92 for the power specifications. To power on the switch, perform the following procedure:

1. Install the power cord retaining clip. Refer to "Installing the Power Cord Retaining Clip" on page 40.

2. Raise the retaining clip. See Figure 45.
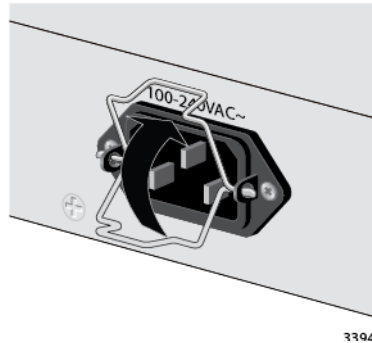
Figure 45. Raising the Retaining Clip

3. Connect the power cord to the connector. See Figure 46.
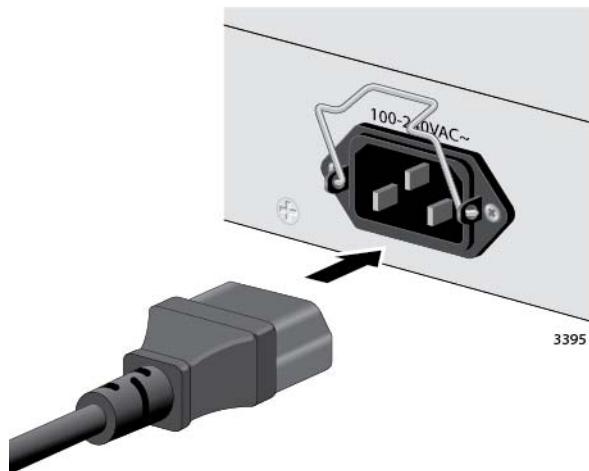
Figure 46. Plugging in the AC Power Cord

4. Lower the retaining clip to secure the power cord to the switch. See Figure 47 on page 77.

3396
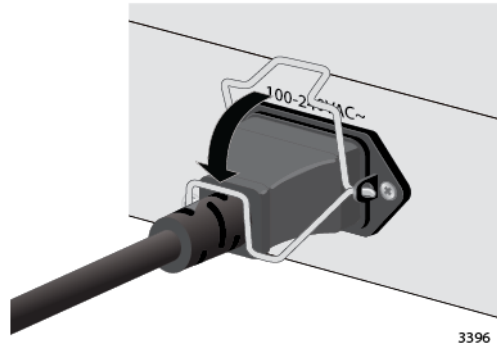
Figure 47. Lowering the Retaining Clip

5. Connect the other end of the power cord to an appropriate power source.

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

6. Go to "Monitoring the Initialization Processes" on page 78 or "Configuring the Switch for Stand-alone Operations" on page 81.

Monitoring the Initialization Processes

It takes about one and a half minutes for the switch to initialize its management software programs and features, and load the default configuration. You may monitor the progress of the initialization process by watching the switch ID LED. It displays the number "8" for the first minute and afterwards the number "0."

You may also monitor the bootup sequence by connecting a terminal or computer that has a terminal emulator program to the Console port on the master switch. The messages are given in Figure 48 here to Figure 50 on page 80. The messages may differ slightly depending on whether your switch is a PoE or non-PoE model.

After the switch has initialized its management software, go to "Configuring the Switch for Stand-alone Operations" on page 81.

```
Bootloader 3.1.3-devel loaded
Press <Ctrl+B> for the Boot Menu


Reading filesystem...
Loading flash:xs900-main-20151028-4.rel...
Verifying release... OK
Booting...
Starting base/first...                                    [  OK  ]
Mounting virtual filesystems...                           [  OK  ]


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


Allied Telesis Inc.
AlliedWare Plus (TM) v0.0.0
Current release filename: xs900-main-20151028-4.rel
Built: Wed Oct 28 06:23:09 UTC 2015
Mounting static filesystems...                            [  OK  ]
Checking flash filesystem...                              [  OK  ]
```

Figure 48. Switch Initialization Messages

```
Mounting flash filesystem...                              [  OK  ]
Checking for last gasp debug output...                    [  OK  ]
Checking NVS filesystem...                                [  OK  ]
Mounting NVS filesystem...                                [  OK  ]
Starting base/arm_sysctl...                               [  OK  ]
Starting base/dbus...                                     [  OK  ]
Starting base/syslog...                                   [  OK  ]
Starting base/loopback...                                 [  OK  ]
Starting base/poe_done...                                 [  OK  ]
Starting base/sysctl...                                   [  OK  ]
Starting base/portmapper...                               [  OK  ]
Received event syslog.done
Starting base/reboot-stability...                         [  OK  ]
Checking system reboot stability...          mv: write error: No
space left on device
[  OK  ]
Starting base/cron...                                     [  OK  ]
Starting base/apteryx...                                  [  OK  ]
Starting base/appmond...                                  [  OK  ]
Starting base/clockcheck...                               [  OK  ]
Starting hardware/openhpi...                              [  OK  ]
Starting hardware/timeout...                              [  OK  ]
Starting base/inet...                                     [  OK  ]
Starting base/modules...                                  [  OK  ]
Received event modules.done
Received event board.inserted
Received event apteryx.done
Starting network/kermond...                               [  OK  ]
Starting hardware/plugman...                              [  OK  ]
Starting hardware/hardware-done...                        [  OK  ]
Received event hardware.done
Starting network/startup...                               [  OK  ]
Starting base/external-media...                           [  OK  ]
Starting network/stackd...                                [  OK  ]
Starting network/election.timeout...                      [  OK  ]
Starting network/corosync...                              [  OK  ]
Received event network.enabled
```

Figure 49. Switch Initialization Messages (Continued)

```
Initializing HA processes:
atmfd, auth, cntrd, epsr, hostd, hsl, imi
imiproxyd, lacp, lldpd, loopprot, mstp, nsm, ripd
rmon, sflowd, udldd

Received event network.initialized

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

Received event network.activated

Loading default configuration
..

done!
Received event network.configured


awplus login:
```

Figure 50. Switch Initialization Messages (Continued)

Configuring the Switch for Stand-alone Operations

After the switch has initialized its management software, examine the switch ID LED on the front panel and do one of the following:

❒ If the LED is displaying "0," the installation procedure is complete. The switch is now ready for network operations as a stand-alone unit. Refer to the *Software Reference for XS900MX Series Switches, AlliedWare Plus Operating System,* for instructions on how to configure the operating parameters.

❒ If the LED is not displaying "0" (for example, if is displaying the default number "1"), perform the following procedures to disable the VCStack feature.

You can disable the VCStack feature from a local management session of the switch using the Console port. To start a local management session, go to "Starting a Local Management Session," next.

⚠ **Caution**

You have to reset the switch to disable the VCStack feature. Some network traffic may be lost if the device is already connected to a live network. ↝ E75

Note

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

Starting a Local Management Session

This procedure requires a terminal or a terminal emulator program and the management cable that comes with the switch. To start a local management session on the switch, perform the following procedure:

1. Connect the RJ-45 connector on the management cable to the Console port on the front panel of the switch, as shown in Figure 51 on page 82.

Figure 51. Connecting the Management Cable to the Console Port

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

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

   ❑ Baud rate: 9600 bps (The baud rate of the Console Port is adjustable from 1200 to 115200 bps. The default is 9600 bps.)

   ❑ Data bits: 8

   ❑ Parity: None

   ❑ Stop bits: 1

   ❑ Flow control: None

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

4. Press Enter.

   You are prompted for a user name and password.

5. When prompted for a user name, go to "Disabling VCStack" on page 83.

Disabling VCStack

To disable the VCStack feature to use the switch as stand-alone unit, perform the following procedure:

⚠ **Caution**

Disabling the VCStack feature requires resetting the switch. If the switch is already connected to a live network, some network traffic may be lost. ⤸ E75A

1. When prompted, enter a user name and password to log on the switch.

   If this is the initial management session of the switch, enter "manager" as the user name and "friend" as the password. The user name and password are case sensitive.

   The local management session starts when the User Exec mode prompt, shown in Figure 52, is displayed.

```
awplus>
```

Figure 52. 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 XS900MX Series Switches, AlliedWare Plus Operating System* from **www.alliedtelesis.com/ support**.

2. Enter the SHOW STACK command to display the status of the VCStack feature. Figure 53 is an example of the command.

```
awplus> show stack
Virtual Chassis Stacking summary information
ID    Pending ID    MAC address        Priority    Status    Role
1     -             0015:774f:ed30     128         Ready     Active Master
Operational Status                     Standalone Unit
Stack MAC address  0015:774f:ed30
awplus(config)#
```

Figure 53. SHOW STACK Command

3. Review the following items:

❑ If the Operational Status is "Stacking Hardware Disabled," the VCStack feature is already disabled on the switch. The switch is ready for operations as a stand-alone switch in your network. No further installation steps are required.

❑ If the Operational Status is "Standalone Unit," as shown in Figure 53 on page 83, the VCStack feature is active on the unit. You must disable it by performing the steps in the rest of this procedure before you can use the SFP+ stacking slots with regular SFP or SFP+ transceivers. The reason the status says "standalone" is because the switch is operating as a stack of one switch.

4. Move to the Global Configuration mode by entering the ENABLE and CONFIGURE TERMINAL commands, as shown in Figure 54.

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

Figure 54. Moving to the Global Configuration Mode

5. To disable the VCStack feature on the switch, enter the NO STACK ENABLE command, which has this format:

no stack *id* enable

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

awplus(config)# no stack 1 enable

This confirmation prompt in Figure 55 is displayed.

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

Figure 55. Confirmation Prompt for the NO STACK ENABLE Command

6. Type Y to disable VCStack on the switch or N to cancel the procedure.

7. Enter the EXIT command to return to the Privileged Exec mode, as shown in Figure 56.

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

Figure 56. Returning to the Privileged Exec Mode

8. Enter the WRITE command to save your change in the configuration file. The switch displays the confirmation prompt in Figure 57.

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

Figure 57. Saving the Changes with the WRITE Command

9. Enter the REBOOT command to reboot the switch.

10. At the confirmation prompt, type "Y" for yes.

11. Wait for the switch to initialize its management software and afterwards examine the Switch ID LED.

If the ID number is "0," the switch is ready for normal network operations as a stand-alone unit. Refer to the *Software Reference for XS900MX Series Switches, AlliedWare Plus Operating System,* for instructions on how to configure the operating parameters. If the number is not "0," repeat this procedure.

Chapter 7
Troubleshooting

This chapter contains suggestions on how to troubleshoot the switch if a problem occurs.

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

Problem 1: The Switch ID LED on the front of the switch is off.

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

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

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

❒ Try connecting the unit to another power source.

❒ Try a different power cord.

❒ Verify that the voltage from the power source is within the required levels for your region.

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

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

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

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

❒ Verify that the port is connected to the correct twisted pair cable. This is to eliminate the possibility that the port is connected to the wrong network device.

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

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

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

❑ Verify that you are using the appropriate category of twisted pair cable. Refer to "Cable Requirements" on page 20.

Note
A 1000Base connection may require five to ten seconds to establish a link.

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

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

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

❑ Verify that the fiber optic cable is securely connected to the port on the SFP module and to the port on the remote network device.

❑ Check that the transceiver is fully inserted in the slot.

❑ 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. This is to eliminate the possibility that the port is connected to the wrong remote network device.

❑ 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.

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

Problem 5: Network performance between a twisted pair port on the switch and a network device is slow.

Solution: There might be a duplex mode mismatch between the port and the network device. This can occur when a twisted pair port using Auto-Negotiation is connected to a remote device that has a fixed speed of 10

or 100 Mbps and a fixed duplex mode of full-duplex. If this is the cause of the problem, adjust the duplex mode of the port on the network device or switch so that both ports are using the same duplex mode. You can use either the LEDs or management software on the switch to determine the duplex mode settings of the ports. The LEDs are described in Table 1 on page 25.

Problem 6: The switch functions intermittently.

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

- ❐ Use the SHOW SYSTEM ENVIRONMENT command in the Privileged Exec mode to verify that the input voltage from the power source to the switch is stable and within the approved operating range. The unit will shut down if the input voltage fluctuates above or below the approved operating range.
- ❐ Use the SHOW SYSTEM ENVIRONMENT command in the Privileged Exec mode to verify that the fan is operating correctly.
- ❐ Verify that the location of the switch allows for adequate airflow. The unit will shut down if it is in danger of overheating.

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

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

- ❐ A cooling fan has failed.
- ❐ The input voltage on the power supply is outside the normal operating range.
- ❐ The internal temperature of the switch has exceeded the normal operating range, and the switch may shut down.

Contact your Allied Telesis sales representative for assistance.

Appendix A
Technical Specifications

This appendix contains the following sections:

❐ "Physical Specifications"

❐ "Environmental Specifications" on page 92

❐ "Power Specifications" on page 92

❐ "Certifications" on page 93

❐ "RJ-45 Twisted Pair Port Pinouts" on page 94

❐ "RJ-45 Style Serial Console Port Pinouts" on page 95

Physical Specifications

Dimensions (H x W x D)

Table 4. Product Dimensions

AT-XS916MXT	4.3 cm x 21 cm x 32.3 cm (1.7 in. x 8.3 in. x 12.7 in.)
AT-XS916MXS	4.3 cm x 21 cm x 32.3 cm (1.7 in. x 8.3 in. x 12.7 in.)

Weights

Table 5. Product Weights

AT-XS916MXT	2.8 kg (6.1 lb.)
AT-XS916MXS	2.7 kg (5.9 lb.)

Ventilation

Table 6. Ventilation Requirements

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

Environmental Specifications

Table 7. Environmental Specifications

Operating Ambient 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 (6,562 ft)

Power Specifications

Input Voltages

Table 8. Input Voltages

AT-XS916MXT	Voltage: 100-240 VAC, 1.0A Frequency: 47-63 Hz
AT-XS916MXS	Voltage: 100-240 VAC, 1.0A Frequency: 47-63 Hz

Maximum Power Consumption

Table 9. Maximum Power Consumption

AT-XS916MXT	78 watts
AT-XS916MXS with 60 watts power supply	51 watts
AT-XS916MXS with 100 watts power supply	53 watts

Heat Dissipation (British Thermal Units/hour)

Table 10. Heat Dissipation

AT-XS916MXT	270 BTU/h
AT-XS916MXS with 60 watts power supply	170 BTU/h
AT-XS916MXS with 100 watts power supply	180 BTU/h

Certifications

Table 11. Product Certifications

RFI Emissions	FCC Class A, EN55022 Class A, EN61000-3-2, EN61000-3-3, VCCI Class A, RCM
EMC (Immunity)	EN55024
Electrical and Laser Safety	UL 60950-1 ($_C$UL$_{US}$), CSA-C22 No. 60950-1 ($_C$UL$_{US}$), EN60950-1 (TUV), EN60825-1 (TUV)

RJ-45 Twisted Pair Port Pinouts

Figure 58 illustrates the pin layout of the RJ-45 connectors and ports.

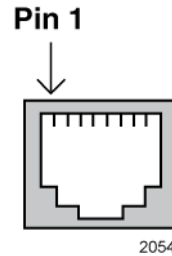Figure 58. RJ-45 Socket Pin Layout (Front View)

Table 12 lists the pin signals for 10 and 100 Mbps.

Table 12. Pin Signals for 10 and 100 Mbps

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

The pin signals for a port operating at 1000 Mbps are shown in Table 13.

Table 13. Pin Signals for 1000 Mbps

Pinout	Pair
1	Pair 1 +
2	Pair 1 -
3	Pair 2 +
4	Pair 3 +

Table 13. Pin Signals for 1000 Mbps (Continued)

Pinout	Pair
5	Pair 3 -
6	Pair 2 -
7	Pair 4 +
8	Pair 4 -

RJ-45 Style Serial Console Port Pinouts

The pin signals of the RJ-45 style serial Console port are listed in Table 14.

Table 14. 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