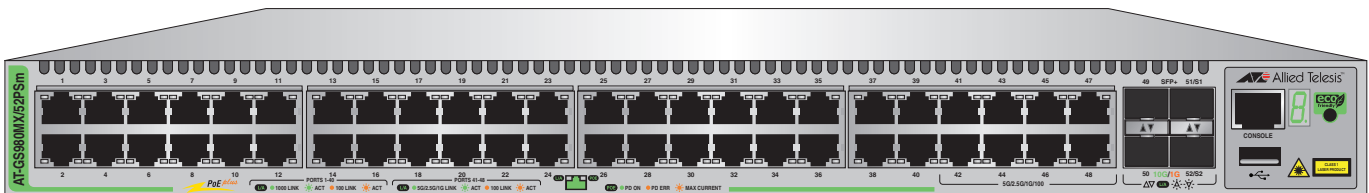
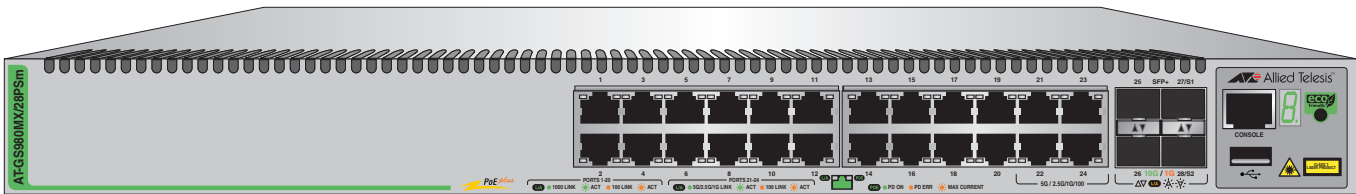
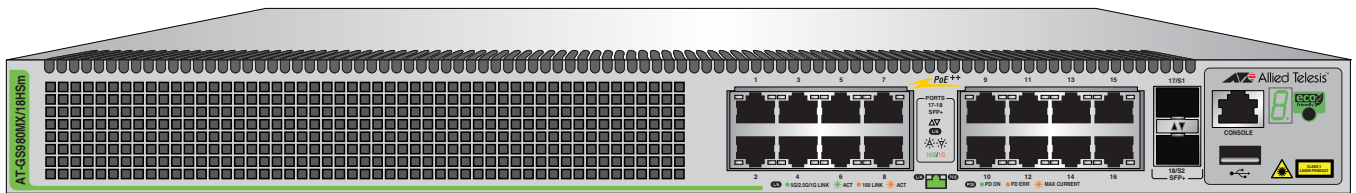
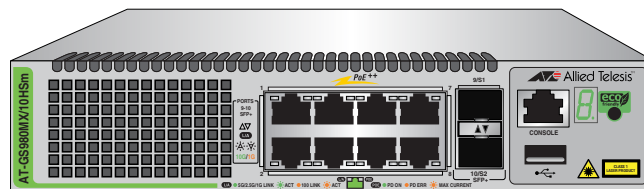


GS980MX Series

Stackable Gigabit Layer 3+ Ethernet Switches
AlliedWare Plus™ v5.5.1

- GS980MX/10HSm
- GS980MX/18HSm
- GS980MX/28
- GS980MX/28PSm
- GS980MX/52
- GS980MX/52PSm



Installation Guide for Stand-alone Switches

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Electrical Safety and Emissions Standards

This product meets the following standards.

U.S. Federal Communications Commission

Radiated Energy

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

Note: Modifications or changes not expressly approved of by the manufacturer or the FCC, can void your right to operate this equipment.

Industry Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

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

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

EMC (Immunity): EN55024

Electrical Safety: EN62368-1 (TUV), UL 60950-1 (cUL_{US}), CSA-C22-2 No. 60950-1 (cUL_{US}), EN60825-1 (TUV), UL 62368-1




Laser Safety

EN60825

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/translated-safety-statements.

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

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Preface

This guide contains the installation instructions for the GS980MX Series of stackable Gigabit, Layer 3+ Ethernet switches. This preface contains the following sections:

- “Document Conventions” on page 12
- “Contacting Allied Telesis” on page 13

Note

This guide explains how to install the switches as standalone units. For instructions on how to build a stack with Virtual Chassis Stacking (VCStack™), refer to the *GS980MX Series Installation Guide for Virtual Chassis Stacking*.

Document Conventions

This document uses the following conventions:

Note

Notes provide additional information.



Caution

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



Warning

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

Contacting Allied Telesis

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

- ❑ Helpdesk (Support Portal) - Log onto Allied Telesis interactive support center to search for answers to your questions in our knowledge database, check support tickets, learn about Return Merchandise Authorizations (RMAs), and contact Allied Telesis technical experts.
- ❑ Software Downloads - Download the latest software releases for your product.
- ❑ Licensing - Register and obtain your License key to activate your product.
- ❑ Product Documents - View the most recent installation guides, user guides, software release notes, white papers and data sheets for your product.
- ❑ Warranty - View a list of products to see if Allied Telesis warranty applies to the product you purchased and register your warranty.
- ❑ Allied Telesis Helpdesk - Contact a support representative.

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

Chapter 1

Overview

This chapter contains the following sections:

- “Front and Rear Panels” on page 14
- “Management Panel” on page 17
- “Features” on page 18
- “Twisted Pair Ports” on page 24
- “Power Over Ethernet” on page 40
- “SFP+ Transceiver Ports” on page 44
- “eco-friendly Button” on page 46
- “VCStack Feature” on page 47
- “Switch ID LED” on page 48
- “USB Port” on page 50
- “Console Port” on page 51
- “Power Supply” on page 52
- “Software and Hardware Releases” on page 53

Note

This guide explains how to install the switches as standalone units. For instructions on how to build a stack with Virtual Chassis Stacking (VCStack™), refer to the *GS980MX Series Installation Guide for Virtual Chassis Stacking*.

Front and Rear Panels

The front panels of the GS980MX Series switches are shown in Figure 1 through Figure 6 on page 15

GS980MX/10HSm

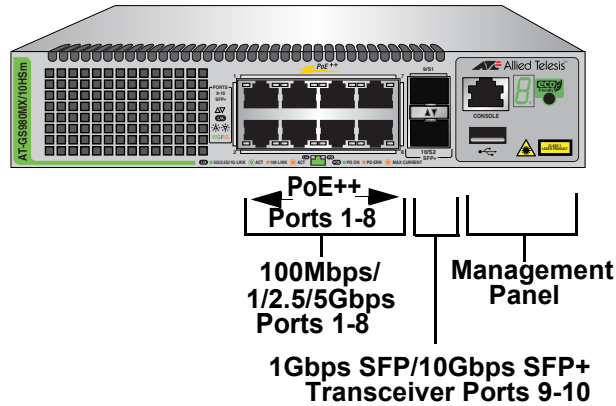


Figure 1. GS980MX/10HSm Front Panel

GS980MX/18HSm

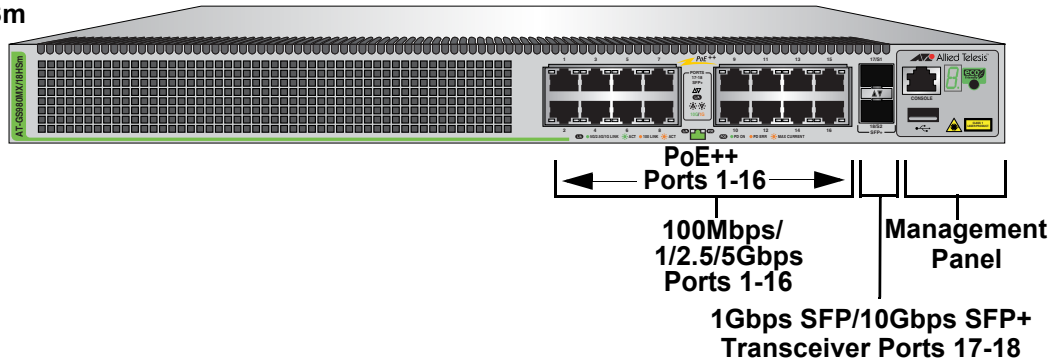


Figure 2. GS980MX/18HSm Front Panel

GS980MX/28

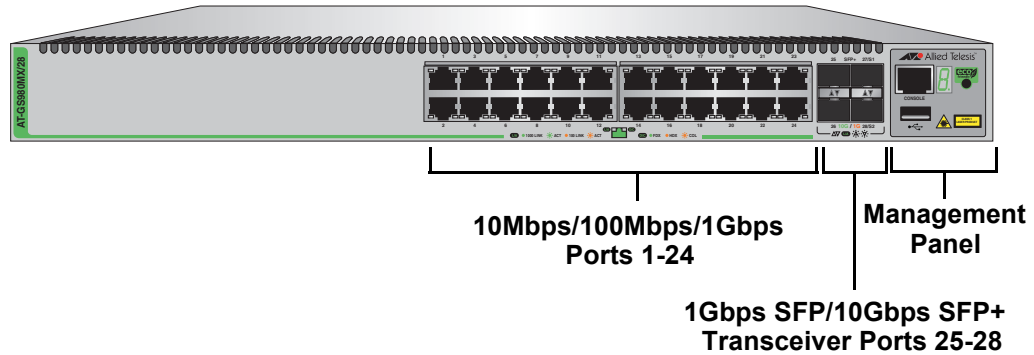


Figure 3. GS980MX/28 Front Panel

GS980MX/28PSm

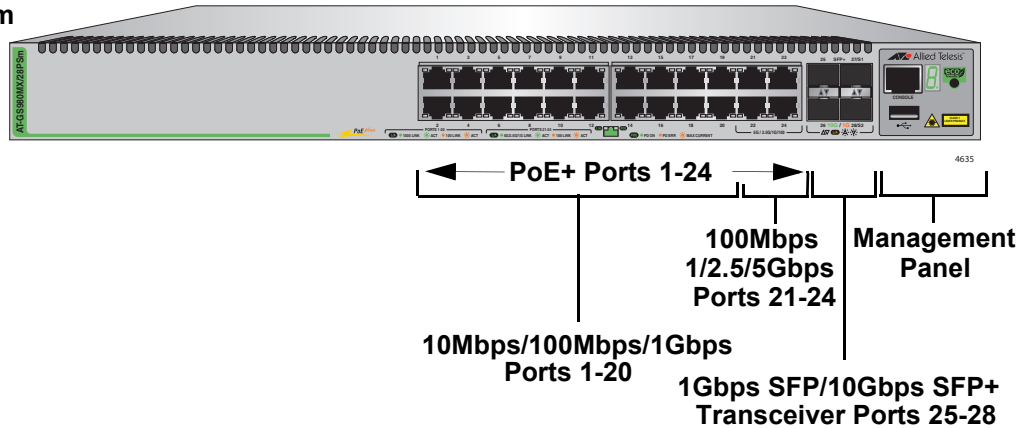


Figure 4. GS980MX/28PSm Front Panel

GS980MX/52

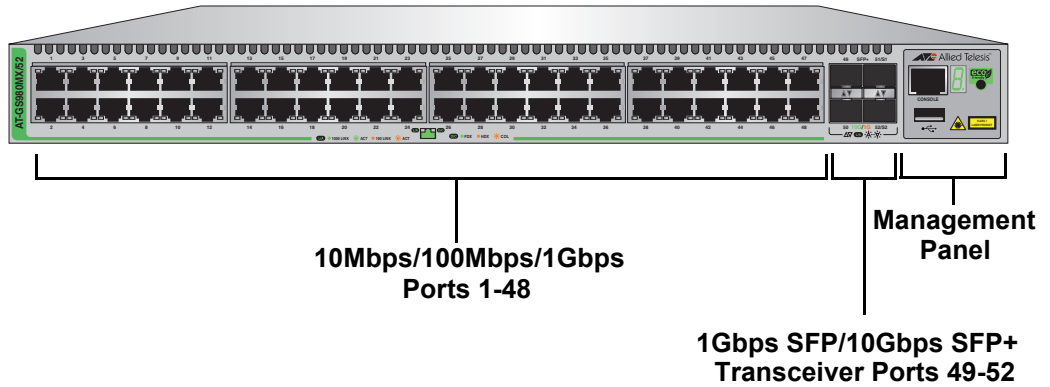


Figure 5. GS980MX/52 Front Panel

GS980MX/52PSm

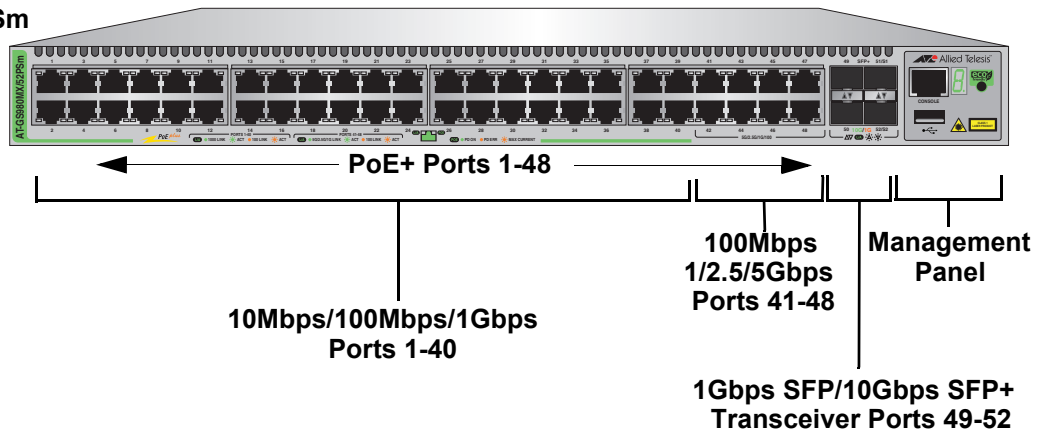


Figure 6. GS980MX/52PSm Front Panel

The back panels are shown in Figure 7 through Figure 10.

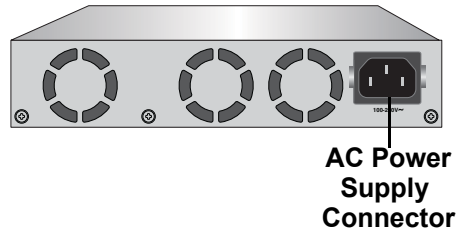


Figure 7. GS980MX/10HSm Back Panel

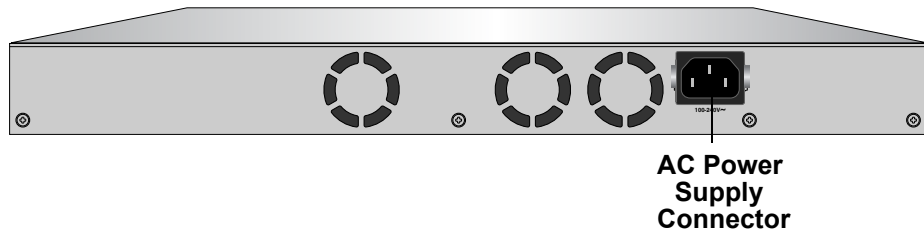


Figure 8. GS980MX/18HSm and GS980MX/52 Back Panel

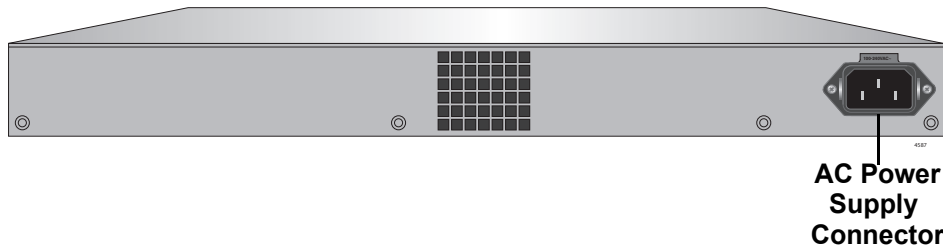


Figure 9. GS980MX/28 and GS980MX/52 Back Panel

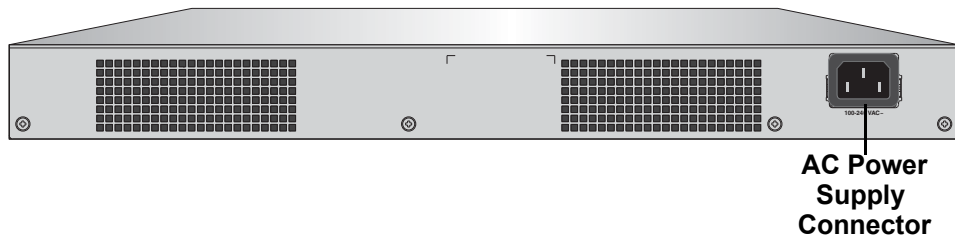


Figure 10. GS980MX/28PSm and GS980MX/52PSm Back Panel

Management Panel

Figure 11 identifies the components on the management panel.

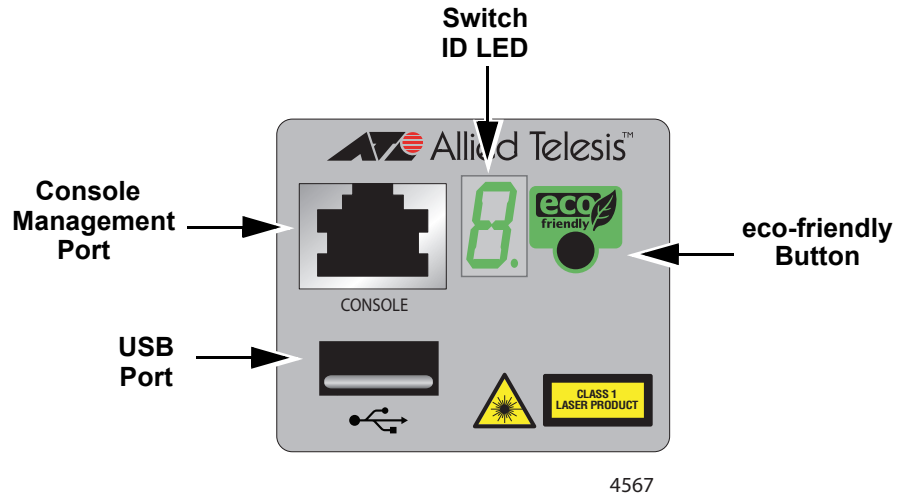


Figure 11. Management Panel

Features

The Allied Telesis GS980MX Series switches are stackable Gigabit, Layer 3+ Ethernet switches. The following sections list the features:

GS980MX Models

Table 1 lists the basic features.

Table 1. Basic Features

Feature	GS980MX /10HSm (PoE++)	GS980MX /18HSm (PoE++)	GS980MX /28	GS980MX /28PSm (PoE+)	GS980MX /52	GS980MX /52PSm (PoE+)
100Mbps and 1/2.5/5 Gbps PoE++ Twisted Pair Ports	8	16	-	-	-	-
10Mbps, 100Mbps and 1 Gbps Twisted Pair Ports	-	-	24	-	48	-
10Mbps, 100Mbps and 1 Gbps PoE+ Twisted Pair Ports	-	-	-	20	-	40
100Mbps and 1/2.5/5Gbps PoE+ Twisted Pair Ports	-	-	-	4	-	8
1Gbps SFP and 10Gbps SFP+ Transceiver Ports	2	2	4	4	4	4
VCStack	Up to 4	Up to 4	Up to 4	Up to 4	Up to 4	Up to 4
Pre-installed Power Supply (Not field replaceable)	1	1	1	1	1	1

Twisted Pair Ports

The twisted pair ports on the GS980MX/10HSm (1 to 8) and GS980MX/18HSm (1 to 16) switches have these features:

- Supports 100Mbps and 1/2.5/5Gbps operation
- 100 meters (328 feet) maximum operating distance per port
- Auto-Negotiation for speed
- Half-duplex mode at 100Mbps
- Full-duplex mode at 100Mbps and 1/2.5/5Gbps
- Auto-MDI/MDI-X at 100Mbps and 1/2.5/5Gbps
- Port Link/Activity (L/A) and Duplex/Collision (D/C) LEDs

The twisted pair ports on the GS980MX/28 (1 to 24) and GS980MX/52 (1 to 48) switches have these features:

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

The twisted pair ports on the GS980MX/28PSm (1 to 24) switch have these features:

- ❑ Ports 1 to 20 support 10Mbps, 100Mbps and 1 Gbps operation
- ❑ Ports 21 to 24 support 100Mbps and 1/2.5/5Gbps operation
- ❑ 100 meters (328 feet) maximum operating distance per port
- ❑ Auto-Negotiation for speed
- ❑ Full-duplex mode only
- ❑ MDI/MDI-X at 10Mbps/100Mbps
- ❑ Power over Ethernet (PoE+) supported on all 24 ports
- ❑ Port Link/Activity (L/A) and Power over Ethernet (PoE) LEDs

The twisted pair ports on the GS980MX/52PSm (1 to 48) switch have these features:

- ❑ Ports 1 to 40 support 10/100Mbps and 1 Gbps operation
- ❑ Ports 41 to 48 support 100Mbps and 1/2.5/5Gbps operation
- ❑ 100 meters (328 feet) maximum operating distance per port
- ❑ Auto-Negotiation for speed
- ❑ Full-duplex mode only
- ❑ MDI/MDI-X at 10/100Mbps
- ❑ Power over Ethernet (PoE+) supported on all 48 ports
- ❑ Port Link/Activity (L/A) and Power over Ethernet (PoE) LEDs

Power Over Ethernet

The basic features of PoE++ on the twisted pair ports (1 to 8) on the GS980MX/10HSm switch are:

- ❑ Supported on all ports
- ❑ 500W maximum power budget:
 - PoE (15.4 watts maximum) for 8 powered devices
 - PoE+ (30 watts maximum) for 8 powered devices
 - PoE++ (60 watts maximum) for 8 powered devices
 - PoE++ (90 watts maximum) for 5 powered devices
- ❑ Supports powered device classes 0 to 8
- ❑ Port prioritization
- ❑ Mode wiring:
 - Classes 0-4 (Type 1 or 2 up to 30W): Mode A (MDI-x)
 - Classes 5-6 (Type 3 up to 45W/60W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)
 - Classes 7-8 (Type 4 up to 75W/90W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)
- ❑ IEEE802.3af/at/bt compliant

The basic features of PoE++ on the twisted pair ports on the GS980MX/18HSm switch are:

- ❑ Supported on all ports
- ❑ 720 maximum power budget:
 - PoE (15.4 watts maximum) for 16 powered devices
 - PoE+ (30 watts maximum) for 16 powered devices
 - PoE++ (60 watts maximum) for 12 powered devices
 - PoE++ (90 watts maximum) for 8 powered devices
- ❑ Supports powered device classes 0 to 8
- ❑ Port prioritization
- ❑ Mode wiring:
 - Classes 0-4 (Type 1 or 2 up to 30W): Mode A (MDI-x)
 - Classes 5-6 (Type 3 up to 45W/60W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)
 - Classes 7-8 (Type 4 up to 75W/90W): Mode A (MDI-x) plus Mode B (MDI-x, MDI)
- ❑ IEEE802.3af/at/bt compliant

The basic features of PoE+ of the twisted pair ports on the GS980MX/28PSm and GS980MX/52PSm switches are:

- ❑ Supported on all ports
- ❑ 740W maximum power budget (370W per power supply):
 - PoE (15.4 watts maximum) powered devices for 24 and 48 powered devices on the GS980MX/28PSm and GS980MX/52PSm switches, respectively
 - PoE+ (30 watts maximum) powered devices for 24 powered devices on the GS980MX/28PSm and GS980MX/52PSm switches
- ❑ Supports powered device classes 0 to 4
- ❑ Port prioritization
- ❑ Mode A wiring
- ❑ IEEE802.3af/at compliant

SFP+ Transceiver Ports

Examples of SFP 1Gbps transceivers include:

- ❑ SPSX and LR short and long distance transceivers using multi-mode or single mode fiber optic cable.
- ❑ SPEX transceivers with a maximum distance of two kilometers with multi-mode fiber optic cable.
- ❑ SP10BD bidirectional transceivers for single mode fiber optic cable with a maximum distance of 10 kilometers.

Examples of SFP+ 10Gbps transceivers include:

- ❑ SP10SR, LR, ER and ZR series of short or long distance transceivers using multi-mode or single mode fiber optic cable.
- ❑ SP10TW series of direct attach cables in lengths of 1 meter and 3 meters.
- ❑ SP10T transceiver with RJ-45 connector for links up to 20 meters at 10Gbps with Category 6a or better twisted pair cable, or 100 meters at 1Gbps.
- ❑ SP10LRM Long Reach Multimode transceiver for OM1 multi-mode fiber optic links up to 220 meters.

Note

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

Note

SFP and SFP+ transceivers must be purchased separately. For a current list of supported transceiver modules refer to the *GS980MX Series Data Sheet*

The following restrictions on SFP+ transceivers apply:

- 100Mbps transceivers are not supported
- Supports full-duplex mode only

LEDs

The port LEDs are:

- Link/activity LEDs for the twisted pair ports
- Link/activity LEDs for the SFP and SFP+ transceiver ports on all switches
- PoE+ LEDs for the twisted pair ports on the GS980MX/28PSm and GS980MX/52PSm switches
- PoE++ LEDs for the twisted pair ports on the GS980MX/10HSm and GS980MX/18HSm switches
- Full/Half/Collision LEDs for the twisted pair ports on the GS980MX/28 and GS980MX/52 switches
- Switch ID number LED

Installation Options

The installation options are:

- Desk or tabletop
- 19-inch equipment rack
- Wooden or concrete wall

Management Software and Interfaces

The management software and interfaces are:

- AlliedWare Plus Management Software
- Command line interface (CLI)

Management Methods

The following methods are used for managing the switches:

- Local management through the Console port
- Remote Telnet or Secure Shell management
- Vista Manager mini
- Autonomous Management Framework (AMF) with Vista Manager EX
- Autonomous Wave Control for wireless networks
- SNMPv1, v2c, and v3

Twisted Pair Ports

The specifications of the twisted pair ports are listed in Table 2 through Table 7 on page 29.

Table 2. GS980MX/10HSm Switch Twisted Pair Port Specifications

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

Table 3. GS980MX/18HSm Switch Twisted Pair Port Specifications

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

Table 4. GS980MX/28 Switch Twisted Pair Port Specifications

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

Table 5. GS980MX/28PSm Switch Twisted Pair Port Specifications

Specification	Description
Port Speed	<p>Ports 1-20: 10Mbps, 100Mbps or 1Gbps Ports 21-24: 100Mbps or 1/2.5/5Gbps.</p> <p>Ports 1-20: You can set port speed manually or with Auto-Negotiation at 10 Mbps or 100 Mbps.</p> <p>Ports 21-24: The ports speed is set with Auto-Negotiation only at 1Gbps and higher.</p> <p>The default is Auto-Negotiation for all ports.</p>
Duplex Mode	<p>Ports 1-20: Full- or half-duplex mode at 10 Mbps or 100Mbps.</p> <p>Full-duplex only at 1 Gbps.</p> <p>Supports Auto-Negotiation at 100 Mbps.</p> <p>Ports 21-24: Full-duplex only at all speeds.</p>
Maximum Distance	100 meters (328 feet).
Power over Ethernet	PoE (15.4 watts maximum per port) and PoE+ (30 watts maximum per port).
Maximum Power Budget	370W.
PoE Mode	Classes 0 to 4: Mode A.
Connector	8-pin RJ-45.

Table 6. GS980MX/52 Switch Twisted Pair Port Specifications

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

Table 7. GS980MX/52PSm Switch Twisted Pair Port Specifications

Specification	Description
Port Speed	<p>Ports 1-40: 10Mbps, 100Mbps or 1Gbps. Ports 41-48: 100Mbps or 1/2.5/5Gbps.</p> <p>Ports 1-40: You can set port speed manually or with Auto-Negotiation at 10 Mbps or 100 Mbps.</p> <p>Ports 41-48: The ports speed is set with Auto-Negotiation only at 1Gbps and higher.</p> <p>The default is Auto-Negotiation for all ports.</p>
Duplex Mode	<p>Ports 1-40: Full- or half-duplex mode at 10 Mbps or 100Mbps. Full-duplex only at 1 Gbps. Supports Auto-Negotiation at 100 Mbps.</p> <p>Ports 41-48: Full-duplex only at all speeds.</p>
Maximum Distance	100 meters (328 feet).
Power over Ethernet	PoE (15.4 watts maximum per port) and PoE+ (30 watts maximum per port).
Maximum Power Budget	370W.
PoE Mode	Classes 0 to 4: Mode A.
Connector	8-pin RJ-45.

Duplex Mode

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

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

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

Note

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

Wiring Configuration

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

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

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

Cable Requirements

The minimum twisted pair cable requirements are as follows:

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

Port Pinouts

Refer to Table on page 148 for the port pinouts of the 100Mbps and 1/2.5/5Gbps twisted pair ports.

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

GS980MX/10HSm

The LEDs indicate Link/Activity (L/A) and PoE (PD ON/PD ERR/MAX CURRENT) information. These LEDs are shown in Figure 12.

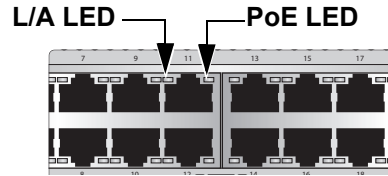


Figure 12. GS980MX/10HSm Twisted Pair Ports

The states of the GS980MX/10HSm LEDs are described in Table 8.

Table 8. GS980MX/10HSm Twisted Pair Ports 1 - 8 LED Functions

LED	Ports	State	Description
L/A	1 - 8	Solid Green	The port has established a 1/2.5/5Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1/2.5/5Gbps.
		Solid Amber	The port has established a 100Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 100 Mbps.
		Off	Possible causes of this state are: <ul style="list-style-type: none"> - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

Table 8. GS980MX/10HSm Twisted Pair Ports 1 - 8 LED Functions (Continued)

LED	Ports	State	Description
PoE	1-8	Solid Green	PD On - The switch is delivering power to a powered device connected to the port.
		Solid Amber	PD Error - The switch has shut down PoE on the port because of a fault condition.
		Flashing Amber	PD Max Current - The switch has detected a powered device on the port but is not delivering power to it because doing so would exceed its available power budget.
		Off	No PD - This LED state can result from the following conditions: <ul style="list-style-type: none"> - The port is not connected to a powered device or the device is powered off. - The port is disabled in the management software. - PoE is disabled on the port. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

GS980MX/18HSm

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

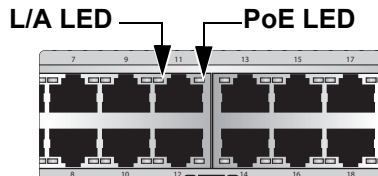


Figure 13. GS980MX/18HSm Twisted Pair Ports

The states of the GS980MX/18HSm LEDs are described in Table 9.

Table 9. GS980MX/18HSm Twisted Pair Ports 1 - 16 LED Functions

LED	Ports	State	Description
L/A	1 - 16	Solid Green	The port has established a 1/2.5/5Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1/2.5/5Gbps.
		Solid Amber	The port has established a 100Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 100 Mbps.
		Off	<p>Possible causes of this state are:</p> <ul style="list-style-type: none"> - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.
PoE	1-16	Solid Green	PD On - The switch is delivering power to a powered device connected to the port.
		Solid Amber	PD Error - The switch has shut down PoE on the port because of a fault condition.
		Flashing Amber	PD Max Current - The switch has detected a powered device on the port but is not delivering power to it because doing so would exceed its available power budget.
		Off	<p>No PD - This LED state can result from the following conditions:</p> <ul style="list-style-type: none"> - The port is not connected to a powered device or the device is powered off. - The port is disabled in the management software. - PoE is disabled on the port. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

GS980MX/28

The GS980MX/28 LEDs indicate Link/Activity (L/A) and Duplex/Collision (D/C) information. These LEDs are shown in Figure 14.

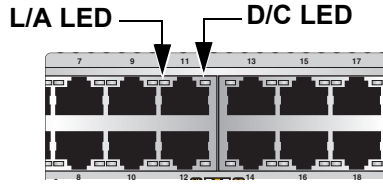


Figure 14. GS980MX/28 Twisted Pair Ports 1-24 LEDs

The states of the GS980MX/28 LEDs are described in Table 10.

Table 10. GS980MX/28 Twisted Pair Ports 1 - 24 LED Functions

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

GS980MX/28PSm

The GS980MX/28PSm LEDs indicate Link/Activity (L/A) and PoE (PD ON/PD ERR/MAX CURRENT) information. These LEDs are shown in Figure 15.

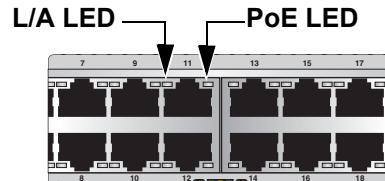


Figure 15. GS980MX/28PSm Twisted Pair Ports 1-24 LEDs

The states of the GS980MX/28PSm LEDs are described in Table 11.

Table 11. GS980MX/28PSm Twisted Pair Ports 1 - 24 LED Functions

LED	Ports	State	Description
L/A	1 - 20	Solid Green	The port has established a 1Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1Gbps.
		Solid Amber	The port has established a 10Mbps or 100Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 10Mbps or 100Mbps.
	21 - 24	Solid Green	The port has established a 1/2.5/5Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1/2.5/5Gbps.
		Solid Amber	The port has established a 100Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 100Mbps.
		Off	Possible causes of this state are: <ul style="list-style-type: none"> - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

Table 11. GS980MX/28PSm Twisted Pair Ports 1 - 24 LED Functions (Continued)

LED	Ports	State	Description
PoE	1 - 24	Solid Green	PD On - The switch is delivering power to a powered device connected to the port.
		Solid Amber	PD Error - The switch has shut down PoE on the port because of a fault condition.
		Flashing Amber	PD Max Current - The switch has detected a powered device on the port but is not delivering power to it because doing so would exceed its available power budget.
		Off	No PD - This LED state can result from the following conditions: <ul style="list-style-type: none"> - The port is not connected to a powered device or the device is powered off. - The port is disabled in the management software. - PoE is disabled on the port. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

GS980MX/52

The GS980MX/52 LEDs indicate Link/Activity (L/A) and Duplex/Collision (D/C) information. These LEDs are shown in Figure 14.

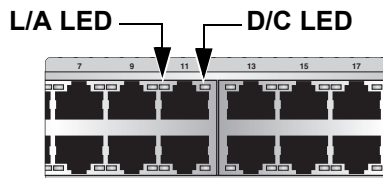


Figure 16. GS980MX/52 Twisted Pair Ports 1-48 LEDs

The states of the GS980MX/52 LEDs are described in Table 12.

Table 12. GS980MX/52 Twisted Pair Ports 1 - 48 LED Functions

LED	Ports	State	Description
L/A	1 - 48	Solid Green	The port has established a 1Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1Gbps.
		Solid Amber	The port has established a 10Mbps or 100 Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 10Mbps or 100Mbps.
		Off	Possible causes of this state are: <ul style="list-style-type: none"> - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.
D/C	1 - 48	Solid Green	The port is operating in full-duplex mode.
		Solid Amber	The port is operating in half-duplex mode.
		Flashing Amber	The port is operating in half-duplex mode with collisions.

GS980MX/52PSm

The GS980MX/52PSm LEDs indicate Link/Activity (L/A) and PoE (PD ON/PD ERR/MAX CURRENT) information. These LEDs are shown in Figure 17.

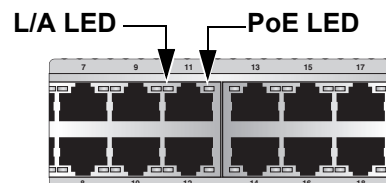


Figure 17. GS980MX/52PSm Twisted Pair Ports 1-24 LEDs

The states of the GS980MX/52PSm LEDs are described in Table 13.

Table 13. GS980MX/52PSm Twisted Pair Ports 1 - 48 LED Functions

LED	Ports	State	Description
L/A	1 - 40	Solid Green	The port has established a 1Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1Gbps.
		Solid Amber	The port has established a 10Mbps or 100Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 10Mbps or 100Mbps.
	41 - 48	Solid Green	The port has established a 1/2.5/5Gbps link to a network device.
		Flashing Green	The port is transmitting or receiving data at 1/2.5/5Gbps.
		Solid Amber	The port has established a 100Mbps link to a network device.
		Flashing Amber	The port is transmitting or receiving data at 100Mbps.
		Off	Possible causes of this state are: - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

Table 13. GS980MX/52PSm Twisted Pair Ports 1 - 48 LED Functions (Continued)

LED	Ports	State	Description
PoE	1 - 48	Solid Green	PD On - The switch is delivering power to a powered device connected to the port.
		Solid Amber	PD Error - The switch has shut down PoE on the port because of a fault condition.
		Flashing Amber	PD Max Current - The switch has detected a powered device on the port but is not delivering power to it because doing so would exceed its available power budget.
		OFF	No PD - This LED state can result from the following conditions: <ul style="list-style-type: none"> - The port is not connected to a powered device or the device is powered off. - The port is disabled in the management software. - PoE is disabled on the port. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

Power Over Ethernet

The GS980MX/10HSm, GS980MX/18HSm, GS980MX/28PSm and GS980MX/52PSm switches feature PoE on twisted pair ports. With PoE, the switches supply DC power to network devices over the same twisted pair cables that carry the network traffic.

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

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

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

The GS980MX/10HSm, GS980MX/18HSm, GS980MX/28PSm and GS980MX/52PSm switches automatically determine whether devices connected to their ports are powered devices. Ports that are connected to network nodes that are not powered devices (that is, devices that receive their power from another power source) function as regular Ethernet ports, without PoE. The PoE feature remains activated on the ports but no power is delivered to the devices.

PoE Standards

The GS980MX/10HSm, GS980MX/18HSm, GS980MX/28PSm and GS980MX/52PSm switches support these PoE standards:

- ❑ PoE (IEEE 802.3af): This standard provides up to 15.4 watts at the switch port for powered devices that require up to 13.0 watts.
- ❑ PoE+ (IEEE 802.3at): This standard provides up to 30.0 watts at the switch port for powered devices that require up to 25.5 watts.

The GS980MX/10HSm and GS980MX/18HSm switches support this additional PoE standard:

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

Powered Device Classes

Powered devices are grouped into the nine classes listed in Table 14. The classes are based on the amount of power the devices require. The GS980MX/28PSm and GS980MX/52PSm switches support classes 0 to 4. The GS980MX/10HSm and GS980MX/18HSm switches support classes 0 to 8.

Table 14. IEEE Powered Device Classes

Class	Maximum Power Output from a Switch Port	PD Power Range
0	15.4W	0.44W to 13.0W
1	4.0W	0.44W to 3.84W
2	7.0W	3.84W to 6.49W
3	15.4W	6.49W to 13.0W
4	30.0W	13.0W to 25.5W
5	45.0W	40.0W (4-pair)
6	60.0W	51.3W (4-pair)
7	75.0W	62.0W (4-pair)
8	90.0W	71.3W (4-pair)



Caution

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

Power Budget

The GS980MX/28PSm and GS980MX/52PSm switches have one power supply. The power supply provides 370 W. This is the total maximum amount of power that the switch can supply to powered devices on the PoE+ twisted pair ports. The number of powered devices that the switches can support at one time will depend on their power requirements. For instance, under normal operating conditions, the switches can support up to 12 Class 4 powered devices with the maximum 25.5W.

The GS980MX/10HSm switch has one power supply. It can supply 500W of PoE power. This is the total maximum amount of power that the switch can supply to powered devices on the eight PoE++ twisted pair ports. The number of powered devices that the switch can support at one time will depend on their power requirements. For instance, under normal operating

conditions, the switch can support up to eight Class 6 powered devices with the maximum 51.35W or up to five Class 8 powered devices with the maximum of 71.3W.

The GS980MX/18HSm switch has one power supply. It can supply 720W of PoE power. This is the total maximum amount of power that the switch can supply to powered devices on the sixteen PoE++ twisted pair ports. The number of powered devices that the switch can support at one time will depend on their power requirements. For instance, under normal operating conditions, the switch can support up to twelve Class 6 powered devices with the maximum 51.3W or up to seven Class 8 powered devices with the maximum of 71.3W.

Port Prioritization

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

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

There are three priority levels:

- Critical
- High
- Low

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

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

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

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

Wiring Implementation

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

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

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

The wiring modes for the GS980MX/10HSm and GS980MX/18HSm switches are as follows:

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

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

SFP+ Transceiver Ports

1Gbps/10Gbps SFP or SFP+ Transceivers

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

- ❑ GS980MX/10HSm switch has two ports (ports 9-10)
- ❑ GS980MX/18HSm switch has two ports (ports 17 - 18)
- ❑ GS980MX/28 and GS980MX/28PSm switches have four ports (ports 25-28)
- ❑ GS980MX/52 and GS980MX/52PSm switches have four ports (ports 49-52)

See “SFP+ Transceiver Ports” on page 21 for a description and guidelines of the SFP+ transceivers.

Note

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

LEDs

Each transceiver port has one LED. The LEDs are located between the ports. Refer to Figure 18.

Top Transceiver Port LED **Bottom Transceiver Port LED**

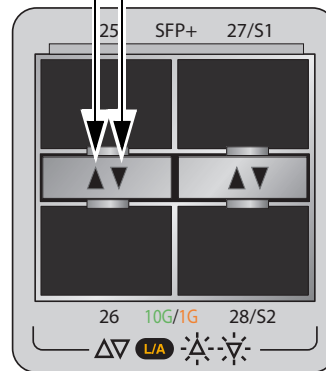


Figure 18. Link and Activity LEDs for the 1Gbps SFP/10Gbps SFP+ Ports

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

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

State	Description
Solid Green	The transceiver has established a 10Gbps link to a network device.
Flashing Green	The transceiver is transmitting or receiving data in 10Gbps.
Solid Amber	The transceiver has established a 1Gbps link to a network device.
Flashing Amber	The transceiver is transmitting or receiving data in 1Gbps.
Off	Possible causes of this state are: <ul style="list-style-type: none"> - The port is empty. - The transceiver has not established a link to a network device. - A non-supported module is installed. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

eco-friendly Button

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

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

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

Note

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

VCStack Feature

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

- ❑ You can manage multiple units simultaneously, which can simplify network management.
- ❑ You have more flexibility in how you configure some of the features. For instance, a static port trunk on a standalone switch can consist of ports from the same switch. In contrast, a static trunk on a stack can have ports from different switches in the same stack.

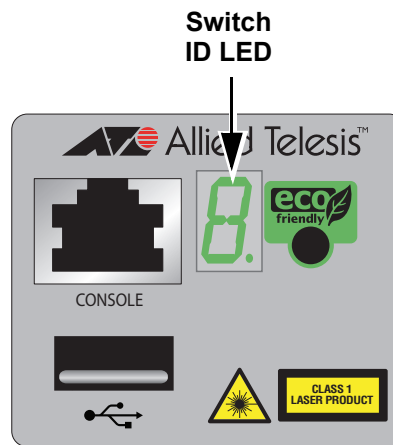
Note

This guide explains how to install the devices as standalone units. For instructions on VCStack, refer to the *GS980MX Series Installation Guide for Virtual Chassis Stacking*.

Switch ID LED

The switch ID LED, shown in Figure 19, displays the ID number of the switch. A standalone switch has the ID number 0. Switches in a VCStack have the numbers 1 to 4.

Figure 19. Switch ID LED



4567

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

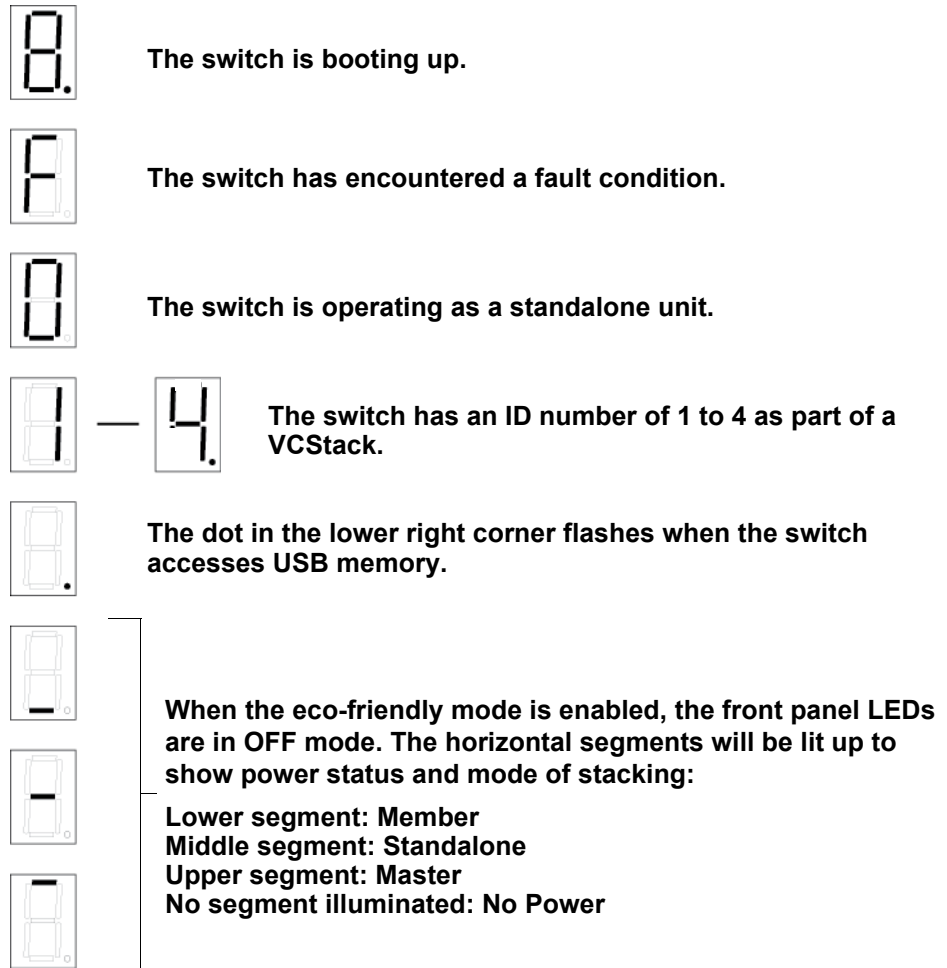


Figure 20. Switch ID LED Description

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

- A cooling fan has failed.
- The internal temperature of the switch has exceeded the normal operating range and the switch may shut down.

Note

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

USB Port

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

- Store configuration files on flash drives.
- Restore configuration files to switches that have lost or corrupted settings.
- Configure replacement units by downloading configuration files from a flash drive.
- Update the management firmware.

The port is USB 2.0-compatible.

Console Port

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

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

The Console port has the following settings:

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

Note

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

Power Supply

Pre-Installed AC Power Supply

The GS980MX Series switches come with one pre-installed AC power supply. Refer to Appendix A, “Technical Specifications” on page 139 for the input voltage ranges.



Warning

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

Note

Power supplies are not field-replaceable.

Software and Hardware Releases

Software and hardware releases for the AlliedWare Plus operating software and GS980MX Series switches are listed in Table 16.

Table 16. Software and Hardware Releases

Software Version	Hardware	VCStack
v5.4.8-2	GS980MX/28PSm switch GS980MX/28 switch	Allows stacks of up to four switches using the SFP/SFP+ transceiver ports for the stack trunk.
v5.4.9-2	Adds the following switches: GS980MX/52PSm switch GS980MX/52 switch	Allows stacks of up to four switches using the SFP/SFP+ transceiver ports for the stack trunk. Adds 10M/100M/1G twisted pair ports.
v5.5.0-2	Adds the following switch: GS980MX/10HSm switch	Allows stacks of up to four switches using the SFP/SFP+ transceiver ports or the 1/2.5/5Gbps ports for the stack trunk.
v5.5.1-1.2	Adds the following switch: GS980MX/18HSm switch	Allows stacks of up to four switches using the SFP/SFP+ transceiver ports or the 1/2.5/5Gbps ports for the stack trunk.

Chapter 2


Beginning the Installation


The chapter contains the following sections:

- “Reviewing Safety Precautions” on page 58
- “Choosing a Site for the Switch” on page 63
- “Unpacking the GS980MX/10HSm Switch” on page 64
- “Unpacking the GS980MX/18HSm Switch” on page 67
- “Unpacking the GS980MX/28, GS980MX/28PSm, GS980MX/52, or GS980MX/52PSm Switch” on page 69

Reviewing Safety Precautions


Please review the following safety precautions before you begin to install the switches.

Important: Safety statements that have the  symbol are translated into multiple languages in the *Translated Safety Statements* document, which is available at www.alliedtelesis.com/translated-safety-statements.

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



Warning

Class 1 Laser product.  L1




Warning

Laser Radiation.
Class 1M Laser product.




Warning

Do not stare into the laser beam.  L2




Warning

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



Warning

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

**Warning**

Do not work on equipment or cables during periods of lightning activity. ⚡ E2

**Warning**

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

**Warning**

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

Note

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

**Caution**

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

**Warning**

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

Note

All Countries: Install product in accordance with local and National Electrical Codes. ⚡ E8

**Warning**

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



Caution

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



Caution

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

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



Warning

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



Warning

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

Note

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



Warning


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

Note

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

 E35

**Caution**


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

**Warning**

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


 E37

**Warning**


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

**Warning**

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

 E41

**Caution**

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


**Warning**

This equipment must be installed in a Restricted Access location.

 E45




Caution

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



Warning

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

Choosing a Site for the Switch

Observe these requirements when planning the installation of the switch.

- ❑ Before installing the switch in an equipment rack, check that the rack is safely secured so that it will not tip over. Devices in a rack should be installed starting at the bottom, with the heavier devices near the bottom of the rack.
- ❑ Before installing the switch on a table, check that the table is level and stable.
- ❑ The power outlets should be located near the switch and be easily accessible.
- ❑ The site should allow for easy access to the ports on the front of the switch, so that you can easily connect and disconnect cables, and view the port LEDs.
- ❑ The site should allow for adequate air flow around the unit and through the cooling vents on the front and rear panels. (The ventilation direction is from front to back.)
- ❑ The site must not expose the switch to moisture or water.
- ❑ The site must be a dust-free environment.
- ❑ The site must have dedicated power circuits or power conditioners to supply reliable electrical power to the network devices.
- ❑ Do not install the switch in a wiring or utility box because it might overheat and fail from inadequate air flow.



Warning

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

Unpacking the GS980MX/10HSm Switch

Figure 21 shows the shipping box for the GS980MX/10HSm Switch.

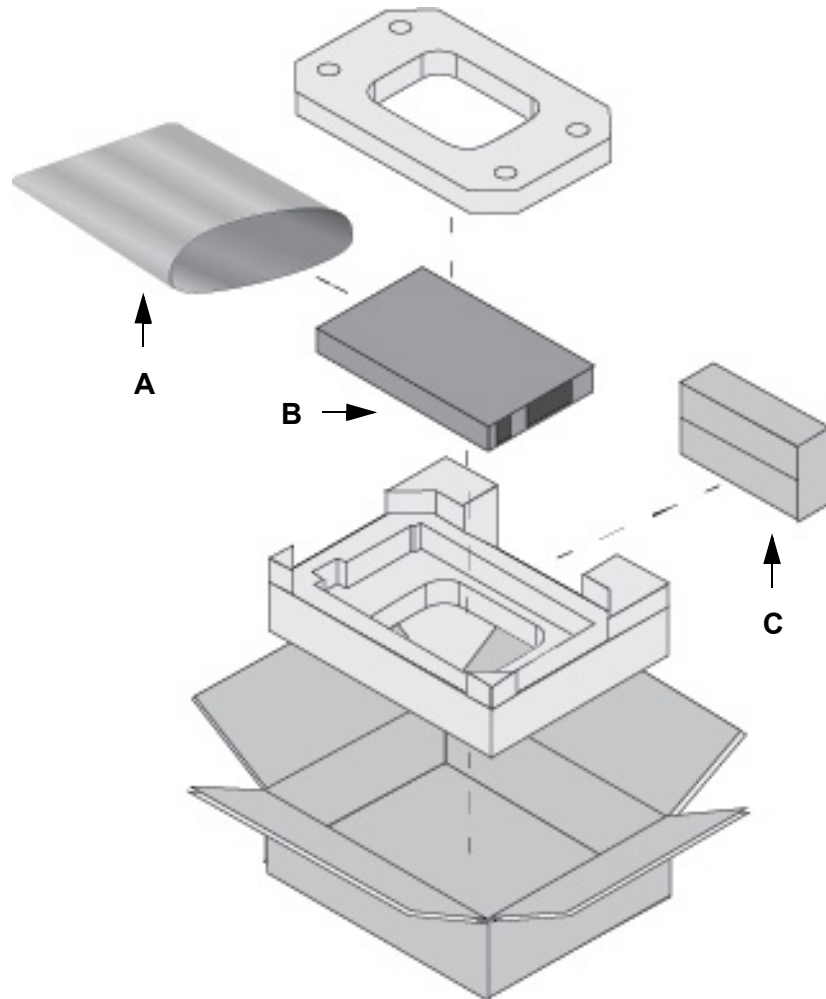


Figure 21. GS980MX/10HSm Switch Shipping Box

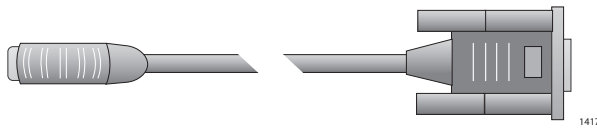
The items in the box are listed here:

- A - Protective bag
- B - GS980MX/10HSm Switch
- C - Accessory kit

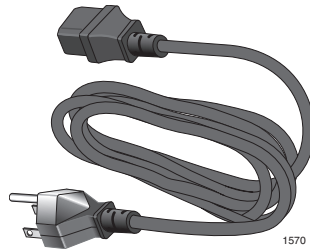
Note

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

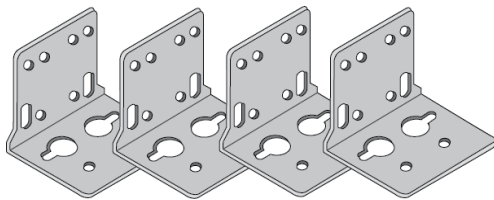
Figure 22 here and Figure 23 on page 66 list the items in the accessory kit. Contact your Allied Telesis sales representative for assistance if any item is missing or damaged.



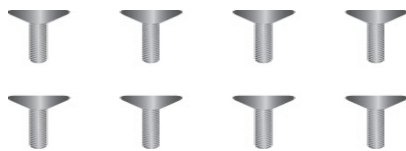
One 2m (6.6 ft) local management cable with RJ-45 (8P8C) and DB-9 (D-sub 9-pin) connectors.



One regional AC power cord

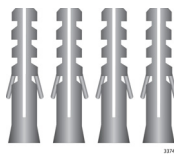


Four BRKT-J24 wall mounting brackets

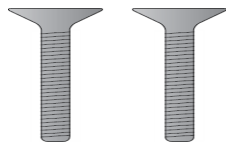


Sixteen screws for attaching the BRKT-J24 wall brackets to the switch.

Length: 6.0mm (0.2 in.)
Diameter: 4.0mm (0.2 in.)



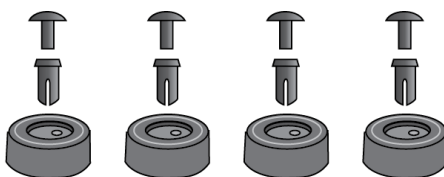
Four anchors for concrete walls:
Length: 29.6mm (1.2 in.)
Diameter: 6.0mm (0.2 in.)



Four screws for wood or concrete walls:
Length: 32mm (1.3 in.)
Diameter: 4mm (0.2 in.)

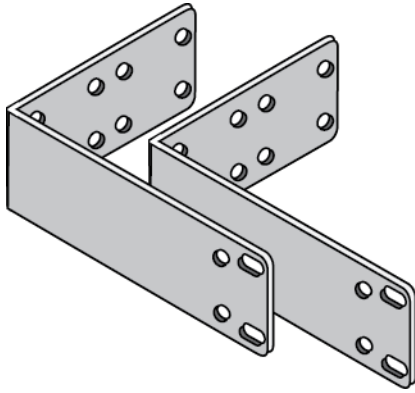


Power cord retaining clip

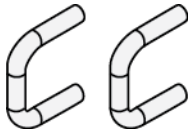


Four rubber bumper feet

Figure 22. GS980MX/10HSm Accessory Kit



Two RKMT-J14 equipment rack brackets



Two handles for the RKMT-J14 equipment rack brackets

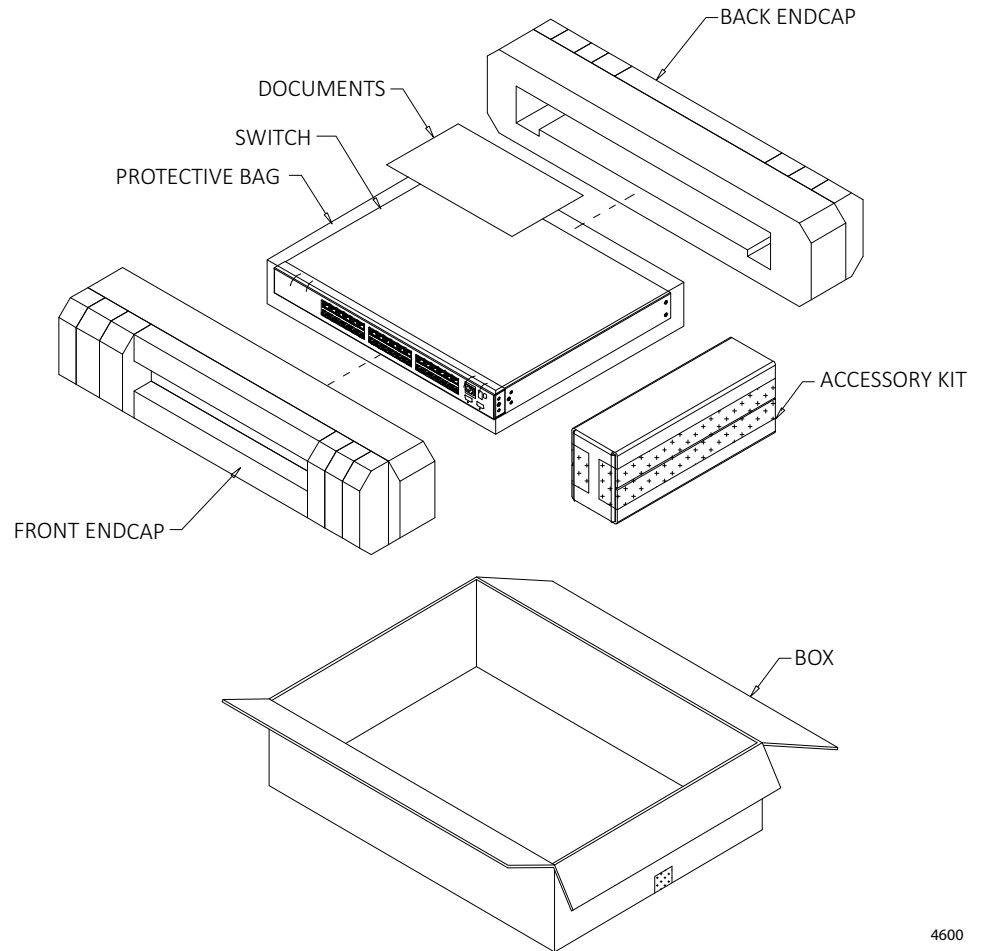


Four screws for attaching the handles to the RKMT-J14 equipment rack brackets:
Length: 6.0mm (0.2 in.)
Diameter: 3.0mm (0.1 in.)

Figure 23. GS980MX/10HSm Accessory Kit (Continued)

Unpacking the GS980MX/18HSm Switch

Figure 24 shows the shipping box for the GS980MX/18HSm Switch.



4600

Figure 24. GS980MX/18HSm Switch Shipping Box

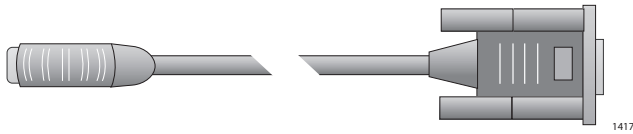
The items in the box are listed here:

- Protective bag
- GS980MX/18HSm Switch
- Accessory kit

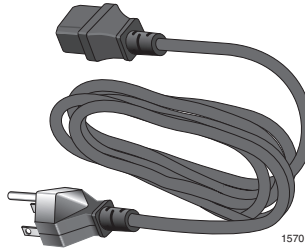
Note

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

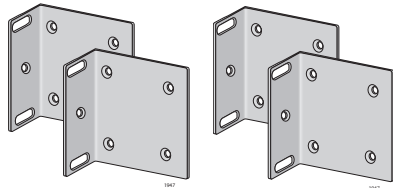
Figure 25 lists the items in the accessory kit. Contact your Allied Telesis sales representative for assistance if any item is missing or damaged.



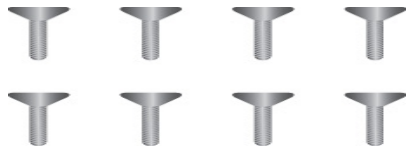
One 2m (6.6 ft) local management cable with RJ-45 (8P8C) and DB-9 (D-sub 9-pin) connectors.



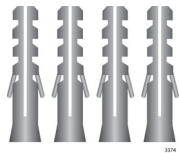
One regional AC power cord



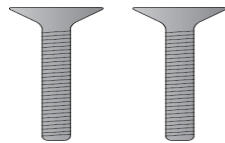
Four wall mounting brackets



Sixteen screws for attaching the wall/equipment rack brackets to the switch.
Length: 6.0mm (0.2 in.)
Diameter: 4.0mm (0.2 in.)



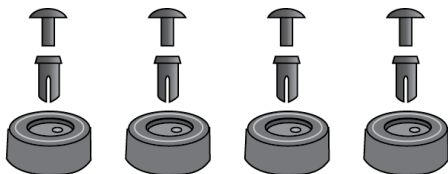
Four anchors for concrete walls:
Length: 29.6mm (1.2 in.)
Diameter: 6.0mm (0.2 in.)



Four screws for wood or concrete walls:
Length: 32mm (1.3 in.)
Diameter: 4mm (0.2 in.)



Power cord retaining clip



Four rubber bumper feet

Figure 25. GS980MX/18HSm Switch Accessory Kit

Unpacking the GS980MX/28, GS980MX/28PSm, GS980MX/52, or GS980MX/52PSm Switch

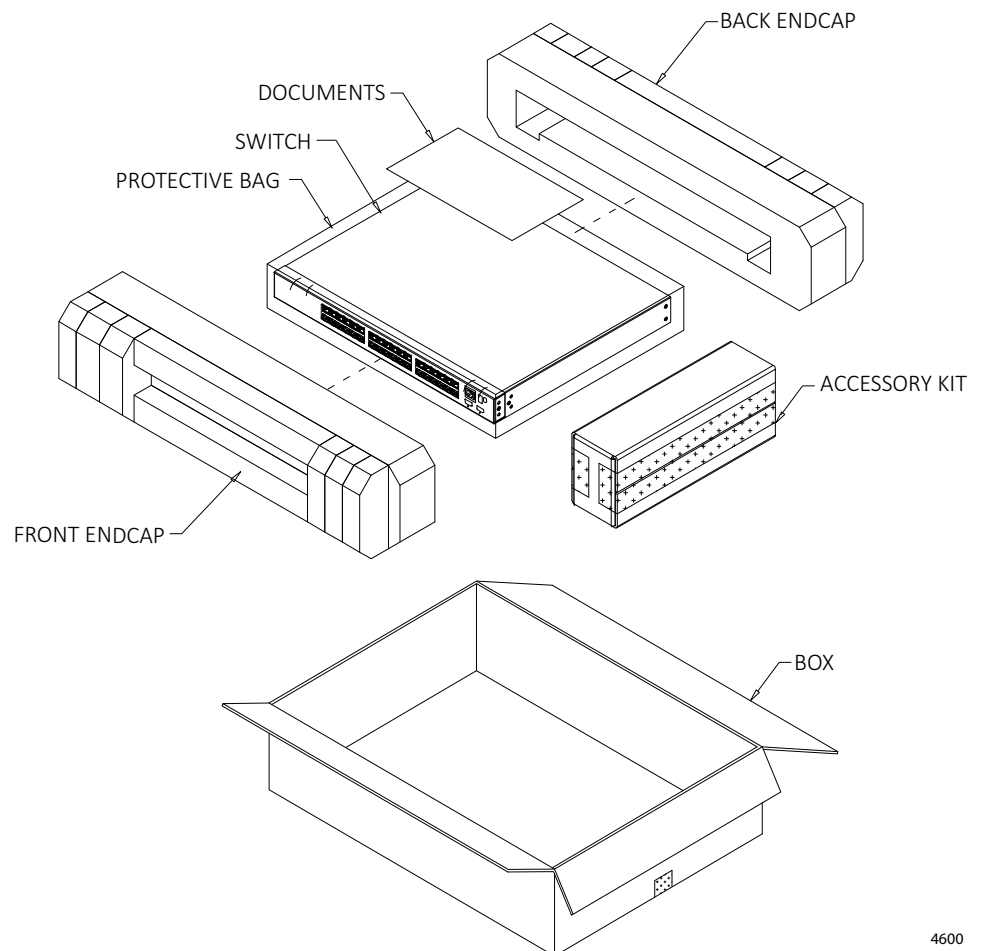
The main items provided in the shipping box for the switch are:

- ❑ Protective bag
- ❑ The switch
- ❑ Accessory kit (refer to Figure 27 on page 70)

Note

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

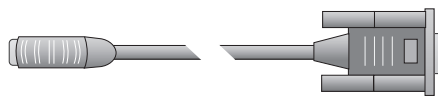
Figure 26 shows the items provided in the shipping box for the switch.



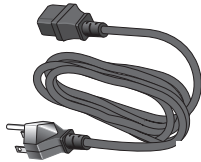
4600

Figure 26. 24- and 48-Port Switch Shipping Box

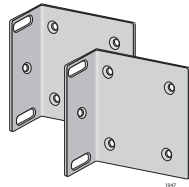
Figure 27 lists the items that are included in the accessory kit. Contact your Allied Telesis sales representative for assistance if any item is missing or damaged.



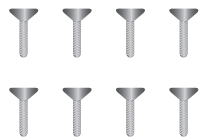
One 2m (6.6 ft) local management cable with RJ-45 (8P8C) and DB-9 (D-sub 9-pin) connectors



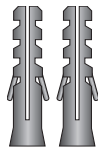
One regional AC power cord



Two or four wall/equipment rack brackets depending on model



Eight or sixteen screws for attaching the wall/equipment rack brackets depending on model:
Length: 6.0mm (0.2 in.)
Diameter: 4.0mm (0.2 in.)



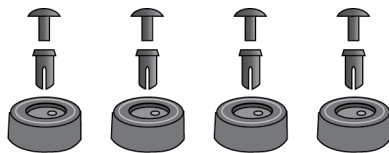
Two or four anchors for concrete walls depending on model:
Length: 29.6mm (1.2 in.)
Diameter: 6.0mm (0.2 in.)



Two or four screws for wood or concrete walls depending on model:
Length: 32mm (1.3 in.)
Diameter: 4mm (0.2 in.)



One power cord retaining clip



Four rubber bumper feet

Figure 27. Accessory Kit Items

Chapter 3

Installing the Switch on a Table

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



Warning

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



Warning

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

The switch comes with four bumper feet in the accessory kit. The feet, which are reusable, are used when installing the switch on a table. Refer to Figure 28.

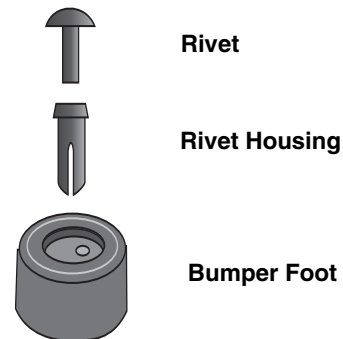


Figure 28. Parts of the Bumper Feet

The holes in the base of the switch for the bumper feet are shown in Figure 29 on page 72.

Note

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

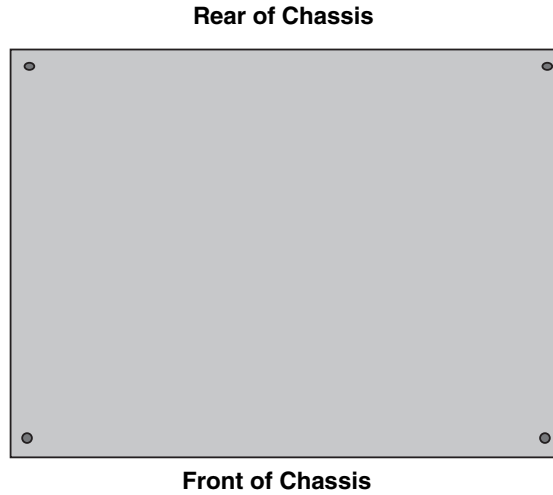


Figure 29. Holes for Bumper Feet

Note

The following procedure assumes that you have already reviewed the information and performed the procedures in Chapter 2, "Beginning the Installation" on page 57.

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

1. Place the switch upside down on a table.
2. Insert a rivet housing into a bumper foot. Refer to Figure 30.

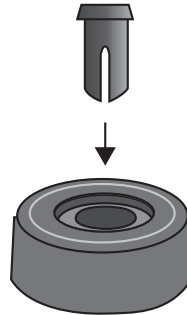


Figure 30. Inserting the Rivet Housing into the Bumper Foot

- Place the bumper foot with rivet housing onto one of the holes in the base of the switch. Refer to Figure 31.

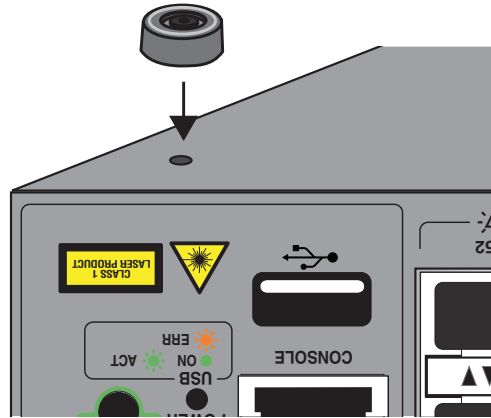


Figure 31. Placing the Bumper Foot on a Base Corner Hole

- Insert the rivet to secure the bumper foot to the base. Refer to Figure 32.

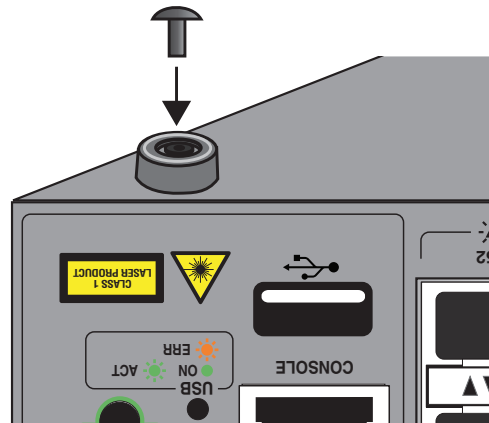


Figure 32. Inserting the Rivet into the Bumper Foot

- Repeat steps 2 to 4 to install the remaining bumper feet.
- Turn the switch over and place it on a flat, secure desk or table, leaving ample space around it for ventilation.
- After placing the switch on the table or desktop, go to Chapter 6, "Powering On the Switch" on page 109.

Chapter 4

Installing the Switch in an Equipment Rack

This chapter provides instructions for installing the switch in an equipment rack. This chapter contains the following section:

- “Overview of Installing the GS980MX/10HSm Switch in an Equipment Rack” on page 76
- “Installing the GS980MX/10HSm Switch in an Equipment Rack with the RKMT-J14 Brackets” on page 78
- “Installing the GS980MX/10HSm Switch in an Equipment Rack with the RKMT-J15 Bracket” on page 83
- “Installing the GS980MX/18HSm, GS980MX/28, GS980MX/28PSm, GS980MX/52, or GS980MX/52PSm Switch in an Equipment Rack” on page 88

Overview of Installing the GS980MX/10HSm Switch in an Equipment Rack

You can install the GS980MX/10HSm Switch in a 19-inch equipment rack two ways. One way is with the RKMT-J14 brackets that come with the switch. Refer to Figure 33.

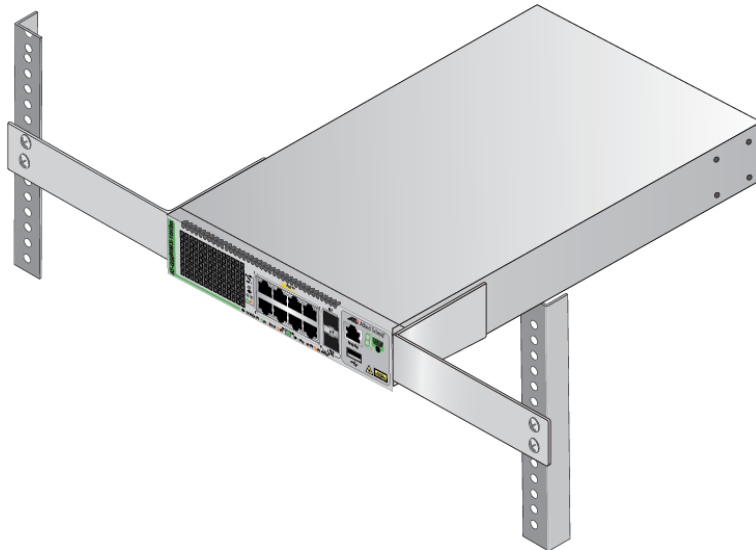


Figure 33. RKMT-J14 Brackets and Switch

For installation instructions, refer to “Installing the GS980MX/10HSm Switch in an Equipment Rack with the RKMT-J14 Brackets” on page 78.

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

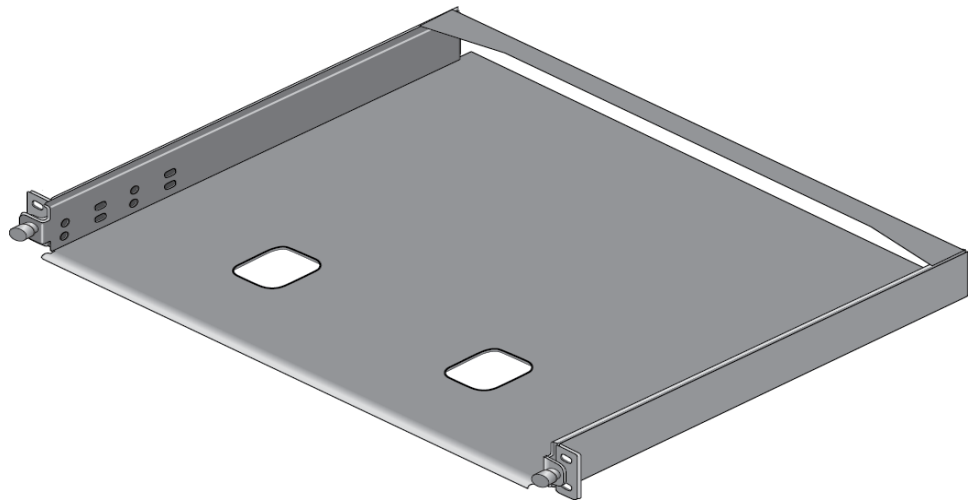


Figure 34. RKMT-J15 Bracket

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



Figure 35. RKMT-J15 Bracket with Switches

Note

The RKMT-J15 Bracket is purchased separately.

For installation instructions, refer, to “Installing the GS980MX/10HSm Switch in an Equipment Rack with the RKMT-J15 Bracket” on page 83.

Installing the GS980MX/10HSm Switch in an Equipment Rack with the RKMT-J14 Brackets

This section contains the procedure for installing the GS980MX/10HSm Switch in a standard 19-inch equipment rack, with the RKMT-J14 Brackets included with the switch.

Required Items

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

- Two RKMT-J14 equipment rack brackets (included with the switch)
- Eight M4x6mm bracket screws (included with the switch)
- Four M3x6mm screws (included with the switch)
- Two bracket handles (included with the switch)
- Cross-head screwdriver (not provided)
- Four standard equipment rack screws (not provided)

Switch Orientations in the Equipment Rack

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

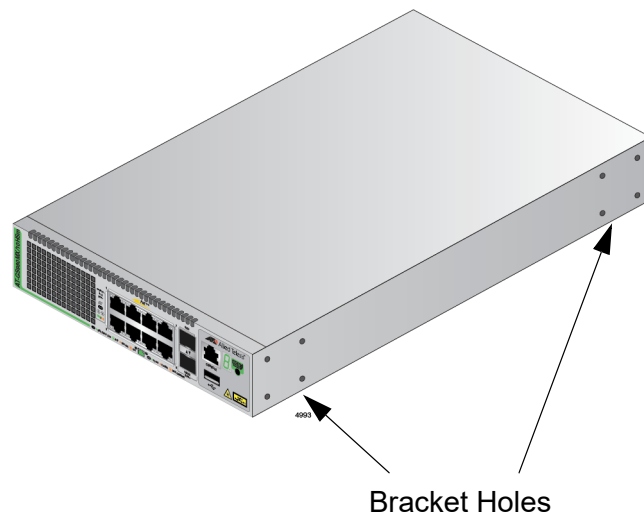


Figure 36. Bracket Holes

The brackets also have two sets of four holes. Refer to Figure 37 on page 79.

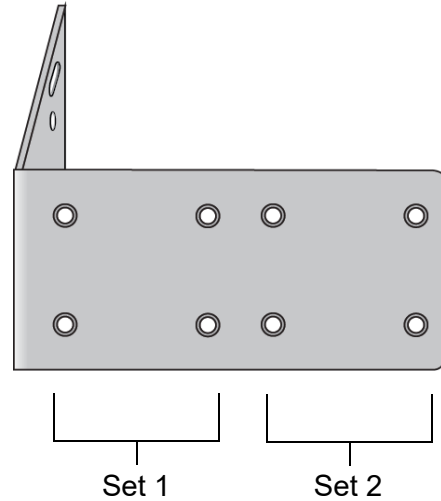


Figure 37. RKMT-J14 Bracket Holes

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

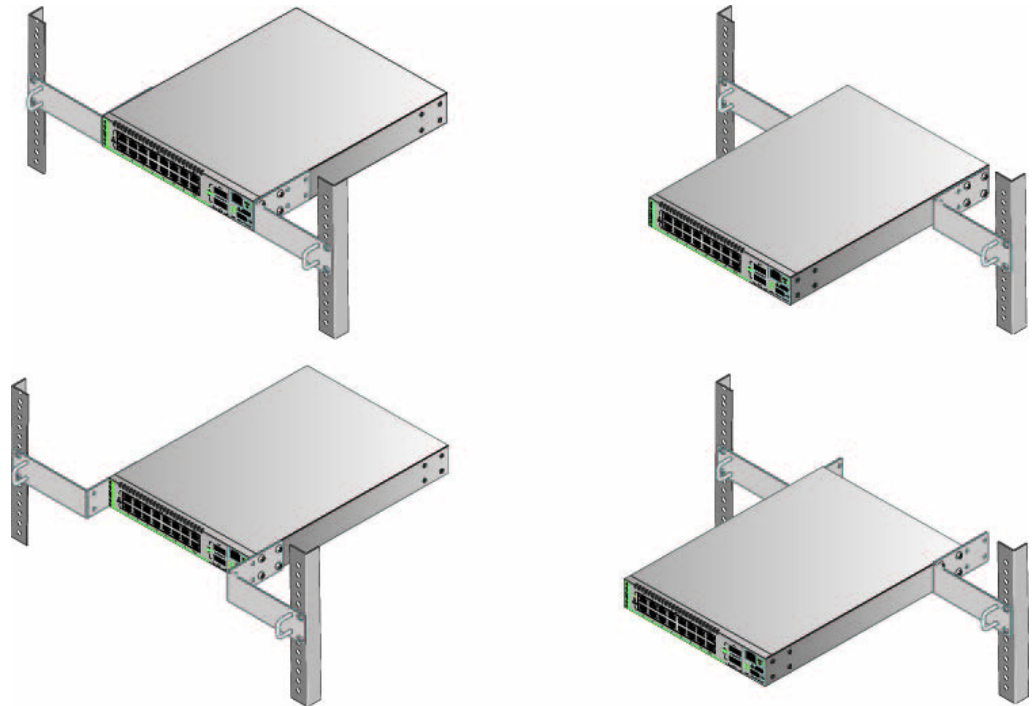


Figure 38. Switch Orientations with the Front Panel Facing the Front of the Equipment Rack

You can also orient the switch with the rear panel facing the front of the equipment rack. Refer to Figure 39.

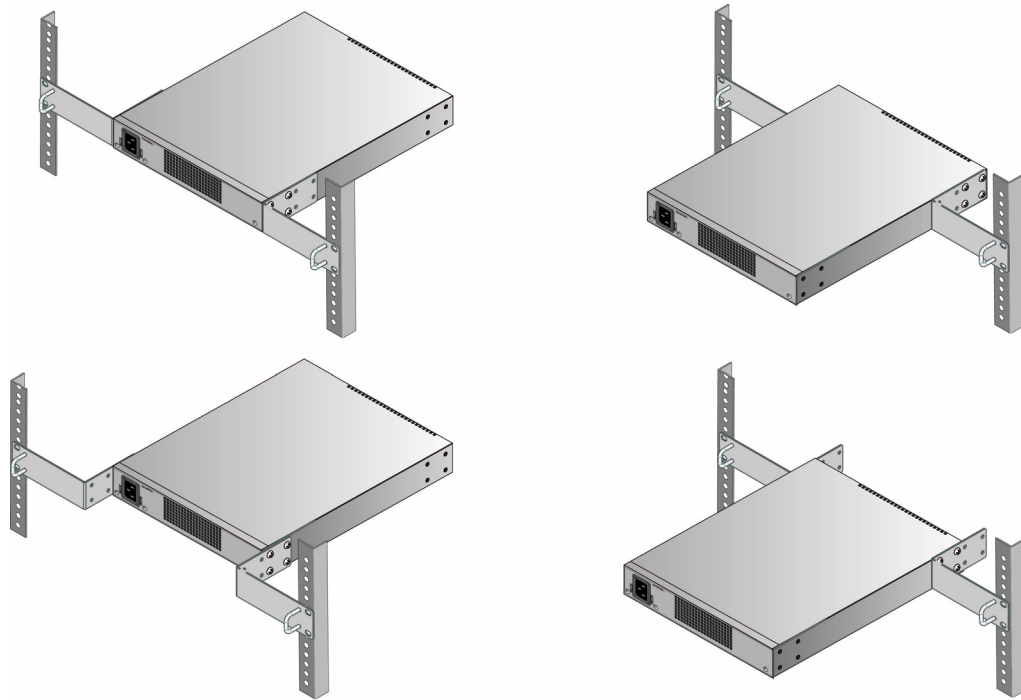


Figure 39. Switch Orientations with the Rear Panel Facing the Front of the Equipment Rack

Installing the Switch

If you have not chosen an orientation for the switch in the equipment rack, review “Switch Orientations in the Equipment Rack” on page 78.

Please review the installation guidelines in “Choosing a Site for the Switch” on page 63 before installing the switch in an equipment rack.



Caution

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

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

1. Attach the two handles to the RKMT-J14 Brackets using the four M3x6mm screws included with the switch. Refer to Figure 40 on page 81.

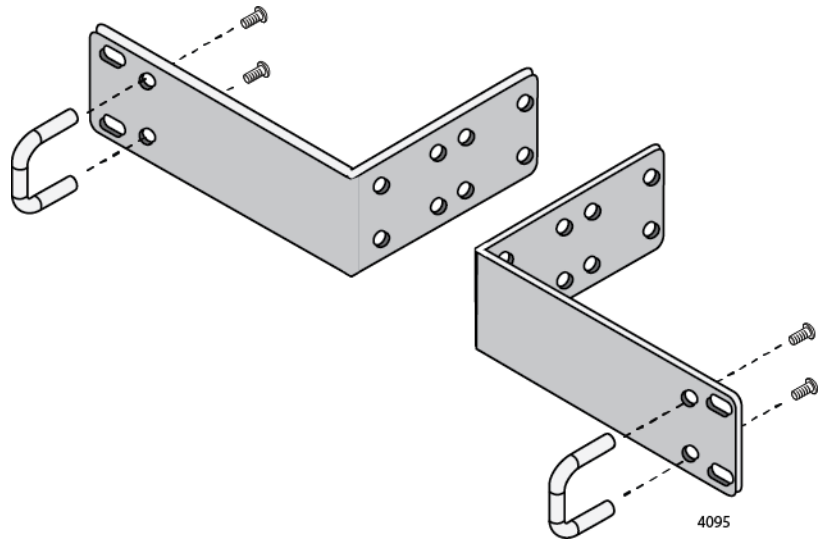


Figure 40. Attaching the Handles to the RKMT-J14 Brackets

2. Place the switch on a level, secure surface.
3. Attach the two brackets to the sides of the switch in the selected position, using the eight M4x6mm screws included with the unit. (Refer to Figure 38 on page 79 and Figure 39 on page 80.) The illustration in Figure 41 shows the installation of the brackets such that the front panel of the switch is even with the front of the equipment rack.

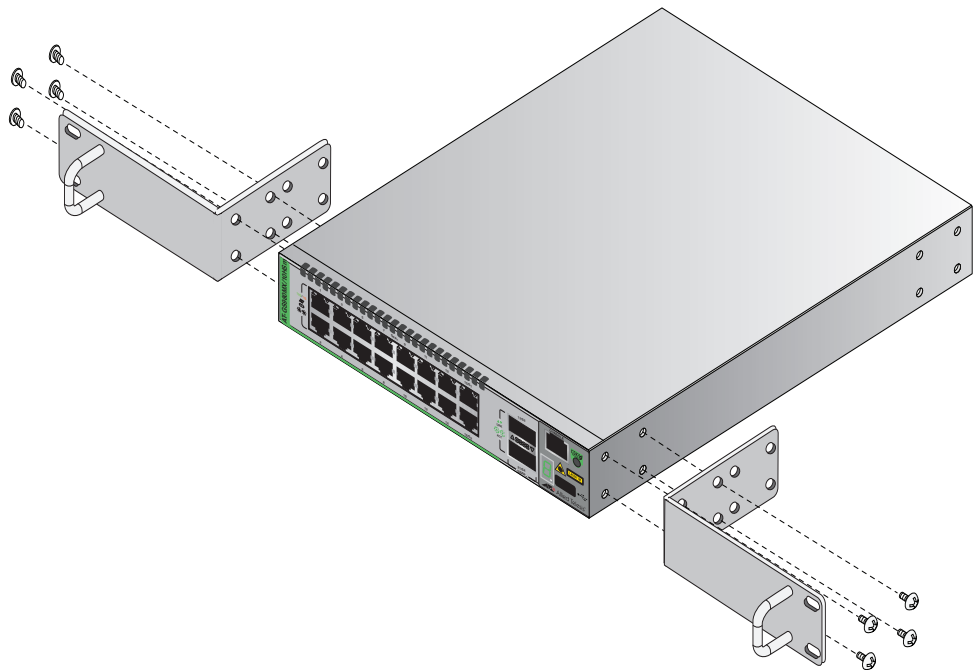


Figure 41. Attaching the RKMT-J14 Brackets to the Switch

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

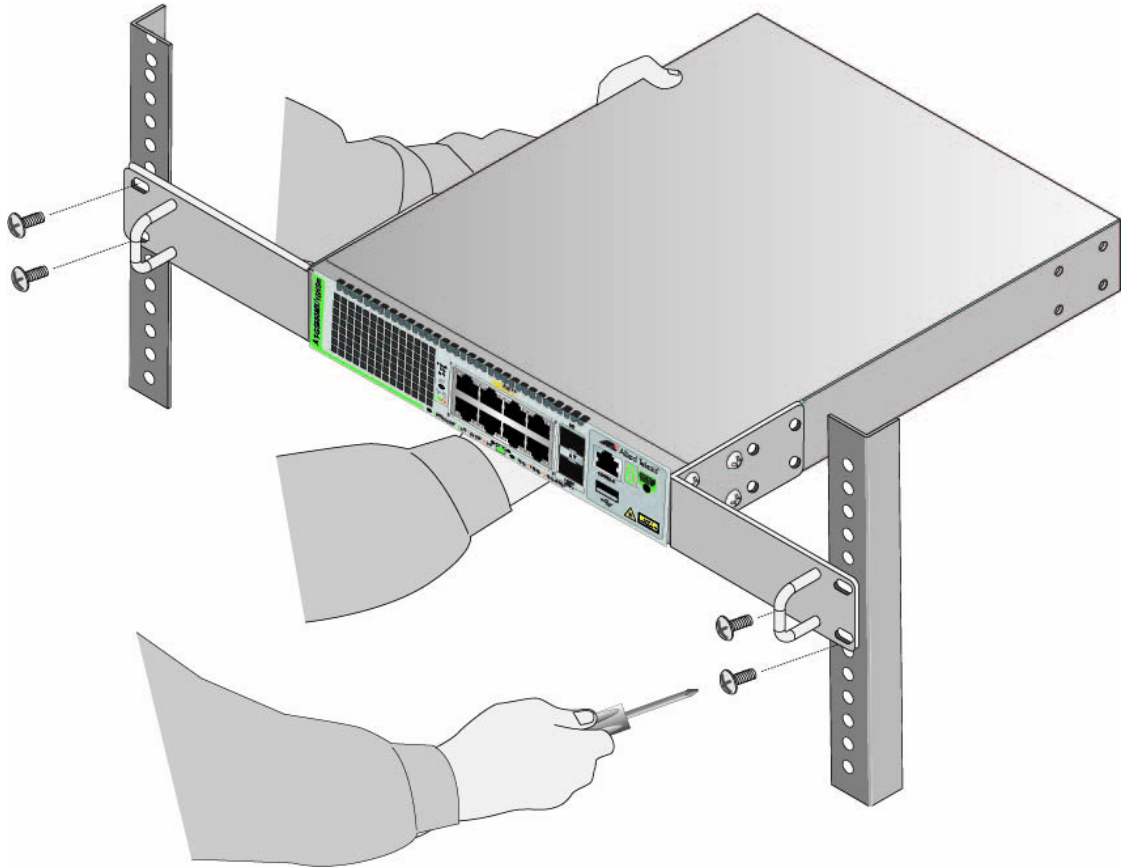


Figure 42. Installing the Switch in an Equipment Rack

5. Go to Chapter 6, "Powering On the Switch" on page 109.

Installing the GS980MX/10HSm Switch in an Equipment Rack with the RKMT-J15 Bracket

This section contains the procedure for installing the GS980MX/10HSm switch in a standard 19-inch equipment rack, with the optional RKMT-J15 Bracket.



Caution

Stability Hazard - The rack may tip over causing serious personal injury. Before extending the rack to the installation position, read the installation instructions. Do not put any load on the slide-rail mounted equipment in the installation position. Do not leave the slide-rail mounted equipment in the installation position. *⚠* **E134**

Required Items

The following items are required to install the GS980MX/10HSm switch in an equipment rack with the RKMT-J15 Bracket:

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

Note

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

Installing the Switch

To install the GS980MX/10HSm switch in a 19-inch equipment rack with the RKMT-J15 Bracket, perform the following procedure:

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

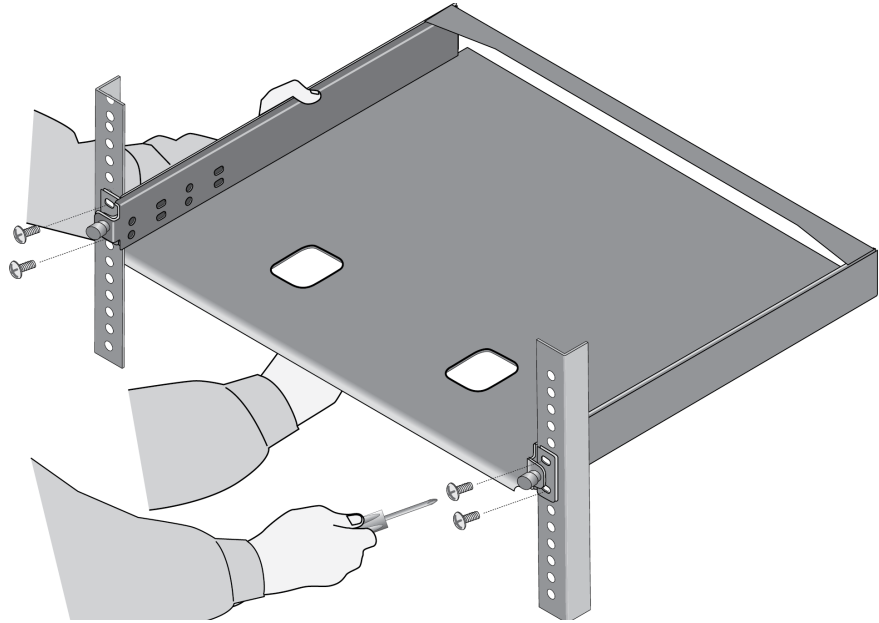


Figure 43. Installing the RKMT-J15 Bracket in the Equipment Rack

2. Loosen the two thumbscrews on the front of the bracket. Refer to Figure 44.

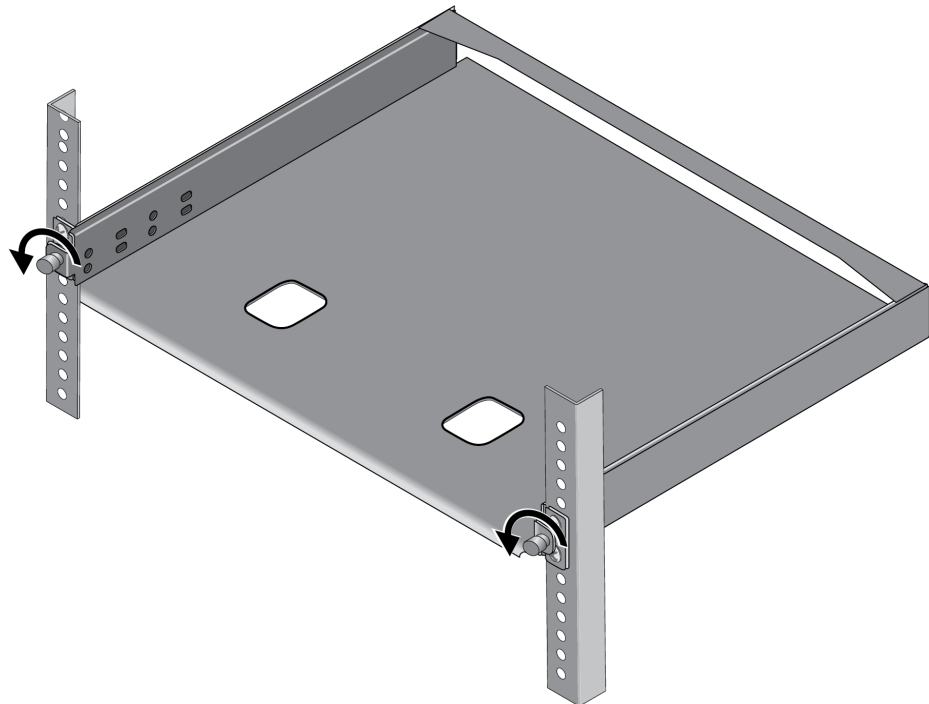


Figure 44. Loosening the Two Thumbscrews on the Front of the RKMT-J15 Bracket

3. Slide out the bracket tray. Refer to Figure 45.

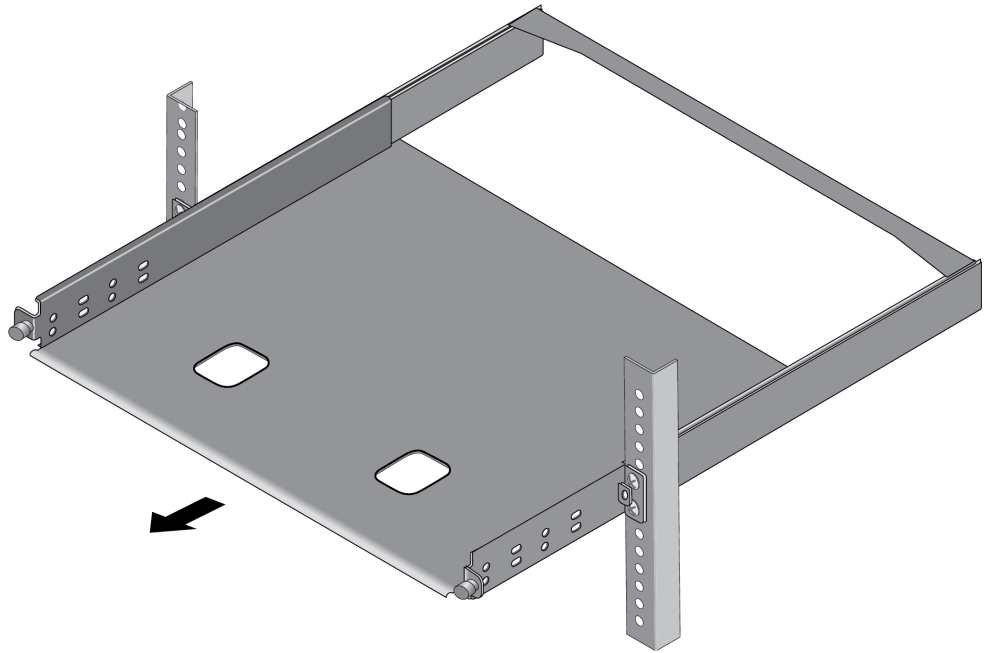


Figure 45. Sliding Out the Bracket of the RKMT-J15

4. Place the switch on one side of the bracket. Align the front panel with the front edge of the bracket. If you are installing only one switch, you may install it on either the left or right side. Refer to Figure 46.

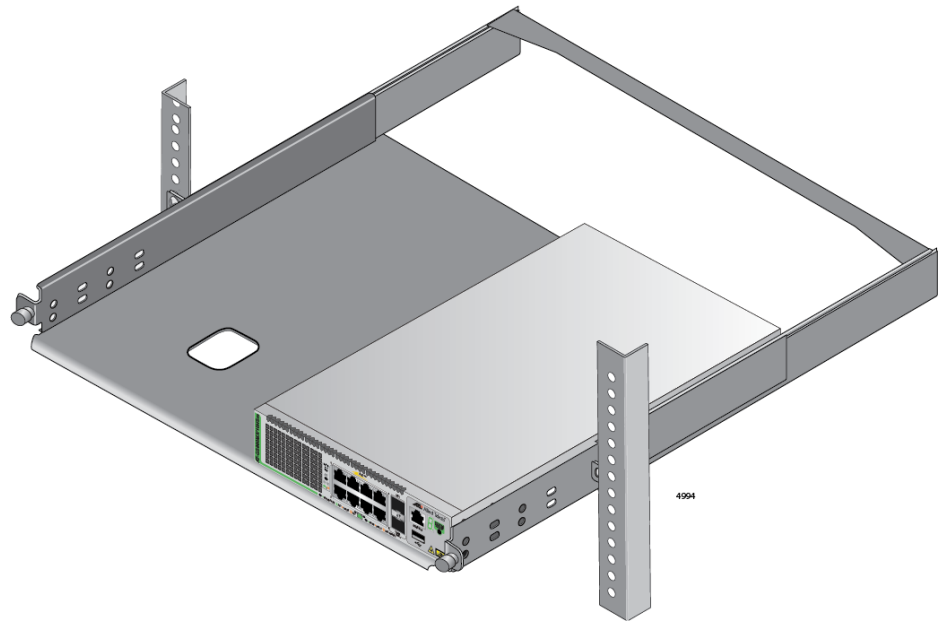


Figure 46. Placing the GS980MX/10HSm Switch in the RKMT-J15 Bracket

5. Install two M4x6mm screws included with the RKMT-J15 using the first set of holes to secure the switch to the bracket. Refer to Figure 47.

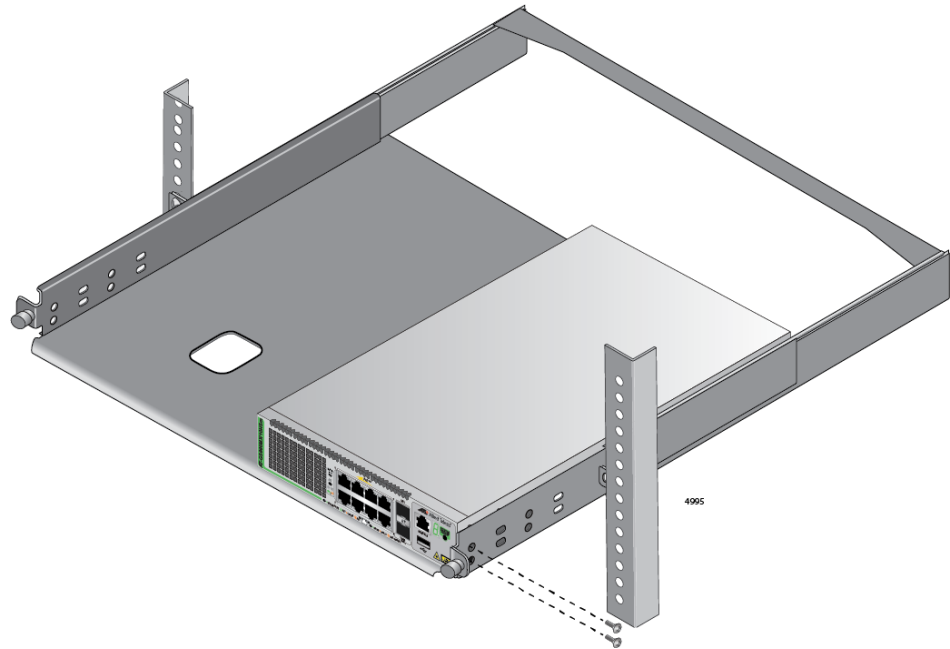


Figure 47. Securing the GS980MX/10HSm Switch to the RKMT-J15 Bracket

6. To install a second switch in the bracket, repeat steps 4 and 5.
7. Slide in the bracket tray. Refer to Figure 48.

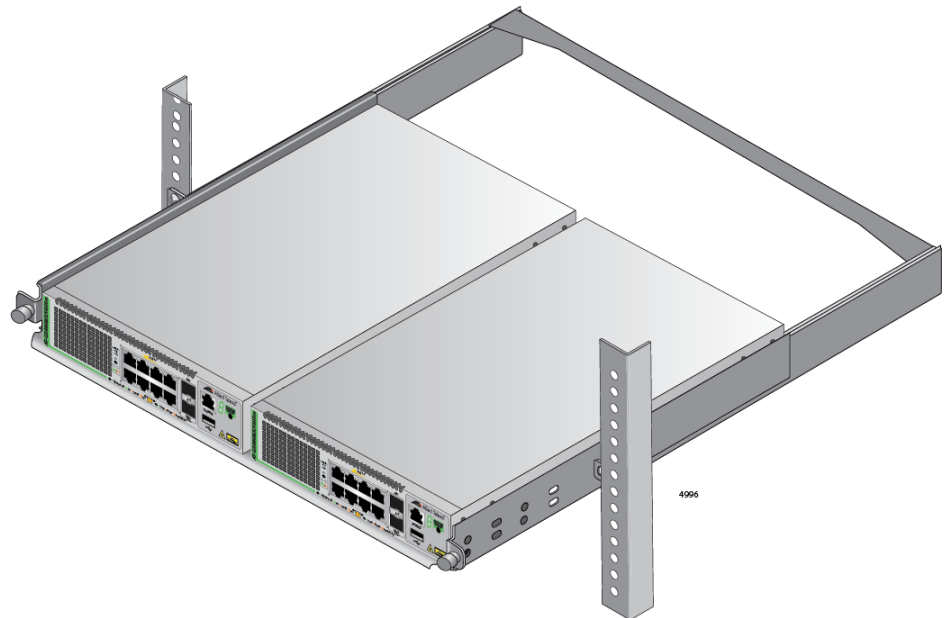


Figure 48. Sliding in the Bracket

8. Tighten the two thumbscrews to secure the bracket to the rack. Refer to Figure 49.

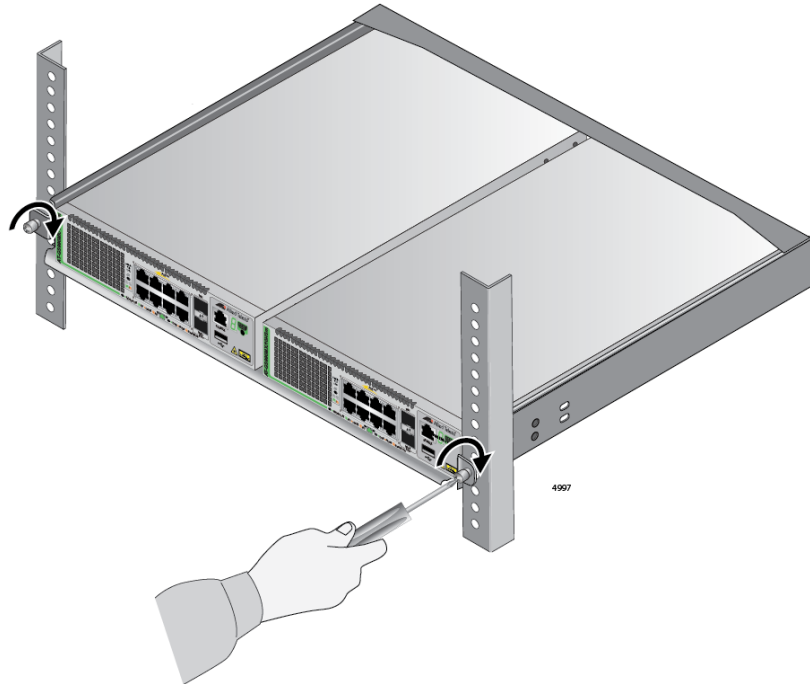


Figure 49. Tightening the Two Thumbscrews on the RKMT-J15 bracket.

9. Go to Chapter 6, “Powering On the Switch” on page 109.

Installing the GS980MX/18HSm, GS980MX/28, GS980MX/28PSm, GS980MX/52, or GS980MX/52PSm Switch in an Equipment Rack

This section contains the procedure for installing the GS980MX/18HSm, GS980MX/28, GS980MX/28PSm, GS980MX/52, or GS980MX/52PSm switch in a standard 19-inch equipment rack using the brackets supplied with the unit.

Required Items

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

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

Switch Orientations in the Equipment Rack

The switch has two sets of four screw holes on the left and right sides, for attaching the brackets. Refer to Figure 50.

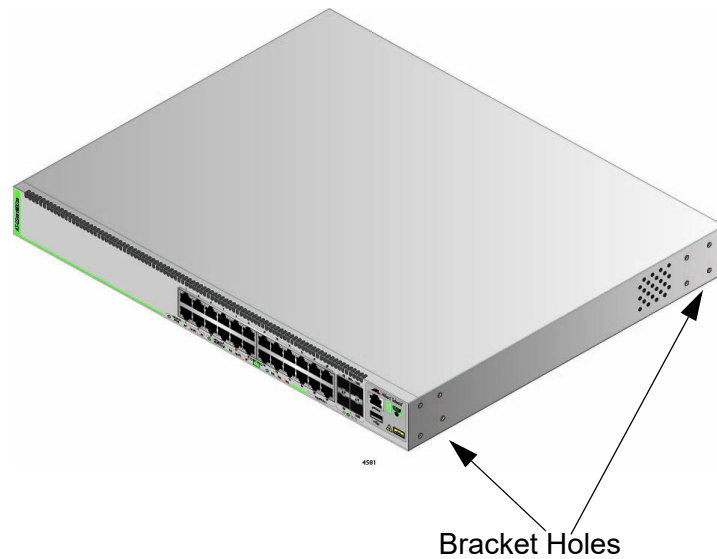


Figure 50. Bracket Holes on the Switch

You can use the different sets of holes on the switch to install the switch in the equipment rack in a variety of orientations. You can install it with the front panel flush with, extending in front of, or recessed behind the front of the equipment rack. Refer to Figure 51.

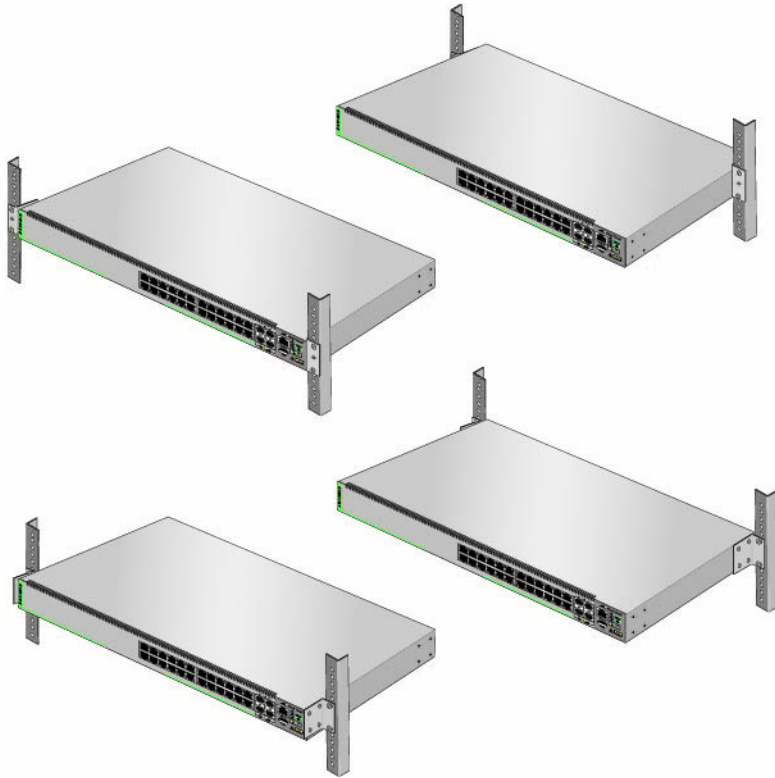


Figure 51. Switch Orientations in an Equipment Rack

Installing the Switch

If you have not chosen an orientation for the switch in the equipment rack, review “Switch Orientations in the Equipment Rack” on page 88.

Please review the installation guidelines in “Choosing a Site for the Switch” on page 63 before installing the switch in an equipment rack.



Caution

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

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

Note

Place the switch on a level, secure surface.

1. Place the switch on a level, secure surface.
2. Attach the two brackets to the sides of the switch in the selected position, using the eight M4x6mm screws supplied with the unit. The illustration in Figure 52 shows the installation of the brackets such that the front panel of the switch is even with the front of the equipment rack.

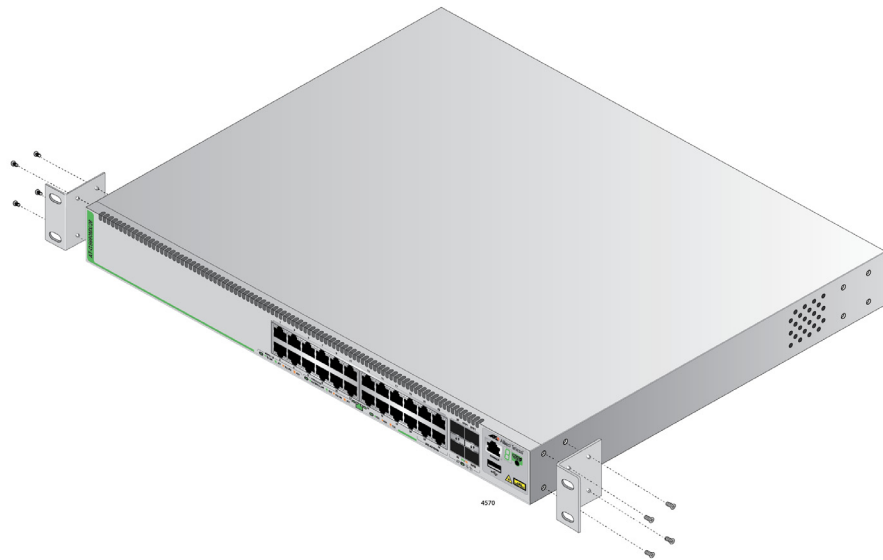


Figure 52. Example of Attaching the Brackets to the Switch

3. 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 53.

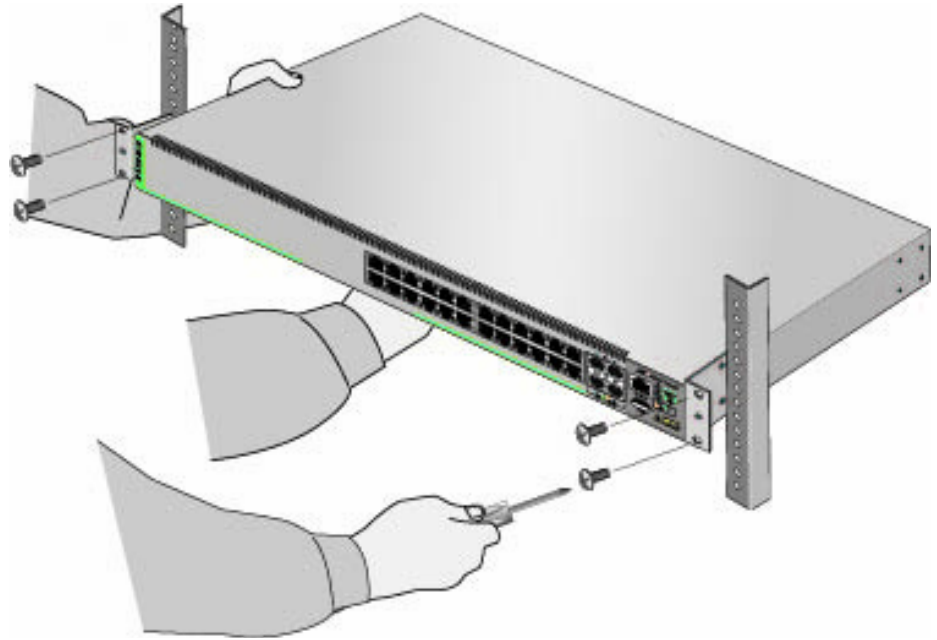


Figure 53. Installing the Switch in an Equipment Rack

4. Go to Chapter 6, “Powering On the Switch” on page 109.

Chapter 5

Installing the Switch on a Wall

The procedures in this chapter are listed here:

- ❑ “Switch Orientations on a Wall” on page 94
- ❑ “Installation Guidelines” on page 96
- ❑ “Plywood Base for a Wall with Wooden Studs” on page 99
- ❑ “Installing a Plywood Base” on page 100
- ❑ “Installing the Switch on a Plywood Base” on page 101
- ❑ “Installing the Switch on a Concrete Wall” on page 106

Switch Orientations on a Wall

Install the GS980MX/28 or GS980MX/28PSm switch on a wall with the front panel facing up, left or right, as shown in Figure 54. Do not install the switch with the front panel facing down.

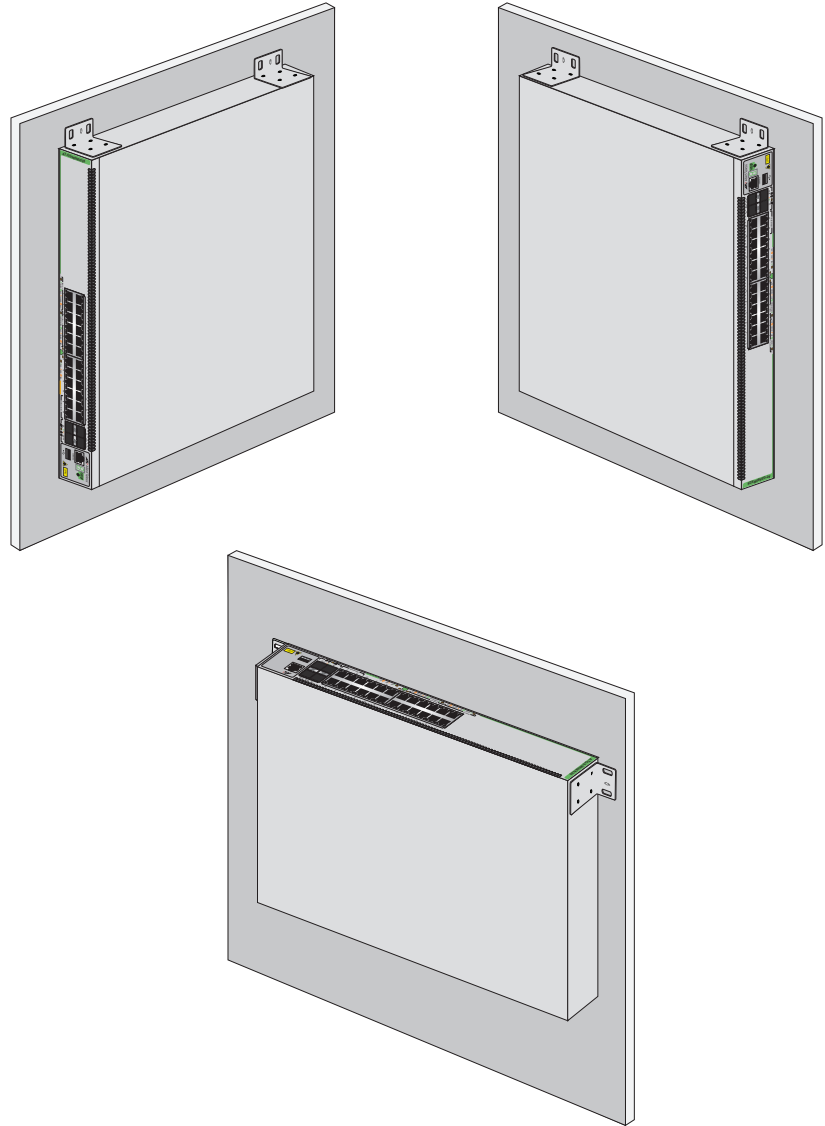


Figure 54. Positioning the GS980MX/28 or GS980MX/28PSm Switch on the Wall

Note

The GS980MX/28 or GS980MX/28PSm switch only require two brackets to mount. The GS980MX/10HSm, GS980MX/18HSm, GS980MX/52, and GS980MX/52PSm switches are heavier and require four brackets to mount.

Install the GS980MX/10HSm, GS980MX/18HSm, GS980MX/52, or GS980MX/52PSm switch on a wall with the front panel facing left or right, as shown in Figure 55. Do not install the switch with the front panel facing up or down.

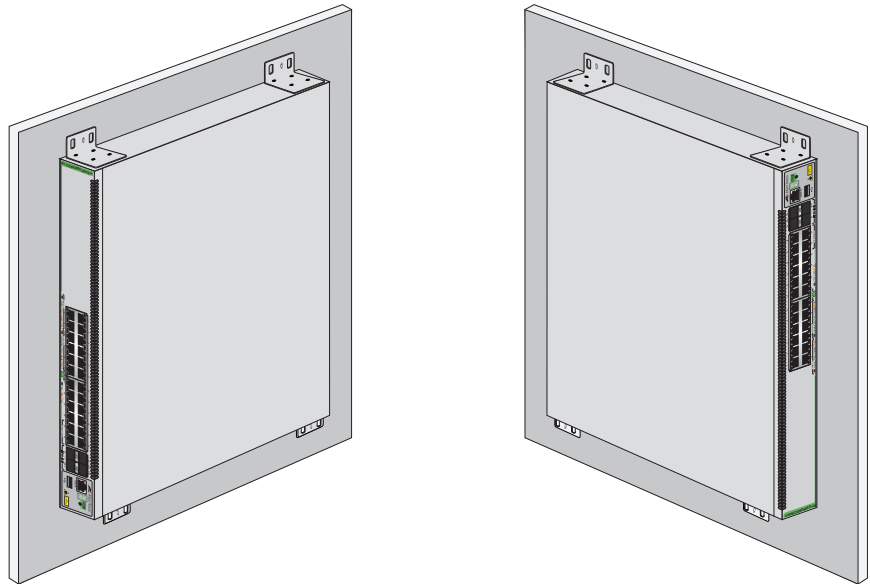


Figure 55. Positioning the GS980MX/10HSm, GS980MX/18HSm, GS980MX/52, or GS980MX/52PSm Switch on the Wall

Installation Guidelines

The following are guidelines for installing the switch on a wall:

- ❑ Install the switch on a wall that has wooden studs or on a concrete wall.
- ❑ If you are installing the switch on a wall with wooden studs, use a plywood base to support the switch. For more information, refer to “Plywood Base for a Wall with Wooden Studs” on page 99. A plywood base is not required for a concrete wall.
- ❑ Do not install the switch on a wall that has metal studs. Metal studs may not be strong enough to safely support the device.
- ❑ Do not install the switch on sheetrock or similar material. Sheetrock is not strong enough to safely support the device.



Warning

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



Warning

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

Tools and Material

The following tools and material are required for installing the switch on a wall.

Included with switch:

- ❑ Wall/equipment rack brackets:
 - Two for the GS980MX/28 or GS980MX/28PSm
 - Four for the GS980MX/10HSm, GS980MX/18HSm, GS980MX/52 or GS980MX/52PSm
- ❑ Screws for attaching the wall/equipment rack brackets to the switch:
 - Eight for GS980MX/28 or GS980MX/28PSm
 - Sixteen for GS980MX/10HSm, GS980MX/18HSm, GS980MX/52 or GS980MX/52PSm

Length: 6 mm (0.2 in.) Diameter: 4 mm (0.16 in.)

- ❑ Anchors for wood or concrete walls:
 - Two for the GS980MX/28 or GS980MX/28PSm
 - Four for the GS980MX/10HSm, GS980MX/18HSm, GS980MX/52 or GS980MX/52PSm

Length: 29.6 mm (1.2 in.) Diameter: 6 mm (0.2 in.)

- ❑ Screws for wood or concrete walls:
 - Two for the GS980MX/28 or GS980MX/28PSm
 - Four for the GS980MX/10HSm, GS980MX/18HSm, GS980MX/52 or GS980MX/52PSm

Length: 32 mm (1.3 in.) Diameter: 4 mm (0.16 in.)


- ❑ One power cord retaining clip.

Not included with switch:

- ❑ Cross-head screwdriver.
- ❑ Stud finder for a wooden wall, capable of identifying the middle of wall studs and hot electrical wiring.
- ❑ Drill and 1/4-inch carbide drill bit (for a concrete wall). Refer to “Installing the Switch on a Concrete Wall” on page 106.
- ❑ Plywood base (if you are installing the switch on a wall with wooden studs). Refer to “Plywood Base for a Wall with Wooden Studs” on page 99 for illustrations.
- ❑ Four screws for attaching the plywood base to the wall.



Caution

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

Plywood Base for a Wall with Wooden Studs

If you are installing the switch on a wall that has wooden studs, use a plywood base for the device. (A plywood base is not required for a concrete wall.) Refer to Figure 56.

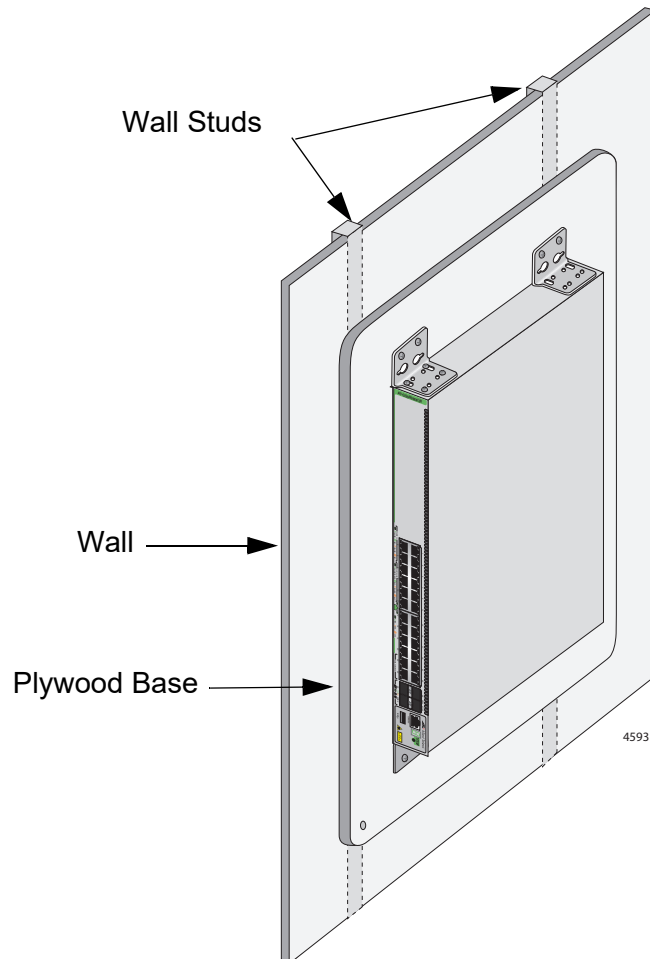


Figure 56. Switch on the Wall with a Plywood Base

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

- ❑ Width: 55.9 centimeters (22 inches)
- ❑ Height: 61.0 centimeters (24 inches)
- ❑ Thickness: 2.5 centimeters (1 inch)

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

Installing a Plywood Base

A plywood base is recommended when installing the switch on a wall that has wooden studs. Refer to “Plywood Base for a Wall with Wooden Studs” on page 99. Consult a qualified building contractor for installation instructions for the plywood base. The installation guidelines are listed here:

- ❑ Use a stud finder to identify the middle of studs and hot electrical wiring in the wall.
- ❑ Attach the base to two wall studs with a minimum of four screws.
- ❑ The selected wall location for the base must provide sufficient space from other devices or walls so that you can access the front and back panels, and for adequate air flow for ventilation. Refer to Figure 57.

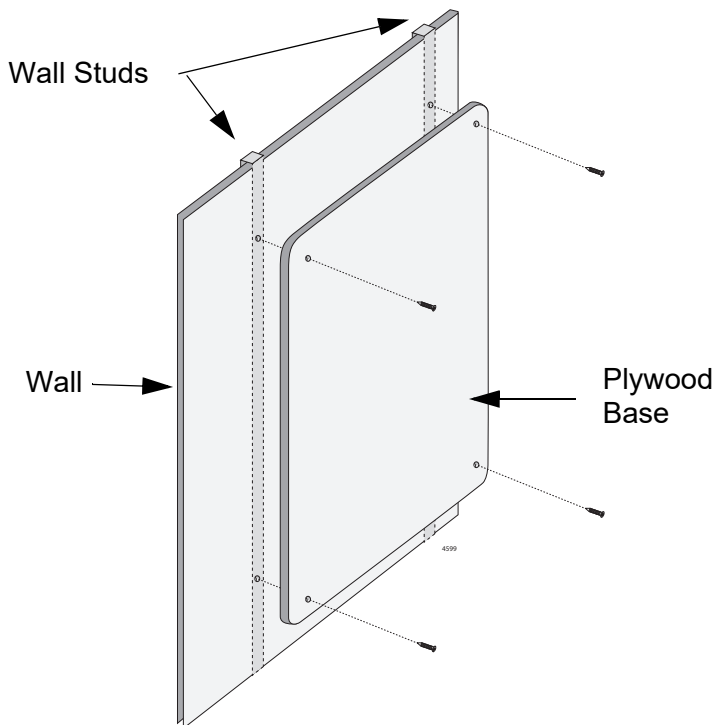


Figure 57. Installing the Switch on the Plywood Base

Installing the Switch on a Plywood Base

After the plywood base for the switch has been installed on the wall, install the switch. See “Reviewing Safety Precautions” on page 58 and “Choosing a Site for the Switch” on page 63 before performing this procedure. Allied Telesis recommends a minimum of two people for this procedure.



Warning

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



Warning

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

Note

If the plastic feet have been installed, you must remove them to install the switch a plywood base.

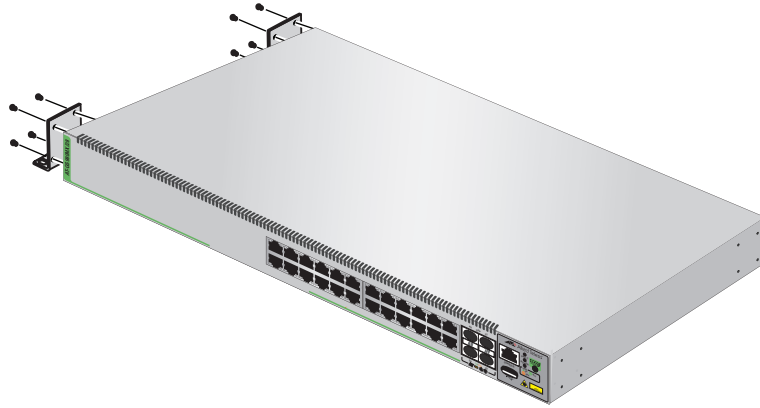
To install the switch on a plywood base, perform the following procedure:

1. Place the switch on a table.
2. For the GS980MX/28 and GS980MX/52 switches, install two wall/equipment rack brackets to the sides of the unit with the eight M4x6mm screws included with the switch. Refer to Figure 58 on page 102. For the GS980MX/10HSm, GS980MX/18HSm, GS980MX/28PSm and GS980MX/52PSm switches, install four wall/equipment rack brackets to the sides of the unit with the 16 M4x6mm screws included with the switch. Refer to Figure 59 on page 103.

Note

The GS980MX/10HSm, GS980MX/18HSm, GS980MX/52 and GS980MX/52PSm switches require four brackets to be installed due to their weights. Whereas, the GS980MX/28 and GS980MX/28PSm switches only require two brackets because they are lighter.

Brackets positions
to install the switch with
the front panel on the left.



Brackets positions
to install the switch with
the front panel on the right.

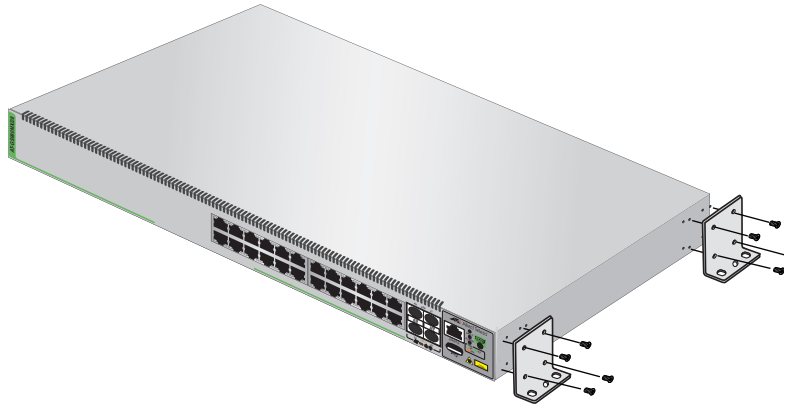


Figure 58. Installing Two Brackets on the GS980MX/28 or GS980MX/28PSm Switch

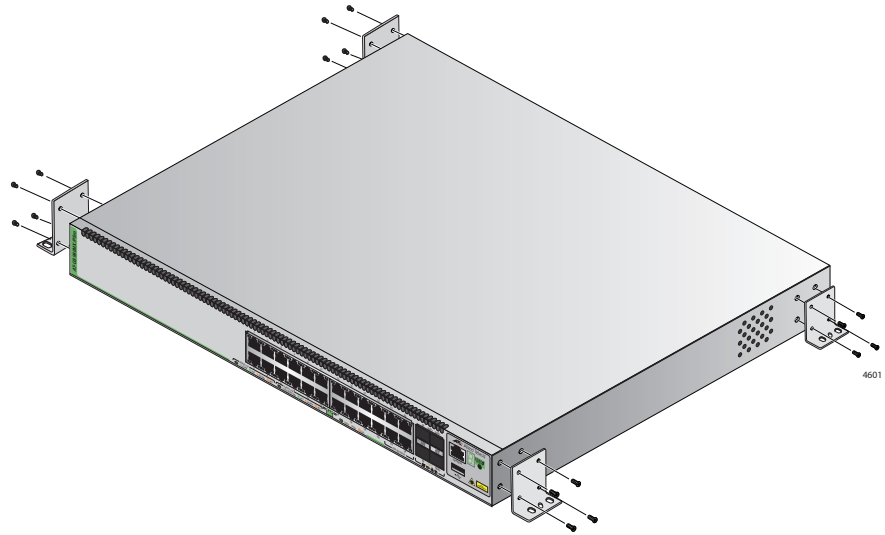


Figure 59. Installing Four Brackets on the GS980MX/10HSm, GS980MX/18HSm, GS980MX/52 or GS980MX/52PSm Switch

3. After attaching the brackets, have another person hold the switch on the plywood base on the wall while you secure it with the M4x32.3mm screws included with the switch. Refer to Figure 60 on page 104 for the GS980MX/28 or GS980MX/28 switch or Figure 61 on page 105 for the GS980MX/10HSm, GS980MX/18HSm, GS980MX/52 or GS980MX/52PSm switch.

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

- Position it so that the front panel is facing up, left or right. Refer to Figure 54. Do not install it with the front panel facing down.
- Provide sufficient space from other devices or walls so that you can access the front and back panels, and for adequate air flow for ventilation.

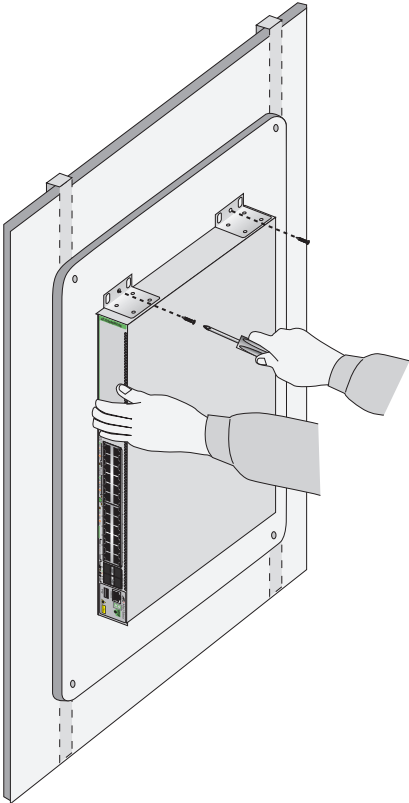


Figure 60. Securing the GS980MX/28 or GS980MX/28PSm Switch to the Plywood Base

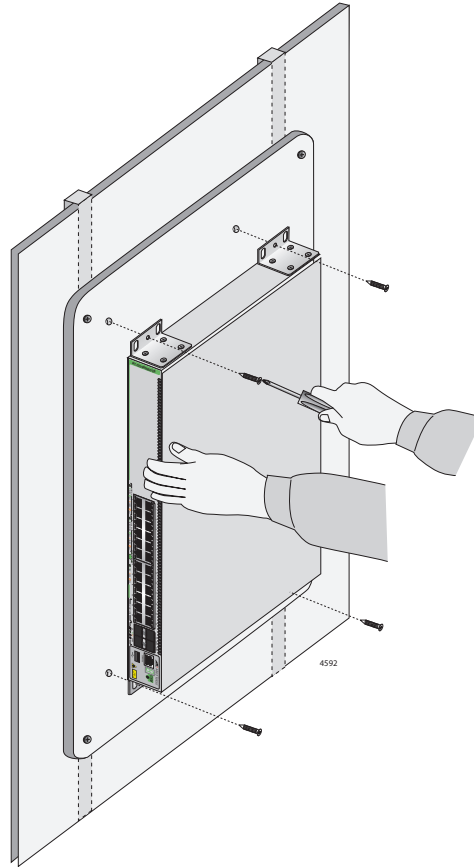


Figure 61. Securing the GS980MX/10HSm, GS980MX/18HSm, GS980MX/52 or GS980MX/52PSm Switch to the Plywood Base

4. Install the other switches of the stack.
5. Go to Chapter 6, “Powering On the Switch” on page 109.

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 94
- “Installation Guidelines” on page 96



Warning

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



Warning

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

Note

If the plastic feet have been installed, you must remove them to install the switch on a concrete wall.

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

1. Place the switch on a table.
2. For the GS980MX/28 or GS980MX/28PSm switch, install two wall/equipment rack brackets to the sides of the unit with the eight M4x6mm screws included with the switch. Refer to Figure 58 on page 102. For the GS980MX/10HSm, GS980MX/18HSm, GS980MX/52 or GS980MX/52PSm switch, install four wall/equipment rack brackets to the sides of the unit with the 16 M4x6mm screws included with the switch. Refer to Figure 59 on page 103.
3. After attaching the brackets, have another person hold the switch on the concrete wall at the selected location for the device while you use a pencil or pen to mark the wall with the locations of the four screw holes in the four brackets (one screw per bracket). Refer to Figure 62 on page 107.

4. Follow these guidelines as you position the switch on the wall:
 - ❑ Position it so that the front panel is facing up, left or right. Refer to Figure 54 on page 94. Do not install the switch with the front panel facing down.
 - ❑ Provide sufficient space from other devices or walls so that you can access the front and back panels, and for adequate air flow and ventilation.

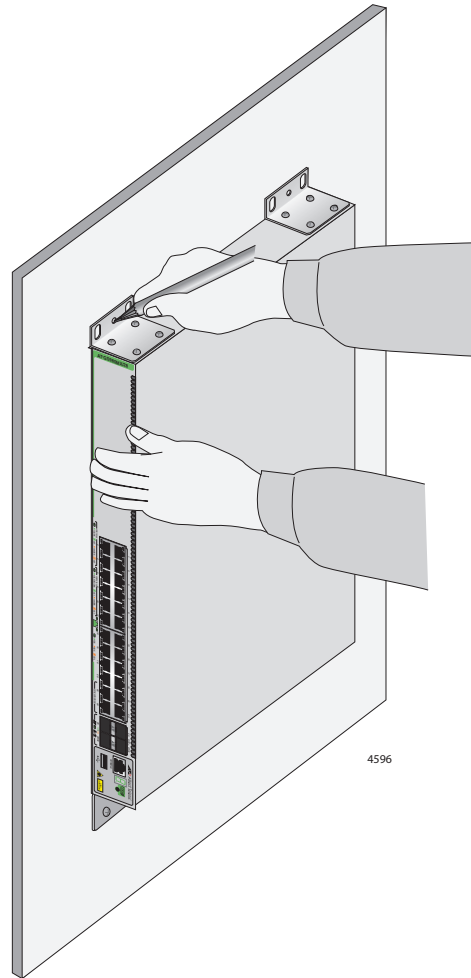


Figure 62. Marking the Locations of the Bracket Holes on a Concrete Wall

5. Place the switch on a table.
6. Use a drill and a 1/4-inch carbide drill bit to pre-drill the holes you marked in step 3. Please review the following guidelines:
 - ❑ Prior to drilling, set the drill to hammer and rotation mode. The modes break up the concrete and clean out the hole.
 - ❑ Clean out the holes with a brush or compressed air.

7. Insert the anchors into the holes.
8. Have another person hold the switch at the selected wall location while you secure it to the wall with the M4x32mm screws provided. Refer to Figure 63.

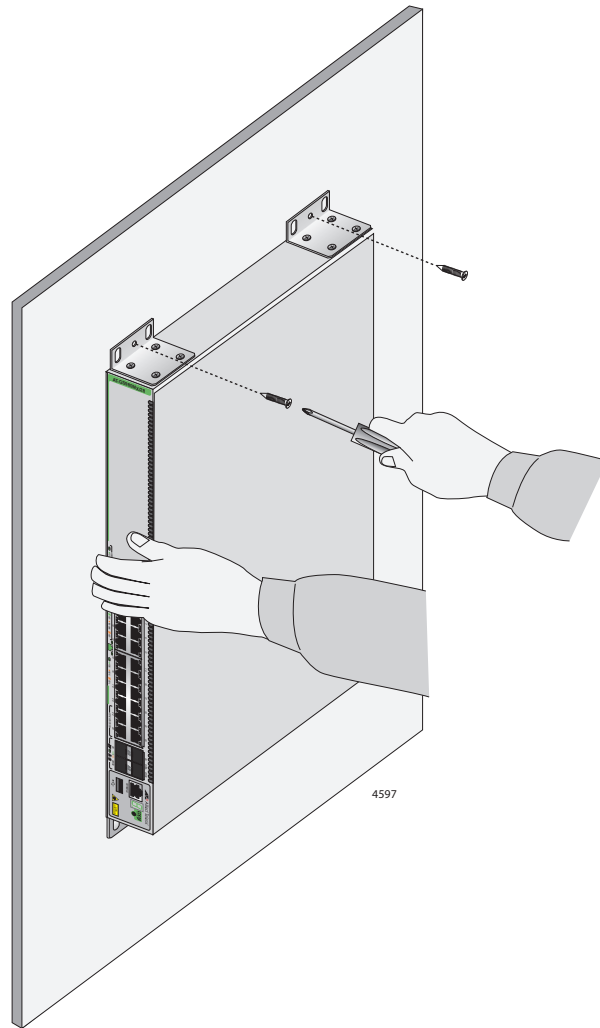


Figure 63. Installing the Switch on a Concrete Wall

9. Install the other switches of the stack.
10. After installing the switches, go to Chapter 6, “Powering On the Switch” on page 109.

Chapter 6

Powering On the Switch

This chapter contains the following procedures:

- “Powering On the Switch” on page 110
- “Monitoring the Initialization Processes” on page 113

Powering On the Switch

Before powering on the switch, review the information in “Power Specifications” on page 145 for the power specifications.



Warning

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

Note

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

The power cord retaining clips that come with the switch protect the power cords from being accidentally unplugged from the unit.

To power on the switch, perform the following procedure:

1. Install the power cord retaining clip on the AC power connector on the rear panel of the switch. Refer to Figure 64.

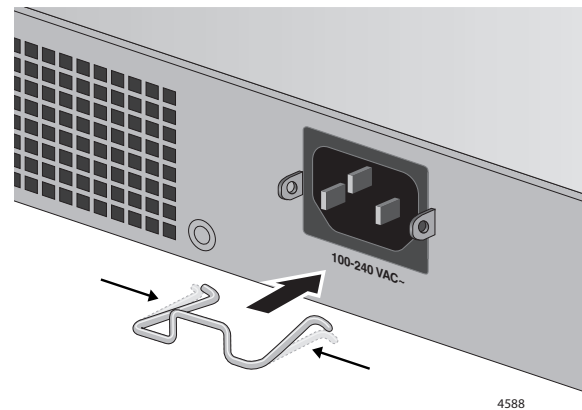


Figure 64. Installing the Power Cord Retaining Clip

2. Connect the AC power cord to the AC power connector on the rear panel. Refer to Figure 65 on page 111.

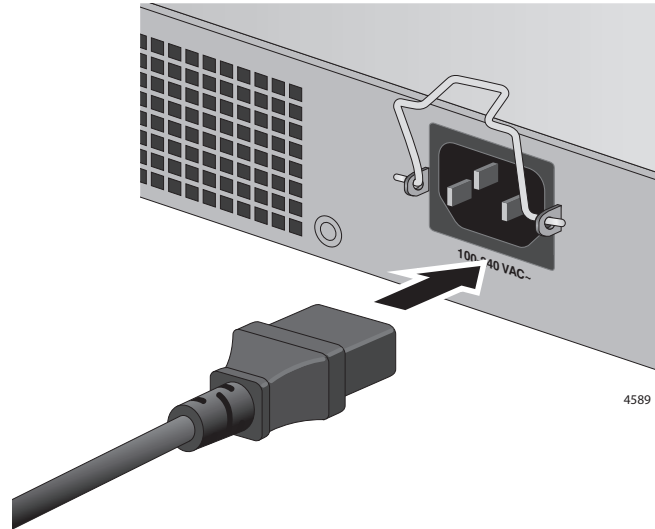


Figure 65. Connecting the AC Power Cords

3. Lower the power cord retaining clips to secure the cords to the switch. Refer to Figure 66.

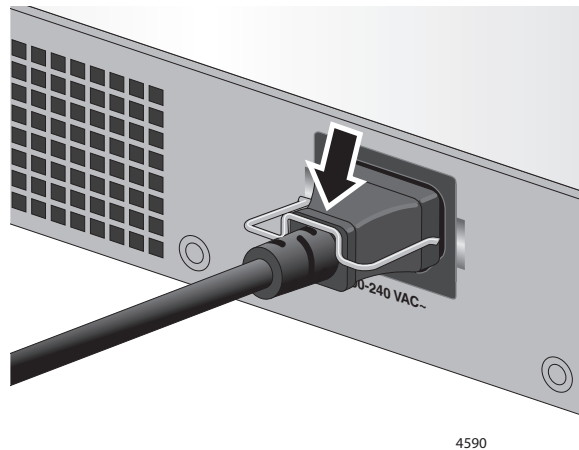


Figure 66. Lowering the Power Cord Retaining Clips

4. Repeat steps 1 through 3 to connect a power cord to a second power supply.
5. Connect the power cords to an appropriate AC power source. Refer to Figure 67 on page 112.

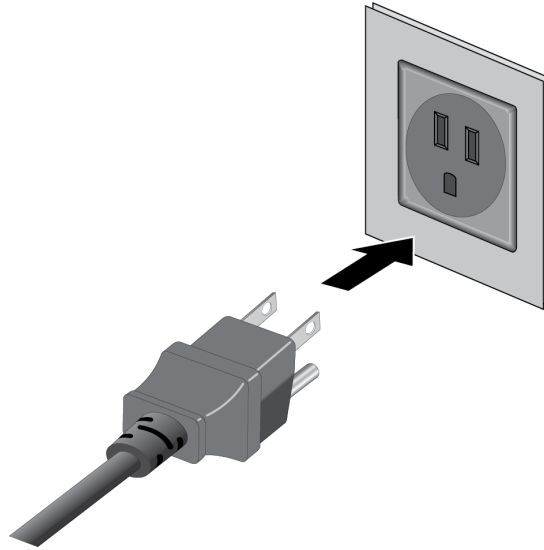


Figure 67. Connecting the Power Cords to an AC Power Source

Note

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



Warning

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

Note

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

6. Do one of the following:
 - To monitor the switch as it initializes the management software, go to “Monitoring the Initialization Processes” on page 113.
 - Wait two minutes for the switch to initialize its management software and then go to Chapter 7, “Configuring the Switch for Standalone Operations” on page 117.

Monitoring the Initialization Processes

It takes about two minutes for the switch to initialize its management software programs and features, and load the default configuration. You can monitor the bootup sequence by connecting a terminal or computer with a terminal emulator program to the Console port. (The Console port settings are provided in “Starting a Local Management Session” on page 119.) The switch displays the messages in Figure 68 through Figure 70 on the Console port as it initializes the management software.

```

Bootloader 7.0.6-devel loaded
Press <Ctrl+B> for the Boot Menu
Loading flash:GS980MX 5.5.1-1.2 rel
Verifying release... OK
Booting...
Starting base/first...           [ OK ]
Mounting virtual filesystems...  [ OK ]

      _____
     / \      / / \_____ \
    /  \ \   / /  | _____ |
   /    \ |  | /  | | _____ |
  /      \ \ / /  \ \ _____ /
 /_____/ \ \ \ / /_____/

Allied Telesis Inc.
AlliedWare Plus (TM) v5.5.1-1.2
Current release filename: GS980MX 5.5.1-1.2-rc1.rel...
Built: Tue Jan 19 01:57:50 UTC 2021
Mounting static filesystems...   [ OK ]
Attaching to /dev/mtd0...       [ OK ]
Mounting file system...         [ OK ]
Checking for last gasp debug output... [ OK ]
Checking NVS filesystem...      [ OK ]
Mounting NVS filesystem...      [ OK ]
Initializing random number generator... [ OK ]
Starting base/hwrandom...       [ OK ]
Starting base/jitterentropy-rngd... [ OK ]
Starting base/dbus...           [ OK ]
Starting base/linux...          [ OK ]
Starting base/syslog...         [ OK ]

```

Figure 68. Switch Initialization Messages

```

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

```

Figure 69. Switch Initialization Messages (Continued)

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

```
Received event network.initialized
```

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

```
Received event network.activated
```

```
Loading default configuration
```

```
..
```

```
done!  
Received event network.configured
```

Figure 70. Switch Initialization Messages (Continued)

After the switch has initialized its management software, go to Chapter 7, “Configuring the Switch for Standalone Operations” on page 117.

Chapter 7

Configuring the Switch for Standalone Operations

This chapter contains the following procedures:

- ❑ “Determining the Standalone or Stacking Status of the Switch” on page 118
- ❑ “Starting a Local Management Session” on page 119
- ❑ “Disabling the VCStack Feature” on page 121
- ❑ “Saving Your Changes and Rebooting the Switch” on page 123
- ❑ “Specifying Ports in the Command Line Interface for Standalone Switches” on page 124


Determining the Standalone or Stacking Status of the Switch

After powering on the switch and waiting two minutes for it to initialize the management software, examine the switch ID LED on the front panel. If the LED is displaying the number “1” or higher, the VCStack feature is enabled on the unit. You need to disable it to use the switch in standalone mode. For instructions, start with “Starting a Local Management Session” on page 119. The VCStack feature is enabled by default.

If the LED is displaying “0”, the VCStack feature is already disabled and the switch is operating as a standalone unit. Go to Chapter 8, “Cabling the Networking Ports” on page 127.



Caution

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

Note

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

Starting a Local Management Session

This procedure requires a VT100 terminal or a VT100 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 of the management cable to the console port on the front panel of the switch, as shown in Figure 71.

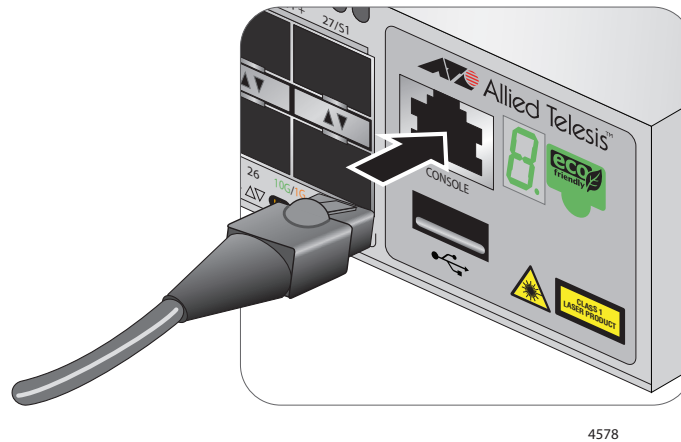


Figure 71. Connecting the Management Cable to the Console Port

2. Connect the other end of the cable to an RS-232 port on a terminal or computer with a terminal emulator program.
3. Configure the terminal or terminal emulator program as follows:
 - Default baud rate: 9,600 bps (range is 9,600 to 115,200 bps)
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
 - Flow control: None

Note

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

4. Press Enter.

You are prompted for a user name and password.

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

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

```
awp1us>
```

Note

The User Exec mode is the first level in the command mode interface. For complete information on the modes and commands, refer to the *Command Reference: GS980MX Series Switches Running AlliedWare Plus v5.5.1* at www.alliedtelesis.com/library.

6. If you need to disable the VCStack feature, perform the procedure in “Disabling the VCStack Feature” on page 121.

Disabling the VCStack Feature

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



Caution

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

To disable the VCStack feature, perform the following procedure:

1. Start a local management session on the switch. For instructions, refer to “Starting a Local Management Session” on page 119.
2. To display the status of the VCStack feature on the switch, at the User Exec mode prompt, type the command SHOW STACK.

```
awplus> show stack
Virtual Chassis Stacking summary information
ID      Pending ID  MAC address      Priority  Status  Role
1       -            eccd:6dd1:64a2  128     Ready   Active Master
Operational Status      Standalone Unit
Stack MAC address      eccd:6dd1:64a2
awplus>
```

Figure 72. SHOW STACK Command

3. If the Operational Status of the switch is “Stacking Hardware Disabled,” the VCStack feature is already disabled on the unit. If this is the case, go to Chapter 8, “Cabling the Networking Ports” on page 127.

However, if the Operational Status is “Standalone Unit” as shown in Figure 72, the VCStack feature is active on the unit. (The “Standalone Unit” status means the switch is functioning as a stack of one switch.) You must disable the feature to use the switch as a standalone unit. Continue with the next step.

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

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

Figure 73. Moving to the Global Configuration Mode

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

```
no stack <id> enable
```

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

```
awplus(config)# no stack 1 enable
warning; This will disable the stacking hardware on member-1.
Are you sure you want to continue? (y/n):
```

Figure 74. Disabling VCStack Verification

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

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

Figure 75. Disabling VCStack

7. Press the Enter key to re-display the Global Configuration mode prompt.
8. Go to “Saving Your Changes and Rebooting the Switch” on page 123.

Saving Your Changes and Rebooting the Switch

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

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

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

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

Figure 76. Returning to the Privileged Exec Mode

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

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

Figure 77. Saving the Changes with the WRITE Command

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

3. To reboot the switch, type the command REBOOT.
4. To confirm, type “Y” for yes.
5. Wait two minutes for the switch to initialize the management software and then examine the Switch ID LED again. The switch is ready for normal network operation as a standalone unit if its ID number is “0.” If the number is not “0,” repeat the procedures in this chapter, being sure to save your configuration changes with the WRITE command.
6. Go to Chapter 8, “Cabling the Networking Ports” on page 127.

Specifying Ports in the Command Line Interface for Standalone Switches

The individual ports on the switches are specified in the command line interface with the PORT parameter. The format of the parameter is shown in Figure 78.

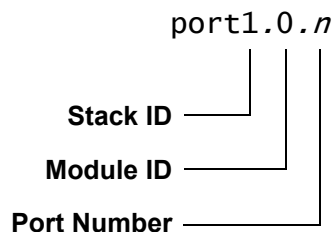


Figure 78. PORT Parameter in the Command Line Interface

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

Table 17. PORT Parameter Format

Number	Description
Stack ID	Designates the switch's ID number. The correct value is "1" for a standalone switch. Do not enter 0, the value displayed on the Switch ID LED.
Module ID	Designates the module number of a port. The GS980MX Series switches do not have modules, Consequently, this value is always 0 (zero).
Port Number	Designates a port number.

The following is an example of the PORT parameter on a standalone switch. It uses the INTERFACE command to enter the Port Interface mode for ports 25 and 26:

```
awplus> enable
awplus# configure terminal
awplus(config)# interface port1.0.25,port1.0.26
```

Note

For instructions on the command line interface and the PORT parameter, refer to the *Command Reference: GS980MX Series Switches Running AlliedWare Plus v5.5.1* at www.alliedtelesis.com/library.

Chapter 8

Cabling the Networking Ports

This chapter contains the following procedures:

- ❑ “Cabling Twisted Pair Ports” on page 128
- ❑ “Guidelines to Handling SFP and SFP+ Transceivers” on page 129
- ❑ “Installing SFP or SFP+ Transceivers” on page 130
- ❑ “Installing SP10TW Direct Connect Twinax Cables” on page 132

Cabling Twisted Pair Ports

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

- ❑ The minimum twisted pair cable requirements are as follows:
 - 10/100Mbps ports: Standard TIA/EIA 568-B-compliant Category 3 unshielded cabling.
 - 1/2.5/5Gbps ports: Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) unshielded cabling.
 - 10Gbps ports: Standard TIA/EIA 568-C-compliant Category 6a unshielded cabling.
- ❑ PoE is enabled by default on the GS980MX/10HSm, GS980MX/18HSm, GS980MX/28PSm and GS980MX/52PSm switch ports.
- ❑ The connectors on the cables must fit snugly into the ports, and the tabs must lock the connectors into place.
- ❑ The default speed setting for the ports is Auto-Negotiation. This setting is appropriate for ports connected to network devices that also support Auto-Negotiation.
- ❑ The ports must be set to the default setting of Auto-Negotiation to operate at 1Gbps and higher.
- ❑ The ports support full-duplex only when operating at 1Gbps and higher. The ports support half- and full-duplex when operating at 10/100Mbps.
- ❑ Do not attach cables to ports of static or Link Aggregation Control Protocol (LACP) port trunks until after you configure the trunks on the switch. Otherwise, the ports will form network loops that can adversely affect network performance.

Guidelines to Handling SFP and SFP+ Transceivers

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

- ❑ The transceivers are hot-swappable. You can install them while the switch is powered on.
- ❑ For a list of supported transceivers, refer to the product data sheet on the Allied Telesis web site.
- ❑ The operational specifications and fiber optic cable requirements of the transceivers are provided in the documents included with the devices.
- ❑ Install a transceiver before connecting the fiber optic cable.
- ❑ Unnecessary removal and insertion of a transceiver can lead to premature failure.



Caution

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

Installing SFP or SFP+ Transceivers

This section contains installation instructions for SFP or SFP+ transceivers on the following ports:

- ❑ Ports 9 and 10 on the GS980MX/10HSm
- ❑ Ports 17 and 18 on the GS980MX/18HSm switch
- ❑ Ports 25 and 28 on the GS980MX/28 and GS980MX/28PSm
- ❑ Ports 49 and 52 on the GS980MX/52 and GS980MX/52PSm

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

To install transceivers, perform the following procedure:

1. Select a port for the transceiver.
2. Remove the transceiver from its shipping container and store the packaging material in a safe location.
3. If you are installing the transceiver in a top port, position the transceiver with the Allied Telesis label facing up. If you are installing the transceiver in a bottom port, position the transceiver with the label facing down. Refer to Figure 79.

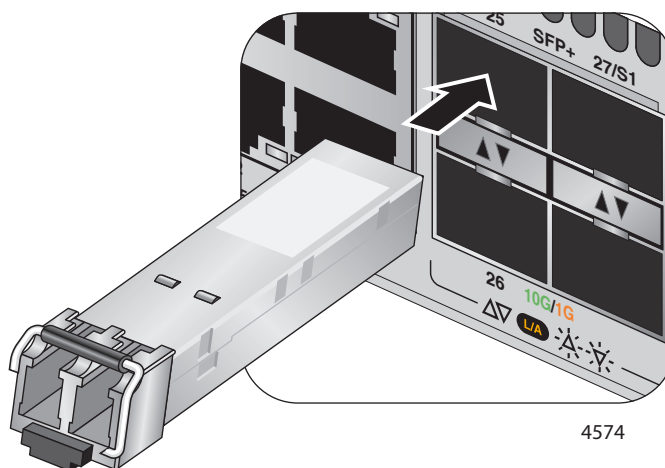


Figure 79. Installing an SFP Transceiver

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

Note

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

5. Verify the position of the handle on the transceiver. If the transceiver is in a top port, the handle must be in the upright position, as shown in Figure 80. If the transceiver is in a bottom port, the handle must be in the down position.

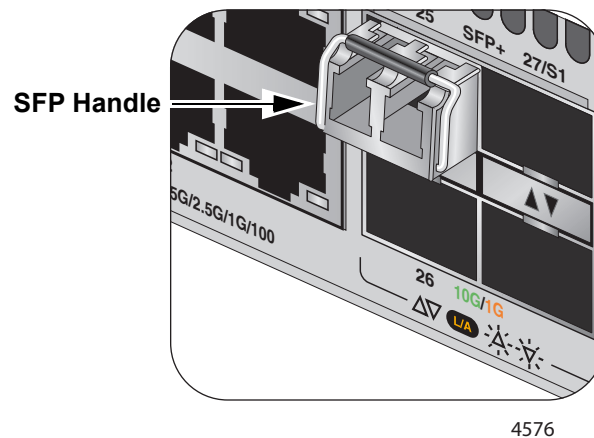


Figure 80. Positioning the SFP or SFP+ Handle in the Upright Position

6. Connect the fiber optic cable to the transceiver, as shown in Figure 81. The connector on the cable must fit snugly into the port, and the tab must lock the connector into place.

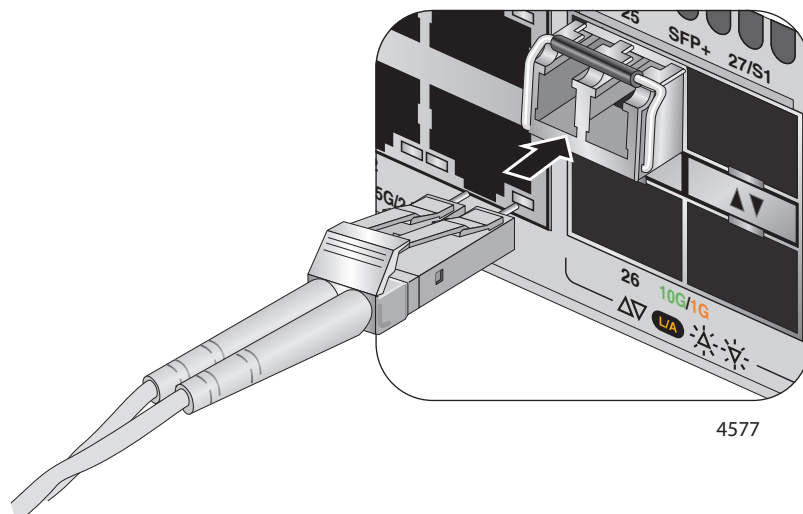


Figure 81. Connecting a Fiber Optic Cable to an SFP or SFP+ Transceiver

7. Repeat this procedure to install additional transceivers.

Installing SP10TW Direct Connect Twinax Cables

The SFP and SFP+ transceiver ports of the switches support SP10TW direct connect twinax cables:

- ❑ Ports 9 and 10 on the GS980MX/10HSm switch
- ❑ Ports 17 and 18 on the GS980MX/18HSm switch
- ❑ Ports 25 and 28 on the GS980MX/28 or GS980MX/28PSm switch
- ❑ Ports 49 to 52 on the GS980MX/52 or GS980MX/52PSmswitch

The cables are an economical way to add 10Gbps connections over short distances. They have SFP+ transceivers on both ends and come in lengths of 1 and 3 meters.

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

1. Select a port for the transceiver.
2. Remove the transceiver from its shipping container and store the packaging material in a safe location.
3. To install the transceiver in a port in the top row, position the transceiver with the Allied Telesis label facing up. To install the transceiver in a port in the bottom row, position the transceiver with the label facing down. Refer to Figure 82.

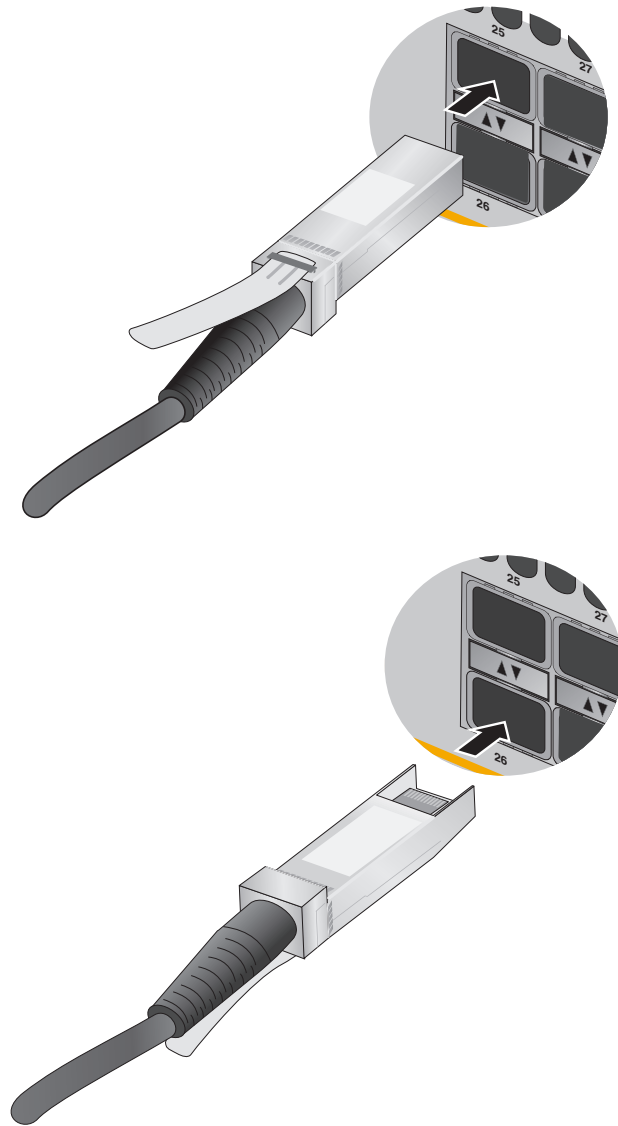


Figure 82. Installing SP10TW Cables

4. Slide the transceiver into the port until it clicks into place.
5. Connect the other end of the cable into an SFP+ port on another network device.
6. Repeat this procedure to install additional transceivers.

Note

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

Chapter 9

Troubleshooting

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

Note

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

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

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

- Verify that the power cord is securely connected to the power source and the AC connector on the back panel of the switch.
- Verify that the power outlet has power by connecting another device to it.
- Try connecting the unit to another power source.
- Try a different power cord.
- Verify that the voltage from the power source is within the required levels for your region. The power requirements for the switch are listed in “Power Specifications” on page 145.

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

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

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

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

- ❑ Verify that the network device connected to the twisted pair port is powered on and is operating properly.
- ❑ Try connecting another network device to the twisted pair port with a different cable. If the twisted pair port is able to establish a link, then the problem is with the cable or the other network device.
- ❑ Verify that the twisted pair cable does not exceed 100 meters (328 feet).
- ❑ Verify that you are using the appropriate category of twisted pair cable. Refer to “Cable Requirements” on page 30.
- ❑ Verify that the port is connected to the correct twisted pair cable.

Note

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

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

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

- ❑ Verify that the remote network device connected to the fiber optic port is operating properly.
- ❑ Verify that the fiber optic cable is securely connected to the port on the transceiver and to the port on the remote network device.
- ❑ Check that the transceiver is fully inserted in the port.
- ❑ Verify that the operating specifications of the fiber optic ports on the transceiver and remote network device are compatible.
- ❑ Verify that the correct type of fiber optic cabling is being used.
- ❑ Verify that the port is connected to the correct fiber optic cable.
- ❑ Try connecting another network device to the fiber optic port using a different cable. If the port is able to establish a link, then the problem is with the cable or with the other network device.
- ❑ Use the switch management software to verify that the port is enabled.
- ❑ If the remote network device is a managed device, use the management firmware to determine whether the port is enabled.
- ❑ Test the attenuation of both directions on the fiber optic cable with a fiber optic tester to determine whether the optical signal is too weak (sensitivity) or too strong (maximum input power).

Problem 5: The switch functions intermittently.

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

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

Problem 6: The Switch ID LED on the front of the switch is flashing the letter “F.”

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

- ❑ A cooling fan has failed.
- ❑ The switch could be overheating and has to shut down.

Problem 7: The GS980MX/10HSm, GS980MX/18HSm, GS980MX/28PSm or GS980MX/52PSm switch is not providing power to a PoE device.

Solutions: Try the following:

- ❑ Check the port’s PoE LED. If the LED is flashing amber, the switch has reached its maximum power budget and cannot support any additional PoE devices.
- ❑ Review the powered device's documentation to verify that it is compatible with the switch. Refer to “Powered Device Classes” on page 41 and “Wiring Implementation” on page 43.
- ❑ Use the `SHOW SYSTEM ENVIRONMENT` command to confirm that both power supplies are operating normally.
- ❑ Use the management software to determine whether the switch has reached its maximum power budget and cannot support any further powered devices. The maximum power budget is:
 - GS980MX/10HSm: 500W with one power supply
 - GS980MX/18HSm: 720W with one power supply
 - GS980MX/28PSm: 370W with one power supply
 - GS980MX/52PSm: 370W with one power supply
- ❑ Verify that you are using the appropriate category of twisted-pair cable by referring to “Cable Requirements” on page 30.

- ❑ Use the management software on the switch to determine whether PoE is enabled on the port. The default setting for PoE is enabled.
- ❑ Use the management software on the switch to determine whether the PoE power setting for the port has been reduced to a value below the power requirements of the device.
- ❑ Try connecting the device to a different port on the switch.

Contact your Allied Telesis sales representative for assistance.

Appendix A

Technical Specifications

This appendix contains the following sections:

- "Physical Specifications" on page 140
- "Environmental Specifications" on page 144
- "Power Specifications" on page 145
- "Certifications" on page 147
- "RJ-45 Twisted Pair Port Pinouts" on page 148
- "RJ-45 Style Serial Console Port Pinouts" on page 149
- "USB Port" on page 150

Physical Specifications

Dimensions

Table 18 lists the dimensions of the switches. Figure 85 through Figure 88 on page 142 illustrates the dimensions of the switches.

Table 18. Product Dimensions

Model	Dimension (L x H x D)
GS980MX/10HSm	21.03 cm x 4.24 cm x 36.14 cm (8.28 in. x 1.67 in. x 14.23 in.)
GS980MX/18HSm	44.05 cm x 4.37 cm x 25.53 cm (17.34 in. x 1.72 in. x 10.5 in.)
GS980MX/28	44.05 cm x 4.37 cm x 32.26 cm (17.344 in. x 1.72 in. x 12.7 in.)
GS980MX/28PSm	44.05 cm x 4.37 cm x 42.06cm (17.344 in. x 1.72 in. x 16.56 in.)
GS980MX/52	44.05 cm x 4.37 cm x 32.26 cm (17.344 in. x 1.72 in. x 12.7 in.)
GS980MX/52PSm	44.05 cm x 4.37 cm x 42.06 cm (17.344 in. x 1.72 in. x 16.56 in.)

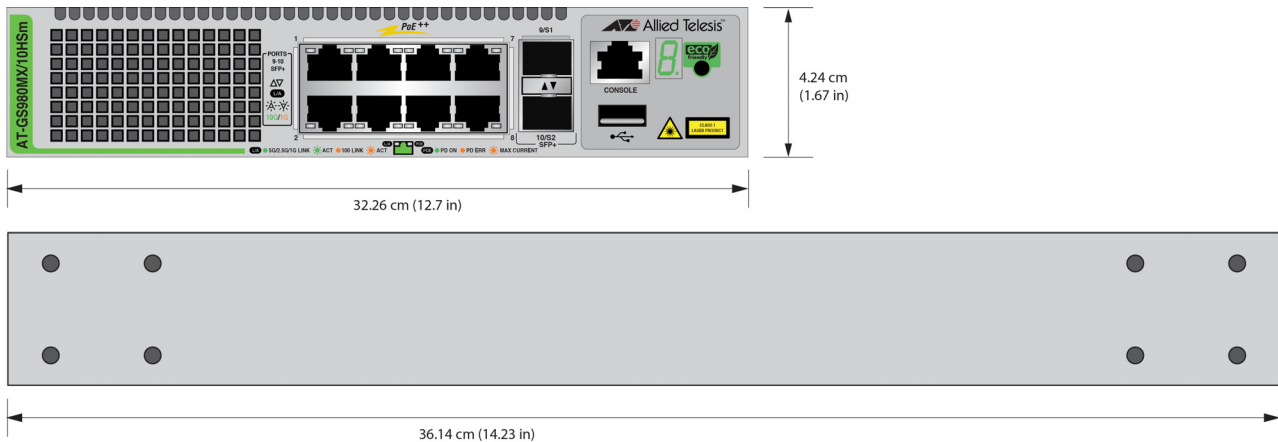


Figure 83. GS980MX/10HSm

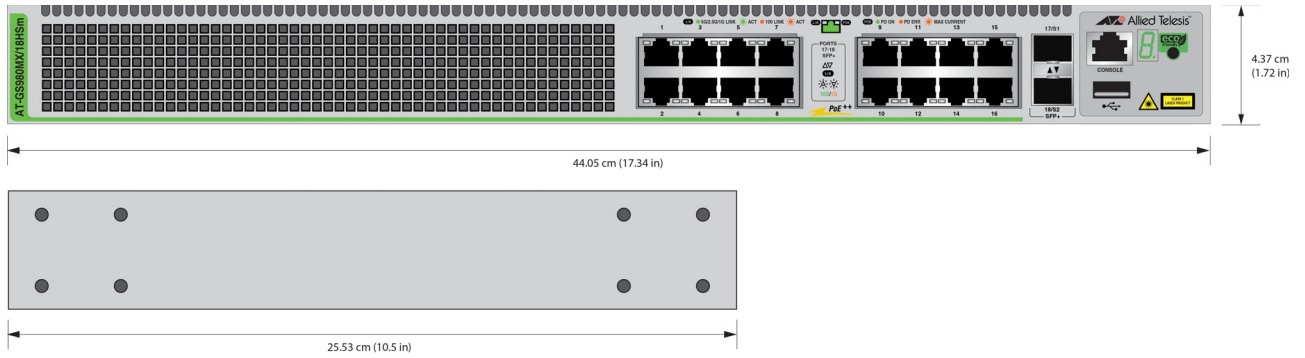


Figure 84. GS980MX/18HSm

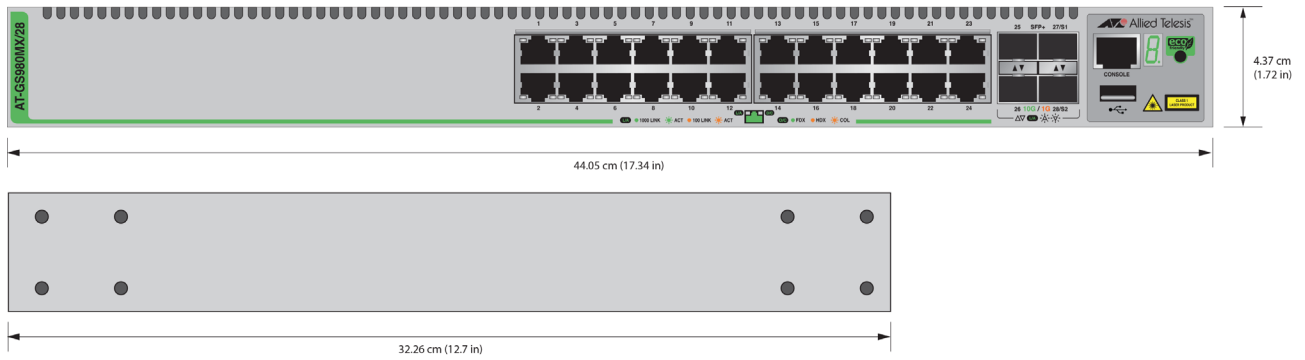


Figure 85. GS980MX/28

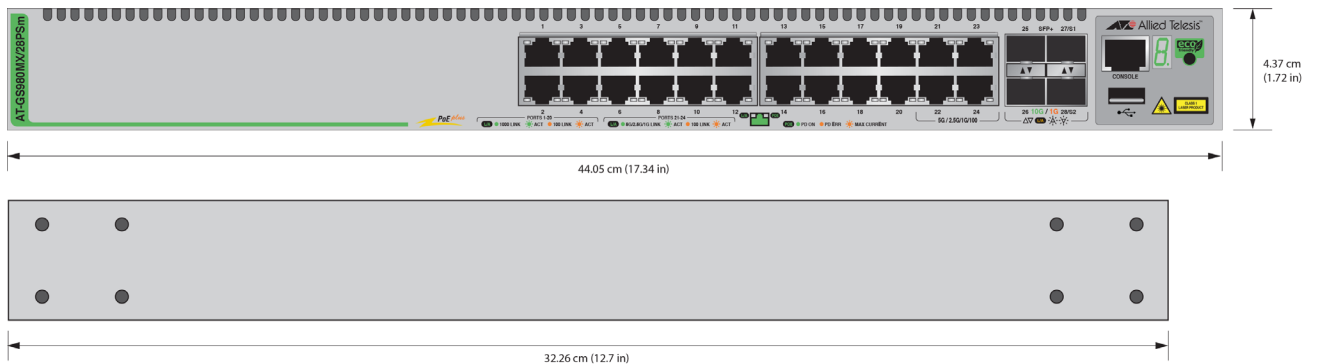


Figure 86. GS980MX/28PSm

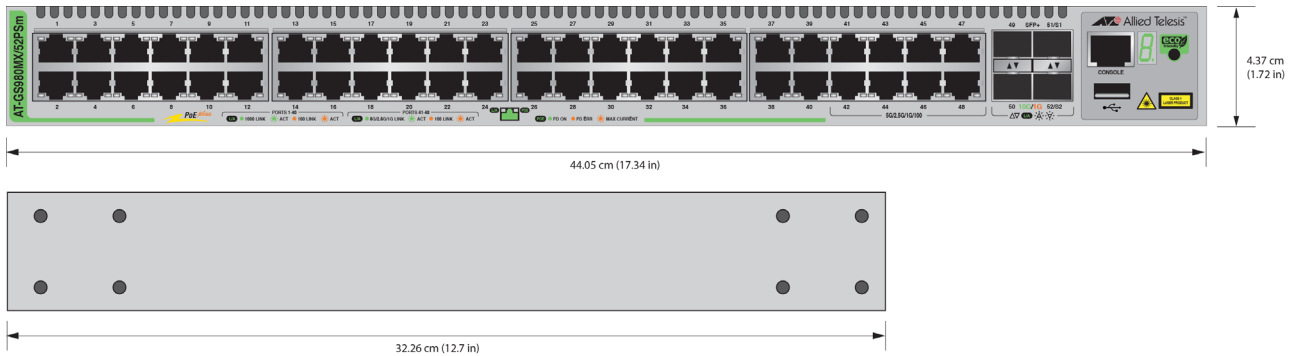


Figure 87. GS980MX/52

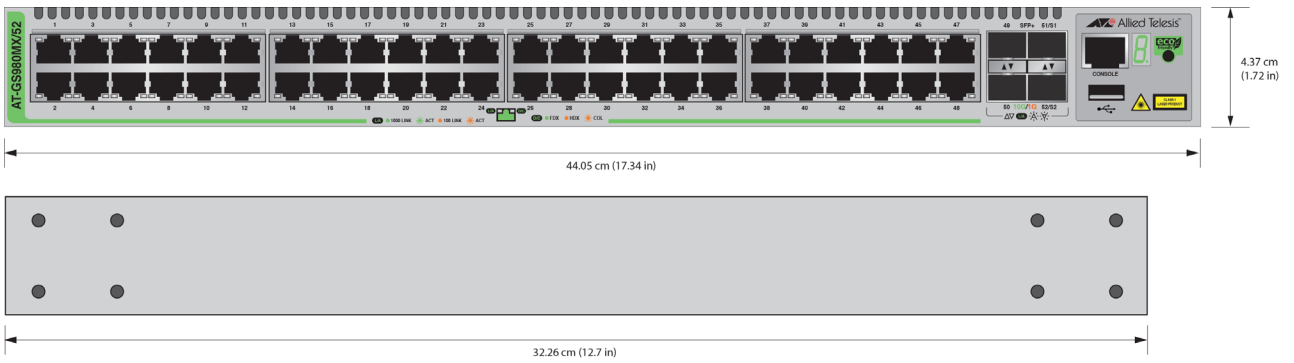


Figure 88. GS980MX/52PSm

Weights

Table 19 lists the weights of the switches.

Table 19. Product Weights

GS980MX/10HSm	3.20 kg (7.00 lb)
GS980MX/18HSm	4.28 kg (9.45 lb)
GS980MX/28	4.12 kg (9.09 lb)
GS980MX/28PSm	5.60 kg (12.35 lb)
GS980MX/52	4.67 kg (10.5 lb)
GS980MX/52PSm	6.09 kg (13.7 lb)

Ventilation

Table 20 lists the ventilation requirements.

Table 20. Ventilation Requirements

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

Table 21 lists the environmental specifications of the switches.

Table 21. Environmental Specifications

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

Power Specifications

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

Maximum Power Consumption

Table 22 lists the maximum power consumptions for the switches.

Table 22. Maximum Power Consumptions

GS980MX/10HSm	523 W
GS980MX/18HSm	869 W
GS980MX/28	39 W
GS980MX/28PSm	510 W
GS980MX/52	60 W
GS980MX/52PSm	530 W

Input Voltages

Table 23 lists the input voltages for the switches.

Table 23. Input Voltages

GS980MX/10HSm	100-240 VAC, 50/60 Hz, 8 A
GS980MX/18HSm	100-240 VAC, 50/60 Hz, 10 A
GS980MX/28	100-240 VAC, 50/60 Hz, 1 A
GS980MX/28PSm	100-240 VAC, 50/60 Hz, 6 A
GS980MX/52	100-240 VAC, 50/60 Hz, 1 A
GS980MX/52PSm	100-240 VAC, 50/60 Hz, 6 A

Heat Dissipation

Table 24 lists the heat dissipation for the switches.

Table 24. Heat Dissipation

GS980MX/10HSm	2116 BTU/hr
GS980MX/18HSm	3105.5 BTU/hr
GS980MX/28	133 BTU/hr
GS980MX/28PSm	1740 BTU/hr
GS980MX/52	205 BTU/hr
GS980MX/52PSm	1809 BTU/hr

Certifications

Table 25 lists the product certificates.

Table 25. Product Certifications

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

RJ-45 Twisted Pair Port Pinouts

Figure 89 illustrates the pin layout of the RJ-45 connectors on the front panel of the switch.

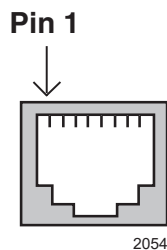


Figure 89. RJ-45 Socket Pin Layout (Front View)

Table 26 lists the pin signals.

Table 26. Pin Signals for 100M/1G/2.5G/5G Base-T Connectors

Pin	100Mbps MDI Signal	100Mbps MDI-X Signal	1G/2.5G/5G Signal
1	TX+	RX+	Bi-directional pair A+
2	TX-	RX-	Bi-directional pair A-
3	RX+	TX+	Bi-directional pair B+
4	Not used	Not used	Bi-directional pair C+
5	Not used	Not used	Bi-directional pair C-
6	RX-	TX-	Bi-directional pair B-
7	Not used	Not used	Bi-directional pair D+
8	Not used	Not used	Bi-directional pair D-

RJ-45 Style Serial Console Port Pinouts

Table 27 lists the pin signals of the RJ-45 style serial console port.

Table 27. RJ-45 Style Serial Console Port Pin Signals

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

USB Port

Table 28 lists the pin signals of the USB port.

Table 28. USB Port Pin Signals

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